Community Water System

City of Ramsey, Minnesota

Emergency Response Plan

CWS and ERP Information

PWSID	MN1020035
Street Address	7550 Sunwood Drive NW
City, State Zip Code	Ramsey, MN 55303
Phone number	(763) 433-9861
Population Served	15,000
Prepared by	Leonard Linton, City of Ramsey
Reviewed by	Bruce Westby, City of Ramsey
Date completed	December 9, 2021

PLAN DISTRIBUTION

Please fill in the recipient's name and title, the person who gave them the plan and on what date.

RECIPIENT/TITLE	DISTRIBUTED BY	DATE

CHANGE HISTORY

Please describe the changes made to this plan since its original development, who made the changes and on what date the changes were incorporated into this plan.

DESCRIPTION OF CHANGE	NAME/TITLE	DATE
Original Document	Leonard Linton / Civil Engineer IV	November 9, 2021
Update for submittal to EPA	Leonard Linton / Civil Engineer IV	December 9, 2021

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UTILITY INFORMATION

During an incident, you need to have system information about your water utility readily available for your personnel, first responders, repair contractors/vendors, the media, and other response partner agencies.

i Utility Overview

Provide basic information about your utility.

Utility Information	
PWSID	1985-6005
Utility name and address	City of Ramsey, 7550 Sunwiood Drive NW Ramsey, MN 55303
Owner	City of Ramsey
Directions to utility from major roadway, include lat./long. coordinates	US Hwy 10 west to Ramsey Blvd, North to Sunwood Drive, West 0.5 miles to Municipal Center on Left
Total population served and total service connections	15,000 served 5,300 connectionse
Name, title, phone number of primary contact (e.g., ERP Lead)	John Nelson (763) 433-9861
Alternate contact	Matt Graf 763-458-5406
Location of treatment, distribution, collection schematics and operation manuals	Public Works 14100 Jaspar Street Alt. Location Municipal Center 7550 Sunwood Drive

Use this checklist to ensure the following additional utility information (as applicable) is included as a part of your ERP.

These documents are in Appendices at the end of the report

- ☒ Map of distribution system
- ☒ Site plans and “as built” drawings for the following components of your system (as applicable):
  - o Pumping and storage facilities
  - o Water treatment facilities
- ☐ Distribution system diagrams and instrumentation information
- ☐ Equipment specifications and operation instructions
- ☒ Emergency power and light generation operation specifications
- ☐ Supervisory Control and Data Acquisition (SCADA) system operation instructions
- ☐ Communications systems operation instructions

ii Personnel Information

Attach your personnel roster here or fill out the table below.

Personnel			
Name and Title	**Job Duties and Responsibilities**	**Contact Information**	**Emergency Information**
John Nelson Utility Supervisor	Sewer and Water	763-250-4592	
Matt Graf Utility Maintenance	Sewer and water	763-458-5406	
Jerry Dube Utility Maintenance	Sewer and water	763-286-2575	

iii Primary Utility Components

List all the components necessary to maintain effective operation of your utility. Simply add more rows to the tables below if you have additional components. Text in italics represents examples – be sure to delete italicized text as necessary as you fill out the tables below and throughout this template.

Wells			
Well Name	**Depth/Location**	**Available Yield**	**Treatment Requirements/Associated Treatment Plant**
Well 1	320 feet	700 gpm	Pump House 1
Well 2	320 feet	220 gpm	Pump House 1
Well 3	345 feet	1450 gpm	Pump House 2
Well 4	321 feet	850 gpm	Pump House 2
Well 5	316 feet	850 gpm	Pump House 3
Well 6	390 feet	900 gpm	Pump House 3
Well 7	332 feet	850 gpm	Pump House 4
Well 8	354 feet	1400 gpm	Pump House 4

Intakes			
Intake Name	**Depth/Location**	**Capacity**	**Treatment Requirements/Associated Treatment Plant**
No Surface Water Intakes			

Treatment Plants			
Plant name	**Location**	**Capacity**	**Treatment Train**
Water Treatment Plant is in planning stages	70XX 143rd Ave	10 MGD	Gravity Filtration Process

Storage and Distribution System – Tanks, Primary Mains and Pumping Stations		
Location	**Area Served**	**Comments**
Nowthen Blvd and Dysprosium Street	Entire City	
Sunwood Drive East of Jaspar Street	Entire City	
Quicksilver Street South of 167th Avenue	Entire City	

Treatment Chemical Storage Facilities		
Location	**Chemical(s)**	**Comments**
Pump House #1	Chlorine	This is in liquid form and there is both an eye wash and shower station in the pump house.
Pump House #2	Chlorine	This is in liquid form and there is both an eye wash and shower station in the pump house.
Pump House #3	Chlorine	This is in liquid form and there is both an eye wash and shower station in the pump house.
Pump House #4	Chlorine	This is in liquid form and there is both an eye wash and shower station in the pump house.
***		Note: Chemicals will be removed from the pump houses when the water treatment plant comes on line.

Other Key Facilities		
Location	**Function**	**Comments**

iv Industry Chemical Handling and Storage Facilities

List surrounding chemical production, handling or storage industries that could impact your utility during incidents such as accidental releases, hurricanes or earthquakes.

Industry Chemical Handling Facilities			
Facility Name	**Location**	**Distance**	**Chemical and Exposure Pathway**
No facilities present in City			

Chemical Storage Tanks

Facility Name	Location	Distance	Chemical and Exposure Pathway
Speedway Station Store	14000 St Francis Blvd	0.21 Miles from Wellfield	*(1) 12,000, (2) 10,000 - gallon underground storage tanks (UST) holding gasoline. (1) 10,000 – gallon underground storage tank for diesel fuel.*
Holiday Station Store	14350 Xkimo St NW	0.22 Miles from Wellfield	(1) *20,000-gallon underground storage tanks (UST) holding gasoline. (1) 20,000-gallon underground storage tank (UST) holding E-85 Fuel. (1) 20,000-gallon underground storage tank (UST) holding diesel.*
Holiday Station Store	14075 Ramsey Blvd	0.84 Miles from Wellfield	(1) *20,000-gallon underground storage tanks (UST) holding gasoline. (1) 20,000-gallon underground storage tank (UST) holding E-85 Fuel. (1) 20,000-gallon underground storage tank (UST) holding diesel.*
Casey's General Store	7222 Sunwood Drive NW	0.40 Miles from Wellfield	(1) 20,000, (1) 8,000-*gallon underground storage tanks (UST) holding gasoline.(1) 12,000-gallon underground storage tank (UST) holding Diesel.*
Ramsey Market	14911 Ramsey Blvd	0.31 Miles from Wellfield	10,000-*gallon underground storage tank (UST) holding gasoline.*
Little Dukes	7900 Sunwood Drive NW	0.05 Miles from Wellfield	(1) 15,000, (1) 10,000 and (2) *6,000-gallon underground storage tank (UST) holding gasoline.*

v Safety

List safety materials and important safety information to help protect utility personnel during an incident. You may also reference your utility Health and Safety Plan, if available.

Safety Materials

Type	Location
Toxic material detection and testing supplies	Public Works has a four gas monitor and the fire department has many of them.
Emergency PPE (note what PPE are present at each location)	Utilities has rubber gloves, N95 masks and Tyvek suits stored at public works.

vi Response Resources

Provide an inventory of available resources (e.g., equipment, supplies) either maintained on site or readily available off site (e.g., neighboring water system) in the table below, or insert an existing inventory sheet.

Resources

Kind	Type	Quantity	Location
Generator	Portable Generator	1	Public Works
Generator	Static	1	Pump House 2
Generator	Static	1	Pump House 3
Fuel	Gasoline Diesel	1 Tank Each	Public Works
Pump			

vii Key Local Services

Note the closest locations of key logistical and medical services that you or mutual aid and assistance providers may need during an incident. Include a map if available.

Essential Services

Facility	Location/Description
Hospital	Mercy Hospital 4050 Coon Rapids Blvd Coon Rapids MN 55433 Emergency Dept., Surgery, Cardiac Unit, Cancer Center, Birthing Center
Gas station	Little Duke's 7900 Sunwood Dr. NW Ramsey, MN 55303 Casey's 7222 Sunwood Dr. NW Ramsey, MN 55303 Holiday Station Store 14075 Ramsey Blvd. Ramsey, MN 55303
Pharmacy	Coborn's Pharmacy 7900 Sunwood Dr. NW Ramsey, MN 55303
ATM	Little Duke's 7900 Sunwood Dr. NW Ramsey, MN 55303 Casey's 7222 Sunwood Dr. NW Ramsey, MN 55303 Holiday Station Store 14075 Ramsey Blvd. Ramsey, MN 55303
Grocery store	Coborn's Grocery 7900 Sunwood Dr. NW Ramsey, MN 55303

1 RESILIENCE STRATEGIES

This section contains strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system.

1.1 Emergency Response Roles

Describe the roles and responsibilities for key utility and external response partner personnel in the table below. You can add, edit or delete rows as necessary. **The City has an Emergency Management Plan.**

Water Utility and Partner Roles		
Name/Title	**Emergency Response Role**	**Responsibilities**
Matt Kohner	Fire Chief/ Emergency Management Coordinator	Responsible for all incident response activities, including developing strategies and tactics and ordering and releasing resources.
Carey Schiferli	Alternate Emergency Response Lead	Perform duties as assigned by ER Lead; assumes duties listed above when ER Lead is not available.
Jeff Katers	Chief of Police /Security	Will provide incident security as needed once notified by ER Lead.

1.2 Incident Command System (ICS) Roles

The City has an Emergency Management Plan which outlines all of these roles.

1.3 Communication

Communication during an incident is critical to relay information to employees, response partners and critical customers about potential risks to health, infrastructure, and the environment.

1.3.1 Internal Communication

List all utility emergency response team members, their response role, title and contact information.

See Appendix A

1.3.2 External Response Partner Communication

List all external response partners, their response role or position as well as contact information.

See Appendix A

1.3.3 Critical Customer Communication

List critical customers below who should be given priority notification due to their reliance on the water supply either for medical reasons, based on usage, public health mission or because they may serve customers considered to be sensitive sub-populations.

Critical Customer Contact List

Organization or Department	Point Person Name or Position	Contact Instructions	Phone	Alternate Phone	Email or Website
Stoney River Assisted Living & Memory Care	Kelsey Nyline Exec Director	Call or email	763-999-5067	763-999-5080	knyline@stoneyriverramsey.com
Suite Living Senior Care	Karen Binsfeld Housing Dir.	Call or email	763-402-7091		Karen@suitelivingsenior.com
Veterans Affairs Outpatient Clinic	Shannah Brent Manager of Clinic	Call or email	763-422-7641	763-354-9302	Shannah.brent@va.gov
Allina Medical Clinic	Office Number		763-236-0000		
Midwest Medical Examiner's Office	Angie Chalmers Office Manager	Call or Email	763-324-4400		angie.Chalmers@co.anoka.mn.us
Comfort Suites	Victoria Clawson, Manager	Email	763-323-4800		Gm.mno54@choicehotels.com
Ramsey Elementary	Dr. Amy Reed, Principle	Call or Email	763-506-4001	Diane Jones LSN 763-506-4004	Amy.reed@ahschools.us
Brookside Elementary	Dr. Anissa Cravens, Principle	Call or Email	763-433-5201	Rick Maas 763-433-5210	Anissa.cravens@ahschools.us
PACT Charter School	Matthew Nelson Facilities Dir.	Call or email	763-712-4200 ext 225	651-357-4790	m.nelson@pactcharter.org

1.3.4 Communication Equipment Inventory

Inventory your utility's communication equipment below.

Communication Equipment			
Type	**Assigned to**	**Location**	**Number/Frequency/Channel**
Handhelds	Public Works	Public Works Facility 14199 Jasper St NW, Ramsey, MN 55303	800MHZ

1.4 Media Outreach

List contact information for all media outlets that your utility may coordinate with during notification efforts. Additionally, include existing risk communication procedures, such as composing and delivering messages (e.g. message mapping), or reference an existing Risk Communication Plan.

Contact List

Organization or Department	Point Person Name & Position	Phone	Alternate phone	Email or Website
Utility social media coordinator	Megan Thorstad, Communications & Events Coordinator	763-433-9831		mthorstad@cityoframsey.com
Newspaper - Local	Emilee Wentland, Anoka/Coon Rapids Union Herald	763-712-3509		emilee.wentland@apgecm.com
Newspaper – Regional/State	Tim Harlow, Minneapolis Star Tribune	612-868-7734		Tim.Harlow@startribune.com
Radio station	Kate Schweninger, BOB FM	763-450-7777 ext. 4633		kate@mybobcountry.com
TV station	QCTV, Katherine Lenaberg	763-427-1411		Katherine.lenaberg@qctv.org
Advertising agency	Scott Robinson, Universal Apparel	763-443-2243		scott@universalapparelmn.com
Other				
Other				

1.5 Public Notification Templates

Insert your templates for public notifications here, or reference where they may be found. Ensure that your templates are consistent with the regulatory requirements for public notification contained in the Public Notification Rule (see 40 CFR 141, Subpart Q) and all relevant state regulations.

2 EMERGENCY PLANS AND PROCEDURES

This section contains plans and procedures that can be implemented in the event of a malevolent act or natural hazard that threatens your utility's ability to deliver safe drinking water.

2.1 Core Response Procedures

Core procedures are the "building blocks" for incident specific response procedures, as they are typically implemented across a broad variety of incidents (e.g., hurricane, earthquake, flood). List all your core procedures here.

Access	
Item	**Description**
Debris clearing	The City of Ramsey has equipment and trained workers for debris clearing. The equipment includes loaders, dump trucks, a brush chipper, chainsaws and personal protective gear for debris clearing.
Alternate routes	The City does not have any critical bridges that would require a long detour if they become impassable.
Identification badges	City Employees have picture ID badges.

Physical Security	
Item	**Description**
Access control procedures	The Public Works Campus requires a Key Card for access. The well houses and water towers require physical keys for access. Distribution of Key Cards and physical keys is limited to those with a need for access.
Restricted areas	List or reference any restricted areas of your facilities here, such as chemical rooms and electrical closets. Also list who may access those areas.

Cybersecurity	
Item	**Description**
Disconnect procedure	IT will if possible, disconnect compromised computers from the network to isolate breached components and prevent further damage, such as the spreading of malware.
Notification	In the Event of a Cyber Security attack or breach, notify the IT Manager, IT Staff or Logis Helpdesk (763.543.2662) if the IT Manager is unreachable. (Department of Homeland Security National Cybersecurity and Communications Integration Center (NCCIC) (888-282-0870 or NCCIC@hq.dhs.gov).
Assess procedure	Assess any damage to utility systems and equipment, along with disruptions to utility operations. IT will use logs to identify damage – consider rebuild or restore for PCs.
Implementation processes	IT will work with Utilities and Scada vendor to determine action needed and work to implement the plan to restore the system to a healthy state. Implement actions to restore operations of mission critical processes (e.g., switch to manual operation if necessary) and provide public notification (if required).

Power Loss	
Item	**Description**
Backup power systems	We have several backup generators set to come on when power goes out. Pump house #2 has stand by generator for entire site and well #3 Pump house #3 has stand by generator for well #5 and entire building We have a towable generator that is used for lift stations.
Power utility	We will coordinate with Connexus Energy for expected restoration priorities and timing. Power utility contact information is listed in Section 3.2 above.
Fuel plan	Pump house #2 has a diesel generator we can utilize fuel from our onsite fuel station at Public works, we also have a pickup that can deliver 75 gallons immediately. Dehn Oil delivers to the Public Works site. Pump house #3 utilizes a Natural gas supply Our towable unit is Diesel
Maintenance plan	Some in house maintenance is possible we contract with Kodiac power for most maintenance
Other	

Emergency Alternate Drinking Water Supplies
* Interconnections are listed and described in Section 3.1

Sampling and Analysis	
Item	**Description**
Sampling procedures	The Minnesota department of health establishes all sampling procedures.

Local Contract/State/Federal Laboratory Contact List

Name	Address	Analytes/Methods	Phone	Email or Website
MDH Brian Noma			651-201-4683	

2.2 Incident-Specific Response Procedures

Refer to the City Emergency Management Plan.

3 MITIGATION ACTIONS

This section contains actions, procedures, and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to your community and individuals, including the development of alternative source water options, relocation of water intakes, and construction of flood protection barriers.

3.1 Alternative Source Water Options and Interconnected Utilities

List information on alternative source water options and interconnected utilities to mitigate impacts during incidents.

Alternative Source Water Options

Type	Location	Comments
Mississippi River	South Edge of City near a large watermain	National Guard would need to treat the water before distribution

Interconnected Utilities

Utility Name	Location	Contact Information	Comments
City of Anoka	Highway 10 Connection (Anoka Technical College Campus) County Road 116/ Thurston Avenue	City of Anoka	

3.2 Other Mitigation Actions

List any mitigation procedures or projects implemented at your utility, such as raising facilities and controls or constructing berms to protect against flood damage.

Mitigation Actions		
Type	**Location**	**Comments**
Flood mitigation not required Ramsey Facilities are above 100 year flood elevation of Rum or Mississippi Rivers		

4 DETECTION STRATEGIES

This section contains strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.

List the detection strategies and methods your utility uses to aid in the detection of malevolent acts or natural hazards. Also list the corresponding procedure to be used if the threat is detected.

Detection Strategies

Threat	Detection Method	Procedure
Unauthorized entry	• *Alarm from intrusion detection system SCADA system*	*On call person response Call 911*
Source water contamination	• *National Response Center notifications* • *Notification from 911 for releases resulting from transportation accidents*	*Source Water Contamination Incident Response Plan*
Distribution system contamination	• *Customer complaint surveillance* • *Public health surveillance*	*Distribution System Contamination Response Procedure*
Cyber intrusion	• *Notification of malware/intrusion from scheduled antivirus scans* • *Notification from utility staff*	*Cyber Incident Action Checklist*
Hazardous chemical release	• *Chlorine gas in air monitors* • *SCADA call out*	*On call person call out, Call Fire Department*
Power outage	• *Notification from energy provider* • *Alarm from line power sensor* • *SCADA call out*	*Generator Start-up Checklist*
Other		
Other		

Ramsey Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	Matt Kohner	763 433-9859	
Alternate Emergency Response Lead	Jeff Katers	763 433-9882	
Water Operator	John Nelson	763 286-0296	
Public Works Superintendent	Grant Riemer	763 286-0282	
City Engineer	Bruce Westby	763 433-9825	
City Administrator/ Public Communications	Kurt Ulrich	763 433-9845	

State and Local Emergency Response Contacts	**Name**	**Work Telephone**	**Alternate Telephone**
State Incident Duty Officer	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State
County Emergency Director	Terry Stoltzman	763 421-4760	
National Guard	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State
Mayor	Mark Kuzma		
Fire Chief	Matt Kohner	763 433-9859	
Sherriff	Anoka County Sheriff	763 427-1212	
Central Communications	Anoka County Sheriff	763 427-1212	
Ambulance	Allina	763 576-9593	
Hospital	Mercy Medical Center	763 236-7144	
Doctor or Medical Facility	Allina Clinic Ramsey	763 236-0000	

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer			
MDH	Drinking Water Protection	651 201-4700	
State Testing Laboratory	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State
MPCA	St. Paul Regional Office	651 296-6300	800 657-3864
DNR Area Hydrologist	John Gleason	651 259-5753	
Anoka County Environmental Services	Abby Shea	763 324-4207	
MNWARN	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Connexus Energy	763 323-2660	763 323-2600
Gas Company	CenterPoint Energy	612 372-5050	612 372-4727
Telephone Company	Century Link	763 712-5020	763 712-5002
Utility Locations	Gopher State One Call	800 252-1166	651 454-0002
County Highway Department	Anoka County	763 862-4201	
State Highway Department	MNDOT	651 296-3000	911

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System	City of Anoka	763 576-2980	763 576-2860
Emergency Water Connection	City of Anoka	763 573-2980	
Materials	HD Supply	952 937-9666	

Technical/ Contracted Services/ Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800 367-6792	
Well Driller/ Repair	E, H. Renner	763 427-6100	
Electrician	3 Way Electric	612 865-3262	
Water Main Repair	Dave Perkins Contracting	763 427-0109	612 363-6459
Chemical Feed	Hawkins Chemical	612 331-9100	
Meter Repair	City of Ramsey	763 433-9861	
SCADA System	Total Control	763 286-7365	
Valves, Pipes and Fittings	Ferguson Water Works	763 560-5200	
Laboratory	Twin Cities Water Clinic	953 935-3556	

Communications	Name	Work Telephone	Alternate Telephone
Newspaper	Star Tribune	612 673-4000	
	Pioneer Press	651 222-1111	
School Superintendent	David Law	763 506-1001	
Property and Casualty Insurance	League of MN Cities	651 281-1200	

APPENDIX A
Emergency Operations Resource Lists

Water Utility Service/Repair						
	Company	**Name**	**Address**	**Office**	**Cell**	**Home**
Sewer/Water/Excavation	Dryden Excavating, Inc.	Jason Dryden	6700 Viking Boulevard	(763) 753-7784	(612) 868-1021	
			Anoka, MN 55303			
Sewer/Water/Excavation	Dave Perkins Contracting	Rene Perkins	7060 143rd Ave NW #100	(763) 427-0109	(612) 363-0459	
			Ramsey, MN 55303			
Sewer/Water/Excavation	Julian Johnson Construction	Travis Johnson	6191 140th Ave NW	(763) 323-2900	(612) 366-4184	(763) 856-4994
			Ramsey, MN 55303			
Sewer/Excavation	Kamke	Travis Neyssen	14250 120th Street NE	(320)-980-1551		
			Foley, MN 56329			
Sewer/Water/Excavation	New Look Construction	David Mitchell	14045 Northdale Blvd	(612) 221-6848		
			Rogers, MN 55374			
Sewer/Water/Excavation	Reshetar Systems, Inc.	Brett Reshetar	730 Bunker Lake Blvd NW	(763) 421-1152	(612) 940-0123 Brett	
			Anoka, MN 55303		(763) 286-8625 Josh	
Excavation	Sauter & Sons Excavating	Tom Sauter	6651 141st Ave NW	(763) 421-7919	(612) 670-9787 Tom	(612) 747-9510 Dar
			Ramsey, MN 55303		(612) 868-8297 Greg	
Excavation	Veit	Nick Decker	14000 Veit Place	(763) 428-2242	(612) 490-4965	
			Rogers, MN 55374			

Governmental Agencies

Agency	Contact	Address	Phone	Fax
Alcohol Tobacco Firearms		300 E 5th Street, St Paul, MN	651-290-3092	24 Hr 651-290-5120
Anoka County Emerg Mgmt.		325 E Main Street, Anoka, MN 55303	763-323-5828	
Anoka County Hwy Dept		1440 Bunker Lk Blvd, Andover, MN 55303	763-862-4200	
Anoka County Sheriff		325 E Main Street, Anoka, MN 55303	763-323-5000	
Anoka County - Genl Info		2100 3rd Avenue, Anoka, MN 55303	763-421-4760	
Anoka County Attorney		2100 3rd Avenue, Anoka, MN 55303	763-323-5550	
Anoka County Sheriff Dispatch		325 E Main Street, Anoka, MN 55303	763-427-1212	
Anoka County Sheriff Patrol		1530 Bunker Lake Blvd, Andover, MN 55304	763-754-4545	
Anoka Police Dept		275 Harrison Street, Anoka, MN 55303	763-576-2800	
BCA Forensic Sc Lab		1430 Maryland Avenue E, St Paul, MN 55106	651-793-2900	
Bureau of Crim Apprehension		1430 Maryland Avenue E, St Paul, MN 55106	651-793-1000	
Dept Natural Resources	Tony Salzel	Cell: 612-559-8771		Dispatch 651-582-1509
Dept of Transportation		395 John Ireland Blvd, St Paul MN	800-867-3774	Dispatch 651-582-1550
Elk River Police Department		13077 Orono Parkway, Elk River, MN 55330	763-635-1200	
Fed Bureau of Investigation		Minneapolis Office	612-376-3200	
Fed Emerg Mgmt. Agency		444 Cedar Street, St Paul, MN	800-427-2354	
Fire Marshall		444 Cedar Street, St Paul, MN	651-215-0500	
Fire Prevention Bureau		2660 Civic Center Drive, Roseville, MN 55113	651-792-7342	651-792-7300
Immigration Department		St Paul, MN	952-853-2940	612-313-9045
MN Animal Health Board		90 W Plato Blvd, St Paul, MN	651-296-2942	651-296-7417
MN Department of Health		717 SE Delaware Street, Minneapolis, MN	651-215-5800	
MN Duty Officer		N/A	651-649-5451	
MN Governor's Office		State Capital	651-296-3391	
MN National Guard		Activated Through Anoka County Sheriff		
MN Pollution Control Agency		620 Lafayette Road, St Paul, MN 55155	651-296-6300	24 Hr Emergency 651-649-5451
MN State Patrol		2005 N Lilac Drive, Golden Valley, MN	763-591-4680	St Paul 651-282-6871
North Metro Chem Assess Team		Activated Through Anoka County Sheriff		
State Emergency Response Comm		444 Cedar Street, St Paul, MN		
US Dept of Agriculture		3 E 4th Street, Ste 500, St Paul, MN	800-453-7502	651-296-3192
US Postal Inspector		N/A	651-293-3200	

Private Agencies/ Businesses/ Individuals

Entity	Name	Address	Phone	Fax
Clinic	Allina Medical Clinic	7231 Sunwood Drive NW, Ramsey, MN 55303	763-427-7180	
Funeral Director	MN Funeral Dir Assn	10800 Co Rd 15, Plymouth, MN 55441	763-398-0118	769-398-0115
Gas Station	Speedway	14000 St Francis Blvd NW, Ramsey, MN 55303	763-576-9444	
Gas Station	Holiday	14075 Ramsey Blvd NW, Ramsey, MN 55303	763-421-3075	
Gas Station	Holiday	14350 Xkimo St NW, Ramsey, MN 55303	763-422-9397	
Gas Station	Ramsey Market	14911 Ramsey Blvd NW. Ramsey, MN 55303	763-427-7560	
Gas Station	Little Dukes	7900 Sunwood Drive NW, Ramsey, MN 55303	763-323-1004	
Gas Station	Bill's Superette	15299 Ramsey Blvd NW, Ramsey, MN 55303	763-422-8383	
Grocery	Coborn's	7900 Sunwood Drive NW, Ramsey, MN 55303	763-323-1004	
Hospital	Mercy	4050 Coon Rapids Blvd, Coon Rapids, MN 55433	763-236-6000	
Hospital	North Memorial	3300 Oakdale Ave N, Robbinsdale, MN 55422	763 520-5200	
Hospital	North Memorial	9875 Hospital Drive, Maple Grove, MN 55369	763-581-1000	
Hospital	Unity	550 Osborne Road, Fridley, MN 55432	763-236-5000	
Pharmacy	Coborn's Pharmacy	7900 Sunwood Drive NW, Ramsey, MN 55303	763-576-6821	
Radio Station	KNOW 9101	45 E 7th Street, St Paul, MN	651-290-1500	
Radio Station	KOOL 108 FM	60 S 6th Street #930, Minneapolis, MN 55402	612-338-8118	
Radio Station	KQRS 92.5 FM	2000 Elm Street, Minneapolis, MN 55414	612-617-4000	
Radio Station	KSJN 99.5	45 E 7th Street, St Paul, MN	651-290-1500	
Radio Station	WCCO Radio 830 AM	625 2nd Avenue S #200, Minneapolis, MN 55402	612-370-0611	
Radio Station	WLOL 98.5 FM	60 S 6th Street #930, Minneapolis, MN 55402	612-330-0100	
Radio Station	KTCN 1130 AM	1600 Utica Ave S, St Louis Park, MN 55416	952-417-3000	

APPENDIX B

State of MN Emergency Planning and Community Right to Know

State of Minnesota

Department of Public Safety

Emergency Planning and Community Right-to-Know Act (EPCRA) Program

City of RAMSEY

Facility Name and Address

ACE SOLID WASTE INC

6601 MCKINLEY ST NW
RAMSEY, MN 55303

Contact

Subreports within table/matrix cells are ignored.

ERCID

020950024

Status: ACTIVE **312:** 2005

Chemicals On-Site
DIESEL FUEL

Max Actual	Max	AVG	DAYS	302
64320	04	03	003	No

Storage	Cont. Type	Pressure	Temp	Location
	B	1	4	40' WEST OF MAIN BUILDING

Facility Name and Address

AIRGAS NORTH CENTRAL, INC.

6191 MCKINLEY ST
RAMSEY, MN 55303

Contact

Subreports within table/matrix cells are ignored.

ERCID

020950022

Status: ACTIVE **312:** 2005

Chemicals On-Site
ARGON

Max Actual	Max	AVG	DAYS	302
91000	04	04	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	7	OUTSIDE ON NORTH SIDE OF BLDG

Chemicals On-Site
CARBON DIOXIDE

Max Actual	Max	AVG	DAYS	302
88100	04	04	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	6	OUTSIDE ON NORTH SIDE OF BLDG

Chemicals On-Site
NITROUS OXIDE

Max Actual	Max	AVG	DAYS	302
14500	04	04	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	6	OUTSIDE ON NORTH SIDE OF BLDG

Chemicals On-Site
NITROGEN

Max Actual	Max	AVG	DAYS	302
78000	04	04	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	7	OUTSIDE ON NORTH SIDE OF BLDG

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
OXYGEN	199100	05	05	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	7	OUTSIDE ON NORTH SIDE OF BLDG

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
HYDROGEN FLUORIDE, ANHYDROUS	270	02	02	365	Yes

Storage	Cont. Type	Pressure	Temp	Location
	L	2	4	INSIDE CAGE IN NW CORNER OF LOT

Facility Name and Address

AMERIGAS EAGLE LP #3900

7411 W HWY 10
RAMSEY, MN 55303

Contact

Subreports within table/matrix cells are ignored.

ERCID

020950002

Status: ACTIVE **312:** 2005

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
PROPANE (LIQUIFIED PETROLEUM GAS)	480684	05	05	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	4	3 MILES WEST OF ANOKA ON NORTH SIDE OF HWY 10 NEXT

Facility Name and Address

COMMERCIAL ASPHALT CO. - PLANT 6

14100 BASALT ST
RAMSEY, MN 55303

Contact

Subreports within table/matrix cells are ignored.

ERCID

020950005

Status: ACTIVE **312:** 2005

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
ASPHALT CEMENT	810000	05	05	240	No

Storage	Cont. Type	Pressure	Temp	Location
	A	1	5	TANK 20-601- 30000 GALLON AGST LOCATED WITHIN

State of Minnesota

Department of Public Safety

Emergency Planning and Community Right-to-Know Act (EPCRA) Program

Chemicals On-Site			Max Actual	Max	AVG	DAYS	302
OIL, USED			160000	05	04	240	No
Storage	Cont. Type	Pressure	Temp	Location			
	A	1	4	TANK 20-604- 10000 GALLON AGST LOCATED WITHIN			
Chemicals On-Site			Max Actual	Max	AVG	DAYS	302
PETROLEUM NAPHTHA			440	02	02	240	No
Storage	Cont. Type	Pressure	Temp	Location			
	A	1	4	STORED INDOORS AT QM LAB			
Chemicals On-Site			Max Actual	Max	AVG	DAYS	302
DIVERSLIP			440	02	02	240	No
Storage	Cont. Type	Pressure	Temp	Location			
	E	1	4	STORED AT SPRAY RACK, OUTDOORS			
Chemicals On-Site			Max Actual	Max	AVG	DAYS	302
DIESEL FUEL #2			8000	03	03	240	No
Storage	Cont. Type	Pressure	Temp	Location			
	A	1	4	TANK 20-606- 1000 GALLON AGST DOUBLE WALLED TANK			

Facility Name and Address

CONNEXUS ENERGY

14601 RAMSEY BLVD
RAMSEY, MN 55303

Contact

Subreports within table/matrix cells are ignored.

ERCID

020950017

Status: ACTIVE **312:** 2005

Chemicals On-Site			Max Actual	Max	AVG	DAYS	302
DIESEL FUEL			74000	04	04	365	No
Storage	Cont. Type	Pressure	Temp	Location			
	B	1	4	100 FT SE OF (FACILITY) BUILDING			
Chemicals On-Site			Max Actual	Max	AVG	DAYS	302
GASOLINE			62000	04	04	365	No
Storage	Cont. Type	Pressure	Temp	Location			
	B	1	4	100 FT SE OF (FACILITY) BUILDING			

State of Minnesota

Department of Public Safety

Emergency Planning and Community Right-to-Know Act (EPCRA) Program

Facility Name and Address

DEHN OIL CO.

6735 141st Ave NW
RAMSEY, MN 55303

Contact

Subreports within table/matrix cells are ignored.

ERCID

020050012

Status: ACTIVE **312:** 2005

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
GASOLINE	3000	03	03	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	1	4	2 TANKS INSIDE DIKE AREA

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
FUEL OIL	7000	03	03	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	1	4	6 TANKS INSIDE DIKE AREA

Facility Name and Address

LIFE FITNESS - A DIVISION OF BRUNSWICK CORP.

14150 SUNFISH LAKE BLVD
RAMSEY, MN 55303

Contact

Subreports within table/matrix cells are ignored.

ERCID

020950023

Status: ACTIVE **312:** 2005

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
ARGON	22565	04	04	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	7	NORTHSIDE OF BUILDING OUTSIDE

Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
CARBON DIOXIDE	12100	04	03	365	No

Storage	Cont. Type	Pressure	Temp	Location
	A	2	7	NORTHSIDE OF BUILDING OUTSIDE

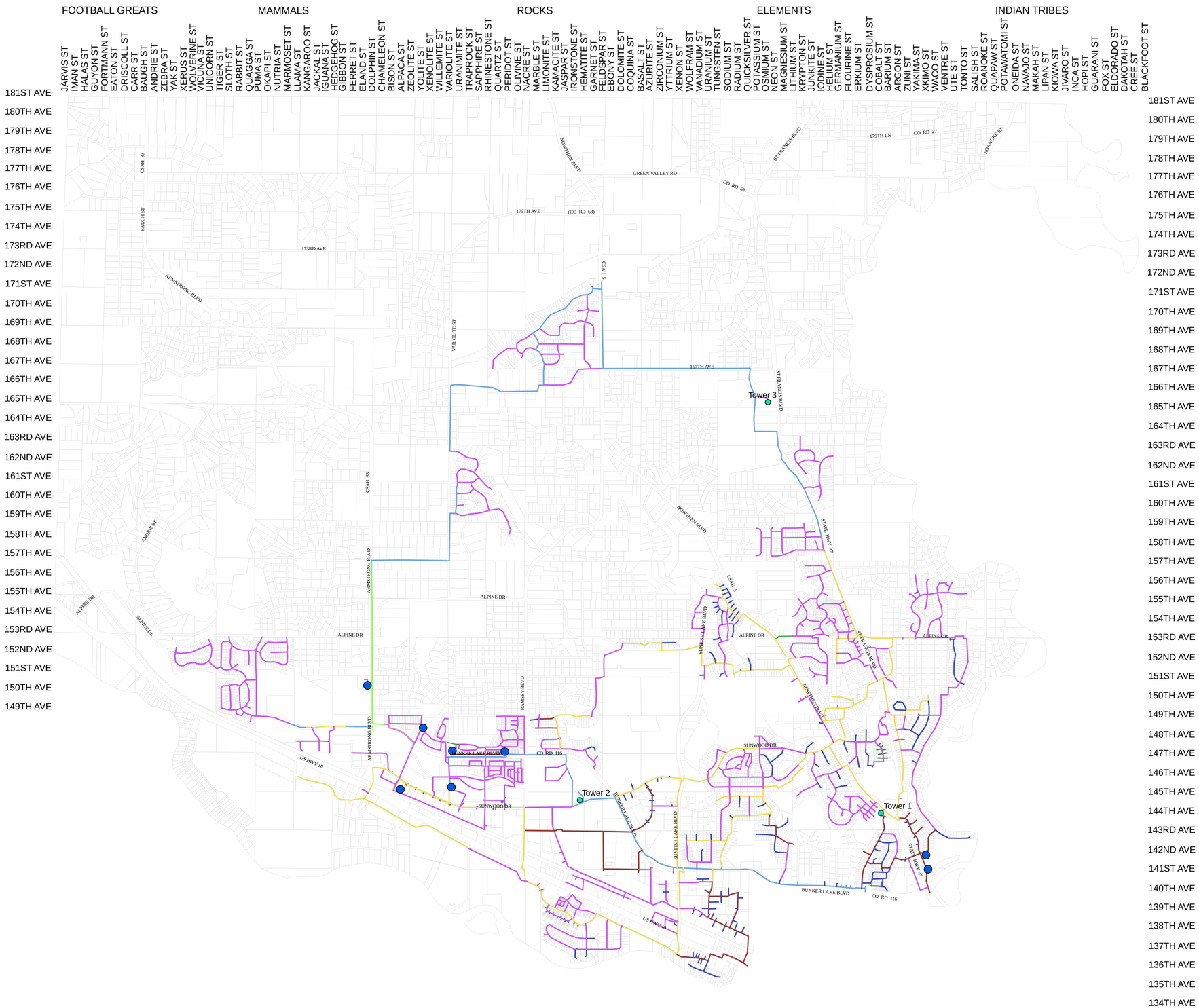
Chemicals On-Site	Max Actual	Max	AVG	DAYS	302
OXYGEN	14700	04	03	365	No

Storage	Cont. Type	Pressure	Temp	Location

APPENDIX C

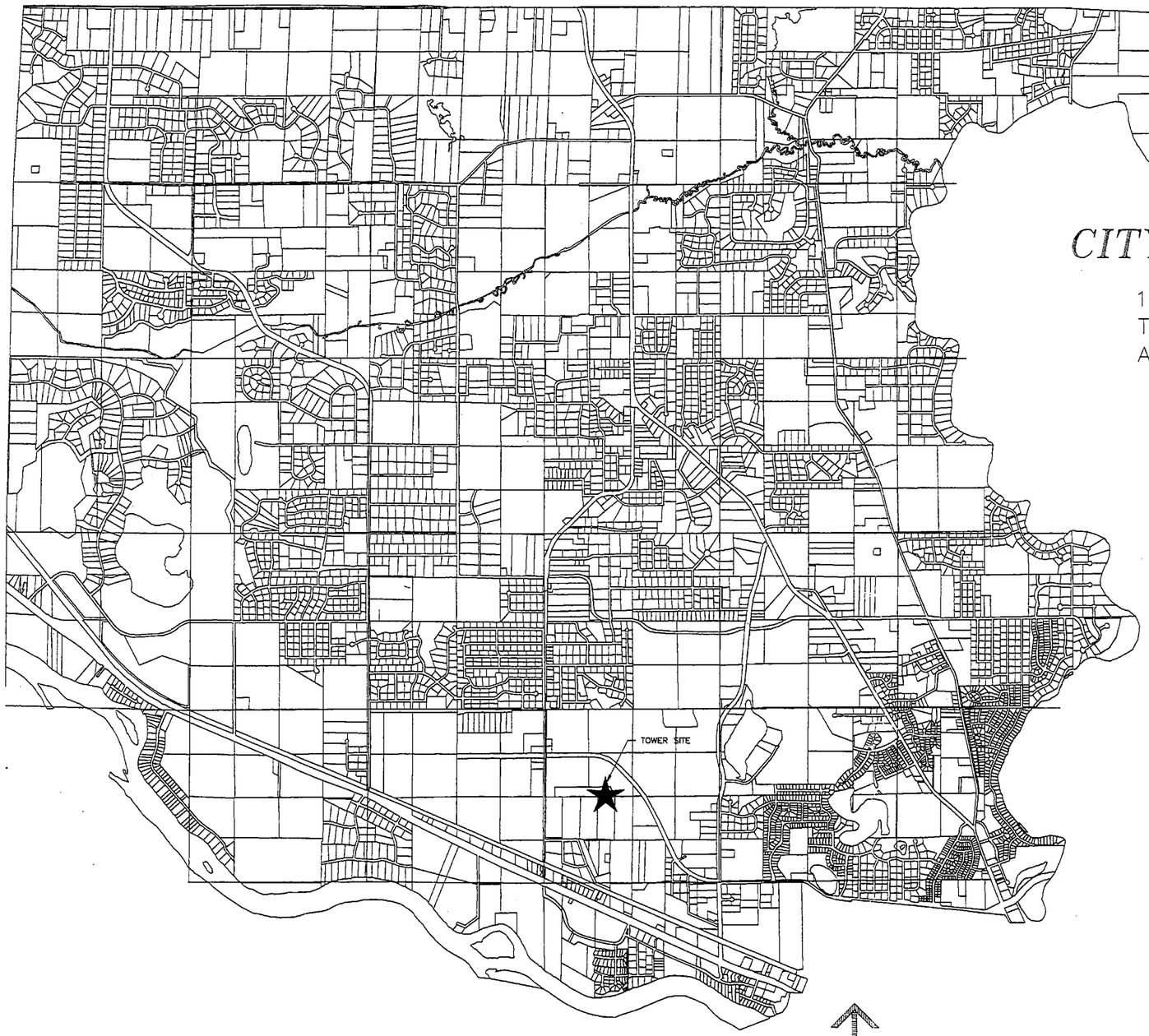
Ramsey Water System Map

2021 Water System Map



APPENDIX D

Ramsey Water System Plans



VICINITY MAP

CITY OF RAMSEY, MINNESOTA

1.5 MILLION GALLON WATER TOWER
TOWER NO. 2 – IMPROVMENT PROJECT #99-64
AEC PROJECT # 200502-2701

INDEX OF SHEETS

753

004

0 | 4/25/00 | LMC | ORIGINAL ISSUE PROJ. NO. 200502-2701			

SCALE AS NOTED	
DR. LMC	DATE 4/25/00
CK.	DATE
APP. AS NOTED	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE

DATE REG. NO. 26418

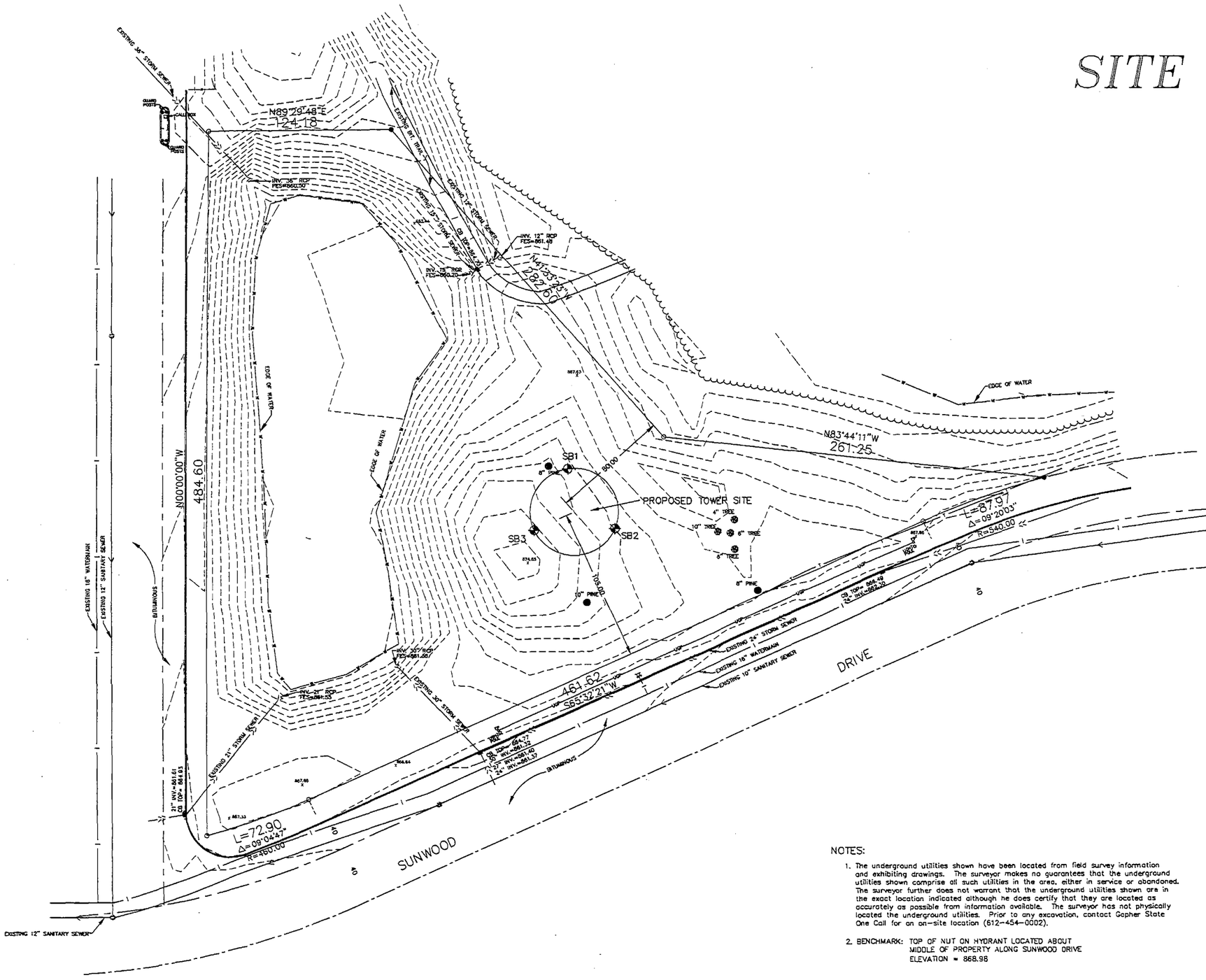
Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME DWG\RAMSEY\200502\2701\M2701-T01

SHEET OF	AEC PROJECT NO. 200502-2701
DRAWING NO. M2701-T01	REV 0

SITE LAYOUT



PROPERTY DESCRIPTION:

OUTLOT B
A.E.C. ENERGY PARK
ANOKA COUNTY, MINNESOTA

N

30 0 30 60
SCALE IN FEET

NOTES:

1. The underground utilities shown have been located from field survey information and exhibiting drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The surveyor has not physically located the underground utilities. Prior to any excavation, contact Gopher State One Call for an on-site location (612-454-0002).

2. BENCHMARK: TOP OF NUT ON HYDRANT LOCATED ABOUT MIDDLE OF PROPERTY ALONG SUNWOOD DRIVE
ELEVATION = 868.98

I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Registered Land Surveyor under the laws of the State of Minnesota.

Charles R. Christopherson | 18420 Reg. No. | 2/16/00 Date

754

0	4/25/00	LMC	ORIGINAL ISSUE	PROJ. NO. 200502-2701	

SCALE	AS NOTED
DR.	LMC
DATE	4/25/00
CK.	
DATE	
APP.	AS NOTED
DATE	

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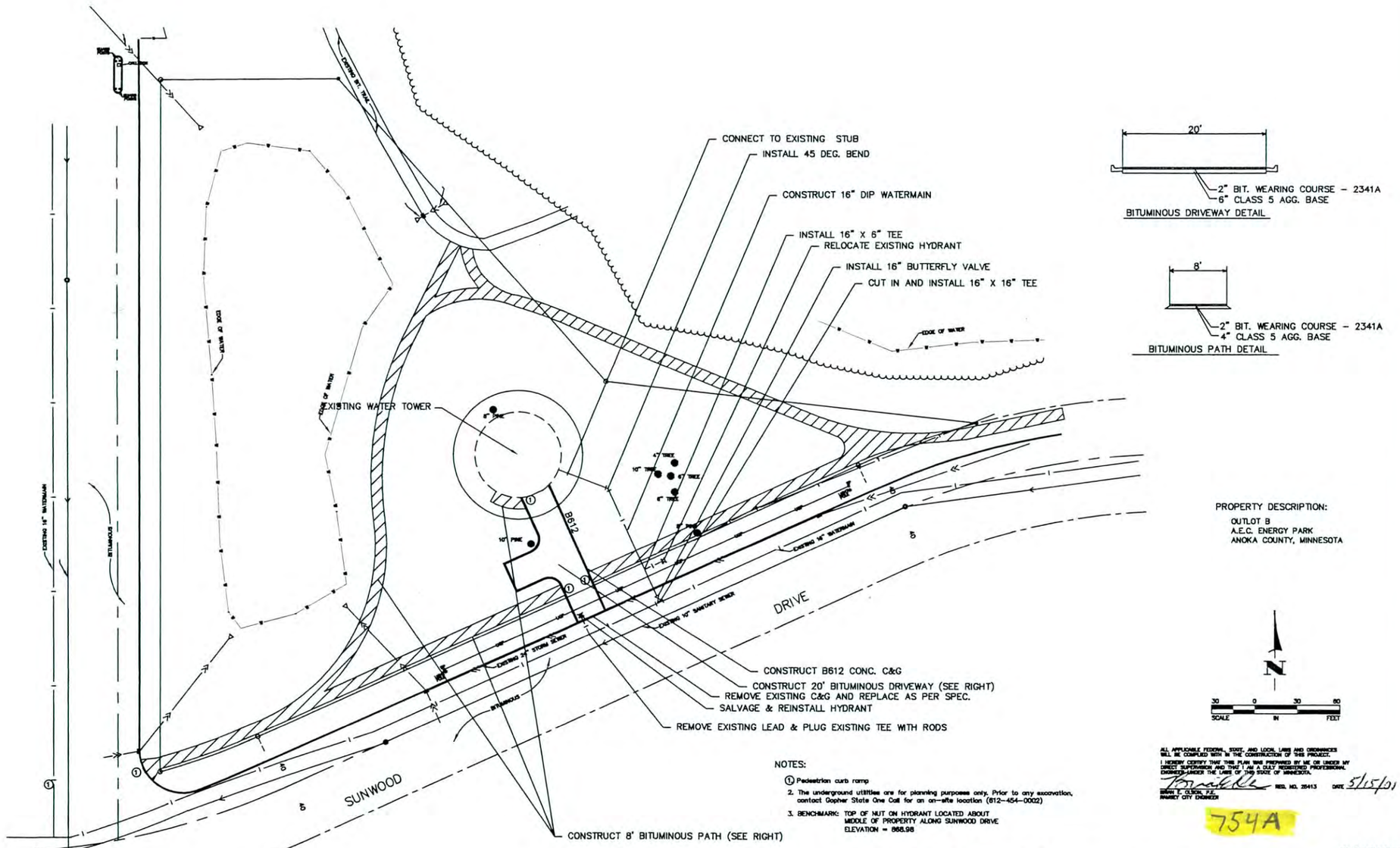
SIGNATURE
DATE
REG. NO.

Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

SITE LAYOUT
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME
DWG\RAMSEY\200502\2701\M2701-T02

SHEET	OF
AEC PROJECT NO.	200502-2701
DRAWING NO.	M2701-T02
REV	0



20'

2" BIT. WEARING COURSE - 2341A
6" CLASS 5 AGG. BASE

BITUMINOUS DRIVEWAY DETAIL

8'

2" BIT. WEARING COURSE - 2341A
4" CLASS 5 AGG. BASE

BITUMINOUS PATH DETAIL

PROPERTY DESCRIPTION:

OUTLOT B
A.E.C. ENERGY PARK
ANOKA COUNTY, MINNESOTA

N

30 0 30 60
SCALE IN FEET

NOTES:

1. Pedestrian curb ramp
2. The underground utilities are for planning purposes only. Prior to any excavation, contact Gopher State One Call for an on-site location (812-454-0002)
3. BENCHMARK: TOP OF NUT ON HYDRANT LOCATED ABOUT MIDDLE OF PROPERTY ALONG SUNWOOD DRIVE ELEVATION = 868.98

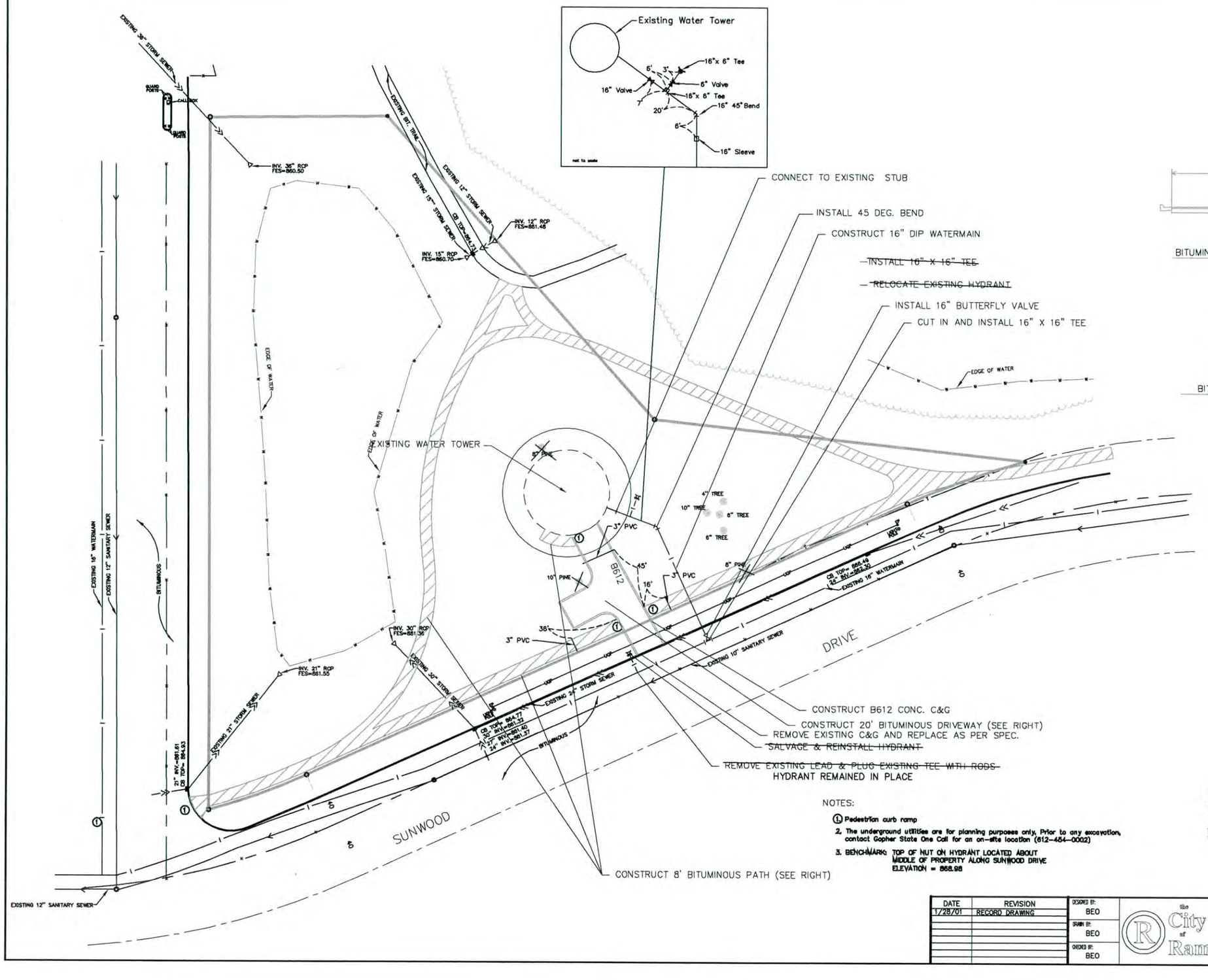
ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

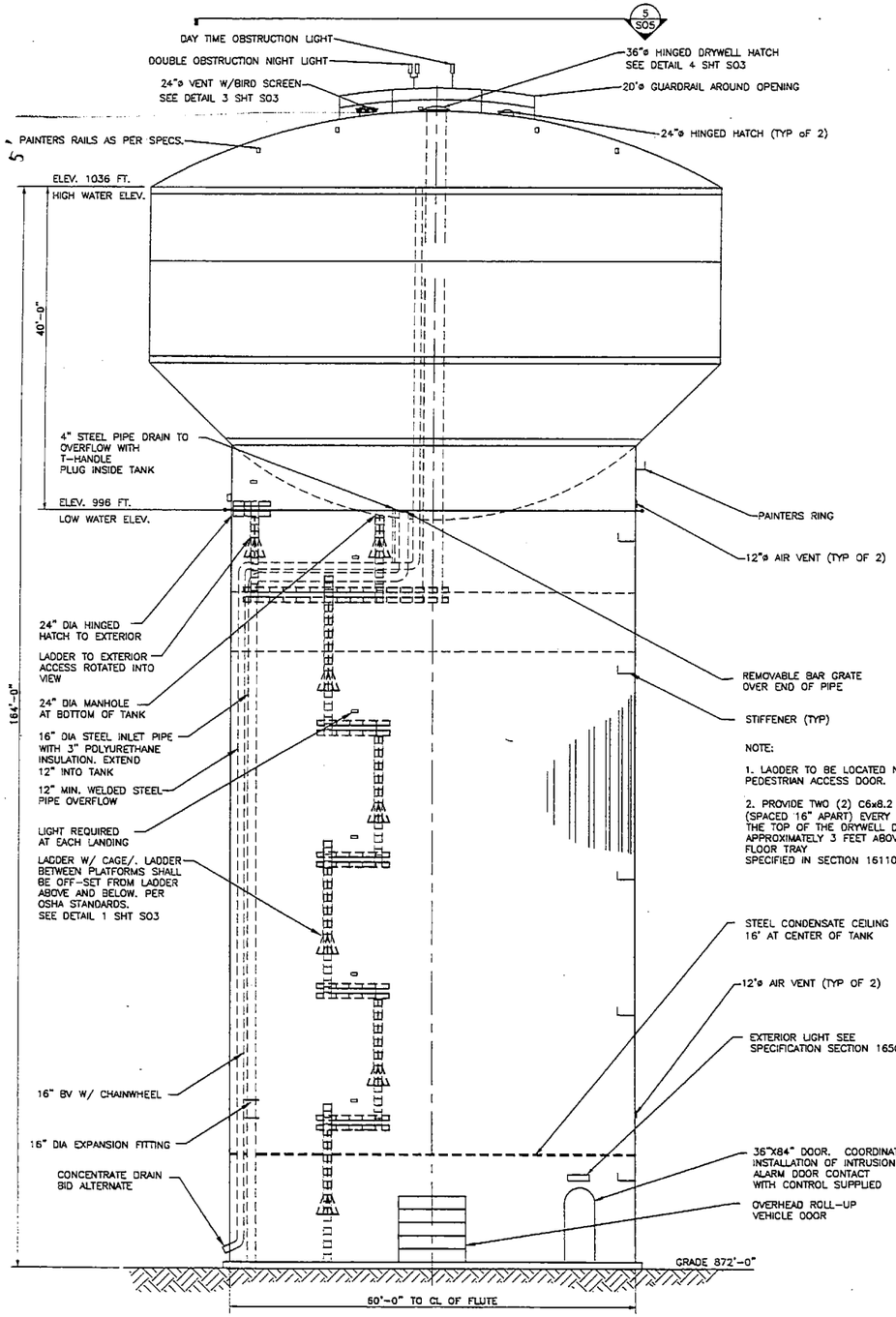
BRIAN E. OLSEN, P.E.
RAMSEY CITY ENGINEER
REG. NO. 25413 DATE 5/15/01

754A

RA148\RA148.DWG

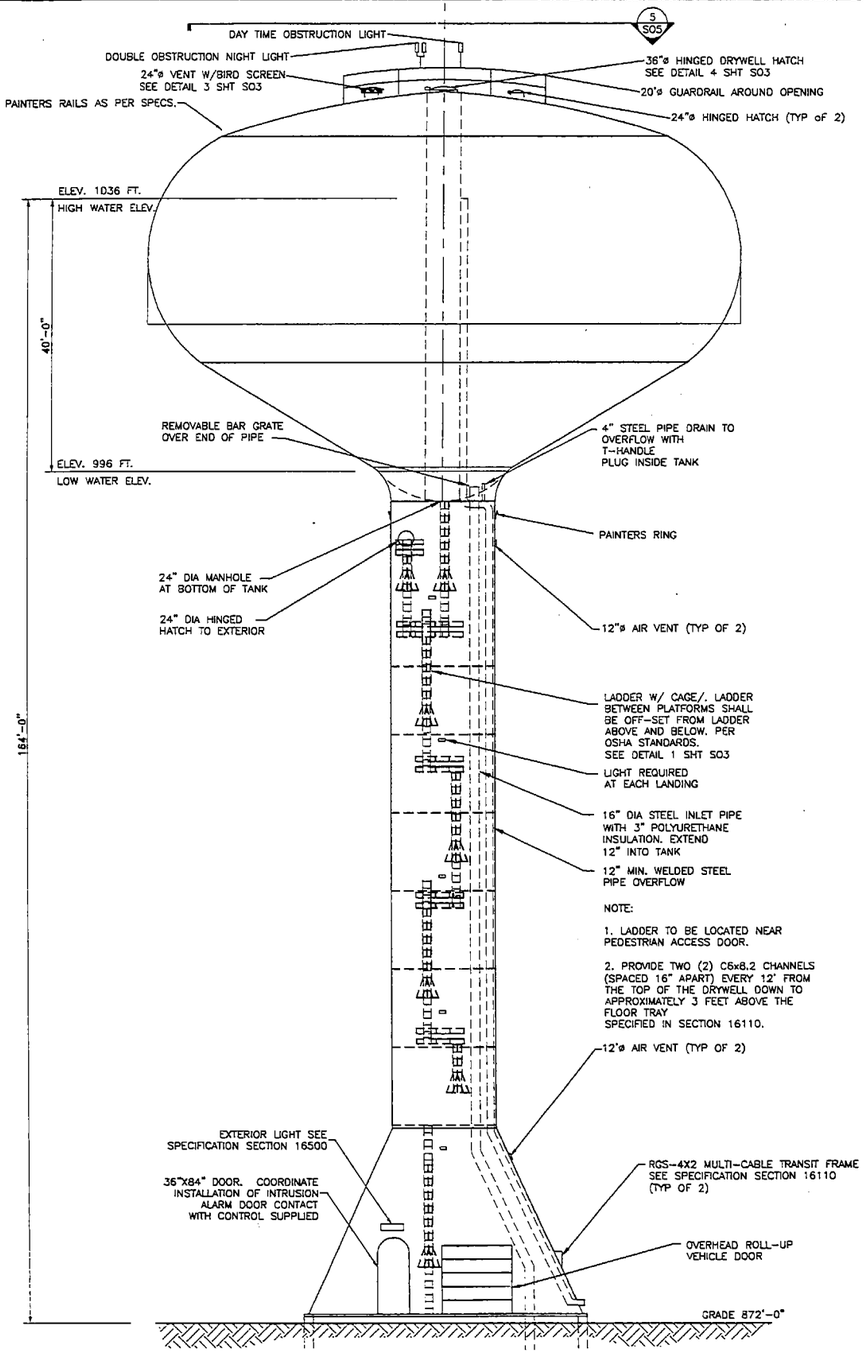
DATE	REVISION	DESIGNED BY	the City of Ramsey	CONNECTION FROM WATER TOWER #2 TO EXISTING WATER SUPPLY	SHEET 1 OF 1 SHEETS
		BEO			
		DRAWN BY BEO		DATE 3/20/01 FILE NO. TOWERCONXN	
		CHECKED BY BEO			


Existing Water Tower
16"x 6" Tee
6" Valve
16"x 6" Tee
16" 45°Bend
16" Sleeve
16" Valve
EXISTING 36" STORM SEWER
GUARD POST
CATCH BOX
INV. 36" RCP
FES=860.50
EXISTING BIT. TRAIL
EXISTING 12" STORM SEWER
EXISTING 15" STORM SEWER
CB TOP=861.63
INV. 12" RCP
FES=861.48
INV. 15" RCP
FES=860.70
EDGE OF WATER
EXISTING WATER TOWER
4" TREE
10" TREE
6" TREE
6" TREE
3" PVC
10" PINE
B612
45°
16'
3" PVC
6" PINE
CB TOP=866.46
24" INV=862.30
EXISTING 16" WATERMAIN
36'
3" PVC
EXISTING 10" SANITARY SEWER
DRIVE
INV. 30" RCP
FES=861.36
EXISTING 30" STORM SEWER
INV. 21" RCP
FES=861.55
EXISTING 21" STORM SEWER
EXISTING 24" STORM SEWER
CB TOP=864.77
30" INV=861.32
27" INV=861.40
24" INV=861.57
21" INV=861.61
CB TOP=864.83
BITUMINOUS
SUNWOOD
EXISTING 16" WATERMAIN
EXISTING 12" SANITARY SEWER
EXISTING 12" SANITARY SEWER
CONNECT TO EXISTING STUB
INSTALL 45 DEG. BEND
CONSTRUCT 16" DIP WATERMAIN
~~INSTALL 16" X 16" TEE~~
~~RELOCATE EXISTING HYDRANT~~
INSTALL 16" BUTTERFLY VALVE
CUT IN AND INSTALL 16" X 16" TEE
EDGE OF WATER
CONSTRUCT B612 CONC. C&G
CONSTRUCT 20' BITUMINOUS DRIVEWAY (SEE RIGHT)
REMOVE EXISTING C&G AND REPLACE AS PER SPEC.
~~SALVAGE & REINSTALL HYDRANT~~
~~REMOVE EXISTING LEAD & PLUG EXISTING TEE WITH RODS~~
HYDRANT REMAINED IN PLACE
CONSTRUCT 8' BITUMINOUS PATH (SEE RIGHT)
20'
2" BIT. WEARING COURSE - 2341A
6" CLASS 5 AGG. BASE
BITUMINOUS DRIVEWAY DETAIL
8'
2" BIT. WEARING COURSE - 2341A
4" CLASS 5 AGG. BASE
BITUMINOUS PATH DETAIL
PROPERTY DESCRIPTION:
OUTLOT B
A.E.C. ENERGY PARK
ANOKA COUNTY, MINNESOTA
N
30 0 30 60
SCALE IN FEET
NOTES:
1. Pedestrian curb ramp
2. The underground utilities are for planning purposes only. Prior to any excavation, contact Gopher State One Call for an on-site location (612-454-0002)
3. BENCHMARK TOP OF NUT ON HYDRANT LOCATED ABOUT MIDDLE OF PROPERTY ALONG SUNWOOD DRIVE ELEVATION = 868.98
ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
BRIAN E. OLSON, P.E.
RAMSEY CITY ENGINEER
REG. NO. 25413 DATE
754 B
RA148\RA148.DWG
DATE 1/28/01 REVISION RECORD DRAWING
DESIGNED BY: BEO
DRAWN BY: BEO
CHECKED BY: BEO
City of Ramsey
CONNECTION FROM WATER TOWER #2 TO EXISTING WATER SUPPLY
DATE 3/20/01 FILE NO. TOWERCONXN
SHEET 1 OF 1 SHEETS



1 S01 FLUTED COLUMN ELEVATION

SCALE: 3/32" = 1'-0"



2 S01 PEDESTAL SPHEROID ELEVATION

SCALE 3/32" = 1'-0"

755

0	4/25/00	LMC	ORIGINAL ISSUE	PROJ. NO. 200502-2701	

SCALE	AS NOTED	
DR.	LMC	DATE 4/25/00
CK.		DATE
APP.	AS NOTED	DATE

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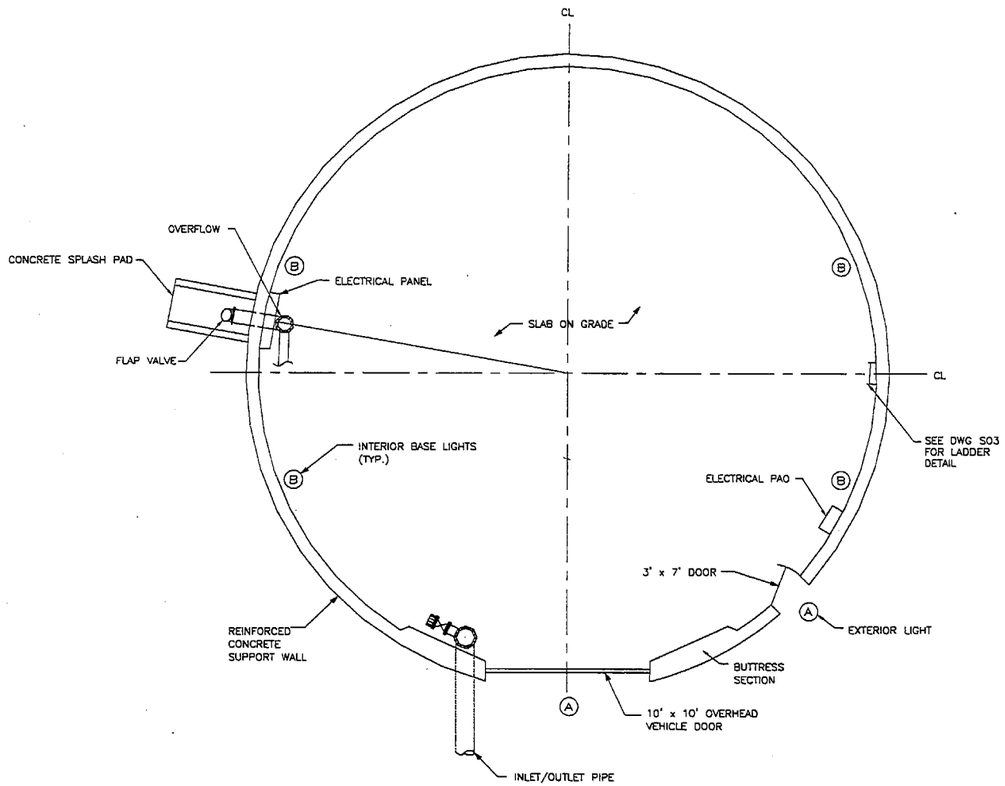
SIGNATURE:

DATE: REG. NO.

Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

TANK STYLES
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME	DWG\RAMSEY\200502\2701\M2701-S01
SHEET	OF
AEC PROJECT NO.	200502-2701
DRAWING NO.	M2701-S01
REV	0



1/S03 PLAN VIEW

SCALE: NONE

NOTES:

GENERAL:

1 -MANDDOR - 3'x7' 18 GA. HOLLOW METAL DOOR WITH 16 GA. FRAME AND HEAVY DUTY CLOSURE.
2 -PEDESTAL TRUCK DOOR - 10' WIDE x 10' HIGH ROLLING STEEL WITH 22 GA. GALVANIZED SLATS AND MANUAL CHAIN OPERATOR.
3 -PROVIDE MONOLITHIC REINFORCED CONCRETE INTERNAL BUTTRESS SECTION ON EACH SIDE OF VEHICLE DOOR. BUTTRESS TO BE MINIMUM 4' - 0" WIDE AND 6" THICKER THAN NOMINAL WALL DIMENSION.

SLAB ON GRADE:

1 -FLOOR SLAB - 6" THICK 3500 PSI CONCRETE ON COMPACTED GRANULAR REINFORCED WITH #5 REBAR AT 12" E.W.
2 -PROVIDE 1/2" ISOLATION JOINT BETWEEN FLOOR AND WALL AND AT PIPES/SUPPORTS THROUGH FLOOR. CAP W/ SELF LEVELING SEALANT.
3 -SAWCUT 1-1/2" DEEP AT 20 FEET MAXIMUM CENTERS.
4 -SLOPE SLAB .5% FOR DRAIN TO TRUCK DOOR.

MECHANICAL:

1 -PROVIDE EXPANSION JOINT ON INLET OUTLET RISER TO ACCOMMODATE MAXIMUM POTENTIAL DIFFERENTIAL MOVEMENT.
2 -CONNECT RISER ANO OVERFLOW WITH A VALVED LATERAL TO ACCOMMODATE TANK DRAINING.
3 -PROVIDE THRUST RESTRAINT AND SUPPORT AS REQUIRED.
4 -INSTALL 3 PC. 3/4" COUPLINGS WITH BRONZE GATE VALVE AND PLUG ON INLET / OUTLET.
5 -INLET / OUTLET RISER PIPE TO BE INSULATED, ANO CLAD WITH ALUMINUM JACKET

ELECTRICAL:

1 -MOUNT EXTERIOR DOOR LIGHTS 10' ABOVE SLAB ON GRADE.
2 -MOUNT INTERIOR PEDESTAL BASE LIGHTS 10' ABOVE SLAB ON GRADE.

756

0 : 4/25/00	LMC : ORIGINAL ISSUE	PROJ. NO. 200502-2701					

SCALE: AS NOTED
DR: LMC DATE: 4/25/00
CK: DATE:
APP: AS NOTED DATE:

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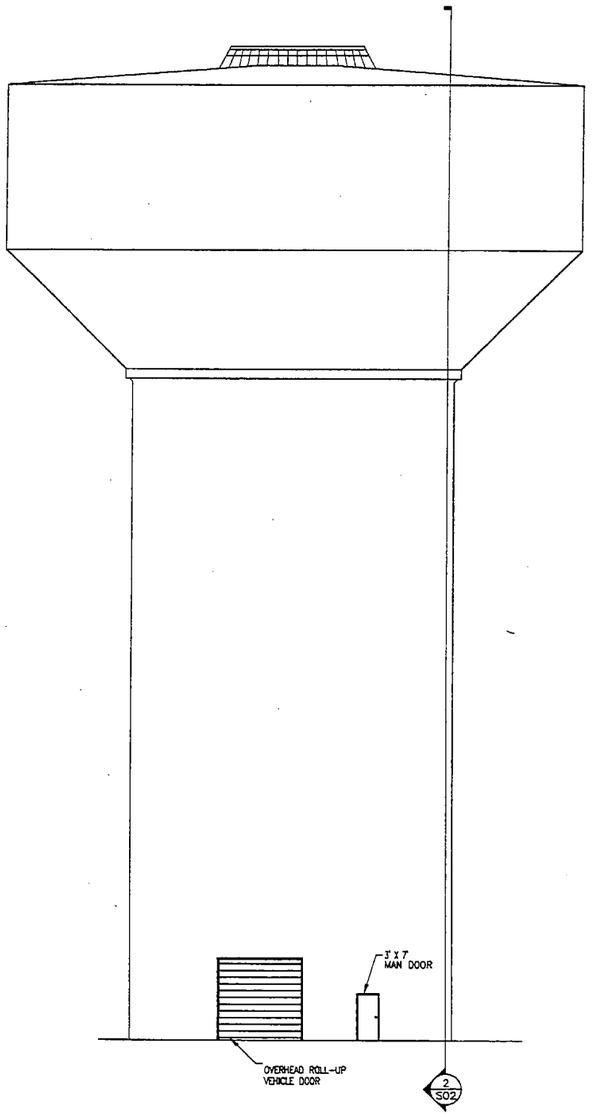
DATE: REG. NO.

Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

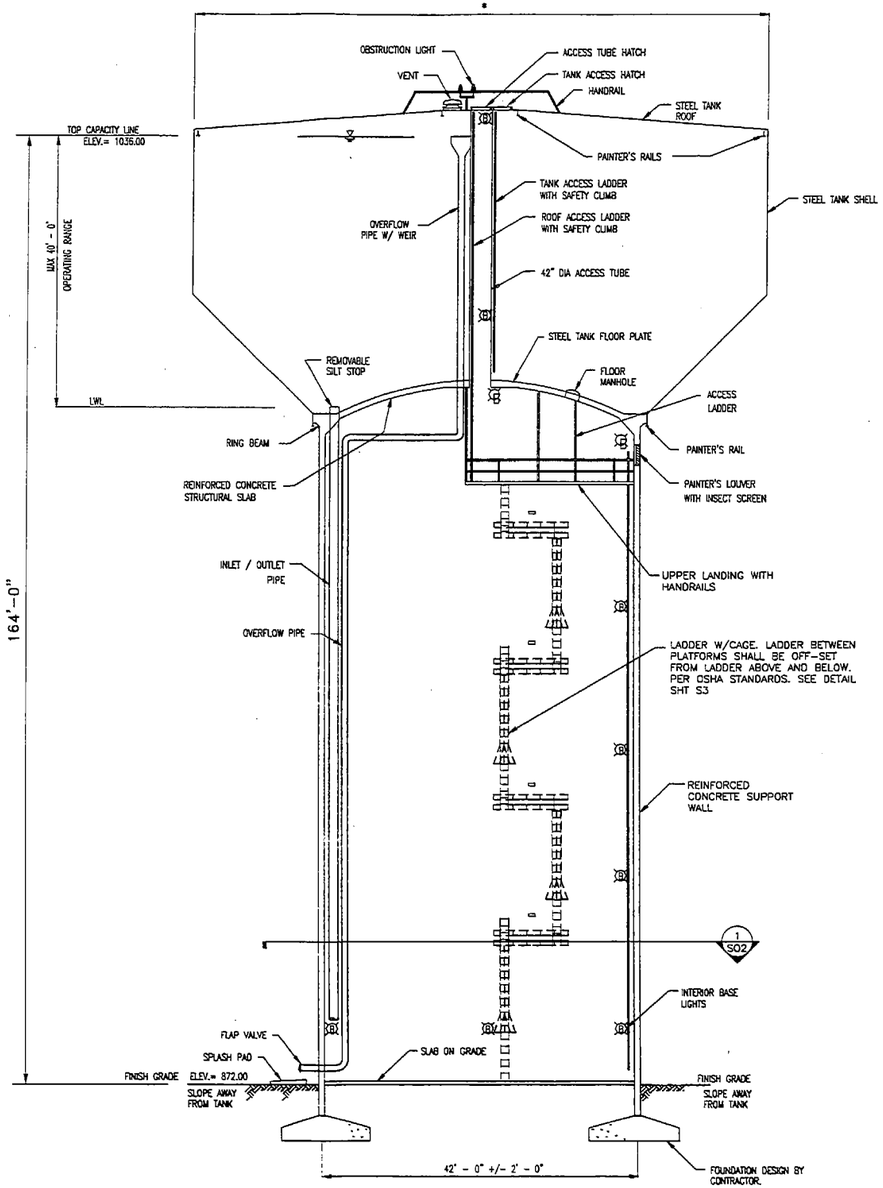
COMPOSITE TANK SECTION
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME: DWG\RAMSEY\200502\2701\M2701-S03
SHEET: OF: AEC PROJECT NO.: 200502-2701
DRAWING NO.: M2701-S03 REV: 0



1 S02 COMPOSITE TANK ELEVATION

SCALE: NTS



2 S02 SECTION

SCALE: NTS

NOTES:

GENERAL:

1 – SEE CONTRACT SPECIFICATIONS FOR DESIGN CRITERIA AND DETAILS. APPLICABLE ELEVATED TANK SPECIFICATIONS ARE AWWA D100–96 AND ACI 318–95.

2 – STEEL TANK FLOOR WITHIN THE PERIMETER OF THE CONCRETE SUPPORT PEDESTAL SHALL BE SUPPORTED BY A DOMED STRUCTURAL CONCRETE SLAB.

3 – PROVIDE ADEQUATE FREEBOARD TO INSURE ROOF PROJECTIONS AND PAINTER'S RAIL REMAIN ABOVE THE HIGH WATER LEVEL.

4 – CONCRETE PEDESTAL EXTERIOR SHALL INCORPORATE HORIZONTAL AND VERTICAL RUSTICATION STRIPS TO CREATE A SYMMETRICAL ARCHITECTURAL PATTERN

5 – TANK APPURTENANCES ARE ROTATED FOR CLARITY.

FOUNDATION:

1 – REFER TO THE GEOTECHNICAL REPORT FOR RECOMMENDATIONS REGARDING ALLOWABLE BEARING CAPACITY.

2 – DESIGN FOUNDATION SYSTEM PER GEOTECHNICAL REPORT RECOMMENDATIONS AND MAXIMUM APPLICABLE DESIGN LOADS IN ACCORDANCE WITH AWWA D100–96.

3 – CONCRETE FOUNDATION DESIGN IN ACCORDANCE WITH ACI 318–95

MECHANICAL:

1 – INLET / OUTLET AND OVERFLOW PIPING WITHIN THE PEDESTAL SHALL BE TYPE 304L STAINLESS STEEL.

2 – PROVIDE HANGERS, BRACKETS, AND THRUST RESTRAINT AS REQUIRED.

3 – OVERFLOW SYSTEM SHALL BE DESIGNED TO ACCOMMODATE MAXIMUM FILL RATE. SEE CONTRACT SPECIFICATION.

4 – REMOVABLE SILT STOP SHALL BE MINIMUM 6 INCHES ABOVE TANK FLOOR.

MISCELLANEOUS IRON:

1 – ALL LADDERS AND LANDINGS SHALL BE GALVANIZED.

2 – PROVIDE ALUMINUM SAFETY RAILS ON ALL LADDERS.

3 – ROOF AND TANK ACCESS SHALL BE 30" DIA.

4 – A REMOVABLE ALUMINUM PAINTER'S LOUVER SHALL BE INSTALLED AT THE UPPER LANDING FOR ACCESS TO THE EXTERIOR PAINTER'S RAIL.

ELECTRICAL:

1 – MOUNT BASE LIGHTS 10 FEET ABOVE SLAB ON GRADE.

2 – LADDER LIGHTS SHALL BE AT 25 FEET MAXIMUM SPACING.

757

0	4/25/00	LMC	ORIGINAL ISSUE

PROJ. NO. 200502-2701

SCALE: AS NOTED

DR.: LMC DATE: 4/25/00

CK.: DATE:

APP.: AS NOTED DATE:

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SIGNATURE:

DATE: REG. NO.:

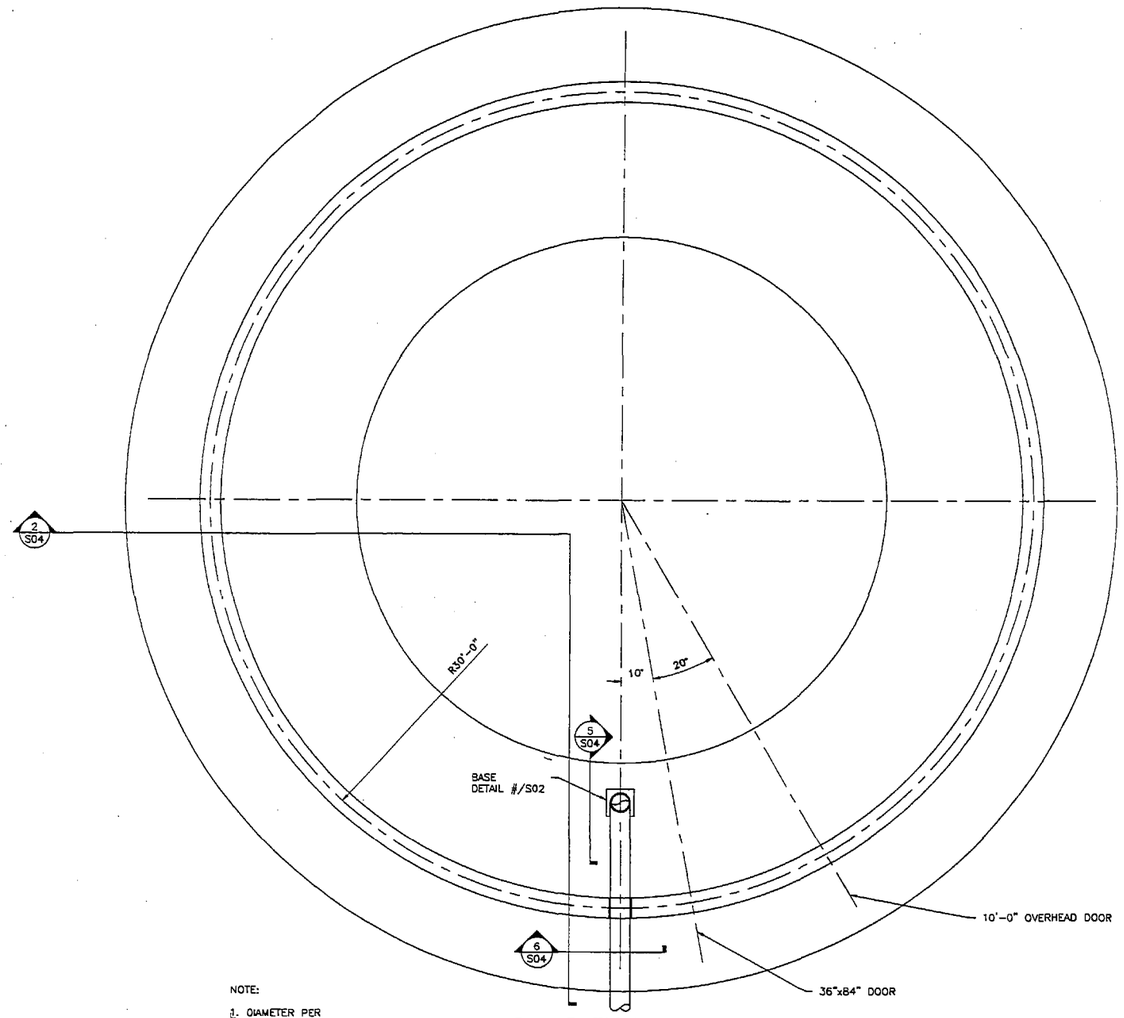
Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

TANK STYLES
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME: DWG\RAMSEY\200502\2701\M2701-S02

SHEET OF | AEC PROJECT NO.: 200502-2701

DRAWING NO.: M2701-S02 | REV: 0

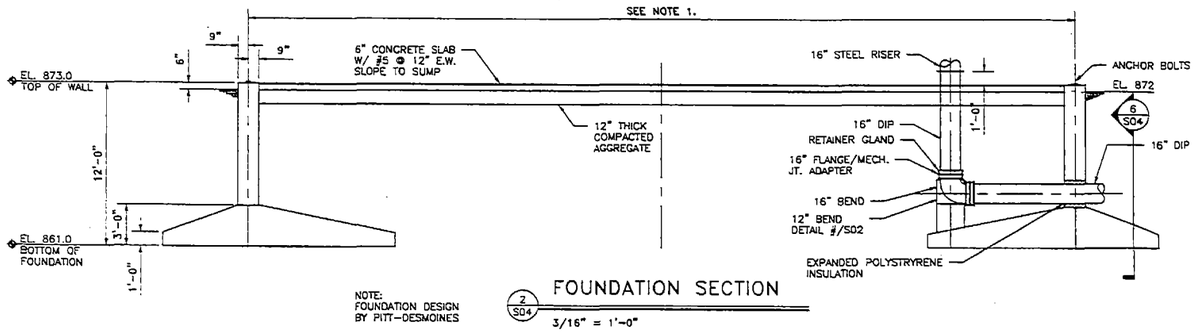


NOTE:

1. DIAMETER PER MANUFACTURER'S SPECIFICATIONS.

FOUNDATION PLAN

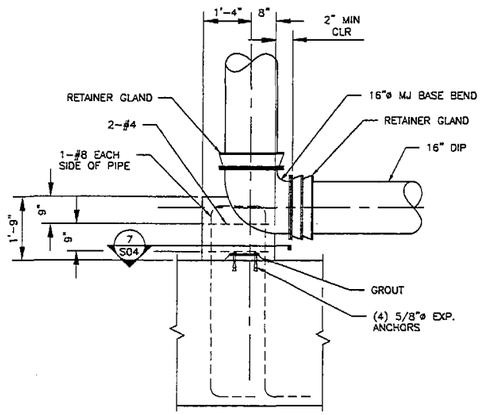
1 S04 — 3/16" = 1'-0"



NOTE:
FOUNDATION DESIGN
BY PITT-DESMOINES

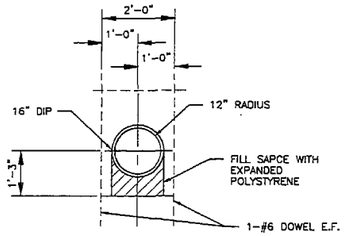
FOUNDATION SECTION

2 S04 — 3/16" = 1'-0"



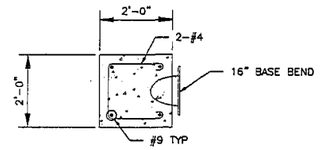
DETAIL

5 S04 — 1/2" = 1'-0"



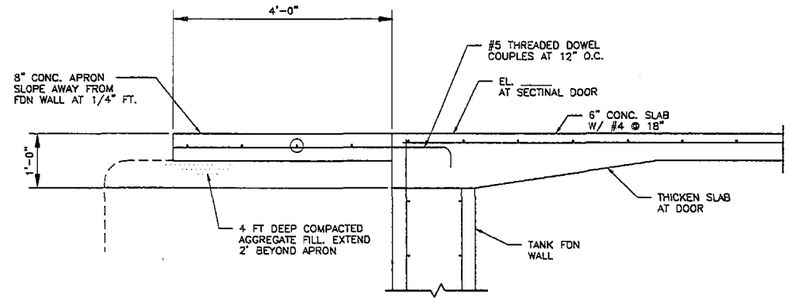
DETAIL

6 S04 — 1/2" = 1'-0"



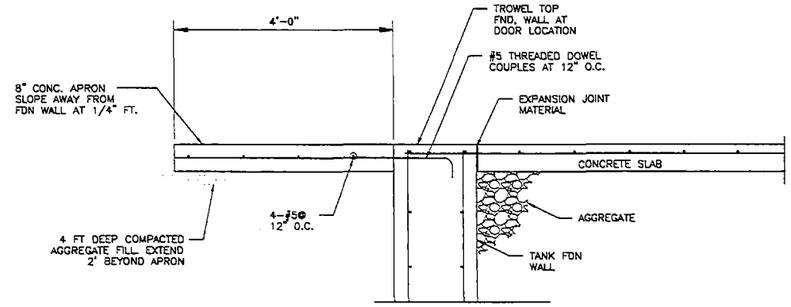
DETAIL

7 S04 — 1/2" = 1'-0"



8" CONCRETE APRON FOR O.H. DOOR

3 S04 — 3/4" = 1'-0"



4" CONCRETE APRON FOR PED DOOR

4 S04 — 3/4" = 1'-0"

758

0	4/25/00	LMC	ORIGINAL ISSUE

PROJ. NO. 200502-2701

SCALE	AS NOTED		
DR.	LMC	DATE	4/25/00
CK.		DATE	
APP.	AS NOTED	DATE	

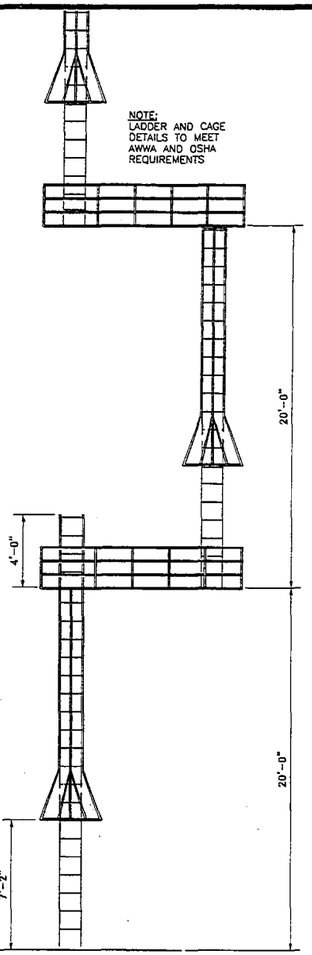
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

REG. NO. 20598 DATE 4/25/00

Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

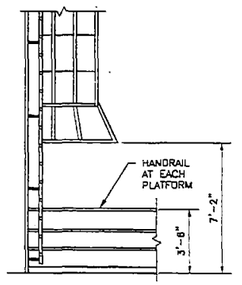
DETAILS & SECTIONS
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME	DWG\RAMSEY\200502\2701\M2701-S04
SHEET	OF
AEC PROJECT NO.	200502-2701
DRAWING NO.	M2701-S04
REV	0



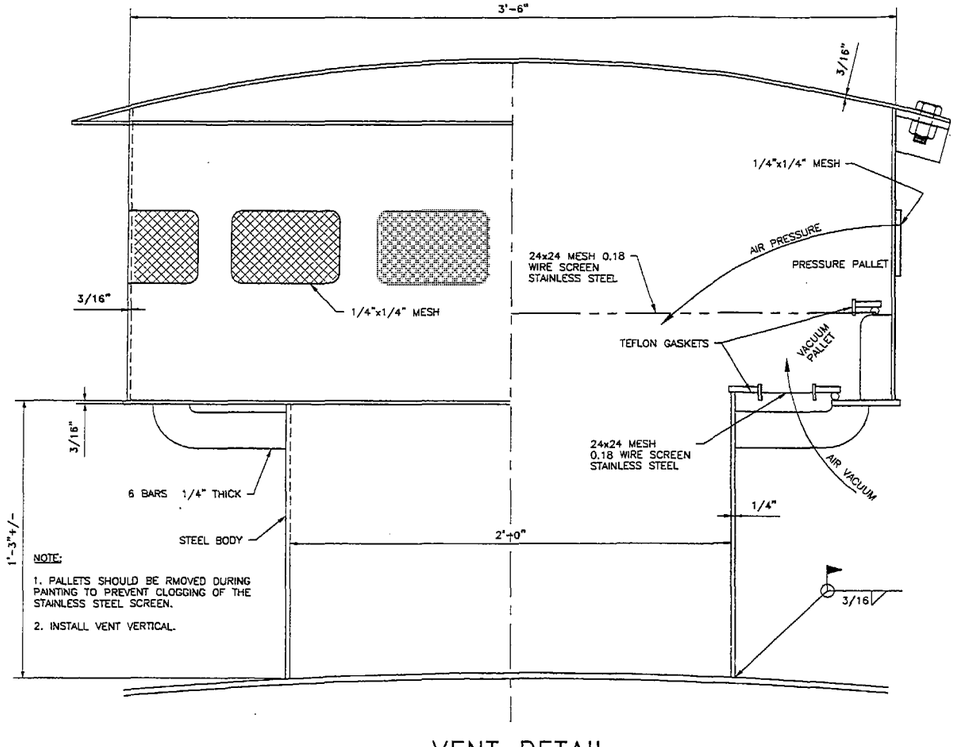
LADDER AND CAGE

1 / S05 — 1/4" = 1'-0"



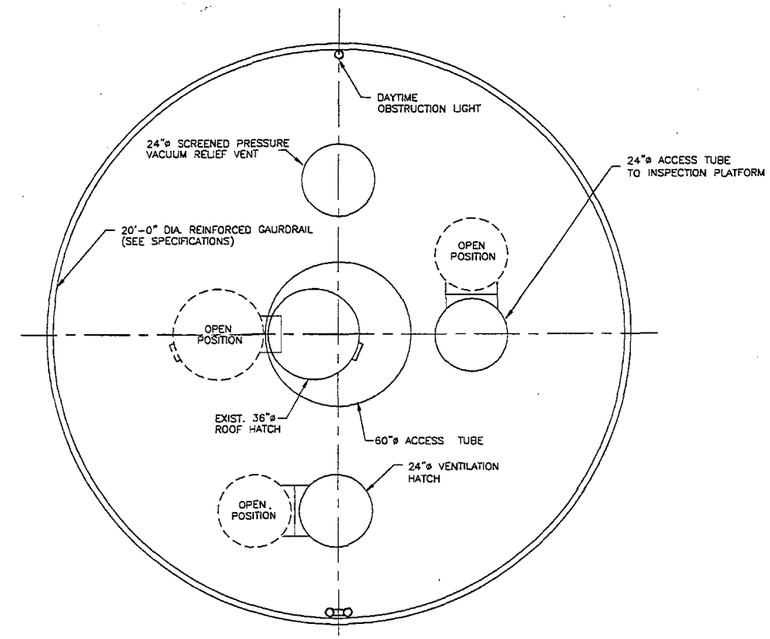
CAGE DETAIL

2 / S05 — 1/4" = 1'-0"



VENT DETAIL

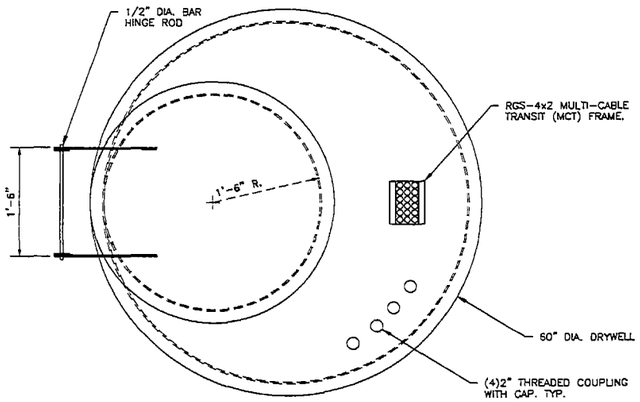
3 / S05 — 3" = 1'-0"



PLAN @ ROOF

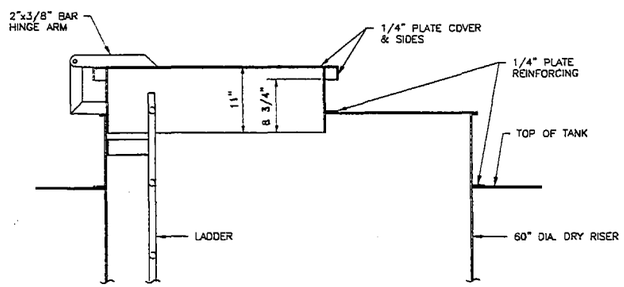
5 / S05 — 1/2" = 1'-0"

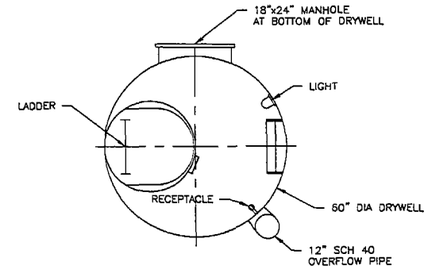
NORTH



ROOF HATCH DETAIL

4 / S05 — 1" = 1'-0"





DRY RISER SECTION

6 / S05 — 1/2" = 1'-0"

759

0	4/25/00	LMC	ORIGINAL ISSUE	PROJ. NO. 200502-2701			

SCALE	AS NOTED		
DR.	LMC	DATE	4/25/00
CK.		DATE	
APP.	AS NOTED	DATE	

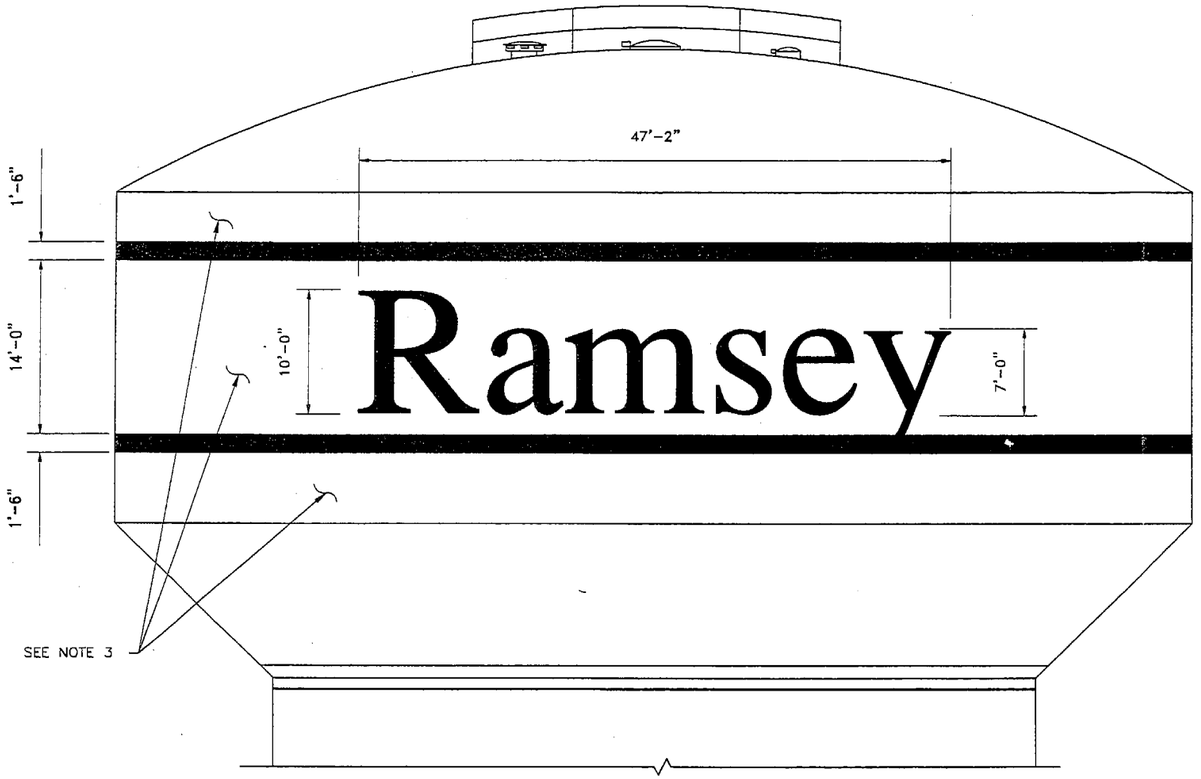
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

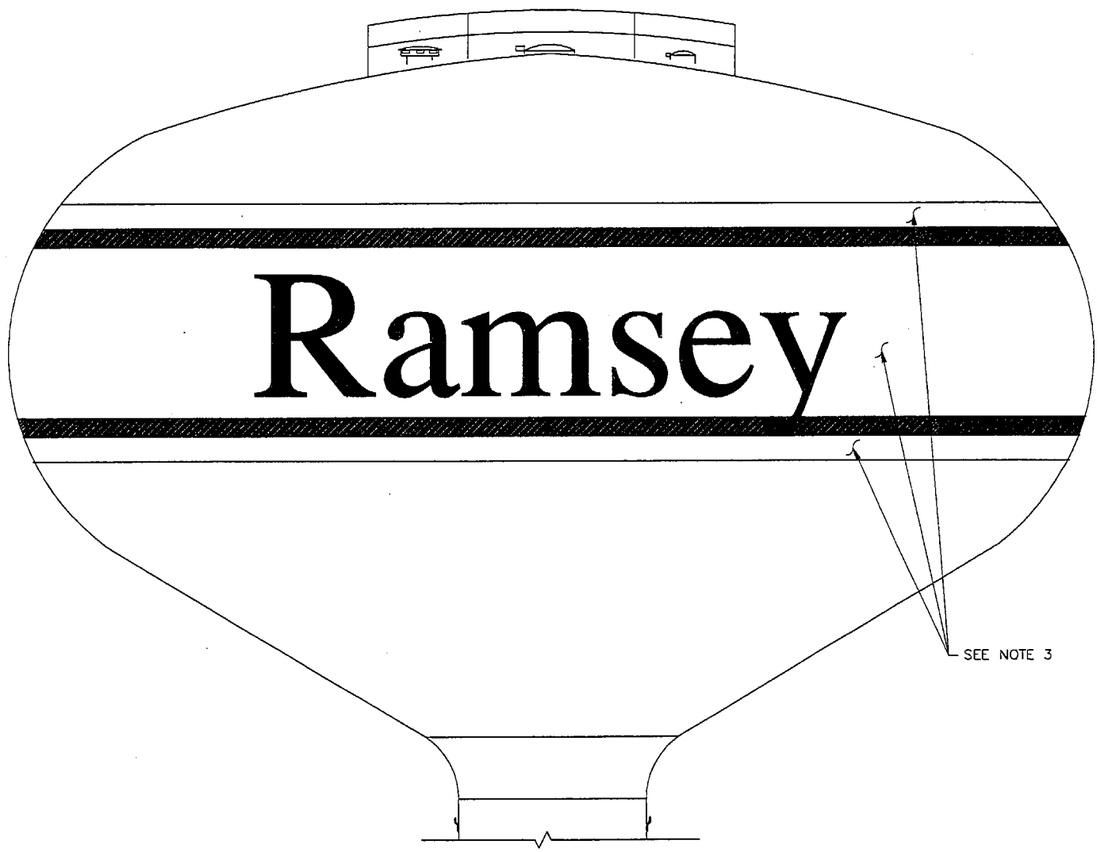
SIGNATURE
DATE REG.NO. 36419

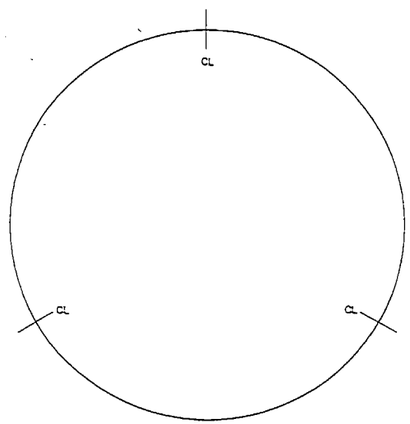
Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

DETAILS, SECTIONS & ELEVATIONS
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME	DWG\RAMSEY\200502\2701\M2701-S05		
SHEET	OF	AEC PROJECT NO.	200502-2701
DRAWING NO.	M2701-S05	REV	0







N

NOTES:

1. EXTERIOR COLOR OF WATER TOWER, MATCH TNEMED SERIES 73 "TANK WHITE" WHO 2.
2. LETTERING AND STRIP COLOR SHALL MATCH TNEMEC SERIES 73 "TANK WHITE" WHO 2.
3. BAND COLOR TO MATCH TNEMEC SERIES 73 "ULTRA BLUE" PL12.
4. LETTERING TO BE IN 3 LOCATIONS AS DIRECTED BY THE ENGINEER.

760

0	4/25/00	LMC	ORIGINAL ISSUE	PROJ. NO. 200502-2701

SCALE	AS NOTED	
DR.	LMC	DATE 4/25/00
CK.		DATE
APP.	AS NOTED	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNED: [signature]
DATE: RECIND.: [illegible]

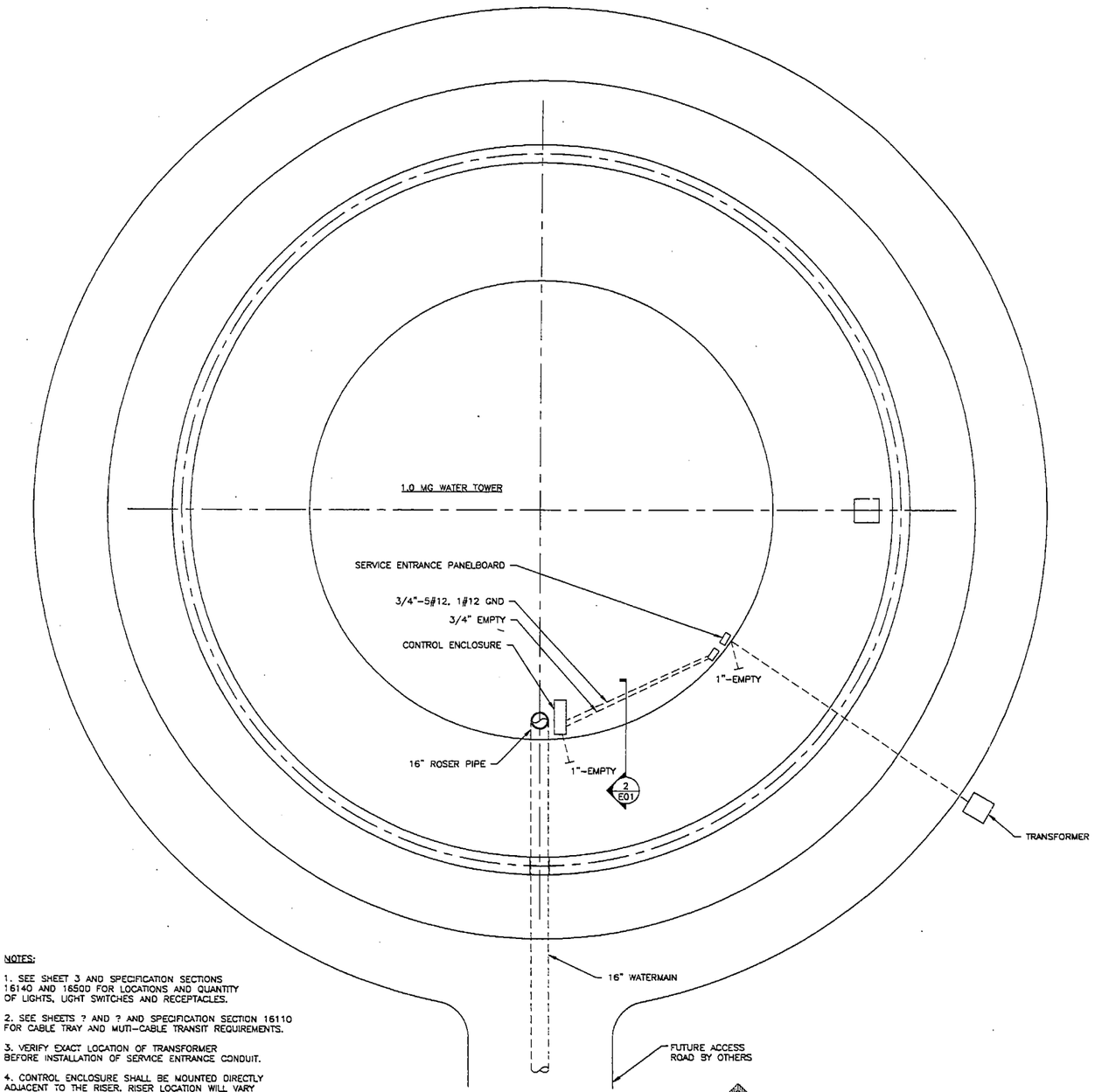
Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

TANK LOGO
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

CADD FILE NAME: DWG\RAMSEY\200502\2701\M2701-S06

SHEET	OF	AEC PROJECT NO.
		200502-2701

DRAWING NO.	REV
M2701-S06	0



ELECTRICAL PLAN

1/E01 — 3/16" = 1'-0"

NOTES:

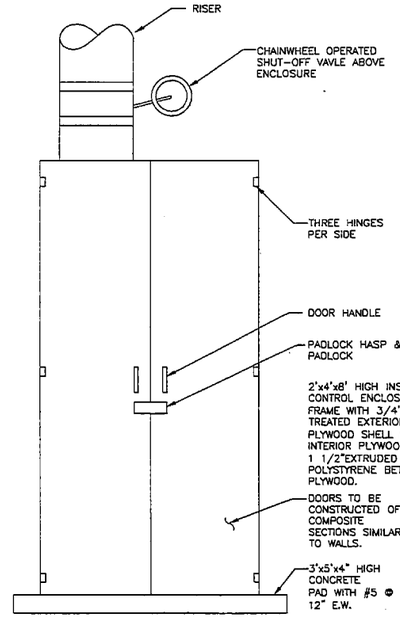
1. SEE SHEET 3 AND SPECIFICATION SECTIONS 16140 AND 16500 FOR LOCATIONS AND QUANTITY OF LIGHTS, UGHT SWITCHES AND RECEPTACLES.

2. SEE SHEETS ? AND ? AND SPECIFICATION SECTION 16110 FOR CABLE TRAY AND MUTI-CABLE TRANSIT REQUIREMENTS.

3. VERIFY EXACT LOCATION OF TRANSFORMER BEFORE INSTALLATION OF SERVICE ENTRANCE CONDUIT.

4. CONTROL ENCLOSURE SHALL BE MOUNTED DIRECTLY ADJACENT TO THE RISER. RISER LOCATION WILL VARY DEPENDING ON WHICH TOWER STYLE IS SELECTED.

5. COORDINATE LOCATION AND INSTALLATION OF CONTROL ENCLOSURE SECURITY SYSTEM DOOR CONTACTS, SECURITY SYSTEM KEY SWITSH, AND RASIO ANTENAE WITH SUPERVISORY CONTROL SYSTEM SUPPLIER.



CONTROL ENCLOSURE

2/E01 — 3/4" = 1'-0"

761

0	4/25/00	LMC	ORIGINAL ISSUE	PROJ. NO. 200502-2701			

SCALE	AS NOTED	
DR.	LMC	DATE 4/25/00
CK.		DATE
APP.	AS NOTED	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

DATE ... REG. NO. 20418

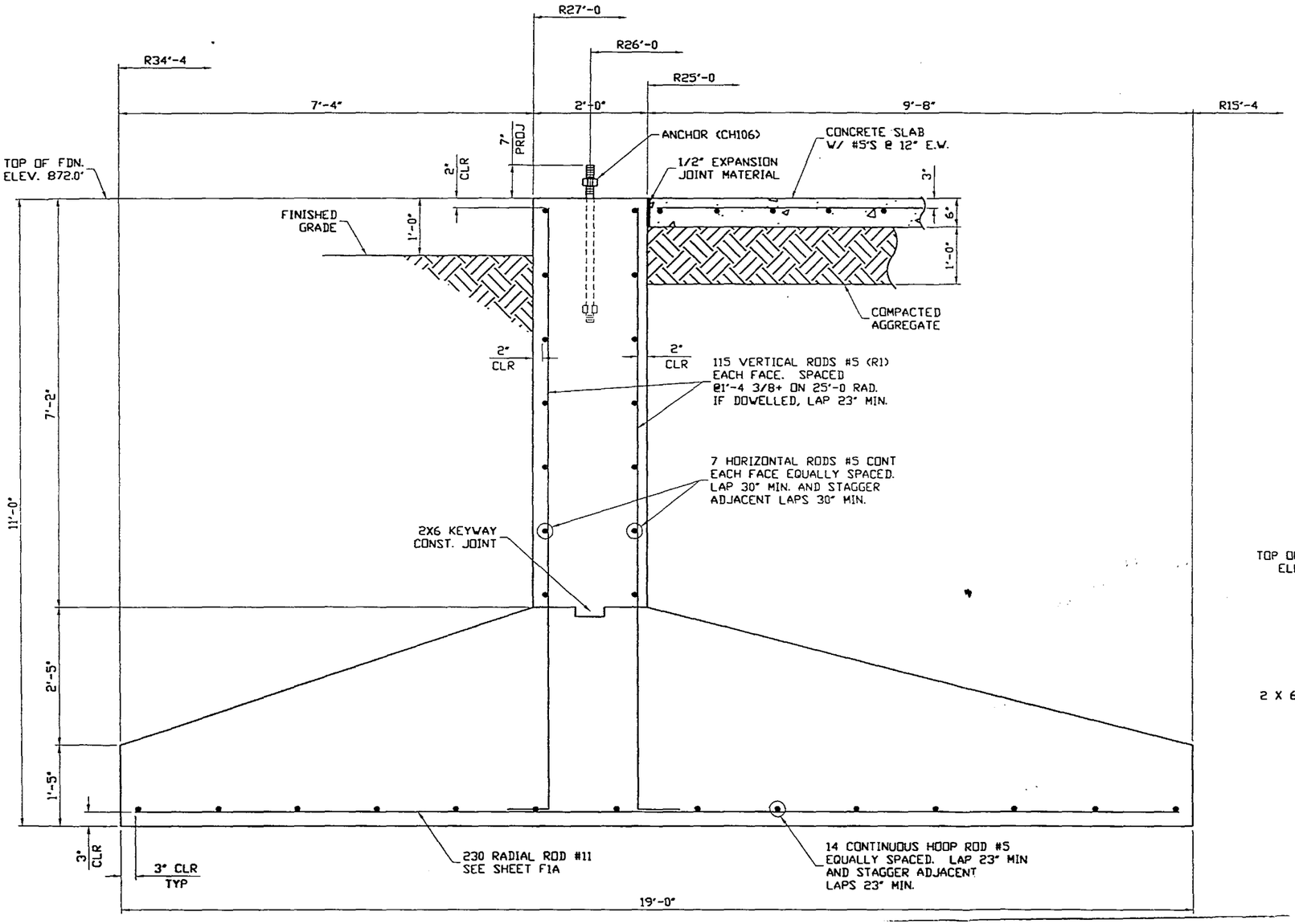
Minneapolis, Minnesota
Richmond, Virginia
AEC ENGINEERING

ELECTRICAL DETAILS
CITY OF RAMSEY
1.5 MILLION GALLON
WATER TOWER

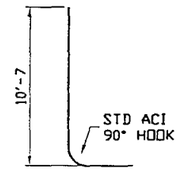
CADD FILE NAME: DWG\RAMSEY\200502\2701\M2701-E01

SHEET	OF	AEC PROJECT NO.
		200502-2701

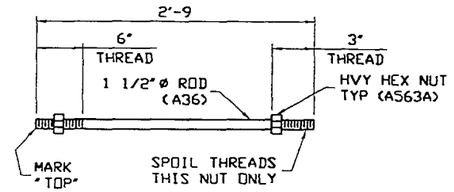
DRAWING NO.	REV
M2701-E01	0



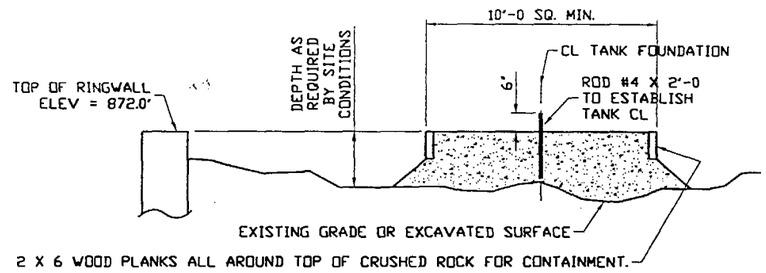
SECTION A-A



R1
230 BARS #5



24 ANCHOR BOLT (CH106)
FURNISHED BY PDM INC.



SECTION D-D

NOTE:

1. SUPPORT BASE TO BE "3/4 INCH CRUSHED ROAD ROCK".
2. PLACE ROCK IN MAXIMUM 18" LIFTS.
3. COMPACT EACH LIFT WITH VIBRATOR, BACKHOE, TRUCK WHEEL LOADS, ETC. TO MINIMIZE FUTURE CONSOLIDATION.
4. ACTUAL DEPTH OF SUPPORT BASE WILL DEPEND ON SITE TOPOGRAPHY AND CONSTRUCTION PROCEDURES.
5. MINIMUM DEPTH OF SUPPORT BASE TO BE 6".
6. STRIKE TOP OF SUPPORT BASE LEVEL WITH TOP OF TOWER FOUNDATION. THE BEARING SURFACE SHALL BE LEVEL TO 1/4" ACROSS 10'-0 WIDTH.

762

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

Dennis B. Guessford

Dennis B. Guessford, P.E.

Date 8/2/00 Reg. No. 10279

OPEN HOLES N/A						
ERECTION REF. N/A						
WELD SPECS. AWWA D100-96						
EIS-						
CERTIFIED FOR CONFORMANCE TO PLANS AND SPECIFICATIONS						
BY: Bruce L. Schmidt						
DATE: 7/26/00	NO	REVISION DESCRIPTION	BY	DATE	CHK	DATE

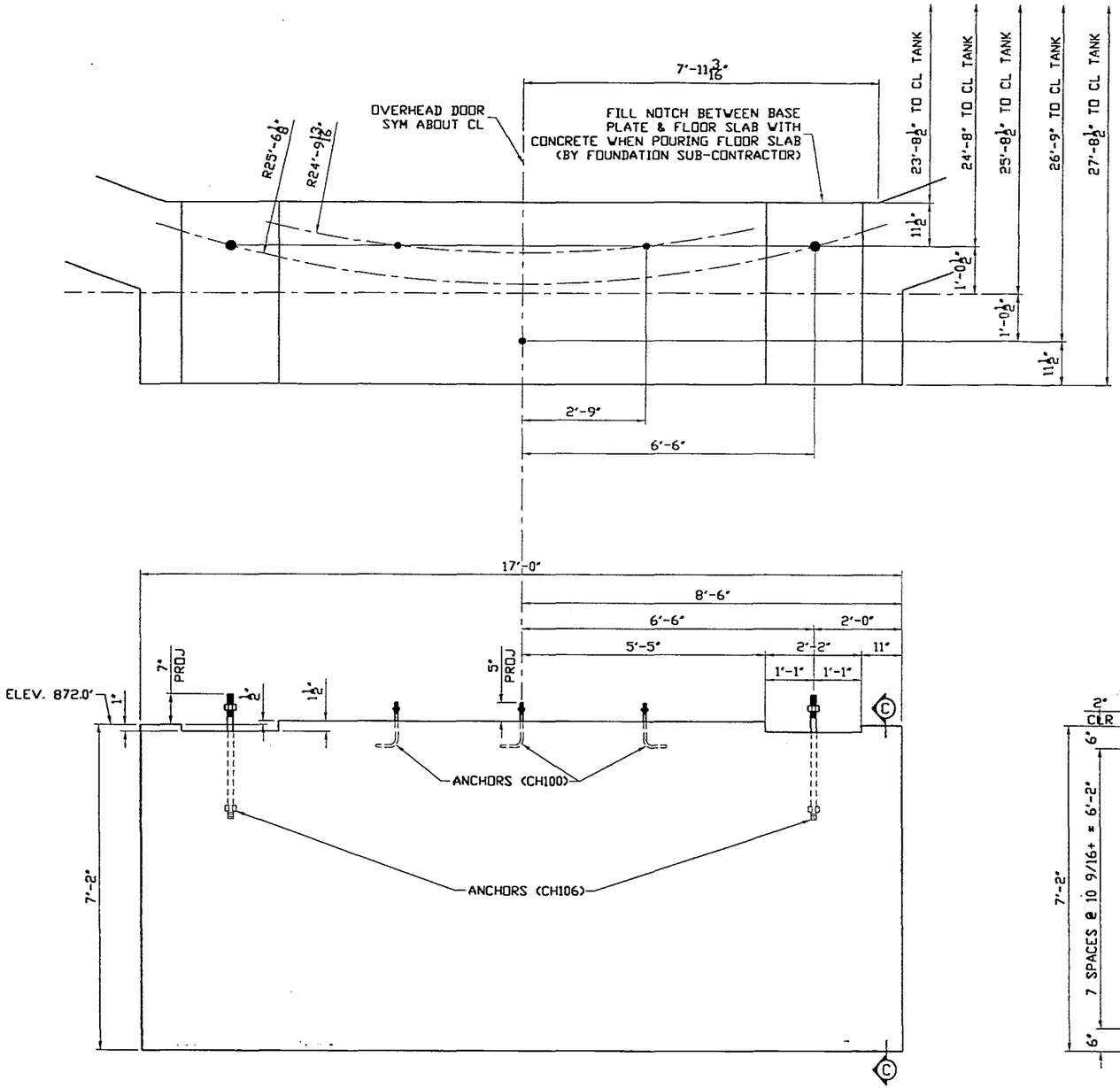
PDM® Pitt-Des Moines, Inc.

PITT-DES MOINES, INC.
ENGINEERS – FABRICATORS – CONTRACTORS

CITY OF RAMSEY
1500 MG HP 90' DIA X 40' HR X 52' TWR
RAMSEY, MN
FOUNDATION DETAILS

DWG. PREPARED AT: CLIVE | FABRICATED AT: CLIVE

	BY	DATE		
DRAWN:	SEG	21JUL00	DRAWING:	F1B
CHECKED:	JMS	25JUL00	CONTRACT:	50557

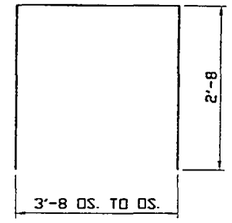


VIEW B-B

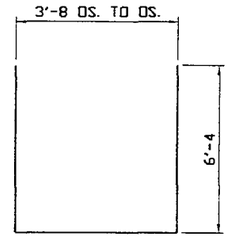
STD. ACI 180° HOOK (TYP.)

16'-6 OS TO OS

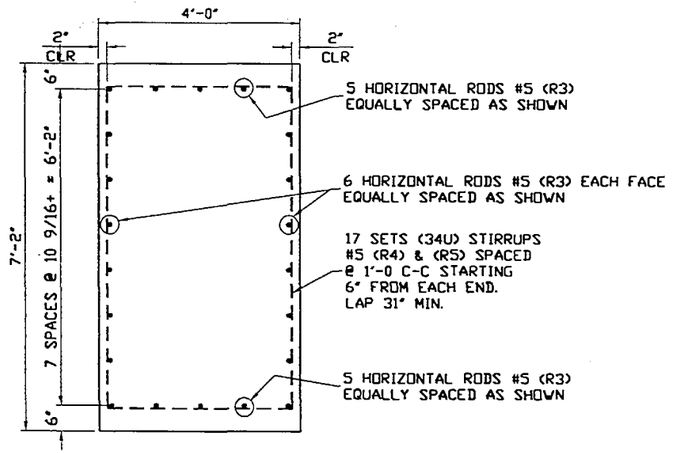
R3
22 BARS #5



R4
17 BARS #5

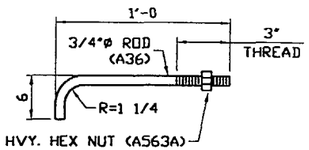


R5
17 BARS #5



NOTE:
CONTINUE RINGWALL REINFORCING (NOT SHOWN) THRU OVERHEAD DOOR FOUNDATION

SECTION C-C



3 ANCHOR (CH100)
FURNISHED BY PDM INC.

763

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

Dennis B. Guessford

Dennis B. Guessford, P.E.

Date 8/2/00 Reg. No. 10279

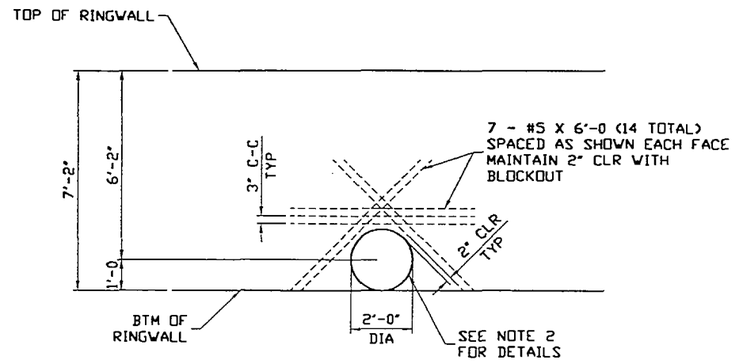
OPEN HOLES N/A							
ERECTION REF. N/A							
WELD SPECS. AWWA D100-96							
EIS-							
CERTIFIED FOR CONFORMANCE TO PLANS AND SPECIFICATIONS BY: Peggy A. Schrock							
DATE: 7/26/00	NO	REVISION DESCRIPTION	BY	DATE	CHK	DATE	

PDM Pitt-Des Moines, Inc.

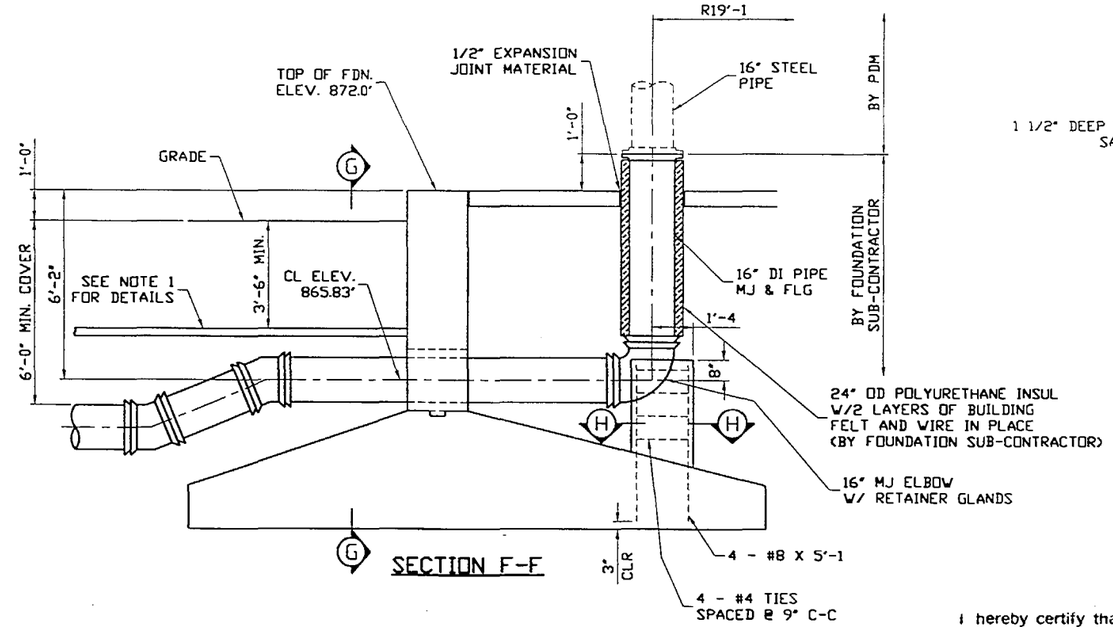
PITT-DES MOINES, INC.
ENGINEERS - FABRICATORS - CONTRACTORS

CITY OF RAMSEY
1500 MG HP 90' DIA X 40' HR X 52' TWR
RAMSEY, MN
DOOR BEAM DETAILS

DWG. PREPARED AT:	CLIVE			FABRICATED AT:	CLIVE
	BY	DATE		DRAWING:	F1C
DRAWN:	SEG	21JUL00			
CHECKED:	JMS	25JUL00		CONTRACT:	50557

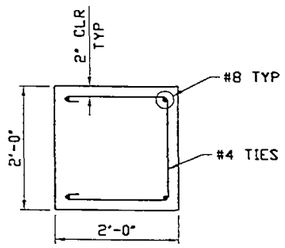


SECTION G-G
PIPE NOT SHOWN



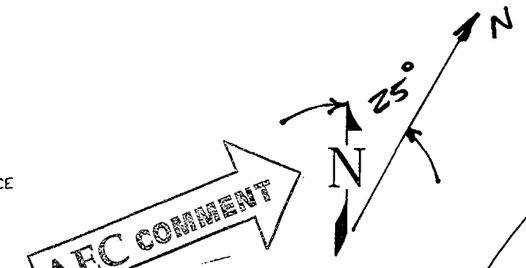
NOTES:

1. PROVIDE 3" THICK X 6'-0 WIDE DOW STYROFOAM (OR EQUIVALENT) SLAB INSULATION OVER 16" DIA. INLET/OUTLET PIPING TO A DISTANCE WHERE 6'-0" PIPE COVER IS ATTAINED. INSTALL SLAB INSULATION PER MANUFACTURER'S RECOMMENDATIONS
2. INTERRUPT MAXIMUM OF 4 - #5 VERTICAL BARS AND 4 - #5 HORIZONTAL BARS. TRIM INTERRUPTED BARS FOR 2" CLEARANCE WITH PIPE BLOCKOUT. FILL VOID BETWEEN PIPE AND PIPE BLOCKOUT WITH EXPANDED POLYSTYRENE INSULATION.



SECTION H-H

AEC COMMENT



I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a ~~duly registered Professional~~ Engineer under the laws of the State of Minnesota.

Dennis B. Guessford, P.E.

Date 8/2/00 Reg. No. 10279

FLOOR SLAB

764

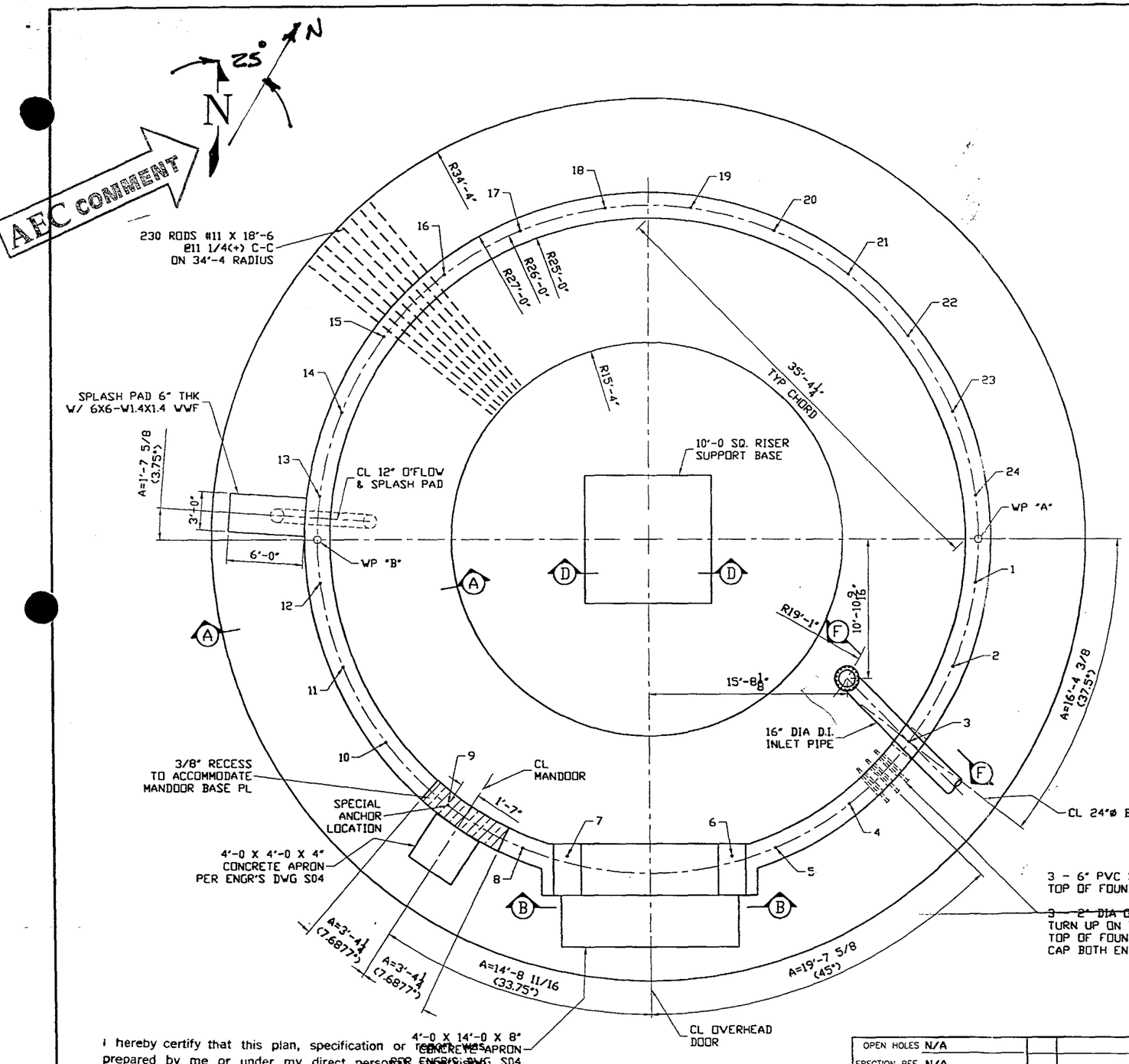
OPEN HOLES N/A							
ERECTION REF. N/A							
WELD SPECS. AWWA D100-96							
EIS-							
CERTIFIED FOR CONFORMANCE TO PLANS AND SPECIFICATIONS BY: Dennis B. Guessford							
DATE: 8/2/00	NO	REVISION DESCRIPTION	BY	DATE	CHK	DATE	

PDM® Pitt-Des Moines, Inc.

PITT-DES MOINES, INC.
ENGINEERS - FABRICATORS - CONTRACTORS

CITY OF RAMSEY
1500 MG HP 90° DIA X 40' HR X 52' TWR
RAMSEY, MN
PIPING DETAILS & SLAB PLAN

DWG. PREPARED AT: CLIVE		FABRICATED AT:	CLIVE
	BY	DATE	
DRAWN:	SEG	25JUL00	DRAWING: F1D
CHECKED:	JMS	25JUL00	CONTRACT: 50557



FOUNDATION PLAN
ARCS ON 25'-0 RAD U.N.

ANCHOR LAYOUT TABLE R26'-0"	
ANCHOR #	DIM "A"
WP "A" TO 1	3'-4 13/16"
TO 2	10'-1 3/4"
TO 3	16'-8 9/16"
TO 4	23'-0"
TO 5	28'-10 11/16"
TO 6	31'-5 5/16"
TO 7	40'-9 5/8"
TO 18	39'-1 1/8"
TO 19	34'-3 7/16"
TO 20	28'-10 11/16"
TO 21	23'-0"
TO 22	16'-8 9/16"
TO 23	10'-1 3/4"
TO 24	3'-4 13/16"

ANCHOR LAYOUT TABLE R26'-0"	
ANCHOR #	DIM "B"
WP "B" TO 6	40'-9 5/8"
TO 7	31'-5 5/16"
TO 8	28'-10 11/16"
TO 9	23'-1 1/4"
TO 10	16'-8 9/16"
TO 11	10'-1 3/4"
TO 12	3'-4 13/16"
TO 13	3'-4 13/16"
TO 14	10'-1 3/4"
TO 15	16'-8 9/16"
TO 16	23'-0"
TO 17	28'-10 11/16"
TO 18	34'-3 7/16"
TO 19	39'-1 1/8"

FOUNDATION NOTES

1. DO NOT SCALE THIS DRAWING.
2. SUBSTANTIAL LOCATION AND ELEVATION MARKERS SHALL BE SET BY OWNER OR HIS REPRESENTATIVE.
3. CHECK DIMENSIONS. IF ANY DIMENSIONS DO NOT CHECK, DO NOT PROCEED UNTIL THEY ARE VERIFIED OR CORRECTED.
4. ALL CONCRETE WORK AND DETAILS NOT SHOWN ARE TO BE IN ACCORDANCE WITH PROJECT PLANS AND SPECIFICATIONS AND ACI 301.
5. ALL CONCRETE WORK SHALL BE PLACED WITHOUT CONSTRUCTION JOINTS EXCEPT WHERE SHOWN.
6. ALL CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. MAXIMUM AGGREGATE SIZE TO BE 3/4". REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
7. REINFORCING BARS SHALL CONFORM TO ASTM A615 DEFORMED GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
8. THESE FOUNDATIONS ARE DESIGNED FOR BEARING ON SOIL HAVING A NET ALLOWABLE BEARING CAPACITY OF 5000 PSF AND 7500 PSF WITH WIND. REFER TO PROJECT PLANS AND SPECIFICATIONS AND GEOTECHNICAL REPORT. IF EXPOSED BEARING SURFACE DOES NOT CONFORM TO THE ABOVE REQUIREMENTS, NOTIFY PITT-DES MOINES, INC BEFORE PROCEEDING.
9. CHAMFER ALL EXPOSED EDGES 1".
10. THE TOP OF THE RINGWALL IS TO BE FINISHED SMOOTH AND LEVEL. NO POINT IN THE CIRCUMFERENCE OF THE WALL SHALL VARY MORE THAN ± 1/4" FROM THE ESTABLISHED ELEVATION. PLAN DIMENSIONS OF CONCRETE FOUNDATIONS SHALL NOT VARY MORE THAN ± 1/2".
11. SECURE ANCHORS TO PREVENT MOVEMENT WHILE POURING CONCRETE.
12. ANCHOR TOLERANCE ± 3/16" FROM TRUE LOCATION IN PLAN AND ± 1/8" IN VERTICAL PLUMB FOR PROJECTION ABOVE TOP OF FOUNDATION.
13. WHEN FOUNDATIONS ARE COMPLETE, PUT TWO ANCHOR BOLT NUTS ON ALTERNATE ANCHOR BOLTS AND TIGHTEN THEM TOGETHER SO THAT THEY CANNOT BE REMOVED BY HAND. CAUTION DO NOT EXERT ANY FORCE OR PRESSURE ON THE CONCRETE.
14. FOUNDATION SUB-CONTRACTOR TO MARK NORTH-SOUTH AND EAST-WEST CENTERLINES ON TOP OUTSIDE EDGE OF RINGWALL WITH WATERPROOF MARKER.
15. COMPACT BACKFILL AND GRADE SITE TO CONTRACT SPECIFICATIONS.

FOUNDATION DESIGN LOADS

H20	13,081,346#
S.L. (40PSF)	259,441#
D.L.	977,600#
W.S. (100MPH)	182,282#
W.M.	17,038,626'#

CONCRETE QUANTITIES

RINGWALL & DOOR BEAM	96 CY
SPREAD FOOTING	304 CY

NOTE: THE ABOVE QUANTITIES DO NOT INCLUDE MISCELLANEOUS CONCRETE ITEMS SUCH AS SLABS, VAULTS, SPLASH PADS, THRUST BLOCKS, ETC.

765

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

Dennis B. Guessford, P.E.

Date 8/2/00 Reg. No. 10279

OPEN HOLES N/A
ERECTION REF. N/A
WELD SPECS. AWWA D100-96
EIS-
CERTIFIED FOR CONFORMANCE TO PLANS AND SPECIFICATIONS
BY:
DATE: 7/26/00

NO	REVISION DESCRIPTION	BY	DATE	CHK	DATE

PDM Pitt-Des Moines, Inc.

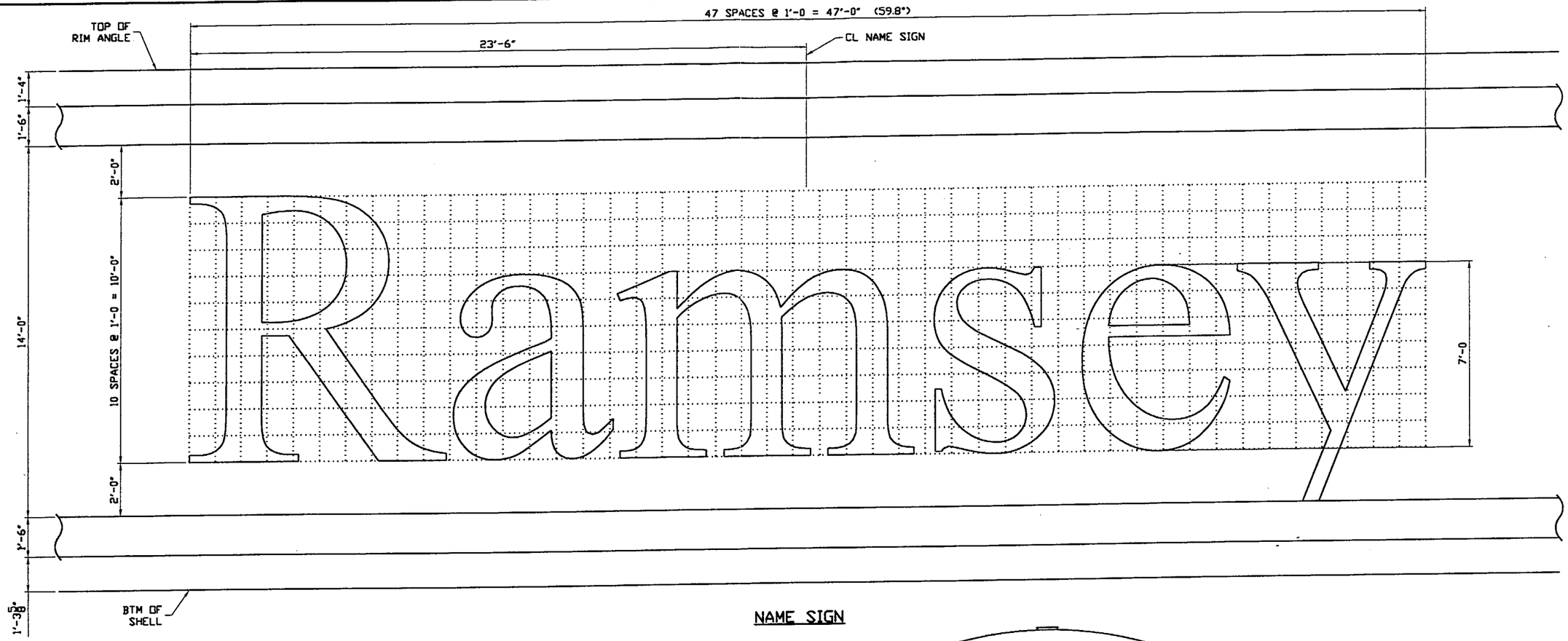
PITT-DES MOINES, INC.
ENGINEERS - FABRICATORS - CONTRACTORS

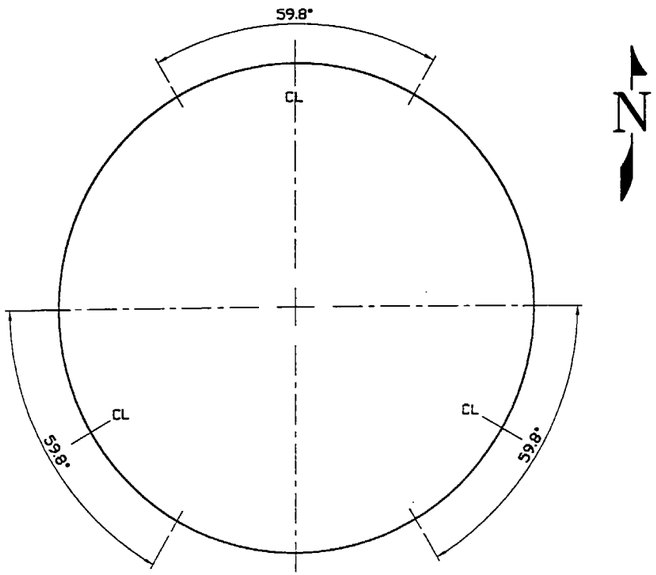
CITY OF RAMSEY
1500 MG HP 90' DIA X 40' HR X 52' TWR
RAMSEY, MN
FOUNDATION PLAN

DWG. PREPARED AT: CLIVE FABRICATED AT: CLIVE

	BY	DATE
DRAWN:	SEG	24JUL00
CHECKED:	JMS	25JUL00

DRAWING: F1A
CONTRACT: 50557

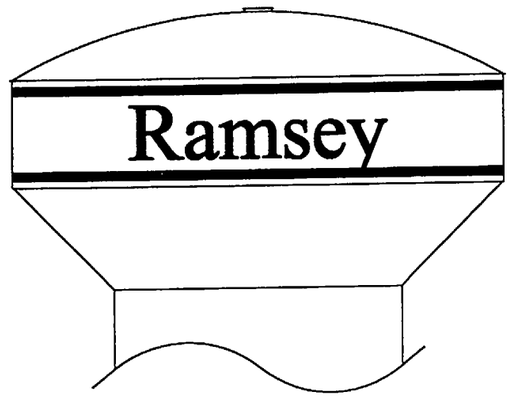




ORIENTATION

LOCATE NAME SIGNS @ 120° C-C

NAME SIGN



ELEVATION

NOTE:
COLOR OF NAME SIGN & STRIPES TO BE SELECTED BY OWNER.

766

OPEN HOLES N/A
ERECTION REF. N/A
WELD SPECS. AWWA D100-96
EIS- N/A

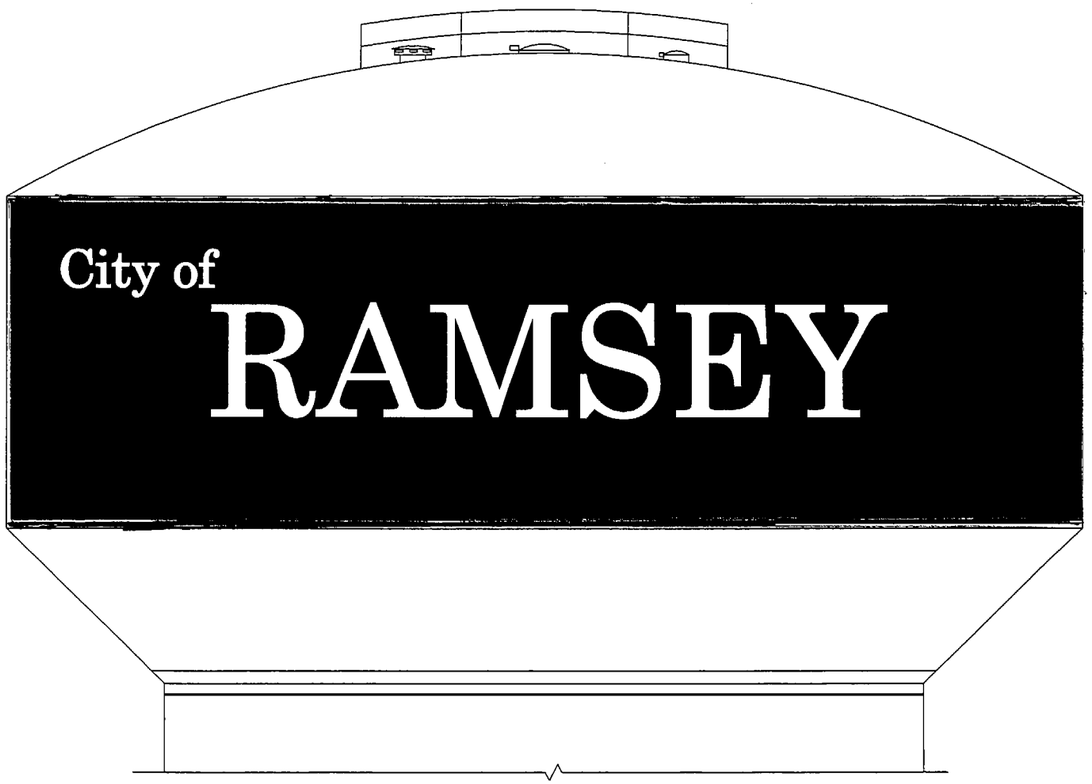
NO	REVISION DESCRIPTION	BY	DATE	CHK	DATE

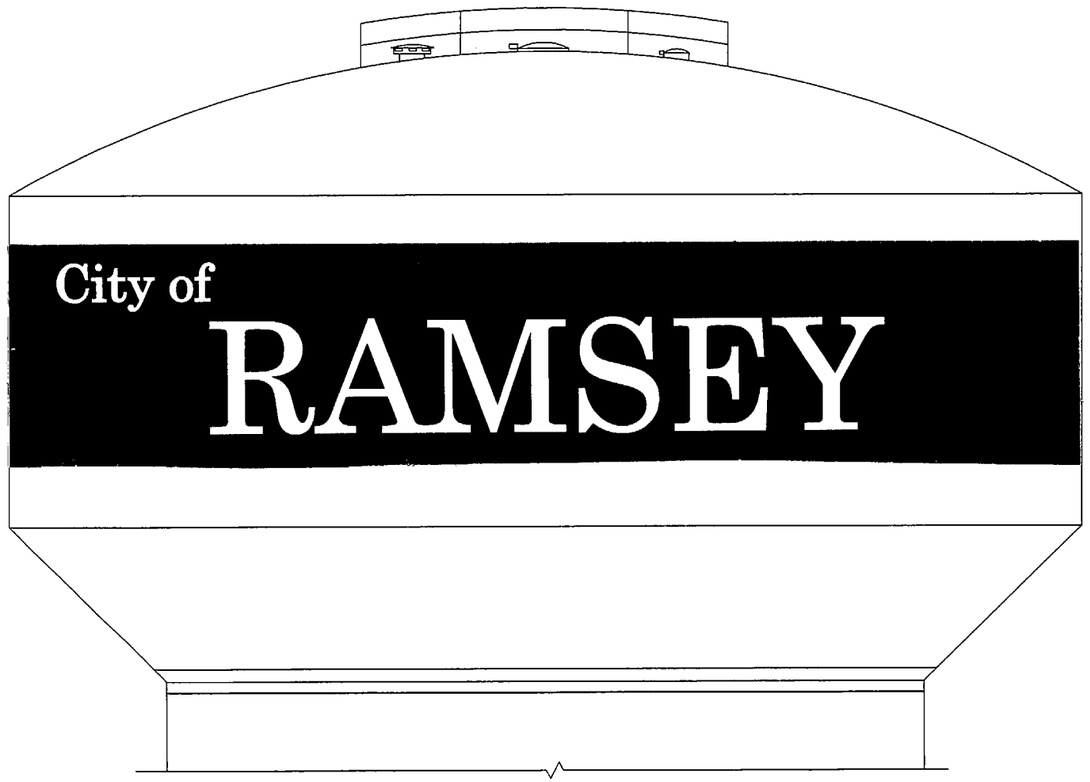
PDM Pitt-Des Moines, Inc.

PITT-DES MOINES, INC.
ENGINEERS - FABRICATORS - CONTRACTORS

CITY OF RAMSEY
1500 MG HP 90' DIA X 40' HR X 52' TWR
RAMSEY, MN
NAME SIGN

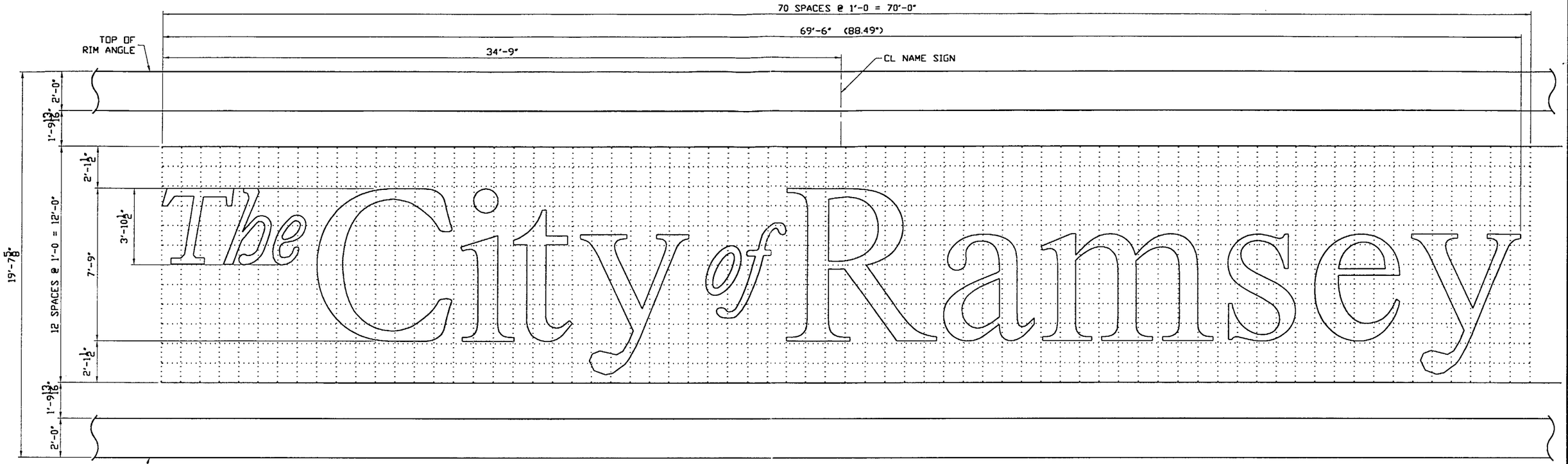
DWG. PREPARED AT: CLIVE		FABRICATED AT: CLIVE	
	BY	DATE	DRAWING: P2
DRAWN:	SEG	18AUG00	
CHECKED:	JMS	21AUG00	CONTRACT: 50557



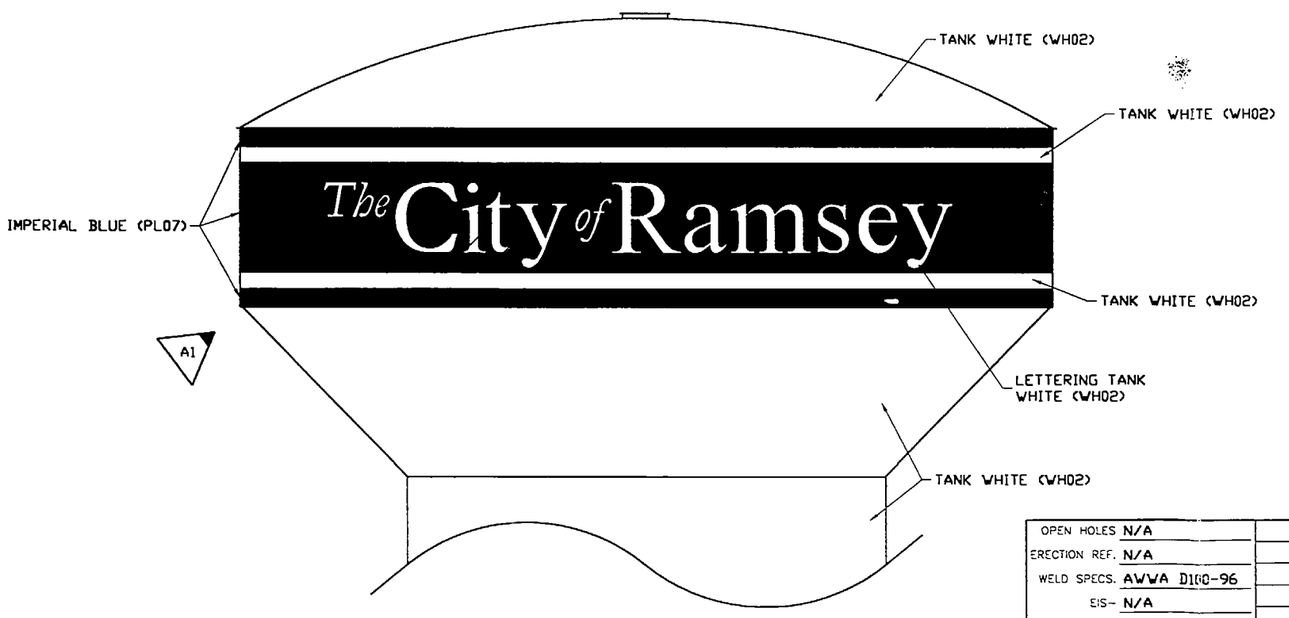


767

0 | 4/25/00 | LMC | ORIGINAL ISSUE PROJ. NO. 200502-2701		THIS DRAWING IS THE PROPERTY OF AEC ENGINEERING AND TO BE USED ONLY IN CONNECTIONWITH WORK PERFORMED BY AEC ENGINEERING. THE DRAWING IS NOT TO BE COPIED IN WHOLE OR IN PART AND MUST BE RETURNED UPON REQUEST.	SCALE AS NOTED DR. LMC DATE 4/25/00 CK. DATE APP. AS NOTED DATE	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA SIGNATURE: DATE: REG.NO.:	Minneapolis, Minnesota Richmond, Virginia AEC ENGINEERING	TOWER ELEVATIONS CITY OF RAMSEY 1.5 MILLION GALLON WATER TOWER	CADD FILE NAME DWG\RAMSEY\200502\2701\M2701-S07 SHEET OF AEC PROJECT NO. 200502-2701 DRAWING NO. M2701-S07 REV 0



NAME SIGN



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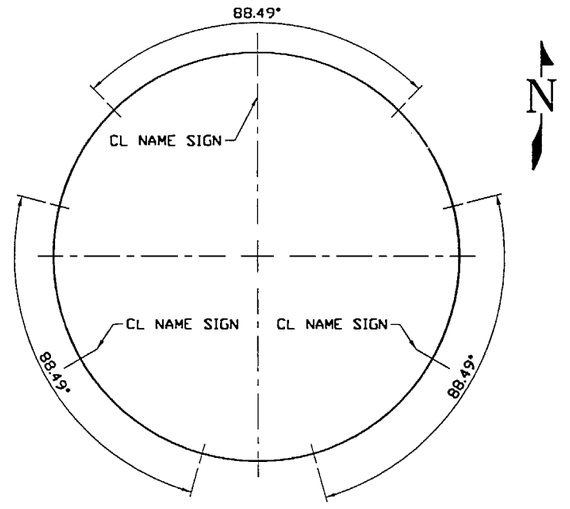


ORIENTATION

LOCATE NAME SIGNS @ 120° C-C

768

OPEN HOLES N/A
ERECTION REF. N/A
WELD SPECS. AWWA D100-96
EIS- N/A

NO	REVISION DESCRIPTION	BY	DATE	CHK	DATE
A1	CHANGED NAME SIGN PER OWNER	SEG	22MAY01	JMS	22MAY01

PDM Pitt-Des Moines, Inc.

PITT-DES MOINES, INC.
ENGINEERS - FABRICATORS - CONTRACTORS

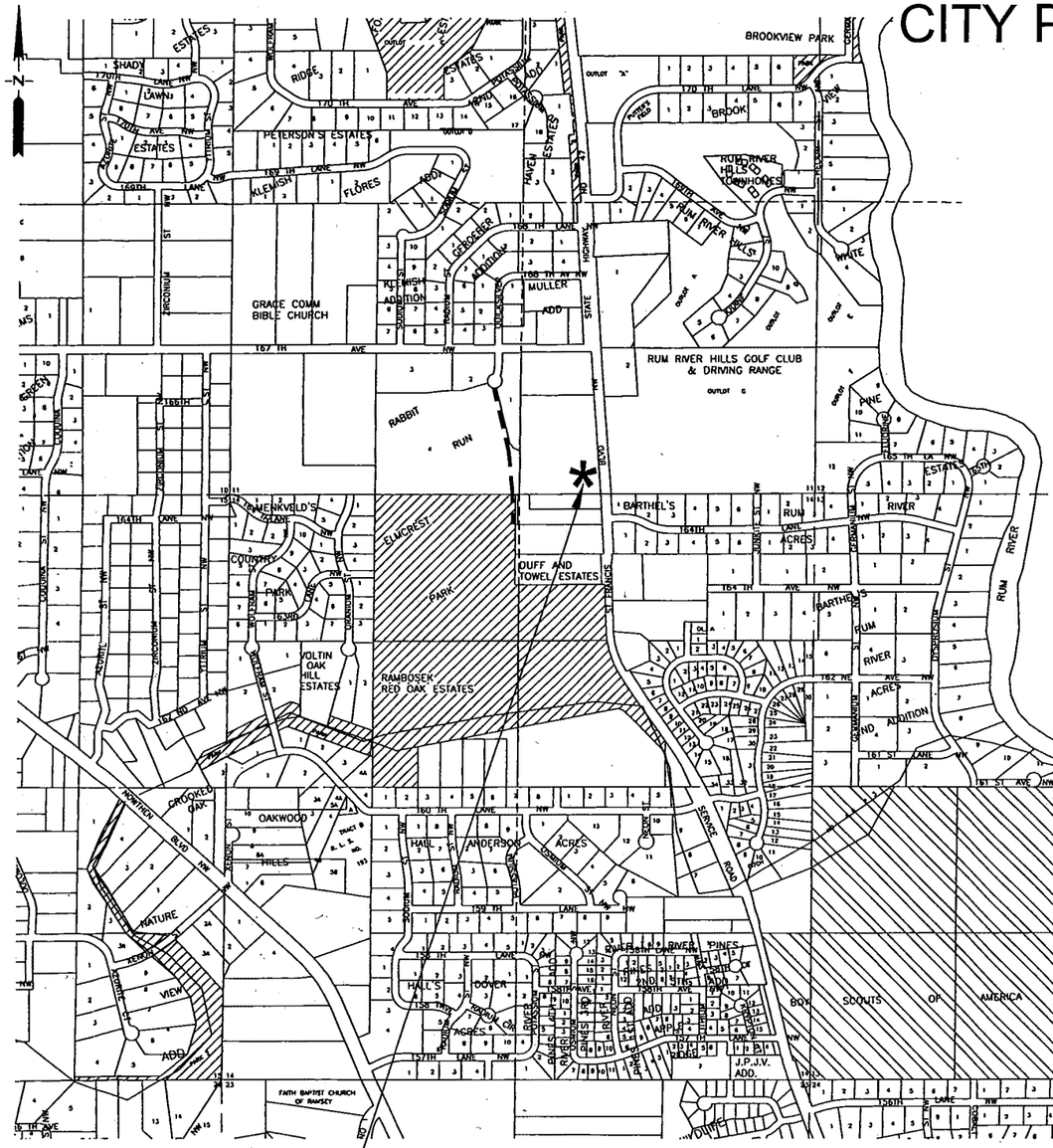
CITY OF RAMSEY
1500 MG HP 90' DIA X 40' HR X 52' TWR
RAMSEY, MN
NAME SIGN

DWG. PREPARED AT: CLIVE | FABRICATED AT: CLIVE

	BY	DATE		
DRAWN:	SEG	18AUG00	DRAWING:	P2
CHECKED:	JMS	21AUG00	CONTRACT:	50557

DRAWINGS FOR

CONSTRUCTION OF 2MG WATER TOWER NO. 3
CITY OF RAMSEY, MINNESOTA
CITY PROJECT NO. 08-21



PROJECT LOCATION MAP
NO SCALE

OWNER

City of RAMSEY

CIVIL / PROCESS

PROGRESSIVE CONSULTING ENGINEERS INC.
(763)560-9133
FAX:(763)560-0333
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430

ELECTRICAL

BARR
Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN.
55435-4803
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

WELDING/COATINGS INSPECTOR

KCI Kollmer Consultants, Inc.
Engineering, Coatings & Inspection Services
7494 253rd Avenue NE,
Stacy, MN 55079
Phone: (651) 462-7266
Fax: (651) 462-3249

INDEX

NOTES:

1. NO SITE ACCESS ALLOWED FROM ST. FRANCIS BLVD. ACCESS SITE FROM PARK ACCESS ROAD AT QUICKSILVER ST. AND 167TH AVE. NW.
2. STATE LAW: 48 HOURS BEFORE EXCAVATING OR DEMOLISHING BUILDINGS, CALL GOPHER STATE ONE CALL AT 800-252-1166 FOR FIELD LOCATION OF UNDERGROUND UTILITY LINES.

G1.dwg
P:\2008 Project Files\08015 - City of Ramsey 2MG Tower\CAD Drawings\Bid Documents\
05/27/09 - 10:30am

PROGRESSIVE CONSULTING ENGINEERS INC.
(763)560-9133
FAX:(763)560-0333
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430

ISSUE	DESCRIPTION	DATE
B	BID DOCUMENTS	5/22/09
A	MDH REVIEW SET	2/27/09

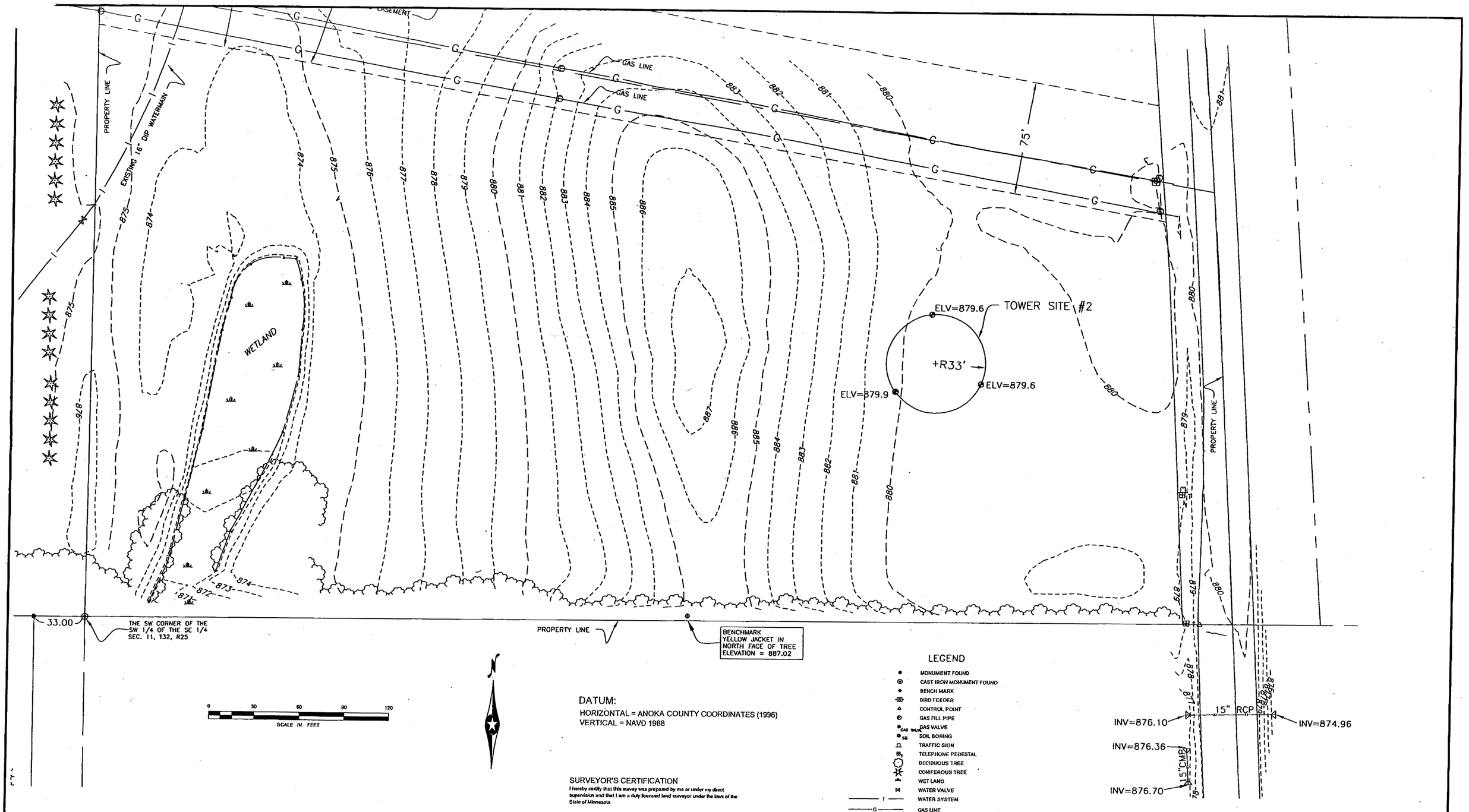
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
SIGNATURE: Naeem Qureshi
NAME: NAEEM QURESHI DATE: 5/22/09 REG No: 11262

DESIGNED: BZ
DRAWN: BD
CHECKED: NQ
DATE: 5/22/09

Water Tower No. 3 City of Ramsey, MN

PROJECT LOCATION AND DRAWING INDEX

JOB NO. 08015 | ISSUE B
DRAWING NO. G1



DATUM:
HORIZONTAL = ANOKA COUNTY COORDINATES (1996)
VERTICAL = NAVD 1988

LEGEND

- MONUMENT FOUND
- CAST IRON MONUMENT FOUND
- BENCH MARK
- BIRD FEEDER
- CONTROL POINT
- GAS FILL PIPE
- GAS VALVE
- SOIL BORING
- TRAFFIC SIGN
- TELEPHONE PEDESTAL
- DECIDUOUS TREE
- CONIFEROUS TREE
- WET LAND
- WATER VALVE
- WATER SYSTEM
- GAS LINE
- INTERMEDIATE CONTOURS
- INDEX CONTOURS

SURVEYOR'S CERTIFICATION

I hereby certify that this survey was prepared by me or under my direct supervision and that I am a duly licensed land surveyor under the laws of the State of Minnesota.

Craig E. Johnson
License Number 44530

02/10/09
Date

TOPOGRAPHIC SURVEY
PROPOSED WATER TOWER SITES

PART OF THE SW1/4 OF THE SE1/4 SECTION 11, TOWNSHIP 32, RANGE 25 ANOKA COUNTY

FOR: CITY OF RAMSEY

BOLTON & MENK, INC
Consulting Engineers & Surveyors
7533 SUNWOOD DRIVE, RAMSEY, MN 55303 (763) 433-2851
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

PROGRESSIVE CONSULTING ENGINEERS INC.
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(763)560-9133
FAX:(763)560-0333

ISSUE	DESCRIPTION	DATE
B	BID DOCUMENTS	5/22/09
A	MDH REVIEW SET	2/27/09

(FOR INFORMATION ONLY)

DESIGNED: BZ
DRAWN: BD
CHECKED: NQ
DATE: 5/22/09

Water Tower No. 3 — City of Ramsey

TOPOGRAPHIC SURVEY

JOB NO. 08015 | ISSUE B

DRAWING NO. G2

G2.dwg
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05/27/09 - 10:34am

KEY NOTES

1. CONSTRUCTION LIMITS AT GAS EASEMENT LINE. EDGE OF NEW PAVEMENT 2 FEET FROM GAS EASEMENT LINE.
2. PROVIDE 24' WIDE BY 10' LONG CONCRETE PAD. PROVIDE BOLLARD ON BOTH SIDES OF TOWER OVERHEAD DOOR.
3. PROVIDE 6' WIDE CONCRETE SIDEWALK TO TOWER ACCESS DOOR.

GENERAL NOTES

1. MATCH EXISTING ELEVATION AT CONSTRUCTION LIMITS UNLESS SHOWN OTHERWISE.
2. CONTRACTOR(S) MUST FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES WHETHER SHOWN ON THE DRAWING OR NOT. LOCATIONS MUST BE ESTABLISHED IMMEDIATELY PRIOR TO CONSTRUCTION.
3. STATE LAW: 48 HOURS BEFORE EXCAVATING OR DEMOLISHING BUILDINGS, CALL GOPHER STATE ONE CALL AT 800-252-1166 FOR FIELD LOCATION OF UNDERGROUND UTILITY LINES.
4. ALL UTILITY WORK TO BE INSPECTED BY CITY OF RAMSEY. CONTACT PUBLIC WORKS DEPARTMENT BEFORE BEGINNING WORK.
5. PROTECT EXISTING BITUMINOUS UNLESS NOTED FOR REMOVAL. REPLACE DAMAGED AREAS WITH NEW BITUMINOUS.
6. KEEP ALL EQUIPMENT, MATERIALS, ETC. INSIDE FENCED CONSTRUCTION AREA. CONTRACTOR TO DETERMINE SIZE AND LOCATION OF GATES. PROVIDE LOCKS AT ALL GATES. PROVIDE KEYS FOR OWNER AND ENGINEER.
7. PROVIDE TRAFFIC CONTROL PER THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR ALL WORK WITHIN CITY RIGHT OF WAY. MAINTAIN ACCESS TO EXISTING HOMES AND PARK AT ALL TIMES.
8. SEED AND MULCH ALL DISTURBED AREAS. SEE SPECIFICATIONS.
9. PROVIDE SILT FENCE AT CONSTRUCTION LIMITS FOR ENTIRE SITE EAST OF NEW INTERSECTION WITH EXISTING ACCESS ROAD.
10. SLOPE FINISHED GRADE MINIMUM OF 1% AWAY FROM TOWER FOR THE FIRST 10'.
11. EXACT TOWER DIMENSIONS TO BE DETERMINED BY MANUFACTURER. ADJUST GRADING AS NECESSARY.

0 30 60 90 120
SCALE IN FEET

R20'
16' BIT. DRIVEWAY. SEE TYP. CROSS SECTION.
EX. GAS LINES, APPROX. 4'-5' DEEP.
GAS EASEMENT
1
R15'
SEE C2 FOR CONTINUATION.
CUT INTO EXISTING16" D.I.P. CONNECT AT 90° ANGLE. SEE WATERMAIN CONNECTION DETAIL
PROPERTY LINE
EXISTING 16" DIP WATERMAIN
NEW 24" D.I.P.
DITCH. SEE TYP. CROSS SECTION
PROTECT WETLANDS
CONSTRUCTION LIMITS (TYP.)
GAS LINE-8"
GAS LINE-16"
VEHICLE TURNAROUND
EXISTING BITUMINOUS RD.
R34'
TOWER OVERFLOW SEE DETAIL.
HYDRANT ASSEMBLY SEE DETAIL
GATE VALVE IN MANHOLE. SEE DETAIL.
R10'
30'
20'
24'
2
3
OVERFLOW/ STORM PONDING AREA X 878.5
X 884.9
X 884.2
+ 884
APPROX. 66' DIAM. COLUMN
CONCRETE SPLASH BLOCK AND RIP-RAP. SEE DETAILS.
APPROX. 96' DIAM. BOWL
20' CLEAR MAINTENANCE AREA AROUND TANK
EXISTING ACCESS ROAD TO ELMCREST PARK
WETLAND
ST. FRANCIS BLVD NW
PROPERTY LINE
33.00
THE SW CORNER OF THE SW 1/4 OF THE SE 1/4 SEC. 11, T32, R25
PROPERTY LINE
BENCHMARK YELLOW JACKET IN NORTH FACE OF TREE ELEVATION = 887.02
N= 18566
E= 46146

LEGEND

- MONUMENT FOUND
- CAST IRON MONUMENT FOUND
- BENCH MARK
- EX. BIRD FEEDER
- CONTROL POINT
- EX. GAS FILL PIPE
- EX. GAS VALVE
- EX. SOIL BORING
- EX. TRAFFIC SIGN
- EX. TELEPHONE PEDESTAL
- EX. DECIDUOUS TREE
- EX. CONIFEROUS TREE
- NEW BUSHES
- NEW CONIFEROUS TREE
- EX. WET LAND
- EX. WATER VALVE
- EX. WATER SYSTEM
- EX. GAS LINE
- EX. INTERMEDIATE CONTOURS
- EX. INDEX CONTOURS
- NEW CONTOURS
- EXISTING BITUMINOUS PAVEMENT
- NEW BITUMINOUS PAVEMENT
- NEW BIT. PARKING LOT PAVEMENT
- NEW CONCRETE PAVEMENT

DATUM: HORIZONTAL = ANOKA COUNTY COORDINATES (1996)
VERTICAL = NAVD 1988

PROGRESSIVE CONSULTING ENGINEERS INC.
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430
(763)560-9133 FAX:(763)560-0333

ISSUE	DESCRIPTION	DATE
B	BID DOCUMENTS	5/22/09
A	MDH REVIEW SET	2/27/09

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
SIGNATURE: Naeem Qureshi
NAME: NAEEM QURESHI DATE: 5/22/09 REG No: 11262

DESIGNED:	BZ
DRAWN:	BD
CHECKED:	NQ
DATE:	5/22/09

Water Tower No. 3 — City of Ramsey

SITE PLAN

JOB NO. 08015 | ISSUE B
DRAWING NO. C1

C1.dwg
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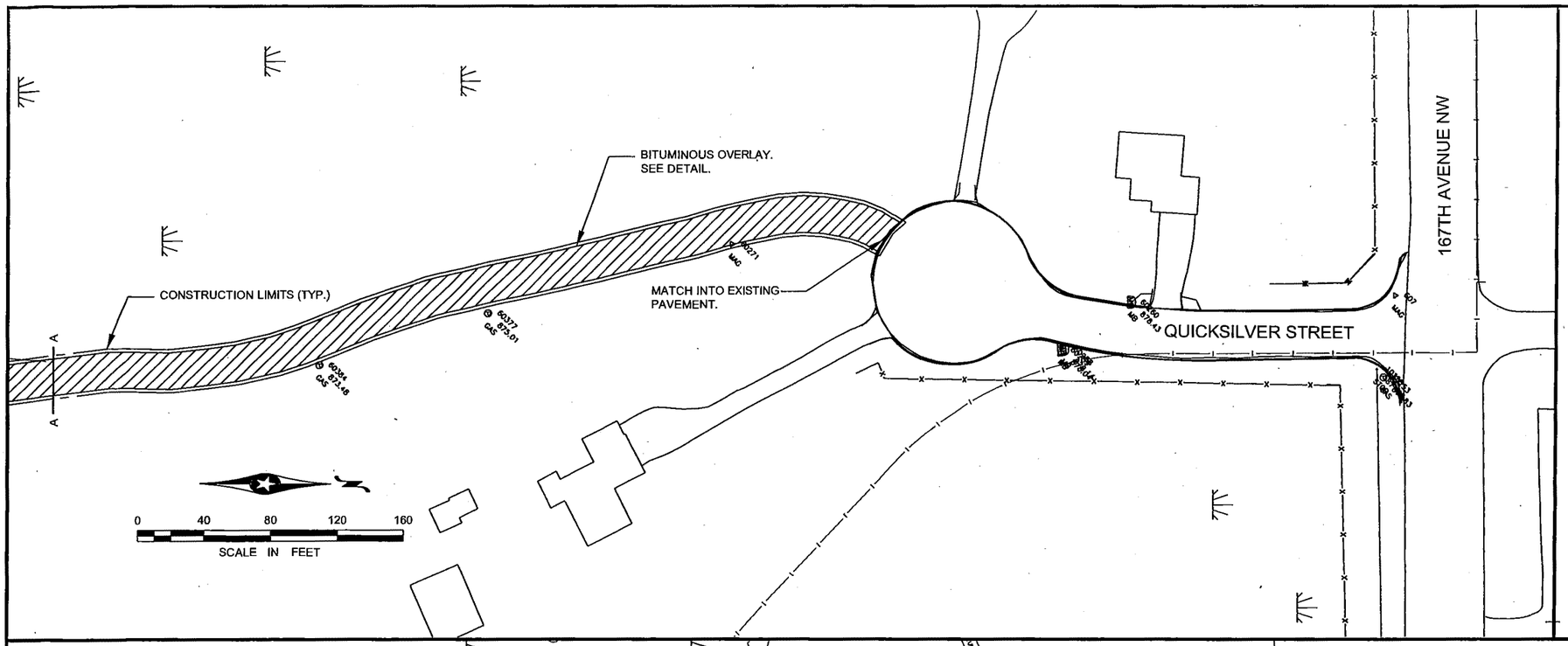

GENERAL NOTES

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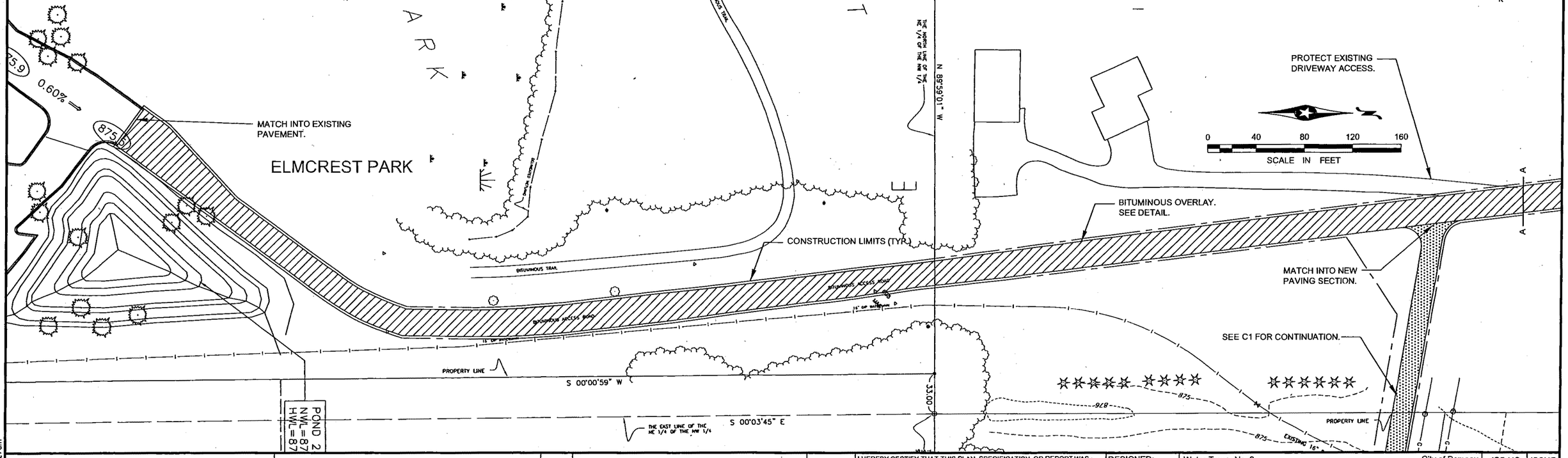
8. SEED AND MULCH ALL DISTURBED AREAS. SEE SPECIFICATIONS.

LEGEND

BITUMINOUS OVERLAY

BITUMINOUS PAVEMENT



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05/27/09 - 10:27am

PROGRESSIVE CONSULTING ENGINEERS INC.
(763)560-9133 FAX:(763)560-0333
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430

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B	BID DOCUMENTS	5/22/09
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SIGNATURE: Naeem Qureshi
NAME: NAEEM QURESHI DATE: 5/22/09 REG No: 11262

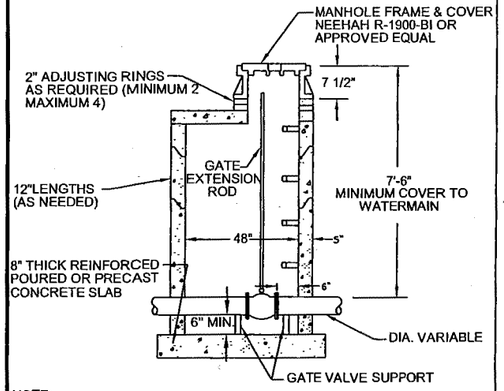
DESIGNED:	BZ
DRAWN:	BD
CHECKED:	NQ
DATE:	5/22/09

Water Tower No. 3 — City of Ramsey

ACCESS ROAD PAVING PLAN

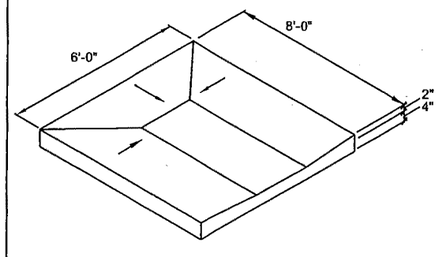
JOB NO.	ISSUE
08015	B

DRAWING NO. C2



NOTE:
A: PROVIDE 1" TAP OFF BOTH SIDES OF VALVE AT PIPE CENTERLINE.

(1/C3) GATE VALVE MANHOLE NO SCALE



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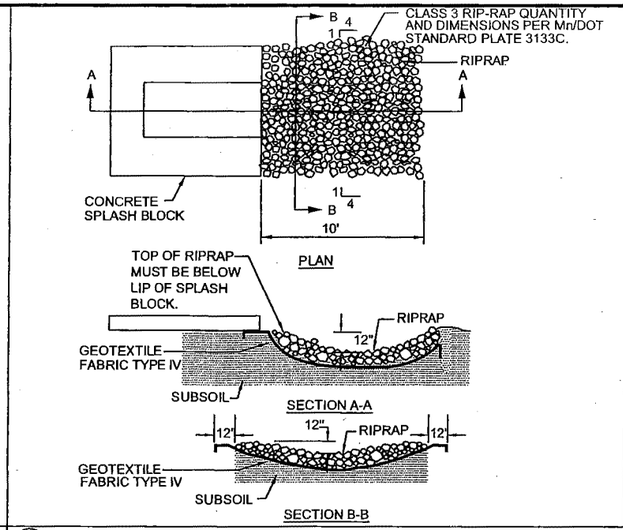
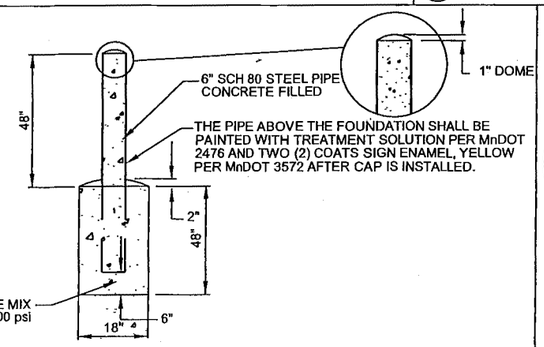
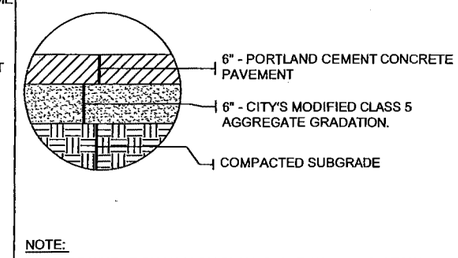
(2/C3) CONCRETE SPLASH BLOCK



(3/C3) RIP-RAP DETAIL NO SCALE



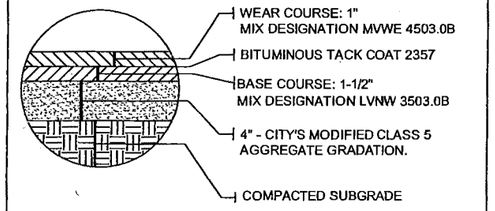
(4/C3) BOLLARD STEEL GUARD POST NO SCALE



NOTE:
PROVIDE WHERE SHOWN ON PLAN. SLOPE AWAY FROM TOWER.

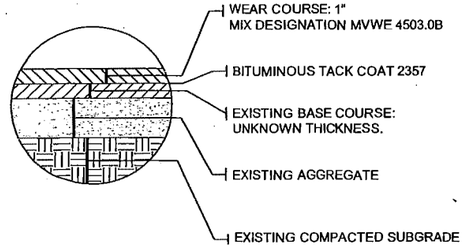
NO SCALE

(5/C3) CONCRETE PAVING SECTION



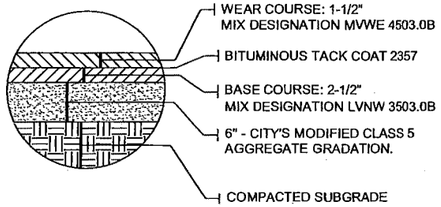
NOTE:
PROVIDE 1/2" CROWN OR 1/2" SLOPE ACROSS ROAD ON AGGREGATE COURSE AS NECESSARY TO ALLOW PROPER DRAINAGE. NO SCALE

(6/C3) BITUMINOUS PAVING SECTION



NO SCALE

(7/C3) BITUMINOUS OVERLAY PAVING SECTION



NOTE:
PROVIDE WHERE SHOWN ON PLAN.
SLOPE AS NECESSARY TO ALLOW PROPER DRAINAGE.

NO SCALE

(8/C3) BITUMINOUS PARKING LOT PAVING SECTION

CITY OF RAMSEY
MODIFIED CLASS 5 GRADATION

SCREEN SIZE	% PASSING
1"	100
3/4"	90–100
3/8"	50–80
NO. 4	35–70
NO.10	20–60
NO.40	10–35
NO.200	5–10

AGGREGATE

(9/C3) GRADATION NO SCALE

EROSION CONTROL STANDARD NOTES:

SEDIMENT CONTROL PRACTICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UPGRADIENT LAND DISTURBING ACTIVITIES BEGIN. THESE PRACTICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED. THE TIMING OF THE INSTALLATION OF SEDIMENT CONTROL PRACTICES MAY BE ADJUSTED TO ACCOMMODATE SHORT–TERM ACTIVITIES SUCH AS CLEARING OR GRUBBING, OR PASSAGE OF VEHICLES. ANY SHORT–TERM ACTIVITY MUST BE COMPLETED AS QUICKLY AS POSSIBLE AND THE SEDIMENT CONTROL PRACTICES MUST BE INSTALLED IMMEDIATELY AFTER THE ACTIVITY IS COMPLETED. HOWEVER, SEDIMENT CONTROL PRACTICES MUST BE INSTALLED BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE ACTIVITY IS NOT COMPLETE.

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE, OR DIVERTS WATER AROUND A SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER.

OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER.

ALL STORM DRAIN INLETS WITHIN 50' OF EXCAVATION LIMITS MUST BE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED.

TEMPORARY SOIL STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN SURFACE WATERS, INCLUDING STORM WATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES.

VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE MUST BE MINIMIZED BY STONE PADS OR EQUIVALENT SYSTEMS. STREET SWEEPING MUST BE USED IF SUCH BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET. CONTRACTOR SHALL HAVE A STREET SWEEPER ON SITE OR HAVE ONE AVAILABLE WITHIN 3 HOURS. TRACKED SEDIMENT MUST BE REMOVED FROM ALL OFF–SITE PAVED SURFACES PROMPTLY UPON DISCOVERY, OR AS DIRECTED BY THE CITY.

THE CONSTRUCTION SITE MUST BE ROUTINELY INSPECTED ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION MUST BE RECORDED IN WRITING AND THESE RECORDS MUST BE RETAINED WITH THE SWPPP. ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS MUST BE INSPECTED TO ENSURE INTEGRITY AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPS MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPS. THE PERMITTEE(S) MUST INVESTIGATE AND COMPLY WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS:

ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT NO SEDIMENT FROM ONGOING CONSTRUCTION ACTIVITIES IS REACHING THE INFILTRATION AREA AND THESE AREAS ARE PROTECTED FROM COMPACTION DUE TO CONSTRUCTION EQUIPMENT DRIVING ACROSS THE INFILTRATION AREA.

SOLID WASTE: COLLECTED SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTES MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

HAZARDOUS MATERIALS: OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE.

ALL EXPOSED SOIL AREAS WITH A CONTINUOUS POSITIVE SLOPE WITHIN 200 LINEAL FEET OF A SURFACE WATER, MUST HAVE TEMPORARY EROSION PROTECTION OR PERMANENT COVER FOR THE EXPOSED SOIL AREAS YEAR ROUND, ACCORDING TO THE FOLLOWING TABLE OF SLOPES AND TIME FRAMES:

TYPE OF SLOPE	TIME	(MAXIMUM TIME AN AREA CAN REMAIN OPEN WHEN THE AREA IS NOT ACTIVELY BEING WORKED.)
STEEPER THAN 3:1	7 DAYS	
10:1 TO 3:1	14 DAYS	
FLATTER THAN 10:1	21 DAYS	

THESE AREAS INCLUDE CONSTRUCTED STORM WATER MANAGEMENT POND SIDE SLOPES, AND ANY EXPOSED SOIL AREAS WITH A POSITIVE SLOPE TO A STORMWATER CONVEYANCE SYSTEM, SUCH AS A CURB AND GUTTER SYSTEM, STORM SEWER INLET, TEMPORARY OR PERMANENT DRAINAGE DITCH OR OTHER NATURAL OR MAN MADE SYSTEMS THAT DISCHARGE TO A SURFACE WATER.

NPDES/SDS PERMIT IS REQUIRED BY MPCA. SEE SPECIFICATIONS.

MEET THE REQUIREMENTS OF THE CONSTRUCTION PERMIT FROM THE LOWER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION (LRRWMO).

PROGRESSIVE CONSULTING ENGINEERS INC.
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430
(763)560-9133 FAX:(763)560-0333

ISSUE	DESCRIPTION	DATE
B	BID DOCUMENTS	5/22/09
A	MDH REVIEW SET	2/27/09

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
SIGNATURE: Naeem Qureshi
NAME: NAEEM QURESHI DATE: 5/22/09 REG No: 11262

DESIGNED: BZ
DRAWN: BD
CHECKED: NQ
DATE: 5/22/09

Water Tower No. 3 City of Ramsey, MN

CIVIL DETAILS

JOB NO. 08015 ISSUE B
DRAWING NO. C3

C3.dwg
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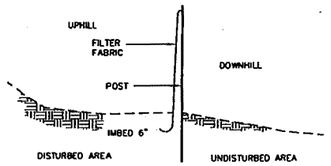
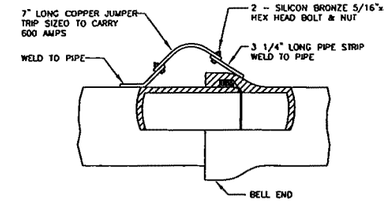


INSTALL AS PER FILTER FABRIC MANUFACTURER'S RECOMMENDATIONS

SILT FENCE DETAIL

NO SCALE

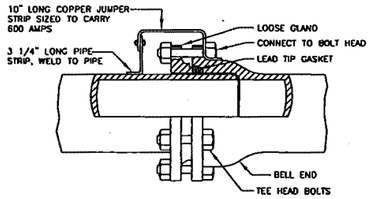
APPROVED DATE 2-2005	City of RAMSEY	STANDARD DETAILS: SILT FENCE — CITY PLATE No. ERO-1



PUSH ON JOINT

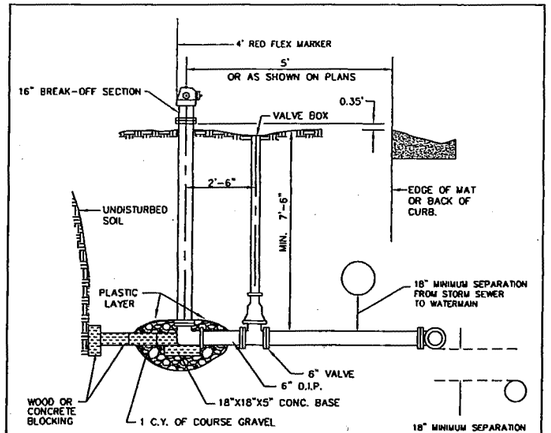
NOTE: DO NOT PASS CURRENT THROUGH PIPE UNLESS PIPE IS FULL OF WATER.

ALTERNATE METHOD BY AMERICAN CAST -IRON USING 4 COPPER CONTACT STRIPS IS AN APPROVED EQUAL TO ABOVE



MECHANICAL JOINT

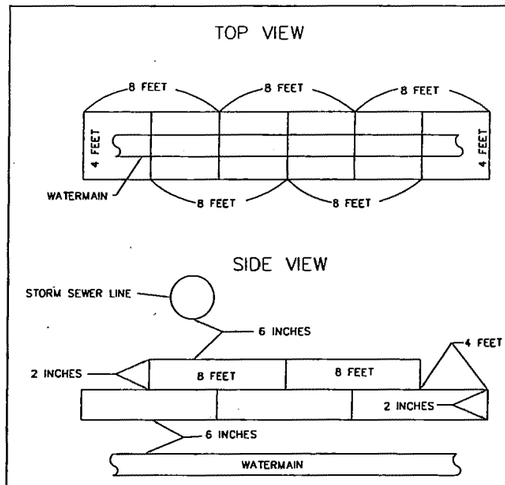
APPROVED DATE 7-93	City of RAMSEY	STANDARD DETAILS: JOINT CONNECTION FOR ELECTRICAL CONDUCTIVITY — CITY PLATE No. WAT-1



NOTES:

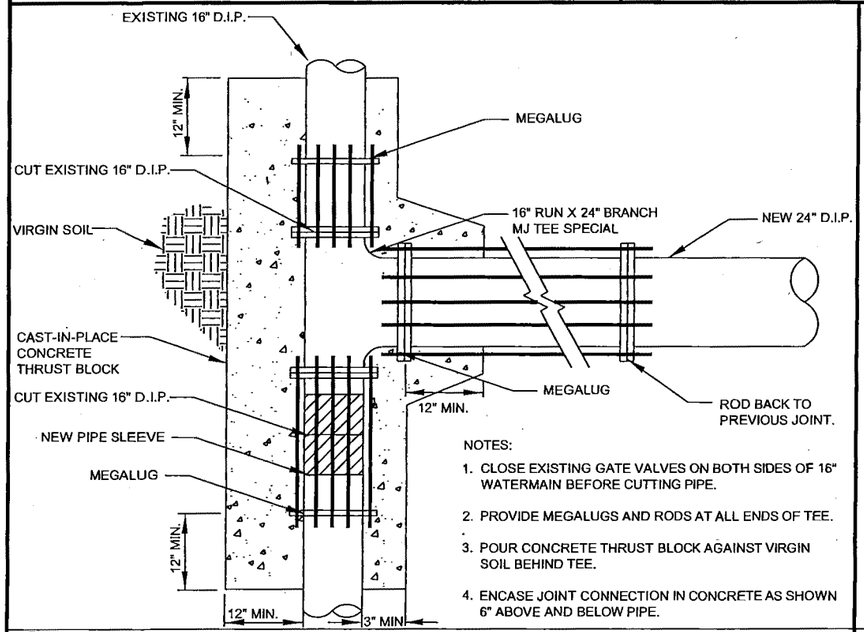
1. HYDRANTS TO BE ORDERED FOR 8'-0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANT EXTENSIONS MAY BE REQUIRED.
2. HYDRANT SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2-3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.
3. TOP NUT OF HYDRANT 2.5' ABOVE TOP BACK OF CURB OR BITUMINOUS SURFACE
4. HYDRANTS BURIED BELOW WATER TABLE, DRAIN HOLES NEED TO BE PLUGGED AND HYDRANT MARKED BY PAINTING 5" CAP YELLOW
5. ALL VALVE BOXES SHALL HAVE A VALVE NUT EXTENSION TO WITHIN 1' OF FINISHED GRADE
6. BRUSH PAINT ALL HYDRANTS AFTER INSTALLATION IS COMPLETE

APPROVED DATE 4-2005	City of RAMSEY	STANDARD DETAILS: HYDRANT — CITY PLATE No. WAT-3



NOTES: 1) SHEETS ARE 2 INCHES BY 4 FEET BY 8 FEET
2) SURFACE PREPARATION SHALL BE SMOOTH AND ROCK FREE
3) JOINTS WILL BE OVERLAPPED BY 4 FEET
4) POLYSTYRENE INSULATION OR APPROVED EQUAL

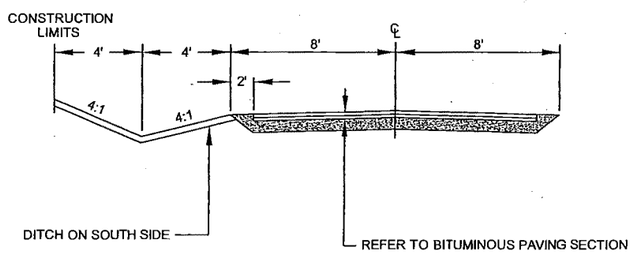
APPROVED DATE 4/2004	City of RAMSEY	STANDARD DETAILS: UTILITY INSULATION — CITY PLATE No. WAT-5



NOTES:

1. CLOSE EXISTING GATE VALVES ON BOTH SIDES OF 16" WATERMAIN BEFORE CUTTING PIPE.
2. PROVIDE MEGALUGS AND RODS AT ALL ENDS OF TEE.
3. POUR CONCRETE THRUST BLOCK AGAINST VIRGIN SOIL BEHIND TEE.
4. ENCASE JOINT CONNECTION IN CONCRETE AS SHOWN 6" ABOVE AND BELOW PIPE.

(1/C4) WATERMAIN CONNECTION DETAIL — NO SCALE



(2/C4) DRIVEWAY TYP. CROSS SECTION — NO SCALE

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DESIGNED:	BZ
DRAWN:	BD
CHECKED:	NQ
DATE:	5/22/09

Water Tower No. 3 — City of Ramsey, MN

CIVIL DETAILS

JOB NO.	ISSUE
08015	B

DRAWING NO. C4

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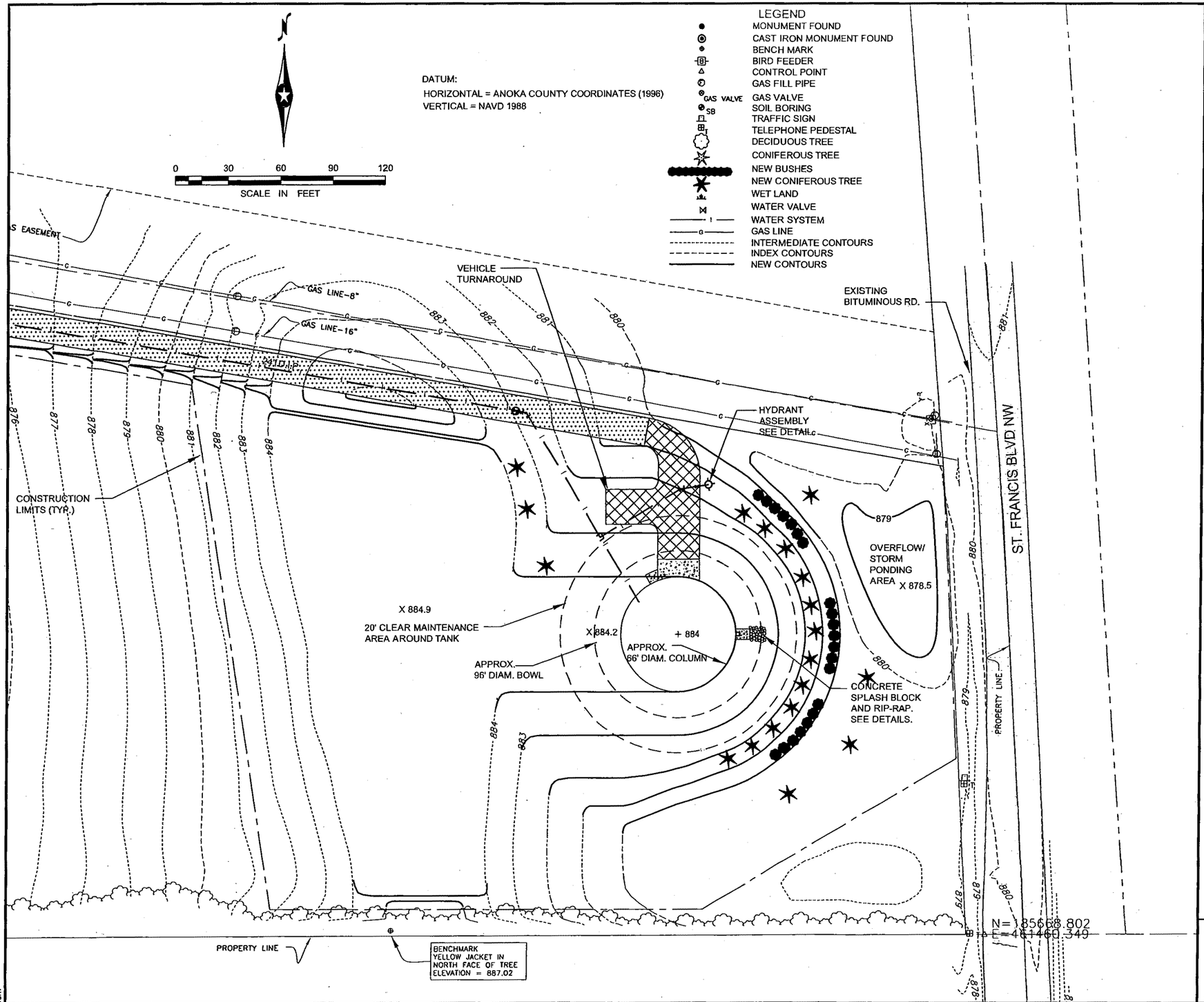
05/27/09 - 10:31am



GENERAL NOTES

1. CONTRACTOR(S) MUST FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES WHETHER SHOWN ON THE DRAWING OR NOT. LOCATIONS MUST BE ESTABLISHED IMMEDIATELY PRIOR TO CONSTRUCTION.
2. STATE LAW: 48 HOURS BEFORE EXCAVATING OR DEMOLISHING BUILDINGS, CALL GOPHER STATE ONE CALL AT 800-252-1166 FOR FIELD LOCATION OF UNDERGROUND UTILITY LINES.
3. REFER TO CIVIL SHEETS FOR GRADING AND SEEDING.
4. PROVIDE FOUR INCHES OF MULCH EXTENDING THREE FEET FROM THE TRUNK. KEEP MULCH AWAY FROM THE TRUNK OF THE TREE.
5. ALL LANDSCAPE BEDS AND PLANTINGS TO HAVE DRAINABLE WEED BARRIER AND MULCH WITH CONTRACTOR GRADE EDGING. SEE SPECIFICATIONS.
6. NEW TREES SHALL BE 8' TALL. TREES SHALL BE WHITE SPRUCE, EXCEPT 4 TREES LOCATED EAST OF BUSHES SHALL BE WHITE PINE.
7. BUSHES SHALL BE SUMAC AND DOGWOOD, INTERMIXED. SPACE BUSHES 8' ON CENTER.

THE PLANTING DEPTH OF EACH TREE WILL BE INSPECTED. ANY TREE PLANTED TOO DEEPLY OR WITH FLARE BURIED WILL BE REJECTED.

ALL TREES TO BE PREMIUM QUALITY, NO "PARK GRADE" TREES ARE PERMITTED.

AFTER INSTALLATION, TRIM OUT DEADWOOD AND/OR DEFORMED TWIGS. DO NOT CUT LEADER.

AMENDED SOIL SHALL CONTAIN 5% ORGANIC MATTER BY VOLUME.

DIAMETER OF HOLE SHALL BE THREE TIMES THE DIAMETER OF THE ROOTBALL OR ROOT MASS.

ORGANIC MATTER SHALL NO BE BANKED AGAINST THE STEM OR TRUNK OF THE TREE.

TREE SHALL NOT BE STAKED UNLESS IT IS ABSOLUTELY NECESSARY TO DO SO.

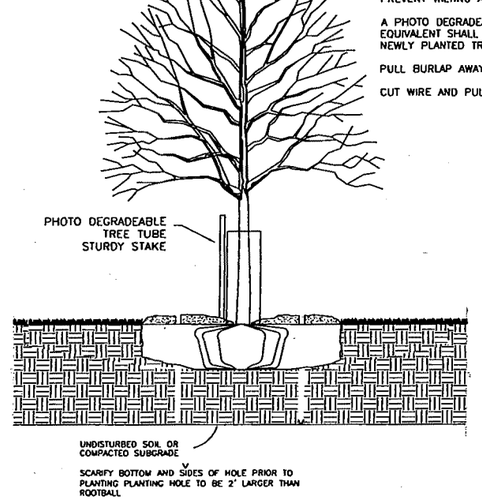
ALL TAGS, BANDS AND WIRES SHALL BE REMOVED FROM TREE IMMEDIATELY AFTER PLANTING.

THE TREE SHALL BE WATERED AS NECESSARY TO PREVENT WILTING AND PROMOTE ROOT GROWTH.

A PHOTO DEGRADEABLE TREE TUBE OR EQUIVALENT SHALL BE INSTALLED AROUND ALL NEWLY PLANTED TREES.

PULL BURLAP AWAY FROM TREE STEM.

CUT WIRE AND PULL AWAY FROM TREE STEM.



APPROVED

DATE 5-97

City of RAMSEY

STANDARD DETAILS
TREE PLANTING DETAIL

CITY PLATE No. PARK-2

PROGRESSIVE CONSULTING ENGINEERS INC.
(763)560-9133 FAX:(763)560-0333
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430

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Water Tower No. 3 — City of Ramsey

LANDSCAPING PLAN

JOB NO. 08015 | ISSUE B
DRAWING NO. L1

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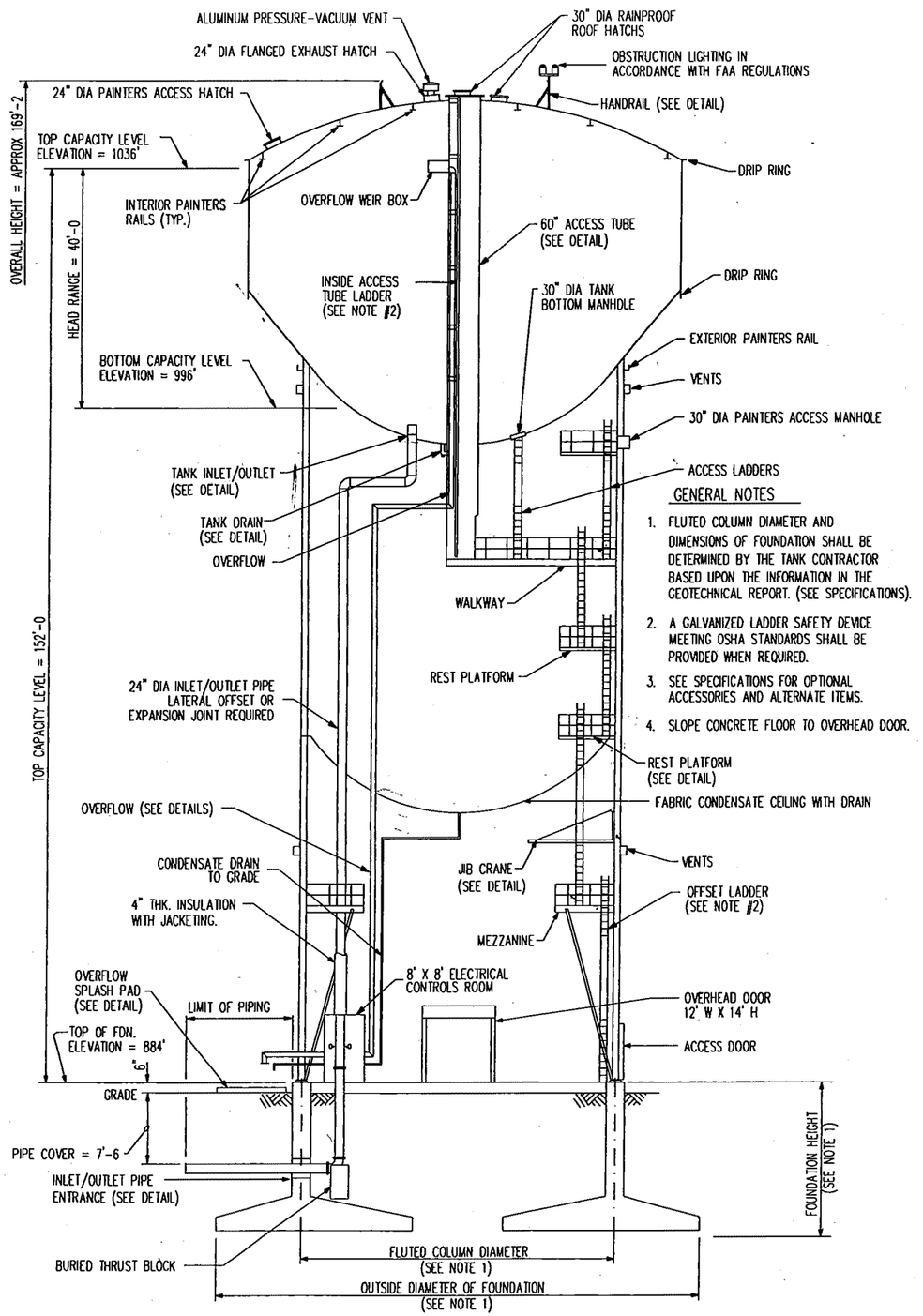
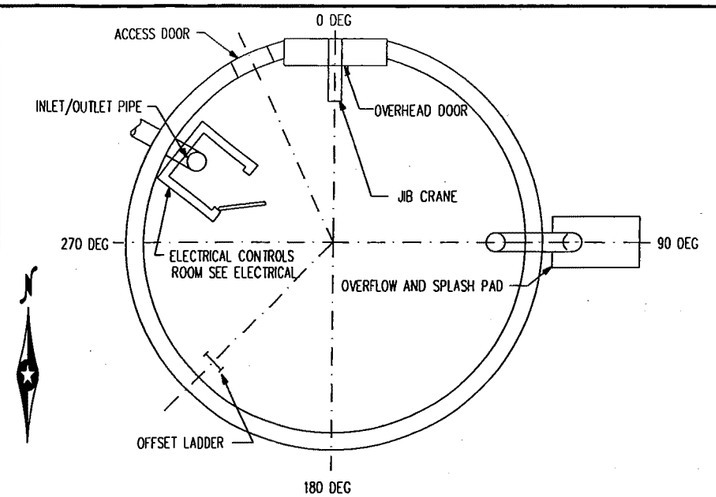


GENERAL NOTES

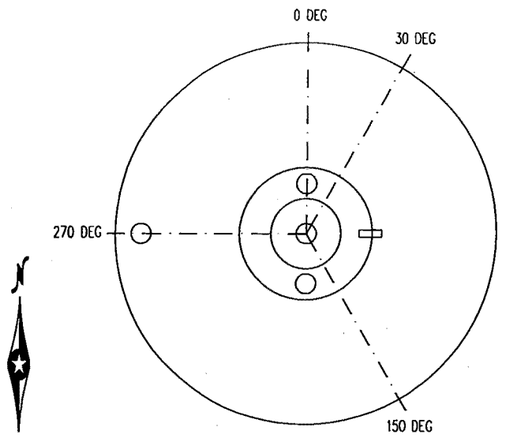
1. FLUTED COLUMN DIAMETER AND DIMENSIONS OF FOUNDATION SHALL BE DETERMINED BY THE TANK CONTRACTOR BASED UPON THE INFORMATION IN THE GEOTECHNICAL REPORT. (SEE SPECIFICATIONS).
2. A GALVANIZED LADDER SAFETY DEVICE MEETING OSHA STANDARDS SHALL BE PROVIDED WHEN REQUIRED.
3. SEE SPECIFICATIONS FOR OPTIONAL ACCESSORIES AND ALTERNATE ITEMS.
4. SLOPE CONCRETE FLOOR TO OVERHEAD DOOR.

(1/P1) TOWER ELEVATION — NO SCALE



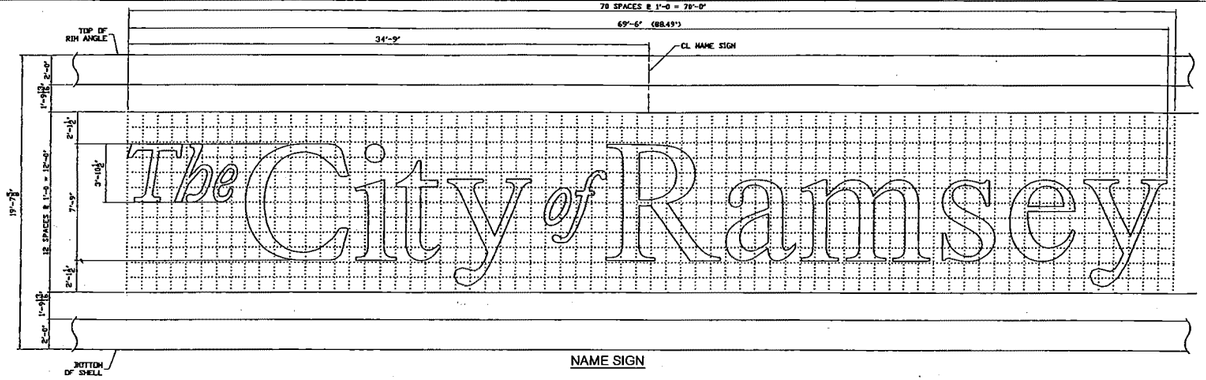
AZIMUTH	DESCRIPTION
0°	NORTH ARROW
0°	OVERHEAD DOOR
0°	JIB CRANE
90°	OVERFLOW SPLASH PAD
315°	INLET/OUTLET PIPE
335°	ACCESS DOOR

(2/P1) COLUMN ORIENTATION PLAN — NO SCALE

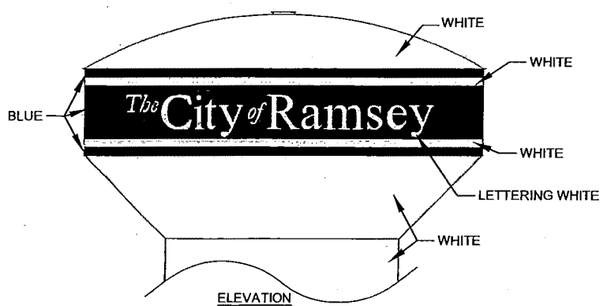


AZIMUTH	DESCRIPTION
0°	NORTH ARROW
30°	LOGO (CENTERED)
150°	LOGO (CENTERED)
270°	LOGO (CENTERED)

(3/P1) ROOF ORIENTATION PLAN — NO SCALE



NAME SIGN



ELEVATION

1. REFER TO COATING SCHEDULE IN THE SPECIFICATIONS FOR MATERIALS AND COLORS.

(4/P1) LOGO DETAIL — NO SCALE

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6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430
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Water Tower No. 3 — City of Ramsey, MN

TOWER PLAN

JOB NO. 08015 | ISSUE B
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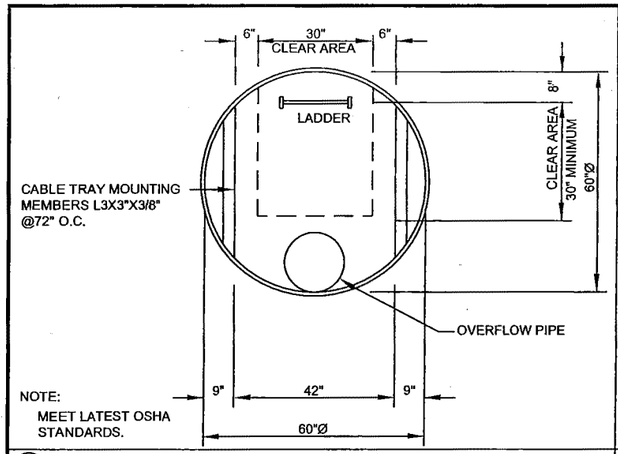
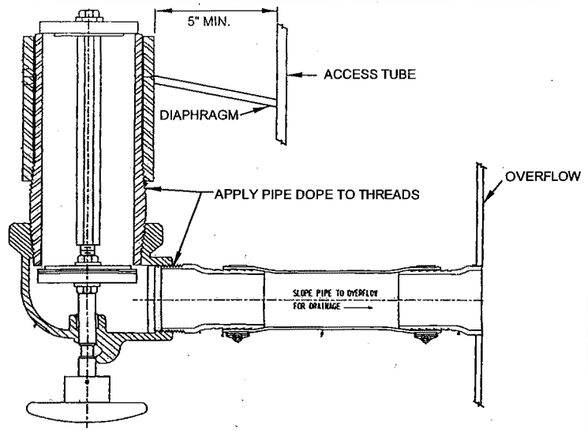
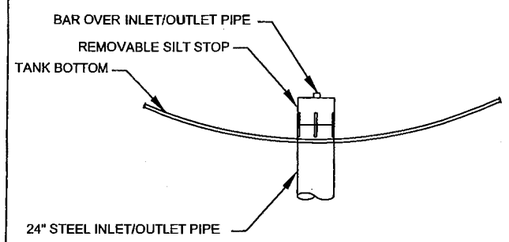


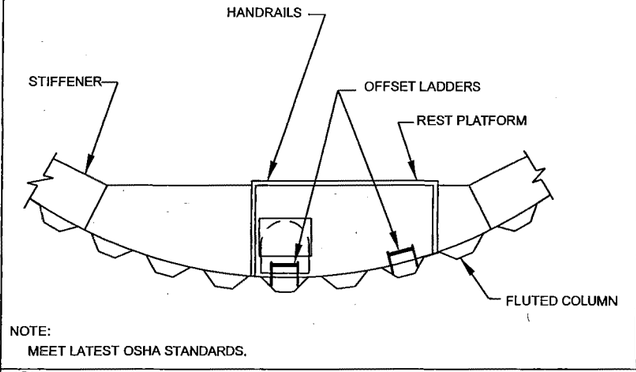
1 P2 ACCESS TUBE SECTION NO SCALE



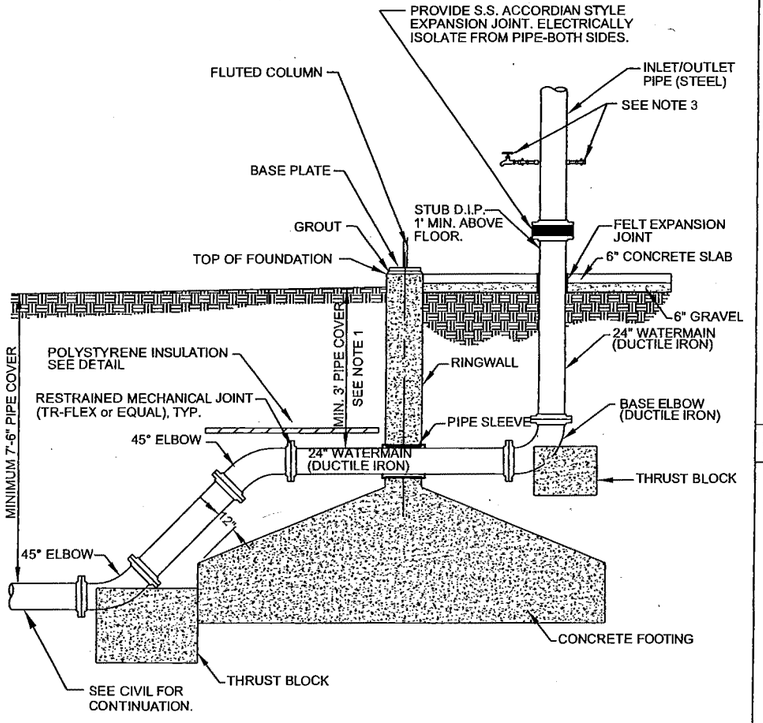
2 P2 4" DIA. NON FREEZE DRAIN VALVE NO SCALE



3 P2 TANK INLET/OUTLET PIPE NO SCALE



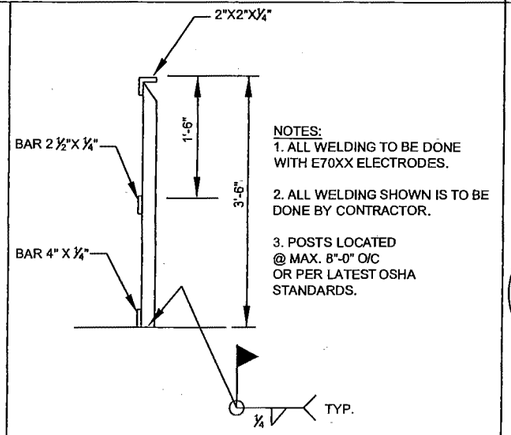
4 P2 TYPICAL OFFSET LADDERS PLATFORMS NO SCALE



NOTES:

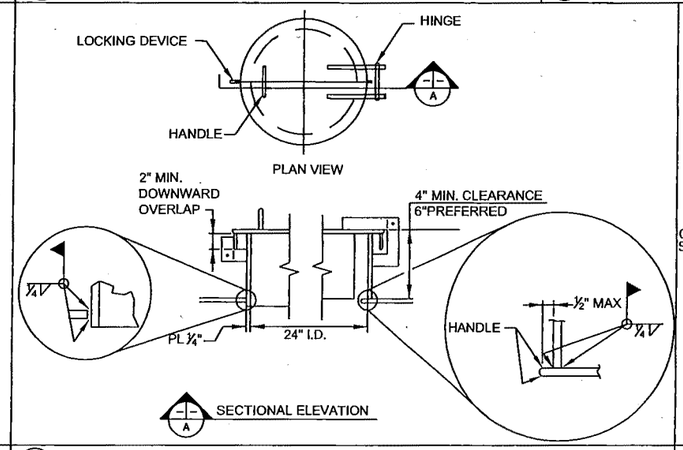
1. PROVIDE INSULATION OVER PIPE WHERE PIPE COVER IS LESS THAN 7'-6" MININMUM. SEE CIVIL DETAIL.
2. USE GRANULAR FILL FOR BACK FILLING DUCTILE IRON PIPE TRENCH. EXTEND GRANULAR FILL AT LEAST 10 FEET PAST RINGWALL.
3. PROVIDE 3/4" DIA. CORPORATION STOP AND SMOOTH NOSED SAMPLE TAP LOCATED 4' ABOVE FLOOR ELEVATION ON RISER PIPE.

5 P2 INLET/OUTLET PIPE ENTRANCE DETAIL NO SCALE

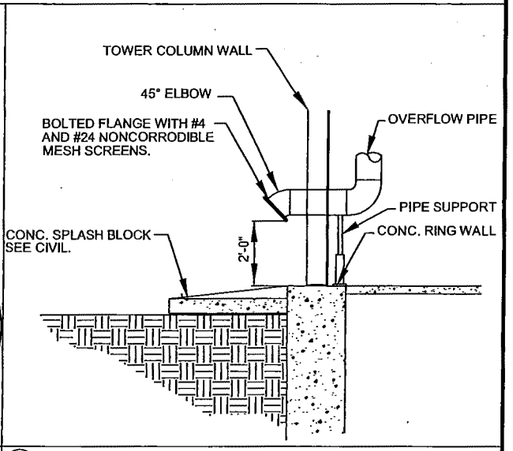


NOTES:
1. ALL WELDING TO BE DONE WITH E70XX ELECTRODES.
2. ALL WELDING SHOWN IS TO BE DONE BY CONTRACTOR.
3. POSTS LOCATED @ MAX. 8'-0" O/C OR PER LATEST OSHA STANDARDS.

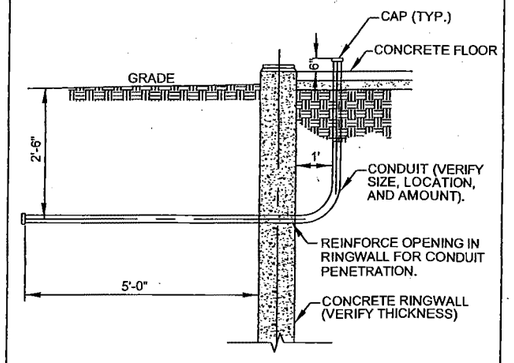
6 P2 HANDRAIL SECTION NO SCALE



7 P2 ROOF HATCH NO SCALE



8 P2 OVERFLOW SECTION NO SCALE



9 P2 RINGWALL CONDUIT DETAIL NO SCALE

10 P2 NO SCALE

11 P2 NO SCALE

PROGRESSIVE CONSULTING ENGINEERS INC.
(763)560-9133 FAX:(763)560-0333
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430

ISSUE	DESCRIPTION	DATE
B	BID DOCUMENTS	5/22/09
A	MDH REVIEW SET	2/27/09

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
SIGNATURE: Naeem Qureshi
NAME: NAEEM QURESHI DATE: 5/22/09 REG No: 11262

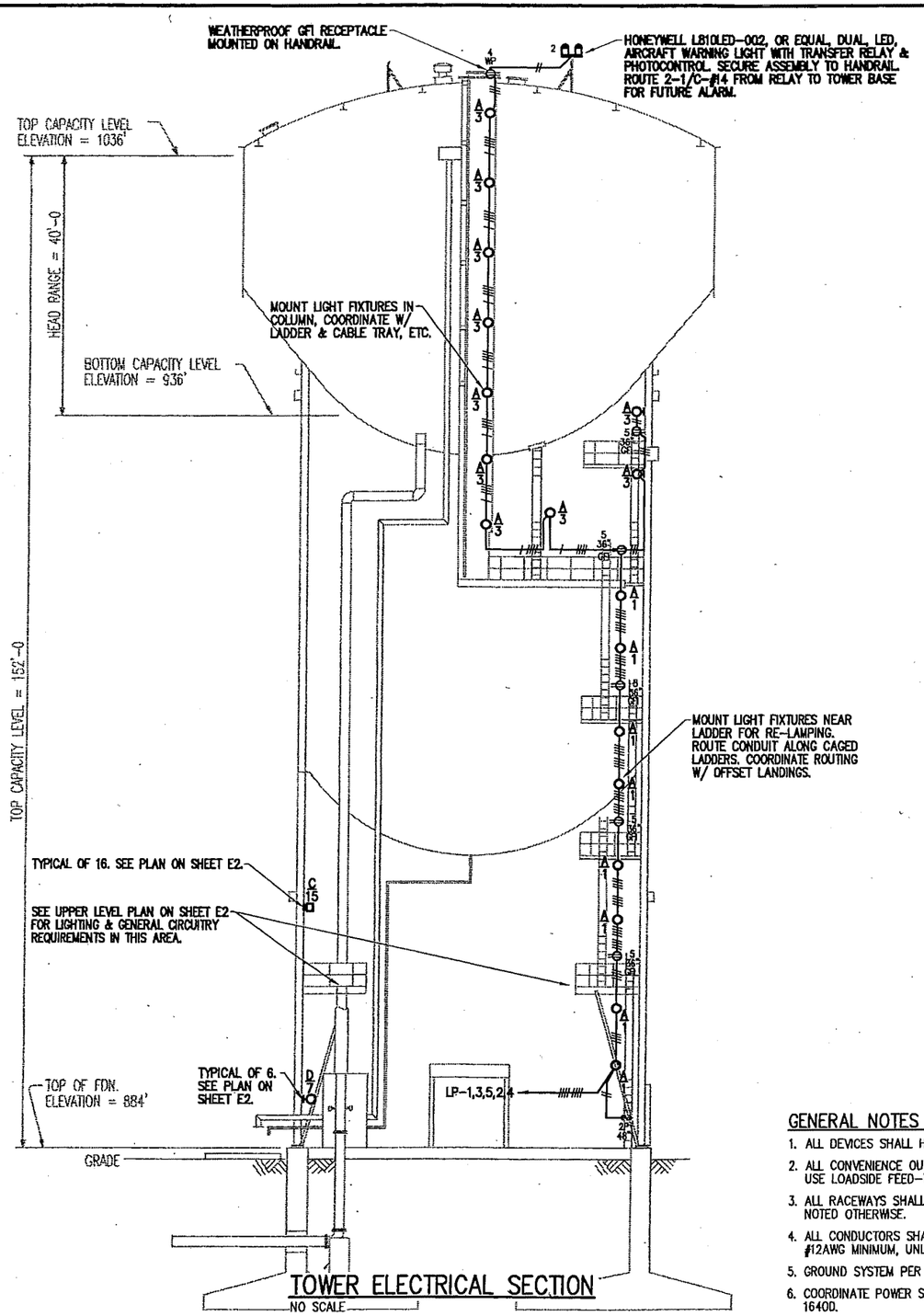
DESIGNED: BZ
DRAWN: BD
CHECKED: NQ
DATE: 5/22/09

Water Tower No. 3 City of Ramsey, MN

TOWER DETAILS

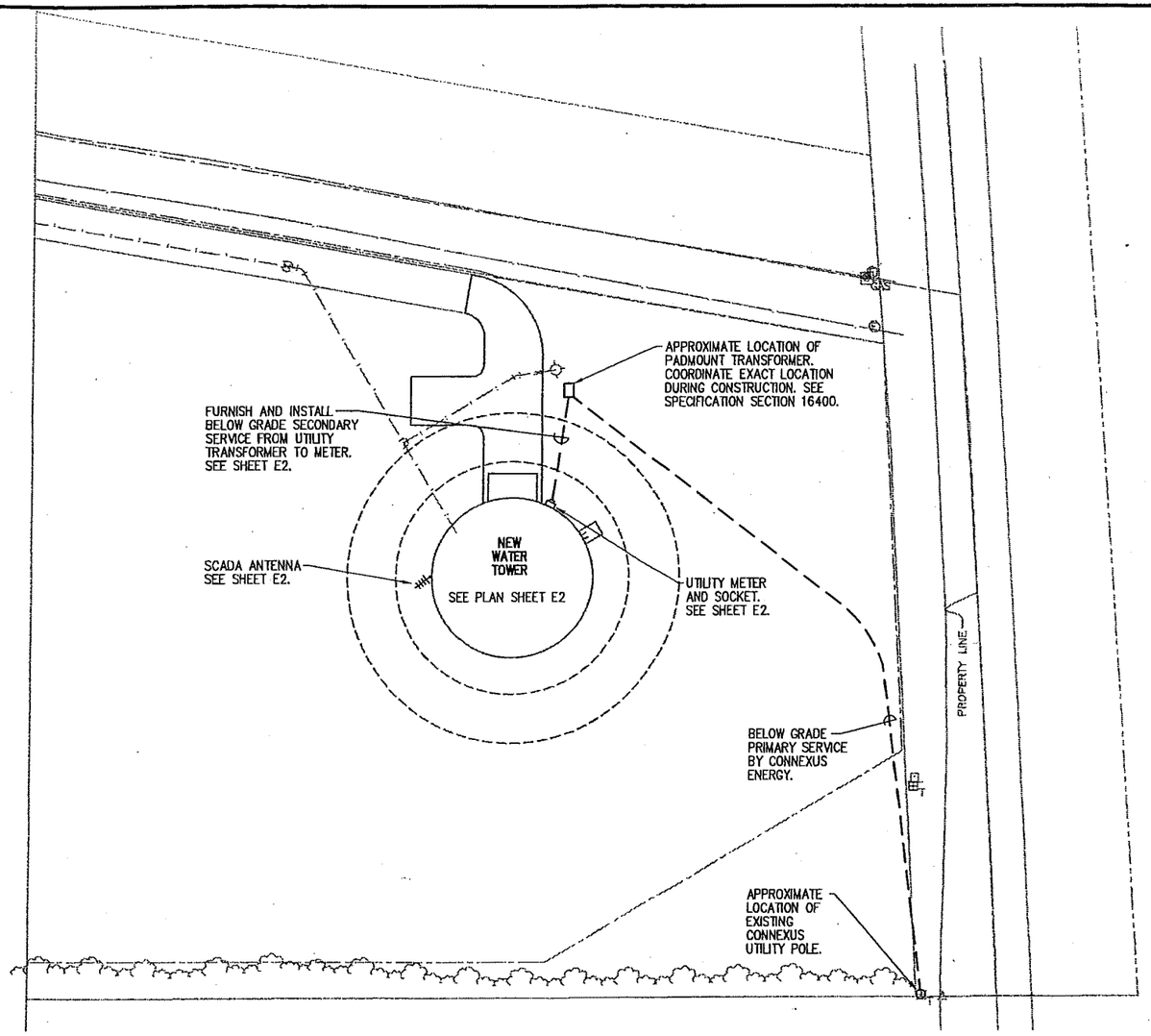
JOB NO. 08015 ISSUE B
DRAWING NO. P2

P2.dwg
P:\2008 Project Files\08015 - City of Ramsey 2MG Tower\CAD Drawings\Bid Documents\
05/27/09 - 10:37am



TOWER ELECTRICAL SECTION

NO SCALE



North

ELECTRICAL SITE PLAN

SCALE: 1"=30'

0 30 60

SCALE IN FEET

GENERAL NOTES

1. ALL DEVICES SHALL HAVE WEATHERPROOF COVER PLATES.
2. ALL CONVENIENCE OUTLETS SHALL BE DUPLEX GFI. DO NOT USE LOADSIDE FEED-THRU FEATURE.
3. ALL RACEWAYS SHALL BE GALVANIZED RIGID STEEL, UNLESS NOTED OTHERWISE.
4. ALL CONDUCTORS SHALL BE COPPER W/ THWN INSULATION, #12AWG MINIMUM, UNLESS NOTED OTHERWISE.
5. GROUND SYSTEM PER NEC ARTICLE 250.
6. COORDINATE POWER SERVICE W/ UTILITY. SEE SPEC. SECTION 16400.

NOTE: CONFIRM LAYOUT & ORIENTATION WITH OWNER AND ENGINEER DURING CONSTRUCTION.

NOTE: CONTRACTOR SHALL ARRANGE TO HAVE ALL EXISTING UNDERGROUND UTILITIES LOCATED. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF ALL DAMAGES DUE TO WORK UNDER THIS CONTRACT.

NOTE: COORDINATE CONDUIT ROUTING & ELECTRICAL WORK W/ GENERAL CONSTRUCTION PLANS & OTHER CONTRACTORS.

PROGRESSIVE CONSULTING ENGINEERS INC.
(763)560-9133 FAX:(763)560-0333
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430

ISSUE	DESCRIPTION	DATE
B	BID DOCUMENT	5/22/09
A	MDH REVIEW SET	2/27/09

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Stuart S. Stephens

NAME: STUART S. STEPHENS DATE: 5/22/09 REG No: 25753

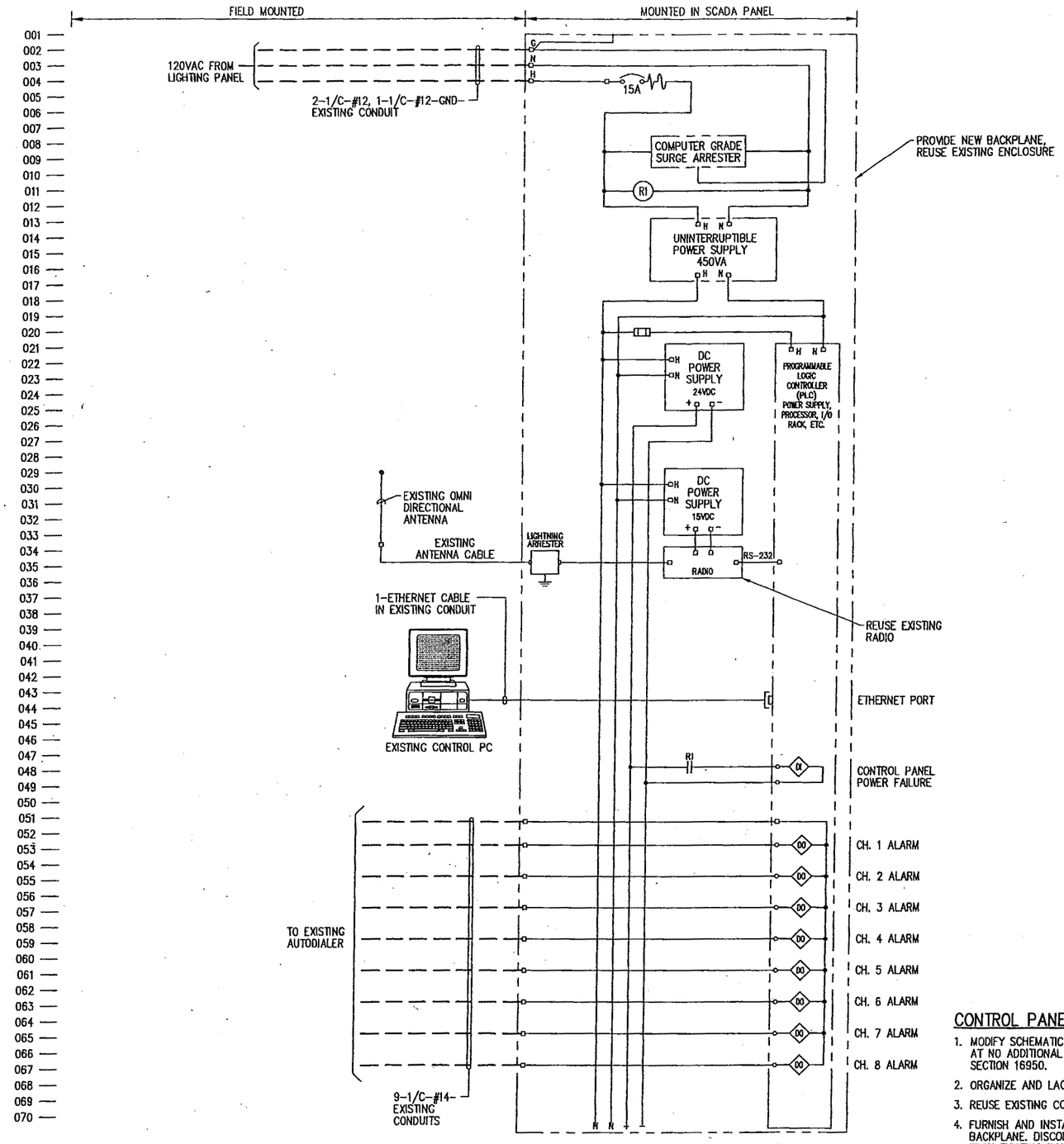
DESIGNED: SSS
DRAWN: CML
CHECKED: SSS
DATE: 5/22/09

2MG Water Tower No. 3 — City of Ramsey, MN

TOWER ELECTRICAL SECTION AND SITE PLAN

JOB NO. 08015 | ISSUE B

DRAWING NO. E1



SCADA PANEL SCHEMATIC

NO SCALE

CONTROL PANEL GENERAL NOTES

1. MODIFY SCHEMATIC AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO OWNER. SEE SPECIFICATION SECTION 16950.
2. ORGANIZE AND LACE ALL WIRING USING NYLON CABLE TIES.
3. REUSE EXISTING CONDUITS.
4. FURNISH AND INSTALL PANEL COMPONENTS ON A NEW BACKPLANE. DISCONNECT AND REMOVE OLD COMPONENTS FROM EXISTING PANEL AND REUSE EXISTING ENCLOSURE.

PROGRESSIVE CONSULTING ENGINEERS INC.
(763)560-9133
FAX:(763)560-0333
6120 EARLE BROWN DR. MINNEAPOLIS, MN. 55430

ISSUE	DESCRIPTION	DATE
B	BID DOCUMENT	5/22/09
A	MDH REVIEW SET	2/27/09

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SIGNATURE: Stuart S. Stephens
NAME: STUART S. STEPHENS DATE: 5/22/09 REG No: 25753

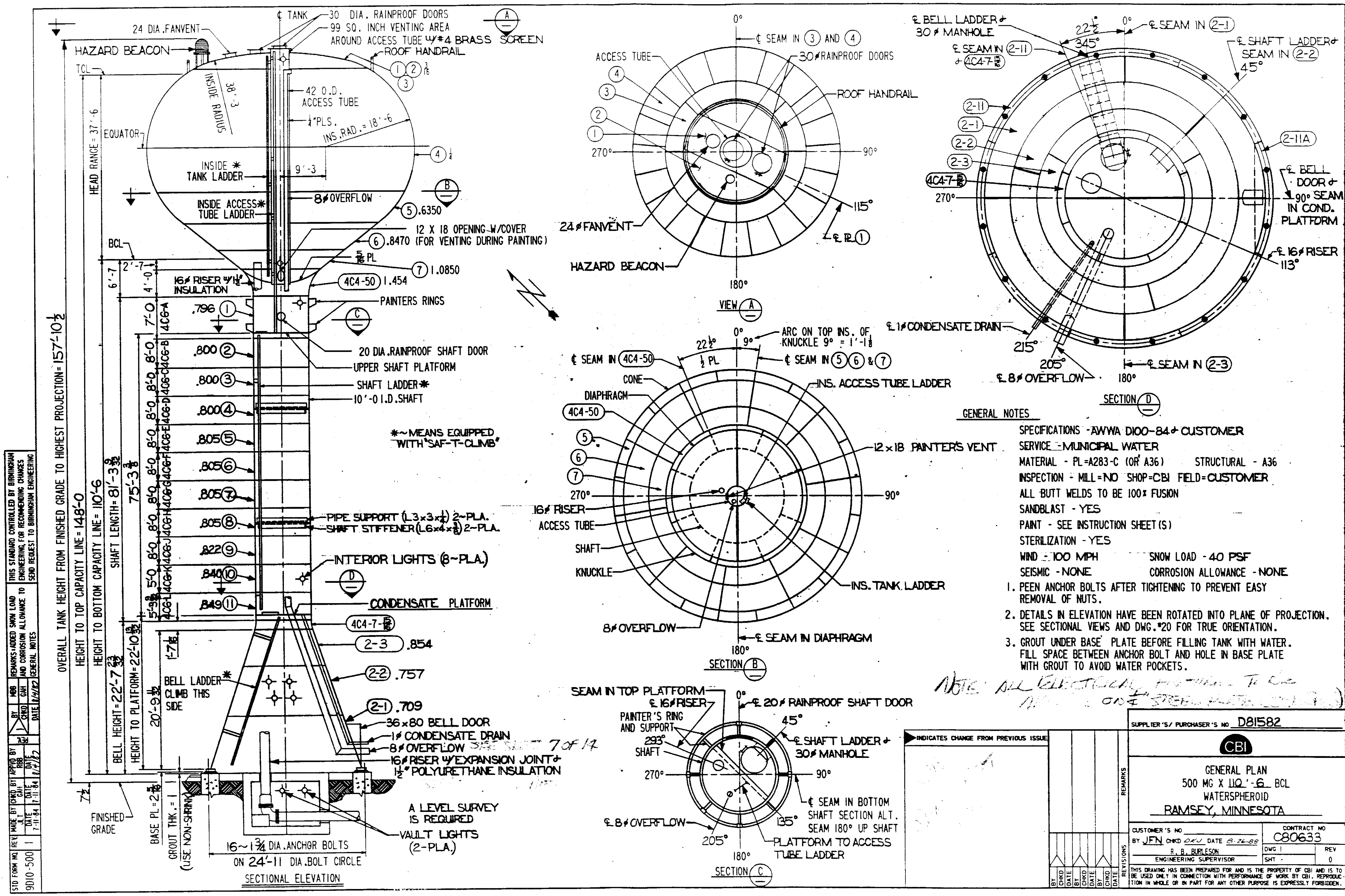
DESIGNED:	SSS
DRAWN:	CML
CHECKED:	SSS
DATE:	5/22/09

2MG Water Tower No. 3 — City of Ramsey, MN

MASTER SCADA PANEL SCHEMATIC

JOB NO.	ISSUE
08015	B

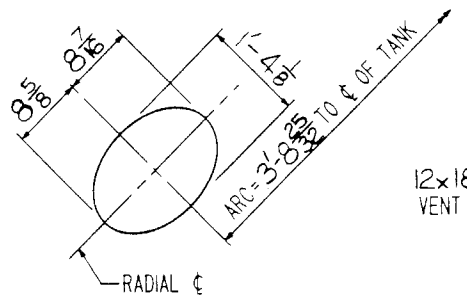
DRAWING NO. E5



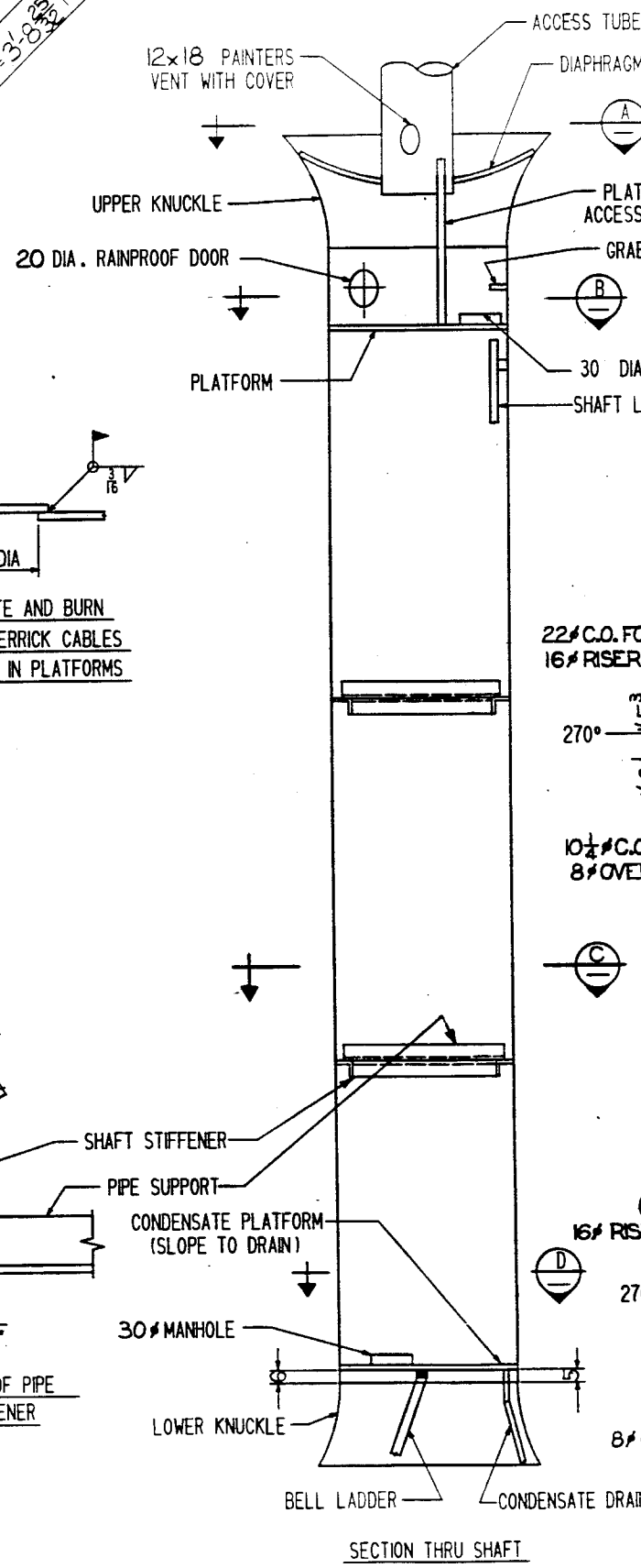
GENERAL NOTES

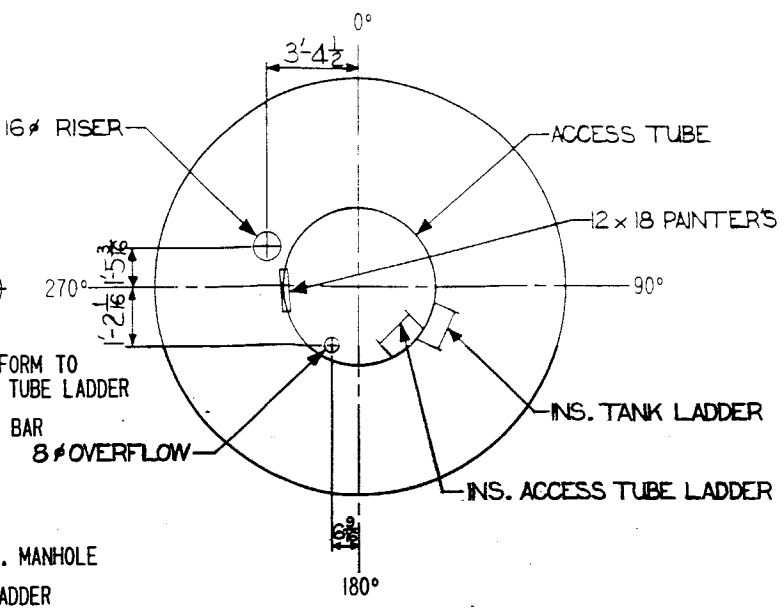
SPECIFICATIONS - AWWA D100-84 & CUSTOMER
SERVICE - MUNICIPAL WATER
MATERIAL - PL=A283-C (OR A36) STRUCTURAL - A36
INSPECTION - MILL=NO SHOP=CBI FIELD=CUSTOMER
ALL BUTT WELDS TO BE 100% FUSION
SANDBLAST - YES
PAINT - SEE INSTRUCTION SHEET(S)
STERILIZATION - YES
WIND - 100 MPH SNOW LOAD - 40 PSF
SEISMIC - NONE CORROSION ALLOWANCE - NONE

1. PEEN ANCHOR BOLTS AFTER TIGHTENING TO PREVENT EASY REMOVAL OF NUTS.
2. DETAILS IN ELEVATION HAVE BEEN ROTATED INTO PLANE OF PROJECTION. SEE SECTIONAL VIEWS AND DWG. #20 FOR TRUE ORIENTATION.
3. GROUT UNDER BASE PLATE BEFORE FILLING TANK WITH WATER. FILL SPACE BETWEEN ANCHOR BOLT AND HOLE IN BASE PLATE WITH GROUT TO AVOID WATER POCKETS.

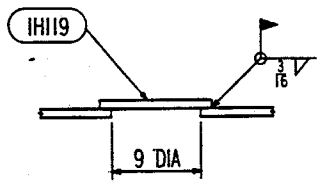


DIAPHRAGM CUTOUT FOR PIPE

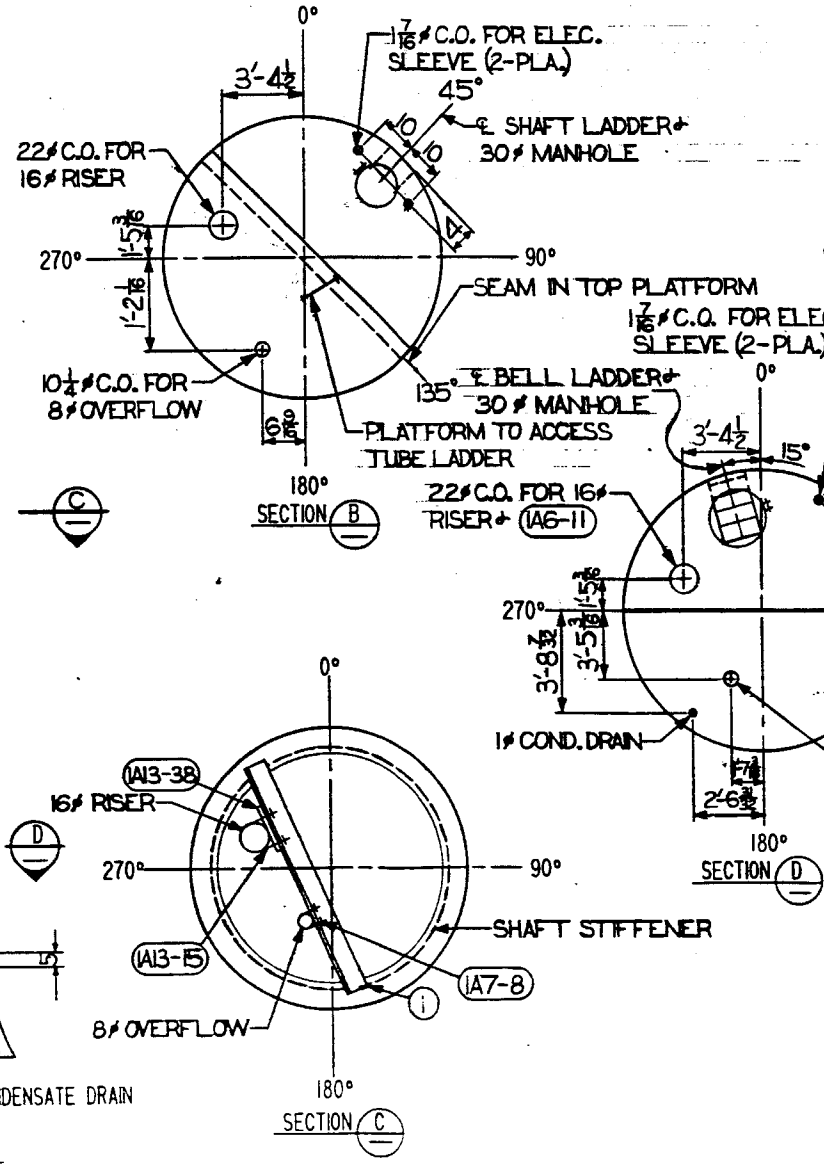




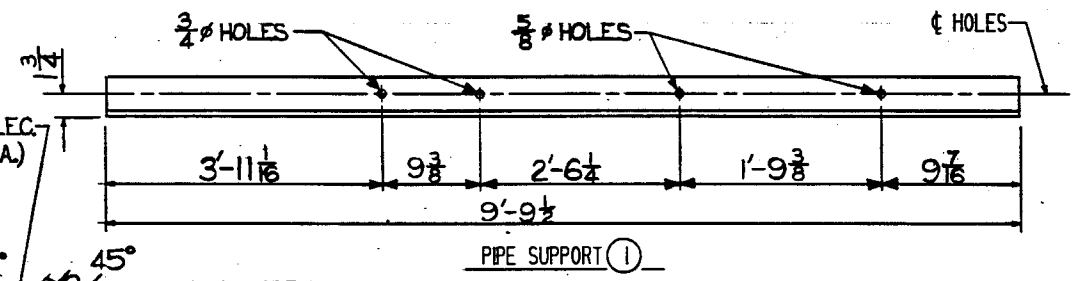
SECTION A



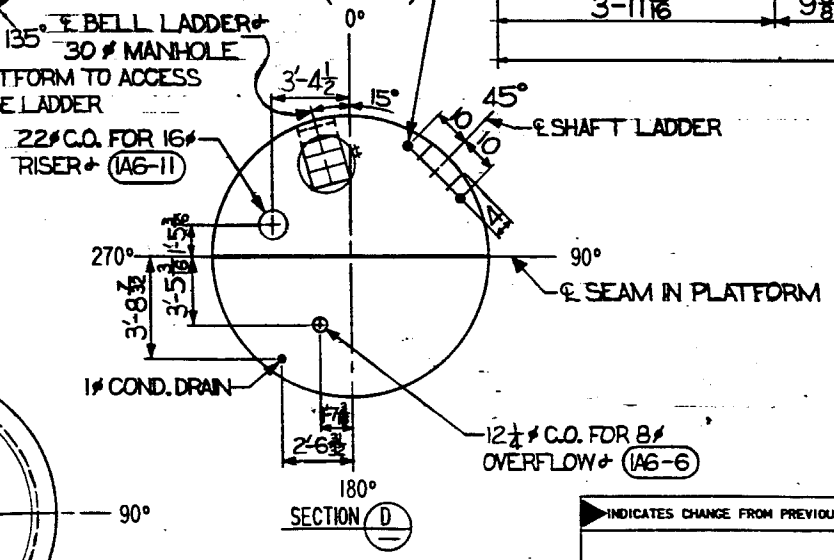
FIELD LOCATE AND BURN CUTOUT FOR DERRICK CABLES WHERE NEEDED IN PLATFORMS



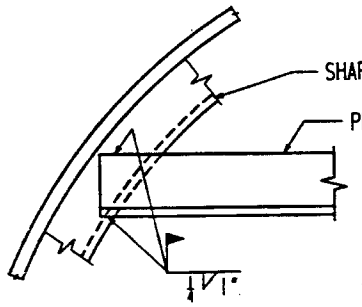
SECTION B



PIPE SUPPORT (1)



SECTION D



TYPICAL WELDING OF PIPE SUPPORT TO STIFFENER

SECTION THRU SHAFT

SECTION C

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT
2	1H119		PL-11 DIA X 3/16			A283C		5-3	397	10
2	20-1		L 3×3×¼ W/HOLES	9	9½	A36		5-3	373	100
2	1A7-8		U-BOLT 5/8 DIA	2	2⅞	A36		0-0	300	5
			(TBE 2 1/2)							
		4	NUTS FIN HEX 5/8 DIA			A563A		0-0	300	
2	1A13-15		PL-2 X 10 GA	4	5½	HRS		5-3	300	8
			W/HOLES BENT							
		4	BOLTS FIN HEX 1/2 DIA	0	3	A307B		0-0	300	2
		4	NUTS FIN HEX 1/2 DIA			A563A		0-0	300	
		4	WASHERS 1/2 DIA			CS		0-0	300	
2	1A13-38		WOOD SPACER 2 X 4	2	0 ¾	WOOD		0-0	300	6

GENERAL NOTES

1. ALL CUTOUTS IN SHAFT PLATFORMS AND DIAPHRAGM ARE TO BE MADE IN THE SHOP UNLESS NOTED OTHERWISE.
2. SEE GENERAL PLAN FOR LOCATION OF PIPE SUPPORT BRACKETS IN SHAFT.
3. MAXIMUM SPACING OF PIPE SUPPORT BRACKETS IN SHAFT TO BE 32'-0.
4. SEE GENERAL PLAN FOR NUMBER OF STIFFENERS AND SHAFT STD. FOR LOCATION.

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS | BY | CHKD | DATE | REMARKS

SUPPLIER'S/ PURCHASER'S NO D81582

CBI

ORIENTATION OF ACCESSORIES IN SHAFT

CUSTOMER'S NO

CONTRACT NO C80633

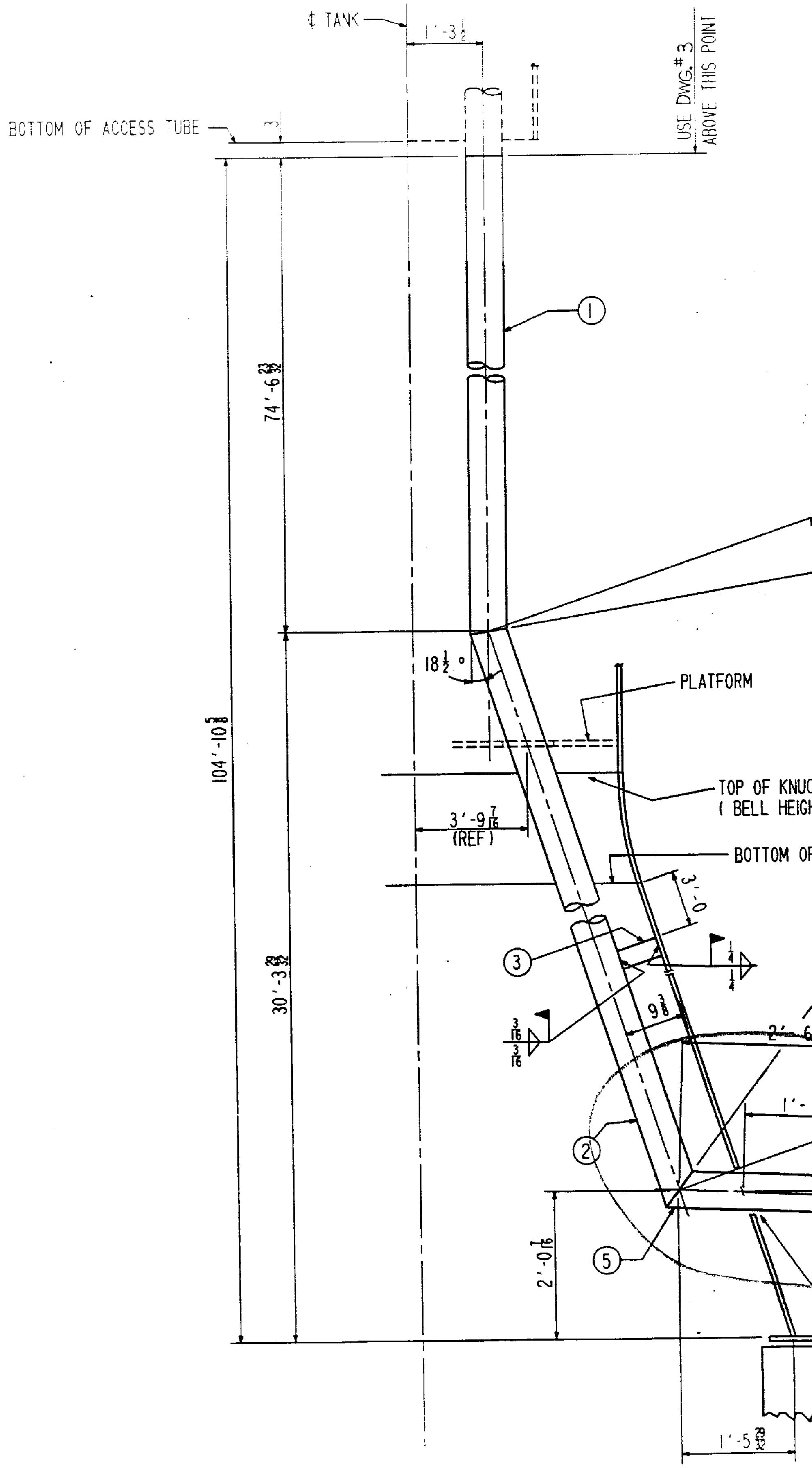
BY JFN CHKD DKJ DATE 8-26-88

R.B. BURLESON
ENGINEERING SUPERVISOR

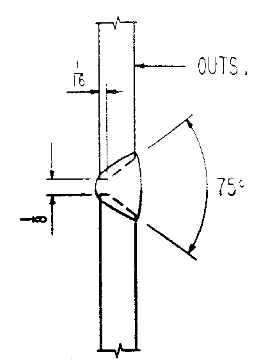
DWG 20 REV 0
SHT

CONDRAFT INSUL

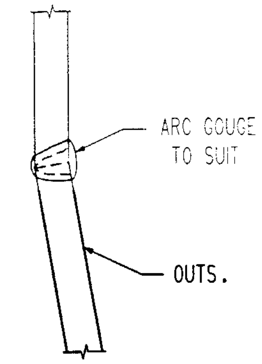
CAD FILE: 904A-2



ELEVATION



TYP. PIPE JOINT

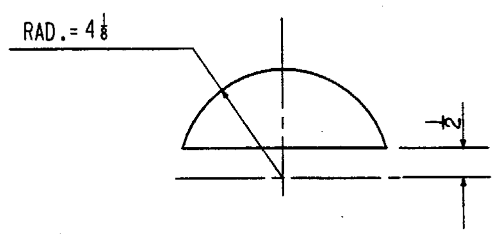


TYP. MITERED PIPE JOINT

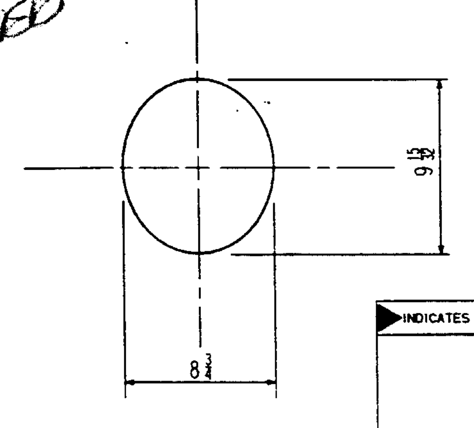
SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST
1	21-1		PIPE 8 X SCH 40	74	6 23/32	M3	1B	3-1	374	2129
			CTOE BOE MOE (C/F RUN 104'-7 3/4)							
			1/CUTS-ONE 21-1 & ONE 21-2							
1	21-2		PIPE 8 X SCH 40	29	9 31/32	M3	1B	3-1	374	851
			CTOC MBE (C/W 21-1)							
1	21-3		BAR FLAT 3 X 1/4	0	5 1/16	A36		5-3	374	1
1	21-A		PIPE ASSY							154
	21-5	1	PIPE 8 X SCH 120	2	6	M3	1B	3-1	374	152
			CTOE POE MOE (C/F PC 2'-9 1/4)							
	21-6	1	PL SK X 1/4			A283C		5-3	374	2
			(C/F PL 4 1/16 X 1/4 X 8 5/8)							

MATERIAL SPECS.

M3 - A53B TYPE E (ELECTRIC-RESISTANCE WELDED) OR TYPE S (SEAMLESS), OR API-5L GRADE B (ELECTRIC WELDED OR SEAMLESS).



⑥



APPROX. CUTOUT IN BELL

GENERAL NOTES

1. SEE PIPING & PLATFORM DWG. #20 FOR ORIENTATION & PIPE SUPPORT DETAILS.
2. WORK THIS DWG. WITH DWG.# 3

INDICATES CHANGE FROM PREVIOUS ISSUE

REMARKS

REVISIONS | BY | CHKD | DATE | BY | CHKD | DATE | BY | CHKD | DATE

SUPPLIER'S/ PURCHASER'S NO D81582

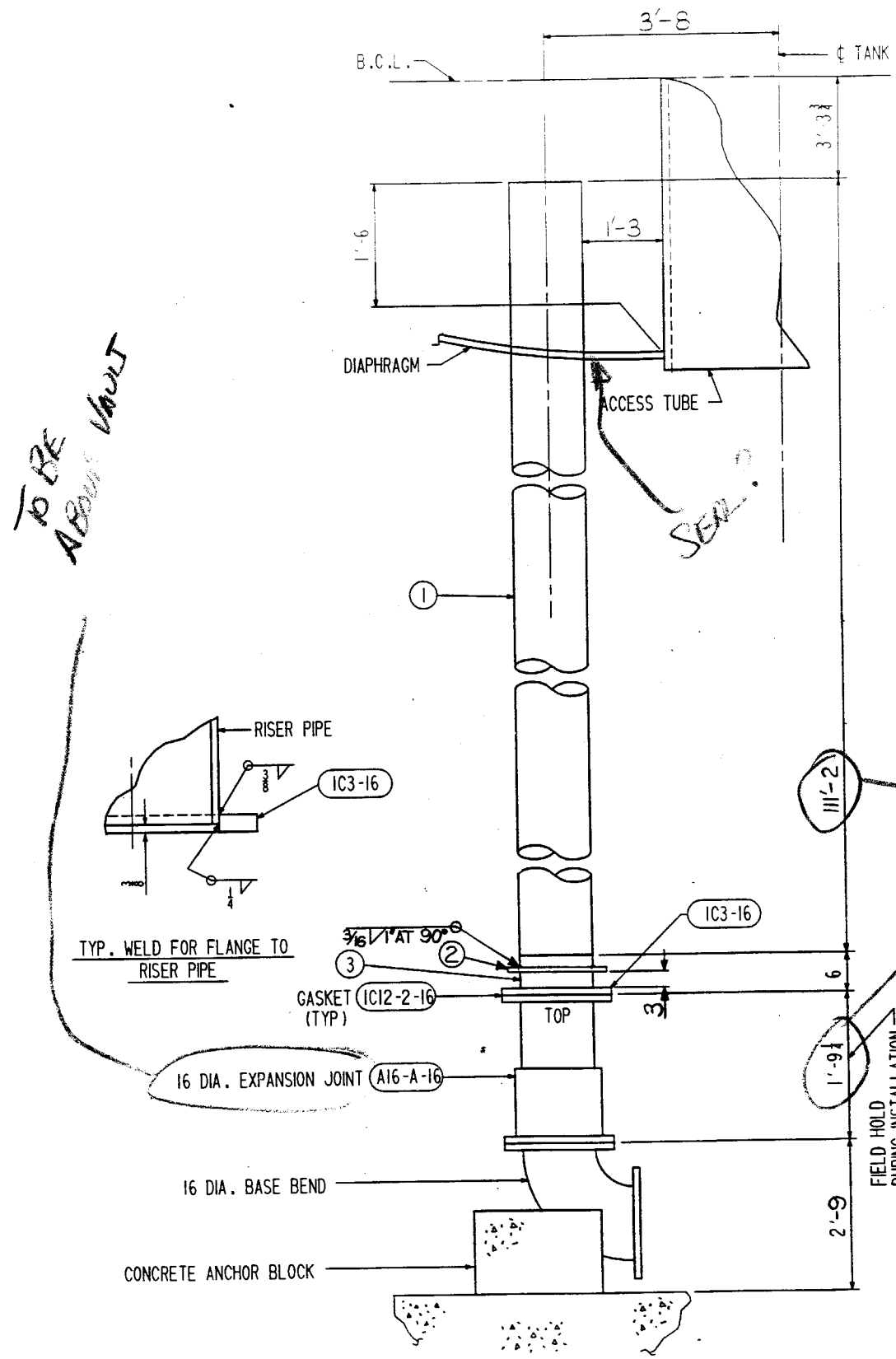
CBI

8" DIA. OVERFLOW TO GROUND
FOR 500 M.G. WATERSPHEROID
110'-6 TO BCL
WITH ORIFICE

CUSTOMER'S NO
BY JFN CHKD DKJ DATE 8-26-88
R.B. BURLESON
ENGINEERING SUPERVISOR

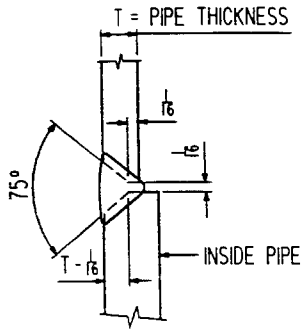
CONTRACT NO C80633
DWG 21 REV 0
SHT -

CAD PROGRAM: C01I0N - OVERFLOW TO GROUND
DATE OF VERSION: 5/19/86
CAD FILE: C8063321

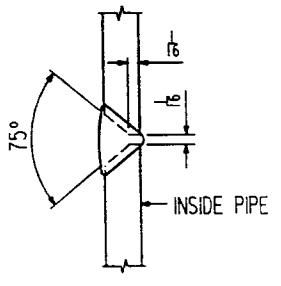


RISER PIPE ELEVATION

FIELD FOREMAN:
CONCRETE ANCHOR BLOCK, REINFORCING, AND BASE BEND TO BE INSTALLED BY FOUNDATION CONTRACTOR. (SEE FOUNDATION DRAWINGS)



TYP. WELD JOINT FOR PIPE OF DIFFERENT THICKNESS



TYP. WELD JOINT FOR PIPE OF SAME THICKNESS

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST #
			DWG. 22							
1	22-1		PIPE 16 X .375 POE BOE III		2	M3	IB	13-1	374	6957
			B.B.E. BEVEL INTER'M JTS FOR WELDING							
	22-B		PIPE SECTION							
	22-3	1	PIPE 16 X .375	0	5 5/8	M3	IB	3-1	374	31
			P.O.E. B.O.E.							
	IC3-16	1	FLG FLAT FACE 16 DIA			M8	IB	5-3	374	87
			150# (C/F PL 24 X 1 5/8							
			X 2'-0)							
	22-2	1	PP~19 O.D. × ¼ × 16⅛ I.D.			A283C		5-3	374	6
1	A16-A-16		EXPANSION JT. 16 DIA				IB	5-3	374	366
2	IC12-2-		GASKET FULL FACE			M9		0-0	300	3
	16		(23 1/2 O.D. X 1/8 X 16 I.D.)							
			WITH 16 - 1 1/8 DIA HOLES							
			ON 21 1/4 B.C.							
32	22-4		BOLT FIN HEX 1 DIA	0	4 1/2	A307B	IB	0-0	300	54
		32	NUT HEX 1 DIA			A563A	IB	0-0	300	

D.I.P. IN VAULT
REVISE DIMENSIONS

MATERIAL SPECS: M3= A53B TYPE E (ELECTRIC-RESISTANCE WELDED) OR TYPE S (SEAMLESS) OR API-5L GRADE B (ELECTRIC WELDED OR SEAMLESS).
M8= A516 FOR MANUFACTURED FLANGE; A105 FOR PURCHASED FLANGE.
M9= RED RUBBER HH-P-00151D, CLASS 1 AND CLASS 3.

NOTES: 1. SEE PIPING AND PLATFORM DWG. 20 FOR ORIENTATION OF RISER AND DETAIL OF PIPE SUPPORT BRACKET.

▶INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS: BY | CHKD | DATE | REMARKS

SUPPLIER'S/ PURCHASER'S NO D81582

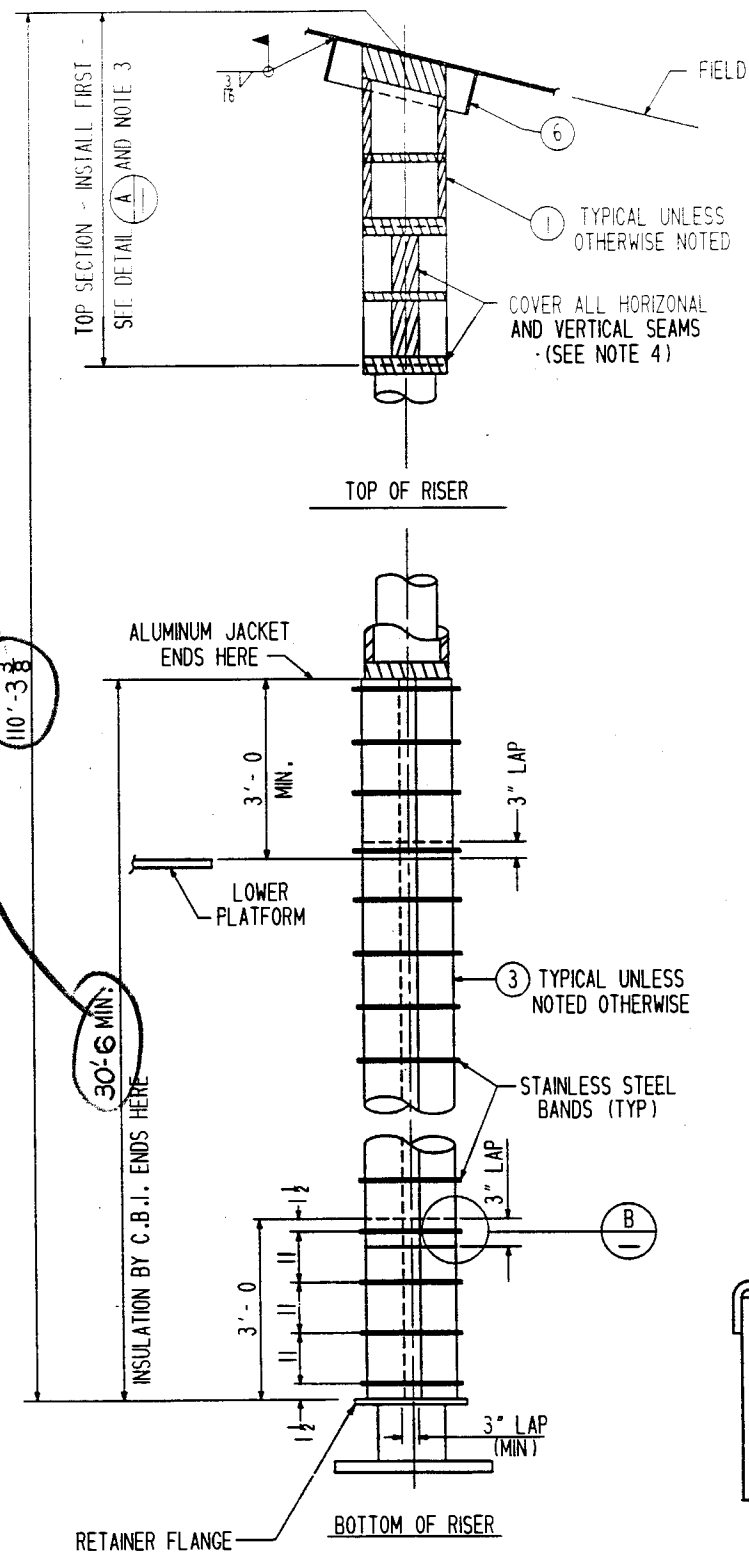
CBI

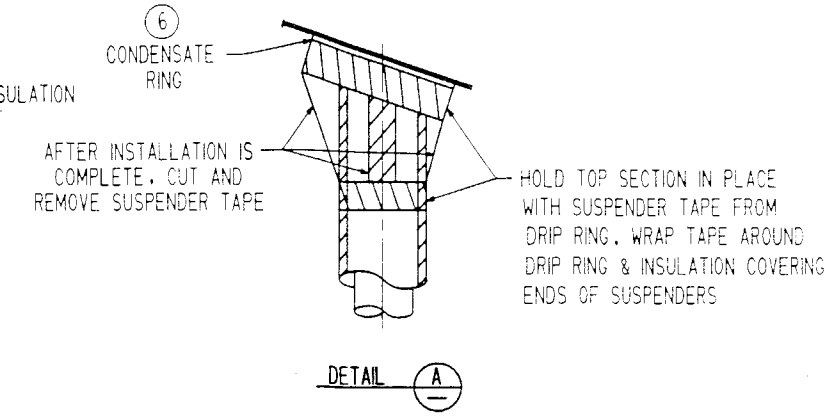
16" DIAMETER RISER PIPE
FOR 500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

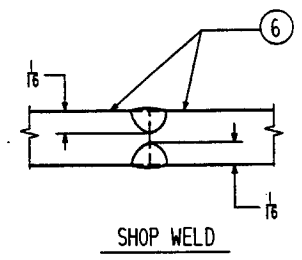
CUSTOMER'S NO
BY JEN CHKD DKJ DATE 6-26-86
R.B. BURLESON
ENGINEERING SUPERVISOR

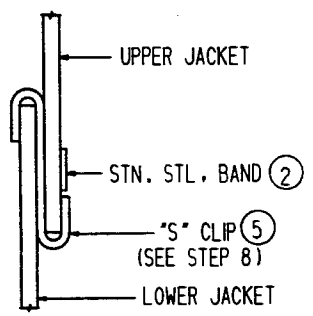
CONTRACT NO C80633
DWG 22 REV 0
SHT -

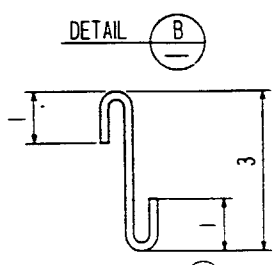
CAD PROGRAM: C0109A - RISER
DATE OF VERSION: 9/25/86
CAD FILE: C8063322











SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST #
38	23-1		INSULATION	3	0			10-0	300	134
			PAIRS OF 180 DEGREE SECTIONS							
			X 1 1/2 THICK							
			FOR PIPE 16 DIA							
			(EXPANDED POLYURETHANE)							
41	23-2		BANDING #10 STAINL STL	6		SS		10-0	300	15
			1/2" WIDE X 20 GAUGE							
			WITH SEALS AS MANUFACTURED							
			BY CHILDERS OR EQUAL							
12	23-3		ALUMINUM CORRUGATED	3	0	ALUM		10-0	300	53
			64" HORIZONTAL X .020 THICK							
5	23-4		TAPE - 180 FOOT ROLLS					10-0	300	15
			MANUFACTURED BY TECHNICAL TAPE CO.							
			90T-3 (COMMONLY CALLED TUCK TAPE)							
			3" WIDE ROLL							
36	23-5		BANDING #10 STAINL STL	0	5	SS		10-0	300	1
			1/2" WIDE X 20 GAUGE							
			FOR "S" CLIPS							
1	23-6		BAR 3 X 1/4	7	5 17/32	A36		5-3	300	14
			ROLL RAD = 1'-2							

ALL INSULATION SECTIONS SHALL BE FURNISHED WITH FACTORY APPLIED FIRE RETARDANT, LAMINATED KRAFT PAPER/ ALUMINUM FOIL VAPOR BARRIER

INSULATION VALUE IS REQ'D

- IMPORTANT -

TAPE SHOULD NOT BE APPLIED AT TEMPERATURE BELOW 15° F. KEEP TAPE WARM DURING APPLICATION.

INSTALLATION INSTRUCTIONS

1. TEST ALL JOINTS FOR LEAKS BEFORE APPLYING INSULATION.
2. OFFSET CONDENSATE RING TO CLEAR INSULATION AND ACCESS TUBE.
3. INSTALL TOP SECTION OR SECTIONS FIRST. MITER CAREFULLY WITH HACKSAW TO FIT TANK BOTTOM OR PIPE BEND. SEAL VERTICAL JOINTS WITH TAPE. SEAL GIRTH JOINTS AND TOP END WITH ONE AND A HALF TURNS OF TAPE AS SHOWN. SMOOTH TAPE DOWN FIRMLY. PUSH TOP SECTION FIRMLY AGAINST TANK BOTTOM AND SUSPEND FROM DRIP RING WITH TAPE AS SHOWN ON DETAIL "A"
4. AT BOTTOM OF THE RISER, PLACE 3 OR 4 SECTIONS OF INSULATION AROUND RISER PIPE ON TOP OF RETAINER FLANGE. STAGGER VERTICAL SEAMS 90°. SEAL VERTICAL JOINTS WITH TAPE. SEAL GIRTH JOINTS WITH ONE AND A HALF TURNS OF TAPE AS SHOWN. LOCATE ONE AND A HALF TURNS OF TAPE MIDWAY BETWEEN GIRTH JOINTS ON ALL STANDARD SECTIONS.
5. SLIDE FIRST SECTIONS UP AND PLACE ADDITIONAL SECTIONS UNDER THEM REPEATING STEP 4. (IF WEIGHT OF INSULATION IS TOO GREAT TO INSTALL IN THIS MANNER, INSUL. CAN BE STACKED TO FACILITATE INSTALLATION)
6. CONTINUE THE PROCESS TO COMPLETION. LAST SECTION IS MADE-UP AND MUST BE CUT TO LENGTH.
7. TAPE GIRTH JOINT AT TOP SECTION, AND CUT TAPES HOLDING TOP SECTION IN PLACE FROM DRIP RING.
8. INSTALL ALUMINUM JACKET WITH BANDS AND SEALS, USE 3 "S" CLIPS PER SEAM. "S" CLIPS ARE TO BE MADE FROM BANDING.
9. INSTALL PIPE SUPPORTS AS REQUIRED. (SEE DRAWING 20)

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS: BY | CHKD | DATE | REMARKS

SUPPLIER'S/ PURCHASER'S NO D81582

CBI

1 1/2" THK POLYURETHANE INSULATION
FOR 16" RISER PIPE
CITY OF RAMSEY, MINNESOTA

CUSTOMER'S NO

BY JFN CHKD DKJ DATE 8-26-88

R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO C80633

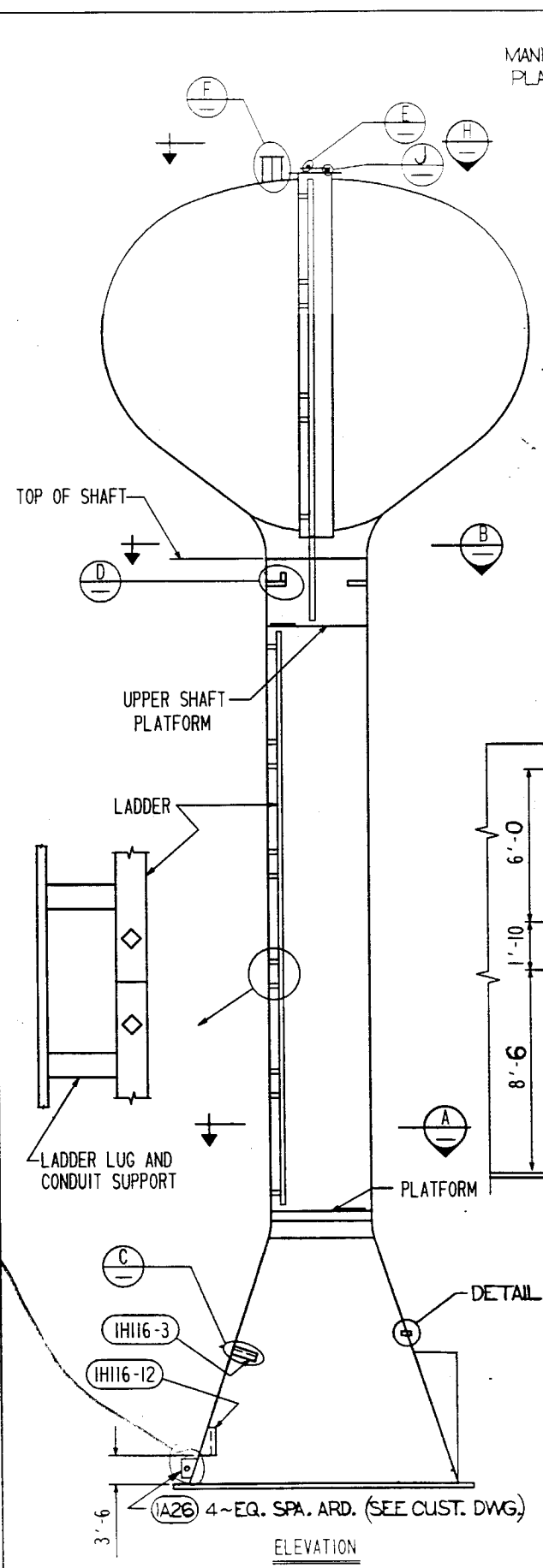
DWG 23 | REV 0

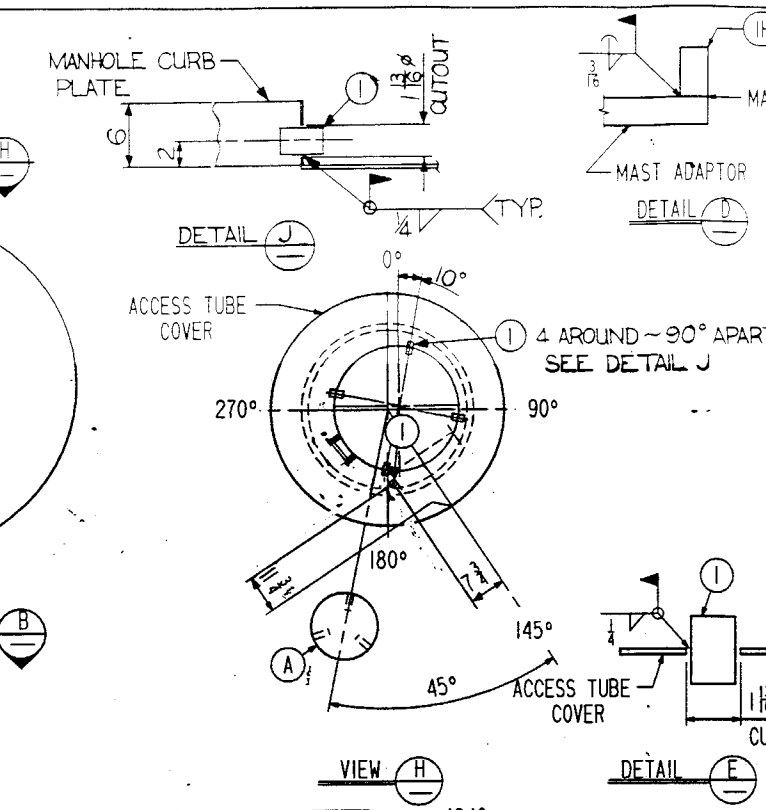
SHT -

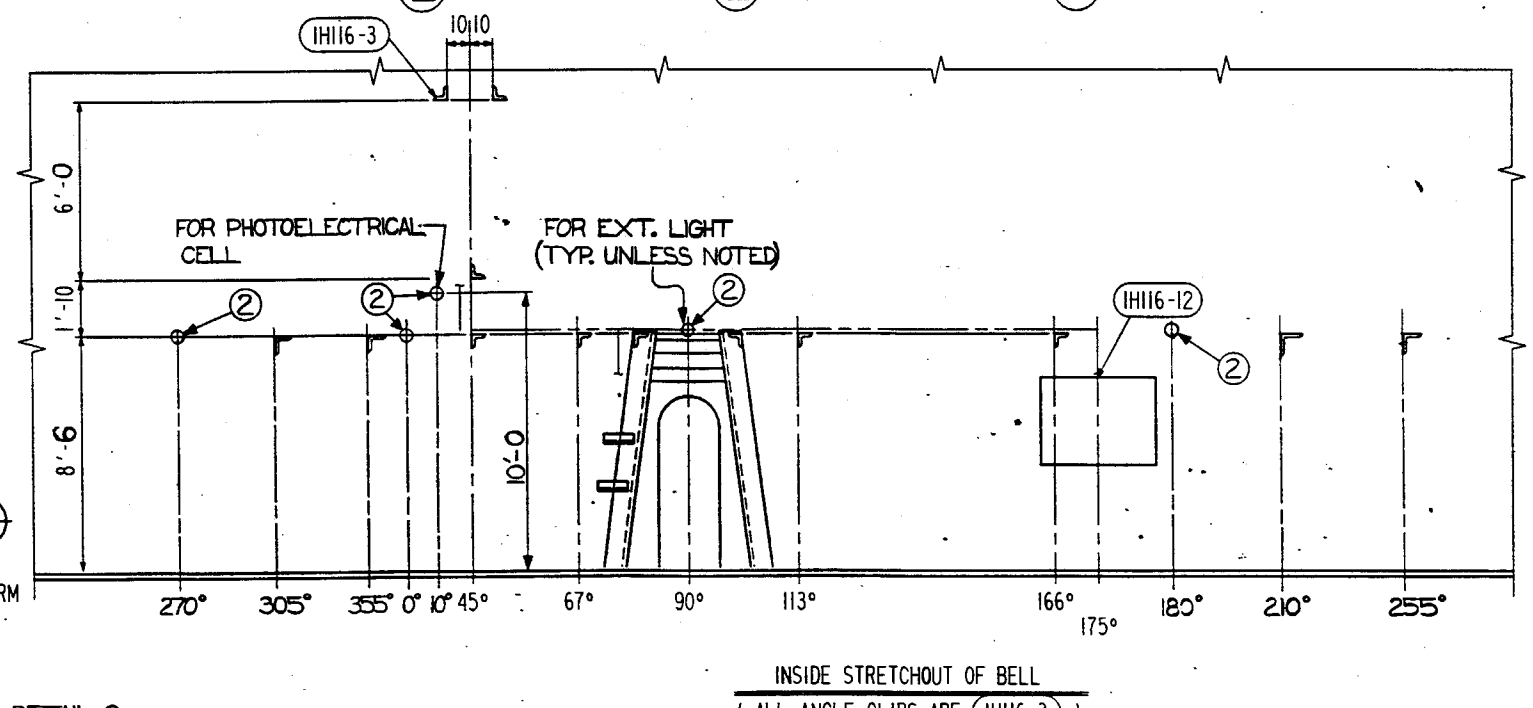
CAD PROGRAM: CO12A - INSULATION
DATE OF VERSION: 5/22/86
CAD FILE: C8063323

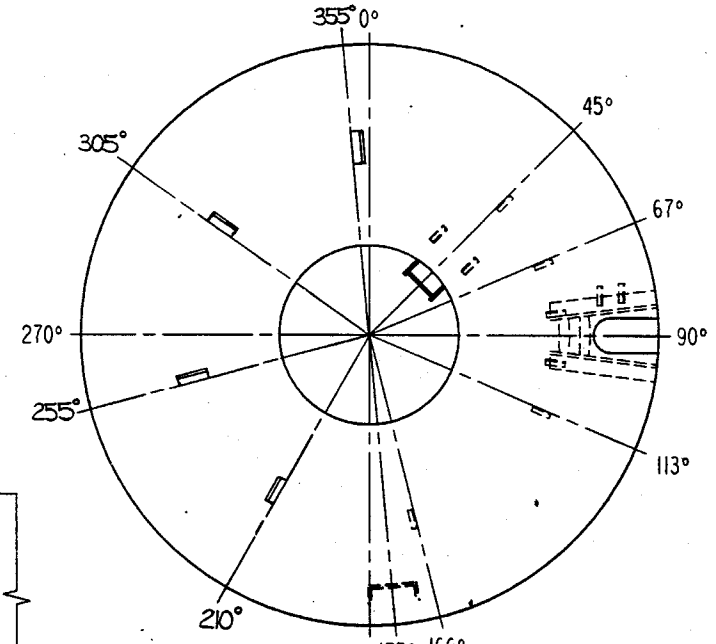
SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT
5	24-1		CPLG SRWD 1" DIA 3000#			F.S.		0-0	370	3
1	24-A		BEACON SUPPORT ASS'Y							
	1H116-5		PL 15 DIA X 1/4			A283C		5-3	370	13
	1H116-6	3	BAR FLAT 1 1/2 X 1/4	0	9	A36		5-3	370	3
5	24-2		CPLG SRWD 3/4 DIA 6000#			F.S.		0-0	370	5
2	1H116-9		BAR FLAT 1 1/2 X 1/4	0	4 1/2	A36		5-3	370	2
1	1H116-12		PL SK X 1/4			A283C		5-3	370	163
			IC/F 36 3/8 X 6'-4 3/8							
15	1H116-3		L 2 X 2 X 3/16	0	8	A36		5-3	370	25
3			SQ. HEAD PLUG-1" DIA.			F.S.		0-0	370	1
4	1A26		GROUNDING LUG-BAR 2 x 3/8	0	2	A283-C		5-3	300	1

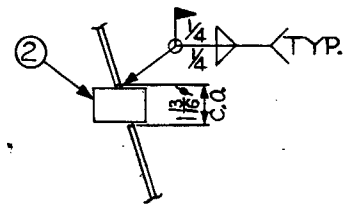
TO BE LOCATED INSIDE ACCESS DOOR ABOVE 6 O'CLOCK SLEEVE

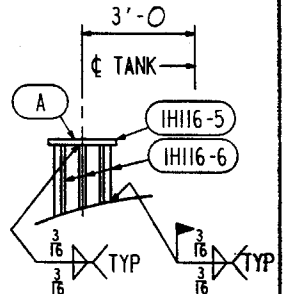




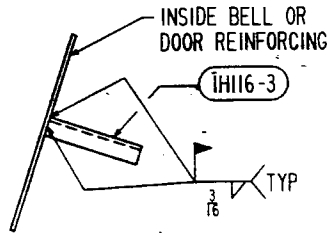


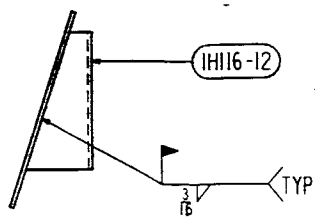


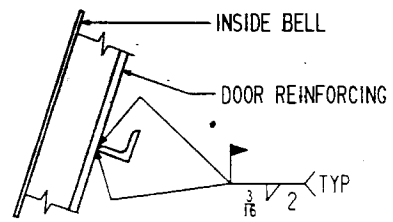




(SEE VIEW H FOR ORIENTATION)







INDICATES CHANGE FROM PREVIOUS ISSUE

SUPPLIER'S/ PURCHASER'S NO D81582

CBI

ELECTRICAL ORIENTATION
500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

CUSTOMER'S NO

CONTRACT NO C80633

BY JFN CHKD DKJ DATE 8-26-88

R.B. BURLESON
ENGINEERING SUPERVISOR

DWG 24 REV 0

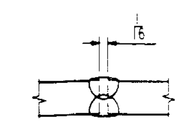
SHT

REMARKS | REVISIONS | BY | CHKD | DATE

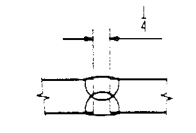
CAD Program: COIOIN
Date of Version: 9-17-86
CAD FILE: C8063324

CAD Program: C0100A
Version 0.0 June 25, 1986
CAD FILE: C8063325

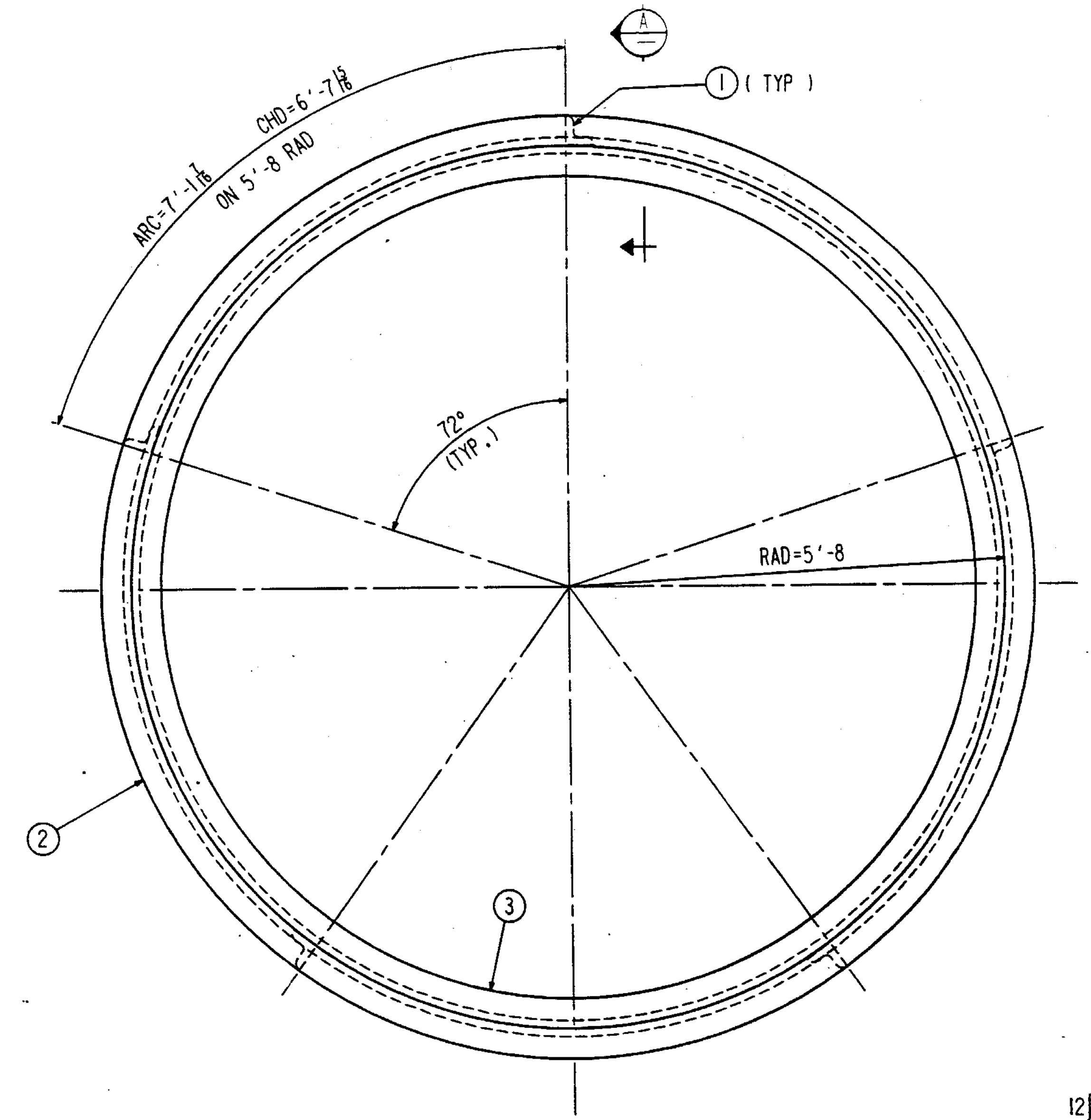
SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	ES	N
5	25-1		L 2 1/2 X 2 1/2 X 1/4	3	3 27/32	A36		5-3	372		
			S.K.B.E.								
2	25-2		L 2 1/2 X 2 1/2 X 1/4			A36		5-3	372	146	
			FIN	17	10 9/32						
			(ROLL) SHR	20	10 9/32						
			FIN RAD = 5'-8 1/4								
2	25-3		L 2 1/2 X 2 1/2 X 1/4			A36		5-3	372	146	
			FIN	17	9 1/2						
			(ROLL) SHR	20	9 1/2						
			FIN RAD = 5'-8								
2	25-4		BAR 4 X 1/4 (ROLL)	17	9 1/4	A36		5-3	372	121	
			ROLL RAD = 5'-7 3/4								



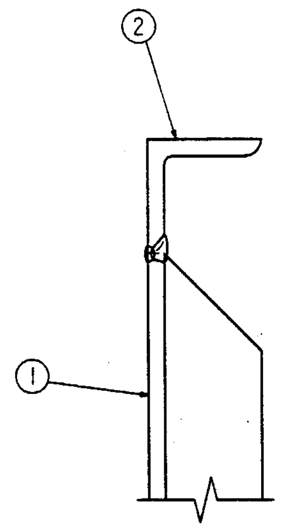
PC. (4) SPLICE



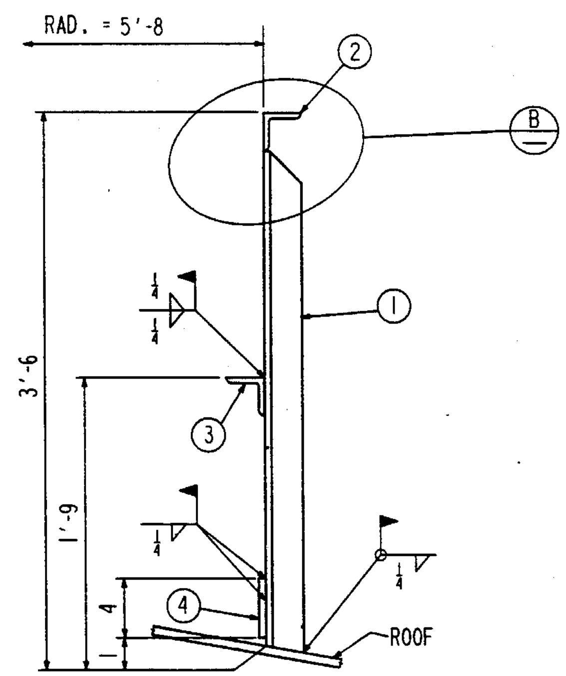
TYPICAL ANGLE SPLICE



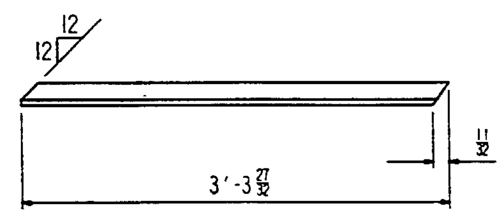
PLAN



DETAIL (B)



SECTION (A)



(1)

INDICATES CHANGE FROM PREVIOUS ISSUE

BY	CHKD	DATE	BY	CHKD	DATE	BY	CHKD	DATE

REVISIONS | REMARKS

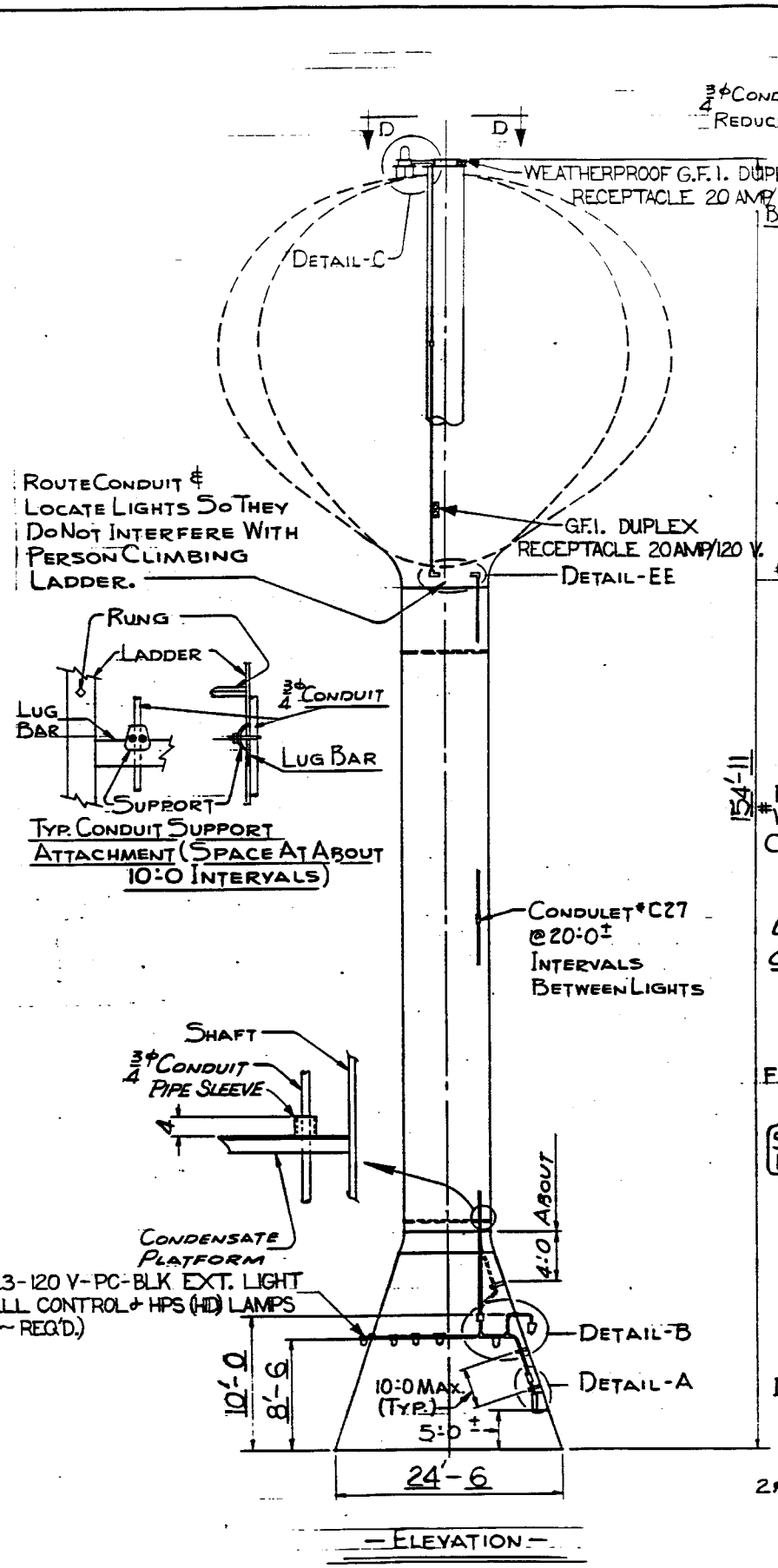
SUPPLIER'S/ PURCHASER'S NO D81582

CBI

ROOF HANDRAIL
500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

CUSTOMER'S NO
BY JFN CHKD DKJ DATE 8-26-88
F.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO C80633
DWG 25 REV 0
SHT -



NOTES:

1. ALL WIRING, CONDUIT, DEVICES, ECT. ARE TO BE PER CUSTOMER SPECIFICATIONS, CUSTOMER DWGS. AND THE NATIONAL ELECTRIC CODE.
2. MATERIALS OF EQUAL QUALITY AND FUNCTION MEETING F.A.A. SPECS. MAY BE SUBSTITUTED FOR ITEMS SHOWN.
3. SEE ORIENTATION DWG. AND DETAIL DWGS. FOR SIZES AND LOCATIONS OF SUPPORTS, SLEEVES AND CPLGS.

THIS SHT SUBJECT TO FOR REVIEW AS PART OF ELECTRICAL SHOP DRAWINGS

REVISIONS	BY	CHKD	DATE
2	J.F.N.		2/14/92
1	J.F.N.		6/12/91

STD FORM NO. 9052 REV 2

INDICATES CHANGE FROM PREVIOUS ISSUE

SUPPLIER'S/ PURCHASER'S NO D81582

CBI

HAZARD BEACON AND INTERIOR LIGHTS DETAIL

CUSTOMER'S NO

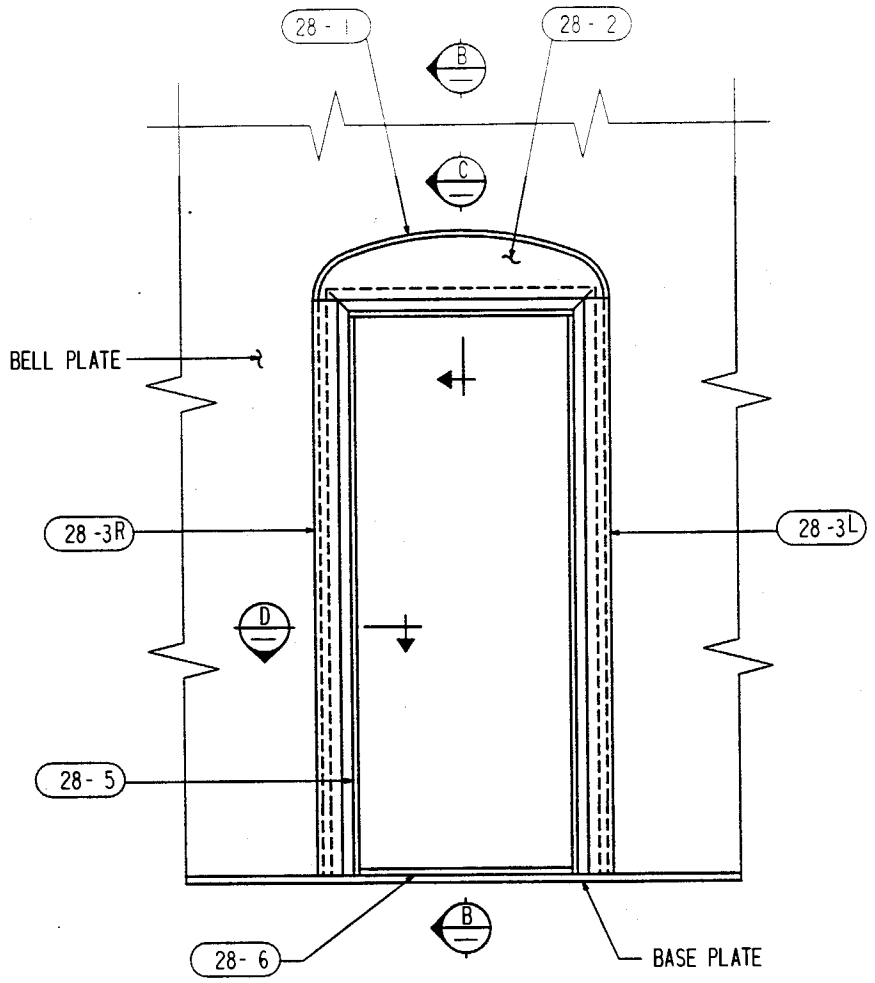
BY JFN CHKD DKJ DATE 8-26-88

R.B. BURLESON
ENGINEER AND SUPERVISOR

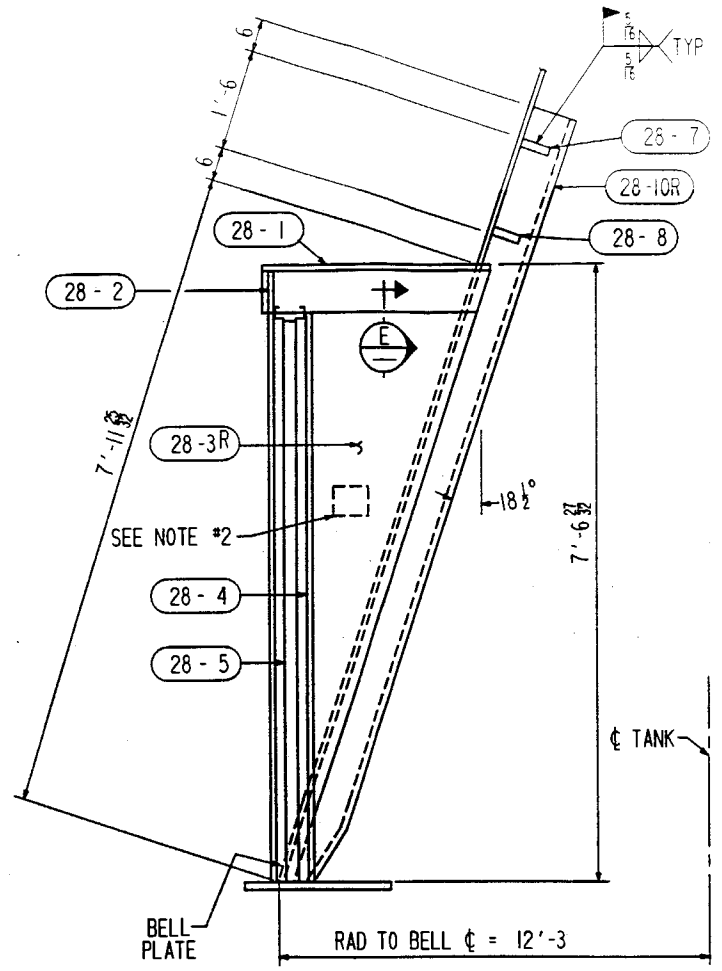
CONTRACT NO C80633

DWG 26 REV 0

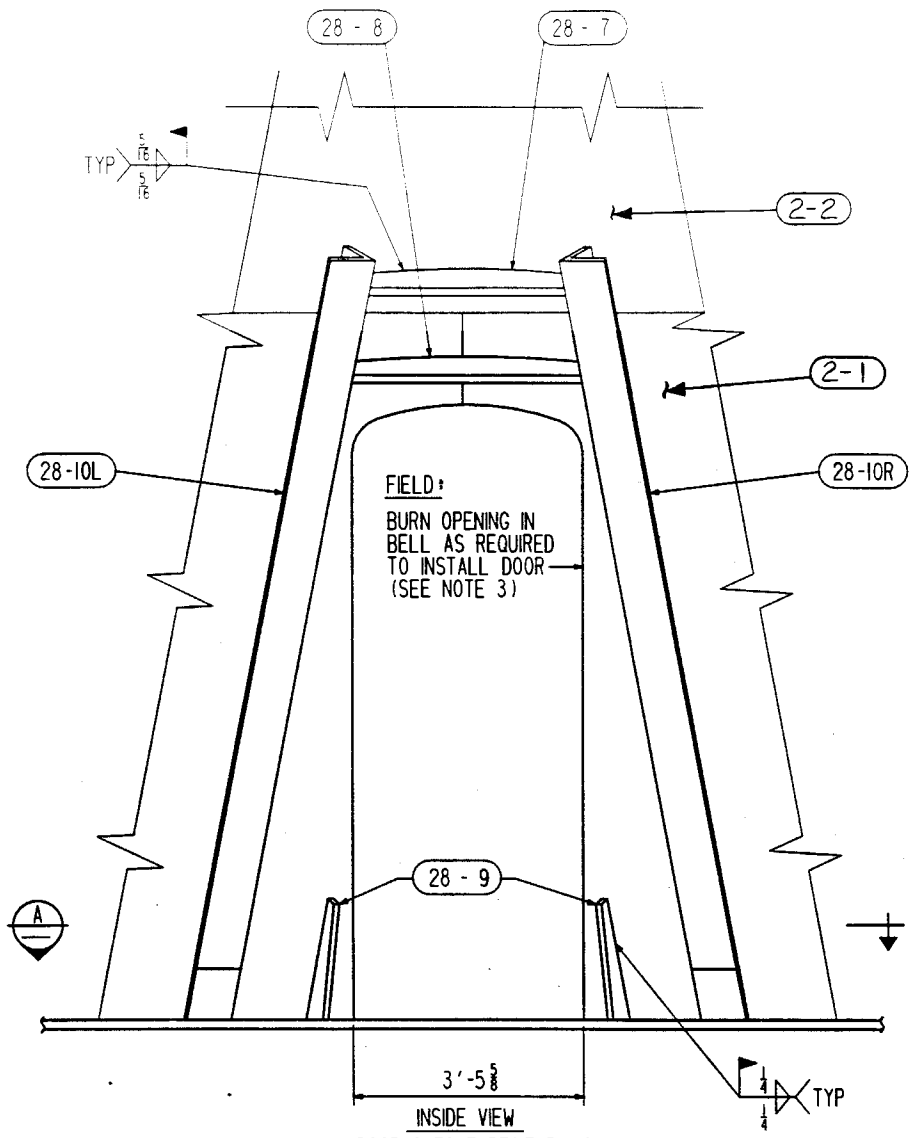
SHT



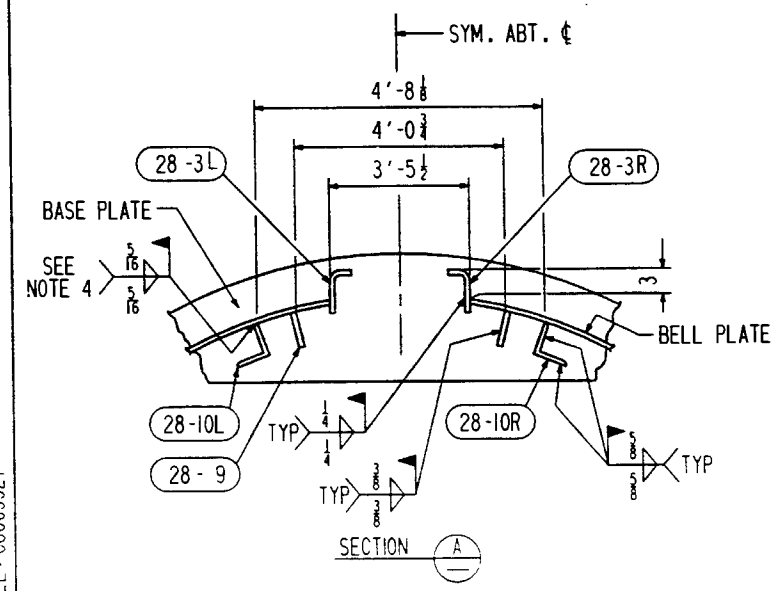
ELEVATION OF DOOR FRAME ASSEMBLY
(DOOR AND REINFORCING OMITTED FOR CLARITY)



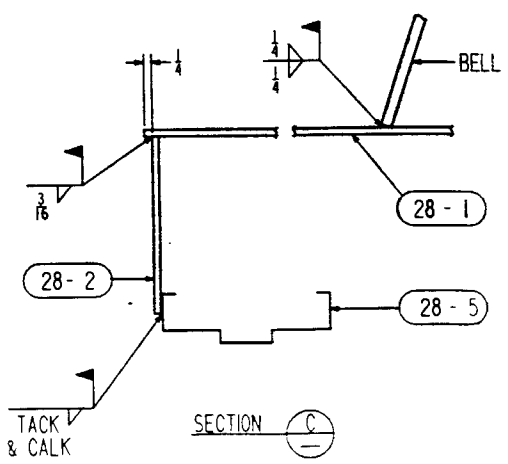
SECTION B
(ANGLES ROTATED IN VIEW FOR CLARITY)
(ALL DIMENSIONS ARE TAKEN ALONG DOOR ¢)
(PC (28 - 6) OMITTED FOR CLARITY)
(PC (28 - 9) OMITTED FOR CLARITY)

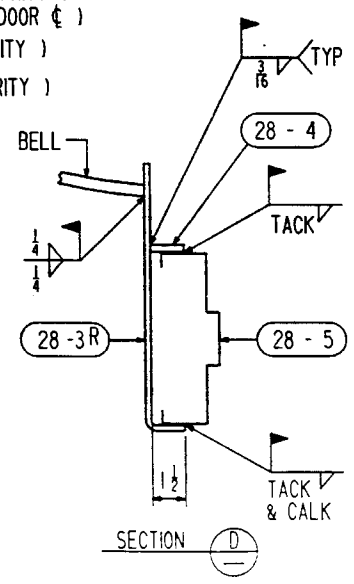


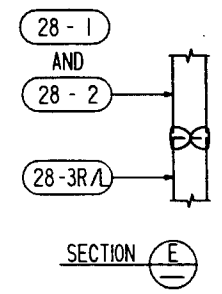
INSIDE VIEW
DOOR CUTOUT REINFORCING



PCS. (28 - 4) (28 - 5) AND (28 - 6) OMITTED FOR CLARITY







NOTES:
1. LOCATE BELL DOOR ON VERTICAL SEAM OF BELL PLATE .
2. WATERSPHEROID NAME PLATE, LOCATE BOTTOM EDGE APPROX. 5'-0 ABOVE GROUND, FASTEN WITH FOUR DRIVE SCREWS USE 5/32 DIA. OR #20 DRILL BIT FOR HOLES FOR NAME PLATE.
3. DO NOT MAKE CUTOUT IN BELL FOR DOOR UNTIL REINFORCING IS WELDED IN PLACE.
4. USE 5/16 CONTINUOUS FILLET WELD FOR 3'-0 AT TOP AND 1'-6 AT BOTTOM. USE 5/16 INTERMITTENT FILLET OF 2-12 IN BETWEEN TOP AND BOTTOM CONTINUOUS WELDS.
5. WORK THIS DRAWING WITH DRAWING 28 .

SUPPLIER'S/ PURCHASER'S NO D81582

▶INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS | BY | CHKD | DATE | REMARKS

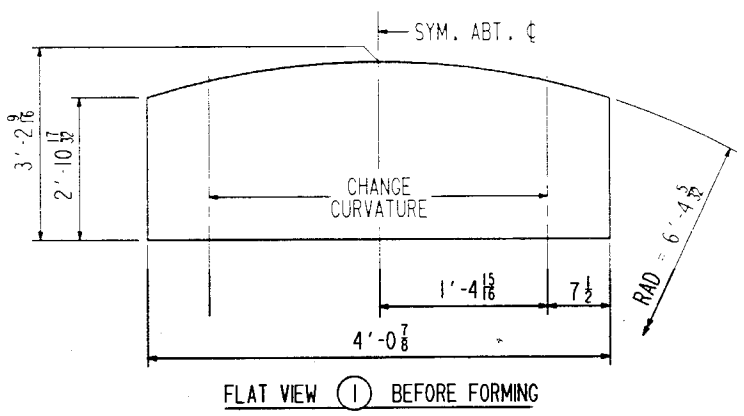
CBI

36 X 80 BELL DOOR
HOOD AND REINFORCEMENT ASSEMBLY
500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

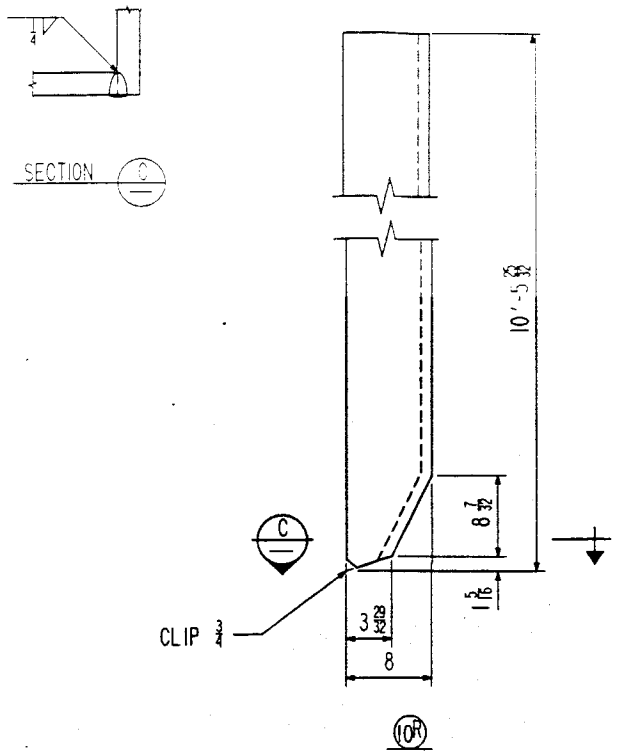
CUSTOMER'S NO
BY JFN CHKD DKJ DATE 8-26-88
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO C80633
DWG 27 REV 0
SHT -

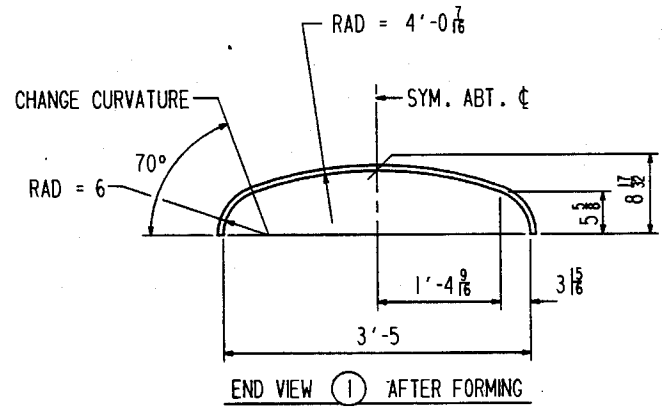
Program: C0102N - SMALL BELL DOOR
Date of Version: 5-28-86
CAD FILE: C8063327



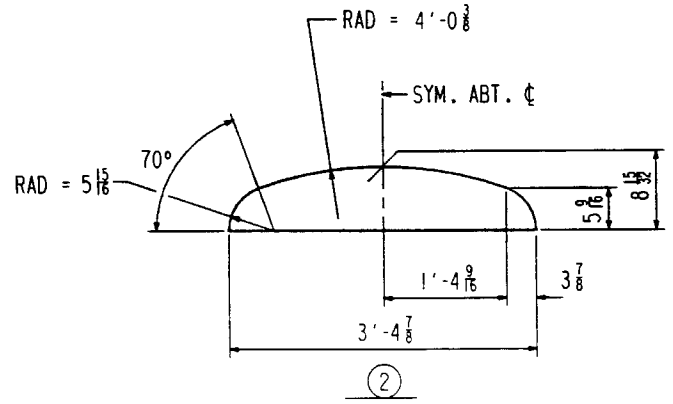
FLAT VIEW (1) BEFORE FORMING



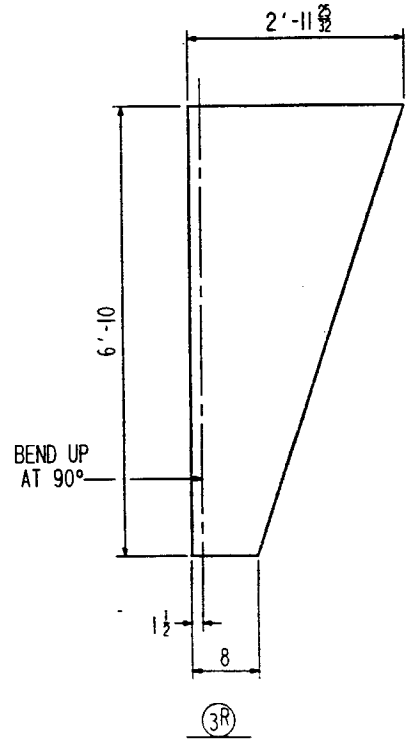
SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB
1	28-1		PL SK X 1/4 (FORM)			A283C	IA	5-3	351	129	
			(C/F PL 39 3/4 X 4'-2)								
1	28-2		PL SK X 1/4			A283C		5-3	351	19	
			(C/F PL 9 1/2 X 3'-6)								
2	28-3 P/L		PL SK X 1/4			A283C	IA	5-3	351	255	
			(C/F PL 45 1/2 X 6'-11 C/2)								
2	28-4		BAR FLAT 1 1/2 X 1/4	6	10	A36		5-3	351	17	
1	28-5		DOOR CECO "IMPERIAL					0-0	300	161	
			IM-3068 M-LHR (16 GA.) WITH								
			FRAME KD 16 GA. 5 3/4								
			HINGES FULL MORTISE 2110-NRPI-USP								
1			LOCKSET MORTISE					0-0	300	3	
			CECO #A8048/KD/US110								
1	28-6		THRESHOLD CECO 4241/30			ALUM		0-0	300	3	
1	5145		NAME PL WATERSPHEROID			SS		0-0	300	1	
4			SCREWS #10 PARKER DRV			SS		0-0	300	0	
1	28-7		PL SK X 1/2			A283C	IB	5-3	351	28	
			(C/F PL 13 3/4 X 3'-9)								
1	28-8		PL SK X 1/2			A283C	IB	5-3	351	30	
			(C/W 28-7)								
2	28-9		PL SK X 1/2			A283C	IB	5-3	351	15	
			(C/F PL 7 X 1'-10 3/4 C/2)								
2	28-10R/L		L 8 X 8 X 1 SK0E	10	5 25/32	A36	IB	5-3	351	1070	



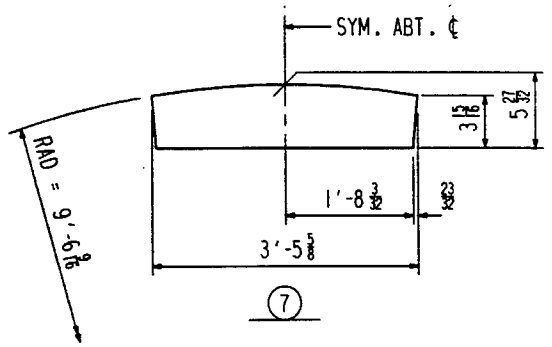
END VIEW (1) AFTER FORMING



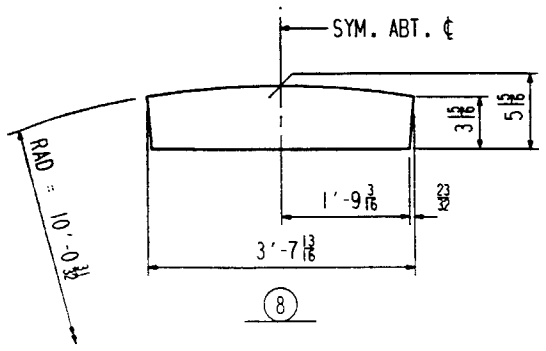
(2)



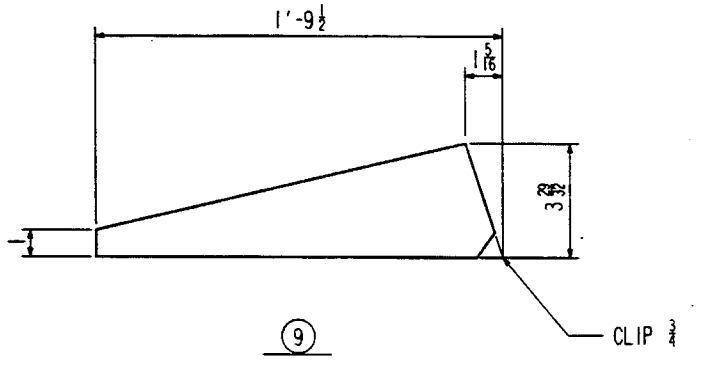
(3R)



(7)



(8)



(9)

WORK THIS DRAWING WITH DRAWING 27

SUPPLIER'S/ PURCHASER'S NO D81582

CBI

36 X 80 BELL DOOR
HOOD AND REINFORCEMENT ASSEMBLY
500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

CUSTOMER'S NO

BY JFN CHKD D.E.J DATE 8-26-88

R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO C80633

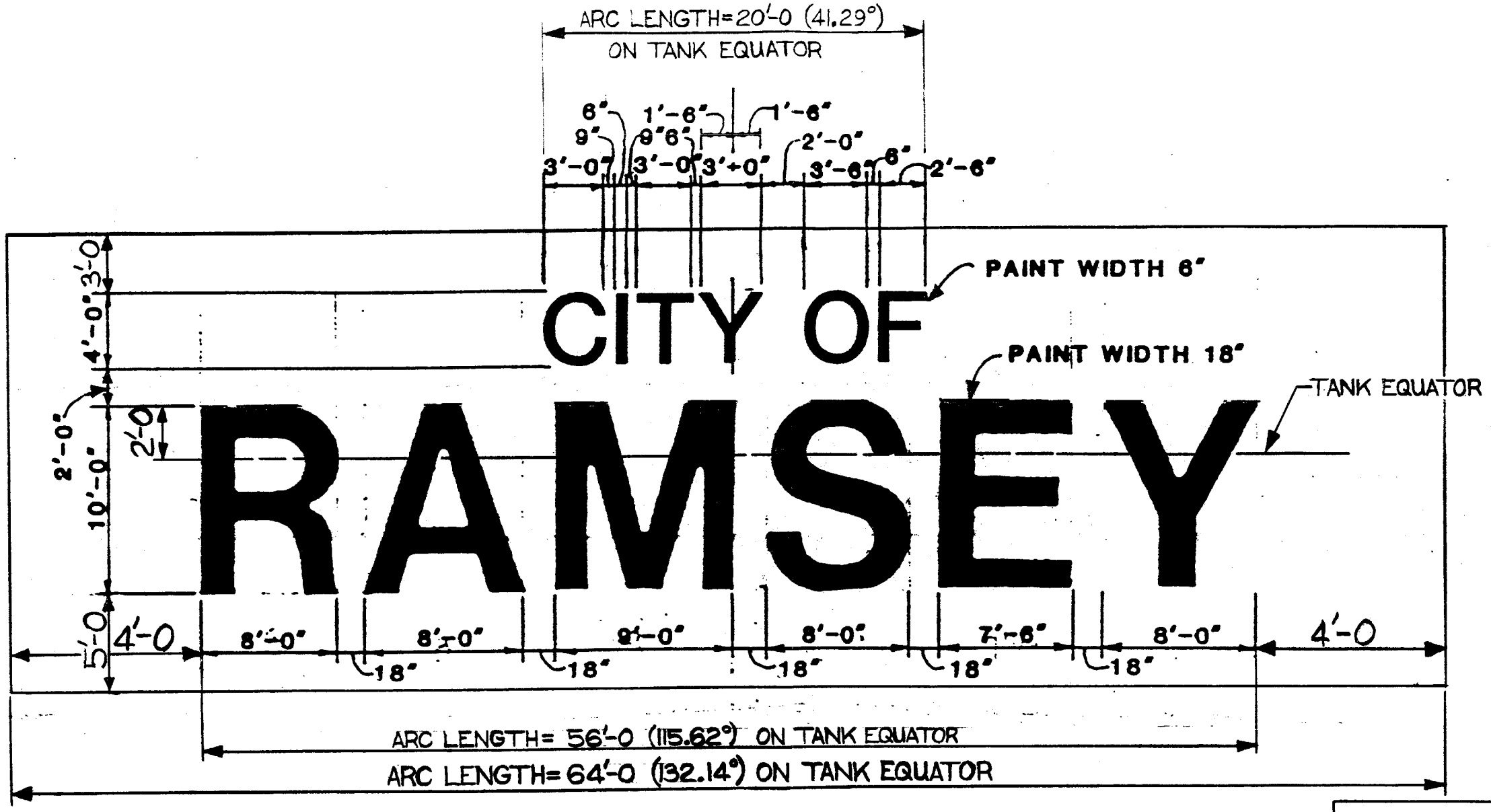
DWG 28 REV 0

SHT -

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS | BY | CHKD | DATE | BY | CHKD | DATE | BY | CHKD | DATE | REMARKS

Program: COI02N - SMALL BELL DOOR
Date of Version: 5-28-86
CAD FILE: C8063328



EXTERIOR LETTERING

AFTER THE FINAL EXTERIOR COAT HAS BECOME THOROUGHLY DRY, PAINT THE ABOVE SIGN ON 2 SIDES OF THE TANK SHELL IN ACCORDANCE WITH PAINT SHEETS. THE EXACT SHAPE, SIZE, AND SPACING OF THE LETTERS SHALL BE AS SHOWN ABOVE. THE EXACT LOCATION AND COLOR OF THE LETTERING SHALL BE DESIGNATED BY THE CUSTOMER'S REPRESENTATIVE. (LETTERS TO BE PAINTED SOLID)

Revisions	By	Chkd	Date
Remarks			
	By	Chkd	Date

▶ Indicates change from previous Issue

SUPPLIER'S/PURCHASER'S NO. D81582

CBI Na-Con, Inc. CBI Na-Con

SIGN DETAIL

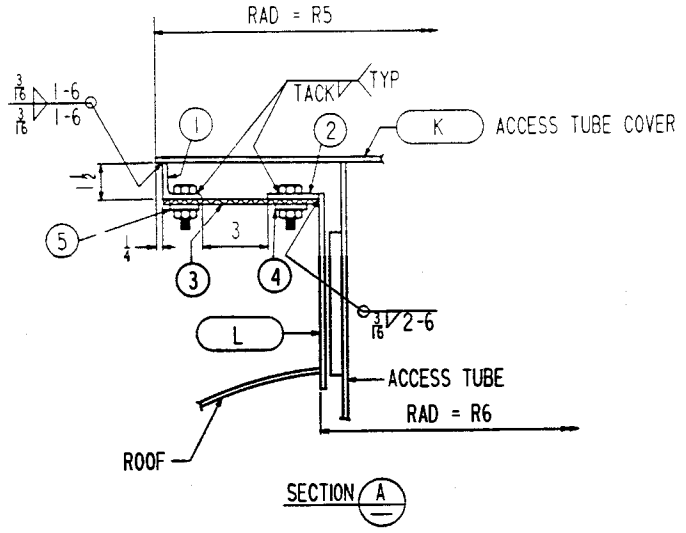
Purchaser's No. _____ Contract No. C80633

By JFN Chkd DKJ Date 8-26-83

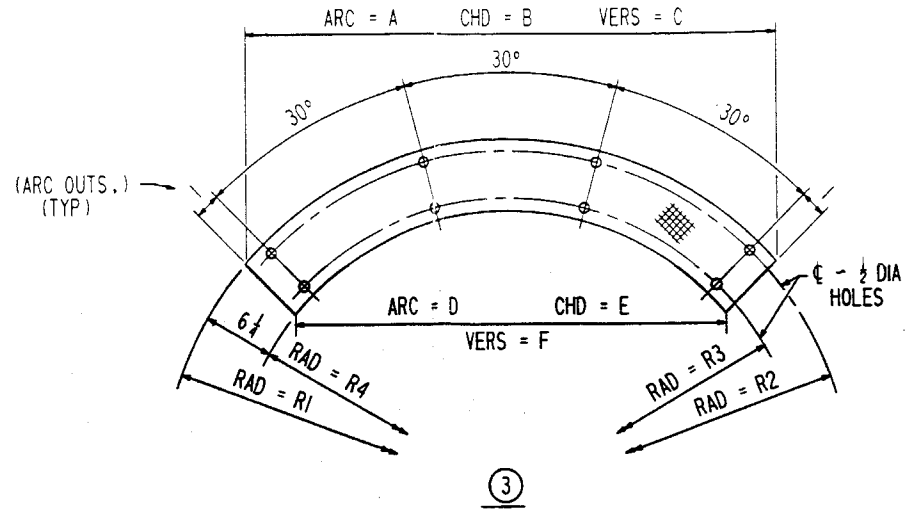
R.B. BURLESON
Engineering Supervisor

Dwg. SD1 Rev. 0

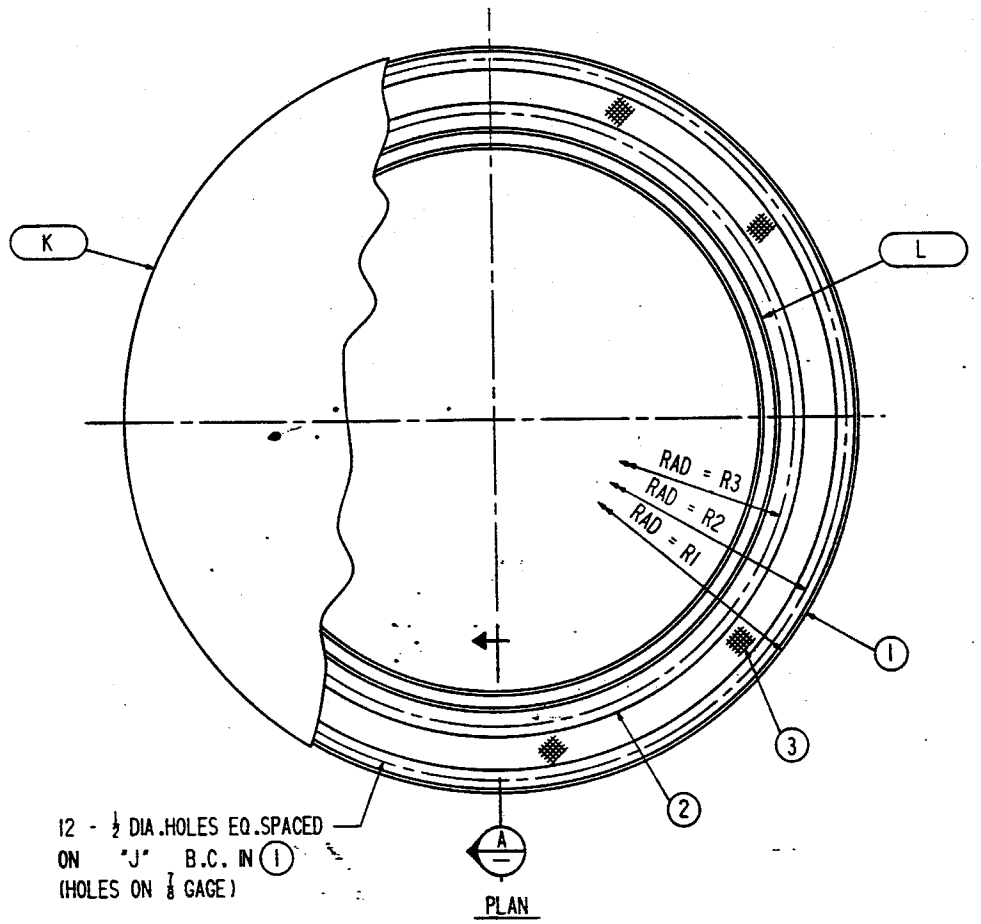
FORM DR 72A REV NOV 85



SECTION A



3



DIMENSIONS FOR 36 ACCESS TUBE						
PC. MK.	M	N	P	R	S	T
1	13'-4 7/32	16'-4	24	-	-	-
2	10'-5 3/32	13'-6	18	40 1/2	42	38
4	10'-7 1/4	13'-7	7	40 1/2	41 1/2	39 1/2
5	12'-10 23/32	15'-11	8	49 1/4	50 1/4	48 1/4

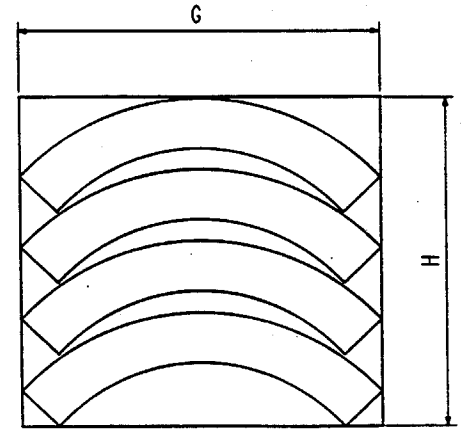
DIMENSIONS FOR 42 ACCESS TUBE						
PC. MK.	M	N	P	R	S	T
1	14'-11 1/32	17'-11	27	-	-	-
2	12'-0 17/32	15'-0	20	46 1/2	48	44
4	12'-2 3/32	15'-2	8	46 1/2	47 1/2	45 1/2
5	14'-5 9/16	17'-6	9	55 1/4	56 1/4	54 1/4

DIMENSIONS FOR 48 ACCESS TUBE						
PC. MK.	M	N	P	R	S	T
1	16'-5 15/16	19'-6	30	-	-	-
2	13'-7 3/8	16'-7	23	52 1/2	54	50
4	13'-8 15/16	16'-9	9	52 1/2	53 1/2	51 1/2
5	16'-0 7/16	19'-0	10	61 1/4	62 1/4	60 1/4

SHIP PC	MARK	ASSM PC	DESCRIPTION	LENGTH FT	LENGTH IN	SPEC	ID	CLN & PT	CODE	EST WT	AB-LN
		SHOP	ATTACH TO ACCESS TUBE COVER								
	G5-1	1	L 1 1/2 X 1 1/2 X 3/16		M	A36		5-3	3410	P	
			WITH HOLES								
			FIN RAD = R1 SHR		N						
		12	BOLT FIN HEX 3/8 DIA	0	1	A307B		0-0	2100	1	
			SHOP ATTACH TO "L"								
	G5-2	1	BAR 2 X 1/4 ROLL		M	A36		5-3	3410	P	
			SHR		N						
			"S" O.D. X "T" I.D.								
			W/12 - 1/2 DIA BOLT HOLES								
			EQ. SPCD. ON "R" B.C.								
		12	BOLT FIN HEX 3/8 DIA	0	1	A307B		0-0	2100	1	
24			NUT FIN HEX 3/8 DIA			A563A		0-0	2100	1	
4	G5-3		SCREEN W/ ■ WIRE MESH			■		0-0	3410	1	
			(SK) WITH HOLES (■ DIA WIRE)								
			BANDING NOT NECESSARY								
			(C/F G X H C/4)								
1	G5-4		BAR 1 X 1/4 ROLL		M	A36		5-3	3410	P	
			SHR		N						
			"S" O.D. X "T" I.D.								
			W/12 - 1/2 DIA BOLT HOLES								
			EQ. SPCD. ON "R" B.C.								
1	G5-5		BAR 1 X 1/4 ROLL		M	A36		5-3	3410	P	
			SHR		N						
			"S" O.D. X "T" I.D.								
			W/12 - 1/2 DIA BOLT HOLES								
			EQ. SPCD. ON "R" B.C.								

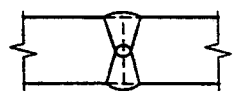
■ = SEE GENERAL PLAN.- #16 WIRE MESH DIAMETER=.018 AND #4 WIRE MESH DIAMETER=.047.

4A BRASS & STAINLESS STEEL, USE BRASS EXCEPT WHEN REQUIRED BY CUSTOMER.



CUTTING SK. (3)

VENT SIZE	RADIUS R1	RADIUS R2	RADIUS R3	RADIUS R4	RADIUS R5	RADIUS R6	ARC A	CHD B	VERS C	ARC D	CHD E	VERS F	G	H	J	PC.MK. K	PC.MK. L
36	2'-1 1/2	2'-0 5/8	1'-8 1/4	1'-7 1/4	2'-1 3/4	1'-7	3'-6 1/16	3'-1 1/16	8 3/16	2'-7 3/4	2'-4 9/32	6 3/16	3'-2	3'-3	4'-1 1/4	4B2-4	4B2-5
42	2'-4 1/2	2'-3 5/8	1'-11 1/4	1'-10 1/4	2'-4 3/4	1'-10	3'-10 29/32	3'-5 11/16	9 1/16	3'-0 17/32	2'-8 9/16	7 1/16	3'-6	3'-3	4'-7 1/4	4C3-4	4C3-5
48	2'-7 1/2	2'-6 3/8	2'-2 1/4	2'-1 1/4	2'-7 3/4	2'-1	4'-3 15/32	3'-9 15/16	9 15/16	3'-5 9/32	3'-0 13/16	7 31/32	3'-10 9/16	3'-6 1/2	5'-1 1/4	SEE BILLS	SEE BILLS



(1) (2) (4) AND (5) TOGETHER

▶ INDICATES CHANGE FROM PREVIOUS ISSUE

REVISIONS	BY	CHKD	DATE
REMARKS			
2 1/4" REV. SPEC. OF PC. 3 + 1/2 THICKNESS OF PC. 5 + 1/2	JSB	GAH	7-31-85
1 ADDED 5/7/87	RBB		

CBI

SCREENED VENT FOR 36, 42, AND 48 DIAMETER ACCESS TUBE

BY JSB CHKD GAH DATE 7-31-85

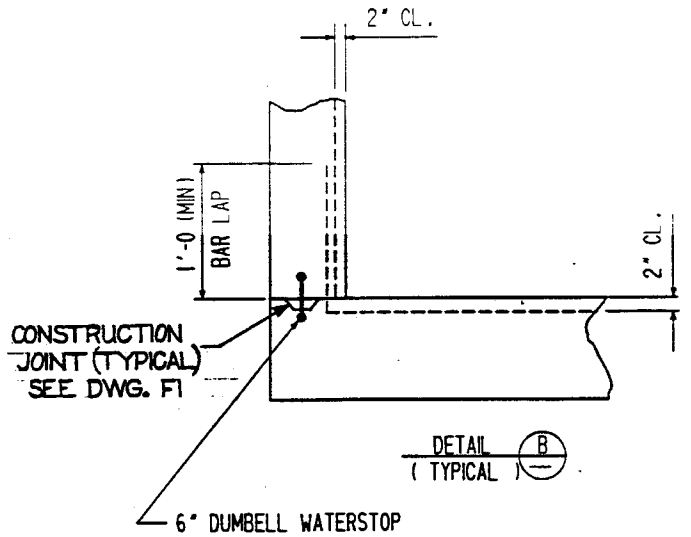
APPROVED BY RBB DATE 7/1/85

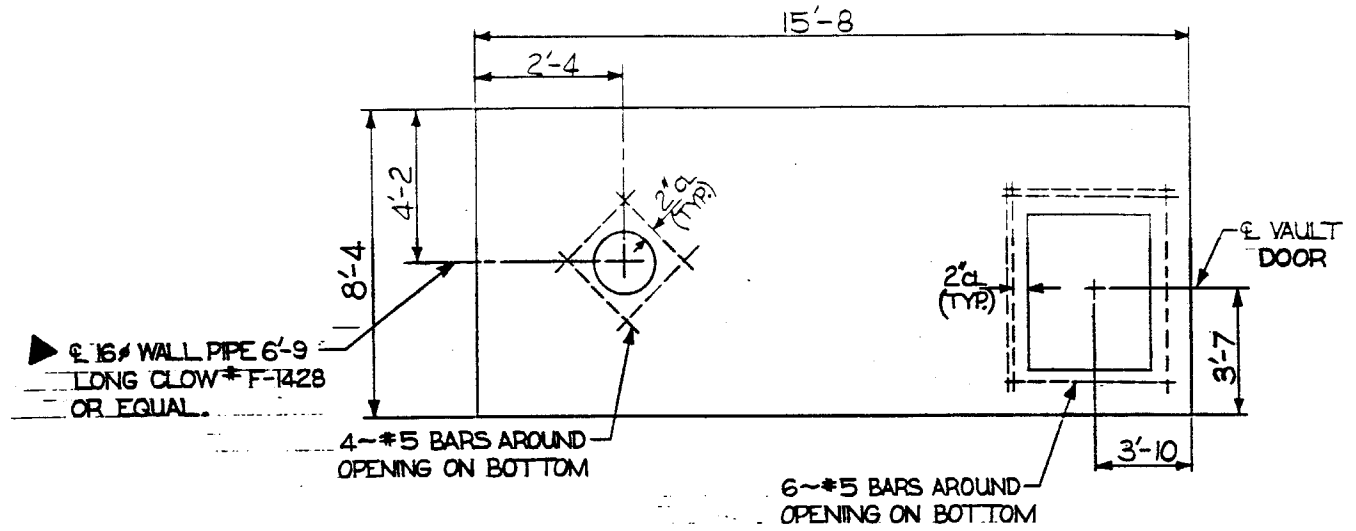
STANDARD DRAWING NO. G5-1

CAD FILE:

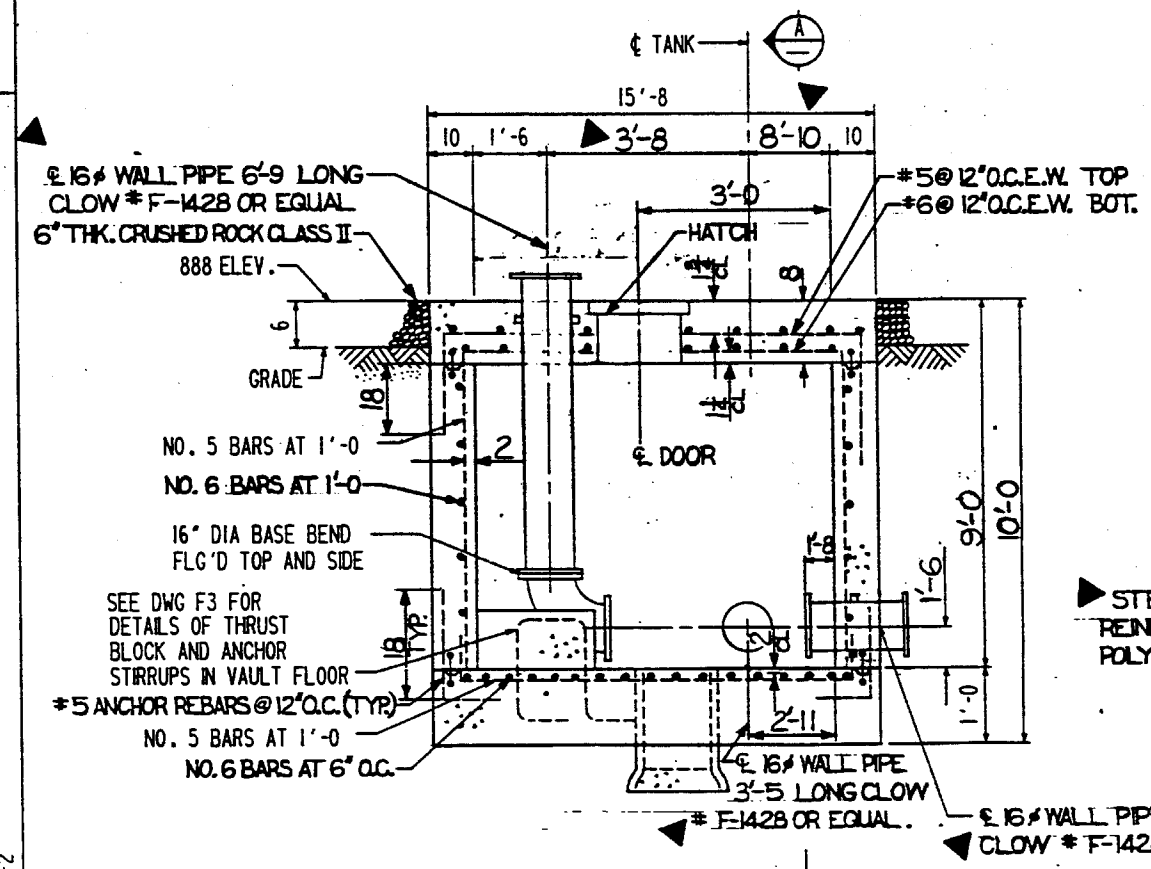
FILE COPY
RA5:15-4

Revise! Electrical sleeve location
4-1" ELEC. GROUND
1-3" FUTURE TELEPHONE
1-3" ELECTRIC SERVICE

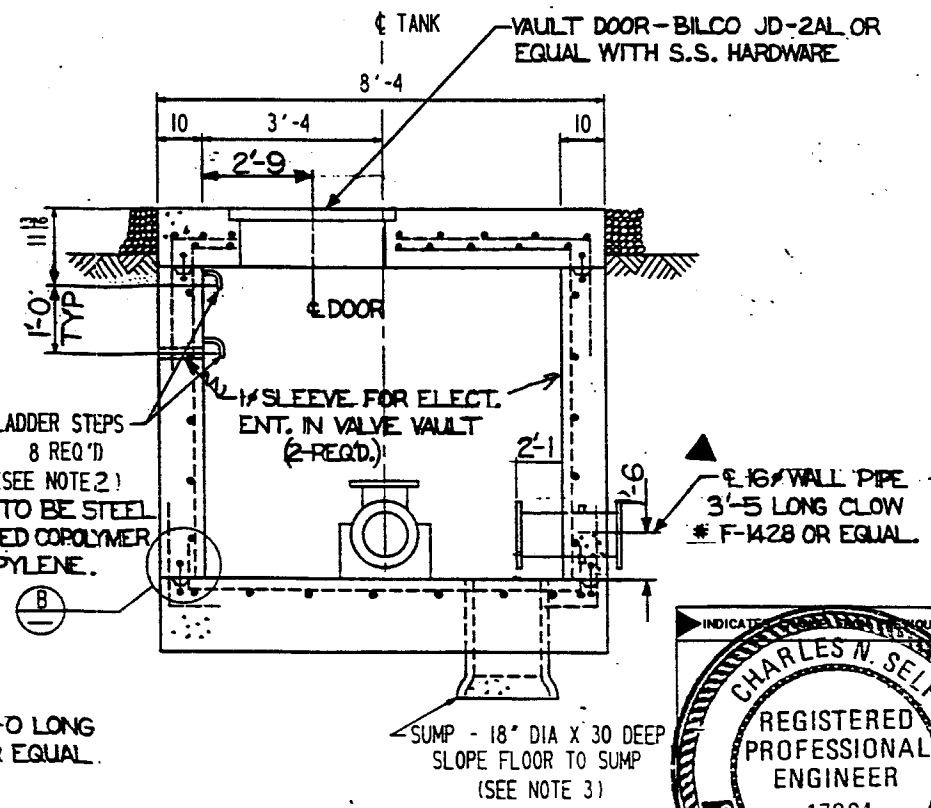




—PLAN OF COVER—



SECTION THRU VALVE VAULT



SECTION A

SUB-CONTRACTOR NOTE:
SEE SHEETS 9,10,&11 OF 14 OF CUSTOMER'S SPECS. FOR REMAINDER OF PIPING DETAILS. SEE ATTACHED CUSTOMER'S DRAWING PIPE PLAN TOWER VAULT.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Charles N. Self

Date 8-9-88 Registration No. 17964

NOTES:

1. WORK THIS DRAWING WITH DRAWING F1 AND F3 & CUST. DWG.
2. SEE DRAWING F1 FOR TRUE ORIENTATION OF LADDER STEPS AND SUMP.

CHARLES N. SELF
REGISTERED PROFESSIONAL ENGINEER
17964
STATE OF MINNESOTA

REVISIONS	BY	CHKD	DATE
REMARKS	JFN	LDF	7-26-88
REVISED PER CUST. APPROVAL.			

SUPPLIER'S/ PURCHASER'S NO D81582

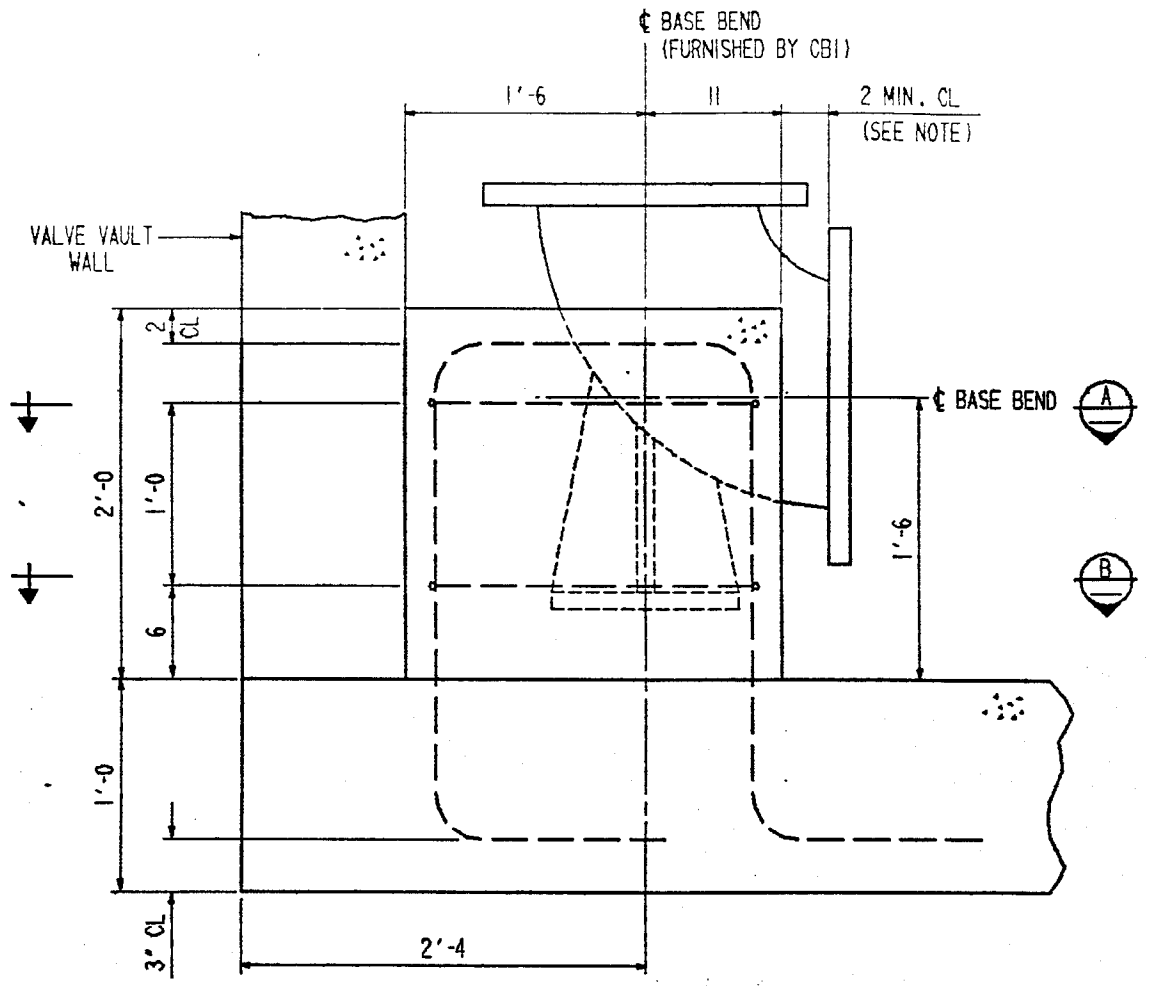
CBI

VALVE VAULT
500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

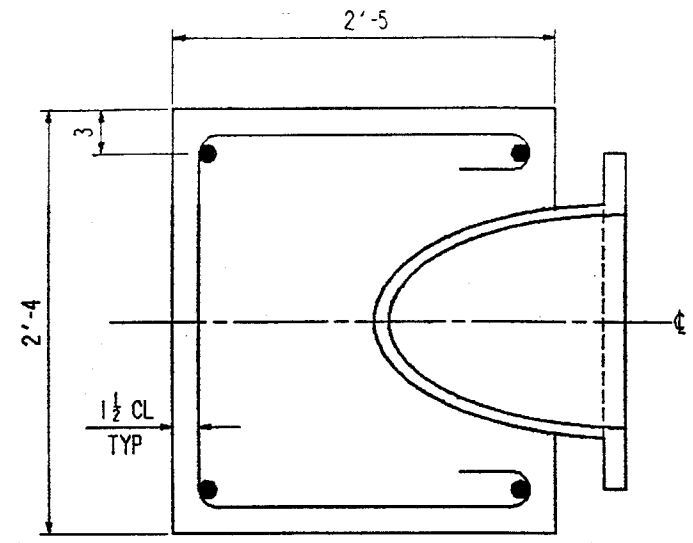
CUSTOMER'S NO
BY JFN CHKD LDF DATE 7-6-88
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO C80633
DWG F2 REV
SHT -

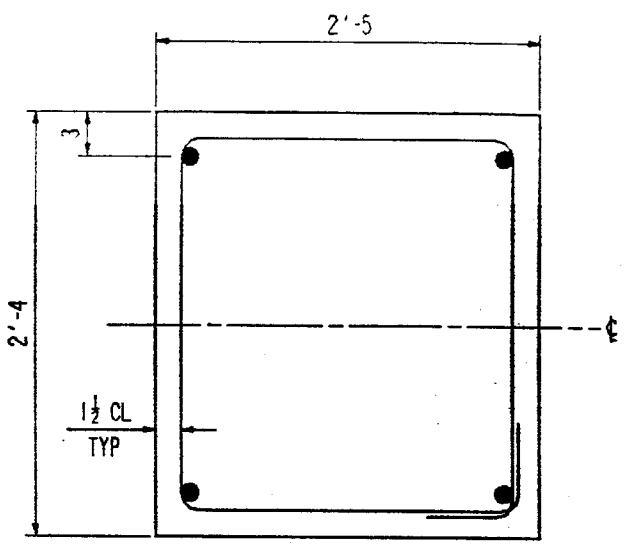
Program: C0104N - VALVE VAULT
Date of Version: 12-29-86
CAD FILE: C80633F2



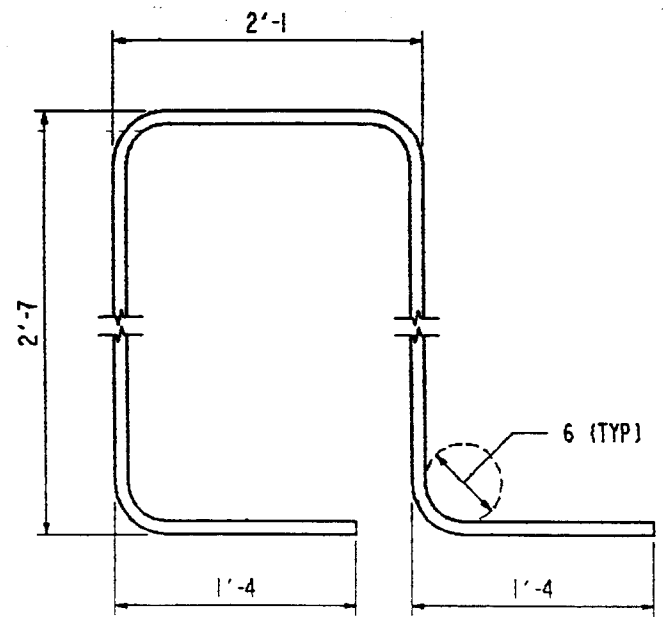
THRUST BLOCK FOR 16" DIAMETER BASE BEND



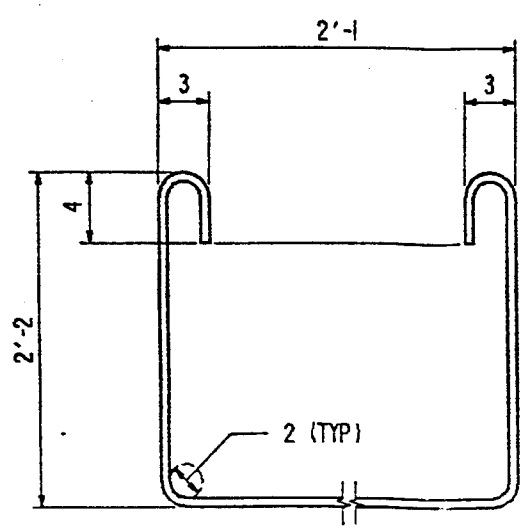
SECTION (A)



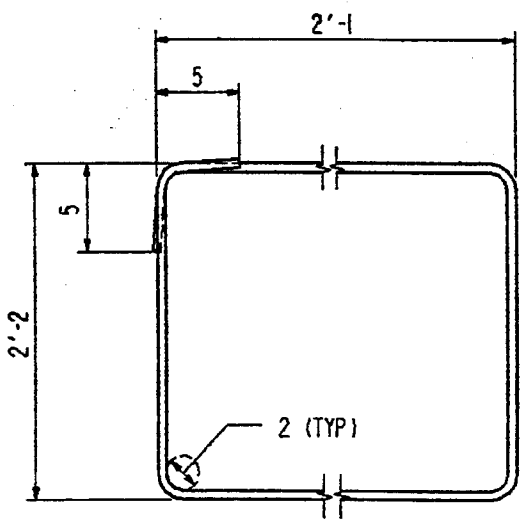
SECTION (B)



BEND DETAIL - #8 TYPE S5 BAR, 9'-11 LONG
(2 REQUIRED)



BEND DETAIL - #4 TYPE S9 TIE BAR, 7'-7 LONG
(1 REQUIRED)



BEND DETAIL - #4 TYPE T2 TIE BAR, 9'-4 LONG
(1 REQUIRED)

NOTE:
THE 2 INCH CLEAR DISTANCE BETWEEN BACK OF VERTICAL FLANGE AND FACE OF CONCRETE BLOCK DOES NOT NECESSARILY PROVIDE CLEARANCE TO INSTALL BOLTS FROM BASE BEND SIDE. VALVES AND FITTINGS THAT ATTACH TO THE BASE BEND SHOULD BE CHECKED TO ASSURE THAT BOLTS CAN BE INSTALLED.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Charles N. Self

Date 8-9-88 Registration No. 17964

Program: C0106N - Thrust Block Assembly
Date of Version: 5-23-86
CAD FILE: C80633F3

INDICATES CHANGE FROM PREVIOUS ISSUE

CHARLES N. SELF
REGISTERED PROFESSIONAL ENGINEER
17964

REVISIONS | BY | CHKD | DATE | REMARKS

SUPPLIER'S/ PURCHASER'S NO D81582

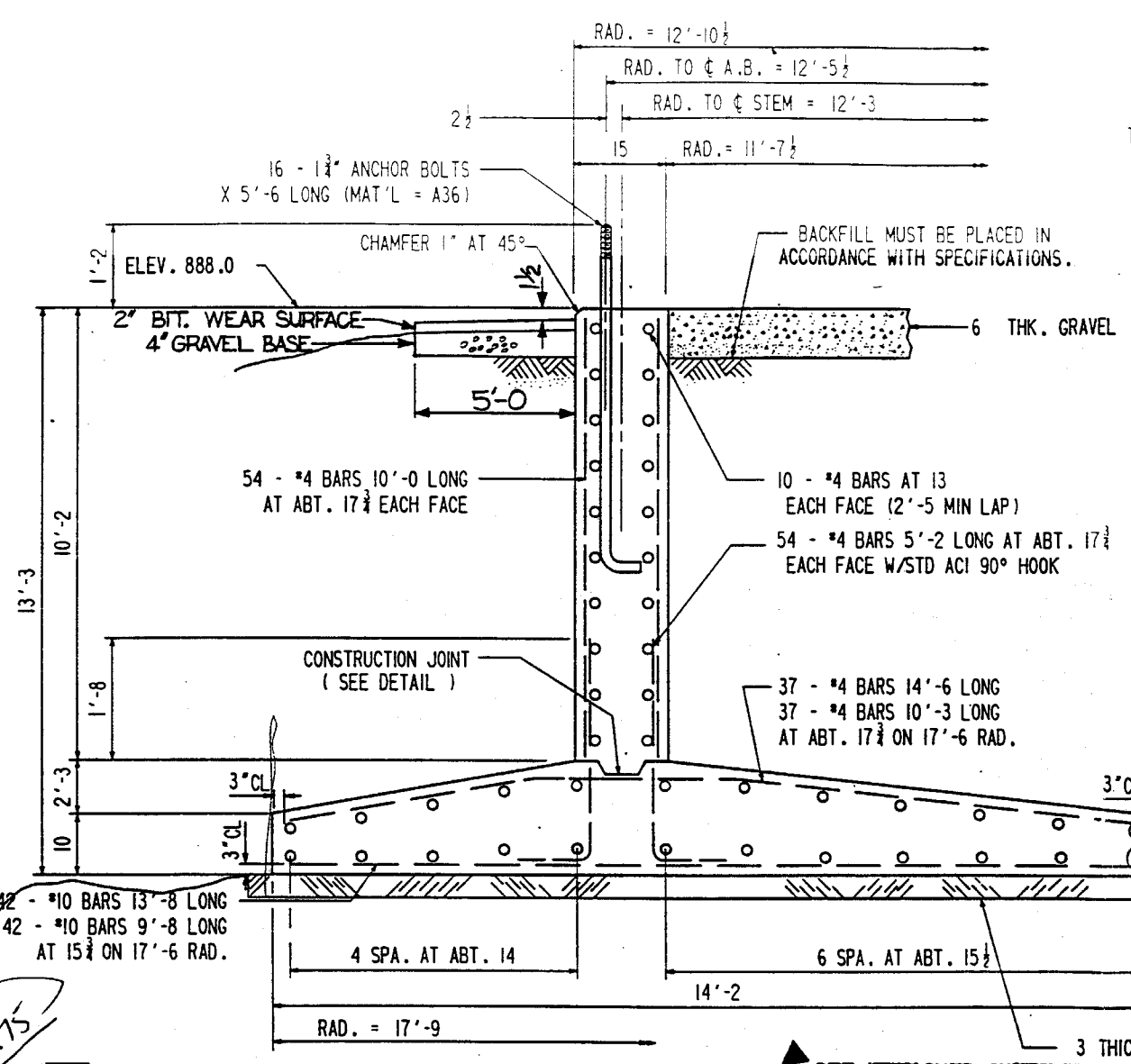
CBI

16" DIAMETER BASE BEND
THRUST BLOCK ASSEMBLY
500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

CUSTOMER'S NO
BY JFN CHKD LDF DATE 7-6-88
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO C80633
DWG. F3 REV 0
SHT -

NOT TO SCALE

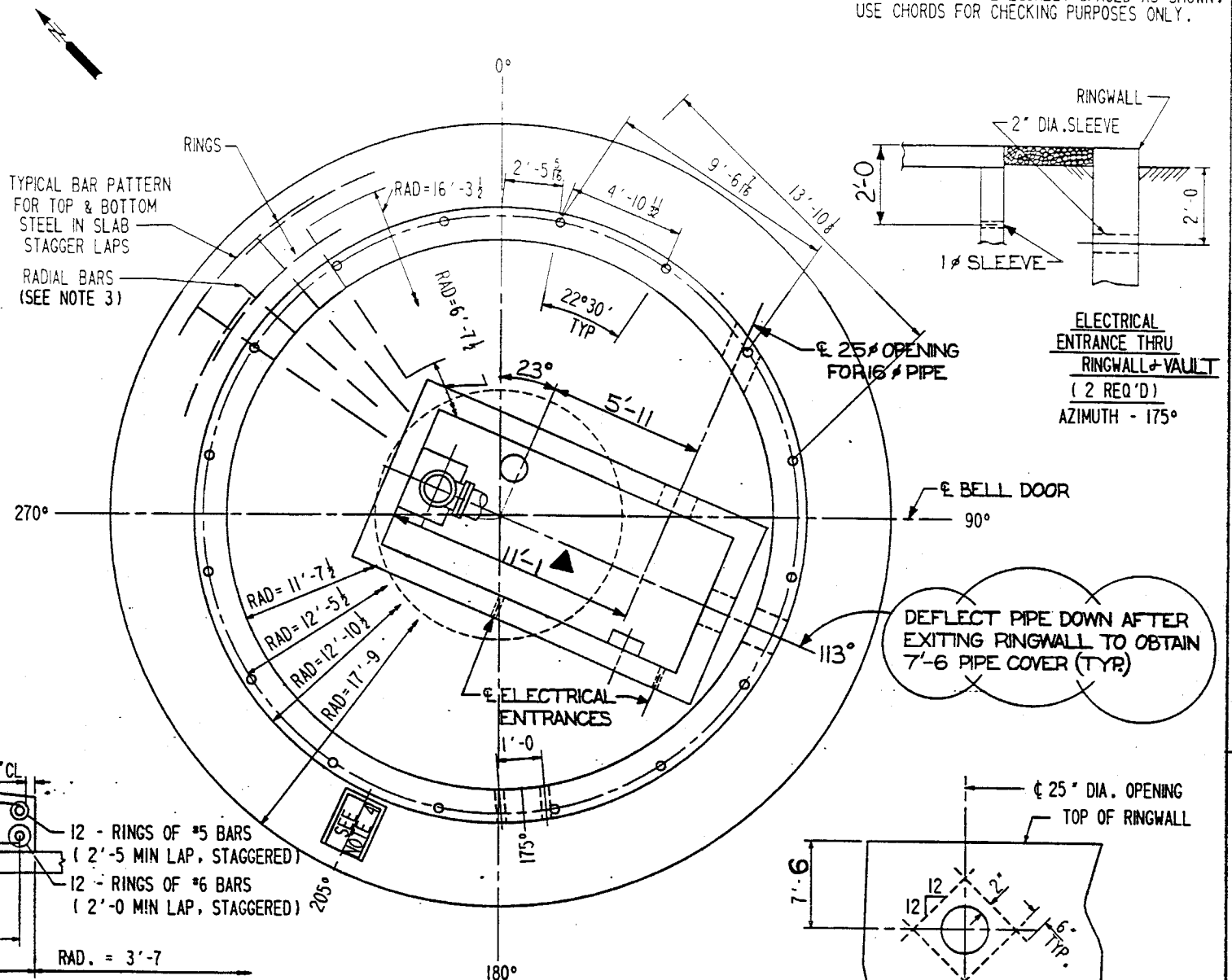


SECTION THRU FOUNDATION

SEE ATTACHED CUSTOMER DRAWING "PIPE PLAN TOWER VAULT".

TYP. CONSTRUCTION JOINT

NOTE: ANCHOR BOLTS ARE EQUALLY SPACED AS SHOWN. USE CHORDS FOR CHECKING PURPOSES ONLY.



ELECTRICAL ENTRANCE THRU RINGWALL & VAULT
(2 REQ'D)
AZIMUTH - 175°

PIPE OPENING IN RINGWALL

A) DO NOT CAULK AROUND PIPE. (2-REQ'D.)
B) 16 DIA. PIPE MUST BE INSTALLED BEFORE INSIDE BACKFILL IS PLACED.
C) 4 - #4 BARS 3'-5 LONG IN EACH FACE.

NOTES:
1. ALL REINIFORCING COVER TO BE 2" MINIMUM EXCEPT AS NOTED.
2. WORK THIS DRAWING WITH PROJECT SPECIFICATIONS AND DRAWING F2 . F3
3. RADIAL CUTOFF BARS MAY BE EXTENDED FOR INSTALLATION ONLY IF A 2 INCH MINIMUM CLEAR DISTANCE BETWEEN BARS ON INSIDE CAN BE MAINTAINED AT SPACING SHOWN.
4. SPLASH PAD AT AZIMUTH 205°, 4'-0 x 10'-0 x 1'-0 (SEE CUST. DWG. SHT. 7)
5. LADDER TO BE LOCATED A MIN. OF 15" FROM ℄ OF LADDER TO INS. OF VAULT WALL.

I hereby certify that this ~~plan~~, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Charles N. Self

Date 8-9-88 Registration No. 17964

ESTIMATED FOUNDATION QUANTITIES		
ITEM	CONCRETE (CU. YDS.)	REIN'F. STEEL (LB.)
FND. STEM	36.2	1850
FND. BASE SLAB	74.7	7450
VALVE VAULT	19	2150
TOTAL	129.9	11450

FOUNDATION CONTRACTOR SHALL MAKE OWN ESTIMATE OF QUANTITIES FOR BIDDING AND/OR CONTRACTING.

TABLE OF LOADINGS		
ITEM	LOAD (KIPS)	BEARING PRESSURE (PSF) NET
WATER	4231.9	
METAL	305.1	
CONCRETE (44 PCF)	136.5	
TOTAL W/O WIND	4673.5	4922 PSF
	W/WIND (FT-KIP)	W/WIND (PSF)
OVERTURNING MOMENT	6156	1404
MAXIMUM TOE PRESSURE (PSF)		6326

TOLERANCES:
TOP OF RINGWALL TO BE TROWELLED LEVEL AND TO BE WITHIN ± ¼" OF THEORETICAL ELEVATION. ANCHOR BOLTS TO BE WITHIN ¼" OF THEORETICAL POSITION. TO BE PLUMB WITHIN ⅛"/12, AND WITH PROJECTION ABOVE THE TOP OF RINGWALL WITHIN ½" OF THE SPECIFIED HEIGHT.

SPECIFICATIONS:
SEE SPECIFICATIONS BY CUSTOMER AND C.B.I.. ALL CONCRETE TO HAVE 4000 P.S.I. COMP. STRENGTH IN 28 DAYS. REINFORCING STEEL TO HAVE MINIMUM YIELD STRENGTH OF 60000 P.S.I. AND CONFORM TO ASTM A615 (SI) GR. 60 . ALL MATERIAL UNLESS OTHERWISE NOTED TO BE FURNISHED AND INSTALLED BY FOUNDATION CONTRACTOR. ANCHOR BOLTS ARE FURN. BY C.B.I..

PIPE COVER = 6'-7 (AT RINGWALL)

▲ INDICATES CHANGE FROM PREVIOUS ISSUE

CHARLES N. SELF
REGISTERED PROFESSIONAL ENGINEER
17964
STATE OF MINN.

BY	CHKD	DATE	REMARKS
JFN	LDF	7/25/88	REVISED PER CUST. APPROVAL

SUPPLIER'S/ PURCHASER'S NO D81582

CBI

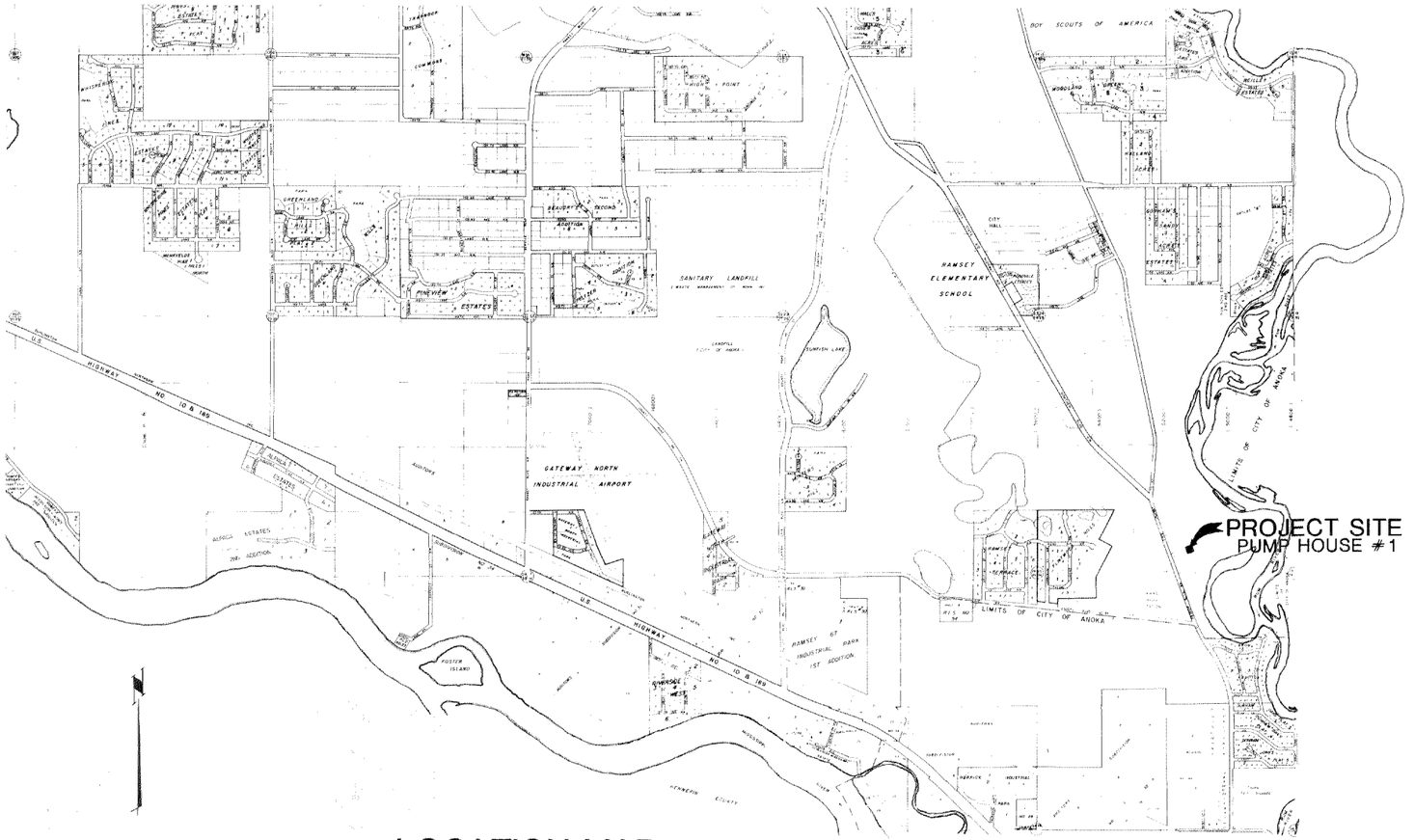
FOUNDATION PLAN
FOR 500 M.G. WATERSPHEROID
CITY OF RAMSEY, MINNESOTA

CUSTOMER'S NO
BY JFN CHKD LDF DATE 7-6-88
R.B. BURLESON
ENGINEERING SUPERVISOR

CONTRACT NO C80633
DWG F1 REV 1
SHT -

CAD PROGRAM: C012IA - FOUNDATION PLAN
DATE OF VERSION: 1/08/88
CAD FILE: C80633F1

IMPROVEMENT PROJECT 84-13
PUMP HOUSE
AND
HYDRO-PNEUMATIC TANK
CITY OF RAMSEY



LOCATION MAP
SCALE: 1" = 1500'

INDEX TO PLAN SHEETS	
DESCRIPTION	SHEET
TITLE SHEET	1
SITE & LOCATION	2
FLOOR & FOOTING	3
BUILDING ELEVATION	4
MECHANICAL	5
HYDRO-PNEUMATIC TANK	6
ROOF PLANK & FLOOR DRAIN	7
BUILDING & DETAILS	8
ELECTRICAL SYSTEM DIAGRAM	9
ELECTRICAL POWER & CONTROLS	10
ELECTRICAL LIGHTING & GROUNDING	11
ELECTRICAL DETAIL	12
CONTROL DIAGRAMS	13

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
This is to certify that this is a duplicate image of the plan referred to in report on water works improvements, dated
OCT 10 1984

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Laurence D. Koshak
Date 9/26/84 Reg. No. 11261

Hakanson Anderson Associates, Inc.
engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-5860

142ND AVENUE N.W.

PROPOSED BITUMINOUS STREET

10" WATERMAIN BY OTHERS

GRAVEL BY OTHERS

GRADING BY THIS CONTRACT

NOTE 1

35'

WELL LOCATION

CONCRETE WALK

CONCRETE WALK

TRANSFORMER PAD

5'

FLOOR ELEVATION 860.8

10" VALVE BY OTHERS

BEGIN PROJECT 84-13

30 LF - 10" DIP CLASS 54

BENDS AS REQ'D BRING PIPE THRU FLOOR

CONCRETE WALK

25 LF - 6" DIP CLASS 54

6" PLUG

4" PVC - SCH 80

SEEPAGE PIT

100.00

859

860

858

ST. FRANCIS BLVD. (STATE TRUNK HIGHWAY NO 47)

142ND AVE. N.W.

WIRCO ST. N.W.

RIVER'S 142ND AVE. N.W. BEND

PROJECT SITE

LOCATION MAP

No Scale

NOTES:

1. THE CONTRACTOR SHALL PLACE TOPSOIL, SEED, FETILIZER AND MULCH OVER THE AREA DISTURBED BY HIS OPERATIONS.
2. ALL WATERMAIN SHALL BE BURIED A MINIMUM OF 7½ FEET.
3. THE CONTRACTOR SHALL GRADE AND SHAPE THE ENTIRE SITE AND DRIVEWAY ACCORDING TO THESE PLANS.
4. SOIL BORING LOG AVAILABLE IN SPECIFICATIONS.

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
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OCT 10 1984

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Laurence G. Kyllo

Date 9/26/84 Reg. No. 11361

IMPROVEMENT PROJECT 84-13
SITE & LOCATION PLAN
PUMP HOUSE #1 - HYDRO-PNEUMATIC
CITY OF RAMSEY

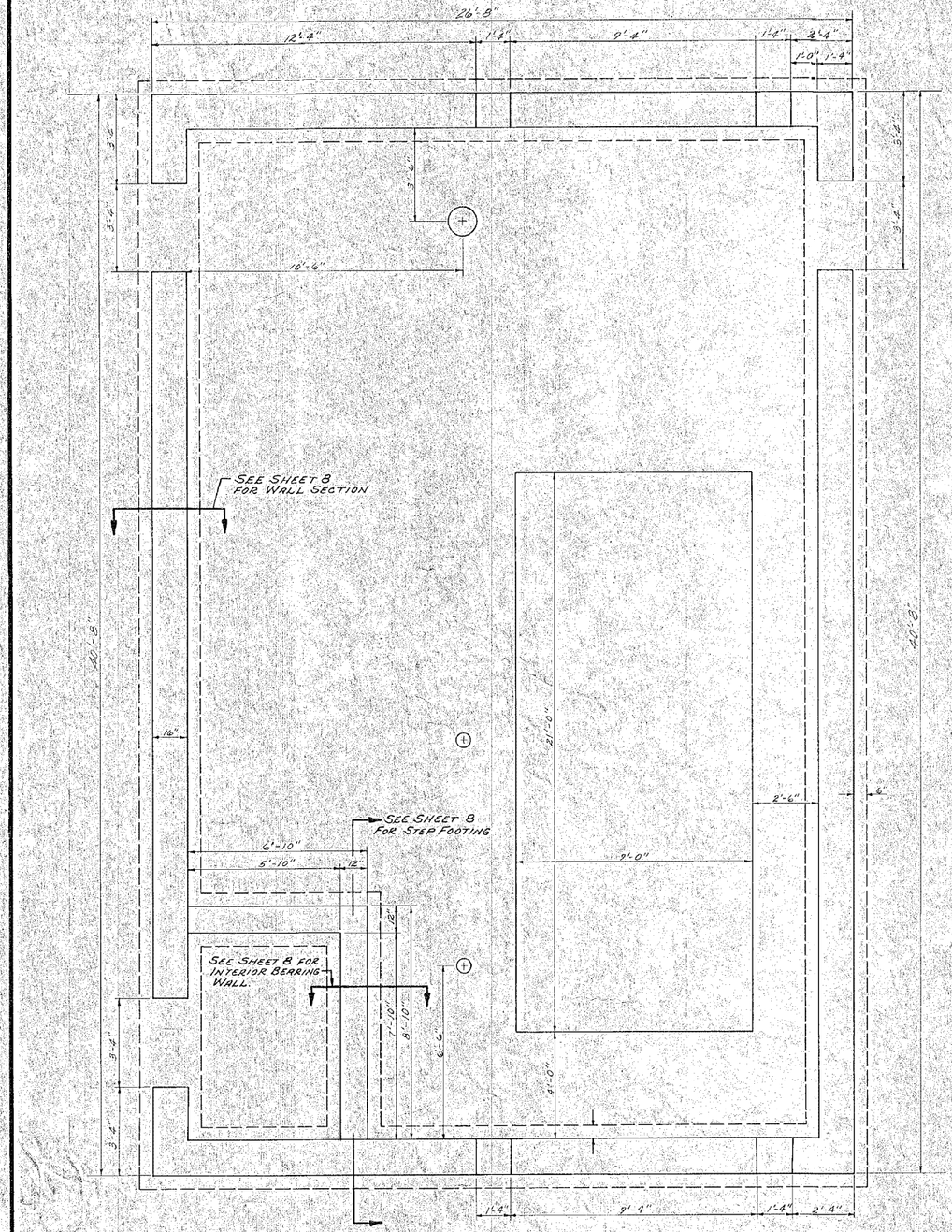
Scale: Horiz. 1"=10' Vert. -

Book 95 Page 72-75

Revisions | Date 9-26-84 | Sheet 2 of 13 sheets | File No. RAMSC:02-1

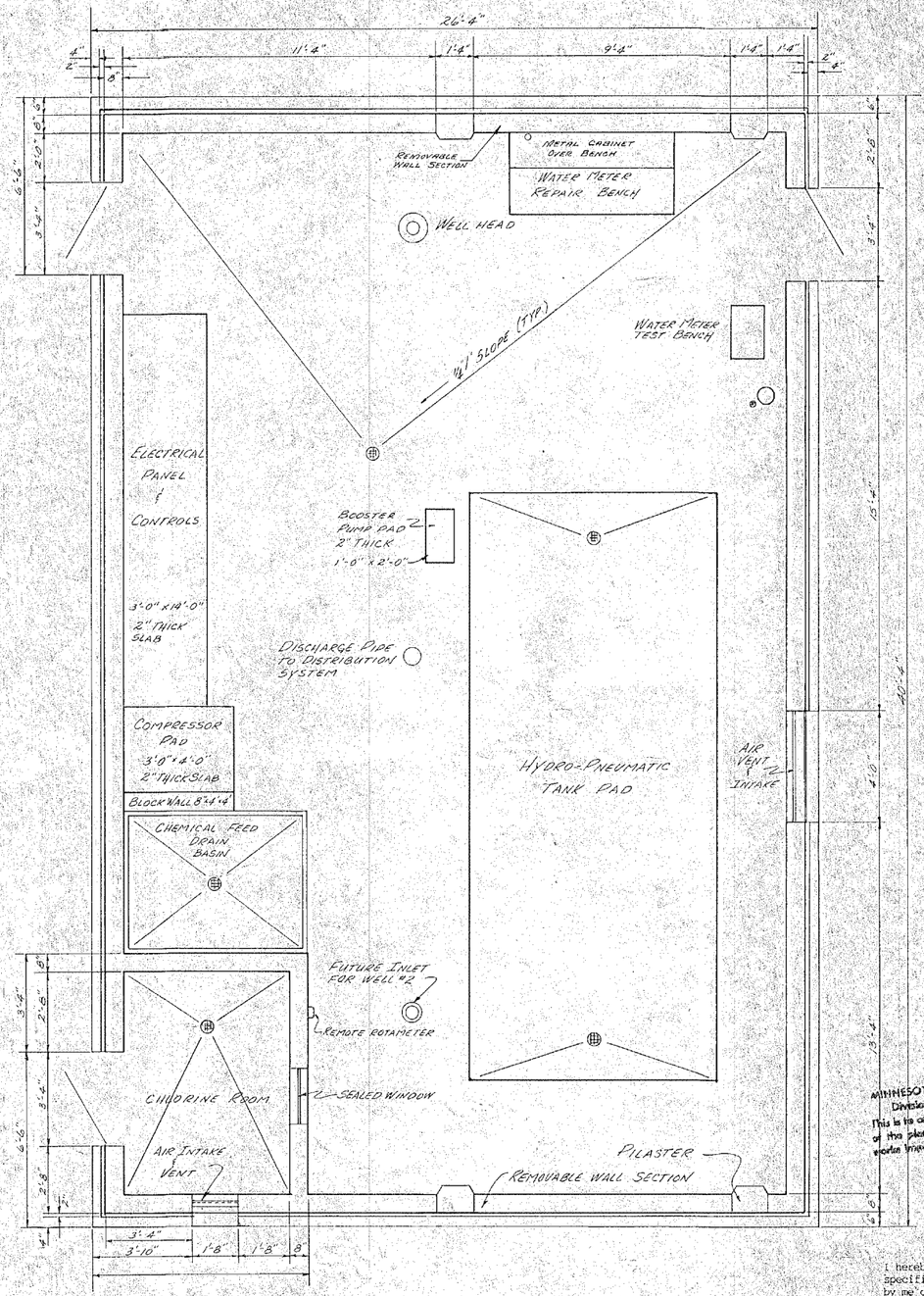
Hakanson Anderson Associates, Inc.
engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-5860

Designed by LGK | Drawn by Larry | Checked by PRE



FOOTING PLAN

3/8" = 1'-0"



FLOOR PLAN

3/8" = 1'-0"

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
This is to certify that this is a duplicate copy of the plan referred to in report on water works improvements, dated _____
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Laurence G. Koshak

Date 9/26/84 Reg. No. 11961

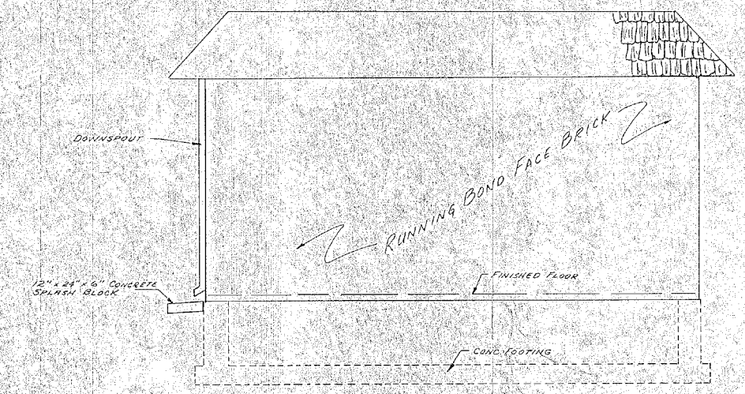
IMPROVEMENT PROJECT 84-13
FLOOR PLAN - FOOTING PLAN
PUMPHOUSE #1 - HYDRO-PNEUMATIC
CITY OF RAMSEY

Scale: Horiz. 3/8" = 1'-0" | Vert. – | Book – | Page –

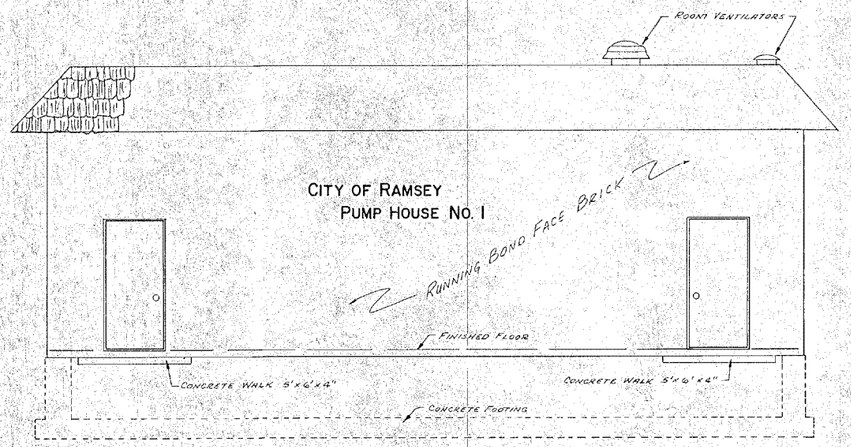
Hakanson Anderson Associates, Inc.
engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-5860

Designed by LGK | Drawn by Andy | Checked by PRR

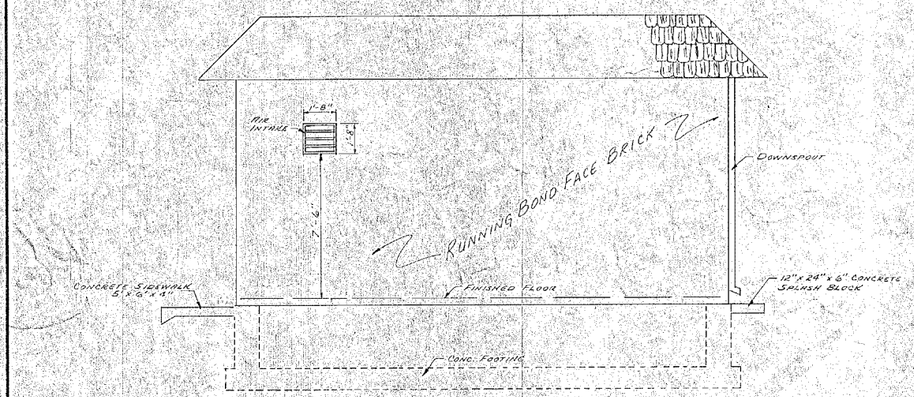
Revisions | Date 9-26-84 | Sheet 3 of 13 sheets | File No. RAS6:02-1



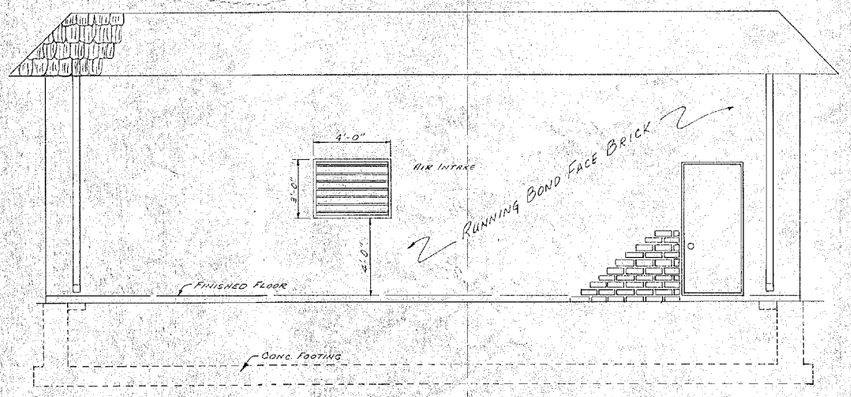
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
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OCT 10 1984

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Lawrence P. Reichel
Date 9/26/84 Reg. No. 11261

IMPROVEMENT PROJECT 84-13
BUILDING ELEVATIONS
PUMPHOUSE #1 - HYDRO-PNEUMATIC
CITY OF RAMSEY

Revisions | Date 9-26-84 | Sheet 4 of 13 sheets | File No. RASC02-1

Scale: Horiz. 1/4"=1'-0" | Vert. -- | Book -- | Page --

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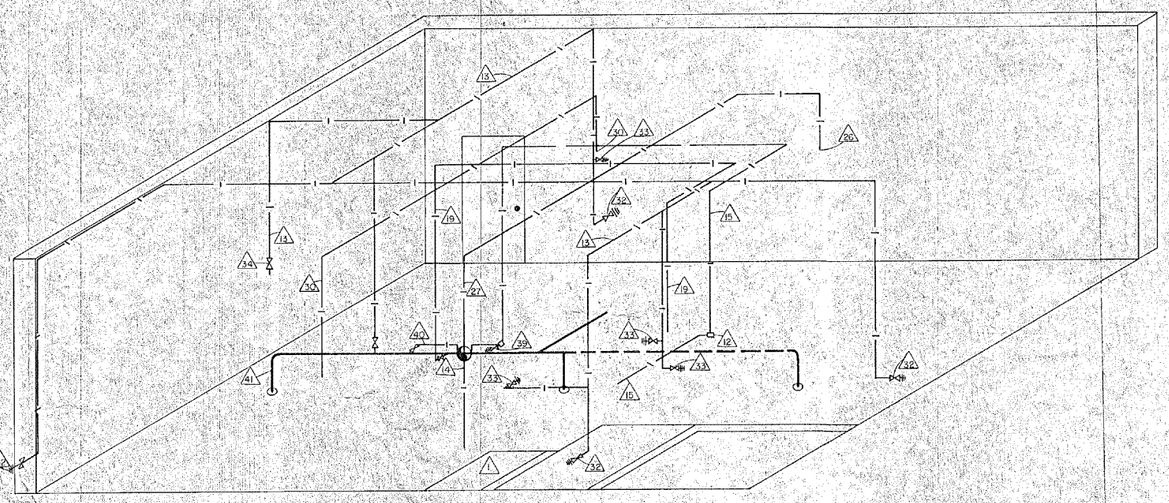
engineers and surveyors
322 Monroe Street • Anoka, Minnesota 55303 • 612/427-3860

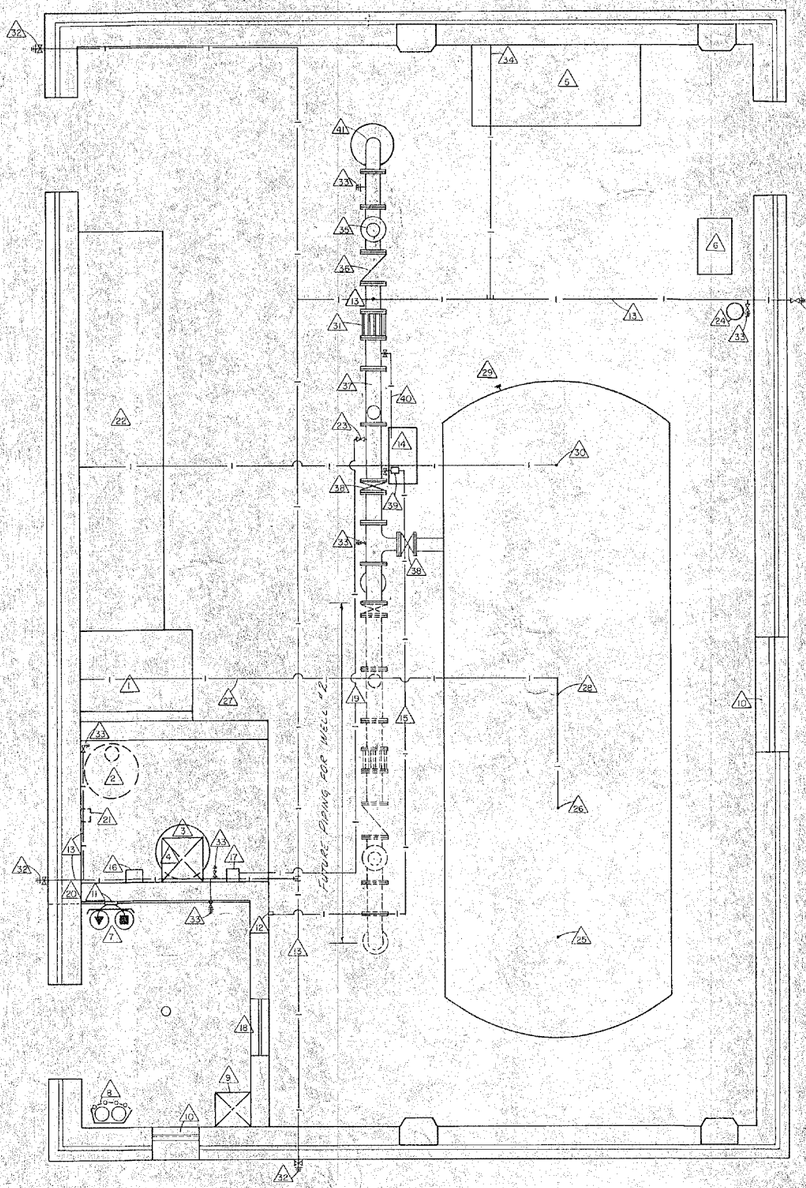
Designed by LGE | Drawn by MHL | Checked by PRR

KEY △

1. Air Compressor
2. Future Polyphosphate Tank & Mixer
3. Fluoride Acid Tank
4. Exhaust Hood
5. Water Meter Repair Bench
6. Water Meter Test Bench
7. Chlorine Gas Cylinders on Line
8. Chlorine Gas Cylinders in Storage
9. Exhaust Ventilator - Chlorine Room
10. Fresh Air Intake
11. Chlorine Gas Auto Switchover Module
12. Remote Chlorine Gas Flow Meter
13. 3/4" Service Water Tap & Water Line
14. Booster Pump
15. Chlorine Gas Line
16. Fluoride Pump
17. Fluoride System Break Tank
18. Sealed Viewing Window
19. Fluoride Solution Line
20. Chlorine Vent Line to Outside
21. Future Polyphosphate Pump
22. Electrical & Controls Center
23. Fluoride Solution Injector & Check Valve
24. Meter Test Tank
25. Mechanical Air Pressure Relief
26. Add Air
27. Compressed Air Line
28. Air Release - Solonoid Valves to Control Panel
29. Tank Level Switch to Control Panel
30. Air Pressure - to Control Unit
31. Flexible Coupling
32. Frost Free Hose Bid & Back Flow Preventor Valve
33. Hose Bib & Back Flow Preventor Valve
34. Water Service to Meter Repair Bench
35. Air Release Valve
36. Check Valve
37. Flow Meter
38. 6" Valve
39. Chlorine Injector
40. Water Line to Booster Pump
41. Well Head



PIPING SCHEMATIC
SCALE 1/4" = 1'



MECHANICAL PLAN
SCALE 3/8" = 1'

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
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Laurence G. Kodah
Date 9/26/84 Reg. No. 11961

IMPROVEMENT PROJECT 84-13
MECHANICAL PLAN - SCHEMATIC
PUMPHOUSE #1 - HYDRO-PNEUMATIC
CITY OF RAMSEY

Scale: Horiz. SHOWN Vert. — Book —
Revisions | Date 9-26-84 | Sheet 5 of 13 sheets | File No. RA5C:02-1 | Page —

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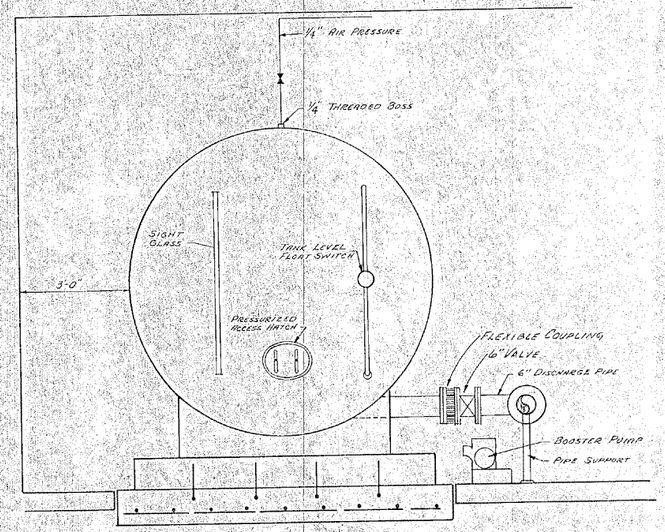
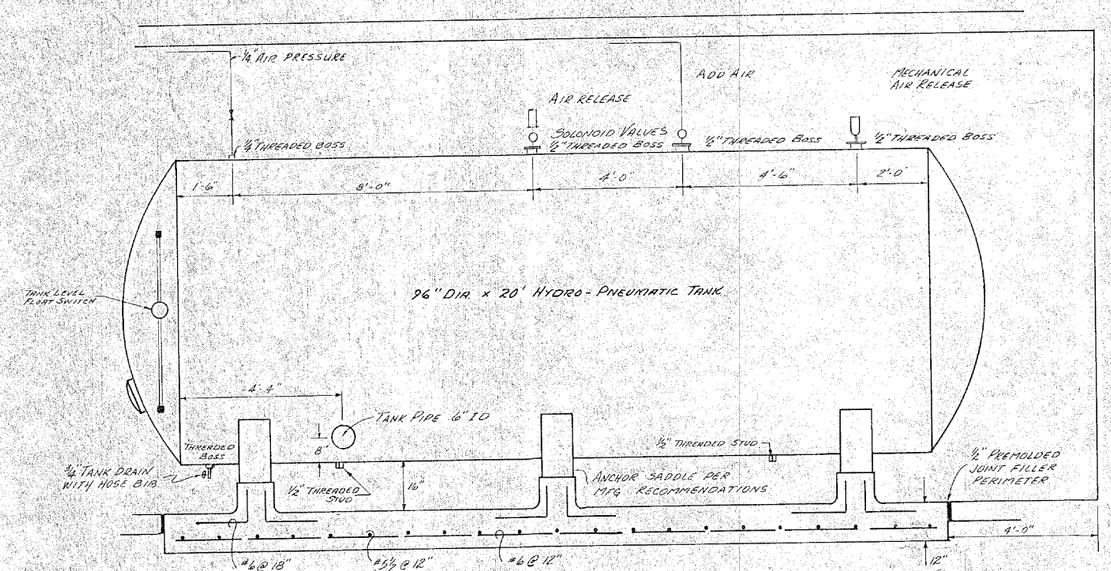
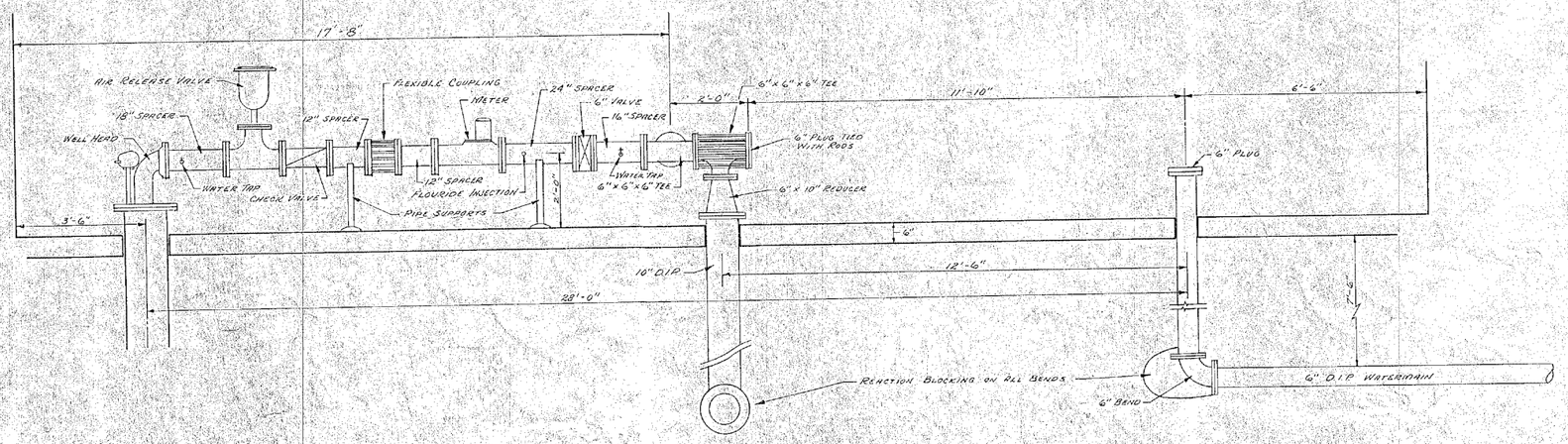
Designed by LGK | Drawn by Finch | Checked by PRR







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Date 9/24/84 Reg. No. 11961

IMPROVEMENT PROJECT 84-13
HYDRO-PNEUMATIC TANK & PIPING DETAILS
PUMPHOUSE #1
CITY OF RAMSEY

Scale: Horiz. 1/2" = 1'-0" | Vert. — | Book — | Page —

Revisions | Date 9-26-84 | Sheet 6 of 13 sheets | File No. RAMSEY-82-1

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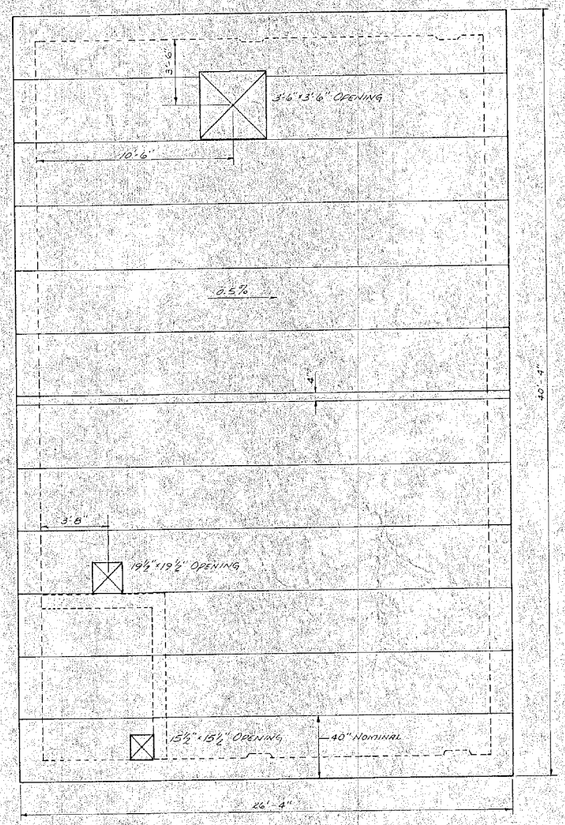
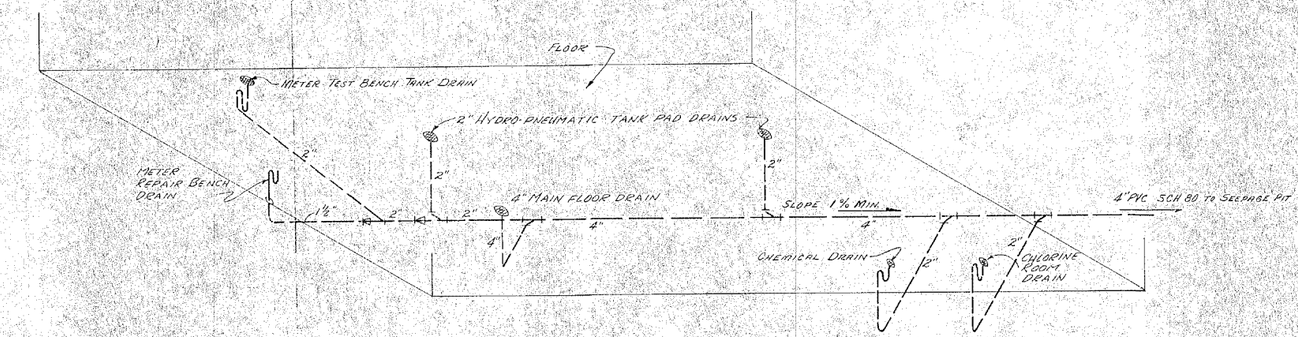


ROOF PLANK PLAN

4" = 1'-0"



FLOOR DRAIN SYSTEM

NO SCALE

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
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Laurence G. Koshak

Date 9/26/84 Reg. No. 11961

IMPROVEMENT PROJECT 84-13
ROOF PLANK PLAN AND FLOOR DRAIN SYSTEM
PUMP HOUSE #1
CITY OF RAMSEY

Scale: Horiz. SHOWN; Vert. —; Book —; Page —

Revisions | Date 9-26-84 | Sheet 7 of 13 sheets | File No. RMSC-02-1

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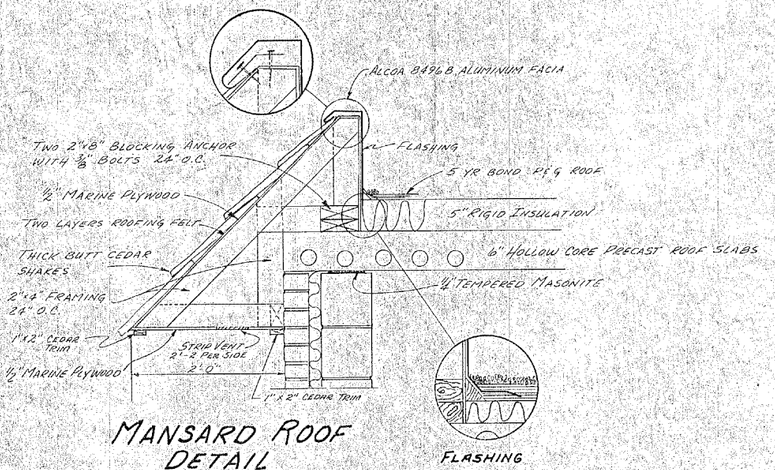
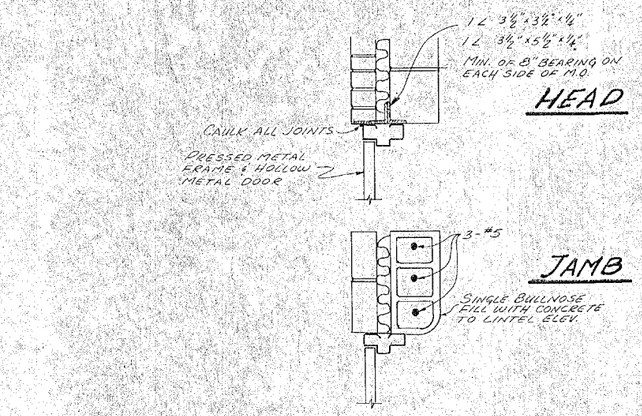
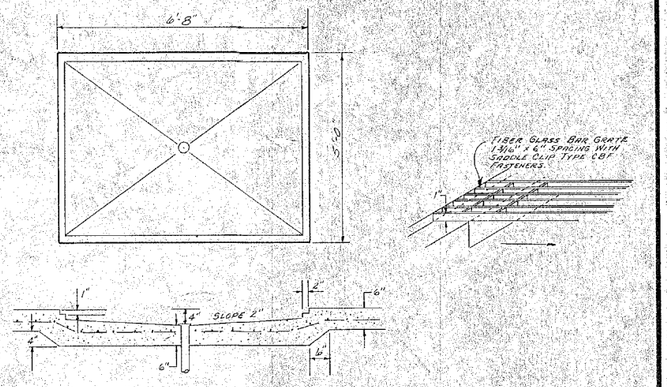


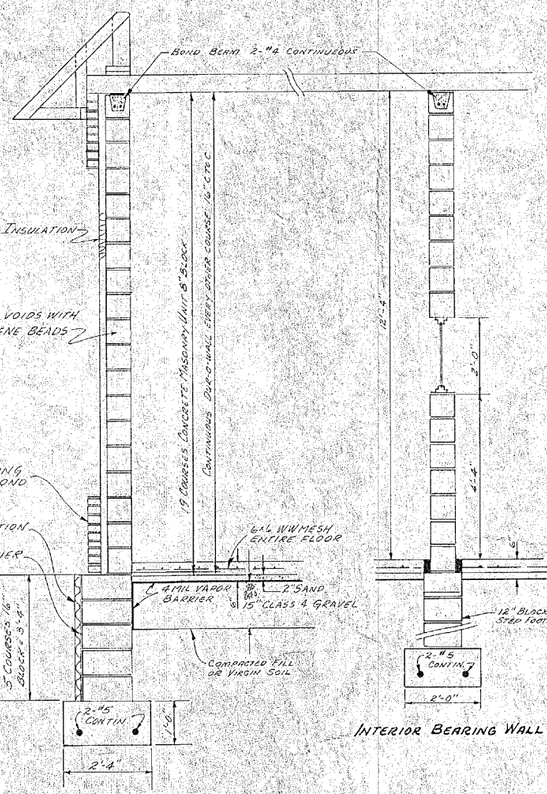
MANSARD ROOF DETAIL





CHEMICAL FEED DRAIN BASIN

½" = 1'-0"

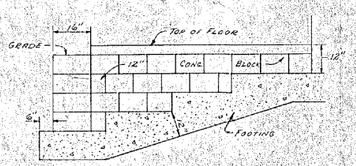


INTERIOR BEARING WALL

WALL SECTIONS

½" = 1'-0"

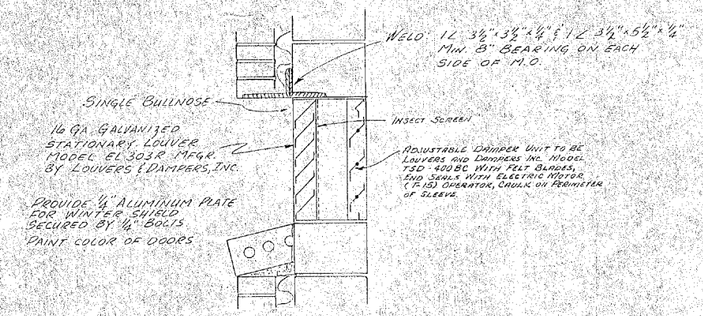
NOTE: FOOTING SHALL BE FOUNDED ON NATURAL SOILS. CONDITIONS MAY REQUIRE A DEEP FOOTING SETTING THAN SHOWN.



STEP FOOTINGS FOR INTERIOR BEARING WALLS

STEP FOOTING INTERIOR WALL

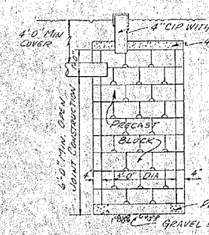
SCALE: ½" = 1'



AIR INTAKE DETAIL

CHLORINE ROOM

NO SCALE



SEEPAGE PIT

NOT TO SCALE

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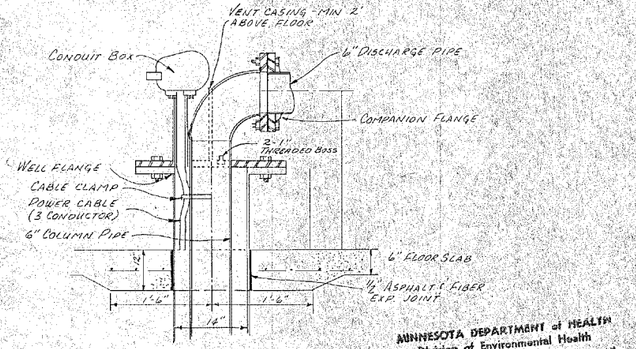
Laurence J. Koshak

Date 9/26/84 Reg. No. 11261



PUMP BASE & WELL HEAD DETAIL

NO SCALE

NOTE: 14" WELL CASING PROVIDED BY OTHER CONTRACTOR TO FURNISH AND INSTALL WELL FLANGE COMPANION TO WELL HEAD.

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Division of Environmental Health
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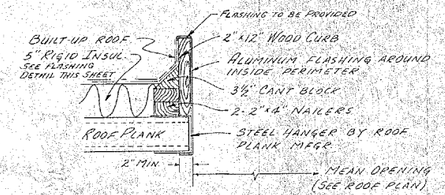

CURB DETAIL

1" = 1'-0"

IMPROVEMENT PROJECT 84-13
DETAILS
PUMPHOUSE #1 - HYDRO-PNEUMATIC
CITY OF RAMSEY

Scale: Horiz. AS SHOWN; Vert. –; Book –; Page –

Revisions | Date 9-26-84 | Sheet 8 of 13 sheets | File No. RASC-02-1

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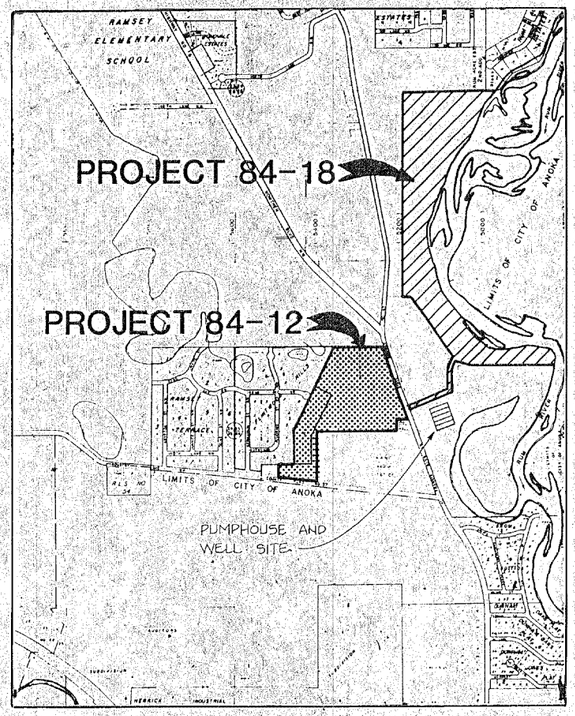
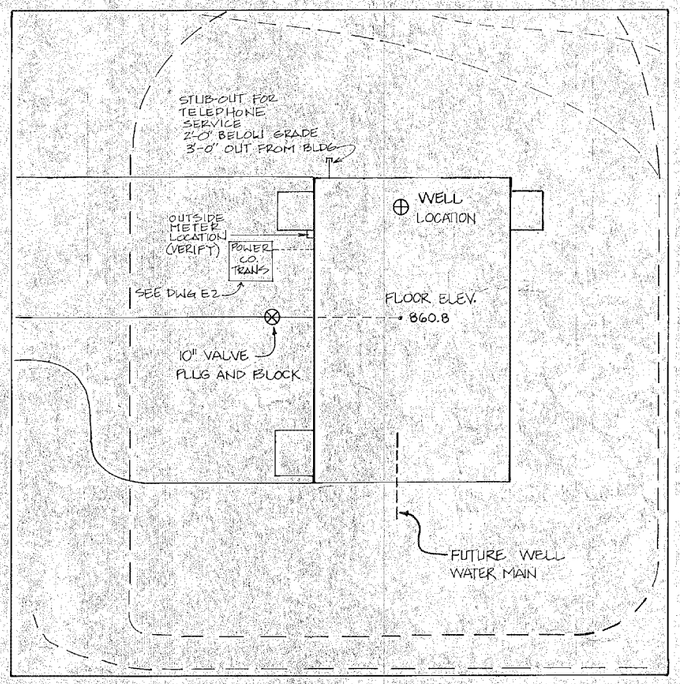
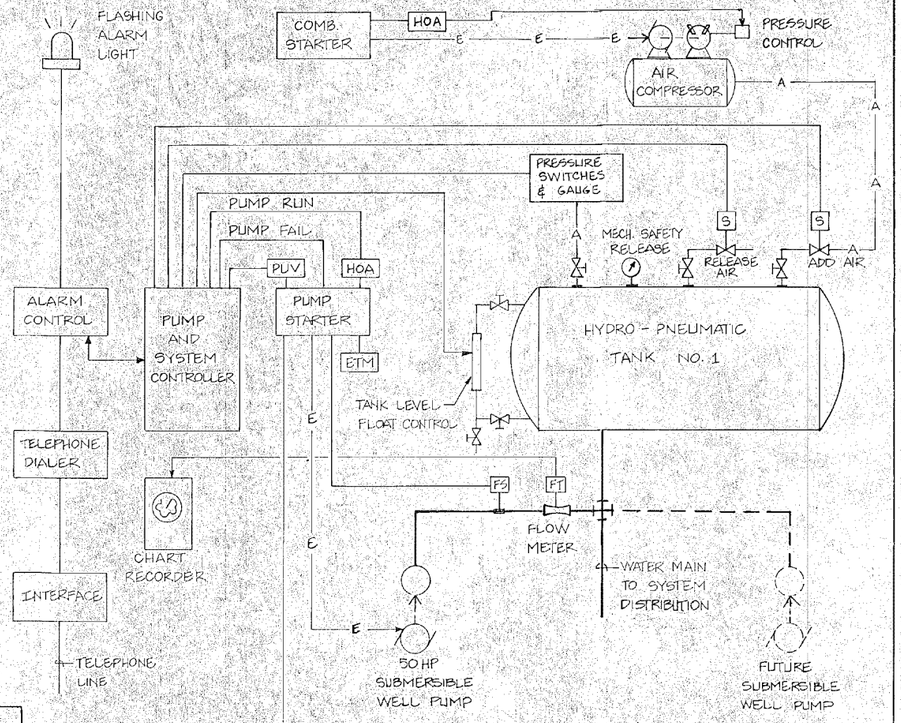


PROJECT SITE LOCATION



SITE PLAN
PUMPHOUSE & WELL
1"=10'-0"

NORTH



HOA – HAND-OFF-AUTO
PUV – PHASE FAILURE AND UNDER VOLTAGE PROTECTION
FT – FLOW METER SIGNAL TRANSMITTER
FS – FLOW SWITCH
—A— – AIR PIPING
——— – WATER PIPING
—E— – ELECTRICAL POWER WIRING
——— – CONTROL FUNCTIONS

ELECTRICAL CONTROL AND HYDRAULIC SYSTEM DIAGRAM

SYMBOL SCHEDULE

- FLUORESCENT LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- RECEPTACLE OUTLET – GFI @ 48"
- TELEPHONE OUTLET
- (J) JUNCTION BOX
- S_1 SINGLE POLE SWITCH, 20A. – 120 V.
- S_3 3-WAY SWITCH, 20A. – 120V.
- (T) THERMOSTAT
- $(T)_{NS}$ NIGHT SETBACK THERMOSTAT
- (1) MOTOR (NUMBER REFERS TO SCHEDULE)
- (3) SHEET NOTE REFERENCE
- CONDUIT ROUTED ABOVE GRADE – CONCEALED
- CONDUIT ROUTED ABOVE GRADE – EXPOSED
- CONDUIT ROUTED BELOW GRADE
- GROUND CONDUCTOR
- (3) INDICATES CONDUIT TERMINATES IN SECTION 3 OF SWITCHBOARD
- CROSS MARK DENOTE QUANTITY OF # 12 WIRES OR CONDUCTOR SIZE AS MARKED.
- G GROUNDING CONDUCTOR IN PVC CONDUIT
- CONDUIT TERMINATION – SEE DETAIL 2/E2
- M_M MANUAL MOTOR STARTER WITH PILOT LIGHT
- SINGLE POLE SWITCH WITH PILOT LIGHT
- SEAL-OFF FITTING – SEE DETAIL 6/E4
- MT EMPTY CONDUIT
- (TR) MANUAL SET TIMER-0-2HRS
- (D) MOTORIZED DAMPER CONNECTION & FLUSH OUTLET BOX

ELECTRICAL DRAWING INDEX

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
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OCT 10 1984

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA
James D. Wolverton
DATE 9/26/84 REG. NO. 6920

RC CONSULTANTS OF ANOKA, INC.
10666 UNIVERSITY AVE. N.W.
COON RAPIDS, MN. 55433
(612) 757-0540

IMPROVEMENT PROJECT 84-13
SITE PLAN, SYSTEM DIAGRAM AND SYMBOL SCHEDULE
PUMPHOUSE NO. 1
CITY OF RAMSEY

Scale: Horiz. SHOWN; Vert. –; Book –; Page –

Revisions – Date 9/26/84 – Sheet 9 of 13 sheets – File No. RASC-02-1

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engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-5860

Designed by JDW | Drawn by HCP | Checked by JDW

E1

ELECTRICAL SHEET NOTES

(1) Minimum conduit to be 3/4". All conduit under floor to be schedule 40 PVC with ground wire. Minimum wire to be #12 AWG copper with THNW, THWN or XHNW insulation.

(2) Thermostat with remote capillary sensor bulb Honeywell No. T675A1508 (CL2 Unit Heater).

(3) Remote capillary tube from thermostat in pump room terminated in flush mounted cast junction box below window sill; box shall be furnished with Sierra No. S-40-N S.S. cover.

(4) Typical accessible seal-off fitting installed in all conduit runs penetrating chlorine wall.

(5) Make 120V connection to roof mounted chlorine room exhaust fan; fan shall operate simultaneously with lighting fixture. Refer to lighting plan and control diagram.

(6) Furnish and install ceiling mounted electric unit heater; 3.3 KW, Berke No. HUH 327A-CD-1ASW/24V control transformer and relay. Locate all controls for unit (relocate is required) in switchboard control section.

(7) Receptacle on-off switch and pilot for connection to dehumidifier.

(8) Flush-mounted switch with pilot at 40" A.F.F.; engrave plate, "exhaust fan".

(9) Make connection to flow switch.

(10) Furnish and install junction box and 3/4" conduit and make 3Ø connection to chlorine booster pump.

(11) Make 460V, 3Ø connection to 50 HP motor. Field verify exact rough-in requirements with pump supplier.

(12) Furnish and install ceiling mounted electric unit heater; 5 KW, Berke No. HUH-548A-CD-1A-SW/24V control transformer and relay.

(13) Remote thermostat furnished and installed by electrical contractor. Make connection in switchboard control section. See control diagram.

(14) Mount box level with opening in wall.

(15) 6" concrete pad same size as switchgear.

(16) Transformer pad furnished and installed by the Contractor. Verify size. Pad shall be 6" deep with re-enforcing rod as required. Provide ground rods (4) and connecting grid.

(17) All conduit shall be run concealed in walls, floor slab or below slab except conduits shown by a straight solid line at ceiling.

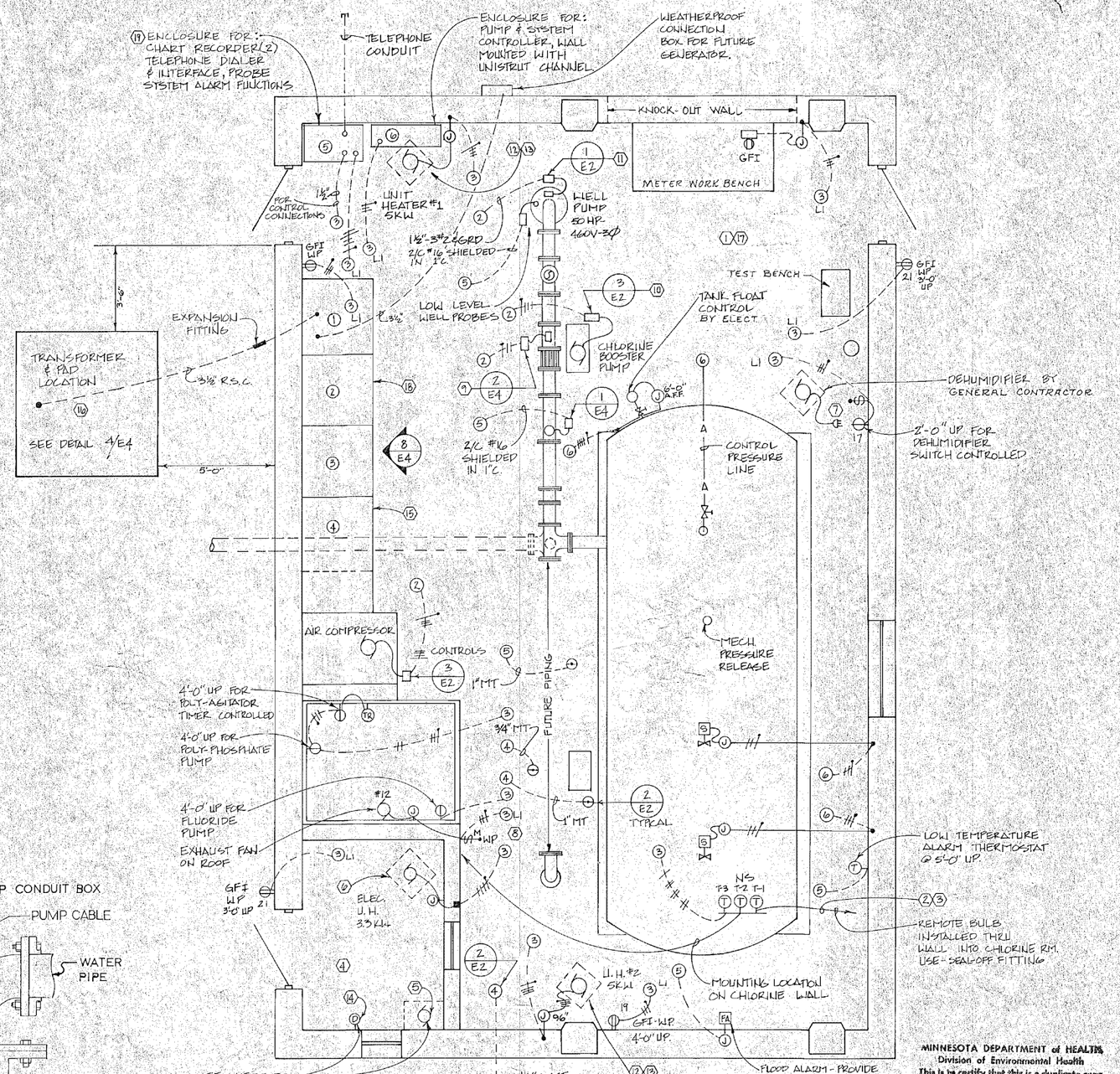
(18) Make connections to switchboard heaters as required (300 watt @ 120 volts each).

(19) Chart recorder shall be: 12" circular type, 7 day chart drive, 4-20 MA. input 0-6" charts. Transmitter required to convert flow meter pulse signal to MA, OMA-0GPM to 20MA-600 GPM. Chart recorder shall be compatible with flow meter.

PANEL SCHEDULE

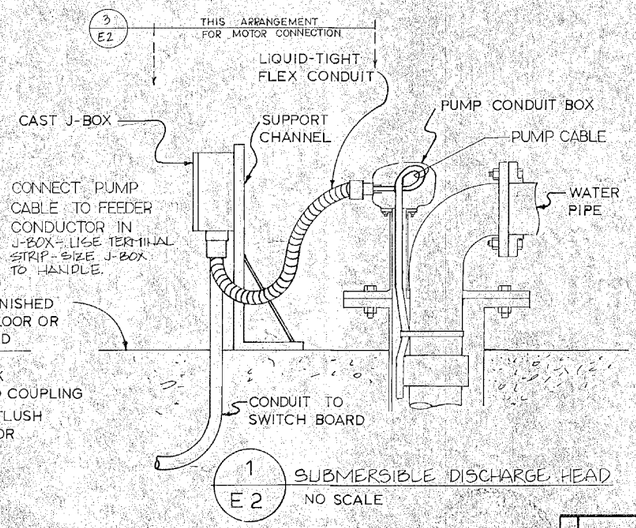
100A-3Ø-4W MAINS, 120/208V, MAIN BREAKER-100A-3P

CIRCUIT NUMBER	CIRCUIT BREAKER AMP	POLES	DESCRIPTION
1	20	1	Outdoor lights - Type C
2	20	1	Pumproom - Type B
3	20	1	Outdoor lights - Type C
4	20	1	Pumproom - Type A
5	15	1	Chlorine Room - Lights
6	15	1	Chlorine Room - Ex. Fan
7	15	1	Chlorine Room - Elec. U.H. Control
8	15		Chlorine Room - U.H. & Lite Control
9	15	1	Pump Rm #1-E.U.H. Control
10	20	1	Hydro-Pneumatic Tank Controls
11	15	1	Pump Rm #2-E.U.H. Control
12	15	1	Hood Exhaust Fan
13	15	1	Poly-Phosphate Agitator
14	15	1	Poly-Phosphate Pump
15	15	1	Fluoride Pump
16	20	1	Bench-GFI Outlet
17	15	1	Dehumidifier
18	15	1	Chart Recorder
19	15	1	Recept (GFI)
20	15	1	Telephone Dialer
21	15	1	Outdoor-Receptacle
22	15	1	Alarm System & Warning Light
23	15	1	Switchboard Heater
24			
25	15	1	Switchboard Heaters
26			
27	15	1	Switchboard Heaters
28			
29			
30			



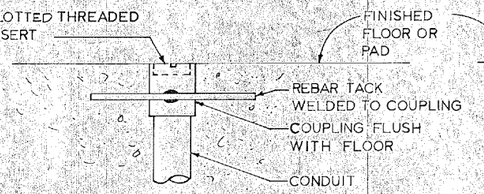
POWER AND CONTROL FLOOR PLAN

3/8" = 1'-0"



1 / E2 SUBMERSIBLE DISCHARGE HEAD

NO SCALE



2 / E2 CONDUIT TERMINATION FOR FUTURE EQUIP. CONNECTIONS

NO SCALE

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
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OCT 10 1984

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James D. Wolverton
DATE 9/26/84 REG. NO. 6920

RC CONSULTANTS OF ANOKA, INC.
10666 UNIVERSITY AVE. N.W.
COON RAPIDS, MN. 55433
(612) 757-0540

IMPROVEMENT PROJECT 84-13
FLOOR PLAN POWER & CONTROLS
DETAILS
PUMPHOUSE NO. 1
CITY OF RAMSEY

Revisions	Date 9/26/84	Sheet 10 of 13 sheets	File No. RAMSEY-02-1

Scale: Horiz. SHOWN; Vert. —; Book —; Page —

Hakanson Anderson Associates, Inc.
engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-5860

Designed by JDW | Drawn by HCP | Checked by JDW

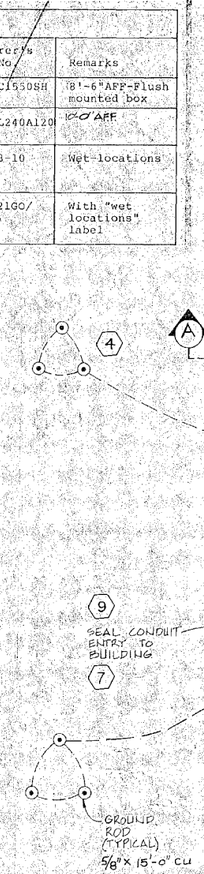
E2

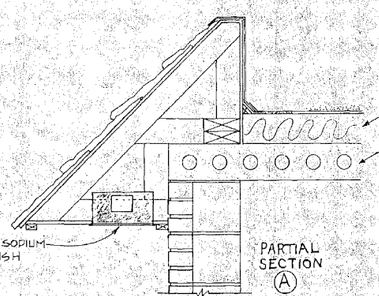
ELECTRICAL SHEET NOTES

1. Minimum conduit to be 3/4". All conduit under floor to be schedule 40 PVC with ground wire. Minimum wire to be #12 AWG copper with THWN, THHN or XHHW insulation.
2. Make grounding connection to floor drain using #6 AWG grounding conductor.
3. Make grounding connection to pipe using #1/0 AWG grounding conductor.
4. Make grounding connection from grounding bus to a 15'-0" grounding electrode using a #2/0 AWG grounding conductor. Drive electrode in ground 9'-0" out from building.
5. Furnish and install a battery operated emergency lighting unit with three heads aimed for good distribution. Unit shall be a Teledyne Bid Beam #1TC6L40-22 or approved equal.
6. Furnish and install a Square D class 9007 Type Y limit switch with a N.O. and N.C. contacts and NEMA 4 enclosure at top of jamb side of door frame as that when door is opened the room light and exhaust fan will operate. See control diagram.
7. All conduit runs that extend between areas of different temperatures shall be sealed.
8. Ground connection for transformer.
9. Control outdoor light with 24-hour, astronomical dial time clock mounted in the control section of the switchgear. Tork #T2002L.
10. Stub-up PVC conduit for ground connection to chlorine booster pump. Provide seal-bushing; ground conductor whip shall be 24"/
11. Furnish and install alarm light on a 1" conduit stubbed up 24" above finished roof. Provide pitch pocket at roof penetration. Guy and brace at 3 points. Alarm light to be Stonco VP-21GC/VC3200. Fixture to have wet label and blue globe. Provide with 150 watt, inside frosted extended service lamp.
12. All conduit shall be run concealed in walls, floor slab or below slab except conduits shown by a straight solid line at ceiling.
13. All grounding conductors run under floor shall be routed thru a 3/4" conduit stub up when rising thru floor slab. Allow miminum of 4" conduit above floor.

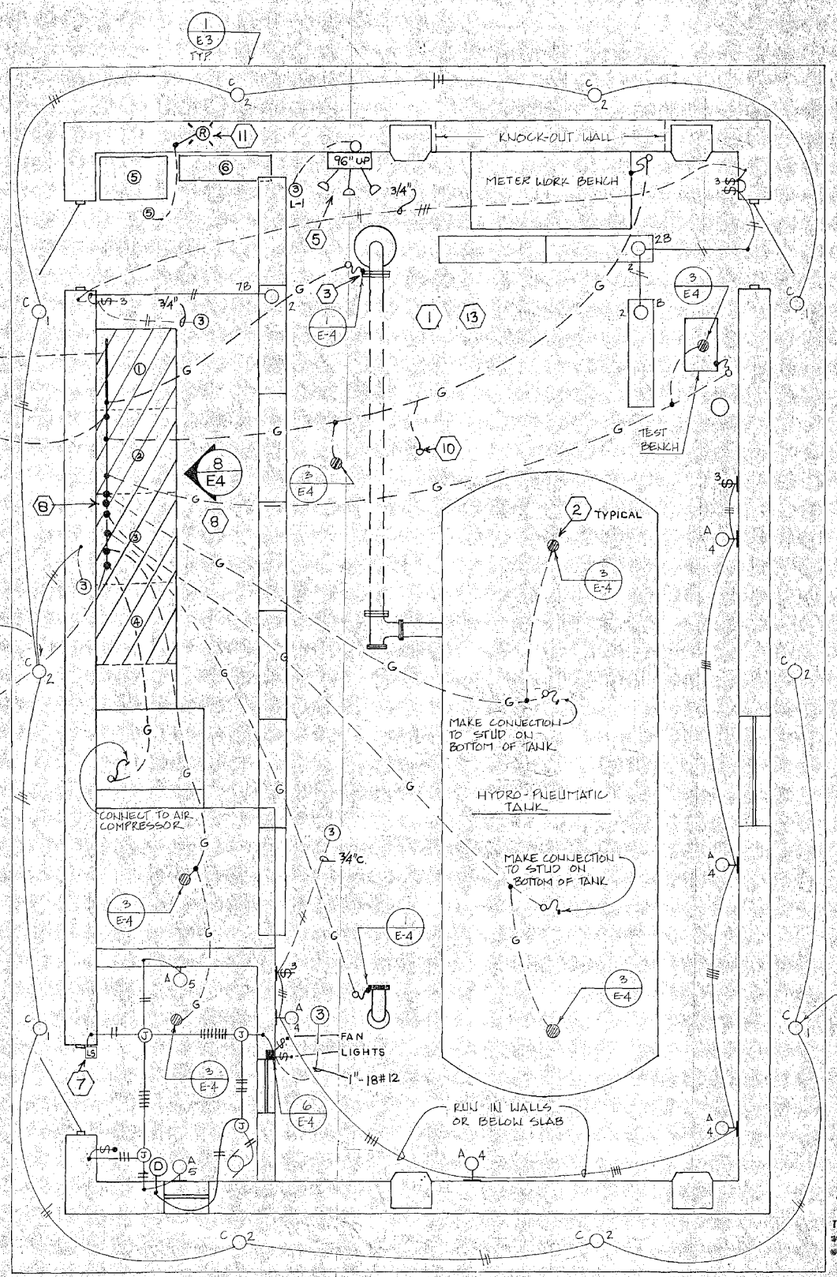
LIGHTING FIXTURE SCHEDULE

Fixture Type	Description	Lamp Type	Wattage	Mounting	Lens, Media, Diffuser	Manufacturer's Catalog No.	Remarks
A	Vapor tight	1-150A.	150W.	Surface	Clear Gasketed glass	Appleton ACI550SH	8'-6"AFF-Flush mounted box
B	Wrap-around	2-F40CW	150W.	PENDANT MTG WITH UNI-STRUT	Wrap-around gasketed plastic	Lithonia DL240A120	10'-0" AFF
C	Recessed Square	High Pressure Sodium	100W.	Flush in Soffit	Shock-Resisting Wide Spread	Kirlin 2208-10	Wet-locations
D	Colored Exterior	1-150A.	150W.	3/4"C, above roof	Gasketed Glass	Stonco VP-21GC/ VC3200	With "wet locations" label





1/E3 FIXTURE TYPE 'C' MOUNTING DETAIL
1"=1'-0"



LIGHTING AND GROUNDING FLOOR PLAN
3/8"=1'-0"

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
This is to certify that this is a duplicate copy of the plan submitted to in regard on water works improvements, dated
OCT 10 1984

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA
James D Walbiston
DATE 9-26-84 REG. NO. 6920

RC CONSULTANTS OF ANOKA, INC.
10666 UNIVERSITY AVE. N.W.
COON RAPIDS, MN. 55433
(612) 757-0540

IMPROVEMENT PROJECT 84-13
FLOOR PLAN LIGHTING & GROUNDING DETAILS
PUMPHOUSE NO. 1
CITY OF RAMSEY

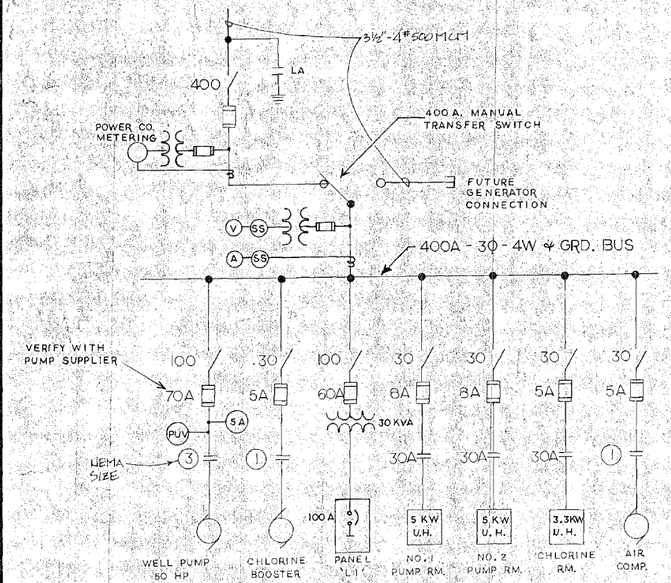
Scale: Horiz. SHOWN; Vert. —; Book —; Page —

Revisions | Date 9-26-84 | Sheet 11 of 13 sheets | File No. RAMS:02-1

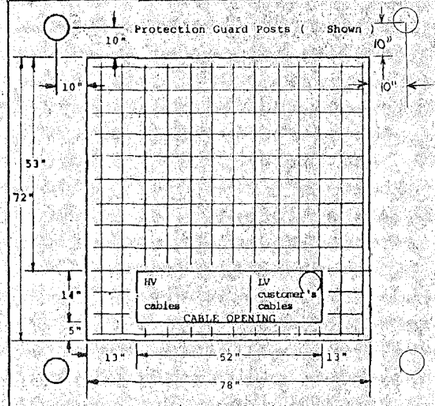
Hakanson Anderson Associates, Inc.
engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-5860

Designed by JDL | Drawn by RAR | Checked by JDL

E 3



7/E4 ELECTRICAL SYSTEM ONE-LINE DIAGRAM



4/E4 DETAIL-TRANSFORMER PAD
NO SCALE

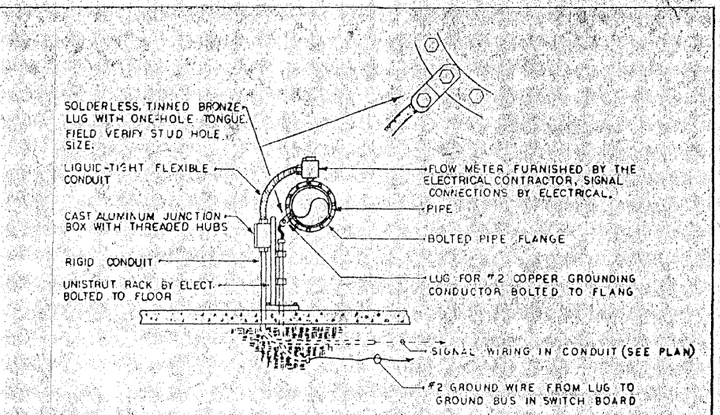
Concrete Pad Specifications:

1. Concrete shall be a 1:2:4 mixture with a minimum design strength of 3000 P.S.I. Concrete shall be a minimum of 5" thick.
2. Steel reinforcing shall be 6" x 6" No. 10 wire mesh to stop 1" from sides and cable opening.

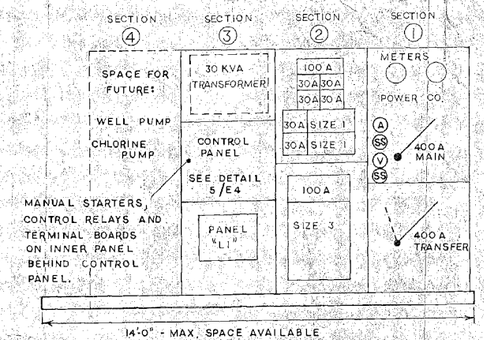
Protection Guard Post Specifications:

1. Posts shall be a 7' section of 6" steel well casing filled with concrete and set 3' deep in a concrete footing.

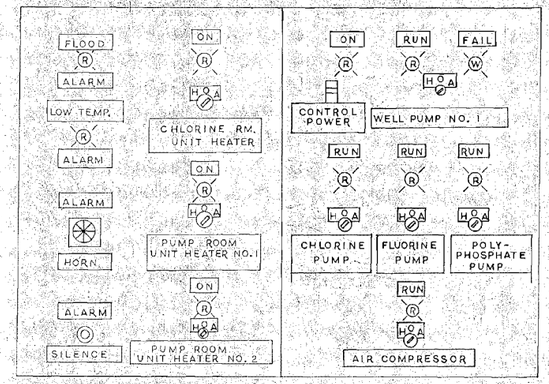
NORTH



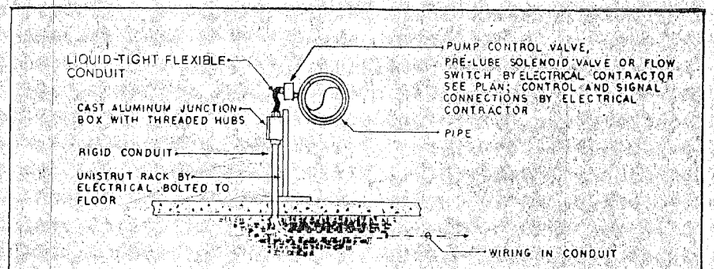
1/E4 DETAIL-GROUND CONNECTION TO PIPING AND SIGNAL CONNECTION TO FLOW METER
NO SCALE



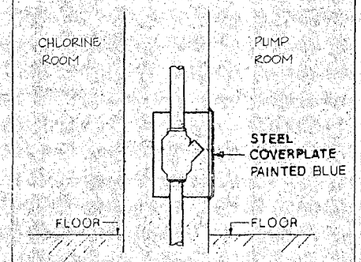
8/E4 ELEVATION MAIN SWITCHBOARD



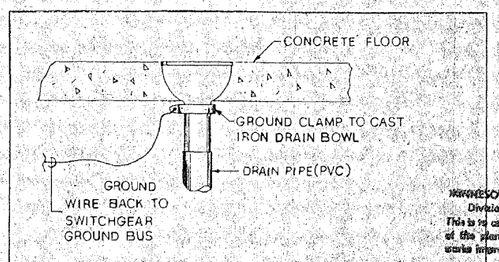
5/E4 CONTROL PANEL LAYOUT
NO SCALE



2/E4 DETAIL TYPICAL CONTROL AND SIGNAL CONNECTIONS TO FLOW SWITCH - PRE-LUBE SOLENOID VALVE OR PUMP CONTROL VALVE
NO SCALE



6/E4 DETAIL - CONCEALED SEALED-OFF FITTING
NO SCALE



3/E4 DETAIL - DRAIN GROUND CONNECTION (TYPICAL)
NO SCALE

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
This is to certify that this is a duplicate copy of the plan referred to in report on water works improvements, dated _____
OCT 10 1984

E4

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA
James D. Wolverton
DATE 9-26-84 REG. NO. 6920

RC CONSULTANTS OF ANOKA, INC.
10666 UNIVERSITY AVE. N.W.
COON RAPIDS, MN. 55433
(612) 757-0540

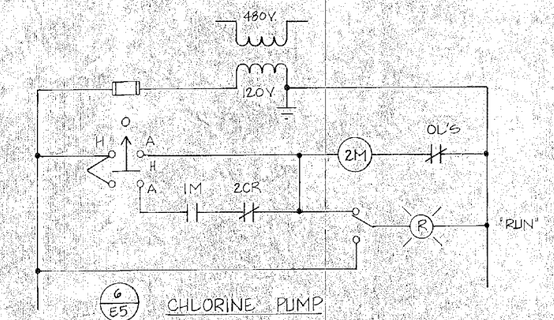
IMPROVEMENT PROJECT 84-13
DETAILS
PUMPHOUSE NO. 1
CITY OF RAMSEY

Scale
Horiz. SHOWN
Vert. --
Book --
Page --

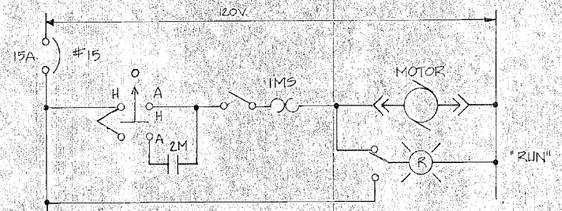
Revisions | Date 9-26-84 | Sheet 12 of 13 sheets | File No. RAMSEY-02-1

Hakanson Anderson Associates, Inc.
engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-5860

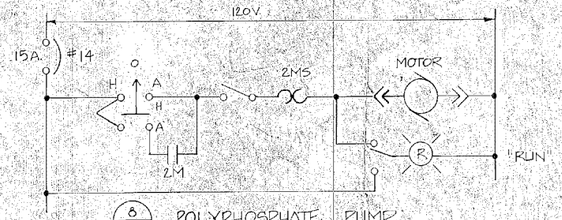
Designed by JPW | Drawn by HCP | Checked by JPW



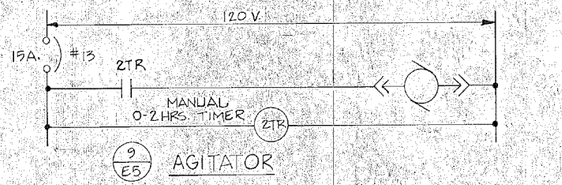
(6/E5) CHLORINE PUMP



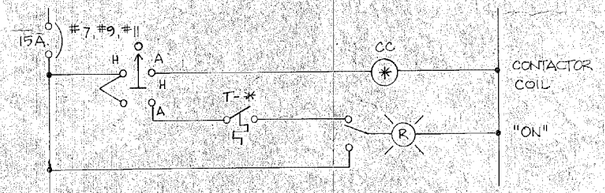
(7/E5) FLUORIDE PUMP



(8/E5) POLYPHOSPHATE PUMP

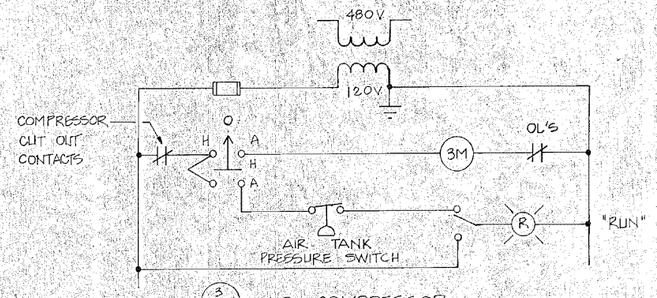


(9/E5) AGITATOR

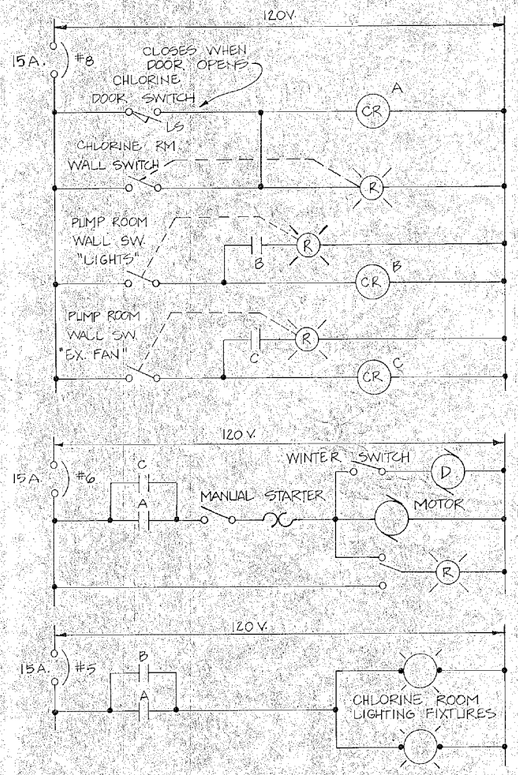


TEMP SETTINGS	CONTACTOR COIL	T-*
45°F.	CHLORINE ROOM	T-1
70°F.	PUMP ROOM #1	T-2
70°F.	PUMP ROOM #2	T-3

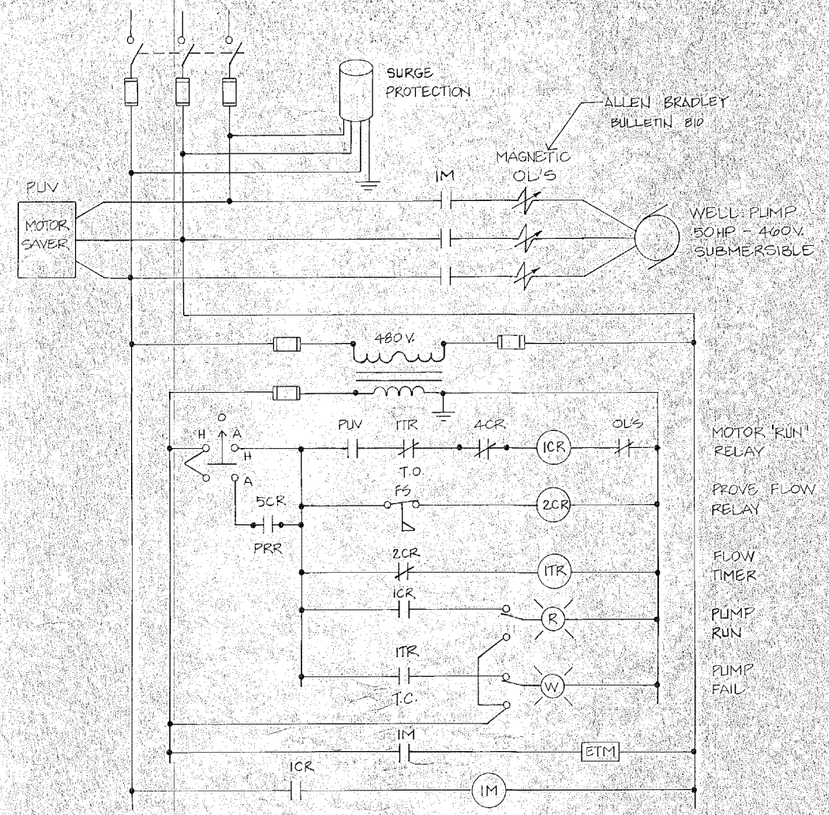
(10/E5) ELECTRIC UNIT HEATERS



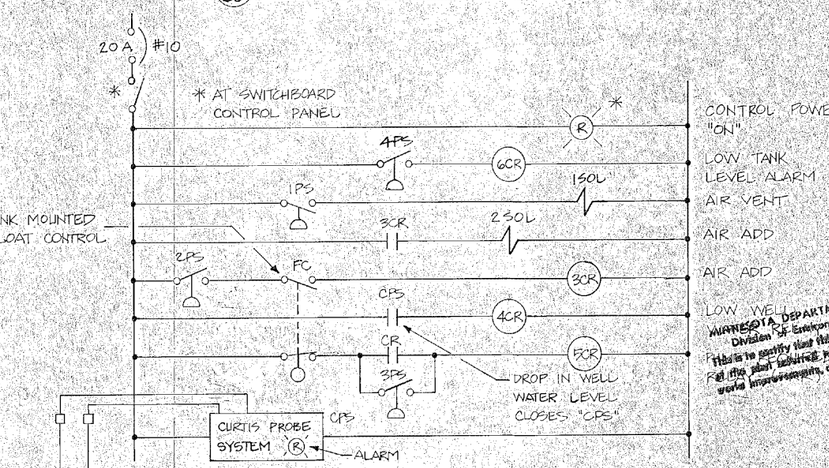
(3/E5) AIR COMPRESSOR



(4/E5) EXHAUST FAN AND LIGHTING CONTROL CHLORINE ROOM



(1/E5) SUBMERSIBLE WELL PUMP



(2/E5) HYDRO-PNEUMATIC TANK PUMP AND SYSTEM CONTROL
(SEE SPECIFICATION FOR ADDITIONAL INFORMATION)

MINNESOTA DEPARTMENT of HEALTH
Division of Environmental Health
This is to certify that this is a duplicate copy of the plan submitted to in report on water works improvements, dated _____
OCT 10 1984

E5

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA
James D. Wolvert
DATE 9-26-84 REG. NO. 6910

RC CONSULTANTS OF ANOKA, INC.
10666 UNIVERSITY AVE. N.W.
COON RAPIDS, MN. 55433
(612) 757-0540

IMPROVEMENT PROJECT 84-13
CONTROL DIAGRAMS
PUMPHOUSE NO. 1
CITY OF RAMSEY

Scale: Horiz. SHOWN; Vert.; Book

Revisions | Date 9-26-84 | Sheet 13 of 13 sheets | File No. RA5C-02-1 | Page

Designed by JDW | Drawn by HCP | Checked by JDW

Hakanson Anderson Associates, Inc.
engineers and surveyors
222 Monroe Street • Anoka, Minnesota 55303 • 612/427-3860

RAMSEY, MINNESOTA

WELL HOUSE NO. 4

CONTRACT DRAWINGS

2007

BOLTON & MENK, INC.
CONSULTING ENGINEERS AND LAND SURVEYORS
MANKATO, MINNESOTA

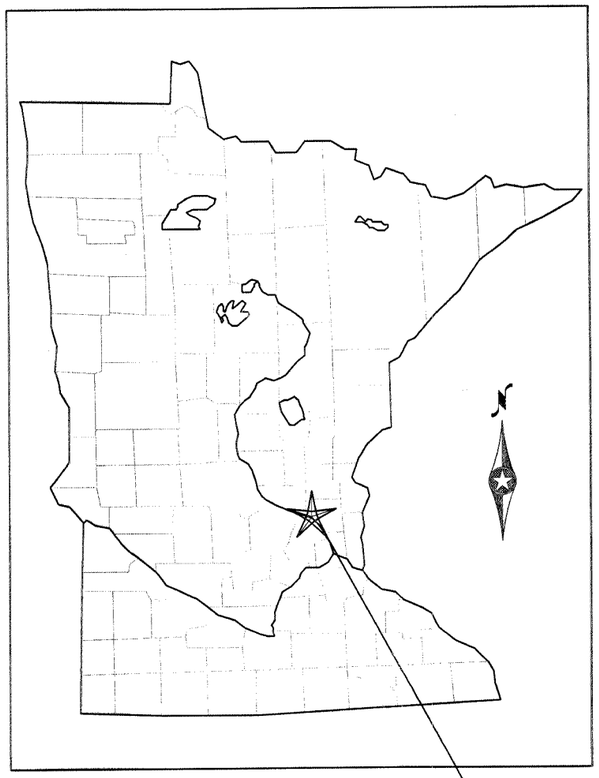
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE _____

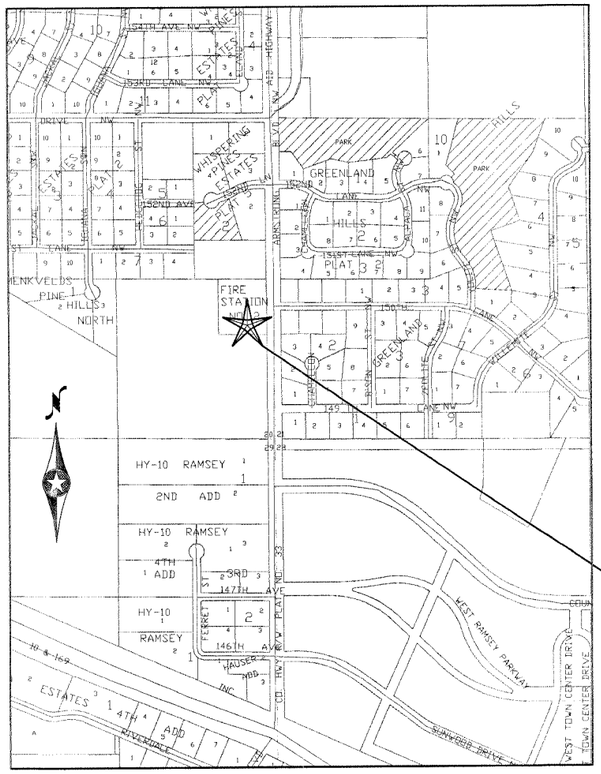
TYPED OR PRINTED NAME Jon D. Peterson

DATE 5-30-07 REG. NO. 21309

SHEET INDEX



VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: _____ TYPED OR PRINTED NAME: Jon D. Peterson

DATE: 5-3-07 LIC. NO.: 21309

BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN BURNSVILLE, MN SLEEPY EYE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
A	WRH	11-3-06
C	WRH	5-7-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
VICINITY MAP, LOCATION MAP AND SHEET INDEX

SHEET 1.02

J:\RAMSEY\M2137017\WELLHOUSE\37017102.dwg 5/2/2007

ABBREVIATIONS

A	ACRE, ANGLE
AB	ANCHOR BOLT
ABBR	ABBREVIATION
ABUT	ABUTMENT
AC	ACTIVATED CARBON, ASPHALT CONCRETE
A/C	AIR CONDITIONING
ACOUS	ACOUSTIC, ACOUSTICAL
ACP	ASPHALTIC CONCRETE PAVEMENT, ASBESTOS CEMENT PIPE
ADJ	ADJUST, ADJACENT
AER	AERATION
AGG	AGGREGATE
AL	ALUMINUM, ALUM
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE (FORMERLY A.S.A.)
API	AMERICAN PETROLEUM INSTITUTE
APP	APPROACH
APPD	APPROVED
APPROX	APPROXIMATE
APR	APRON
ARC L	ARCH LENGTH
ARCH	ARCHITECTURAL
ASA	AMERICAN STANDARDS ASSOCIATION (NOW ANSI)
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIAL
ATM	ATMOSPHERE
AVAR	AIR VACUUM AND AIR RELEASE VALVE
AWWA	AMERICAN WATER WORKS ASSOCIATION
AZ	AZIMUTH
BAL	BALANCE
BC	BEGIN CURVE, BOLT CIRCLE, BETWEEN CENTERS
BCR	BEGIN CURVE RETURN
BD	BOARD
BE	BOX ELDER
BEG	BEGIN
BET	BETWEEN
BF	BLIND FLANGE
BFP	BACK FLOW PREVENTER
BHP	BRAKE HORSEPOWER
BIT	BITUMINOUS
BLDG	BUILDING
BLD FLG	BLIND FLANGE
BLK	BLACK, BLOCK
BLKG	BLOCKING
BM	BEAM, BENCH MARK
BO	BLOW OFF ASSEMBLY
BOD	BIOCHEMICAL OXYGEN DEMAND
BORR	BORROW
BOT	BOTTOM
BPV	BACK PRESSURE VALVE
BR	BRIDGE, BASE OF RAIL
BRG	BEARING
B & S	BELL AND SPIGOT
BS	BACK SIGHT, BOTTOM SLOPE
BSMT	BASEMENT
BTM PL	BOTTOM PLATE
BTU	BRITISH THERMAL UNIT
BV	BUTTERFLY VALVE
BVC	BEGIN VERTICAL CURVE
BWV	BACK WATER VALVE
C	CENTIGRADE, CURVE, CUT
CAB	CABINET
CAP	CAPACITY
CAR	COUNTY AID ROAD
CB	CATCH BASIN, CHALK BOARD
CC	CENTER TO CENTER
CD	CEILING DIFFUSER
CEM	CEMETERY, CEMENT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
C & G	CURB AND GUTTER
CHAN	CHANNEL
CHEM	CHEMICAL
CHG	CHANGE
CHK V	CHECK VALVE
CHXD PL	CHECKERED PLATE
CI	CAST IRON
CIP	CAST IRON PIPE
CL	CHLORINE GAS, CHLORINATOR, CHAIN LINK, CLEARANCE, CENTERLINE
CLG,CLNG	CEILING
CLR	CLEAR
CM	CENTIMETER
CML & C	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE
CMP-A	CORRUGATED METAL PIPE ARCH
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
COM	COMPRESSOR
COMP	COMPACT
CONC	CONCRETE, CONCENTRIC
CONN	CONNECTION
CONST	CONSTRUCTION, CONSTRUCT
CONT	CONTINUED, CONTINUOS
CONTR	CONTRACTOR
COR	CORNER
CORD	COUNTY ROAD
COTG	CLEAN-OUT TO GRADE
CP	CATTLE PASS
CPLG	COUPLING
CRK	CREEK
CS	CAUSTIC SODA, CAST STEEL, CURVE SPIRAL
C.S.A.H.	COUNTY STATE AID HIGHWAY
CT	CERAMIC TILE
CTR	CENTER
CTSK	COUNTERSINK
CTWD	COTTONWOOD
CU	COPPER, CUBIC
CU FT	CUBIC FOOT
CU YD	CUBIC YARD
CULT	CULTIVATED FIELD
CULV	CULVERT
CY	CUBIC YARD
CYL	CYLINDER
DC	DEGREE OF CURVE
DBLK	DITCH BLOCK
DAMP	DAMPER
DEP	DEPARTURE
DES	DESIGN, DESIRABLE
DET	DETAIL
DF	DRINKING FOUNDATION
DG	DOOR GRILLE, DITCH GRADE
DI	DUCTILE IRON
DIA	DIAMETER
DIAPH	DIAPHRAGM
DIP	DUCTILE IRON PIPE
DIST	DISTANCE, DISTRICT
DIV	DIVISION
DISCH	DISCHARGE
DISP	DISPENSER
DN	DOWN, DECANT
DO	DISSOLVED OXYGEN
DR	DOOR, DRAIN
DRWY	DRIVEWAY
DS	DRENCH SHOWER AND EYE WASH
DWG	DRAWING
DIFF	DIFFUSER, DIFFERENTIAL
E	EAST, RATE OF SUPERELEVATION, EXTERNAL DISTANCE
EA	EACH
EBL	EAST BOUND LANE
EC	END CURVE
ECC	ECCENTRIC
ECR	END CURB RETURN
EF	EACH FACE, EXHAUST FAN
EFF	EFFLUENT
EG	EXHAUST GRILLE
EL	ELEVATION
ELEC	ELECTRICAL, ELECTRONIC
ELEV	ELEVATION
EMB	EMBANKMENT
ENG	ENGINE
ENGR	ENGINEER
ENT	ENTRANCE
EQ	EQUAL
EQUA	EQUATION
EQUIP	EQUIPMENT
ER	EDGE OF ROAD
EST	ESTIMATE
EVAP	EVAPORATOR
EVC	END VERTICAL CURVE
EW	EACH WAY, EYE WASH
EXC	EXCAVATION
EXH	EXHAUST
EX-HY	EXTRA HEAVY
EXIST	EXISTING
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR, EXTENSION
F	FAHRENHEIT, FINISH
FA	FEDERAL AID
FABR	FABRICATION, FABRICATE, FABRICATED
FAI	FRESH AIR INTAKE
FAI	FEDERAL AID INTERSTATE
FAP	FEDERAL AID PRIMARY
FAS	FEDERAL AID SECONDARY
FAU	FEDERAL AID URBAN
FB	FLAT BAR, FLOOR BEAM, FIELD BOOK
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FDR	FEEDER
FE	FIRE EXTINGUISHER, FINAL EFFLUENT, FLOW ELEMANT
FE COR	FENCE CORNER
FED	FEDERAL
FF	FLAT FACE, FAR FACE, FINISHED FLOOR
F TO F	FACE TO FACE
FG	FINISHED GRADE
FH	FIRE HYDRANT
FHDWL	HEAD WALL
F & I	FURNISH AND INSTALL
FIG	FIGURE
FIN	FINISHED
FL	FLOWLINE, FLOOR
FLEX	FLEXIBLE
FLOCC	FLOCCULATOR, FLOCCULATION
FLG	FLANGE
FLGD	FLANGED
FLR	FLOOR
FME	FARM ENTRANCE
FMH	FLEXIBLE METAL HOSE
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOW	FACE OF WALL
FP	FENCE POST
FPC	FLEXIBLE PIPE COUPLING
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FR	FRAME
FR	FRONTAGE ROAD
FS	FAR SIDE, FLOOR SINK, FINISHED SURFACE, FORGED STEEL, FROTH SPRAY, FORE SIGHT, FLOW SWITCH
FT	FEET, FOOT
FTG FTNG	FOOTING
FUT	FUTURE
FWD	FORWARD
GA	GAGE, GAUGE
GAL	GALLON
GALV	GALVANIZED IRON
GAR	GARAGE
GDE	GRADE
GEN	GENERAL, GENERATOR
GFA	GROOVED FLANGE ADAPTOR
GI	GALVANIZED IRON
GLV	GLOBE VALVE
GP	GUY POLE
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GUARDRAIL
GR	GRAVEL
GRAN	GRANULAR
GRD	GRADE, GROUND
GR BRK	GRADE BREAK, GRADE CHANGE
GV	GATE VALVE
GYP	GYPSUM
H20	WATER
H	HAUL
HB	HOSE BIBB
HDR	HEADER
HEX	HEXAGONAL
Hg	MERCURY
HI	HEIGHT OF INSTRUMENT
HMS	HOLLOW METAL STEEL
HO	HOUSE
H, HOR	HORIZONTAL
HORIZ	HORIZONTAL
HP	HORSEPOWER, HIGH PRESSURE
HR	HEATING RETURN, HOUR
HT	HEIGHT
HTG	HEATING
HTR	HEATER
H & V	HEATING AND VENTILATION
HW	HOT WATER, HIGH WATER
H.W. EL.	HIGH WATER ELEVATION
H.W.L.	HIGH WATER LEVEL
HWL	HIGH WATER LEVEL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWO	HANDWHEEL OPERATED
HWY	HIGHWAY
HYD	HYDRAULIC, HYDRANT
IBC	INTERNATIONAL BUILDING CODE
IC	INTERIOR ANGLE OF CURVE
ID	INSIDE DIAMETER
IF	INSIDE FACE
IH	INTERSTATE HIGHWAY
IN	INCH
INCL	INCLUDE
INFL	INFLUENT
INFO	INFORMATION
INL	INLET
INP	IN PLACE
INSL	INSULATION, INSULATED
INSUL	INSULATION
INST	INSTALL
INSTR	INSTRUMENT
INV	INVERT ELEVATION
IP	IRON PIPE
IPS	IRON PIPE SIZE
IRRG	IRRIGATION
JAN	JANITOR
JCT	JUNCTION
J & A	JACK AND AUGER
JNT, JT	JOINT
JSTS	JOISTS
KG	KILOGRAM
KM	KILOMETER
KV	KILOVOLT
KW	KILOWATT
KWH	KILOWATT HOUR
L	LITER, LENGTH, LENGTH OF CURVE
LAB	LABORATORY
LAT	LATITUDE
LAV	LAVATORY
LB	POUND
LDG	LOADING
LEV	LEVEL
LF	LINEAR FEET
LIN	LINEAR
LO	LEVEL OUT
LOR	LINE-OFFICE REVISION
LOS	LENGTH OF OFFSET SPIRAL
LP	LOW POINT, LIGHT POLE
LOC	LOCATION
LT	LEFT
LWL	LOW WATER LEVEL
LWR	LOWER
M	METER
M	MIDDLE ORDINATE (CIRCULAR CURVE), MAXIMUM OFFSET (VERTICAL CURVE)
MAG	MAGNETIC
MAN	MANUAL
MAINT	MAINTENANCE
MACH	MACHINE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR, MFGR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MI	MALLEABLE IRON, MILE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MK	MARK
ML	MATCH LINE, MEDIAN LINE
MM	MILLIMETER
MNDOT	MINNESOTA DEPARTMENT OF TRANSPORTATION
MO	MOTOR OPERATED, MASONRY OPENING
MOD	MODEL
MON	MONUMENT
MPH	MILES PER HOUR
MS	MOP SINK
MTC	MECHANICAL-TYPE-COUPLING
MTD	MOUNTED
MTL	MATERIAL
MTR	MOTOR
N	NORTH
NAT	NATURAL
NBL	NORTH BOUND LANE
NBS	NATIONAL BUREAU OF STANDARDS
NC	NORMALLY CLOSED
NE	NORTH EAST
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NF	NEAR FACE
NIC	NOT IN CONTACT
NO	NUMBER, NORMALLY OPEN
NPS	NOMINAL PIPE SIZE (FORMERLY I.P.S.)
NPT	NATIONAL PIPE THREAD
NRS	NON-RISING STEM
NS	NEAR SIDE
NTS	NOT TO SCALE
NW	NORMAL WATER, NORTH WEST
N & D	NEAR SIDE
OBLIT	OBLITERATE
OC	OVER CROSSING, ON CENTER
O.C.E.W.	ON CENTER EACH WAY
OD	OUTSIDE DIAMETER
OF	OVERFLOW, OUTSIDE FACE
OH	OVERHEAD
OPER	OPERATOR, OPERATING
OPNG	OPENING
OS & Y	OUTSIDE SCREW AND YOKE
OUT	OUTLET
OWG	OIL, WATER, GAS
OZ	OUNCE
P	POLE, PAGE, PLACE
PAVMT	PAVEMENT
PC	PRIMARY CLARIFIER, PORTLAND CEMENT POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PCOTG	PRESSURE CLEANOUT TO GRADE
PE	PLANT EFFLUENT, POLYELECTROLYTE, POLYMER
PE	PROJECT ENGINEER, PROFESSIONAL ENGINEER, POLYETHYLENE
PERF	PERFORATED
PERMISS	PERMISSIBLE
PER PERIM	PERIMETER
PG	PRESSURE GAGE
pH	HYDROGEN ION CONCENTRATION
PI	PLANT INFLUENT, POINT OF INTERSECTION, PRESSURE INDICATOR
PL	PLATE, PROPERTY LINE, PLACE
PLAS	PLASTER, PLASTIC
PLY WD	PLYWOOD
PLF	POUNDS PER LINEAR FOOT
PLT	PLANT
PNEU	PNEUMATIC
POC	POINT OF CURVE
POP	POPLAR
POST	POINT ON SEMI TANGENT
POT	POINT ON TANGENT
PP	POWER POLE
PPD	POUNDS PER DAY
PPH	POUNDS PER HOUR
PPM	PARTS PER MILLION
PR	PAIR
PRC	POINT OF REVERSE CURVE
PRESS	PRESSURE
PROJ	PROJECT
PROP	PROPERTY
PROV	PROVISIONS
PRV	PRESSURE REGULATING, RELIEF, REDUCING VALVE
PS	PRESSURE SWITCH
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT, POINT OF TANGENCY
PTDF	PRESSURE TREATED DOUGLAS FIR
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
Q	DISCHARGE CFS.
QUANT	QUANTITY
R	RADIUS, RISER, RANGE, ROCK, RETURN, RATE OF SLOPE, RING
RAD	RADIALLY
RAG	RETURN AIR GRILLE
RAS	RETURN ACTIVATED SLUDGE
RC	REINFORCED CONCRETE
RCCP	REINFORCED CONCRETE CULVERT PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN, ROUND, OR ROAD
RDWD	REDWOOD
RDWY	ROADWAY
RECIRC	RECIRCULATING
RECONST.	RECONSTRUCT
RED	REDUCER, REDUCING
REF	REFERENCE, REFER
REFR	REFRIGERATOR
RF	ROOF
REG	REGULATING
REINF	REINFORCE, REINFORCED
REM	REMOVE
RE-STL	REINFORCING STEEL
RET W	RETAINING WALL
REQ, REQD	REQUIRED
REV	REVISION
RM	ROOM
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE, REINFORCED PLASTIC MORTAR
RR	RAILROAD
RT	RIGHT
R/W	RIGHT OF WAY
RWL	RAINWATER LEADER
RY	RAILWAY
S	SOUTH, SCUM, SINK, SECOND, SLOPE, SAND
SA	SAMPLE
SALV	SALVAGED
SAN	SANITARY
SAR	STATE AID ROAD
SBL	SOUTH BOUND LANE
SC	SPARE CHEMICAL, SECONDARY CLARIFIER
SCD	SCREWED
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SCHED	SCHEDULE
SCP	SECTIONAL CONCRETE PIPE
SCPA	SECTIONAL CONCRETE PIPE ARCH
SD	SERVICE DRIVE
SDR	STORM DRAINS
SE	SOUTHEAST
SEC	SECONDARY
SECT	SECTION
SER	SERIES
SETT	SETTLING
SF	STORY FRAME
SFCE	SURFACE
S-G	SAND AND GRAVEL
SH	SHOWER
SHLD	SHOULDER
SHT	SHEET
SIM	SIMILAR
SL	SLUDGE, SLOPE
SO	SOUTH
SO VALVE	SHUT OFF VALVE
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPEC'D	SPECIFIED
SPK	SPIKE
SQ	SQUARE
SQYD	SQUARE YARD
SS	SANITARY SEWER, STAINLESS STEEL, SERVICE SINK
SSU	SECONDS SAYBOLT UNIVERSAL
ST	STREET, STONE, STEEL, STUCCO, STATE
STA	STATION
STC	SLEEVE-TYPE COUPLING
STD	STANDARD
STK	STAKE
STL	STEEL
STM	STORM
STN	STAINLESS
STN STL	STAINLESS STEEL
STP	STUMP
STRUCT	STRUCTURAL, STRUCTURE
SUCT	SUCTION
SUPER	SUPER ELEVATION
SUPP	SUPPLIER, SUPPLY
SURF	SURFACE
SV	SOLENOID VALVE
SW	SIDEWALK, SOUTH WEST
SWR	SIDEWALL REGISTER, SEWER
SYM	SYMMETRICAL, SYMBOL
SYST	SYSTEM
T	THERMOSTAT, TREAD OF STAIR, TOP, TANGENT
T & B	TOP AND BOTTOM
T & G	TONGUE AND GROOVE
TAN	TANGENT
TB	TACK BOARD
TBE	THREAD BOTH ENDS
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TEL	TELEPHONE
TEMP CONN	TEMPORARY CONNECTION
T.F.	TOP OF FOOTING
TFE	TOP OF FOOTING ELEVATION
TH	TRUNK HIGHWAY
THR'D	THREADED
TK	TANK
TQE	THREAD ONE END
TOPOG	TOPOGRAPHY
TP	TELEPHONE POLE, TELEGRAPH POLE
TR	TREE, TRENCH, TRACK
TRANS	TRANSITION, TRANSMITTED
TRANSV	TRANSVERSE
TS	TANGENT TO SPIRAL, TOPSOIL, TOP SLOPE
TTH	TEMPORARY TRUNK HIGHWAY
TV	THERMOSTATIC VALVE
TW	TOP OF WALL, THERMOMETER WELL
TWP	TOWNSHIP
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UC	UNDER-CROSSING
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNADJ	UNADJUSTED
UR	URINAL
USGS	U.S. GEOLOGICAL SURVEY
UW	UTILITY
V	VACUUM, VALVE, VERTICAL, VENT, VOLT, VOLUME
VAR	VARIES, VARIABLE
VB	VAPOR BARRIER
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VIT	VITRIFIED
VM	VEHICULAR MEASURE
VOL	VOLUME
VTC	VENT TO CEILING
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
VTR	VENT THROUGH ROOF
W	WEST, WASTE, WATER
W/	WITH
WAS	WASTE ACTIVATED SLUDGE
WBL	WEST BOUND LANE
WC	WATER COLUMN, WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WDW	WINDOW
W'MN	WATER MAIN
W/O	WITHOUT
WS	WATER SURFACE
WSTP	WATER STOP
WT	WEIGHT
WWM	WELDED WIRE MESH
X-OVER	CROSSOVER
X-RD	CROSS ROAD
XS	EXTRA STRONG
XSECT	CROSS SECTION
YD	YARD
YH	YARD HYDRANT

NOTE: SEE PIPING SCHEDULE FOR ADDITIONAL ABBREVIATIONS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: Jon D. Peterson — TYPED OR PRINTED NAME: Jon D. Peterson

DATE: 5-3-07 — I/C NO.: 21309

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REV.	BY	DATE
A	WRH	11-3-06
0	WRH	5-7-07

RAMSEY, MINNESOTA

WELL HOUSE NO. 4

ABBREVIATIONS

SHEET 1.03

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PIPING & FITTINGS

- AC — Air Cock
- BP — Backflow Preventer
- Blind Flange
- Drip Trap
- Exhaust to Atmosphere (Inside)
- Exhaust to Atmosphere (Outside)
- FT — Flame Trap
- FC — Flame Cell
- Flanged Coupling Adapter (F.C.A.)
- Flexible Hose
- ○ 4"F.D. — Floor Drain – Size
- Harnessed Sleeve Coupling (H.S.C.) Sleeve Coupling (S.C.)
- HB — Hose Bib
- 1–1/2" Hose Gate
- Hot Water Recirculation (H.W.R.)
- L — Lavatory
- M — Meter
- N.C. — Normally Closed
- N.O. — Normally Open
- Orifice

Pipe & Joint Designations

- Bell & Spigot Joint
- Cold Water
- Flanged Adapter
- Flanged Joint Fitting
- Hot Water
- Mechonical Joint Fitting
- Wall Pipe
- Wall Sleeve
- Quick Disconnect Coupling
- Reducer
- Removable Cap
- Removable Plug
- RD — Roof Drain (Above Grade)
- --RD-- Roof Drain (Below Grade)
- ○ 4"R.D. — Roof Drain – Size
- Rupture Disc
- ST — Sediment Trap
- SS — Service Sink
- SH — Shower
- Sight Flow Indicator
- Soil or Waste (Above Grade)
- Soil or Waste (Below Grade)
- Union
- U — Urinal

Valves

- Angle Valve
- Ball Valve
- Butterfly Valve
- Check Valve
- Diaphragm Valve
- Gate Valve
- Globe Valve
- Hose Gate Valve
- Knife Gate Valve
- Needle Valve
- Pinch Valve
- Plug Valve
- PRV — Pressure Regulating Valve
- PRT — Pressure/Temperature Relief Valve
- Relief or Safety Valve
- Shear, Slide, Sluice or Stop Gate
- 3–Way Plug Valve (2–Port)
- 3–Way Plug Valve (3–Port)
- 3–Way Valve
- 3–Way Plug Valve (4–Port)
- –V– — Vent
- VTR — Vent Through Roof
- W.H. — Wall Hydrant
- W.C. — Water Closet
- ○ W.H. — Water Heater
- Welded Cap
- Yard Hydrant
- Y–Type Strainer

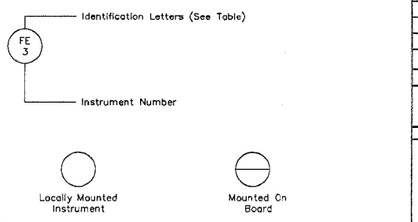
HEATING, VENTILATING & AIR CONDITIONING

- Adjustable Extracting Device
- Adjustable Splitter Damper
- BOD — Bottom of Duct
- C — Cooling Coil
- Damper
- D — Drop In Respect to Air Flow
- EA — Exhaust Air
- F — Fan
- Flexible Duct Connection
- H — Heating Coil
- HWR — Hot Water Return
- HWS — Hot Water Supply
- Linear or Slot Diffuser
- OA — Outside Air
- P — Pump
- 24x12 — Rectangular Duct Dimension (1st Figure is Side Shown 2nd Figure is Side Not Shown)
- TURNING VANES — Rectangular Elbow With Turning Vanes
- RA — Return Air
- Return or Exhaust Air Duct Section
- R — Rise in Respect to Air Flow
- Round Diffuser
- 12 ø — Round Duct Dimension
- Sidewall RA or EA Grille or Register
- Sidewall SA Register or Grille
- Splitter Damper (Adjustable)
- Square or Rectangular Diffuser
- Square or Rectangular to Round Transition
- SA — Supply Air
- TURNING VANES — Supply or Outside Air Duct Section
- Tee With Turning Vanes
- T — Thermostat
- TOD — Top of Duct
- UH — Unit Heater

INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	Analysis		Alarm		
B	Burner Flame				
C	Conductivity (Electrical)			Control	
D	Density (Mass) or Specific Gravity	Differential			
E	Voltage (EMF)		Primary Element		
F	Flow Rate	Ratio (Fraction)			
G	Gauging (Dimensional)		Glass		
H	Hand (Manually Initiated)				High
I	Current (Electrical)		Indicate		
J	Power	Scan			
K	Time or Time–Schedule			Control Station	
L	Level		Light (Pilot)		Low
M	Moisture or Humidity				Middle or Intermediate
N					
O			Orifice (Restriction)		
P	Pressure or Vacuum		Point (Test) Connection)		
Q	Quantity or Event	Integrate or Totalize	Meter		
R	Radioactivity		Record or Print		
S	Speed or Frequency			Switch	
T	Temperature		Totalizing	Transmit	
U					
V	Viscosity			Valve, Damper or Louver	
W	Weight or Force		Well		
X					
Y				Relay or Compute	
Z	Position			Drive, Actuate or Unclassified Final Control Element	

INSTRUMENT IDENTIFICATION



VALVE OPERATORS

- C — Cylinders
- CW — Chainwheel
- D — Diaphragm
- E — Electric
- F — Float
- H — Hydraulic
- HW — Handwheel
- L — Lever
- M — Motor
- P — Pneumatic
- S — Solenoid

Soil Boring

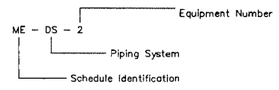
PIPING SCHEDULE

PIPING SYSTEM DESIGNATION	FLUID
AE	Aerator Effluent
AA	Aqueous Ammonia
AW	Filter Air Wash
BW	Filter Backwash
CD	Chemical Drain and Vent
CL	Chlorine (Gas or Liquid State)
CLS	Chlorine Solution
CLV	Chlorine Gas Under Vacuum
CS	Caustic Soda
CV	Chlorinator Vent and Detection Line
DW	Demineralized Water
FI	Filter Influent
FE	Filtered Effluent
FTW	Filtered Water to Waste
HF	Hydrofluosilicic Acid
HR	Heating Water Return
HS	Heating Water Supply
IA	Instrument Air
LA	Liquid Alum
MF	Membrane Feed
NG	Natural Gas
PA	Plant Air
PD	Plant Drain
PEA	Polymer – Anionic
PEC	Polymer – Catonic
PEN	Polymer – Nonionic
PO	Plant Overflow
PP	Process Piping
PPH	Poly Phosphate
PPM	Potassium Permanganate
PW	Potable Water
RW	Raw Water
SA	Sample Line
SD	Sanitary Drain and Vent
SDR	Storm Drain
SI	Sodium Silicate
SL	Sludge
SPD	Sump Pump Discharge
SS	Sanitary Sewer
SW	Filtered Surface Washwater
UW	Utility Water (Non–Potable Water)
V	Vacuum
WW	Filter Waste Washwater
WWR	Washwater Return

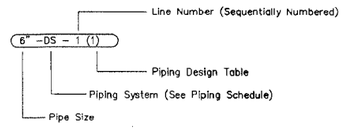
EQUIPMENT SCHEDULE

DESIGNATION	EQUIPMENT TYPE
F	Fan
ME	Miscellaneous Equipment
P	Pump
S	Special
SG	Stop Gate, shear gate, sluice gate, slide gate, flap gate
UH	Unit Heater
V	Valve (Valves 4" Diameter and Larger Included in Schedule

EQUIPMENT IDENTIFICATION



PIPE IDENTIFICATION



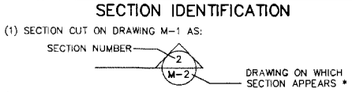
PIPE DESIGN TABLE

PDT NO.	PIPE MATERIAL	FITTING MATERIAL
1	Class 50 Ductile Iron ANSI A21.51 (AWWA C151) Flanged or Mechanical Joints as Indicated. Class 53 for Threaded Flange	Class 125 Ductile or Cast Iron, ANSI A21.10 (AWWA C110) Flanged or Mechanical Joint as Indicated
2	Standard Weight Carbon Steel, ASTM A120, Black	3–Inch and Smaller – 150 lb. Malleable Iron, ANSI B16.3 Banded, Screwed, 3–1/2 inch and Larger – Standard Weight – ASTM A234 ANSI B16.9 Welded Steel or 125 lb. Flanged Cast Iron as Indicated
3	Standard Weight Carbon Steel, ASTM A120, Galvanized	3–Inch and Smaller – 150 lb. Malleable Iron, ANSI B16.3 Banded, Screwed, Galvanized 3–1/2 Inch and Larger – 125 lb. Cast Iron Flanged or Mechanical Coupling as Indicated
4	Copper, ASTM B88 Buried Service – Type K, Soft Temper Exposed Service – Type L, Hard Temper	Wrought Copper or Cast Bronze Solder Joint, ANSI B16.22, 150 psi
5	Polyvinyl Chloride, Schedule 80, Normal Impact ASTM D1785	Schedule 80 Polyvinyl Chloride, Socket Solvent Weld Joints, ASTM D2467
6	Fiberglass Reinforced Plastic (FRP) ASTM D2996	Epoxy Resin Fragment Wound or Molded Type – 150 psi @ 200 F
7	Flexible Teflon Tubing, Vacuum Rated, Installed Inside 2" Schedule 80 PVC Pipe	Compression Fitting or Solvent Weld
8	Cast Iron Soil ANSI A112.5.1, Service Weight, Bell and Spigot or Hubless	Cast Iron Soil ANSI A112.5.1, Service Weight, Bell and Spigot or Hubless
9	Class 50 Ductile Iron ANSI A21.51 (AWWA C151) Bell and Spigot	Class 125 Ductile or Cast Iron, ANSI A21.10 (AWWA C110), Mechanical Joint
10	Polyvinyl Chloride Sewer Pipe, Bell and Spigot ASTM D–3034	Polyvinyl Chloride, Bell and Spigot, ASTM D–3034
11	Standard Weight Steel, ASTM A53, Seamless. (10 Mil Polyethylene or PVC Coated @ Exterior)	Standard Weight, Butt Weld Steel ANSI B16.9 ASTM A234
12	Polyvinyl Chloride Pressure Pipe ASTM D2241 with Bell & Spigot Ends. Wall thickness as Specified	Class 125 Ductile Iron or ANSI A21.10 (AWWA C110) Flanged or Mechanical Joints as Indicated
13	Polypropylene, ASTM D2146 Schedule 40 with Heat Fused Joints	Polypropylene, Schedule 40 Drainage Type with Heat Fused Socket Joints
14	Stainless Steel AISI Type 304, ASTM A312 Schedule 5S	Stainless Steel AISI Type 316 ANSI B16.9 Butt–Welded Schedule 5S or 150 lb Flanged
15	Welded Steel, AWWA C200 with Specified Wall Thickness. Epoxy/Cement Mortar Lined for Potable Water Service	ASTM A234, Grade B, Seamless or Butt–welded. Fittings 14–inches and Larger Mitered to Conform to AWWA C208 Table 2 with Butt–Weld Ends

SECTION AND DETAIL IDENTIFICATION

SECTION IDENTIFICATION

(1) SECTION CUT ON DRAWING M–1 AS:



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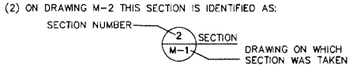

DETAIL IDENTIFICATION

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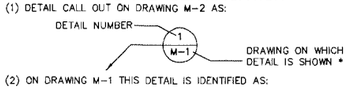

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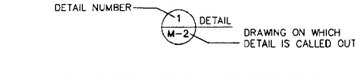
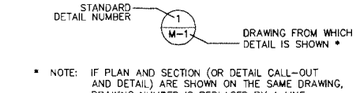


STANDARD DETAIL IDENTIFICATION

(1) DETAIL CALL OUT ON DRAWING M–2 AS:



* NOTE: IF PLAN AND SECTION (OR DETAIL CALL–OUT AND DETAIL) ARE SHOWN ON THE SAME DRAWING, DRAWING NUMBER IS REPLACED BY A LINE.

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SIGNATURE: _____ TYPED OR PRINTED NAME: Jon D. Peterson

DATE: 5-3-07 LIC. NO. 21309

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REV.	BY	DATE
A	WRH	11–3–06
0	WRH	5–7–07

RAMSEY, MINNESOTA

WELL HOUSE NO. 4

LEGEND

SHEET 1.04

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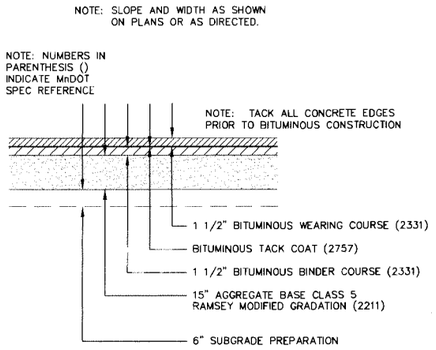
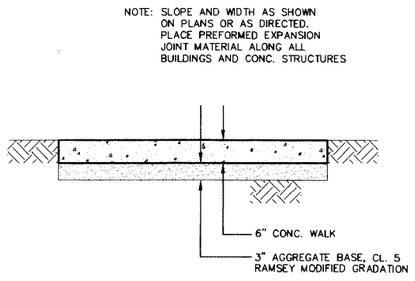
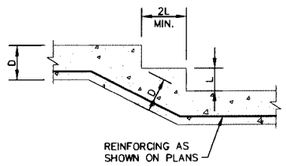


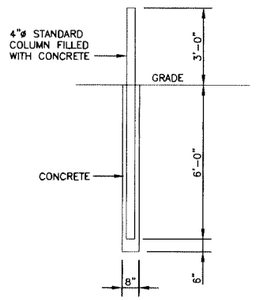
1 / 1.05 BITUMINOUS ROADWAY SECTION
NO SCALE



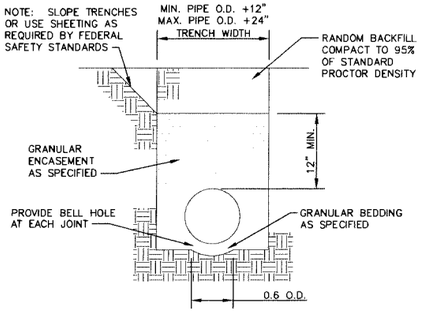
2 / 1.05 CONCRETE WALK SECTION
NO SCALE



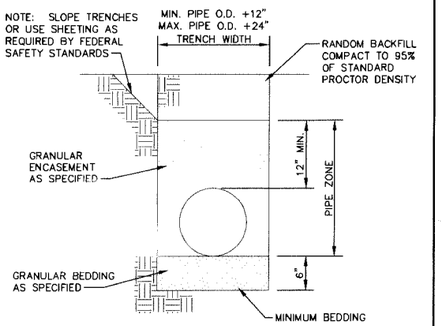
3 / 1.05 STEP FOOTING DETAIL
SCALE: 1/2"=1'-0"



4 / 1.05 GUARDPOST DETAIL
SCALE: 3/8"=1'-0"

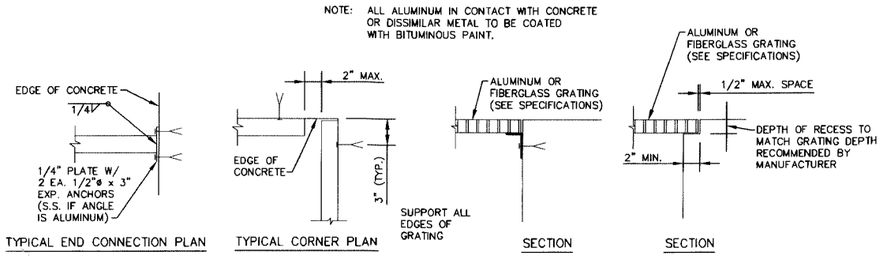


5 / 1.05 TRENCH DETAIL DUCTILE IRON PIPE
SCALE: 1"=1'-0"



6 / 1.05 TRENCH DETAIL PVC PIPE
SCALE: 1"=1'-0"

NOTE: ALL ALUMINUM IN CONTACT WITH CONCRETE OR DISSIMILAR METAL TO BE COATED WITH BITUMINOUS PAINT.



ANGLES

–FOR ALUMINUM GRATING

ALUM. ∠2"x3"x1/4" WITH 1/2"ø x 3" S.S. EXP. ANCHORS @ 18" O.C. MAX.

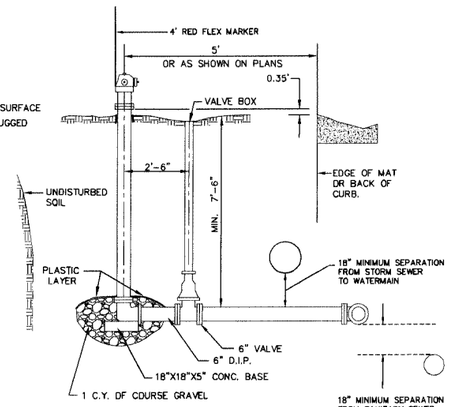
–FOR FIBERGLASS GRATING

∠2"x2"x1/4" WITH 1/2"ø x 3" EXPANSION ANCHORS @ 18" O.C. MAX.

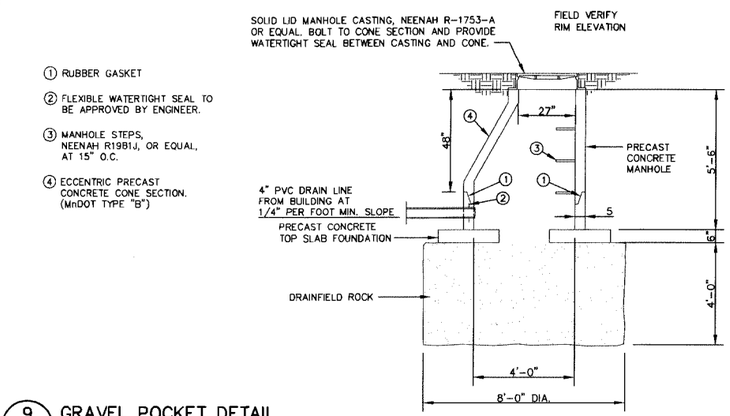
7 / 1.05 GRATING INSTALLATION
SCALE: 1 1/2"=1'-0"

NOTES:

1. HYDRANTS TO BE ORDERED FOR 8'-0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANT EXTENSIONS MAY BE REQUIRED.
2. HYDRANT SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2–3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.
3. TOP NUT OF HYDRANT 2.5' ABOVE TOP BACK OF CURB OR BITUMINOUS SURFACE
4. HYDRANTS BURIED BELOW WATER TABLE, DRAIN HOLES NEED TO BE PLUGGED AND HYDRANT MARKED BY PAINTING 5" CAP YELLOW
5. ALL VALVE BOXES SHALL HAVE A VALVE NUT EXTENSION TO WITHIN 1' OF FINISHED GRADE
6. BRUSH PAINT ALL HYDRANTS AFTER INSTALLATION IS COMPLETE



8 / 1.05 HYDRANT INSTALLATION, TIED TO MAIN
NOT TO SCALE



9 / 1.05 GRAVEL POCKET DETAIL
SCALE: 3/8"=1'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE: Jon D. Peterson
TYPED OR PRINTED NAME: Jon D. Peterson
DATE: 5-21-07
LIC. NO: 21309

BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN BURNSVILLE, MN SLEEPY EYE, MN WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
A	WRH	11-3-06
0	WRH	5-21-07

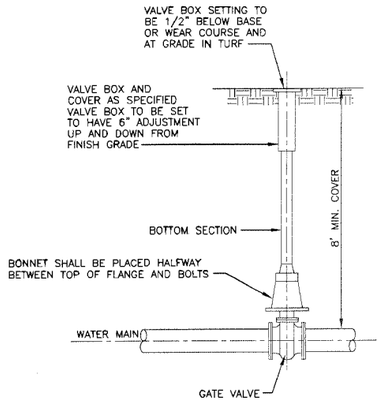
RAMSEY, MINNESOTA
WELL HOUSE NO. 4
STANDARD DETAILS

SHEET 1.05

J:\RAMSEY\M2137017\WELLHOUSE\37017105–106.dwg 6/14/2007

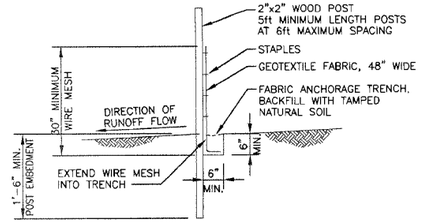
NOTES:

1. VALVE BOX SHALL BE CENTERED ON OPERATING NUTS. STRAIGHT, FREE FROM DEBRIS, AND ALL SECTIONS UNBROKEN.
2. VALVES IN EASEMENTS SHALL BE MARKED WITH BLUE CARSONITE MARKER.
3. ALL VALVES SHALL HAVE VALVE NUT EXTENSION INSTALLED TO WITHIN 1 FOOT OF SURFACE. DEEP EXTENSIONS SHALL BE WELDED TOGETHER.
4. COMPACTION WITHIN THE UPPER 3 FEET OF SUBGRADE SHALL BE 100%.
5. GATE VALVES LOCATED WITHIN THE CONCRETE SIDEWALK SHALL INCLUDE A METAL SEPARATOR BETWEEN THE VALVE BOX AND THE CONCRETE.

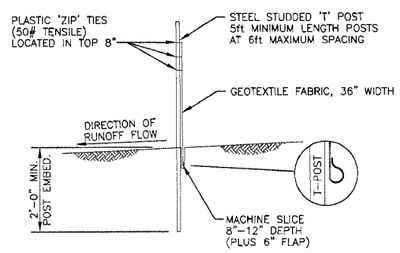


NOTE: ALL HYDRANTS AND BURIED VALVE SHALL OPEN RIGHT

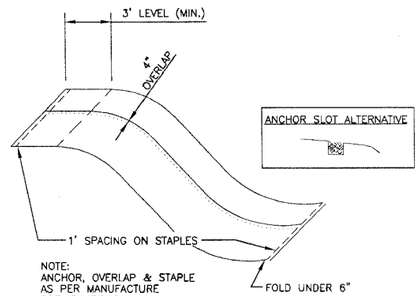
1 / 1.06 TYPICAL BURIED VALVE
SCALE: 1/2"=1'-0"



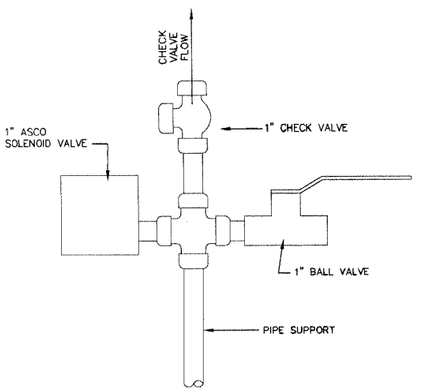
2 / 1.06 SILT FENCE – PREASSEMBLED
NOT TO SCALE



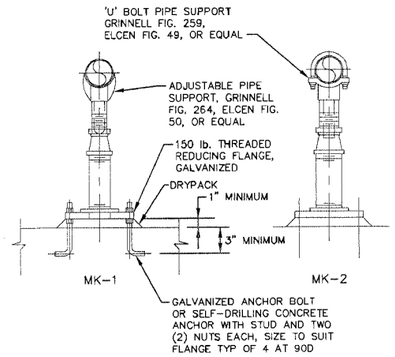
3 / 1.06 SILT FENCE – MACHINE SLICED
NOT TO SCALE



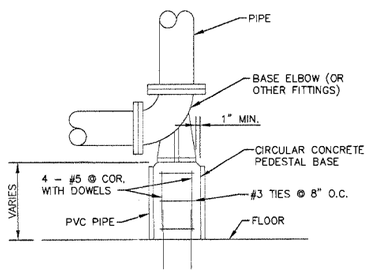
4 / 1.06 EROSION CONTROL BLANKET INSTALLATION
NOT TO SCALE



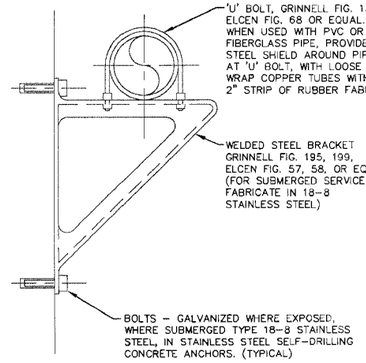
5 / 1.06 SIPHON VALVE DETAIL
NO SCALE



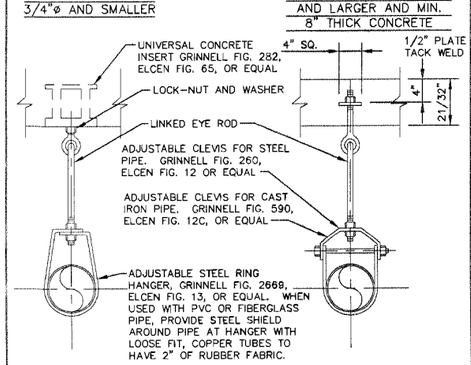
6 / 1.06 ADJUSTABLE PIPE SUPPORT
SCALE: 1 1/2"=1'-0"



7 / 1.06 CONCRETE PEDESTAL BASE
SCALE: 3/4"=1'-0"

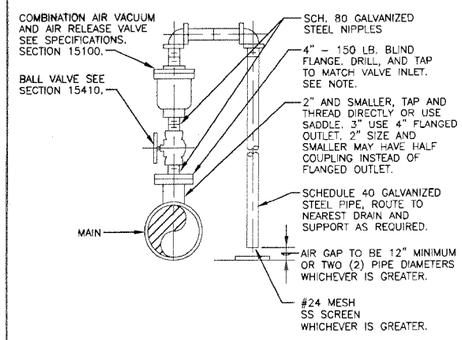


8 / 1.06 PIPE BRACKET
SCALE: 3"=1'-0"

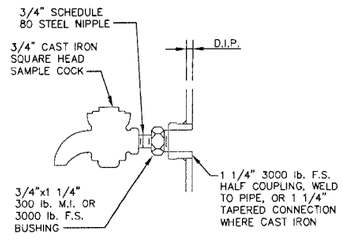


NOTE: 4" SQ. BEARING PLATE ALLOW 3800 lb. LOAD MAX. CONCRETE INSERT ALLOW 1400 lb. LOAD MAX.

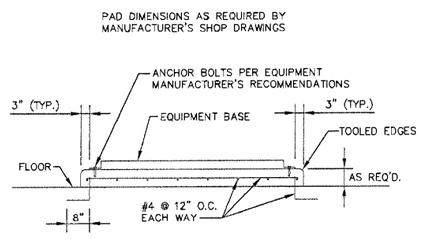
9 / 1.06 PIPE BRACKET
SCALE: 1 1/2"=1'-0"



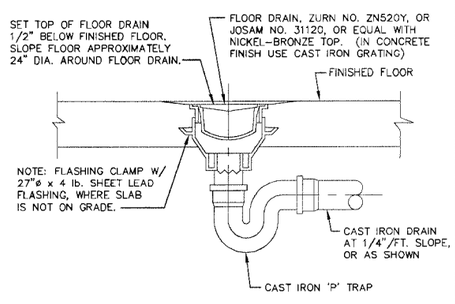
10 / 1.06 AIR–VACUUM AND AIR–RELEASE VALVE ASSEMBLY 3" AND SMALLER
SCALE: 3/4" = 1'-0"



11 / 1.06 SAMPLE COCK
SCALE: 3"=1'-0"



12 / 1.06 CONCRETE EQUIPMENT BASE
SCALE: 1/2"=1'-0"



13 / 1.06 FLOOR DRAIN
SCALE: 1"=1'-0"

J:\RAMSEY\M2137017\WELLHOUSE\37017105-106.dwg 5/3/2007

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNATURE: [signature] TYPED OR PRINTED NAME: Jon D. Peterson
DATE: 5-3-07 LIC. NO. 21309

BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN BURNSVILLE, MN SLEEPY EYE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
A	WRH	11-3-06
0	WRH	5-7-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
STANDARD DETAILS

SHEET 1.06

FIRE STATION NO. 2
(FFE = 883.5)

× 879.8

× 880.8

BITUMINOUS
PARKING LOT

× 882.8

WELL NO.7
PROPOSED LOCATION

R50.00'

F&I 10" RAW WMN

CONCRETE SIDEWALK
WIDTH OF BUILDING
SEE DETAIL 1/2.01

SAW CUT AND REMOVE
BITUMINOUS. REPLACE
TO MATCH EXISTING

4" FLOOR
DRAIN

GRAVEL
POCKET

18.66'

10.00'

CONNECT TO
10" DIP

CONNECT TO
12" DIP

CONSTRUCTION
LIMITS

12" FINISHED WATERMAIN

10" RAW WATERMAIN

WELL CONTRACT
CONSTRUCTION
LIMITS

× 874.9

WATERMAIN
BY OTHERS

20" RAW WATERMAIN

24" FINISHED WATERMAIN

10.00'

10.00'

882.4

880

NOTE: FIELD VERIFY DEPTH AND
LOCATION OF INSTALLED PIPING.

SITE PLAN
SCALE:1"=20'

× 873.6

24" FINISHED WATERMAIN

ARMSTRONG BOULEVARD

20" RAW WATERMAIN

20 0 20 40 60
Graphic Scale for 1"=20'

5 0 5 10 15
Graphic Scale for 1"=5'

0 1 2 4
Graphic Scale for 3/4"=1'-0"

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F&I 10" RAW WMN

6.00'

CONCRETE SIDEWALK
WIDTH OF BUILDING
SEE DETAIL 1/2.01

SAW CUT AND REMOVE
BITUMINOUS. REPLACE
TO MATCH EXISTING

CONSTRUCTION
LIMITS

4" FLOOR
DRAIN

GRAVEL
POCKET

18.66'

10.00'

CONNECT TO
12" DIP

CONNECT TO
10" DIP

NOTE: FIELD VERIFY DEPTH AND
LOCATION OF INSTALLED PIPING.

12" FINISHED WATERMAIN

10" RAW WATERMAIN

SITE PLAN
SCALE:1"=5'

6'-0"

6" CONCRETE SLAB
SLOPE 1/4" PER FOOT

2"

FFE=883.00

BITUMINOUS

1/2" PREFORMED
EXPANSION JOINT

1/2.01 SIDEWALK DETAIL
SCALE:3/4"=1'-0"

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MANKATO, MN FAIRMONT, MN BURNSVILLE, MN SLEEPY EYE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

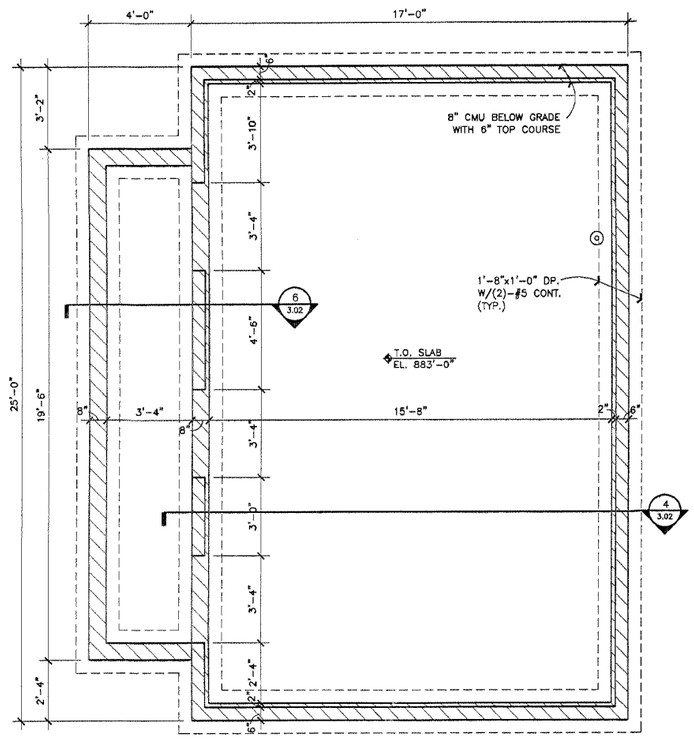
REV.	BY	DATE
A	WRH	11-3-06
0	WRH	5-21-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
SITE PLAN AND DETAIL

SHEET
2.01

CODE REVIEW: WATER TREATMENT FACILITY– RAMSEY, MINNESOTA

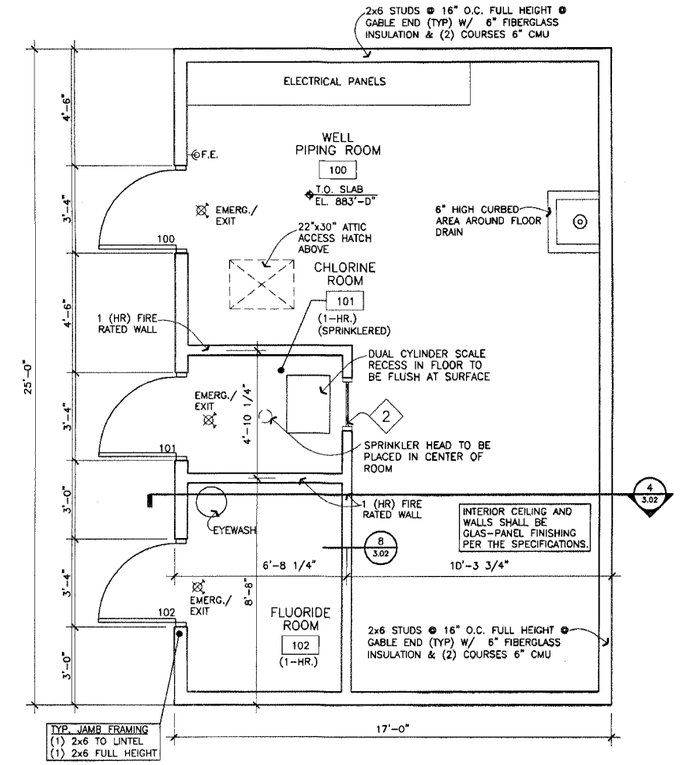
BUILDING CODE:	INTERNATIONAL BUILDING CODE–2006 EDITION MINNESOTA STATE BUILDING CODE–2007 EDITION CITY OF RAMSEY ZONING ORDINANCES
OCCUPANCY:	F–2 (WATER TREATMENT FACILITY)
OCCUPANTS:	5 OCC. (PER TABLE 1003.2.2.2) 1 OCC. (ACTUAL)
CONSTRUCTION TYPE:	V–B WOOD STUD WALL STANDARD WOOD TRUSS
ALLOWABLE AREA:	13,000 SQ. FT.
PROPOSED AREA:	425 SQ. FT. (GROSS)
SPRINKLERED:	CHLORINE ROOM SPRINKLER ONLY
BUILDING HEIGHT:	13'–0" +/– (RIDGE HEIGHT)



FOUNDATION PLAN

NORTH 2/3.01 SCALE: 3/8"=1'–0"

2875fn1g



FLOOR PLAN

NORTH 1/3.01 SCALE: 3/8"=1'–0"

2875fp1g

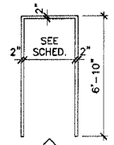
DOOR SCHEDULE

DOOR NO.	DOOR SIZE	DOOR TYPE	DOOR FINISH	FRAME TYPE	HDWE.	JAMB	RAT'G.	REMARKS
100	3'–0"x6'–8"x1–3/4"	A	PAINT	1		7–1/4"		EX. HVY. DUTY HINGES/CLOSER/LEVER LOCKSET/T–HOLD/W–STRIP/RAIN DRIP/SWEEP/KICKPLATE/O.H. STOP
101	3'–0"x6'–8"x1–3/4"	A	PAINT	1		7–1/4"	60MIN	EX. HVY. DUTY HINGES/CLOSER/T–HOLD/W–STRIP/RAIN DRIP/SWEEP/KICKPLATE/O.H. STOP/PANIC DEVICE
1D2	3'–0"x6'–8"x1–3/4"	A	PAINT	1		7–1/4"		EX. HVY. DUTY HINGES/CLOSER/LEVER LOCKSET/T–HOLD/W–STRIP/RAIN DRIP/SWEEP/KICKPLATE/O.H. STOP

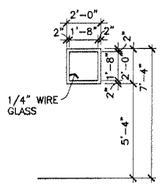
DOOR TYPES

A
HOLLOW METAL (PRIME & PAINT) 16 GAUGE

FRAME TYPES



1
HOLLOW METAL (PRIME & PAINT) 16 GAUGE



2
HOLLOW METAL W/ 45 MIN. FIRE RATING (PRIME & PAINT) 16 GAUGE

ROOM FINISH SCHEDULE

NO	ROOM NAME	FLOOR FINISH	FLOOR MATERIAL	BASE	WALLS	CEILINGS	REMARKS
		SEALED	CONCRETE		PAINTED 5/8" GYP. BD. GLAS–PANEL FINISHING PER THE SPECS.	PAINTED 5/8" GYP. BD. GLAS–PANEL FINISHING PER THE SPECS. CEILING HEIGHT	
100	WELL PIPING ROOM	●			●	●	
1D1	CHLORINE ROOM (1–HR. RATED)	●			●	●	
102	FLORIDE ROOM	●			●	●	

N, W, E, S

NOTES:

1. SEE SITE PLAN FOR ORIENTATION AND FINISHED SITE GRADE.
2. COLOR OF STEEL SIDING SHALL BE SELECTED BY ENGINEER.
3. COLOR OF STEEL ROOFING SHALL BE SELECTED BY ENGINEER.
4. COLOR OF ALUMINUM SOFFIT AND FASCIA SHALL BE SELECTED BY ENGINEER.
5. DOORS AND FRAMES SHALL BE SUPPLIED AS SPECIFIED IN SECTION 08110.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNATURE: Brian J. Salfer TYPED OR PRINTED NAME: BRIAN J. SALFER
DATE: MAY 7, 2007 REG. NO. 41632

LS JOB# 06–349
LS ENGINEERS
200 S. Main St.
LeSueur, MN 56058

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA. (ARCHITECTURAL ONLY)
SIGNATURE: TYPED OR PRINTED NAME: DAVID J. MEDIN
DATE: MAY 7, 2007 REG. NO. 9898

ARCH. PROJ. #: 2875
architects plus
203 nw first ave.
faribault, minn. 55021
507/334-2251
507/334-8350 FAX

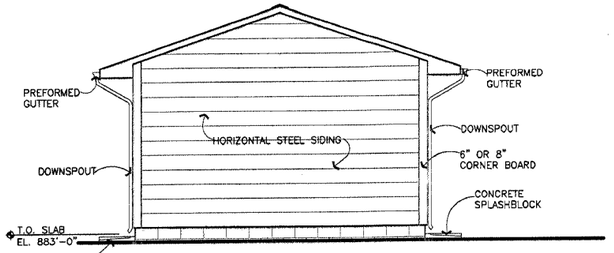
BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN BURNSVILLE, MN SLEEPY EYE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
A	TJR	11–3–06
0	TJR	5–7–07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
PLANS AND SCHEDULES

SHEET 3.01

F:\Act2proj\2875\plot\2875a3.01.dwg, 5/3/2007 2:16:22 PM, Arch D (24x36")

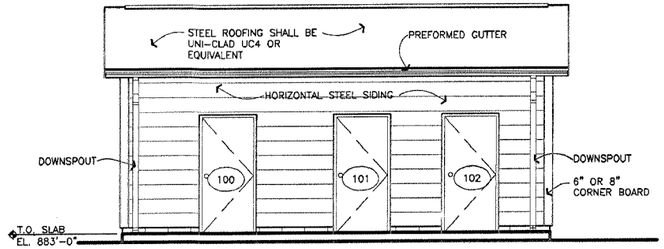


NORTH ELEVATION (SOUTH SIM.)

1 / 3.02

SCALE: 1/4"=1'-0"

2875e11f

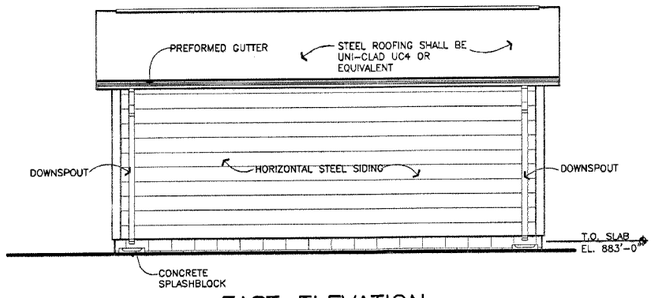


WEST ELEVATION

2 / 3.02

SCALE: 1/4"=1'-0"

2875e11f

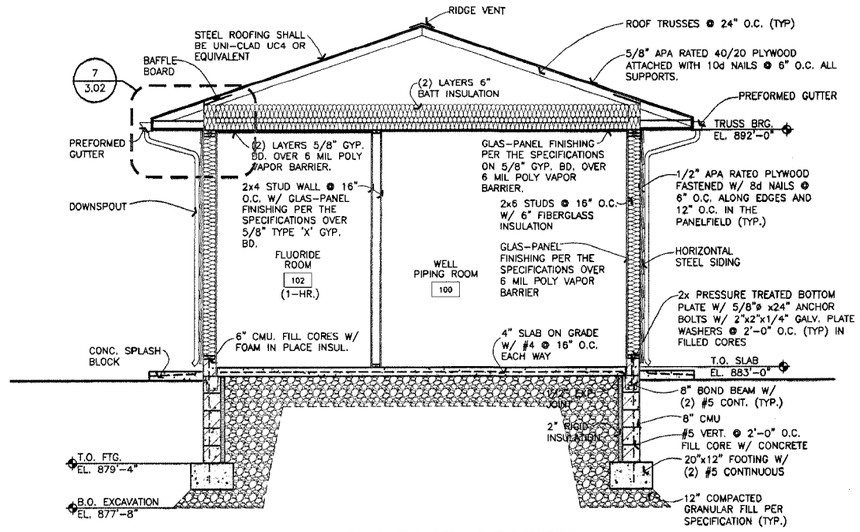


EAST ELEVATION

3 / 3.02

SCALE: 1/4"=1'-0"

2875e11f

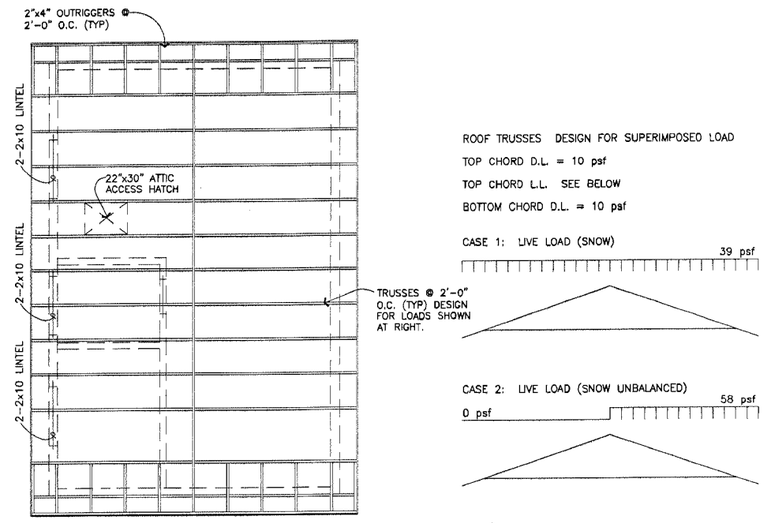


BUILDING SECTION

4 / 3.02

SCALE: 3/8"=1'-0"

2875be1g

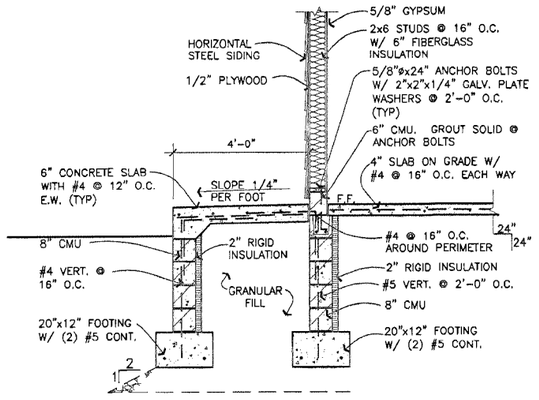


TRUSS PLAN

5 / 3.02

SCALE: 1/4"=1'-0"

2875r11f

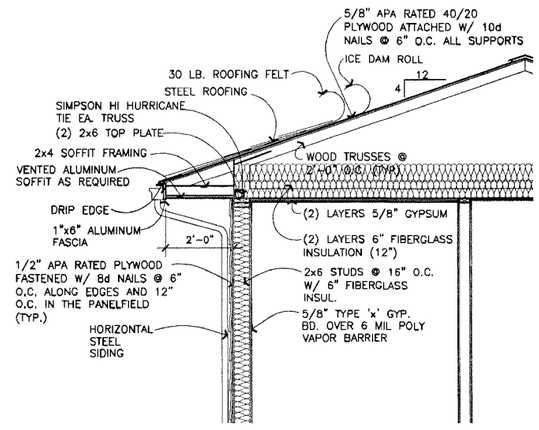


SECTION

6 / 3.02

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

2875d01h



SECTION

7 / 3.02

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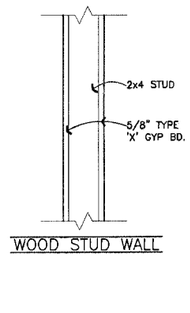

WALL TYPE

8 / 3.02

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

2875d03k

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Brian J. Salfer — TYPED OR PRINTED NAME: BRIAN J. SALFER

DATE: MAY 7, 2007 — REG. NO. 41632

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA. (ARCHITECTURAL ONLY)

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BOLTON & MENK, INC
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WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
A	TJR	11-3-06
0	TJR	5-7-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
ROOF PLAN, EXTERIOR ELEVATIONS AND SECTIONS

SHEET 3.02

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STRUCTURAL NOTES

GENERAL

1. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THESE STANDARD STRUCTURAL NOTES.
2. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES, SPECIFICATIONS, AND DESIGN MANUAL (LATEST EDITION UNLESS NOTED):
   a. 2000 INTERNATIONAL BUILDING CODE (IBC) WITH MINNESOTA AMENDMENTS
   b. AMERICAN CONCRETE INSTITUTE (ACI)
   c. CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE (FOR PLACING & DETAILING OF ALL REINFORCING)
   d. AMERICAN IRON & STEEL INSTITUTE (AISI) COLD-FORMED STEEL DESIGN MANUAL
   e. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)
   f. NATIONAL DESIGN SPECIFICATIONS (NDS) FOR WOOD CONSTRUCTION
   g. STATE AND FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS
3. REFER TO SPECIFICATIONS FOR INFORMATION NOT COVERED BY THESE NOTES OR DRAWINGS.
4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK; AND THE ENGINEER/ARCHITECT SHALL BE IMMEDIATELY NOTIFIED, IN WRITING, OF ANY DISCREPANCIES.
5. IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE STRUCTURAL DRAWINGS.
6. TYPICAL DETAILS SHALL BE USED WHENEVER APPLICABLE.
7. ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF, AND RESOLVED WITH THE ENGINEER/ARCHITECT BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
8. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN THE AREA TO BE EXCAVATED BEFORE BEGINNING EXCAVATION.
9. NO PIPES, DUCTS, SLEEVES, CHASES, ETC., SHALL BE PLACED IN SLABS OR WALLS, NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC.
10. RECESSES, DEPRESSIONS, DIMENSIONS, ELEVATIONS, OPENINGS, EQUIPMENT SUPPORTS, AND DETAILS SHALL BE VERIFIED BY REFERENCE TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. OPENINGS, REQUIRED BUT NOT SHOWN, MUST BE PLACED BETWEEN STRUCTURAL MEMBERS.
11. TEMPORARY BRACING:
    a. PROVIDE TEMPORARY BRACING FOR ALL BUILDING ELEMENTS AND COMPONENTS UNTIL THE STRUCTURE IS SUFFICIENTLY COMPLETE TO PROVIDE PERMANENT BRACING.

DESIGN DATA

1. WIND LOAD..... 90 M.P.H. EXPOSURE B
2. ROOF LIVE LOADS..... GROUND SNOW LOAD..... Pg = 50 P.S.F.
   IMPORTANCE FACTOR..... I = 1.0
   EXPOSURE FACTOR..... Ce = 1.0
   THERMAL FACTOR..... Ct = 1.1

FOOTINGS AND FOUNDATIONS

1. NET ALLOWABLE SOIL BEARING PRESSURE:
   a. Fp = 1500 psf
2. THE NET ALLOWABLE SOIL BEARING PRESSURE SHALL BE FIELD VERIFIED BY SOILS ENGINEER PRIOR TO PLACING FOOTINGS.
3. ALL SITE SOIL WORK SHALL BE DONE UNDER THE DIRECT OBSERVATION OF A SOILS ENGINEER.
4. PROTECT FOUNDATION EXCAVATIONS FROM FROST; DO NOT PLACE CONCRETE ON FROZEN GROUND.
5. FOUNDATION EXCAVATIONS SHALL BE KEPT FREE OF LOOSE MATERIAL AND STANDING WATER AND SHALL BE CHECKED AND APPROVED BY THE SOILS ENGINEER BEFORE THE PLACEMENT OF ANY CONCRETE.
6. WALL FOOTINGS ARE CONTINUOUS POURED CONCRETE WITH CONTINUOUS REINFORCING PLACED 3" CLEAR OF BOTTOM AND SIDES.
7. PROVIDE 24 DIA. LAP AT SPLICES AND FULL CROSSING LAP AT CORNERS AND INTERSECTIONS.
8. UNLESS OTHERWISE NOTED, WALL FOOTINGS ARE CENTERED UNDER WALLS AND COLUMN FOOTINGS UNDER COLUMNS.
9. FOOTINGS FOR WALLS NOT NOTED SHALL BE 12" THICK WITH A MINIMUM PROJECTION OF 4" EACH SIDE WITH 2-#5 CONTINUOUS.
10. BOTH SIDES OF FOUNDATION WALLS SHALL BE BACKFILLED SIMULTANEOUSLY SO AS TO PREVENT OVERTURNING OR LATERAL MOVEMENT OF WALLS.

REINFORCING STEEL

1. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 (LATEST EDITION) "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", EXCEPT AS MODIFIED BY THESE NOTES.
2. BAR REINFORCEMENT SHALL BE: ASTM A615, GRADE 60
3. WELDED WIRE FABRIC SHALL MEET ASTM A185.
4. CONTRACTOR SHALL SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BEFORE FABRICATION AND INSTALLATION.
5. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE SECURED IN POSITION WITH WIRE POSITIONERS BEFORE PLACING CONCRETE OR GROUT.
6. DOWELS BETWEEN FOOTINGS AND WALLS SHALL BE THE SAME GRADE, SIZE, AND SPACING AS VERTICAL WALL REINFORCING.
7. MINIMUM LAP SPLICES OF REINFORCING BARS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
   a. CONCRETE: CLASS B AS DEFINED IN ACI 318-89 OR CHART BELOW.

CONCRETE REINFORCING LAP SPLICE LENGTHS

BAR SIZE	LAP LENGTH (2" CLR.) (INCHES)
#4	23
#5	28

8. REINFORCING STEEL SHALL BE PROVIDED WITH THE FOLLOWING AMOUNTS OF COVER FOR CAST-IN-PLACE CONCRETE:
   a. CONCRETE PLACED AGAINST EARTH..... 3"
   b. CONCRETE SURFACE (FORMED):
      i. #5 THROUGH #18 BARS..... 2"
      ii. #4 BAR AND SMALLER..... 2"
      iii. STIRRUPS & TIES..... 2"

REINFORCED CONCRETE

1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c), MAXIMUM WATER-CEMENT (W/C) RATIO AND MAXIMUM SLUMP AS FOLLOWS:

	f'c (P.S.I.) 28 DAYS
STRIP FOOTINGS FOR BUILDING	3,000
INTERIOR SLAB ON GRADE	4,000
EXTERIOR WALLS & SITEWORK	4,000 (AIR ENTRAINED)
MASONRY COREFILLING	3,000

2. CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR APPROVAL 14 DAYS PRIOR TO FABRICATION AND INSTALLATION. ALL CONCRETE MIXES SHALL BE DESIGNED AND CERTIFIED BY A MATERIALS TESTING LABORATORY.
3. REFER TO DRAWINGS OF OTHER DISCIPLINES FOR MOLDS, GROOVES, CLIPS, ORNAMENTS, GROUNDS, ETC. REQUIRED TO BE CAST INTO CONCRETE.
4. PROJECTING CORNERS OF SLABS, BEAMS, WALLS, COLUMNS, ETC. SHALL BE FORMED WITH A 3/4" CHAMFER.
5. NO CONDUIT PLACED IN A CONCRETE SLAB SHALL HAVE AN OUTSIDE DIAMETER GREATER THAN 1/3 THE THICKNESS OF THE SLAB. NO CONDUIT SHALL BE EMBEDDED IN A SLAB THAT IS LESS THAN 3-1/2" THICK, EXCEPT FOR LOCAL OFFSETS, MINIMUM CLEAR DISTANCE BETWEEN CONDUITS SHALL BE 8".
6. UNLESS OTHERWISE NOTED, USE 6" CONCRETE SLAB ON GRADE W/ #4 @ 12" O.C..

CONCRETE MASONRY

1. CONCRETE MASONRY WALLS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF f'm = 1500 P.S.I.
2. MORTAR SHALL BE TYPE "M" BELOW GRADE, TYPE "S" ABOVE GRADE CONFORMING TO ASTM C270.
3. WHERE NO FOOTING OR FOUNDATION WALL IS SHOWN UNDER A MASONRY WALL, FLOORS UNDER SUCH WALL SHALL INCLUDE A THICKENED SLAB.
4. REINFORCED CONCRETE BLOCK WALLS:
   a. SEE PLANS FOR LOCATION OF REINFORCED WALLS.
   b. PROVIDE DOWELS BETWEEN FOUNDATIONS & WALLS EQUAL TO THE SIZE AND SPACING OF THE VERTICAL REINFORCING U.N.O.
   c. VERTICAL STEEL SHALL BE CONTINUOUS WITH 2'-6" LAP AT SPLICES UNLESS NOTED.
   d. WHEN ONE BAR IN A SINGLE CORE, PLACE IN CENTER UNLESS NOTED OTHERWISE.
   e. WHEN TWO BARS IN A SINGLE CORE, PLACE ONE NEAR EACH FACE.
   f. RUN BOND BEAM REINFORCEMENT CONTINUOUS THROUGH CONTROL JOINTS
   g. DISCONTINUE JOINT REINFORCING AT CONTROL JOINTS U.N.O.
   h. FILL BLOCK CORE AT VERTICAL STEEL WITH 3000 P.S.I. GROUT, RODDED OR VIBRATED IN PLACE.
   i. WALL CONSTRUCTION SHALL NOT EXCEED HEIGHTS OF 4'-0" BEFORE PLACEMENT OF CORE GROUT UNLESS CLEANOUT HOLES ARE PROVIDED AT THE BOTTOM OF EACH GROUT LIFT, THEN A MAXIMUM HEIGHT OF 8'-0" BEFORE PLACEMENT OF CORE GROUT.

STRUCTURAL STEEL

1. STEEL PROPERTIES:

	Fy (psi)	ASTM
ANCHOR BOLTS (TENSILE STRENGTH)	36,000	A36

DIMENSION LUMBER

1. ALL WOOD MEMBERS SHALL BE HEM FIR (HF) OR SPRUCE-PINE-FIR (SPF) GRADE #2 MARKED BY A RECOGNIZED GRADING AGENCY (WCLIB & WWPA).
2. ALL SILLS OR PLATES RESTING ON CONCRETE OR MASONRY, WHICH IS IN CONTACT WITH EARTH OR RESTING ON FOUNDATIONS, SHALL BE PRESSURE TREATED SOUTHERN PINE NO.2.
3. MOISTURE CONTENT OF WOOD AT TIME OF PLACING SHALL NOT EXCEED 19%.
4. ALL MEMBER SIZES GIVEN ON DRAWINGS ARE NOMINAL DIMENSIONS.
5. ALL SHEATHING SHALL BE APA RATED SHEATHING.
6. ALL FRAMING ANCHORS, POST CAPS, BASES, HANGERS, STRAPS, ETC., SHALL BE AS MANUFACTURED BY "SIMPSON COMPANY" OR ENGINEER APPROVED EQUAL.
7. ALL BEAMS AND JOISTS NOT BEARING ON SUPPORTING MEMBERS SHALL BE FRAMED WITH "SIMPSON HHUS" JOIST HANGERS OR EQUAL. USE TYPE AS REQUIRED FOR APPLICATION IN DRAWINGS.
8. ALL BOLT HEADS AND NUTS BEARING ON WOOD SHALL HAVE STANDARD CUT WASHERS. ALL BOLT HOLES IN WOOD SHALL BE DRILLED 1/32" DIAMETER LARGER THAN NOMINAL BOLT DIAMETERS.
9. BOLTS IN WOOD SHALL NOT BE LESS THAN 7 DIAMETERS FROM THE END AND 4 DIAMETERS FROM THE EDGE OF THE MEMBER.
10. ALL NAILING SHALL CONFORM TO NAILING SCHEDULE UNLESS NOTED OTHERWISE.
11. CUTTING, NOTCHING, OR DRILLING OF BEAMS OR JOISTS SHALL BE PERMITTED ONLY AS DETAILED OR APPROVED BY THE ENGINEER.
12. WOOD BEAMS MADE OF 2 OR MORE 2x'S SHALL BE NAILED TOGETHER WITH 2 ROWS OF 16d NAILS AT 12" O.C. FOR A THREE-PIECE MEMBER, INSTALL THE SPECIFIED NAILING EACH SIDE.
13. WOOD LINTELS AND HEADERS SHALL HAVE A FULL 3" LENGTH OF BEARING AT EACH END, UNLESS OTHERWISE NOTED.
14. WOOD JOISTS SHALL BEAR THE FULL WIDTH OF SUPPORTING MEMBERS (STUD WALLS, BEAMS, ETC.) UNLESS OTHERWISE NOTED.
15. SPACING OF BRIDGING FOR JOISTS SHALL NOT EXCEED 8'.
16. SILL PLATES TO BE BOLTED TO FOUNDATION WALL WITH 5/8" DIA. BOLTS AT 2'-0" O.C. MAXIMUM, BOLTS TO EXTEND 15" MIN. INTO GROUTED MASONRY. EACH SILL PLATE TO HAVE A MINIMUM OF 2 BOLTS WITH ONE BOLT LOCATED WITHIN 12" OF EACH END OF EACH PIECE.
17. UNLESS NOTED, 4" WIDE STUD WALLS TO HAVE 2x4 STUDS @ 16" O.C.
18. UNLESS NOTED, EXTERIOR WALLS TO HAVE 2x6 STUDS @ 16" O.C.
19. TOP PLATES OF ALL WOOD STUD WALLS TO BE (2) 2x (SAME WIDTH AS STUDS), LAP 48" (MINIMUM) WITH NOT LESS THAN (6) 16d NAILS AT EACH LAP AND NOT MORE THAN 16" BETWEEN NAILS. SPLICE AT STUDS ONLY.

FASTENING SCHEDULE IBC TABLE 2304.9.1

CONNECTION	FASTENING (COMMON OR BOX NAILS PERMITTED)	LOCATION
JOIST TO SILL OR GIRDER	(3)-8d COMMON (3)-3"x0.131" NAIL	TOENAIL
BRIDGING TO JOIST	(2)-8d COMMON (3)-3"x0.131"NAIL	TOENAIL EACH END
1"x6" SUBFLOOR OR LESS TO EA. JOIST	(2)-8d COMMON	FACE NAIL
WIDER THAN 1"x6" SUBFLOOR TO EACH JOIST	(3)-8d COMMON	FACE NAIL
2" SUBFLOOR TO JOIST OR GIRDER	(2)-16d COMMON	BLIND AND FACE NAIL
SOLE PLATE TO JOIST OR BLOCKING SOLE PLATE TO JOIST OR BLOCKING AT BRACED WALL PANEL	16d @ 16" O.C. 3"x0.131" NAIL @ 16" O.C. 3-16d NAILS @ 16" O.C. 4-3"x0.131" NAIL @ 16" O.C.	TYPICAL FACE NAIL BRACED WALL PANEL
TOP PLATE TO STUD	2-16d COMMON 3-3"x0.131" NAIL	END NAIL
STUD TO SOLE PLATE	4-8d COMMON 3-3"x0.131" NAIL 2-16d COMMON 3-3"x0.131" NAIL	TOENAIL END NAIL
DOUBLE STUDS	16d @ 24" O.C. 3"x0.131" NAIL @ 8" O.C.	FACE NAIL
DOUBLE TOP PLATES	16d @ 16" O.C. 3"x0.131" NAIL @ 12" O.C.	TYPICAL FACE NAIL LAP SPLICE
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	3-8d COMMON 3-3"x0.131" NAIL	TOENAIL
RIM JOIST TO TOP PLATE	8d @ 6" O.C. (152mm) 3"x0.131" NAIL @ 6" O.C.	TOENAIL
TOP PLATES: LAPS AND INTERSECTIONS	2-16d COMMON 3-3"X0.131"NAIL	FACE NAIL
CONTINUOUS HEADER, TWO PIECES	16d COMMON	16 O.C. ALONG EDGE
CEILING JOISTS TO PLATE	3-8d COMMON 3-3"x0.131" NAIL	TOENAIL
CONTINUOUS HEADER TO STUD	4-8d COMMON	16" O.C. ALONG EDGE
CEILING JOISTS, LAPS OVER PARTITIONS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	3-16d COMMON MINIMUM, TABLE2308.10.4.1 4-3"X0.131" NAIL	FACE NAIL
CEILING JOISTS TO PARALLEL RAFTERS (SEE SECTION 2308.10.1, TABLE 2308.10.1)	3-16d COMMON MINIMUM, TABLE2308.10.4.1 4-3"X0.131" NAIL	FACE NAIL
RAFTER TO PLATE (SEE SECTION 2308.10.1, TABLE 2308.10.1)	3-8d COMMON 3-3"X0.131" NAIL	TOENAIL
1" DIAGONAL BRACE TO EACH STUD AND PLATE	2-8d COMMON 2-3"x0.131" NAIL	FACE NAIL
1"x8" SHEATHING TO EACH BEARING WALL	2-8d COMMON	FACE NAIL
WIDER THAN 1"x8" SHEATHING TO EACH BEARING	3-8d COMMON	FACE NAIL
BUILD-UP CORNER STUDS	16d COMMON 3"x0.131" NAIL	24" O.C. 16" O.C.
BUILT-UP GIRDER AND BEAMS	20d COMMON @32" O.C. 3"x0.131" NAIL @ 24" O.C. 2-20d COMMON 2-3"x0.131" NAIL	FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES FACE NAIL AT ENDS AND AT EACH SPLICE
2" PLANKS	16d COMMON	AT EACH BEARING
COLLAR TIE TO RAFTER	3-10d COMMON 4-3"x0.131" NAIL	FACE NAIL
JACK RAFTER TO HIP	3-10d COMMON 4-3"x0.131" NAIL 2-16d COMMON 3-3"x0.131" NAIL	TOENAIL FACE NAIL
ROOF RAFTER TO 2-BY RIDGE BEAM	2-16d COMMON 3-3"x0.131" NAIL 2-16d COMMON 3-3"x0.131" NAIL	TOENAIL FACE NAIL
JOIST TO BAND JOIST	3-16d COMMON 3-3"x0.131" NAIL	FACE NAIL
LEDGER STRIP	3-16d COMMON 4-3"x0.131" NAIL	FACE NAIL
WOOD STRUCTURAL PANELS: SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING)	½" AND LESS: 6d COMMON 2 3/8"x0.113" NAIL 19/32" TO ¾": 8d OR 10d COMMON 3"x0.131" NAIL 7/8" TO 1": 16d COMMON	FACE NAILS SPACED AT 6" O.C. EDGES, 12" O.C. INTER. SUPPORTS. FOR NAILING OF WOOD STRUCTURAL PANEL DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.

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SIGNATURE: _____ TYPED OR PRINTED NAME: BRIAN J. SALFER

DATE: MAY 7, 2007 REG. NO. 41632

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WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
A	TJR	11-3-06
0	TJR	5-7-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
STRUCTURAL NOTES

SHEET 3.03

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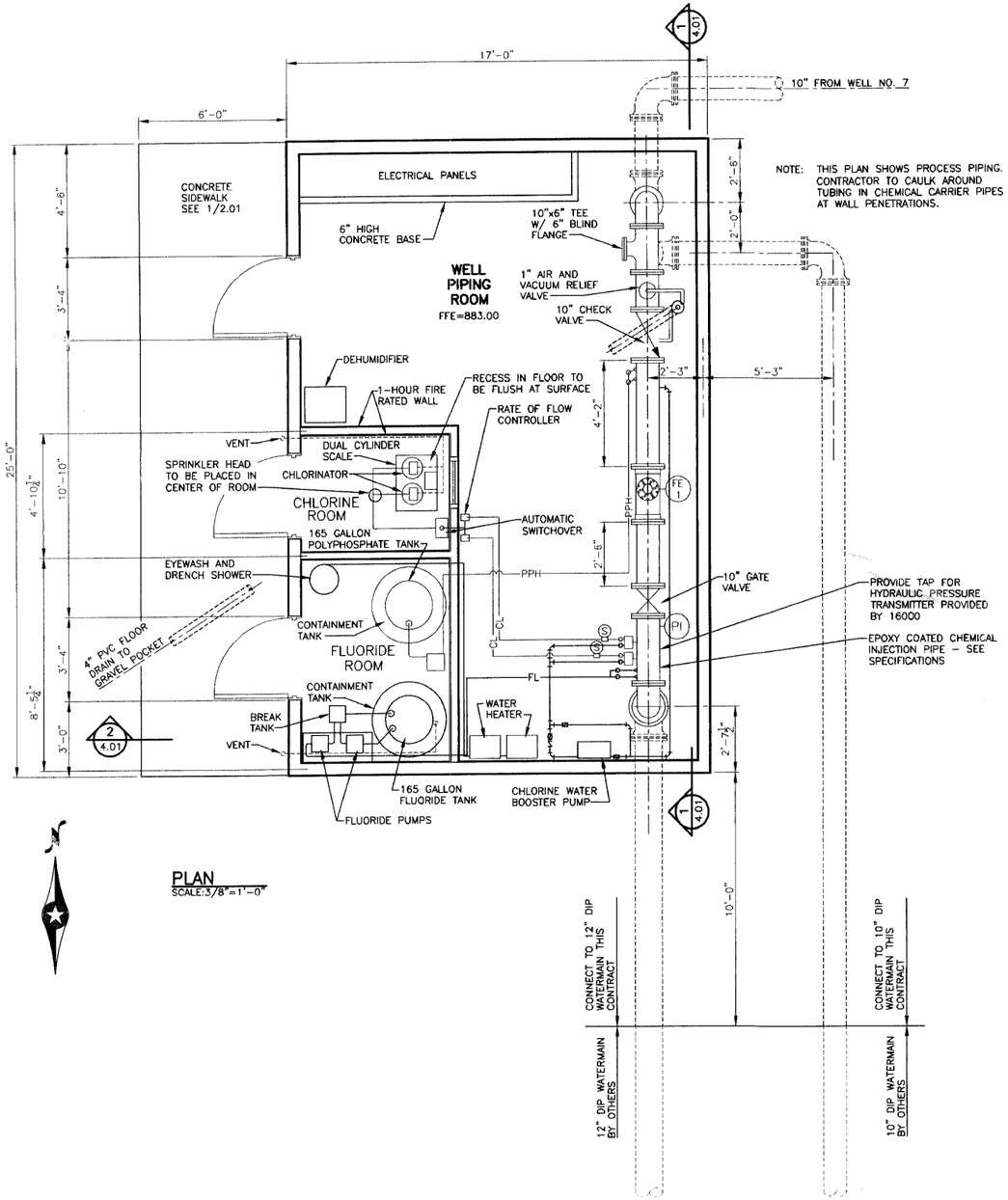

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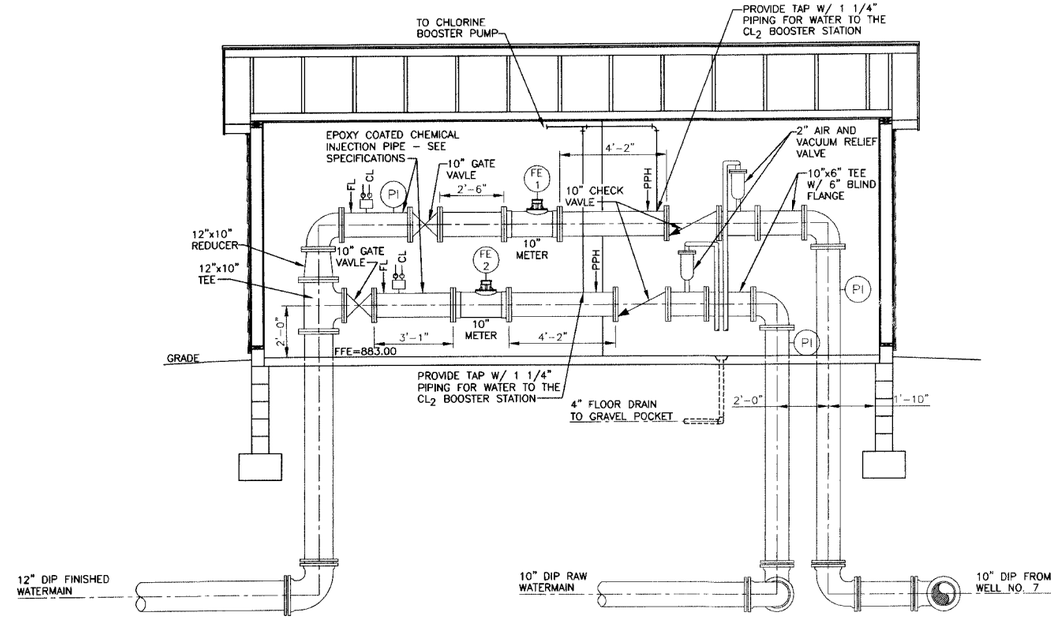

1/4.01 SECTION
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Graphic Scale for 3/8"=1'-0"

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SIGNATURE: Jon D. Pk — TYPED OR PRINTED NAME: Jon D. Peterson

DATE: 5-21-07 — LIC. NO. 21309

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0	WRH	5-21-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
PLAN AND SECTION

SHEET 4.01

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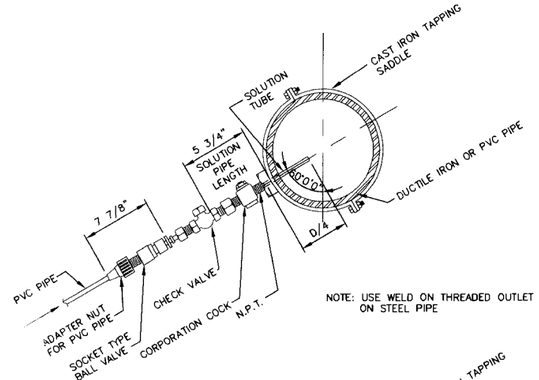

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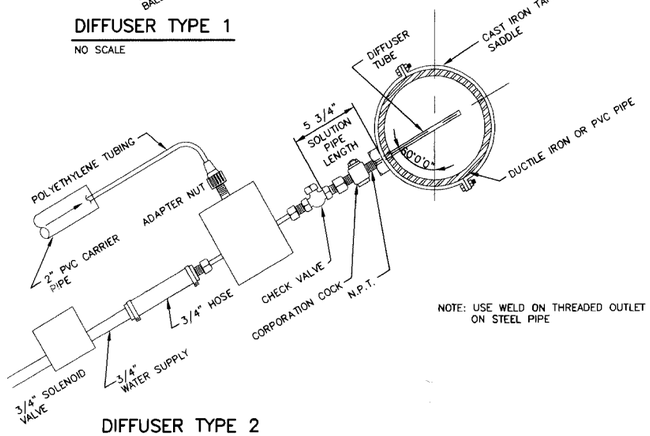

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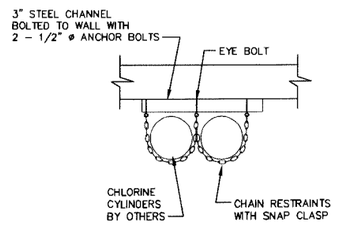

CHLORINE CYLINDER STORAGE RACK

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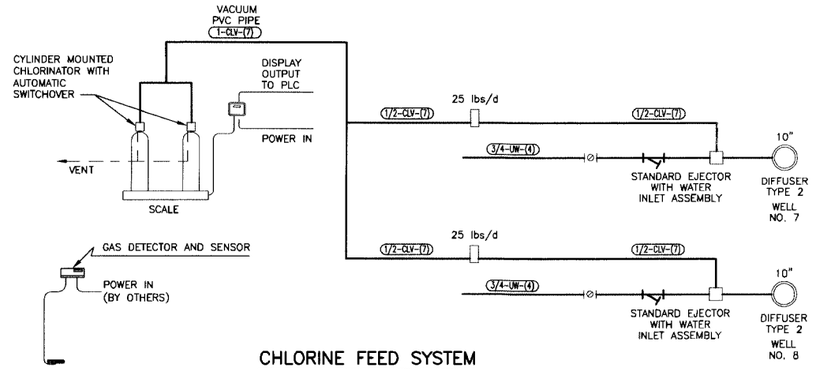
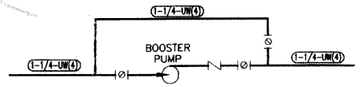


CHLORINE FEED SYSTEM

NO SCALE



CHLORINE BOOSTER SCHEMATIC

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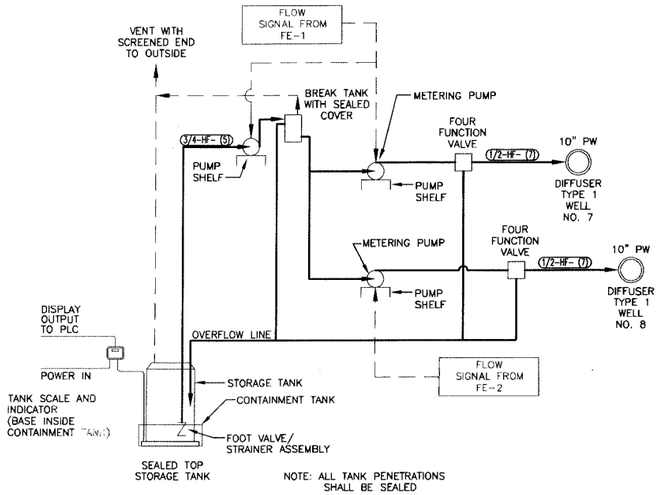
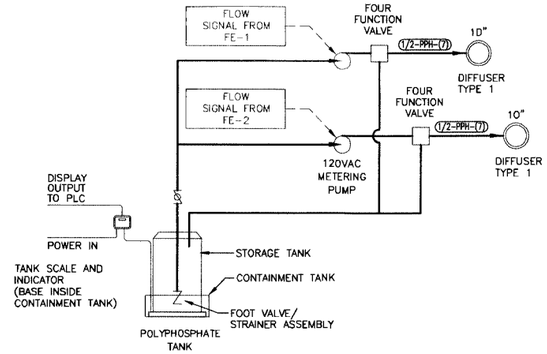


FLUORIDE FEED SYSTEM

NO SCALE



DUAL FEED POLYPHOSPHATE FEED SYSTEM

NO SCALE

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SIGNATURE: Jon D. Peterson — TYPED OR PRINTED NAME: Jon D. Peterson

DATE: 5-21-07 — LIC. NO. 21309

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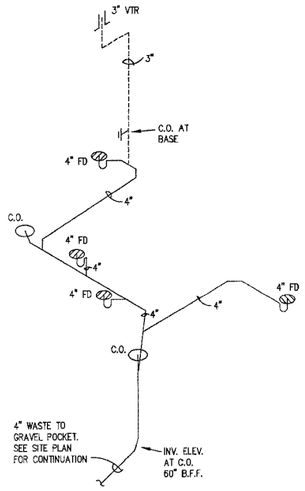
REV.	BY	DATE
A	WRH	11-3-06
0	WRH	5-21-07

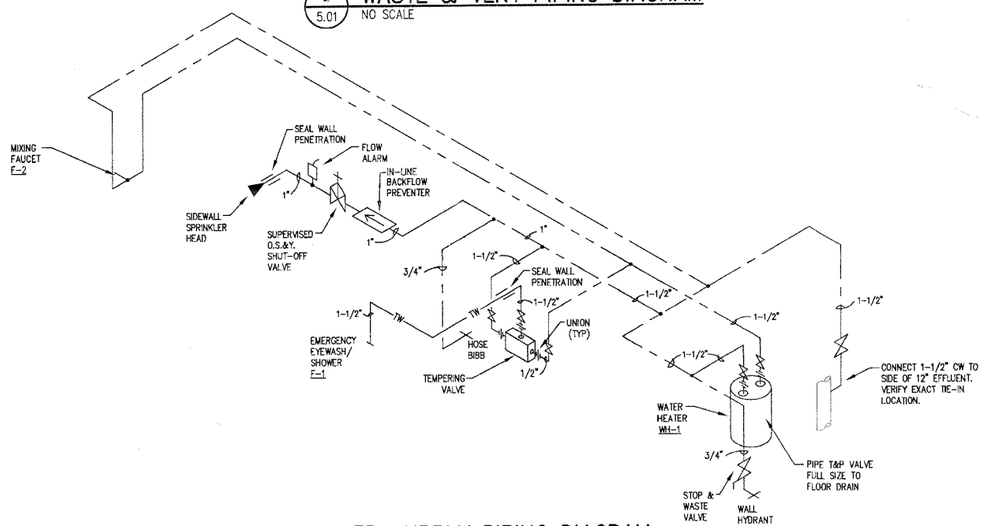
RAMSEY, MINNESOTA
WELL HOUSE NO. 4
CHEMICAL DETAILS

SHEET 4.02

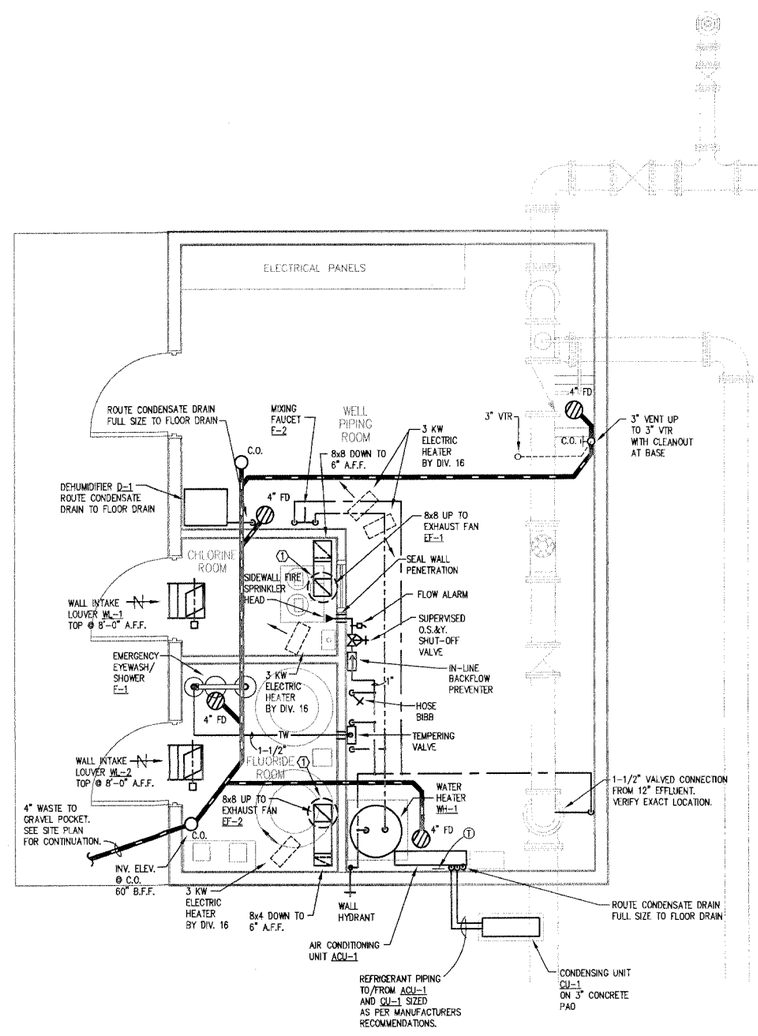
J:\RAMSEY\M2137017\WELLHOUSE\37017402.dwg 6/14/2007



2 / 5.01 **WASTE & VENT PIPING DIAGRAM**
NO SCALE



3 / 5.01 **WATER SUPPLY PIPING DIAGRAM**
NO SCALE



North

1 / 5.01 **MECHANICAL PLAN**
SCALE: 3/8" = 1'-0"

0 1 2 3 4 6 8
Graphic Scale

GENERAL NOTES

1 – HOLD ALL PIPING AS HIGH AS POSSIBLE UNDER CEILING SYSTEM.

2 – HOSE BIBB TO BE MOUNTED AT 36" A.F.F. AND WALL HYDRANT AT 24" ABOVE FINAL GRADE.

3 – SEAL ALL PIPE PENETRATIONS INTO CHEMICAL ROOMS.

4 – MAINTAIN REQUIRED CLEARANCES IN FRONT OF AND DIRECTLY OVER ELECTRICAL PANELS AND EQUIPMENT.

5 – MOUNT WATER HEATER ON 3" HIGH CONCRETE HOUSEKEEPING PAD.

NUMBERED NOTES

(1) 8x8 DUCT THRU CEILING SYSTEM INTO ATTIC SPACE. INSULATE ALL DUCTWORK IN ATTIC SPACE. PROVIDE STAINLESS STEEL FLASHING ESCUTCHEON ON DUCT AT CEILING PENETRATION OF FLUORIDE ROOM. PROVIDE FIRE DAMPER AT CEILING PENETRATION OF CHLORINE ROOM. PROVIDE DUCT ACCESS PANEL ON ROOM SIDE OF FIRE DAMPER.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNATURE _____ TYPED OR PRINTED NAME: Thomas A. Wentz

DATE 7 MAY 07 LIC. NO. 18609

BOLTON & MENK, INC
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN BURNSVILLE, MN SLEEPY EYE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
0	TAW	5-7-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
MECHANICAL PLAN

SHEET 5.01

EXHAUST FANS

FAN NO.	LOCATION	SERVICE	MODEL NO. *	FAN TYPE	CAPACITY CFM	S.P. "W.G.	ROOF OPENING " SQ.	TIP SPEED FPM	EST. FAN RPM	SONES	DRIVE	MOTOR TYPE	MOTOR H.P.	MOTOR R.P.M.	MOTOR ELECTRICAL CHARACTERISTICS	ACCESSORIES	REMARKS	INTER-LOCK WITH
EF-1	ROOF	CHLORINE RM	G-075-D	PRV	300	0.25	10-1/2	3274	1539	4.8	DIRECT	ODP	1/25	1539	115/60/1	PITCHED ROOF CURB, EXTENDED BASE W/ SIDE ACCESS, MOTORIZED DAMPERS, UNIT MTD. SPEED CONTROLLER		WL-1, LIGHTS
EF-2	ROOF	FLUORIDE RM	G-065-D	PRV	100	0.25	10-1/2	2848	1339	2.8	DIRECT	ODP	1/30	1365	115/60/1	PITCHED ROOF CURB, EXTENDED BASE W/ SIDE ACCESS, MOTORIZED DAMPERS, UNIT MTD. SPEED CONTROLLER		WL-2, LIGHTS

* BASED ON: GREENHECK

DEHUMIDIFERS

UNIT NO.	LOCATION	SERVICE	MODEL NO. *	PROCESS AIR CFM	PROCESS AIR MOISTURE REMOVAL LB./DAY	INLET AIR T. DB	INLET AIR REL HUM. %	ELECTRICAL CHARACTERISTICS	REMARKS
D-1	WELL PIPING ROOM	WELL PIPING ROOM	HI-E DRY 100	255	70	70	50	115/60/1	
D-2	EXTRA UNIT	EXTRA UNIT	HI-E DRY 100	255	70	70	50	115/60/1	PROVIDE TO OWNER

* BASED ON: THERMA-STOR

ELECTRIC WATER HEATERS

WATER HEATER NO.	LOCATION	SERVICE	MODEL NO. *	STORAGE CAPACITY GALLONS	ELECTRIC UPPER ELEM. KW	ELECTRIC LOWER ELEM. KW	ELECTRIC ELEMENT OPERATION	CAPACITY GPH	TEMP. RISE °F.	WORKING PRESSURE P.S.I.	ELECTRICAL CHARACTERISTICS	REMARKS
WH-1	WELL PIPING RM	DOMESTIC HW	DEN-80	80	5	5	NON-SIMULT	26	80	150	480/60/1	CONCRETE PAD, T&P VALVE

* BASED ON: A.O. SMITH

WALL LOUVERS

LOUVER NO.	LOCATION	TYPE	SERVING	WIDTH INCHES	HEIGHT INCHES	DEPTH INCHES	FRAME TYPE	BLADE TYPE	SQ. FT. FREE AREA	REMARKS
WL-1	W. WALL	INTAKE	CHLORINE ROOM	16	12	4	FLANGE	DRAINABLE	0.46	MOTORIZED DAMPERS
WL-2	W. WALL	INTAKE	FLUORIDE RM	16	12	4	FLANGE	DRAINABLE	0.46	MOTORIZED DAMPERS

* BASED ON: RUSKIN ELF375DX

AIR-COOLED CONDENSING UNITS

UNIT NO.	LOCATION	MODEL NO. *	CAPACITY TOTAL MBH	CAPACITY TONS	AMB. TEMP. °F.	SUCT. TEMP. °F.	MINIMUM CIRCUIT AMPACITY	ELECTRICAL CHARACTERISTICS	REMARKS
CU-1	S. GRADE	38BNC009	9.0	0.75	95	40	9.0	115/60/1	CONCRETE PAD, MATCH TO ACU-1

* BASED ON: CARRIER

DUCTLESS SPLIT AIR CONDITIONER

UNIT NO.	MODEL NO. *	TOTAL CAPACITY MBH	AIR VOLUME CFM	FAN SPEEDS	ELECTRICAL	AIR FILTER	CONTROLS	REMARKS
ACU-1	40BNC009	9.0	350	3	30VDC	CLEANABLE	REMOTE WALL MTD T-STAT	MATCH TO CU-1

* BASED ON: CARRIER

RAMSEY WELL HOUSE
MECHANICAL EQUIPMENT
SEQUENCE OF OPERATIONS

A. Chlorine Room Ventilation System:

Exhaust fan EF-1 and 120 volt N.C. motorized damper at wall louver WL-1:

Exhaust fan shall operate and normally closed motorized damper shall open when lights are switched on or door switch on room doors are opened as indicated on the electrical plans.

Damper actuators shall be furnished and installed by Division 15.

All interlocks, control wiring to be furnished and installed by the Division 16. All power wiring to be by Division 16.

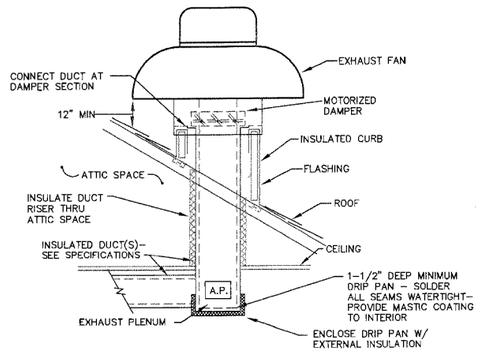
B. Fluoride Room Ventilation System:

Exhaust fan EF-2 and 120 volt N.C. motorized damper at wall louver WL-2:

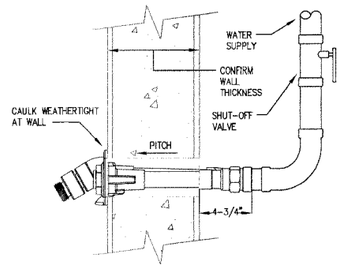
Exhaust fan shall operate and normally closed motorized damper shall open when lights are switched on.

Damper actuators shall be furnished and installed by Division 15.

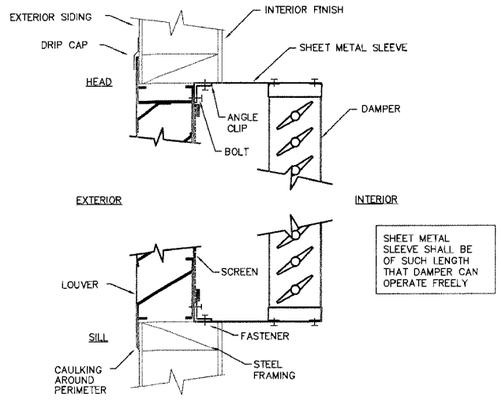
All interlocks, control wiring to be furnished and installed by the Division 16. All power wiring to be by Division 16.



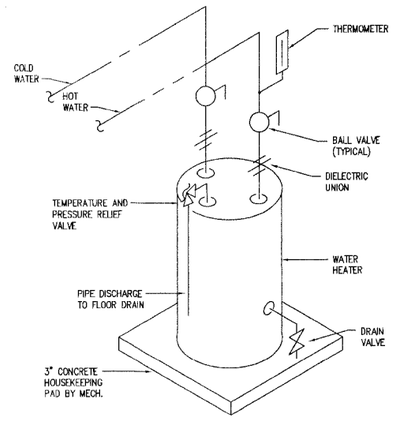
1 / 5.02 ROOF MOUNTED EXHAUST FAN
NO SCALE



2 / 5.02 WALL HYDRANT DETAIL
NO SCALE



3 / 5.02 LOUVER INSTALLATION
NO SCALE



4 / 5.02 TYPICAL WATER HEATER PIPING
NO SCALE

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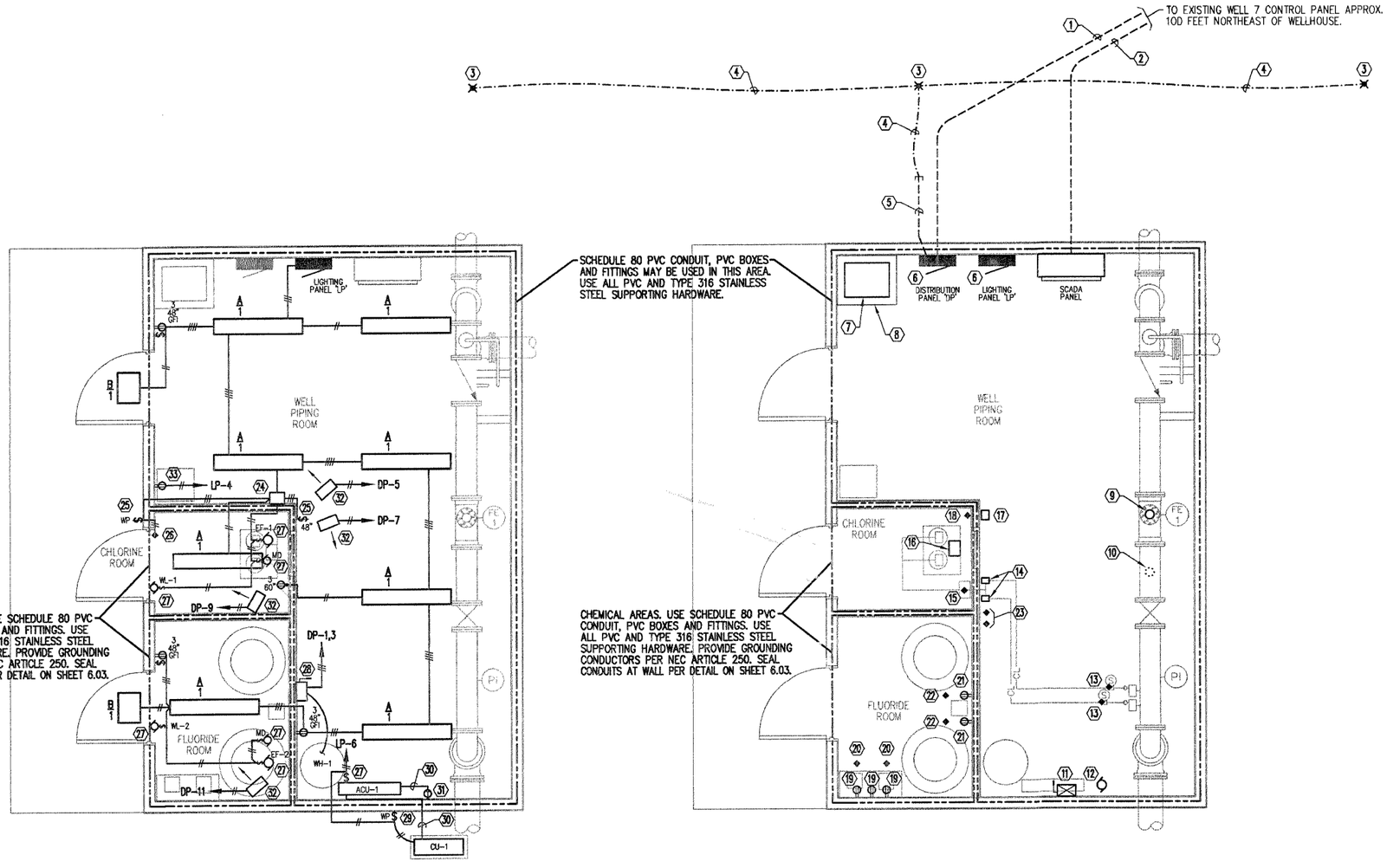
WILLMAR, MN CHASKA, MN RAMSEY, MN AMES, IA

REV.	BY	DATE
0	TAW	5-7-07

RAMSEY, MINNESOTA
WELL HOUSE NO. 4
MECHANICAL DETAILS AND EQUIPMENT SCHEDULES

SHEET 5.02



GENERAL NOTES

1. FIELD CONFIRM ALL CONDUIT ROUTING.
2. DO NOT ROUTE CONDUITS EXPOSED ON BUILDING EXTERIOR.
3. DO NOT ROUTE CONDUITS ACROSS WALKWAYS.
4. NOT ALL CIRCUITRY IS SHOWN ON PLAN. SEE ONE-LINES AND SCHEMATICS FOR ADDITIONAL CIRCUITRY REQUIREMENTS.

NUMBERED NOTES

(1) 4-1/C-#3 & 1-1/C-#3 GROUND-2" SCHEDULE 80 PVC. AT EXISTING WELL 7 CONTROL PANEL, ROUTE CONDUCTORS THRU EXISTING 2" CONDUIT STUBBED UNDER CONCRETE PAD. COORDINATE WITH SEPARATE CONTRACTOR.

(2) 2" SCHEDULE 80 PVC WITH FIBER OPTIC CABLE OR SIGNAL CABLE AS FURNISHED BY SCADA EQUIPMENT SUPPLIER. AT EXISTING WELL 7 CONTROL PANEL, ROUTE CABLE THRU EXISTING 2" CONDUIT STUBBED UNDER CONCRETE PAD. COORDINATE W/ SEPARATE CONTRACTOR.

(3) 3/4" X 10' COPPER-CLAD GROUND ROD WITH EXOTHERMIC WELD(S) TO CONDUCTOR(S) SHOWN. SET TOP 12" DEEP.

(4) #1/0 BARE STRANDED COPPER GROUND CONDUCTOR, 12" DEEP.

(5) STUB 1.5" SCHEDULE 80 PVC CONDUIT.

(6) PANELBOARD. SEE ONE-LINE DIAGRAM AND SCHEDULES ON SHEET 6.03.

(7) 'LP' TRANSFORMER. SEE ONE-LINE DIAGRAM ON SHEET 6.03.

(8) CONSTRUCT 2" HIGH CONCRETE PAD WITH 3/4" CHAMFERED EDGE.

(9) WELL NO. 7 FLOWMETER FE1.

(10) WELL NO. 8 FLOWMETER FE2.

(11) CHLORINE BOOSTER PUMP STARTER. SEE SCHEMATIC ON SHEET 6.03.

(12) CHLORINE BOOSTER PUMP.

(13) WELLS NO. 7 AND NO. 8 CHLORINE SOLENOID VALVES.

(14) WELLS NO. 7 AND NO. 8 CHLORINE RATE CONTROL VALVES.

(15) CHLORINE SWITCHOVER UNIT.

(16) CHLORINE SCALE.

(17) CHLORINE LEAK DETECTOR.

(18) CHLORINE SENSOR. CONFIRM HEIGHT AND LOCATION W/ SUPPLIER.

(19) RECEPTACLES FOR FLUORIDE BREAK TANK PUMP, WELL NO. 7 FEED PUMP AND WELL NO. 8 FEED PUMP. CONFIRM MOUNTING HEIGHTS & LOCATIONS WITH SUPPLIER. LABEL EACH RECEPTACLE WITH PUMP NAME. LABEL BOSSES "CONTROLLED" AND "HOT" PER SCHEMATICS.

(20) WELLS NO. 7 AND NO. 8 FLUORIDE PUMP CONTROLLERS.

(21) RECEPTACLES FOR WELLS NO. 7 AND NO. 8 POLYPHOSPHATE FEED PUMPS. CONFIRM MOUNTING HEIGHTS AND LOCATIONS WITH SUPPLIER. LABEL EACH RECEPTACLE WITH PUMP NAME. LABEL BOSSES "CONTROLLED" AND "HOT" PER SCHEMATICS.

(22) WELLS NO. 7 AND NO. 8 POLYPHOSPHATE PUMP CONTROLLERS.

(23) SPRINKLER TAMPER AND FLOW SWITCHES.

(24) CHLORINE ROOM LIGHTS/VENTILATION RELAY ENCLOSURE. SEE SCHEMATIC ON SHEET 6.02.

(25) MOMENTARY CONTACT SWITCH. SEE SCHEMATIC ON SHEET 6.02.

(26) DOOR LIMIT SWITCH. SEE SCHEMATIC ON SHEET 6.02.

(27) 120VAC, SINGLE-PHASE MECHANICAL EQUIPMENT (DIV. 15) AS INDICATED BY TAG. FURNISH AND INSTALL SINGLE-POLE DISCONNECT SWITCH.

(28) 5.0KW, 480VAC, SINGLE-PHASE WATER HEATER (DIV. 15). FURNISH AND INSTALL 30A, 2P, 480V, NEMA 12, NON-FUSED, HEAVY-DUTY DISCONNECT SWITCH.

(29) 120VAC, SINGLE-PHASE MECHANICAL EQUIPMENT (DIV. 15) AS INDICATED BY TAG. FURNISH AND INSTALL WEATHERPROOF, PADLOCKABLE, SINGLE-POLE DISCONNECT SWITCH.

(30) 3/4" CONDUIT BETWEEN MECHANICAL UNITS. FURNISH AND INSTALL SIGNAL AND CONTROL CABLES PER MANUFACTURER REQUIREMENTS.

(31) THERMOSTAT (DIV. 15). MOUNT AT 54".

(32) 3.0KW, 277VAC, SINGLE-PHASE UNIT HEATER. BERKO "HUHAA" SERIES, OR EQUAL, WITH INTEGRAL THERMOSTAT, INTEGRAL DISCONNECT SWITCH AND MFR'S WALL-MOUNT BRACKET. MOUNT BOTTOM AT 7'0".

(33) DEDICATED OUTLET FOR DEHUMIDIFIER D-1. CORDINATE MOUNTING HEIGHT W/ SUPPLIER.

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SIGNATURE: Sheldon Sorensen SIGNED OR PRINTED NAME: Sheldon J. Sorensen

DATE: 07 MAY 07 LIC. NO. 18925

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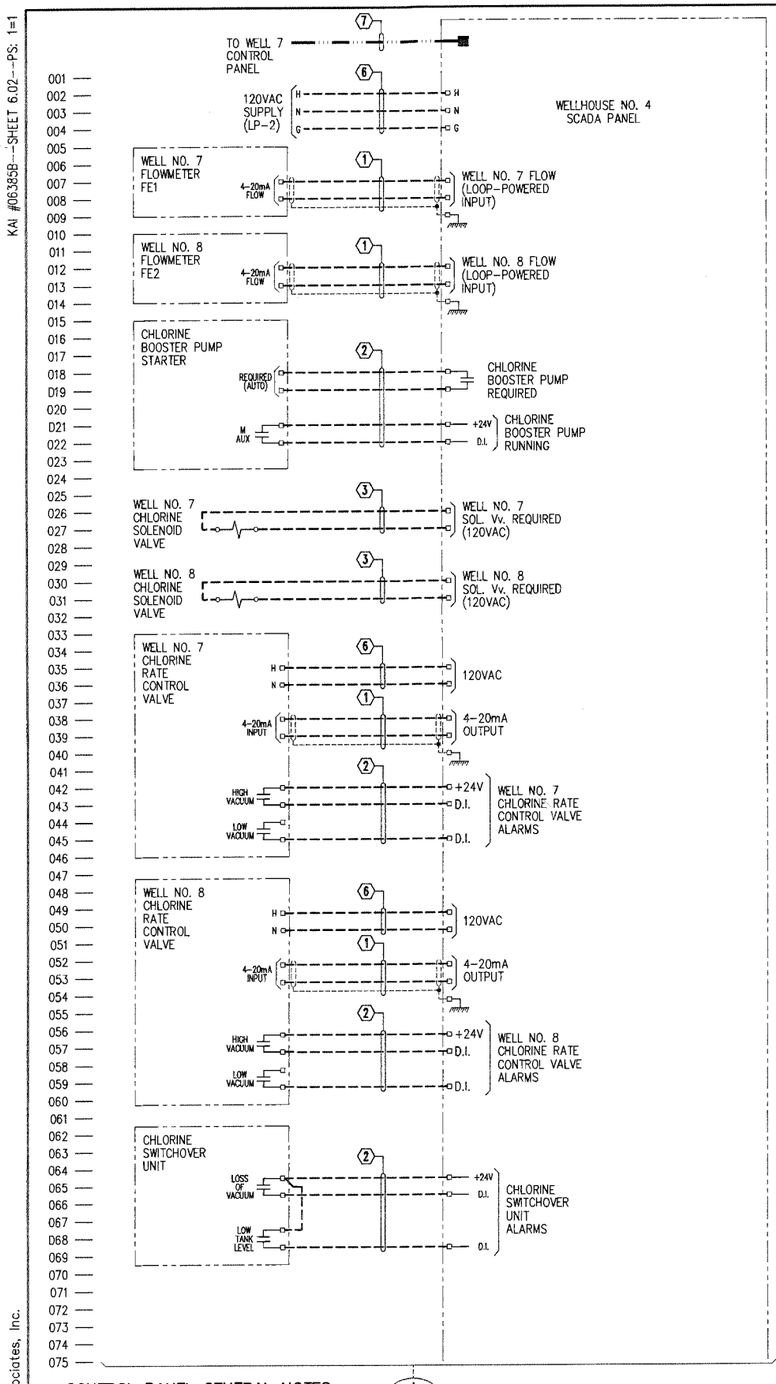
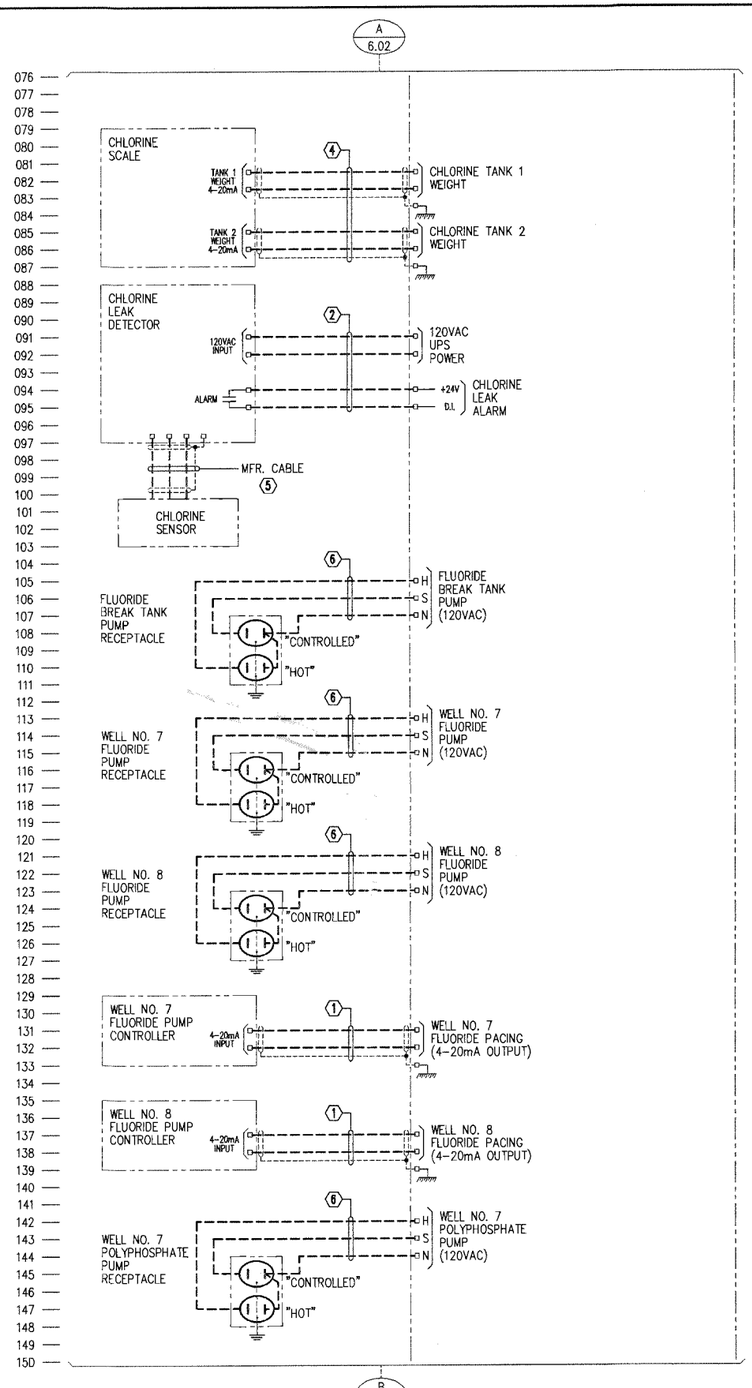
REV.	BY	DATE
A	SJS	11-03-06
0	SJS	05-07-07

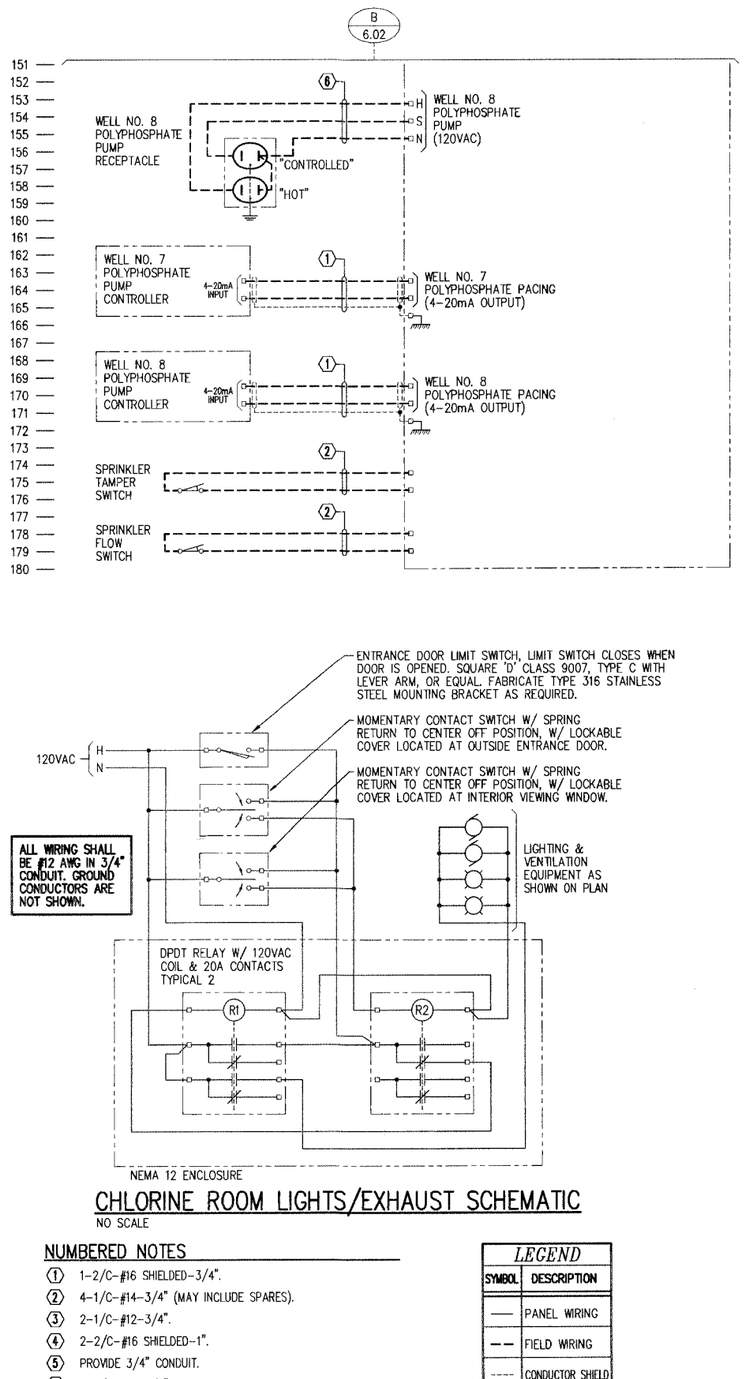
RAMSEY, MINNESOTA
WELL HOUSE NO. 4
ELECTRICAL PLANS

SHEET 6.01

KAI #06385B--SHEET 6.02--PS: 1=1







CHLORINE ROOM LIGHTS/EXHAUST SCHEMATIC

NO SCALE

CONTROL PANEL GENERAL NOTES

1. CONFIRM WIRING REQUIREMENTS WITH EQUIPMENT MANUFACTURERS.
2. CONTRACTOR MAY COMBINE CIRCUITS OF LIKE KIND IN COMMON CONDUITS IN ACCORDANCE WITH N.E.C. REQUIREMENTS. MAINTAIN 30% MAXIMUM CONDUIT FILL.
3. GROUND CONDUCTORS ARE NOT SHOWN. FURNISH & INSTALL GROUND CONDUCTORS PER N.E.C. REQUIREMENTS.

NUMBERED NOTES

1. 1-2/C-#16 SHIELDED-3/4".
2. 4-1/C-#14-3/4" (MAY INCLUDE SPARES).
3. 2-1/C-#12-3/4".
4. 2-2/C-#16 SHIELDED-1".
5. PROVIDE 3/4" CONDUIT.
6. 3-1/C-#12-3/4".
7. 2" SCHEDULE 80 PVC CONDUIT W/ FIBER OPTIC CABLE OR SIGNAL CABLE AS FURNISHED BY SCADA EQUIPMENT SUPPLIER.

LEGEND	
SYMBOL	DESCRIPTION
——	PANEL WIRING
– –	FIELD WIRING
----	CONDUCTOR SHIELD
---	EXISTING CIRCUITRY

CONTROL SCHEMATIC

NO SCALE

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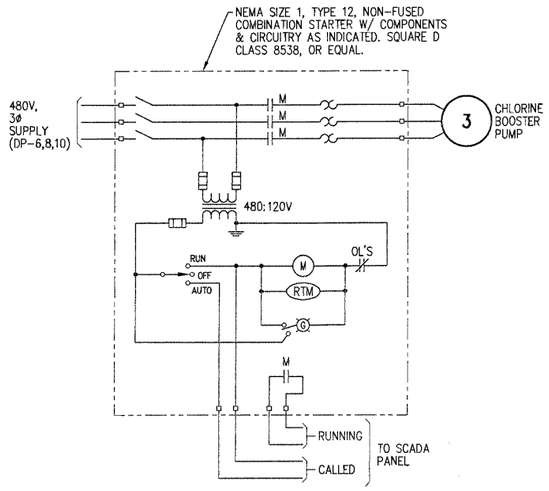
REV.	BY	DATE
A	SJS	11-03-06
0	SJS	05-07-07

RAMSEY, MINNESOTA

WELL HOUSE NO. 4

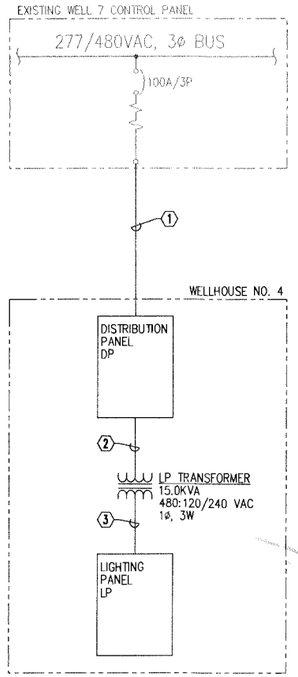
CONTROL SCHEMATIC

SHEET 6.02



CHLORINE BOOSTER PUMP SCHEMATIC

NO SCALE

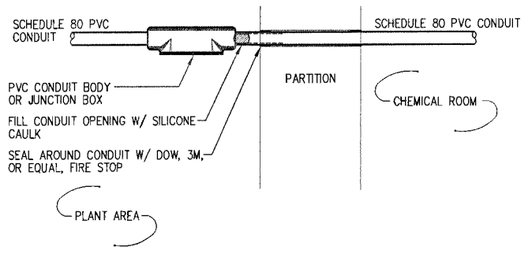


ONE-LINE DIAGRAM

NO SCALE

NUMBERED NOTES

1. 4-1/C-#3 & 1-1/C-#3 GROUND-2" SCHEDULE 80 PVC.
2. 2-1/C-#6 & 1-1/C-#6 GROUND-1" SCHEDULE 80 PVC.
3. 3-1/C-#3 & 1-1/C-#6 GROUND-2" SCHEDULE 80 PVC.



CHEMICAL ROOM CONDUIT PENETRATION DETAIL

NO SCALE

TYPICAL

DISTRIBUTION PANEL DP

MOUNTING	LOCATION	BUS				REMARKS
SURFACE	WELLHOUSE NO. 4	AMPS	VOLTS	PHASE	WIRE	1. 100A/3P MAIN CIRCUIT BREAKER 2. ISOLATED GROUND BUS
		100	277/480	3	4	

CIRCUIT DESCRIPTION	BKR	CKT	ANTICIPATED LOAD IN VA	PHASE A	PHASE B	PHASE C	ANTICIPATED LOAD IN VA	CKT	BKR	CIRCUIT DESCRIPTION
WATER HEATER WH-1	15A	1	2500	■			2500	2	40A	LIGHTING PANEL LP TRANSFORMER
"	2P	3	2500		■		2500	4	2P	" " " "
PIPING ROOM N. UNIT HEATER	20A1P	5	3000			■	1200	6	15A	CHLORINE BOOSTER PUMP
PIPING ROOM S. UNIT HEATER	20A1P	7	3000	■			1200	8		" " "
CHLORINE ROOM UNIT HEATER	20A1P	9	3000		■		1200	10	3P	" " "
FLUORIDE ROOM UNIT HEATER	20A1P	11	3000			■	-----	12	-----	SPACE
SPACE	-----	13	-----	■			-----	14	-----	SPACE
SPACE	-----	15	-----		■		-----	16	-----	SPACE
SPACE	-----	17	-----			■	-----	18	-----	SPACE
SPACE	-----	19	-----	■			-----	20	-----	SPACE
SPACE	-----	21	-----		■		-----	22	-----	SPACE
SPACE	-----	23	-----			■	-----	24	-----	SPACE

LIGHTING PANEL LP

MOUNTING	LOCATION	BUS				REMARKS
SURFACE	WELLHOUSE NO. 4	AMPS	VOLTS	PHASE	WIRE	1. 100A/2P MAIN CIRCUIT BREAKER 2. ISOLATED GROUND BUS
		100	120/240	1	3	

CIRCUIT DESCRIPTION	BKR	CKT	ANTICIPATED LOAD IN VA	PHASE A	PHASE B	ANTICIPATED LOAD IN VA	CKT	BKR	CIRCUIT DESCRIPTION
LIGHTS	20A1P	1	775	■		600	2	20A1P	SCADA PANEL
OUTLETS	20A1P	3	800		■	1200	4	20A1P	DEHUMIDIFIER OUTLET
SPARE	20A1P	5	-----	■		1200	6	20A1P	PIPING ROOM AIR CONDITIONER, CU-1
SPARE	20A1P	7	-----		■	-----	8	-----	SPACE
SPARE	20A1P	9	-----	■		-----	10	-----	SPACE
SPARE	20A1P	11	-----		■	-----	12	-----	SPACE
SPARE	20A1P	13	-----	■		-----	14	-----	SPACE
SPARE	20A1P	15	-----		■	-----	16	-----	SPACE
SPARE	20A1P	17	-----	■		-----	18	-----	SPACE
SPARE	20A1P	19	-----		■	-----	20	-----	SPACE
SPARE	20A1P	21	-----	■		-----	22	-----	SPACE
SPARE	20A1P	23	-----		■	-----	24	-----	SPACE
SPACE	-----	25	-----	■		-----	26	-----	SPACE
SPACE	-----	27	-----		■	-----	28	-----	SPACE
SPACE	-----	29	-----	■		-----	30	-----	SPACE

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	VOLTS	REMARKS
A	VAPOR-TIGHT FLUORESCENT	COLUMBIA	FNPS4-232-PP-EB8(H-2HS-SSTP-PTBS	2-32W-T8-3500K	120	1,2
B	HPS EXTERIOR WALL PACK	HUBBELL	LMC-70S-8-2-PC(120)-LP	1-70W-HPS-CLEAR	120	3

1. SOLID STATE, RAPID START, ELECTRONIC BALLAST(S) RATED FOR MAXIMUM 10% THD.
2. MOUNT FIXTURE TO CEILING.
3. WALL MOUNT 10'-0" ABOVE FINISHED GRADE.

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REV.	BY	DATE
A	SJS	11-03-06
0	SJS	05-07-07

RAMSEY, MINNESOTA

WELL HOUSE NO. 4

ONE-LINE DIAGRAM, SCHEDULES AND DETAILS

SHEET 6.03

Approval Data/Drawings

Pump House No. 3

Ramsey, MN

Engineer	**Bolton & Menk, Inc.** **1960 Premiere Drive** **Mankato, MN 56001** **(507) 625-4171**
General Contractor	**Magney Construction, Inc.** **19425 Highway 7** **P.O. Box 249** **Excelsior, MN 55331** **(952) 474-1674**
Electrical Contractor	**Marko Electric** **7843 18th St. N.** **Oakdale, MN 55128** **(952) 887-4538**
Owner	**Ramsey, City of** **1513 Nowthen Blvd. N.W.** **Ramsey, MN 55303**
Electrical Engineer:	**Dolejs Associates, Inc.** **1624 Riverfront Drive** **Mankato, MN 56001** **(507) 625-7869**
Supplier	**Automatic Systems Company** **2400 West County Road D** **Roseville, MN 55113** **(651) 631-9005**

SHOP DRAWING TRANSMITTAL
APPROVED ☐ APPROVED AS NOTED ☐ REVISE AND RE-SUBMIT
This document has been reviewed by Magney Construction, Inc. Any action shown is subject to the requirements of the plans and specifications. Subcontractor/ supplier is responsible for all dimensions.
BY: _____ DATE: 12/10/01 TRANS. #_____

BOLTON & MENK, INC. CONSULTING ENGINEERS
A NO EXCEPTIONS TAKEN ☐ C AMEND -RESUBMIT
B MAKE CORRECTIONS NOTED ☒ D REJECTED-RESUBMIT
REVIEWED BY: TDP DATE 12-12-01
CORRECTIONS OR COMMENTS MADE ON CONTRACTORS SHOP DRAWING DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS. THIS SHOP DRAWING HAS BEEN REVIEWED FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS. ONLY CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FABRICATION PROCESSES AND TECHNIQUES, COORDINATING WORK WITH OTHER TRADES AND SATISFACTION AND SAFE PERFORMANCE OF THE WORK.

Table of Contents

Pump House No. 3

Ramsey, MN

11 Light Fixtures
(Hubbell, Lithonia Lighting and Stonco)

CONTROL DESCRIPTION

Job Name: Well House No. 3
Ramsey, Minnesota

A.S.C. ORDER NUMBER: ASC20011028

DATE: November 7, 2001

UNIT DESCRIPTION:
Adjustable Frequency Drive
Potassium Permanganate Mixer Panel

UNIT LOCATION:
Well House 3
Well House 3

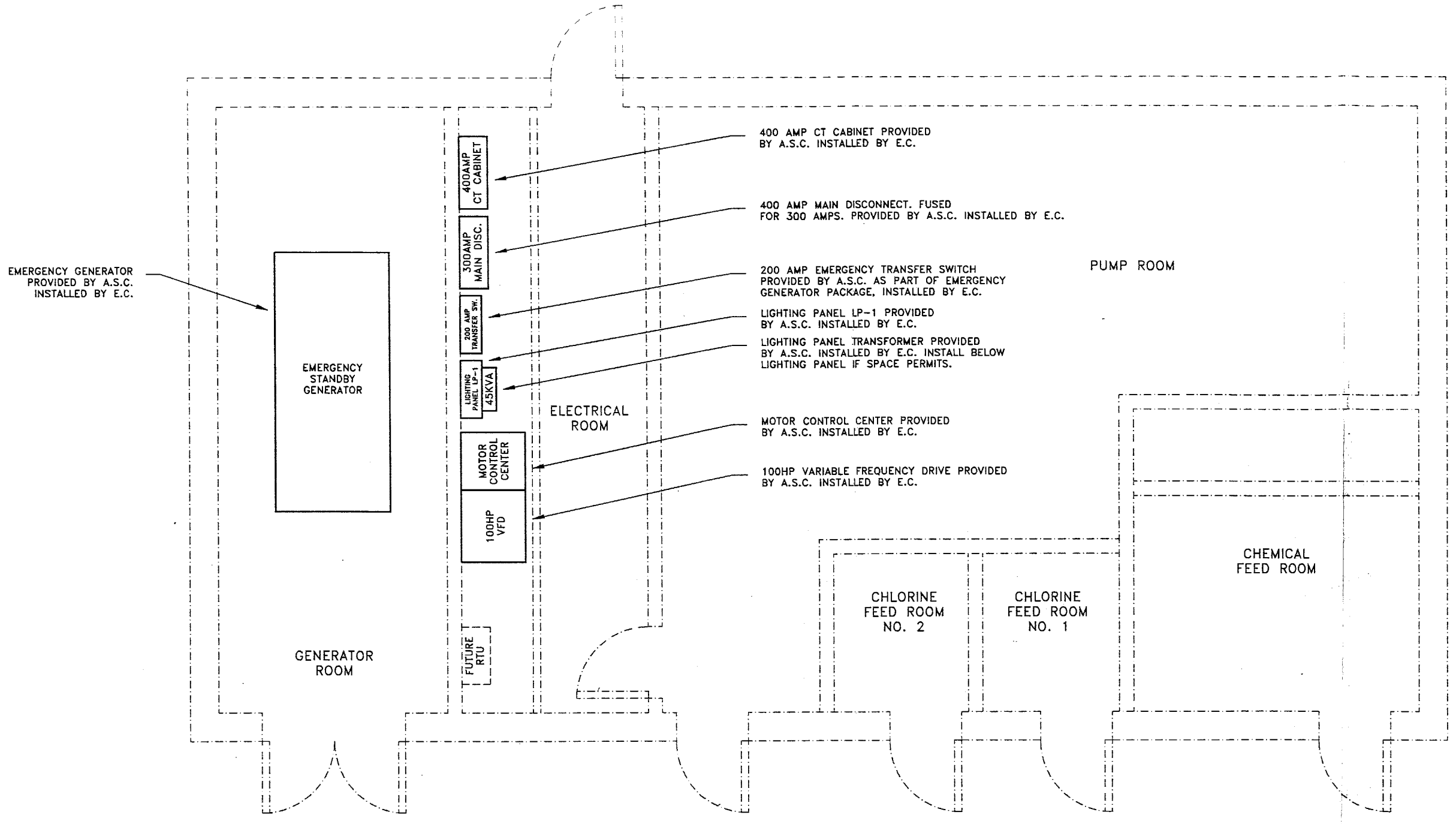
System operation:
An Adjustable Frequency Drive (AFD) is provided for ~~Well No. 1. The AFD will~~ vary the speed of Well No. 1 based on set points from the customer supplied/future RTU. The RTU will monitor speed, running and fault conditions.

A chlorine booster pump motor starter is interlocked with the customer's provided/future RTU to operate whenever a well pump operation is confirmed.

The Potassium Permanganate Mixer Panel will control the KmnO4 mixer with an operator adjustable timer.

Refer to the manufacturers literature for a more detailed description ~~of operation~~ on the individual components used.

Future RTU to be supplied by ASC as per Change Order #1. RTU submittal will show tie in for chemical feed pumps and Chorine booster pumps.



N T S

NOTES:

1. **BUILDING INTERIOR SHOWN FOR REFERENCE PURPOSES ONLY.** CONSULT ENGINEERING DRAWINGS FOR EXACT LOCATION OF EQUIPMENT.
2. EQUIPMENT PROVIDED BY A.S.C. SHOWN IN APPROXIMATE LOCATIONS. CONSULT ENGINEERING DRAWINGS FOR EXACT MOUNTING LOCATION. EQUIPMENT MOUNTED AND WIRED BY A.S.C. ELECTRICAL CONTRACTOR.

WELLHOUSE NO. 3 OVERVIEW

**** ATTENTION ****
SUBMITTAL DRAWINGS
DO NOT USE FOR INSTALLATION
PLEASE CALL FOR AS-BUILTS

SYM	REVISION

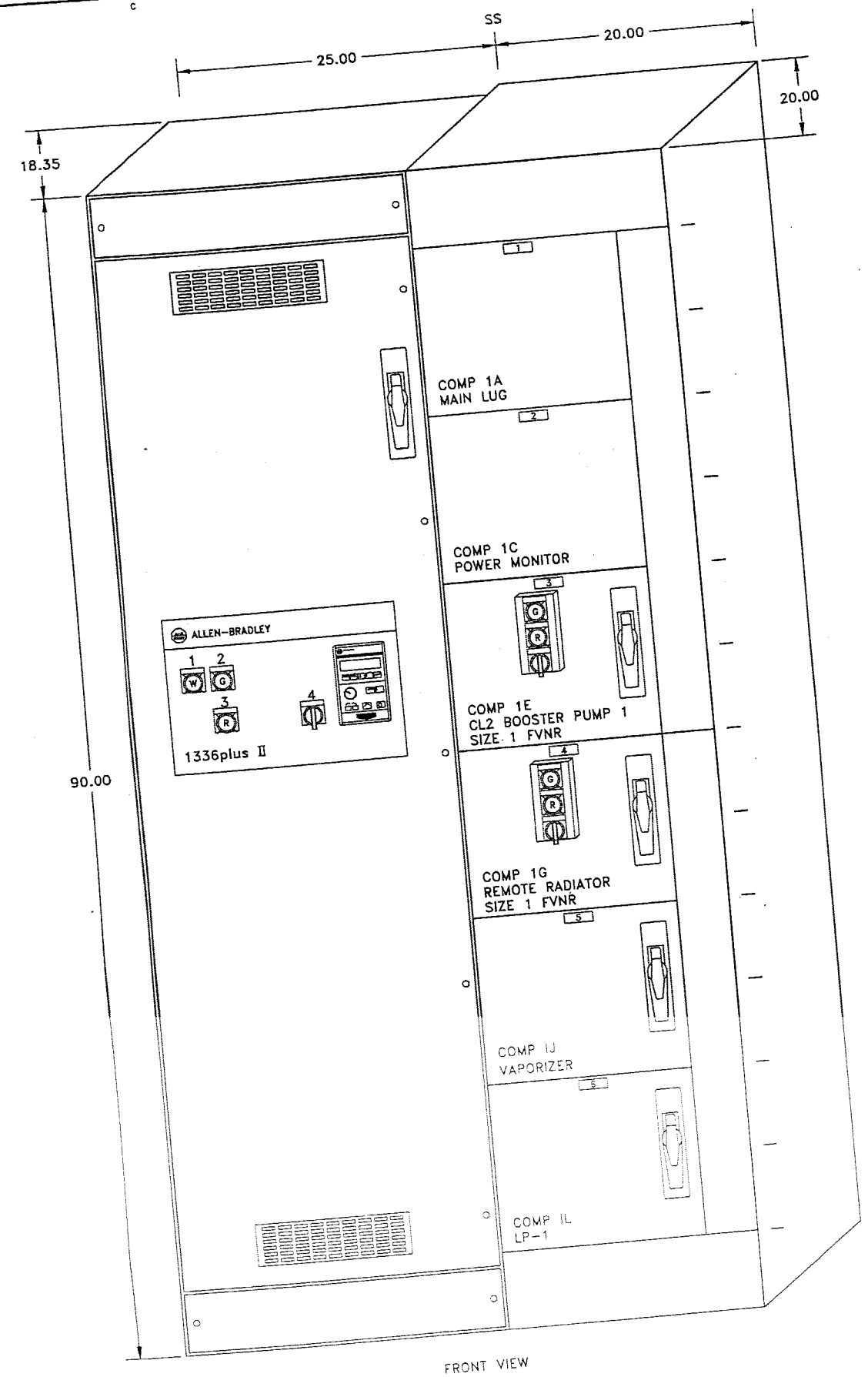
AUTOMATIC SYSTEMS CO.
P.O. BOX 120359
ST. PAUL, MINN. 55112

TITLE OVERVIEW LAYOUT DIAGRAM

CUSTOMER CITY OF RAMSEY, MINNESOTA

DRAWN BMB | FILE RAM_OV_1 | DWG. NO. 20011028.1.1

SALES BAW | DATE 11/01/01



FRONT VIEW

VFD

N.P. NO.	NAMEPLATE DESIGNATIONS	QTY
1	POWER ON	1
2	RUN	1
3	FAULT	1
4	HAND-OFF-AUTO	1

MCC

N.P. NO.	NAMEPLATE DESIGNATIONS	QTY
1	MAIN LUGS	1
2	POWER MONITOR	1
3	REMOTE RADIATOR	1
4	CHLORINE BOOSTER PUMP NO. 1	1
5	VAPORIZER	1
6	LIGHTING PANEL LP-1	1

STANDARD NAMEPLATES

NOTES:
1. MOTOR CONTROL CENTER IS ALLEN BRADLEY, DIMENSIONS AS SHOWN. MCC IS NEMA 1, 480VAC, 3ø, 3 WIRE, 60HZ. VFD IS CUTLER HAMMER TYPE SV9000, NEMA 1, 480VAC, 3ø, 3 WIRE, 60HZ.
2. FINISH IS MANUFACTURERS STANDARD.
3. HORIZONTAL POWER BUS IS RATED AT 1200 AMPS.
4. BUS BRACING IS 42KA RMS SYMETRICAL.
5. DOOR DEVICES SHOWN IN APPROXIMATE LOCATIONS. CONSULT MANUFACTURERS DRAWINGS FOR FURTHER DETAIL.

PUMP HOUSE NO. 3 – MCC

**** ATTENTION ****
SUBMITTAL DRAWINGS
DO NOT USE FOR INSTALLATION
PLEASE CALL FOR AS-BUILTS

SYM	REVISION

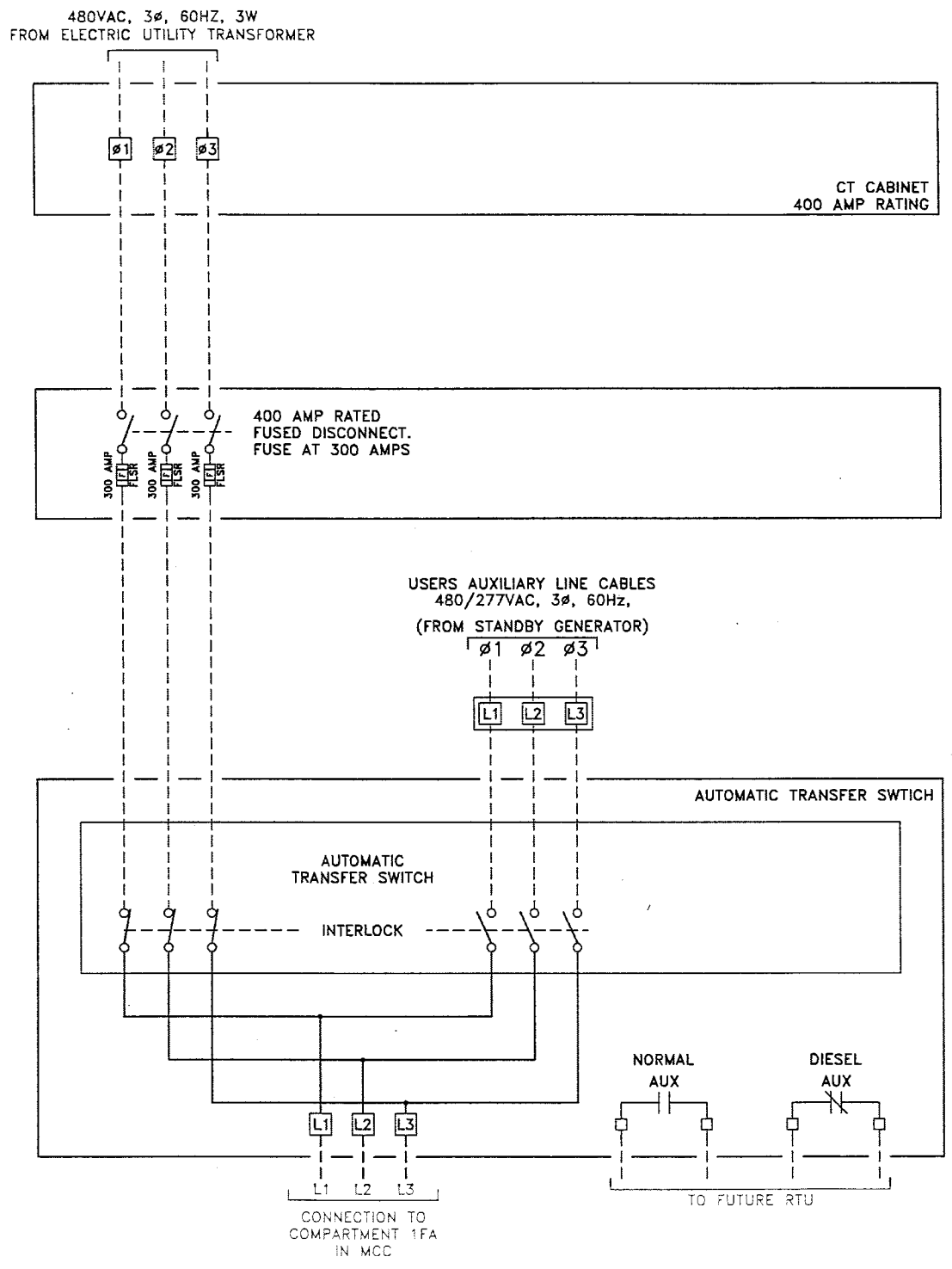
AUTOMATIC SYSTEMS CO.
P.O. BOX 120359
ST. PAUL, MINN. 55112

TITLE MCC ENCLOSURE LAYOUT

CUSTOMER CITY OF RAMSEY, MINNESOTA

DRAWN BMB | FILE RAM_M1_1 | DWG. NO. 20011028.2

SALES BAW | DATE 11/01/01



NOTES:

1. GENERAL NOTES PER DRAWING 20011028.2.1.

**** ATTENTION ****
SUBMITTAL DRAWINGS
DO NOT USE FOR INSTALLATION
PLEASE CALL FOR AS-BUILTS

PUMP HOUSE NO. 3 – MCC

SYM	REVISION		
		SALES BAW	DATE 11/01/01

AUTOMATIC SYSTEMS CO.
P.O. BOX 120359
ST. PAUL, MINN. 55112

TITLE CONTROL WIRING DIAGRAM

CUSTOMER CITY OF RAMSEY, MINNESOTA

DRAWN BMB | FILE RAM_XS_1 | DWG. NO. 20011028.2.2

480VAC, 3ø, 60HZ, 3 WIRE

L1 — 1200 AMP HORIZONTAL BUS — L1

L2 — 42,000 AMP BUS BRACING — L2

L3 — L3

480VAC, 3ø, 60HZ, 3W
FROM GENERATOR TRANSFER SWITCH

ø1 ø2 ø3

1A

TOP ENTRY MAIN LUG COMPARTMENT
400 AMP RATING
#2-600 Kcmil 4/Ph MECHANICAL LUGS, SCREW

TO WELL PUMP NO. 1
VFD ENCLOSURE

TO BUS

TO BUS
L1 L2 L3

POWER MONITOR

1FU 2FU 3FU (1FT)

5FU (1FT) H1 X1 FU (1FT)

H3 H2

6FU (1FT) H4 X2

75 VA

CR1
CR
K1 K2

A B C

ALLEN BRADLEY
LINE VOLTAGE MONITOR
MODEL 813S

1 2

1C

CR1 A1Y A1X

CR1 A2Y A2X

CR1 A3Y A3X
TO FUTURE RTU

CR1 A4Y A4X
FUTURE

TO BUS
L1 L2 L3

CIRCUIT BREAKER
7 AMP
HMCP FRAME

1 1B

HAND XOO OFF AUTO
S1
00X

F-1 (1FT) H1 X1 F-3 (1FT) 1

NEMA
SIZE 1

L1 L2 L3

H3 H2

F-2 (1FT) H4 X2

OL

OFF
G
ON
R
M

4 M
2 M
3

75 VA GND

SIZE 1

1E

T1 T2 T3

2HP

8 M 9

3 1A

RUN REQUIRED

FUTURE RTU

CHLORINE BOOSTER PUMP NO. 1
480 VAC ____ AMPS

Interlock with generator run Signal. Shall be wired back to generator control panel.

TO BUS
L1 L2 L3

CIRCUIT BREAKER
30 AMP
HMCP FRAME

1 1B

HAND XOO OFF AUTO
S1
00X

F-1 (1FT) H1 X1 F-3 (1FT) 1

NEMA
SIZE 1

L1 L2 L3

H3 H2

F-2 (1FT) H4 X2

OL

OFF
G
ON
R
M

4 M
2 M
3

75 VA GND

SIZE 1

1G

T1 T2 T3

7.5HP

8 M 9

3 1A

RUN REQUIRED

FUTURE RTU

REMOTE RADIATOR
480 VAC ____ AMPS

TO BUS
L1 L2 L3

40 AMP
HFD FRAME
CIRCUIT BREAKER

1J

L1 L2 L3
TO
VAPORIZER

TO BUS
L1 L2 L3

80 AMP
HFD FRAME
CIRCUIT BREAKER

1L

L1 L2 L3
TO
LIGHTING PANEL TRANSFORMER

**** ATTENTION ****
SUBMITTAL DRAWINGS
DO NOT USE FOR INSTALLATION
PLEASE CALL FOR AS-BUILTS

NOTES:
1. GENERAL NOTES PER DRAWING 20011028.2.1.

PUMP HOUSE NO. 3 – MCC

SYM	REVISION

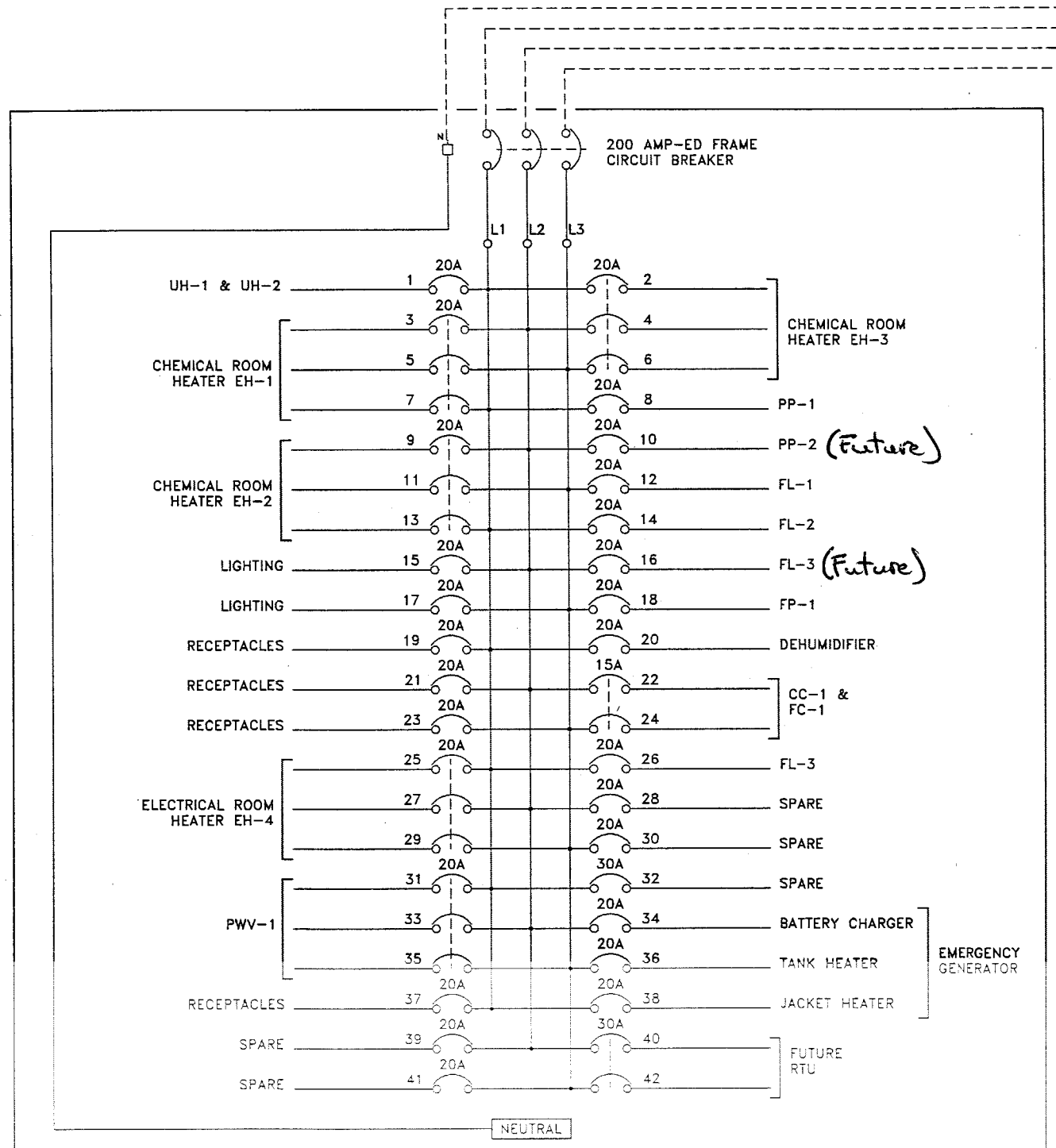
AUTOMATIC SYSTEMS CO.
P.O. BOX 120359
ST. PAUL, MINN. 55112

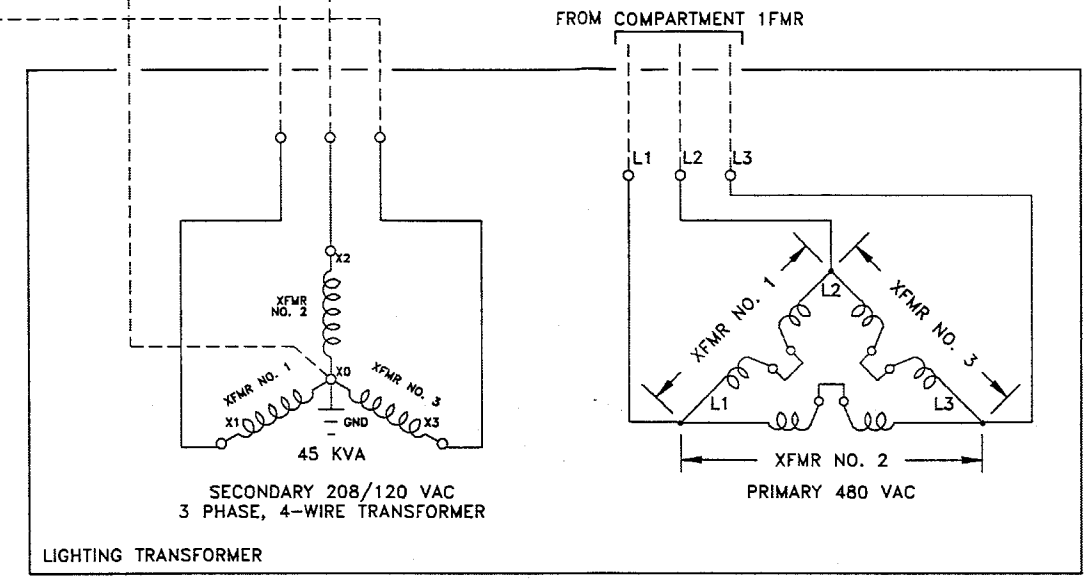
TITLE CONTROL WIRING DIAGRAM

CUSTOMER CITY OF RAMSEY, MINNESOTA

DRAWN BMB | FILE RAM_M1_2 | DWG. NO. 20011028.2.3

SALES BAW | DATE 11/01/01





NOTES:

1. NEMA TP-1 ENERGY EFFICIENT TRANSFORMER, 45KVA, 480VAC DELTA PRIMARY, 208Y/120VAC SECONDARY.

**** ATTENTION ****
SUBMITTAL DRAWINGS
DO NOT USE FOR INSTALLATION
PLEASE CALL FOR AS-BUILTS

PUMP HOUSE NO. 3 - MCC

SYM	REVISION		

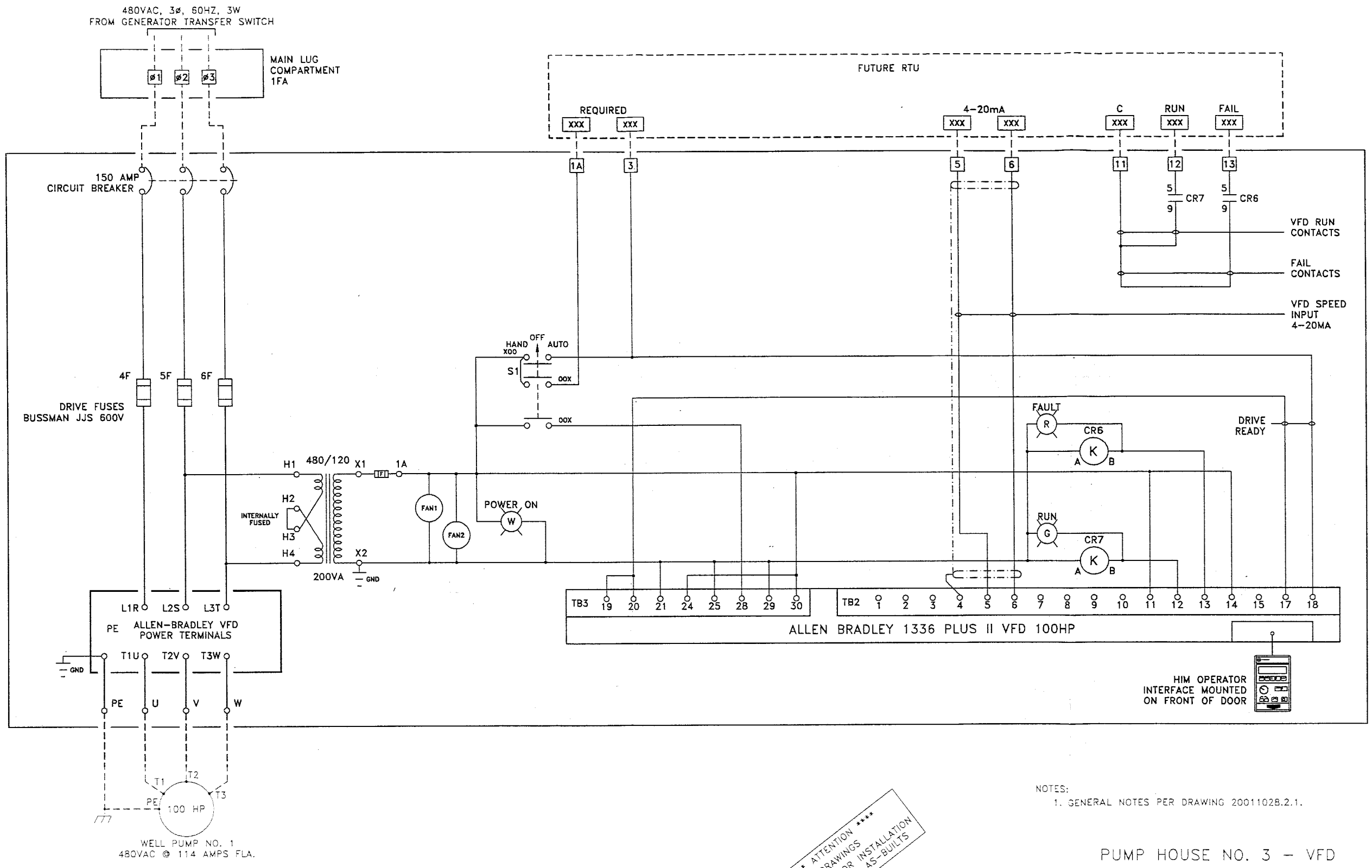
AUTOMATIC SYSTEMS CO.
P.O. BOX 120359
ST. PAUL, MINN. 55112

TITLE: CONTROL WIRING DIAGRAM

CUSTOMER CITY OF RAMSEY, MINNESOTA

DRAWN BMB | FILE RAM_M1_3 | DWG. NO. 20011028.2.4

SALES BAW | DATE 11/01/01



NOTES:
1. GENERAL NOTES PER DRAWING 20011028.2.1.

**** ATTENTION ****
SUBMITTAL DRAWINGS
DO NOT USE FOR INSTALLATION
PLEASE CALL FOR AS-BUILTS

PUMP HOUSE NO. 3 – VFD

SYM	REVISION

AUTOMATIC SYSTEMS CO.
P.O. BOX 120359
ST. PAUL, MINN. 55112

TITLE VFD WIRING DIAGRAM

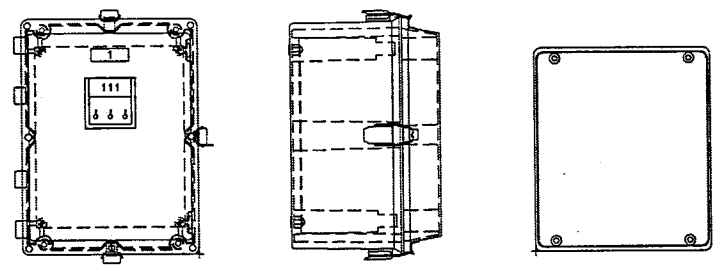
CUSTOMER CITY OF RAMSEY, MINNESOTA

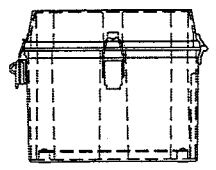
DRAWN BMB | FILE RAM_V1_1 | DWG. NO. 20011028.2.5

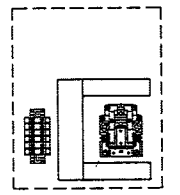
SALES BAW | DATE 11/01/01

N.P. NO.	NAMEPLATE DESIGNATIONS	QTY
1	POTASSIUM PERMANGANATE RELAY PANEL	1

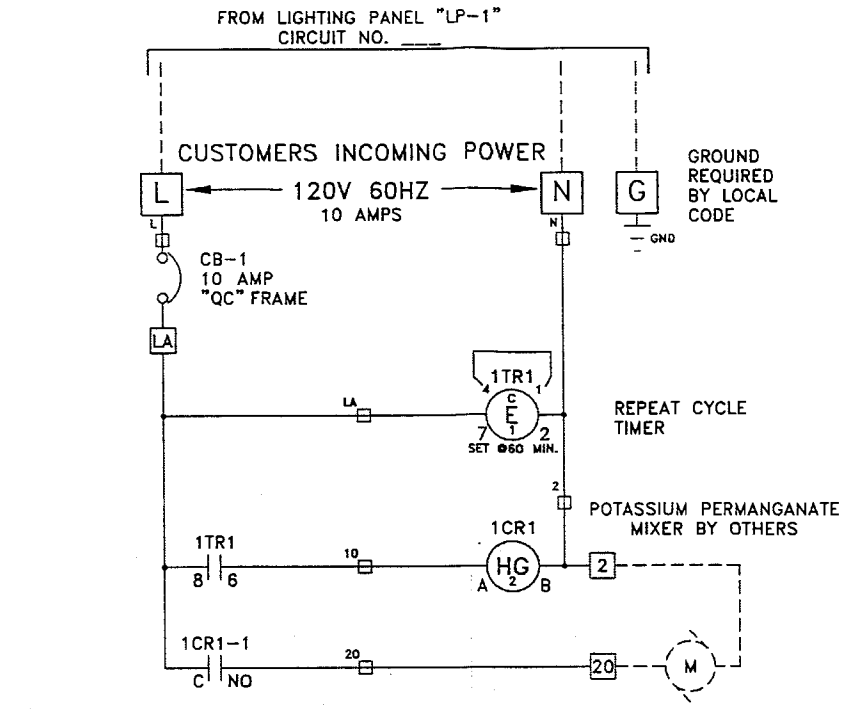
STANDARD NAMEPLATES
BLACK PHENOLIC W/ 3/16" WHT LETTERS
2.5" X .75" ATTACH W/4-40 SS SCREWS

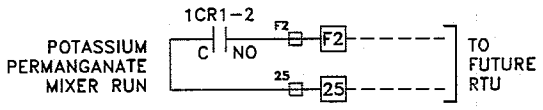






POTASSIUM PERMANGANATE MIXER CONTROL PANEL





NOTES:

1. ENCLOSURE IS NEMA 4X, FIBERGLASS.
2. FIELD WIRING TO BE COPPER 90°C MIN, TORQUE TO 20 IN. LBS.
3. U.L. 508 LABELED.

**** ATTENTION ****
SUBMITTAL DRAWINGS
DO NOT USE FOR INSTALLATION
PLEASE CALL FOR AS-BUILTS

POTASSIUM PERMANGANATE MIXER TIMER CONTROL PANEL

SYM	REVISION

AUTOMATIC SYSTEMS CO.
P.O. BOX 120359
ST. PAUL, MINN. 55112

TITLE ENCLOSURE AND WIRING DIAGRAM

CUSTOMER CITY OF RAMSEY, MINNESOTA

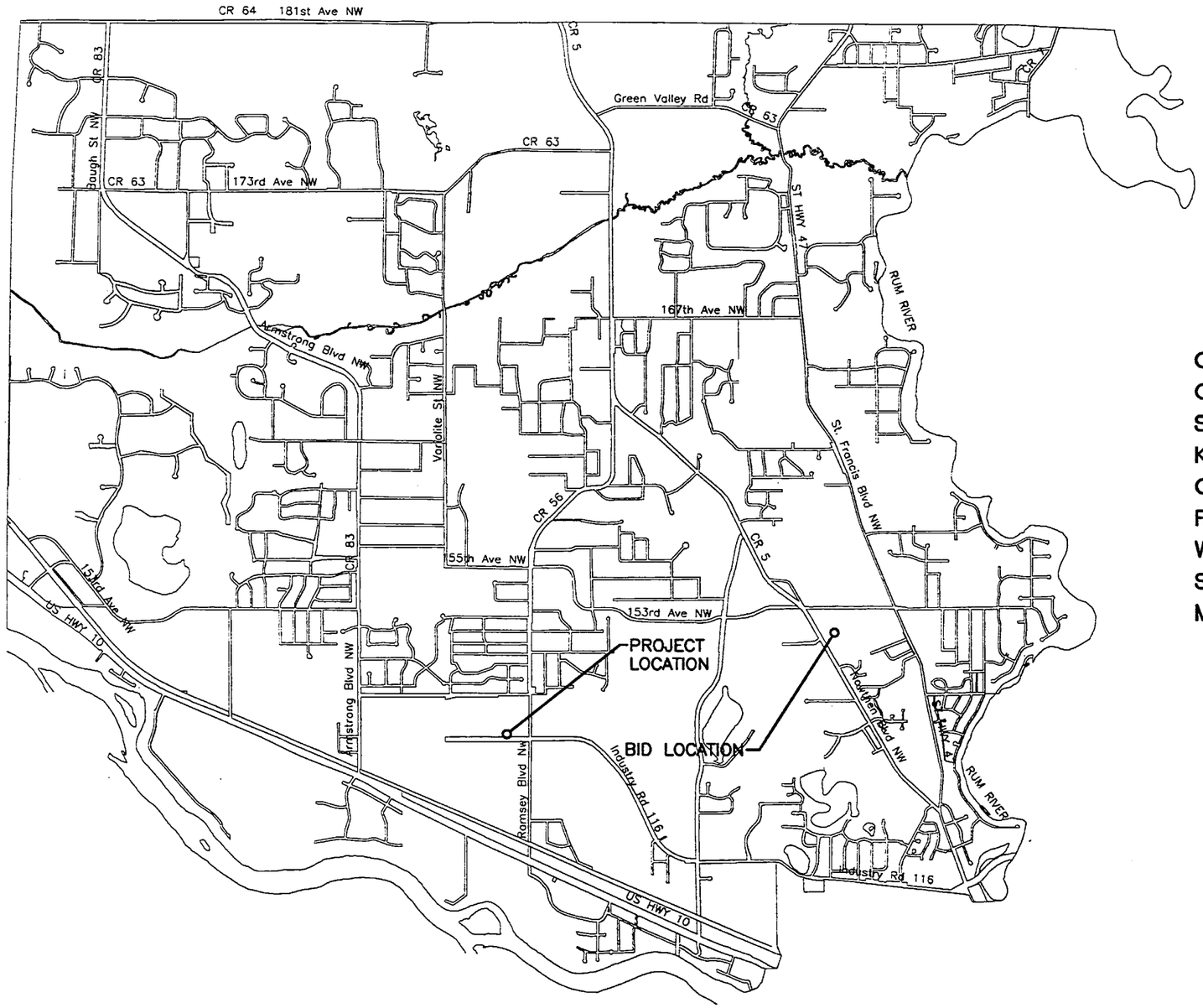
DRAWN BMB | FILE RAMKMN04 | DWG. NO. 20011028.3.1

SALES BAW | DATE 11/01/01

WELL NO.3 PUMPING FACILITY

RAMSEY, MINNESOTA

1996



CITY OFFICIALS

GLEN HARDIN	MAYOR
CAROLYN BEAHEN	COUNCIL
SHEILA BEYER	COUNCIL
KENNETH PETERSON	COUNCIL
GERALD ZIMMERMAN	COUNCIL
RYAN SCHROEDER	CITY ADMINISTRATOR
WILLIAM GOODRICH	ATTORNEY
STEVEN JANKOWSKI	CITY ENGINEER
MARK BOOS	UTILITY SUPERVISOR

DRAWING INDEX

GENERAL SHEETS

591 RECORD DRAWING

			DATE
		REVISION	
SURVEY	HAY		
DRAWN	LHK		
DESIGNED	DLK		
APPROVED	RWF		
DATE			
COMM.	43803	43803G01.DWG	2000

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE _____ REG. NO. 11609

Bonestroo Rosene Anderlik & Associates

Engineers & Architects

St. Paul • Milwaukee

RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY

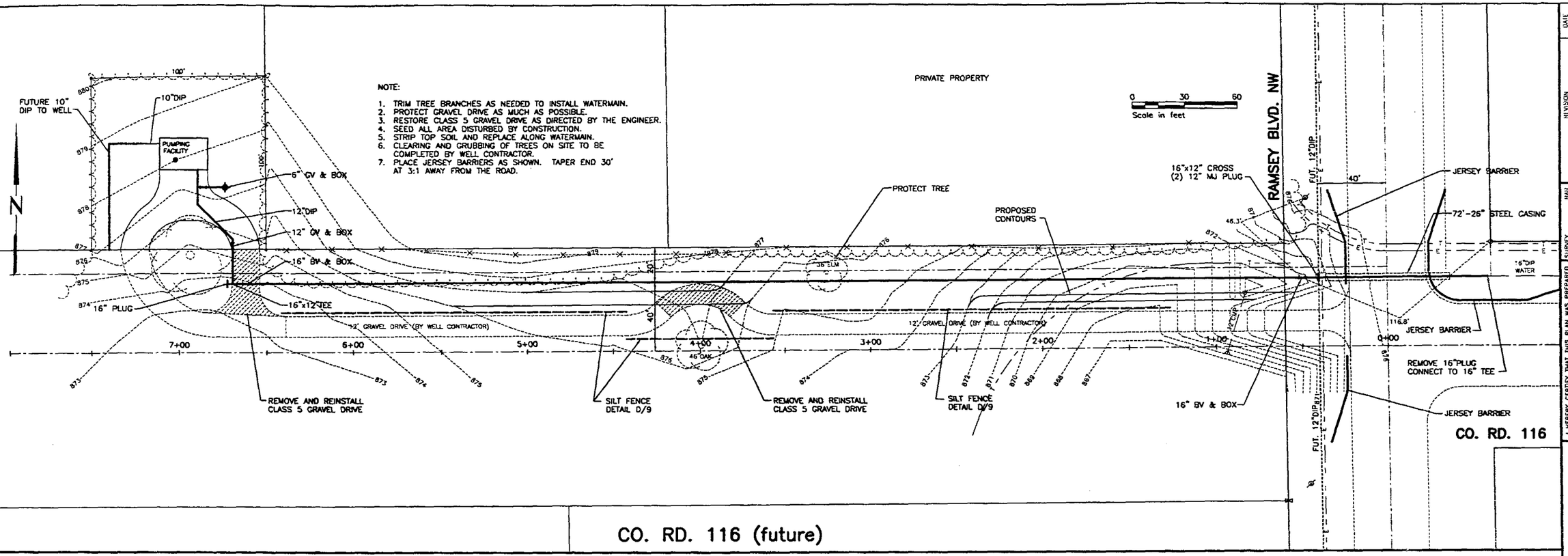
TITLE SHEET AND INDEX

43803

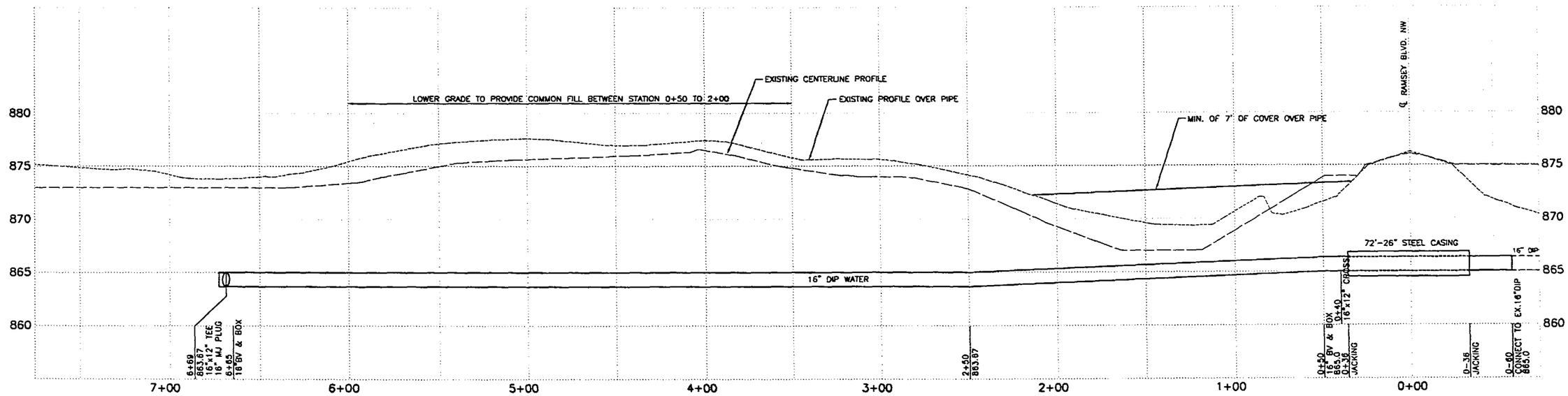
SHEET 1 OF 11

NOTE:

1. TRIM TREE BRANCHES AS NEEDED TO INSTALL WATERMAIN.
2. PROTECT GRAVEL DRIVE AS MUCH AS POSSIBLE.
3. RESTORE CLASS 5 GRAVEL DRIVE AS DIRECTED BY THE ENGINEER.
4. SEED ALL AREA DISTURBED BY CONSTRUCTION.
5. STRIP TOP SOIL AND REPLACE ALONG WATERMAIN.
6. CLEARING AND GRUBBING OF TREES ON SITE TO BE COMPLETED BY WELL CONTRACTOR.
7. PLACE JERSEY BARRIERS AS SHOWN. TAPER END 30' AT 3:1 AWAY FROM THE ROAD.



CO. RD. 116 (future)



592 RECORD DRAWING

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE REG. NO. 11609

© BONESTROO, ROSENE, ANDERLIK & ASSOCIATES, INC. 1996

REVISION	DATE

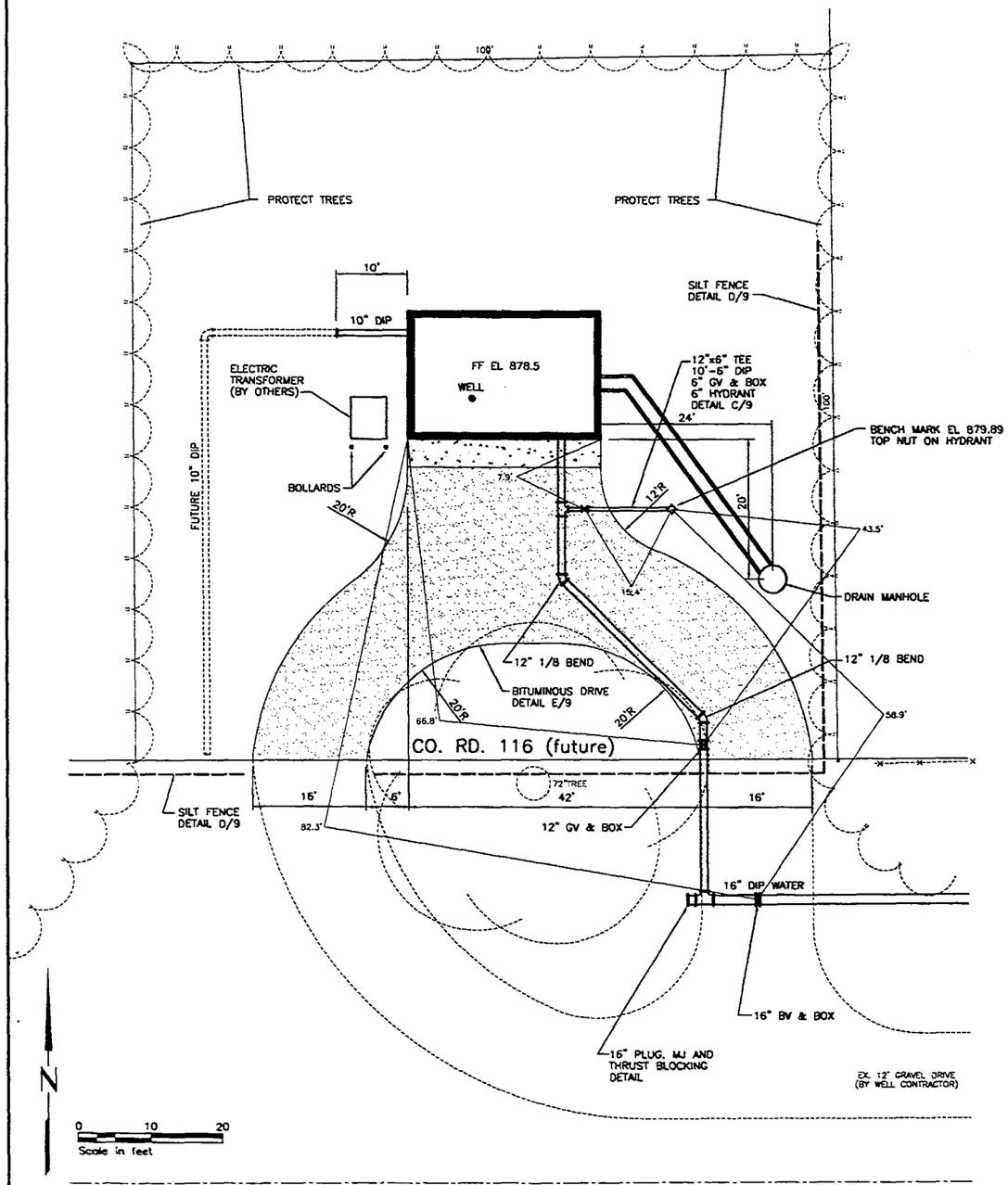
SURVEY RAH
DRAWN LJK
DESIGNED DLK
APPROVED RWF
DATE
COMM. 43803

43803.ICO1.DWG

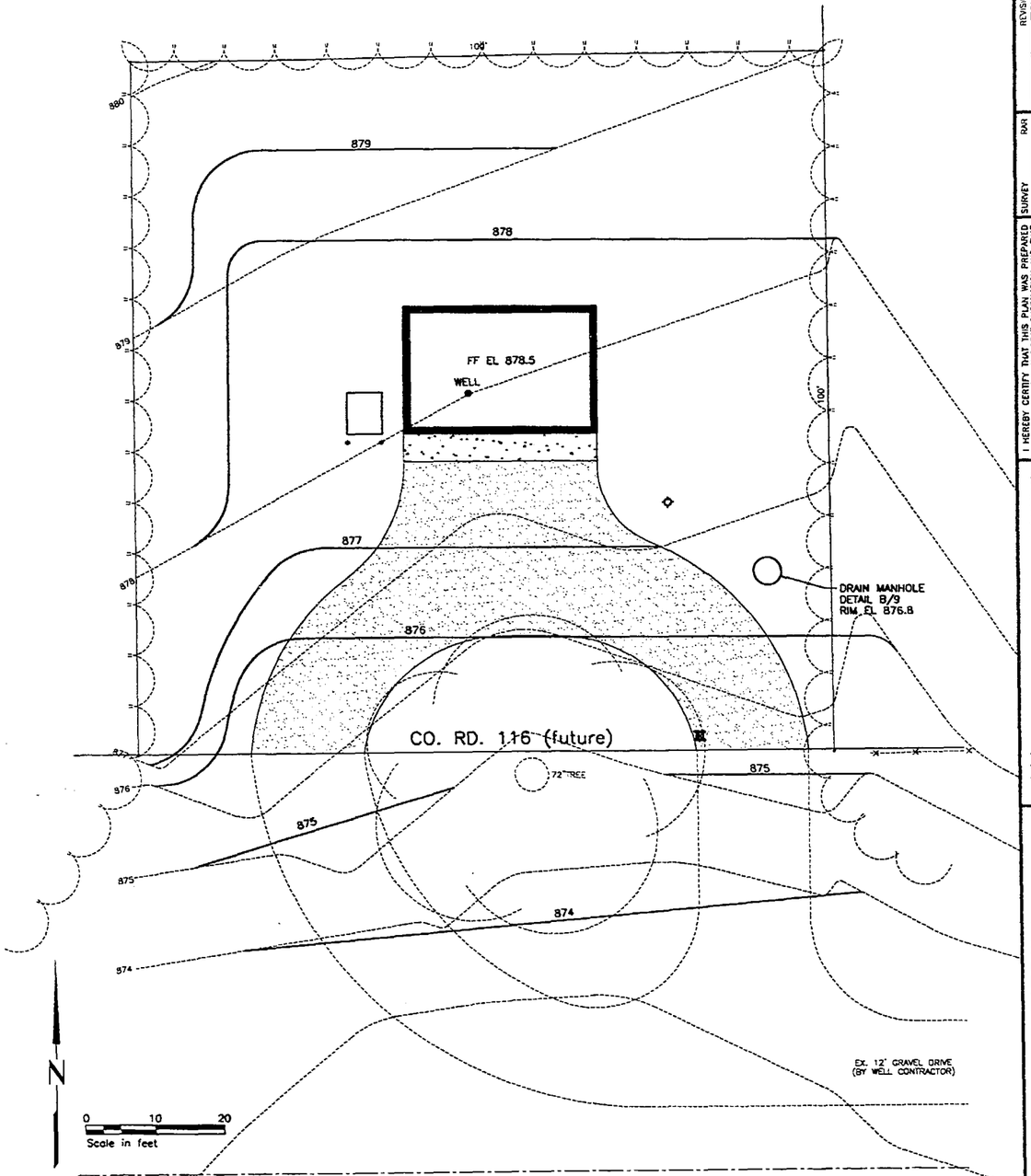
Bonestroo Rosene Anderlik & Associates
Engineers & Architects
St. Paul • Milwaukee

RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY
WATERMAIN
PLAN AND PROFILE

43803



SITE LAYOUT PLAN



SITE GRADING PLAN

593 RECORD DRAWING

		DATE
	REVISION	

SURVEY	RAR	
DRAWN	LJK	
DESIGNED	DLK	
APPROVED	RWF	
DATE		
COMM.	4380.3	

4380.3PO1.DWG

10

I HEREBY CERTIFY THAT THIS PLAN, WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

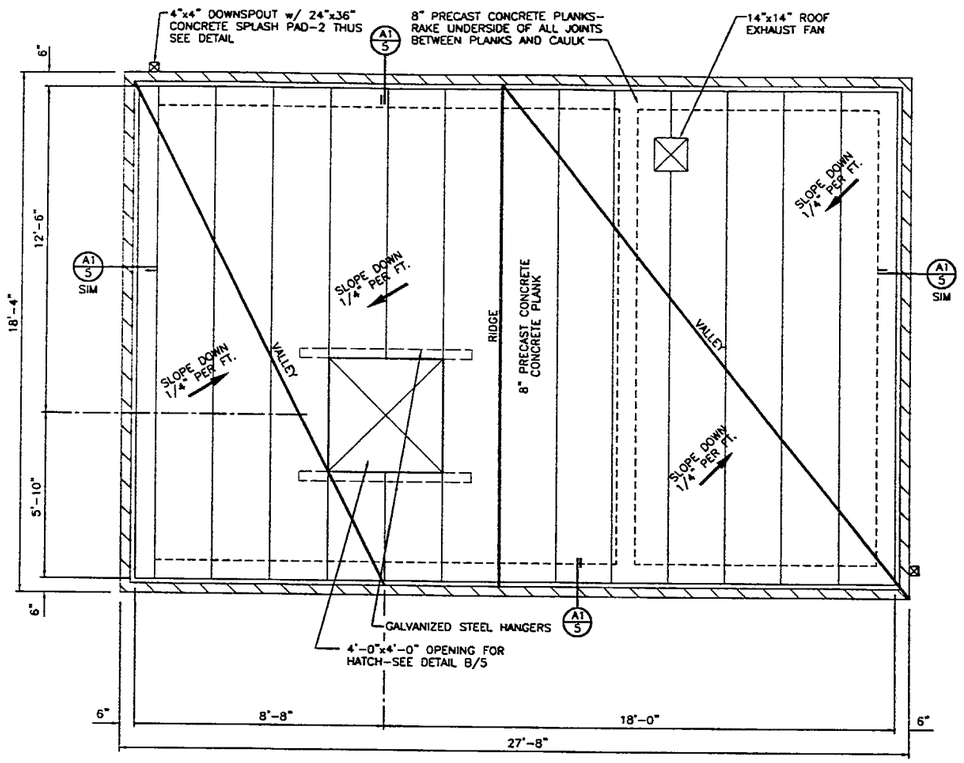
DATE _____ REG. NO. 11609

Bonestroo Rosene Anderlik & Associates
Engineers & Architects
St. Paul • Milwaukee

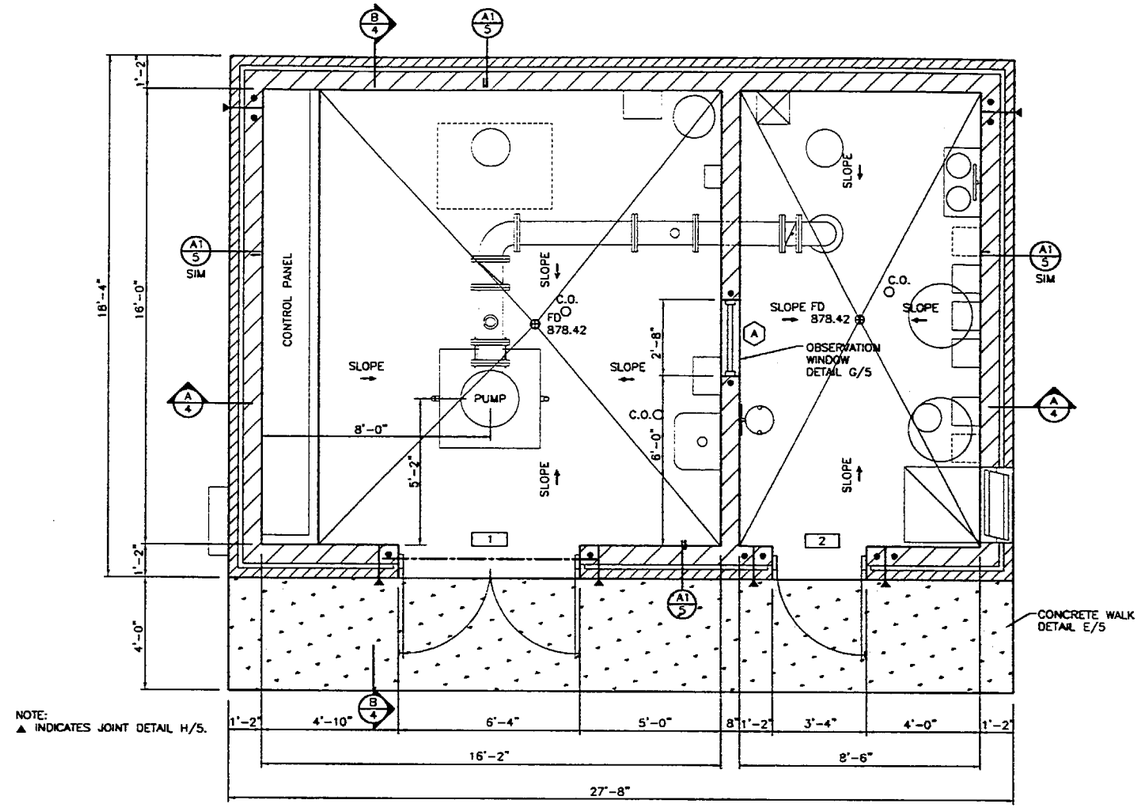
RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY
WATERMAIN
SITE PLAN

4380.3

SHEET 3 OF 11

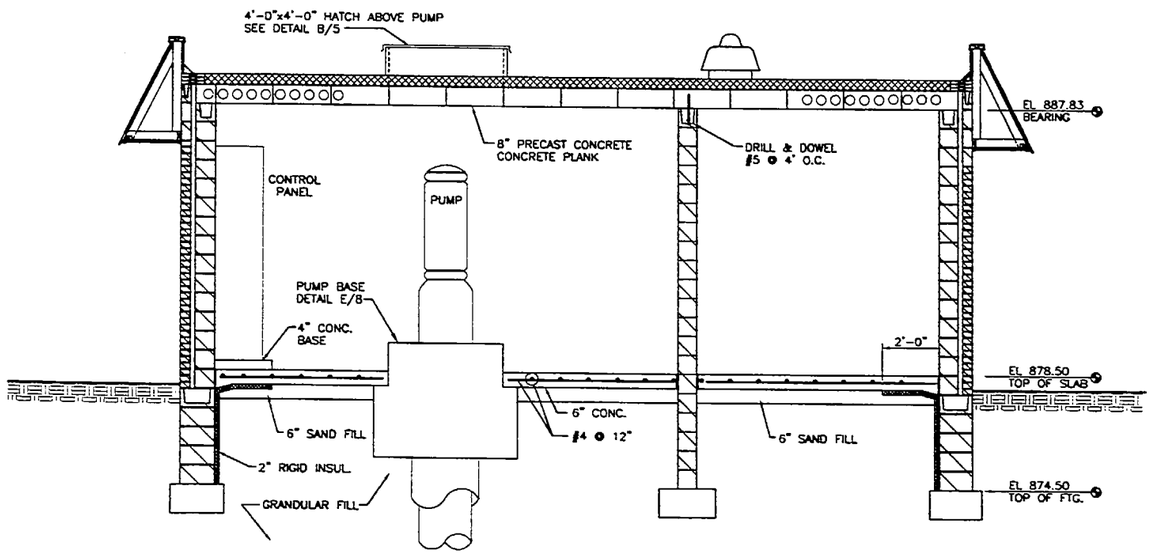


ROOF PLAN
0 1 2 3
SCALE IN FEET

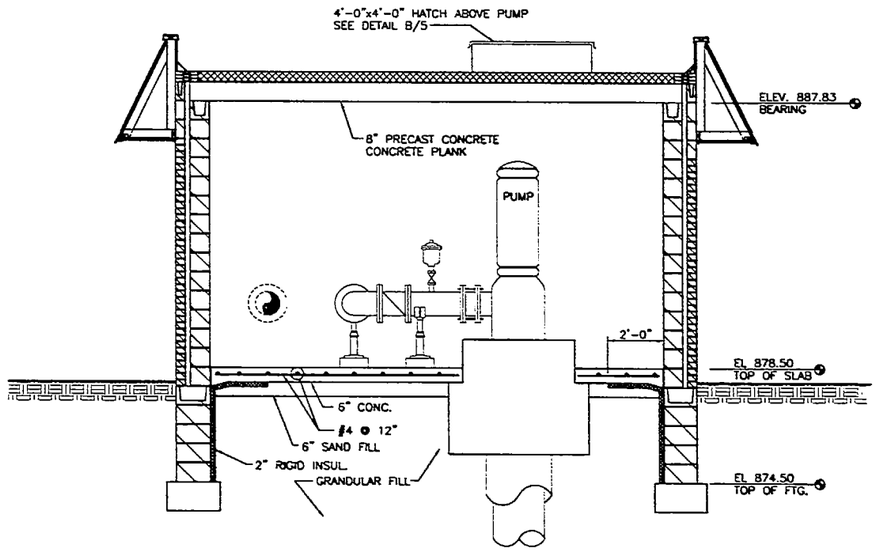


NOTE:
▲ INDICATES JOINT DETAIL H/5.

FLOOR PLAN
0 1 2 3
SCALE IN FEET



A/4 SECTION
0 1 2 3
SCALE IN FEET



B/4 SECTION
0 1 2 3
SCALE IN FEET

RECORD DRAWING

060898

DATE	REVISION

SURVEY	RWI	
DRAWN	LJK	
DESIGNED	DLK	
APPROVED	RWF	
DATE		
COMM.	43803	

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DATE _____ REG. NO. 11609

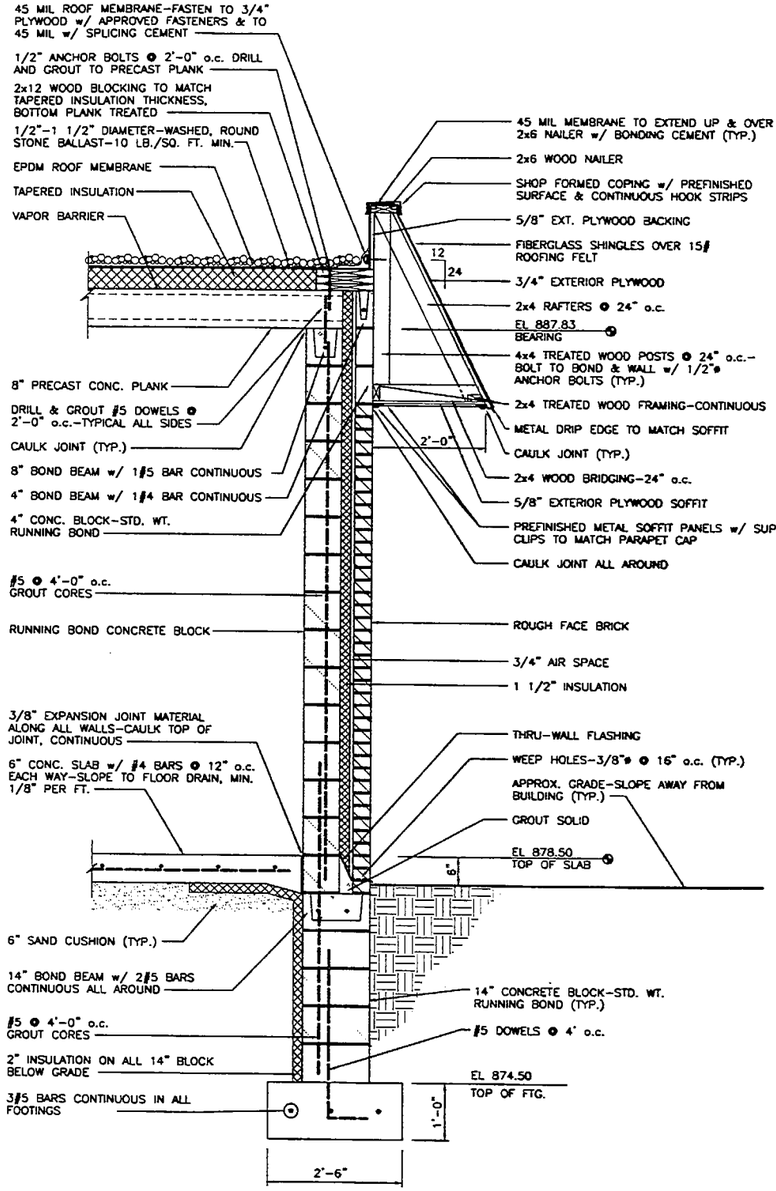
43803POS.DWG

Engineers & Architects
St. Paul • Milwaukee

Bonestroo Rosene Anderlik & Associates

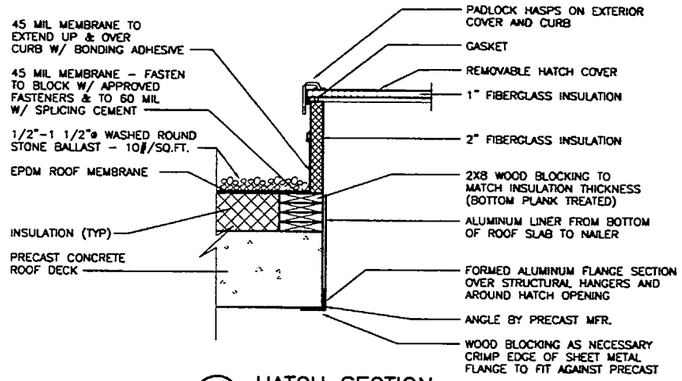
RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY
ARCHITECTURAL
FLOOR PLAN, ROOF PLAN AND SECTIONS

43803
SHEET 4 OF 11



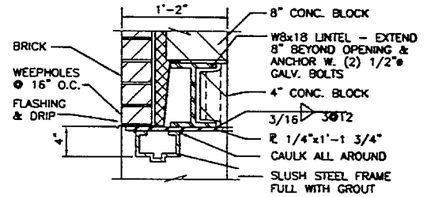
A/5 SECTION

SCALE IN FEET



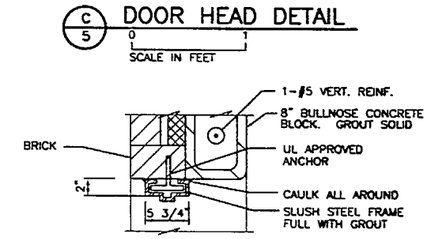
B/5 HATCH SECTION

SCALE IN FEET



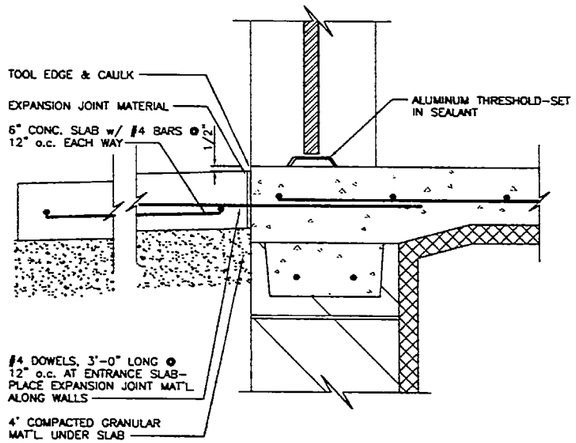
C/5 DOOR HEAD DETAIL

SCALE IN FEET



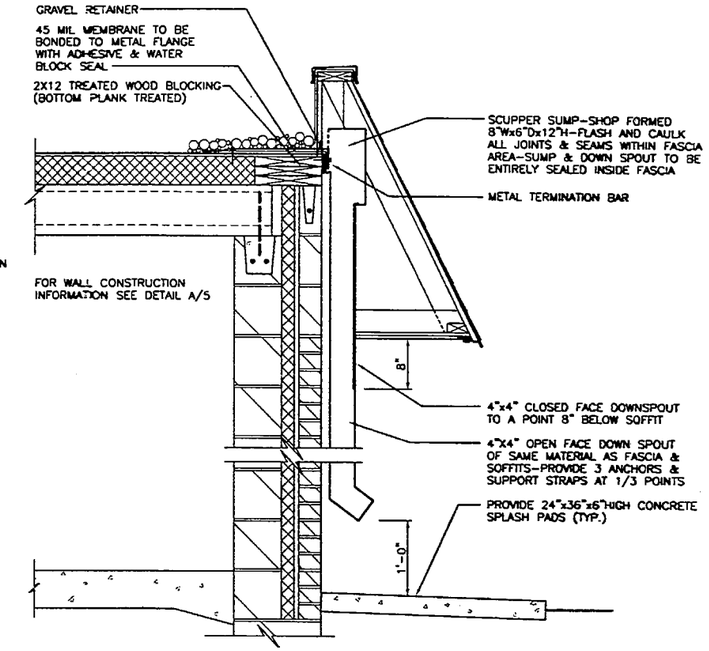
D/5 DOOR JAMB DETAIL

SCALE IN FEET



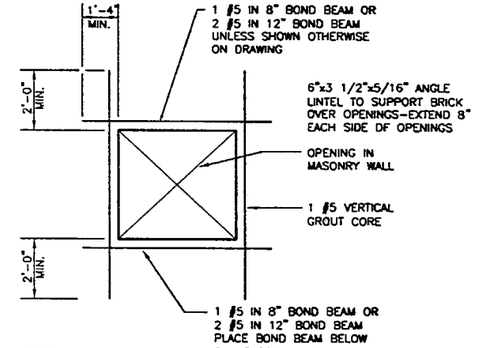
E/5 DOOR SILL DETAIL

SCALE IN FEET



F/5 SCUPPER & DOWNSPOUT DETAIL

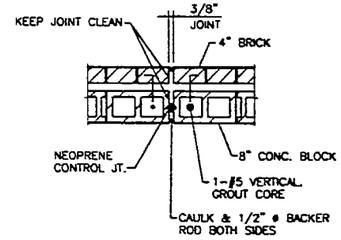
SCALE IN FEET



NOTE:
PROVIDE REINFORCING AS SHOWN AROUND MASONRY OPENINGS UNLESS SHOWN OTHERWISE.

G/5 REINFORCING AT OPENING

NO SCALE



H/5 BRICK CONTROL JOINT

NO SCALE

DOOR AND WINDOW SCHEDULE					
LOCATION	ROUGH OPENING	DOOR SIZE	DOOR/FRAME MATERIAL	HARDWARE	COMMENTS
PUMP ROOM TO OUTSIDE	6'–4"x7'–4"	(2) 3'–0"x7'–0"	STEEL	GROUP 1	INSULATE & WEATHER STRIP
CHEMICAL ROOM TO OUTSIDE	3'–4"x7'–4"	3'–0"x7'–0"	FIBERGLASS	GROUP 2	INSULATE & WEATHER STRIP
PUMP ROOM TO CHEMICAL ROOM	2'–3"x2'–3"				FIRE RATED ASSEMBLY

RECORD DRAWING

060898

DATE	REVISION

SURVEY	
DRAWN	LJK
DESIGNED	DJK
APPROVED	RWF
DATE	
COMM.	4.3803

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4.3803.P03.DWG 16

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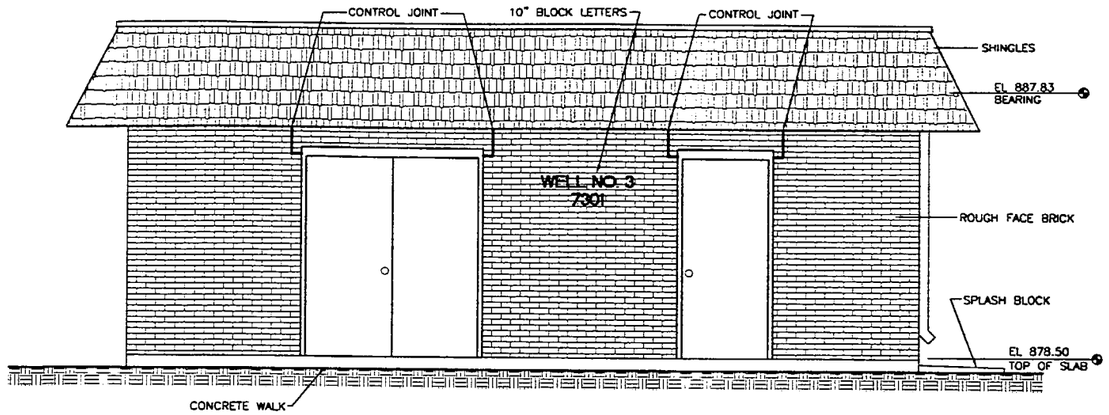
RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY

WALL SECTION AND DETAILS

43803

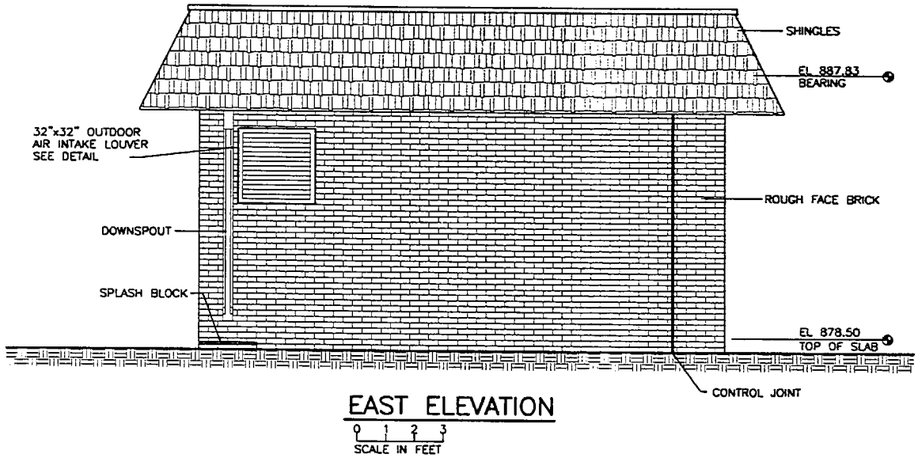
SHEET 5 OF 11



SOUTH ELEVATION

0 1 2 3

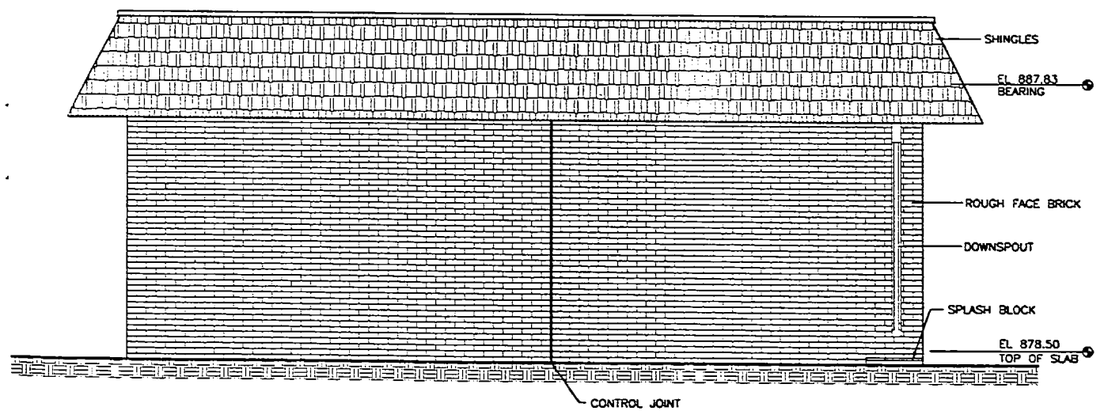
SCALE IN FEET



EAST ELEVATION

0 1 2 3

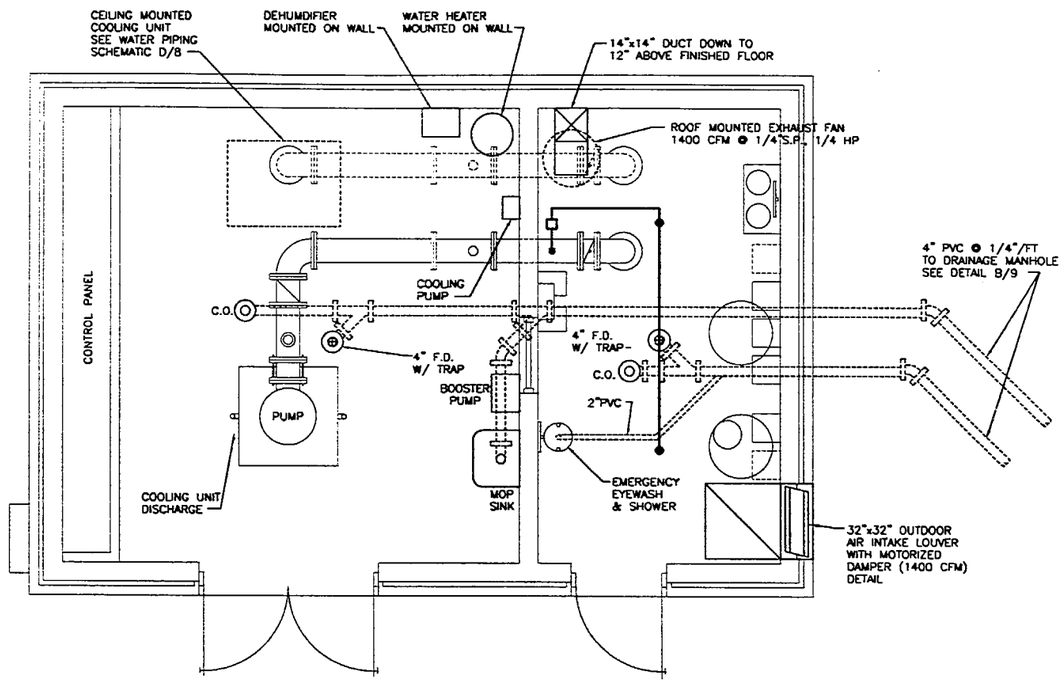
SCALE IN FEET



NORTH ELEVATION

0 1 2 3

SCALE IN FEET



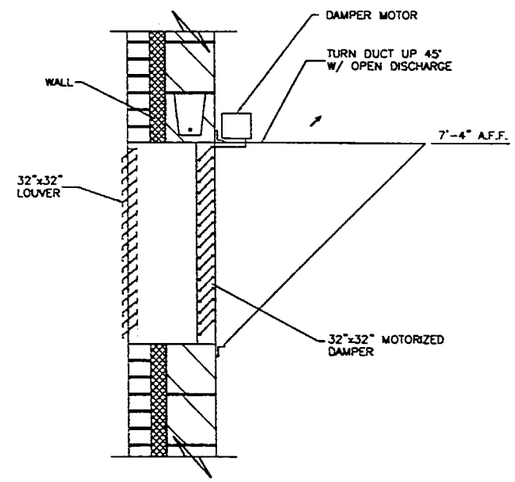
MECHANICAL FLOOR PLAN

0 1 2 3

SCALE IN FEET

NOTE:

1. ALL DUCT WORK IN CHLORINE ROOM TO BE ALUMINUM CONSTRUCTION.
2. SPRINKLER SYSTEM - ORDINARY HAZARD (GROUP 2) PROVIDE 1 1/2" TAP SHUT OFF VALVE, FLOW INDICATOR AND TWO SPRINLER HEADS.



OUTSIDE AIR INTAKE
LOUVER SECTION

NO SCALE

RECORD DRAWING

060898

	DATE	REVISION

SURVEY		32
DRAWN	LJK	
DESIGNED	DLK	
APPROVED	RWF	
DATE		43803-PO4.DWG
COUNT.	43803	

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RAMSEY, MINNESOTA

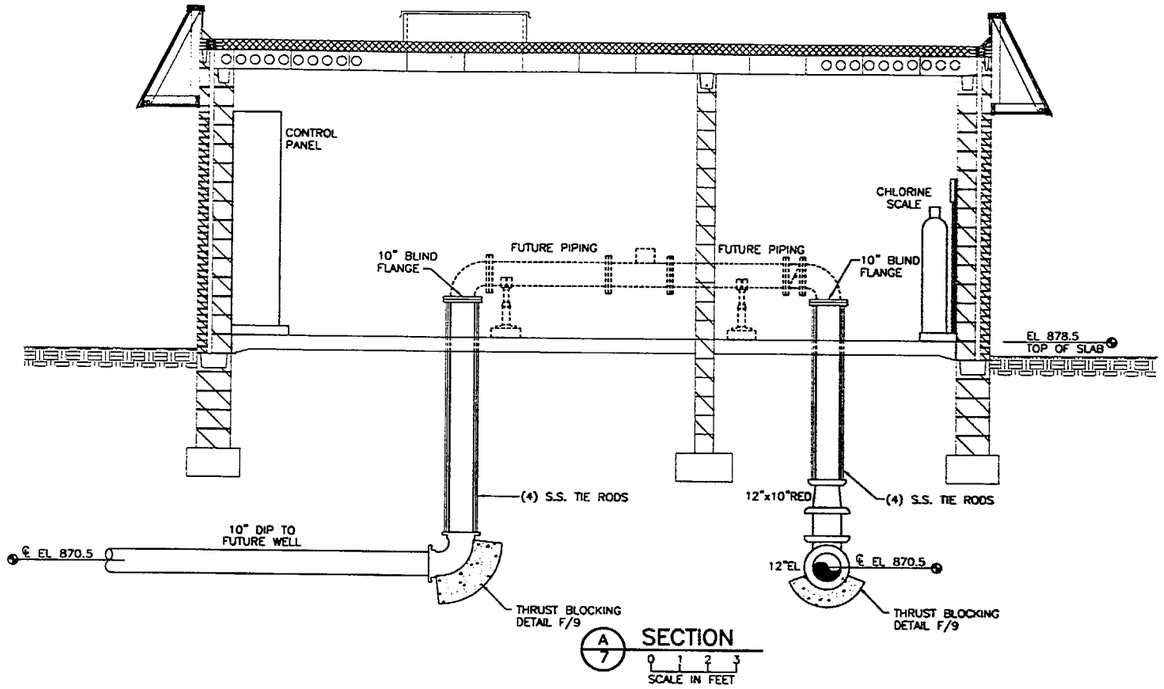
WELL NO.3 PUMPING FACILITY

MECHANICAL FLOOR PLAN AND ELEVATION

43803

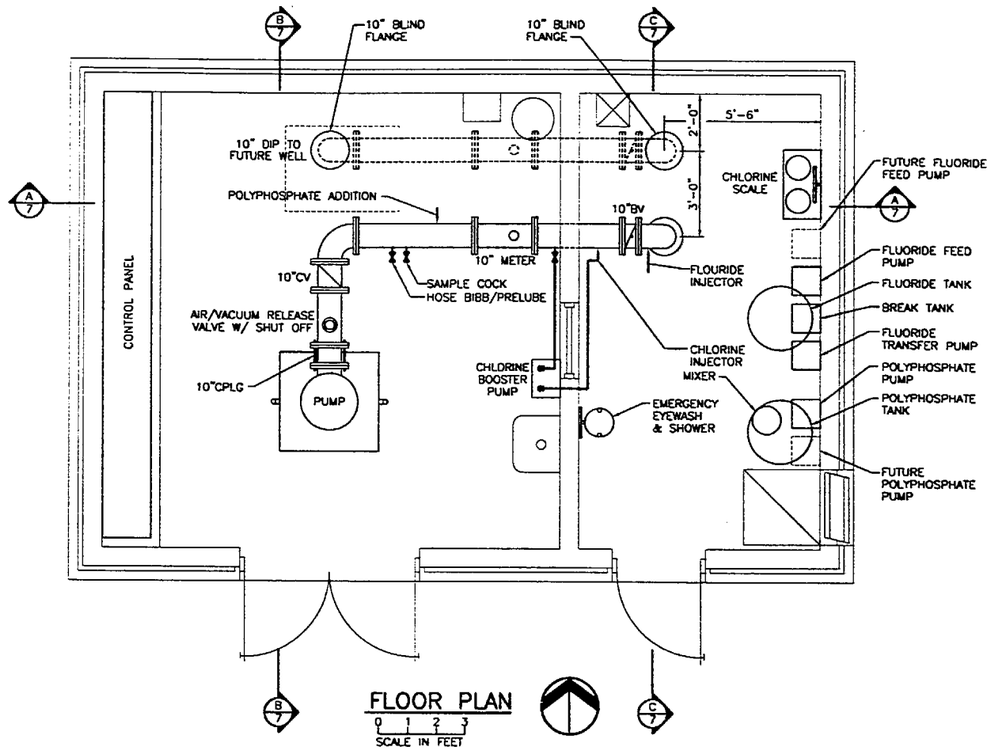
SHEET 6 OF 11

596



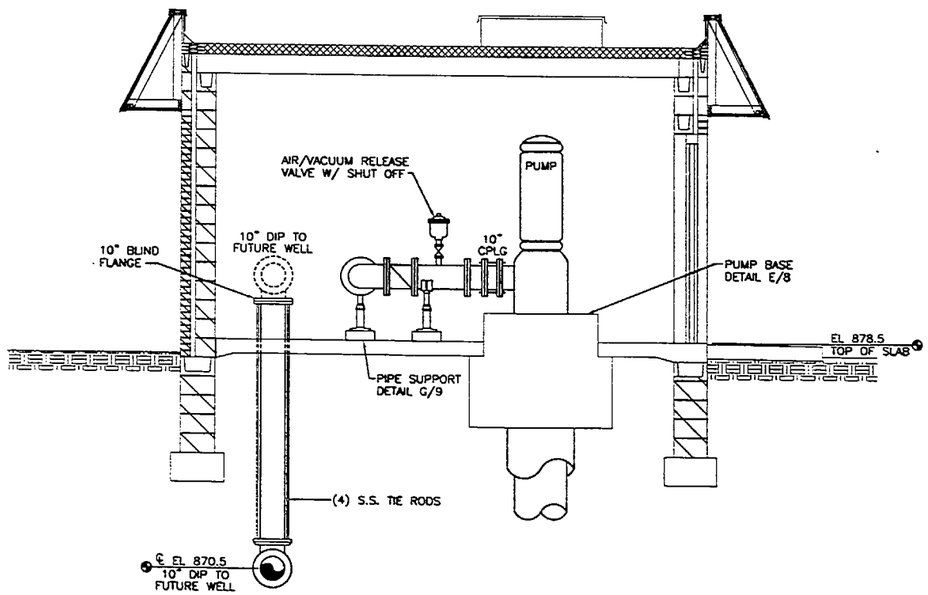
A/7 SECTION

SCALE IN FEET 0 1 2 3



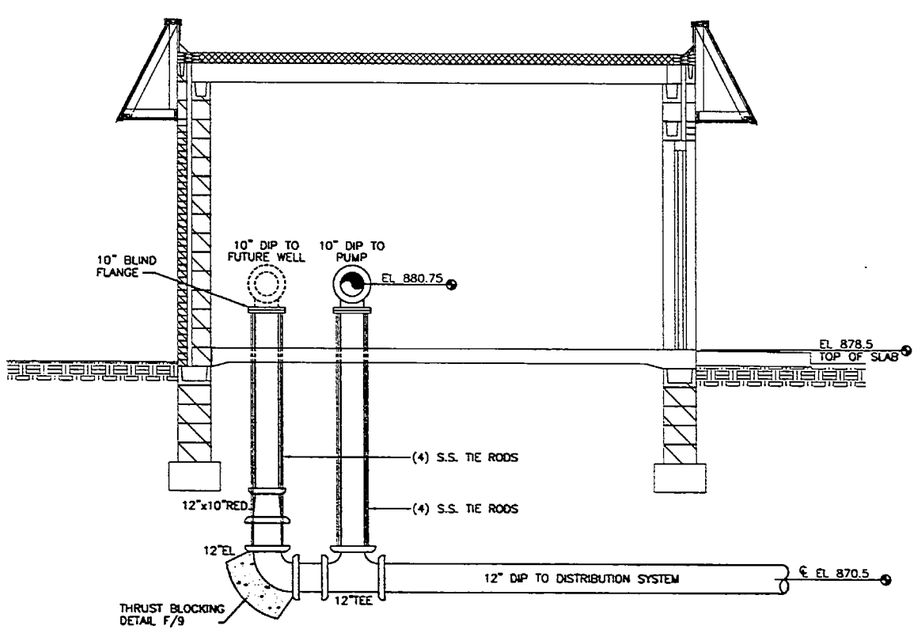
FLOOR PLAN

SCALE IN FEET 0 1 2 3



B/7 SECTION

SCALE IN FEET 0 1 2 3



C/7 SECTION

SCALE IN FEET 0 1 2 3

RECORD DRAWING

DATE	REVISION

SURVEY		
DRAWN	LJK	
DESIGNED	DLK	
APPROVED	RWF	
DATE		
COMM.	4380.3	

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4380.3P02.DWG 32

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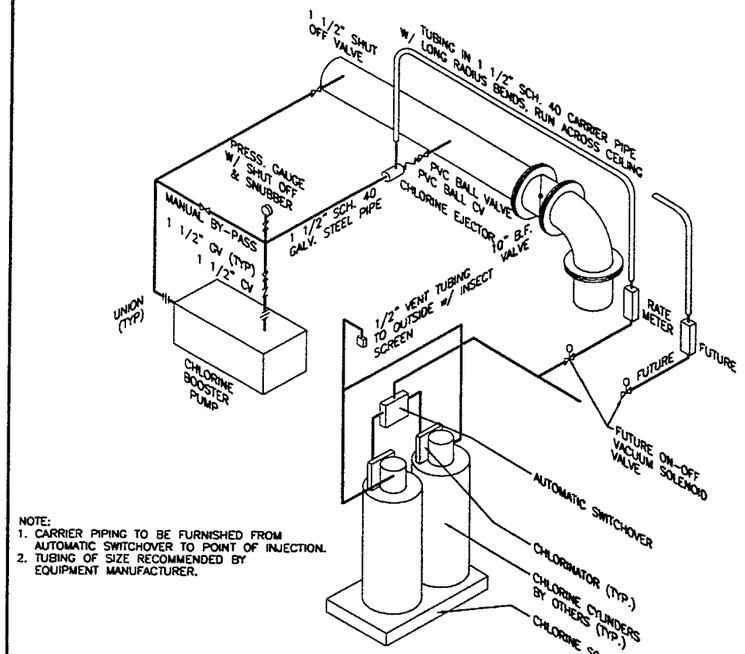
RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY
PROCESS PIPING
SECTIONS AND DETAILS

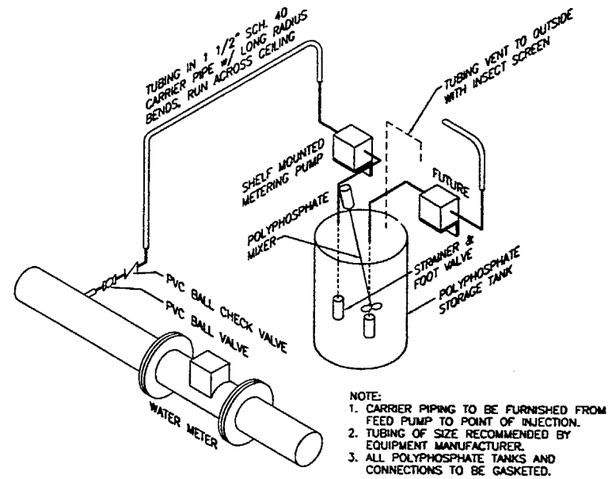
4380.3

SHEET 7 OF 11



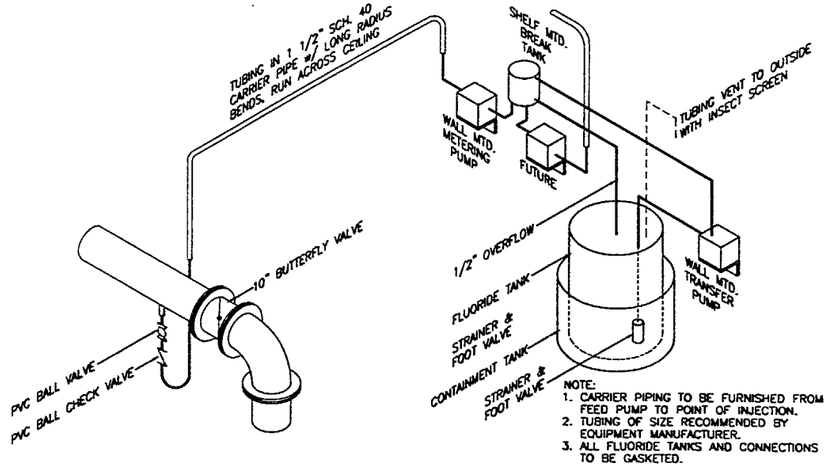
NOTE:
1. CARRIER PIPING TO BE FURNISHED FROM AUTOMATIC SWITCHOVER TO POINT OF INJECTION.
2. TUBING OF SIZE RECOMMENDED BY EQUIPMENT MANUFACTURER.

A/8 CHLORINATION SCHEMATIC
NOT TO SCALE



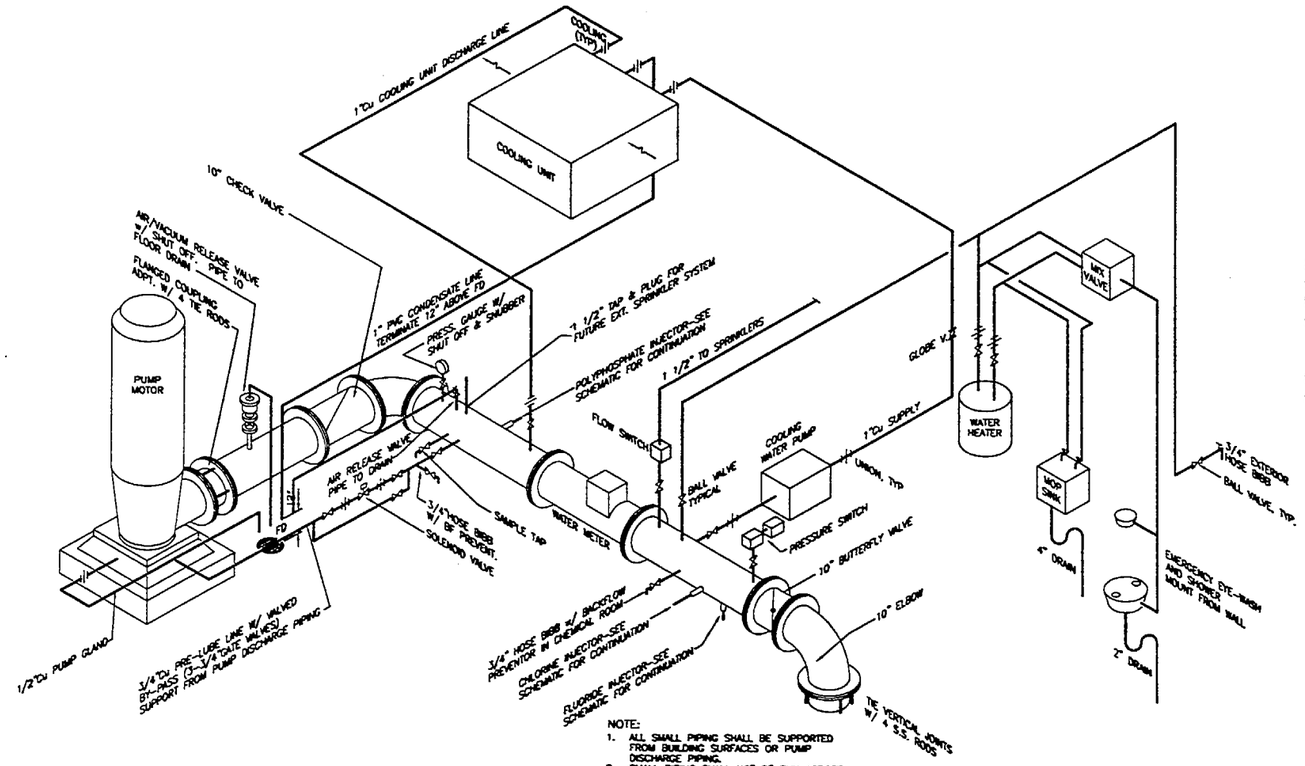
NOTE:
1. CARRIER PIPING TO BE FURNISHED FROM FEED PUMP TO POINT OF INJECTION.
2. TUBING OF SIZE RECOMMENDED BY EQUIPMENT MANUFACTURER.
3. ALL POLYPHOSPHATE TANKS AND CONNECTIONS TO BE GASKETED.

B/8 POLYPHOSPHATE SCHEMATIC
NOT TO SCALE



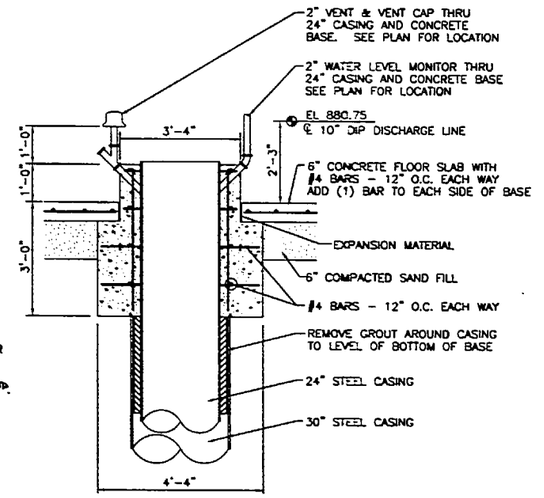
NOTE:
1. CARRIER PIPING TO BE FURNISHED FROM FEED PUMP TO POINT OF INJECTION.
2. TUBING OF SIZE RECOMMENDED BY EQUIPMENT MANUFACTURER.
3. ALL FLUORIDE TANKS AND CONNECTIONS TO BE GASKETED.

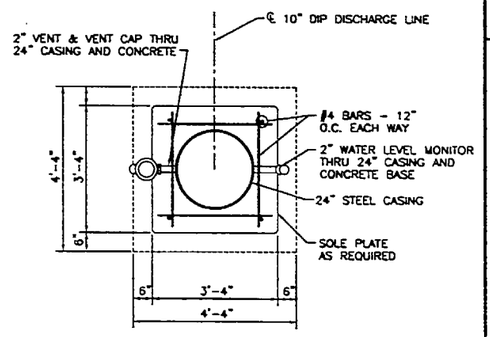
C/8 FLUORIDE SCHEMATIC
NOT TO SCALE



NOTE:
1. ALL SMALL PIPING SHALL BE SUPPORTED FROM BUILDING SURFACES OR PUMP DISCHARGE PIPING.
2. SMALL PIPING SHALL NOT BE RUN ACROSS FLOORS.
3. SMALL PIPING SHALL FOLLOW BUILDING LINES OR PUMP DISCHARGE PIPING.

D/8 WATER PIPING DIAGRAM
NO SCALE





NOTE:
1. ALL EXPOSED EDGES OF PUMP BASE SHALL HAVE 3/4" CHAMFER.
2. ALL EXPOSED SURFACES OF PUMP BASE SHALL BE FILLED AND RUBBED.
3. 2" CASING CONNECTIONS SHALL BE SCH. 40 GALV. STEEL.
4. WELD 2" CASING CONNECTIONS TO THE CASING AND GRIND INTERIOR SURFACE SMOOTH.
5. CUT OFF CASING AS REQUIRED TO PROVIDE A 1" PROJECTION INTO PUMP DISCHARGE HEAD.
6. PROVIDE SOLE PLATE, IF REQUIRED, AND GROUT TO SET PUMP DISCHARGE HEAD TO THE ELEVATION SHOWN.

E/8 PUMP BASE DETAIL
0 1 2
SCALE IN FEET

RECORD DRAWING

	DATE
REVISION	

SURVEY	
DRAWN	LJK
DESIGNED	DLK
APPROVED	RWF
DATE	4.3803
CO/AM.	

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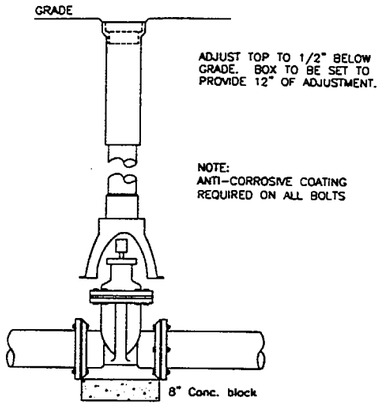
RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY
PIPING SCHEMATICS AND DETAILS

4.380JP06.DWG 24

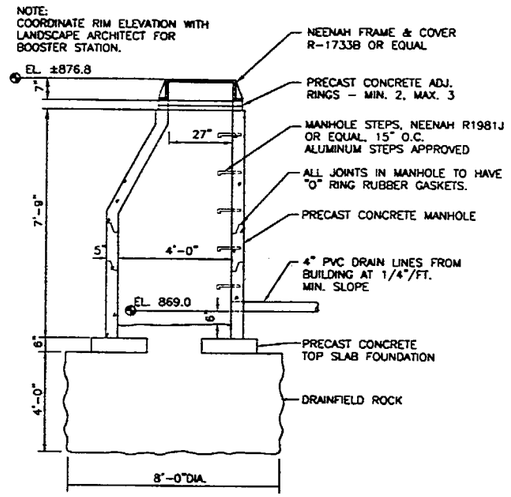
4.3803

SHEET 8 OF 11

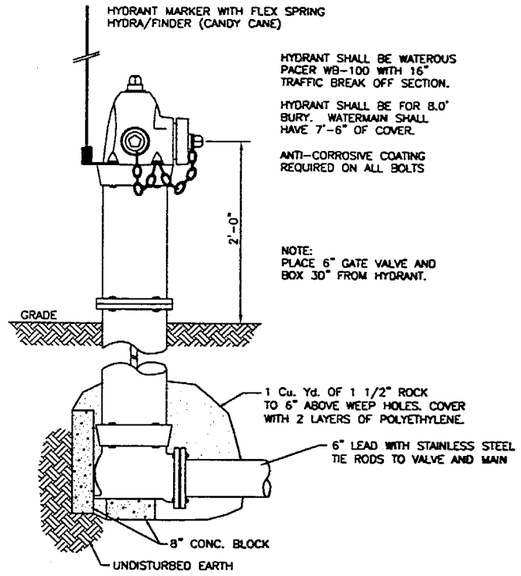
598



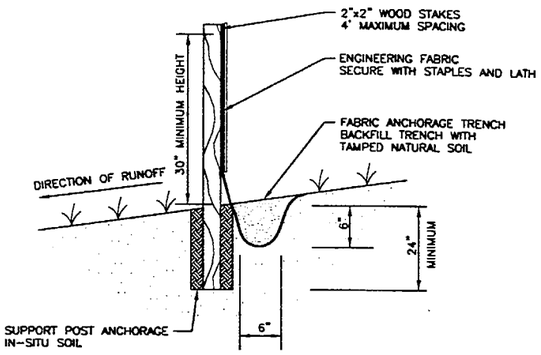
A/9 VALVE AND BOX DETAIL
NO SCALE



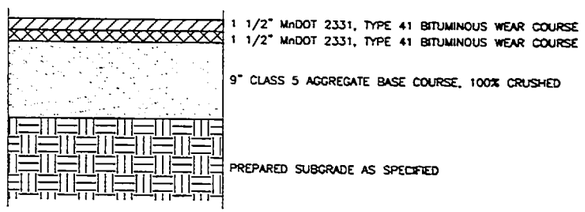
B/9 DRAINAGE MANHOLE DETAIL
NO SCALE



C/9 HYDRANT INSTALLATION
NO SCALE



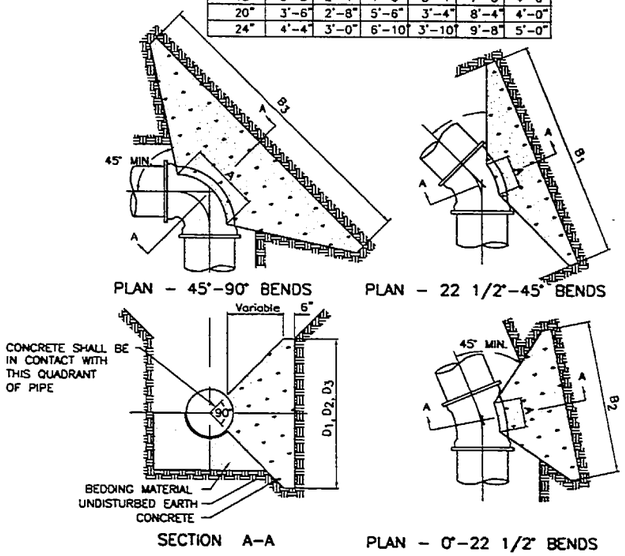
D/9 EROSION CONTROL DETAIL
NO SCALE



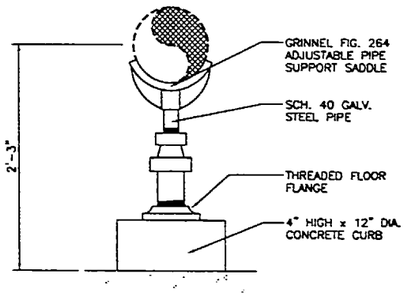
E/9 BITUMINOUS DRIVE SECTION
0 1
SCALE IN FEET

NOTE:
1. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH.
2. DIMENSION "A" SHOULD BE AS LARGE AS POSSIBLE.
3. PLAN FOR 45°-90° BENDS & SECTION A-A SHALL APPLY TO TEES.

BUTTRESS DIMENSIONS							
PIPE SIZE	22 1/2° BEND		45° BEND		90° BEND	
	B_1	D_1	B_2	D_2	B_3	D_3
6"	1'-5"	1'-5"	1'-5"	1'-5"	2'-1"	1'-6"
8"	1'-5"	1'-5"	2'-1"	1'-6"	2'-8"	2'-0"
10"	1'-8"	1'-8"	2'-11"	1'-10"	4'-0"	2'-4"
12"	1'-10"	1'-10"	3'-4"	2'-0"	4'-9"	2'-6"
16"	3'-0"	2'-0"	3'-10"	3'-0"	6'-2"	3'-6"
18"	3'-3"	2'-4"	4'-6"	3'-4"	7'-0"	4'-0"
20"	3'-6"	2'-8"	5'-6"	3'-4"	8'-4"	4'-0"
24"	4'-4"	3'-0"	6'-10"	3'-10"	9'-8"	5'-0"



F/9 THRUST BLOCKING DETAIL
NO SCALE



G/9 PIPE SUPPORT DETAIL
NO SCALE

RECORD DRAWING

DATE	REVISION

SURVEY	
DRAWN	LHK
DESIGNED	DJK
APPROVED	RWF
DATE	
COMM.	43803

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4380.3D02.DWG 1

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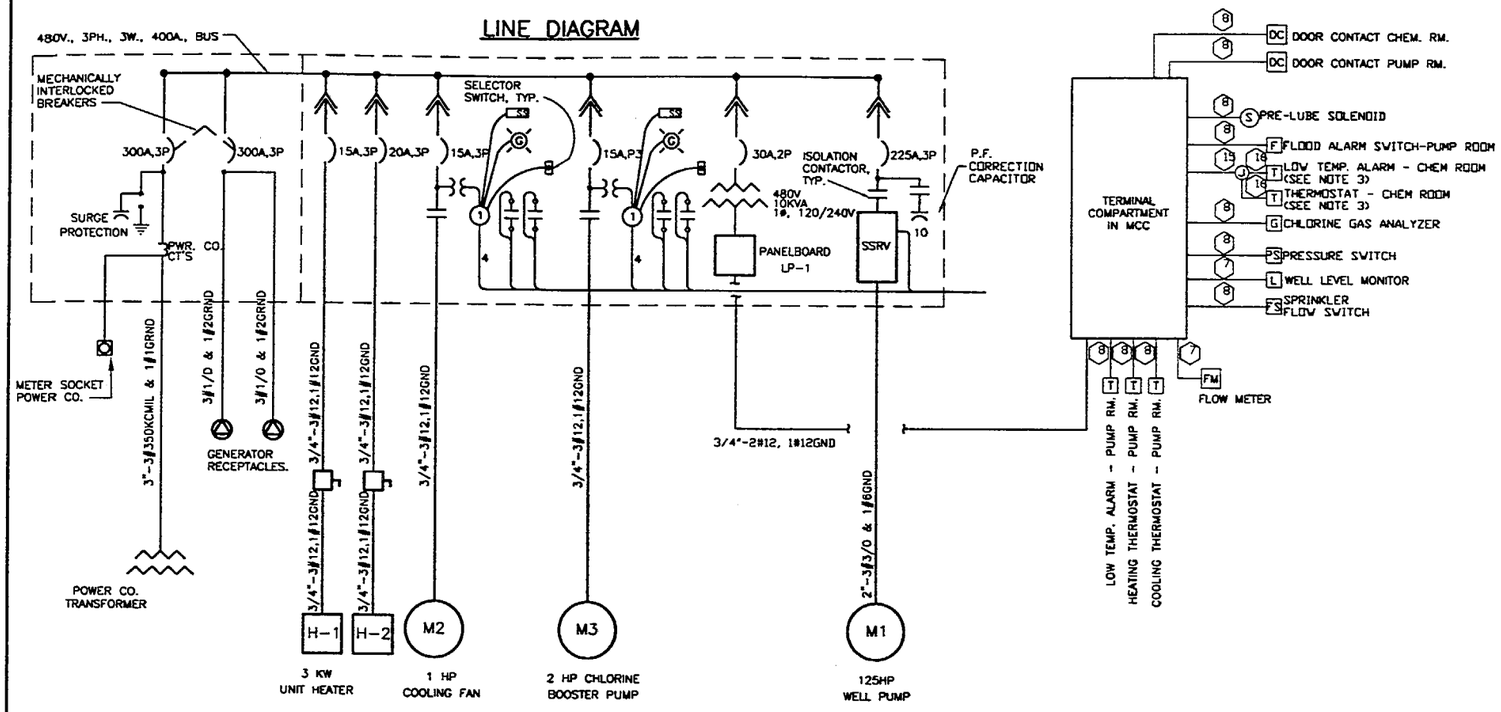
RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY
DETAILS

43803
SHEET 9 OF 11

LINE DIAGRAM



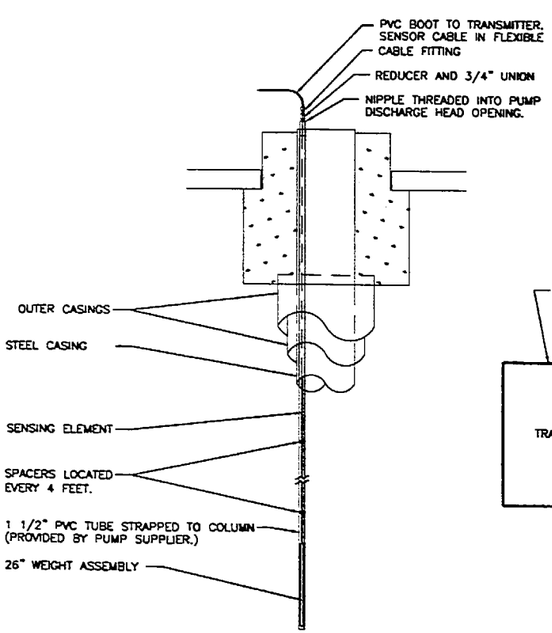
PANELBOARD SCHEDULE

PANEL NO. LP-1	MAIN CB		CIRCUIT BREAKER ☐		LOCATION :		DWG.
	BUS AMPS 100		MAIN LUGS ONLY ☒		FED FROM: MCC		DWG.
	PHASE 1		WIRE 3		VOLTS 120/240		TYPE

CIRCUIT DESCRIPTION	CKT NO.	BREAKERS TRIP	BREAKERS LOAD	BUS A	BUS B	BREAKERS TRIP	BREAKERS LOAD	CKT NO.	CIRCUIT DESCRIPTION
PUMP RM LIGHTS	1	20,1P		•		20,1P		2	COOLING WATER PUMP
PUMP ROOM RECEPT.	3	20,1P			•	20,1P		4	CHEM. ROOM RECEPT.
EXT. LIGHTS/TIMECLOCK	5	20,1P		•		20,1P		6	MIXER/TIMER
CHLORINE SCALE	7	20,1P			•	20,1P		8	FLUORIDE PUMPS
SPARE	9	20,1P		•		20,1P		10	TERMINAL COMPARTMENT
SPARE	11	20,1P			•	20,1P		12	POLYPHOSPHATE PMP
CHLORINE GAS ANALYZER	13	25,1P		•		20,1P		14	SPRINKLER RECPT.
CHEM. LGTS., EF-1, DM	15	20,1P			•	20,2P		16	WATER HEATER
SPARE	17	15,1P		•				18	
SPARE	19	20,1P			•	20,1P		20	SPARE
SPARE	21	15,1P		•		20,1P		22	SPARE
SPARE	23	20,1P			•	20,1P		24	SPARE

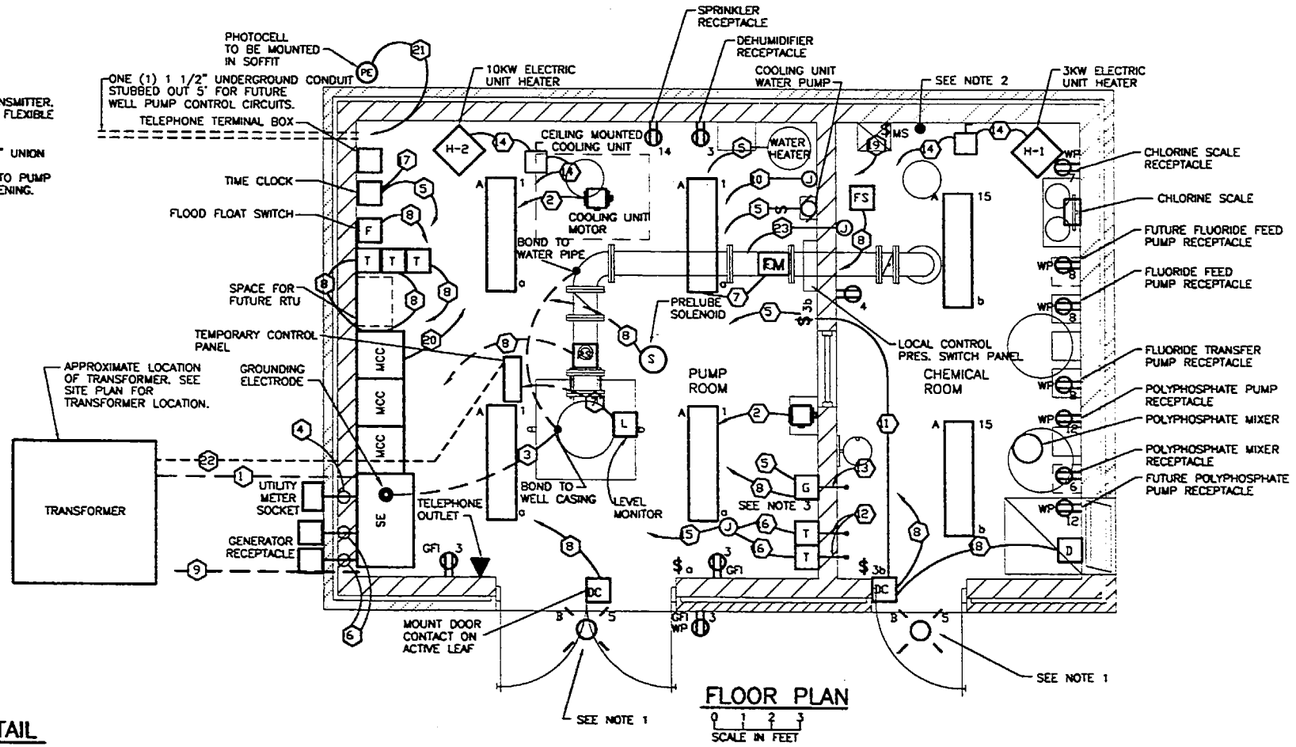
GENERAL NOTES:

1. SEE EXTERIOR LIGHTING SCHEMATIC FOR ADDITIONAL INFORMATION. MOUNT FIXTURES ABOVE SOFFIT. SEE ARCHITECTURAL DRAWINGS FOR FURTHER INFORMATION.
2. ALL CONDUIT, BOXES & FITTINGS IN CHEMICAL ROOM TO BE RIGID PVC. SEAL ALL CONDUITS THAT PASS THROUGH THE CHEMICAL ROOM WALL.
3. THERMOSTATS FOR CHEMICAL ROOM HEATER AND LOW TEMP. TO BE MOUNTED IN PUMP ROOM & REMOTE STAINLESS STEEL BULBS IN CHEMICAL ROOM.
4. DAMPER, EXHAUST FAN, AND CHEMICAL ROOM LIGHTS CONTROLLED BY LIGHT SWITCH. DAMPER, EXHAUST FAN, AND LIGHTS SHALL BE ENERGIZED WHEN LIGHT SWITCH IS IN 'ON' POSITION.
5. SERVICE ENTRANCE AND MCC TO BE PAINTED "FORD BLUE."
6. A TEMPORARY CONTROL PANEL WILL BE SUPPLIED TO OPERATE THE 125 HP WELL PUMP AND 1 1/2 HP CHLORINE PUMP MANUALLY UNTIL THE PERMANENT PANEL IS INSTALLED.
7. JUNCTION BOXES AND CONDUIT TO TERMINAL COMPARTMENT SHALL BE INSTALLED FOR FUTURE FLOW METER AND GAS SOLENOID VALVES.
8. MOUNT TELEPHONE OUTLET 4' A.F.F.
9. EXHAUST FAN IS ROOF MOUNTED.



WELL LEVEL PROBE – INSTALLATION DETAIL

NO SCALE



FLOOR PLAN

SCALE IN FEET 0 1 2 3

KEYED NOTES

1. = 3" – 350KCMIL,1#4GRND
2. = 3/4" – 3#12,1#12GRND TO MCC
3. = 3/4" – 1 #2 GROUNDING ELECTRODE CONDUCTOR
4. = 1" CONDUIT FOR UTILITY CO. WIRING
5. = 3/4" – 2#12,1#12GRND TO LP-1
6. = 2" – 3#1/0 & 1#2GRND
7. = 3/4" – 1– TRANSMITTER CABLE TO TERMINAL COMPARTMENT
8. = 3/4" – 2#14 TO TERMINAL COMPARTMENT
9. = 1 1/4" STUBBED OUT 8' WITH NYLON PULLCORD FOR PHONE SERVICE. PROVIDE SEPARATE PHONE LINE FOR CONVENIENCE PHONE OUTLET.
10. = 3/4" CONDUIT TO TERMINAL COMPARTMENT
11. = 3/4" – 3#12,1#12GRND
12. = 1 CAPILLARY TUBE
13. = 3/4" – 1 CL2 LEAK SENSOR CABLE
14. = 3/4" – 3#12,1#12GRND,2#14 TO MCC
15. = 3/4" – 4#14 TO TERMINAL CABINET
16. = 3/4" – 2#14 TO J-BOX
17. = 3/4" – 3#12,1#12GRND TO EXTERIOR LIGHTS.
18. = 3/4" – 2#12, 1#12GRND
19. = 3/4" – 2#12 1#12GRND TO CHEM.RM LIGHT SWITCH.
20. = 3/4" – 2#12 1#12GRND TO TIME CLOCK.
21. = 3/4" – 3#12 1#12GRND TO TIME CLOCK
22. = TEMPORARY POWER SERVICE CONNECTED IN ACCORDANCE WITH NEC. ARTICLE 305.
23. = 3/4"-4#14, 1#14GRND. TO TERMINAL COMPARTMENT (FOR FUTURE VACUUM SOLENOID VALVES)

RECORD DRAWING

DATE | REVISION

SURVEY
DRAWN FIX
DESIGNED BAR
APPROVED HAS
DATE 10/8/98
COMM. 4380.3

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Engineers & Architects
Bonestroo Rosene Anderlik & Associates
St. Paul • Milwaukee

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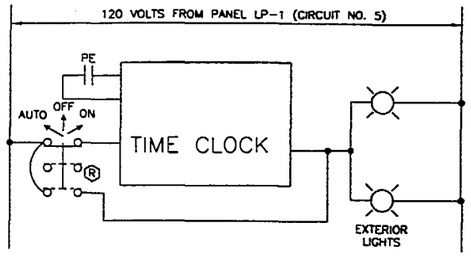
RAMSEY, MINNESOTA
WELL NO.3 PUMPING FACILITY
ELECTRICAL PLAN

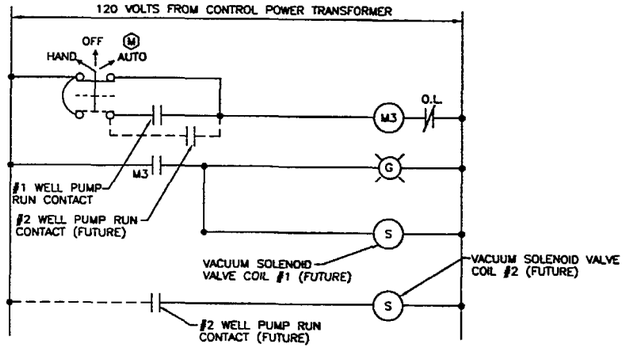
4380.3
SHEET 10 OF 11

600

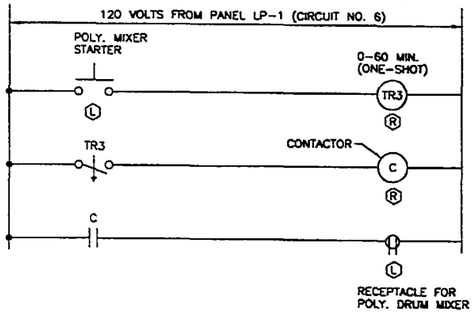
CONTROL SCHEMATIC FOR EXTERIOR LIGHT



CONTROL SCHEMATIC FOR CHLORINE BOOSTER PUMP



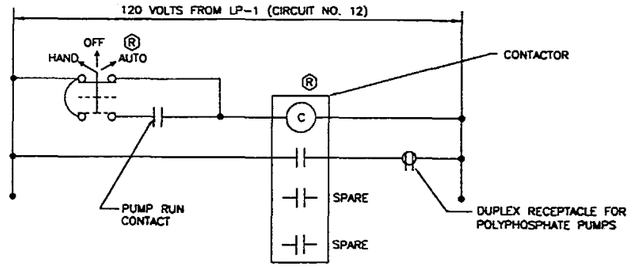
CONTROL SCHEMATIC FOR WELL NO.3 POLYPHOSPHATE DRUM MIXER



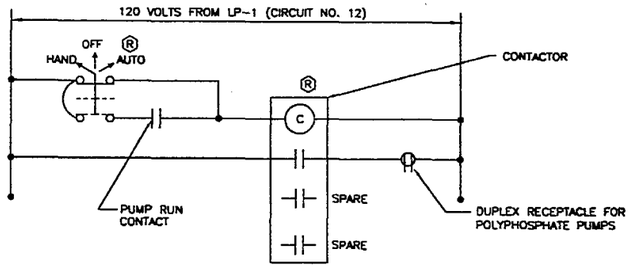
NOTES:

- (R) = IN OR ON THE TERMINAL COMPARTMENT
- (L) = LOCAL
- (M) IN OR ON THE MOTOR CONTROL CENTER

TYPICAL CONTROL SCHEMATIC FOR POLYPHOSPHATE PUMP #1

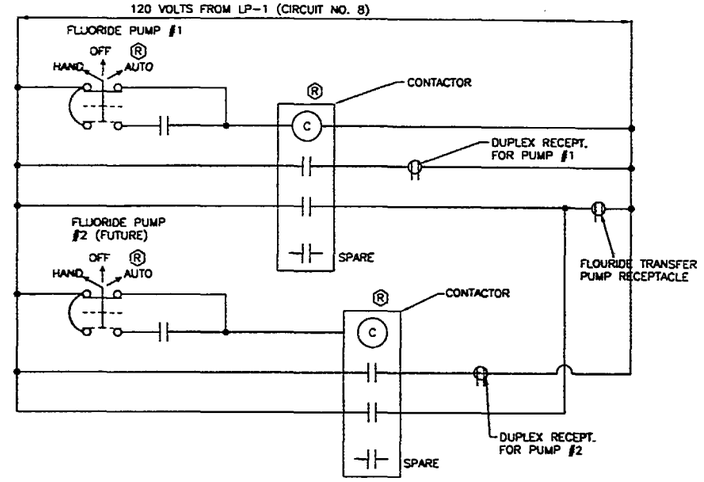


TYPICAL CONTROL SCHEMATIC FOR FUTURE POLYPHOSPHATE PUMP #2

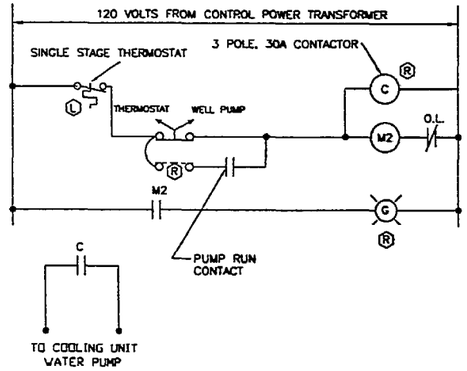


ELECTRICAL SYMBOLS

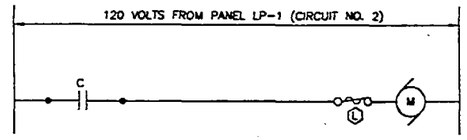
CONTROL SCHEMATIC FOR FLUORIDE PUMPS #1 & #2 AND FLUORIDE TRANSFER PUMP



CONTROL SCHEMATIC FOR COOLING UNIT FAN



CONTROL SCHEMATIC FOR COOLING UNIT WATER PUMP



RECORD DRAWING

101596

DATE
REVISION
SURVEY
DRAWN FIX
DESIGNED BAR
APPROVED HAS
DATE 10/8/98
COMM. 43803
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ELECTRICAL DETAILS
43803
SHEET 11 OF 11

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