City of Naperville

RFQ-22-114 Work Order #4 Engineering Services for Central Elevated Water Tank Relocation

Submitted by:

BAXTER & WOODMAN
Consulting Engineers

Revised: March 23, 2023

BAXTER & WOODMAN
Consulting Engineers
1548 Bond Street, Suite 103, Naperville, Illinois 60563 • baxterwoodman.com

March 23, 2023

Mr. Jason Xi
Engineering Manager
Department of Public Utilities - Water/Wastewater
City of Naperville
400 South Eagle Street
Naperville, IL 60566

Subject: ***City of Naperville - RFQ-22-114 Central Elevated Water Tank Relocation***

Dear Mr. Xi:

The City needs an experienced team to design a new 0.5 MG waterspheroid style tank to replace your existing water storage tank. Baxter & Woodman has a long history of designing elevated storage tanks, including one of the first water spheroid tanks built in the early 1950s. After carefully reviewing the project, our team has identified opportunities to provide added value to the City's project, including:

- **Competitive Bidding:** Bidding the tank demolition and new elevated tank construction separately can lead to more competition and potentially lower prices. Contractors who specialize in demolition may not necessarily have experience in constructing new tanks, and vice versa. Therefore, bidding each part separately allows the City to choose from a wider pool of specialized contractors, thereby increasing the chances of getting more competitive bids.
- **Railroad Coordination:** Constructing in close proximity to the Burlington Northern and Santa Fe Railway Company (BNSF) railroad may pose specific requirements and regulations that must be followed to confirm compliance. In the case of the tank construction project, we expect the railroad coordination to be minimal as long as construction in the airspace above does not encroach on the BNSF rights-of-way.
- **Public Outreach:** Public involvement is a critical aspect of any infrastructure project, including the construction of an elevated storage tank. Baxter & Woodman offers a variety of tools to help promote a positive public response, including on-site signage, project visualization and pre-construction renderings, and project canvassing. A proactive and transparent approach to public involvement can help to build support and understanding for the project, and can lead to a more positive outcome for all stakeholders involved.

If the City has any questions after reviewing our proposal, please contact me at 815-444-3335 or via email at dwold@baxterwoodman.com. We are excited to help Naperville with this exciting project!

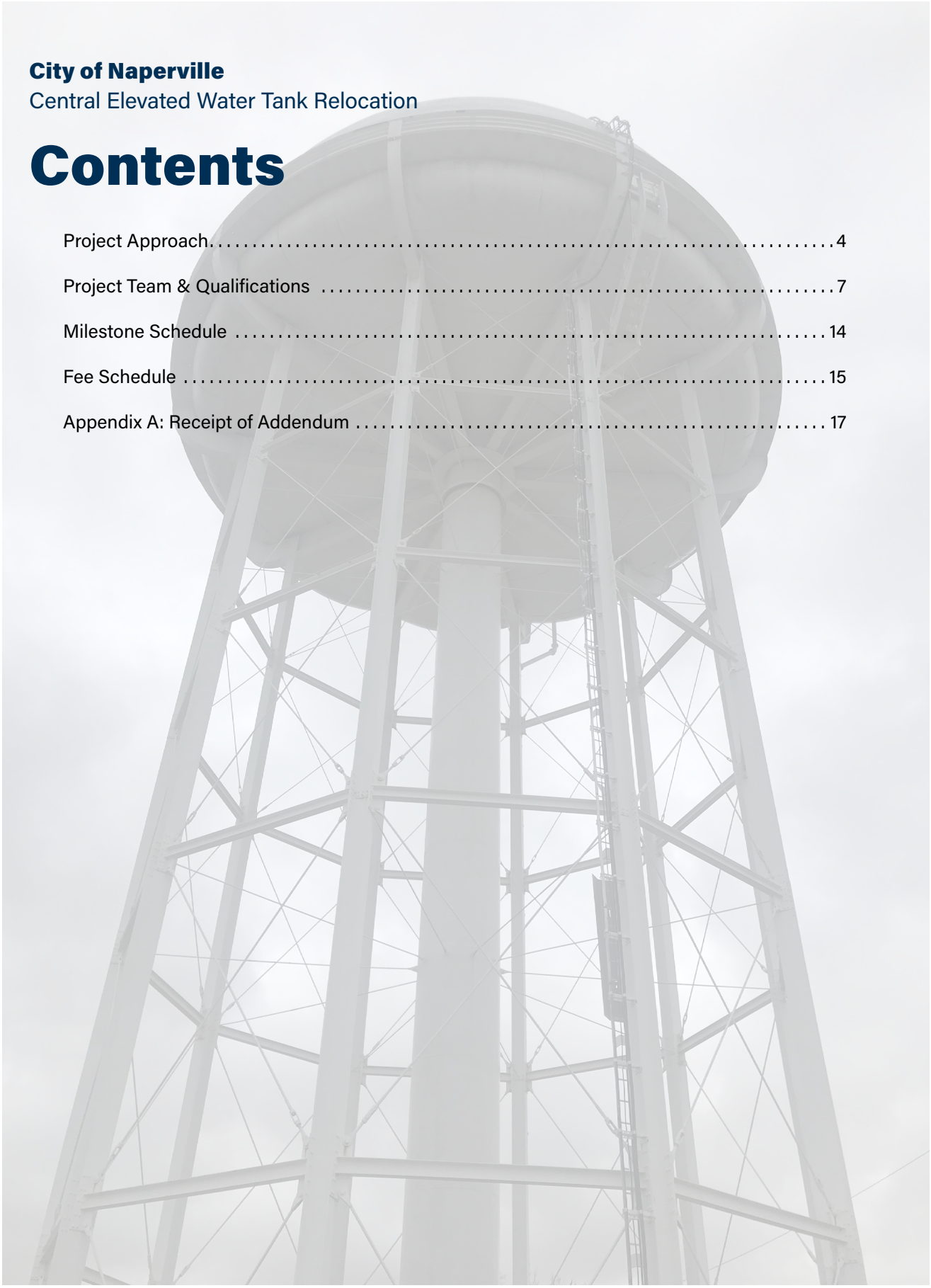
Sincerely,

BAXTER & WOODMAN, INC.
CONSULTING ENGINEERS

Derek J. Wold, PE, BCEE
Executive Vice President

City of Naperville
Central Elevated Water Tank Relocation

Contents



Project Approach

Suggestions for Project Improvement

Baxter & Woodman will work closely with City staff to prepare drawings and specifications for the new 0.5 MG waterspheroid style tank to replace the existing water storage tank.

This project includes the demolition of the existing 0.5 MG, multi-leg elevated water storage tank located in the middle of the parking lot and immediately adjacent to the northern border of the property and the south edge of the East 5th Street right-of-way. We've identified several suggestions for the City's consideration that would enhance the Central Elevated Water Tank Relocation project.

Elevated Storage Tank Experience

Baxter & Woodman has designed numerous elevated storage tanks over the past 77 years including one of the first water spheroid tanks constructed by Chicago Bridge and Iron in the early 1950s.

Baxter & Woodman is currently designing and providing construction services for three elevated tanks in various stages of design and construction ranging from 0.5 MG to 1.5 MG.

Competitive Bids

Tank demolition requires the services of a contractor that specializes in tank demolition. The construction of a new elevated tank is performed by the tank supplier, such as Chicago, Bridge & Iron. While the tank contractor could administer the demolition contract, they will increase the cost to cover their liability as well as their markup of the subcontractor's fee. It would be in the City's best interest to bid these two projects separately to promote more competitive bids. It is recommended the tank demolition not commence until the new tank is completed and all radio equipment located in the prefabricated structure below the tank has been relocated to inside the new tank.

Maintaining Tank and Radio Equipment in Service During Construction

While the City has the backup systems to permit demolition of the existing tank before the new tank is constructed, by keeping the tank and radio equipment in service, the equipment does not have to be moved twice or stored off site until the new tank is ready to receive it. The existing tank cannot be demolished until the radio equipment and the existing enclosure have been moved from under the tank. The equipment would have to be temporarily relocated, potentially off site, then returned to be placed inside the new tank. By waiting until the new tank is completed, the equipment only needs to be move once. The prefabricated radio equipment enclosure can be moved from under the tank and stored for possible repurposing.

Efficient Demolition: Keeping Radio Equipment in Service During Tank Construction

Construction Staging

The proposed tank is to be located on the same general site as the existing tank with the purpose of keeping as much of the parking lot property available for use as possible. In addition to functioning as a parking lot for the Metra Station, it also functions as a parking lot for a Farmers Market during the summer. The site is bordered by the BNSF railroad to the south, East 5th Avenue to the north, Loomis Street to the far west, and the Sports Measures Database Management Company to the east.

The main constraint with the site is the need for a 150-ft diameter construction area around the tank. The successful tank contractor will need that area to stage the steel tank pieces before lifting them into position to weld them together. In addition to the construction area, the diameter of the tank bowl will be a concern. Also known as the "dripline", the largest part of the tank bowl will be located roughly 116 feet in the air.

The dripline must be located outside any building setbacks dictated by City building codes while not encroaching on the BNSF rights-of-way or East 5th Avenue rights-of-way.

The tank will probably be located 80 feet west of the east property line with Sports Measures Database Management Company and 75 feet north of the BNSF railroad property line. That will place the dripline approximately 47 feet north of the railroad rights-of-way and a similar distance from the East 5th Avenue Rights-of-way. This will afford the most room for future recoating of the tank.

Altitude Valve

The City has requested that an altitude valve be incorporated into the tank design. While it is customary to place the valve and maintenance by-pass for the valve in a "pit" below the tank floor, this is typically done to place the valve and associated pilot system below the frost line to prevent freezing. This is not conducive to maintenance as the valve would be in a "confined space" below grade. In as much as a controlled climate structure will be built in the tank to house the radio equipment, the altitude valve could be located in an additional room ("wet room"). Being located on-grade, inspection and maintenance will be much easier. It is further recommended that the maintenance by-pass valve be capable of opening or closing remotely in the event the altitude valve fails to open or close.

Tank Mixing System

AWWA and the IEPA recognize the value of utilizing a mixing system on tanks that have a single inlet and outlet. The system mixes the tank that distributes chlorine entering the tank at the bottom throughout the tank. It is recommended that the "Dual-Riser" type of mixing system be added to the tank contract. This system is a non-

Public Outreach

Considering construction will impact the parking lot that serves Naperville's Farmers Market, early and ongoing communication to stakeholders is key to promoting a positive public response. Baxter & Woodman offers a robust communication plan that can be implemented from design through construction consisting of:

On-Site Signage - providing information about road closures, detours, and alternative routes

Project Visualization - Visualization provides a clear and realistic representation of the project, helping stakeholders to understand the design more easily

Project Canvassing - Handing out flyers to visitors at the Farmers Market ahead and during construction will mitigate the impacts of the project by providing information about noise, dust, and other potential disruptions, as well as outlining any measures that will be taken to minimize these impacts

invasive mixing system, which means there is no equipment mounted in the bowl of the tank. All equipment is located on the floor in the tank base. This system also has the capability to boost the chlorine residual if needed. The 2-hp, 150-gpm circulating pump could be located in the same room as the altitude valve and would operate on 240 V, single phase.

Continuous Chlorine Residual Monitoring

A continuous chlorine monitoring system from Swan Analytical USA, Inc. will be incorporated into the design of the "wet room" side of the enclosure planned for the base of the tank. Connections to the sanitary sewerage system as well as floor drains will be included. The signal from the unit will be provided for transmission to the City's SCADA system.

BNSF Railroad Concerns

Baxter & Woodman has worked with the BNSF railroad on several projects. Based upon a recent contact with the railroad, as long as the tank bowl does not encroach on the BNSF rights-of-way, they have no issues with the construction.

Railroad Coordination: Baxter & Woodman does not anticipate conflicts with the nearby railroad.

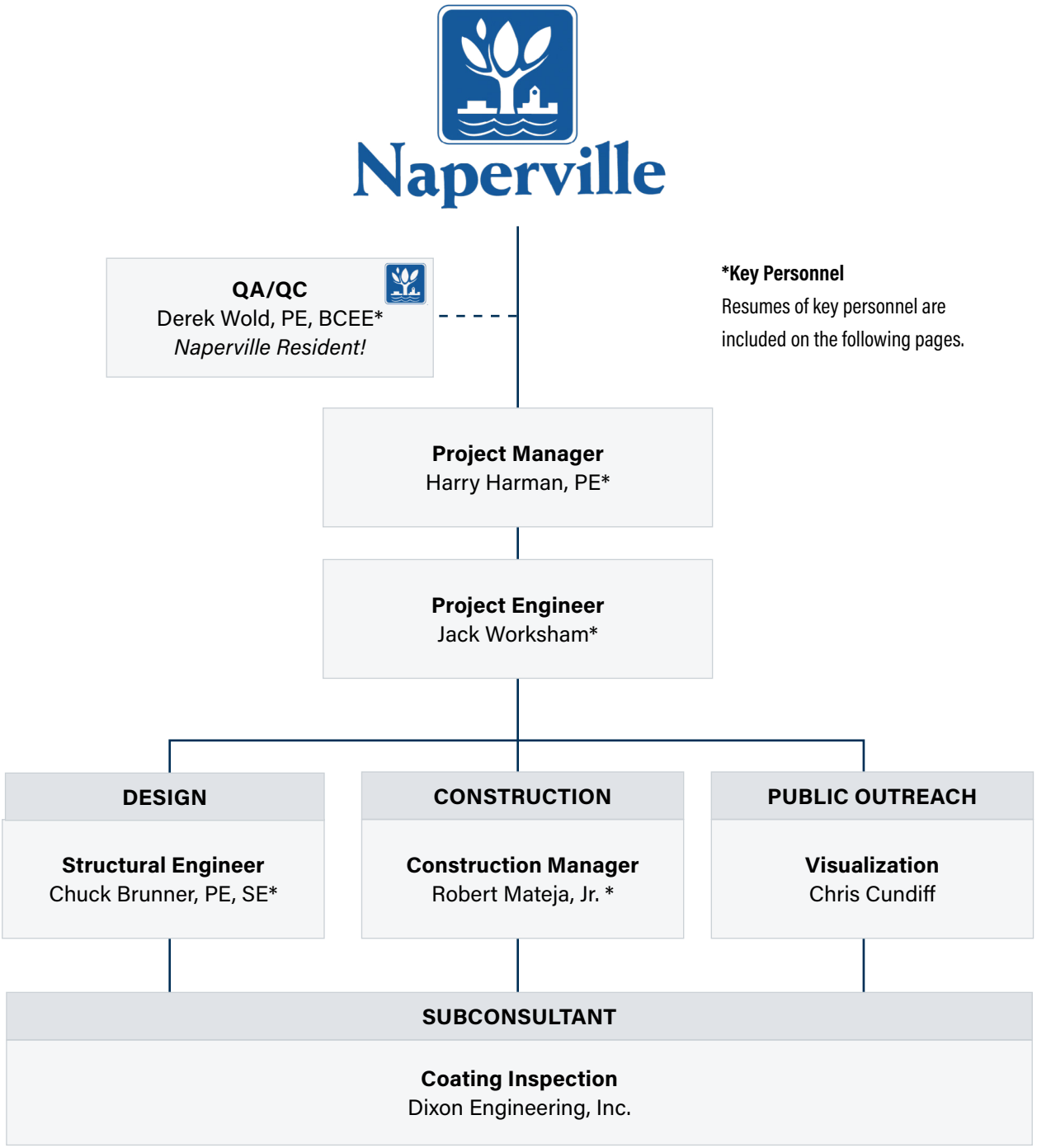
Tank Construction

The tank will be constructed in four-phases.

Phase I	**Construction of the Tank Foundation** Assuming soil conditions are adequate, a "spread footing" will be utilized. This will require a large excavation that will be approximately 50 feet in diameter and 10 ft deep. The location of the tank will place it within both the eastern parking lot and in the main parking lot, which has an elevation difference of 5 feet to 6 feet. The foundation of the tank will need to be in the lower-level parking lot. The grading around the tank will need to be modified; Baxter & Woodman will work with the City Staff to determine the best approach.
Phase II	**Construction Preparation** Once the concrete spread footing is ready to receive the tank, pieces of the steel tank will begin to arrive on site. This includes a specially designed crane that is attached to the center of the tank and lifts sheet steel pieces into position for welding.
Phase III	**Electrical System Installation** Once the basic tank is erected the electrical system including lighting panel, lights, conduit, and aircraft warning lights are installed. Any miscellaneous features will be completed including the interior structure to house the radio equipment tank mixing system, altitude valve, etc.
Phase IV	**Radio Equipment Relocation** Phase IV will be the relocation of the existing radio equipment into the building constructed inside the base of the tank.

Project Team & Qualifications

The City of Naperville will be served by an experienced team dedicated to providing outstanding responsiveness, high quality services, and meeting your expectations. Our team is deeply invested in your project's success considering the Principal on our team, QA/QC Reviewer Derek Wold, is a Naperville resident. The City can be confident we will deliver your project on time and within budget.



Harry D. Harman, PE

Project Manager

EDUCATION

B.S., Civil Engineering, Purdue University, 1977

Joined Firm in 1983

Years of Experience: 46

REGISTRATIONS

Licensed Professional Engineer: Illinois, Indiana, Florida, Texas, Wisconsin, Costa Rica

PAPERS/PRESENTATIONS

Sharing An Elevated Storage Tank During Tank Maintenance – A Tale of Two Villages, ISAWWA Section Conference (Springfield, IL) 2010

Water Storage Tanks – Operation, Maintenance, and Rehabilitation: Tank Site Selection, Tank Sizing, and Tank Permitting, College of Engineering, University of Wisconsin – Madison, February 27, 2007 (Visiting Instructor)

"Dual-Riser" Elevated Water Storage Tanks at Well Houses and WTPs – What Was An "Old Idea" Provides New Solutions, ISAWWA Section Conference (Springfield, IL) 2007

BAXTER & WOODMAN Consulting Engineers

Harry is the firm's Technical Director for Potable Water Systems. He routinely serves as Senior Design Engineer and QA/QC Reviewer with expertise in treatment facility design and operation, water distribution system analysis, and computer modeling. He also has extensive experience with electrical and instrumentation/control systems related to water and wastewater treatment, lift and pumping stations, ground and elevated storage tanks, and surface water and groundwater treatment issues.

REPRESENTATIVE PROJECTS

Allendale Association, IL
Design Engineer, Elevated Storage Tank Replacement Investigation
Advisor, Elevated Storage Tank Replacement Design

City of Delavan, Wisconsin
Project Manager/Design Engineer, 0.5mg East Side Elevated Storage Tank

Fox River Water Reclamation District, IL
Project Manager/Design Engineer, Skyline Utility 0.6mg Elevated Storage Tank

Gilberts, IL
Project Manager/Project Design Engineer, Clublands of Gilberts Elevated Storage Tank

Glenview, IL
Project Manager/Designer, 0.75mg Elevated Storage Tank Dual-Riser Design

Island Lake, IL
Project Manager/Design Engineer, Westridge Water Treatment Plant and Elevated Storage Tank
Senior Design Engineer, Northside Elevated Storage Tank

Lakewood, IL
Project Manager/Design Engineer, Turnberry Elevated Storage Tank and Well House Replacement

Maple Park, IL
Design Engineer, Elevated Storage Tank Design

Marengo, IL
Design Engineer, 2003 Water System Improvements - 1.0mg Water Storage Tank

South Elgin, IL
Project Manager/Design Engineer, Eastside Elevated Storage Tank

Sycamore, IL
Project Engineer, Elevated Storage Tank Design

Derek J. Wold, PE, BCEE

QA/QC Reviewer

EDUCATION

B.S. Civil Engineering, University of IL at Champaign-Urbana, 1996

M.S. Environmental Engineering, IL Institute of Technology, 2002

Joined Firm in 1996

Years of Experience: 27

REGISTRATIONS

Licensed Professional Engineer: Illinois

Licensed Professional Engineer: Florida

Licensed Professional Engineer: Texas

Board Certified Environmental Engineer, American Academy of Environmental Engineers

HONORS & AWARDS

2017 Central States Water Environment Association: Collection Systems Award

Derek is a Naperville resident and works out of our Naperville office. He leads Baxter & Woodman's Wastewater Group and serves as Executive Vice President on the firm's Board of Directors. He works closely with many growing and established municipalities and sanitary districts on planning infrastructure to serve growth and redevelopment areas and is the recognized water/wastewater expert for the numerous local municipalities and agencies the firm serves, including Plainfield, Downers Grove Sanitary District, Elmhurst, Carol Stream, Crystal Lake, and Crest Hill.

REPRESENTATIVE PROJECTS

Plainfield, IL

127th Street Ground Storage Tank and Pumping Station

Project Manager for the Ground Storage and Pumping Station project. Designed a pumping station and ground storage tank to allow the Village to receive Lake Michigan water from IL American Water Company to pump it into the distribution system. The ground storage tank is a five million gallon prestressed concrete tank equipped with mixing valves. The pumping station was designed with an initial capacity of 15mgd. The station contains two 250-Hp pumps to pump from the tank to the Village's low pressure zone and two 400-Hp pumps to pump to the high pressure zone.

Two features were included in the station to reduce pumping and electrical cost: a bypass line was installed to allow water to flow directly into the low pressure zone when the incoming pressure is above 50psi and three 100-Hp booster pumps were also installed to pump directly from the incoming transmission main to the high pressure zone. The pumping station was designed to accommodate three additional pumps to increase the ultimate capacity to 28mgd to serve a population of 140,000.

Plainfield, IL

Grande Park 1.25 MG Elevated Water Storage Tank

Project Manager for the design of Plainfield's Grande Park Elevated Water Storage Tank improvements.

Renwick Road 1.0 MG Elevated Water Storage Tank

Project Manager for the design of Plainfield's 1 MG waterspheroid tank on Renwick Road, just west of Route 59.

Beecher, IL

Water System Master Plan Update

Project Manager for Water Master Plan which analyzed and evaluated the capability of the Village of Beecher's water supply, storage and distribution facilities to meet the present and future water needs of the Village.

Shorewood, IL

Walnut Trails 1.0 MG Elevated Water Storage Tank

Project Manager for the design of the Village's 1.0 MG waterspheroid tank, located just south of Route 52 and West of Route 59.

BAXTER & WOODMAN Consulting Engineers

William "Jack" J. Worsham

Project Engineer

EDUCATION

M.S., Civil Engineering, Case Western Reserve University, 2019

B.S., Civil Engineering, Case Western Reserve University, 2018

Joined Firm in 2019

Years of Experience: 4

CONTINUING EDUCATION

The ABC's of Trench Drainage – ACO, Inc., July 2019

SKILLS

AutoCAD
ArcGIS
Microstation

ACHIEVEMENTS

Water Environment Federation Student Design Completion, 2018; Winner, presented at WEFTEC Student Design Competition

Jack is experienced with water resources engineering and water/wastewater planning and engineering. His water resources experience includes hydraulics, hydrology, and design of water and stormwater improvements. He recently completed widespread water main improvements for the City of Joliet that included more than 21 miles of water main over 15 project areas. Jack works closely with senior engineers in our water and wastewater departments.

REPRESENTATIVE PROJECTS

Beecher, IL
Dixie Highway (IL 1) Water Main Crossing
Project Engineer for the design of approximately 1,000-linear feet of water main, primarily directionally drilled crossing of IL 1 (Dixie Highway). Coordination was required with Illinois Environmental Protection Agency (IEPA), Illinois Department of Transportation (IDOT), and Will County for permitting and utility companies for service relocation and conflict identification.

Glenview, IL
Tall Trees Phase 1 Project 2 Roadway and Utility Improvements
Project Engineer for the re-design of 2,500-linear feet of water main, re-design of 1,000-linear feet of water main, and IEPA permitting as part of a roadway and infrastructure improvement project within the Tall Trees neighborhood.

Hoffman Estates, IL and Palatine, IL
2021 Interconnect, Booster Station and Water Main
Project Engineer for the design of 2,800-linear feet of 8-inch and 12-inch diameter water main to provide for an emergency water supply interconnection between the villages of Hoffman Estates and Palatine. Assisted with utility coordination, IEPA permitting, and cost estimating.

Joliet, IL
2022 Water Main Improvements
Project Engineer for the replacement of more than 21 miles of water main distributed across fifteen project areas. The water mains ranged in size from 6-inch to 16-inch, in addition to a directionally drilled 24-inch casing for a Canadian National Railway crossing.

Joliet, IL
2021 Water Main Improvements
The project consisted of six project areas encompassing six miles of water main replacement. Jack's project responsibilities consisted of utility coordination for all six projects; the design of approximately 7,500-lineal feet of water main with hydrants, valves, and appurtenances; editing specifications and cost estimates for two project areas; and coordination of IEPA permits for all six areas.

Lake County Division of Transportation, IL
Hunt Club Road at Washington Street Intersection Improvements Phase I/II
Project Engineer for the design of 2,800-linear feet of water main and IEPA permitting as part of a high-volume intersection improvement project in Gurnee.

BAXTER & WOODMAN Consulting Engineers

Charles A. Brunner, PE, SE

Structural Engineer

EDUCATION

B.S., Civil Engineering, Purdue University, 1983

Joined Firm in 1987

Years of Experience: 40

REGISTRATIONS

Licensed Structural Engineer: Illinois

Licensed Professional Engineer: Illinois, Wisconsin, Florida, and Texas

CERTIFICATIONS

NBIS Certified Program Manager, Illinois Department of Transportation

ASSOCIATIONS

International Code of Council (ICC)

American Society of Civil Engineers (ASCE)

Structural Engineers Institute (SEI)

American Concrete Institute (ACI)

American Institute of Steel Construction (AISC)

Chuck is called upon to review the structural design of all projects, including well houses, pumping stations, water storage facilities, water and wastewater treatment facilities, bridges, retaining walls, and drainage structures. He is also an IDOT-approved National Bridge Inspection Program Manager and routinely prepares bridge inspection reports for our municipal clients.

REPRESENTATIVE PROJECTS

Carpentersville, IL
Western Utilities Extension
Project Manager and Engineer of Record for design of 1,500,000-gallon, waterspheriod style, steel elevated water storage tank.

Addison, IL
Golden Gate Elevated Water Storage Tank
Project Engineer for design of 750,000-gallon, fluted column style, steel, elevated water storage tank.

Carpentersville, IL
Bolz Road Elevated Water Storage Tank
Project Manager and Engineer of Record for design of 750,000-gallon, waterspheriod style, steel elevated water storage tank.

McHenry, IL
Water System Improvements Tank No. 3
Project Manager and Engineer of Record for design of 750,000-gallon, waterspheroid style, steel elevated water storage tank.

McHenry, IL
Water System Improvements Tank No. 4
Project Manager and Engineer of Record for design of 1,000,000-gallon, waterspheroid style, steel elevated water storage tank.

Park Forest, IL
Autumn Ridge Elevated Water Storage Tank
Project Manager and Engineer of Record for design of 500,000-gallon, waterspheroid style, steel elevated water storage tank.

Rochelle, IL
Water System Improvements
Project Manager and Engineer of Record for design of 500,000-gallon, waterspheroid style, steel elevated water storage tank.

Woodstock, IL
Sanctuary of Bull Valley Elevated Water Storage Tank
Project Manager and Engineer of Record for design of 300,000-gallon waterspheroid style, steel elevated water storage tank.

BAXTER & WOODMAN Consulting Engineers

Robert E. Mateja, Jr.
Construction Manager

EDUCATION
B.A., Environmental Design
University of Wisconsin

Joined Firm in 2011

Years of Experience: 32

TRAINING/CERTIFICATION
Doug Cartland, Inc.
"Creating Excellence in Communication and Customer Relations" training, 2016

Doug Cartland, Inc.
"Problem/Communication Resolution" training, 2017

Bob is a senior construction manager with over 30 years of experience. Much of his construction expertise has been developed through the planning and construction of municipal (public sector) projects. Bob is skilled in all phases of new, renovation, and design-build construction projects from design stage through management, completion, and closeout. His professional reputation and attitude foster open communications and good relationships between owners, engineers, and contractors.

REPRESENTATIVE PROJECTS

Beloit, WI
Well No. 14, Blending Reservoir and Pumping Station
Construction Manager for the construction of a new deep well, 2.5mg pre-stressed concrete, wire wound, ground level potable water storage tank, and pumping station to mitigate high nitrate levels from nearby Well No. 11. The new water supply facilities are also used to help prop up hydraulic gradients in the area and provide the ability for "off-peak" electrical power utilization.

Bolingbrook, IL
Sewage Treatment Plant No. 3 Renovation
Construction Manager for the major renovation to the wastewater treatment plant. Improvements included new oxidation ditch, two final settling tanks, renovation to the raw sewage pump station, renovation to RAS and WAS pump stations, new electrical and control building, and chemical feed building.

Elmhurst, IL
Water Reclamation Facility Grit Removal System Replacement
Provided cost estimation for the replacement of 25-year-old grit removal system, including grit pumps; grit tank equipment (scrapers, blades, flow deflectors); grit classifiers; gates/valves; and air piping/nozzles; influent sampler; interior and exterior yard lighting; piping and electrical revisions required for the grit removal system; and control system and panel.

Delavan, WI
Elevated Tank Improvements
Construction Manager for 0.5mg elevated tank improvements.

Round Lake, IL
Panther Elevated Storage Tank
Construction Manager for Panther Elevated Storage Tank Improvements.

Crystal Lake, IL
Crystal Lake Water Treatment Plant No. 2
Construction Manager for Crystal Lake's Water Treatment Plant No. 2

BAXTER & WOODMAN Consulting Engineers

DIXON ENGINEERING, INC.

Dixon Engineering, Inc. (DIXON) is headquartered in Lake Odessa, Michigan. DIXON Was founded in 1981 and incorporated in the State of Michigan in 1984. DIXON is a consulting engineering firm specializing in the evaluation and preparation of specifications and contract documents for the coating and rehabilitation of steel and concrete structures. They offer an extensive structural and coating inspection program, specializing in water storage tanks, clarifiers, pump stations, piping galleries and bridges. They have been specifying containment system requirements for lead abatement on water storage tanks since 1987.

William J. Dixon, P.E. started as a tank painting contractor from 1972 to 1974 where he observed the lack of independent third party inspection on storage tank projects. Within DIXON'S first five years of business we developed over 200 clients in the Industrial, Federal and State sectors. Their credibility is enhanced by the fact that we coordinate with, but are completely independent of contractors and material suppliers. This allows for unbiased inspections and recommendations. DIXON now has over 1300 municipal, industrial, Federal and State clients. They perform over 150 maintenance inspections and provide inspection services on over 60 coating projects annually. DIXON began with one engineer, one inspector, and one office staff person. We now employ over 60 people in 10 offices in 8 states.

DIXON maintains a staff of engineers and field technicians who are National Association of Corrosion Engineers (NACE), American Welding Society (AWS) certified, and American Petroleum Institute (API) 651 certified. Their training and experience ensures satisfactory work standards with all work meeting project specifications.

DIXON has been a leader in the coating engineering and inspection field as well as regulatory compliance for the coating industry for over 30 years. William J. Dixon, President and Founder, is actively involved with the American Water Works Association (AWWA), national and state sections; and the Society for Steel Coatings. He has chaired many committees and presently is an AWWA D-100 Standards Council Member.

The experience DIXON has gained from thousands of storage tank inspections and coating inspection projects, allows them to help owners achieve their goal of maximizing the service lives of their storage tanks, while minimizing their maintenance costs.

Milestone Schedule

	MONTH ONE					MONTH TWO				MONTH THREE					MONTH FOUR				MONTH FIVE				MONTH SIX					MONTH SEVEN				CONSTRUCTION		
	MAY 1,2023	MAY 8, 1023	MAY 15, 2023	MAY 22, 2023	MAY 29, 2023	JUNE 5 2023	JUNE 12, 2023	JUNE 19, 2023	JUNE 26, 2023	JULY 3, 2023	JULY 10, 2023	JULY 17, 2023	JULY 24, 2023	JULY 31, 2023	AUGUST 7, 2023	AUGUST 14, 2023	AUGUST 21, 2023	AUGUST 28, 2023	SEPTEMBER 4, 2023	SEPTEMBER 11, 2023	SEPTEMBER 18, 2023	SEPTEMBER 25, 2023	OCTOBER 2, 2023	OCTOBER 9, 2023	OCTOBER 16, 2023	OCTOBER 23, 2023	OCTOBER 30, 2023	NOVEMBER 6, 2023	NOVEMBER 13, 2023	NOVEMBER 20, 2023	NOVEMBER 27, 2023	Q1 2024	Q2 2025	Q3 2025
PRELIMINARY DESIGN																																	
SITE VISIT	X																																
SURVEY		X																															
MECHANICAL TANK DESIGN		X	X	X																													
SITE BASE DRAWING FROM CADD			X																														
LOCATE TANK ON SITE			X																														
MEET WITH CLIENT TO CONFIRM LOCATION				X																													
RETURN SITE LAYOUT TO CADD				X																													
RECEIVE SITE PLAN FROM CADD					X																												
ARRANGE FOR SOIL REPORT					X																												
BEGIN ELECTRICAL/INSTRU DESIGN					X	X	X	X																									
CIVIL/SITE DESIGN					X	X	X	X																									
RECEIVE SOILS REPORT											X																						
STRUCTURAL DESIGN											X	X	X																				
FINAL DESIGN																																	
CIVIL DESIGN DETAILS						X	X																										
MECHANICAL DESIGN DETAILS						X	X																										
ELECTRICAL/INSTRUMENT DETAILS						X	X																										
STRUCTURAL DETAILS						X	X																										
SPECIFICATIONS								X	X	X			X																				
PEER REVIEWS														X	X																		
ADDRESS PEER REVIEW COMMENTS																X																	
COST ESTIMATES							X	X																									
FINAL DOCUMENTS																X																	
PERMITS - IEPA (90-DAYS)															X																		
PERMITS - FAA								X																									
BIDDING ASSISTANCE																	X	X	X	X													
BID OPENING																				X													
LETTER OF RECOMMENDATION																				X													
CONSTRUCTION																																	
Notice to Proceed																															X		
Substantial Completion																																X	
Final Completion																																	X

Fee Schedule

The cost of all equipment and labor to complete the work as identified shall no exceed:

$ 192,670.00

Quote Provided by: Derek J. Wold Derek J. Wold, PE BCEE

Signature Printed

Company and Address: Baxter & Woodman, Inc.

1548 Bond St., Suite 103

Naperville, IL 60563

QUOTES ARE DUE NO LATER THAN 2:00 P.M. STANDARD CENTRAL TIME ON FRIDAY, March 17, 2023. QUOTES TO BE SUBMITTED BY EMAIL TO JASON XI AT xij@naperville.il.us. ANY QUESTIONS SHOULD BE EMAILED TO JASON XI AT xij@naperville.il.us. THE CITY OF NAPERVILLE IS TAX EXEMPT.

Detailed Fee Breakdown

Village of Naperville

Plan Number: 222457.40

Plan Name: NAPRC-Central Water Storage Tank Relocation

Level	Emp	Planned Hrs	Planned Labor Bill	Compensation Fee	Consultant Fee	Reimb Allowance	Total Compensation
Overall Project Total		**916.00**	**101,700.00**	**108,920.00**	**83,750.00**	**0.00**	**192,670.00**
CS100 Construction Services		400.00	11,420.00	11,420.00	48,750.00	0.00	60,170.00
	Dixon Engineering (Sub)	340.00			48,750.00		
	Charles Brunner	6.00	1,440.00				
	Harry Harman	6.00	1,200.00				
	Robert Mateja	44.00	8,140.00				
	Edward Shoop	4.00	640.00				
CS200 Outside Contracts (Integration Design)				0.00	35,000.00	0.00	35,000.00
WEXPEN Reimbursable expenses				200.00	0.00	0.00	200.00
WI100 Preliiminary Design		226.00	38,820.00	40,800.00	0.00	0.00	40,800.00
	Michael Becker	40.00	7,000.00				
	Anthony Bianchin	20.00	3,700.00				
	Charles Brunner	12.00	2,880.00				
	Michael Gryn	36.00	7,200.00				
	Harry Harman	25.00	5,000.00				
	Constance Kilgore	5.00	700.00				
	Kerry Lantau	40.00	5,600.00				
	Joseph Molidor	2.00	300.00				
	Adonis Nacino	10.00	1,400.00				
	Jack Worsham	36.00	5,040.00				
WI200 Final Design		172.00	28,840.00	32,500.00	0.00	0.00	32,500.00
	Michael Becker	40.00	7,000.00				
	Charles Brunner	8.00	1,920.00				
	Michael Gryn	36.00	7,200.00				
	Harry Harman	20.00	4,000.00				
	Kerry Lantau	12.00	1,680.00				
	KathyJo Townson	16.00	1,440.00				
	Jack Worsham	40.00	5,600.00				
WI300 Peer Reviews		14.00	2,730.00	3,000.00	0.00	0.00	3,000.00
	Charles Brunner	2.00	480.00				
	Timothy Chan	4.00	740.00				
	Michael Gryn	2.00	400.00				
	Robert Mateja	6.00	1,110.00				
WI400 Cost estimates		20.00	3,880.00	4,000.00	0.00	0.00	4,000.00
	Michael Gryn	4.00	800.00				
	Harry Harman	8.00	1,600.00				
	Robert Mateja	8.00	1,480.00				
WI500 Permits		16.00	2,300.00	2,500.00	0.00	0.00	2,500.00
	Harry Harman	4.00	800.00				
	Barbara Tobin	4.00	380.00				
	Jack Worsham	8.00	1,120.00				
WI600 Bidding Assistance		14.00	2,910.00	3,000.00	0.00	0.00	3,000.00
	Michael Becker	2.00	350.00				
	Charles Brunner	2.00	480.00				
	Carolyn Grieves	2.00	480.00				
	Harry Harman	8.00	1,600.00				
WI700 General Project Administration		54.00	10,800.00	11,500.00	0.00	0.00	11,500.00
	Michael Becker	2.00	350.00				
	Charles Brunner	1.00	240.00				
	Michael Gryn	4.00	800.00				
	Harry Harman	38.00	7,600.00				
	Derek Wold	5.00	1,250.00				
	Jack Worsham	4.00	560.00				

Appendix A:
Receipt of Addendum

CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

RFQ 22-114 WO#4

CENTRAL ELEVATED WATER TANK RELOCATION

The attention of bidders is called to the following changes, clarifications and/or additions/deletions to the original contract specifications and drawings and they shall be taken into account in preparing proposals and shall be part of the Contract Documents:

INFORMATION

- A Mandatory pre-bid meeting was held on February 27, 2023 at 1:00 pm at 418 E 5th Avenue, Naperville, IL**.** The sign-in sheet from the meeting is attached.
- An example of water tower equipment layout from City North Elevated Water Tower is attached for consultant's reference.

SCOPE CHANGES

1. The following scopes are excluded from the design:

   a. The new elevated water tank's structural design will not be part of the design tasks in this project. However, consultants need to include enough information in the bid document so that the contractor can provide shop drawings accordingly.

   b. The city will directly hire a contractor to perform soil borings and provide the information for the consultant to include in the bid package. The consultant would need to provide the city with the boring locations and requirements.

2. The flowing scope is added to the design:

   a. Please coordinate with the City Department of Transportation, Engineering Development (TED) for the new parking lot layout after the existing water tower is removed.

   b. If additional space from the parking lot is needed to install the new water elevated tank, the consultant needs to coordinate with the City TED Department.

Bidders shall include this Addendum #1 in the Offer to Contract.

Attachments: Pre-Bid Meeting sign in sheet;
Example Project: North Elevated Water Tower

Jason Xi
Engineering Manager
February 27, 2023

PRE-BID MEETING SIGN IN SHEET

CENTRAL ELEVATED WATER TANK DESIGN

February 27, 1:00AM

418 5th Avenue, Naperville

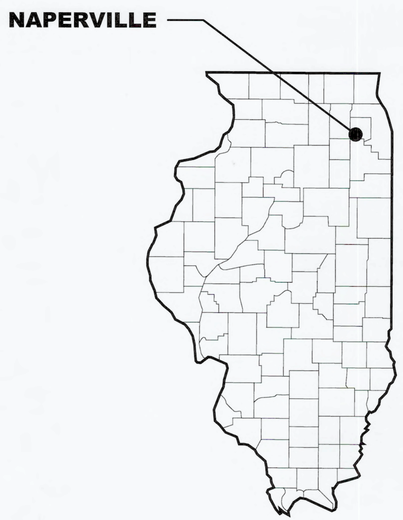
Name	Affiliation	Phone	Email
Jason Xi	City of Naperville	(630)420-6702 desk (630)854-2479 cell	xij@naperville.il.us
HARRY HARKMAN	BAXTER & WOODMAN	815 577-3845 815 444 3235	hharkman@BAXTERWOODMAN.COM
LUKE MATTSON	CIORBA	773-892-9795 (C)	lmattson@ciorba.com
D Blenniss	Naperville	847-715-9096	blenniss@naperville.il.us
Andrew Deitchman	Fehr Graham	630 897 4651	adeitchman@FehrGraham.com
Jeff King	Naperville	630 420 4160	King@naperville.il.us
Katrina Lopez	CIORBA	(847) 878-4782	klopez@ciorba.com
Tony Conn	CDM		
Alex Bielawa	Naperville		bielawaa@naperville.il.us
Kai Hung	CDM smith. ~~Naperville~~	312-509-5884	Hungk@cdmsmith.com

SAMPLE PROJECT

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31

FOR THE

CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS



PROJECT LOCATION MAP
NO SCALE

WELL NO. 31
1570 W. DIEHL ROAD,
NAPERVILLE, IL

AREA MAP
NO SCALE

WELL NO. 28
1603 N. WEST STREET,
NAPERVILLE, IL

LIST OF DRAWINGS

SHEET NO.	DRAWING NO.	DRAWING TITLE
1	00-G0.01	TITLE SHEET, SITE LOCATION MAP, AND LIST OF DRAWINGS
2	00-G0.02	STANDARD SYMBOLS
3	00-G0.03	ABBREVIATIONS
4	28-C1.01	WELL NO. 28 AND NET SITE PLAN
5	28-C1.02	WELL NO. 28 AND NET SITE EROSION CONTROL AND RESTORATION PLAN
6	28-C1.03	WELL NO. 28 PROPOSED UTILITY SITE PLAN
7	28-CE1.01	WELL NO. 28 DEMOLITION AND PROPOSED ELECTRICAL SITE PLAN
8	28-C5.01	WELL NO. 28 SECTIONS AND DETAILS - 1
9	28-C5.02	WELL NO. 28 SECTIONS AND DETAILS - 2
10	28-D1.01	WELL NO. 28 VALVE VAULT DEMOLITION PLAN AND SECTIONS
11	28-CSM1.01	WELL NO. 28 VALVE VAULT PLAN, AND SECTIONS
12	28-CSM1.02	WELL NO. 28 CHLORINE ROOM PLAN, SECTIONS, AND DETAILS
13	28-DE1.01	ELEVATED TANK PEDESTAL DEMOLITION AND ELECTRICAL PLANS
14	28-E1.02	WELL NO. 28 VALVE VAULT AND CHLORINE BUILDING ELECTRICAL PLANS
15	28-P1.01	WELL NO. 28 VALVE VAULT AND NET DETAILS AND SCHEMATICS
16	28-P1.02	WELL NO. 28 AND NET CHLORINE SCHEMATICS
17	28-E5.01	WELL NO. 28 VALVE VAULT AND NET ELECTRICAL DETAILS AND SCHEDULES
~~18~~	~~31-C1.01~~	~~WELL NO. 31 AND NWWW SITE PLAN~~
~~19~~	~~31-CE1.01~~	~~WELL NO. 31 DEMOLITION AND ELECTRICAL SITE PLANS~~
~~20~~	~~31-C1.02~~	~~WELL NO. 31 AND NWWW SITE RESTORATION PLAN~~
~~21~~	~~31-C5.01~~	~~WELL NO. 31 DETAILS~~
~~22~~	~~31-D1.01~~	~~WELL NO. 31 VALVE VAULT DEMOLITION PLAN AND SECTIONS~~
~~23~~	~~31-CSM1.01~~	~~WELL NO. 31 VALVE VAULT PLAN AND SECTIONS~~
~~24~~	~~31-ASM1.02~~	~~NWWW CHLORINE ROOM DEMOLITION PLAN, CHLORINE ROOM PLAN, AND PUMP STATION PLANS~~
~~25~~	~~31-P1.01~~	~~WELL NO. 31 AND NWWW CHLORINE SCHEMATICS~~
~~26~~	~~31-P1.02~~	~~WELL NO. 31 DWC AND RESERVOIR CHLORINE SCHEMATIC~~
~~27~~	~~31-E1.01~~	~~WELL NO. 31 NWWW PUMPING STATION, CHLORINE ROOM, AND VALVE VAULT ELECTRICAL PLANS~~
~~28~~	~~31-E5.01~~	~~WELL NO. 31 ELECTRICAL ELEVATIONS, SCHEDULES, AND ONE-LINE DIAGRAM~~
29	99-E5.01	ELECTRICAL DETAILS AND SCHEDULES

BRENT M. STUDNICKA
062-056361
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
Exp. 11/30/2021

LICENSED PROFESSIONAL ENGINEER
ANDY LAMONT MULLENDORE
062-068183
STATE OF ILLINOIS
Exp 11/30/2021

1170 SOUTH HOUBOLT ROAD
JOLIET, IL 60431
815 744-4200
815 744-4215 FAX
WWW.STRAND.COM
IDFPR NO. 184-001273

CONTRACT 1-2019
BID NUMBER 20-071

STRAND ASSOCIATES®

ISSUED FOR BID FEBRUARY 19, 2020

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ELECTRICAL SYMBOLS

LIGHTING

- FIXTURE SYMBOL (TYPICAL) A–INDICATES FIXTURE TYPE 2–INDICATES CIRCUIT NUMBER b–INDICATES SWITCHING SOLID CIRCLE INDICATES ALWAYS ON
- SURFACE OR PENDANT MOUNTED
- WALL MOUNTED
- 1X4 SURFACE OR PENDANT MOUNTED LINEAR
- 1X8 SURFACE OR PENDANT MOUNTED LINEAR
- LINEAR WALL MOUNTED
- 1X4 RECESSED LINEAR
- 2X2 RECESSED LINEAR
- 2X4 RECESSED LINEAR
- RECESSED CAN
- EXIT, SURFACE, PENDANT OR RECESSED
- EXIT, WALL
- EMERGENCY LIGHTING

SWITCHES

- $ SINGLE POLE
- $2 TWO POLE
- $3 THREE WAY
- $4 FOUR WAY
- $K KEYED
- $D DIMMER
- $M MANUAL MOTOR SWITCH (3 PHASE)
- $WP WEATHER PROOF
- $P SWITCH WITH PILOT LIGHT
- LC LIGHTING CONTROL STATION
- PC PHOTOCELL

EQUIPMENT AND WIRING

- GROUND CONNECTION (ONE–LINE DIAGRAM)
- TRANSFORMER
- F DISCONNECT, F=FUSED, B=CIRCUIT BREAKER, BLANK=NON–FUSED
- MOTOR STARTER MAGNETIC
- CIRCUIT BREAKER COMBINATION STARTER
- JUNCTION BOX
- T LINE VOLTAGE THERMOSTAT
- T LINE VOLTAGE THERMOSTAT W/REMOTE BULB
- P–01–01 480V LOAD, REFER TO MCC SCHEDULE FOR EQUIPMENT NUMBER
- VFD VARIABLE FREQUENCY DRIVE

SITE SYMBOLS

- E UNDERGROUND ELECTRIC
- OH OVERHEAD ELECTRIC
- C CABLE TELEVISION SERVICE
- T TELEPHONE SERVICE
- FO FIBER OPTIC CABLE
- UTILITY POLE

POWER SYMBOLS

- 2(X) CIRCUIT NUMBER (TYPICAL); OTHERWISE SHOWN PANEL DESIGNATION (TYP.)
- DUPLEX, 125 VOLT, WP INDICATES WEATHERPROOF
- DUPLEX, 125 VOLT, ABOVE FURNITURE
- DOUBLE DUPLEX, 125 VOLT, ABOVE FURNITURE
- DOUBLE DUPLEX, 125 VOLT
- EWC SINGLE CONVENIENCE, 125 VOLT FOR ELECTRIC WATER COOLER
- EXPLOSION–PROOF, ABOVE FURNITURE
- EXPLOSION–PROOF
- FIXED EQUIPMENT CONNECTION
- POWER OUTLET, VOLTAGE & AMPERAGE AS INDICATED
- AUTOMATIC TRANSFER SWITCH (ONE–LINE DIAGRAM)
- CIRCUIT BREAKER (ONE–LINE DIAGRAM)
- M METER (ONE–LINE DIAGRAM)
- PANELBOARD
- CURRENT TRANSFORMER (ONE–LINE DIAGRAM)
- VOLTAGE/POTENTIAL TRANSFORMER (ONE–LINE DIAGRAM)
- FUSE (ONE–LINE DIAGRAM)
- SWITCH (ONE–LINE DIAGRAM)

FIRE ALARM AND DETECTION SYMBOLS

- FACP FIRE ALARM CONTROL PANEL
- FAAP FIRE ANNUNCIATOR CONTROL PANEL
- FA ## STROBE; WALL MOUNT – ADA RATED; STROBE CANDELA RATING 80" AFF
- FA H HORN STROBE; WALL MOUNT – ADA RATED; STROBE CANDELA RATING 80" AFF
- FA S SPEAKER STROBE; WALL MOUNT – ADA RATED; STROBE CANDELA RATING 80" AFF
- FA H HORN; WALL MOUNT – ADA RATED
- FA S SPEAKER; WALL MOUNT – ADA RATED
- ## STROBE; CEILING MOUNT – ADA RATED; STROBE CANDELA RATING
- ## HORN STROBE; CEILING MOUNT – ADA RATED; STROBE CANDELA RATING
- S ## SPEAKER STROBE; CEILING MOUNT – ADA RATED; STROBE CANDELA RATING
- ARA AREA OF RESCUE ASSISTANCE
- EMERGENCY TELEPHONE SYSTEM
- H HEAT DETECTOR; CEILING MOUNT
- Z SMOKE DETECTOR; CEILING MOUNT
- Z R ELEVATOR RECALL SMOKE DETECTOR
- NOX NITROUS OXIDE SENSOR
- CO CARBON MONOXIDE SENSOR
- DSD a ## SWITCH INDICATION; DUCT SMOKE DETECTOR; DUCT SIZE
- RTS a REMOTE TEST SWITCH; SWITCH INDICATION
- FIRE ALARM PULL STATION
- SFS SPRINKLER FLOW SWITCH
- TM SPRINKLER VALVE TAMPER SWITCH
- B FIRE ALARM BELL

INSTRUMENTATION EQUIPMENT

- AE ANALYSIS ELEMENT
- AIT* ANALYSIS INDICATING TRANSMITTER, *: DO=DISSOLVED OXYGEN, PH=PH, TRB=TURBIDITY, TSS=TOTAL SUSPENDED SOLIDS, GD=GAS DETECTOR, CA=CHLORINE ANALYZER, OP=OXYGEN PURITY, ORP=OXYGEN–REDUCTION POTENTIAL, LEL=LOWER EXPLOSIVE LIMIT, PR=PROXIMITY, MST=MOISTURE
- CS 1,2 CONTROL SWITCH; DEVICE TYPE; (SEE MCC SCHEDULE)
- DE DENSITY ELEMENT
- DIT DENSITY INDICATING TRANSMITTER
- FE FLOW ELEMENT
- FIT* FLOW INDICATING TRANSMITTER, *: M=MAGNETIC, TM= THERMAL MASS DP=DIFFERENTIAL PRESSURE, U=ULTRASONIC
- FIC FLOW INDICATING CONTROLLER
- FS* FLOW SWITCH *: P=PADDLE, T=THERMAL, C=CAPACITANCE, A=AIR FLOW
- HS* HAND SWITCH *: SS=SAFETY SWITCH
- IE OR EE POWER ELEMENT (CURRENT XFMR, POTENTIAL XFMR)
- IS CURRENT SWITCH
- JIT POWER INDICATING TRANSMITTER
- KS TIME SWITCH
- LE LEVEL ELEMENT
- LIT* LEVEL INDICATING TRANSMITTER, *: S=SUBMERSIBLE, U=ULTRASONIC, R=RADAR, TL=TANK LEVEL/RING PRESSURE TYPE, F=FLANGE MOUNTED)
- LS* LEVEL SWITCH, *: C=CONDUCTANCE, F=BALL FLOAT, V=VIBRATING FORK, B=BUILDING FLOODING
- LT* LEVEL TRANSDUCER S=SUBMERSIBLE
- PDIT DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
- PE PRESSURE ELEMENT
- PIT PRESSURE INDICATING TRANSMITTER
- PS PRESSURE SWITCH
- SS SPEED SWITCH
- TC TEMPERATURE CONTROLLER
- TE* TEMPERATURE ELEMENT, *: R=RTD, T=THERMOCOUPLE
- TIT TEMPERATURE INDICATING TRANSMITTER
- TK TEMPERATURE CONTROL STATION
- TS TEMPERATURE SWITCH
- TT TEMPERATURE TRANSMITTER
- VE VIBRATION ELEMENT
- VIT VIBRATION INDICATING TRANSMITTER
- WE WEIGHT ELEMENT
- WS TORQUE SWITCH
- WT WEIGHT TRANSMITTER (SCALE)
- YS PRESENCE/ABSENCE DETECTOR
- ZS* POSITION SWITCH, *: D=DOOR, L=LIMIT, P=PROXIMITY
- SOLENOID VALVE
- GD H GAS DETECTION SYSTEM HORN; WALL MOUNT
- GD GAS DETECTION SYSTEM STROBE; WALL MOUNT

TECHNOLOGY SYMBOLS

- (*) DATA JACK
- (*) PHONE JACK
- (*P *D) POTS ANALOG PHONE AND DATA JACKS * = # OF JACKS
- VOIP WALL MOUNT VOIP PHONE JACK 54" AFF
- W WALL MOUNT POTS ANALOG PHONE JACK 54" AFF
- 2–POST DATA RACK
- COAX CABLE JACK
- POWER POLE
- PA H PA SYSTEM HORN; 10'–0" AFF
- PA S PA SYSTEM SPEAKER
- A SPEAKER; CEILING MOUNT A=SPEAKER TYPE
- K KEY PAD
- GBD GLASS BREAK DETECTOR
- MS MOTION SENSOR
- P PUSH BUTTON
- ES ELECTRIC STRIKE
- ML MAGNETIC LOCK
- I INTERCOM STATION
- OS ## OCCUPANCY SENSOR, CEILING, OR WALL; SEE SPECIFICATION FOR SENSOR TYPE
- YE CARD READER
- RVC REMOTE VOLUME CONTROL
- FIX FIXED SECURITY CAMERA
- PTZ PAN, TILT, ZOOM SECURITY CAMERA

DUCTWORK SYMBOLS

- SUPPLY DUCT (UP OR SECTION)
- SUPPLY OR OUTSIDE AIR DUCT (DOWN/OR AWAY)
- EXHAUST DUCT (UP OR SECTION)
- EXHAUST OR RETURN DUCT (DOWN/OR AWAY)
- ROUND DUCTWORK UP
- ROUND DUCTWORK DOWN
- FLEXIBLE CANVAS CONNECTION
- TURNING VANES

DAMPER SYMBOLS

- M AUTOMATIC DAMPER
- BDD BACKDRAFT DAMPER
- MANUAL VOLUME DAMPER
- FD 1–1/2 HR. FIRE DAMPER

FIELD MOUNTED HVAC CONTROLS

- T THERMOSTAT
- H ROOM HUMIDISTAT
- P PRESSURE SENSOR
- S ROOM SENSOR
- S DUCT SMOKE DETECTOR
- PRESSURE GAUGE

ACTUATORS

- M MOTOR (ELECTRIC)
- P PNEUMATIC
- S SOLENOID

EQUIPMENT SYMBOLS

- ACU ACCUMULATOR
- AIR FLOW DIRECTION
- BASE MOUNTED PUMP
- BLOWER
- CEILING DIFFUSER WITH FLEXIBLE DUCT
- CENTRIFUGAL PUMP
- CONNECT TO EXISTING
- DT DRIP TRAP
- DUCT BOOST COIL
- Type Group EQUIPMENT TAG
- FA FLAME ARRESTER
- FC FLAME CELL
- FT FLAME TRAP ASSEMBLY
- G GRINDER
- INLINE PUMP
- POSITIVE DISPLACEMENT PUMP
- ROOF EXHAUST FAN
- UNIT HEATER
- VARIABLE AIR VOLUME (VAV) BOX WITH ELECTRIC REHEAT COIL
- VARIABLE AIR VOLUME (VAV) BOX WITH HEATING HOT WATER REHEAT COIL
- FLOATING MIXER
- SCREW CONVEYOR

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

STANDARD SYMBOLS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

SHEET 2
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GENERAL EQUIPMENT ABBREVIATIONS

AC	AIR COMPRESSOR
ACU	ACCUMULATOR
ADT	AUTOMATIC DRIP TRAP
AFT	AUTOMATIC FILTER
AOV	AIR OPERATED VALVE
AM	ANOXIC MIXER
AST	AUTOMATIC STRAINER
BSLP	BLENDED SLUDGE PUMP
B	BLOWER
BC	BRIDGE CRANE
BFP	BELT FILTER PRESS
BFPFP	BFP FEED PUMP
BFV	BUTTERFLY VALVE
BLP	BIOSOLIDS LOADING PUMP
BLR	BOILER
BP	BOOSTER PUMP
BSLMP	BLENDED SLUDGE MIXING PUMP
BSLP	BLENDED SLUDGE PUMP
BSTM	BIOSOLIDS STORAGE MIXER
BTP	BIOSOLIDS TRANSFER PUMP
CENT	CENTRIFUGE
CNTP	CENTRATE PUMP
CENTP	CENTRIFUGE FEED PUMP
CP	CHEMICAL PUMP
COMP	COMPRESSOR
CON	CONVEYOR
DBC	DEWATERED BIOSOLIDS CONVEYOR
DCP	DECANT PUMP
DEWP	DISINFECTED EFFLUENT PUMP
DP	DRAINAGE PUMP
DRLP	DIGESTER RECIRCULATION PUMP
DSLMP	DIGESTER MIXING PUMP
DSLTP	DIGESTED SLUDGE TRANSFER PUMP
DT	DRIP TRAP
DOW	DOWNWARD OPENING WEIR GATE
EFC	EXCESS FLOW CLARIFIER
EFP	EXCESS FLOW PUMP
EFSP	EXCESS FLOW SOLIDS PUMP
EP	EFFLUENT PUMP
FC	FINAL CLARIFIER
FCD	FINAL CLARIFIER DRIVE
FEP	FINAL EFFLUENT PUMP
FILT	FILTER
FM	FLOW METER
FT	FLAME TRAP
GBT	GRAVITY BELT THICKENER
GC	GRIT CLASSIFIER
GFM	GAS FLOW METER
GCS	GAS COMPRESSOR SKID
GP	GRIT PUMP
GRN	GRINDER
GT	GRIT TRAP
GUH	GAS UNIT HEATER
GW	GRIT WASHER
H	HOIST
HBT	HYDROPNEUMATIC BOOSTER TANK
HTX	HEAT EXCHANGER
IP	INFLUENT PUMP
MA	MOTORIZED ACTUATOR
MBV	MOTORIZED BALL VALVE
MFS	MECHANICAL FINE SCREEN
MIX	MIXER
MOV	MOTOR OPERATED VALVE
MP	MIXING PUMP
MPE	MISCELLANEOUS PROCESS EQUIPMENT
MST	MANUAL STRAINER
MT	MICROTURBINE
NRP	NITRATE RECYCLE PUMP
OCD	OVERHEAD COILING DOOR
OCE	ODOR CONTROL EQUIPMENT
ODE	OXIDATION DITCH EQUIPMENT
PC	PROGRESSING CAVITY PUMP
PCD	PRIMARY CLARIFIER DRIVE
PCFD	PRIMARY CLARIFIER FLOCCULATOR DRIVE
PF	POLYMER FEEDER
PFP	POLYMER FEED PUMP
PLWP	PLANT WATER PUMP
PRCP	PHOSPHORUS REMOVAL CHEMICAL PUMP
PRCT	PHOSPHORUS REMOVAL CHEMICAL TANK
PREP	PRIMARY EFFLUENT PUMP
PRFP	PROCESS RETURN FLOW PUMP
PRSP	PRIMARY SLUDGE PUMP
PTP	POLYMER TRANSFER PUMP
RAD	REFRIGERATED AIR DRYER
RASP	RETURN ACTIVATED SLUDGE PUMP
RDT	ROTARY DRUM THICKENER
RDTP	ROTARY DRUM THICKENER FEED PUMP
RM	RAPID MIXER
SA	SAMPLER
SBFP	SODIUM BISULFITE FEED PUMP
SBST	SODIUM BISULFITE STORAGE TANK
SCMP	SCUM PUMP
SCW	SCREENINGS WASHER
SEJ	SEWAGE EJECTOR
SG	SLIDE GATE
SHFP	SODIUM HYPOCHLORITE FEED PUMP
SHST	SODIUM HYPOCHLORITE STORAGE TANK
SLG	SLUICE GATE
SP	SUMP PUMP
SRT	SILOXANE REMOVAL TANK
SSC	SCREENINGS SCREW CONVEYOR
STCP	STRUVITE CHEMICAL PUMP
STG	STOP GATE
STR	STRAINER
SV	SOLENOID VALVE
SWP	SCREENINGS WASHER/PRESS
TV	TELESCOPING VALVE
TWASP	TWAS PUMP
UV	ULTRAVIOLET DISINFECTION
WASP	WAS PUMP

FLUID ABBREVIATIONS

A	AIR
BSL	BLENDED SLUDGE
CA	COMPRESSED AIR
CNT	CENTRATE
CDG	COMPRESSED DIGESTER GAS
CLS	CHLORINE SOLUTION
CNT	CENTRATE
CW	COLD WATER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DRAIN
DEW	DISINFECTED EFFLUENT WATER
DG	DIGESTER GAS
DIV	DIVERSION
DRL	DIGESTER RECIRCULATION
DS	DIGESTER SUPERNATANT
DSL	DIGESTED SLUDGE
DSL MD	DIGESTER SLUDGE MIXER DISCHARGE
DSL MS	DIGESTER SLUDGE MIXER SUCTION
EF	EXCESS FLOW
EFS	EXCESS FLOW SOLIDS
FE	FINAL EFFLUENT
F	FORCE MAIN
G	NATURAL GAS
GR	GRIT
GTS	GRAVITY THICKENER SUPERNATANT
HOCL	HYPOCHLORITE
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
ML	MIXED LIQUOR
NAOH	SODIUM HYDROXIDE
NPW	NONPOTABLE WATER
OF	OVERFLOW
OC	ODOR CONTROL
PDP	PERFORATED DRAIN PIPE
PE	PLANT EFFLUENT
PEC	POLYELECTROLYTE CHEMICAL
PI	PLANT INFLUENT
PRC	PHOSPHORUS REMOVAL CHEMICAL
PRE	PRIMARY EFFLUENT
PRF	PROCESS RETURN FLOW
PRI	PRIMARY INFLUENT
PRS	PRIMARY SLUDGE
PSS	PLANT SANITARY SEWER
PW	POTABLE WATER
PWR	PROCESS WATER RETURN
PWS	PROCESS WATER SUPPLY
RAS	RETURN ACTIVATED SLUDGE
RW	RAW WASTEWATER
SAM	SAMPLE
SAN	SANITARY SEWER
SB	SODIUM BISULFITE
SCM	SCUM
SCMD	SCUM DECANT
SE	SECONDARY EFFLUENT
SH	SODIUM HYPOCHLORITE
SL	SLUDGE
SPD	SUMP PUMP DISCHARGE
ST	STORM SEWER
STC	STRUVITE CHEMICAL
SW	SERVICE WATER
SWS	SEAL WATER SUPPLY
TSL	THICKENED SLUDGE
TWAS	THICKENED WASTE ACTIVATED SLUDGE
V	VENT
W	POTABLE WATER
WAS	WASTE ACTIVATED SLUDGE
WML	WASTE MIXED LIQUOR

PLUMBING ABBREVIATIONS

AEW	APRON END WALL
BF	BLIND FLANGE
CA	COMPRESSED AIR
CB	CATCH BASIN
CD	CONDENSATE DRAIN
CI	CAST IRON
CO	CLEAN OUT
COND	CONDENSATE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CW	COLD WATER
D	DRAIN
DCBP	DOUBLE CHECK BACKFLOW PREVENTER
DF	DRINKING FOUNTAIN
DFU	DRAINAGE FIXTURE UNIT
DI	DUCTILE IRON
ESEW	EMERGENCY SHOWER EYEWASH
EW	EYEWASH
EWC	ELECTRIC WATER COOLER
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
HB	HOSE BIBB
HD	HUB DRAIN
HDPE	HIGH DENSITY POLYETHYLENE
HHWR	HEATING HOT WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HR	HOSE REEL
HWL	HIGH WATER LEVEL
HW	HOT WATER
HWR	HOT WATER RETURN
IE	INVERT ELEVATION
IWP	INDIRECT WASTE PIPE
L	LAVATORY
MB	MOP BASIN
MH	MANHOLE
MV	MUD VALVE
PHW	PROCESS HOT WATER
P	PUMP
POC	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVR	PRESSURE VACUUM RELIEF ASSEMBLY
QC	QUICK CONNECT
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RZBP	REDUCED ZONE BACKFLOW PREVENTER
S	SINK
SD	SHOWER DRAIN
SEJ	SEWAGE EJECTOR
SHR	SHOWER
SP	SUMP PUMP
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SVS	SERVICE SINK
T	TANK
TD	TRENCH DRAIN
U	URINAL
V	VENT
VB	VACUUM BREAKER
VCP	VITRIFIED CLAY PIPE
VTR	VENT THRU ROOF
W	WASTE PIPE
WCO	WALL CLEANOUT
WC	WATER CLOSET
WH	WATER HEATER
WS	WATER SOFTENER
WSFU	WATER SERVICE FIXTURE UNIT

GENERAL/HVAC ABBREVIATIONS

ACH	AIR CHANGES PER HOUR
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AP	ACCESS PANEL
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
COND	CONDENSATE
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DG	DOOR GRILLE
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EL	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
FC	FAIL CLOSED
FLA	FULL LOAD AMPS
FO	FAIL OPEN
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FT	FEET
GA	GAUGE
GPM	GALLONS PER MINUTE
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
OV	OUTLET VELOCITY
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE

HVAC EQUIPMENT ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AFR	ARCHITECTURAL FINE TUBE RADIATION
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
BLR	BOILER
BB	BASEBOARD
C	CONVECTOR
CD	CEILING DIFFUSER
CHILL	CHILLER
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CWP	CHILLED WATER PUMP
DC	DRY COOLER
DH	DEHUMIDIFIER
DL	DRUM LOUVER
EBB	ELECTRIC BASEBOARD
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	EXPANSION LOOP
ER	EXHAUST REGISTER
ERC	ELECTRIC REHEAT COIL
ERU	ENERGY RECOVERY UNIT
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WALL HEATER
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FR	FINNED TUBE RADIATION
FUR	FURNACE
GDF	GAS DUCT FURNACE
GRV	GRAVITY ROOF VENTILATOR
GUH	GAS UNIT HEATER
HC	HEATING COIL
HP	HEAT PUMP
HRP	HEAT RECOVERY PUMP
HU	HUMIDIFIER
HWH	HOT WATER UNIT HEATER
HWP	HOT WATER PUMP
HTX	HEAT EXCHANGER
ICF	INDUSTRIAL CEILING FAN
IR	INFRARED HEATER
L	LOUVER
MAU	MAKE-UP AIR UNIT
P	PUMP
PWP	PROCESS WATER PUMP
RF	RETURN FAN
RG	RETURN GRILLE
RR	REGISTER
RTU	ROOFTOP UNIT
SD	SUCTION DIFFUSER
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
TCP	TEMPERATURE CONTROL PANEL
TG	TRANSFER GRILLE
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME BOX
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WSHP	WATER SOURCE HEAT PUMP
XT	EXPANSION TANK

ELECTRICAL ABBREVIATIONS

A	AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT
CAT	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CL	CENTERLINE
CLG	CEILING
COL	COLUMN
CT	CURRENT TRANSFORMER
CTE	CONNECT TO EXISTING
CU	COPPER
CUH	CABINET UNIT HEATER
D	DEDICATED
DC	DIRECT CURRENT
DISC	DISCONNECT
DWG	DRAWING
E	EMERGENCY
EC	ELECTRICAL CONTRACTOR
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE DEVICE
EWC	ELECTRIC WATER COOLER
EX	EXISTING
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
FLA	FULL LOAD AMPERES
FPCP	FIRE PUMP CONTROL PANEL
FR	FIRE RETARDANT
FT	FEET
FDA	FOOD AND DRUG ADMINISTRATION
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G	GROUND
GC	GENERAL CONTRACTOR
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION (EQUIPMENT)
GFCI	GROUND FAULT CKT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HACR	HEATING AND AIR CONDITIONING RATED
HP	HORSEPOWER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HZ	HERTZ
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
KO	KNOCKOUT
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
LP	LIGHTING PANEL
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION
MC	METAL CLAD
MCC	MOTOR CONTROL CENTER
MCB	MAIN CIRCUIT BREAKER
MCCB	MOLDED CASE CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANELBOARD
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MOTOR OPERATED
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
MW	MICROWAVE OR MEGAWATT
N	NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NAC	NOTIFICATION APPLIANCE CIRCUIT PANEL
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NM	NONMETALLIC
NO	NORMALLY OPEN
NSF	NATIONAL SANITARY FOUNDATION
NTS	NOT TO SCALE
OCB	OIL CIRCUIT BREAKER
OL	OVERLOAD
OT	OVERTEMP
PR	PAIR
P	POLE
PB	PULL BOX
PC	PULL CORD
PH	PH SENSOR
ø	PHASE
PNL	PANELBOARD
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PTZ	PAN, TILT, ZOOM CAMERA
PVC	POLYVINYL CHLORIDE
PWR	POWER
RSC	RIGID GALVANIZED STEEL CONDUIT
RTS	REMOTE TEST SWITCH
RVNR	REDUCED VOLTAGE NON-REVERSING
RVSS	REDUCED VOLTAGE SOLID STATE
SC	SHORT CIRCUIT
SCADA	SUPERVISORY CONTROL AND DATA
SCC	SUPERVISORY CONTROL CENTER
SE	SERVICE ENTRANCE
SEC	SECONDARY
SH	SHIELDED
SS	STAINLESS STEEL
STP	SHIELDED TWISTED PAIR
SV	SOLENOID VALVE
SW	SWITCH
TEL	TELEPHONE
TS2W	TWO SPEED TWO WINDING
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE OR WATT
WD	HIGH PRESSURE WASH DOWN
WL	WET LOCATION
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
Y	WYE

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

ABBREVIATIONS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO.
1216.004

PROJECT MGR.
TIMOTHY SCHOLZ

STRAND ASSOCIATES®

SHEET
3
00-G0.03

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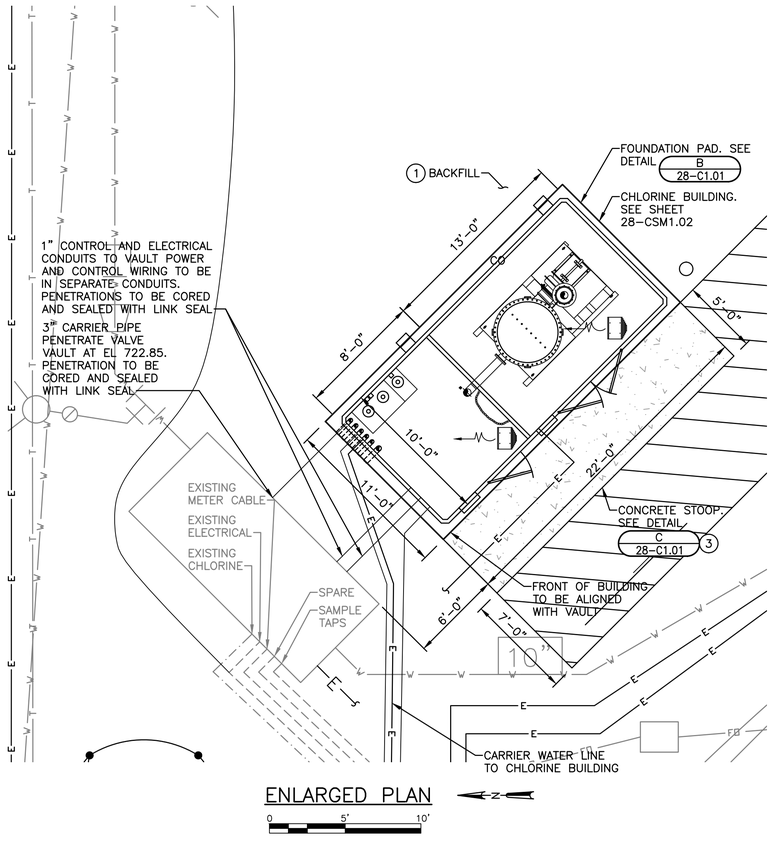
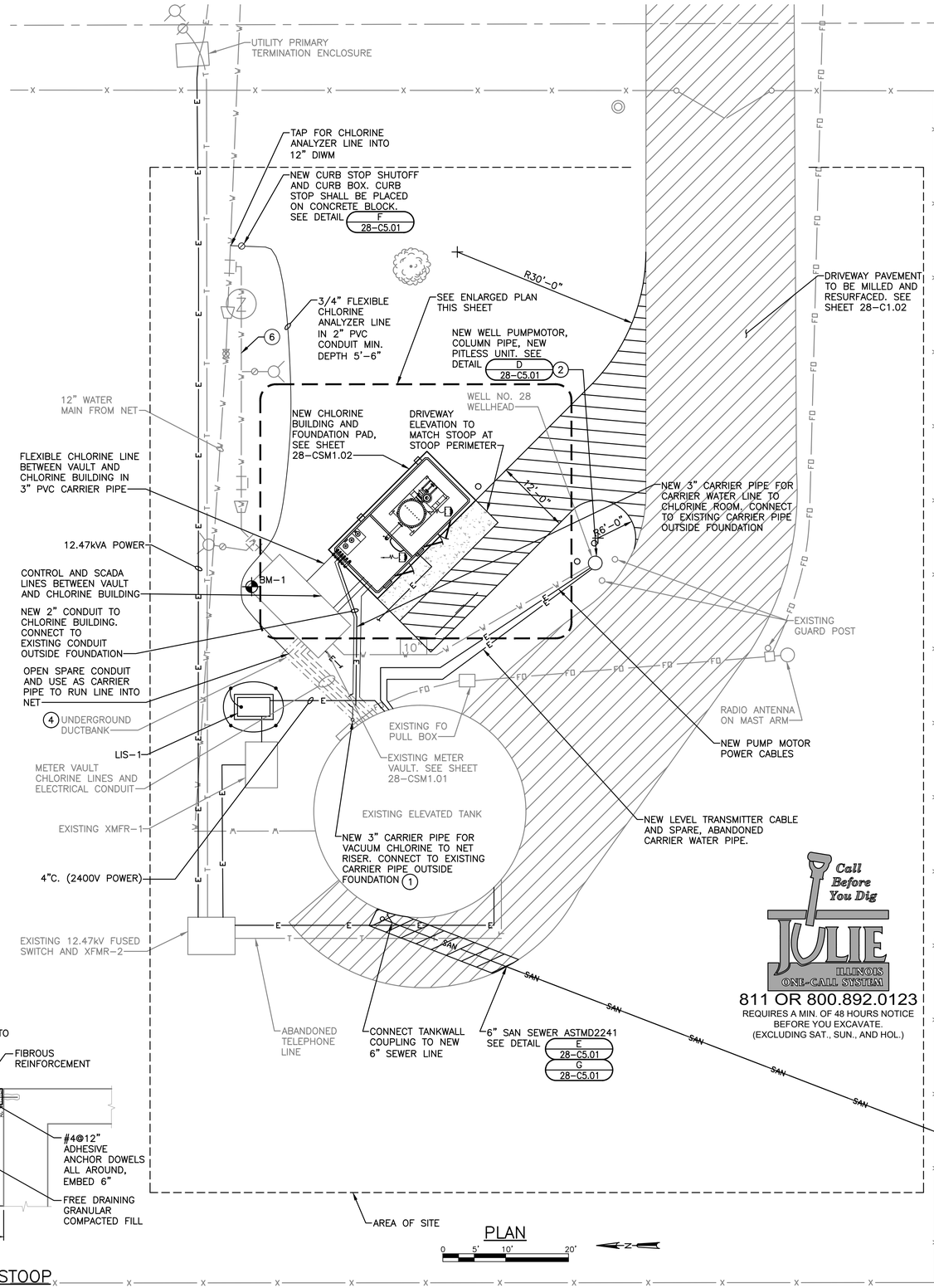


ENLARGED PLAN

0 5' 10'



PLAN

0 5' 10' 20'

GENERAL NOTES:

1. CONSTRUCTION ACCESS TO BE FROM N. WEST STREET.
2. CONTRACTOR TO PROTECT EXISTING FACILITIES AND OPERATIONS.
3. CONTRACTOR SHALL MAKE PROVISION FOR OWNER TO ACCESS EXISTING ELEVATED TANK AS NECESSARY.
4. SILT FENCE AND EROSION CONTROL FEATURES PER SPECIFICATIONS AND DETAILS.
5. ON SITE UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO EXPLORE AND LOCATE UNDERGROUND DUCT BANK.

KEY NOTES:

1. SEE DETAIL D 28-C1.01 FOR INFORMATION ON FILL AND BACKFILL REQUIREMENTS AROUND THE PROPOSED CHLORINE BUILDING.
2. CONTRACTOR TO CHECK FOR CONCRETE GROUT AROUND PITLESS ADAPTOR. REMOVE AS NECESSARY TO INSTALL NEW PITLESS ADAPTOR INTERIOR ELEMENTS.
3. CONTRACTOR TO INSTALL CONSTRUCTION JOINTS AS SPECIFIED.
4. CONTRACTOR TO EXPOSE DUCTBANK AND FISHLINES TO DETERMINE AND IDENTIFY CARRIER LINES TO FACILITATE REUSE OF CARRIER LINES AS NOTED.
5. VACUUM GAS LINE TO NET IN 3" CARRIER PIPE SHALL EXPOSE DUCT BANK AT VAULT. AFTER REMOVAL OF CHLORINE LINE FROM WITHIN EXISTING CARRIER PIPE CONTRACTOR SHALL CONNECT TO EXISTING CARRIER PIPE AND MAKE CONNECTION WATERTIGHT. VACUUM GAS LINE SHALL THEN BE RUN TO NET RISER PIPE WITHIN CARRIER PIPE. LONG SWEEP ELBOWS SHALL BE USED.
6. CONTRACTOR TO FLUSH EXISTING 10" WATER LINE TO CLEAN OF SEDIMENT. TELEVISE THE WATER MAIN AFTER IT IS FLUSHED. ADDITIONAL FLUSHING MY BE REQUIRED UNTIL WATER MAIN IS FREE OF SEDIMENT.

LEGEND:

- EXISTING ASPHALT PAVEMENT
- NEW ASPHALT PAVEMENT (B/28-C5.01)
- NEW CONCRETE SIDEWALK (A/28-C1.01)
- HYDRANT
- FENCE
- VALVE
- CHECK VALVE
- REDUCER
- TREE
- FIBER OPTIC

BENCHMARK:

BM1: NORTHWEST CORNER OF TOP OF EXISTING METER VAULT EL. 729.50.

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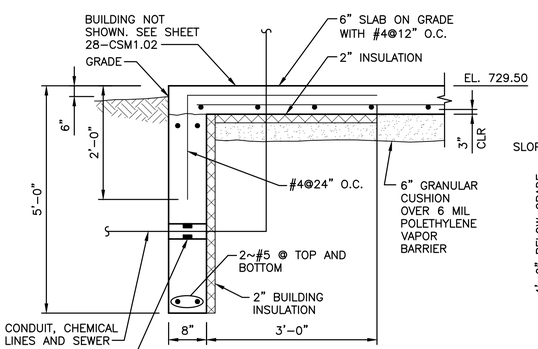
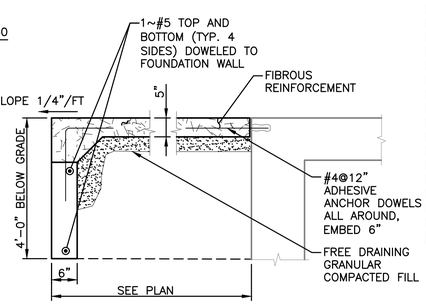
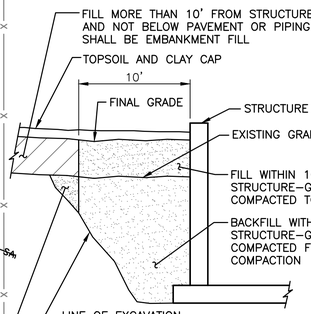


B 28-C1.01 TYPICAL FOUNDATION DETAIL NO SCALE



C 28-C1.01 CONCRETE STOOP NO SCALE



D 28-C1.01 FILL & BACKFILL REQUIREMENTS NO SCALE

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WELL NO. 28 AND NET SITE PLAN

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

SHEET 4
28-C1.01

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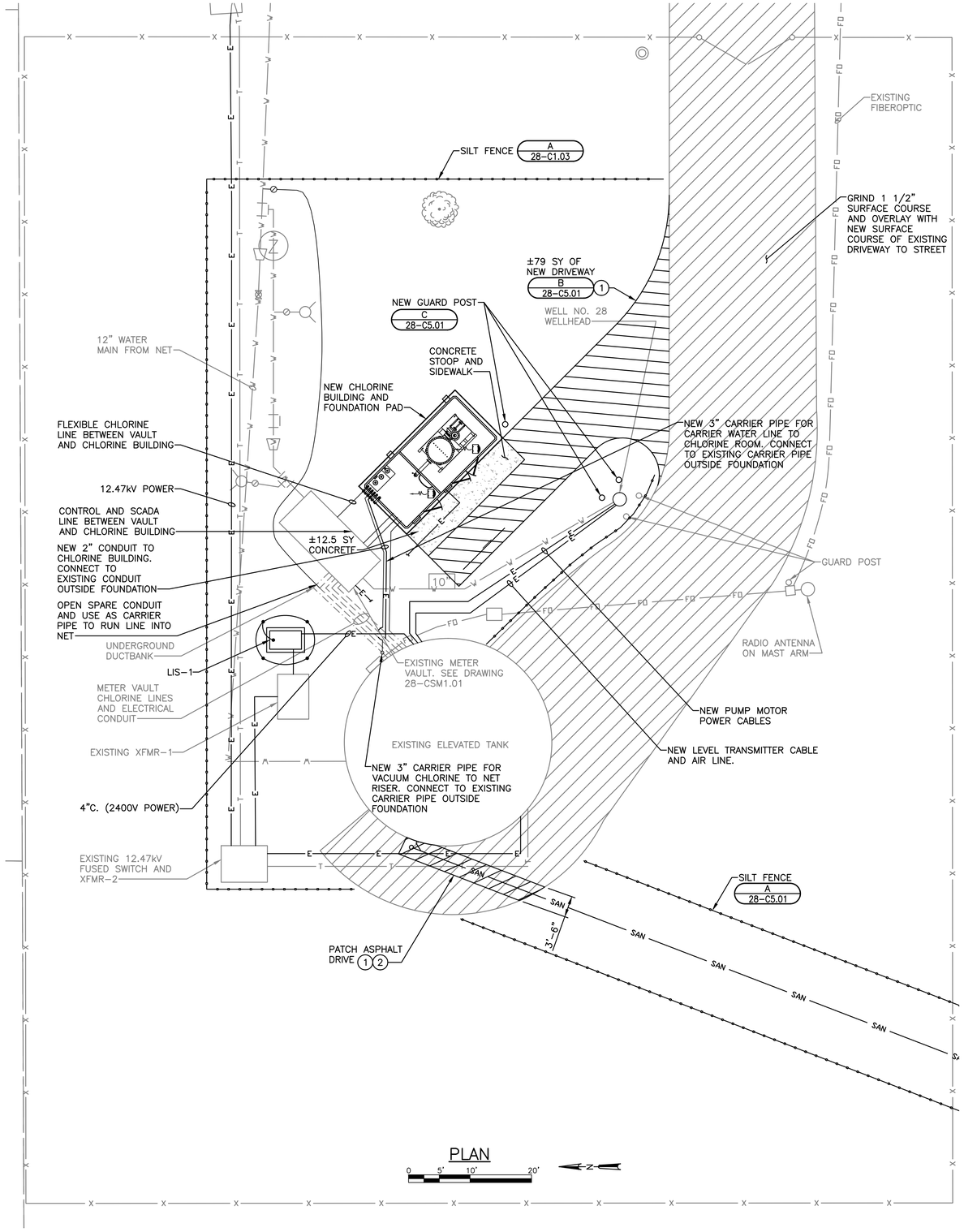

GENERAL NOTES:

1. PROVIDE SEED AND BLANKET FOR ALL DISTURBED GRASSED AREAS.
2. TRAFFIC CONTROL SHALL US IDOT STANDARD TRAFFIC CONTROL DEVICES AND PLANS.
3. ASPHALT DAMAGED IN CONSTRUCTION SHALL BE SAWCUT, REMOVED TO SUB GRADE AND PATCHED AS SHOWN IN DETAIL.
4. CONSTRUCTION ACCESS TO BE FROM N. WEST STREET.
5. CONTRACTOR TO PROTECT EXISTING FACILITIES AND OPERATIONS.

KEY NOTES:

(1) BACKFILL TRENCH WITHIN 2 FEET OF DRIVEWAY WITH COMPACTED FILL AS SPECIFIED.

(2) SEE DETAIL B 28-C5.01 FOR CITY ROAD REPLACEMENT.

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 AND NET SITE
EROSION CONTROL AND RESTORATION PLAN

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

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SHEET 5
28-C1.02

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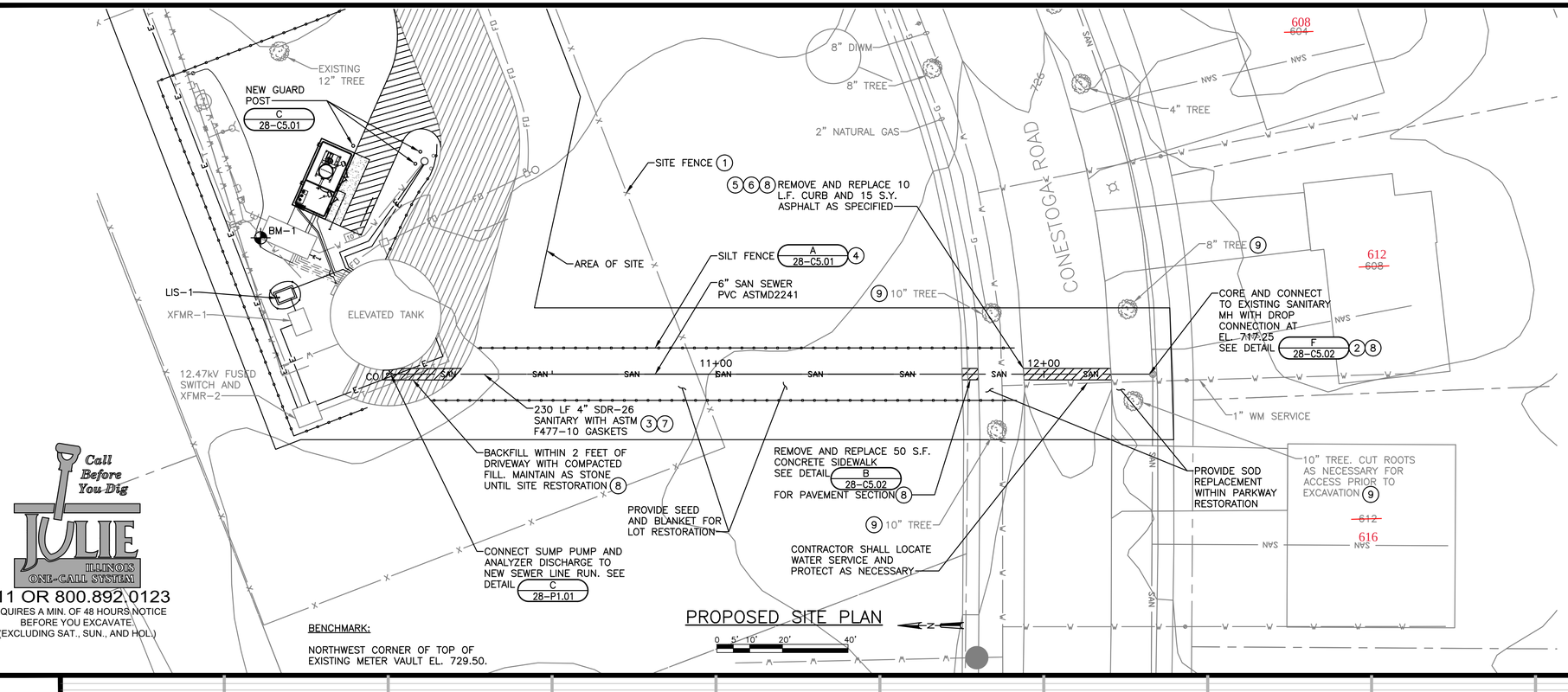

PROPOSED SITE PLAN

0 5' 10' 20' 40'

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REQUIRES A MIN. OF 48 HOURS NOTICE BEFORE YOU EXCAVATE (EXCLUDING SAT., SUN., AND HOL)

BENCHMARK:

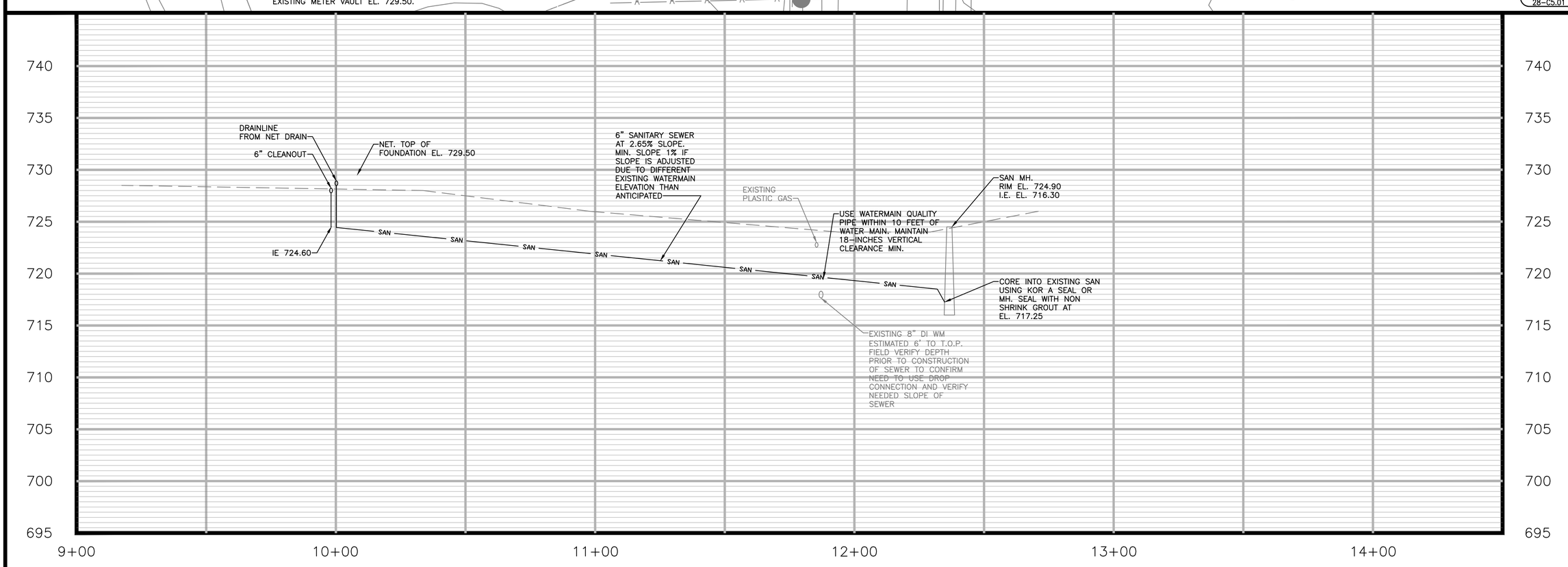
NORTHWEST CORNER OF TOP OF EXISTING METER VAULT EL. 729.50.

GENERAL NOTES:

1. CONTRACTOR SHALL USE IDOT STANDARD TRAFFIC CONTROL DEVICES AS SPECIFIED.
2. CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO BEGINNING WORK.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AREA OF WORK AT ALL TIMES.
4. THESE DRAWINGS DO NOT INDICATE ALL PIPE FITTINGS REQUIRED TO INSTALL PIPING. CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND FURNISHING ALL REQUIRED FITTINGS.
5. LOCATIONS AND ELEVATIONS OF EXISTING PIPING, BUILDINGS, GAS, ELECTRIC, AND OTHER SITE FEATURES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY DEPTHS AND LOCATIONS OF EXISTING PIPING AND UTILITIES PRIOR TO BEGINNING WORK.
6. SEE DETAIL H 28-C5.01 FOR NECESSARY TREE PROTECTION.

KEY NOTES:

1. CONTRACTOR MAY TEMPORARILY REMOVE LENGTH OF FENCE AND FENCE POST AS NECESSARY TO INSTALL NEW SANITARY. FENCE SHALL BE REINSTALLED ONCE SANITARY IS INSTALLED. FENCE SHALL NOT BE REMOVED FROM SERVICE FOR LONGER THAN NECESSARY. PROVIDE TEMPORARY SITE PROTECTION.
2. SEE DETAIL E 28-C5.01 TIE INTO MANHOLE SUCH THAT AT IF DROP CONNECTION IS NOT REQUIRED CONNECT AT BOTTOM OF MANHOLE. IF DROP CONNECTION IS REQUIRED FOLLOW DETAIL.
3. CONTRACTOR TO PRESSURE TEST SEWER TO REQUIREMENTS BEFORE BACKFILLING. (ROAD CROSSING EXCEPTED).
4. ALL PROPOSED EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND WHENEVER 0.5 INCHES OF RAIN IS EXPECTED WITHIN 24 HOURS.
5. SEE DETAIL F 28-C5.01 FOR CITY CURB REPLACEMENT.
6. SEE DETAIL G 28-C5.01 FOR CITY ROADWAY REPLACEMENT.
7. SEE DETAIL E 28-C5.01 FOR CITY TROUGH SECTION.
8. COMPACTED TRENCH BACKFILL SHALL BE APPLIED WHEN EXCAVATION IS PERFORMED WITHIN 2-FEET OF ROADWAY, SIDEWALK OR DRIVEWAY.
9. PROTECT TREE OR PRUNE AS REQUIRED. SEE DETAIL H 28-C5.01



NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 PROPOSED UTILITY SITE PLAN

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

SHEET 6
28-C1.03

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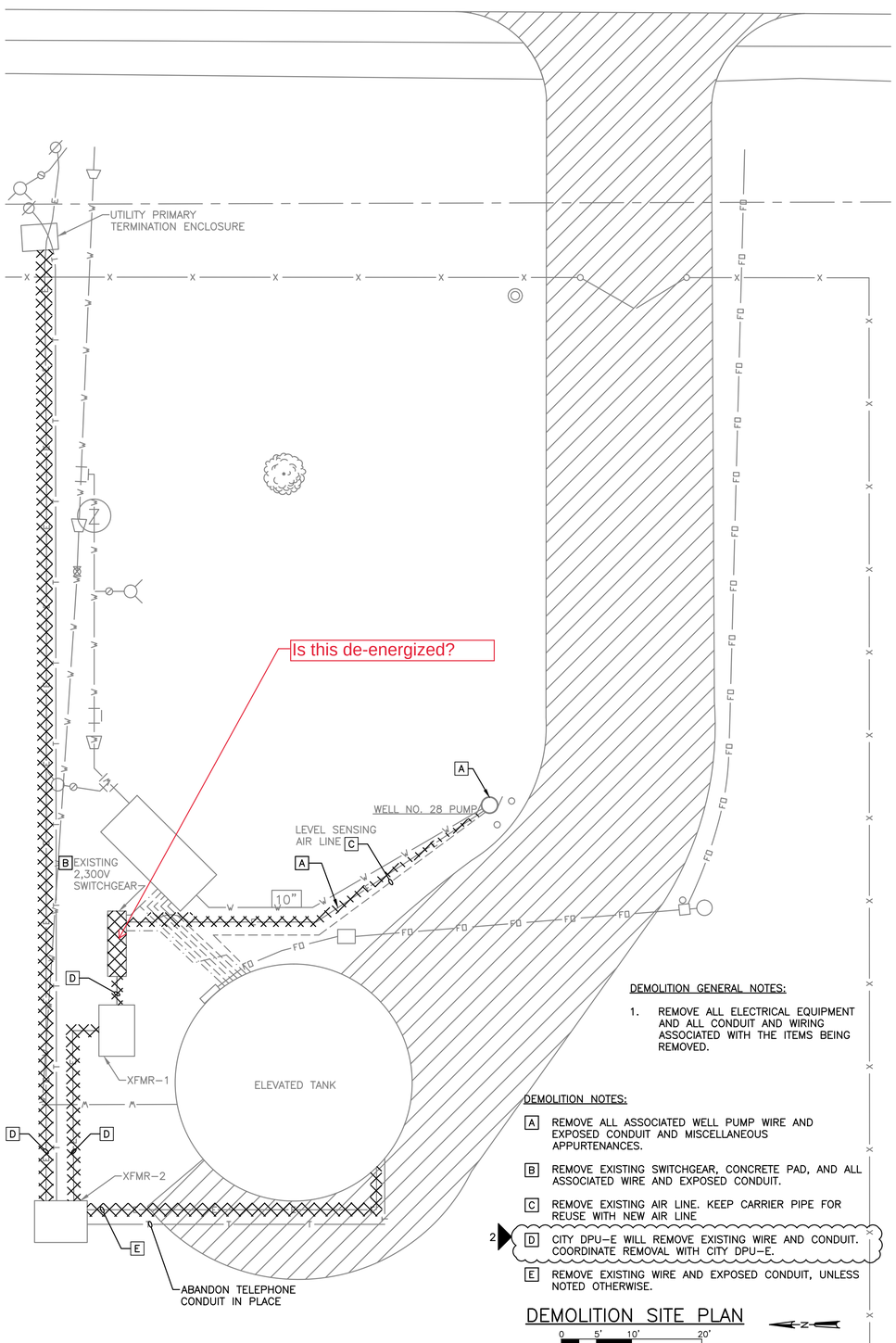


DEMOLITION GENERAL NOTES:

1. REMOVE ALL ELECTRICAL EQUIPMENT AND ALL CONDUIT AND WIRING ASSOCIATED WITH THE ITEMS BEING REMOVED.

DEMOLITION NOTES:

A REMOVE ALL ASSOCIATED WELL PUMP WIRE AND EXPOSED CONDUIT AND MISCELLANEOUS APPURTENANCES.

B REMOVE EXISTING SWITCHGEAR, CONCRETE PAD, AND ALL ASSOCIATED WIRE AND EXPOSED CONDUIT.

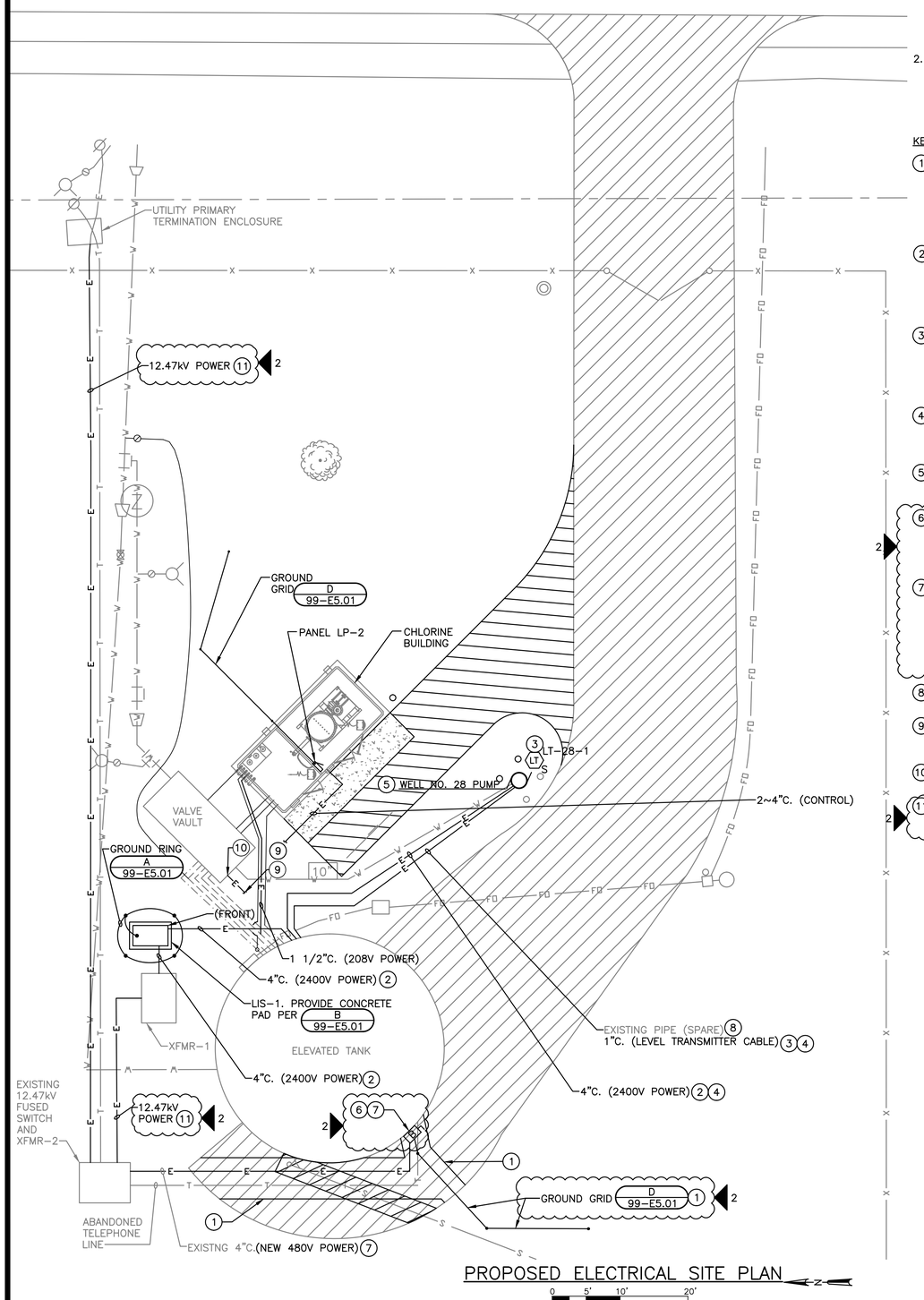
C REMOVE EXISTING AIR LINE. KEEP CARRIER PIPE FOR REUSE WITH NEW AIR LINE

2 D CITY DPU-E WILL REMOVE EXISTING WIRE AND CONDUIT. COORDINATE REMOVAL WITH CITY DPU-E.

E REMOVE EXISTING WIRE AND EXPOSED CONDUIT, UNLESS NOTED OTHERWISE.

DEMOLITION SITE PLAN

0 5' 10' 20'



PROPOSED ELECTRICAL SITE PLAN

0 5' 10' 20'

GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 26 09 90 FOR WIRING ASSOCIATED WITH THE SCADA SYSTEM. PROVIDE 10% SPARE WIRE/CABLE IN EACH CONTROL WIRE AND SIGNAL CABLE CONDUIT.
2. ONLY MAJOR ELECTRICAL FEEDERS SHOWN. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED UNDERGROUND CONDUCTORS AND CONDUIT FOR A COMPLETE INSTALLATION.

KEY NOTES:

1. SAWCUT EXISTING ASPHALT PAVEMENT AS REQUIRED FOR NEW 480V SERVICE AND FOR NEW GROUND GRID. PATCH TO MATCH EXISTING PRIOR TO NEW OVERLAY. SEE DETAIL G 28-C5.01
2. CONDUIT SHALL BE SCHEDULE 80 PVC INSTALLED IN TRENCH AND COVERED WITH CLASS X CONCRETE SLURRY UP TO 6" ABOVE TOP OF CONDUIT. PROVIDE WIRING TAPE 12" ABOVE TOP OF CONDUIT.
3. LEVEL TRANSMITTER PROVIDED AS SPECIFIED IN DIVISION 33. INSTALL MANUFACTURER-FURNISHED CABLE IN 1" CONDUIT FROM WELL PITLESS ADAPTER TO NORTH ELEVATED STORAGE SCADA SYSTEM PANEL.
4. PROVIDE NEW BELOW-GRADE CONDUIT PENETRATIONS INTO NET. SEE DRAWING 28-P1.01 FOR ADDITIONAL INFORMATION.
5. SPLICE CONDUIT AND WIRE WITH WELL PUMP CABLE WITHIN WELL PUMP PITLESS ADAPTER.
6. 2 INTERCEPT EXISTING 4" CONDUIT INTO BUILDING AND EXTEND AS REQUIRED TO ROUTE THROUGH NEW SERVICE ENTRANCE RATED DISCONNECT.
7. REUSE EXISTING 4" CONDUIT FROM INSIDE NET NEAR NEW PANEL PP-1 TO NEW SERVICE ENTRANCE DISCONNECT AND EXISTING 480V UTILITY SERVICE TRANSFORMER FOR NEW 480V SERVICE CONDUCTORS TO PP-1. EXTEND EXISTING CONDUIT AS REQUIRED.
8. CAP EXISTING CARRIER PIPE 6" AFG AT WELL.
9. NEW CONDUIT ROUTED TO NET. SEE SHEETS 28-DE1.01 AND 28-P1.01 FOR ADDITIONAL INFORMATION.
10. 2~2" CONDUITS ROUTED TO NET FOR CONTROL WIRING AND CABLES.
11. 2 CITY DPU-E WILL PROVIDE ALL PRIMARY 12.47kV CABLE AND CONDUIT.

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20
2	ADDENDUM NO. 7	4/9/20

WELL NO. 28 DEMOLITION AND PROPOSED ELECTRICAL SITE PLAN

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

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SHEET 7
28-CE1.01

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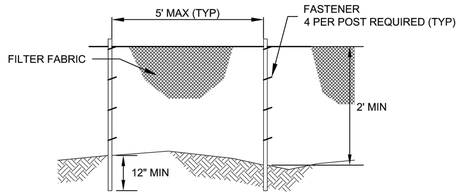

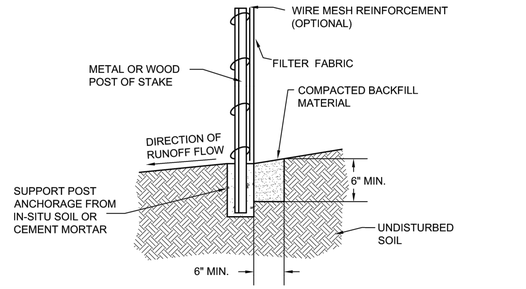

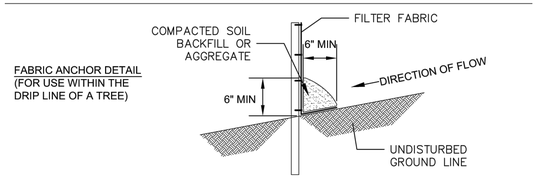

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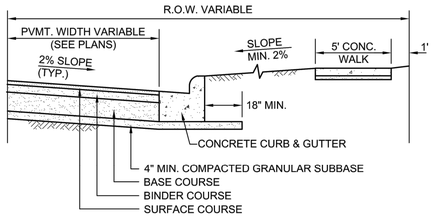
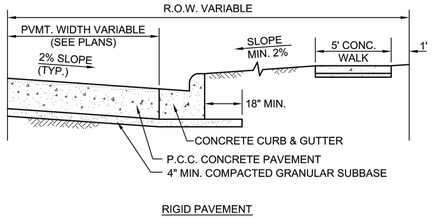
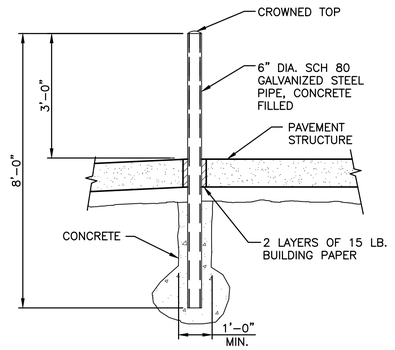


FLEXIBLE PAVEMENT

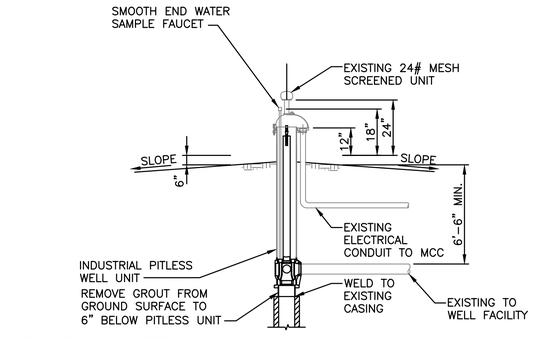


RIGID PAVEMENT

B 28-C5.01 NEW PAVEMENT SECTION NO SCALE

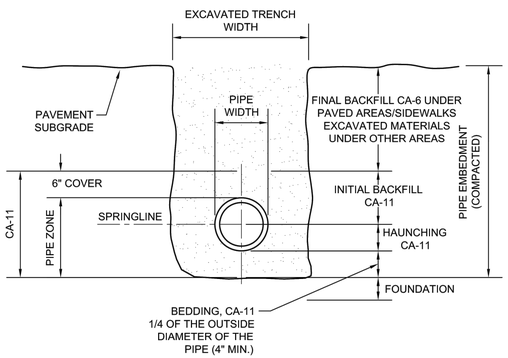


C 28-C5.01 GUARD POST NO SCALE



NOTE: SEE BUILDING SECTIONS FOR OUTLET PIPE ELEVATIONS.

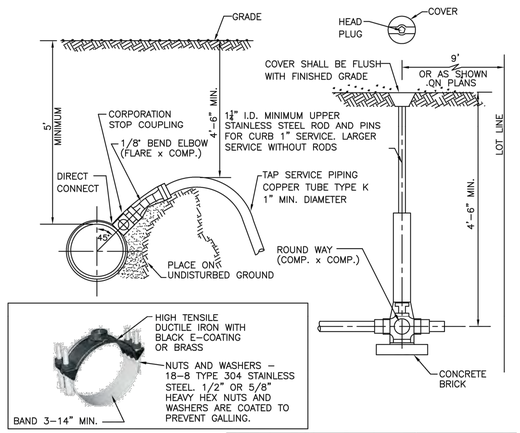
D 28-C5.01 PITLESS UNIT DETAIL NO SCALE



NOTES:

1. IN PAVED AREAS, ALL TRENCHES MUST BE COMPACTED IN CONFORMANCE WITH SECTION 550.07 OF THE IDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION.
2. IF FOUNDATION IS UNSUITABLE TO BED PIPE, UNDERCUTS MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

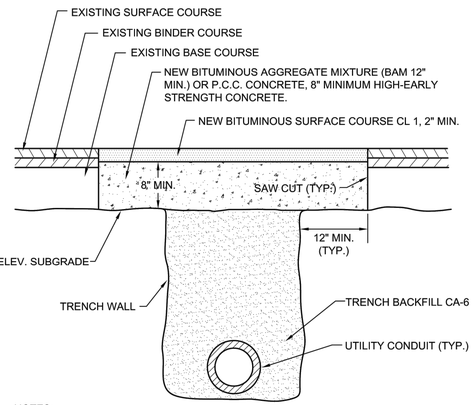
E 28-C5.01 TRENCH SECTION FOR PVC PIPE NO SCALE



WATER MAIN SIZE	TAP SIZE	CONNECTION TYPE
6"ø OR SMALLER	1"ø OR SMALLER	DIRECT CONNECTION
	1 1/4"ø OR LARGER	SADDLE CONNECTION
8"ø OR LARGER	1 1/4"ø OR SMALLER	DIRECT CONNECTION
	1 1/2"ø OR LARGER	SADDLE CONNECTION

NOTES:
1. CORPORATION IS TO BE FLARING TYPE (FORD F-600 OR EQUAL BY MUELLER OR A.Y. MCDONALD). FOR SERVICE SIZE 1 ½" A.Y. MCDONALD 4701Q CORP STOP THREADED INLET TO COMPRESSION OUTLET OR EQUAL.
2. 1/8" BEND ELBOW – FEMALE FLARE TO COMPRESSION: FORD LA04. OR AN APPROVED EQUAL BY MUELLER, OR A.Y. MCDONALD (NOT AVAILABLE IN IN 1½" SIZED SEE NOTE 1.).
3. CURB BOX IS ARCH PATTERN WITH 1-1/4" UPPER SECTION, WITH 1-1/4" BRASS PENTAGON PLUG.
4. CURB STOP IS WITH COMPRESSION COUPLING – FORD B44 CURB STOP, OR EQUAL BY MUELLER, OR A.Y. MCDONALD.
5. B-BOX HAS 1½" THREADED BRASS PENTAGON PLUG WITH THE WORD "WATER" IN RAISED LETTERS ON CAP. (1-1/4" PENT. PLUG FOR 1-1/4" ID. B-BOXES).
6. CORPORATION STOPS SHALL BE INSTALLED A MINIMUM OF 18" FROM PIPE JOINTS AND ENDS. MULTIPLE INSTALLATIONS SHOULD BE STAGGERED AROUND THE MAIN BY 22-1/2" AND SEPARATED FROM EACH OTHER BY 18".
7. WATER SERVICE LINE SMALLER THAN 3" SHALL BE TYPE K COPPER. IF JOINTS ARE REQUIRED DUE TO LENGTH OF SERVICE, THEN ONLY COMPRESSION TYPE COUPLING SHALL BE PERMITTED. NO SOLDERED OR FLARED TYPE JOINTS ARE ALLOWED.
8. SERVICE TAPS SHALL REQUIRE SADDLES IN ACCORDANCE WITH CHART BELOW. SADDLES SHALL BE STAINLESS STEEL DUAL BANDED, DUCTILE IRON OR BRASS SADDLE (FORD FS202, 202BS OR APPROVED EQUAL) REQ'D FOR TAPS.
9. ALL WATERMAIN AND APPURTENANCES MUST COMPLY WITH SECTION 1417 (A)(1)OF THE SAFER DRINKING WATER ACT (SDWA). ALL PRODUCT USED FOR DISPENSING POTABLE WATER MUST MEET BOTH THE NSF 61 AND NSF 372 TEST OF STANDARDS VIA THIRD PARTY TESTING AND CERTIFICATIONS.

F 28-C5.01 SERVICE TAP AND CONNECTION NO SCALE

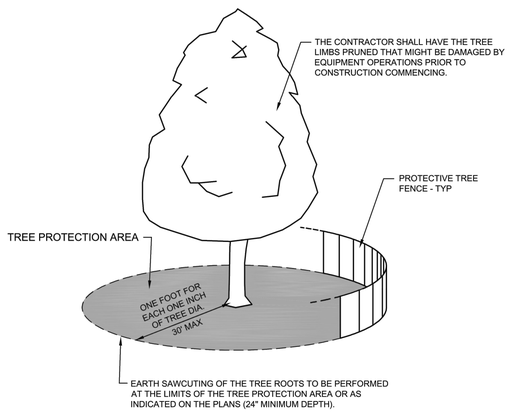


NOTES:

1. THE TRENCH SHALL BE BACKFILLED WITH AGGREGATE (CA-6) AND COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY. TRENCH SPOILS OR EXCAVATED MATERIAL SHALL BE DISCARDED BY THE CONTRACTOR, AT HIS EXPENSE, AT DUMP SITES OR IN A SUITABLE FASHION AS APPROVED BY THE CITY ENGINEER.
2. PRIOR TO PLACING OF P.C.C. CONCRETE, THE EXPOSED EDGES OF ALL EXISTING PAVEMENT SHALL BE SAW CUT TO PROVIDE A SMOOTH, CLEAN EDGE, FREE OF LOOSE MATERIAL.
3. EXCAVATIONS SHALL BE PROTECTED BY BARRICADES WITH FLASHING LIGHTS. A 1" STEEL PLATE SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR AT LOCATIONS WHERE ADJUSTMENTS ARE LOCATED IN TRAVEL LANES UNTIL THE SURFACE RESTORATION IS COMPLETE. THE PLATE SHALL BE PROTECTED FROM SLIDING AND PROVIDED WITH BITUMINOUS RAMPS.
4. TRENCH TO BE COMPACTED IN CONFORMANCE WITH ARTICLE 603.08(METHOD 3) OF THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

UTILITY TRENCH PAVING SECTION (FLEXIBLE PAVEMENTS)

G 28-C5.01 NO SCALE



NOTES:

1. A TREE PROTECTION AREA SHALL BE ESTABLISHED AROUND A TREE A DISTANCE OF ONE FOOT FOR EACH ONE INCH OF TREE DIAMETER, UP TO A MAXIMUM OF 30 FEET.
2. PROTECTIVE TREE FENCE SHALL BE INSTALLED AT THE LIMITS OF THE TREE PROTECTION AREA. THE FENCE SHALL BE HIGH ENOUGH SO AS TO BE VISIBLE TO ALL CONSTRUCTION PERSONNEL.
3. GRADE CHANGES, UTILITY TRENCHES, STORAGE OF CONSTRUCTION MATERIAL, DUMPING OF WASTE, OR OPERATION OR STORAGE OF ANY EQUIPMENT SHALL NOT BE ALLOWED WITHIN THE TREE PROTECTION AREA.
4. AUGURING IS REQUIRED IF A UTILITY MUST BE INSTALLED WITHIN THE TREE PROTECTION AREA. AUGURED UTILITIES MUST BE A MINIMUM OF 24 INCHES BELOW GRADE.
5. ALL TREES TO BE SAVED WHICH HAVE BEEN SUBJECTED TO CONSTRUCTION ACTIVITY WITHIN THE TREE PROTECTION AREA SHOULD BE SELECTIVELY THINNED 10% BY AN ARBORIST SKILLED AT THE SELECTIVE THINNING PROCEDURE. NONE OF THE TREES SHALL BE TOPPED, HEADED BACK, SKINNED (REMOVAL OF THE INTERIOR BRANCHES), OR CLIMBED WITH SPIKES. ALL DEAD WOOD SHOULD BE REMOVED TO AVOID HAZARD.
6. IT IS RECOMMENDED THAT FOLLOWING CONSTRUCTION, TREES BE MAINTAINED IN THEIR NATIVE CONDITION. NO LAWN SHOULD BE PLACED AROUND THE TREES. IT IS RECOMMENDED THAT THE AREA BE MULCHED WITH 2 INCHES OF DECOMPOSED LEAVES AND 2 INCHES OF WOOD CHIPS OR BARK.

H 28-C5.01 TREE PROTECTION NO SCALE

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 SECTIONS AND DETAILS - 1

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO.
1216.004

PROJECT MGR.
TIMOTHY SCHOLZ

STRAND ASSOCIATES®

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28-C5.01

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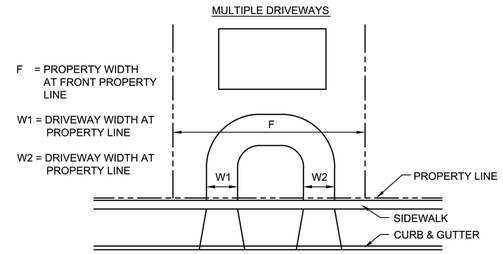
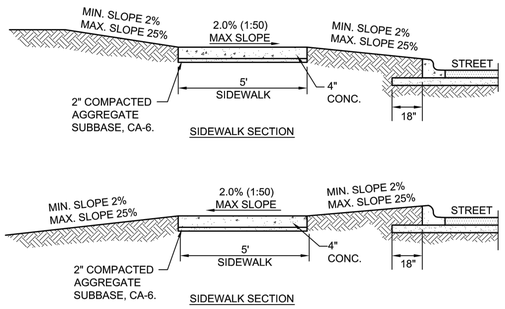


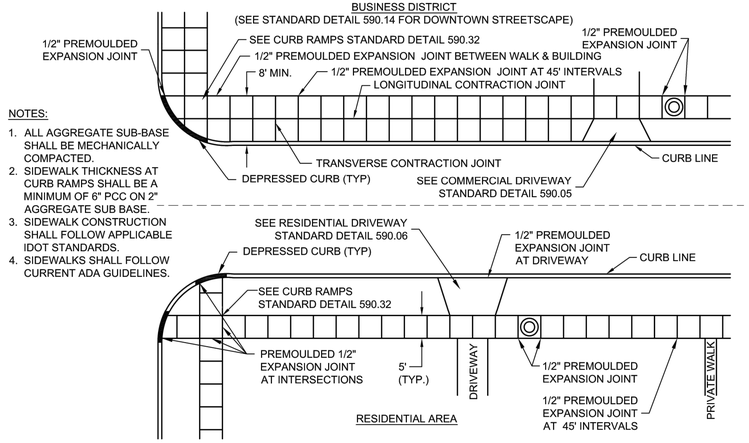
A 28-C5.02 TYPICAL RESIDENTIAL DRIVEWAY DETAIL
NO SCALE



NOTES:

1. CONCRETE SHALL BE IDOT CLASS SI.
2. MINIMUM SIDEWALK THICKNESS SHALL BE 4".
3. SIDEWALK THICKNESS ACROSS DRIVEWAYS SHALL BE AT A MINIMUM 6" FOR RESIDENTIAL DRIVEWAYS AND 8" FOR COMMERCIAL DRIVEWAYS.
4. MAXIMUM LONGITUDINAL SLOPE SHALL NOT EXCEED 5% (20:1). FOR ANY SLOPE IN EXCESS OF 5%, ALL REQUIREMENTS OF THE ILLINOIS ACCESSIBILITY CODE (LATEST EDITION) SHALL BE MET.
5. MINIMUM TRANSVERSE SLOPE SHALL BE 1.0% (1:100). MAXIMUM TRANSVERSE SLOPE SHALL BE 2.0% (1:50).
6. A MINIMUM 2" AGGREGATE SUBBASE (CA-6) SHALL BE PROVIDED. (4" THROUGH COMMERCIAL DRIVEWAYS).
7. AGGREGATE SUBBASE SHALL BE MECHANICALLY COMPACTED.
8. ALL SIDEWALKS SHALL BE PROMPTLY BACKFILLED AND PROTECTED FROM DAMAGE.
9. SIDEWALK CONSTRUCTION SHALL FOLLOW APPLICABLE IDOT STANDARDS.
10. SIDEWALKS SHALL FOLLOW CURRENT ADA GUIDELINES.

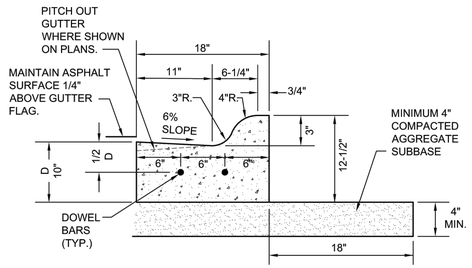
B 28-C5.02 SIDEWALK
NO SCALE



NOTES:

1. ALL AGGREGATE SUB-BASE SHALL BE MECHANICALLY COMPACTED.
2. SIDEWALK THICKNESS AT CURB RAMPS SHALL BE A MINIMUM OF 6" PCC ON 2" AGGREGATE SUB BASE.
3. SIDEWALK CONSTRUCTION SHALL FOLLOW APPLICABLE IDOT STANDARDS.
4. SIDEWALKS SHALL FOLLOW CURRENT ADA GUIDELINES.

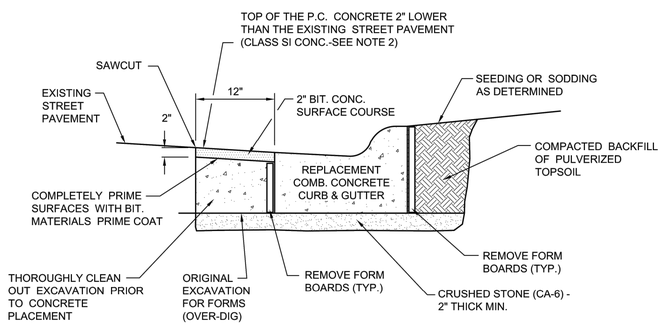
C 28-C5.02 SIDEWALK CONSTRUCTION
NO SCALE



NOTES:

1. 3/4" PREFORMED BITUMINOUS EXPANSION JOINT WITH TWO (2) NUMBER 6 COATED SMOOTH DOWEL BARS (3/4" DIA. X 18") WITH GREASE CAPS SHALL BE PLACED EVERY 150', 10' EITHER SIDE OF DRAINAGE STRUCTURES, P.C.'S, RADIUS POINTS AND BACK OF CUL-DE-SACS. WHEN EXPANSION JOINTS ARE CONSTRUCTED ADJACENT TO EXISTING CURB & GUTTER THE EXISTING CURB SHALL BE DRILLED AND TWO (2) NUMBER 6 COATED SMOOTH DOWEL BARS (3/4" X 18") GROUTED IN PLACE. GREASE CAPS SHALL BE PLACED ON THE SIDE OF THE NEW CURB AND GUTTER SHALL HAVE A PINCHED STOP THAT WILL PROVIDE A MINIMUM 1" EXPANSION.
2. TOOLED CONTROL JOINTS OR SAWCUTS SHALL BE MADE EVERY 15'.
3. SAWCUTS SHALL BE MADE WITHIN TWENTY-FOUR (24) HOURS AND SEALED WITH A CITY APPROVED JOINT SEALANT. JOINTS SHALL BE CLEAN AND DRY PRIOR TO APPLICATION OF SEALANT.
4. FOR CURB AND GUTTER CONSTRUCTED OVER UTILITY TRENCHES, TWO (2) EPOXY COATED REINFORCING BARS (NO. 4) SHALL BE PLACED IN THE CURB AND GUTTER, CENTERED OVER THE TRENCH.

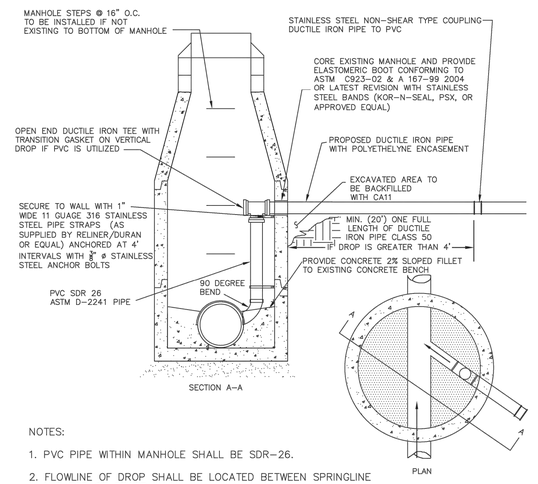
D 28-C5.02 M3.12 MOUNTABLE CURB AND GUTTER
NO SCALE



NOTES:

1. THE COMPLETE REPAIR OF PAVEMENTS ADJACENT TO THE REPLACEMENT CONCRETE CURB AND GUTTER IS INCLUDED IN THE COST OF THE NEW CURB AND GUTTER.
2. CLASS SI CONCRETE SHALL BE POURED SEPARATELY FROM THE CURB ONCE THE FORM BOARDS HAVE BEEN REMOVED.

E 28-C5.02 CURB REPLACEMENT
NO SCALE



NOTES:

1. PVC PIPE WITHIN MANHOLE SHALL BE SDR-26.
2. FLOWLINE OF DROP SHALL BE LOCATED BETWEEN SPRINGLINE AND TOP OF SEWER MAIN.
3. EXISTING FLOW THROUGH MANHOLE SHALL BE UNOBSTRUCTED DURING CONSTRUCTION OR BYPASS PUMPED PER CITY APPROVAL.
4. ALL HARDWARE WITHIN MANHOLE SHALL BE 316 STAINLESS STEEL
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF NAPERVILLE DESIGN STANDARDS. INTERIOR DROP AND PROPOSED ELEVATIONS MUST BE APPROVED BY DEPARTMENT OF PUBLIC UTILITIES.
6. FLEXIBLE COUPLING CONNECTING DUCTILE IRON. PIPE TO PVC PIPE SHALL BE A SHEAR RING TYPE COUPLING AS MANUFACTURED BY FERNCO, SERIES 1056R OR APPROVED EQUAL.

F 28-C5.02 SANITARY MANHOLE-INTERIOR DROP CONNECTION
NO SCALE

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 SECTIONS AND DETAILS - 2

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO.
1216.004

PROJECT MGR.
TIMOTHY SCHOLZ

STRAND ASSOCIATES®

SHEET
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28-C5.02

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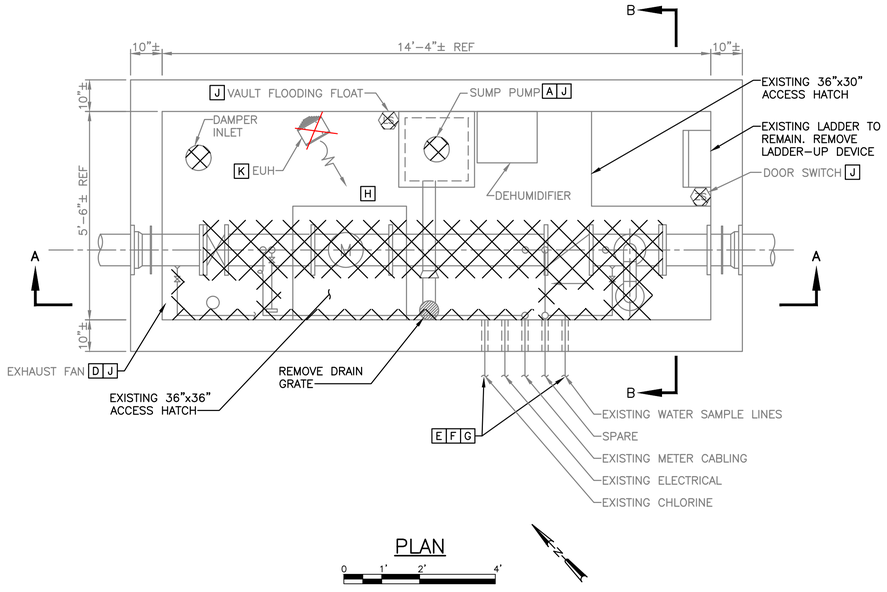
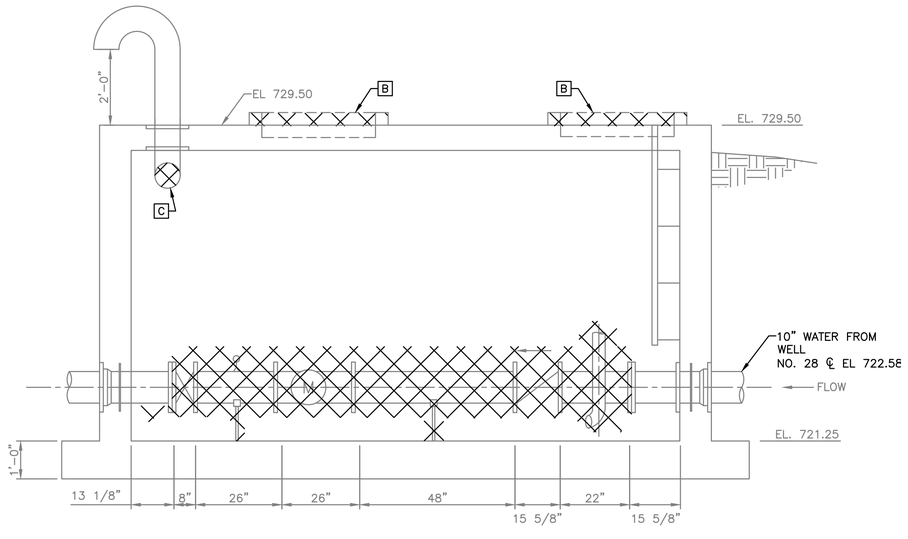


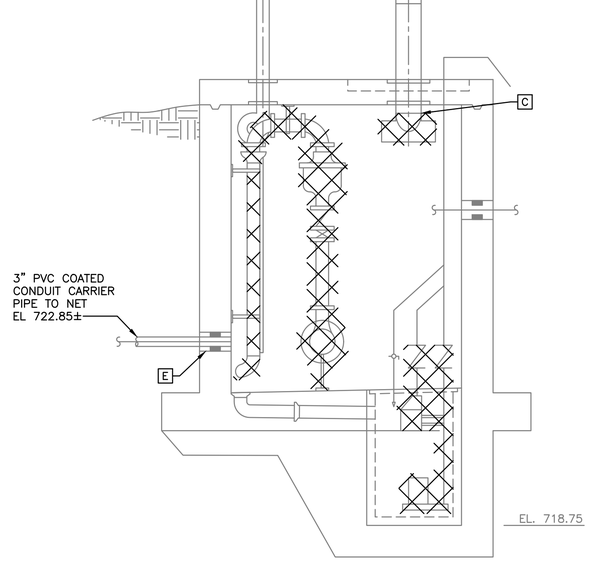
PLAN

0 1' 2' 4'



SECTION A

0 1' 2' 4'



SECTION B

0 1' 2' 4'

GENERAL NOTES:

1. REMOVE ALL EXISTING ELECTRICAL EQUIPMENT AND MATERIALS ASSOCIATED WITH ITEMS BEING REMOVED AS SHOWN ON THIS DRAWING, AS WELL AS EXISTING ELECTRICAL DEVICES, MATERIALS, AND EQUIPMENT NOT BEING REUSED.
2. CONTRACTOR TO VERIFY DIMENSIONS OF VAULT.
3. ALL EXISTING ELECTRICAL EQUIPMENT/DEVICES ARE POWERED FROM EXISTING LIGHTING PANEL IN NORTH ELEVATED TANK.

DEMOLITION NOTES:

A REMOVE SUMP PUMP. PREPARE DISCHARGE PIPES TO RECEIVE NEW PUMP AND BATTERY POWERED PUMP.

B REMOVE EXISTING ACCESS DOORS. MAINTAIN CURBS AND PREPARE CURBS TO RECEIVE NEW ACCESS DOORS. SEE DETAIL B 28-CSM1.01

C REMOVE BACK DRAFT DAMPERS.

D REMOVE EXHAUST FAN AND DUCT.

E MAINTAIN EXISTING PVC CONDUIT IN WALL FOR SAMPLE LINES AND ELECTRICAL FEED. EL. 722.85. BREAK GROUTED CONDUIT OPEN TO ASCERTAIN CONDITION.

F REMOVE CHLORINE FEEDLINE AND MAINTAIN CARRIER PIPE FOR FUTURE USE.

G PULL FISHWIRE THROUGH CONDUITS TO CONFIRM USABILITY OF CONDUITS.

H REMOVE EXISTING LIGHT FIXTURES, SWITCH, WIRING, AND CONDUIT.

J REMOVE EXISTING EQUIPMENT/DEVICE AND ALL ASSOCIATED WIRE AND CONDUIT.

K EXISTING UNIT HEATER ~~SHALL REMAIN. REMOVE EXISTING~~ CONTROLS, CONDUIT, AND WIRING. SHALL BE REMOVED AND REPLACED. 2

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20
2	ADDENDUM 2	07/29/20

WELL NO. 28 VALVE VAULT DEMOLITION PLAN AND SECTIONS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

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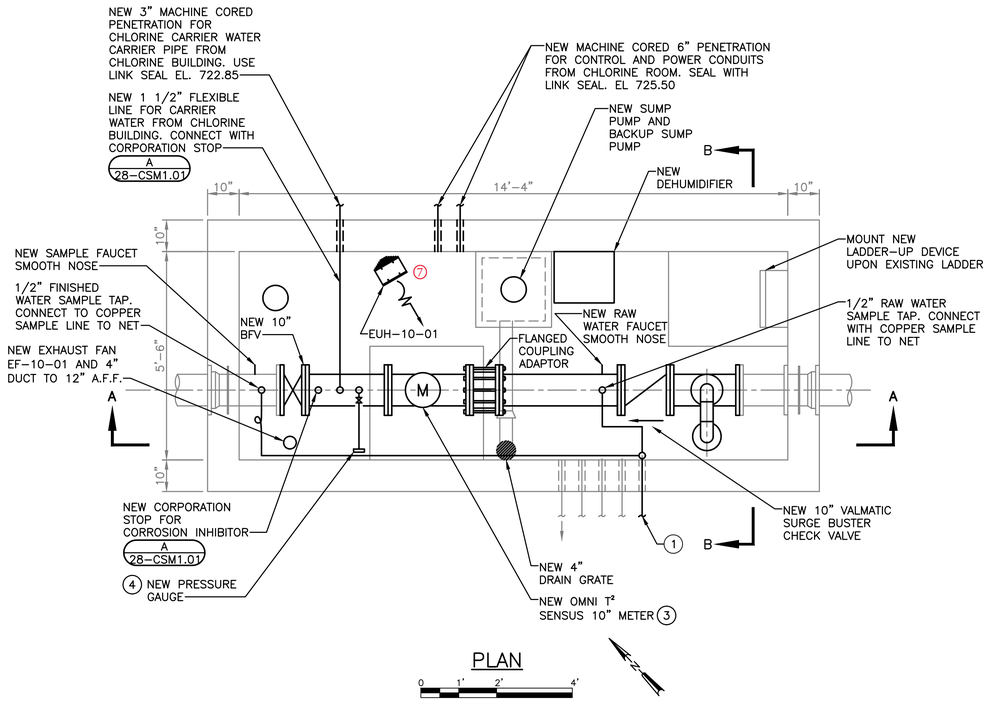
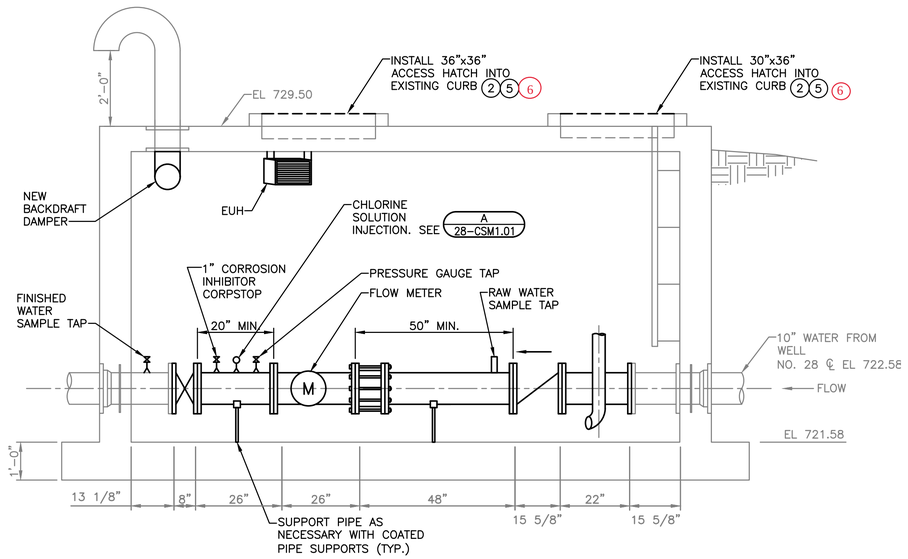


PLAN



SECTION A

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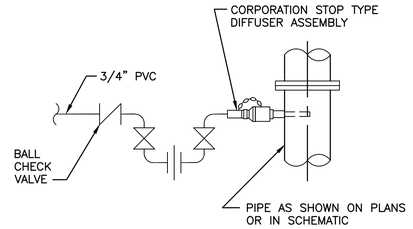
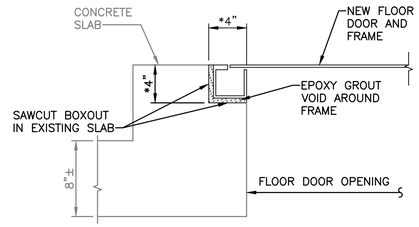


A 28-CSM1.01 CORPORATION STOP NO SCALE

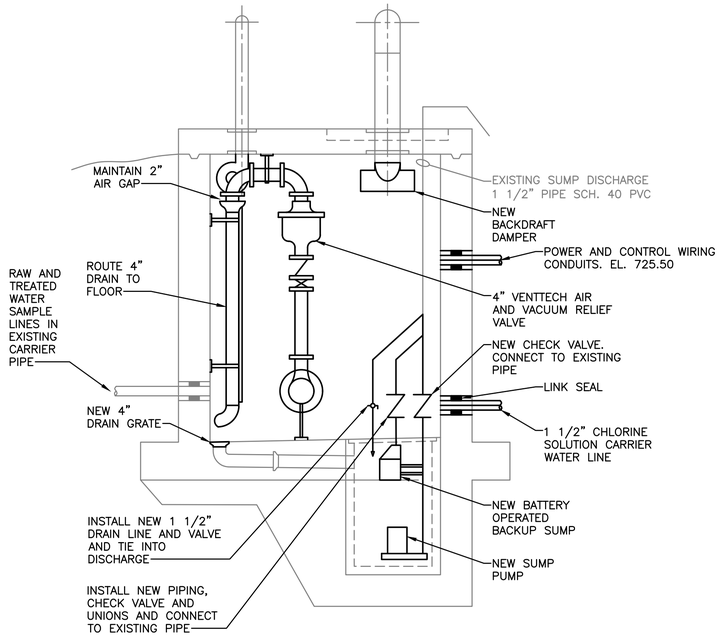


* VERIFY DIMENSION W/ DOOR MANUFACTURER

B 28-CSM1.01 NEW FLOOR DOOR IN EXISTING SLAB NO SCALE

KEY NOTES:

1. USE EXISTING COPPER RAW AND TREATED SAMPLE LINE CONDUIT. TO CONVEY RAW AND TREATED WATER SAMPLE LINES TO NET.
2. PROVIDE NEW TYPE K FLOOR DOOR IN EXISTING CURB, SEE DETAIL B 28-C1.06 PIPE HATCH DRAINAGE CHANNEL TO FLOOR.
3. OWNER WILL PROVIDE CONTRACTOR WITH SENSUS T² OMNI METER SCADA HEAD TO INSTALL FOR COMMUNICATION TO NET SCADA SYSTEM.
4. MOUNT PRESSURE GAUGE TO WALL. 5'-0" AFF.
5. REPLACE EXISTING ACCESS DOOR WITH TYPE K ACCESS DOOR. SEE DETAIL B 28-CSM1.01.
6. VALVE VAULT ACCESS HATCH NEEDS TO HAVE HATCH FALLING PROOF GRATE.
7. INSTALL NEW HEATER, CONTROL AND WIRES. REFER TO SPECIFICATION 23 82 39.



SECTION B

0 1' 2' 4'

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20
2	ADDENDUM 1	07/29/20

WELL NO. 28 VALVE VAULT PLAN AND SECTIONS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

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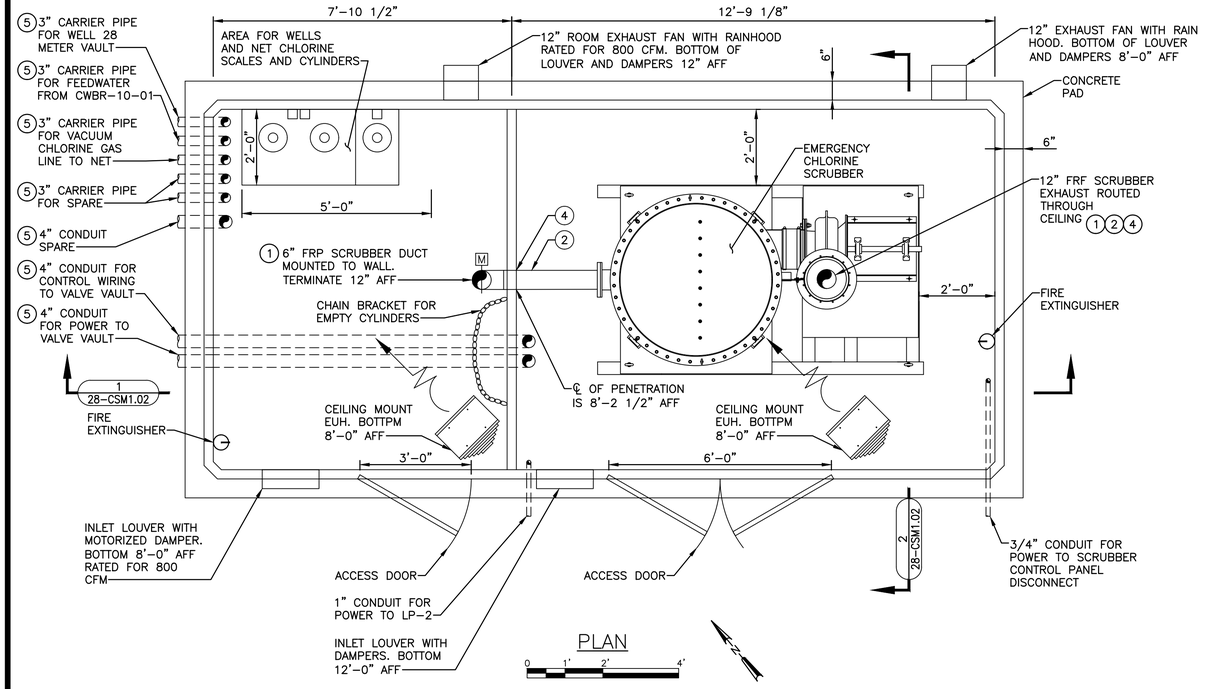
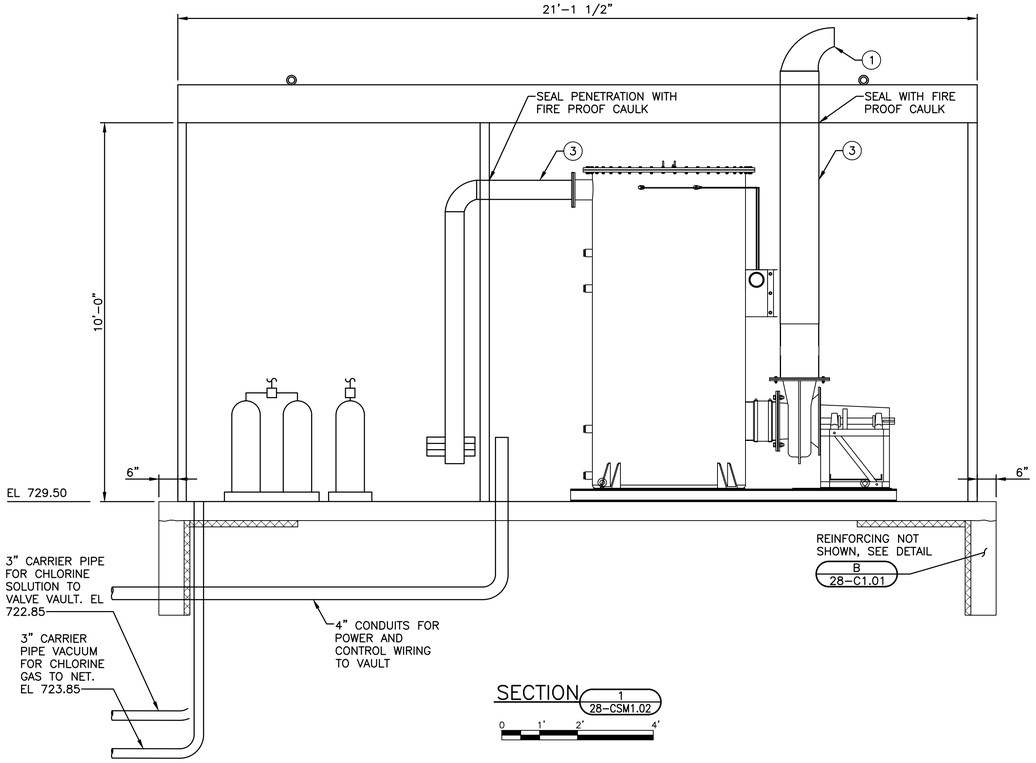


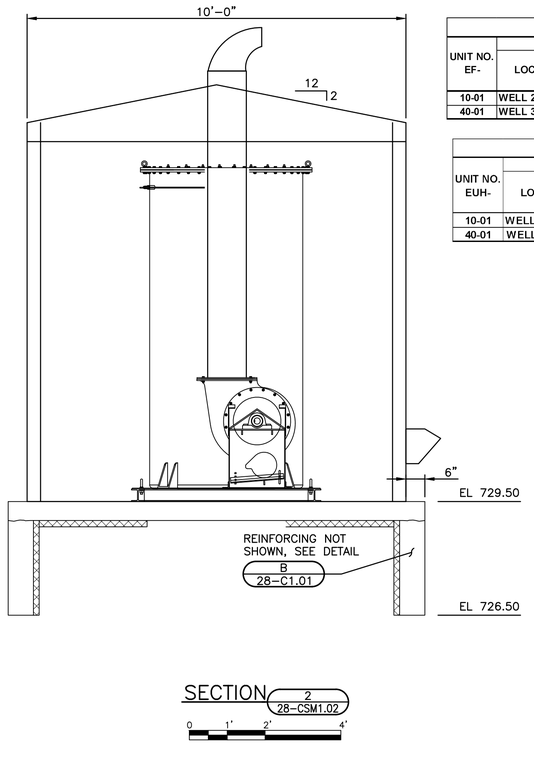
NET & WELL 28 CHLORINE BUILDING BUILDING CODE INFORMATION

BUILDING CODE	2018 INTERNATIONAL BUILDING CODE (W/LOCAL AMENDMENTS)			
SCOPE OF WORK: CONSTRUCTION OF A NEW PRE-FABRICATED FIBREGLASS ENCLOSURE WITH TWO ROOMS. ONE HOUSING GAS CHLORINE STORAGE AND CHEMICAL FEED EQUIPMENT. ONE HOUSING AN EMERGENCY CHLORINE GAS SCRUBBER				
OCCUPANCY TYPE	SEPARATED USE			
USE GROUPS	H-3 HIGH HAZARD			
	F-1 MODERATE -HAZARD FACOTRY INDUSTRIAL			
HAZARDOUS MATERIALS				
CHEMICAL	CHEMICAL LOCATION	CHEMICAL CLASSIFICATION	MAX. CONTROL AREA QUANTITYb	ACTUAL QUANTITYa
CHLORINE GAS	CHLORINE ROOM	OXIDIZING GAS, TOXIC	15 LBS	300 LBS
NOTES: a. ACTUAL QUANTITY IS FOR COMBINED STORAGE AND CLOSED SYSTEM USE. b. CONTROL AREA QUANTITY PER TABLE 307.1(1)				
CONSTRUCTION TYPE	TYPE IIB			
OCCUPANCY SEPARATION - NONE REQUIRED				
GENERAL BUILDING INFORMATION				
	ALLOWABLE		ACTUAL	
NO. OF STORIES	2 STORIES		1 STORY	
HEIGHT	40 FEET		12'-2" AT RIDGE, 11'-2" AVG.	
AREA PER FLOOR LEVEL -NEW (NET SF)				
F-1 (NEW)	80 SF		78 SF	
H-3 (NEW)	130 SF		120 SF	
TOTAL ALLOWABLE AREA PER FLOOR LEVEL	13,000 SF [1]	TOTAL ACTUAL AREA (FIRST FLOOR, GROSS SF)	210 SF	
PUBLIC WAYS OR YARDS	ACCESSIBLE FROM 4 SIDES, MIN. 30-FOOT ACCESS WIDTH			
FIRE SUPPRESSION SYSTEM-NOT PROVIDED. AUTOMATIC FIRE ALARM TO MONITORED SITE PROVIDED.				
PORTABLE FIRE EXTINGUISHERS, RATED CLASS A, B, C; 10-POUND CAPACITY.				
NUMBER OF OCCUPANTS				
OCCUPANT LOAD FACTOR	100 (H-3, F-1)			
OCCUPANT CALCULATION - SEE PLANS				
ACTUAL NUMBER OF OCCUPANTS	ZERO PERMANENT OCCUPANTS, OCCUPANTS ONLY PRESENT FOR OCCASIONAL MAINTENANCE AND OPERATION			

PERMITTED TRAVEL DISTANCE	EXIT ACCESS	COMMON PATH
H-3	150 FEET	25 FEET
F-1	200	75 FEET

NUMBER OF REQUIRED EXITS
ALL OTHER SPACES/OCCUPANCIES NOT LISTED ABOVE REQUIRE 1 EXIT.
NOTES:





FAN AND BLOWER SCHEDULE

UNIT NO. EF-	FAN SECTION LOCATION	DAYTON MODEL NO.	AIRFLO W (CFM)	EXT. S.P. (IN. W.C.)	ELECTRICAL MOTOR SIZE (HP)	VOLTAGE	PHASE	FLA	BREAKER SIZE	DISCONNECT BY	OPERATING WEIGHT (LBS)	NOTES
10-01	WELL 28 VAULT	1TDT2	538	0.1	3.7/5.0	115	1	2.05	15A	DIV. 26	24	
40-01	WELL 31 VAULT	1TDT2	538	0.1	3.7/5.0	115	1	2.05	15A	DIV. 26	24	

ELECTRIC UNIT HEATER SCHEDULE

UNIT NO. EUH-	FAN SECTION LOCATION	BERKO MODEL NO.	SUPPLY AIR (CFM)	ELECTRICAL FAN (KW)	VOLTAGE	PHASE	FLA	BREAKER SIZE	DISCONNECT BY	NOTES
10-01	WELL 28 VAULT	HUHAA524	350	3.7/5.0	208/240	1	10.3/13.9A	30A	DIV. 26	EXISTING
40-01	WELL 31 VAULT	HUHAA524	350	3.7/5.0	208/240	1	10.3/13.9A	30A	DIV. 26	

GENERAL NOTES:

1. CONTRACTOR SHALL INSTALL PRE-FABRICATED FIBERGLASS BUILDING PER MANUFACTURER RECOMMENDATIONS.
2. CONTRACTOR SHALL SEAL CONCRETE AND BUILDING SEAM WITH CAULK TO ENSURE POSITIVE SEAL.
3. USE LONG SWEEP ELBOWS FOR ALL CONDUIT AND CARRIER PIPE.
4. HVAC SYSTEM SHALL BE DELIVERED WITH BUILDING PRE-ASSEMBLED, PRE-MOUNTED AND PRE-WIRED.
5. FIBERGLASS ENCLOSURE WALLS SHALL BE REINFORCED IN AREAS WHERE WALL MOUNTED EQUIPMENT IS LOCATED. SEE ELECTRICAL PLAN FOR LOCATION OF ELECTRICAL EQUIPMENT.
6. SEAL ALL WALL PENETRATIONS WITH 1-HR FIRE RATED CAULK.

KEY NOTES:

(1) WEATHER PROOF EXHAUST CAP PROVIDED BY SCRUBBER MANUFACTURER. INSTALLED BY DIVISION 23.

(2) INLET AND EXHAUST DUCT TO BE FURNISHED AND INSTALLED AND SUPPORTED BY DIVISION 23.

(3) SUPPORT DUCT AS NECESSARY TO AVOID LOAD BEARING BY SCRUBBER.

(4) CONTRACTOR TO COORDINATE WITH ENCLOSURE MANUFACTURER ON LOCATION OF INLET AND OUTLET PENETRATION LOCATIONS.

(5) SEAL ENDS OF ALL CONDUIT IN CHLORINE ROOM.

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 CHLORINE ROOM PLAN, SECTIONS, AND DETAILS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

SHEET 12
28-CSM1.02

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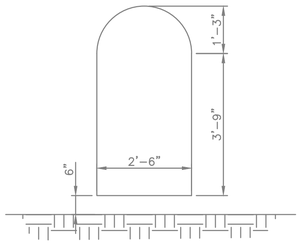


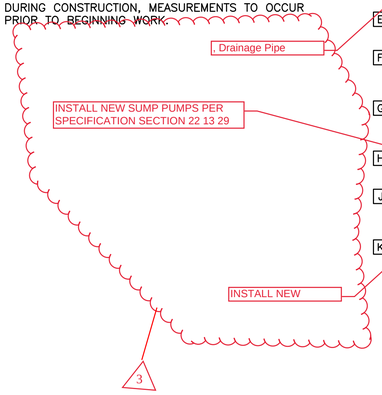
A / 28-DE1.01 NET ACCESS DOOR
NO SCALE

GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 26 09 90 FOR WIRING ASSOCIATED WITH THE SCADA SYSTEM. PROVIDE 10% SPARE WIRE/CABLE IN EACH CONTROL WIRE AND SIGNAL CABLE CONDUIT.
2. REMOVE ALL EXISTING ELECTRICAL EQUIPMENT AND MATERIALS ASSOCIATED WITH ITEMS BEING REMOVED AS SHOWN ON THIS DRAWING, AS WELL AS EXISTING ELECTRICAL DEVICES, MATERIALS, AND EQUIPMENT NOT BEING REUSED.
3. CONTRACTOR TO FIELD VERIFY ALL DOOR AND EQUIPMENT DIMENSIONS TO ENSURE ACCESSIBILITY DURING CONSTRUCTION, MEASUREMENTS TO OCCUR PRIOR TO BEGINNING WORK.

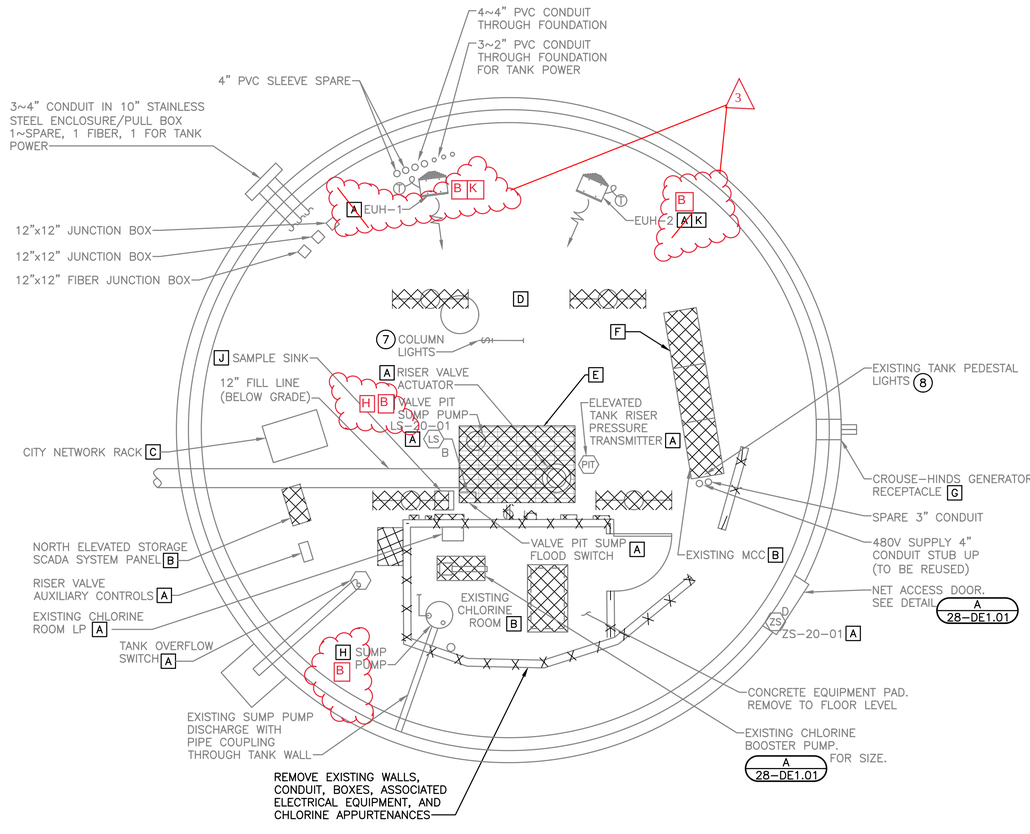
DEMOLITION NOTES:

- [A] EXISTING EQUIPMENT SHALL REMAIN. REMOVE ALL ASSOCIATED CONDUIT AND WIRE.
- [B] REMOVE EXISTING EQUIPMENT/DEVICE AND ALL ASSOCIATED WIRE AND EXPOSED CONDUIT.
- [C] EXISTING CITY NETWORK RACK SHALL REMAIN. REMOVE 120V POWER WIRE AND CONDUIT BACK TO LIGHTING PANEL.
- [D] REMOVE ALL EXISTING LIGHT FIXTURES IN BASE OF TANK, ASSOCIATED SWITCH WIRE, AND EXPOSED CONDUIT BACK TO SOURCE.
- [E] REMOVE EXISTING GRATING AND SAWCUT PERIMETER CONCRETE. SEE DETAIL A / 28-P1.01.
- [F] REMOVE EXISTING CATHODIC PROTECTION RECTIFIER AND TANK AGITATOR PANEL FROM MCC ENCLOSURE AND REINSTALL AS SHOWN.
- [G] REMOVE ALL EXISTING WIRE AND CONDUIT ASSOCIATED WITH RECEPTACLE AND ABANDON RECEPTACLE IN PLACE.
- [H] ~~EXISTING~~ EQUIPMENT SHALL REMAIN. DRAINAGE PIPING SHALL REMAIN. ~~REMOVE CONDUIT AND WIRING.~~
- [J] REMOVE SINK, FAUCETS AND SAMPLE LINES TO CONDUIT AND CUT. REMOVE DRAIN LINE TO CHLORINE ROOM SUMP.
- [K] ~~RELOCATE~~ HEATER TO HANG FROM DIFFERENT SUPPORT TO PROVIDE ROOM FOR MEDIUM VOLTAGE STARTER.



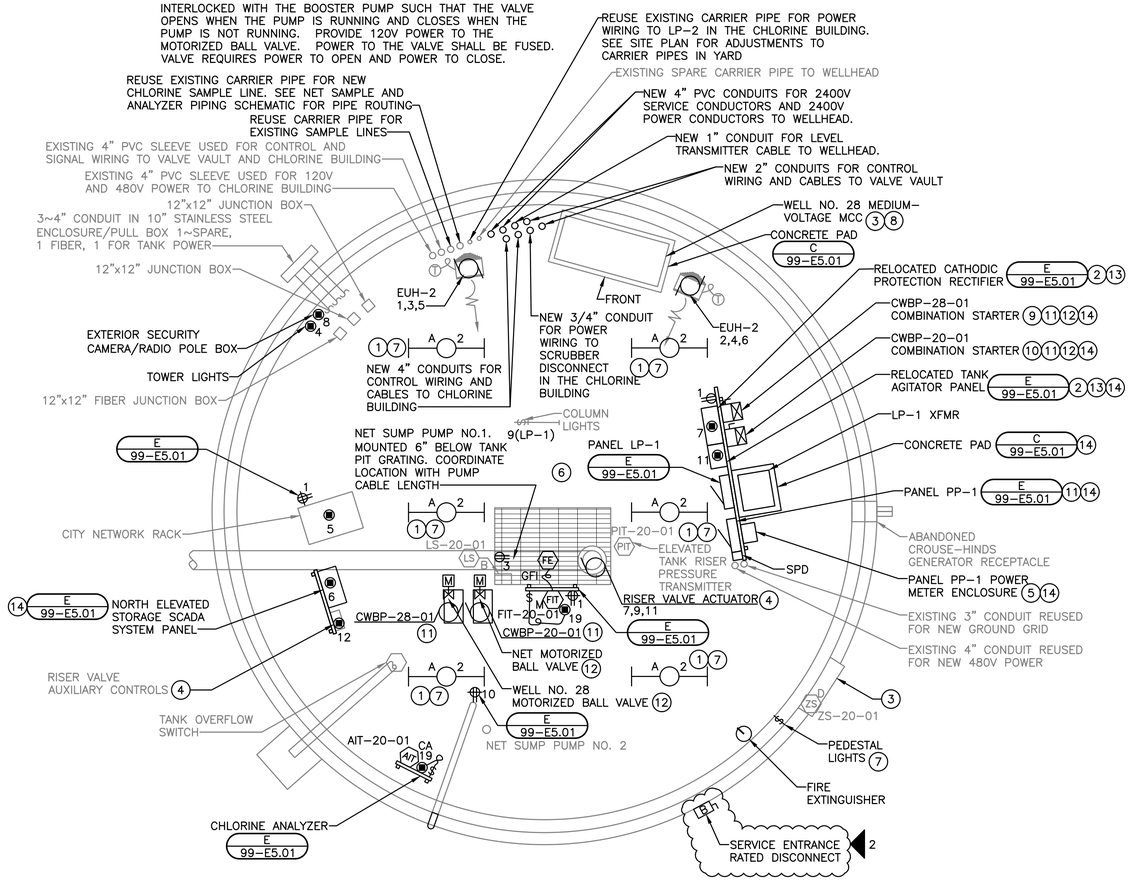
KEY NOTES:

1. MOUNT LIGHT FIXTURES TO EXISTING UNISTRUT SUPPORTS IN APPROXIMATE LOCATIONS SHOWN.
2. MODIFY AND EXTEND EXISTING CONDUIT AND WIRING AS REQUIRED TO MAINTAIN EXISTING FUNCTIONALITY..
3. COORDINATE MCC SIZE WITH MANUFACTURER SO THAT ALL SECTIONS FIT THROUGH EXISTING DOORWAY INTO THE TOWER.
4. PROVIDE 12~#14 IN 3/4" CONDUIT FROM RISER VALVE AUXILIARY CONTROL PANEL TO ACTUATOR FOR VALVE STATUS AND CONTROL SIGNALS. DOCUMENT EXISTING WIRING PRIOR TO REMOVAL AND RECONNECT NEW WIRING TO MAINTAIN EXISTING FUNCTIONALITY.
5. POWER METER FURNISHED AS SPECIFIED IN SECTION 26 09 00, PART 3.
6. REMOVE CONDUIT AND WIRING FROM SWITCH FOR TANK COLUMN LIGHTS BACK TO SOURCE. PROVIDE NEW CONDUIT AND WIRING TO SWITCH FROM NEW PANEL LP-1. CONDUIT AND WIRING BETWEEN SWITCH AND LIGHTS SHALL REMAIN.
7. REMOVE CONDUIT AND WIRING FROM SWITCH FOR TANK PEDESTAL LIGHTS BACK TO SOURCE. PROVIDE NEW CONDUIT AND WIRING TO SWITCH FROM NEW PANEL LP-1. PROVIDE 2~#12 AND #12 GROUND FROM SWITCH TO NEW LIGHT FIXTURES.
8. PROVIDE FLOOR MAT SPANNING ENTIRE FRONT OF MCC.
9. SECTION 26 09 00 SYSTEM SUPPLIER SHALL PROVIDE A 480V, 3-PHASE, NEMA SIZE 0, FVNR COMBINATION STARTER WITH NEMA 12 ENCLOSURE FOR CWBP-28-01. STARTER SHALL HAVE AN H-O-A SELECTOR SWITCH AND GREEN "RUN" AND RED "STARTER OVERLOAD" PILOT LIGHTS ON THE ENCLOSURE DOOR. PROVIDE AUXILIARY CONTACTS FOR INDICATION OF "IN AUTO," "RUN," AND "STARTER OVERLOAD" AT THE SCADA SYSTEM. WITH THE H-O-A SELECTOR SWITCH IN THE "HAND" POSITION, THE PUMP SHALL RUN. WITH THE H-O-A SELECTOR SWITCH IN THE "OFF" POSITION, THE PUMP SHALL BE IN OPERABLE. WITH THE H-O-A SELECTOR SWITCH IN THE "AUTO" POSITION, THE PUMP SHALL BE CONTROLLED FROM THE SCADA SYSTEM AS DESCRIBED IN SECTION 26 09 00. WELL NO. 28 MOTORIZED BALL VALVE SHALL BE INTERLOCKED WITH THE BOOSTER PUMP SUCH THAT THE VALVE OPENS WHEN THE PUMP IS RUNNING AND CLOSES WHEN THE PUMP IS NOT RUNNING. PROVIDE 120V POWER TO THE MOTORIZED BALL VALVE. POWER TO THE VALVE SHALL BE FUSED. VALVE REQUIRES POWER TO OPEN AND POWER TO CLOSE.
10. SECTION 26 09 00 SYSTEM SUPPLIER SHALL PROVIDE A 480V, 3-PHASE, NEMA SIZE 0, FVNR COMBINATION STARTER WITH NEMA 12 ENCLOSURE FOR CWBP-20-01. STARTER SHALL HAVE AN H-O-A SELECTOR SWITCH AND GREEN "RUN" AND RED "STARTER OVERLOAD" PILOT LIGHTS ON THE ENCLOSURE DOOR. PROVIDE AUXILIARY CONTACTS FOR INDICATION OF "IN AUTO," "RUN," AND "STARTER OVERLOAD" AT THE SCADA SYSTEM. WITH THE H-O-A SELECTOR SWITCH IN THE "HAND" POSITION, THE PUMP SHALL RUN. WITH THE H-O-A SELECTOR SWITCH IN THE "OFF" POSITION, THE PUMP SHALL BE IN OPERABLE. WITH THE H-O-A SELECTOR SWITCH IN THE "AUTO" POSITION, THE PUMP SHALL BE CONTROLLED FROM THE SCADA SYSTEM AS DESCRIBED IN SECTION 26 09 00. NET MOTORIZED BALL VALVE SHALL BE INTERLOCKED WITH THE BOOSTER PUMP SUCH THAT THE VALVE OPENS WHEN THE PUMP IS RUNNING AND CLOSES WHEN THE PUMP IS NOT RUNNING. PROVIDE 120V POWER TO THE MOTORIZED BALL VALVE. POWER TO THE VALVE SHALL BE FUSED. VALVE REQUIRES POWER TO OPEN AND POWER TO CLOSE.
11. PROVIDE CONDUCTORS FROM PP-1 TO COMBINATION STARTER AND FROM STARTER TO MOTOR. CONDUCTOR AND CONDUIT SIZE SHALL BE BASED ON BREAKER SIZE IN PP-1 AND NEC, MINIMUM #12.
12. PROVIDE 4~#12 AND #12 GROUND IN 3/4" CONDUIT FROM ASSOCIATED CHLORINE BOOSTER PUMP COMBINATION STARTER TO MOTORIZED BALL VALVE.
13. TEMPORARY POWER SHALL BE PROVIDED FOR TANK AGITATOR AND CATHODIC PROTECTION.
14. COORDINATE WITH OWNER TO LOCATE PANELS.



ELEVATED TANK PEDESTAL DEMOLITION PLAN

0 1' 2' 4' 8'



ELEVATED TANK ELECTRICAL PEDESTAL PLAN

0 1' 2' 4' 8'

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20
2	ADDENDUM NO. 7	4/9/20
3	ADDENDUM NO.1	7/30/20

ELEVATED TANK PEDESTAL DEMOLITION AND ELECTRICAL PLANS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

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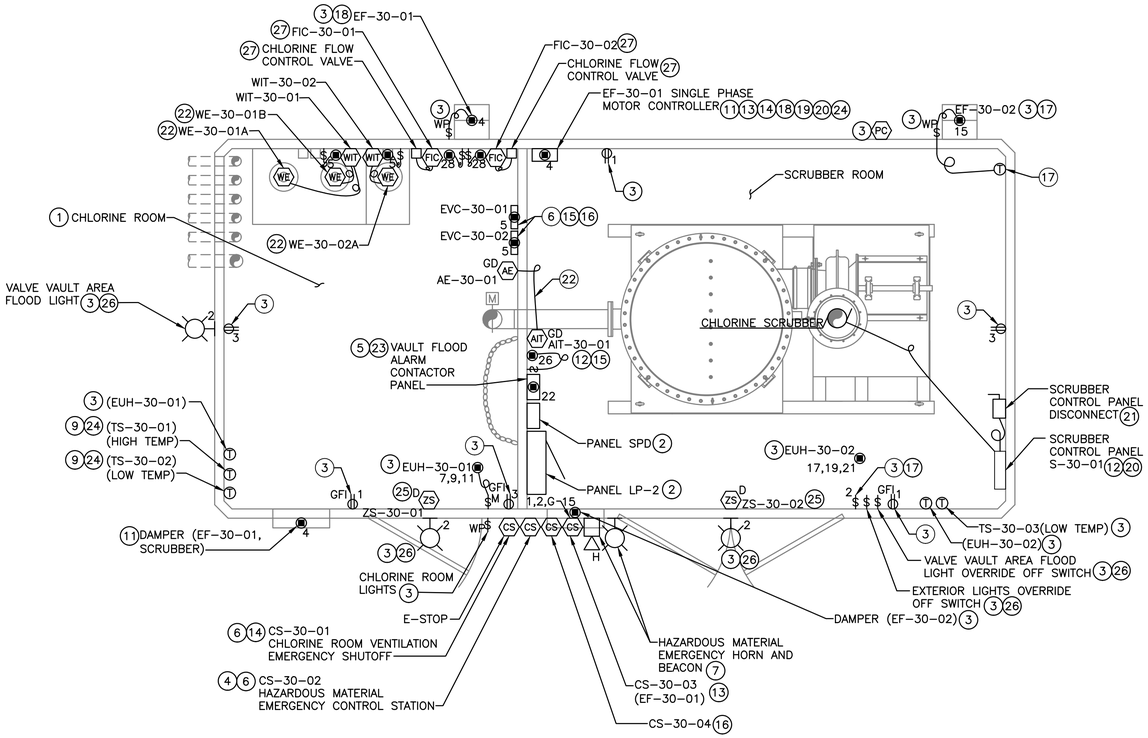
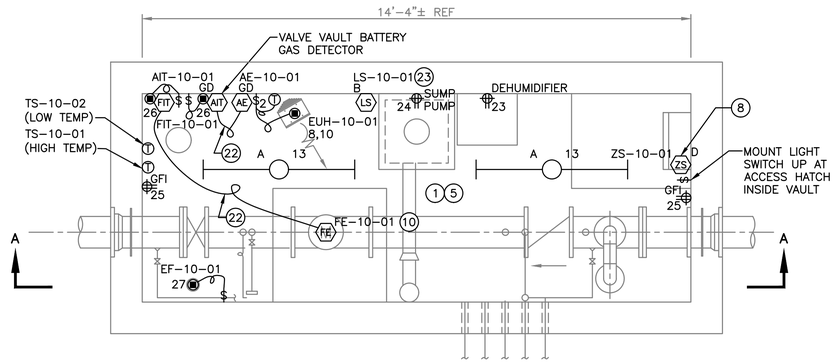


PROPOSED CHLORINE BUILDING ELECTRICAL PLAN

0 1' 2' 4'



PROPOSED VALVE VAULT ELECTRICAL PLAN

0 1' 2' 4'

GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 26 09 90 FOR WIRING ASSOCIATED WITH THE SCADA SYSTEM. PROVIDE 10% SPARE WIRE/CABLE IN EACH CONTROL WIRE AND SIGNAL CABLE CONDUIT.
2. THERMOSTATS ON EXTERIOR WALLS SHALL HAVE INSULATED BASES.
3. FIBERGLASS ENCLOSURE WALLS SHALL BE REINFORCED IN AREAS WHERE WALL MOUNTED EQUIPMENT IS LOCATED.
4. DAMPERS NOT SHOWN WITH A CIRCUIT NUMBER SHALL BE POWERED FROM SAME CIRCUIT AS ASSOCIATED FAN. DAMPER SHALL OPEN WHEN FAN IS RUNNING.

KEY NOTES:

(1) ALL ELECTRICAL WORK AND EQUIPMENT IN THIS AREA SHALL BE RATED NEMA 4X.

(2) LIGHTING PANEL LP-2 AND SPD PROVIDED BY BUILDING MANUFACTURER AS SPECIFIED IN SECTION 06 80 00. VERIFY EXACT LOCATION OF PANEL WITH BUILDING MANUFACTURER.

(3) LIGHT FIXTURES, OUTLETS, UNIT HEATERS (INCLUDING ASSOCIATED THERMOSTATS), EXHAUST FANS (INCLUDING ASSOCIATED THERMOSTATS), DISCONNECT SWITCHES, AND ASSOCIATED INTAKE DAMPERS PROVIDED AND FACTORY PRE-WIRED BY BUILDING MANUFACTURER AS SPECIFIED IN SECTION 06 80 00. ALL OTHER EQUIPMENT SHALL BE PROVIDED BY CONTRACTOR.

(4) PROVIDE A CONTROL STATION WITH RED, MUSHROOM-HEAD-TYPE, MAINTAINED PUSHBUTTON FOR MANUAL INITIATION OF A HAZARDOUS MATERIAL EMERGENCY ALARM. PROVIDE AUXILIARY CONTACTS AS REQUIRED TO MONITOR ALARM AT NORTH ELEVATED STORAGE SCADA SYSTEM PANEL. REFER TO SPECIFICATION SECTION 26 09 00, PART 3 FOR HARDWIRED CONTROLS. PROVIDE 2~#14 AND #14 GROUND IN 3/4" CONDUIT FROM CONTROL STATION TO NORTH ELEVATED STORAGE SCADA SYSTEM PANEL.

(5) PROVIDE AN 12-POLE, 30-AMP, NEMA-RATED CONTACTOR IN A NEMA 12 ENCLOSURE FOR CONTROL OF ALL LIGHTING PANEL CIRCUITS TO THE VALVE VAULT. CONTACTOR SHALL BE CONTROLLED SUCH THAT WHEN THE VALVE VAULT BUILDING FLOODING FLOAT (LS-10-01) IS ACTIVATED, THE CONTACTOR SHALL BE DE-ENERGIZED THUS DE-ENERGIZING ALL CIRCUITS TO THE VALVE VAULT. THE CONTACTOR SHALL BE ENERGIZED AT ALL OTHER TIMES. PROVIDE AN AUXILIARY CONTACT ON THE SIGNAL FROM THE VALVE VAULT BUILDING FLOODING FLOAT SWITCH FOR VALVE VAULT FLOODING INDICATION AT THE SCADA SYSTEM PANEL IN THE ELEVATED TANK. PROVIDE MISCELLANEOUS RELAYS AND WIRING AS REQUIRED. CONTROL POWER TO THE PANEL SHALL BE FROM LP-2. VAULT FLOOD ALARM CONTACTOR PANEL SHALL BE FURNISHED BY SECTION 26 09 00 SYSTEM SUPPLIER. PROVIDE A RED PILOT LIGHT ON THE ENCLOSURE DOOR TO INDICATE WHEN THE FLOAT SWITCH IS ACTIVATED AND POWER HAS BEEN DE-ENERGIZED.

(6) PROVIDE 2~#14 IN 3/4" CONDUIT FROM CS-30-01 AND FROM CS-30-02 TO EVC-30-01 AND EVC-30-02 TO CLOSE VALVES WHEN THE HAZARDOUS MATERIAL ALARM IS ACTIVATED OR WHEN THE VENTILATION SYSTEM IS MANUALLY SHUT DOWN.

(7) PROVIDE ALARM HORN MODEL 876-N5 AND ALARM BEACON MODEL 105XBRMR120A AS MANUFACTURED BY EDWARDS SIGNAL, OR EQUAL, AND ALL REQUIRED MOUNTING HARDWARE. HORN AND BEACON SHALL BE POWERED FROM NORTH ELEVATED TANK SCADA SYSTEM PANEL AND CONTROLLED AS SPECIFIED UNDER SECTION 26 09 00, PART 3. PROVIDE A SIGN AS SPECIFIED IN SECTION 26 05 53 AT THE BEACON FOR HAZARDOUS MATERIAL ALARM AND AT THE HORN FOR HAZARDOUS MATERIAL ALARM AND CHLORINE GAS LEAK ALARM. PROVIDE 2~#12 AND #12 GROUND IN 3/4" CONDUIT FROM NORTH ELEVATED STORAGE SCADA SYSTEM PANEL TO HORN AND BEACON FOR 120V POWER.

(8) PROVIDE DOOR SWITCH MOUNTED ON ACCESS HATCH INSIDE VALVE VAULT.

(9) THERMOTSTAT FURNISHED BY BUILDING MANUFACTURER AS SPECIFIED IN SECTION 06 80 00 AND WIRED BY DIVISION 26 TO EF-30-01 MOTOR CONTROLLER.

(10) FLOW METER PROVIDED AS SPECIFIED IN DIVISION 40 AND WIRED BY DIVISION 26.

(11) INTAKE DAMPER ACTUATOR FURNISHED BY BUILDING MANUFACTURER AS SPECIFIED IN SECTION 06 80 00 AND WIRED BY DIVISION 26. DAMPER CIRCUIT CONDUCTORS SHALL BE ROUTED FROM LP-2 THROUGH EF-30-01 SINGLE PHASE MOTOR CONTROLLER.

(12) PROVIDE 2~#14 AND #14 GROUND IN 3/4" CONDUIT FROM GAS DETECTOR TRANSMITTER TO SCRUBBER CONTROL PANEL FOR LEAK DETECTED/START SIGNAL.

(13) PROVIDE 7~#14 AND #14 GROUND IN 3/4" CONDUIT FROM CS-30-03 TO EF-30-01 SINGLE PHASE MOTOR CONTROLLER.

(14) PROVIDE A RED, GLASS-BREAK-STYLE, MAINTAINED PUSHBUTTON CONTROL STATION, MODEL ST120-SN4-BP2-VS AS MANUFACTURED BY PILLA, OR EQUAL. CONTROL STATION SHALL BE LABELED "CHLORINE ROOM VENTILATION EMERGENCY SHUTOFF". PROVIDE 2~#14 AND #14 GROUND IN 3/4" CONDUIT TO EF-30-01 SINGLE PHASE MOTOR CONTROLLER.

(15) PROVIDE 2~#14 IN 3/4" CONDUIT FROM CHLORINE LEAK ALARM RELAY IN SCRUBBER CONTROL PANEL TO EVC-30-01 AND EVC-30-02.

(16) PROVIDE A CONTROL STATION WITH RED, MUSHROOM-HEAD-TYPE, MAINTAINED PUSHBUTTON TO MANUALLY CLOSE THE CHLORINE VALVES. PROVIDE AUXILIARY CONTACTS AS REQUIRED FOR EVC-30-01 AND EVC-30-02. PROVIDE 2~#14 IN 3/4" CONDUIT FROM CONTROL STATION TO EVC-30-01 AND EVC-30-02.

(17) TWO-POLE SWITCH SHALL CONTROL ROOM LIGHTS AND SHALL CONTROL EF-30-02 THROUGH THE FAN THERMOSTAT.

(18) EF-30-01 MOTOR CONDUCTORS SHALL BE ROUTED FROM LP-2 THROUGH EF-30-01 SINGLE PHASE MOTOR CONTROLLER.

(19) EF-30-01 SINGLE PHASE MOTOR CONTROLLER SHALL BE FURNISHED BY SECTION 26 09 00 SYSTEM SUPPLIER.

(20) PROVIDE 2~#14 AND #14 GROUND IN 3/4" CONDUIT FROM SCRUBBER CONTROL PANEL TO EF-30-01 SINGLE PHASE MOTOR CONTROLLER FOR SCRUBBER "RUNNING" STATUS.

(21) SCRUBBER CONTROL PANEL DISCONNECT SHALL BE SERVICE ENTRANCE RATED.

(22) PROVIDE MANUFACTURER-RECOMMENDED CABLE IN 3/4" CONDUIT FROM DEVICE TO TRANSITTER.

(23) PROVIDE 2~#14 AND #14 GROUND IN 3/4" CONDUIT FROM LEVEL SWITCH TO VAULT FLOOD ALARM CONTACTOR PANEL IN CHLORINE BUILDING.

(24) PROVIDE 2~#14 AND #14 GROUND FROM THERMOSTAT TO EF-30-01 SINGLE PHASE MOTOR CONTROLLER.

(25) DOOR SWITCH FURNISHED BY BUILDING MANUFACTURER AS SPECIFIED IN SECTION 06 80 00 AND WIRED BY DIVISION 26.

(26) EXTERIOR LIGHT FIXTURES SHALL BE POWERED THROUGH THE PHOTOCELL AND ASSOCIATED OVERRIDE OFF SWITCH SO THAT WHEN THE LIGHTS ARE TURNED ON BY THE PHOTOCELL, THEY CAN BE TURNED OFF USING THE ASSOCIATED OVERRIDE OFF SWITCH.

(27) PROVIDE MANUFACTURER-RECOMMENDED CABLE IN 3/4" CONDUIT FROM FIC TO VALVE.

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 VALVE VAULT AND CHLORINE BUILDING ELECTRICAL PLANS

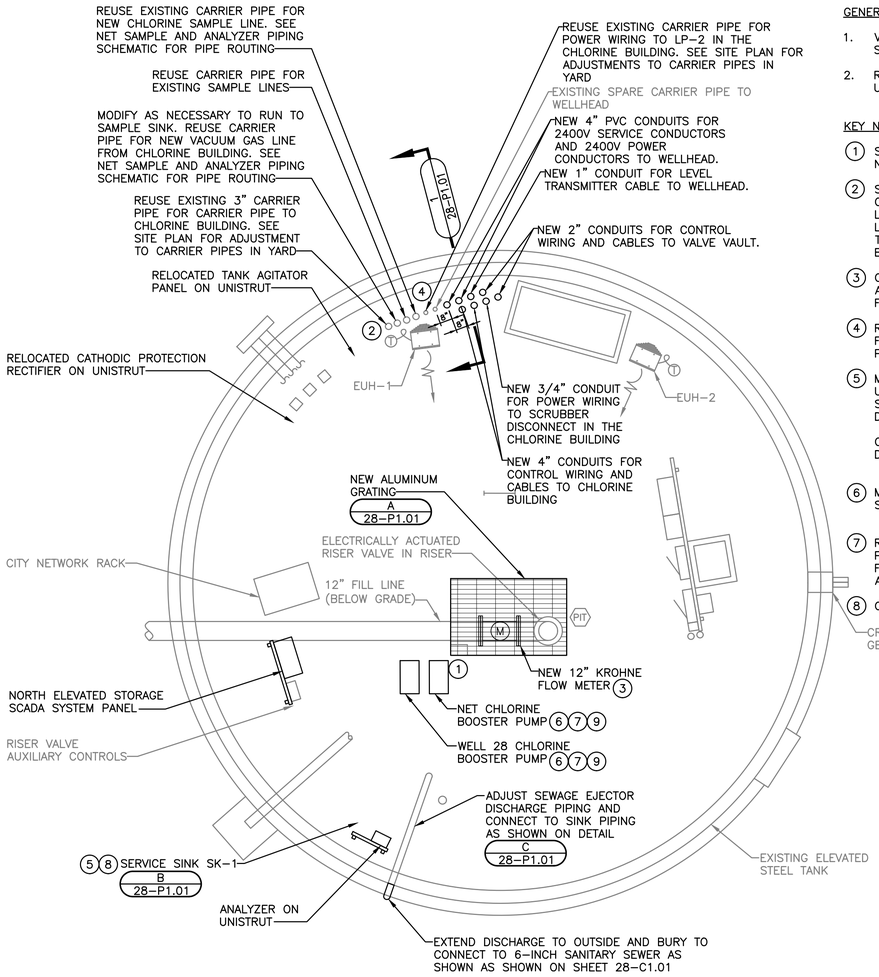
IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

SHEET 14 28-E1.02



PROPOSED PLAN

0 1' 2' 4' 8'

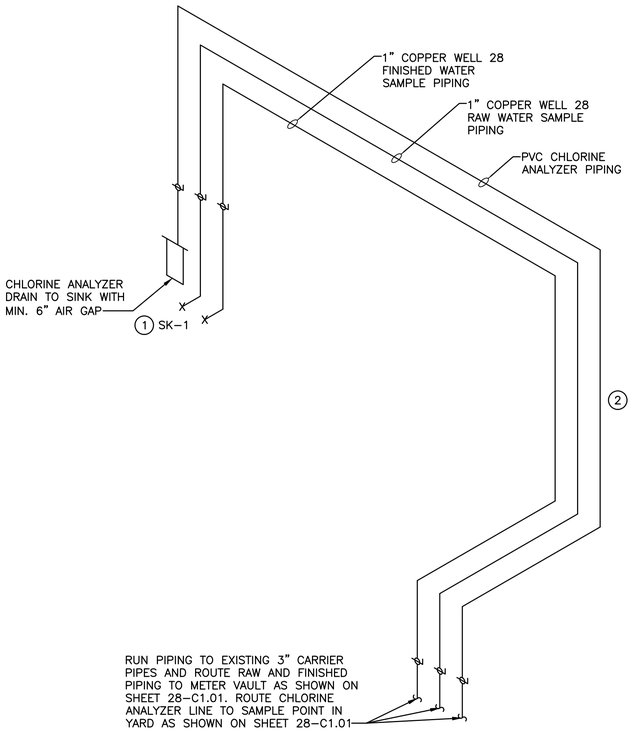
GENERAL NOTES:

1. VALVE PIT PIPING TO THE RISER VALVE WILL BE SURFACE PREPARED AND RELOCATED.
2. REMOUNT EQUIPMENT NOTED TO REMAIN ON UNISTRUTS WHERE THEIR PRIOR SUPPORT IS REMOVED.

KEY NOTES:

1. SAMPLE LINES TO SAMPLE SINK TO BE ROUTED AS NECESSARY TO SUPPORT THE LINES.
2. SAMPLE LINES TO REUSE EXISTING CARRIER PIPE. ONE CARRIER PIPE TO BE USED BY CHLORINE FEED LINE LINE FROM CHLORINE BUILDING. ONE CARRIER LINE TO BE USED BY WELL 28 PRESSURE TRANSDUCER AND AIR LINES. ONE CARRIER PIPE TO BE USED BY WELL 28 POWER CABLE.
3. CUT PIPING IN VAULT TO ALLOW INSERTION OF METER AND FLANGED COUPLING ADAPTER. INSTALL METER, FCA AND SECURE WITH EBAA MEGA-FLANGES.
4. REMOVE EXISTING CONTROL AND POWER CABLES FROM EXISTING CARRIER PIPE IN NET. INSTALL NEW POWER CABLE AND CONTROL CABLE TO VALVE VAULT.
5. MOUNT SERVICE SINK TO PACKING PLATE AND UNISTRUT AT ELEVATION SUFFICIENT TO CONNECT TO SUMP DRAIN LINE AS SHOWN IN DETAIL C 28-P1.01. RUN RAW, FINISHED AND CHLORINE ANALYZER LINES TO SINK AS SHOWN IN DETAIL B 28-P1.01.
6. MOUNT PUMPS ON CONCRETE EQUIPMENT PAD AS SHOWN IN DETAIL C 99-E5.01.
7. RUN CARRIER GAS VACUUM AND CARRIER WATER PIPING TO CHLORINE BUILDING. SEE SHEET 28-P1.02 FOR SCHEMATICS OF CHLORINE GAS PIPING AND CARRIER WATER PIPING.
8. COORDINATE LOCATION OF SK-1 WITH OWNER.

CROUSE-HINDS GENERATOR PORT



B 28-P1.01 NET SAMPLE AND ANALYZER PIPING SCHEMATIC

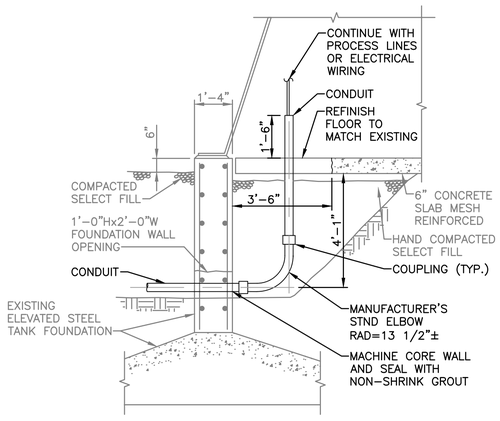
NO SCALE

GENERAL NOTES:

1. COORDINATE PIPING WITH OTHER TRADES.
2. ALL WASTE AND VENT PIPING SHALL BE SLOPED AT 1/4" PER FOOT MINIMUM.
3. CONTRACTOR DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW GENERAL ARRANGEMENT ONLY. NOT ALL NECESSARY FITTINGS MAY BE SHOWN.
4. ALL MECHANICAL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO ELIMINATE AND CONFLICTS BETWEEN PIPING, DUCTWORK, ELECTRICAL, ETC.
5. ALL PIPE LOCATION.

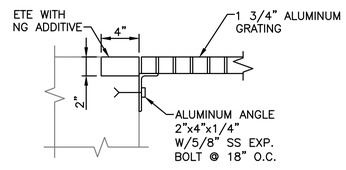
KEY NOTES:

1. MOUNT SK-1 TO SHEET METAL PANEL ON UNISTRUT AT HEIGHT NECESSARY TO ALLOW TIE-IN WITH EXISTING CHLORINE SUMP PUMP DISCHARGE LINE.
2. ROUTE AND SUPPORT CHLORINE ANALYZER WELL 28 RAW AND WELL 28 FINISH TO STRUCTURAL MEMBERS ABOVE FLOOR.



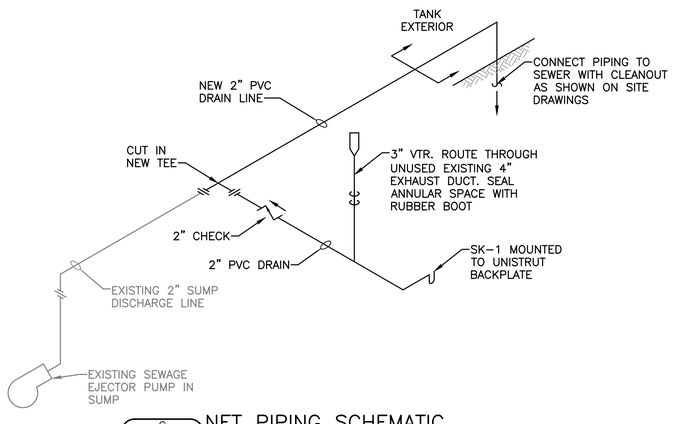
SECTION 1 / 28-P1.01

NO SCALE



A 28-P1.01 GRATING SUPPORT ANGLE

NO SCALE



C 28-P1.01 NET PIPING SCHEMATIC

NO SCALE

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 VALVE VAULT AND NET DETAILS AND SCHEMATICS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004

PROJECT MGR. TIMOTHY SCHOLZ

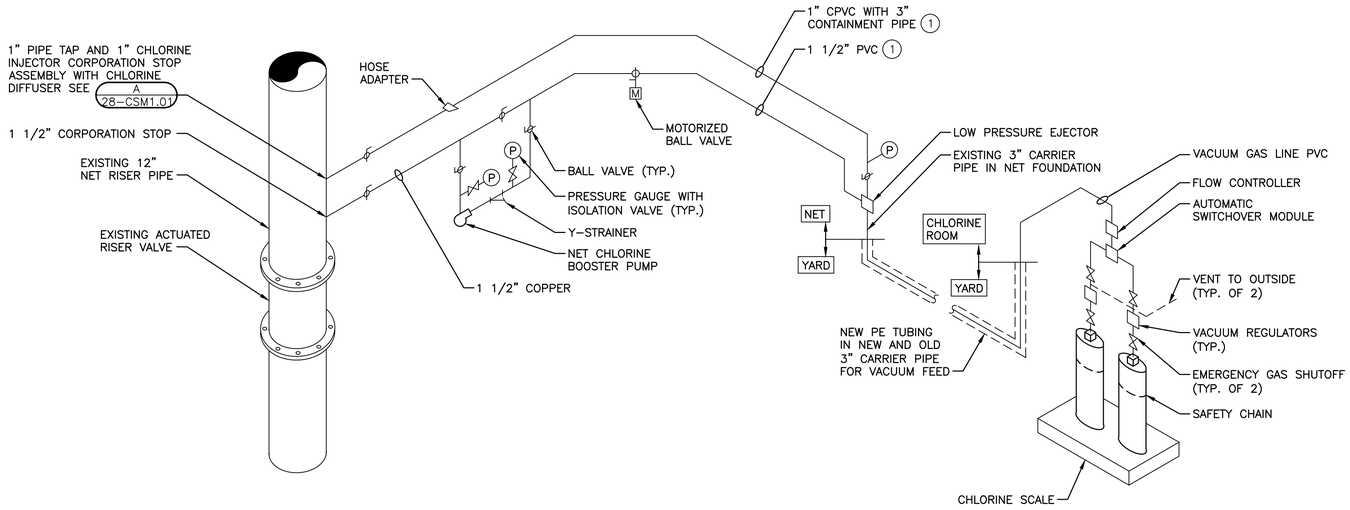
STRAND ASSOCIATES®

SHEET 15 28-P1.01

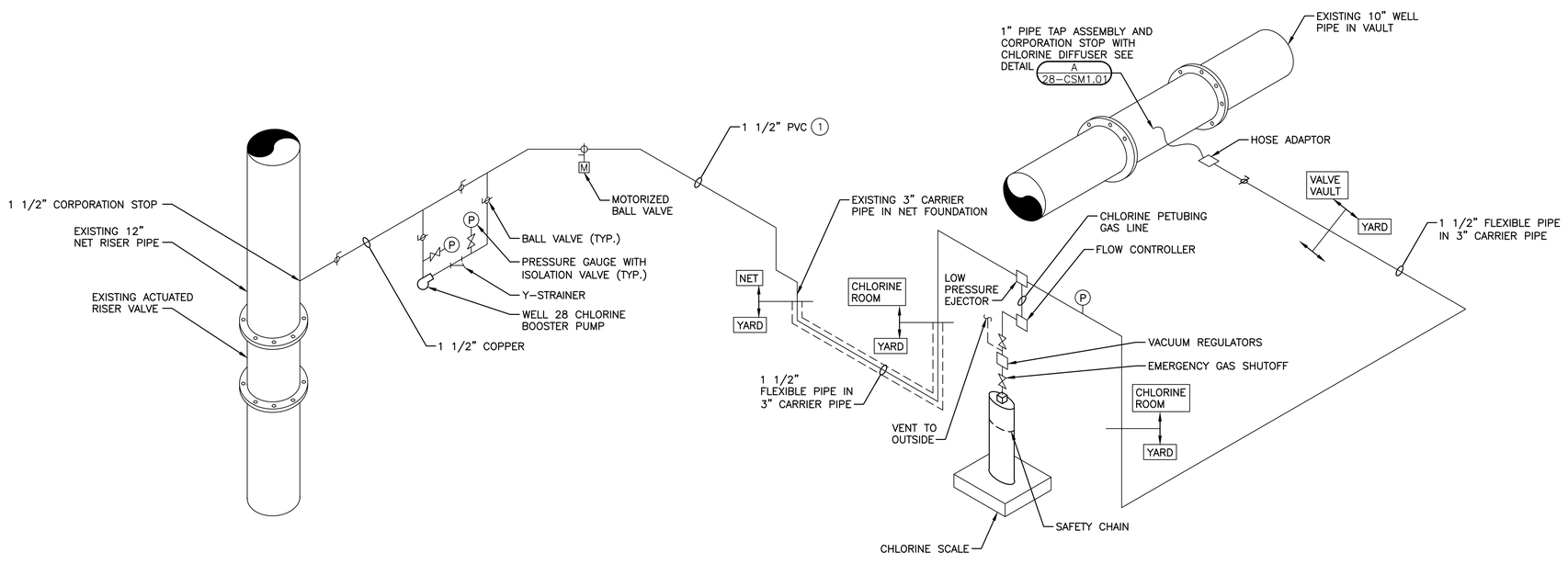
File: S:\JOL\1200--1299\1216\004\Drawings\CAD\28-P1.01.dwg Time: Feb 19, 2020 - 10:18am

KEY NOTES:

(1) RUN PIPING IN NEAT OVERHEAD LINES SUPPORTED FROM EXISTING TANK BEAMS.



NET CHLORINE SUPPLY SCHEMATIC
NO SCALE



WELL 28 CHLORINE SCHEMATIC
NO SCALE

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

WELL NO. 28 AND NET CHLORINE SCHEMATICS

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO.
1216.004

PROJECT MGR.
TIMOTHY SCHOLZ

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16
28-P1.02

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MEDIUM–VOLTAGE MOTOR CONTROL CENTER SCHEDULE – WELL NO. 28

EQUIPMENT AND NAMEPLATE TITLES					MOTOR INFORMATION				MOTOR STARTER INFORMATION					CONTROL & INTERLOCKS		
EQUIPMENT NUMBER	FIRST LINE SECOND LINE WHEN EQUIPMENT NUMBER IS INDICATED	SECOND LINE THIRD LINE WHEN EQUIPMENT NUMBER IS INDICATED	EQUIPMENT LOCATION	PANEL MCC	HP/ KW	VOLTS	F.L.A. IN AMPS	RPM	SIZE	TYPE	FUSE TYPE	FUSE I IN AMPS	CONTROL DEVICE (SEE INFO)	DESCRIPTION	CONDUIT AND WIRE** 1ST ROW=CONTROL* 2ND ROW=POWER	REMARKS***
	WELL NO. 28	PUMP	WELL NO. 28	–	450	2400	114	1770	200A	RVSS	R	200	H–O–A,R,R,G,4,ETM	–	3~1/0, 4"C.	SEE NOTE A IN SPECIFICATION SECTION 26 09 00 – CONTROLS AND INSTRUMENTATION, PART 3. R=RVSS FAULT, R=MOTOR OVERLOAD/FAULT

POWER PANEL PP-1 (3)

Service: 277/480V, 3ø, 4W — Enclosure: NEMA 1 — Mounting: Surface
Main Breaker: 200/3 MCB — Main Bus: Copper
Location: NET — SCIC: 65 kAIC

Room Number/Description	Amps	Poles	Ct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Ct. #	Poles	Amps	Room Number/Description
			1	3300			3300			2			
EUH-1	20	3	3		3300			3300		4	3	20	EUH-2
			5			3300			3300	6			
			7	120			0			8			
Riser Valve Actuator	15	3	9		120			0		10	3	20	Spare
			11			120			0	12			
			13	10144			0			14			
LP-1 XFMR	70	3	15		11750			0		16	3	30	Surge Protective Device
			17			9590			0	18			
			19	100			1100			20			
Panel PP-1 Meter Enclosure	15	3	21		100			1100		22	3	20	Scrubber Control Panel
			23			100			1100	24			
			25	1000			1000			26			
CWBP-28-01	15	3	27		1000			1000		28	3	15	CWBP-20-01
			29			1000			1000	30			
Total Load per Phase per Side (VA)				14664	16270	14110	5400	5400	5400				

Total Load Phase A (VA)	20064	VA	Total Connected Load (A)	74	A
Total Load Phase B (VA)	21670	VA	Total Connected Load + 25%	92	A
Total Load Phase C (VA)	19510	VA	Spare 25%	23	A
Total Connected Load (VA)	61244	VA	Feeder Load	115	A

LIGHTING PANEL LP-1

Service: 120/208V, 3ø, 4W — Enclosure: NEMA 1 — Mounting: Surface
Main Breaker: 150/3 MCB — Main Bus: Copper
Location: NET — SCIC: 10 kAIC

Room Number/Description	Amps	Poles	Ct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Ct. #	Poles	Amps	Room Number/Description
Receptacles	20	1	1	540			260			2	1	20	Lights
NET Sump Pump #1	20	1	3		900			200		4	1	20	Tower Lights
City Network Rack	20	1	5			1000			300	6	1	20	North Elevated Storage SCADA Panel
Cathodic Protection	20	1	7	450			700			8	1	20	Exterior Security Camera/Radio Pole
Column Lights	20	1	9		800			900		10	1	20	NET Sump Pump #2
Tank Agitator Panel *	20	1	11			1800			500	12	1	20	Riser Valve Auxiliary Controls
			13	5882			0			14	1	20	Spare
LP-2	100	3	15		5920			0		16	1	20	Spare
			17			4280			0	18	1	20	Spare
FIT-20-01, AIT-20-02	20	1	19	400			0			20	1	20	Spare
Spare	20	1	21		0			0		22	1	20	Spare
Spare	20	1	23			0			0	24	1	20	Spare
Spare	20	1	25	0			0			26	1	20	Spare
Spare	20	1	27		0			0		28	1	20	Spare
Spare	20	1	29			0			0	30	1	20	Spare
Total Load per Phase per Side (VA)				7272	7620	7080	960	1100	800				

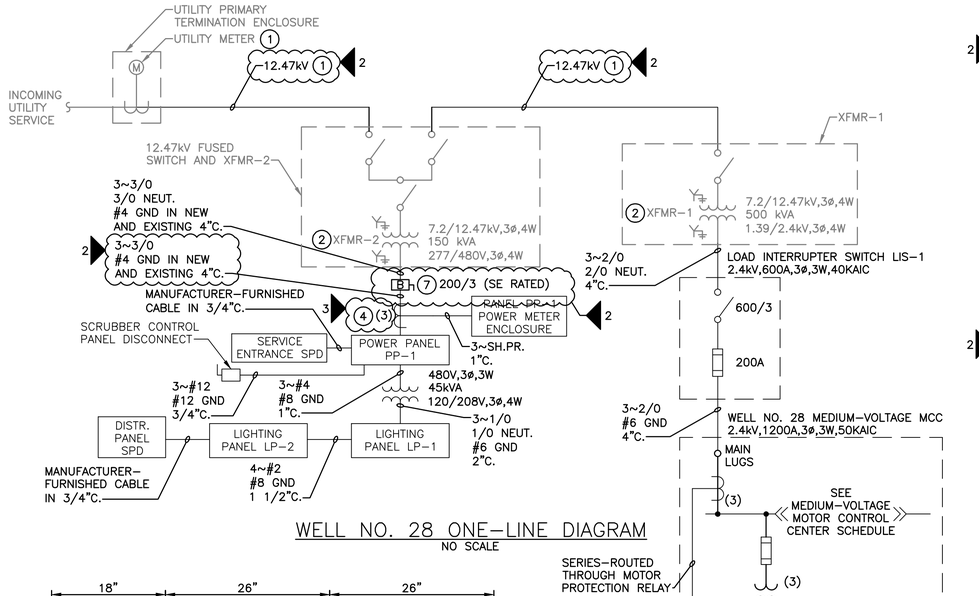
Total Load Phase A (VA)	8232	VA	* Provide GFI Breaker		
Total Load Phase B (VA)	8720	VA	Total Connected Load (A)	69	A
Total Load Phase C (VA)	7880	VA	Total Connected Load + 25%	86	A
Total Connected Load (VA)	24832	VA	Spare 25%	22	A
			Feeder Load	108	A

LIGHTING PANEL LP-2 (3)

Service: 120/208V, 3ø, 4W — Enclosure: NEMA 4X — Mounting: Surface
Main Breaker: 100/3 MCB — Main Bus: Copper
Location: Chlorine Building — SCIC: 10 kAIC

Room Number/Description	Amps	Poles	Ct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Ct. #	Poles	Amps	Room Number/Description
Enclosure Receptacles	20	1	1	540			250			2	1	20	Enclosure and Exterior Lights
Enclosure Receptacles	20	1	3		540			600		4	1	20	EF-30-01 and Intake Damper
WIT-30-01, WIT-30-02, EVC-30-01, EVC-30-02	20	1	5			400			0	6	1	20	Spare
			7	840			1850			8			
EUH-30-01	20	3	9		840			1850		10	2	30	Valve Vault EUH-10-01
			11			840			0	12	1	20	Spare
Valve Vault Lighting	20	1	13	102			0			14			
EF-30-02	20	1	15		500			0		16	3	30	Surge Protective Device
			17			840			0	18			
			19	840			500			20	1	20	30-SHDTST-1, 30-SHDTST-2, SHBTLT-1, SHBTLT-2
EUH-30-02	20	3	21		840			100		22	1	20	Valve Vault Flood Alarm Contactor Panel
Valve Vault Dehumidifier	20	1	23			1000			1200	24	1	20	Valve Vault Sump Pump
Valve Vault Receptacles	20	1	25	360			600			26	1	20	AIT-10-01, FIT-10-01, AIT-30-01
Valve Pit EF-10-01	20	1	27		250			400		28	1	20	FIC-30-01, FIC-30-02
Spare	20	1	29			0			0	30	1	20	Spare
Spare	20	1	31	0			0			32	1	20	Spare
Spare	20	1	33		0			0		34	1	20	Spare
Spare	20	1	35			0			0	36	1	20	Spare
Spare	20	1	37	0			0			38	1	20	Spare
Spare	20	1	39		0			0		40	1	20	Spare
Spare	20	1	41			0			0	42	1	20	Spare
Total Load per Phase per Side (VA)				2682	2970	3080	3200	2950	1200				

Total Load Phase A (VA)	5882	VA	Total Connected Load (A)	45	A
Total Load Phase B (VA)	5920	VA	Total Connected Load + 25%	56	A
Total Load Phase C (VA)	4280	VA	Spare 25%	14	A
Total Connected Load (VA)	16082	VA	Feeder Load	70	A



WELL NO. 28 ONE–LINE DIAGRAM
NO SCALE

KEY NOTES:

2 (1) CITY DPU–E WILL PROVIDE ALL PRIMARY 12.47kV CABLE AND CONDUIT.

(2) REPLACE EXISTING TRANSFORMER LUGS AS REQUIRED TO ALLOW FOR TERMINATION OF NEW CABLING.

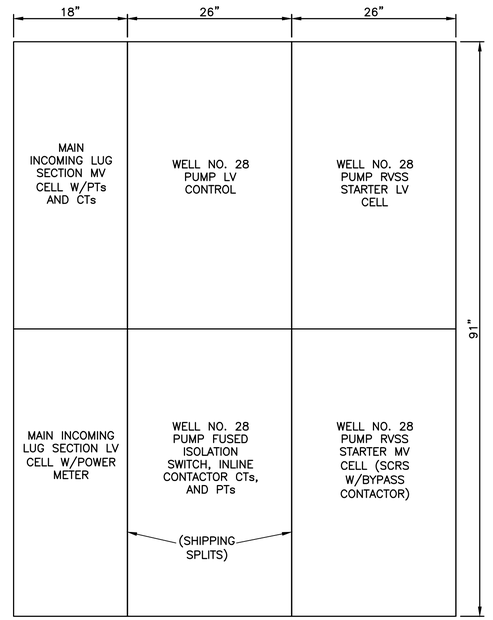
(3) PANEL SHALL BE SERVICE ENTRANCE RATED.

(4) CTs SHALL BE PROVIDED AS SPECIFIED IN SECTION 26 09 00 – PART 3 AND INSTALLED ON INCOMING CONDUCTORS WITHIN PANEL PP–1.

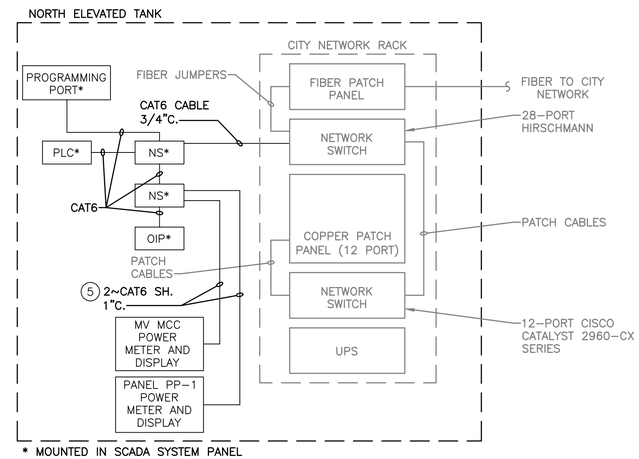
(5) NETWORK CABLE WITHIN MCC SHALL BE ROUTED THROUGH MCC LOW VOLTAGE COMPARTMENTS/WIREWAY.

(6) SCRUBBER CONTROL PANEL SHALL BE SERVICE ENTRANCE RATED.

2 (7) PROVIDE A SERVICE ENTRANCE RATED THERMAL–MAGNETIC CIRCUIT BREAKER DISCONNECT AS MANUFACTURED BY EATON, OR EQUAL. BREAKER SHALL MEET UL489 AND HAVE A 65kAIC RATING. ENCLOSURE SHALL BE NEMA 4X, STAINLESS STEEL, EATON MODEL WFDN225, OR EQUAL.



WELL NO. 28 MEDIUM–VOLTAGE MCC ELEVATION
NO SCALE



WELL NO. 28 SCADA SYSTEM RISER DIAGRAM
NO SCALE

CONTROL DEVICES (OIL TIGHT, HEAVY DUTY)	
PUSHBUTTONS	INDICATING LIGHTS (PUSH TO TEST)
1 START	7 FAST	R RED (FAIL)
2 STOP	8 SLOW	G GREEN (RUN)
3 LOCK OUT STOP	9 JOG FWD.	A AMBER
4 RESET	O JOG REV.	B BLUE
5 FORWARD	Z SPECIAL	W WHITE
6 REVERSE	M MAINT. CONT.	C CLEAR

SELECTOR SWITCHES AND AUXILIARY DEVICES			
H–O–R	HAND–OFF–REMOTE	F–R	FORW.–REV.
H–L–O–A	HIGH–LOW–OFF–AUTO	O–O	ON–OFF
H–O–A–L	HAND–OFF–AUTO–LOCAL	R3	LOCKOUT STOP AT MOTOR
H–O–A	HAND–OFF–AUTO	L–R	LOCAL REMOTE
F–O–R	FOR.–OFF–REV.		
ETM	ELAPSED TIME METER		

BREAKER TYPE, CODE
TM THERMAL MAG.
M MAG. ONLY

MOTOR STARTER INFORMATION	
FVNR	FULL VOLTAGE NON REVERSING
FVR	FULL VOLTAGE REVERSING
TS2WR	TWO SPEED TWO WINDING REVERSING
TS2W	TWO SPEED TWO WINDING
RVSS	REDUCED VOLTAGE SOLID STATE
VFD	VARIABLE FREQUENCY DRIVE
ND	NORMAL DUTY
HD	HEAVY DUTY

* IF APPLICABLE
** PROVIDE GROUND WIRE FOR EACH PIECE OF EQUIPMENT SIZED PER THE NEC. PROVIDE A SEPARATE ISOLATED GROUND CONDUCTOR FOR BONDING RACEWAY SYSTEM WHERE SHIELDED VFD CABLE IS PROVIDED.
*** SEE SPECIFICATIONS SECTION 26 09 00–CONTROLS AND INSTRUMENTATION, PART 3 FOR NOTES REFERENCED

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20
2	ADDENDUM NO. 7	4/9/20
3	ADDENDUM NO. 8	4/9/20

WELL NO. 28 VALVE VAULT AND NET ELECTRICAL DETAILS AND SCHEDULES

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

JOB NO. 1216.004
PROJECT MGR. TIMOTHY SCHOLZ

STRAND ASSOCIATES®

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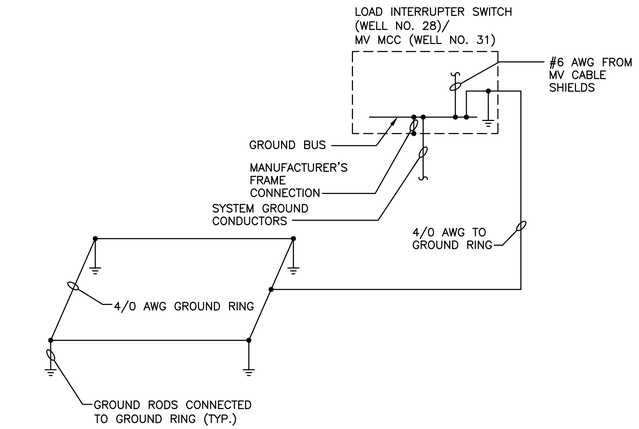
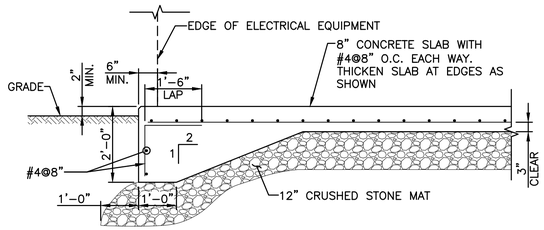
28-E5.01



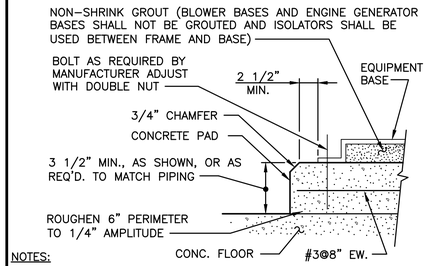
A 99-E5.01 SERVICE ENTRANCE EQUIPMENT GROUNDING DIAGRAM
NO SCALE



NOTES:

1. COORDINATE OVERALL PAD SIZE WITH ELECTRICAL EQUIPMENT MANUFACTURER.
2. CONCRETE EQUIPMENT PAD SHALL BE LEVEL.

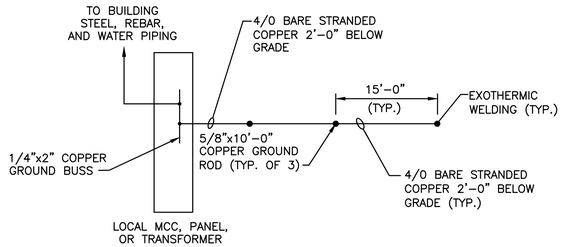
B 99-E5.01 EQUIPMENT PAD
NO SCALE



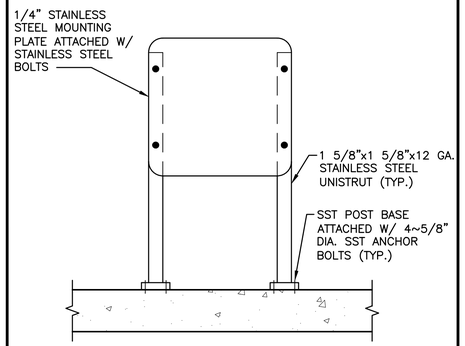
NOTES:

1. CONCRETE PAD BY CONTRACTOR SUPPLYING EQUIPMENT.
2. ANCHOR CONCRETE PAD TO FLOOR WITH 1/2" EXPANSION BOLTS @ 18" O.C., MINIMUM 4 PER PAD. IF CONCRETE PAD IS LESS THAN 10" HIGH, ANCHOR EQUIPMENT BASE DIRECTLY TO CONCRETE FLOOR.
3. APPLY BONDING AGENT TO FLOOR PRIOR TO PLACING CONCRETE PAD.

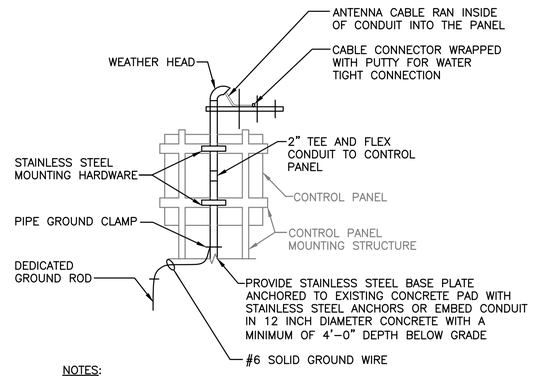
C 99-E5.01 CONCRETE EQUIPMENT PAD
NO SCALE



D 99-5.01 GROUND GRID
NO SCALE



E 99-E5.01 CONTROL STATION MOUNTING
NO SCALE



NOTES:

1. VERIFY LOCATION OF ANTENNA AND MOUNTING REQUIREMENTS AT EACH SITE.

F 99-E5.01 SCC PANEL/ANTENNA MOUNTING DETAIL
NO SCALE

FIXTURE SCHEDULE

Fixture Type	Manufacturer(s)	Model Number	Lamp Type	Mounting	Remarks
A	Metalux	4VT2-LD5-8-DR-UNV-L840-CD1-WL	58W LED	Surface	

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	2/19/20

ELECTRICAL DETAILS AND SCHEDULES

IMPROVEMENTS TO CITY WELLS NOS. 28 AND 31
CITY OF NAPERVILLE
NAPERVILLE, ILLINOIS

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