



**IMU BOARD OF TRUSTEES OF THE ELECTRIC,
WATER AND COMMUNICATIONS UTILITIES**

August 11, 2025

5:30 PM

IMU Boardroom

Agenda

- 1. Call to Order**
- 2. Roll Call**
- 3. Public Comment**
- 4. Consent Agenda**
 - A. Approval of Claims
 - B. Approval of Minutes of the prior meetings
 - C. June 2025 Financial Report
- 5. Electric Utility Action Items**
 - A. Resolution approving purchase of Track Skid Steer
 - B. Resolution approving purchase of Truck Chassis
 - C. Resolution approving purchase of Dump Truck Body
 - D. Resolution Approving Signature of a Non-Disclosure Agreement with Iowa Public Power Association
- 6. Electric Utility Informational Items**
- 7. Water Utility Action Items**
 - A. Authorization for Warren Water District to serve a customer within their territory upon proper notice to IMU since the customer is within 2 miles of the IMU territory, located at 16703 HWY 92.
 - B. Public Hearing on Plans and Specifications, proposed form of contract and estimate of cost for construction of the Water Treatment Facility Standby Generator Project
 - C. Resolution approving the plans, specifications, form of contract and estimate of cost for Water Treatment Facility Standby Generator project
 - D. Resolution awarding and approving a contract to Van Maanen Electric, Inc for the Water Treatment Facility Standby Generator Project.
 - E. Resolution Authorizing Payment #1 for Lime Tower Recoating Project
- 8. Water Utility Informational Items**
- 9. Communications Utility Action Items**

- A. Resolution to Approve Change Order # 1 for Project No. 2024-2025-NOFA7-Phase3-RSNo14-Division 1 - FINAL INSTALLED
- B. Resolution Approving Pay App 1 to TelCom for the NOFA 7 Phase 3 Project
- C. Resolution Approving a Technical Services Agreement

10. Communications Utility Informational Items

11. Combined Electric, Water and Communications Informational Items

12. Other Business

13. Closed Session: Telecommunication Marketing and Pricing

- A. Enter into closed session in accordance with Iowa Code Section 388.9(1) to discuss marketing and pricing strategies and proprietary information of the telecommunications division whose competitive position will be harmed by public disclosure that is not required of potential or actual competitors and no public purpose is served by such disclosure.

14. Closed Session: Legal

- A. Enter into closed session in accordance with Iowa Code Section 21.5 (1)(c) to discuss strategy with legal counsel in matters that are presently in litigation or where litigation is imminent and where its disclosure would be likely to prejudice or disadvantage the government.

15. Action after Closed Session: Any action necessitated by closed session.

16. Adjourn

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: Approval of Claims

Recommendation:

Attachments:

1. 072925 AP Check Preview
2. 081225 AP Check Preview

AP Check Preview

Date Range: All Dates

Indianola Municipal Utilities

Thursday, July 24, 2025
9:18:03 AM

Vendor	Due Date	Notes	Terms	Bill Total	Discount	Interest	Amount Due	Pavment	Invoice Number	Bill Number	Payment Type
Account To Be Paid From 0000-10120-999											
ACCO UNLIMITED CORP. - VEND-2810 - Check											
7/9/2025	ACCO Liquid Chlorinating Solution	Open Terms	2,040.72	0.00	0.00	2,040.72	2,040.72	0254672-IN	BL-16617	Check	
						2,040.72	2,040.72				
American Water Works Association - VEND-1184 - EFT File											
7/23/2025	Membership Renewal 10.1.25 to 9.30.26	Net 30	450.00	0.00	15.00	450.00	450.00	SO245502	BL-16618	EFT File	
						450.00	450.00				
Beverly J Kauzlarich - VEND-1141 - BL-16608											
7/11/2025	Credit Refund	Net 30	10.46	0.00	0.00	10.46	10.46	00047886-8	BL-16608	Check	
						10.46	10.46				
Border States Industries Inc - VEND-1070 - EFT File											
8/14/2025	PVC Couplings	Net 30	58.43	0.00	15.00	58.43	58.43	930742311	BL-16619	EFT File	
						58.43	58.43				
Calix Inc - VEND-1028 - EFT File											
7/31/2025	Warranty for Inv #384416 paid on 7.15.25	Net 30	107.80	0.00	15.00	107.80	107.80	4051154	BL-16620	EFT File	
						107.80	107.80				
Cedar Falls Utilities - VEND-1045 - EFT File											
8/4/2025	0625 Transit & Transport	Net 30	9,645.00	0.00	15.00	9,645.00	9,645.00	Jun 25	BL-16632	EFT File	
						9,645.00	9,645.00				
Cintas Corporation - VEND-1007 - EFT File											
8/9/2025	First Aid Supplies - Fiber	Net 30	78.66	0.00	15.00	78.66	78.66	5280051304	BL-16621	EFT File	
						78.66	78.66				
City Of Indianola - VEND-1008 - BL-16623											
7/30/2025	Q2 2025 Franchise Fees	Net 30	15,529.70	0.00	15.00	15,529.70	15,529.70	Q22025	BL-16623	EFT File	
						15,529.70	15,529.70				
City Of Indianola - VEND-1008 - BL-16681											
8/23/2025	0725 Professional Services	Net 30	6,513.39	0.00	15.00	6,513.39	6,513.39	3512	BL-16681	EFT File	
						6,513.39	6,513.39				
Deborah Briddell & Jacob Fisher - VEND-1141 - BL-16603											

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7/11/2025	Credit Refund	Net 30	109.75	0.00	0.00	109.75	109.75	00011382-4	BL-16603	Check
						109.75	109.75			
Delta Dental Vision Of Iowa - VEND-1481 - Check										
7/31/2025	0725 Vision	Net 30	439.54	0.00	15.00	439.54	439.54	43309	BL-16633	Check
						439.54	439.54			
DES MOINES WATER WORKS - VEND-10870 - Check										
7/1/2025	Lab Analysis Filter #2 and #4	Open Terms	63.00	0.00	0.00	63.00	63.00	06302025	BL-16624	Check
						63.00	63.00			
DICKINSON LAW - VEND-101709 - EFT File										
7/10/2025	0625 Legal Services	Open Terms	336.00	0.00	0.00	336.00	336.00	1168505	BL-16634	EFT File
						336.00	336.00			
Dust Pros Janitorial - VEND-1011 - EFT File										
8/14/2025	0725 Cleaning - Fiber	Net 30	1,230.50	0.00	15.00	1,230.50	1,230.50	3373	BL-16635	EFT File
8/14/2025	Cleaning Supplies - Fiber	Net 30	66.61	0.00	15.00	66.61	66.61	3374	BL-16636	EFT File
8/14/2025	0725 Cleaning - Util Svcs	Net 30	749.00	0.00	15.00	749.00	749.00	3375	BL-16637	EFT File
8/14/2025	Cleaning Supplies - EL	Net 30	133.75	0.00	15.00	133.75	133.75	3372	BL-16638	EFT File
8/14/2025	0725 Cleaning - EL	Net 30	856.00	0.00	15.00	856.00	856.00	3371	BL-16639	EFT File
						3,035.86	3,035.86			
Finley Law Firm, P.C. - VEND-1439 - EFT File										
7/30/2025	0625 Legal Services	Net 30	175.00	0.00	15.00	175.00	175.00	524031	BL-16631	EFT File
						175.00	175.00			
GRAYMONT WESTERN LIME INC - VEND-101387 - EFT File										
7/9/2025	High Calcium Quicklime	Open Terms	6,409.30	0.00	0.00	6,409.30	6,409.30	14-204605 RI	BL-16640	EFT File
						6,409.30	6,409.30			
Helix Pest Solutions LLC - VEND-1445 - EFT File										
8/17/2025	Pest Control - Util Svcs	Net 30	35.00	0.00	15.00	35.00	35.00	11635	BL-16641	EFT File
8/17/2025	Pest Control - 1300 E Iowa	Net 30	21.40	0.00	15.00	21.40	21.40	11634	BL-16669	EFT File
						56.40	56.40			
Independent Advocate - VEND-1136 - EFT File										
8/7/2025	Meeting Minutes 6.23.25	Net 30	24.57	0.00	15.00	24.57	24.57	6789	BL-16642	EFT File

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Indianola Municipal Utilities

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							24.57	24.57			
Indianola Community Schools - VEND-24718 - Check											
	7/1/2025	Refund on Cust Inv #1756 and #1758, Concrete	Open Terms	5,000.00	0.00	0.00	5,000.00	5,000.00	Refund	BL-16625	Check
							5,000.00	5,000.00			
Infomax Office Systems Inc - VEND-1013 - Check											
	8/13/2025	0725 Copier Contract	Net 30	756.17	0.00	15.00	756.17	756.17	39662467	BL-16643	Check
							756.17	756.17			
Internal Revenue Service - VEND-1307 - Online Payments											
	8/17/2025	941 Income Tax Payable - 071825 Payroll	Net 30	31,760.11	0.00	15.00	31,760.11	31,760.11	071825 Payroll	BL-16644	Online Payments
							31,760.11	31,760.11			
Iowa Association Of Municipal Utilities - VEND-1014 - EFT File											
	8/15/2025	2025-2026 MunEEBuck Rebate Portal - 7.1.25	Net 30	700.00	0.00	15.00	700.00	700.00	33407	BL-16645	EFT File
							700.00	700.00			
Iowa Department Of Human Services - VEND-1310 - Online Payments											
	8/17/2025	Garnishment Payable - 071825 Payroll	Net 30	630.92	0.00	15.00	630.92	630.92	071825 Payroll	BL-16646	Online Payments
							630.92	630.92			
IOWA DEPARTMENT OF NATURAL RESOURCES - VEND-24829 - Check											
	7/16/2025	Title V Fees	Open Terms	1,207.50	0.00	0.00	1,207.50	1,207.50	202507146411976591	BL-16670	Check
							1,207.50	1,207.50			
Iowa Department Of Revenue - VEND-1117 - Online Payments											
	8/17/2025	IA Income Tax Payable - 071825 Payroll	Net 30	3,548.27	0.00	15.00	3,548.27	3,548.27	071825 Payroll	BL-16647	Online Payments
							3,548.27	3,548.27			
IPERS - VEND-1309 - Online Payments											
	8/22/2025	IPERS Payable - Jul 25	Net 30	41,156.41	0.00	15.00	41,156.41	41,156.41	0725 Ipers	BL-16680	Online Payments
							41,156.41	41,156.41			
Irby - VEND-1259 - EFT File											
	8/6/2025	Crimper/Cutter Battery Tool	Net 30	2,514.50	0.00	15.00	2,514.50	2,514.50	S014309700.001	BL-16671	EFT File
							2,514.50	2,514.50			
ISolved - VEND-1363 - Online Payments											

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	8/17/2025	FSA Payable - 071825 Payroll	Net 30	192.31	0.00	15.00	192.31	192.31	071825 Payroll	BL-16648	Online Payments
							192.31	192.31			
Jacob Smith - VEND-1141 - BL-16606											
	7/11/2025	Credit Refund	Net 30	59.30	0.00	0.00	59.30	59.30	00049269-5	BL-16606	Check
							59.30	59.30			
Jo Ann Eddy - VEND-1141 - BL-16604											
	7/11/2025	Credit Refund	Net 30	98.94	0.00	0.00	98.94	98.94	00035441-6	BL-16604	Check
							98.94	98.94			
John Halsted - VEND-1141 - BL-16607											
	7/11/2025	Credit Refund	Net 30	54.59	0.00	0.00	54.59	54.59	00048906-5	BL-16607	Check
							54.59	54.59			
Microbac Laboratories Inc - VEND-1421 - EFT File											
	8/13/2025	Nitrogen	Net 30	39.50	0.00	15.00	39.50	39.50	NT2505881	BL-16650	EFT File
	8/17/2025	TTHM/HAA5 Package Analysis	Net 30	298.00	0.00	15.00	298.00	298.00	NT2506216	BL-16672	EFT File
							337.50	337.50			
Mid American Energy Co - VEND-1018 - EFT File											
	8/13/2025	Electric - 11634 R63 Hwy, W Substation	Net 30	10.00	0.00	15.00	10.00	10.00	569078196	BL-16649	EFT File
							10.00	10.00			
MIDWEST UNDERGROUND - VEND-102021 - Check											
	7/16/2025	Jet Vac	Open Terms	57,850.00	0.00	0.00	57,850.00	57,850.00	ED09709	BL-16673	Check
							57,850.00	57,850.00			
MILLER ELECTRIC SERVICES - VEND-34642 - Check											
	6/7/2025	Square Project - NW Alley Premise Wiring	Open Terms	14,250.00	0.00	0.00	14,250.00	14,250.00	19528	BL-16668	Check
							14,250.00	14,250.00			
Mission Square - VEND-1303 - Online Payments											
	8/17/2025	457 Payable - 071825 Payroll	Net 30	7,051.60	0.00	15.00	7,051.60	7,051.60	071825 Payroll	BL-16651	Online Payments
							7,051.60	7,051.60			
MOFFITT TRENCHING LLC - VEND-35004 - Check											
	7/10/2025	Square Project Materials	Open Terms	391.80	0.00	0.00	391.80	391.80	597886	BL-16652	Check

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							391.80	391.80			
MUNICIPAL ENERGY AGENCY OF NEBRASKA - VEND-35805 - EFT File											
	7/30/2025	Purchased Power - Jun25	Net 30	971,697.54	0.00	15.00	971,697.54	971,697.54	309498	BL-16626	EFT File
							971,697.54	971,697.54			
MUNICIPAL SUPPLY INC - VEND-35810 - Check											
	7/16/2025	4x30 repair clamp	Open Terms	400.00	0.00	0.00	400.00	400.00	0948039-IN	BL-16674	Check
							400.00	400.00			
Mutual Of Omaha - VEND-1107 - Check											
	7/31/2025	0725 Premiums	Net 30	6,318.39	0.00	15.00	6,318.39	6,318.39	1910333119	BL-16653	Check
							6,318.39	6,318.39			
National Cable Television Cooperative, Inc. - VEND-1095 - EFT File											
	8/8/2025	REMOTE - NOVA IR	Net 30	2,085.16	0.00	15.00	2,085.16	2,085.16	SI98148	BL-16654	EFT File
							2,085.16	2,085.16			
Norwalk Ready Mix Concrete, Inc. - VEND-1119 - Check											
	8/6/2025	Square Project - Concrete	Net 30	980.85	0.00	15.00	980.85	980.85	370240	BL-16656	Check
	8/8/2025	Square Project - Concrete	Net 30	850.68	0.00	15.00	850.68	850.68	370443	BL-16655	Check
							1,831.53	1,831.53			
Patricia Ann Jennings - VEND-1141 - BL-16602											
	7/11/2025	Credit Refund	Net 30	300.58	0.00	0.00	300.58	300.58	00007466-6	BL-16602	Check
							300.58	300.58			
Pella Printing Co, Inc - VEND-1062 - EFT File											
	8/17/2025	Door Hanger Perfed Paper	Net 30	225.00	0.00	15.00	225.00	225.00	70002	BL-16675	EFT File
							225.00	225.00			
Pete J Morris - VEND-1141 - BL-16599											
	7/10/2025	Credit Refund	Net 30	189.00	0.00	0.00	189.00	189.00	00029220-6	BL-16599	Check
							189.00	189.00			
Power & Tel - VEND-1037 - EFT File											
	8/1/2025	MICRO BATTERY BACKUP - UPS	Net 30	1,726.28	0.00	15.00	1,726.28	1,726.28	8139957-00	BL-16658	EFT File
	8/9/2025	SPLITTER - CABINET 1X32	Net 30	4,346.54	0.00	15.00	4,346.54	4,346.54	8143769-00	BL-16657	EFT File

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Indianola Municipal Utilities

Thursday, July 24, 2025
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							6,072.82	6,072.82			
Sarah E Argetsinger - VEND-1141 - BL-16600											
	7/10/2025	Credit Refund	Net 30	58.33	0.00	0.00	58.33	58.33	00021354-1	BL-16600	Check
							58.33	58.33			
Shawn T Flinn - VEND-1141 - BL-16605											
	7/11/2025	Credit Refund	Net 30	65.32	0.00	0.00	65.32	65.32	00003361-2	BL-16605	Check
							65.32	65.32			
SHORT'S CONCRETE CUTTING - VEND-102837 - Check											
	7/16/2025	Square Project - Concrete Cutting	Open Terms	1,078.00	0.00	0.00	1,078.00	1,078.00	17472	BL-16660	Check
							1,078.00	1,078.00			
STERNQUIST CONST. INC. - VEND-50360 - Check											
	7/12/2025	Square Project - Crushed Concrete	Open Terms	135.53	0.00	0.00	135.53	135.53	4072	BL-16661	Check
	7/19/2025	Square Project - Crushed Concrete	Open Terms	344.47	0.00	0.00	344.47	344.47	4099	BL-16676	Check
							480.00	480.00			
Teklink - VEND-1262 - EFT File											
	8/8/2025	Bore & Drop	Net 30	1,831.00	0.00	15.00	1,831.00	1,831.00	WE 7/13/2025	BL-16662	EFT File
							1,831.00	1,831.00			
United States Treasury - VEND-1138 - Online Payments											
	7/30/2025	Q2-2025 Federal Excise Tax	Net 30	1,457.72	0.00	15.00	1,457.72	1,457.72	Q2 2025	BL-16627	Online Payments
							1,457.72	1,457.72			
United Tel Supply - VEND-1267 - EFT File											
	8/6/2025	ONT - GS4227	Net 30	23,404.84	0.00	15.00	23,404.84	23,404.84	38088	BL-16663	EFT File
	8/8/2025	ROUTER - GS4220E	Net 30	3,363.74	0.00	15.00	3,363.74	3,363.74	38094	BL-16664	EFT File
							26,768.58	26,768.58			
VANDERPOOL CONSTRUCTION - VEND-57230 - Check											
	6/24/2025	Pea Gravel	Open Terms	798.50	0.00	0.00	798.50	798.50	13740	BL-16628	Check
							798.50	798.50			
Vanderpool Plumbing & Heating - VEND-1066 - EFT File											
	8/2/2025	AC Unit Repairs - E Iowa Substations	Net 30	450.47	0.00	15.00	450.47	450.47	7764	BL-16665	EFT File
	8/17/2025	SCADA AC Repair	Net 30	339.19	0.00	15.00	339.19	339.19	7786	BL-16677	EFT File

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							789.66	789.66			
Viking Automatic Sprinkler - VEND-1473 - EFT File											
8/15/2025	Fire Extinguishers	Net 30	486.85	0.00	15.00	486.85	486.85	1025-F429663	BL-16679	EFT File	
							486.85	486.85			
Warren County 911 - VEND-1132 - Check											
7/30/2025	Q2-2025 E911 Fees	Net 30	2,447.28	0.00	15.00	2,447.28	2,447.28	Q2-2025	BL-16629	Check	
							2,447.28	2,447.28			
Warren County Engineer - VEND-1102 - Check											
7/30/2025	0625 Fuel Distribution	Net 30	3,363.99	0.00	15.00	3,363.99	3,363.99	Jun 2025	BL-16630	Check	
							3,363.99	3,363.99			
Waste Management - VEND-1086 - Check											
8/2/2025	0725 2yd Dumpster Service - WA	Net 30	154.88	0.00	15.00	154.88	154.88	8238701-0516-5	BL-16666	Check	
							154.88	154.88			
WESCO - VEND-60220 - EFT File											
7/12/2025	Blue Marking Flags	Open Terms	505.84	0.00	0.00	505.84	505.84	562842	BL-16667	EFT File	
							505.84	505.84			
Total Payment Count: 60						Totals:	\$1,242,059.47	\$1,242,059.47			
Total Check Count: 27						Check Totals:	\$99,817.57	\$99,817.57			
Total EFT File Count: 26						EFT File Totals:	\$1,056,444.56	\$1,056,444.56			
Total Online Payments Count: 7				Online Payments Totals:		\$85,797.34	\$85,797.34				
Total Bank Draft Count: 0				Bank Draft Totals:		\$0.00	\$0.00				
Total No Check Count: 0				No Check Totals:		\$0.00	\$0.00				

AP Check Preview

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Indianola Municipal Utilities

Wednesday, August 6, 2025
3:11:14 PM

Vendor	Due Date	Notes	Terms	Bill Total	Discount	Interest	Amount Due	Pavment	Invoice Number	Bill Number	Payment Type
Account To Be Paid From 0000-10120-999											
ACCO UNLIMITED CORP. - VEND-2810 - Check											
7/29/2025	ACCO Liquid Chlorinating Solution	Open Terms	2,827.20	0.00	0.00	2,827.20	2,827.20	0255478-IN	BL-16756	Check	
						2,827.20	2,827.20				
AGRILAND FS INC - VEND-48228 - EFT File											
7/31/2025	Field Spray for Thistles	Open Terms	865.00	0.00	0.00	865.00	865.00	91059120	BL-16697	EFT File	
						865.00	865.00				
ApplianSys LLC - VEND-1462 - EFT File											
9/5/2025	3 Year Enduser Support Contract until 6.30.28	Net 30	2,671.00	0.00	15.00	2,671.00	2,671.00	24209	BL-16758	EFT File	
						2,671.00	2,671.00				
Bendon Plumbing And Heating - VEND-1357 - Check											
8/29/2025	AC Repairs at plant	Net 30	672.20	0.00	15.00	672.20	672.20	9674	BL-16757	Check	
						672.20	672.20				
Big Ten Network - VEND-1096 - EFT File											
8/30/2025	0725 BTN - Core Exp Basic	Net 30	1,968.62	0.00	15.00	1,968.62	1,968.62	420595	BL-16696	EFT File	
						1,968.62	1,968.62				
BRAND, JUSTIN - VEND-100310 - EFT File											
8/2/2025	0825 Mobile Device Allowance	Open Terms	75.00	0.00	0.00	75.00	75.00	Aug 25	BL-16719	EFT File	
						75.00	75.00				
Brenan Baker - VEND-1141 - BL-16691											
8/5/2025	Credit Refund	Net 30	15.50	0.00	0.00	15.50	15.50	00058995-3	BL-16691	Check	
						15.50	15.50				
Calix Inc - VEND-1028 - EFT File											
8/11/2025	SO 50149006	Net 30	657.74	0.00	15.00	657.74	657.74	386064	BL-16700	EFT File	
8/11/2025	SO 50139786	Net 30	43,479.31	0.00	15.00	43,479.31	43,479.31	386015	BL-16702	EFT File	
8/11/2025	Extended Warranty -Inv #386015	Net 30	517.44	0.00	15.00	517.44	517.44	4051313	BL-16703	EFT File	
8/11/2025	Extended Warranty - Inv #386015	Net 30	215.60	0.00	15.00	215.60	215.60	4051314	BL-16705	EFT File	
8/11/2025	Extended Warranty - Inv #386015	Net 30	107.80	0.00	15.00	107.80	107.80	4051315	BL-16706	EFT File	
8/28/2025	Extended Warranty PO 04142025KR-1601	Net 30	294.04	0.00	15.00	294.04	294.04	4051496	BL-16698	EFT File	
8/28/2025	XGS-Pon PO 04142025KR-1601	Net 30	17,927.18	0.00	15.00	17,927.18	17,927.18	387438	BL-16699	EFT File	

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9/4/2025	0825 Calix Operations Cloud	Net 30	2,770.71	0.00	15.00	2,770.71	2,770.71	7051755	BL-16759	EFT File
9/4/2025	0825 Calix Service Cloud	Net 30	3,142.59	0.00	15.00	3,142.59	3,142.59	7051756	BL-16760	EFT File
9/4/2025	0825 Calix Cloud Foundation	Net 30	644.99	0.00	15.00	644.99	644.99	7052459	BL-16761	EFT File
						69,757.40	69,757.40			
Cassidy Booher - VEND-1141 - BL-16693										
8/5/2025	Credit Refund	Net 30	7.66	0.00	0.00	7.66	7.66	00021367-6	BL-16693	Check
						7.66	7.66			
Casual Rags - VEND-1006 - EFT File										
8/29/2025	Employee Life Event	Net 30	37.45	0.00	15.00	37.45	37.45	240863	BL-16707	EFT File
						37.45	37.45			
CCP INDUSTRIES INC. - VEND-8925 - EFT File										
7/25/2025	Shop Towels	Open Terms	221.00	0.00	0.00	221.00	221.00	IN05476679	BL-16762	EFT File
						221.00	221.00			
Cedar Falls Utilities - VEND-1045 - EFT File										
9/3/2025	0725 Labor & Rack Space 28E Agreement (IP	Net 30	5,860.20	0.00	15.00	5,860.20	5,860.20	94233	BL-16708	EFT File
						5,860.20	5,860.20			
Christopher Watson & Jeruel Quiles - VEND-1141 - BL-16688										
8/5/2025	Credit Refund	Net 30	48.38	0.00	0.00	48.38	48.38	00010103-5	BL-16688	Check
						48.38	48.38			
Cintas Corporation - VEND-1007 - EFT File										
8/31/2025	First Aid Supplies - Fiber	Net 30	103.99	0.00	15.00	103.99	103.99	5284066405	BL-16720	EFT File
8/31/2025	First Aid Supplies - EL	Net 30	54.56	0.00	15.00	54.56	54.56	8407673883	BL-16763	EFT File
						158.55	158.55			
Citrus Communications, Inc. - VEND-1474 - EFT File										
8/8/2025	ONT - GS4227	Net 30	4,580.24	0.00	15.00	4,580.24	4,580.24	11024	BL-16764	EFT File
						4,580.24	4,580.24			
City Of Indianola - VEND-1008 - BL-16723										
8/31/2025	0825 Professional Services	Net 30	6,513.39	0.00	15.00	6,513.39	6,513.39	3519	BL-16723	EFT File
						6,513.39	6,513.39			
Cologix, Inc - VEND-1440 - EFT File										

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	8/31/2025	Cross Connect - Fiber	Net 30	200.00	0.00	15.00	200.00	200.00	1751245	BL-16724	EFT File
							200.00	200.00			
Consortia Consulting - VEND-1009 - EFT File											
	8/22/2025	0625 Consulting	Net 30	1,200.00	0.00	15.00	1,200.00	1,200.00	27576	BL-16725	EFT File
							1,200.00	1,200.00			
CORE & MAIN - VEND-102636 - Check											
	7/16/2025	Lab Supplies	Open Terms	936.84	0.00	0.00	936.84	936.84	INV0018974	BL-16726	Check
							936.84	936.84			
Dallas Heaberlin - VEND-1461 - EFT File											
	8/31/2025	0825 Mobile Device Allowance	Net 30	75.00	0.00	15.00	75.00	75.00	Aug 25	BL-16713	EFT File
							75.00	75.00			
Dani Bowlin - VEND-1141 - BL-16692											
	8/5/2025	Credit Refund	Net 30	12.61	0.00	0.00	12.61	12.61	00023054-2	BL-16692	Check
							12.61	12.61			
DES PLANQUES, CHRIS - VEND-101766 - EFT File											
	8/2/2025	0825 Mobile Device Allowance	Open Terms	75.00	0.00	0.00	75.00	75.00	Aug 25	BL-16717	EFT File
							75.00	75.00			
Doug Pagel - VEND-1283 - EFT File											
	8/31/2025	0825 Mobile Device Allowance	Net 30	75.00	0.00	15.00	75.00	75.00	Aug 25	BL-16718	EFT File
							75.00	75.00			
Doug Shull - VEND-1105 - EFT File											
	8/31/2025	0825 Treasurer Contract	Net 30	83.34	0.00	15.00	83.34	83.34	Aug 25	BL-16727	EFT File
							83.34	83.34			
Dylan Michelsen - VEND-1180 - EFT File											
	8/31/2025	0825 Mobile Device Allowance	Net 30	75.00	0.00	15.00	75.00	75.00	Aug 25	BL-16712	EFT File
							75.00	75.00			
Elisha Brown - VEND-1209 - EFT File											
	8/31/2025	0825 Mobile Device Allowance	Net 30	75.00	0.00	15.00	75.00	75.00	Aug 25	BL-16716	EFT File
							75.00	75.00			
FanDuel Sports Network - VEND-1446 - EFT File											

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8/31/2025	0725 Expanded Basic	Net 30	4,703.24	0.00	15.00	4,703.24	4,703.24	28270	BL-16728	EFT File
						4,703.24	4,703.24			
Fuse Technic LLC - VEND-1012 - EFT File										
8/31/2025	CGNAT Record Query Review	Net 30	175.00	0.00	15.00	175.00	175.00	FT20250801004	BL-16729	EFT File
						175.00	175.00			
HAWKEYE TRUCK EQUIPMENT - VEND-20855 - Check										
7/26/2025	New Flatbed for Truck	Open Terms	8,128.78	0.00	0.00	8,128.78	8,128.78	27043	BL-16730	Check
						8,128.78	8,128.78			
Hearst Television Inc - VEND-1131 - EFT File										
8/31/2025	0725 KCCI	Net 30	7,873.19	0.00	15.00	7,873.19	7,873.19	617878	BL-16771	EFT File
						7,873.19	7,873.19			
HOFFMAN COMMUNICATIONS - VEND-22212 - Check										
7/30/2025	Boring	Open Terms	8,500.00	0.00	0.00	8,500.00	8,500.00	12759	BL-16731	Check
						8,500.00	8,500.00			
HOTSY CLEANING SYSTEMS - VEND-22300 - Check										
7/12/2025	Power Washer Soap	Open Terms	680.40	0.00	0.00	680.40	680.40	PSI-317525	BL-16732	Check
						680.40	680.40			
ImOn Communications LLC - VEND-1072 - Check										
8/30/2025	0725 Regulatory and Billing	Net 30	7,474.51	0.00	15.00	7,474.51	7,474.51	INV0034084	BL-16765	Check
						7,474.51	7,474.51			
IMPACT - VEND-1141 - BL-16701										
8/5/2025	Credit Refund	Net 30	260.50	0.00	0.00	260.50	260.50	00001652-0	BL-16701	Check
						260.50	260.50			
IMU - VEND-8629 - Check										
8/2/2025	Utilities - Fiber	Open Terms	2,214.33	0.00	0.00	2,214.33	2,214.33	10485436	BL-16733	Check
8/2/2025	Utilities - EL	Open Terms	1,988.45	0.00	0.00	1,988.45	1,988.45	10486241	BL-16734	Check
8/2/2025	Utilities - Util Svcs	Open Terms	364.99	0.00	0.00	364.99	364.99	10486107	BL-16735	Check
8/2/2025	Utilities - WA	Open Terms	19,715.16	0.00	0.00	19,715.16	19,715.16	10485533	BL-16766	Check
						24,282.93	24,282.93			
IMWCA - VEND-1130 - Check										

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8/31/2025	Premiums-Installment 2	Net 30	1,826.00	0.00	15.00	1,826.00	1,826.00	INV95039	BL-16736	Check
						1,826.00	1,826.00			
Independent Advocate - VEND-1136 - EFT File										
8/22/2025	BOT Meeting/Publication Report 7.14.25	Net 30	349.65	0.00	15.00	349.65	349.65	6833	BL-16738	EFT File
8/28/2025	Notice of Public Hearing	Net 30	66.78	0.00	15.00	66.78	66.78	6888	BL-16737	EFT File
						416.43	416.43			
Indianola Athletic Department - VEND-1258 - Check										
8/23/2025	Commerical, In-Game Element, Scrolling Ad	Net 30	3,000.00	0.00	15.00	3,000.00	3,000.00	2025-12	BL-16739	Check
						3,000.00	3,000.00			
Innovative Systems - VEND-1048 - EFT File										
8/31/2025	Aug25 Elation Maint Fee	Net 30	12,774.84	0.00	15.00	12,774.84	12,774.84	INV-26455	BL-16740	EFT File
9/4/2025	0825 Utility Billing	Net 30	7,209.86	0.00	15.00	7,209.86	7,209.86	INV-26634	BL-16767	EFT File
						19,984.70	19,984.70			
Internal Revenue Service - VEND-1307 - Online Payments										
8/31/2025	941 Income Tax Payable - 080125 Payroll	Net 30	33,199.73	0.00	15.00	33,199.73	33,199.73	080125 Payroll	BL-16741	Online Payments
						33,199.73	33,199.73			
Iowa Department Of Human Services - VEND-1310 - Online Payments										
8/31/2025	Garnishment Payable - 080125 Payroll	Net 30	630.92	0.00	15.00	630.92	630.92	080125 Payroll	BL-16742	Online Payments
						630.92	630.92			
Iowa Department Of Revenue - VEND-1117 - Online Payments										
8/30/2025	July 2025 Use Tax	Net 30	30.23	0.00	15.00	30.23	30.23	July 2025 Use Tax	BL-16745	Online Payments
8/31/2025	IA Income Tax Payable - 080125 Payroll	Net 30	3,723.52	0.00	15.00	3,723.52	3,723.52	080125 Payroll	BL-16743	Online Payments
8/31/2025	Sales Tax Billed 8.1.25	Net 30	58,841.96	0.00	15.00	58,841.96	58,841.96	Sales Tax 8.1.25	BL-16744	Online Payments
						62,595.71	62,595.71			
Iowa One Call - VEND-1015 - EFT File										
8/17/2025	0625 Locates - Fiber	Net 30	263.70	0.00	15.00	263.70	263.70	273983	BL-16746	EFT File
8/17/2025	0625 Locates - WA	Net 30	243.00	0.00	15.00	243.00	243.00	273984	BL-16747	EFT File
8/17/2025	0625 Locates - EL	Net 30	234.90	0.00	15.00	234.90	234.90	272858	BL-16748	EFT File
						741.60	741.60			

Irby - VEND-1259 - EFT File

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8/21/2025	Hot Line Clamps	Net 30	494.88	0.00	15.00	494.88	494.88	S014302088.002	BL-16769	EFT File
8/22/2025	Connectors	Net 30	84.53	0.00	15.00	84.53	84.53	S014322719.001	BL-16768	EFT File
						579.41	579.41			
ISolved - VEND-1363 - Online Payments										
8/31/2025	FSA Payable - 080125 Payroll	Net 30	192.31	0.00	15.00	192.31	192.31	080125 Payroll	BL-16750	Online Payments
						192.31	192.31			
Jeannette & Joe Cooley - VEND-1141 - BL-16704										
8/5/2025	Credit Refund	Net 30	53.50	0.00	0.00	53.50	53.50	00000529-8	BL-16704	Check
						53.50	53.50			
Jennifer Evans - VEND-1141 - BL-16690										
8/5/2025	Credit Refund	Net 30	17.60	0.00	0.00	17.60	17.60	00028251-1	BL-16690	Check
						17.60	17.60			
KNIA/KRLS - VEND-1090 - EFT File										
8/26/2025	0725 Spirit of America '25 Package	Net 30	99.75	0.00	15.00	99.75	99.75	25070614	BL-16770	EFT File
8/26/2025	0725 :30 Spot Hometown Values	Net 30	739.44	0.00	15.00	739.44	739.44	25070612	BL-16772	EFT File
8/26/2025	0725 Sports Stream Spot	Net 30	65.00	0.00	15.00	65.00	65.00	25070613	BL-16773	EFT File
						904.19	904.19			
Kurt Gocken - VEND-1023 - EFT File										
8/31/2025	0825 Mobile Device Allowance	Net 30	75.00	0.00	15.00	75.00	75.00	Aug 25	BL-16709	EFT File
						75.00	75.00			
Kurt Ripperger - VEND-1025 - EFT File										
8/23/2025	Meals - Strategic Planning Meeting	Net 30	174.09	0.00	15.00	174.09	174.09	7.23.25	BL-16774	EFT File
8/31/2025	0825 Mobile Device Allowance	Net 30	75.00	0.00	15.00	75.00	75.00	Aug 25	BL-16710	EFT File
						249.09	249.09			
LOGAN CONTRACTORS SUPPLY INC. - VEND-32620 - EFT File										
8/2/2025	Solar Project - Sonotube	Open Terms	314.15	0.00	0.00	314.15	314.15	G19586	BL-16775	EFT File
						314.15	314.15			
LONGER, CHRIS - VEND-34025 - EFT File										
8/2/2025	0825 Mobile Device Allowance	Open Terms	75.00	0.00	0.00	75.00	75.00	Aug 25	BL-16714	EFT File
						75.00	75.00			

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Marquee Sports Network - VEND-1165 - EFT File											
	8/31/2025	0725 Expanded Basic	Net 30	3,252.87	0.00	15.00	3,252.87	3,252.87	Jul 25	BL-16776	EFT File
							3,252.87	3,252.87			
METCALF, MIKE - VEND-34230 - EFT File											
	8/2/2025	0825 Mobile Device Allowance	Open Terms	75.00	0.00	0.00	75.00	75.00	Aug 25	BL-16715	EFT File
							75.00	75.00			
Microbac Laboratories Inc - VEND-1421 - EFT File											
	8/23/2025	Water Test - Turbine 8 Tank Supply	Net 30	322.50	0.00	15.00	322.50	322.50	NT2506510	BL-16777	EFT File
	8/23/2025	Water Test - New RO System	Net 30	322.50	0.00	15.00	322.50	322.50	NT2506509	BL-16778	EFT File
							645.00	645.00			
Mid American Energy Co - VEND-1018 - EFT File											
	8/17/2025	Gas - 1300 E Iowa Ave Bldg A	Net 30	35.17	0.00	15.00	35.17	35.17	569315247	BL-16779	EFT File
	8/17/2025	Gas - 1300 E Iowa Ave Bldg B	Net 30	14.54	0.00	15.00	14.54	14.54	569304023	BL-16780	EFT File
	8/17/2025	Gas - 111 S Buxton St	Net 30	71.84	0.00	15.00	71.84	71.84	569333042	BL-16781	EFT File
	8/17/2025	Gas - 210 W 2nd Ave	Net 30	14.54	0.00	15.00	14.54	14.54	569353377	BL-16782	EFT File
	8/17/2025	Gas - 909 E Hillcrest - Generator	Net 30	14.54	0.00	15.00	14.54	14.54	569328777	BL-16783	EFT File
	8/17/2025	Gas - 110 S B St	Net 30	16.17	0.00	15.00	16.17	16.17	569332904	BL-16784	EFT File
							166.80	166.80			
Mission Square - VEND-1303 - Online Payments											
	8/31/2025	457 Payable - 080125 Payroll	Net 30	7,169.66	0.00	15.00	7,169.66	7,169.66	080125 Payroll	BL-16785	Online Payments
							7,169.66	7,169.66			
MSC - VEND-1250 - Check											
	8/22/2025	Duct Tape	Net 30	97.31	0.00	15.00	97.31	97.31	40848780	BL-16788	Check
	8/24/2025	Safety Glasses and Gloves	Net 30	200.63	0.00	15.00	200.63	200.63	41998150	BL-16787	Check
	8/27/2025	Penetrating Solvent	Net 30	82.36	0.00	15.00	82.36	82.36	41998160	BL-16786	Check
							380.30	380.30			
National Cable Television Cooperative, Inc. - VEND-1095 - EFT File											
	8/15/2025	MOCA ADAPTER	Net 30	3,730.93	0.00	15.00	3,730.93	3,730.93	SI98457	BL-16790	EFT File
	8/28/2025	0725 Cable Programming	Net 30	61,959.01	0.00	15.00	61,959.01	61,959.01	25070542	BL-16789	EFT File
							65,689.94	65,689.94			
NewCom Technologies, Inc - VEND-1091 - EFT File											

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8/17/2025	RS No 16 Project	Net 30	1,921.60	0.00	15.00	1,921.60	1,921.60	51389	BL-16791	EFT File
8/17/2025	NOFA 7 South	Net 30	1,146.40	0.00	15.00	1,146.40	1,146.40	51387	BL-16792	EFT File
8/17/2025	NOFA 7 South	Net 30	4,225.00	0.00	15.00	4,225.00	4,225.00	51388	BL-16793	EFT File
						7,293.00	7,293.00			
Nexstar Broadcasting, Inc - VEND-1092 - EFT File										
8/31/2025	0725 NewsNation	Net 30	490.24	0.00	15.00	490.24	490.24	617810	BL-16794	EFT File
8/31/2025	0725 Nexstar - WHO	Net 30	11,114.59	0.00	15.00	11,114.59	11,114.59	617625	BL-16795	EFT File
						11,604.83	11,604.83			
Norwalk Ready Mix Concrete, Inc. - VEND-1119 - Check										
8/9/2025	106 W 8th Pourback	Net 30	1,510.50	0.00	15.00	1,510.50	1,510.50	370544	BL-16800	Check
8/17/2025	Square Project - Concrete	Net 30	1,331.19	0.00	15.00	1,331.19	1,331.19	371102	BL-16801	Check
8/21/2025	Square Project - Concrete	Net 30	1,141.02	0.00	15.00	1,141.02	1,141.02	371287	BL-16797	Check
8/22/2025	Square Project - Concrete	Net 30	725.60	0.00	15.00	725.60	725.60	371395	BL-16796	Check
8/28/2025	Square Project - Concrete	Net 30	678.05	0.00	15.00	678.05	678.05	371722	BL-16798	Check
8/30/2025	Square Project - Concrete	Net 30	1,028.39	0.00	15.00	1,028.39	1,028.39	371836	BL-16799	Check
						6,414.75	6,414.75			
Power & Tel - VEND-1037 - EFT File										
8/10/2025	Spray Wasp & Ant	Net 30	110.61	0.00	15.00	110.61	110.61	8144692-00	BL-16802	EFT File
						110.61	110.61			
RESCO - VEND-47234 - EFT File										
6/7/2025	Tap Wire	Open Terms	1,204.74	0.00	0.00	1,204.74	1,204.74	3076145	BL-16803	EFT File
						1,204.74	1,204.74			
Secure Shred - VEND-1063 - EFT File										
8/15/2025	Shred Service	Net 30	54.00	0.00	15.00	54.00	54.00	95063	BL-16804	EFT File
						54.00	54.00			
Segra / Unite Private Networks - VEND-1054 - EFT File										
8/31/2025	Dark Fiber	Net 30	3,817.18	0.00	15.00	3,817.18	3,817.18	SI-25-034720	BL-16805	EFT File
						3,817.18	3,817.18			
Skye McBroom - VEND-1026 - EFT File										
8/24/2025	Office Chair - Personal card used/reimburse ei	Net 30	174.40	0.00	15.00	174.40	174.40	4417001583	BL-16806	EFT File
8/31/2025	0825 Mobile Device Allowance	Net 30	75.00	0.00	15.00	75.00	75.00	Aug 25	BL-16711	EFT File

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						249.40	249.40			
STEINMETZ CORPORATION - VEND-102616 - EFT File										
8/6/2025	Retainage Payment - 69KV Line Relay Replac	Open Terms	8,925.00	0.00	0.00	8,925.00	8,925.00	10578	BL-16808	EFT File
						8,925.00	8,925.00			
STERNQUIST CONST. INC. - VEND-50360 - Check										
7/26/2025	Square Project - Crushed Concrete	Open Terms	273.19	0.00	0.00	273.19	273.19	4117	BL-16811	Check
7/30/2025	Solar Project & Maint - Crushed Concrete	Open Terms	180.43	0.00	0.00	180.43	180.43	4128	BL-16809	Check
7/30/2025	Square Project - Crushed Concrete	Open Terms	247.42	0.00	0.00	247.42	247.42	4127	BL-16810	Check
						701.04	701.04			
Teklink - VEND-1262 - EFT File										
8/27/2025	Drops	Net 30	1,775.00	0.00	15.00	1,775.00	1,775.00	WE 7/27/2025	BL-16812	EFT File
						1,775.00	1,775.00			
Terry-Durin Co - VEND-1038 - EFT File										
8/20/2025	MULE TAPE - FIBER	Net 30	529.65	0.00	15.00	529.65	529.65	194225-00	BL-16814	EFT File
8/30/2025	TRACER WIRE	Net 30	1,284.00	0.00	15.00	1,284.00	1,284.00	195157-00	BL-16813	EFT File
						1,813.65	1,813.65			
TRM DISPOSAL LLC - VEND-101016 - EFT File										
7/25/2025	0825 Recycle-Fiber/111 S Buxton	Open Terms	78.00	0.00	0.00	78.00	78.00	36696	BL-16815	EFT File
7/25/2025	0825 Trash/Recycle - Util Svcs	Open Terms	52.50	0.00	0.00	52.50	52.50	36695	BL-16816	EFT File
						130.50	130.50			
TrueNorth Companies LC - VEND-1100 - EFT File										
8/20/2025	July Safety Meeting	Net 30	138.47	0.00	15.00	138.47	138.47	175144	BL-16817	EFT File
						138.47	138.47			
ULINE - VEND-1251 - Check										
8/10/2025	Supplies	Net 30	1,450.22	0.00	15.00	1,450.22	1,450.22	195236799	BL-16818	Check
						1,450.22	1,450.22			
Vanderpool Plumbing & Heating - VEND-1066 - EFT File										
8/24/2025	AC Repair	Net 30	244.50	0.00	15.00	244.50	244.50	7801	BL-16819	EFT File
						244.50	244.50			

VEENSTRA & KIMM - VEND-57600 - Check

AP Check Preview

Date Range: All Dates

Indianola Municipal Utilities

Wednesday, August 6, 2025
3:11:14 PM

Vendor	Due Date	Notes	Terms	Bill Total	Discount	Interest	Amount Due	Pavment	Invoice Number	Bill Number	Payment Type
	7/26/2025	Engineering Svc Water Treatment Facility Star	Open Terms	8,450.00	0.00	0.00	8,450.00	8,450.00	285114-4	BL-16820	Check
	7/26/2025	Engineering Svc Water Treatment Facility Limi	Open Terms	7,109.20	0.00	0.00	7,109.20	7,109.20	285112-10	BL-16821	Check
	7/26/2025	Engineering Svc E 3rd St Water Main Improve	Open Terms	5,856.00	0.00	0.00	5,856.00	5,856.00	285115-8	BL-16822	Check
							21,415.20	21,415.20			
WESCO - VEND-60220 - EFT File											
	7/26/2025	FIBER LOCATE FLAGS	Open Terms	406.77	0.00	0.00	406.77	406.77	583550	BL-16823	EFT File
							406.77	406.77			
Wiegert Disposal Inc - VEND-1081 - EFT File											
	8/31/2025	0725 Trash - Fiber/111 S Buxton	Net 30	110.00	0.00	15.00	110.00	110.00	8.1.25	BL-16824	EFT File
							110.00	110.00			
Yamileth Colina Aranguren - VEND-1141 - BL-16689											
	8/5/2025	Credit Refund	Net 30	34.29	0.00	0.00	34.29	34.29	00044667-7	BL-16689	Check
							34.29	34.29			
Total Payment Count: 79				Totals:			\$431,293.19	\$431,293.19			
Total Check Count: 23				Check Totals:			\$89,140.41	\$89,140.41			
Total EFT File Count: 51				EFT File Totals:			\$238,364.45	\$238,364.45			
Total Online Payments Count: 5				Online Payments Totals:			\$103,788.33	\$103,788.33			
Total Bank Draft Count: 0				Bank Draft Totals:			\$0.00	\$0.00			
Total No Check Count: 0				No Check Totals:			\$0.00	\$0.00			

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities

From:

Date: August 11, 2025

Subject: Approval of Minutes of the prior meetings

Recommendation:

Attachments:

1. 7-14-2025 Minutes
2. 7-23-2025 Minutes

IMU BOARD OF TRUSTEES OF THE ELECTRIC, WATER AND COMMUNICATIONS UTILITIES

July 14, 2025, 5:30 PM IMU Boardroom Minutes

The IMU Board of Trustees met in regular session at 5:30 pm on July 14, 2025, in the IMU Conference Room. Board Chair Dom Selgrade called the meeting to order and on roll call the following members were present: Dom Selgrade, Deb White, and Lori Smith. Absent: Adam Voigts
Chairman Selgrade offered condolences on behalf of the board and IMU Staff to General Manager Chris DesPlanques and his family for the loss of his father in law.

Public Comment

Anita Christensen, 8918 110th Ave, from the Indianola from the City of Indianola Sustainability committee, with fellow member Bill Howard shared information about a proposed application for the Energy Efficiency and Conservation Block Grant to fund the installation of Electric Vehicle Chargers and requested a letter of support from the IMU Board, and consider an in-kind donation for the work already completed.

City Manager Jake Meshki introduced himself and offered appreciation to GM DesPlanques for his welcoming support and ongoing communication with IMU staff and board members.

White moved to approve the **Consent Agenda** and Smith seconded it. Finance Director Chris Longer reviewed the financial report. On roll call, the vote was AYES: Selgrade, Smith, White. NAYS: None. Whereas the motion carried unanimously.

The consent agenda was as follows: Approval of Claims, Approval of Minutes of the prior meetings, May 2025 Financial Report.

Electric Utility Informational Items

Longer shared, on behalf of Electric Director Mike Metcalf, that work continues on the NE side of the Square, crews are installing back-feed conduits at Emerald Bay and doing annual updates for Iowa Utility Commission along W Salem, and that the reverse osmosis system is operational but waiting on final water test results.

Water Utility Action Items

Smith moved to approve **Resolution 2025-053** authorizing the purchase of a Vac Trailer for the Water Department. and White seconded. On roll call, Ayes: Selgrade, Smith, White; Nays: None, motion passed unanimously.

White moved to approve **Resolution 2025-054** setting a public hearing on August 11, 2025 at 5:30 pm regarding the plans, specifications, form of contract and estimate of cost for the Water Treatment Facility, Standby Generator Project, and Smith seconded. On roll call, Ayes: Selgrade, Smith, White; Nays: None, motion passed unanimously.

Water Utility Informational Items

Water Director Justin Brand shared staff are busy with seasonal work, repairs and cleanup from 2 main breaks, new construction projects, a final concrete pour back, hydrants, and the work has started for the lime tower resurfacing project. Smith asked if we had many questions regarding nitrate levels, and Brand reported less than .1mg/L, and Selgrade discussed updates on the solar project.

Communications Utility Action Items

Smith moved to approve **Resolution 2025-055** authorizing the purchase of a 2025 Engineering Truck for the Communications Department. and White seconded. On roll call, Ayes: Selgrade, Smith, White; Nays: None, motion passed unanimously.

Communications Utility Informational Items

Communications Director Kurt Ripperger shared fiber crews are busy in new residential and commercial development areas adding conduit and fiber. Many Fiber staff are using vacation time this month, and Telecom will begin the NOFA 7 South project in September, and should finish well ahead of December contract end date.

Combined Electric, Water and Communications Action Items

White motioned to approve utility accounts to be written off and to use any customary collection method, including submission to the state offset program, and to charge any applicable collection fees, and Smith seconded. Smith asked about the timing of winter heat assistance programs. On roll call, Ayes: Selgrade, Smith, Rozga, Voigts; Nays: None, motion passed unanimously.

Combined Electric, Water and Communications Informational Items

Staff and board discussed the location details for the Strategic Planning Session to be held next week.

No Other Business was discussed.

At 5:51 pm Smith motioned to enter into **Closed Session** in accordance with Iowa Code Section 21.5 (1)(j) to discuss the purchase or sale of particular real estate only where premature disclosure could be reasonably expected to increase the price the governmental body would have to pay for that property or reduce the price the governmental body would receive for that property, and White seconded. On roll call, Ayes: Selgrade, Smith, Rozga, Voigts; Nays: None, motion passed unanimously.

At 6:07 pm White motioned to exit closed session and Smith seconded. On roll call, Ayes: Selgrade, Smith, Rozga, Voigts; Nays: None, motion passed unanimously.

Selgrade moved to **Adjourn** at 6:08 pm, and White seconded. On Voice vote, Ayes: Selgrade, White, Smith,; Nays: None, motion passed unanimously.

IMU BOARD OF TRUSTEES OF THE ELECTRIC, WATER AND COMMUNICATIONS UTILITIES

July 23, 2025 Minutes

The IMU Board of Trustees met for Strategic Planning Session at 9:01 am on July 23, 2025, at the IAMU Headquarters in Ankeny. Board Chair Dom Selgrade called the meeting to order and on roll call the following members were present: Dom Selgrade, Deb White, and Lori Smith, Adam Voigts Absent: None Chairman Selgrade suggested the board members should start with the Strategic Planning Session and move Resolution 2025-056 to later in the day.

Staff and board members met to discuss Strategic Planning and goals for IMU. Staff took 5 minute recesses at 10:13 am and 12:45 pm.

Smith moved to approve **Resolution 2025-056** Approving a Letter of Support for an Energy Efficiency and Conservation Block Grant for EV Charging Stations and Voigts seconded. On roll call, Ayes: Selgrade, Smith, White, Voigts; Nays: None, motion passed unanimously.

White moved to **Adjourn** at 2:45 pm, and Smith seconded. On Voice vote, Ayes: Selgrade, White, Smith, Voigts; Nays: None, motion passed unanimously.

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: June 2025 Financial Report

Recommendation:

Attachments: 1. 0625 Financial Report

Water Utility Financial Summary
June 30, 2025

600 WATER OPERATING FUND

	FY24		
	Budget	YTD Actual	% of Budget
Water Service Sales	3,165,800	3,033,918	95.83%
Other Water Revenue	566,800	415,848	73.37%
Total Revenue:	3,732,600	3,449,766	
Water O&M Expense	2,234,273	1,839,708	82.34%
Water O&M Transfers Out	1,190,000	0	0.00%
YTD Depreciation		626,036	
Total Expense, Transfers & Depreciation:	3,424,273	2,465,744	
Beginning Net Position		14,444,384	
Net Surplus (Deficit)		984,022	
Ending Net Position		15,428,406	

700 WATER CAPITAL FUND

Water Capital Revenue	0	351,100	
From Water Operations	1,190,000	0	0.00%
Total Transfers In:	1,190,000	351,100	
Water Capital Expense	1,205,000	0	0.00%
Total Expense:	1,205,000	0	
Beginning Net Position		2,965,943	
Net Surplus (Deficit)		351,100	
Ending Net Position		3,317,043	

780
WATER IMPROVE FUND

Beginning Net Position	75,000
Net Surplus (Deficit)	0
Ending Net Position	75,000

WATER CASH ON HAND
(110 days or greater)

O&M	\$	(641,944)
Capital	\$	5,323,877
Debt Service	\$	75,000
396 days	\$	4,756,932

FY25		
Budget	YTD Actual	% of Budget
3,473,300	3,270,365	94%
587,684	572,350	97%
4,060,984	3,842,715	
2,301,497	2,085,763	91%
1,950,600	1,950,600	100%
	654,836	
4,252,097	4,691,199	

1,950,600	1,950,600	100%
1,950,600	1,950,600	
2,085,600	954,771	46%
2,085,600	954,771	

	Gallons Billed FY24-25	Gallons Billed FY23-24
July	40,148,770	36,713,420
August	32,039,780	33,852,270
September	36,328,770	35,871,910
October	29,663,780	39,773,580
November	38,582,090	31,508,750
December	30,586,980	32,279,650
January	27,084,640	26,695,880
February	25,627,380	26,057,390
March	26,746,450	28,398,290
April	24,871,480	25,536,950
May	29,167,830	29,493,670
June	31,303,240	28,478,040
YTD TOTAL	372,151,190	374,659,800
	-0.7%	

	Inventory on Hand FY24-25	Inventory on Ha FY23-24
July \$	408,909	\$ 131,441
August \$	401,413	\$ 124,926
September \$	390,131	\$ 118,941
October \$	389,592	\$ 207,261
November \$	385,777	\$ 208,497
December \$	389,152	\$ 297,258
January \$	380,803	\$ 366,045
February \$	367,443	\$ 445,254
March \$	360,226	\$ 443,607
April \$	357,757	\$ 427,475
May \$	332,547	\$ 425,890
June \$	340,233	\$ 413,287
YTD AVG \$	375,332	\$ 300,824
	24.8%	

IMU Admin/US Financial Summary
June 30, 2025

620 ADMIN & UTILITY SERVICES

	FY24		
	Budget	YTD Actual	% of Budget
Admin/US Revenue	1,297,918	1,253,382	96.57%
Total Revenue:	1,297,918	1,253,382	
Admin/US O&M Expense	1,297,918	1,239,823	95.52%
YTD Depreciation		35,392	
Total Expense, Transfers & Depreciation:	1,297,918	1,275,215	
Beginning Net Position		203,175	
Net Surplus (Deficit)		(21,833)	
Ending Net Position		181,342	

FY25		
Budget	YTD Actual	% of Budget
1,409,493	1,448,068	103%
1,409,493	1,448,068	
1,409,493	1,313,643	93%
	35,392	
1,409,493	1,349,035	

855 LIABILITY INS FUND

Beginning Net Position	9,099
Net Surplus (Deficit)	0
Ending Net Position	9,099

US/ADMIN CASH ON HAND

O&M \$ 734,862

Electric Utility Financial Summary
June 30, 2025

630 ELECTRIC OPERATING FUND

	FY24				FY25		
	Budget	YTD Actual	% of Budget		Budget	YTD Actual	% of Budget
Electric Service Sales	15,927,772	15,276,340	95.91%		16,405,606	15,779,479	96%
Other Electric Revenue	1,883,900	2,397,839	127.28%		2,043,100	2,162,336	106%
Total Revenue:	17,811,672	17,674,179			18,448,706	17,941,816	
Electric O&M Expense	16,178,121	14,169,737	87.59%		16,893,220	15,426,194	91%
Electric O&M Transfer Out	3,653,672	0	0.00%		1,981,202	1,981,202	100%
YTD Depreciation		1,652,337				1,672,806	
Total Expense, Transfers & Depreciation:	19,831,793	15,822,074			18,874,422	19,080,202	
Beginning Net Position		35,046,761					
Net Surplus (Deficit)		1,852,105					
Ending Net Position		36,898,866					

730 ELECTRIC CAPITAL FUND

Electric Capital Revenue	1,237,500	130,522	10.55%		1,274,100	1,673,104	131%
From Electric Operations	2,500,000	0	0.00%		1,250,000	1,250,000	100%
Total Revenue and Transfers In:	3,737,500	130,522			2,524,100	2,923,104	
Electric Capital Expense	2,886,300	0	0.00%		2,579,400	2,198,721	85%
Total Expense:	2,886,300	0			2,579,400	2,198,721	
Beginning Net Position		8,062,135					
Net Surplus (Deficit)		130,522					
Ending Net Position		8,192,657					

793 ELECTRIC DEBT SERVICE

From Electric Operations	1,153,672	0	0.00%		731,202	731,202	100%
Total Transfers In:	1,153,672	0			731,202	731,202	
Electric Debt Service	1,153,672	0	0.00%		731,202	729,723	100%
Total Expense:	1,153,672	0			731,202	729,723	
Beginning Net Position		1,368,865					
Net Surplus (Deficit)		0					
Ending Net Position		1,368,865					

ELECTRIC CASH ON HAND

(110 days or greater)

356 days

O&M	\$	6,791,021
Capital	\$	11,540,624
Debt Service	\$	1,370,202
	\$	19,701,847

	Kwhs Billed FY24-25	Kwhs Billed FY23-24
July	11,504,883	10,450,789
August	11,693,918	11,547,802
September	12,751,518	12,959,519
October	11,534,130	12,753,605
November	10,618,514	9,208,467
December	8,582,354	9,085,696
January	9,584,636	8,889,231
February	9,858,876	9,730,261
March	10,248,255	10,012,491
April	8,867,470	8,110,965
May	8,860,357	8,526,345
June	8,579,041	8,141,136
YTD TOTAL	122,683,952	119,416,307
	2.7%	

	Inventory on Hand FY24-25	Inventory on Hand FY23-24
July	\$ 1,678,539	\$ 1,276,213
August	\$ 1,646,986	\$ 1,337,147
September	\$ 1,656,391	\$ 1,396,439
October	\$ 1,711,813	\$ 1,422,195
November	\$ 1,681,717	\$ 1,462,286
December	\$ 1,655,261	\$ 1,527,687
January	\$ 1,704,400	\$ 1,570,204
February	\$ 1,874,764	\$ 1,554,941
March	\$ 2,057,188	\$ 1,544,421
April	\$ 2,015,939	\$ 1,512,184
May	\$ 1,862,628	\$ 1,577,116
June	\$ 1,824,910	\$ 1,584,527
YTD AVG	\$ 1,780,878	\$ 1,480,447
	20.3%	

Fiber Utility Financial Summary
June 30, 2025

640 FIBER OPERATING FUND

	FY24			FY25		
	Budget	YTD Actual	% of Budget	Budget	YTD Actual	% of Budget
Fiber Service Sales	4,823,000	4,916,294	101.93%	5,230,000	5,243,378	100%
Other Fiber Revenue	662,050	(68,067)	-10.28%	410,050	352,750	86%
Total Revenue:	5,485,050	4,848,227		5,640,050	5,596,127	
Fiber O&M Expense	3,574,751	3,349,671	93.70%	3,627,836	3,561,420	98%
Fiber O&M Transfer Out	1,473,246	0	0.00%	2,022,828	2,022,828	100%
YTD Depreciation		656,097			423,031	
Total Expense, Transfers & Depreciation:	5,047,997	4,005,768		5,650,664	6,007,279	
Beginning Net Position		(3,464,668)				
Net Surplus (Deficit)		842,459				
Ending Net Position		(2,622,209)				

740 FIBER CAPITAL FUND

Fiber Capital Revenue	0	0			1,945	
From Fiber Operations	310,833	0	0.00%	896,300	896,300	100%
Total Revenue and Transfers In:	310,833	0		896,300	898,245	
Fiber Capital Expense	2,026,500	0	0.00%	1,121,300	633,866	57%
YTD Depreciation		0			360,067	
Total Expense, Transfers & Depreciation:	2,026,500	0		1,121,300	993,933	
Beginning Net Position		938,067				
Net Surplus (Deficit)		0				
Ending Net Position		938,067				

795 FIBER DEBT SERVICE

From Fiber Operations	1,126,413	0	0.00%	1,126,528	1,126,528	100%
Total Transfers In:	1,126,413	0		1,126,528	1,126,528	
Fiber Debt Service	1,126,413	0	0.00%	1,126,528	1,126,478	100%
Total Expense:	1,126,413	0		1,126,528	1,126,478	
Beginning Net Position		0				
Net Surplus (Deficit)		0				
Ending Net Position		0				

*Fund 640 Ending Fund Balance	(2,622,209)
*Fund 740 Ending Fund Balance	938,067
	(1,684,142)

FIBER CASH ON HAND

O&M	\$	(290,341)
Capital	\$	940,148
Debt Service	\$	321
41 days	\$	650,128

The Fiber Utility fund has a deficit fund balance of ().
The deficit fund balance is the result of start-up costs incurred to initiate the utility service.
The deficit will be eliminated in future periods through net customer charges.

	Subscriptions FY24-25	Subscriptions FY23-24	YOY Increase %
July	4,177	3,872	7.9%
August	4,204	3,908	7.6%
September	4,230	3,930	7.6%
October	4,268	3,963	7.7%
November	4,290	3,975	7.9%
December	4,280	3,987	7.3%
January	4,319	4,016	8%
February	4,327	4,040	7%
March	4,355	4,071	7%
April	4,376	4,102	7%
May	4,388	4,118	7%
June	4,416	4,152	6%
YTD AVG	4,303	4,011	7.3%

	Inventory on Hand FY24-25	Inventory on Hand FY23-24	YOY Increase %
July \$	1,819,505	\$ 1,858,586	-2.1%
August \$	1,823,670	\$ 1,878,531	-2.9%
September \$	1,875,146	\$ 1,859,378	0.8%
October \$	1,857,023	\$ 1,843,233	0.7%
November \$	1,886,575	\$ 1,842,936	2.4%
December \$	1,896,759	\$ 1,853,822	2.3%
January \$	1,895,756	\$ 1,859,947	1.9%
February \$	1,909,404	\$ 1,882,714	1.4%
March \$	1,924,920	\$ 1,876,572	2.6%
April \$	1,934,659	\$ 1,957,554	-1.2%
May \$	1,943,013	\$ 1,953,238	-0.5%
June \$	1,952,231	\$ 1,884,046	3.6%
YTD AVG \$	1,893,222	\$ 1,879,213	0.7%

June 2025

You should expect to see YTD revenue and expenses to be 12/12 (or 100%) of Budget.

Health Insurance Fund Balance on June 30, 2025 was not available as of the time of this agenda deadline.

We have temporarily removed the net position sections from FY25 as we have become more efficient in preparing for the annual financial audit and have already made accrual adjustments affecting the June 30th report data.

As discussed in our strategic planning meeting, we will be collapsing the capital funds into the O&M funds after the FY25 audit is complete. This will result in a combined cash balance in the water, electric and fiber departments. Debt service funds will remain separate.

Water and Electric service revenue may fall ahead or behind budget due to seasonal fluctuations.

Cash on Hand - 110 days or more of cash on hand based on the recommended 90-120 days to maintain our bond rating (A-).

Water Notes: Capital expenses may fall ahead or behind budget due to timing of project completion and payments.

US/Admin Notes: The 620 fund is intended to be a zero balance fund and doesn't have any significant stand alone obligations. Any balance or deficit here is timing related or is city services collected from the current month to be transferred in the following month.

Electric Notes: Capital revenue ahead of budget due to customer paid projects paid up front, expenses will offset as projects are completed. Capital expenses may fall ahead or behind budget due to timing of project completion and payments.

Fiber Notes: Inventory on hand includes both customer premise equipment, \$1,691,004 and stock supply inventory, \$261,227
Capital expenses may fall ahead or behind budget due to timing of project completion and payments.

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: Resolution approving purchase of Track Skid Steer

Recommendation:

Attachments:

1. Board Packet Memo Track Skid Steer
2. Resolution Approving Purchase of a Skid Steer
3. Murphy Tractor & Equipment
4. Star Equipment
5. Bobcat Bid
6. Van Wall John Deere Bid

Track Skid Steer

Four bids were received:

Vendor	Brand	Bid (Plus Tax)	Lead Time
Murphy Tractor & Equipment	John Deere 325G	\$76,988.00	2 – 3 Weeks
Star Equipment	Manitou 2750VT	\$78,267.54	17 Weeks
Capital City Equipment	Bobcat T76	\$79,139.64	4 – 8 Weeks
Van Wall Equipment	John Deere 325G	\$79,900.00	In Stock

Staff recommends accepting the bid (plus tax) from Murphy Tractor & Equipment.

Indianola Municipal Utilities
Resolution 2025-

RESOLUTION APPROVING PURCHASE OF A TRACK SKID STEER

WHEREAS, the Electric Department desires to purchase a Track Skid Steer; and

WHEREAS, after a review of the bids the Electric Department recommends using Murphy Tractor & Equipment to purchase the Track Skid Steer in the amount of \$76,988.00 plus tax; and

WHEREAS, the Board of Trustees believes it to be in the best interest of Indianola Municipal Utilities to accept the bid from Murphy Tractor & Equipment to purchase the Track Skid Steer for the Electric Department.

NOW, THEREFORE BE IT RESOLVED, by the Indianola Board of Trustees that a Track Skid Steer shall be purchased from Murphy Tractor & Equipment in the amount of \$76,988.00 plus tax and the Electric Department Director is authorized and directed to execute on behalf of Indianola Municipal Utilities the documents required to purchase the items.

Approved this 11th day of August 2025.

Dom Selgrade, IMU Chairperson

ATTEST:

Monica Thompson, BOT Secretary

Quote Summary**Prepared For**

INDIANOLA MUNICIPAL UTILITIES
210 W 2ND AVE
INDIANOLA, IA 50125
Business: 515-962-5328

Prepared By

TYLER SEYMOUR
Murphy Tractor & Equipment
5087 E Broadway Ave
Des Moines, IA 50317
Phone: 515-263-0055
Mobile: 319-888-3106
tseymour@murphytractor.com

Factory Warranty: John Deere 2 years/2000 hours
Lead Time- 2-3 Weeks of signed PO

Quote Id:	33260803
Created On:	01 August 2025
Last Modified On:	04 August 2025
Expiration Date:	31 August 2025

Equipment Summary

2025 JOHN DEERE 325G Compact
Track Loader -
1T0325GKHSJ475762

	Qty	Extended
X 1 =		

Equipment Total	\$ 76,988.00
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Trade In Total	\$ 0.00
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Quote Summary

Equipment Total	\$ 76,988.00
Trade In	
SubTotal	\$ 76,988.00
Sales Tax - (5.00%)	\$ 3,849.40
Est. Service Agreement Tax	
Total	\$ 80,837.40
Balance Due	\$ 80,837.40

Selling Equipment

Quote Id: 33260803

Customer: INDIANOLA MUNICIPAL UTILITIES

2025 JOHN DEERE 325G Compact Track Loader - 1T0325GKHSJ475762

Hours: 2
Stock Number: 250221

Code	Description	Qty
00D2T	2025 JOHN DEERE CAB, 16" TRACKS, STD HYD, EH, PP, TIER1++W 00D2T	1

Standard Options - Per Unit

07A5	Cab/Heat/AC, Power QT, SL & RC, 2Spd, LED Lights, Rev Fan	1
170K	JDLINK™	1
0953	ISO-H Switchable Controls and EH Joystick Performance Package	1
1301	Engine - Turbocharged - FT4	1
1501	English Operator's Manual and Decals	1
4001	2-Inch Seat Belt with Shoulder Harness	1
6006	Air Suspension Seat (Cloth with Heat)	1
8042	Rear View Camera	1
8050	Cold Start Package	1
8300	Counterweight, (Single Set)	1
8342	Radio, AM/FM with Bluetooth	1
8370	HD Rear Grille	1
8380	Footrest with Floormat	1

Dealer Attachments

BYT12804	Hazard Warning Lights	1
PERRY CO	Severe Duty Door (Tinted)	1
AT322310	78" HD CONST BKT W/ EDGE Stock Number:247327	1
A-4008652Y6	400mm Skinny Zig-Zag Tracks	1

325G Compact Track Loaders

Quote

Coverage Type

PowerGard

Certified Used

Application Type

Commercial

Governmental

Rental

Forestry/Severe Duty

Coverage Options

✓ Comprehensive

✓ Powertrain And Hydraulics

+ Powertrain

+ Engine Only

Pricing Plans (USD)

 Final Price is Calculated on Summary Page.

Comprehensive

Hours	24 Months	36 Months	48 Months	60 Months
2000		☐ 3,216	☐ 3,449	☐ 3,966
3000	☐ 2,375	☐ 4,086	☐ 4,643	☐ 5,283
4000	☐ 2,772	☐ 4,675	☐ 7,494	☐ 8,480
5000	☐ 3,219	☐ 6,728	☐ 9,034	☐ 9,749

Powertrain And Hydraulics

Hours	24 Months	36 Months	48 Months	60 Months
2000		☐ 1,058	☐ 1,181	☐ 1,452
3000	☐ 592	☐ 1,537	☐ 1,843	☐ 2,189
4000	☐ 816	☐ 1,855	☐ 3,399	☐ 3,928
5000	☐ 1,062	☐ 2,983	☐ 4,218	☐ 4,608

Confidential with No Personal Information



STAR EQUIPMENT, LTD.

CONSTRUCTION EQUIPMENT & SUPPLIES
Sales ★ Service ★ Rentals

MIKE METCALF
INDIANOLA MUNICIPAL UTILITIES
210 W 2ND AVE
INDIANOLA, IA 50125
Ph # : 515-961-9444
Fax # :

Delivery Address:
INDIANOLA MUNICIPAL UTILITIES
INDIANOLA, IA 50125

Quote #: 53000670-5
7/31/2025 10:31:27 AM
Date Revised :8/1/2025 10:17:58 AM
E-Mail : MMETCALF@INDIANOLA.IOWA.GOV

MIKE METCALF

Per your request Star is pleased to offer the following quotation for your review & approval:

QTY	MFG	ITEM NUMBER	DESCRIPTION	TYPE	PRICE	EXT. PRICE
1	***		New - Manitou 2750VT Track Loader - 72 hp Yanmar Turbo Diesel Engine, Vertical Lift, 38 Gallon Fuel Tank, 26 gpm Auxiliary Hydraulics, Two Speed, Pilot Controlled Hydrostatic Drive, IdeaTrax Auto Track Tensioning, 7" Display, Back-up Alarm, Block Heater, Battery Disconnect, Cab Enclosure w/ Heat and A/C, Door - IdealAccess Fold-Up w/ Front Wiper, High Back Air Suspension Seat - Vinyl, Shoulder and Seat Belt - 2 in, Standard Flow Auxiliary Hydraulic Circuit, Hydraulic Powered Quick-Attach System, Switchable Self-Leveling Hydraulic Lift Action, Rear Cameral, Electric Attachment Control - 14-Pin Harness, Pre-Cleaner - Centrifugal Type, Radio - Bluetooth, Reversing Fan, Work Lights (LED) - Side Mounted (Set of 2), Rear Counterweight Side Mounted - Increases R.O.C. by 120 lbs, 17.7 in. Camoplast SD 4-Season Tread - 4.5 psi Ground Pressure, 78" HD Dirt Bucket w/ Bolt-On Cutting Edge, 8 Wig Wag Lights Installed, Ride Control Installed	New	78,692.54	78,692.54
1	***		Discount - Factory Cash Rebate	Discount	2,000.00	

QTY	INSTALLATION DESCRIPTION	LABOR EA.	LABOR EXT.
1	PDI	\$ 600.00	\$ 600.00

Ship Via : STAR SALES
Ship Wt : 0.000

Total Material: \$ 76,692.54
Trade In: \$ - 0.00
Rent Credit: \$ - 0.00
Installation: \$ 600.00
Freight: \$ 975.00

Total Sell : \$78,267.54

Terms :

- QUOTE VALID FOR 5 DAYS
- FOB FACTORY

- SUBJECT TO PRIOR SALE AND AVAILABILITY

- SUBJECT TO CHANGE WITHOUT NOTICE

Quote Notes :

*** Current manufacturer max lead time is 120 days from order ***

Sincerely,

TERR 53 - KEVIN MCKINNEY

Phone : 515-283-2215
Email : kevinmckinney@starequip.com

Accepted By :

Customer P.O.# :



Product Quotation
 Quotation Number: **BM1336368**
 Quote Sent Date: **Aug 04, 2025**
 Expiration Date: **Sep 04, 2025**

Your Bobcat Contact
Brady Murdoff
 Phone:
 Email: brady.murdoff@doosan.com

Your Customer Contact

Deliver to
Indianola Municipal Utilities
 1300 E IOWA AVE
 INDIANOLA, IA, 50125-1517

Bobcat Dealer
Capital City Equipment Company, Des Moines, IA
 5461 NW 2ND ST.
 DES MOINES, IA, 50313-1333
 Preston Burns

Bill to
Indianola Municipal Utilities
 1300 E IOWA AVE
 INDIANOLA, IA, 50125-1517

Item Name	Item Number	Quantity	Price Each	Total
T76 T4 Bobcat Compact Track Loader	M0371	1	59,240.06	59,240.06
Standard Equipment: 74.0 HP Tier 4 V2 Bobcat Engine Auxiliary Hydraulics: Variable Flow Backup Alarm Bob-Tach Bobcat Interlock Control System (BICS) Controls: Selectable Joysticks (SJC) Cylinder Cushioning - Lift, Tilt Engine/Hydraulic Performance De-rate Protection Glow Plugs (Automatically Activated)		Horn Lift Arm Support Lift Path: Vertical Lights, Front and Rear LED Operator Cab Includes: Vinyl Adjustable Suspension Seat, Top and Rear Windows, Parking Brake, Seat Bar and Seat Belt Roll Over Protective Structure (ROPS) meets SAE-J1040 and ISO 3471 Falling Object Protective Structure (FOPS) meets SAE-J1043 and ISO 3449, Level I; (Level II is available through Bobcat Parts) Parking Brake: Spring Applied, Pressure Released (SAPR) Solid Mounted Carriage with 4 Rollers Tracks: Rubber, 12.6" Wide Telematics - Machine IQ - 2-year Basics Warranty: 2 years, or 2000 hours whichever occurs first		
Comfort Package <i>Included:</i> Comfort Package Includes: Enclosed HVAC Cab, Radio, Adjustable Heated Cloth Air Ride Seat, Power Bob-Tach, Solid Undercarriage, Instrumentation: Standard 5" Display, Engine Temperature and Fuel Gauges, Hour meter, RPM and Warning Indicators. Includes maintenance interval notification, fault display, job codes, quick start, auto idle, and security lockouts, Premium LED Lights, Keyless Start, Two-Speed Travel, 7-Pin Attachment Control, Dual Direction Bucket Positioning, Rear Camera, Sound Reduction,	M0371-P11-C07	1	7,132.82	7,132.82
17.7" Multi Bar Track	M0371-R09-C05	1	1,742.00	1,742.00
80" Severe Duty Bucket	7326129	1	2,037.56	2,037.56

Bolt-On Cutting Edge, 80"	6718008	1	332.11	332.11
Counterweight Kit, 200 lbs	7407734	1	927.75	927.75
Reversing Fan Kit	7360690	1	1,060.45	1,060.45
Ride Control Kit	7360582	1	1,561.05	1,561.05
Side Light Kit - 5 to 7-inch Display	7387670	1	142.55	142.55
Strobe Light Kit, Amber	7375339	1	289.12	289.12
Engine Block Heater	7372533	1	85.92	85.92
Total for T76 T4 Bobcat Compact Track Loader				74,551.39
Quote Total - USD				74,551.39
Dealer P.D.I.				200.00
Tariff Surcharge				0.00
Freight Charges				1,675.00
Destination Charges				152.00
Dealer Assembly Charges				1,361.25
Charges				
<i>Install Polycarbonate Door</i>				1,200.00
Quote Total - USD				79,139.64

Comment:

*Plus applicable taxes. IF Tax Exempt, please include Tax Exempt Certificate with the order.

*Prices per the NASPO Construction Equipment Master Agreement OK-SW-192-300

<https://www.naspovaluepoint.org/portfolio/heavy-construction-industrial-equipment/clark-equipment-company/>

State and Contract Number Summary:

AK - N-2024-CE-001

CA - 7-24-99-51-01

CT - #23PSX0195

IA - OK-SW-192-300

ID - #PADD20257303

KS - OK-SW-192-300

MO - CC240715001

NE - 15993(OC)

OK - OK-SW-192-300

RI - 01

SD - 17808

SC - 4400034032

VA - CTR022773

VT - # 47749

WI - 505ENT-O24-CONSTREQUIP-02

*All orders should include 1) Accounts Payable Contact and email address, 2) W9 with correct legal entity name, and 3) Bill to Address.

*Orders may be placed with the contract holder or authorized dealer as allowed by the terms and conditions of the contract. *A Copy of all orders must be provided to Heather.Messmer@Doosan.com.

*Contact Holder Information: Doosan Bobcat North America, Inc, Govt Sales, 250 E Beaton Drive, West Fargo, ND 58078. TID# 38-0425350.

*Payment Terms: Net 60 Days. Credit cards accepted.

*Remittance address: Doosan Bobcat North America, Inc , P. O. Box 74007382, Chicago, IL 60674-7382

*Questions can be submitted via email to Heather.Messmer@doosan.com or by phone at: 1-800-965-4232.

Customer acceptance:

Quotation Number:: **BM1336368**

Purchase Order: _____

Authorized Signature:

Print: _____ Sign: _____

Date: _____ Email: _____

Addresses

Delivery Address _____

Billing Address (if different from ship to): _____

Tax Exempt: Y ☐ / N ☐

Exempt in the State of: _____

Tax Exempt ID:

Federal: _____

State: _____

Expiration Date: _____

Purchase Agreement

11217875 Revision # Original Jul 30, 2025
Quote ID: 33228818



Customer Information

IMU INDIANOLA MUNICIPAL
UTILITIES
MIKE METCALF
111 S BUXTON ST
INDIANOLA, IA 50125
MMETCALF@INDIANOLAIOV
A.GOV

Customer Account

Customer Sales Tax Exempt

Use County/State

WARREN,IA

Purchaser Type

2 Federal Govt

Rewards

Transaction Type

Cash Sale

Market Use

General Utility
17

Seller Information

Van-Wall Equipment, Inc.
1306 South Jefferson St
Indianola, IA 50125
515-962-1234
Dealer Account #: 085488

I (We), the undersigned, hereby order from Dealer the Equipment described below, to be delivered as shown below. This order is subject to Dealer's ability to obtain such Equipment from the manufacturer and Dealer shall be under no liability if delivery of the Equipment is delayed or prevented due to labor disturbances, transportation difficulties, or for any reason beyond Dealer's control. The price shown below is subject to Dealer's receipt of the Equipment prior to any change in price by the manufacturer. It is also subject to any new or increased taxes imposed upon the sale of the Equipment after the date of this order.

Equipment

QTY	New	Used	Equipment & Value Added Services	Meter	Product ID #	Price
1	X		2025 JOHN DEERE 325G Compact Track Loader Stock # 864355	1	1T0325GMKSJ476158	\$ 74,195.00
3	X		AT348835 Counterweight, Stackable (Single Set)	1		\$ 1,161.00
1	X		BYT10651 Rear View Camera	1		\$ 876.00
1	X		AT322310 78 in. HD Construction Bucket (19.4 cu. ft.) with Edge	1		\$ 2,458.00
1			+ Extended Warranty : Extended Warranty, 325G, Powertrain And Hydraulics, 2000 Total Hours or 36 Total Months, \$0 Deductible		2024271191	\$ 1,210.00

Comments :

Machine is in stock. Lead time 3 weeks on getting attachments installed.
2 year /2000 hour basic warranty

Summary

Selling Price of Purchases	\$ 79,900.00
Total Trade-In Allowance	\$ 0.00
Total Trade-In Pay-Off	\$ 0.00
Balance	\$ 79,900.00
SALES TAX - (6.00 %)	\$ 4,794.00
Est. Service Agreement Taxes	\$ 0.00
Sub-Total	\$ 84,694.00
Cash With Order	\$ 0.00
Rental Applied	\$ 0.00
Balance Due	\$ 84,694.00

Customer Signature

Customer Signature

Accepted By

Date Accepted

Salesperson SNEAD,NATE

Delivered On Warranty Begins

Delivery Signature Date

IMPORTANT WARRANTY NOTICE: The John Deere warranty applicable to new John Deere Equipment is printed and included with this document. There is no warranty on used equipment. The new equipment warranty is part of this contract. Please read it carefully. **YOUR RIGHTS AND REMEDIES PERTAINING TO THIS PURCHASE ARE LIMITED AS SET FORTH IN THE WARRANTY AND THIS CONTRACT. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS ARE NOT MADE AND ARE EXCLUDED UNLESS SPECIFICALLY PROVIDED IN THE JOHN DEERE WARRANTY.**

Telematics: Orders of telematic devices include only the hardware. Where available, telematics software, including JDLink™ connectivity service, may be enabled from your local John Deere Operations Center or JDLink website. Please see your authorized John Deere dealer for assistance

DISCLOSURE OF REGULATION APPLICABILITY: When operated in California, any off-road diesel vehicle may be subject to the California Air resources Board. In-Use Off-Road Diesel Vehicle Regulation. It therefore could be subject to retrofit or accelerated turnover requirements to reduce emissions of air pollutants.

ACKNOWLEDGEMENTS- I (We) promise to pay the Balance Due shown above in cash, or to execute a Time Sale Agreement (Retail InstallmentContract), or a Loan Agreement, for the purchase price of the Equipment, plus additional charges shown thereon or execute a Lease Agreement, on or before delivery of the Equipment ordered herein. Despite physical delivery of the Equipment, title shall remain in the seller until one of the foregoing is accomplished.

USE OF INFORMATION/PRIVACY NOTICE I understand that Deere & Company and its affiliates ("John Deere") and Dealer collect information, including my personal information and machine data to provide warranty, customer service, product and customer support, marketing and promotional information about Dealer, John Deere and their equipment, products and services and to support other business processes and purposes. See the John Deere Privacy Statement (<https://www.deere.com/en/privacy-and-data/>) for additional information on the types of personal information and machine data John Deere collects, how it is collected, used and disclosed. See Dealer directly for information about its privacy policy.

The Purchaser(s) and the Dealer acknowledge that while this document is defined herein as a "Purchase Agreement", it serves as both a purchase agreement for the

Purchase Agreement

11217875 Revision # Original Jul 30, 2025
Quote ID: 33228818



Purchaser Name : IMU INDIANOLA MUNICIPAL
UTILITIES

Equipment and/or a commitment to lease the Equipment. In addition, the defined term "Purchaser" extends to and includes both a purchaser of the Equipment and/or a lessee of the Equipment. Furthermore, this Purchase Agreement is deemed to constitute a "Purchase Order" or a "Customer Purchase Order for John Deere Products" for the purposes of any other John Deere documents, including, without limitation, any dealer terms schedule.

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: Resolution approving purchase of Truck Chassis

Recommendation:

Attachments:

1. Board Packet Memo Truck Chassis
2. Resolution Approving Purchase of a Truck Chassis
3. Fleetside Ford
4. Dewey Ford Bid
5. Charles Gabus

Truck Chassis

Requests were sent to five vendors with three responding:

Vendor	Brand	Bid (Plus Tax)	Lead Time
FleetSide Ford	Ford F600	\$65,180.00	17 Weeks
Dewey Ford	Ford F600	\$76,370.00 Bid wrong engine	14-16 Weeks
Charles Gabus	Responded	No Bid	
DeYarman Ford	No Response		
Karls	No Response		

Staff recommends accepting the bid (plus tax) from FleetSide Ford.

Indianola Municipal Utilities
Resolution 2025-

RESOLUTION APPROVING PURCHASE OF A TRUCK CHASSIS

WHEREAS, the Electric Department desires to purchase a Truck Chassis; and

WHEREAS, after a review of the bids the Electric Department recommends using FleetSide Ford to purchase the Truck Chassis in the amount of \$65,180.00 plus tax; and

WHEREAS, the Board of Trustees believes it to be in the best interest of Indianola Municipal Utilities to accept the bid from FleetSide Ford to purchase the Truck Chassis for the Electric Department.

NOW, THEREFORE BE IT RESOLVED, by the Indianola Board of Trustees that a Truck Chassis shall be purchased from FleetSide Ford in the amount of \$65,180.00 plus tax and the Electric Department Director is authorized and directed to execute on behalf of Indianola Municipal Utilities the documents required to purchase the items.

Approved this 11th day of August 2025.

Dom Selgrade, IMU Chairperson

ATTEST:

Monica Thompson, BOT Secretary

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620



Client Proposal

Prepared by:
Terrence Wojtowicz
Office: 641-342-2537
Quote ID: Indianola
Date: 08/04/2025





2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

Pricing Summary - Single Vehicle

	MSRP
<i>Vehicle Pricing</i>	
Base Vehicle Price	\$61,460.00
Options	\$1,525.00
Colors	\$0.00
Upfitting	\$0.00
Fleet Discount	\$0.00
Fuel Charge	\$0.00
Destination Charge	\$2,195.00
Subtotal	\$65,180.00
<i>Discount Adjustments</i>	
Discount Adjustments	-\$2,211.00
Total	\$62,969.00

Customer Signature

Acceptance Date



Prepared by: Terrence Wojtowicz

08/04/2025

FleetSide Ford | 1120 Jeffreys Drive Osceola Iowa | 50213

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

As Configured Vehicle

Code	Description	MSRP
Base Vehicle		
F6L	Base Vehicle Price (F6L)	\$61,460.00
Packages		
680A	Order Code 680A <i>Includes:</i> - Engine: 7.3L 2V DEVCT NA PFI V8 Gas - 190 Amp Alternator - Transmission: TorqShift 10-Speed Automatic Includes SelectShift, selectable drive modes: normal, tow/haul, eco, slippery roads and off-road and transmission power take-off provision. - Limited Slip w/4.88 Axle Ratio - GVWR: 22,000 lbs Payload Package - Tires: 245/70Rx19.5G BSW A/P Spare may not be the same as road tire. - Wheels: 19.5" x 6.75" Argent Painted Steel - HD Vinyl 40/20/40 Split Bench Seat Includes center armrest, cupholder, storage, 2-way adjustable driver/passenger headrests and driver's side manual lumbar. - Radio: AM/FM Stereo w/MP3 Player Includes 4 speakers. - Ford Connectivity Package (1-Year Included) Includes unlimited Wi-Fi hotspot. Included for 1-year from warranty start date. Requires activation via Ford app with credit card authorization; customer may cancel at any time. Evolving technology/cellular networks/vehicle capability may limit functionality and prevent operation of connected features. Ford may temporarily slow data speeds if such data usage reaches or exceeds 50GB within a billing cycle or due to network limitations. If a customer uses more than 50% of their data usage in a roaming country during a 60-day period, Ford may remove or limit the customer's data plan. - SYNC 4 Communication & Entertainment System Includes enhanced voice recognition, 911 Assist, 8" LCD center stack screen, AppLink and 1 smart-charging USB port.	N/C
Powertrain		
99N	Engine: 7.3L 2V DEVCT NA PFI V8 Gas <i>Includes:</i> - 190 Amp Alternator	Included
44G	Transmission: TorqShift 10-Speed Automatic <i>Includes SelectShift, selectable drive modes: normal, tow/haul, eco, slippery roads and off-road and transmission power take-off provision.</i>	Included
STDGV	GVWR: 22,000 lbs Payload Package	Included
Wheels & Tires		
TD5	Tires: 245/70Rx19.5G BSW A/P Spare may not be the same as road tire.	Included

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.



Prepared by: Terrence Wojtowicz

08/04/2025

FleetSide Ford | 1120 Jeffreys Drive Osceola Iowa | 50213

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

As Configured Vehicle (cont'd)

Code	Description	MSRP
64B	Wheels: 19.5" x 6.75" Argent Painted Steel	Included

Seats & Seat Trim

A	HD Vinyl 40/20/40 Split Bench Seat	Included
<i>Includes center armrest, cupholder, storage, 2-way adjustable driver/passenger headrests and driver's side manual lumbar.</i>		

Other Options

PAINT	Monotone Paint Application	STD
169WB	169" Wheelbase	STD
STDRD	Radio: AM/FM Stereo w/MP3 Player	Included
<i>Includes 4 speakers.</i>		
<i>Includes:</i>		
<i>- Ford Connectivity Package (1-Year Included)</i>		
<i>Includes unlimited Wi-Fi hotspot. Included for 1-year from warranty start date. Requires activation via Ford app with credit card authorization; customer may cancel at any time. Evolving technology/cellular networks/vehicle capability may limit functionality and prevent operation of connected features. Ford may temporarily slow data speeds if such data usage reaches or exceeds 50GB within a billing cycle or due to network limitations. If a customer uses more than 50% of their data usage in a roaming country during a 60-day period, Ford may remove or limit the customer's data plan.</i>		
<i>- SYNC 4 Communication & Entertainment System</i>		
<i>Includes enhanced voice recognition, 911 Assist, 8" LCD center stack screen, AppLink and 1 smart-charging USB port.</i>		
86M	Dual 68 AH/65 AGM Battery	\$210.00
67A	350 Amp Dual Alternators	N/C
<i>Includes 190 Amp + 160 Amp.</i>		
18B	Platform Running Boards	\$320.00
153	Front License Plate Bracket	N/C
Standard in states requiring 2 license plates and optional to all others.		
872	Rear View Camera & Prep Kit	\$515.00
<i>Pre-installed content includes cab wiring and frame wiring to the rear most cross member. Upfitters kit includes camera with mounting bracket, 20' jumper wire and camera mounting/aiming instructions.</i>		
52B	Trailer Brake Controller	\$300.00
61L	Front Wheel Well Liner (Pre-Installed)	\$180.00

Fleet Options

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.



2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

As Configured Vehicle (cont'd)

Code	Description	MSRP
WARANT	Fleet Customer Powertrain Limited Warranty Requires valid FIN code. <i>Ford is increasing the 5-year 60,000-mile limited powertrain warranty to 5-years, 100,000 miles. Only Fleet purchasers with a valid Fleet Identification Number (FIN code) will receive the extended warranty. When the sale is entered into the sales reporting system with a sales type fleet along with a valid FIN code, the warranty extension will automatically be added to the vehicle. The extension will stay with the vehicle even if it is subsequently sold to a non-fleet customer before the expiration. This extension applies to both gas and diesel powertrains. Dealers can check for the warranty extension on eligible fleet vehicles in OASIS. Please refer to the Warranty and Policy Manual section 3.13.00 Gas Engine Commercial Warranty. This change will also be reflected in the printed Warranty Guided distributed with the purchase of every new vehicle.</i>	N/C

Emissions

425	50-State Emissions System	STD
-----	---------------------------	-----

Exterior Color

Z1_01	Oxford White	N/C
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Interior Color

AS_03	Medium Dark Slate w/HD Vinyl 40/20/40 Split Bench Seat	N/C
-------	---	-----

SUBTOTAL	\$62,985.00
Destination Charge	\$2,195.00
TOTAL	\$65,180.00



2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

Warranty

Standard Warranty

<i>Basic Warranty</i>	
Basic warranty	36 months/36,000 miles
<i>Powertrain Warranty</i>	
Powertrain warranty	60 months/60,000 miles
<i>Corrosion Perforation</i>	
Corrosion perforation warranty	60 months/unlimited
<i>Roadside Assistance Warranty</i>	
Roadside warranty	60 months/60,000 miles



Prepared by: Terrence Wojtowicz
08/04/2025

FleetSide Ford | 1120 Jeffreys Drive Osceola Iowa | 50213

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

Major Equipment

(Based on selected options, shown at right)
10-speed automatic

- * Running boards
- * LT245/70RS19.5 AS BSW front and rear tires
- * Overdrive transmission
- * Lock-up transmission
- * Alternator Amps: 190A
- * Driveline managed traction control
- * Dual lead acid battery
- * Injection Type: sequential MPI
- * Auxiliary power take-off
- * Wireless audio streaming
- * AM/FM stereo radio
- * Seek scan
- * Vehicle body length: 254.8"
- * Cab to axle: 84.0"
- * Axle capacity rear: 15,500 lbs.
- * Axle capacity front: 7,500 lbs.
- * Firm ride suspension
- * Power door mirrors
- * Manual folding door mirrors

- Exterior: Oxford White
Interior: Medium Dark Slate w/HD Vinyl
40/20/40 Split Bench Seat
- * 19.5 x 6.75-inch front and dual rear argent steel wheels
 - * Front tires LT load rating: G
 - * PTO transmission provision
 - * Transmission electronic control
 - * Stainless steel single exhaust
 - * Battery rating: 750CCA
 - * Battery run down protection
 - * Fuel tank capacity: 40.00 gal.
 - * Steering wheel mounted audio controls
 - * 8 inch primary display
 - * AM/FM
 - * SYNC 4 external memory control
 - * Wheelbase: 169.0"
 - * Axle to end of frame: 47.2"
 - * Tire/wheel capacity rear: 17,200 lbs.
 - * Spring rating front: 7,500 lbs.
 - * Trip computer
 - * Heated driver and passenger side door mirrors
 - * DRL preference setting

As Configured Vehicle

MSRP

STANDARD VEHICLE PRICE	\$61,460.00
Order Code 680A	N/C
Engine: 7.3L 2V DEVCT NA PFI V8 Gas	Included
Transmission: TorqShift 10-Speed Automatic	Included
GVWR: 22,000 lbs Payload Package	Included
Tires: 245/70Rx19.5G BSW A/P	Included
Wheels: 19.5" x 6.75" Argent Painted Steel	Included
HD Vinyl 40/20/40 Split Bench Seat	Included
Monotone Paint Application	STD
169" Wheelbase	STD
Radio: AM/FM Stereo w/MP3 Player	Included
Fleet Customer Powertrain Limited Warranty	N/C
50-State Emissions System	STD
190 Amp Alternator	Included
Limited Slip w/4.88 Axle Ratio	Included
Ford Connectivity Package (1-Year Included)	Included
SYNC 4 Communication & Entertainment System	Included
Oxford White	N/C
Medium Dark Slate w/HD Vinyl 40/20/40 Split Bench Seat	N/C

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Prepared by: Terrence Wojtowicz
08/04/2025

FleetSide Ford | 1120 Jeffreys Drive Osceola Iowa | 50213

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

Major Equipment

* Daytime running lights	* Light tinted windows
* Variable intermittent front windshield wipers	* Manual climate control
* Driver front impact airbag	* Seat mounted side impact driver airbag
* Cancellable front passenger air bag	* Seat mounted side impact front passenger airbag
* 6 airbags	* AdvanceTrac w/Roll Stability Control electronic stability control system with anti-rollover
* SecuriLock immobilizer	* 40-20-40 split-bench front seat
* Driver seat with 4-way directional controls	* Front passenger seat with 4-way directional controls
* Height adjustable front seat head restraints	* Manual front seat head restraint control
* Split-bench front seat	* Front seat center armrest
* Front seat armrest storage	* Manual reclining driver seat
* Manual driver seat fore/aft control	* Manual reclining passenger seat
* Manual passenger seat fore/aft control	* Vinyl front seat upholstery
* Vinyl front seatback upholstery	* Manual driver seat lumbar
* 4-wheel disc brakes	* 4-wheel antilock (ABS) brakes
* Brake assist system	* Hill Start Assist

As Configured Vehicle

	MSRP
Dual 68 AH/65 AGM Battery	\$210.00
350 Amp Dual Alternators	N/C
Platform Running Boards	\$320.00
Front License Plate Bracket	N/C
Rear View Camera & Prep Kit	\$515.00
Trailer Brake Controller	\$300.00
Front Wheel Well Liner (Pre-Installed)	\$180.00
SUBTOTAL	\$62,985.00
Destination Charge	\$2,195.00
TOTAL	\$65,180.00

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FleetSide Ford | 1120 Jeffreys Drive Osceola Iowa | 50213

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620 | Quote ID: Indianola

Fuel Economy

City
N/A



Hwy
N/A

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2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620



Client Proposal

Prepared by:

Harry Bougher

Office: 515-289-4949

Date: 07/25/2025



Dewey Ford | 3055 SE Delaware, Ankeny, Iowa, 500219830

Office: 515-289-4949 | Fax: 515-282-2614



Prepared by: Harry Bougher
07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Pricing Summary - Single Vehicle

	MSRP
<i>Vehicle Pricing</i>	
Base Vehicle Price	\$61,460.00
Options	\$12,715.00
Colors	\$0.00
Upfitting	\$0.00
Fleet Discount	\$0.00
Fuel Charge	\$0.00
Destination Charge	\$2,195.00
Subtotal	\$76,370.00
<i>Discount Adjustments</i>	
Discount Adjustments	-\$8,886.24
Total	\$67,483.76

Customer Signature

Acceptance Date

Estimated lead time 14-16 weeks from date of order

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Prepared by: Harry Bougher
07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

As Configured Vehicle

Code	Description	MSRP
Base Vehicle		
F6L	Base Vehicle Price (F6L)	\$61,460.00
Packages		
680A	Order Code 680A <i>Includes:</i> - Transmission: TorqShift 10-Speed Automatic - Includes SelectShift, selectable drive modes: normal, tow/haul, eco, slippery roads and off-road and transmission power take-off provision. - GVWR: 22,000 lbs Payload Package - Tires: 245/70Rx19.5G BSW A/P - Spare may not be the same as road tire. - Wheels: 19.5" x 6.75" Argent Painted Steel - HD Vinyl 40/20/40 Split Bench Seat - Includes center armrest, cupholder, storage, 2-way adjustable driver/passenger headrests and driver's side manual lumbar. - Radio: AM/FM Stereo w/MP3 Player - Includes 4 speakers. - Ford Connectivity Package (1-Year Included) - Includes unlimited Wi-Fi hotspot. Included for 1-year from warranty start date. Requires activation via Ford app with credit card authorization; customer may cancel at any time. Evolving technology/cellular networks/vehicle capability may limit functionality and prevent operation of connected features. Ford may temporarily slow data speeds if such data usage reaches or exceeds 50GB within a billing cycle or due to network limitations. If a customer uses more than 50% of their data usage in a roaming country during a 60-day period, Ford may remove or limit the customer's data plan. - SYNC 4 Communication & Entertainment System - Includes enhanced voice recognition, 911 Assist, 8" LCD center stack screen, AppLink and 1 smart-charging USB port.	N/C
Powertrain		
99T	Engine: 6.7L 4V OHV Power Stroke V8 Turbo Diesel B20 <i>Includes Operator Commanded Regeneration (OCR), Diesel Exhaust Fluid (DEF) tank and manual push-button engine-exhaust braking.</i> <i>Includes:</i> - Dual 68 AH/65 AGM Battery - Limited Slip w/4.30 Axle Ratio	\$10,995.00
44G	Transmission: TorqShift 10-Speed Automatic <i>Includes SelectShift, selectable drive modes: normal, tow/haul, eco, slippery roads and off-road and transmission power take-off provision.</i>	Included
STDGV	GVWR: 22,000 lbs Payload Package	Included
Wheels & Tires		
TD5	Tires: 245/70Rx19.5G BSW A/P <i>Spare may not be the same as road tire.</i>	Included

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07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

As Configured Vehicle (cont'd)

Code	Description	MSRP
64B	Wheels: 19.5" x 6.75" Argent Painted Steel	Included
Seats & Seat Trim		
A	HD Vinyl 40/20/40 Split Bench Seat <i>Includes center armrest, cupholder, storage, 2-way adjustable driver/passenger headrests and driver's side manual lumbar.</i>	Included
Other Options		
PAINT	Monotone Paint Application	STD
169WB	169" Wheelbase	STD
STDRD	Radio: AM/FM Stereo w/MP3 Player <i>Includes 4 speakers.</i>	Included
	<i>Includes:</i> - Ford Connectivity Package (1-Year Included) <i>Includes unlimited Wi-Fi hotspot. Included for 1-year from warranty start date. Requires activation via Ford app with credit card authorization; customer may cancel at any time. Evolving technology/cellular networks/vehicle capability may limit functionality and prevent operation of connected features. Ford may temporarily slow data speeds if such data usage reaches or exceeds 50GB within a billing cycle or due to network limitations. If a customer uses more than 50% of their data usage in a roaming country during a 60-day period, Ford may remove or limit the customer's data plan.</i> - SYNC 4 Communication & Entertainment System <i>Includes enhanced voice recognition, 911 Assist, 8" LCD center stack screen, AppLink and 1 smart-charging USB port.</i>	
86M	Dual 68 AH/65 AGM Battery	Included
67A	350 Amp Dual Alternators <i>Includes 190 Amp + 160 Amp.</i>	N/C
18B	Platform Running Boards	\$320.00
872	Rear View Camera & Prep Kit <i>Pre-installed content includes cab wiring and frame wiring to the rear most cross member. Upfitters kit includes camera with mounting bracket, 20' jumper wire and camera mounting/aiming instructions.</i>	\$515.00
52B	Trailer Brake Controller	\$300.00
43C	120V/400W Outlet <i>Includes 1 in-dash mounted outlet.</i>	\$175.00
76C	Exterior Backup Alarm (Pre-Installed)	\$230.00
61L	Front Wheel Well Liner (Pre-Installed)	\$180.00

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07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

As Configured Vehicle (cont'd)

Code	Description	MSRP
Fleet Options		
WARANT	Fleet Customer Powertrain Limited Warranty Requires valid FIN code. <i>Ford is increasing the 5-year 60,000-mile limited powertrain warranty to 5-years, 100,000 miles. Only Fleet purchasers with a valid Fleet Identification Number (FIN code) will receive the extended warranty. When the sale is entered into the sales reporting system with a sales type fleet along with a valid FIN code, the warranty extension will automatically be added to the vehicle. The extension will stay with the vehicle even if it is subsequently sold to a non-fleet customer before the expiration. This extension applies to both gas and diesel powertrains. Dealers can check for the warranty extension on eligible fleet vehicles in OASIS. Please refer to the Warranty and Policy Manual section 3.13.00 Gas Engine Commercial Warranty. This change will also be reflected in the printed Warranty Guided distributed with the purchase of every new vehicle.</i>	N/C
Emissions		
425	50-State Emissions System	STD
Exterior Color		
Z1_01	Oxford White	N/C
Interior Color		
AS_03	Medium Dark Slate w/HD Vinyl 40/20/40 Split Bench Seat	N/C
SUBTOTAL		\$74,175.00
Destination Charge		\$2,195.00
TOTAL		\$76,370.00

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Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs

Dimensions

- Conventional Capacity: 18,500 lbs.
- * **Fifth-wheel towing capacity: 34,000 lbs.**
- Front brake diameter: 15.4"
- Vehicle body length: 254.8"
- Vehicle body height: 81.9"
- Vehicle turning radius: 24.2'
- Rear track: 74.0"
- Rear tire outside width: 93.9"
- Frame section modulus: 12.7 cu.in.
- Frame rail width: 34.2"
- Front bumper to back of cab: 123.7"
- Max interior rear cargo volume: 11.6 cu.ft.
- Headroom first-row: 40.8"
- Shoulder room first-row: 66.7"
- * **GCWR: 43,500 lbs.**
- * **Gooseneck towing capacity: 34,200 lbs.**
- Rear brake diameter: 15.8"
- Vehicle body width: 80.0"
- Wheelbase: 169.0"
- Front track: 74.8"
- Cab to axle: 84.0"
- Axle to end of frame: 47.2"
- Frame yield strength (psi): 50000.0
- Front bumper to front axle: 38.3"
- Interior rear cargo volume: 11.6 cu.ft.
- Total passenger volume: 64.6 cu.ft.
- Leg room first-row: 43.9"
- Hip room first-row: 62.5"

Powertrain

- * **Compression ignition system**
- Engine cylinders: V-8
- * **Torque: 950 lb.-ft.@1800 RPM**
- * **Engine retarder system**
- 10-speed automatic
- Four-wheel drive
- Driveline managed traction control
- Mechanical limited slip differential
- * **Powerstroke 6.7L V-8 diesel direct injection, DEVCT intercooled turbo, diesel, engine with 330HP**
- * **Horsepower: 330 HP@2200 RPM**
- Radiator
- Auxiliary power take-off
- Part-time 4WD
- * **Recommended fuel: diesel**
- Electronic transfer case shift
- Auto locking hub control

Fuel Economy and Emissions

- * **Diesel secondary fuel type**
- Federal emissions

Suspension and Handling

- Firm ride suspension
- Heavy-duty rear shock absorbers
- Heavy-duty front shock absorbers

Driveability

- 4-wheel disc brakes
- 4-wheel antilock (ABS) brakes
- Brake assist system
- Mono-beam rigid axle front suspension
- Front and rear ventilated disc brakes
- Four channel ABS brakes
- Hill Start Assist
- Front anti-roll bar

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2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

- Front coil springs
- Rear anti-roll bar
- Hydraulic power-assist steering system
- 2-wheel steering system
- DANA M300 rigid axle rear suspension
- Leaf spring rear suspension
- Re-circulating ball steering

Body Exterior

- Trailer wiring harness
- 2 doors
- Black fender flares
- Black door handles
- Black front bumper
- Black front bumper rub strip
- Convex spotter in driver and passenger side door mirrors
- Turn signal indicator in door mirrors
- LT245/70RS19.5 AS BSW front and rear tires
- * **Running boards**
- Monotone paint
- Black side window trim
- Black windshield trim
- 2 front tow hooks
- Black grille
- Manual extendable trailer mirrors
- Black door mirrors
- 19.5 x 6.75-inch front and dual rear argent steel wheels

Convenience

- Power door locks with 2 stage unlocking
- All-in-one remote fob and ignition key
- Cruise control with steering wheel mounted controls
- Power first-row windows
- Front beverage holders
- 6 beverage holders
- Instrument panel covered bin
- Retained accessory power
- Upfitter switches
- PRND in IP
- Keyfob activated door locks
- Auto-locking doors
- Day/Night rearview mirror
- Fixed rear windshield
- Illuminated locking glove box
- Illuminated glove box
- Dashboard storage
- Trip computer
- Over the air updates

Comfort

- Manual climate control
- Cloth headliner material
- Full vinyl floor covering
- Urethane steering wheel
- Manual telescopic steering wheel
- Cabin air filter
- Full headliner coverage
- Full floor coverage
- Manual tilting steering wheel

Seats and Trim

- Seating capacity: 3
- Driver seat with 4-way directional controls
- Height adjustable front seat head restraints
- Split-bench front seat
- 40-20-40 split-bench front seat
- Front passenger seat with 4-way directional controls
- Manual front seat head restraint control
- Front seat center armrest

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2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

- Front seat armrest storage
- Manual driver seat fore/aft control
- Manual passenger seat fore/aft control
- Vinyl front seat upholstery
- Manual reclining driver seat
- Manual reclining passenger seat
- Manual driver seat lumbar

Entertainment Features

- 2 total number of 1st row displays
- Primary touchscreen display
- AM/FM
- AM radio
- Seek scan
- Standard grade speakers
- Steering wheel mounted audio controls
- Speed sensitive volume
- Fixed audio antenna
- 8 inch primary display
- AM/FM stereo radio
- In-vehicle audio
- FM radio
- SYNC 4 external memory control
- Speakers number: 4
- SYNC 4 voice activated audio controls
- Wireless audio streaming

Lighting, Visibility and Instrumentation

- Digital/analog instrumentation display
- Trip odometer
- Compass
- Driver information center
- Engine/electric motor temperature gauge
- Transmission fluid temperature gauge
- * **Diesel exhaust fluid (def) gauge**
- Light tinted windows
- Halogen headlights
- Multiple enclosed headlights
- DRL preference setting
- Illuminated entry
- Variable instrument panel light
- Cab clearance lights
- Fade interior courtesy lights
- Configurable instrumentation gauges
- Digital clock
- Exterior temperature display
- Tachometer
- * **Turbo/supercharger boost gauge**
- Engine hour meter
- Gauge cluster display size (inches): 4.20
- Reflector headlights
- Autolamp auto on/off headlight control
- Delay-off headlights
- Variable intermittent front windshield wipers
- Front reading lights
- Daytime running lights
- Remote activated perimeter approach lighting

Technology and Telematics

- SYNC 4 911 Assist emergency SOS system via mobile device
- Smart device wireless mirroring
- FordPass Connect 5G mobile hotspot internet access
- SYNC 4 handsfree wireless device connectivity
- Ford App mobile app access
- 2 USB ports

Safety and Security

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07/25/2025

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2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

- Driver front impact airbag
- Safety Canopy System curtain first-row overhead airbags
- Seat mounted side impact front passenger airbag
- Front height adjustable seatbelts
- Ford Security Package (1-year included with activation) security system
- Lane Departure Warning
- * **Rear mounted camera**
- * **Back-up alarm**
- Seat mounted side impact driver airbag
- Cancellable front passenger air bag
- 6 airbags
- SecuriLock immobilizer
- Remote panic alarm
- Pre-Collision Assist with Automatic Emergency Braking (AEB) forward collision mitigation
- AdvanceTrac w/Roll Stability Control electronic stability control system with anti-rollover

Dimensions

General Weights

* Curb weight	7,896 lbs.	* Rear curb weight	3,200 lbs.
GVWR	22,000 lbs.	* Payload	14,020 lbs.

Trailer Weights

* Fifth-wheel towing capacity	34,000 lbs.	* Gooseneck towing capacity	34,200 lbs.
Conventional capacity	18,500 lbs.	* GCWR	43,500 lbs.

Front Weights

* Front curb weight	4,696 lbs.	GAWR front	7,500 lbs.
Axle capacity front	7,500 lbs.	Spring rating front	7,500 lbs.
Tire/wheel capacity front	9,080 lbs.		

Rear Weights

GAWR rear	15,500 lbs.	Axle capacity rear	15,500 lbs.
Spring rating rear	15,500 lbs.	Tire/wheel capacity rear	17,200 lbs.

Off Road

Min ground clearance	9.1"
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Exterior Measurements

Vehicle body length	254.8"	Vehicle body width	80.0"
Vehicle body height	81.9"	Wheelbase	169.0"
Front brake diameter	15.4"	Rear brake diameter	15.8"
Rear frame height loaded	30.5"	Rear frame height unloaded	35.0"
Front track	74.8"	Rear track	74.0"
Vehicle turning radius	24.2'	Cab to axle	84.0"
Rear tire outside width	93.9"	Axle to end of frame	47.2"
Frame section modulus	12.7 cu.in.	Frame yield strength (psi)	50000.0

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Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Frame rail width	34.2"	Front bumper to front axle	38.3"
Front bumper to back of cab	123.7"		

Interior Measurements

Interior rear cargo volume	11.6 cu.ft.	Max interior rear cargo volume	11.6 cu.ft.
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Interior Volume

Total passenger volume	64.6 cu.ft.
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Headroom

Headroom first-row	40.8"
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Legroom

Leg room first-row	43.9"
--------------------	-------

Shoulder Room

Shoulder room first-row	66.7"
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Hip Room

Hip room first-row	62.5"
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Powertrain

Engine

* Engine	Powerstroke 6.7L V-8 diesel direct injection, DEVCT intercooled turbo, diesel, engine with 330HP	* Valves per cylinder	4
Engine cylinders	V-8	Engine location	Front mounted engine
* Ignition	Compression ignition system	Engine mounting direction	Longitudinal mounted engine
Engine block material	Iron engine block	Cylinder head material	Aluminum cylinder head

Engine Specs

* Displacement	6.7L	* cc	405.9 cu.in.
* Bore	3.9"	* Stroke	4.25"
* Compression ratio	15.2	SAEJ1349	AUG2004 compliant

Engine Power

* Horsepower	330 HP@2200 RPM	* Torque	950 lb.-ft.@1800 RPM
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Alternator

Alternator amps	190A	* Alternator type	Dual alternator
* Alternator rating	160A		

Battery

Battery amps	68Ah	* Battery type	Dual lead acid battery
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2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Battery rating 750CCA

Battery run down protection Battery run down protection

Engine Extras

Radiator Radiator

* Engine retarder Engine retarder system

Auxiliary power take-off Auxiliary power take-off

Transmission

Transmission 10-speed automatic

Transmission electronic control Transmission electronic control

Overdrive transmission Overdrive transmission

Lock-up transmission Lock-up transmission

First gear ratio 4.615

Second gear ratio 2.919

Third gear ratio 2.132

Fourth gear ratio 1.773

Fifth gear ratio 1.519

Sixth gear ratio 1.277

Reverse gear ratio 4.695

Seventh gear ratio 1

Eighth gear ratio 0.851

Ninth gear ratio 0.687

Tenth gear ratio 0.632

Stall ratio 1.97

Selectable mode transmission Selectable mode transmission

Sequential shift control SelectShift Sequential shift control

Transmission oil cooler Transmission oil cooler

PTO transmission provision PTO transmission provision

Drive Type

4WD type Part-time 4WD

Drive type Four-wheel drive

Drivetrain

* Axle ratio 4.3

Exhaust

Tailpipe Stainless steel single exhaust

Fuel

* Fuel type diesel

Fuel Tank

* DEF capacity 7.20 gal.

Fuel tank capacity 40.00 gal.

Drive Feature

Limited slip differential Mechanical limited slip differential

Traction control Driveline managed traction control

Locking hub control Auto locking hub control

Transfer case Electronic transfer case shift

Fuel Economy and Emissions

Fuel Economy

* Secondary fuel type ... Diesel secondary fuel type

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Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Emissions

Emissions Federal emissions

Suspension and Handling

Suspension

Suspension Firm ride suspension
Rear shock absorbers Heavy-duty rear shock absorbers
Front shock absorbers Heavy-duty front shock absorbers

Driveability

Brakes

Brake type 4-wheel disc brakes
ABS brakes Four channel ABS brakes
Ventilated brakes Front and rear ventilated disc brakes
ABS brakes 4-wheel antilock (ABS) brakes

Brake Assistance

Hill start assist Hill Start Assist
Brake assist system Brake assist system

Front Suspension

Front anti-roll Front anti-roll bar
Suspension ride type front Mono-beam rigid axle front suspension

Front Spring

HD front springs Heavy-duty front springs
Springs front Front coil springs

Rear Spring

Springs rear Rear leaf springs
Rear springs Heavy-duty rear springs

Rear Suspension

Rear anti-roll Rear anti-roll bar
Suspension ride type rear DANA M300 rigid axle rear suspension
Suspension type rear Leaf spring rear suspension

Steering

Steering Hydraulic power-assist steering system
Steering type number of wheels 2-wheel steering system
Steering type Re-circulating ball steering

Exterior

Front Wheels

Front wheels diameter 19.5" Front wheels width 6.8"

Rear Wheels

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2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Rear wheels diameter 19.5"

Rear wheels width 6.8"

Front And Rear Wheels

Appearance argent

Material steel

Front Tires

Aspect 70

Diameter 19.5"

Sidewalls BSW

Speed S

Tread AS

Type LT

Width 245mm

Front wheel - RPM 611

Rear Tires

Aspect 70

Diameter 19.5"

Sidewalls BSW

Speed S

Tread AS

Type LT

Width 245mm

Rear wheel - RPM 611

Body Exterior

Trailer

Towing wiring harness Trailer wiring harness

* Towing brake controller Trailer brake controller

Towing trailer sway Trailer sway control

Exterior Features

Number of doors 2 doors

* Running boards Running boards

Front splash guards Front splash guards

Body

Body panels Aluminum body panels with side impact beams

Mirrors

Convex spotter Convex spotter in driver and passenger side door mirrors

Turn signal in door mirrors Turn signal indicator in door mirrors

Tires

Front tires LT load rating G

Rear tires LT load rating G

Wheels

Dual rear wheels Dual rear wheels

Convenience

Door Locks

Door locks Power door locks with 2 stage unlocking

Keyfob door locks Keyfob activated door locks

All-in-one key All-in-one remote fob and ignition key

Auto door locks Auto-locking doors

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.



Prepared by: Harry Bougher
07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Cruise Control

Cruise control Cruise control with steering wheel mounted controls

Rear View Mirror

Day/Night rearview mirror ... Day/Night rearview mirror

Exterior Mirrors

Door mirrors Power door mirrors
Heated door mirrors Heated driver and passenger side door mirrors
Folding door mirrors Manual folding door mirrors

Front Side Windows

First-row windows Power first-row windows

Overhead Console

Overhead console Full overhead console
Overhead console storage Overhead console storage

Passenger Visor

Visor passenger mirror Passenger visor mirror

Power Outlets

12V power outlets 2 12V power outlets
* 120V AC power outlets 1 120V AC power outlet

Rear Windshield

Rear windshield Fixed rear windshield

Storage

Number of beverage holders 6 beverage holders
Glove box Illuminated locking glove box
Instrument panel storage ... Instrument panel covered bin
Beverage holders Front beverage holders
Illuminated glove box Illuminated glove box
Dashboard storage Dashboard storage

Windows Feature

One-touch up window Driver and passenger one-touch up windows
One-touch down window ... Driver and passenger one-touch down windows

Miscellaneous

Trip computer Trip computer
Upfitter switches Upfitter switches
Over the air updates Over the air updates
PRND in IP PRND in IP
Accessory power Retained accessory power

Comfort

Climate Control

Climate control Manual climate control
Cabin air filter Cabin air filter

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.



Prepared by: Harry Bougher
07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Headliner

Headliner material Cloth headliner material Headliner coverage Full headliner coverage

Floor Trim

Floor covering Full vinyl floor covering Floor coverage Full floor coverage

Steering Wheel

Steering wheel material Urethane steering wheel Steering wheel telescopic Manual telescopic steering wheel

Steering wheel tilt Manual tilting steering wheel

Seats and Trim

Seat Capacity

Seating capacity 3

Front Seats

Front seat type Split-bench front seat Driver seat direction Driver seat with 4-way directional controls

Driver seat fore/aft control Manual driver seat fore/aft control Passenger seat direction Front passenger seat with 4-way directional controls

Split front seats 40-20-40 split-bench front seat Reclining passenger seat Manual reclining passenger seat

Passenger seat fore/aft control Manual passenger seat fore/aft control Front head restraints Height adjustable front seat head restraints

Front head restraint control Manual front seat head restraint control Armrests front center Front seat center armrest

Armrests front storage Front seat armrest storage Reclining driver seat Manual reclining driver seat

Lumbar Seats

Driver lumbar Manual driver seat lumbar

Front Seat Trim

Front seat upholstery Vinyl front seat upholstery Front seatback upholstery Vinyl front seatback upholstery

Interior Accents

Interior accents Chrome interior accents

Gearshifter Material

Gearshifter material Urethane gear shifter material

Entertainment Features

Displays

Primary touchscreen display Primary touchscreen display Number of first-row displays 2 total number of 1st row displays

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.



Prepared by: Harry Bougher
07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Primary display size 8 inch primary display

Radio Features

External memory SYNC 4 external memory control

Seek scan Seek scan

Speakers

Speakers Standard grade speakers

Speakers number 4

Audio Features

Steering mounted audio control Steering wheel
mounted audio controls
Voice activated audio SYNC 4 voice activated audio
controls

Speed sensitive volume Speed sensitive volume

Wireless streaming Wireless audio streaming

Lighting, Visibility and Instrumentation

Instrumentation

Trip odometer Trip odometer

Configurable instrumentation gauges Configurable
instrumentation gauges

Instrumentation display Digital/analog instrumentation
display

Instrumentation Displays

Temperature display Exterior temperature display
Clock Digital clock

Driver information center Driver information center
Compass Compass

Instrumentation Gauges

Tachometer Tachometer

* Turbo gauge Turbo/supercharger boost gauge

Gauge cluster display size (inches) 4.20
* DEF fluid gauge Diesel exhaust fluid (def) gauge

Transmission temperature gauge Transmission fluid
temperature gauge
Engine/electric motor temperature
gauge Engine/electric motor temperature gauge
Engine hour meter Engine hour meter

Instrumentation Warnings

Engine temperature warning Engine temperature
warning
Low fuel warning Low fuel warning
Battery charge warning Battery charge warning
Key in vehicle warning Key in vehicle warning
Service interval warning Service interval indicator

* Low diesel exhaust fluid (DEF) warning Low diesel
exhaust fluid (DEF) warning

Oil pressure warning Oil pressure warning

Low brake fluid warning Low brake fluid warning
Headlights on reminder Headlights on reminder
Door ajar warning Door ajar warning
Low tire pressure warning Tire specific low air
pressure warning

Glass

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.



2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Tinted windows	Light tinted windows
Headlights	
Headlights	Halogen headlights
Auto headlightsAutolamp auto on/off headlight control	Headlight type
Delay off headlights	Delay-off headlights
Front Windshield	
Wipers	Variable intermittent front windshield wipers
Interior Lighting	
Illuminated entry	Illuminated entry
Front reading lights	Front reading lights
Lights	
Running lights	Daytime running lights
Clearance lights	Cab clearance lights
	Headlight type
	Reflector headlights
	Multiple headlights
	Multiple enclosed headlights
	DRL preference setting
	DRL preference setting
	Variable panel light
	Variable instrument panel light
	Interior courtesy lights
	Fade interior courtesy lights
	Perimeter approach lighting
	Remote activated perimeter approach lighting

Technology and Telematics

Connectivity	
Handsfree	SYNC 4 handsfree wireless device connectivity
Emergency SOS SYNC 4 911 Assist emergency SOS system via mobile device	Smart device integration
	Smart device wireless mirroring
Internet Access	
Internet access FordPass Connect 5G mobile hotspot internet access	
USB Ports	
USB ports	2 USB ports

Safety and Security

Airbags	
Front impact airbag driver	Driver front impact airbag
Front impact airbag passenger	Cancellable front passenger air bag
Front side impact airbag passenger	Seat mounted side impact front passenger airbag
Seatbelts	
Height adjustable seatbelts	Front height adjustable seatbelts
Security System	
	Number of airbags
	6 airbags
	Front side impact airbag driver
	Seat mounted side impact driver airbag
	Overhead airbagsSafety Canopy System curtain first-row overhead airbags



Prepared by: Harry Bougher
07/25/2025

Dewey Ford | 3055 SE Delaware Ankeny Iowa | 500219830

2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Selected Equip & Specs (cont'd)

Immobilizer SecuriLock immobilizer
Security system Ford Security Package (1-year
included with activation) security system

Remote panic alarm Remote panic alarm

Active Driving Assistance

Lane departure Lane Departure Warning

Forward collision warning Pre-Collision Assist with
Automatic Emergency Braking (AEB) forward
collision mitigation

Cameras

*Rear camera Rear mounted camera

Traction Control

Electronic stability control AdvanceTrac w/Roll
Stability Control electronic stability control system
with anti-rollover

Parking Sensors

*Back up alarm Back-up alarm

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.



2026 F-600 Chassis 4x4 SD Regular Cab 169" WB DRW XL (F6L)

Price Level: 620

Warranty

Standard Warranty

Basic Warranty

Basic warranty 36 months/36,000 miles

Powertrain Warranty

Powertrain warranty 60 months/60,000 miles

Corrosion Perforation

Corrosion perforation warranty 60 months/unlimited

Roadside Assistance Warranty

Roadside warranty 60 months/60,000 miles

Additional Warranty

Diesel Engine Warranty

Diesel engine warranty 60 months/100,000 miles

Mike Metcalf

From: Greg Gioffredi <ggioffredi@charlesgabus.com>
Sent: Tuesday, July 29, 2025 9:23 AM
To: Mike Metcalf
Subject: Re: Indianola Municipal Utilities - Truck RFP Request

NO BID

Greg Gioffredi- Fleet And Commercial Sales Manager

*4515 Merle Hay Road
Des Moines, Iowa 50310
515-270-5573 office
Charles Gabus Ford
Toyota Of Des Moines
Kia Of Des
Moines*



TOYOTA
OF DES MOINES



From: Mike Metcalf <mmetcalf@indianolaiowa.gov>
Sent: Friday, July 25, 2025 8:46 AM
To: Greg Gioffredi <ggioffredi@charlesgabus.com>
Subject: Indianola Municipal Utilities - Truck RFP Request

Caution: The sender of this message is external to your organization and not recognized. Use care when replying, selecting links, or opening attachments.

Indianola Municipal Utilities is requesting bids for a new F600 or equivalent chassis. The specs and information are attached.

Bids are due back to me by 10:00 am on Monday August 4, 2025.

Please let me know if you have any questions.

Thanks

Mike Metcalf
Electric Director
Indianola Municipal Utilities
1300 East Iowa Avenue
Indianola, IA 50125

Office: (515) 962-5305



MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: Resolution approving purchase of Dump Truck Body

Recommendation:

Attachments:

1. Board Packet Memo Truck Dump Body
2. Resolution Approving Purchase of a Dump Truck Body
3. Truck Equipment Bid
4. Hawkeye Truck Equipment

Dump Truck Dump Body

Requests were sent to four vendors with only two responding:

Vendor	Brand	Bid (Plus Tax)	Lead Time
Truck Equipment	Crysteel	\$22,106.00	18 – 20 Weeks
Hawkeye Truck Equipment	Responded	No Bid	
Vander Haag's	No Response		
Aspen Equipment	No Response		

Staff recommends accepting the bid (plus tax) from Truck Equipment.

Indianola Municipal Utilities
Resolution 2025-

RESOLUTION APPROVING PURCHASE OF A DUMP TRUCK BODY

WHEREAS, the Electric Department desires to purchase a Dump Truck Dump Body; and

WHEREAS, after a review of the bids the Electric Department recommends using Truck Equipment to purchase the Dump Truck Dump Body in the amount of \$22,106.00 plus tax; and

WHEREAS, the Board of Trustees believes it to be in the best interest of Indianola Municipal Utilities to accept the bid from Truck Equipment to purchase the Dump Truck Dump Body for the Electric Department.

NOW, THEREFORE BE IT RESOLVED, by the Indianola Board of Trustees that a Dump Truck Dump Body shall be purchased from Truck Equipment in the amount of \$22,106.00 plus tax and the Electric Department Director is authorized and directed to execute on behalf of Indianola Municipal Utilities the documents required to purchase the items.

Approved this 11th day of August 2025.

Dom Selgrade, IMU Chairperson

ATTEST:

Monica Thompson, BOT Secretary



P.O. Box 3265
Des Moines, IA 50316
Phone: (515) 266-5189 Toll Free: (800) 373-2887 Fax: (515) 266-7878

Customer: 40256

Indianola Municipal Utilities
111 S Burton
Po Box 356
Indianola, IA 50125

Contact: Mike Metcalf**Phone:** 961-9444**Email:****Salesperson:** Scott Odendahl

Make: Ford	Model: F600	Year: 2023	Single/Dual: Dual
Cab Type:	Wheelbase: 0	Cab-to-Axle: 84	VIN:

FURNISH AND INSTALL:**1 - Crysteel 11' S-Tipper**

Body ID - 87 Body OD - 96 Body Length - 11 FT
Front Height - 40 Side Height - 12 Tailgate Height - 20
Frame Style - WESTERN TUBULAR
Longbeam Material - 10GA STEEL
Longbeam Height - 7 INCH
Front Style - 1/4 INTEGRAL CABSHIELD
Side Style - RIGID sides
Tailgate Style - DOUBLE PANEL QUICK DROP
Tailgate Release Style - MANUAL
Front Material - 10GA STAINLESS STEEL
Side Material - 10GA STAINLESS STEEL
Tailgate Material - 10GA STAINLESS STEEL
Floor Material - 3/16 AR450
Window - 9 X 35 TAPERED
Box Top Rail
Rear Oval Light Cutouts
Rustproof Longsills
Five Year Warranty

1 - CRYSTEEL MODEL LBS-516-11-E-DA LO-BOY HOIST**Standard Features and Specifications**

NTEA Class 20
Includes 12VDC electric/hydraulic power unit w/ pushbutton control, rear hinge, and body prop
Double acting
50 Degree dump angle with subframe for 11' body
Five year warranty

OPTIONS INCLUDED IN THE PRICE:

Mud Flaps with anti sail brackets behind the rear wheels
Install factory backup camera
Weather Guard 24" x 18" x 18" Aluminum tool box mounted under the passenger side
5/8" hitch plate with d-rings and ICC bumper and a bolt on 2" ball/pintle combo
RV style trailer plug
D-Rings mounted to the tapered portion of the bulkhead
Strobe Package - 2 - 6" oval strobes (amber) in the rear pillars, 2 amber 6" surface mounted strobes in the grill
-Strobes wired HOT to upfitter switch

NET PRICE FOB DES MOINES: \$22,106.00



QUOTE

Quote ID: Q19559

Rev: 0

Quote Date: 6/16/2025

Quote Valid Until: 8/29/2025

P.O. Box 3265
Des Moines, IA 50316

Phone: (515) 266-5189 Toll Free: (800) 373-2887 Fax: (515) 266-7878

Page 2 of 2

Customer must fill out the information below before the order can be processed...

Accepted by:	
Date:	
P.O. Number:	

* Terms are Due Upon Receipt unless prior credit arrangements are made at the time of order.

* Please note if chassis is furnished, it is as a convenience and terms are Net Due on Receipt of Chassis.

* Sales Tax is not included unless otherwise noted.

***Due to the volatility of trade tariffs, the quoted price may change due to unforeseeable tariffs.**

Mike Metcalf

From: Logan Steinkamp <logans@hte1.com>
Sent: Monday, August 4, 2025 9:19 AM
To: Mike Metcalf
Subject: Re: Indianola Municipal Utilities - Dump Body RFP

Hey Mike, we're a no bid on this one.

Appreciate you giving us the opportunity and look forward to the next one

Thank you



From: Mike Metcalf <mmetcalf@indianolaiaowa.gov>
Sent: Monday, August 4, 2025 9:14 AM
To: Logan Steinkamp <logans@hte1.com>
Subject: FW: Indianola Municipal Utilities - Dump Body RFP

From: Mike Metcalf
Sent: Monday, August 4, 2025 9:06 AM
To: michael@hte1.com
Subject: FW: Indianola Municipal Utilities - Dump Body RFP
Importance: High

Just a reminder that bids are due to me by 10:00 am this morning.

Thanks

Mike Metcalf
Electric Director
Indianola Municipal Utilities
1300 East Iowa Avenue
Indianola, IA 50125
Office: (515) 962-5305

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities

From:

Date: August 11, 2025

Subject: Resolution Approving Signature of a Non-Disclosure Agreement with Iowa Public Power Association

Recommendation:

Attachments:

1. MISO transm project internal NDA FINAL SIGNED
2. DOC03 Subsitute Attachment A - employees sig with date box
3. DOC02 Add-on Munis JAAs sig
4. Resolution Approving Signature of a Non-Disclosure Agreement with Iowa Public Power Association

CONFIDENTIALITY AGREEMENT

This CONFIDENTIALITY AGREEMENT (the "Agreement"), dated as of the 26th day of June, 2025, is entered into by and between **Iowa Public Power Agency ("IPPA")**, an Iowa nonprofit corporation, **North Iowa Municipal Electric Cooperative Association ("NIMECA")**, **South Iowa Municipal Electric Cooperative Association**, an Iowa Municipal Electric Cooperative Association ("SIMECA"), **Missouri Basin Municipal Power Agency, dba Missouri River Energy Services ("MRES")**, an entity organized under Iowa Code Chapter 28E, and such cities, municipal electric utilities, joint-action agencies, and/or electric power agencies which are, or in the future become, a signatory to this Agreement. Throughout the Agreement, IPPA, NIMECA, SIMECA, MRES, and all cities, municipal electric utilities, joint-action agencies, and/or electric power agencies which are signatories to this Agreement are each also referred to as a "Party" and are collectively (all or two or more of them, as the context requires) referred to as the "Parties."

WITNESSETH

WHEREAS, IPPA is a municipal joint-action agency and nonprofit corporation which performs various services for its members, including the construction and purchase of electric facilities, and financing the joint ownership of high voltage transmission facilities in Iowa; and

WHEREAS, NIMECA is a municipal joint-action agency and municipal electric cooperative association which performs various services for its members in connection with the operation of their municipal electric utility systems, including but not limited to services relating to transmission and generation ownership and operation, long-term planning, generation resource planning, energy and capacity purchases and sales, and market-related functions in connection with participation in the Southwest Power Pool ("SPP"); and

WHEREAS, SIMECA is a municipal joint-action agency and municipal electric cooperative association which performs various services for its members in connection with the operation of their municipal electric utility systems, including but not limited to services relating to transmission and generation ownership and operation, long-term planning, generation resource planning, and energy and capacity purchases and sales; and

WHEREAS, MRES is a municipal joint-action agency existing under the intergovernmental cooperation statutes of the States of Iowa, Minnesota, North Dakota, and South Dakota which performs various services for its members in connection with the operation of their municipal electric utility systems, including but not limited to services relating to transmission and generation ownership and operation, long-term planning, generation resource planning, energy and capacity purchases and sales, and market-related functions in connection with participation in the SPP and Midcontinent Independent System Operator ("MISO") markets; and

WHEREAS, IPPA, NIMECA, SIMECA and MRES are joint-action agencies and electric power agencies which engage in joint action for and on behalf of their city and municipal electric utility members; and

WHEREAS, the Parties intend to engage in joint action in connection with electric transmission planning and construction and related critical energy infrastructure, including planning for, bidding on, owning, operating and financing one or more MISO transmission projects currently known as the MISO Long Range Transmission Planning (LRTP) Tranche 2.1 portfolio projects which are or will be located, in full or in part, in the state of Iowa and which are anticipated to be opened up by MISO for competitive bid in or around November and/or December 2025 ("Purpose"); and

WHEREAS, it is anticipated that several cities, municipal electric utilities, joint-action agencies, and/or electric power agencies will join said joint action in the future and become Parties to this Agreement at such time; and

WHEREAS, to perform its services for its members (or its city or municipal utility, as applicable) in connection with the Purpose, each Party may need information regarding the other Parties and their electric transmission planning and construction, critical energy infrastructure, operations, facilities, work product, and strategy, and the Parties will be developing, obtaining, receiving and sharing additional information with and between the Parties in connection with the Purpose, including information regarding electric transmission planning and construction, critical energy infrastructure, work product, and strategy, and including but not limited to the preparation of one or more term sheets and/or request for proposals (“RFP(s)”) from one or more investor owned utilities or MISO qualified transmission developers (collectively, “Developers”) for partnering in connection with the Purpose, responses to said term sheets and/or RFP(s) from one or more investor owned utilities, the terms and conditions of said partnering arrangements, other information, documents and data from one or more Developers, preparation of a bid to be submitted to MISO in connection with one or more of the MISO Tranche 2.1 projects, and agreements and other documents and data relating to the construction, ownership and operation of one or more such projects (all of which shall be collectively referred to as “Information”); and

WHEREAS, each Party has received, or will receive, Information related to the Purpose and desires to obtain and create additional Information related to the Purpose, a significant amount of which Information each Party and the Parties collectively deem to be and covenant to treat as being non-public, confidential, a trade secret, or proprietary in nature; and

WHEREAS, each Party has independently taken the necessary steps and precautions to preserve and safeguard its own Information and other Information to be created and received by the Parties related to the Purpose, the same being deemed a valuable asset of each Party and the Parties; and

WHEREAS, each Party wishes to provide the other Parties additional Information in connection with the Purpose and each Party wishes to receive the said additional Information from the other Parties in connection with the Purpose, and the Parties desire to create and receive additional Information in connection with the Purpose, subject to the terms of this Agreement; and

WHEREAS, before each Party will provide additional Information and develop further Information, each Party requires the execution of this Agreement for the purpose of maintaining the confidentiality of Information previously provided and to be provided, created, shared and received; and

WHEREAS, each Party may receive said Information directly from another Party or Parties or from the Party’s or Parties’ representatives or members, and the Parties will collaborate on the creation, development, receiving and sharing of Information, and this Agreement shall apply to all such Information; and

WHEREAS, one or more of the Parties received and possess and shall receive and possess Information in connection with the Purpose on behalf of their Iowa city utility members, and accordingly, this Agreement is a nondisclosure agreement which relates to electric transmission planning and construction and/or critical energy infrastructure, all as provided in Iowa Code section 388.9.

NOW, THEREFORE, for good and valuable consideration, and the Parties intending to be bound by the mutual and reciprocal covenants, terms and conditions contained herein, each Party hereby agrees as follows:

1. This Agreement shall cover the above-mentioned Information previously provided, to be provided, or to be developed in connection with the Purpose, including documents, drawings, notes and other media for holding such information, including without limitation: (i) any and all Information (including documents or material in all tangible forms, whether written or electronically encoded) provided by a Party to another one or more of the other Parties ("Receiving Party") when such Information originated from the Party disclosing the Information ("Disclosing Party"); (ii) any and all notes, summaries, reports, memorandums, and the like, or any other compilation thereof which contain any Information (collectively the "Notes"); and (iii) any and all new or different documents or material (in all tangible forms, whether written or electronically encoded) which is generated, developed, created or received as a result of the Parties' discussions and activities relating to the Purpose (collectively the "New Information"). The Information, Notes and New Information shall hereinafter collectively be referred to as "Confidential Information".

1.A. Notwithstanding anything in this Agreement to the contrary, with regard to (1) Information developed by one or more Parties in connection with the Purpose, and (2) Information received from parties other than the Parties, including, without limitation, Developers, IPPA shall be deemed the Disclosing Party for all purposes of this Agreement.

2. The Parties acknowledge and agree that, as a result of a Party receiving Confidential Information, the Receiving Party covenants to protect, preserve and safeguard the Confidential Information. The Receiving Party may provide the Confidential Information to its employees, officers, directors and attorneys who have a need to know such Confidential Information. The Receiving Party shall cause any of its employees, officers, directors or attorneys who are provided the Confidential Information to take reasonable steps necessary to preserve, protect and safeguard the same. Each Receiving Party may, but shall not be required to, require its employees, officers, directors and attorneys who have a need to see the Confidential Information to sign a separate Nondisclosure Statement substantially in the form of Attachment A to this Agreement. Each Receiving Party shall be responsible for the acts and omissions of its employees, officers, directors or attorneys with respect to such Confidential Information. Without limitation, the Receiving Party shall not (i) copy, reproduce, distribute, or disclose to any person, firm, entity, corporation, or any agents, employees, or other persons, except as may be permitted by this Agreement, any of the Confidential Information; (ii) permit any Third Party (as defined below) to have access to such Confidential Information, except as may be permitted by this Agreement; or (iii) knowingly use such Confidential Information for any purpose other than for its discussions, work product, strategy, planning preparations, and operations, and in each instance only in connection with the Purpose. Without limitation, each Receiving Party shall ensure that (i) all Confidential Information which is in an electronic, tangible or written form be kept in a secure and safe place, separate from all other information maintained by the Receiving Party and cause or permit such Confidential Information to be removed only by those individuals specifically authorized to have access to the Confidential Information under the terms of this Agreement; and (ii) Confidential Information removed by such authorized individuals will be placed in folders marked, "Confidential". Upon written request by the Disclosing Party providing access to the Confidential Information, the Receiving Party shall either destroy all Confidential Information and certify such to the Disclosing Party making such request or shall return all original Confidential Information provided by the Disclosing Party and destroy all electronic versions of the same and will not retain any copies or other reproductions in whole or in part of such Confidential Information, except to the extent required by law. Notwithstanding anything herein to the contrary, the Parties acknowledge that: a) each Receiving Party may share Confidential Information with its applicable governing body, and its outside legal counsel, with whom the Receiving Party may share the Confidential Information without further authorization, provided, however, that the applicable governing body shall take all reasonable steps to preserve the confidentiality of the Information, including meeting in closed session to the extent allowed by applicable law; and b) the obligations regarding protection, retention and destruction of Confidential Information hereunder by the Parties are subject to Iowa's Open Meetings law, Open Records law, and Iowa Code section 388.9.

3. A Receiving Party may not transmit or deliver the Confidential Information to any third parties, including but not limited to the Receiving Party's members, consultants, agents, subcontractors, independent contractors, consulting engineers, municipal financial advisors, or other retained experts or advisors (each a "Third Party" and collectively "Third Parties"), except as permitted by this paragraph. It is the intent of the Parties hereto that prior to the transmittal or delivery of the Confidential Information by the Receiving Party to any Third Party, that the Receiving Party seeking to transmit or deliver the Confidential Information shall (i) have determined that the Third Party needs to know the Confidential Information for the sole purpose of assisting the Receiving Party with its or its member municipal electric utilities' interest in the Purpose; (ii) ensure that the Third Party is informed of the existence of and has agreed to be bound by the terms of this Agreement; and (iii) ensure that the Third Party has become an express signatory to this Agreement or a separate agreement with equivalent terms, such as Attachment A attached hereto. For avoidance of doubt, the members of a Receiving Party's governing body, having approved this Agreement as official representatives of the Party, and a Party's employees, officers, directors and attorneys, including outside legal counsel, are not Third Parties.

4. Each Party understands that because of the unique nature of the Confidential Information, in addition to other available remedies, a Disclosing Party providing a Receiving Party with access to Confidential Information shall be entitled to seek injunctive and other extraordinary relief in enforcing this Agreement. In any action brought to enforce the terms of this Agreement in which the Disclosing Party providing the Receiving Party access to Confidential Information prevails or prevents the Receiving Party from disclosing Confidential Information to an unauthorized Third Party, the Disclosing Party shall be entitled to recover all costs of such an action from that Receiving Party, including attorneys' fees and expert witness fees, from such Receiving Party. TO THE FULLEST EXTENT PERMITTED BY LAW, EACH PARTY TO THIS AGREEMENT HERETO WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT. TO THE EXTENT PERMITTED BY LAW AND APPLICABLE RULES OF CIVIL PROCEDURE, AND TO THE EXTENT THAT WAIVER OF THE RIGHT TO CONSOLIDATE LEGAL ACTIONS DOES NOT EFFECTIVELY PRECLUDE BRINGING ANY ONE OR MORE ACTIONS, EACH PARTY FURTHER WAIVES ANY RIGHT TO CONSOLIDATE ANY ACTION IN WHICH A JURY TRIAL HAS BEEN WAIVED WITH ANY OTHER ACTION IN WHICH A JURY TRIAL CANNOT BE OR HAS NOT BEEN WAIVED.

5. The Parties to this Agreement recognize that each Party is a public entity subject to applicable state open meetings and open records laws, including, for example, Iowa Code Chapters 21, "Official Meetings Open to Public (Open Meetings)" and 22 "Examination of Public Records (Open Records)". Each Party acknowledges that any of the other Parties may discuss this Agreement or any aspect of its relationship with the Parties to this Agreement and Confidential Information in accordance with Chapter 21 or other applicable law, provided that such discussion be in closed session to the fullest extent permitted by applicable law, and may receive requests from third parties made pursuant to and in accordance with Chapter 22 or other applicable law to disclose Confidential Information in its possession. A Receiving Party shall promptly notify the Disclosing Party of any request it receives for Confidential Information covered by this Agreement. If the Disclosing Party consents to the release of such Confidential Information, it may be released by the Receiving Party that received the request. If the Disclosing Party does not consent to the Receiving Party's release of such Confidential Information, the Receiving Party that received the request to disclose such Confidential Information may, upon advice of counsel, continue to refuse release such information. If, however, the Receiving Party that received the request to disclose such Confidential Information is advised by counsel to release a record, the Receiving Party shall give the Disclosing Party reasonable advance notice of its intent to release the requested information. If the Disclosing Party continues to insist the record not be released, the Receiving Party that received the request to release the information at issue shall tender the defense of the associated third party request for release to the Disclosing

Party objecting to the release, reserving to both the Receiving Party the right to release the record to the requestor and the objecting Disclosing Party the right to seek an injunction to prevent the release of such information. In the event a Third Party receives a request for records covered by this Agreement, such Third Party shall assume the same duties a Receiving Party assumes under this paragraph, above, and shall promptly notify the Disclosing Party, who shall have the same rights and responsibilities as are outlined above. Every other paragraph and provision of this Agreement notwithstanding, this paragraph shall control in regard to any request for release made by persons other than the Parties hereto, pursuant to an open records request for Confidential Information covered by this Agreement.

In the event that a Party or a Third Party is requested in any legal proceeding to disclose any Confidential Information by written interrogatories, request for production of documents, deposition, subpoena for records, or as a witness at trial, the Party, Parties, or Third Party subject to the requested disclosure of Confidential Information (the "Receiving Party") shall give the Party or Parties initially disclosing the Confidential Information (the "Disclosing Party") prompt written notice of such request, if permitted by law, so that the Disclosing Party may, in its discretion, seek an appropriate protective order at the Disclosing Party's expense; provided, however, that when the request is received as a witness at trial, the Receiving Party shall only be required to give such notice to the Disclosing Party to the extent reasonably practicable under the circumstances. If in the absence of a protective order, (i) a Receiving Party is advised by counsel that disclosure of the Confidential Information is finally required, after any Disclosing Party seeking a protective order has exhausted any appeal rights it may possess, or (ii) if no Disclosing Party seeks a protective order, or (iii) if disclosure is required by applicable rules of civil procedure or a court order in a manner which does not stay the proceedings pending a Disclosing Party's pursuit of a protective order by appeal, the Receiving Party may disclose such Confidential Information without liability hereunder. A Receiving Party is not obligated to seek a protective order.

6. This Agreement shall not restrict the release or use by the Receiving Party or a Third Party of any Confidential Information which falls into any of the following categories:

- (a) Any Confidential Information which has come within the public domain, except that which has come in the public domain through the Receiving Party's or Third Party's breach of this Agreement; or
- (b) Confidential Information which was lawfully available to the Receiving Party or Third Party on a non-confidential basis prior to its disclosure hereunder; or
- (c) Confidential Information which is proved to have been developed independently by the Receiving Party or Third Party; or
- (d) Confidential Information which is a public record and not a confidential record under the Iowa Open Records law, Iowa Code chapter 22, and/or Iowa Code section 388.9.

7. Each Party understands, acknowledges, and agrees that no Party is making any representation or warranty, express or implied, as to the accuracy or completeness of the Confidential Information, and the Disclosing Party, including its respective officers, directors, employees, and authorized Third Party agents, will have no liability to the Receiving Party or its Third Party agents resulting from the Receiving Party's or its Third Party agents' use of the Confidential Information.

8. If the Receiving Party or a Third Party questions whether an item constitutes Confidential Information,

such Receiving Party or Third Party shall immediately bring the question to the attention of the Disclosing Party and obtain written clarification regarding the item's proprietary nature prior to any disclosure of the same to anyone who is not a signatory to this Agreement.

9. No failure or delay by the Disclosing Party in exercising any right, power, or privilege under this Agreement shall be deemed a waiver thereof or preclude exercise of any other or further right, power, or privilege hereunder.

10. Nothing in this Agreement shall be interpreted as granting the Receiving Party any right or license, express or implied, to use all or part of the Confidential Information, except for the purposes expressed herein.

11. It is understood that this Agreement does not obligate either Party to enter into any further agreements.

12. The Parties expressly intend and agree that this Agreement shall create an exclusive dealing arrangement and agreement not to compete between the Parties and their personnel, directly or indirectly, on their own or together with or through any other entity, with respect to those MISO transmission projects currently known as the MISO Long Range Transmission Planning (LRTP) Tranche 2.1 portfolio projects which are or will be located, in full or in part, in the state of Iowa. Notwithstanding the foregoing, if the Parties, working together, are unable to reach an agreement with an investor owned utility to partner with for bidding on one or more Tranche 2.1 projects, then upon a determination by a majority of the designated representatives of the Parties that this joint effort to participate in a Tranche 2.1 project shall be abandoned, then this non-compete provision shall no longer apply.

13. The term of this Agreement will be ten (10) years from the date of this Agreement. It is understood and agreed that termination of this Agreement for any reason whatsoever shall not affect any obligation with respect to this Agreement prior to such termination and the obligation to not disclose or utilize Confidential Information shall survive such termination for the remainder of the original 10-year term of this Agreement.

14. This Agreement may be executed in counterparts, including the future execution of this Agreement by those cities, municipal electric utilities, joint-action agencies, and/or electric power agencies which join this Agreement in the future, each of which when taken together shall constitute one and the same instrument. This Agreement and executed signature pages may be delivered electronically by facsimile or e-mail, and such electronic delivery and electronic copies of signature pages shall have the same force and effect as an original signature and physical delivery.

15. This Agreement shall be governed by and construed in accordance with the laws of the State of Iowa. Each of the provisions of this Agreement shall be enforceable independently of any other provision of this Agreement and independent of any other claim or cause of action. In the event of any matter or dispute arising out of or related to this Agreement, it is agreed between the parties that the law of the State of Iowa (including statute of limitations provisions) will be given the interpretation, validity and effect of this Agreement without regard to the place of execution, place of performance thereof, or any conflicts of law provisions. The Recitals contained above are repeated verbatim and are made a part of this Agreement.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed as of the date first above written.

[Signature pages to follow]

IPPA

By:

Printed: Greg Fritz

A handwritten signature in blue ink, appearing to read "Greg Fritz", is written over a horizontal line.

Title: President, Board of Directors
Iowa Public Power Agency (IPPA)

Date: June 25, 2025

NIMECA
By: Bradley A. Honold
Printed: BRADLEY A. HONOLD

Title: President, Board of Directors
North Iowa Municipal Electric Cooperative
Association (NIMECA)

Date: 6/27/25

IPPA

By: _____

Printed: _____

Title: _____

Date: _____

NIMECA

By: _____

Printed: _____

Title: President, Board of Directors of North Iowa
Municipal Electric Cooperative Association
(NIMECA)

Date: _____

MRES

By: Terry Wolf

Printed: Terry Wolf

Title: Vice President and Chief Operating Officer

Date: 06/30/2025

REVIEWED
By dharmelink at 9:31 am, Jun 27, 2025

SIMECA

By: Jamie Haxmeier

Printed: Jamie Haxmeier

Title: President, Board of Directors of South Iowa
Municipal Electric Cooperative Association
(SIMECA)

Date: 06/26/2025

Individual Cities and Municipal Electric Utilities

[See signature block on next page]

**ATTACHMENT A
NONDISCLOSURE STATEMENT**

The undersigned individual, city utility, or other entity, acknowledges and agrees:

I, and the city utility or other entity with which I am affiliated, am aware that a Confidentiality Agreement (the “Agreement”) has been executed by Iowa Public Power Agency, North Iowa Municipal Electric Cooperative Association, South Iowa Municipal Electric Cooperative Association, Missouri River Energy Services, and such cities, municipal electric utilities, joint-action agencies, and/or electric power agencies which are, or in the future become, a signatory to the Agreement, with respect to certain Confidential Information in connection with one or more MISO transmission projects currently known as the MISO Long Range Transmission Planning (LRTP) Tranche 2.1 portfolio projects which are or will be located, in full or in part, in the state of Iowa, and which are anticipated to be opened up by Midcontinent Independent System Operator for competitive bid in or around November and/or December 2025;

I have been instructed in relation to the Confidentiality Agreement and fully understand its terms, including but not limited to my obligation to avoid making unauthorized disclosures and to notify the Party who disclosed the Confidential Information, as provided therein;

In consideration of my receipt of certain Confidential Information, and for the protection of the Receiving Party, the Disclosing Party, and the Parties, I and we agree to the provisions and terms of the Confidentiality Agreement to the extent they apply to me and us as Third Party recipients of Confidential Information. My and our agreement is evidenced by my signature below. All capitalized terms used herein have the meanings given them in the Confidentiality Agreement.

I HAVE READ THE FOREGOING AGREEMENT AND NONDISCLOSURE STATEMENT UNDERSTAND ITS TERMS AND FREELY AND VOLUNTARILY SIGN THE SAME.

Signature By:

Name Printed

Company

Date signed

4902-5488-4431-1\10948-020

IN WITNESS WHEREOF, each Party identified below have executed this Confidentiality Agreement and agree to be legally bound by all terms thereof.

CITY OF _____, IOWA

or

MUNICIPAL ELECTRIC UTILITY OF THE CITY OF _____, IOWA

or

_____, A JOINT ACTION
AGENCY OR ELECTRIC POWER AGENCY

By: _____

Printed: _____

Title: _____

Date: _____

Indianola Municipal Utilities
Resolution 2025-

**RESOLUTION APPROVING SIGNATURE OF A NON-DISCLOSURE AGREEMENT WITH IOWA PUBLIC
POWER ASSOCIATION**

WHEREAS, the IMU Board of Trustees believes it to be in the best interest of IMU to sign a nondisclosure agreement which relates to electric transmission planning and construction and/or critical energy infrastructure, all as provided in Iowa Code section 388.9.

WHEREAS, the NDA Agreement between IPPA, MRES, NIMECA, SIMECA and a number of independent municipal electric utilities; and

NOW, THEREFORE BE IT RESOLVED, by the Indianola Board of Trustees approve signature of a Non-Disclosure Agreement with Iowa Public Power Association and General Manager Chris DesPlanques is authorized and directed to execute on behalf of Indianola Municipal Utilities the documents required.

Approved this 11th day of August 2025.

Dom Selgrade, IMU Chairperson

ATTEST:

Monica Thompson, BOT Secretary

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities

From:

Date: August 11, 2025

Subject: Authorization for Warren Water District to serve a customer within their territory upon proper notice to IMU since the customer is within 2 miles of the IMU territory, located at 16703 HWY 92.

Recommendation: Under state regulations for water service territories, Warren Water District (WWD) is required to provide notice to IMU when a customer has requested service from WWD when the location is within 2 miles of the IMU service territory. A resident at 16703 HWY 92 has requested service from WWD and WWD has provided notification to IMU as the property is within 2 miles of the IMU water district. To serve this customer outside of the IMU district, IMU would have to construct a 1.36 mile extension to the property. Superintendent Brand is recommending the Board of Trustees acknowledge the notification from WWD to serve the property as it is within WWD service territory and WWD already has a water main at this location.

A simple motion approving the notification from WWD to service this property outside of the IMU water service territory is in order.

Attachments:

1. City of Indianola Letter and Map
2. 16073 HWY 92



1204 E 2nd Ave.
Indianola, IA 50125-2802

(515) 962-1200 or toll free (866) 962-1200
www.warrenwaterdistrict.com

City of Indianola

Jul 28 25

We have been approached by Phillip and Tricia Platte requesting our service located at 16073 Hwy. 92, Indianola. Their address is within the Warren Water District's service area.

Since the City of Indianola is within a 2 mile radius of the above stated address and the district is structured as a 357A we are notifying you of our intent to provide services to her address.

Please inform us in writing the City of Cumming's intentions for this property.

If you have any questions contact the office.

Sincerely,

Candi Christensen
CSR

Water Meter Pit installation located at 16073 HWY. 92 Indianola

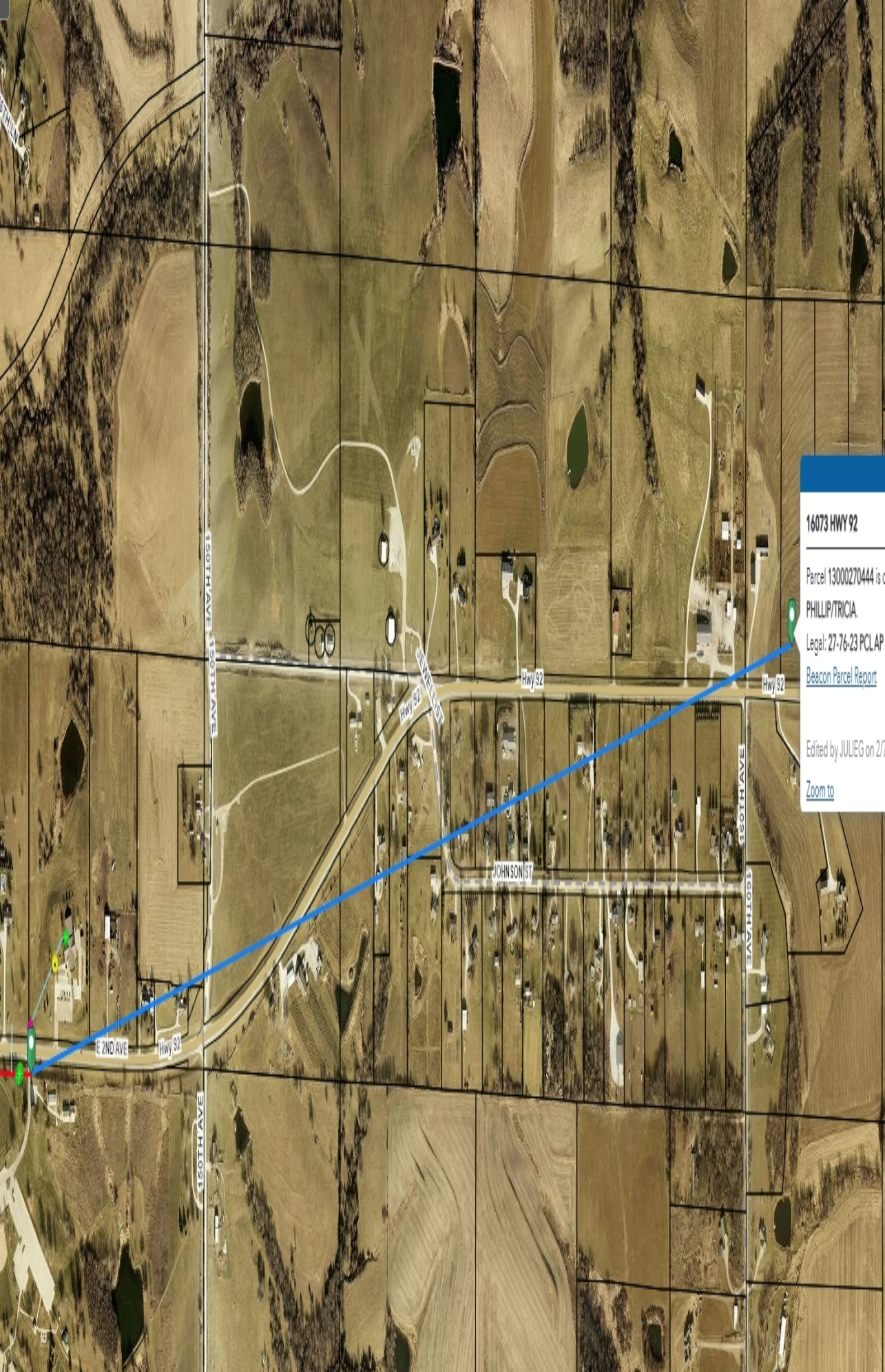


on™ Warren County, IA

Log In Search

Search Comp Search Results Comp Results Parcel Report Soil Report Pictometry Imagery Apply for a Permit Tax Estimator

Parcel ID 13000270444 Alternate ID 13000270441 Owner Address PLATTE, PHILLIP TRICIA
Sec/Twp/Rng 27-76-23 Class A 14312 BROOKSHIRE DR
Property Address 16073 HWY 92 Acreage 9.55 URBANDALE, IA 50323
INDIANOLA
District 13350
Brief Tax Description 27-76-23 PCLAP NW/NW
(Note: Not to be used on legal documents)



Measurement Result

7,582 Feet (US)

Clear

✕

16073 HWY 92

Parcel 13000270444 is owned by PLATTE,
PHILLIP/TRICIA.

Legal: 27-76-23 PCLAP NW NW

[Beacon Parcel Report](#)

Edited by JULIEG on 2/7/25 at 3:10 PM

[Zoom to](#) ⋮

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities

From:

Date: August 11, 2025

Subject: Public Hearing on Plans and Specifications, proposed form of contract and estimate of cost for construction of the Water Treatment Facility Standby Generator Project

Recommendation:

Attachments:

1. Plans and Specifications_WTF_Standby_Generator
2. 285114 Plans
3. 285114 Specs



VEENSTRA & KIMM INC.

6775 Vista Drive
West Des Moines, Iowa 50266

515.225.8000 // 800.241.8000
www.v-k.net

July 23, 2025

Justin Brand
Water Superintendent
Indianola Municipal Utilities
210 West 2nd Avenue
Indianola, Iowa 50125

INDIANOLA MUNICIPAL UTILITIES
WATER TREATMENT FACILITY
STANDBY GENERATOR
PROJECT PLANS & SPECIFICATIONS

Enclosed please find three sets of the plans and specifications for the Water Treatment Facility, Standby Generator Project.

If you have any questions or comments, please contact us at 515-225-8000.

VEENSTRA & KIMM, INC.

A handwritten signature in blue ink that reads "Vincent Driscoll".

Vincent J. Driscoll

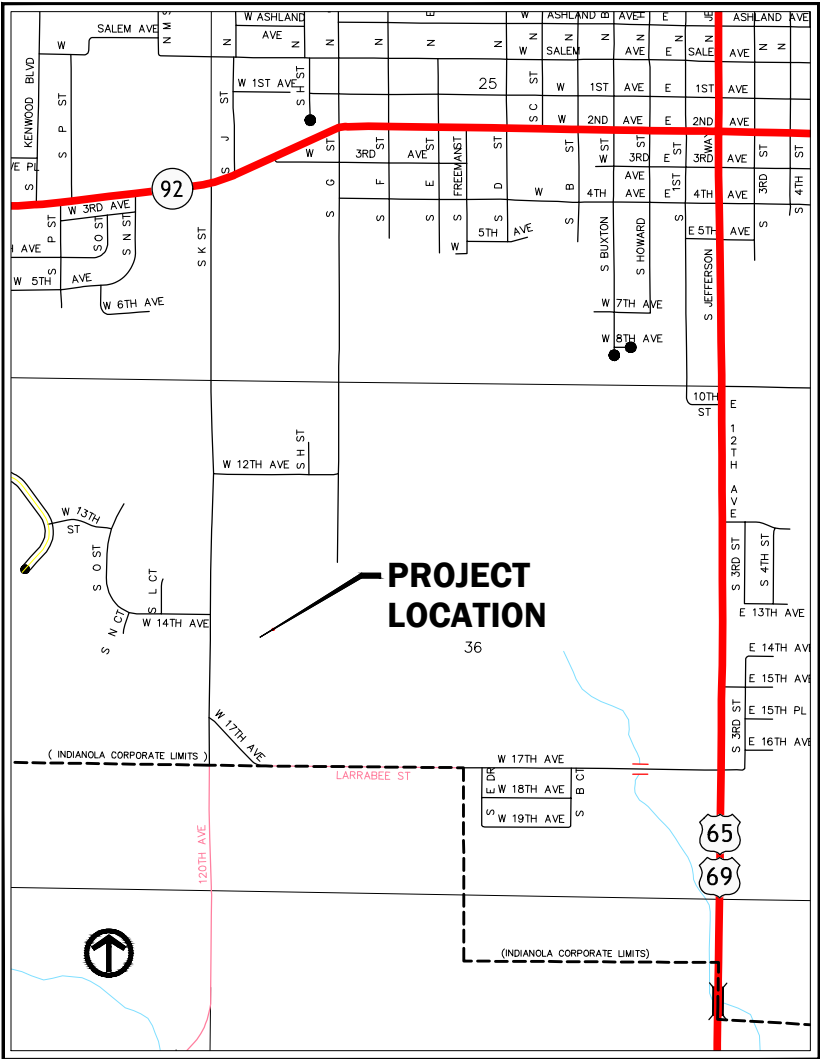
VJD

285114

cc: Monica Thompson, IMU (e-mail)

PLOTTED: Thursday, July 17, 2025 8:43:09 AM

PLANS FOR WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES INDIANOLA, IOWA



VICINITY MAP
NOT TO SCALE

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
01-G-01	INDEX AND TITLE SHEET
01-G-02	GENERAL NOTES AND LEGEND
02-C-01	OVERALL AREA PLAN
02-C-02	REMOVAL AND DEMOLITION PLAN
02-C-03	GENERATOR LAYOUT
02-C-04	GRADING PLAN
02-E-1	ELECTRICAL
99-C-01	DETAILS
99-E-1	DETAILS AND SCHEDULES
99-E-2	DETAILS AND SCHEDULES



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Panyala N. Reddy July 21, 2025
SIGNATURE DATE

NAME: PANYALA N. REDDY, P.E.
LICENSE NUMBER: 9491
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2026
PAGES OR SHEETS COVERED BY THIS SEAL:
ALL



XREFS: indianola-ci & 285112-AERIAL
FILE PATH:

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	SRS
		CHECKED	JK
		APPROVED	PNR
		DATE	07-21-25
		ISSUED FOR	BIDDING



WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES

6775 Vista Drive • West Des Moines, Iowa 50266
515-225-8000 • 515-255-7848(FAX) • 800-241-8000(WATS)

INDEX AND TITLE SHEET

SHEET NO.
01-G-01

PROJECT 285114

PLOTTED: Thursday, July 17, 2025 8:43:11 AM

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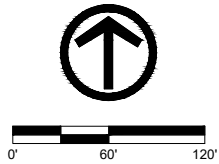
GENERAL LEGEND

	SURVEY LINE & STATION INDICATOR		CULVERT; SIZE AND TYPE
	CONCRETE SURFACE		FLARED END SECTION
	ASPHALT SURFACE		RAILROAD
	CONCRETE W/ASPHALT OVERLAY		MAILBOX
	LOW GRADE ASPHALT SURFACE		FENCE (MISC.)
	GRANULAR SURFACE		SECURITY FENCE
	DIRT SURFACE		WOOD FENCE
	BRICK SURFACE		SILT FENCE
	SURFACING REMOVAL/REPLACEMENT		CHAIN LINK FENCE
	EARTH SECTION		PROPERTY LINE
	NEW SEWER/MANHOLE		PROPERTY PIN
	NEW SEWER/INTAKE		SECTION CORNER
	NEW WATER MAIN		PLAT BOUNDARY
	NEW FORCE MAIN		BUILDING
	NEW HYDRANT		ELEVATION MARKER
	NEW WATER VALVE		CENTERLINE
	EXISTING SANITARY SEWER AND SIZE		DIAMETER
	EXISTING STORM SEWER AND SIZE		ELEV.
	EXISTING WATER MAIN AND SIZE		PVC POLYVINYLCHLORIDE PIPE
	EXISTING FORCE MAIN AND SIZE		CI CAST IRON PIPE
	GAS MAIN AND SIZE		DI DUCTILE IRON PIPE
	UNDERGROUND POWER LINE		CMP CORRUGATED METAL PIPE
	OVERHEAD POWER LINE		VCP VITRIFIED CLAY PIPE
	UNDERGROUND TELEPHONE LINE		RCP REINFORCED CONCRETE PIPE
	CABLE TELEVISION LINE		RCAP REINFORCED CONCRETE ARCH PIPE
	FIBER OPTICS		LRCP LINED REINFORCED CONCRETE PIPE
	TOP OF EMBANKMENT		LCPP LINED CONCRETE PRESSURE PIPE
	TOE OF EMBANKMENT		STA.
	DRAINAGE COURSE		LA LINE AHEAD
	SANITARY MANHOLE		LB LINE BACK
	STORM WATER MANHOLE		BM-2 BENCH MARK AND NUMBER
	ELECTRIC MANHOLE		ROW RIGHT-OF-WAY
	TELEPHONE MANHOLE		PI POINT OF INTERSECTION
	WATER MANHOLE		POT POINT ON TANGENT
	CURB INTAKE		LF LINEAR FEET
	AREA OR BEEHIVE INTAKE		TH TACKED HUB
	EXISTING HYDRANT		SB-2 SOIL BORING AND NUMBER
	EXISTING WATER VALVE		PVC POINT OF VERTICAL CURVATURE
	GAS VALVE		PVT POINT OF VERTICAL TANGENCY
	UTILITY POLE		VC VERTICAL CURVE
	GUY ANCHOR		PC POINT OF CURVATURE
	STREET LIGHT		PT POINT OF TANGENCY
	SIGN		MO MIDDLE ORDINATE
	TELEPHONE CABLE JUNCTION BOX		DWG. DRAWING
	TRAFFIC SIGNALS		CP-1 CONTROL POINT AND NUMBER
	PEDESTRIAN CONTROL LIGHT		(TYP.) TYPICAL
	RAILROAD CONTROL LIGHT		HPG HIGH PRESSURE GAS
	RAILROAD SIGN		IPG INTERMEDIATE PRESSURE GAS
	UTILITY ACCESS COVER		INV. INVERT
	PARKING METER		E.W., E.F. EACH WAY, EACH FACE
	TREE		E.W. EACH WAY
	EVERGREEN		@ AT
	STUMP		<3> DRAWING NUMBER
	BUSH, SHRUB OR HEDGE		

NOTE: THIS IS A GENERAL LEGEND. ITEMS MAY OR MAY NOT APPEAR ON DRAWINGS.



OVERALL INDIANOLA WATER TREATMENT PLAN



GENERAL NOTES

1. ALL ELEVATIONS ARE TO NAVD 88 DATUM.
2. ALL NORTHING AND EASTING COORDINATES ARE TO NAD 83, IOWA STATE PLANE COORDINATE SYSTEMS - SOUTH ZONE (1402) / NORTH ZONE (1401).
3. REMOVE AND REPLACE ALL STREET SIGNS AS DIRECTED BY ENGINEER. COST IS INCIDENTAL TO CONSTRUCTION.
4. SHAPE ALL DITCHES TO DRAIN AFTER CONSTRUCTION.
5. CONFIRM LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND UTILITIES AS REQUIRED TO ELIMINATE CONFLICTS PRIOR TO CONSTRUCTION. ALLOW UTILITY PERSONNEL TO RELOCATE UTILITIES WHERE CONFLICTS OCCUR.
6. DO NOT INTERRUPT EXISTING UTILITIES OR INDIVIDUAL SERVICES UNLESS DIRECTED BY ENGINEER.
7. LOCATIONS OF CONSTRUCTION LIMIT LINES SHOWN ON PLANS ARE APPROXIMATE. ENGINEER WILL LOCATE CONSTRUCTION LIMITS IN FIELD. CONFINE ALL CONSTRUCTION OPERATIONS, INCLUDING ACCESS TO WORK, TO CONSTRUCTION LIMITS.
8. SET MANHOLE COVERS, VALVE BOXES AND STRUCTURES FLUSH WITH PROPOSED GRADES UNLESS OTHERWISE NOTED.
9. STATIONING IS ALONG CENTER LINE OF PAVEMENT, UNLESS OTHERWISE NOTED.
10. PROTECT UTILITY POLES, LINES AND APPURTENANCES NOT SHOWN FOR RELOCATION.
11. RESET ALL PROPERTY PINS DISTURBED BY CONSTRUCTION; PINS RESET BY REGISTERED LAND SURVEYOR; COST IS INCIDENTAL TO CONSTRUCTION.
12. PROTECT ALL SURFACING, NOT INDICATED BY SHADING FOR REMOVAL AND REPLACEMENT FROM DAMAGE DURING CONSTRUCTION.
13. REPLACE WATER SERVICES IN DIRECT CONFLICT WITH NEW PIPE WITH NEW SERVICES FROM MAIN TO CURB STOP. PLUG EXISTING SERVICE AT MAIN; CONSTRUCT STORM SEWER UNDER EXISTING SERVICES WITH ADEQUATE CLEARANCE.

PROTECTION OF VEGETATION

TREES AND OTHER VEGETATION WHICH MAY BE REMOVED ARE MARKED WITH AN "X" OVER THE APPROPRIATE SYMBOL. FOR EXAMPLE 12" X INDICATES THE REMOVAL OF A 12" TREE. REPLACEMENT, BY CONTRACTOR, OF THESE ITEMS IS NOT REQUIRED. TUNNEL, INSTALL TIGHT SHEETING, HAND EXCAVATE OR EMPLOY OTHER MEANS APPROVED BY ENGINEER TO PROTECT EXPOSED PORTIONS AND ROOT SYSTEMS OF TREES AND OTHER VEGETATION NOT SCHEDULED FOR REMOVAL. IF TREES AND OTHER VEGETATION NOT SCHEDULED FOR REMOVAL ARE DAMAGED DURING CONSTRUCTION, REPLACE IN KIND AND SIZE AT NO COST TO CITY OR PROPERTY OWNER.

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	SRS
		CHECKED	JK
		APPROVED	PNR
		DATE	07-21-25
		ISSUED FOR	BIDDING



WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES

6775 Vista Drive • West Des Moines, Iowa 50266
515-225-8000 • 515-255-7848(FAX) • 800-241-8000(WATS)

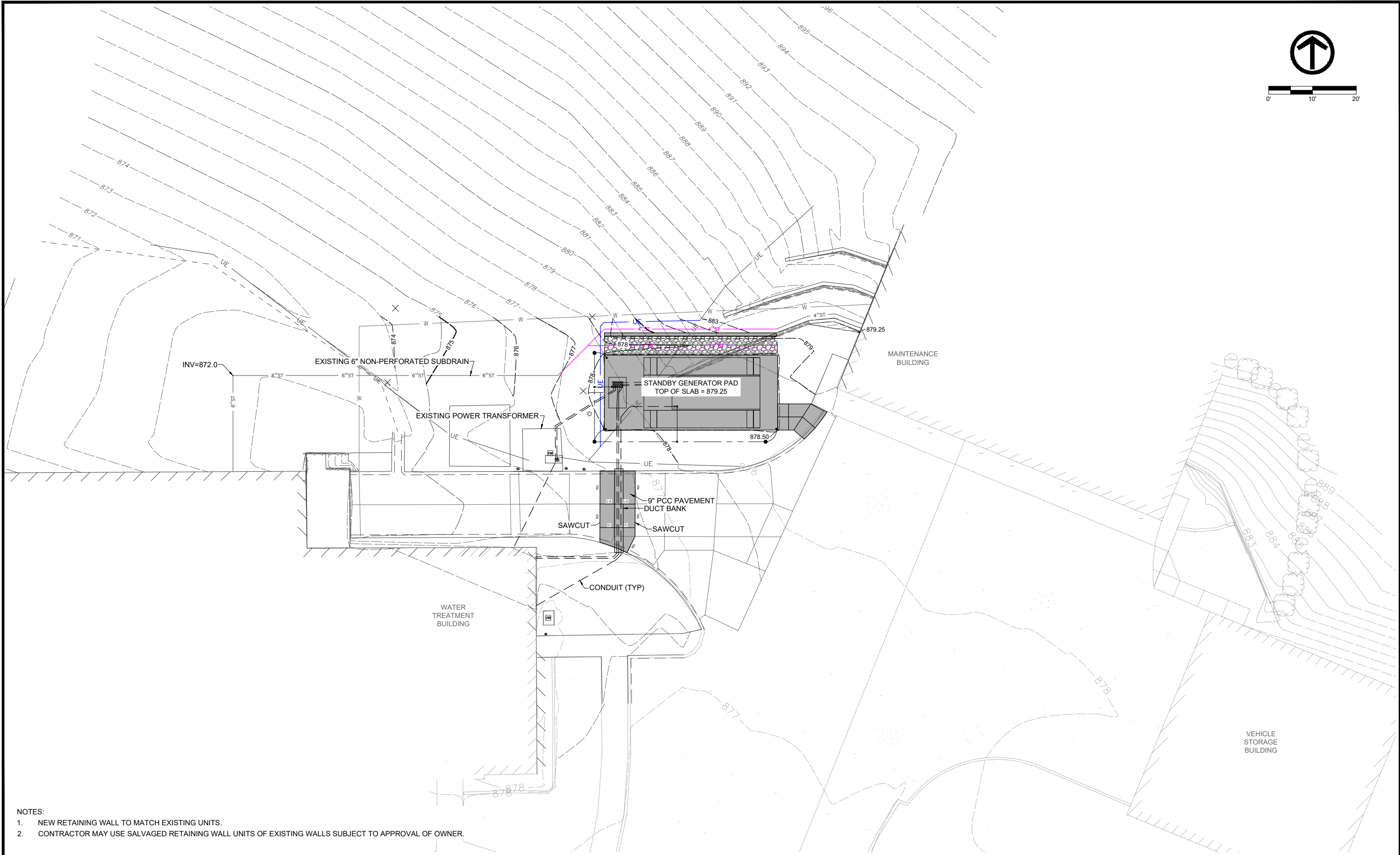
GENERAL NOTES AND LEGEND

SHEET NO.

01-G-02

PROJECT 285114

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PLOTTED: Thursday, July 17, 2025 8:44:34 AM



- NOTES:
- 1. NEW RETAINING WALL TO MATCH EXISTING UNITS.
 - 2. CONTRACTOR MAY USE SALVAGED RETAINING WALL UNITS OF EXISTING WALLS SUBJECT TO APPROVAL OF OWNER.

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	SRS
		CHECKED	JK
		APPROVED	PNR
		DATE	07-21-25
		ISSUED FOR	BIDDING



WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES

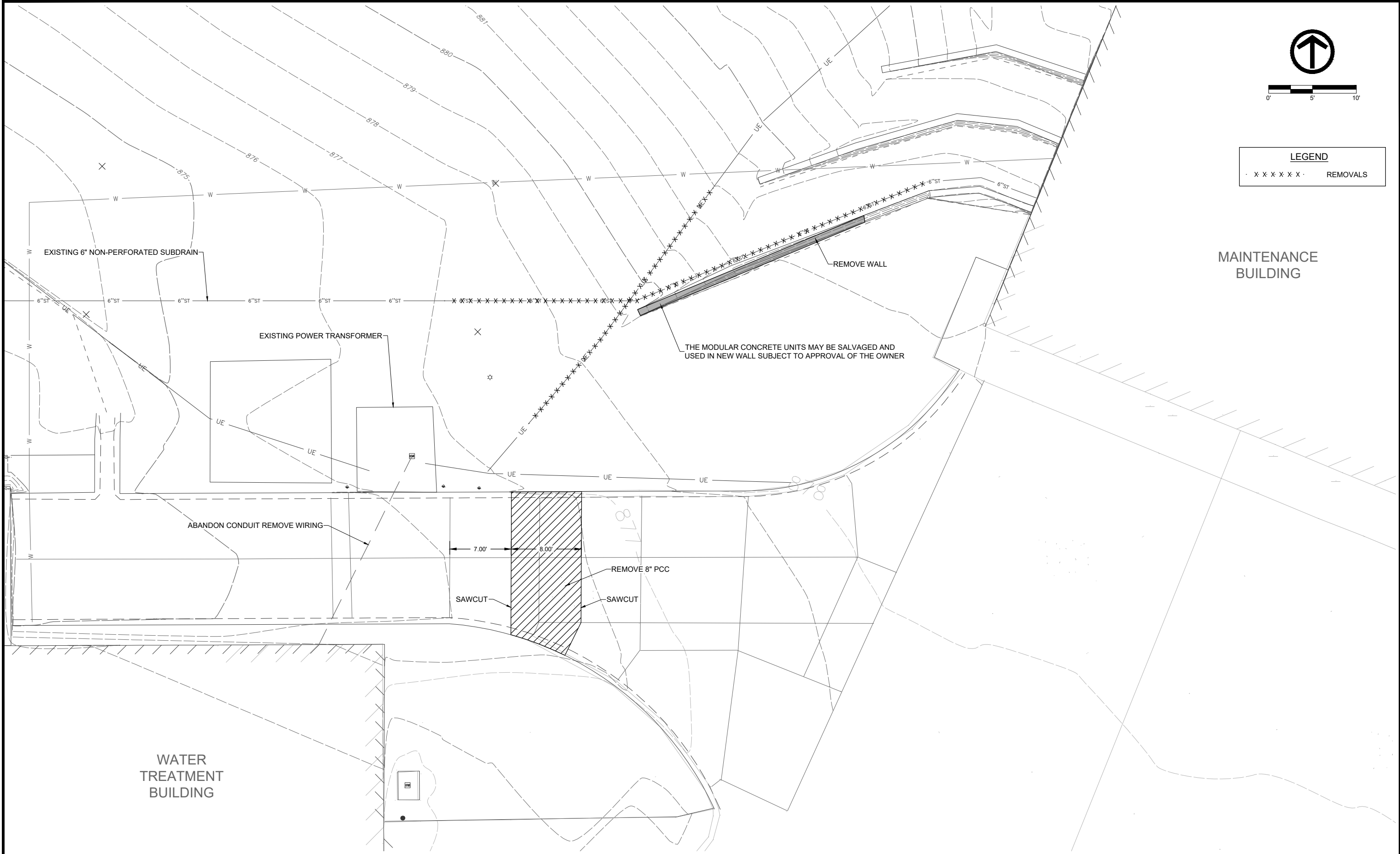
6775 Vista Drive • West Des Moines, Iowa 50266-9305
515-225-8000 • 515-255-7848(FAX) • 1-800-241-8000

OVERALL AREA PLAN

PROJECT 285114

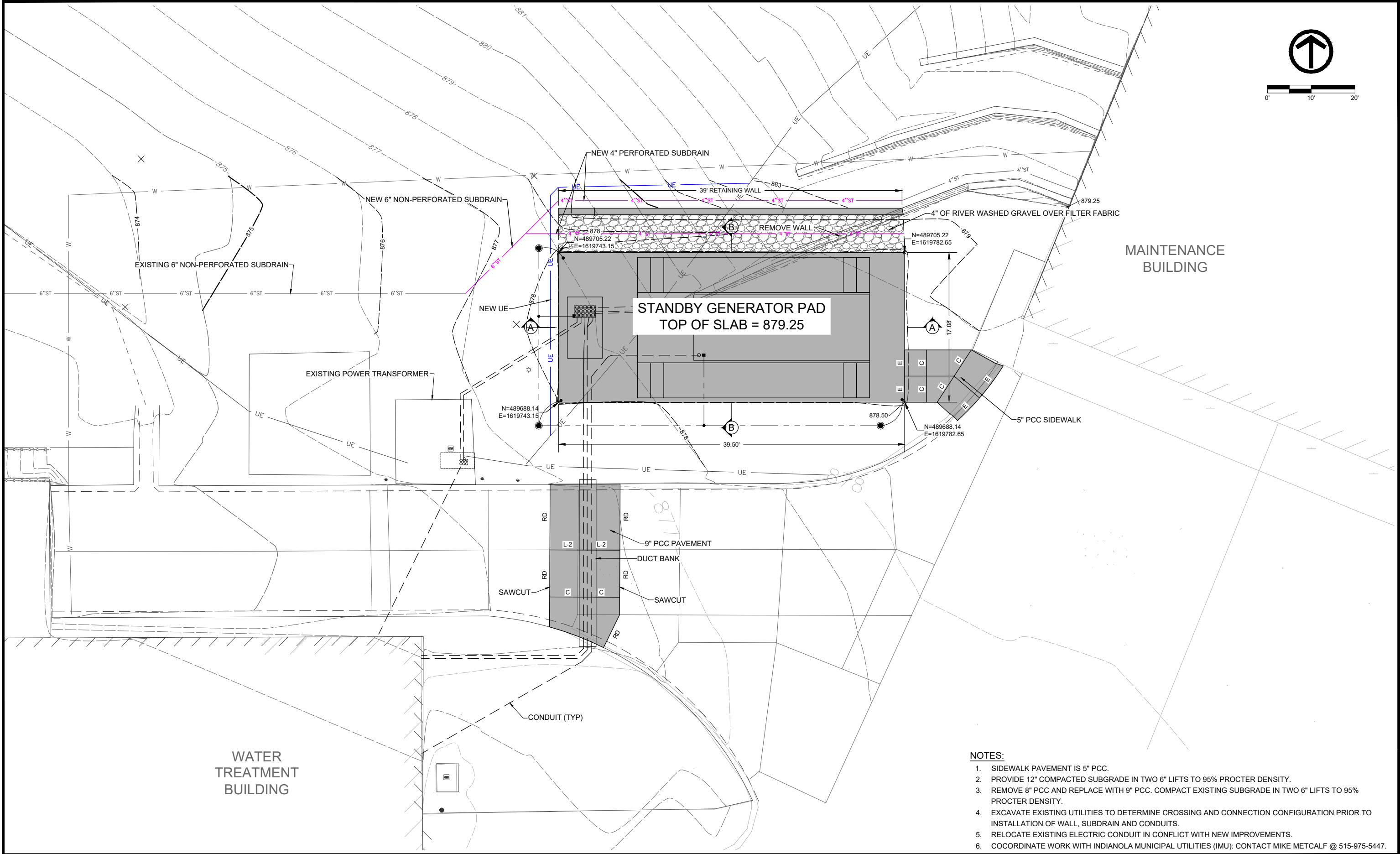
SHEET NO.
02-C-01
PROJECT 285114

X-REFS: 285114 TOPO & 28586 EX SITE
FILE PATH: wdmshare\0200\0285-Indianola_Municipal_Utillies\0285-0114_WTF_Standby_Generator\Design_and_Planning\CADD_ProdDrawings\285114 - Removals.dwg
PLOTTED: Thursday, July 17, 2025 8:48:15 AM



DATE		REVISIONS		SCALE	AS NOTED	WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES 6775 Vista Drive • West Des Moines, Iowa 50266-9305 515-225-8000 • 515-255-7848(FAX) • 1-800-241-8000			REMOVAL AND DEMOLITION PLAN		SHEET NO.	
				DRAWN	SRS						02-C-02	
				CHECKED	JK						PROJECT 285114	
				APPROVED	PNR						Page 104 of 380	
				DATE	07-21-25							
				ISSUED FOR	BIDDING	VEENSTRA & KIMM INC.						

X-REFS: 285114 TOPO & 28586 EX SITE
FILE PATH: wdmshare\0200\0205-Indianola_Municipal_Uilities\0285-0114_WTF_Standby_Generator\Design_and_Planning\CADD_ProdDrawings\285114 - Site Plan.dwg
PLOTTED: Thursday, July 17, 2025 8:47:33 AM



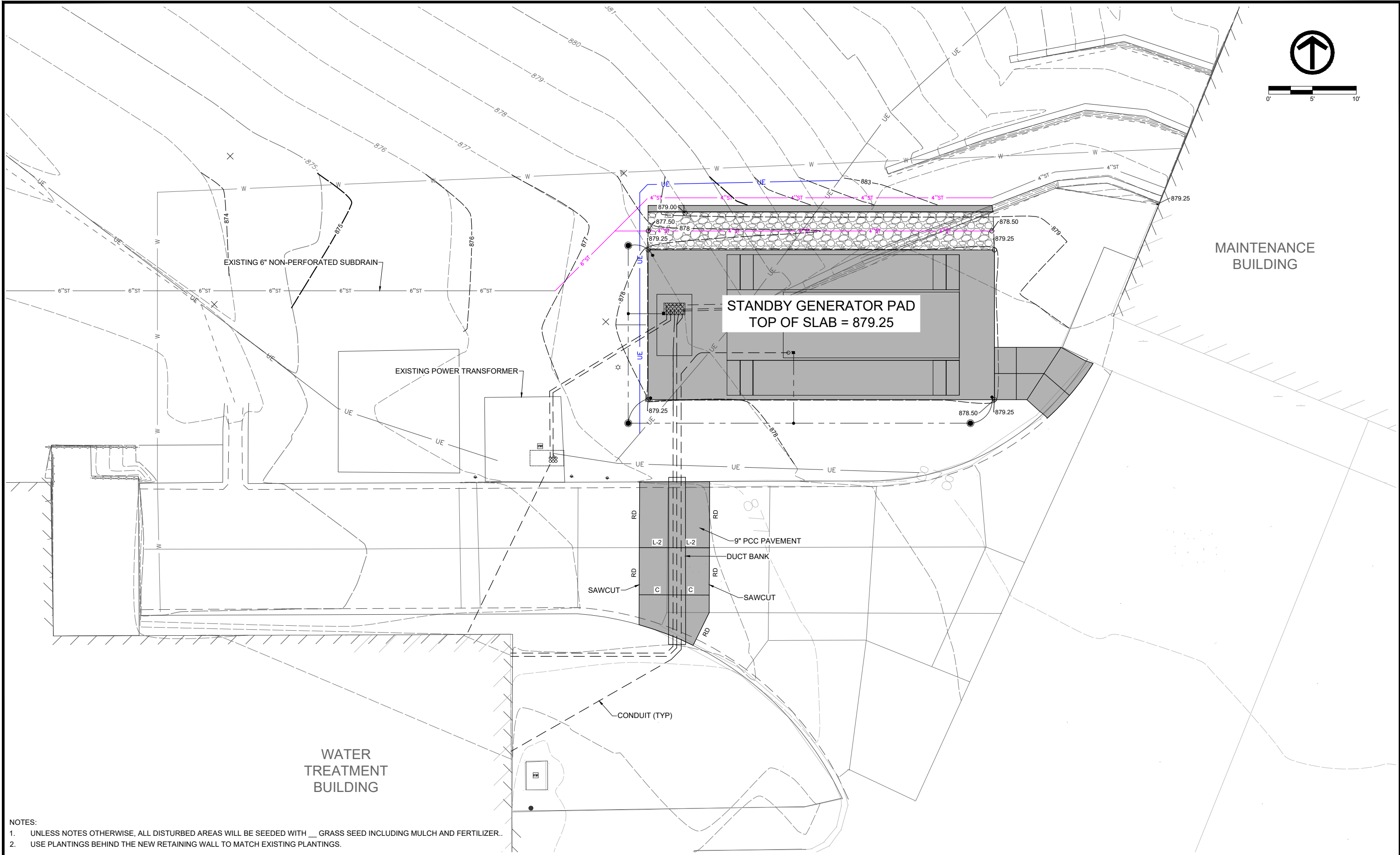
- NOTES:
- 1. SIDEWALK PAVEMENT IS 5" PCC.
 - 2. PROVIDE 12" COMPACTED SUBGRADE IN TWO 6" LIFTS TO 95% PROCTER DENSITY.
 - 3. REMOVE 8" PCC AND REPLACE WITH 9" PCC. COMPACT EXISTING SUBGRADE IN TWO 6" LIFTS TO 95% PROCTER DENSITY.
 - 4. EXCAVATE EXISTING UTILITIES TO DETERMINE CROSSING AND CONNECTION CONFIGURATION PRIOR TO INSTALLATION OF WALL, SUBDRAIN AND CONDUITS.
 - 5. RELOCATE EXISTING ELECTRIC CONDUIT IN CONFLICT WITH NEW IMPROVEMENTS.
 - 6. COORDINATE WORK WITH INDIANOLA MUNICIPAL UTILITIES (IMU): CONTACT MIKE METCALF @ 515-975-5447.

DATE	REVISIONS	SCALE	AS NOTED	 VEENSTRA & KIMM INC.	WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES	GENERATOR LAYOUT	SHEET NO.
		DRAWN	SRS				02-C-03
		CHECKED	JK				
		APPROVED	PNR				
		DATE	07-21-25				
		ISSUED FOR	BIDDING				
					6775 Vista Drive • West Des Moines, Iowa 50266-9305 515-225-8000 • 515-255-7848(FAX) • 1-800-241-8000	PROJECT	285114



6775 Vista Drive • West Des Moines, Iowa 50266-9305
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X:\REFS: 285114 TOPO & 28586 EX SITE
FILE PATH: wdmshare\0200\0285-Indianola_Municipal_Uilities\0285-0114_WTF_Standby_Generator\Design_and_Planning\CADD_ProdDrawings\285114 - Site Plan.dwg
PLOTTED: Thursday, July 17, 2025 8:47:34 AM



- NOTES:
1. UNLESS NOTES OTHERWISE, ALL DISTURBED AREAS WILL BE SEEDED WITH ___ GRASS SEED INCLUDING MULCH AND FERTILIZER..
 2. USE PLANTINGS BEHIND THE NEW RETAINING WALL TO MATCH EXISTING PLANTINGS.

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	SRS
		CHECKED	JK
		APPROVED	PNR
		DATE	07-21-25
		ISSUED FOR	BIDDING



WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES

6775 Vista Drive • West Des Moines, Iowa 50266-9305
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GRADING PLAN

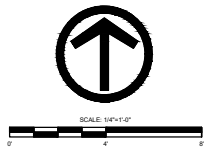
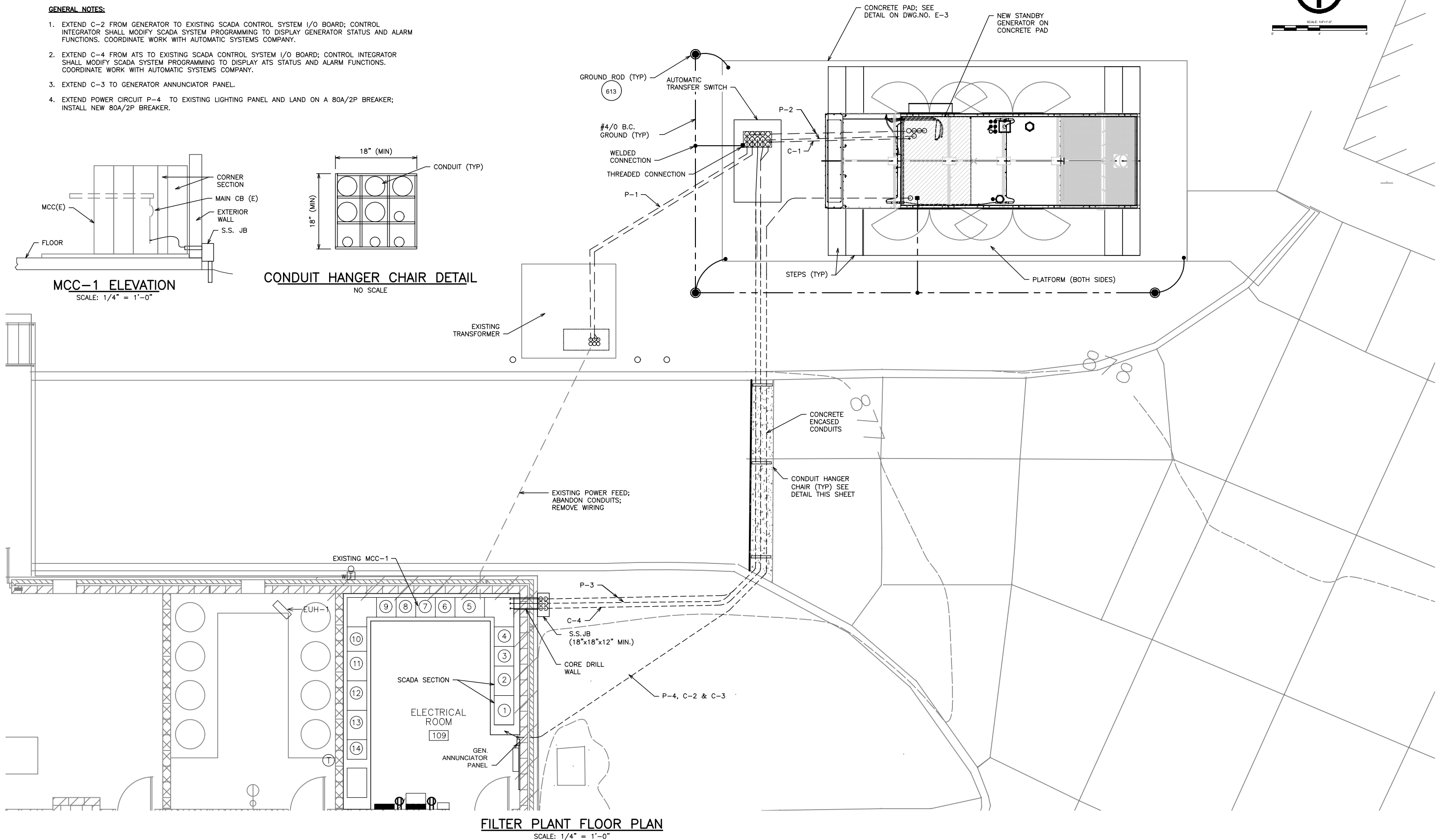
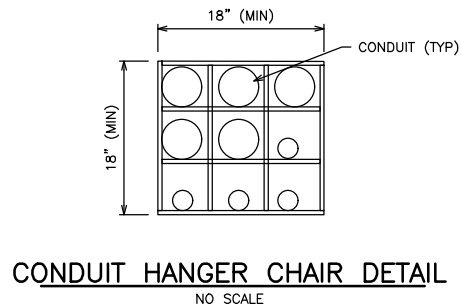
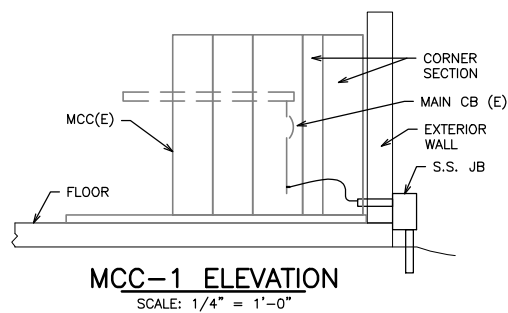
SHEET NO.
02-C-04
PROJECT 285114

PLOTTED: Thursday, July 17, 2025 8:48:03 AM

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FILE PATH: wdmshare\0200\0285-Indianola_Municipal_Uilities\0285-0114_WTF_Standby_Generator_Design_and_Planning\CADD_ProDrawings\E1.dwg

GENERAL NOTES:

1. EXTEND C-2 FROM GENERATOR TO EXISTING SCADA CONTROL SYSTEM I/O BOARD; CONTROL INTEGRATOR SHALL MODIFY SCADA SYSTEM PROGRAMMING TO DISPLAY GENERATOR STATUS AND ALARM FUNCTIONS. COORDINATE WORK WITH AUTOMATIC SYSTEMS COMPANY.
2. EXTEND C-4 FROM ATS TO EXISTING SCADA CONTROL SYSTEM I/O BOARD; CONTROL INTEGRATOR SHALL MODIFY SCADA SYSTEM PROGRAMMING TO DISPLAY ATS STATUS AND ALARM FUNCTIONS. COORDINATE WORK WITH AUTOMATIC SYSTEMS COMPANY.
3. EXTEND C-3 TO GENERATOR ANNUNCIATOR PANEL.
4. EXTEND POWER CIRCUIT P-4 TO EXISTING LIGHTING PANEL AND LAND ON A 80A/2P BREAKER; INSTALL NEW 80A/2P BREAKER.



DATE	REVISIONS

SCALE	AS NOTED
DRAWN	PNR
CHECKED	PNR
APPROVED	PNR
DATE	07-21-25
ISSUED FOR	BIDDING



**WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES**

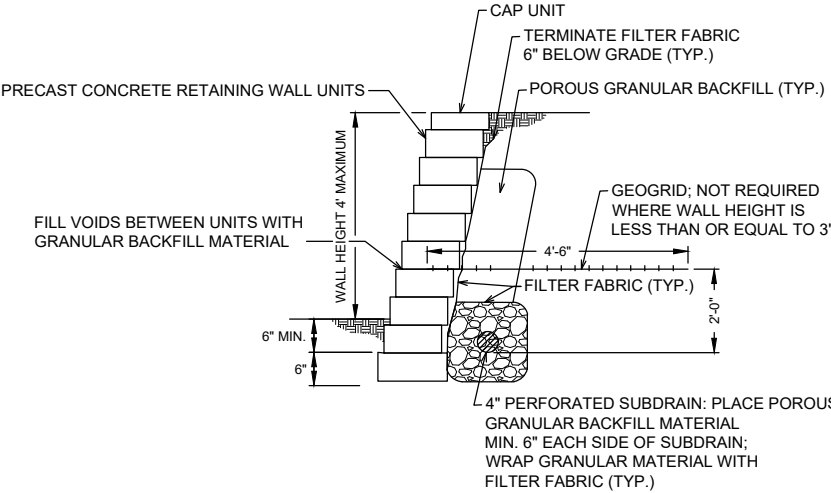
6775 Vista Drive • West Des Moines, Iowa 50266-9305
515-225-8000 • 515-255-7848(FAX) • 1-800-241-8000

ELECTRICAL

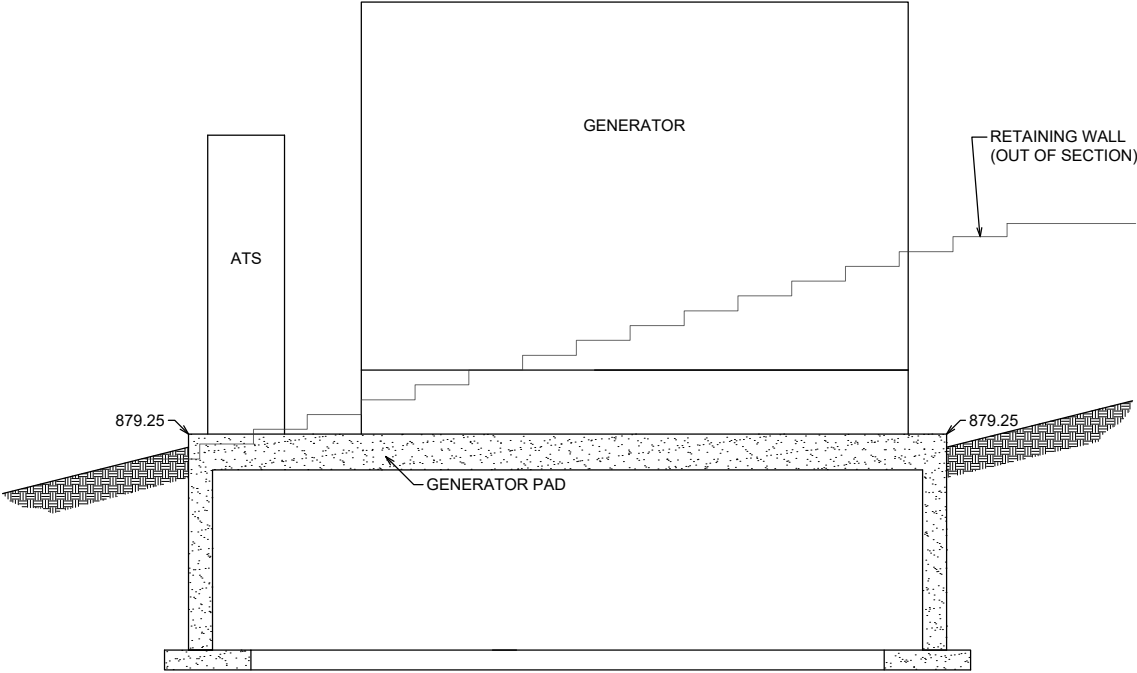
SHEET NO.
02-E-1
PROJECT 285114

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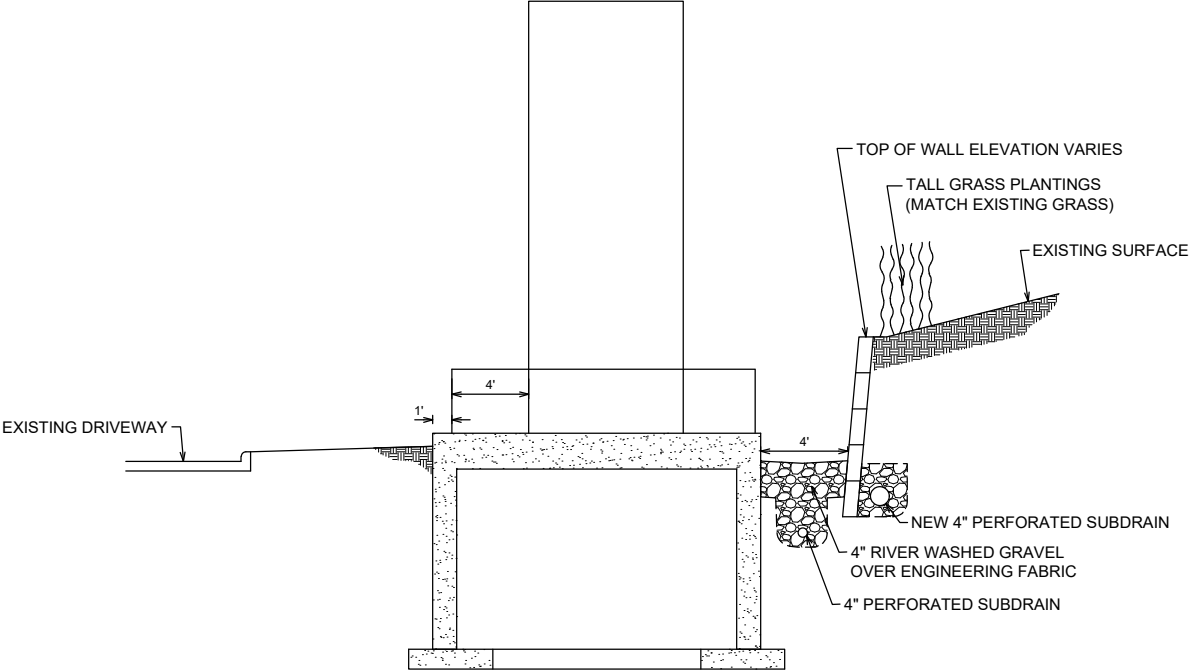
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TYPICAL RETAINING WALL



SECTION A
NO SCALE



SECTION B
NO SCALE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	SRS
		CHECKED	JK
		APPROVED	PNR
		DATE	07-21-25
		ISSUED FOR	BIDDING

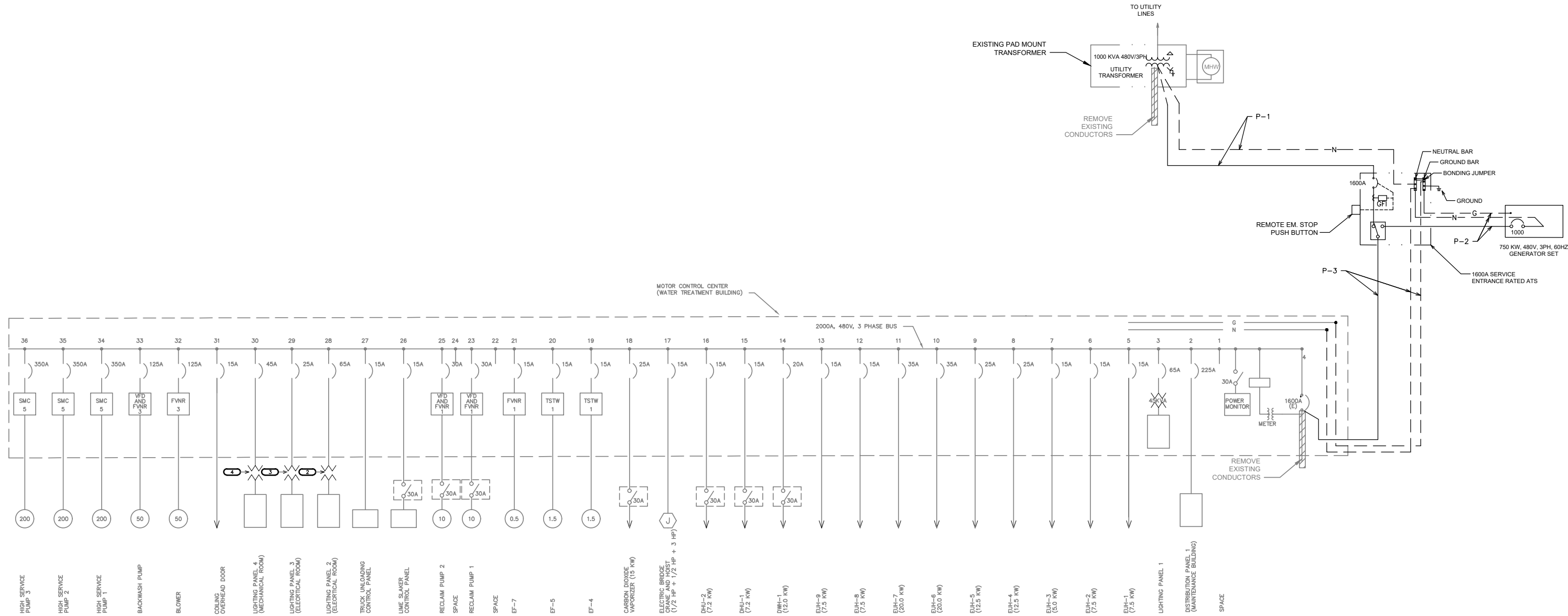


WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES	
6775 Vista Drive 515-225-8000	• West Des Moines, Iowa 50266-9305 • 515-255-7848(FAX) • 1-800-241-8000

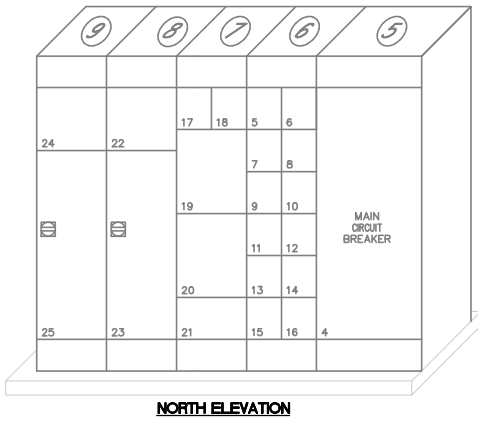
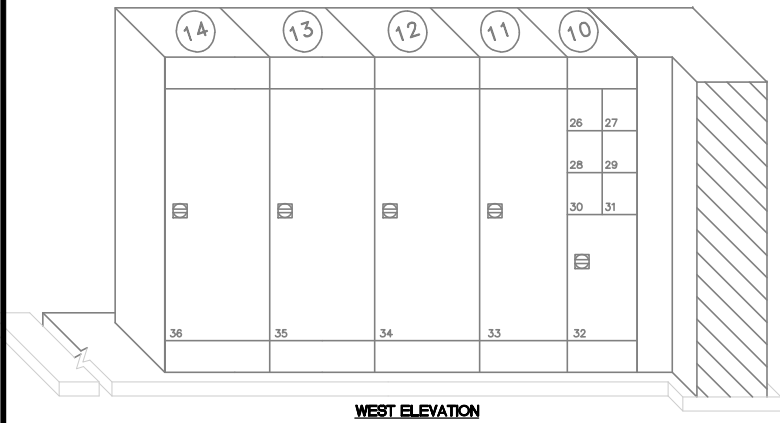
DETAILS	
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SHEET NO.
99-C-01
PROJECT 285114

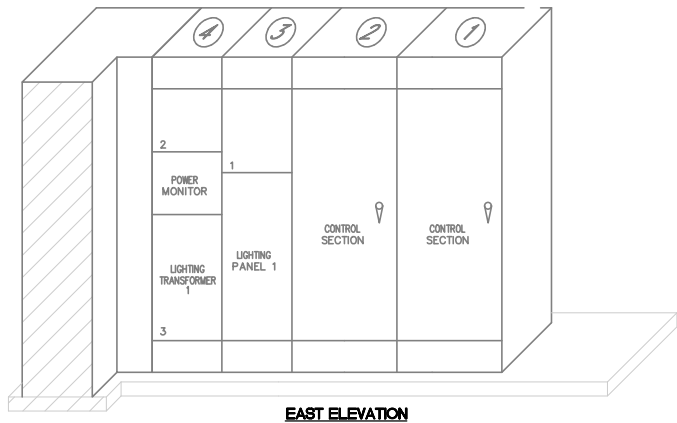
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POWER DISTRIBUTION SCHEMATIC



MOTOR CONTROL CENTER MCC-1 (EXISTING)



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	PNR
		CHECKED	PNR
		APPROVED	PNR
		DATE	07-21-25
		ISSUED FOR	BIDDING

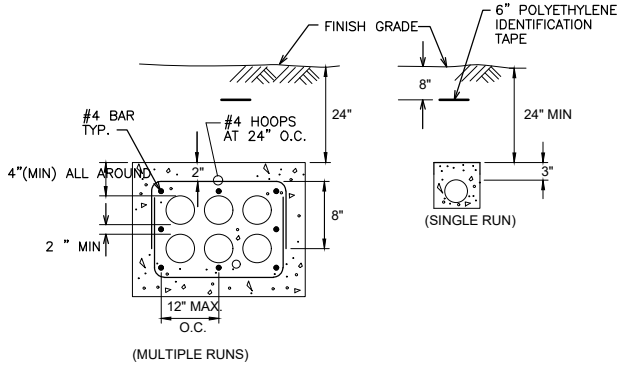


WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES		
6775 Vista Drive 515-225-8000	• West Des Moines, Iowa 50266-9305 • 515-255-7848(FAX)	• 1-800-241-8000

DETAILS AND SCHEDULES	
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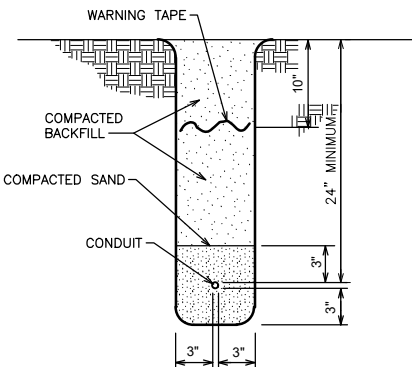
SHEET NO.
99-E-1
PROJECT 285114

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PLOTTED: Thursday, July 17, 2025 8:51:36 AM



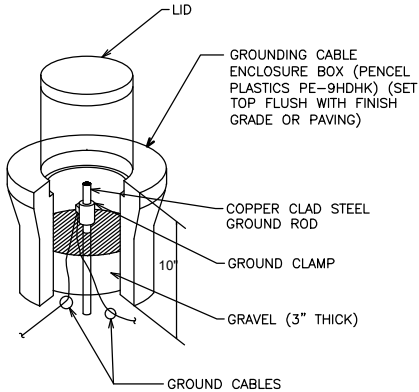
- NOTES:
1. NUMBER AND SIZE OF CONDUITS PER PLANS AND CONDUIT SCHEDULES.
 2. REFER TO PLANS FOR LOCATIONS OF CONCRETE ENCASED CONDUITS.

DUCT BANK DETAIL
NO SCALE 605



- NOTES:
1. MINIMUM 2" BETWEEN CONDUITS IN MULTIPLE CONDUIT INSTALLATION
 2. DETAIL APPLIES TO ALL EXTERIOR CONDUITS EXCEPT SERVICE ENTRANCE AND STANDBY POWER CONDUITS UNLESS SHOWN OTHERWISE ON PLANS.

UNDERGROUND CONDUIT
TRENCH DETAIL
NO SCALE 620



GROUND ROD INSTALLATION
NO SCALE 630

ELECTRICAL CONDUIT SCHEDULE					
CONDUIT NO.	SIZE	CONTROL	FROM	TO	NOTES
C-1	1"	2#14	ATS	GENERATOR	
C-2	1"	12#14 & MODBUS CABLE	GENERATOR	CP-1	
C-3	1"	ANNUNCIATOR CABLE & 2#12(24V)	GENERATOR	ANNUN. PANEL	
C-4	1"	4#14 & MODBUS CABLE	ATS	CP-1	

NOTES:

1. ALL P- CONDUITS MAY NOT HAVE BEEN SHOWN ON PLANS ; INSTALL AS PER THIS SCHEDULE & PLANS.

POWER WIRING & CONDUIT SCHEDULE					
CONDUIT NO.	SIZE	CONDUCTORS	FROM	TO	REMARKS
P-0		POWER			
P-0		BY UTILITY	POLE	EXIST. TRANSFORMER	EXISTING
P-1	(5)4"	5 SETS OF 4#500KCMIL	TRANSFORMER	ATS	VIA EXISTING CT CABINET & METER CABINET
P-2	(5)4"	5 SETS OF 4#500KCMIL & 1#1/0 G	GENERATOR	ATS	
P-3	(5)4"	5 SETS OF 4#500KCMIL & 1#1/0 G	ATS	EXISTING MCC	
P-4	1 1/2"	2#4 & 1#8G	EXIST. LIGHTING PANEL LP1	GENERATOR PANEL	

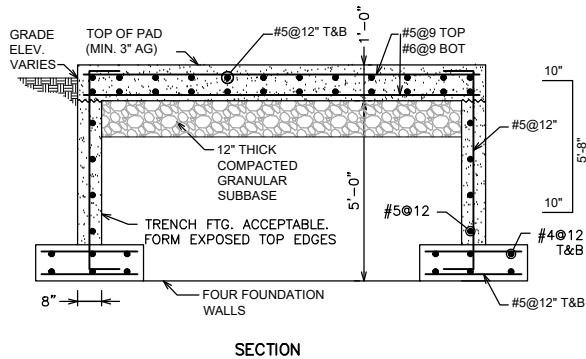
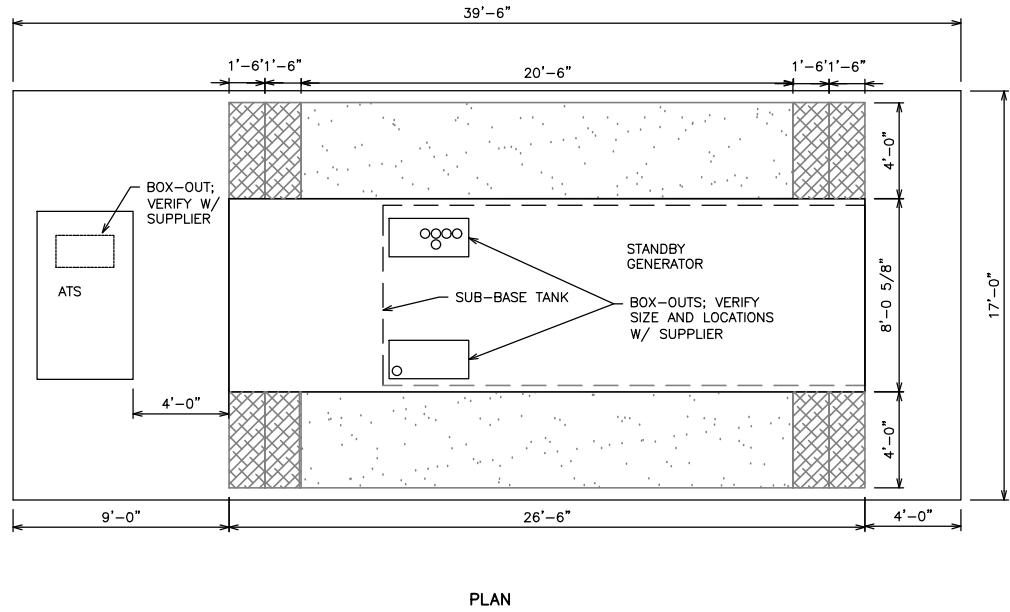
NOTE:

1. ALL P- CONDUITS MAY NOT HAVE BEEN SHOWN ON PLANS ; INSTALL AS PER THIS SCHEDULE & PLANS.

CONTROL WIRING & CONDUIT SCHEDULE					
CONDUIT NO.	SIZE	CONTROL	FROM	TO	NOTES
C-1	1"	2#14	ATS	GENERATOR	
C-2	1"	12#14 & MODBUS CABLE	GENERATOR	CP-1	
C-3	1"	ANNUNCIATOR CABLE & 2#12(24V)	GENERATOR	ANNUN. PANEL	
C-4	1"	6#14 & MODBUS CABLE	ATS	CP-1	

NOTES:

1. ALL P- CONDUITS MAY NOT HAVE BEEN SHOWN ON PLANS ; INSTALL AS PER THIS SCHEDULE & PLANS.



- NOTES:
1. PAD DIMENSIONS SHOWN ARE BASE ON INTERSTATE POWER GENERATOR; ADJUST PAD DIMENSIONS WITH SUPPLIED GENERATOR MANUFACTURER. PROVIDE WALK-IN PLATFORM WITH STEPS ON BOTH SIDES AS SHOWN.
 2. BOX-OUT REQUIRED OPENINGS IN PAD FOR CONDUITS; COORDINATE WITH GENERATOR MANUFACTURER.

GENERATOR PAD DETAIL
NO SCALE 640

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	PNR
		CHECKED	PNR
		APPROVED	PNR
		DATE	07-21-25
		ISSUED FOR	BIDDING



WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES	
6775 Vista Drive 515-225-8000	West Des Moines, Iowa 50266-9305 515-255-7848(FAX) • 1-800-241-8000

DETAILS AND SCHEDULES	
PROJECT	285114

SHEET NO.
99-E-2

SPECIFICATIONS

FOR

WATER TREATMENT FACILITY STANDBY GENERATOR

INDIANOLA MUNICIPAL UTILITIES

INDIANOLA, IOWA

SPECIFICATIONS
FOR
WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES
INDIANOLA, IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signed:

Date:

Panyala N. Reddy

July 21, 2025

Panyala N. Reddy, P.E.

Iowa License No. 9491

My license renewal date is December 31, 2026



Detailed parts covered by this seal:

All

Prepared by
VEENSTRA & KIMM, INC.
West Des Moines, Iowa

INDEX

WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES INDIANOLA, IOWA

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END OF SECTION

NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING ON PLANS AND SPECIFICATIONS, PROPOSED FORM OF CONTRACT AND ESTIMATE OF COST FOR CONSTRUCTION OF THE WATER TREATMENT FACILITY STANDBY GENERATOR PROJECT FOR THE INDIANOLA MUNICIPAL UTILITIES, INDIANOLA, IOWA.

At 5:30 P.M. on the 11th day of August, 2025, the Board of Trustees of said Utilities will, in said Board Room, hold a hearing and said Board proposes to adopt plans, specifications, form of contract and estimate of cost and, at the time, date and place specified above, or at such time, date and place as then may be fixed, to act upon proposals and enter into a contract for the construction of the following improvements:

WATER TREATMENT FACILITY STANDBY GENERATOR PROJECT

Construct the Water Treatment Facility Standby Generator project including all labor, materials and equipment necessary for the installation of a new 750 kW standby generator, automatic transfer switch, all associated conduits, wiring, pavement removal and replacement, retaining wall removal and replacement, surface restoration and miscellaneous associated work, including cleanup.

The project is located at the Indianola Municipal Utilities Water Treatment Facility, 1602 South K Street, Indianola, Iowa.

At said hearing, the Board of Trustees will consider the plans, specifications, proposed form of contract, and estimated total cost for the project, the same now being on file in the office of the Clerk, reference to which is made for a more detailed and complete description of the proposed improvements, and at said time and place the said Board will also receive and consider any objections to said plans, specifications, estimate of cost and form of contract made by any interested party.

This notice is given by order of the Board of Trustees of Indianola Municipal Utilities, Indianola, Iowa.

BOARD OF TRUSTEES
INDIANOLA MUNICIPAL UTILITIES
INDIANOLA, IOWA

Dom Selgrade, Chairperson

Attest:

Monica Thompson, Board of Trustees Secretary

285114

00040-1

NOTICE TO BIDDERS

NOTICE OF TAKING BIDS FOR THE CONSTRUCTION OF THE WATER TREATMENT FACILITY STANDBY GENERATOR PROJECT FOR THE INDIANOLA MUNICIPAL UTILITIES, INDIANOLA, IOWA.

Sealed proposals shall be filed with the Clerk of the Indianola Municipal Utilities in the Board Room of the Indianola Municipal Building, 210 W. 2nd Avenue, Indianola, Iowa before 2:00 P.M. local time on the 5th day of August, 2025 for the construction of the Water Treatment Facility Standby Generator project, and work incidental thereto, as described in the plans and specifications therefor, now on file in the office of the Clerk. Proposals will be opened and the amount of the bids announced in said Board Room by the Clerk at the time and date specified above.

Proposals will be acted upon by the Board of Trustees of Indianola Municipal Utilities at 5:30 P.M. on the 11th day of August, 2025, or at such later time and place as then may be fixed.

The work to be done is as follows:

WATER TREATMENT FACILITY STANDBY GENERATOR PROJECT

Construct the Water Treatment Facility Standby Generator project including all labor, materials and equipment necessary for the installation of a new 750 kW standby generator, automatic transfer switch, all associated conduits, wiring, pavement removal and replacement, retaining wall removal and replacement, surface restoration and miscellaneous associated work, including cleanup.

All work and materials are to be in accordance with the proposed plans, specifications, form of contract and estimate of cost now on file in the office of the Clerk of said Utilities and by this reference made a part thereof as though fully set out and incorporated herein.

All proposals and bids in connection therewith shall be submitted to the Clerk of said Utilities on or before the time herein set for said receipt of bids. All proposals shall be made on official bidding blanks furnished by the Board, and any alterations in the official form of proposal will entitle the Board, at its option, to reject the proposal involved from consideration. Each proposal shall be sealed and plainly identified.

Notice to Bidders

Each proposal shall be made out on a blank form furnished by the utility and must be accompanied by bid security, as follows: a certified or cashier's check, drawn on a solvent Iowa bank or a bank chartered under the laws of the United States or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States, in an amount equal to five percent (5%) of the bid, or a bid bond executed by a corporation authorized to contract as a surety in the State of Iowa in a penal sum of five percent (5%) of the bid.

The bid security should be made payable to the INDIANOLA MUNICIPAL UTILITIES. The bid security must not contain any conditions either in the body or as an endorsement thereon. The bid security shall be forfeited to the Board as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within 10 days after the award of contract and post bond satisfactory to the Board insuring the faithful fulfillment of the contract and the maintenance of said work, if required, pursuant to the provisions of this notice and the other contract documents. Bidders will use the bid bond form included in the specifications.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

The Board of Trustees reserves the right to reject any or all bids, to waive informalities or technicalities in any bid and to accept the bid which it deems to be to the best interest of the Utility.

The Board reserves the right to defer acceptance of any proposal for a period not to exceed thirty (30) calendar days from the deadline for submission of proposals.

The successful bidder will be required to furnish a bond in an amount equal to one hundred percent (100%) of the contract price, said bond to be issued by responsible surety approved by the Board and shall guarantee the faithful performance of the contract and the terms and conditions therein contained, and shall guarantee the prompt payment for all materials and labor and protect and save harmless the Board from claims and damages of any kind caused by

285114

00050-2

the operations of the Contractor, and shall guarantee the work against faulty workmanship and materials for a period of four (4) years after its completion and acceptance by the Board of Trustees.

The work will commence within ten (10) calendar days after the date set forth in written Notice to Proceed and shall be completed by October 31, 2026.

Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day will be assessed for each day that the project is not completed after October 31, 2026.

A sales tax exemption certificate will be available for all material purchased for incorporation in the project.

Payment for said improvements will be made in cash from sale of general obligation bonds or notes, water revenue bonds or notes, or from such funds as are legally available for said purposes. Any combination of the above methods of payment may be used at the discretion of the Board of Trustees.

Payment to the Contractor will be on the basis of monthly estimates equivalent to ninety-five percent (95%) of the contract value of the work completed and payments made to material suppliers for materials ordered specifically for the project and delivered to the site during the preceding calendar month. Estimates will be prepared each month by the Contractor, subject to the approval of the Engineer, who will certify to the Board for payment each approved estimate on or before the tenth (10th) day of the following month. Such monthly payments shall in no way be construed as an act of acceptance for any part of the work partially or totally completed. Upon completion of the work and its acceptance by the Board, the Contractor will be paid an amount which, together with previous payments, will equal ninety-five percent (95%) of the contract price of the contract. Final payment of the remaining five percent (5%) will be made not less than thirty-one (31) days after completion and acceptance by resolution of the Board of Trustees of the completed contract, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa. No such partial or final payments will be due until the Contractor has certified to the Clerk that the materials, labor and services involved in each estimate have been paid for in accordance with the requirements stated in the specifications.

Plans and specifications governing the construction of the proposed improvements, and also the prior proceedings of the Board of Trustees referring to and defining said proposed improvements are hereby made a part of this notice and the proposed contract by reference and the proposed contract shall be executed in compliance therewith.

Notice to Bidders

Copies of said plans and specifications and form of contract are now on file in the office of the Clerk. Copies may be obtained from VEENSTRA & KIMM, INC., 6775 Vista Drive, West Des Moines, Iowa 50266, at no charge.

This notice is given by order of the Board of Trustees of the Indianola Municipal Utilities, Indianola, Iowa.

BOARD OF TRUSTEES
INDIANOLA MUNICIPAL UTILITIES
INDIANOLA, IOWA

Dom Selgrade, Chairperson

Attest:

Monica Thompson, Board of Trustees Secretary

SECTION 00100

INSTRUCTIONS TO BIDDERS

WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES INDIANOLA, IOWA

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1. DEFINITION OF TERMS

- 1.1 "Owner", "Water Works", or "Utility" shall mean the Indianola Municipal Utilities, Indianola, Iowa, acting through the Board of Trustees or an authorized representative of Board of Trustees.
- 1.2 "Person" shall mean any individual partnership, society, association, joint stock company, corporation, estate, receiver, trustee, assignee or referee, whether appointed by a court or otherwise, and any combination of individuals.
- 1.3 "Bidder" shall mean any person who submits a proposal to furnish the work described in the Contract Documents.

- 1.4 "Contractor" shall mean the person with whom the Owner may enter into contract for the execution of the work specified.
- 1.5 "Subcontractor" shall mean the person supplying materials, labor, equipment and appurtenances for the work, such person having contractual relations with the Contractor, but not with the Owner.
- 1.6 "Engineer" shall mean Veenstra & Kimm, Inc., West Des Moines, Iowa.
- 1.7 "Standard Drawings" shall mean construction detail drawings bound with these specifications.
- 1.8 "Work" shall mean the work to be done and the equipment, supplies and materials to be furnished under the contract, unless some other meaning is indicated by the context.
- 1.9 "Or Equal" shall follow manufacturers' names used to establish standards and, if not stated, is implied.

2. CONTRACT DOCUMENTS

- 2.1 The Contract Documents, sometimes referred to as the "plans and specifications," shall mean and include the following parts as used herein:
 - 2.1.1 Notice to Bidders
 - 2.1.2 Instructions to Bidders
 - 2.1.3 Proposal
 - 2.1.4 Contract
 - 2.1.5 Bond
 - 2.1.6 General Conditions
 - 2.1.7 Special Conditions
 - 2.1.8 Plans List
 - 2.1.9 Plans listed in the Specifications
 - 2.1.10 Addenda issued to the foregoing.

3. METHOD OF BIDDING

- 3.1 Bidders shall submit unit and lump sum prices for the work covered by the plans and specifications. Prices shall cover complete work and include all costs incidental thereto, unless indicated otherwise.
- 3.2 Bids will be computed using quantities shown in proposal. Unit price quantities are approximate and only for comparison of bids. Engineer retains right to change location, quantities and combination of units as may be required during progress of construction. Compensation due Contractor will be computed on basis of final quantities of completed work.
 - 3.2.1 In the event of discrepancies between unit prices and unit price extensions listed in bidder's proposal, unit prices shall govern and unit price extensions and total bid shall be corrected, as necessary, for agreement with unit prices. The total price will be determined on the basis of corrected extensions of the unit prices.
 - 3.2.2 In the case of an obvious and serious clerical or entry error in the Proposal where the Owner is able to clearly determine the bidder's intent from the Proposal the Owner may waive irregularities that are in the best interest of the Owner as long as the integrity of the bidding process is not affected by waiving the clerical or entry irregularity.
- 3.3 Unit prices for payment items included in the specifications, but not listed in the PROPOSAL, will be negotiated, if needed.

4. QUALIFICATIONS OF BIDDERS

- 4.1 Bidders shall be prepared to satisfy Owner as to integrity, experience, adequacy of equipment, personnel and financial ability to perform work specified.
- 4.2 If successful bidder is a non-Iowa corporation, it shall submit proof to Owner prior to execution of contract that it has been authorized by Secretary of State to do business in Iowa.

5. SUBMISSION OF BIDS

- 5.1 Bidders shall submit the Proposal stamped "Official Bid". The Proposal stamped "Official Bid" is considered the original Proposal and shall be used for bidding. Submit in a sealed envelope. Envelope shall bear return address of the bidder and shall be addressed as follows:

To:
Board of Trustees
Indianola Municipal Utilities
210 W. 2nd Avenue
Indianola, Iowa 50125

Proposal for:
Water Treatment Facility
Standby Generator

- 5.2 Bids shall be signed by a legally authorized representative of bidder.
- 5.3 Bidders shall submit with Proposal the following documents:
- 5.3.1 Bid Bond.
- 5.3.2 Bidder Status Form.

6. EVALUATION OF BIDS

- 6.1 Award of contract will be made to the lowest responsive, responsible bidder. The Board of Trustees reserves the right to reject any and all bids and to waive informalities and technicalities and to enter into such contract as it shall deem for the best interest of the Indianola Municipal Utilities.

7. WITHDRAWAL OF BIDS

- 7.1 A bidder may withdraw his bid at any time prior to scheduled closing time for a receipt of bids, but no bid shall be withdrawn for a period of 30 calendar days thereafter.

8. BID SECURITY

- 8.1 Each bid shall be accompanied by bid security in the form and amount as set out in the Notice to Bidders.

- 8.2 Bid security shall be enclosed in the sealed envelope with the bid, or in a separate sealed envelope.
- 8.3 The bid security shall be forfeited and become the property of the Owner in case the bidder fails or refuses to enter into contract and to furnish bond within 10 calendar days after his proposal shall have been accepted.
- 8.4 Bid security of the unsuccessful bidders will be returned as soon as the successful bidder is determined and has entered into a contract; bid security of successful bidder will be returned upon execution of contract and furnishing of bond.
- 8.5 Bidders shall use bid bond form included with specifications.

9. EXAMINATION OF WORK

- 9.1 Bidders shall familiarize themselves with the specifications and with all conditions which will affect construction. It will be assumed that bidders have made a personal examination of the job and the physical conditions affecting the work.

10. EXECUTION OF CONTRACT

- 10.1 The successful bidder shall enter into a written contract with the Owner, within 10 days after acceptance of his proposal on the forms included with these specifications, for the performance of the work awarded to him.
- 10.2 The contract, when executed, shall be deemed to include the entire agreement between the parties hereto, and the Contractor shall not claim any modification thereof resulting from any representation or promise made at any time by any representative of the Owner or any other person.

11. CONTRACT TERMINATION

11.1 Provisions of law, as contained in Chapter 573A of the Code of Iowa shall apply to and be a part of this contract. Chapter 573A provides for termination of contracts for construction of public improvements when construction or work thereon is stopped because of a national emergency. The provisions of Chapter 573A shall be binding upon all parties thereto, including subcontractors and sureties upon any bond given or filed in connection therewith.

12. TAXES

12.1 The Owner will issue a sales tax exemption certificate for all materials purchased on the project. The Owner will issue the appropriate tax exemption certificates and authorization letters to the Contractor and all subcontractors completing work on the project. Tax exemption certificates are applicable only for the specific project for which the tax exemption certificate is issued.

12.2 Contractor shall provide a listing to the Owner identifying all appropriate subcontractors qualified for use of the tax exemption certificate. Contractor and subcontractors may make copies of the certificate and provide, to each supplier providing construction material, a copy of the tax exemption certificate.

12.3 Income tax:

12.3.1 Successful bidder is subject to payment of Iowa income tax on income from this work in amounts prescribed by law.

12.3.2 If successful bidder is a non-Iowa partnership, individual or association, he shall furnish evidence prior to execution of contract, that bond or securities have been posted with the Iowa Department of Revenue in the amount required by law.

13. PREFERENCE FOR LABOR AND MATERIALS

13.1 By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa Statutes; provided that the award of contract will be made to the lowest responsible bidder submitting the lowest responsive bid.

14. PAYMENT

14.1 Payment will be made as set forth in Notice to Bidders.

14.2 Payment will be made on the basis of estimates prepared by Contractor and approved by Engineer, solely for the purpose of payment; approval by Engineer shall not be deemed approval of workmanship or materials.

15. APPROVAL OF MATERIALS

15.1 Approval of substitutions of any materials or equipment other than that specified shall be obtained in writing from Engineer. Otherwise, it will be assumed Contractor will furnish materials or equipment specified.

16. SOIL BORINGS

16.1 Soil borings have not been made along proposed route of work.

16.2 Obtain permission of Owner to make soil borings along proposed route of proposed work. Bidders are responsible for obtaining utility locates and for any utilities damaged by soil boring activities.

17. PERIOD OF GUARANTEE AND BOND

17.1 Contractor shall guarantee work for a period of four (4) years from date of final acceptance. Surety bond furnished by Contractor shall run for a like period.

18. BIDDER STATUS FORM

18.1 In accordance with the requirements of the Iowa Department of Labor all Bidders must submit a fully completed Bidder Status Form. The Bidder Status Form must be included with and is considered an essential attachment to the Proposal. Any Proposal that does not include a fully completed Bidder Status Form may result in the Proposal being determined non-responsive.

PROPOSAL

WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES
INDIANOLA, IOWA

Name of Bidder _____

Address of Bidder _____

To: Board of Trustees
Indianola Municipal Utilities
210 West 2nd Avenue
Indianola, Iowa 50125

The undersigned bidder submits herewith bid security amounting to five percent (5%) of the total amount of the bid which shall become the property of the Indianola Municipal Utilities, Indianola, Iowa, should the undersigned fail or refuse to execute a contract and to furnish bond as called for in the specifications within the time provided.

The undersigned bidder, having examined the contract documents, and having familiarized himself with the nature and location of the work to be done and the conditions under which the work will be performed, hereby proposes to provide the required labor, services and materials and to perform the work described in the specifications, and addenda _____, _____, _____ and _____, within the time and for the sum or sums stated hereinafter on attached proposal schedule which is hereby made a part of this proposal.

The undersigned bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding on the work.

The undersigned bidder states that this proposal is made in conformity with the specifications and agrees that in the event of any discrepancies or differences between any conditions of his proposal and the specifications prepared by VEENSTRA & KIMM, INC. that the provisions of the latter shall prevail.

Bidder _____

By _____

Title _____

PROPOSAL SCHEDULE

WATER TREATMENT FACILITY STANDBY GENERATOR

1. Construct Water Treatment Facility Standby Generator for the following unit and lump sum prices:

	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Extended Price</u>
1.1	Construct the Water Treatment Facility Standby Generator project including all labor, materials and equipment necessary for the installation of a new 750 kW standby generator, automatic transfer switch, all associated conduits, wiring, pavement removal and replacement, retaining wall removal and replacement, surface restoration and miscellaneous associated work, including cleanup.	LS	1	xxxxx	\$ _____
Total Bid (1.1)					\$ _____

2. Specific Items of Equipment:

- 2.1 Total lump sum bid stated includes furnishing and installing all specific items of the manufacturer designated as "BASE BID ITEM" in the following tabulation:

2.1.1 Number of items required shown in parentheses after "BASE BID ITEM".

- 2.2 The bidder agrees to furnish and install alternate items selected from the following tabulation for a contract price equal to the total lump sum bid stated above adjusted by the difference between the sum of the installed prices for "BASE BID ITEM" and the sum of the installed prices for the selected alternate items.

- 2.3 If awarded a contract, all items selected from the following tabulation will be guaranteed by the bidder and his surety to meet the requirements of the specifications.

Proposal

2.4 The bidder states that all items offered in the following tabulation fully comply with the contract specifications.

<u>No.</u>	<u>Section Number</u>	<u>Item</u>	<u>Manufacturer</u>	<u>Installed Price</u>
(1)	16620	Standby Generator System BASE BID ITEM	Interstate/MTU Cummins/Onan Kohler Caterpillar Generac	\$
		Alternate Items	(a)	_____
			(b)	_____
			(c)	_____

3. The work will commence within ten (10) calendar days after the date set forth in written Notice to Proceed and shall be completed by October 31, 2026.
4. Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day will be assessed for each day that the project is not completed after October 31, 2026.
5. Required attachment:
 - Bidder Status Form
 - Bid Bond

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No

My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No

My company has an office to transact business in Iowa.

☐ Yes ☐ No

My company's office in Iowa is suitable for more than receiving mail, telephone calls, and email.

☐ Yes ☐ No

My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No

My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to resident bidders, resident labor force preferences or any other type of preference to bidders or laborers?

☐ Yes ☐ No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Signed Name: _____

Signature: _____

Firm Name: _____

Date: _____

Email Address: _____

Phone Number: _____

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

☐ Yes ☐ No

My business is currently registered as a contractor with the Iowa Division of Labor.

☐ Yes ☐ No

My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

☐ Yes ☐ No

My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.

☐ Yes ☐ No

My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

☐ Yes ☐ No

My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.

☐ Yes ☐ No

My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

☐ Yes ☐ No

My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

☐ Yes ☐ No

My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

☐ Yes ☐ No

My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

☐ Yes ☐ No

My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

☐ Yes ☐ No

My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we, _____

_____, of, _____,

as Principal, and _____

of _____,

as Surety, are held and firmly bound unto the Indianola Municipal Utilities, Indianola, Iowa, hereinafter defined as Obligee, in the penal sum of five percent (5%) of the total amount of the bid (\$_____), for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the Indianola Municipal Utilities, Indianola, Iowa, a certain bid, in a sealed envelope, and hereby made a part hereof to enter into a contract in writing, for: Water Treatment Facility Standby Generator.

NOW THEREFORE, if the said bid by said Principal be accepted, and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond as may be specified in the contract documents with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void or in the event of the failure of the Principal to enter such contract and give such bond, the Principal shall pay to the Obligee the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____ day of _____, 2025.

Principal

By _____
Contractor's Signature

Surety

By _____
Attorney-in-Fact

CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, 2025, by and between the Indianola Municipal Utilities, Indianola, Iowa, party of the first part, hereinafter referred to as the "Owner", and _____, party of the second part, hereinafter referred to as the "Contractor".

WITNESSETH: THAT WHEREAS, the Owner has heretofore caused to be prepared certain plans, specifications and proposal blanks, dated the 21st day of July, 2025, for the Water Treatment Facility Standby Generator under the terms and conditions therein fully stated and set forth, and,

WHEREAS, said plans, specifications and proposal blanks accurately and fully describe the terms and conditions upon which the Contractor is willing to perform the work specified:

NOW, THEREFORE, IT IS AGREED:

1. That the Owner hereby accepts the proposal of the Contractor for the work, as follows:

WATER TREATMENT FACILITY STANDBY GENERATOR

Construct the Water Treatment Facility Standby Generator project including all labor, materials and equipment necessary for the installation of a new 750 kW standby generator, automatic transfer switch, all associated conduits, wiring, pavement removal and replacement, retaining wall removal and replacement, surface restoration and miscellaneous associated work, including cleanup for the sum of

_____ based on the lump sum price as shown on the Proposal.

2. That this contract consists of the following component parts which are made a part of this agreement and contract as fully and absolutely as if they were set out in detail in this contract:

2.1 Contract Documents, including:

- 2.1.1 Notice to Bidders
- 2.1.2 Instructions to Bidders
- 2.1.3 Proposal
- 2.1.4 Contract
- 2.1.5 Bond
- 2.1.6 General Conditions
- 2.1.7 Special Conditions
- 2.1.8 Plans List
- 2.1.9 Plans listed in the Specifications

2.2 This Instrument.

- 2.3 The above components are complementary and what is called for by one shall be as binding as if called for by all.

3. That payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the documents made a part of this contract.

4. That this contract is executed in triplicate.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand and seals the date first written above.

CONTRACTOR:

INDIANOLA MUNICIPAL UTILITIES
INDIANOLA, IOWA

By _____
Chairperson, Board of Trustees

By _____

Title _____

ATTEST:

ATTEST:

Secretary

Title _____

BOND

KNOW ALL MEN: That we, _____,
of _____, hereinafter called the Principal, and
_____,
hereinafter called the Surety, are held and firmly bound unto the Indianola Municipal Utilities,
Indianola, Iowa, hereinafter called the Owner, in the sum of

Dollars (\$ _____), for the payment whereof the Principal and the Surety bind
themselves, their heirs, executors, administrators, successors and assigns, jointly and severally,
firmly, by these presents.

WHEREAS, the Principal has, by means of a written Agreement dated _____,
2025, entered into a Contract with the Owner for the Water Treatment Facility Standby
Generator, which Agreement includes a guarantee of all work against defective workmanship
and materials for a period of four (4) years from the date of final acceptance of the work by the
Owner, a copy of which Agreement is by reference made a part hereof;

Now Therefore, the condition of this Obligation is such that, if the Principal shall faithfully
perform the Contract on his part and shall fully indemnify and save harmless the Owner from all
cost and damage which he may suffer by reason of failure so to do and shall fully reimburse and
repay the Owner all outlay and expense which the Owner may incur in making good any such
default,

And Further, that if the Principal shall pay all persons who have contracts directly with the
Principal for labor or materials, failing which such persons shall have a direct right of action
against the Principal and Surety under this Obligation, subject to the Owner's priority,

Then this Obligation shall be null and void, otherwise it shall remain in full force and effect.

Provided, however, that no suit, action or proceeding by reason of any default whatever shall be
brought on this Bond after five (5) years from the date of final acceptance of the work.

And Provided, that any alterations which may be made in the terms of the Contract, or in the
work to be done under it, or the giving by the Owner of any extension of time for the
performance of the Contract, or any other forbearance on the part of either the Owner or the
Principal to the other shall not in any way release the Principal and the Surety, or either of them,
their heirs, executors, administrators, successors or assigns from their liability hereunder, notice
to the Surety of any such alteration, extension or forbearance being hereby waived.

And Further Provided, the Principal and Surety on this Bond hereby agree to pay all persons,
firms, or corporations having contracts directly with the Principal or with subcontractors all just
claims due them for labor performed or material furnished, in the performance of the Contract
on account of which this Bond is given, when the same are not satisfied out of the portion of the
contract price which the Owner shall retain until completion of the improvements, but the
Principal and Surety shall not be liable to said persons, firms, or corporations unless the claims of
said claimants against said portions of the contract price shall have been established as provided
by law.

The Surety on this Bond shall be deemed and held, any contract to the contrary not
withstanding, to consent without notice:

- a. To the extension of time to the Principal in which to perform the Contract.
- b. To changes in the plans, specifications, or Contract, when such changes do not involve an increase of more than twenty percent (20%) of the total contract price, and shall then be released only as to such excess increase.
- c. That no provision of this Bond or of any other contract shall be valid which limits to less than five (5) years from the date of final acceptance of the work the right to sue on this Bond for defects in workmanship or materials not discovered or known to the Owner at the time such work was accepted.

The Bond is executed in triplicate.

Signed and Sealed this _____ day of _____, 2025.

PRINCIPAL:

Contractor

Signature

Title

SURETY:

Surety Company

Signature, Attorney-in-Fact

Name of Attorney-in-Fact

Company Name

Company Address (Including Zip Code)

Company Telephone Number

SECTION 00700

GENERAL CONDITIONS

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1. CONTRACT DOCUMENTS

- 1.1 All documents listed or identified as part of contract are each and all essential and component parts of agreement between Owner and Contractor.
- 1.2 Contract Documents shall be signed in triplicate by Owner and Contractor.
- 1.3 Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of documents is to include all labor and materials, equipment and transportation necessary for proper execution of work. It is not intended that materials or work not covered by or properly inferable from any heading, branch, class or trade of the specifications shall be supplied unless distinctly noted. Materials or work described in words, which have a well-known technical or trade meaning, shall be held to refer to such recognized standards.

2. SURETY BOND

- 2.1 Contractor shall furnish a good and sufficient surety bond in full amount of contract prior to signing contract. Surety bond shall guarantee faithful performance of all provisions of contract and payment of all bills and obligations arising from said contract. Should surety become irresponsible during time contract is in force, Owner may require additional and sufficient sureties. Contractor shall furnish said additional sureties to satisfaction of Owner within ten (10) days after written notice to do so. In default thereof, contract may be suspended as hereinafter provided.

3. CONTRACTOR'S RESPONSIBILITY

- 3.1 Contractor shall assume full responsibility for safekeeping of all materials and equipment and for all unfinished work until final acceptance by Owner. Materials and equipment which are damaged or destroyed from any cause shall be replaced at Contractor's expense.
- 3.2 Contractor shall indemnify and save harmless Owner against any liens filed for non-payment of Contractor's bills in connection with contract work. Contractor shall furnish Owner satisfactory evidence that all persons who have done work or furnished materials, equipment, or service of any type, under the contract have been fully paid prior to acceptance of work by Owner.
- 3.3 Contractor shall erect and maintain such barriers and lights as will prevent accidents as a consequence of its work. It shall indemnify and save harmless the Owner and its agents from all suits brought against Contractor for any injuries received or sustained by any person or persons by or through Contractor, its servants, or agents, in construction of work, or by or in consequence of any acts or omissions or negligence in performing contract work.
- 3.4 Without limiting GENERAL REQUIREMENTS of Contract Documents, protect flag poles, sidewalks, streets, pavements, fences, pipe, conduit, utilities, trees, shrubs and structures not shown for removal.
- 3.5 Cooperate with Owner, Engineer, and representative of utilities in locating underground utility lines and structures; incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve Contractor of responsibility for damage thereto caused by his operations.

4. SUBCONTRACTS

- 4.1 Contractor shall not assign, sub-let or transfer the whole or any part of work herein specified without written consent of Owner. Assignment, sub-letting or transfer shall not relieve Contractor from its responsibilities set forth herein.
- 4.2 Detailed specifications are separated into titled parts for convenience or reference and to facilitate letting of contracts and subcontracts. Such arrangement shall not obligate Engineer to establish limits on contracts between Contractors and subcontractors.

5. CONTRACTOR'S EMPLOYEES

- 5.1 Contractor shall personally supervise its work or provide a capable superintendent satisfactory to Engineer. Superintendent shall be authorized to receive instructions from Engineer.
- 5.2 Incompetent or incorrigible employees shall be dismissed by the Contractor or its representative when requested by Engineer. Such dismissed persons shall not be permitted to return to work without written consent of Engineer.
- 5.3 Contractor shall give preference to local labor in execution of this contract, insofar as is practicable.

6. PERMITS AND REGULATIONS

- 6.1 In execution of work specified herein, Contractor shall conform to regulations and ordinances of any governmental body which may apply in execution of specified work. Contractor shall obtain such permits and licenses as may be required for construction of work.

7. PATENTS

- 7.1 All fees or royalties for patented inventions, equipment or arrangements used in construction or erection of work, or any part thereof, shall be included in contract price. Contractor shall protect and hold harmless Owner against any and all claims or litigation by reason of infringement of any patent rights on any materials, equipment of construction furnished by Contractor.

8. GUARANTEE

- 8.1 Contractor shall guarantee all work against faulty workmanship and materials for the period specified after date of final acceptance of work by Owner unless otherwise set out in "SPECIAL CONDITIONS" or "INSTRUCTIONS TO BIDDERS." Contractor shall repair or replace any defective workmanship and materials in a manner acceptable to Owner, without expense to Owner, within ten (10) days after written notification by Owner of such defect. If said repairs or replacements are not made within ten (10) days, Owner may make said repairs or replacements and charge the cost to Contractor.
- 8.2 Contractor shall provide Owner with a good and sufficient surety maintenance bond in the full amount of contract prior to signing contract. Maintenance bond shall run for the period specified from time of acceptance to protect Owner from faulty workmanship and materials as outlined in preceding paragraph.

9. SHOP DRAWINGS

- 9.1 Contractor shall provide Engineer with drawings, data and information regarding materials or equipment specified, or as may be called for by Engineer, for its review, within a reasonable time after award of contract. After review, Engineer shall return to Contractor one copy within a reasonable time after receipt.
- 9.1.1 Submit 5 copies of all shop drawing submittals.
- 9.2 Fabrication and shipment of materials or equipment prior to Engineer's review of drawings, data and information mentioned above shall be at Contractor's risk.

10. THE ENGINEER

- 10.1 Engineer shall make general observation of work as agent of Owner. Engineer's general observation shall not be construed that it shall direct or control operations of Contractor.

11. PLANS AND SPECIFICATIONS

- 11.1 Engineer shall provide Contractor with five sets of plans and specifications after execution of contract. If additional plans and specifications are required, Contractor shall compensate Engineer for costs of printing.
- 11.2 Engineer shall provide Contractor with additional and supplemental plans as may be required to show details of construction after approval of manufacturers' drawings and data on materials and equipment.

- 11.3 Engineer will provide Contractor with such revised plans and specifications as may be required to show any authorized changes or extra work.

12. INTERPRETATION OF PLANS AND SPECIFICATIONS

- 12.1 Plans and specifications shall be interpreted by Engineer. Its decision shall be final and binding on all parties concerned.
- 12.2 Contractor will not be allowed to take advantage of errors or omissions in plans and specifications. Engineer will provide full instructions when errors or omissions are discovered.

13. LINE AND GRADE

- 13.1 Engineer shall provide stakes showing line and grade from bench marks, base lines and other reference points. Contractor shall provide competent men and tools, stakes and other materials as required to establish temporary or permanent reference marks in connection with the work. Contractor shall perform such detailed measurements and transfer elevations as required to properly lay out and construct work.
- 13.2 Contractor shall carefully preserve all stakes and reference points against destruction and shall promptly notify Engineer of any stakes which have been disturbed. In case of willful or careless destruction, Contractor will be charged for expense and damage from such destruction.

14. DECISIONS BY ENGINEER

- 14.1 Engineer shall make decisions, in writing, on claims between Contractor and Owner within a reasonable time after presentation. Such decisions shall be regarded as final except for appropriate legal recourse.

15. WORKMANSHIP AND MATERIALS

- 15.1 All work done and all materials and equipment furnished by Contractor shall conform to plans and specifications. Competent laborers and tradespersons shall be used on all work. Experienced manufacturers' representatives shall be used to supervise installation of equipment.
- 15.2 In absence of detailed specifications in other sections, all materials shall conform to standards of American Society for Testing Materials.

- 15.3 Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, it is the intent that materials or equipment of other manufacturers, equal in quality and performance, may be substituted. Such substitution may be made only with written authorization of Engineer.
 - 15.4 Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and additional features of items are specifically required by specifications, additional features specified shall be provided whether or not they are normally included in standard manufacturer's items listed.
 - 15.5 Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and specified items are or become obsolete and no longer available, Contractor shall provide acceptable equal items which are currently available at no change in contract price.
 - 15.6 When proposing "or equal" items or substitutions, Contractor shall furnish general arrangement drawings, full descriptive data, manufacturer's specifications and such performance data as required to satisfy Engineer that materials or equipment proposed are equal to that specified. Burden of proof of equality shall be responsibility of Contractor.
 - 15.7 Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.
 - 15.8 Contractor shall abide by Engineer's decision when proposed substitutes of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.
 - 15.9 Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.
16. ON-SITE REVIEW OR OBSERVATION
- 16.1 All materials used and all work done by Contractor shall be subject at all times to review, observation, tests and approval by Engineer. Contractor shall furnish samples of materials for observation and tests as requested by Engineer. Contractor shall furnish any information required concerning nature or source of any proposed materials or equipment.

- 16.2 Construction, fabrication and manufacture of equipment or materials specified herein may be observed by Engineer at plant or factory.
- 16.3 Materials, equipment or work which do not satisfactorily meet specifications may be condemned by Engineer by written notice to Contractor. Condemned materials, equipment or work shall be promptly removed and replaced.
- 16.4 Defective materials, equipment or work may be rejected by Engineer at any time prior to final acceptance by Owner even though said defective items may have been previously overlooked.

17. RESIDENT ENGINEER AND/OR ENGINEER TECHNICIANS

- 17.1 Resident engineer and/or engineer technicians may be appointed by Engineer or Owner to insure that work is performed in accordance with plans and specifications.
- 17.2 Resident engineer and/or engineer technicians shall have authority to notify Contractor in writing of work which is not being properly performed. Contractor shall be liable for any work determined by Engineer as not being properly performed.
- 17.3 Resident engineer and/or engineer technicians shall have no authority to permit deviation from plans and specifications and Contractor shall be liable for any deviations made without written order from Engineer.

18. TESTS

- 18.1 Tests shall be performed by Contractor upon materials and equipment specified, to determine if the materials and equipment meet requirements of specifications, conditions of operation and guarantees of Contractor.
- 18.2 Equipment shall be subject to factory tests specified herein. Certified evidence of tests shall be furnished when requested by Engineer.
- 18.3 Tests shall be made in accordance with standards of American Society of Mechanical Engineers, Institute of Electrical and Electronic Engineers, American Society for Testing Materials, and other recognized standards.

19. TIME

- 19.1 Contractor shall commence work within time specified and shall complete work within time specified in contract.

20. DELAYS

- 20.1 Delays caused by injunction or legal actions, damages by elements, or other causes beyond control of Contractor (of which Owner shall be sole judge) shall entitle Contractor to a reasonable extension of time within which to complete work.
- 20.2 Application for extension of time shall be made to Owner by Contractor and shall state reasons for request for extension of time.
- 20.3 No extension of time shall be valid unless made in writing by Owner.
- 20.4 Normal weather conditions shall not form the basis of request for extension of time. Abnormal weather conditions shall form basis of request for extension of time only to the delay in excess of that resulting from normal weather conditions.

21. CHANGES

- 21.1 Engineer shall have the right to make changes in location and quantities of work as may be deemed advisable with consent of Owner and without notice to sureties on Contractor's bond.
- 21.2 No change shall be made under this paragraph which will increase or decrease total contract amount more than twenty percent (20%) of original contract price and no changes shall be made in plan of improvement that would necessitate additional or different construction processes and equipment.
- 21.3 Amount due Contractor shall be adjusted for changes in following manner:
 - 21.3.1 Where unit prices have been bid, these unit prices shall be used to compute adjustment in compensation.
 - 21.3.2 Where no such unit prices have been bid, Engineer and Contractor shall negotiate a reasonable adjustment in Contractor's compensation. Limitations on compensation in 22.2 of "22. EXTRA WORK" shall apply to changes where compensation is negotiated.
 - 21.3.3 No changes shall be authorized unless they are shown on revised plans or in written instructions of Engineer.
 - 21.3.4 Authorized changes which require additional time to complete shall entitle Contractor to proportionate extension of time to completion which shall be determined by Engineer.

22. EXTRA WORK

- 22.1 Required extra work not specified under this contract shall be done at an agreed price satisfactory to Contractor and Owner, or on basis of actual cost of work plus not more than fifteen percent (15%) for Contractor's overhead and profit. Actual cost shall include expense for equipment, materials, and labor and shall include no overhead items or profit. Where extra work is done by a subcontractor, with approval of Owner, there may be included in Contractor's actual cost, ten percent (10%) for subcontractor's profit.
- 22.2 The term "extra work" as used herein shall not be construed to apply to changes described in "21. CHANGES".
- 22.3 No compensation shall be allowed Contractor for extra work unless such work has been authorized in writing by Engineer and approved by Owner.
- 22.4 Contractor shall submit a statement of costs to Engineer for approval when extra work is performed on an actual cost plus basis. After such a statement is approved, Engineer shall certify its correctness to Owner.

23. OWNERSHIP OF MATERIALS

- 23.1 All materials and work covered by partial payments shall become sole property of Owner, but this provision shall not be construed as relieving Contractor from sole responsibility for all materials and work for which payments have been made, for restoration of damaged work, or as a waiver of rights of Owner to require fulfillment of all terms of contract.

24. OTHER CONTRACTS

- 24.1 Owner reserves right to let other contracts in connection with this work. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work, and shall properly connect and coordinate its work with theirs.
- 24.2 When proper execution of Contractor's work depends upon work of another contractor, it shall inspect other work and report any defects to Engineer. Contractor's failure to inspect and report shall constitute an acceptance of other contractor's work except for defects which may develop in work after completion.
- 24.3 To insure proper execution of its subsequent work, Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and drawings.

25. OWNER'S RIGHT TO DO WORK

25.1 If Contractor neglects to prosecute work properly or fails to perform any provision of this contract, Owner, after three (3) days' written notice to Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor, provided, however, that Engineer shall approve both such action and amount charged to Contractor.

26. OWNER'S RIGHT TO TERMINATE CONTRACT

26.1 Owner, upon certification of Engineer that there is sufficient cause to justify termination of contract, may, without prejudice to any other right or remedy, and after giving Contractor seven (7) days' notice may terminate employment of Contractor for any of following reasons:

26.1.1 Contractor makes a general assignment for benefit of its creditors, or if adjudged a bankrupt.

26.1.2 Receiver is appointed on account of Contractor's insolvency.

26.1.3 Contractor persistently or repeatedly fails or refuses, except when extension of time to complete is granted, to provide enough skilled workmen or proper materials.

26.1.4 Contractor fails to make prompt payment to subcontractors for material or labor.

26.1.5 Contractor persistently disregards laws and ordinances or instructions of Engineer.

26.1.6 Contractor violates a provision of contract.

26.2 If Owner terminates employment of Contractor, it shall take possession of premises and all materials, tools and appliances thereon. It shall finish work by whatever method it may deem expedient. In such case Contractor shall not be entitled to receive any further payment until work is finished.

26.3 If unpaid balance of contract price exceeds expense of finishing the work including compensation for additional managerial and administrative services, excess shall be paid to Contractor. If expense exceeds unpaid balance, Contractor shall pay difference to Owner. Expense incurred by Owner as herein provided, and damage incurred through Contractor's default, shall be certified by Engineer.

27. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

27.1 If Engineer fails to issue any certificate for payment within fifteen (15) days after it is due, or if Owner fails to pay to Contractor within thirty (30) days of its maturity and presentation, any sum certified by Engineer, then Contractor may, upon seven (7) days simultaneous written notice to Owner and Engineer, stop work or terminate this contract. If Contractor elects to stop work by written notice, work shall be resumed promptly upon payment by Owner. If Contractor elects to terminate this contract by written notice it shall recover from Owner payment for all work executed to date of notice and any loss sustained upon any plant or materials plus a reasonable profit.

28. PAYMENTS WITHHELD

28.1 Engineer may withhold or nullify the whole or a part of payment certificate, on account of subsequently discovered evidence, to such extent as may be necessary to protect Owner from loss on account of:

28.1.1 Defective work not remedied.

28.1.2 Claims filed or reasonable evidence indicating probable filing of claims.

28.1.3 Failure of Contractor to make payments properly to subcontractors or for materials or labor.

28.1.4 A reasonable doubt that contract can be completed for balance then unpaid.

28.1.5 Damage to another contractor.

28.1.6 Claims of Owner for liquidated damages.

28.2 Payments shall be made for amounts withheld when above grounds are removed.

29. ACCEPTANCE AND FINAL PAYMENT

29.1 When work has been satisfactorily completed, Engineer will certify Contractor's final estimate stating that work has been completed in accordance with terms and conditions thereof with qualifications, if any, as stated. Balance found to be due Contractor according to the terms of payment shall be paid by Owner as provided in contract, provided, however, that any state laws which designate manner of final payment shall be followed in lieu of manner of final payment outlined above. Prior to receipt of final payment, Contractor shall file with Owner a receipt in full from

each manufacturer, subcontractor, and dealer for all equipment and materials used on the work and a complete release of all liens, including tax liens, which may have arisen from this contract and required statements from Contractor and all subcontractors of sales and use tax paid. In lieu thereof, Owner, at its option, may accept from Contractor a statement showing balance due on all accounts.

- 29.2 Making and acceptance of final payment shall constitute a waiver of all claims by Owner, except those arising from unsettled liens, from faulty work or materials appearing after final payment or from requirements of the specifications, and of all claims by Contractor, except those previously made and still unsettled.

30. SUSPENSION OF WORK

- 30.1 Owner may suspend the work, or any part thereof, at any time, by giving ten (10) days' written notice to Contractor. The work shall be resumed by Contractor within ten (10) days after date fixed in written notice from Owner to Contractor to do so.
- 30.2 If work, or any part thereof, shall be suspended and if Owner does not give written notice to Contractor to resume work within one (1) year of date of suspension, Contractor may abandon suspended portion of work. Contractor will be entitled to estimates and payments for all work done on the portions so abandoned, if any.

31. CLEANING UP

- 31.1 Contractor shall keep premises free from accumulations of waste material or rubbish caused by its employees or work. After completion of work it shall remove all its rubbish and all its tools, scaffolding and surplus materials from work site. It shall leave its work "broom clean" or its equivalent, unless more exactly specified. In case of dispute the Owner may remove rubbish and charge costs to Contractor as Engineer shall determine to be just.

32. HAZARDOUS MATERIALS

- 32.1 The use of Asbestos Construction Building Materials (ACBM) is specifically prohibited. The Contractor, suppliers, and subcontractors shall warrant that all products used are asbestos free. In the event that a specified product contains asbestos, it shall be the responsibility of the Contractor to notify the Owner so that an appropriate substitution can be made in a timely manner so as not to delay the project.

- 32.2 The Contractor shall provide the Owner a certificate that warrants that no materials, products, items or equipment contains any asbestos upon completion of the work of this Contract. If asbestos is found to exist in any of the materials, products, items or equipment provided as part of this Contract, the Contractor shall be financially responsible for all costs resulting from removal in accordance with an Owner approved method and replacement of an asbestos free condition to finished drawings and specifications. The financial responsibility of the Contractor shall not terminate with the end of the surety maintenance bond period, but shall continue through the life of the facility.

33. IOWA HAZARDOUS CHEMICAL RISKS RIGHT-TO-KNOW LAW

33.1 Owner's responsibility:

- 33.1.1 Owner shall provide to the Contractor a list of known hazardous chemicals within the project site to which their employees may be exposed and suggestions for appropriate protective measures.

33.2 Contractor's responsibility:

- 33.2.1 Contractor shall inform his/her employees of the Iowa Hazardous Chemical Risks Right-to-Know Law.
- 33.2.2 Contractor shall provide to the Owner a list of known hazardous chemicals that they anticipate will be used on site as well as all pertinent information relating to employee protection. Contractor's Material Safety Data Sheets (MSDS) shall be available to Owner upon request.

SECTION 00810

SPECIAL CONDITIONS

WATER TREATMENT FACILITY STANDBY GENERATOR
INDIANOLA MUNICIPAL UTILITIES
INDIANOLA, IOWA

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1. INTENT

- 1.1 To supplement the provisions of the GENERAL CONDITIONS by outlining special conditions applicable to project.

2. LOCATION

- 2.1 Work is located at the Indianola Municipal Utilities Water Treatment Plant in the City of Indianola, Iowa.
- 2.2 Transportation facilities:
- 2.2.1 Iowa Highway 92.
- 2.2.2 U.S. Highway 65/69.

3. RIGHT-OF-WAY

- 3.1 Confine movements of equipment and personnel, storage of materials, excavation, spoil banks, and all other construction operations within the rights-of-way provided.
- 3.2 Contractor will be held liable by City and adjacent property owners for damages outside rights-of-way and easements; failure of Engineer to warn Contractor about incidence of trespassing does not relieve liability.

4. ORDER OF CONSTRUCTION

- 4.1 Provide Engineer with proposed schedule of construction showing dates of starting and completing various portions of work.
- 4.2 Coordinate work with Owner and Engineer to assure orderly and expeditious progress of the work.
- 4.3 Contractor shall establish schedule of working hours for construction, subject to approval of Engineer.
- 4.4 Schedule construction to minimize use of street barricades and detours; clean up each portion of work as it is completed; schedule work to allow vehicular access for residents within 1 block of any closed street due to construction.

5. INTERRUPTIONS TO SERVICE

- 5.1 Existing utilities shall remain in substantially continuous operation during construction.

6. SERVICE FACILITIES

- 6.1 Water, electricity, compressed air, and other services shall be furnished by Contractor to meet his own requirements.

7. STORAGE OF MATERIALS AND EQUIPMENT

- 7.1 Storage areas shall be subject to approval of Engineer.
- 7.2 Store materials and equipment in manner which will preserve their quality and fitness.

8. CONSTRUCTION FACILITIES BY CONTRACTOR

- 8.1 Provide telephone at which Contractor can be reached by Owner or Engineer at all times during the working day; provide liaison between telephone and construction personnel for expeditious handling of messages.
 - 8.1.1 Provide Owner and Engineer with at least 2 telephone numbers where Contractor's representative can be reached evenings, weekends and holidays in event of emergency.

- 8.2 Location of all construction facilities, including project construction plant and yard, subject to approval by Engineer; remove all construction facilities upon completion of work.
- 8.3 Provide and maintain suitable sanitary facilities for construction personnel for duration of work; remove upon completion of work.
- 8.4 Provide fence, barricades, and/or watchmen to prevent access of unauthorized persons to site where work is in progress.

9. INSURANCE BY CONTRACTOR

- 9.1 Provide and maintain insurance throughout construction period in the following minimum amounts:
 - 9.1.1 Workmen's compensation and occupational disease insurance in accordance with the laws of the State of Iowa covering all employees who perform any obligations assumed under the contract.
 - 9.1.2 Public liability and property damage liability insurance covering all operations under the contract; limits of bodily injury or death not less than \$500,000 for one person and \$1,000,000 for each accident; for property damage, not less than \$250,000 for each accident and \$500,000 aggregate for accidents during the policy period.
 - 9.1.3 Automobile liability insurance on all self-propelled vehicles used in connection with the contract, whether owned, non-owned, or hired; public liability limits of not less than \$500,000 for one person and \$1,000,000 for each accident; property damage limit of \$500,000 for each accident.
 - 9.1.4 Umbrella liability (applying directly in excess above liability coverages); \$1,000,000 combined single limit; \$1,000,000 aggregate.
 - 9.1.5 Name the Indianola Municipal Utilities as an additional insured under all policies.
- 9.2 Owner reserves right to approve insurance company.

Special Conditions

- 9.3 Owner shall have right at any time to require public liability insurance and property damage liability insurance greater than required in above paragraphs. Additional premiums payable solely as result of such additional insurance shall be added to bid price.
- 9.4 Furnish certificates of insurance to Engineer made in favor of Owner showing compliance with foregoing requirements.
- 9.5 Notification in event of liability or damage: upon the occurrence of any event, the liability for which is herein assumed, the Contractor agrees to forthwith notify the Owner, in writing, such happening, which notice shall forthwith give the details as to the happening, the cause as far as can be ascertained, the estimate of loss or damage done, the names of witnesses, if any, and stating the amount of any claim.

10. CONTRACTOR'S RESPONSIBILITY

- 10.1 There shall be no liability upon public officials, Engineer or his authorized assistants, either personally or as an official of the Owner, it being understood that in such matters he acts as an agent and representative of the Owner in carrying out any of the provisions of the contract or in exercising any power or authority granted him thereby.
- 10.2 Contractor agrees to hold harmless and indemnify the Owner and Engineer and their employees or agents against any liability sustained by reason of the work or the handling or storing of materials therefor when such liability arises out of negligent acts, errors or omissions of the Contractor, its employees or agents; failing to do so, any judgment against or settlements resulting therefrom shall become a lien against any funds due Contractor.
- 10.3 In the event any provisions in the contract are violated by the Contractor or any of its subcontractors, the Owner may serve written notice upon the Contractor and its surety of their intention to terminate such contract. Such notice shall contain a statement of the reasons for such action and unless within 10 days after the serving of such notice upon the Contractor such violation shall cease and satisfactory arrangements for correcting be made, the contract shall, upon expiration of said 10 days cease and terminate.

10.3.1 In the event of such termination, the Owner shall immediately serve notice thereof upon the surety and Contractor and the surety shall have the right to take over and perform the contract, provided, however, that if the surety does not commence the performance thereof within 30 days, the Owner may take over the work and prosecute the same to completion by contract for the account and at the expenses of the Contractor and the Contractor and its surety shall be liable to the Owner for any excess cost occasioned the Owner thereby; in such event, the Owner may take possession of and utilize such materials and appliances as may be on the site of the project and necessary in completing the work.

10.4 If suit is brought by the Owner for the breach of any provisions of this contract, the Contractor agrees to pay all costs in connection with suit, including reasonable attorney fees, whether or not the suit proceeds to judgment.

11. POSITION, LINE AND GRADE

11.1 Construct to lines and grades shown on plans or as specified hereinafter.

11.2 Contractor shall perform detailed survey and staking for location, elevation and grade of construction.

11.3 Contractor shall provide, without extra compensation, all men and necessary tools to make all test holes and exploration, at any time, for purpose of determining location of existing structures beneath ground surface which might conflict with work of Contractor.

11.4 Contractor shall preserve all monuments, reference points, stakes and bench marks set by Engineer. In case of destruction by Contractor's negligence or carelessness, he will be charged with resulting expense of replacement, and responsibility for any mistakes or loss of time caused thereby.

11.5 These conditions supersede conflicting provisions of GENERAL CONDITIONS.

12. EMPLOYMENT PRACTICES

12.1 Contractor, or his subcontractors, shall not employ any person whose physical or mental condition is such that his employment will endanger the health and safety of himself or others employed on the project.

13. HISTORICAL/ARCHAEOLOGICAL FINDS

- 13.1 If, during course of construction, evidence of deposits of historical or archaeological interest is found, cease operations affecting find and notify Owner who shall notify Iowa Department of Natural Resources and Director and Historic Preservation Officer, State Historical Department, East 12th and Grand, Des Moines, Iowa 50319. No further disturbance of deposits shall ensue until notification by Owner that work may proceed. Owner will issue notice to proceed only after state official has surveyed find and made determination to Department of Natural Resources and Owner. Compensation to Contractor, if any, for lost time or changes in construction to avoid find, determined in accordance with changed conditions or change order provisions of specifications.

PLANS LIST

WATER TREATMENT FACILITY STANDBY GENERATOR INDIANOLA MUNICIPAL UTILITIES INDIANOLA, IOWA

1. PLANS

- 1.1 The work shall conform to the following drawings, which constitute the "Plans" and are an integral part of the Contract Documents:

<u>No.</u>	<u>Title</u>	<u>Revision Number</u>
01-G-01	INDEX AND TITLE SHEET	
01-G-02	GENERAL NOTES AND LEGEND	
02-C-01	OVERALL AREA PLAN	
02-C-02	REMOVAL AND DEMOLITION PLAN	
02-C-03	GENERATOR LAYOUT	
02-C-04	GRADING PLAN	
02-E-01	ELECTRICAL	
99-C-01	DETAILS	
99-E-01	DETAILS AND SCHEDULES	
99-E-02	DETAILS AND SCHEDULES	

SECTION 01010

DETAILED SPECIFICATIONS

GENERAL PROVISIONS

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- 1.03 INTERPRETATION
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- 1.07 STANDARDS AND CODES
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PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 - GENERAL

1.01 FORM

- A. Detailed specifications are in outline form and include incomplete sentences. Omission of words or phrases is intentional. Supply omitted words or phrases by inference.

1.02 INTENT

- A. To set forth requirements of performance, type of construction desired and standards of materials and construction.
- B. To require Contractor to furnish and install materials and perform all work and services described in Contract Documents, unless otherwise specifically indicated.
- C. To require Contractor to perform complete work in spite of omission of specific reference to any minor component part.
- D. To provide for new materials and equipment unless otherwise indicated.

1.03 INTERPRETATION

- A. Report any errors or ambiguities in specifications to Engineer as soon as detected; Engineer will answer questions regarding and interpret intended meaning of specifications; his interpretation shall be accepted as final.

1.04 WORK INCLUDED

- A. Furnish labor, materials and equipment to construct Water Treatment Facility Standby Generator project as set out in Notice to Bidders.

1.05 STARTING AND COMPLETION DATES

- A. Commence work within 10 calendar days after date set forth in written Notice to Proceed. Complete within time set forth in Notice to Bidders.
- B. Provide adequate personnel and equipment to perform work within time or before completion date set out in Notice to Bidders.
- C. Order all material and equipment immediately after award of contract. Notify Owner and Engineer of scheduled delivery dates for all materials and equipment. Promptly act to accomplish one of the following if Owner and Engineer, in consultation with Contractor, determine delivery dates to be unsatisfactory:
 - 1. Substitute alternate materials and equipment with approval of Owner and Engineer.
 - 2. Expedite delivery of materials and equipment.
- D. Extensions of contract period will be given consideration upon written request of Contractor. Request must include clear, concise reasons for requesting extension and provide data and relevant information to support reasons for extension.
 - 1. Owner expects work to be complete and ready for final acceptance within completion time prior to completion date specified.
 - 2. No extension of contract period will be granted for problems caused by deliveries of materials or equipment.
 - 3. The phrase "complete and ready for final acceptance" is interpreted to mean all items of construction, surface restoration and clean-up have been accomplished to the satisfaction of the Owner and Engineer prior to the completion date for the contract. So-called "punch list" items are included in this definition and must be completed prior to the completion date for the contract.

1.06 PLANS AND SPECIFICATIONS

- A. Engineer will furnish 5 sets of half-size plans and specifications after award of contract. Contractor shall compensate Engineer for printing costs for additional copies required.
- B. Subcontractors and suppliers will be furnished copies of plans and specifications only at request of Contractor.
- C. Provide one set of plans and specifications for each foreman or superintendent in charge of each crew on job.

1.07 STANDARDS AND CODES

- A. Do work in accordance with best present day construction practices.
- B. Unless specifically noted to contrary, conform with and test in accordance with applicable sections of latest revisions of codes and standards of following:
 - 1. Air Moving and Conditioning Association (AMCA).
 - 2. American Association of State Highway and Transportation Officials (AASHTO).
 - 3. American Concrete Institute (ACI).
 - 4. American Gas Association (AGA).
 - 5. American Gear Manufacturers Association (AGMA).
 - 6. American Institute of Steel Construction (AISC).
 - 7. American National Standards Institute (ANSI).
 - 8. American Plywood Association (APA).
 - 9. American Society of Civil Engineers (ASCE).
 - 10. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
 - 11. American Society of Mechanical Engineers (ASME).
 - 12. American Society for Testing and Materials (ASTM).
 - 13. American Standards Association (ASA).
 - 14. American Water Works Association (AWWA).
 - 15. American Welding Society (AWS).
 - 16. Anti-friction Bearing Manufacturers Association (AFBMA).
 - 17. Architectural Woodwork Quality Standards (AWI).
 - 18. California Redwood Association (CRA).
 - 19. Factory Mutual Corporation (FM).
 - 20. Federal Specifications (FS).
 - 21. Hoist Manufacturer's Institute (HMI).
 - 22. Hydraulic Institute (HI).
 - 23. Industrial Fasteners institute (IFI).
 - 24. Industrial Risk Insurers (IRI).
 - 25. Institute of Electrical and Electronic Engineers (IEEE).
 - 26. Insulated Power Cable Engineers Association (IPCEA).
 - 27. Internal Combustion Engine Institute (ICEI).
 - 28. Iowa Department of Transportation (IDOT); latest edition of standard specifications and addenda.
 - 29. Iowa Occupational Safety and Health Act of 1972 (Chapter 88, Code of Iowa 2021 (IOSHA).
 - 30. Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc. (AGC).
 - 31. Mining Enforcement and Safety Administration (MESA).
 - 32. National Association of Architectural Metal Manufacturers (NAAMM).
 - 33. National Electrical Manufacturers Association (NEMA).
 - 34. National Electrical Safety Code (NESC).
 - 35. National Fire Protection Association, Inc. (NFPA).
 - 36. National Fire Protection Associations' National Electrical Code (NEC).
 - 37. National Fluid Power Association (NFPA).
 - 38. National Institute for Occupational Safety and Health (NIOSH).

39. National Lumber Manufacturers Association (NLMA).
40. National Safety Council (NSC).
41. National Woodwork Manufacturers Association (NWMA).
42. Occupational Safety and Health Act of 1970 (Public Law 91-596) (OSHA).
43. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).
44. Society of Automotive Engineers (SAE).
45. Steel Door Institute (SDI).
46. Steel Structures Painting Council (SSPC).
47. Underwriters' Laboratories, Inc. (UL).
48. West Coast Lumber Inspection Bureau (WCLB).
49. Western Wood Products Association (WWPA).
50. Standards and codes of the State of Iowa and applicable local standards and codes of the City of Elkhart.
51. Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contracts.

1.08 MATERIALS TESTS

- A. Includes all materials tests or tests specified hereinafter.
- B. Employ approved testing laboratory to show that construction materials comply with specifications.
- C. Provide samples of materials required for laboratory tests and pay cost of all tests including transportation charges on samples.
- D. Incorporate no materials in work until laboratory tests have been furnished which show materials comply with specifications.
- E. All materials subject to testing, inspection and rejection at the site by Engineer.
- F. Pay all costs of retesting when test results indicate non-compliance with contract requirements.
- G. Laboratory tests specified herein include the following:
 1. Structural steel: certified copies of mill tests; ASTM A36.
 2. Fiberglass: certify that laminate properties conform to specifications.
 3. Aluminum-alloy: certify that properties conform to specifications.
 4. Galvanizing: certify that zinc coatings conform to specifications for all equipment.
 5. Cement: bin sample for entire requirement, ASTM C150.

6. Concrete aggregates: one sample of each, ASTM C33.
7. Two concrete compression cylinders from trial batch for each proposed mix, ASTM C39; test one at 7 days, one at 28 days; test cylinders during construction as defined in Section 03300 - Cast-in-Place Concrete.
8. Reinforcing steel: certify that steel conforms to ASTM A615 for grade specified.
9. Ductile iron pipe: certify that pipe conforms to ANSI/AWWA C151/A21.51.
10. Steel and galvanized steel pipe: certify that pipe conforms to ASTM A53.
11. Stainless steel pipe: certify that pipe conforms to ASTM A312, ASTM A778, and ASTM A774.
12. Copper tubing: certify that pipe conforms to ASTM B88.
13. Polyvinylchloride pipe: certify that pipe conforms to ASTM D1785, ASTM D1248 and AWWA C900.
14. Polyethylene pipe: certify pipe conforms to ASTM D1248 and ASTM D3035 as specified.
15. Reinforced thermosetting resin pipe: certify that pipe conforms to ASTM D2996.
16. Reinforced concrete pipe: test two pieces of each diameter of each class furnished; check reinforcing size and placement; ASTM C76.
17. Other pipe: certify that pipe conforms to applicable specifications.

H. Concrete Components:

1. Test or verify in writing make up of concrete in each concrete truck load delivered and poured at site.
2. Verify gallons of water per sack of cement.
3. Verify sacks of cement per cubic yard of concrete.
4. Verify admixtures used per ASTM designations listed in Section 03300 - Cast-in-Place Concrete.
5. Test for inches of slump per ASTM C143 and C172.
6. Test for percent air content per ASTM C231 or C173 and C172.

I. Reinforcing steel: furnish original and 1 copy of certified test report by manufacturer.

J. Welded wire fabric: furnish original and 1 copy of certified test report by manufacturer.

K. Provide sampling and testing of excavated materials to determine moisture-density relations of soils and perform moisture and density tests during construction as specified hereinafter.

L. See Section 01300 - Submittals, for other requirements.

1.09 FIELD TESTS

A. After installation is complete, supervise operation of equipment for 30 days to assure proper functioning; make necessary observations, tests and adjustments; replace or repair defective parts; notify Engineer when installation is considered complete, in operating condition and ready for testing.

- B. Engineer will conduct certain tests deemed necessary to determine that equipment functions properly and that guarantees are met.
- C. Test piping and valves as specified hereinafter.
- D. Test all fill materials for density and moisture content as directed by Engineer, tests conducted by independent testing laboratory; moisture-density tests required for granular fill, structure backfill and trench fill.
- E. Moisture-density test locations and depths subject to approval of Engineer.
- F. See Section 02200 - Sitework, for testing requirements of trench and structure backfill.
- G. If performance guarantees or requirements are not met during tests, make necessary corrections, repairs or replacements; demonstrate to Engineer that work meets performance guarantees or requirements.
- H. See Section 03300 - Cast-in-Place Concrete, for testing requirements for placement of concrete. Contractor responsible to pay all costs for field tests of concrete including transportation charge on samples and providing concrete samples. Field tests include concrete compression, air, temperature and slump tests.

1.10 DEFECTIVE EQUIPMENT

- A. Owner retains right to operate equipment until defects are corrected and guarantees satisfied.
- B. Owner reserves right to operate rejected equipment or other work until replaced, without cost for depreciation, use or wear.
- C. Remove equipment or other work from operation for examination, adjustment or change at times approved by Engineer.

1.11 RESPONSIBILITY OF CONTRACTOR

- A. Protection of his work.
- B. Protection of all property from injury or loss resulting from his operations.
- C. Replace or repair objects sustaining damage, injury or loss to satisfaction of Owner and Engineer.
- D. Without limiting GENERAL REQUIREMENTS of Contract Documents, protect fences, sidewalks, street, pavements, alleys, pipe, conduit, utilities, trees, shrubs and structures.

- E. Cooperate with Owner, Engineer and representative of utilities in locating underground utility lines and structures. Incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve Contractor of responsibility for damage thereto caused by his operations.
- F. Keep cleanup current with construction operations.
- G. Comply with all federal, State of Iowa and City of Elkhart, Iowa, laws and ordinances.
- H. Provide and maintain sanitary facilities for construction personnel for duration of work; remove upon completion of work.
- I. Notify Engineer 48 hours prior to expected time for operations requiring construction observation services.
- J. Cooperate with independent testing firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
- K. Building permit is required. No building permit fees will be assessed. Contractor is responsible for obtaining building permit.
- L. Contractor is responsible for using materials and equipment that is "NSF Certified" as defined in section 00100. This can be individually or 3rd party certified.

1.12 BARRICADES AND LIGHTS

- A. Erect and maintain barricades and lights and/or provide watchmen for protection and warning of pedestrians; all barricades, lights and/or watchmen at expense of Contractor.
- B. Location and arrangement: conform to ordinances and laws; meet approval of Owner and Engineer.
- C. Install snow fence as specified.

1.13 PRECONSTRUCTION CONFERENCE

- A. Soon after award of contract and prior to the start of construction, attend a preconstruction conference with representative of the Owner to define the requirements for contract administration and construction operation.
- B. Contact the Engineer who will determine the time, date and place of the conference.

1.14. MONTHLY CONSTRUCTION PROGRESS MEETINGS

- A. Attend monthly construction progress meetings. Provide construction schedule progress report at each meeting.

1.15 FINAL REVIEW AND ACCEPTANCE

- A. Notify Engineer when installation is considered to be complete and ready for final review.
- B. Owner will accept work and make final payment to Contractor.
 - 1. When Engineer has certified that he has reviewed the work of Contractor and stated that the work is complete and in substantial conformance with specifications.
 - 2. When Contractor has filed with Owner and Engineer documents called for in specifications.
 - 3. When all governmental agencies involved have indicated, in writing, that work is complete and acceptable.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01040

SPECIAL CONSTRUCTION

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 COOPERATION WITH OTHERS
- 1.03 DEMOLITION AND REMOVAL
- 1.04 SURVEY MARKERS
- 1.05 CONTAMINATED SOIL FINDS
- 1.06 STORMWATER PERMIT AND
EROSION CONTROL
- 1.07 PROJECT SCHEDULE

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Procedures outlined below are not intended to fully cover all special procedures or emergencies which may arise during construction but are offered as an aid to Contractor in planning work; Contractor will cooperate with Owner and Engineer to minimize inconvenience to Owner during construction.
- B. Determine location of underground utilities and piping before starting work; locations of underground appurtenances shown are approximate and not guaranteed by Owner or Engineer.
- C. Remove and replace all signs which interfere with construction operations; replace damaged signs at no cost to Owner.
- D. Arrange with operating utilities for relocation or temporary removal of utilities in conflict with construction and for services needed during construction.
- E. Remove, stockpile and replace fencing where required for construction as shown on plans; replace fences as work progresses.
- F. Provide snow fence along boundaries of construction area as specified hereinafter and as directed by Engineer.
 - 1. Install snow fence when area is prepared for excavation; install on steel posts with maximum spacing of 8'; maintain until work is completed.

2. Provide snow fence around all open trenches or open structures when left unattended.
3. Provide snow fence along boundaries of construction area in developed areas to prevent access of unauthorized persons to construction area.

G. Clean up and provide surface restoration as construction progresses.

1.02 COOPERATION WITH OTHERS

- A. Cooperate with state and federal regulatory agencies in matters under their jurisdiction over construction operations.
- B. Cooperate with local governmental agencies; secure necessary building permits and arrange for inspections at proper times.
- C. Cooperate with water system superintendent and staff; utilities must remain in continuous operation during construction period.
- D. Advise all utilities prior to excavating; arrange for field locates of utilities by utility representatives.

1.03 DEMOLITION AND REMOVAL

- A. Items of demolition and removal shown on plans or specified elsewhere are set out to assist Contractor in determining scope of work; items shown may not be complete; demolish or remove items shown on plans, described in specifications or as may be necessary for expediting work.
- B. Remove items in workmanlike manner; cut reinforcing steel flush with concrete; blasting not permitted without written approval from Owner and Engineer.
- C. Remove waste, rubble and debris from site; dispose of in accordance with all State and Federal regulations.

1.04 SURVEY MARKERS

- A. Contractor responsible for hiring registered land surveyor to inventory existing pipe, pins and registered survey lot corners disturbed by construction; land surveyor responsible for setting reference markers required to reestablish location of existing pipe, pins and registered survey lot corners. Replace in Accordance with Chapter 355 of the Iowa Code. Work is incidental to construction.

1.05 CONTAMINATED SOIL FINDS

- A. If during course of construction evidence of deposits of contaminated soils are found, cease operations affecting find and notify Owner who will notify Iowa Department of Natural Resources; no further disturbance of deposits will ensue until notification by Owner that work may proceed; Owner will issue notice to proceed only after contaminated soils have been identified and procedures for remediating contaminated soils have been identified and procedures for remedial action have been determined and approved by Iowa Department of Natural Resources and Owner; compensation to Contractor, if any, for lost time or changes in construction due to changed conditions will be in accordance with change order provisions of specifications.

1.06 STORMWATER PERMIT AND EROSION CONTROL

- A. This project should disturb less than one acre and is not subject to Section 402(b) of the Clean Water Act and Iowa Code Section 455B.174 and 567 IAC 64.4 (projects disturbing 1 or more total acres) and requires issuance of a National Pollution Discharge Elimination System (NPDES) General Permit No. 2, or an individual NPDES Permit for Stormwater Discharge Associated with Industrial Activity for Construction Activities.
 - 1. Disturbed area must be less than 1 acre.
 - 2. If Contractor disturbs more than 1 acre the provisions of NPDES General Permit No. 2 shall apply. Contractor shall be required to obtain and comply with General Permit No. 2 and will prepare Stormwater Pollution Prevention Plan (SWPPP) at no additional cost to City if more than 1 acre of project site is disturbed.
- B. Provide silt fence around areas disturbed by construction to prevent silt from washing off project site. Maintain silt fence during construction and remove silt fence at completion of construction. Cost of silt fence included in lump sum bid.

1.07 PROJECT SCHEDULE

- A. Submit complete schedule after award of contract for planning, controlling and completing construction of project. Include list of promised delivery dates for major equipment items. Schedule project on basis of promised delivery dates for major equipment items.
 - 1. Contractor will be expected to provide adequate personnel and equipment to perform work within specified time of construction.
 - 2. If delays in delivery of major equipment become apparent, notify Owner and Engineer promptly; take action to accomplish one of the following:
 - a. Substitute alternate equipment with approval of Owner and Engineer.
 - b. Expedite delivery of equipment.

3. Extensions of contract period will be given consideration upon written request of Contractor; request must include valid supporting data and bona fide reasons for requesting extension; inclement weather is not justification for extending contract period; Owner expects work to be complete and ready for final acceptance within completion time specified.

B. Schedule required interruptions to facilities with Owner and Engineer.

C. Provide Owner 48 hours' notice of any interruption of operation; coordinate with City.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01100

SUBSTITUTION OF MAJOR EQUIPMENT ITEMS AND PRODUCTS

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 BID FORM FORMAT
- 1.03 QUALIFICATION PACKAGE
- 1.04 CONTRACT AWARD
- 1.05 SHOP DRAWING SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section defines the lump sum total bid price contract format using "Basis of Bid" major equipment items, materials, and products for preparation of the Bid Price and outlines the procedure for proposal of substitute items by "Alternate" manufacturers.
- B. The use of this bidding format is intended to:
 - 1. Provide a common basis for all Bidders on which to base their lump sum Bid Price.
 - 2. Protect the Owner and Bidders so that no one Bidder gains an unfair bid price advantage by quoting a lower price for a major equipment item or product which is not "or equal".
 - 3. Assure that the Owner receives full benefit of the savings in cost involved in any substitution of a major equipment item or product.
- C. Bidders shall provide all required information as noted in this section.

1.02 BID FORM FORMAT

- A. The Bid Form format is based on a total bid price contract using "Basis of Bid" major equipment items and products which have been identified and described in the Contract Documents. Major equipment items and products identified in "Specific Items of Equipment", in the Bid Form are considered "Basis of Bid" items. Contract Document sections defining "Basis of Bid" major equipment items or products include:

Section 16620 – Standby Generator

- B. The Bid Price noted in the Bid Form should include the installed prices of only "Basis of Bid" major equipment items or products. The Bidder should note the installed price of the identified and selected "Basis of Bid" major equipment item or product in the space provided in the Bid Form. The installed price shall include the labor and material cost, profit and overhead, plus the cost for all necessary appurtenances to provide a complete system. This price is required to evaluate any alternate equipment the Contractor may wish to offer.
- C. It is not the intent of the Contract Documents to contain proprietary, exclusionary, or discriminatory requirements other than those based on performance. Manufacturers who believe that their equipment can meet the performance requirements and, with the exception of minor details, the technical requirements of the Contract Documents, are encouraged to submit a quotation to a Bidder for a substitute major equipment item or product. Model number designations for the major equipment items are included for information purposes. Proposed "Basis of Bid" major equipment items and "Alternate" major equipment items will be evaluated on the basis of the requirements contained in the Contract Documents.
- D. Bidders desiring to quote a price for a substitute major equipment item or product in lieu of a "Basis of Bid" item may at their option write in the name of one manufacturer to be identified as an Alternate Item in the Bid Form in the space provided. The manufacturer listed by the Bidder in shall be considered the proposed "Alternate" major equipment item or product. The Bidder shall note the installed price of each proposed "Alternate" major equipment item or product in the Bid Form in the space provided. The Bidder shall not use the installed price for any proposed "Alternate" major equipment item or product in preparing the Bid Price.
- E. If the Bidder writes in the name of a proposed "Alternate" manufacturer and fails to note the installed price or writes in the installed price and fails to identify the name of the proposed "Alternate" manufacturer, the Bidder shall furnish the "Basis of Bid" item for the installed price noted in the Bid Form.

1.03 QUALIFICATION PACKAGE

- A. All Bidders shall submit with the Bid Form a "Qualification Package" for each "Alternate" major equipment item or product which the Bidder proposes to furnish in lieu of a "Basis of Bid" major equipment item or product identified. Each qualification package shall be bound with protective cover, identify the specification section number and title, and the product manufacturer's name on a cover sheet.

- B. The "Qualification Package" for the "Alternate" major equipment items or products the Bidder proposes to furnish shall include but not be limited to, information which documents the "Alternate" major equipment item or product is equal in performance and quality to the "Basis of Bid" manufacturer. Failure to furnish the Qualification Package will be cause for rejection of a proposed alternate major equipment item or product for use on this project.
- C. The Qualification Package shall also include the following:
 - 1. A complete set of drawings, specifications, catalog cut-sheets, and detailed descriptive material of proposed major equipment items or products. This information shall identify all technical and performance requirements stipulated on each drawing and in each specification section.
 - 2. Detailed information shall be submitted for all buy-out items such as hardware, motors, bearings, reducers, belts, sheaves, motor controllers and instrumentation (field device, major control panel device, and anticipated control panel layout).
 - 3. List showing materials of construction of all components, including all buy-out items.
 - 4. Manufacturer's recommended spare parts, including all buy-out items.
 - 5. Information on equipment field erection requirements including total weight of assembled components and weight of each sub-assembly.
 - 6. A maintenance schedule showing the required maintenance, frequency of maintenance, lubricants and other items required at each regular preventative maintenance period, including all buy-out items.
 - 7. Process equipment electrical requirements and schematic diagrams.
 - 8. Detailed written documentation with discussion of all deviations of equipment, including all buy-out items, from the Contract Documents.
- D. If the Bidder fails to furnish all of the preceding information which has been deemed necessary by the Engineer to evaluate a proposed "Alternate" major equipment item or product for equivalency with the "Basis of Bid" major equipment item or product, the proposed "Alternate" qualification package will be rejected by the Engineer. If the "Alternate" qualification package is rejected by the Engineer, the Bidder shall furnish the "Basis of Bid" major equipment item or product for the installed price noted in the Bid Form.
- E. No proposed "Alternate" major equipment item or product will be considered unless, in the opinion of the Engineer, it conforms to the Contract Documents in all respects, except for make and manufacturer and minor details.
- F. The Engineer shall be the sole authority for determining conformance of a proposed "Alternate" major equipment item or product with the Contract Documents. Under no circumstances will the Engineer be required to prove that an "Alternate" major equipment item or product is not equal to the "Basis of Bid" major equipment item or product.

1.04 CONTRACT AWARD

- A. Award of the Contract will be made on the basis of the Bid Form from the lowest responsive, responsible, qualified Bidder using the Base Bid Price. Award of the contract will also be made without regard to "Alternate" major equipment items or products.
- B. If a proposed "Alternate" qualification package is accepted as "or equal" by the Engineer and selected by the Owner, the "Alternate" major equipment item or product listed in the Bid Form shall be furnished for the amount noted and the Bid Price shall be adjusted accordingly by change order or contractual method.
- C. In the event that a proposed "Alternate" major equipment item or product is not accepted as "or equal" by the Engineer, the "Basis of Bid" major equipment item or product as specified shall be furnished for the amount noted in in the Bid Form and without adjustment to the Bid Price.

1.05 SHOP DRAWING SUBMITTALS

- A. Acceptance of a proposed "Alternate" major equipment item or product "Qualification Package", or naming of "Basis of Bid" equipment, does not eliminate the need for shop drawing submittals and reviews during construction, nor does it eliminate the requirement that the equipment manufacturer satisfy the requirements of the Contract Documents.
- B. Shop drawings shall be furnished in accordance with Section 01300.
- C. Should the Bidder furnish a major equipment item or product requiring changes to the Contract Documents, he shall notify the Engineer in writing of all dimensional, mechanical, electrical and structural changes and/or requirements for the major equipment item's use in the Project and shall reimburse the Owner for any associated redesign and/or construction drawings. The Bidder shall consider all costs associated in furnishing and installing a major equipment item or product in his installed price proposal. Redesign and contract drawing revisions to accommodate equipment or products will be prepared by the Engineer during the shop drawing review process. Reimbursements shall be based on the Engineer's standard hourly rate charges plus reimbursable expenses at cost.

END OF SECTION

SECTION 01150

MEASUREMENT AND PAYMENT

INDEX

PART 1 - GENERAL

- 1.01 SCOPE
- 1.02 QUANTITY VARIATIONS
- 1.03 OPERATION AND MAINTENANCE
MANUALS
- 1.04 SCHEDULE OF VALUES

PART 2 - PRODUCT

NOT APPLICABLE

PART 3 - EXECUTION

NOT APPLICABLE

PART 1 - GENERAL

1.01 SCOPE

- A. No separate payment will be made for work covered in the specifications except as set forth below. Include all work in lump sum bid for constructing Water Treatment Facility Standby Generator project.
- B. If items not included in lump sum bid for constructing Water Treatment Facility Standby Generator project are required during construction, contract price shall be adjusted on basis of lump sum or unit price change order negotiated between Engineer and Contractor and approved by Owner.

1.02 QUANTITY VARIATIONS

- A. No separate payment will be made for changes in quantities of items included in lump sum bid for construction of Water Treatment Facility Standby Generator project except as set forth below. Contract unit prices shall include all costs for each item of work.
- B. If quantities of items are changed from those upon which bid is based, contract price shall be adjusted on basis of lump sum or unit price change order negotiated between Engineer and Contractor and approved by Owner. Soil quantities shall not be adjusted unless design contours are changed by the Engineer.

1.03 OPERATION AND MAINTENANCE MANUALS

- A. O&M Manuals for all equipment shall have preliminary submittal as soon as available after shop drawings are approved.
 - 1. Final O&M Manuals are to be available 3 months prior to plant start-up.

1.04 SCHEDULE OF VALUES

- A. Submit to Engineer Schedule of Values allocated to various portions of work.
- B. Upon request of Engineer, support values with data which will substantiate their correctness.
- C. Schedule of Values shall be used only as basis for Contractor's application for progress payment.
- D. Type schedule on 8-1/2" x 11" white paper; Contractor's standard forms and automated printout will be considered for approval by Engineer upon Contractor's request. Identify schedule with:
 - 1. Title of project and location.
 - 2. Engineer and Engineer's project number.
 - 3. Name and address of Contractor.
 - 4. Contract designation.
 - 5. Date of submission.
- E. Schedule shall list installed value of component parts of work in sufficient detail to serve as basis for computing values for progress payments during construction.
- F. Follow table of contents of this project manual as format for listing component items.
 - 1. Identify each line item with number and title of respective specification section.
- G. For each specification division, list subvalues of major materials, equipment or operation under division.
- H. Provide separate listing of items of General Requirements (Division 1), such as bonds, insurance premiums, job mobilization, field supervision and layout, construction facilities and temporary controls, contingency allowance, construction schedule, O&M data, record drawings, and submittals.
- I. For various portions of work:
 - 1. Each item shall include directly proportional amount of Contractor's overhead and profit.
 - 2. For items on which progress payments will be requested for stored materials, break down value into:
 - a. Cost of materials, delivered and unloaded, with taxes paid.
 - b. Total installed value including Contractor's overhead and profit.
- J. Sum of values listed in schedule shall equal total contract sum.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01300

SUBMITTALS

INDEX

PART 1 - GENERAL

- 1.01 INFORMATION FOR ENGINEER
- 1.02 SHOP DRAWINGS
- 1.03 SUBMITTAL REQUIREMENTS
- 1.04 INSTRUCTION MANUALS, PARTS LISTS
AND TOOLS

PART 1 - GENERAL

1.01 INFORMATION FOR ENGINEER

- A. After award of contract submit following information and drawings for Engineer's review. Total number of reviewed copies required for distribution: 5 plus copies required by Contractor.
 - 1. Certified materials tests as described in Section 01010 - General Provisions.
 - 2. Certified outline, general arrangement, assembly, installation, foundation arrangement and anchor bolt detail drawings for all major equipment listed in proposal and for other equipment where specified.
 - 3. Manufacturer's specifications and catalog data for all items of equipment including treatment equipment, electrical controls, heating and ventilating equipment, plumbing fixtures, valves, pipe, fittings, castings and appurtenances and other special items.
 - 4. Certified performance data and operating characteristics for pumps prior to delivery to job site from shop tests performed on pumps furnished in accordance with Hydraulic Institute.
 - 5. Shop drawings showing reinforcing steel details, structural steel and aluminum, beams, roof systems, steel joists, grating, supports prefabricated piping, metal building and other items.
 - 6. Schematic diagrams of all control circuits.
 - 7. Detailed wiring diagrams.
 - 8. Such other information as Engineer may request and information as specified with equipment.
- B. Within 15 days after award of contract, provide construction schedule, showing dates of starting and completing various portions of work and dollar value of each portion of work.

- C. Within 30 days after initiation of construction, provide written schedules of estimated monthly payments for contractor and subcontractors; revise schedules whenever variations exceed 10%.
- D. Provide two copies of the following information:
 - 1. Contract price breakdown of lump sum bid for use in preparation of periodic payment estimates.
 - 2. Purchase orders and subcontracts without prices.
 - 3. Shipping papers for all materials.
 - 4. All materials test reports.
 - 5. Concrete mix designs; submit 8 days before proposed mix is to be used.

1.02 SHOP DRAWINGS

- A. Intent of Engineer's review: to assist Contractor in interpreting plans and specifications.
- B. Contractor's responsibility: to check drawings prior to submission for coordination and conformance with contract; do not submit without checking.
- C. Equipment checking is only for general conformance with design concept of project and general compliance with information given in contract documents. Any action shown is subject to requirements of plans and specifications. Contractor is responsible for dimensions which must be confirmed and correlated at job site; fabrication processes and techniques of construction; coordination of work with that of all other trades; and satisfactory performance of work.
- D. Prior to submission of shop drawings and catalog data to Engineer: affix Contractor's stamp with signature of responsible person to show that material submitted has been checked and approved by Contractor. Shop drawings submitted without appropriate stamp and signature will be returned unreviewed.
- E. Do not install or otherwise incorporate any equipment on project until shop drawings, if required, have been reviewed and so designated by Engineer.
- F. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.
- G. Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.
- H. Contractor shall abide by Engineer's decision when proposed substitute of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.

- I. Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.
- J. Upon engineer's determination that a drawing must be returned as "Revise and Resubmit" or "Rejected", Engineer's review of the shop drawing will cease and no additional marking will be made. Resubmittals will be reviewed as new drawing of equipment or materials. As such, Engineer may provide comments on items which were included with initial submittal even if those items did not change from initial submittal to resubmittal.
- K. Engineer's responsibility shall be to review one set of shop drawing submittals for each product. If the first submittal is incomplete or does not comply with the drawings and/or specifications, the Contractor shall be responsible to bear the cost to the Owner, for the Engineer to recheck and handle the additional shop drawing submittals.
- L. No guarantee of review time is made by Engineer. Review time is dependent on number and complexity of submittals received. When multiple drawings are submitted, provide priority for order of review to engineer. Failure of contractor to allow time to review of submittals by Engineer does not constitute basis for compensation due to delays.

1.03 SUBMITTAL REQUIREMENTS

- A. Binding - submittals 1/4" thickness or less may be securely stapled in the upper left hand corner. Submittals thicker than 1/4" shall be bound in commercial grade cardboard or plastic folders, wire or plastic binders, or 3-ring binders as appropriate. Individual papers bound with paper clips are not acceptable.
- B. Cover sheet - each submittal shall have a cover sheet providing the following information. The Contractor's transmittal letter is not an acceptable cover sheet.
 - 1. Project name.
 - 2. Supplier's name, address, and telephone number.
 - 3. Engineer's name and location.
 - 4. General Contractor's name and location.
 - 5. Specification section applicable to submittal contents.
 - 6. A 4" square blank space for Engineer's review stamp.
- C. Where more than one model is shown on a manufacturer's sheet, clearly indicate exactly which item and which data is relevant to the work.

D. Where the manufacturer lists multiple part numbers or options on a single data sheet, the part number and options to be used shall be clearly set apart from other part numbers shown on that sheet.

E. Failure to comply with the above shall be reason to resubmit shop drawing.

1.04 INSTRUCTION MANUALS, PARTS LISTS AND TOOLS

A. Furnish 5 complete sets of manufacturer's instructions for installation, operation and maintenance of equipment furnished; include assembly drawings and parts lists with exploded views of equipment parts and identification symbols or part numbers for all replaceable parts and assemblies, recommended spare parts list, lubricant guide, preventative maintenance and trouble shooting procedures; submit manuals to Engineer as soon as available after return of shop drawings by Engineer to Contractor; manuals subject to Engineer's review.

B. Furnish special tools, jigs and fixtures necessary for installation, operation, lubrication, repair, preventative maintenance, or trouble shooting of equipment.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULES

INDEX

PART 1 - GENERAL

- 1.01 DESCRIPTION
- 1.02 FORM OF SCHEDULE
- 1.03 CONTENT OF SCHEDULE
- 1.04 SCHEDULE REVISIONS
- 1.05 DELAYS AND RECOVERY
- 1.06 SUBMITTAL REQUIREMENTS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Prepare and submit to Engineer for review, estimated construction progress schedule.
- B. Contractor shall establish schedule of working hours for construction, subject to approval of Owner and Engineer.
 - 1. Normal working hours are 7 A.M. to 9 P.M., 7 days a week.
 - 2. No work to be performed on Holidays.
 - 3. Project location is within the Indianola Municipal Utilities Water Treatment Facility. Coordinate working days with the Utility Staff.
- C. Night work may be established by Contractor as regular procedure with permission of Owner. Such permission, however, may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for proper prosecution and control of work at night.

1.02 FORM OF SCHEDULE

- A. Prepare schedule in form of horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade, activity or operation.
 - 2. Horizontal time scale: identify first work day of each week.
 - 3. Scale and spacings to allow space for notations and future revisions.
- B. Format of listings: chronological order of start of each item of work.
- C. Identification of listings: by major specification section numbers.

1.03 CONTENT OF SCHEDULE

- A. Construction Progress Schedule:
 - 1. Show complete sequence of construction by activity.
 - 2. Coordinate progress schedule with submittal schedule.
 - 3. Show dates for beginning and completion of each major element of construction and installation dates for major items of equipment. Elements shall include, but not be limited to:
 - a. Material and equipment order, manufacturer, delivery, installation, and checkout, including allowance items.
 - b. Performance tests and supervisory services activity.
 - c. Piping, ductwork, and wiring installation.
 - d. Concrete pour sequence.
 - e. Structural steel erection.
 - f. Precast concrete erection.
 - g. Backfilling, grading, seeding, sodding, and landscaping.
 - h. Electrical work activity.
 - i. Heating, ventilating, and air conditioning work activity.
 - j. Plumbing work activity.
 - k. Subcontractor's items of work
 - l. Final cleanup.
 - m. Allowance for inclement weather.
 - n. Miscellaneous concrete placement.
 - 4. Show projected percentages of completion for each item as of first day of each month.

1.04 SCHEDULE REVISIONS

- A. Revise construction progress schedule every 30 days to reflect changes in progress of work.
- B. Indicate progress of each activity at date of schedule revision.
- C. Show changes occurring since previous revised submittal.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submittal.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- D. Provide narrative report defining:
 - 1. Problem areas, anticipated delays, and impact on schedule.
 - 2. Corrective action recommended and its effect.
- E. Submit to Engineer.

1.05 DELAYS AND RECOVERY

- A. If, at any time during project, Contractor fails to complete activity by its latest scheduled completion date, Contractor shall, within 3 working days, submit to Engineer written statements as to how and when work force will be reorganized to return contract to current construction schedule.
- B. Whenever it becomes apparent from progress evaluation and updated schedule data that milestone completion dates or contract completion dates will not be met, Contractor shall take some or all of the following actions.
 - 1. Increase construction staffing in such quantities and crafts as shall substantially eliminate backlog of work.
 - 2. Increase number of working hour per shift, shifts per work day, work days per week, amount of construction equipment or combination of foregoing sufficient to substantially eliminate backlog of work.
 - 3. Reschedule work items to achieve concurrency of accomplishment.
- C. Addition of equipment or construction forces, increasing working hours or any other method, manner or procedure to return to current construction progress schedule not considered justification for amending contract documents or treated as acceleration.

1.06 SUBMITTAL REQUIREMENTS

- A. For initial submittal of construction schedule and subsequent revisions thereof, furnish 5 copies of schedule to Engineer.
- B. Failure to submit construction schedule on timely basis as previously noted shall be considered cause for withholding progress payments otherwise due under contract.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01400

SPECIAL INSPECTIONS

INDEX

PART 1 - GENERAL

- 1.01 SECTION INCLUDES
- 1.02 PAYMENT
- 1.03 SPECIAL INSPECTOR RESPONSIBILITIES
- 1.04 TESTING AGENCY RESPONSIBILITIES
- 1.05 CONTRACTOR RESPONSIBILITIES
- 1.06 FABRICATOR RESPONSIBILITIES
- 1.07 SPECIAL INSPECTION AND TESTING SCHEDULE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This section includes inspection and testing requirements to comply with special inspection requirements of the International Building Code (IBC), current edition.
 - 1. This work was identified in Section 01010 – General Provisions, 1.08 Materials Tests and is summarized herein.
- B. The Owner will designate the Engineer or a special inspector prior to project award.

1.02 PAYMENT

- A. The Owner will hire and pay for services of the Engineer or a special inspector.
- B. The Contractor shall pay for all testing described in the individual sections of the contract specifications.

1.03 SPECIAL INSPECTOR RESPONSIBILITIES

- A. Observe the work assigned for conformance with the approved plans and specifications.
- B. Submit inspection reports to the building official, the Engineer of Record, and the Owner.
- C. Bring non-conforming items to the immediate attention of the Contractor for correction. If uncorrected, report non-conforming items to the Engineer of Record and the Building Official.

- D. Submit a final signed report stating whether the work requiring special inspection was, to the best of their knowledge, in conformance with the approved plans and specifications and the applicable workmanship provision of the IBC.

1.04 TESTING AGENCY RESPONSIBILITIES

- A. Test the work assigned for conformance with the approved plans and specifications.
- B. Submit reports of the test results to the Building Official, the Engineer of Record, and the Owner.
- C. Bring non-conforming items to the immediate attention of the Contractor for corrections. If uncorrected, report non-conforming items to the Engineer of Record and the Building Official.
- D. Submit a final signed report stating whether the work requiring special inspections was, to the best of their knowledge, in conformance with the plans and specifications.

1.05 CONTRACTOR RESPONSIBILITIES

- A. Post the Special Inspection and Testing Schedule within the office at the project site.
 - 1. Contractor is responsible for payment of testing laboratory services as defined in Section 01410.
- B. Provide not less than 24 hour notification to the parties designated on the schedule for inspection and testing.
- C. Provide the special inspector and testing agent access to the approved plans and specifications at the project site.
- D. Retain at the project site, all reports submitted by the special inspector and testing agent.
- E. Correct in a timely manner, all deficiencies identified by the special inspector and testing agent.
- F. Provide the special inspector and testing agent safe access to the work requiring observation or testing.

1.06 FABRICATOR RESPONSIBILITIES

- A. Submit a Certificate of Compliance to the Building Official and the Engineer of Record that all work was performed in accordance with the approved plans and specifications.

1.07 SPECIAL INSPECTION AND TESTING SCHEDULE

- A. Concrete Formwork:
 - 1. Conform to Section 03100 - Concrete Formwork.
 - 2. Special Inspector:
 - a. Inspect all formwork prior to placing concrete.
- B. Concrete Reinforcement:
 - 1. Conform to Section 03200 - Concrete Reinforcement.
 - 2. Special Inspector:
 - a. Inspect placement of all reinforcing steel prior to placing concrete.
- C. Cast-in-Place Concrete:
 - 1. Conform to Section 03300 - Cast-in-Place Concrete.
 - 2. Special Inspector:
 - a. Inspect placement of concrete.
 - 3. Testing Agency:
 - a. Test all concrete in accordance with Section 03300.
- D. Bolts Installed in Concrete:
 - 1. Conform to Section 03300 and Section 05120 - Structural Steel.
 - 2. Special Inspector:
 - a. Inspect installation of all bolts prior to placing concrete.
 - b. Inspect placement of concrete around all bolts.
- E. High Strength Bolting:
 - 1. Conform to Section 05120.
 - 2. Special Inspector:
 - a. Inspect tension indicating device for all high strength bolts.
- F. Sitework
 - 1. Conform to Section 02200 - Sitework and plans.
 - 2. Testing Agency:
 - a. Verify materials below footings are adequate to achieve the design bearing capacity.
 - b. Verify excavations have extended to proper depth and have reached proper material.
 - c. Verify backfill materials are acceptable.
 - d. Conduct moisture-density compaction tests.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

INDEX

PART 1 - GENERAL

- 1.01 REQUIREMENTS INCLUDED
- 1.02 QUALIFICATION OF LABORATORY
- 1.03 LABORATORY DUTIES
- 1.04 LIMITATIONS OF AUTHORITY OF
TESTING LABORATORY
- 1.05 CONTRACTOR RESPONSIBILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Employ and pay for services of testing laboratory approved by Owner to perform specified services and testing as described in specifications, including Section 02200 – Sitework, Section 03300 – Cast-in-Place Concrete, and others.
 - 1. Employment of laboratory shall, in no way, relieve Contractor's obligations to perform work of contract.
- B. Related requirements in other parts of Project Manual:
 - 1. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities: Conditions of Contract.

1.02 QUALIFICATION OF LABORATORY

- A. Meet basic requirements of ASTM E329-77 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.
- B. Authorized to operate in state in which project located.
- C. Testing equipment:
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.
 - b. Accepted values of natural physical constants.

1.03 LABORATORY DUTIES

- A. Cooperate with Engineer and Contractor; provide qualified personnel to perform work after due notice to proceed.
- B. Perform specified inspections, secure samples, and test materials.
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with contract documents.
- C. Promptly notify Engineer and Contractor of observed irregularities or deficiencies of work, equipment or material.
- D. Promptly submit written report of each test and inspection; one copy each to Engineer, Owner, material supplier, and Contractor, and one copy to record documents file. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address, and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions if test performed in field.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location of sample or test in project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance with contract documents.
 - 12. Interpretation of test results, when requested by Engineer.
- E. Perform additional tests as required by Engineer or Contractor.

1.04 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of contract documents.
 - 2. Approve or accept any portion of work.
 - 3. Perform duties of Contractor.

1.05 CONTRACTOR RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to work.
- B. Provide to laboratory preliminary design mix proposed to be used for concrete and other material mixes which require control by testing laboratory.
- C. Furnish copies of product test reports.
- D. Furnish incidental labor and facilities.
 - 1. Provide access to work to be tested.
 - 2. Obtain and handle samples at project site or source of product to be tested.
 - 3. Facilitate inspections and tests.
 - 4. Store and cure test samples.
- E. Notify laboratory and Engineer sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- F. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.
- G. Employ and pay for services of testing laboratory to perform additional inspections, sampling, and testing required when initial tests indicate work does not comply with contract documents.

END OF SECTION

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 REQUIREMENTS OF REGULATORY AGENCIES

PART 2 – PRODUCTS

- 2.01 TEMPORARY ELECTRICITY AND LIGHTING
- 2.02 TEMPORARY HEAT
- 2.03 TEMPORARY TELEPHONE SERVICE
- 2.04 WATER FOR CONSTRUCTION AND TESTING
- 2.05 SANITARY FACILITIES

PART 2 – PRODUCTS (cont.)

- 2.06 TEMPORARY FIRE PROTECTION
- 2.07 TEMPORARY SITE WORK
- 2.08 DAMAGE TO EXISTING PROPERTY
- 2.09 SECURITY
- 2.10 TEMPORARY PARKING
- 2.11 TEMPORARY FENCING
- 2.12 FIELD OFFICES AND BUILDINGS
- 2.13 ENGINEER'S FIELD OFFICE
- 2.14 OWNER'S USE

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 REMOVAL

PART 1 - GENERAL

- 1.01 DESCRIPTION

- A. Provide and maintain temporary facilities and utilities required for construction; remove on completion of work.

- 1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. National Fire Protection Association (NFPA):
 - 1. National Electric Code (NEC), NFPA No. 70, and Iowa amendments.
- B. Comply with federal, state, and local codes and regulations, and with utility company requirements.

PART 2 - PRODUCTS

- 2.01 TEMPORARY ELECTRICITY AND LIGHTING

- A. General:
 - 1. Temporary lighting shall be sufficient to enable Contractor to complete work and enable Engineer to check work as it is being performed. Illumination shall meet or exceed state code requirements.
 - 2. After substantial completion of permanent electrical system and building wiring, permanent receptacles may be used during finishing work.

B. Responsibilities:

1. Provide, maintain, and remove temporary electric service facilities.
2. Facilities exposed to weather shall be weatherproof type and electrical equipment enclosure locked to prevent access by unauthorized personnel.
3. Pay for installation of temporary services including poles, transformer charges, and metering.
4. Patch affected surfaces and structures after temporary services removed.
5. Arrange with local electric utility for temporary electric service subject to their requirements and approval.
6. Register meter in Contractor's name.
7. Provide lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and small power tools.
8. Pay for electrical energy consumed for construction purposes including operation of ventilating equipment, heating of buildings, and testing and operating equipment after permanent wiring installed, until final acceptance by Engineer or until occupancy by Owner.
9. Provide and pay for service to temporary offices.

2.02 TEMPORARY HEAT

A. General:

1. Cold weather protection: Heating required before building is enclosed.
2. Temporary heat: heating required after enclosure of building or structure. Building or structure shall be considered as enclosed when it is roofed and has such protection at doorways, windows, and other openings as will provide reasonable heat retentions.
3. See requirements of specification for minimum temperature to be maintained for various trades and work. Except as otherwise called for, temperature in all parts of new buildings shall be kept above 50-degrees F. Maximum temperature in building shall be 75-degrees F during heating season.
4. Heat shall be warm air heat from oil or gas-fired portable unit heaters suitably vented to outside as required for protection of health and property.
5. Open salamander type heaters not permitted.

B. Responsibilities:

1. Provide temporary heat. Make arrangements and pay fuel costs, supervise, and maintain heating units.
2. Provide adequate heat to all parts of building.
3. Pay for repairing or replacing any part of building or materials damaged because of lack of heat.
4. Provide temporary throwaway filters if, at any time, permanent system used for temporary ventilation.
5. Upon acceptance or occupancy of building(s) by Owner, Contractor's responsibility for temporary heating as specified shall be in accordance with OWNER'S USE article, this section.

2.03 TEMPORARY TELEPHONE SERVICE

- A. Provide telephone at which Contractor can be reached by Owner or Engineer at all times during the working day.
 - 1. Provide Owner and Engineer with at least 2 telephone numbers where Contractor's representative can be reached on weekends, evenings, and holidays in the event of an emergency.

2.04 WATER FOR CONSTRUCTION AND TESTING

- A. Water available at hydrants near project site at no charge in reasonable quantities. Make arrangements to obtain suitable water.

2.05 SANITARY FACILITIES

- A. Provide temporary sanitary toilet facilities conforming to state and local health and sanitation requirements, in sufficient number for use by Contractor's employees.
- B. Maintain in sanitary condition and properly supply with toilet paper.
- C. Contractor is allowed to use existing temporary sanitary facilities.

2.06 TEMPORARY FIRE PROTECTION

- A. Provide and maintain in working order, minimum of one fire extinguisher on each floor of each building, and such other fire protective equipment and devices as would be reasonably effective in extinguishing fires during early stages by personnel at project site.
- B. Comply with NFPA, federal, state, local and other applicable requirements.

2.07 TEMPORARY SITE WORK

- A. Provide and maintain temporary roadways necessary to carry out construction operations in clean, dust free, snow free, ice free, drivable condition.
- B. Provide and maintain temporary site drainage and stormwater controls.
- C. Exercise caution to minimize increase in suspended solids and turbidity in surface waters within and adjacent to construction area. Do not deposit spoils in surface waters. Control and minimize sediment runoff and excavation erosion to surface waters.

2.08 DAMAGE TO EXISTING PROPERTY

- A. Be responsible for replacing or repairing damage to existing buildings, sidewalks, roads, parking lot surfacing, and other existing assets.
- B. Contractor shall have option of having Owner contract for such work and have cost deducted from contract amount.

2.09 SECURITY

- A. Security not provided by Owner.
- B. Contractor shall be held responsible for loss or injury to persons or property where his work is involved, and shall provide security and take precautionary measures to protect Contractor's and Owner's interests.

2.10 TEMPORARY PARKING

- A. Parking on construction site in designated areas may be provided as approved by Engineer and Owner.
- B. Make arrangements for additional parking area for employee's vehicles if required.
- C. Costs involved in obtaining this parking area shall be borne by Contractor.

2.11 TEMPORARY FENCING

- A. Provide temporary fencing sufficient to prevent trespass by Contractor's employees and suppliers onto private property and by public onto construction site.
- B. Materials shall be sufficiently durable to be effective for duration of construction period.

2.12 FIELD OFFICES AND BUILDINGS

- A. If required by Contractor, erect where designated by Engineer and maintain in good condition, temporary field office and tool storage building(s) for Contractor's use.
 - 1. Tool storage building(s) shall be of ample size to provide space for tools and equipment. Building(s) shall be neat and well constructed, surfaced with plywood, drop siding, masonite or other similar material, well painted and void of advertisements.

2.13 ENGINEER'S FIELD OFFICE

- A. Provide a private field office with windows and lockable doors for Engineer's use with minimum of 200 SF.
 - 1. Provide:
 - a. Heat and air conditioning, capable of maintaining 65°F. winter and 75°F. summer temperature.
 - b. Electrical power and lights.
 - c. Typical office furniture including desk, file cabinet, bookcase and office chair.
 - d. Provide side table (3x6) with 6 foldable metal chairs for meetings and other use.
 - e. Copy machine that will copy, scan and fax documents. Provide paper and service to maintain the machine.
 - f. Provide WI-FI on-site for communications usages.
 - 2. Contractor responsible for maintaining utility systems, office equipment, and field office building(s) provided.
 - 3. One portable ABC fire extinguisher.

2.14 OWNER'S USE

- A. Upon acceptance of work, or portion of work defined and certified as substantially completed by Engineer, and Owner commences full-time successful operation of facility or portion thereof, Owner will pay cost for utilities used for Owner's operation. Contractor shall continue to pay for utilities used until final acceptance of work, except as provided herein. However, heat for heating building as required for construction purposes shall still be paid by Contractor unless, due to occupancy by Owner, more heat shall be required either due to increased temperature or lengthened duration, in which case Owner will bear difference in cost.

PART 3 - EXECUTION

3.01 GENERAL

- A. Comply with applicable requirements specified herein.
- B. Maintain and operate systems to ensure continuous service.
- C. Modify and extend systems as work progress requires.

3.02 REMOVAL

- A. Completely remove temporary materials, equipment, signs, and structures when no longer required.
- B. In unfinished areas, clean and repair damage caused by temporary installations or use of temporary facilities, restore drainage, and evenly grade, seed or plant as necessary to provide appearance equal to or better than original.
- C. In finished areas, restore existing or permanent facilities used for temporary services to specified, or to original, condition.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 SUBSTITUTIONS
- 1.03 REUSE OF EXISTING MATERIAL
- 1.04 MANUFACTURER'S INSTRUCTIONS
- 1.05 TRANSPORTATION AND HANDLING
- 1.06 STORAGE, PROTECTION, AND MAINTENANCE
- 1.07 INSTALLATION, INSTRUCTIONAL, AND POST STARTUP SERVICES

PART 1 – GENERAL (cont.)

- 1.08 SPECIAL TOOLS AND LUBRICATING EQUIPMENT
- 1.09 LUBRICATION
- 1.10 GUARDS

PART 2 – PRODUCT

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Material and equipment incorporated into work:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type, and quality specified or as specifically approved by shop drawings, Engineer, or other submittal.
- B. Manufactured and fabricated materials and equipment:
 - 1. Design, fabricate, and assemble in accordance with engineering and shop practices standard with industry.
 - 2. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - 3. Two or more items of same kind shall be identical, by same manufacturer.
 - 4. Material and equipment shall be suitable for service conditions.
 - 5. Equipment capabilities, sizes, and dimensions shown or specified shall be adhered to, unless variations are specifically approved, in writing, in accordance with General Conditions.
 - 6. Equipment shall be adapted to best economy in power consumption and maintenance. Parts and components shall be proportioned for stresses occurring during continuous or intermittent operation, and for additional stresses occurring during fabrication or installation.
 - 7. Design so working parts readily accessible for inspection and repair, easily duplicated, and replaced.

- C. Do not use material or equipment for any purpose other than for which it is designed or specified.

1.02 SUBSTITUTIONS

A. Substitutions:

1. Contractor's requests for changes in equipment and materials from those required by Contract Documents are considered "requests for substitutions" and subject to Contractor's representations and review provisions of Contract Documents when one of the following conditions are satisfied:
 - a. Where request directly related to "or equal" clause or other language of same effect in specifications.
 - b. Where required equipment or material cannot be provided within Contract Time, but not as result of Contractor's failure to pursue work promptly or coordinate various activities properly.
 - c. Where required equipment or material cannot be provided in manner compatible with other materials of work, or cannot be properly coordinated therewith.
2. Contractor's options:
 - a. Compatibility of options: Where more than one choice available as options for Contractor's selection of equipment or material, select option compatible with other equipment and materials already selected.
 - b. Standards, codes and regulations: Where compliance with imposed standard, code or regulation required, select from among products which comply with requirements of those standards, codes, and regulations.
 - c. "Or Equal": For material or equipment specified by naming one or more equipment manufacturer and "or equal," Contractor shall submit request for substitution for any equipment or manufacturer not specifically named. Submit in accordance with Section 00700 - General Conditions, paragraph 1.15 and these General Requirements.
 - d. Two or more manufacturers: For equipment or material specified by naming several manufacturers, select any one of manufacturers named. Do not provide or offer to provide unnamed manufacturer or equipment.
 - e. Single manufacturer or material: For equipment or material specified by naming only one manufacturer or material, there is no option.

B. Conditions which are not substitutions:

1. Requirements for substitutions do not apply to Contractor options on materials and equipment provided in specifications.
2. Revisions to Contract Documents, where requested by Owner or Engineer, are "changes" not "substitutions."
3. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions or basis for change orders, except as provided for in Contract Documents.

1.03 REUSE OF EXISTING MATERIAL

- A. Except as specifically indicated or specified, do not use materials and equipment removed from existing structures in new work.
- B. For material and equipment specifically indicated or specified to be reused in work:
 - 1. Use special care in removal, handling, storage, and reinstallation to ensure proper function in completed work.
 - 2. Arrange and pay for transportation, storage, and handling of products which require off-site storage, restoration or renovation.
 - 3. Off-site storage areas and buildings shall conform to requirements of this section.

1.04 MANUFACTURER'S INSTRUCTIONS

- A. Installation of equipment and materials shall comply with manufacturer's instructions. Obtain and distribute printed copies of such instructions to parties involved in installation, including 2 copies to Engineer.
 - 1. Maintain one set of complete instructions at job site during installation and until completion of work.
- B. Handle, install, connect, clean, condition, and adjust materials and equipment in accordance with manufacturer's written instructions and in conformity with specifications.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult Engineer for further instructions.
 - 2. Do not proceed with work without written instructions.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of materials and equipment in accordance with Construction Progress Schedule, coordinate to avoid conflict with work and conditions at site. Owner will not accept deliveries for Contractor.
 - 1. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Protect bright machined surfaces, such as shafts and valve faces.
 - 3. Immediately upon delivery, inspect shipments to ensure compliance with Contract Documents and approved submittals, and products have been protected and are undamaged.
- B. Provide equipment and personnel to handle materials and equipment by methods recommended by manufacturer to prevent soiling or damage to materials or equipment, or packaging.

1.06 STORAGE, PROTECTION, AND MAINTENANCE

- A. On-site storage areas and buildings shall conform to requirements of Section 01500 – Temporary Construction Facilities and Utilities.
- B. Owner assumes no responsibility for materials and equipment stored in buildings or on site or at another location approved in writing. Contractor assumes full responsibility for damage due to storage of materials and equipment.
- C. Interior storage:
 - 1. Store materials and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible.
 - 2. Store materials and equipment subject to damage by elements in weathertight enclosures.
 - 3. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- D. Exterior storage:
 - 1. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 - 2. Store loose granular materials in well drained area on solid surfaces to prevent mixing with foreign matter.
 - 3. Materials such as pipe, reinforcing and structural steel, and equipment shall be stored on pallets or racks, off ground.
- E. Inspection and maintenance:
 - 1. Arrange storage in manner providing easy access for inspection, maintenance, and inventory.
 - 2. Make periodic inspections of stored materials and equipment to ensure materials and equipment maintained under specified conditions and free from damage or deterioration, and coverings in place and in condition to provide required protection.
 - 3. Perform maintenance on stored materials and equipment in accordance with manufacturer's written instructions and in presence of Owner or Engineer.
 - a. Notify Engineer 24 hrs. before performance of maintenance.
 - b. Submit report of completed maintenance and condition of coverings to Engineer with each Application for Payment.
 - c. Failure to perform maintenance, to notify Engineer of intent to perform maintenance or to submit maintenance report may result in rejection of material or equipment.

- F. Contractor shall assume responsibility for protection of completed construction and repair and restore damage to completed work equal to original condition.
- G. Wheeling of loads over floors, with or without plank protection, not permitted in anything except rubber tired wheelbarrows, buggies, trucks or dollies. This applies to finished floors and exposed concrete floors, as well as those covered with composition tile or other applied surfacing.
- H. Where structural concrete is also finished surface, avoid marking or damaging surface.

1.07 INSTALLATION, INSTRUCTIONAL, AND POST STARTUP SERVICES

A. General:

1. This article covers on-site services of supplier's or manufacturer's representatives provided by Contractor during construction, equipment startup, and training of Owner's personnel for equipment or plant operation as specifically required in specification section for equipment or system.
2. Include and pay costs for supplier's or manufacturer's services, including, but not limited to, those specified.

B. Installation services:

1. Where installation services called for in specifications, provide competent and experienced technical representatives of manufacturers of equipment and systems to resolve assembly or installation procedures attributable to, or associated with, equipment furnished.
2. After equipment installed, representatives shall perform initial equipment and system adjustment and calibration to conform to specifications and manufacturer's requirements and instructions.

C. Instructional services:

1. Where training called for in specifications, provide competent and experienced technical representative of supplier to provide detailed instructions to Owner's personnel for operation of equipment. Training services shall include prestart up and equipment startup, classroom, and on-site equipment instruction, as stated in specifications.
2. Coordinate prestart up training periods with Engineer and supplier's representative.
 - a. Notify Engineer at least 48 hrs. before training sessions are to begin so Engineer can make arrangements with Owner's operating personnel.
 - b. Reschedule canceled training sessions 48 hrs. in advance.
3. Similar types of equipment differing in model, size or manufacturer shall require equal service time as stated in Part 1 of specific specification section.
4. Complete prestart up training 14 days prior to actual plant startup.
5. Operation and maintenance data shall constitute basis of instruction.
 - a. Review data contents with personnel in full detail to explain aspects of operations and maintenance.

- D. Post startup services:
 - 1. After equipment/system in operation for at least 6 months, but no longer than 11 months, each equipment manufacturer or authorized equipment representative shall make final inspection where so required in specifications. Final inspection will provide assistance to Owner's operating personnel in making adjustments or calibrations required to ensure equipment or system operating in conformance with design, manufacturer, and specifications.

1.08 SPECIAL TOOLS AND LUBRICATING EQUIPMENT

- A. Furnish, in accordance with manufacturer's recommendations, special tools required for checking, testing, parts replacement, and maintenance. Special tools are those specially designed or adapted for use on parts of equipment, and not customarily and routinely carried by maintenance mechanics.
- B. Deliver to Owner when unit placed into operation and after operating personnel have been properly instructed in operation, repair, and maintenance of equipment.
- C. Tools and lubricating equipment shall be of quality compatible to equipment manufacturer has furnished.

1.09 LUBRICATION

- A. Where lubrication required for proper operation of equipment, incorporate necessary and proper provisions in equipment in accordance with manufacturer's requirements. Where possible, lubrication shall be automated and positive.
- B. Where oil used, reservoir shall be of sufficient capacity to supply unit for 24-hour period.

1.10 GUARDS

- A. Provide necessary guards to meet federal, state, and local requirements. Construct guards of expanded metal where possible.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

INDEX

PART 1 - GENERAL

- 1.01 DESCRIPTION
- 1.02 MAINTENANCE OF DOCUMENTS
AND SAMPLES
- 1.03 RECORD DOCUMENTS
- 1.04 SUBMITTALS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Maintain at site one record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to Contract.
 - 5. Engineer field orders, written instructions, or clarifications.
 - 6. Approved submittals.
 - 7. Field test records.
 - 8. Construction photographs.
 - 9. All associated permits.
 - 10. Certificates of inspection and approvals.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide secure storage space for storage of samples.
- B. Maintain documents in clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents and samples available at all times for inspection by Engineer.
- D. Failure to properly maintain record documents may be reason to delay a portion (up to 5%) of progress payments until records comply with Contract Documents.

1.03 RECORD DOCUMENTS

- A. Maintain record set of Drawings and Specifications legibly changed to transfer approved modifications in completed work that differ from Contract Documents.

- B. Label each document "PROJECT RECORD" in neat, large printed letters.
- C. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information recorded.
 - 2. Record changes made by Written Agreement, Field Order, Change Order or Work Directive Change.
- D. Drawings:
 - 1. General:
 - a. Depths of various elements of foundation in relation to finish first floor datum.
 - b. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - d. Field changes.
 - e. Details not on original drawings.
 - f. Location and identification of exposed interior piping.
 - 2. Electrical:
 - a. Horizontal and vertical locations and size of underground cable, conduit, and duct runs dimensioned from established building lines.
 - b. Plan locations and size of interior concealed and exposed feeders.
 - c. Size and location of access panels.
 - d. Departures from original drawings and electrical work revisions.

1.04 SUBMITTALS

- A. At substantial completion:
 - 1. Deliver one marked up set of drawings to Engineer for use in preparation of record drawings.
- B. Accompany submittals with transmittal letter in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title of record document.
 - 5. Signature of Contractor or authorized representative.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 02200

SITEWORK

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 DEFINITIONS

PART 2 – PRODUCTS

- 2.01 MATERIALS

PART 3 – EXECUTION

- 3.01 CLEARING AND SURFACE REMOVAL
- 3.02 EXCAVATION FOR STRUCTURES
- 3.03 TRENCH EXCAVATION
- 3.04 ROCK EXCAVATION
- 3.05 RUBBLE EXCAVATION
- 3.06 SHEETING, SHORING AND BRACING
- 3.07 DEWATERING

- 3.08 BACKFILL AND EMBANKMENT FOR STRUCTURES
- 3.09 TRENCH BACKFILL
- 3.10 EXCAVATION
- 3.11 EMBANKMENT AND STRUCTURAL FILL
- 3.12 BORROW EXCAVATION
- 3.13 GRADING
- 3.14 SUBGRADE PREPARATION
- 3.15 SUBGRADE TREATMENT
- 3.16 FIELD DRAIN LINES
- 3.17 SILT FENCE
- 3.18 GEOGRID INSTALLATION
- 3.19 ROLLED EROSION CONTROL PRODUCT

PART 1 – GENERAL

- 1.01 DESCRIPTION

A. This section describes the following:

1. Earthwork for construction of demolition, generator pad, retaining wall, berms, piping, grading and miscellaneous site work.
 - a. Excavate and compact earth as specified hereinafter to provide finish grade as shown on drawings.
 - b. Remove and stockpile top 6"-12" of higher quality topsoil for replacement when site grading is complete.
 - c. Provide necessary machine or hand finishing and shaping to elevations as shown on drawings.
 - d. Pile excavated material, suitable for backfill, in an orderly manner a sufficient distance back from edge of excavation to avoid slides or cave-ins; 2'-0" minimum clear distance.
 - e. Excavate in open cut, except as noted on drawings or as directed by Engineer.

- f. Do not damage trees and plantings except as noted on drawings or as directed by Engineer.
 - g. Reference to percent maximum density shall mean a soil density not less than the stated percent of maximum density of optimum moisture content for soils as determined by ASTM D698, Moisture-Density Relations of Soils, using 5.5-lb. Rammer and 12-in Drop. (Standard Proctor method.)
 - h. Do work in accordance with best present-day installation and construction practices.
- B. Related work specified elsewhere:
- 1. Section 01040 – Special Construction.
 - 2. Section 02050 – Demolition and Modifications.
 - 3. Section 02610 – Buried Piping.
 - 4. Section 02930 – Lawns and Grasses.
 - 5. Section 03300 – Cast-in-Place Concrete.

1.02 DEFINITIONS

- A. Earth: all materials, not classified as rock or rubble, including clay, silt, sand, gravel, hardpan, disintegrated shale, debris, loose stones, boulders less than 1/3 CY in volume, trees, stumps, roots and rubbish.
- B. Rock: boulders larger than 1/3 CY in volume or solid deposits so firmly cemented together that they cannot be removed without continuous use of pneumatic tools or blasting.
- C. Rubble: buried concrete foundations, beams, walls and other material which require continuous use of pneumatic tools or blasting.
- D. Borrow: materials, in excess of excavated materials, needed to backfill embankments and around structures.
- E. Removal of rock, rubble and miscellaneous debris above and below ground is incidental to construction.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Pipe bedding: sharp, clean, crushed stone; comply with following gradation:

<u>Sieve</u>	<u>Pipe Diameter</u>	
	<u>Up to 18"</u>	<u>Over 18"</u>
	<u>% Passing</u>	<u>% Passing</u>
1-1/2"		100
1"	100	95-100
3/4"	80-95	35-70
1/2"	50-60	25-50
3/8"	20-40	10-30
No. 4	0-5	0-5

1. Engineer may authorize change in gradation subject to materials available locally at time of construction.

- B. Stabilizing material: sharp, clean, crushed stone; comply with following gradation:

<u>Sieve</u>	<u>% Passing</u>
2-1/2"	100
2"	90-100
1-1/2"	35-70
1"	0-15
1/2"	0-5

- C. Compacted granular subbase: crushed stone; IDOT Section 4123 modified Subbase; gradation No. 14; top 6" under floor slab shall contain not more than 5% fines.
- D. Compacted granular fill and compacted granular subbase below foundations: well graded granular material; IDOT Section 4121 Granular Subbase Material, gradation 12B, asphalt or asphalt containing material not allowed.
- E. Compacted porous granular subbase: 1-1/2" clean crushed stone; IDOT; gradation No. 4 or equal.
- F. Geogrid material: biaxial material of 98% minimum polypropylene and regular grid structure conforming to ASTM D4101 Group 1, Class 1, Grade 2 with 0.5% minimum carbon black per ASTM 4218; Tensar Geogrid BX1100.
1. Aperture size suitable for mechanical interlock of base and geogrid; minimum of 70% open area; maximum openings: 1" (longitudinally along roll) and 1.3" (across roll).
 2. Tensile modulus of 14,000 lbs/ft; flexural rigidity of 250,000 mg-cm.

- 3. Normal rib thickness of 0.03"; nominal junction thickness of 0.11" ASTM D1777.
 - 4. Resistant to damage by all forms of biological and chemical degradation caused by subgrade or subbase environment.
- G. Rip-Rap: Conform to IDOT 3130.04 for Class D revetment stone. Material larger than 250 lbs. acceptable.
- H. Silt fencing: IDOT 4196.
- I. Lime for subgrade treatment: hydrated lime: ASTM C207, Type N.
- J. Junctions of pipe lines: factory designed fittings.
- K. Borrow material: excavated soil free from objectionable organic material and suitable for normal embankment and subgrade construction; minimum laboratory dry weight: 100 lbs. per cubic foot.
- L. Compacted sand: clean, washed manufactured sand.
- M. Granular surfacing: IDOT Class A crushed stone.
- N. Compacted granular backfill material: clean, washed crushed stone similar to IDOT 4131.
- O. Rolled Erosion Control Products (RECP): double net straw blanket with degradable thread between lightweight photodegradable polypropylene top and bottom nets. Permissible shear stress 1.75 psf. North American Green S150, or equal.
- P. Borrow Material and General Site Grading Fill: Contractor responsible for furnishing borrow material in excess of suitable material found and excavated on-site; material subject to approval of Engineer.
- Q. Modified crushed stone subbase for pavement: IDOT 4123; gradation No. 14.
- R. Recycled concrete backfill: IDOT 4123; gradation No. 14.
- S. Geotextile fabric at pressure relief valves in tank walls and slabs: conform to IDOT 4196.01.B.2.
- T. Edging: black polyethylene, round top bulb, bottom V-lip, steel anchor stakes; Black Jack by Oly-Ola Sales, or equal.

U. Extruded polystyrene board:

1. For insulation over buried piping where cover is less than frost depth over the piping.
2. Average density not less than 1.8 lb./CF; ASTM C303.
3. Compressive strength not less than 40 psi; ASTM D1621.
4. 2" total thickness unless shown otherwise.
5. Thermal conductivity, k factor, not greater than 0.20 at 75°F. (minimum R value of 5 per inch); ASTM C518.
6. Water absorption less than 0.05% (by volume); ASTM C272.
7. Water vapor transmission average not greater than 1.1 perm-inch ASTM E96.
8. Linear coefficient of thermal expansion not greater than 0.000035 in./in./°F.; ASTM D696.
9. Owens Corning FOAMULAR 400, or equal.

PART 3 – EXECUTION

3.01 CLEARING AND SURFACE REMOVAL

- A. Clear entire surface of all areas to be excavated or on which embankments are to be placed as necessary; fell all trees and grub all stumps and roots.
- B. Haul trees, stumps, roots, brush and rubbish to local landfill.
- C. Remove existing fences as necessary within site, unless otherwise specified or shown on drawings.
- D. Remove section of existing concrete retaining wall as shown on drawings.
- E. Dispose of waste material at disposal area obtained by Contractor. Broken concrete shall be disposed of off-site subject to approval by Engineer.

3.02 EXCAVATION FOR STRUCTURES

- A. Excavate as directed by the project soils consultant report recommendations and the structural notes; if excavation is carried below bottom of existing foundations as shown on drawings, fill with concrete at no expense to Owner; see Section 03300 for fill concrete requirements.
- B. Provide sheeting, shoring and bracing where required to hold walls of excavation, to protect structures or utilities or to provide safety for workmen.

3.03 TRENCH EXCAVATION

- A. Keep width of trench as narrow as possible and still provide adequate room for backfilling and jointing.

- B. Maximum width of trench at top of pipe: 2'-3" or outside diameter of pipe plus 12", whichever is greater.
- C. Keep sides of trench as nearly vertical as practicable; maintain vertical walls of excavation below top of pipe.
- D. Bottom of trench:
 - 1. Where metallic pipe (e.g. copper, ductile iron) is shown on drawings, hand shape to provide uniform bearing and support for full length of pipe barrel against undisturbed earth as shown on drawings.
 - a. Provide suitable bell holes at each pipe joint after bottom of trench has been graded.
 - b. Alternate to hand shaping trench bottom at Contractor's option: excavate to required depth by machine; use Type I bedding as shown on plans; use sharp, clean, crushed stone pipe bedding, with gradation as specified hereinbefore.
 - c. Remove large clods, stones and other foreign material from bottom of trench.
 - 2. Where concrete or clay pipe is shown on drawings, excavate full depth by machine; place Type I pipe bedding, as specified hereinbefore, in bottom of trench.
 - 3. Where plastic pipe is shown on drawings, except perforated subdrain, place pipe in pipe bedding envelope for entire trench width from minimum 4" under pipe to minimum 12" pipe bedding above top of pipe. For perforated subdrain, use pea gravel.
 - 4. Compact pipe bedding by rodding or slicing with shovel.
 - 5. Pipe bedding cost is incidental to construction.
 - 6. In addition, provide pipe trench bedding in accordance with SUDAS Figures 3010.101 through 3010.104.
- E. Trench excavated below required grade: backfill to proper elevation with pipe bedding, as specified, at no cost to Owner.
- F. When unstable material is encountered which may not provide a suitable foundation for pipe:
 - 1. Notify Engineer immediately.
 - 2. Engineer will investigate questionable material to determine its suitability for pipe foundation.
 - 3. If material is considered unsuitable for foundations, Engineer will specify and authorize remedial measures in writing.
 - 4. If removal of unsuitable material is authorized:
 - a. Replace with stabilizing material as specified hereinbefore.
 - b. Place pipe bedding on top of stabilizing material as specified hereinbefore.
 - c. Authorized overexcavation and backfill will be paid for as Extra Work.
 - 5. See paragraph 1.05 Unstable Soils in Section 01040 – Special Construction.

3.04 ROCK EXCAVATION

- A. Use pneumatic tools. Other methods as approved by Engineer.
- B. Dispose of excavated rock not suitable for backfill at off-site disposal area obtained by contractor subject to approval by Engineer.

3.05 RUBBLE EXCAVATION

- A. Rubble, as specified and defined herein, may be encountered.
- B. Removal and disposal: as specified for rock; disposal is incidental to cost of rubble excavation.

3.06 SHEETING, SHORING AND BRACING

- A. Construct sheeting, shoring and bracing where shown on drawings or where required to hold walls of excavation, to provide safety for workmen, to protect existing utilities or structures or to permit construction in the dry.
- B. Leave in place all temporary sheeting below top of footings or below 2' over top of pipe.
- C. Leave sheeting and shoring in place above top of footings or above 2' over top of pipe when removal, in the opinion of Engineer, might damage piping or structures.
- D. Contractor may be required to provide sheeting by regulatory agencies when not required by Owner or Engineer; sheeting, shoring and bracing cost is incidental to construction.

3.07 DEWATERING

- A. Do all work in the dry; obtain Engineer's approval for methods of dewatering.
- B. Grade as required to prevent surface water from flowing into excavations; promptly remove any water accumulated.
- C. Lay no pipe in or pour no concrete on excessively wet soil.
- D. Do not pump water into adjacent property without approval of Engineer.
- E. If unstable condition due to groundwater is encountered during excavation: change method of dewatering; if soil cannot be stabilized by dewatering methods including sand point installation, notify Engineer.
- F. Cost of dewatering is incidental to construction.

3.08 BACKFILL AND EMBANKMENT FOR STRUCTURES

- A. Backfill after concrete or masonry has cured, and waterproofing, if specified, has been inspected by Engineer.
- B. Backfill with approved material removed from excavation except as shown on drawings and as specified hereinafter; use no debris, frozen earth, large clods or stones.
- C. Provide compacted granular backfill and base under and around structures where shown or specified on drawings.
- D. Backfill simultaneously on all sides of structure; save structure from damage at all times. Fills placed below foundations and floors shall be compacted to 98% of the material's standard proctor maximum dry density as determined by the procedures in ASTM D698. Fills placed along the sides of walls and not under other foundations, floors or pavement shall be compacted to 95% of the material's standard proctor maximum dry density as determined by the procedures in ASTM D698.
- E. Retain services of independent testing laboratory to conduct Proctor and moisture-density compaction tests to insure conformance with compaction requirement and soil bearing pressure requirements under tanks and footings; provide 1 test for every 2' of depth every 50 LF of backfill at locations where directed by Engineer. Soil bearing capacity requirements are shown on the drawings.
- F. Terminate at elevation shown on plans; dispose of excess excavation as directed by Engineer.
- G. If settlement of any backfill occurs within period of guarantee and bond, refill, compact and level off.
- H. Do not position construction equipment closer to outer walls than a line drawn from base of footing wall at slope of 1' horizontal to 2' vertical; if construction equipment is set closer to wall, support using temporary braces.

3.09 TRENCH BACKFILL

- A. Backfill trench immediately after Engineer has recorded location of connections and appurtenances and testing has been completed, or at Engineer's direction.
- B. Allow no more than 100' of trench to be open at one time; construct appurtenances and backfill as work progresses.
- C. Use no large stones, large clods, organic matter, rubbish, frozen or unsuitable materials in backfill.

- D. Use compacted backfill:
1. Hand place and carefully compact backfill over top of pipe.
 2. Backfill above 1' over top of pipe with excavated material in layers not to exceed 6"; moisten if required; compact to 95% maximum density with moisture content -1% to +4% of optimum.
 3. Adjust the moisture content of excessively wet, but otherwise suitable, backfill material by spreading, turning, aerating, and otherwise working material as necessary to achieve required moisture range.
 4. Adjust the moisture content of excessively dry, but otherwise suitable, backfill material by adding water, then turning, mixing, and otherwise blending the water uniformly throughout the material until the required moisture range is achieved.
 5. Fill upper portion of trench with topsoil; compact and prepare for surface restoration.
- E. Fill upper 6" portion of trench with topsoil where construction area is to be seeded or cultivated; shape roadways and ditches to original grades, replace surfacing material where trench is in streets, driveways or parking areas; in the event of excavated frozen ground, stockpile topsoil along route of sewer and respread after soil has thawed in spring; do not block natural drainageways; no additional payment will be made for handling frozen earth.
- F. New line below existing water or gas main: backfill under existing water or gas main with pipe bedding material; compact to 95% maximum density; length of pipe bedding material backfill at elevation of existing utility: equal to depth of excavation below utility; pipe bedding material backfill is incidental to sewer construction.
- G. Backfill above gravity pvc and polypropylene pipe:
1. Backfill with pipe bedding material to minimum 12" above top of pipe; do not drop pipe bedding material from equipment bucket more than 2' above pipe; all pipe bedding material including backfill material is incidental to construction.
 2. Above pipe bedding material, backfill with excavated material, except frozen material, and other non-suitable material; do not drop backfill material from equipment bucket more than 2' above bottom of trench until backfill material is in place 4' above pipe bedding backfill material.
 3. Consolidate bottom 4' of trench backfill with hand tools and tampers; do not use vibratory plate or drop type compactor until above bottom 4' of trench backfill.
- H. Place concrete encasement where directed by Engineer.
1. Make pipe joint in same manner specified for pipe not encased.
 2. Pour concrete beneath and around pipe after jointing is complete.
 3. Use two temporary pipe supports under barrel per pipe length: one near bell and one near spigot.
 4. Provide ties and braces to prevent displacement or floatation during encasement.
 5. Use concrete encasement shown on drawings.

- I. Retain services of independent testing laboratory to conduct moisture-density compaction tests to insure conformance with compaction requirement; provide 1 test for every 2 ft of depth every 100 LF of pipe trench at locations where directed by Engineer.
- J. If removal of sheeting disturbs compacted backfill, recompact backfill to comply with specifications.
- K. If settlement of any trench occurs within period of guarantee and bond: refill, compact, level off and restore surfacing.

3.10 EXCAVATION

- A. Strip vegetation and organic materials within construction limits and stockpile areas; remove broken concrete and debris; remove from project site and dispose of removed materials.
- B. Remove topsoil to minimum depth of 6" or as directed by Engineer.
- C. Stockpile sufficient topsoil for reuse to finish earth surfaces within construction limits and stockpile areas; stockpile excess as directed by Engineer.
- D. Grade and shape earth surfaces within construction limits to specified cross section; finish earth surfaces as specified hereinafter.
 - 1. General excavation and grading of the immediate site will include constructing a temporary access road for staging work. Refer to Section 01040, 1.04 D. which presents a Construction Sequence. This includes installation of a drain tile system with groundwater pump station. Groundwater shall be discharged to the existing effluent pump station until the proposed station is built with all connections in place by Contract 1.
- E. Grade and shape earth surfaces to drain; finish earth surfaces as specified hereinafter.
- F. Uniformly spread excess on-site excavated materials and topsoil as directed by Engineer; suitable excavated materials remain property of Owner.

3.11 EMBANKMENT AND STRUCTURAL FILL

- A. Prepare site, place and compact excavated materials to required elevations and cross section.
- B. Scarify, disc and roll foundation areas as necessary to provide proper bond with first layer of new fill.

- C. Place no roots, brush, grass or other organic material in embankment; place no material on embankment when material or foundation is frozen.
- D. Select material for each portion of embankment with approval of Engineer; select materials to avoid sharp change in texture.
- E. Use fill material free of lenses, pockets, streaks or layers of materials differing from surrounding materials.
- F. Cut bench in existing grade at toe of new embankment.
- G. Construct embankment in horizontal layers not more than 8" in loose thickness.
- H. Deposit each layer over full width of embankment as separate and distinct operation.
- I. After layer is deposited, smooth to uniform depth by means of suitable motor patrol or bulldozer.
- J. Compact selected materials in horizontal layers with tamping or sheepsfoot roller; use roller designed to provide at least 250 psi distributed on one row of knobs.
- K. Compact layer by rolling with tamping type roller until full weight of roller is supported by tamping feet, but with not less than one pass per inch of loose thickness of layer.
- L. Roller will be considered to be supported entirely on its tamping feet when feet do not penetrate more than 3" into material being compacted.
- M. If soil is wet so that it will not sufficiently compact by one passage of roller per inch of loose thickness, provide one discing per 2" of loose thickness.
 - 1. Cut and stir full depth of layer.
 - 2. Allow interval of not longer than 2 hours between successive discings, or as directed by Engineer.
 - 3. After discing is completed, compact layer by specified rolling.
- N. If soil is dry so that it will not satisfactorily compact by rolling, moisten material before compaction; manipulate material to secure proper distribution of moisture before compaction.
- O. Place fill and compact on all sides of structures to same level as fill operation progresses to protect structures against displacement or other damage.
- P. Areas adjacent to structures which cannot be tamped with rollers: hand tamp with mechanical tamper to same degree of compaction as specified for other parts of embankment.

- Q. Whenever operations are suspended during period rain is likely to occur, smooth and compact surface to shed water readily.
- R. Compact all borrow material and excavated material used for embankment to not less than 95% maximum density with moisture content of 0 to 4 percentage points above optimum; maximum density determined by ASTM D698.
- S. Provide tests at locations as determined by Engineer, but not less than 1 test per each 2 vertical feet per each 100 LF of embankment.
- T. See Section 01040 – Special Construction for additional requirements.
- U. See Paragraph 3.08 for additional requirements.

3.12 BORROW EXCAVATION

- A. Borrow materials provided by Contractor subject to approval by Engineer.
- B. Provide impervious borrow material for placement at basin site if indicated in plans or specifications; as approved by Engineer.
- C. Estimated total unclassified excavation required for equalization basin and plant site grading including stripping: As shown on plans. Refer to the Geotechnical Engineering Report for suitability of the existing soils at plant site.

3.13 GRADING

- A. Grade construction areas to finished slopes and contours shown; use excavated material as required.
- B. Compact all materials in horizontal layers; maximum thickness: 6".
- C. Compact with tamping or sheepsfoot roller.
- D. Use roller designed to provide at least 250 psi distributed on one row of knobs.
- E. Maintain optimum moisture content in soil within practicable limits for each layer placed:
 - 1. Uniformly distribute water over each layer to raise moisture content.
 - 2. Scarify, harrow or work material to aerate if necessary to reduce moisture content.

- F. Density of fill:
 - 1. Driveways, sidewalks, parking lots and areas beside structures: not less than 95% maximum density. Areas below structures and building floor slabs, 98% maximum density per standard Proctor testing, ASTM D698.
 - 2. All other areas: roll until daylight can be observed between ground surface and drum of sheepsfoot roller.
- G. Finish to neat uniform lines; provide for drainage.
- H. Surface: smooth and free of clods and stones, suitable for surface restoration.
- I. Upper 6" of all graded and embanked areas: place 6" of topsoil saved from excavating and clearing.
- J. Dispose of excess on-site excavated materials and topsoil as directed by Owner.
- K. Provide 1 test for every 300 SY of grading at locations where directed by Engineer.

3.14 SUBGRADE PREPARATION

- A. Shape and consolidate subgrade in preparation for placement of pavement and/or granular surfacing.
- B. Provide uniform composition at least 12" below top of subgrade for full width of pavement plus 2'; scarify materials, mix and recompact, or otherwise treat to produce a uniform condition.
- C. Remove stones over 2" in size from loosened portion of subgrade and dispose of as directed by Engineer.
- D. Construct subgrade with uniform density for a width equal to that of proposed parking lot and drives plus 2' on each side; density: not less than 95% maximum density (98% maximum density per standard Proctor testing, ASTM D698).
- E. In areas where roller cannot compact; provide approved select material; 12" minimum thickness; compact to 95% maximum density (98% maximum density per standard Proctor testing, ASTM D698) with vibrating tamper.
- F. Construct to elevation and cross-section such that, after rolling, surface will be at required subgrade elevation.

- G. Fill depressions that develop during rolling with suitable material; continue rolling until subgrade is uniformly firm, properly shaped and true to grade and cross-section.
 - 1. Maintain until pavement is placed.
 - 2. Remove materials (other than sand) which will not compact readily under roller; replace with materials which will compact readily; again roll that portion of subgrade.
- H. If ruts or other objectionable irregularities form in subgrade during construction, reshape and re-roll subgrade before placing pavement; fill ruts or other depressions with material similar to other subgrade material.
- I. Provide 1 test for every 300 SY of subgrade preparation at locations where directed by Engineer.

3.15 SUBGRADE TREATMENT

- A. Use only to correct bad subgrade condition beyond control of Contractor where directed by Engineer in writing. Subgrade treatment will be paid for as Extra Work.
- B. Lime subgrade treatment:
 - 1. Provide lime, 20 lbs. per square yard, in top 6" of subgrade.
 - 2. Mix until uniform consistency is obtained; add water as required for optimum moisture content and compact to specified density.
 - 3. Lime: use hydrated lime: ASTM C207, Type N.

3.16 FIELD DRAIN LINES

- A. Field drain lines may be encountered during construction or on land part of the temporary construction easement: notify Engineer if drain line conflicts with construction; Engineer will determine corrective measures in field.
- B. Where new sewer or water main crosses under field drain lines, replace with 20' lengths of AWWA C900 pvc pipe; cut 1/8" to 1/4" wide slots at 12" centers 1/4 depth of pipe; place slots on bottom; match size of existing drain line; replacement is incidental to construction.
- C. Where new sewer or water main parallel field drain lines, replace damaged field drain lines; match size and material of existing drain line.

3.17 SILT FENCE

- A. Construct as required by Erosion Control Plan prepared by Contractor; place fences prior to site grading and clearing.

- B. Embed posts 40" below grade; space posts at 8' maximum.
- C. Embed fabric minimum 12" below grade with 4" fold; extend fabric to 19" above grade; attach to steel posts.
- D. Maintain silt fence until grass is established; after grass has established, remove silt fence and regrade and seed any disturbed areas.

3.18 GEOGRID INSTALLATION

- A. Avoid damage to subgrade; roll geogrid material over prepared subgrade; extend geogrid material minimum 1' beyond edge of structure; cut to conform to fixtures and piping; pin overlaps to provide anchorage.
- B. Overlap geogrid material joints minimum 2' both transverse and longitudinal.
- C. Overlap geogrid material in direction granular base will be spread.
- D. Anchor geogrid material to subgrade as recommended by manufacturer.

3.19 ROLLED EROSION CONTROL PRODUCT

- A. Grade and smooth surface. Remove all rocks, clods, vegetation or other obstructions that will prevent direct contact between rolled erosion control product and the soil surface.
- B. Prepare seedbed, seed and fertilize prior to placing rolled erosion control product.
- C. Install in accordance with manufacturer's requirements and as shown on plans.

END OF SECTION

SECTION 02276

RETAINING WALL

INDEX

PART 1 – GENERAL

1.01 WORK INCLUDED

PART 3 – EXECUTION

3.01 INSTALLATION

PART 2 – PRODUCTS

2.01 MATERIALS

PART 4 – SUBDRAIN SYSTEM

4.01 SUBDRAIN PIPE

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Furnish and install complete retaining wall system as specified and as recommended by manufacturer.
- B. Prepare site and foundation as specified.
- C. Construct leveling pad for retaining wall units as specified.
- D. Furnish and install modular concrete retaining wall units as specified and as shown on drawings.
- E. Furnish and install geogrid reinforcement, subdrain, drain fill and backfill to lines and grades as shown on drawings.
- F. Furnish and install all appurtenances required for construction of retaining wall.
- G. Related work specified elsewhere:
 - 1. Section 02200 – Sitework.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Modular concrete retaining wall units; provide new retaining wall units the same as existing retaining wall units.
- B. Geogrid reinforcement: woven geotextile; Amoco 2044, or equal; 500 lb. dry min. ave. grab strength; 1,350 psi mullen burst strength; 300 lb. trapezoid tear strength; 4,800 lbs./ft wide width tensile strength.

- C. Foundation base material: 6" of compacted crushed stone; conform to IDOT Class A crushed stone; place and compact to 95% Standard Proctor density.
- D. Drain fill: free-draining porous granular material; clean, washed crushed stone similar to IDOT Section 4131; place and compact to 95% Standard Proctor density.
- E. Backfill: on-site material as needed to backfill behind retaining wall; place and compact to 95% Standard Proctor density.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. General:
 - 1. Excavate to line and grade as shown on drawings; replace over-excavation with compacted foundation base material or wall system components at no expense to Owner.
 - 2. Excavate foundation as required for footing dimensions as shown on drawings and as directed by Engineer.
 - 3. Proof roll foundation prior to placing foundation base material.
 - 4. Remove unsuitable foundation soil and place compacted foundation base material.
 - 5. Place foundation base material as specified hereinbefore.
- B. Wall units:
 - 1. Align first course by using a string line and level each wall face unit side to side and front to back.
 - 2. Place units side by side for full length of wall.
 - 3. Lay each course with lip of the units placed against the back of the preceding course; pull units forward as far as possible.
 - 4. Fill all voids; backfill and compact in maximum 6" lifts.
- C. Geogrid:
 - 1. Place geogrid with highest strength axis perpendicular to wall alignment.
 - 2. Place geogrid at locations shown on drawings or as directed by Engineer.
 - 3. Place geogrid horizontally on compacted backfill; pull taut and anchor geogrid prior to placing additional backfill.
 - 4. Remove slack in geogrid in a manner as directed by Engineer.
 - 5. Provide geogrid reinforcement continuous throughout embedment length; spliced connections will not be allowed:
- D. Drain fill:
 - 1. Place and compact drain fill in 6" lifts within and behind wall units to within 1' of final grade; place and compact backfill material to final grade.
 - 2. Place, spread and compact to minimize development of slack in geogrid.
 - 3. Use lightweight hand operated compaction equipment within 3' of wall units.

4. Provide minimum fill thickness of 6" prior to operating tracked vehicles over geogrid; prevent tracks from displacing fill and damaging geogrid while turning.
5. Use of rubber tired equipment over geogrid shall be at low speeds, less than 10 MPH, avoiding sudden braking and sharp turning.

PART 4 – SUBDRAIN SYSTEM

4.01 SUBDRAIN PIPE

A. Subdrain Pipe

<u>Pipe</u>	<u>Material</u>	<u>Thickness</u>	<u>Joints</u>	<u>Fittings</u>
Polyvinylchloride (pvc) (subdrain)	ASTM D3034, perforated except where shown on plans	SDR 23.5	Solvent cement ASTM D2564	ASTM D3034

- B. Install subdrain in porous granular material minimum 6" each way from pipe as shown on drawings; wrap filter fabric around porous granular material; lap fabric min. 6".
- C. Flush pipe with water to test for unobstructed drainage.
- D. Install rodent guard at subdrain outlet.
- E. Cap ends of subdrain.

END OF SECTION

SECTION 02520

PORTLAND CEMENT CONCRETE PAVEMENT

INDEX

PART 1 - GENERAL

- 1.01 DESCRIPTION
- 1.02 EQUIPMENT REQUIREMENTS

PART 2 - PRODUCTS

- 2.01 MATERIALS
- 2.02 STORAGE AND PROTECTION OF MATERIALS
- 2.03 PROPORTIONS FOR MIX
- 2.04 MIXING

PART 3 - EXECUTION

- 3.01 SUBGRADE PREPARATION
- 3.02 PAVEMENT CONSTRUCTION
- 3.03 CURING AND PROTECTION
- 3.04 RESTRICTIONS
- 3.05 DEFECTS
- 3.06 SIDEWALK CONSTRUCTION
- 3.07 SEALING EXTERIOR SLABS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section describes the following:
 - 1. Construction of non-reinforced portland cement concrete pavement and sidewalk, using preset forms on prepared subgrade or subbase as shown on drawings and specified herein.
 - 2. Non-reinforced portland cement concrete pavement includes joint reinforcement dowels.
- B. Related work specified elsewhere: Section 02200 - Sitework.

1.02 EQUIPMENT REQUIREMENTS

- A. Batch or ready-mix plant: Iowa DOT 2001.06, 2001.20 and 2001.21.
 - 1. Automatic cut-off gates at cement batching scale not required.
 - 2. Scales and measuring devices certified at Contractor's expense.
- B. Concrete mixing equipment: Iowa DOT 2001.21.
- C. Forms: Iowa DOT 2301.07 A1 and A2.
- D. Form-line excavating machine: Iowa DOT 2301.07 A5 or B1.
- E. Subgrade trimming equipment: Iowa DOT 2301.07 A6 or B2.

- F. Consolidating and finishing equipment: Iowa DOT 2301.07 A6 or B3.
- G. Equipment for hand methods: Iowa DOT 2301.07 D and E.
- H. Alternate equipment and methods for finishing and consolidating pavement may be permitted by Engineer if satisfactory operation and construction on previous projects can be demonstrated.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Portland cement: ASTM C150, Type I.
- B. Admixtures: no admixtures containing chlorides will be permitted.
 - 1. Air entraining: ASTM C260.
 - 2. Fly ash: Type C, ASTM C618 and C494.
 - 3. Retarding: ASTM C494, Type A; a suitable retarding admixture may be used during hot weather, with approval of Engineer.
 - 4. Calcium chloride shall not be used.
 - 5. Other admixtures may be used subject to approval of Engineer in accordance with ASTM C494 or applicable standards.
- C. Fine aggregate:
 - 1. Clean, hard, durable particles of natural sand, with allowable amounts of injurious silt, shale, coal, organic matter or other deleterious substances; ASTM C33.
 - 2. Deleterious substances: not more than 2.0% shale and coal by weight retained on No. 16 sieve; not more than 2.5% silt by weight.
 - 3. Organic matter: other than coal, not more than standard reference color; ASTM C40.
 - 4. Conform to following sieve analysis:

<u>Sieve Size</u>	<u>% Passing</u>
3/8"	100
No. 4	90-100
No. 8	70-100
No. 200	0-1.5

- 5. Percent passing one sieve and retained on next higher number sieve not more than 40% when sieved through 4 and 8 numbered sieves.
- 6. Mortar strength at 7 days not less than 1.5 times standard sand strength when tested in accordance with IDOT Laboratory Test Method 212.

D. Coarse aggregate:

1. Clean, hard, durable particles of crushed limestone free from injurious amounts of objectionable materials; Class 2 or 3 durability crushed stone: IDOT 4115.04.
2. Objectionable materials not more than:

	<u>Percent</u>
Clay lumps	0.5
Coal and carbonaceous shale	0.5
Sticks (wet weight)	0.1
Total of all shale and coal combined	1.0
Organic material other than coal and sticks	0.0
Unsound chert particles retained on 3/8" sieve	3.0

- a. Chert particles breaking into three or more pieces in freezing and thawing test, Iowa DOT Laboratory Test Method 211, Method A, are considered unsound.
3. Conform to following sieve analysis:

Sieve Size % Passing

1-1/2	100
1"	50-100
3/4"	30-100
1/2"	20-75
3/8"	5-55
No. 4	0-10
No. 8	0-5
No. 200	0-1.5

4. Percent of wear, AASHTO T96, Grading A or B, shall not exceed 35 for gravel, 50 for crushed stone which contains 90% or more calcium carbonate or 45 for all other crushed stone.
 5. Particle durability: aggregate considered durable when it has no adverse effect on durability of concrete in which used; minimum percent of durable particles in aggregate: 95; durability based on following:
 - a. That loss in freezing and thawing test, Iowa DOT Laboratory Test Method 211, Method A, does not exceed 6%.
 - b. Behavior of existing concrete containing aggregate of similar geological origin or chemical and mineral composition.
- E. Water: clean and clear, free from salt, oil, acid, strong alkalis, vegetable matter, or other substances injurious to concrete; water may be heated for cold weather paving operations; anti-freezing agents not permitted.
- F. Reinforcing steel, if required:
 1. Deformed bars: billet steel; ASTM A615, Grade 40; epoxy coated.

2. Plain and smooth dowel bars: ASTM A663 or ASTM A675; Grade 60; epoxy coated.
 3. Welded wire fabric: ASTM A185.
 4. Dowel assemblies for CD joints: IDOT Standard Road Plan PV-101.
- G. Metal expansion tubes: fabricated steel tubes; conform to requirements of IDOT; provide tubes with internal diameter 1/16" larger than dowel bar; bar stop capable of withstanding 20 lb. push, minimum.
- H. Metal keyways: fabricated 24 gauge sheet steel; conform to requirements of IDOT; provide lengths in multiples of tie bar spacing; punch to receive tie bars.
- I. Supports for reinforcing steel:
1. Support tie bars as required to place and maintain correct location during construction.
 2. Welded wire fabric supports: heavy gauge wire, welded or bent to form 4-legged chair; use only with permission of Engineer.
 3. Support dowel bars at expansion and contraction joints as detailed.
- J. Wire Mesh where noted on plans:
1. 6" x 6" W2.1 x W2.1 mesh for following:
 - a. 4" slabs on grade.
 - b. toppings
 2. 6" x 6" W2.9 x W2.9 mesh for following:
 - a. 6" or thicker slabs.
- Joint filler:
1. Preformed expansion joint filler: asphalt saturated fiber strips; AASHTO M213; furnish in strips of plan dimensions.
- K. Concrete pavement joint sealer:
1. Bituminous joint filler and sealer: hot poured joint filler: ASTM D3405; comply with IDOT 2301.25.
 2. Backer rope: cellulose, cotton or plastic foam suitable for use with hot-poured sealer; size and compression such that it maintains position during filling operation.
- L. Sidewalk joint sealer:
1. Joint sealer: gray, one-component, non-priming, self-leveling, pour grade, polyurethane joint sealer; ASTM C920-79, Type S, Grade P, Class 25 or FS TT-5-00230C, Type 1, Class A; Sonolastic SL1, Vulkem 45 or approved equal. Use in sidewalk joints adjacent to buildings and curb and gutter.

- M. Liquid curing compound: IDOT 4105.05.
- N. Plastic film: opaque, white pigmented polyethylene plastic, 0.00085" minimum thickness, use only once if less than 0.0034" thick.
- O. Fly ash: meet requirements of IDOT Section 2301.04E and Section 4108, Class C; use source currently approved by IDOT; not acceptable for use as cement substitute after October 15 or prior to March 15.
- P. Burlap: AASHTO M182, Class 3.
- Q. Raised dome detectable warning panels: non-slip surface with natural uncoated finish. East Jordan Duralast 24" x 24" detectable cast iron warning plates, or equal.

2.02 STORAGE AND PROTECTION OF MATERIALS

- A. Aggregates:
 - 1. Store fine and coarse aggregate in separate stockpile; avoid contamination of aggregates; place fine aggregate with more than 5.0% moisture in separate stockpile and allow to drain.
 - 2. Stockpile coarse aggregate and unscreened gravel in horizontal layers; maximum depth: 4'.
 - 3. Handle aggregates to avoid frequent variations in specific gravity, sieve analysis or moisture content: prevent variations of more than 0.5% in moisture content of aggregates in successive batches.
 - 4. Coarse aggregate having absorption greater than 0.5%, wet one hour before use.
 - 5. Place fine aggregate in proportioning bin only when uniform moisture content can be maintained in successive batches for one day's run.
- B. Cement:
 - 1. Store cement in suitable weatherproof structure; prevent loss of cement during handling.
 - 2. Use cement containing lumps only after careful screening through 20 mesh screen; retest in accordance with ASTM C150 before use.

2.03 PROPORTIONS FOR MIX

A. Mix proportions:

1. Basic absolute volumes of materials per unit volume of concrete:

	<u>C-4</u>	<u>M-4</u>
Cement Minimum	0.118	0.156
Water	0.159	0.160
Entrained Air	0.06	0.06
Fine Aggregate	0.331	0.312
Coarse Aggregate	0.332	0.312

2. Use M-4 mix where shown on plans. Use C-4 or M-4 mix at all other locations at Contractor's option.
3. Above quantities based on specific gravity of cement: 3.14; specific gravity of aggregates: 2.65; air voids: 6.0%.
4. Maximum water-cement ratio: 0.488 pound of water per pound of cement including free water in aggregate.
5. Air entraining admixture: produce 6.5% + 1.5% air voids in fresh concrete measured by pressure method.
6. Fly ash: comply with IDOT Section 2301.04E, Class C permitted as substitute for portland cement in C-4 mix; comply with requirements of IDOT Standard Specifications and Supplemental Specifications for portland cement concrete proportions.
7. Coarse aggregate IDOT 4115.04, Class 2 or Class 3 durability.

B. Proportion adjustments:

1. Basis; when actual quantity of concrete is more than 101% or less than 99% of calculated quantity or if combination of materials does not produce quality of concrete specified.
 - a. Fine aggregate shall not exceed 50% of total aggregate in any adjustment.
 - b. Do not exceed maximum water-cement ratio specified.

C. Water quantity and concrete consistency:

1. Use proper amount of mixing water to produce concrete of uniform consistency; adapt to mix, characteristics of materials used, methods of consolidation, weather conditions and slope of finished surface.
2. Modify proportion if maximum water-cement ratio does not produce workability; increase cement to aggregate proportion to produce specified degree of workability without exceeding maximum water-cement ratio.

- D. Tests on trial batches and concrete placed at project site:
1. Slump: ASTM C143; 1-1/2" to 3" for machine finished concrete; 4", maximum, for hand finished concrete.
 2. Air voids, of fresh concrete, by pressure method: ASTM C231; 6.5% + 1.5%.
 3. Minimum compressive strength: ASTM C39; 3,500 psi when tested at 7 days and 4,000 psi when tested at 28 days.
 4. Quantity of compression cylinders as specified in Section 03300 - Cast-in-Place Concrete; cast, protect and cure cylinders in accordance with ASTM C31; all concrete testing performed by ACI certified field testing technician per ASTM C94, Section 14.
 5. Quantity of tests for slump and air as specified in Section 03300 - Cast-in-Place Concrete.

2.04 MIXING

A. Batch mix:

1. Handle batches and charge mixer to ensure complete introduction of batches separately without loss of materials; add water with other materials.
2. Maximum batch volume:

<u>Mixer Size</u> <u>Designation</u>	<u>Volume of Batch</u> <u>CF of Mixed Concrete</u>
16E	17.6
27E	29.7
34E	37.4

- a. For other size mixers, do not allow batch volume of mixed concrete to exceed mixer size designation number.
- b. Size designations: as shown in Concrete Mixer Standards of Mixer Manufacturers Bureau of Associated General Contractors of America, Inc., in effect at time of manufacturer of mixer.
3. If uniform concrete cannot be produced with maximum batch volume; reduce batch volume and/or increase mixing time.

B. Ready-Mix:

1. Applies to either central plant-mixed concrete or central plant-proportioned, truck-mixed concrete.
2. Time lapse from addition of water until placing on subgrade: not to exceed 30 minutes when concrete is hauled in non-agitating trucks; 1-1/2 hours when hauled in truck mixers or agitating trucks; provide reliable reset-revolution counter on truck mixer.
3. Place concrete in plastic and workable condition; do not retemper partially hardened concrete.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. Prepare subgrade or subbase as specified in Section 02200 - Sitework. Number of tests as specified hereinbefore but not less than 1 test per 6" lift per 250 SY of subgrade preparation.

3.02 PAVEMENT CONSTRUCTION

- A. Setting and removing forms:
 - 1. Set forms accurately to required grade and alignment on properly compacted subgrade or subbase: for forms to support mechanical subgrader, mechanical spreader, mechanical finisher or other similar heavy equipment, excavate with machine designed to shape subgrade for forms.
 - 2. Set base of form at or below subgrade elevation and with top of form at pavement surface elevation at edge of slab.
 - a. Extra height forms may be used to back up integral curb; set base at or below subgrade elevation and top of form at top of curb elevation.
 - b. Comply with Iowa DOT 2301.09A if base of form is set below subgrade elevation; additional excavation and concrete at no cost to Owner.
 - 3. Secure forms in place to maintain grade and alignment while concrete is placed and finished.
 - a. If voids occur under forms, remove forms and bring subgrade to proper elevation.
 - b. Check form joints with 10' straightedge; adjust forms to proper grade and alignment.
 - 4. If supporting soil becomes softened by rain or standing water so form is inadequately supported, reset form on suitable material before placing concrete.
 - 5. Oil forms before concrete is placed; prevent adherence of concrete.
 - 6. Leave side forms in place not less than 6 hours after concrete is placed; if form removal causes damage to concrete, leave remaining forms in place longer than 6 hours, as required.
 - 7. Remove forms with care to prevent cracking, spalling or overstressing concrete; remove form stakes prior to raising forms.
 - 8. Clean forms before resetting.
 - 9. Forms not allowed where abutting pavement or other concrete or asphalt slabs or structure.

B. Concrete and steel placement:

1. Uniformly moisten subgrade as wet as possible without creating unstable muddy condition; moisten forms and reinforcing steel.
2. Adjust manholes and other castings within area to be paved to conform to finished surface; clean outside of casting.
3. Place dowel and tie bars as shown on drawings or specified; secure in position by approved method.
4. Place concrete to full depth of pavement in single operation for plain pavement; do not pile concrete more than 8" above design elevation of surface; allow no segregation of material when concrete is deposited on subgrade.
5. Carefully place concrete; minimize disturbance of reinforcement.
6. Vibrate and consolidate to prevent formation of voids; do not displace or distort reinforcement.

C. Finishing:

1. Begin finishing operations promptly after concrete has been placed and consolidated.
2. Screed surface to grade and crown shown on drawings.
3. Finish surface with 10' long lightweight float; finish from both sides simultaneously if pavement is placed to full width of drive with one pass of paving machine; finish gutter area and curbs as specified hereinafter.
4. Provide uniformly gritty surface with astroturf drag; round edges of pavement to 1/8" radius.
5. Check pavement surface with 10' long straightedge; maximum permissible deviation: 1/8"; grind high spots, over 1/8", with carborundum grinding wheel.

D. Integral curb:

1. Construct integral curb as shown on drawings, along with pavement or immediately following finishing of pavement; use paving machine with integral slip-forms for curb, curb mule or similar mechanical equipment providing equivalent results.
2. Construct depressed curb where sidewalks intersect drive; use templates to form faces of such curbs.
3. Form and construct curb by hand only where barrier or depressed curb is required and where small radii or other special sections preclude use of mechanical equipment; forms: Iowa DOT 2301.07 A2.
 - a. Construct curb as rapidly as finishing operations on pavement permit; maximum distance behind paving machine: 100'.
 - b. Remove free water, laitance, dust, leaves or other foreign matter prior to placing concrete for curb.
 - c. Use freshly mixed concrete; do not store concrete in receptacles at side of drive for use in curb at a later time; do not use concrete requiring retempering.
 - d. Vibrate or puddle concrete to secure bond with paving slab and eliminate rock pockets.
4. Secure final finish on curbs by hand method, including 6' straightedge or 6' slipform.

5. Edge, protect and cure curb in same manner as pavement.
 6. Check surface of curb with 10' straightedge; correct variations greater than 1/8"; remove and replace curbs having varying cross section, if directed by Engineer, at Contractor's expense.
 7. Provide expansion joint in curb over expansion joint in pavement; saw cut face and top of curb to depth of 3" over contraction joint in pavement and seal as specified hereinafter.
- E. Construct joints as detailed; seal as specified hereinafter.
1. Round edges of concrete adjacent to header boards and expansion joint material to 1/8" radius.
 2. Provide supplemental vibration adjacent to header boards and expansion joint material as required.
 3. Begin saw cutting as soon as concrete can be sawn without objectionable tearing of sawn edges, which may be as soon as 4 hours after placement; complete such work within 24 hours after concrete is placed.
 4. For weather conditions, end of day's work, or when 30 min. elapse between concrete placement, install header board and 3/4" smooth dowels 1'-3" long at 1'-6" spacing through header board; grease protruding ends prior to next concrete placement.
 5. Place 1/2" thick isolation (expansion) joint material between sidewalks and buildings; between sidewalks and abutting portland cement concrete pavement, at maximum 50' sidewalk length intervals where length exceeds 50', and where shown on drawings; asphalt saturated fiber strips, AASHTO M213, full depth.
- F. Seal all joints before pavement is opened to Contractor's forces or general traffic; seal only dry and clean joint surfaces; slightly under-fill joints, keep sealer off of adjacent pavement.
1. Heat joint sealer to required temperature in thermostatically controlled heating kettle approved by Engineer; do not overheat.

3.03 CURING AND PROTECTION

- A. Apply liquid curing compound in fine spray to form continuous, uniform film on surface and vertical edges of pavement and curbs.
1. Apply compound with power sprayer, operating at 40 psi or less; rate of application: 0.03 gal. per SY (1 gal. per 300 SF); do not dilute compound.
 2. Apply to pavement surface after finishing and after surface moisture has disappeared; apply to pavement edges within 30 minutes after forms are removed.

- B. Concrete pavement less than 36 hours old shall be protected during cold weather as follows:

<u>Forecast or Actual Temperature</u>	<u>Protection</u>
35° to 32°F.	One layer of burlap for concrete placed after October 1.
31° to 25°F.	Two layers of burlap or one layer of plastic film on one layer of burlap.
Below 25°F.	One layer of burlap or plastic film and 6" layer of straw.

1. Commercial insulation may be substituted for straw, when approved by Engineer.
2. Protect straw or insulation from disturbance by wind; leave in place for 5 days, minimum, or until pavement is opened to traffic.
3. Lap plastic film 18" at junctions.

- C. Concrete damaged by excessive scaling, popouts, shrinkage cracks, rain or freezing shall be removed and replaced at Contractor's expense.

3.04 RESTRICTIONS

A. Weather:

1. Place no concrete when existing or forthcoming stormy or inclement weather prevents good workmanship, when subgrade is frozen or if air temperature is 38°F. or below and falling; use no aggregates containing frozen lumps.
2. With favorable weather conditions, start paving operations when temperature of concrete delivered to subgrade is 40°F. or higher.
3. Continue paving operations as long as concrete temperature requirement is met and air temperature remains above 38°F.

B. Night operation:

1. Place no concrete when darkness prevents good workmanship in placing and finishing.
2. Do not place or finish concrete under artificial light.

C. Use of pavement:

1. Time for opening pavement for use will be determined by results of tests on cylinders taken during concrete placement.
2. Pavement may be opened to Contractor's forces after 7 days for purpose of removing coverings and building shoulders if tests of cylinders from section show compressive strength of 3,500 psi or higher.
3. Open pavement to general traffic when authorized by Engineer.
4. Concrete placed in cold weather may require additional curing time, as directed by Engineer; keep all vehicles off pavement until such curing time has been completed.

3.05 DEFECTS

- A. Pavement containing fractures, spalls, random cracks, significant popouts or shrinkage cracks, or other unacceptable defects: remove and replace at no cost to Owner; rout and seal all random cracks which develop prior to project completion.

3.06 SIDEWALK CONSTRUCTION

- A. Construct sidewalks as shown on drawings.
- B. Concrete: as specified hereinbefore.
- C. Forms: use wood or steel forms adequately staked and braced to maintain grade and alignment while concrete is placed and finished.
 - 1. Set base of forms at or below subgrade elevation with top of forms at surface elevation at edge of slab.
 - 2. Oil forms before concrete is placed.
 - 3. Leave forms in place not less than 24 hours after concrete is placed.
- D. Place concrete on uniformly moistened subgrade.
- E. Vibrate and consolidate concrete to prevent formation of voids.
- F. Screed concrete flush with forms; finish surface with light broom.
- G. Edge sidewalk and mark surface in square blocks.
- H. Cure and protect sidewalk as specified for concrete pavement.
- I. Restrictions for sidewalks as specified for concrete pavement.

3.07 SEALING EXTERIOR SLABS

- A. Required for exterior slabs placed between September 15 and May 1 which may be subjected to deicing agents.
- B. After specified curing, seal slabs as follows:
 - 1. First coat 1/2 boiled linseed oil and 1/2 mineral spirits applied at rate of approximately 450 SF per gallon.
 - 2. After first coat has dried, apply second coat of uncut boiled linseed oil at rate of approximately 540 SF per gallon.

END OF SECTION

SECTION 02930

LAWNS AND GRASSES

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3.03 SEEDING (LAWN GRASS)

3.04 MAINTENANCE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes seeding at Indianola water treatment site as shown on drawings and specified herein.
 - 1. Lawn grass seeding of all areas disturbed by grading within the project site.
 - 2. Install Rolled Erosion Control Product (RECP) on slopes exceeding 1 to 4, over drainage channels (ditch) bottoms, and side slopes of the channels to a minimum vertical height of 3' when slope is less than 1 to 4. RECP specified in Section 02200 – Sitework.
- B. Related work specified elsewhere:
 - 1. Section 02200 - Sitework.

1.02 STORAGE AND HANDLING

- A. Deliver seed and fertilizer to site in producer's unopened, fully labeled packages.
- B. Seed package label shall bear producer's guaranteed analysis for percentages of mixture, purity, germination and weed seed content.
- C. Fertilizer package label shall bear analysis, trade name or trade mark, and warranty of producer or furnish affidavit attesting to compliance.
- D. Store packaged materials off ground and protect from moisture.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Topsoil:

1. Use topsoil stripped from project site and stockpiled during excavation and grading operations as directed by Engineer; see Section 02200 - Sitework.
2. Obtain additional topsoil required from sources offsite which meets following requirements:
 - a. Fertile, friable loam, suitable for growth of grass and plants.
 - b. Reasonably free of subsoil, clay lumps, brush, weeds, stones larger than 1" dia., stalks, roots or other material toxic or harmful to growth.
 - c. Containing minimum 2% by weight decomposed vegetable matter, finely divided and readily discernible by visual inspection.

B. Fertilizer:

1. Meet requirements of Iowa Department of Agriculture.
2. Provide in granular form delivered to site in original containers; furnish proof of chemical analysis and weight to Engineer.
3. Use of liquid fertilizer subject to approval by Engineer.

C. Seed mixture and application rate:

1. Lawn seed mixture:

<u>Common Name</u>	<u>Application Rate</u> <u>lb./acre</u>
Creeping red fescue	25
Turf-type perennial ryegrass ²	20
Turf-type perennial ryegrass ²	20
Kentucky bluegrass cultivar ³	65
Kentucky bluegrass cultivar ³	65
Kentucky bluegrass cultivar ³	65

¹ A commercial mixture may be used if it contains a high percentage of similar bluegrasses; it may or may not contain creeping red fescue.

² Choose 2 different cultivars of turf-type perennial ryegrass, at 20 lbs/acre each.

³ Choose 3 different cultivars of Kentucky bluegrass, at 65 lbs/acre each.

PART 3 – EXECUTION

3.01 TOPSOILING

- A. Bring areas to be topsoiled to an elevation 6" below finish grade during grading operations, see Section 02200 - Sitework.
- B. When contract operations have been completed to point where areas will not be disturbed, clean subgrade free of waste materials, scarify and pulverize to a depth of not less than 4" and remove surface irregularities.
- C. Uniformly distribute topsoil to minimum depth of 6" after compaction.
- D. Subgrade and topsoil must be damp and free from frost.

3.02 SOIL PREPARATION

- A. Rake area free of stones and debris.
- B. Thoroughly till topsoil by discing or harrowing to level out undulations and irregularities.
- C. Spread fertilizer for lawn grass seed at rate listed below for each 1,000 SF:
 - 1. 5N-10P-5K: 30 lbs.
 - 2. 8N-6P-6K: 20 lbs.
 - 3. 6N-12P-2K: 25 lbs.
 - 4. 7N-7P-6K: 22 lbs.
 - 5. 10N-6P-4K: 15 lbs.
 - 6. 10N-5P-5K: 15 lbs.
- D. Mix fertilizer into topsoil to minimum depth of 2" by discing or harrowing, disc areas to be seeded a second time, at right angles to first pass, prior to harrowing.
- E. Compact areas to be seeded by roller weighing 85 to 100 lbs. per linear foot.

3.03 SEEDING (LAWN GRASS)

- A. Sowing shall be done either between March 1 and May 31 or August 10 and September 30.
- B. Rake surface to produce fine soil texture before seeding.

- C. Uniformly distribute seed at rate as specified in Section 2.01; sow 50% in one direction; sow remainder at right angles to first pass. Provide straw or hay mulch to keep soil moist.
- D. Contractor is responsible for turning over to Owner a full stand of grass; he shall replant and redevelop any bare spots or area which does not attain a full stand during first growing season.

3.04 MAINTENANCE

- A. Protect and maintain lawns by watering and mowing until completed project is accepted by Owner. Contractor responsible for obtaining water and providing sprinkling equipment if rainfall is not sufficient to establish growth.
- B. When project is accepted by Owner, furnish complete written instructions for care of lawn to assure promotion of deep root growth, uniform color and quality, and which is reasonably free of weeds, disease or other visible imperfections.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

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3.03 OBSERVATION AND MAINTENANCE

3.04 REMOVAL OF FORMS

3.05 REUSE OF FORMS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section describes formwork for concrete specified under Section 03300 – Cast-in-Place Concrete.
- B. Where 'ACI 347' is referred to herein, reference is to 'ACI Standard Recommended Practice for Concrete Formwork' adopted by the American Concrete Institute.
- C. Related work specified elsewhere:
 - 1. Section 03200 - Concrete Reinforcement.
 - 2. Section 03300 - Cast-in-Place Concrete.
- D. Anchors and inserts are specified elsewhere.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. Contact surfaces of forms for concrete exposed: wood, plywood, hardboard, metal, form liner or other material which will produce surface finishes specified under Section 03300 - Cast-in-Place Concrete without adverse effect on concrete.
 - 2. Plywood: comply with PS 1-74; use maximum sheet sizes to keep joints to minimum.
 - 3. Hardboard: comply with FS LLL-H-35, Type 1, Class 2, hard pressed fiberboard treated for formwork use.
 - 4. Metal forms: smooth surfaces free from irregularities, dents and sags.
 - 5. Where used, form release agent must not stain or cause imperfections on concrete surface.

- B. Chamfer strips: Polyvinylchloride, steel, good quality lumber carefully milled, free from protruding slivers and well sealed, or other nonabsorbent material.
- C. Form Ties
 - 1. Form ties encased in concrete other than those specified in the following paragraphs shall be designed so that, after removal of the projecting part, no metal shall remain within 1-1/2" of the face of the concrete. The part of the tie to be removed shall be provided with a removable cone at least 1" diameter and 1-1/2" deep. Form ties in concrete exposed to view shall be the cone-washer type.
 - 2. Flat bar ties for panel forms shall have plastic or rubber inserts having a minimum depth of 1-1/2" and sufficient dimensions to permit proper patching of the tie hole.
 - 3. Ties for liquid containment structures shall have an integral waterstop that is tightly welded to the tie.
 - 4. Common wire shall not be used for form ties.
 - 5. Alternate form ties consisting of tapered through-bolts at least 1" in diameter at smallest end or through-bolts that utilize a removable tapered sleeve of the same minimum size may be used at the Contractor's option. Obtain Engineer's acceptance of system and spacing of ties prior to ordering or purchase of forming. Clean, fill and seal form tie hole with non-shrink cement grout. The Contractor shall be responsible for watertightness of the form ties and any repairs needed.

2.02 DESIGN AND FABRICATION

- A. Design, engineer and construct formwork to satisfy specified requirements and conditions shown on plans.
- B. For concrete exposed to chemical attack, comply with recommendations contained in Chapter 4 of Environmental Engineering Concrete Structures - ACI 350.
- C. Strength of forms, supports, and braces adequate to resist vertical and lateral loads; follow recommendations contained in Chapter 2 of ACI 347.
- D. Provide positive means for adjusting shores and struts (wedges and jacks) so settlement can be taken up during concrete placement operations.
- E. Allowable deflection of facing materials reflected in exposed concrete surfaces: not greater than 1/240 of span between structural members.
- F. On exposed surfaces, pattern of joints between facing panels and marks left by form ties must be rhythmic and symmetrical.
- G. Provide temporary openings near bottom of deep forms and other locations where necessary to facilitate observation and cleaning immediately prior to deposit of concrete.

- H. Form design must include provisions for easy removal.
- I. Provide 3/4" x 3/4" chamfers on external corners of columns, beams, slabs and walls which have two adjacent faces exposed.
- J. Do not use earth cuts as forms for vertical surfaces without specific approval from Engineer.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Solidly back joints between facing panels and perimeter edges of facing panels to maintain proper alignment.
- B. Forms must be sufficiently tight to prevent leakage of mortar; gasket, tape, caulk or seal otherwise.
- C. Cooperate with subcontractors in placement of anchors, bolts, inserts and other items embedded in concrete.
- D. Leave section of forms adjacent to construction joint in place until concrete is deposited on other side of joint; retighten forms on completed section before next section is placed and carefully seal joint to prevent grout or paste leakage.
- E. Securely brace shores and struts against lateral displacement.
- F. Preparation of form surfaces:
 - 1. Remove loose concrete dust and other fine material from contact surface.
 - 2. Prior to placement of concrete, saturate board forms with joints opened by shrinkage of wood with water until wood swells and closes joints.
 - 3. Seal plywood and other wood surfaces not subject to shrinkage against absorption of moisture from concrete (field or factory applied).
 - 4. Apply coating for preventing of bond with concrete prior to placement of reinforcing steel; do not allow excess coating material to stand in puddles in forms or come in contact with concrete surfaces against which fresh concrete will be placed.
 - 5. Where painting of finished concrete is required, coatings applied to contact surface of forms must be compatible with type of paint to be used.
 - 6. Where as-cast finishes are required, do not use form coatings which will impart stain to concrete.
- G. Prior to placement of reinforcing steel, request Engineer to inspect form surfaces; obtain permission from Engineer to start placement of reinforcing steel.

3.02 WORKMANSHIP

- A. Form surfaces adjacent to concrete must conform to shape, line, and dimension shown with corners uniform, true and sharp, unless otherwise shown on plans.
- B. Transition between curved and straight surfaces must be smooth, even and tangent; when such forms are in place request Engineer to inspect them before concrete is placed.
- C. When forms are removed, concrete surfaces shall conform to size, shape and line shown on plans within tolerances listed under Chapter 3 of ACI 347.

3.03 OBSERVATION AND MAINTENANCE

- A. Observe formwork continuously while concrete is being placed to insure that there are no changes of elevation, plumbness or camber from as-designed conditions.
- B. Stop placement if settlement is noted and adjust shores and struts to eliminate settlement.
- C. If weakness in falsework is observed which will produce distortion or variation on concrete surfaces in excess of allowable tolerances, stop work and strengthen falsework; remove permanently damaged construction before proceeding with work.

3.04 REMOVAL OF FORMS

- A. Remove in manner that will not mar, spall or otherwise damage the concrete or other work.
- B. Formwork not supporting weight of concrete: Formwork at locations such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing concrete at not less than 50°F. for 24 hours after its placement, provided all of the following criteria are met:
 - 1. Concrete has obtained strength required to not be damaged by form removal operations.
 - 2. Concrete curing and protection operations will be maintained in accordance with the requirements for those materials.
 - 3. Shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.
- C. Do not remove supporting forms and shoring for slabs, beams, channels, troughs, corbels, brackets, haunches, cantilevered or Y-shape elements, or other flexural members until concrete complies with all of the following criteria:
 - 1. No sooner than 14 days following concrete placement.

2. Obtained a minimum compressive strength of 80% of the 28-day strength.
 3. Of sufficient strength required to support its own weight and superimposed loads.
- D. Remove the removable portion of form ties in a manner and at the period required to prevent damage to concrete.
 - E. Accomplish removal without prying against face of concrete or jarring structure; use wooden wedges only.
 - F. Remove supports in manner permitting concrete to assume load gradually and uniformly.
 - G. Perform reshoring for purpose of early form removal in manner that will not require large areas of new construction to support own weight.
 - H. When forms are removed before end of curing period, exposed concrete must be cured as specified under Section 03300 - Cast-in-Place Concrete.
 - I. Do not drop forms on floor.
 - J. Do not subject unsupported portions of structure to heavy construction or material loading.

3.05 REUSE OF FORMS

- A. Reuse forms for exposed concrete only when in near new condition.
- B. Do not reuse metal pans with bent flanges or dents until they have been straightened to near new condition.
- C. Thoroughly clean and recoat forms before reuse; recondition if necessary.
- D. Do not reuse forms if condition does not meet requirements set forth herein.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

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- 1.02 SUBMITTALS
- 1.03 MINIMUM REINFORCEMENT REQUIREMENTS

PART 2 - PRODUCTS

- 2.01 MATERIALS
- 2.02 FABRICATION

PART 3 - EXECUTION

- 3.01 PLACEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section describes reinforcing steel for concrete specified under Section 03300 - Cast-in-Place concrete.
- B. Related work specified elsewhere:
 - 1. Section 03100 - Concrete Formwork.
 - 2. Section 03300 - Cast-in-Place Concrete.

1.02 SUBMITTALS

- A. Submit complete shop drawings showing all dimensions necessary for fabrication and placement of reinforcing steel and accessories, without reference to contract drawings; include elevations of wall reinforcing and location of construction joints.
- B. Do not start fabrication until receipt of reviewed drawings from Engineer.
- C. See General Conditions- Submittals for additional requirements.

1.03 MINIMUM REINFORCEMENT REQUIREMENTS

- A. Bars:
 - 1. Reinforce footings as shown on drawings; where reinforcing is not shown include:
 - a. #4 at 8" each way bars for spread wall footings.
 - b. #5 at 8" each way bars top and bottom in trench footings up to 8" thick.
 - c. #6 at 10" each way bars top and bottom in trench footings 10" thick and over.
 - 2. Reinforce top of wall footing under door and other openings with two #4 bars, minimum; 4'-0" longer than opening.

3. Reinforce curbs as shown on drawings; where reinforcing is not shown, place one #4 bar top and bottom.
4. Reinforce walls as shown on drawings; where reinforcing is not shown, include:

<u>Wall Thickness</u>	<u>Horizontal Bars</u>	<u>Vertical Bars</u>	<u>Location</u>
6"	#4 @ 12"	#4 @ 12"	Center on Wall
8"	#4 @ 12"	#4 @ 12"	Center on Wall
10"	#4 @ 12"	#4 @ 12"	Each Face
12"	#5 @ 12"	#5 @ 12"	Each Face
16"	#5 @ 12"	#5 @ 12"	Each Face

5. At wall or floor openings, if reinforcing is not shown, include two #5 bars, each face, on all sides, 4'-0" longer than opening dimension.
6. Reinforce masonry load bearing and exterior concrete block walls as shown on drawings; where reinforcing is not shown, include #5 @ 24" vertical.

B. Mesh:

1. Reinforce slabs as shown on drawings; where reinforcing is not shown, include:
 - a. 6" x 6" W2.1.x W2.1 mesh for following:
 - 1) 4" slabs on grade.
 - 2) Toppings.
 - b. 6" x 6" W2.9 x W2.9 mesh for following:
 - 1) 6" or thicker slabs.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Bars:

1. ASTM A615, Grade 40 billet-steel with 40,000 psi minimum yield strength for #3 and smaller bars.
2. ASTM A615, Grade 60 billet-steel with 60,000 psi minimum yield strength for #4 and larger bars.

B. Prefabricated steel bar mats which meet specified bar requirements and spacings may be used in lieu of job placed individual bars.

C. Mesh: welded wire fabric; ASTM A185.

D. Shear connectors: welded wire truss; ASTM A82.

- E. Spacers and chairs:
 - 1. Type: as shown on plans.
 - 2. Comply with ACI 315.
 - 3. Chairs: corrosion resistant.
- F. Tie wire: black annealed wire; 16 gauge, minimum.
- G. Mechanical splices: threaded splice; Dayton Superior D-101, or equal.

2.02 FABRICATION

- A. Carefully form bars to shapes and dimensions shown on plans; where not shown, comply with requirements of ACI 315.
- B. Tolerances: comply with ACI 315 unless otherwise shown on plans.
- C. Bend all bars cold.
- D. Make bends for stirrups and ties around pin having diameter not less than two times thickness of bar.
- E. Bend bars around pin having diameter not less than six times minimum thickness of bar; eight times minimum thickness for bars larger than 1".
- F. Hooks: conform to requirements of ACI 318.
- G. Where column bars are offset or dowels used for column splices, provide 1/2" clearance between bars or dowels and vertical bars of next lift.
- H. Tag bars with metal, linen or rope fiber tags filled in by machine or waterproof ink; do not use paper tags.

PART 3 - EXECUTION

3.01 PLACEMENT

- A. Design must comply with ACI 318 and details must conform to ACI 315, unless otherwise shown on plans.
- B. Reinforcement: free from dirt, loose, flaky rust and scale, oil, grease, ice, or other coating which could reduce or destroy bond.

C. Bars:

1. Accurately place and securely wire-tie bars in position before concrete is deposited; point wire-tie ends away from form.
2. Support bars rigidly on spacers and chairs:
 - a. Number, location and size: comply with Chapter 7 of ACI 315 unless otherwise shown; other methods of support will be permitted subject to Engineer's approval.
 - b. List number of supports for each span on schedule or mark on placing plan.
 - c. Chairs required for top layer of reinforcing in footings.
 - d. Use U or Z 1/4" reinforcing bar spacers between layers in walls at 5' oc each way.
3. Lap splices and butt-welded splices in accordance with Chapter 7 of ACI 318.
4. At walls without footing pads, rest bottom of reinforcing on concrete brick.
5. Reinforcement spacing shown on plans is in inches.

D. Minimum protection between face of steel and outer face of concrete must comply with following, unless otherwise shown on plans:

1. 3" for footings and other principal structural members where concrete is cast against ground.
2. 2" for wall or other formed surfaces exposed to sewage, effluent, chemical attack, weather or in contact with ground; 1-1/2" if bars are #5 or smaller.
3. 1-1/2" or 1-1/2 time maximum size of coarse aggregate for beams, girders and columns; dimension is to ties where used.
4. 1" for floor joists where clear distance between joists is not over 30".
5. 3/4" for slabs and walls not exposed to weather or directly to ground.
6. Protection of reinforcement must at least equal to diameter of bars being covered, except 3/4" protection is sufficient for bars in slabs, regardless of bar size.

E. Tolerances:

1. Height of bottom bars above bottom of form: 1/4" plus or minus from established dimension.
2. Lengthwise:
 - a. Top or bottom bars: 2"± from plan dimension (extend same amount into each support).
 - b. Truss bars: 2"± from plan dimension (applies to ends of bars and bend points).
3. Bar spacing in walls and solid slabs: do not exceed two times thickness of slab or all unless otherwise shown on plans.
4. Lateral spacing in joists or beams where spacing is established: plus or minus 1/4".
5. Clearance between face of steel and face of concrete: plus or minus 1/4".
6. Height of top bars (top of bar to top of beam or slab): plus or minus 1/4" (if necessary to lower bars over 1/4", check with Engineer for increase in size or number of bars).
7. Stirrup or tie spacing: 2"± for any one unit (end unit not more than 1" either way from position shown).

F. Mesh:

1. End lap by one of following methods:
 - a. Overlap one full mesh (tip to tip of wires) and tie with wire and 1'-6" oc.
 - b. Overlap with end cross wire of one piece in contact with next-to-end wire of other piece; tie to keep fabric in place or prevent edge from curling up.
2. Side lap by one of following methods:
 - a. Place selvage wire in middle of first mesh and wire tie at 5'-0" oc (stagger ties).
 - b. Place selvage wire in contact with next-to-edge longitudinal wire; tie to keep fabric in place or prevent edge from curling up.
3. Place mesh 2-1/2" below top of slab on grade, unless otherwise shown on plans or specified.
4. Accurately place and rigidly support mesh on metallic supports, built-in concrete blocks or other suitable means; prevent displacement by foot traffic runways and compaction tools.
5. Positioning mesh in slab by lifting with hook from bottom of form through concrete not permitted.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

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- 1.03 STORAGE OF CEMENT AND AGGREGATES
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- 3.10 EQUIPMENT BASES
- 3.11 SEALING EXTERIOR SLABS
- 3.12 SCHEDULE OF FINISHES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section describes all cast-in-place concrete work shown on plans, except sidewalks, driveways and pavement, including but not limited to:
 - 1. Foundations (footings and grade beams).
 - 2. Below grade walls.
 - 3. Columns.
 - 4. Interior slabs on grade.
 - 5. Bases for mechanical and electrical equipment.
- B. Related work specified elsewhere:
 - 1. Section 02200 - Sitework.
 - 2. Section 02520 - Portland Cement Concrete Pavement.
 - 3. Section 03100 - Concrete Formwork.
 - 4. Section 03200 - Concrete Reinforcement.

1.02 QUALITY CRITERIA

- A. Contractor must follow recommendations set forth in Chapter 4 of Environmental Engineering Concrete Structures - ACI 350R for concrete in contact with sewage or effluent or exposed to chemical attack.

1.03 STORAGE OF CEMENT AND AGGREGATES

- A. Store cement in weathertight structure with floor raised not less than 1' from ground.
- B. Do not use cement which has hardened or partially set; remove from site.
- C. Store fine and coarse aggregate separately in manner to prevent segregation of sizes and avoid inclusion of dirt and other foreign materials.
- D. Stock pile natural sand at least 24 hours before using.

1.04 DEPOSITING DURING COLD WEATHER

- A. Do not place concrete without protection if temperature of surrounding air is below 40°F. and falling or if it may be subjected to freezing temperature during curing period.
- B. From November 1st to May 1st, do not place concrete without protective materials readily available, on job site, in quantities sufficient to protect all concrete that has not cured for specified period. U.S. Weather Bureau predictions will be used as basis for requiring that protective measures be taken.
- C. Do not use frozen materials or materials containing ice in concrete.
- D. Do not place concrete over or in contact with frozen earth; forms, reinforcement and fillers must be free from frost.
- E. Protection of concrete required:
 - 1. If temperature is expected to drop into 32°F. to 35°F. range during period:
 - a. After curing membrane specified herein under PROTECTING AND CURING is installed, cover following with minimum 1" blanket insulation:
 - 1) Exposed surfaces of slabs on earth.
 - 2) Framed components (including beams and walls) formed with 1" thick wood.
 - 3) All metal formed items.
 - b. Protect insulation with polyethylene sheets, Sisalkraft, tarpaulins, or equal.

2. If temperature is below 35°F. when concrete is placed:
 - a. Placement temperature of concrete must be 60°F. plus or minus 10°F.; methods and equipment for heating mixing water and aggregates must be agreeable to Engineer.
 - b. Temperature of surrounding air must be maintained at minimum 50°F. during placement and for not less than 5 day thereafter; minimum 40°F. for next 2 days (3 days and 1 day respectively if high early strength cement is used).
 - c. When heating is discontinued, lower temperatures gradually; maximum 1°F. per hour for first 24 hours; 2°F. per hour thereafter until outside temperature is reached.
3. Any method of protection included in recommendations in Title 75-18 by ACI Committee 306 may be substituted for protection specified herein if temperature and moisture conditions recommended for type and service category of concrete being placed are maintained for recommended period of time; obtain permission of Engineer for substitute method before using.

F. Use of salts or chemicals for protection from freezing not permitted.

G. Remove and replace concrete damaged by freezing.

1.05 DEPOSITING DURING HOT WEATHER

- A. Contractor must follow recommendations set forth in Hot Weather Concreting (Title 74-33 by ACI Committee 305) to minimize detrimental effects of hot weather on concrete placed on project; whenever air temperature is expected to exceed 75°F. during placement operations, Contractor must consult with Engineer concerning practices to be followed.
- B. Temperature of concrete at time of deposit must be below 90°F.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Portland cement: ASTM C150, Type I or Type III. C₃A (Tricalcium aluminate) content must be less than 8% for concrete in direct contact with sewage or effluent or exposed to chemical attack.
- B. Portland pozzolan cement: ASTM C595, Type IP or IP-A; pozzolan content must not exceed 25% by weight.
- C. Fine aggregate:
 1. Meet requirements of ASTM C33, except where more rigid requirements are included herein.

2. Gradation within requirements of ASTM C33, Par. 3; sieve analysis of aggregate must accompany mix design when submitted to Engineer for review.
 3. Natural sand:
 - a. Clean, hard, strong, durable, uncoated grains.
 - b. Coal and Lignite: 1.0%.
 - c. Prove acceptability of aggregate by laboratory test conducted and certified by laboratory acceptable to Engineer on samples taken in accordance with ASTM C75.
- D. Coarse aggregate:
1. Meet requirements of ASTM C33, except where more rigid requirements are included herein.
 2. Clean, hard, strong, durable uncoated pieces.
 3. Gradation within requirements of ASTM C33, Table II:
 - a. #467 or #57, 1-1/2" or 1" to No. 4, for footings and plain concrete.
 - b. #57, 1" to No. 4, for slabs on grade and reinforced walls.
 - c. #57 or #67, 1" or 3/4" to No. 4, for slabs, beams, girders, columns, fillet and fill concrete.
 - d. #7, 1/2" to No. 4, for fill over steel stair treads and landings.
 4. Limitation of deleterious substances:
 - a. Clay lumps and friable particles: maximum 1.0%.
 - b. Soft particles: maximum 2.0%.
 - c. Coal and Lignite: maximum 0.25%.
 5. Crushed limestone: meet IDOT specifications 4115.03 for abrasion and 4115.04 for Class 2 or 3 durability; not more than 1.0% of clay lumps and friable particles, 2.0% of soft particles and 0.25% of coal and lignite allowed; prove acceptability by submission of certified laboratory test report.
- E. Admixtures:
1. Air-entraining agents: ASTM C260.
 2. Water reducing agents: ASTM C494, Type A.
 3. Retarding agents: ASTM C494, Type B.
 4. Accelerating agents: ASTM C494, Type C.
 5. Water reducing and retarding agents: ASTM C494, Type D.
 6. Water reducing and accelerating agents: ASTM C494, Type E.
 7. High range water reducing agents: ASTM C494, Type F.
 8. High range water reducing and retarding agents: ASTM C494, Type G.
 9. Fly ash and Pozzolans: ATM C618 and C494.
 10. Shrinkage reducing admixture: ASTM C157; W.R. Grace, or equal.
 11. Synthetic fibers: high volume monofilament polypropylene/polyethylene blend; 1-1/2" to 2" length; 78 ksi fiber tensile strength; minimum 1,300 ksi modules of elasticity; ASTM C1116; dosage rate 3.5 lbs./CY of concrete.

- F. Water: clean and free from injurious amounts of oil, alkalies, acids, or organic matter.
- G. Metal crack control joint: Heckmann No. 98, or equal.
- H. Dowels:
1. ASTM A15; 1'-6" long, smooth round steel rods: diameter as shown on drawings, unless required otherwise for building design.
 2. Where preformed filler is required, completely coat one end with heavy grease and cover with expansion cap.
- I. Preformed expansion or isolation joint filler:
1. Self-expanding cork, ASTM D1752, Type III.
 2. 1/2" thick, unless otherwise shown on drawings.
- J. Joint sealer:
1. Thickol sealer: FS TT-S-00227E (two part) or FS TT-S-00230C (one part), Type I (self-leveling), Class B (resistant to 25% total movement), based on liquid polysulfide polymers.
 2. Pour-type urethane sealant: Sonneborn Sonolastic Paving Joint Sealant (two parts), or Sonomeric CT (one part), or equal.
- K. Backing rod: round polyethylene rod; Dow Chemical Co., Ethafoam rod, or equal.
- L. Waterstops:
1. Polyvinylchloride with following characteristics when tested in accordance with ASTM test method listed:

Specific Gravity	1.32 plus or minus 0.05	ASTM D792
Hardness	76 plus or minus 3	ASTM D2240
Tensile Strength	2250 psi (minimum)	ASTM D638
Elongation	350% (minimum)	ASTM D638
Cold Brittleness	-35°F. or lower	ASTM D476
 2. Design: 6", ribbed with corrugations and center bulb, except where shown otherwise; Greenstreak Type 705, or equal.
 3. Expansive waterstop may be used for vertical construction joints and where shown on drawings; Volclay Waterstop-RX, Greenstreak Hydrotite, or equal.
- M. Liquid applied curing and sealing compounds:
1. For interior surfaces, except where floor hardness is specified: West Concrete Floor Sealer (West Chemical Products, Inc.), Kure-N-Seal (Sonneborn-Contech), L & M Cure (L & M Construction Chemicals, Inc.), or equal; do not use Kure-N-Seal on floors that will be subjected to petroleum drips and spills, such as motor vehicle traffic or parking.

- N. Liquid applied floor hardener; fluosilicate based material; Sonneborn Lapidolith, A.C. Horn Hornolith, L & M Fluohard, or equal.
- O. Abrasive aggregate:
 - 1. Silicon carbide or aluminum oxide.
 - 2. Any manufacturer's gradation which falls in range of 12 to 36 grit is acceptable.
- P. Grout: ASTM C1107 Class B or C; mix according to recommendations of manufacturer; strength: not less than that of adjacent concrete; L&M Crystex, Master Builders Masterflow 928, or equal.

2.02 QUALITY AND DESIGN OF MIXES

- A. Design compressive strength:
 - 1. Pipe encasement, fill and fillet (Class B) concrete: 2,500 psi.
 - 2. All other (Class A) concrete: 4,000 psi.
 - 3. Maximum water to cement ratio 0.45 for concrete exposed to sewage, effluent or subject to chemical attack; maximum water to cement ratio 0.40 for concrete containing shrinkage reducing admixture.
- B. Design of mix:
 - 1. Overdesign mixes in accordance with plant coefficient of variation. Overdesign must assure less than 1 chance in 10 that test will fall below design compressive strength and that 99 chances out of 100 no test will fall below 90% of design compressive strength.
 - 2. Complete design in advance of first placement; any existing mix design may be used if made or checked within previous six months by approved testing laboratory using aggregates from same source and same gradation as those used on this project.
 - 3. Comply with ACI 211.1 Recommended Practice for Selecting Proportions for Normal Weight Concrete and recommendations set forth in Chapter 3 of Environmental Engineering Concrete Structures - ACI 350R for concrete in contact with sewage or effluent or exposed to chemical attack.
 - 4. Slump:
 - a. Footings and substructure walls: 3" plus or minus 1".
 - b. Beams, columns, slabs and reinforced walls: 3" plus or minus 1".
 - c. Heavy mass construction: 2" plus or minus 1".
 - 5. Submit mix design to Engineer for agreement before any concrete is placed; include design which contains fly ash or Pozzolan based admix and design which contains retarding type water reducing admix, with appropriate slump adjustments, if need is indicated.
 - 6. Assign number to each mix design for future reference.

C. Admixtures:

1. Air entraining agent:
 - a. Add at mixer for all concrete.
 - b. Concrete must contain 5.0% plus or minus 1.0% air by volume if maximum aggregate size is 1-1/2"; 6.0% plus or minus 1.0% if maximum aggregate size is 3/4" or 1", 7.0% plus or minus 1% if concrete contains shrinkage reducing admixture.
2. Do not use calcium chloride or other salts as antifreeze or to accelerate set.
3. Cement dispersing agent or concrete densifiers (water reducing and high range water reducing agents):
 - a. Recommended to improve workability and control rate of hardening for controlling uniformity under varying temperature and weather conditions.
 - b. Add water reducing and retarding type to mix if air temperature is above 80°F. and freshly placed concrete will be exposed to sun and/or hot drying wind.
 - c. Fly ash or Pozzolan based admixture recommended for exposed interior finish concrete, including slabs on grade and floor fill.
 - d. Fly ash or pozzolan based admixture required when using high range water reducing agents.
 - e. Do not use melamine-based high range water reducing agents if concrete is exposed to freeze-thaw cycles.
 - f. Do not use high range water reducing agents in beams, joists or elevated slabs.
 - g. Use in accordance with manufacturer's recommendations.
4. Synthetic fibers may be used in place of welded wire fabric where shown on plans.
5. Shrinkage reducing admixtures may be used at Contractor's option.

2.03 BATCHING AND MIXING

- A. Operations, equipment and location of facilities subject to approval of Engineer.
- B. Measuring of materials:
 1. By weight such that proportions can be accurately controlled and easily checked.
 2. Weigh ingredients separately.
 3. Weigh cement for each batch if fractional sacks or bulk cement is used.
 4. Water measurement to 1 pint plus or minus for total per batch.
- C. Mix one cubic yard batch for at least 1-1/2 minutes after all materials are in mixer; increase time by 15 seconds for each additional cubic yard or fraction thereof.
- D. Ready-mixed concrete: comply with ASTM C94.

2.04 QUALITY CONTROL

A. Slump tests:

1. Make test in accordance with ASTM C143 on sample taken in accordance with ASTM C172.
2. Tests required:
 - a. First load each day.
 - b. Whenever other tests are being made.
 - c. After any change in mix.
 - d. When directed by Engineer.

B. Temperature tests:

1. Required whenever outside temperature is within 10°F. of limiting temperatures specified herein under DEPOSITING DURING HOT (or COLD) WEATHER.
2. Make tests at same time slump tests are taken.
3. Use armored thermometer accurate to plus or minus 2°F.
4. Place thermometer in freshly discharged concrete and leave it in place until reading becomes stable.

C. Air content tests:

1. By pressure method (ASTM C231) or volumetric method (ASTM C173) on samples taken in accordance with ASTM (C172).
2. Test first load of air entrained concrete and spot check by additional test on each day that air entrained concrete is placed.

D. Compression tests:

1. Prepare cylinders in accordance with ASTM C31.
2. Set of 3 cylinders required for every run of 50 CY or fraction thereof.
3. Cure cylinders under laboratory conditions and test by procedure in ASTM C39.
4. Prepare additional cylinders and cure under job conditions if air temperature is likely to fall below 40°F.
5. Break cylinders at 7 and 28 days.
6. If over 1 in 10 tests of laboratory specimens fall below design compressive strength specified, check design of mix and make necessary corrections before additional concrete is placed.
7. When test specimens break below strength specified, Contractor may be required to test concrete affected by procedure in ASTM C42 (core tests) or load test portion of structure affected.
8. Remove concrete not in accordance with specifications and replace without cost to Owner.

E. Record results of all test immediately in Log of Tests which must be maintained at job site; log must contain following information:

1. Date and time test are made.

2. Test results, if immediately available.
3. Exact location where tested concrete was placed in structure.
4. Weather conditions, including air temperature at time tests were made.
5. Plant and number of mixer truck that delivered concrete.
6. Name of person who made test.
7. Mix design number.

F. All costs associated with concrete testing shall be paid by the Contractor.

PART 3 – EXECUTION

3.01 PREPARATIONS FOR PLACEMENT

- A. Verify with Engineer that reinforcing steel placement has been checked, and with subcontractors that wall pipes, anchor bolts, wall thimbles, pipe sleeves, drains, conduit and outlets have been placed in forms.
- B. Remove foreign materials (chips, blocks, sawdust, ice and water) from forms.
- C. Where placing against hardened concrete, clean contact surface thoroughly and remove all laitance, wet vertical surfaces and slush with neat cement grout just prior to placement of new concrete.

3.02 WATERSTOPS

- A. PVC Waterstops
 1. Install PVC waterstops for all joints where waterstops are indicated on the drawings, unless specifically noted otherwise. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided. Splices shall be made by welding.
 2. PVC splices shall be made by welding in accordance with the manufacturer's recommendations, subject to acceptance of the Engineer. Only manufacturer's special approved tools shall be used for welding. The finished splices shall provide a cross-section that is dense and free of porosity.
 3. Each piece of the waterstop shall be of maximum practicable length to provide a minimum number of splices.
 4. To properly secure PVC waterstops in wall joints before concrete is placed, drill holes in waterstops approximately 1" from each edge or between the outermost ribs at each edge and center the waterstop in the joint. Tie both edges of the waterstop and fasten to reinforcing steel with black annealed steel tie wire as specified for tying reinforcing steel and secure in place so that the waterstop will be perpendicular to the joint and remain in the required position during concrete placement. The spacing of the waterstop ties shall match the spacing of the adjacent reinforcing, but need not be spaced closer than 12" on center.

5. Horizontal waterstops in slabs shall be clamped in position by the bulkhead (unless previously set in concrete).
6. Horizontal PVC waterstops in slabs shall have the edge of the waterstop lifted while placing concrete below the waterstop. Then the waterstop shall be manually forced against and into the placed concrete and covered with fresh concrete, to ensure adequate encasement of the waterstop in concrete.
7. Waterstops shall be installed so that half of the width will be embedded on each side of the joint. Care shall be exercised to ensure that the waterstop is completely embedded in void-free concrete.
8. Waterstops shall be terminated 3" below the exposed top of walls. Expansion joint waterstop center bulbs shall be plugged with foam rubber, 1" deep, at point of termination.

B. Expansive Waterstops

1. Install waterstops at joints where specifically noted on the drawings. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided.
2. Each piece of the waterstop shall be of maximum practicable length to provide a minimum number of connections or splices. Connections and splices shall conform to the manufacturer's recommendations and as specified herein.
3. Waterstops shall be terminated 3" below the exposed top of walls.
4. Prepare the joint surfaces, install primers or adhesives, and install expansive waterstops in accordance with the manufacturer's instructions.

3.03 PLACING CONCRETE

- A. Notify Engineer 1 day before each placement.
- B. Do not add water to concrete between mixing and placing operations without specific agreement of Engineer and continuous inspection acceptable to Engineer; under no circumstances may added water cause concrete to slump greater than that established in design mix; verify with slump tests; maintain uniform consistency.
- C. Conveying:
 1. Method must ensure uniform concrete at forms with minimum slump loss.
 2. Chutes must be steep enough to permit concrete of design consistency to flow to point of deposit or other means of conveying must be used.
- D. Fill forms completely in one operation.
- E. During placement operations, work concrete around reinforcement, embedded fixtures, and into corners of forms; thoroughly compact and exercise particular care to prevent surface voids and honeycomb on exposed surfaces.

- F. Placement in deep narrow forms other than column forms:
1. Discharge into hopper feeding into drop chute if free fall will be more than 3'.
 2. Drop vertical; do not push or pull bottom of chute from vertical position to distribute concrete; move chute.
 3. For concrete exposed, the following applies:
 - a. Place in maximum 20" deep layers and consolidate each layer with preceding layer before starting placement of next layer.
 - b. Do not allow concrete to flow laterally for more than 3'; move chute or place sufficient number of chutes in forms to assure top of concrete is kept level.
 - c. If placement rate is faster than 2' per hour, reduce slump proportionally as each 1/4 of form depth is filled so slump of top 1/4 will not exceed 3".
 - d. If plasticized concrete is used, the maximum lift thickness may be increased to 7' and the maximum free fall of concrete shall not exceed 15'; subparagraphs "b." and "c." above do not apply.

- G. Vibration of concrete:
1. Use internal type vibrator; insert and withdraw slowly.
 2. Insert vibrator vertically to full depth of layer being placed, at regular intervals (18" to 30").
 3. Do not use vibrator to cause concrete to flow from one location to another.
 4. Avoid segregation in concrete due to over vibration.
 5. Do not allow vibrator to come in contact with formwork surfaces for exposed concrete.
- H. Stop placement only where directed, at point of no shear, and erect tight, plumb dams through forms.

3.04 JOINTS

- A. Key construction joints; where reinforcing is interrupted, dowel joints; size and number of dowels as shown on drawings.
- B. Place construction joints through framed slabs on center of span unless otherwise shown on drawings or approved by Engineer.
- C. Wall construction joints must form symmetrical pattern on exposed surfaces, unless otherwise shown on drawings
- D. Hold top of expansion or isolation joint filler maximum 1/2" below surface for joint sealer at exposed joints.
- E. Control joints in slabs on grade:
1. Saw cut joints to depth of 1/4 of slab thickness, unless otherwise specified; make cut not less than 8 hours or more than 24 hours after slab is placed.

2. In lieu of saw cutting joint, Contractor may place metal crack control joint.
3. Stop every other bar at joint.

F. Dowels:

1. For expansion joints.
2. Install in center of slab or at third points as shown on drawings, parallel to surface and perpendicular to joint.
3. Completely coat one end with heavy grease at joints where preformed filler is required; expansion cap required over greased end of dowel.

G. Where applied floor coverings are scheduled, fill saw cut joints in interior slabs with dry mix of 1:9 cement and sand.

H. Fill all other interior saw cut joints, expansion and isolation joints with Thikol joint sealer in accordance with manufacturer's directions; prime edges of joint if recommended by manufacturer.

I. Waterstops:

1. Required where shown on drawings and at joints subject to hydrostatic pressure.
2. Heat splice joints in accordance with manufacturer's specifications.
3. Install as detailed on drawings; wire to reinforcing.

3.05 FINISH ON FORMED SURFACES

A. Uniform finish required on exposed concrete surfaces.

B. Texture on formed surfaces must be indicative of form material used, except for following limitations and requirements:

1. Small isolated air bubbles will be allowed.
2. Width and projection of form marks on exposed concrete must not be greater than 1/16", except no projections allowed on inside channel or conduit walls and slabs; grind off projections as required.

C. Finish exposed top surface of formed members as closely as possible to finish on formed surfaces.

D. Repair defective concrete and damaged areas as follows:

1. Cut back to solid concrete all weak concrete around holes and at honeycomb.
2. Thoroughly wet area to be repaired and brush coat with neat cement grout.
3. Fill large voids with cement mortar composed of 1 part cement, 2 parts fine aggregate and water; place in compacted layers to finish flush with adjacent surfaces.

4. On exposed concrete:
 - a. Remove excess grout, after it is partially set, by working with float and rubbing with burlap; leave no visible filler or grout.
 - b. Patched areas must match adjacent surface.
- E. Where form ties are used, fill cutback holes as specified above for repairing defective concrete.
- F. Smooth form finish all exposed concrete surfaces, completely remove fins.
- G. Rubbed Finish
 1. While the wall is still damp apply a thin coat of medium consistency neat cement slurry by means of bristle brushes to provide a bonding coat within all pits, air holes or blemishes in the parent concrete. Avoid coating large areas with the slurry at one time.
 2. Before the slurry has dried or changed color, apply a dry (almost crumbly) grout proportioned by volume and consisting of 1 part cement to 1-1/2 parts of clean masonry sand having a fineness modulus of approximately 2.3 and complying with the gradation requirements of ASTM C33 for such a material. Grout shall be uniformly applied by means of damp pads of coarse burlap approximately 6" square used as a float. Scrub grout into the pits and air holes to provide a dense mortar in all imperfections.
 3. Allow the mortar to partially harden for 1 or 2 hours depending upon the weather. If the air is hot and dry, keep the wall damp during this period using a fine, fog spray. When the grout has hardened sufficiently so it can be scraped from the surface with the edge of a steel trowel without damaging the grout in the small pits or holes, cut off all that can be removed with a trowel. (Note: Grout allowed to remain on the wall too long will harden and will be difficult to remove.)
 4. Allow the surface to dry thoroughly and rub it vigorously with clean dry burlap to completely remove any dried grout. No visible film of grout shall remain after this rubbing. The entire cleaning operation for any area must be completed the day it is started. Do not leave grout on surfaces overnight. Allow sufficient time for grout to dry after it has been cutoff with the trowel so it can be wiped off clean with the burlap.
 5. On the day following the repair of pits, air holes and blemishes, the walls shall again be wiped off clean with dry, used pieces of burlap containing old hardened mortar which will act as a mild abrasive. After this treatment, there shall be no built-up film remaining on the parent surface. If, however, such a film is present, a fine abrasive stone shall be used to remove all such material without breaking through the surface film of the original concrete. Such scrubbing shall be light and sufficient only to remove excess material without changing the texture of the concrete.
 6. A thorough wash-down with stiff bristle brushes shall follow the final bagging or stoning operation. No extraneous materials shall remain on the surface of the wall.

The wall shall be sprayed with a fine fog spray periodically to maintain a continually damp condition for at least 3 days after the application of the repair grout.

3.06 PROTECTING AND CURING

- A. Protect exposed surfaces from premature drying.
- B. Protect freshly placed concrete against wash by rain.
- C. Keep concrete continuously wet for 7 consecutive days after placement (if cure not used), including weekends and holidays (3 days if Type III Portland cement is used); alternate cycles of wetting and drying not permitted; exercise special care when surrounding air is heated during cold weather operations.
- D. Approved methods of curing:
 - 1. Cover with fabric mats and keep wet during curing period.
 - 2. Cover with waterproof paper which meets requirements of ASTM C171.
 - 3. Cover with clear or white polyethylene sheets, 0.004" thick; lap edges minimum 4" and seal with tape.
 - 4. Seal with liquid applied curing and sealing compound applied in accordance with manufacturer's directions; do not apply compound on construction joints. Paragraph 3.06 C. above does not apply.
 - 5. Do not use Methods 1 and 4 in unheated areas during cold weather operations if exposed concrete is protected with blanket insulation.
- E. Vertical surfaces:
 - 1. Wood forms, kept wet, and metal forms provide satisfactory curing; cure exposed top surfaces as specified above.
 - 2. When forms are removed before end of curing period, exposed concrete must be cured by one of first three approved methods included under Item D.

3.07 INTERIOR SLABS ON GRADE

- A. Thickness as shown on drawings.
- B. Place over vapor barrier as specified in Section 07110; 6" minimum well graded and compacted granular leveling course under membrane.
- C. Isolation joint where shown on drawings and as specified herein under JOINTS.
- D. Unless otherwise shown, place exposed slab either:
 - 1. In strips, maximum 15' wide with control joints centered on columns and saw across strips, as specified herein, under JOINTS, at maximum 15' spacings on column centers.

2. Place alternate panels checkerboard with control joints on column centers in each direction and maximum 15' oc.

E. Finish as specified herein under FLATWORK FINISHING.

F. Note requirements for drain.

3.08 SURFACE COURSES

- A. Remove all debris and sweep cured slab base with heavy wire broom; dry brush to remove dust; wash and keep slab wet for 12 hours prior to placement of fill.
- B. Remove any excess water 15 to 30 min. prior to placement of surface course.
- C. Finish as specified herein under FLATWORK FINISHING.

3.09 FLATWORK FINISHING

- A. Screed and float.
- B. After floating, check surface with straight edge and eliminate high and low spots; interior slab must be level or flat within 1/4" in 10'; 3/8" in 20'; 3/4" in 40', and drain to floor drains; remove and replace any concrete slabs not meeting these requirements; replacement limits determined by extent of deficiencies and by structural considerations.
- C. Do not use dust coat and add no water.
- D. Trowel interior slabs, surface courses and concrete fillets not otherwise specified to smooth, polished surface:
 1. Delay troweling until concrete has hardened sufficiently to prevent excess fines from working to surface; avoid excessive troweling.
 2. After topping has set to ring trowel, trowel second time to produce burnished finish.
- E. Fine float finish structural slabs over which waterproofing will be placed; floors in rooms, with vehicular access, steps and platforms.
- F. Non-slip floor surfaces:
 1. Required for concrete fill of steel stairs and where shown on drawings.
 2. After concrete floor surfaces have been floated and troweled, but while still plastic, sprinkle abrasive aggregate evenly onto the surface and work it into the surface during finishing so that the grains are securely imbedded in the concrete at the surface. Application rate 25 to 40 lbs./100 SF as recommended by the manufacturer.

- G. Liquid floor hardener: (Required for concrete floor in Vehicle Storage Building)
1. Required for interior floors not scheduled to receive floor coverings and for concrete fill of steel stairs.
 2. Do not use curing compounds for curing these slabs.
 3. Apply in 3 coats to thoroughly cured floor over clean dry surface in accordance with manufacturer's directions.
 4. Dilute with water, as recommended by manufacturer, for heavy duty dense floors.
 5. Unless otherwise recommended on directions furnished with material, dilute fluosilicate based liquid applied hardener (parts by volume) as follows:

<u>Coat</u>	<u>Water</u>	<u>Hardener</u>
First	3	1
Second	2	1
Third	1	1

3.10 EQUIPMENT BASES

- A. Furnish bases for all mechanical and electrical equipment where shown on drawings or specified.
- B. Where required, anchor bolts and template to insure proper location must be furnished by subcontractor concerned.
- C. Finish as specified herein under FLATWORK FINISHING.
- D. Grout under base of equipment; pack grout to completely fill voids.

3.11 SEALING EXTERIOR SLABS

- A. Required for exterior slabs placed between September 15 and May 1 which may be subjected to deicing agents.
- B. After specified curing, seal slabs as follows:
 1. First coat 1/2 boiled linseed oil and 1/2 mineral spirits applied at rate of approximately 450 SF per gallon.
 2. After first coat has dried, apply second coat of uncut boiled linseed oil at rate of approximately 540 SF per gallon.

3.12 SCHEDULE OF FINISHES

- A. Concrete shall be finished as specified either to remain as natural concrete to receive an additional applied finish or material under another section.

B. Concrete for the following conditions shall be finished as noted on the drawings and as further specified herein:

1. Concrete to receive dampproofing or waterproofing: Rough-form finish.
2. Concrete not exposed to view and not scheduled to receive an additional applied finish or material: Rough-form finish.
3. Exterior vertical concrete above grade exposed to view: Rubbed finish.
4. Interior vertical concrete exposed to view except in water containment areas: Rubbed finish.
5. Vertical concrete in water containment areas. Rubbed finish on exposed surfaces and extending to 2' below normal operating water level: Rough-form finish on remainder of submerged areas.
6. Concrete for exterior walks, interior and exterior stairs: Broomed finish perpendicular to direction of traffic.

END OF SECTION

SECTION 16050

ELECTRICAL WORK, GENERAL

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PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical work, complete and operable, in accordance with the Contract Documents.
- B. The provisions of this section apply to all sections in Division 16, except as indicated otherwise.
- C. The work of this section is required for operation of electrically driven equipment provided under specifications in other divisions. The Contractor's attention is directed to the requirement for proper coordination of the work of this section with the work of equipment specifications and the work of instrumentation sections.
- D. Concrete, excavation, backfill, and steel reinforcement required for encasement, installation, or construction of the work of the various sections of Division 16 is included as a part of the work under the respective sections, including duct banks, manholes, handholes and equipment housekeeping pads.

1.02 REFERENCE STANDARDS

- A. The work of this section and all sections in Division 16 shall comply with the following as applicable:
 - 1. NEC (NFPA 70) National Electrical Code
 - 2. NETA International Electrical Testing Association
 - 3. NEMA 250 Enclosure for Electrical Equipment (1000 Volts Maximum)
- B. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.
- C. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards (29 CFR 1910 and 29 CFR 1926, as applicable), state building standards, and applicable local codes and regulations.
- D. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

1.03 SIGNAGE AND MARKINGS

- A. Identification: Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal and state OSHA and NEC requirements.
- B. Local Disconnect Switches
 - 1. Each local disconnect switch for motors and equipment shall be legibly marked to indicate its purpose unless the purpose is indicated by the location and arrangement.
- C. Warning Signs
 - 1. 600 volts nominal, or less: Entrances to rooms and other guarded locations that contain live parts shall be marked with conspicuous signs prohibiting unqualified persons to enter.
- D. Isolating Switches: Isolating switches not interlocked with an approved circuit interrupting device shall be provided with a sign warning against opening them under load.

1.04 PERMITS AND INSPECTION

- A. The Contractor shall coordinate inspection of electrical with the City of Indianola.

1.05 CONTRACTOR SUBMITTALS

- A. Furnish submittals on all equipment in accordance with Section 01300 - Submittals.
- B. Shop Drawings: Include the following:
 - 1. Complete material lists stating manufacturer and brand name of each item or class of material.
 - 2. Shop drawings for all grounding work not specifically indicated.
 - 3. Front, side, rear elevations, and top views with dimensional data.
 - 4. Location of conduit entrances and access plates.
 - 5. Component data.
 - 6. Connection diagrams, terminal numbers, internal wiring diagrams, conductor size, and cable numbers.
 - 7. Method of anchoring, weight.
 - 8. Types of materials and finish.
 - 9. Nameplates.
 - 10. Temperature limitations, as applicable.
 - 11. Voltage requirement, phase, and current, as applicable.
 - 12. Front and rear access requirements.
 - 13. Test reports.
 - 14. Grounding requirements.
 - 15. Catalog cuts or photocopies of applicable pages of bulletins or brochures for mass produced, non-custom manufactured material. Catalog data sheets shall be stamped to indicate the project name, applicable Section and paragraph, model number, and options. This information shall be marked in spaces designated for such data in the Engineer's stamp.
- C. Shop drawings shall be custom prepared. Drawings or data indicating "optional" or "as required" equipment are not acceptable. Options not proposed shall be crossed out or deleted from shop drawings.
- D. Owner's Manuals: Complete information in accordance with Section 01300 - Submittals.
- E. Record Drawings: The Contractor shall show invert and top elevations and routing of all duct banks and concealed below-grade electrical installations. Record drawings shall be prepared, be available to the Engineer, and be submitted according to Section 01300 - Submittals.

1.06 AREA DESIGNATIONS

- A. General
 - 1. Raceway system enclosures shall comply with Section 16110 - Electrical Raceway Systems.

2. Electric work specifically indicated in sections within any of the Specifications shall comply with those requirements.
3. Comply with requirements of this table:

AREA	NEMA ENCLOSURE CLASSIFICATION						Notes
	1	3R	4X	7	9	12	
Treatment Plant - Filter Room	X						Damp or Wet
Treatment Plant - Outside		X					
Office, Foyer	X						
Treatment Plant - Pump Room, Treatment Room	X						
Chlorine Room, Caustic Soda Room			X				Corrosive Areas

4. Electrical work not included in 1.7A1, 1.7A2, or 1.7A3 shall be NEMA 4X.

B. Material Requirements

1. NEMA 4X enclosures shall be 304 stainless steel.
2. NEMA 7 enclosures shall be cast aluminum where used with aluminum conduit; and cast iron when used with galvanized steel conduit.
3. NEMA 1, 3R, and 12 enclosures shall be steel coated with ANSI 61 grey paint. NEMA 4X, 7, and 9 enclosures and stainless steel enclosures shall not be coated.

1.07 TESTS

- A. The Contractor shall be responsible for factory and field tests required by specifications in Division 16 and by the Engineer or other authorities having jurisdiction. The Contractor shall furnish necessary testing equipment and pay costs of tests, including replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of faulty installation.
- B. Where test reports are indicated, proof of design test reports for mass-produced equipment shall be submitted with the shop drawings, and factory performance test reports for custom-manufactured equipment shall be submitted and be approved prior to shipment. Field test reports shall be submitted for review prior to Substantial Completion.
- C. Equipment or material that fails a test shall be removed and replaced.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Equipment and materials shall be new, shall be listed by UL, and shall bear the UL label where UL requirements apply. Equipment and materials shall be the products of experienced and reputable manufacturers in the industry. Similar items in the work shall be products of the same manufacturer. Equipment and materials shall be of industrial grade standard of construction.
- B. Where a NEMA enclosure type is indicated in a non-hazardous location, the Contractor shall utilize that type of enclosure, despite the fact that certain modifications such as cutouts for control devices may negate the NEMA rating.
- C. On devices indicated to display dates, the year shall be displayed as 4 digits.

2.02 MOUNTING HARDWARE

- A. Miscellaneous Hardware
 - 1. Nuts, bolts, and washers shall be stainless steel.
 - 2. Threaded rods for trapeze supports shall be continuous threaded, stainless steel, 3/8" dia. minimum.
 - 3. Strut for mounting of conduits and equipment shall be stainless steel. Where contact with concrete or dissimilar metals may cause galvanic corrosion, suitable non-metallic insulators shall be utilized to prevent such corrosion. Strut shall be as manufactured by Unistrut, B-Line, or equal.
 - 4. Anchors for attaching equipment to concrete walls, floors and ceilings shall be stainless steel expansion anchors, such as "Rawl-Bolt," "Rawl-Stud" or "Lok-Bolt" as manufactured by Rawl; similar by Star, or equal. Wood plugs shall not be permitted.

2.03 ELECTRICAL IDENTIFICATION

- A. Nameplates: Nameplates shall be fabricated from white-letter, black-face laminated plastic engraving stock, Formica type ES-1, or equal. Each shall be fastened securely, using fasteners of brass, cadmium plated steel, or stainless steel, screwed into inserts or tapped holes as required. Engraved characters shall be block style with no characters smaller than 1/8" top to bottom.
- B. Conductor and Equipment Identification: Conductor and equipment identification devices shall be either imprinted plastic-coated cloth marking devices such as manufactured by Brady, Thomas & Betts, or equal, or shall be heat-shrink plastic tubing, imprinted split-sleeve markers cemented in place, or equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Incidentals: The Contractor shall provide all materials and incidentals required for a complete and operable system, even if not required explicitly by the Specifications or the drawings. Typical incidentals are terminal lugs not furnished with vendor supplied equipment, compression connectors for cables, splices, junction and terminal boxes, and control wiring required by vendor furnished equipment to connect with other equipment indicated in the Contract Documents.
- B. Field Control of Location and Arrangement: The drawings diagrammatically indicate the desired location and arrangement of outlets, conduit runs, equipment, and other items. Exact locations shall be determined by the Contractor in the field based on the physical size and arrangement of equipment, finished elevations, and other obstructions. Locations on the drawings, however, shall be followed as closely as possible.
 - 1. Where "home runs" are shown, the Contractor shall route the conduits in accordance with the indicated installation requirements. Routings shall be exposed or encased as indicated, except that conduit in finished areas shall be concealed unless specifically indicated otherwise. Conduits encased in a slab shall be sized for conduit OD to not exceed one-third of the slab thickness and be laid out and spaced to not impede concrete flow.
 - 2. Conduit and equipment shall be installed in such a manner as to avoid all obstructions and to preserve head room and keep openings and passageways clear. Lighting fixtures, switches, convenience outlets, and similar items shall be located within finished rooms as indicated. Where the drawings do not indicate exact locations, such locations shall be determined by the Engineer. If equipment is installed without instruction and must be moved, it shall be moved without additional cost to the Owner. Lighting fixture locations shall be adjusted slightly to avoid obstructions and to minimize shadows.
 - 3. Wherever conduits and wiring for lighting and receptacles are not indicated, shall be the Contractor's responsibility to provide lighting and receptacle-related conduits and wiring as required, based on the actual installed fixture layout and the circuit designations as indicated. Wiring shall be #12 AWG minimum, conduits shall be 3/4" minimum (exposed) and 1" minimum (encased). Circuits are combined in the same raceway, the Contractor shall derate conductor ampacities in accordance with NEC requirements.
- C. Workmanship: Materials and equipment shall be installed in strict accordance with printed recommendations of the manufacturer. Installation shall be accomplished by workers skilled in the work. Installation shall be coordinated in the field with other trades to avoid interferences.

- D. Protection of Equipment and Materials: The Contractor shall fully protect materials and equipment against damage from any cause. Materials and equipment, both in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint. Moving parts shall be kept clean and dry. The Contractor shall replace or refinish damaged materials or equipment, including faceplates of panels and switchboard sections as part of the work.
- E. Incoming utility power equipment shall be provided in conformance with the utility's requirements.
- F. The Contractor shall provide power wiring in conduit for the HVAC equipment in accordance with Section 15600 - Heating, Ventilation, and Air Conditioning. Starters shall be in accordance with Section 16480 - Low Voltage Motor Control Center for starters in MCC's and Section 16485 - Miscellaneous Electrical Devices, for starters not in MCC's, except for starters in HVAC equipment which are indicated in Section 15600. Control wiring operating at 120 volts and less shall be as indicated in Section 15600.

3.02 CORE DRILLING

- A. The Contractor shall perform core drilling required for installation of raceways through concrete walls and floors. Locations of floor penetrations, as may be required, shall be based on field conditions. Verify all exact core drilling locations based on equipment actually furnished as well as exact field placement. To the extent possible, identify the existence and locations of encased raceways and other piping in existing walls and floors with the Owner prior to any core drilling activities. Damage to any encased conduits, wiring, and piping shall be repaired as part of the work.

3.03 CONCRETE PADS

- A. Concrete pads shall be provided where shown to house mechanical equipment. Unless shown otherwise, pads for equipment, including future units, shall be 4" above surrounding finished floor or grade and 2" larger in both dimensions than the equipment.
- B. Provide frost footings along the exterior edges on pads installed outdoors, unless shown otherwise.
- C. provide appropriate reinforcing on pads and footings.

3.04 EQUIPMENT ANCHORING

- A. Floor supported, wall, or ceiling hung equipment and conductors shall be anchored in place by methods that will meet seismic requirements in the area where the project is located. Wall-mounted panels that weigh more than 500 lbs. or that are within 18" of the floor shall be provided with fabricated steel support pedestals. If the supported equipment is a panel or cabinet enclosed within removable side plates, it shall match supported equipment in physical appearance and dimensions. Transformers hung from 4" stud walls and weighing more than 300 lbs. shall have auxiliary floor supports.
- B. Leveling channels anchored to the concrete pad shall be provided for switchgear and pad-mounted transformer installations.
- C. Anchoring methods and leveling criteria in the printed recommendations of the equipment manufacturers are a part of the work of this Contract. Such recommendations shall be submitted as shop drawings under Section 01300.

3.05 EQUIPMENT IDENTIFICATION

- A. Equipment and devices shall be identified as follows:
 - 1. Nameplates shall be provided for panelboards, control and instrumentation panels, starters, switches, and pushbutton stations. In addition to nameplates, control devices shall be equipped with standard collar-type legend plates.
 - 2. Control devices within enclosures shall be identified as indicated. Identification shall be similar to the subparagraph above.
 - 3. Toggle switches which control loads out of sight of switch and multi-switch locations of more than 2 switches shall have suitable inscribed finish plates.
 - 4. Equipment names and tag numbers, where indicated on the drawings, shall be utilized on nameplates.
 - 5. The Contractor shall furnish typewritten circuit directories for panelboards; circuit directory shall accurately reflect the outlets connected to each circuit.

3.06 CLEANING

- A. Before final acceptance, the electrical work shall be thoroughly cleaned. Exposed parts shall be thoroughly cleaned of cement, plaster, and other materials. Oil and grease spots shall be removed with a non-flammable cleaning solvent. Such surfaces shall be carefully wiped and cracks and corners scraped out. Touch-up paint shall be applied to scratches on panels and cabinets. Electrical cabinets or enclosures shall be vacuum-cleaned.

END OF SECTION

SECTION 16070

HANGERS AND SUPPORTS

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- 2.02 MANUFACTURERS

PART 3 - EXECUTION

- 3.01 EXAMINATION
- 3.02 INSTALLATION

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. Conduit and equipment supports.
- B. Anchors and fasteners.

1.02 REFERENCES

- A. NECA - National Electrical Contractors Association.
- B. ANSI/NFPA 70 - National Electrical Code.

1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.04 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Work, General.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials and Finishes: Provide adequate corrosion resistance; hangers and anchors materials shall match with type of conduit or equipment materials they are going to support.
- B. Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit.
- C. Anchors and Fasteners:
 - 1. Concrete Structural Elements:
 - a. Use steel or malleable iron concrete inserts set in place prior to placing new concrete.
 - b. Use expansion anchors not less than 1/4@ bolt size and not less than 1-1/8@ embedment in existing concrete.
 - 1) Use power set fasteners not less than 1/4@ diameter with depth of penetration not less than 3@ in existing concrete.
 - 2) Use vibration and shock resistant anchors and fasteners for attaching to concrete ceilings.
 - a) Steel Structural Elements: Use beam clamps or spring steel clips.
 - b) Concrete Surfaces: Use self-drilling anchors or expansion anchors.
 - c) Hollow Masonry, Plaster and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
 - d) Solid Masonry Walls: Use expansion anchors.
 - e) Sheet Metal: Use sheet metal screws.
 - f) Wood Elements: Use wood screws.

2.02 MANUFACTURERS

- A. Superstrut, Unistrut, B-line, or equal.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify all channels, fasteners, anchors and miscellaneous equipment are suitable for the application.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
- C. Do not fasten supports to pipes, ducts, mechanical equipment and conduit.

END OF SECTION

SECTION 16110

ELECTRICAL RACEWAY SYSTEMS

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PART 1 - GENERAL

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BOXES

PART 3 - EXECUTION

- 3.01 GENERAL
- 3.02 CONDUIT
- 3.03 UNDERGROUND JUNCTION
BOXES

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical raceway systems, complete and in place, in accordance with the Contract Documents.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals, and Section 16050 - Electrical Work, General.
- B. Shop Drawings
 - 1. Complete catalog cuts of raceways, fittings, boxes, supports, and mounting hardware, marked where applicable to show proposed materials and finishes.
 - 2. Dimensioned layout drawings of cable tray routings, including elevations.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Pull and junction boxes, fittings, and other indicated enclosures that are dedicated to the raceway system shall comply with this section.

2.02 CONDUIT

A. Rigid Aluminum (RAL) Conduits

1. Rigid aluminum conduit shall be manufactured of 6063 alloy, temper T-1.
2. Rigid aluminum conduit shall be manufactured in accordance with ANSI C80.5 - Rigid Aluminum Conduit, and UL-6 - Rigid Metal Electrical Conduit.
3. Manufacturers, or equal.
 - a. V.A.W. of America
 - b. Alcoa

B. Rigid Galvanized Steel (RGS) Conduit

1. Rigid steel conduit shall be mild steel, hot-dip galvanized inside and out.
2. Rigid steel conduit shall be manufactured in accordance with ANSI C80.1 - Rigid Steel Conduit, Zinc Coated, and UL-6.
3. Manufacturers, or equal.
 - a. LTV Steel
 - b. Triangle
 - c. Wheatland Tube

C. Rigid Non-Metallic Conduit

1. Rigid non-metallic conduit shall be Schedule 40 pvc, sunlight resistant.
2. Rigid non-metallic conduit shall be manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-metallic Conduit.
3. Manufacturers, or equal.
 - a. Carlon
 - b. Condux

D. Rigid pvc Coated Galvanized Steel (RPGS) Conduit

1. The conduit, prior to pvc coating, shall meet the requirements for RGS conduit above.
2. A pvc coating shall be bonded to the outer surface of the galvanized conduit. The bond between the coating and the conduit surface shall be greater than the tensile strength of the coating. The inside surfaces and threads of the conduit shall have a 2-mil urethane coating.
3. pvc coating thickness shall be not less than 40 mils.
4. pvc coated RGS shall be manufactured in accordance with the following standards:
 - a. UL-6
 - b. ANSI C80.1
 - c. Federal Specification WW-C-581E.
 - d. NEMA RN1 - pvc externally coated galvanized rigid steel conduit and intermediate metal conduit.

- 5. Manufacturers, or Equal
 - a. Robroy
 - b. Thomas & Betts
- E. Liquidtight Flexible Conduit
 - 1. Liquidtight flexible conduit shall be constructed of a flexible galvanized metal core with a sunlight resistant thermoplastic outer jacket.
 - 2. Liquidtight flexible conduit shall be manufactured in accordance with UL-360 - Steel Conduits, Liquid-Tight Flexible.
 - 3. Manufacturers, or equal.
 - a. Anaconda, Sealtite
 - b. Electriflex, Liguatite
- F. Trenchless raceway systems
 - 1. Trenchless raceway systems shall be heavywall Schedule 40 pvc and shall be specifically designed for horizontal directional drilling applications.
 - 2. Trenchless raceway systems shall be manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-metallic Conduit.
 - 3. Conduit design shall incorporate an airtight and watertight seal and locking ring that allows a fast and cement free assembly.
 - 4. Conduit shall have a maximum bend radius of 65'.
 - 5. Manufacturers, or equal.
 - a. Carlon
- G. Electrical Metallic Tubing (EMT) or Intermediate conduit (IMC) will not be accepted.

2.03 FITTINGS AND BOXES

- A. General
 - 1. Cast and malleable iron fittings for use with metallic conduit shall be the threaded type with 5 full threads.
 - 2. Fittings and boxes shall have neoprene gaskets and non-magnetic stainless steel screws. Covers shall be attached by means of holes tapped into the body of the fitting. Covers for fittings attached by means of clips or clamps will not be acceptable.
 - 3. Boxes larger than standard cast or malleable types shall be 304 stainless steel, NEMA 4X.
 - 4. In outdoor areas, conduit shall be terminated in raintight hubs as manufactured by Myers, O.Z. Gedney, Appleton, or equal. In other than outdoor areas, sealed locknuts and bushings shall be used.
 - 5. Conduit, fittings, and boxes in hazardous locations shall be suitable for the Class and Division indicated.

B. Cast Aluminum Fittings and Boxes

1. Cast aluminum boxes and fittings shall have less than 0.40% copper content and shall be utilized with aluminum conduit.
2. Manufacturers, or equal.
 - a. O.Z. Gedney
 - b. Appleton
 - c. Crouse-Hinds

C. Malleable Iron Fittings and Boxes

1. Fittings and boxes for use with galvanized steel conduit shall be of malleable iron or gray-iron alloy with zinc plating.
2. Manufacturers, or equal.
 - a. O.Z. Gedney
 - b. Crouse-Hinds
 - c. Appleton

D. pvc Fittings and Boxes

1. Fittings for use with rigid non-metallic conduit shall be pvc, solvent welded type.
2. Boxes shall be pvc or fiberglass reinforced polyester (FRP).
3. Manufacturers, or equal.
 - a. Carlon
 - b. Crouse-Hinds
 - c. Hoffman
4. Provide welding solvent as required for installation of non-metallic conduit and fittings.

E. pvc Coated Fittings

1. Fittings for use with pvc coated RGS shall be pvc coated and shall be products of the same manufacturer as the conduit.
2. Male and female threads and internal surfaces shall have a 2-mil urethane coating.

F. Stainless Steel Boxes

1. Stainless steel boxes shall be used with pvc coated RGS conduit and where indicated.
2. Stainless steel boxes shall be NEMA 4X, Type 304.
3. Stainless steel shall be minimum 14-gauge thickness, with a brushed finish.
4. Doors shall have full length stainless steel piano hinges. Non-hinged boxes are not acceptable.
5. Manufacturers, or equal.
 - a. Hoffman
 - b. Rohn
 - c. Hammond

G. Sheet Steel Boxes

1. Sheet steel boxes shall be galvanized steel outlet and switch boxes.
2. Manufacturers, or equal.
 - a. Raco
 - b. Steel City
 - c. Appleton Electric

2.04 UNDERGROUND JUNCTION BOXES

A. General:

1. Underground junction box for use as a pull box; open bottom.
2. Precast polymer concrete construction.
3. Sizes: As shown on drawings.
4. Comply with ANSI/SCTE 77 Tier 5 loading provisions.
5. Furnish with load rated lid; Provide "Electric" logo on cover.
6. Provide required number of knockouts for conduits on opposite sides of box.
7. Manufacturer and Model number: Quazite # PG, or equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Wiring shall be run in raceway unless indicated otherwise.
- B. Raceways shall be installed between equipment as indicated. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical, and shall be accomplished with tools designed for this purpose. Factory elbows shall be utilized wherever possible.
- C. Where raceway routings are indicated on plan views, follow those routings to the extent possible.
- D. Where raceways are indicated but routing is not indicated, such as home runs, raceway routings shall be the Contractor's choice and in strict accordance with the NEC and customary installation practice. Raceway shall be encased, exposed, concealed, or under floor as indicated, except that conduit in finished areas shall be concealed unless specifically indicated otherwise.
- E. Routings shall be adjusted to avoid obstructions. Coordinate between trades prior to installation of raceways. Lack of such coordination shall not be justification for extra compensation, and removal and re-installation to resolve conflicts shall be by the Contractor as part of the work.

- F. Exposed raceways shall be installed parallel or perpendicular to structural beams.
- G. Install expansion fittings with bonding jumpers wherever raceways cross building expansion joints.
- H. Exposed raceways shall be installed at least 1/2" from walls or ceilings except that at locations above finished grade where damp conditions do not prevail, exposed raceways shall be installed 1/4" minimum from the face of walls or ceilings by the use of clamp backs or struts.
- I. Wherever contact with concrete or dissimilar metals can produce galvanic corrosion of equipment, suitable insulating means shall be provided to prevent such corrosion.

3.02 CONDUIT

- A. Exposed conduit shall be rigid galvanized steel or rigid aluminum.
- B. Where galvanized conduit has to be cut, the galvanized coating shall be repaired per manufacturer's instructions.
- C. Conduit concealed, buried, or encased in concrete, except for analog control conduit which shall be pvc coated RGS, shall be Schedule 40 pvc. Where conduit emerges from concrete encasement, a pvc coated RGS elbow shall be utilized for transition from the concrete. Conduit shall emerge from the concrete perpendicular to the surface whenever possible.
- D. Exposed conduit shall be 3/4" minimum trade size. Encased conduit shall be 1" minimum trade size. Supports shall be installed at distances required by the NEC.
- E. Conduit shall not be encased in the bottom floor slab below grade.
- F. Concrete cover for conduit and fittings shall not be less than 1-1/2" for concrete exposed to earth or weather, or less than 3/4" for concrete not exposed to weather or in contact with the ground
- G. Conduits passing through a slab, wall, or beam shall not impair significantly the strength of the construction.
- H. Conduits embedded within a slab, wall, or beam (other than those merely passing through) shall satisfy the following:
 - 1. Conduits with their fittings embedded within a column shall not displace more than 4% of the gross area of cross section.

2. Conduits shall not be larger in outside dimension than one third the overall thickness of slab, wall, or beam in which embedded.
 3. Conduits shall not be spaced closer than 3 outside diameters on centers.
- I. Conduit shall be placed so that cutting, bending, or displacing reinforcement from its proper location will not be required.
 - J. Threads shall be coated with a conductive lubricant before assembly.
 - K. Joints shall be tight, thoroughly grounded, secure, and free of obstructions in the pipe. Conduit shall be adequately reamed to prevent damage to the wires and cables inside. Strap wrenches and vises shall be used to install conduit to prevent wrench marks on conduit. Conduit with wrench marks shall be replaced.
 - L. Wherever possible, conduit runs shall slope to drain at one or both ends of run. Wherever conduit enters substructures below grade, the conduit shall be sloped to drain water away from the structure. Extreme care shall be taken to avoid pockets or depressions in conduit.
 - M. Installation of rigid steel conduit through a core-drilled hole in an exterior wall below grade shall utilize a sealing device as manufactured by Link Seal or equal.
 - N. Connections to lay-in type grid lighting fixtures shall be made using flexible metal conduit not exceeding 4' in length. Connections to motors and other equipment subject to vibration shall be made with liquid-tight flexible conduit not exceeding 3' in length. Equipment subject to vibration that is normally provided with wiring leads shall be provided with a cast junction box for the make-up of connections.
 - O. Conduit passing through walls or floors shall have plastic sleeves. Core drilling shall be performed in accordance with Section 16050.
 - P. Provide conduit seal fittings at the following locations:
 1. In hazardous classified locations, in strict accordance with the NEC.
 2. In chlorine and fluoride areas to prevent passage of gases to other areas.
 - Q. Conduit, fittings, and boxes required in hazardous classified areas shall be suitably rated for the area and shall be provided in strict accordance with NEC requirements.
 - R. Empty conduits shall be tagged at both ends to indicate the final destination. Where it is not possible to tag the conduit, destination shall be identified by a durable marking on an adjacent surface. A pull-cord shall also be installed in each empty conduit. This shall apply to conduits in floors, panels, manholes, equipment, etc.

3.03 UNDERGROUND JUNCTION BOXES

- A. Install junction boxes where shown on plans.
- B. Seal opening around conduit entrance hole openings to make the box watertight.
- C. Underground junction boxes are provided as a convenience feature in assisting of pulling conductors. Use conductors of sufficient lengths to avoid any splices. If splices have to be made, they shall be made inside junction boxes.

END OF SECTION

SECTION 16120

WIRES AND CABLES

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PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide wires and cable, complete and operable, in accordance with the Contract Documents.

1.02 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Work, General.
- B. Furnish submittals on all cables and equipment.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Conductors, include grounding conductors, shall be copper. Aluminum conductor wire and cable will not be permitted. Insulation shall bear UL label, the manufacturer's trademark, and identify the type, voltage, and conductor size. All conductors except flexible cords and cables, fixture wires, and conductors that form an integral part of equipment such as motors and controllers shall conform to the requirements of Article 310 of the National Electric Code, latest edition, for current carrying capacity. Flexible cords and cables shall conform to Article 400, and fixture wires shall conform to Article 402. Wiring shall have wire markers at each end.

2.02 POWER AND LIGHTING WIRE

- A. Wire rated for 600 volts in duct or conduit for all power and lighting circuits shall be Class B Type XHHW cross-linked polyethylene conforming to UL-44 - UL Standard for Thermoset-Insulated Wires and Cables. THHN/THWN wire shall not be permitted to be used for any power or control wiring in this project, except as specifically permitted within control panels per Section 17300 - Control Panels.
- B. Conductors for feeders as defined in Article 100 of the NEC shall be sized to prevent a voltage drop exceeding 3% at the farthest outlet of power, heating, and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
- C. Conductors for branch circuits as defined in Article 100 of the NEC, shall be sized to prevent voltage drop exceeding 3% at the farthest connected load or combinations of such loads and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
- D. Wiring for 600-volt class power and lighting shall be as manufactured by General Cable, Okonite, or Rome Cable.

2.03 CONTROL WIRE

- A. Control wire in duct or conduit shall be the same type as power and lighting wire indicated above
- B. Control wiring shall be No.14 AWG.

- C. Control wires at panels and cabinets shall be machine tool grade type MTW, UL approved, rated for 90 C. at dry locations, and be as manufactured by American, Carol Cable, or equal.

2.04 INSTRUMENTATION CABLE

- A. Instrumentation cable shall be rated at 300 volts.
- B. Instrumentation cables shall be composed of two 18 gauge stranded tinned copper conductors, 0.19" thick polyethylene insulation, an aluminum polyester foil outer shield, a No. 20 AWG stranded tinned copper drain wire, and a pvc outer jacket with a thickness of 0.028".
- C. Manufacturer and model number: Belden 8760, or equal.
- D. Where indicated on drawings use #16TSP (Belden 8719) to provide reduced signal loss.

2.05 TELEPHONE CABLE

- A. General
 - 1. Individual conductors shall be #24 AWG, solid, tinned copper.
- B. Insulation shall be pvc with a chrome pvc jacket.
- C. Cable shall be Belden Part No. 9562, or equal.

2.06 RS-485 CABLE

- A. The cables shall be multi-twisted pairs with a common overall shield cable designed for use as low capacitance computer cable for EIA RS-485 applications.
- B. Cable shall be a molded cable assembly with connector on one and capped cable on one end where required by equipment supplier.
- C. Conductors:
 - 1. 22 AWG, seven-strand
 - 2. Tinned copper, insulated, twisted pairs.
 - 3. Cable Shield: Overall aluminum-polyester shield.
 - 4. 24 AWG stranded, tinned copper drain wire.
 - 5. Overall tinned copper braid shield, 90-percent coverage.
 - 6. Jacket: PVC.
 - 7. Insulation: 300V Polyolefin

8. Number of Pairs: 2, or as required by the application.
9. Outside Diameter: 0.424 inches, maximum.
10. Belden Color Code: Chart No. 5.

D. Connectors:

1. Type: Factory molded D-Subminiature (one end only where required).
2. Positions (Number of Pins): Coordinate connector pin requirements with equipment supplier
3. Cable Pin-out: Coordinate requirements with equipment supplier.
4. Gender: Coordinate requirements with equipment supplier.
5. Retention System: Screw, horizontal slide lock or vertical slide lock; coordinate requirements with equipment supplier
6. Connector Style: Straight handled, right-angled or angled; coordinate requirements with equipment supplier.

E. RS-485 cable shall be Belden Part No. 3107A, or equal, or as required by the application.

2.07 DATA HIGHWAY CABLE

- A. Category 6E ethernet cable: capable of transmitting data up to 1000 MBPS (1 gigabit per second); cable must be compatible with control system furnished.

2.08 FIBER OPTICS CABLE

- A. Multi-mode; suitable for use in LAN networks.
- B. Strand eight (8) cable 62.5/125 um core/cladding.
- C. 160/500 MHz-Km bandwidth; 3/1 dB/Km attenuation.
- D. Full IEEE 802.3 compliant.

2.09 VFD CABLE

- A. Manufacturer and Model Number: Lapp #OLflex VFD Slim, or equal.
- B. Finely stranded tinned copper conductors with Lapp surge guard insulation system with thermo plastic polymer jacket.
- C. UL listed.

2.10 CABLE TERMINATIONS

- A. Compression connectors shall be Burndy "Hi Lug", Thomas & Betts "Sta-Kon", or equal. Threaded connectors shall be split bolt type of high strength copper alloy. Pressure type, twist-on connectors will not be acceptable.
- B. Pre-insulated fork tongue lugs shall be Thomas & Betts, Burndy, or equal.
- C. General purpose insulating tape shall be Scotch No. 33, Plymouth "Slip-knot", or equal. High temperature tape shall be polyvinyl as manufactured by Plymouth, 3M, or equal.
- D. Labels for coding 600-volt wiring shall be computer printable or pre-printed, self-laminating, self-sticking, as manufactured by W.H. Brady, 3M, or equal.
- E. Fiber termination box: Multilite, or equal; 2 panel wall mount fiber distribution box; suitable for terminating 6, 8 or 12 fibers.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall provide and terminate all conductors except where indicated.

3.02 INSTALLATION

- A. Conductors shall not be pulled into raceway until raceway has been cleared of moisture and debris.
- B. Pulling tensions on raceway cables shall be within the limits recommended by the cable manufacturer. Wire pulling lubricant, where needed, shall be UL approved.
- C. Instrumentation, telephone and RS-485 cables shall not be run in the same raceway with power and control wiring except where specifically indicated.
- D. Wire in panels, cabinets, and wireways shall be neatly grouped using nylon tie straps, and shall be fanned out to terminals.

3.03 SPLICES AND TERMINATIONS

- A. General
 - 1. Wire taps and splices shall be properly taped and insulated according to their respective classes.

2. In general, there shall be no cable splices in underground manholes or pullboxes. If splices are necessary, the cables shall be brought aboveground and terminated in a NEMA 4X, stainless steel terminal or splice cabinet on a concrete pad. Splices in underground manholes and pullboxes may be made only with the approval of the Engineer.
3. Stranded conductors shall be terminated directly on equipment box lugs making sure that all conductor strands are confined within lug. Use forked-tongue lugs where equipment box lugs have not been provided.
4. Excess control and instrumentation wire shall be properly taped and terminated as spares.

B. Control Wire and Cable

1. Control conductors shall be spliced or terminated only at the locations indicated and only on terminal strips or terminal lugs of vendor furnished equipment.
2. In junction boxes, motor control centers, and control panels, control wire and spare wire shall be terminated to terminal strips.

C. Instrumentation Wire and Cable

1. Shielded instrumentation cables shall be grounded at one end only, preferably the receiving end on a 4-20 mA system.
2. Two- and three-conductor shielded cables installed in conduit runs which exceed available standard cable lengths may be spliced in pullboxes. Such cable runs shall have only one splice per conductor.

D. Power Wire and Cable

1. All 120/208-volt, 120/240-volt, and 480/277-volt branch circuit conductors may be spliced in suitable fittings at locations determined by the Contractor.
2. Splices to motor leads in motor terminal boxes shall be wrapped with mastic material to form a mold and then shall be taped with a minimum of 2 layers of varnished cambric tape overtaped with a minimum of 2 layers of high temperature tape.

E. Install fiber termination box on fiber optic telephone board and terminate fibers.

3.04 CABLE IDENTIFICATION

- A. General: Wires and cables shall be identified for proper control of circuits and equipment and to reduce maintenance effort. Identification shall appear within 3" of conductor terminals and at each pull or junction box.

- B. Identification Numbers: The Contractor shall assign to each control and instrumentation wire and cable a unique identification number. Numbers shall be assigned to all conductors having common terminals and shall be shown on "as built" drawings. "Control Conductor" shall be defined as any conductor used for alarm, annunciator, or signal purposes.
1. Multi-conductor cable shall be assigned a number which shall be attached to the cable at intermediate pull boxes and at stub-up locations beneath free-standing equipment. It is expected that the cable number shall form a part of the individual wire number. Individual control conductors and instrumentation cable shall be identified at pull points as described above. The instrumentation cable numbers shall incorporate the loop numbers assigned in the Contract Documents.
 2. All 120/208-volt conductors shall be color coded as follows: Phase A - black, Phase B - red, Phase C - blue, and Neutral - white.
 3. All 120/240-volt system conductors shall be color coded as follows: Line 1 - Black, Line 2 - Red, and Neutral - White.
 4. All 480/277- volt system conductors shall be color coded as follows: Phase A - Brown, Phase B - Orange, Phase C - Yellow, and Neutral - Gray.
 5. Color coding tape shall be used where colored insulation is not available. Branch circuit switch shall be yellow. Insulated ground wire shall be green, and neutral shall be gray. Color coding and phasing shall be consistent throughout the Site, but bars at panelboards, switchboards, and motor control centers shall be connected Phase A-B-C, top to bottom, or left to right, facing connecting lugs.
 6. General purpose AC control cables shall be red. General purpose DC control cables shall be blue.
 7. Spare cable shall be terminated on terminal screws and shall be identified with a unique number as well as with destination.
 8. Terminal strips shall be identified by computer printable, cloth, self-sticking marker strips attached under the terminal strip.

3.05 TESTING

- A. Cable Assembly and Testing: Cable assembly and testing shall comply with applicable requirements of ICEA Publication No. S-68-516 - Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy. Factory test results shall be submitted with the shop drawings. The following field tests shall be the minimum requirements:
1. Power cable rated at 600 volts shall be tested for insulation resistance between phases and from each phase to a ground using a megohmmeter.
 2. Field testing shall be done after cables are installed in the raceways.
 3. Field tests shall be performed by a certified test organization acceptable to the cable manufacturer. Test results shall be submitted to the Engineer for review and acceptance.

4. Cables failing the tests shall be replaced with a new cable or be repaired. Repair methods shall be as recommended by the cable manufacturer and shall be performed by persons certified by the industry.
- B. Continuity Test: Control and instrumentation cables shall be tested for continuity, polarity, undesirable ground, and origination. Such tests shall be performed after installation and prior to placing cables in service.

END OF SECTION

SECTION 16450

GROUNDING

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- 3.01 GROUNDING

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide the electrical grounding system, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 16050 - Electrical Work, General apply to this section.
- C. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts and manufacturer's services.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals and Section 16050 - Electrical Work, General.
- B. Shop Drawings: Manufacturer's product information for connections, clamps, and grounding system components, showing compliance with the requirements of this section.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Components of the grounding electrode system shall be manufactured in accordance with ANSI/UL 467 - Standard for Safety Grounding and Bonding Equipment, and shall conform to the applicable requirements of National Electrical Code Article 250 and local codes.

2.02 GROUNDING SYSTEM

- A. Grounding loop conductors shall be bare annealed copper conductors suitable for direct burial. Conductors shall be No. 4/0 unless indicated otherwise.
- B. Ground Rods
 - 1. Unless indicated otherwise, the ground rod shall be a minimum of 3/4" in diameter, 10' long, and have a uniform covering of electrolytic copper metallicity bonded to a rigid steel core. The copper to steel bond shall be corrosion resistant.
 - 2. Conform to ANSI/UL 467.
 - 3. Sectional type joined by threaded copper alloy couplings.
- C. Buried cable-to-cable and cable-to-ground rod connections shall be made using exothermic welds by Cadweld, Enrico Products, or equal.
- D. Exposed grounding connectors shall be of the compression type (connector to cable), made of high copper alloy, and be manufactured specifically for the particular grounding application. The connectors shall be Burndy, O.Z. Gedney, or equal.
- E. Grounding clamps shall be used to bond each separately derived system to the grounding electrode conductors.
- F. Equipment Grounding Circuit Conductors
 - 1. These conductors shall be the same type and insulation as the load circuit conductors. The minimum size shall be as outlined in Table 250.122 of the National Electrical Code, unless indicated otherwise.
 - 2. Metallic conduit systems shall have equipment grounding wires as well as being equipment grounding conductors themselves.
- G. Manufacturers of grounding materials shall be Copperweld, Blackburn, Burndy, or equal.

PART 3 - EXECUTION

3.01 GROUNDING

- A. Provide a separate grounding conductor, securely grounded in each raceway independent of raceway material.
- B. Provide a separate grounding conductor for each motor and connect at motor box. Do not use bolts securing motor box to frame or cover for grounding connectors.
- C. Size as given on the conduit schedule and in accordance with the NEC-Article 250.

- D. Route conductors inside raceway.
- E. Provide a grounding type bushing for secondary feeder conduits which originate from the secondary section of each MCC section, switchboard, or panelboard.
- F. Individually bond these raceways to the ground bus in the secondary section.
- G. Provide a green insulated wire as grounding jumper from the ground screw to a box grounding screw and, for grounding type devices, to equipment grounding conductor.
- H. Provide a separate grounding conductor in each individual raceway for parallel feeders.
- I. Interconnect the secondary switchgear neutral bus to the ground bus in the secondary switchgear compartment only at service entrance point or after a transformer.
- J. Bond cold water pipe system and building structure to separate grounding electrode per NEC.
- K. Provide the duct bank ground system indicated, including, trenching, splices, ground rods, and connections to equipment and structures.
- L. Measure ground impedance in accordance with IEEE STD 81 after installation but before connecting the electrode to the remaining grounding system.
- M. Low Voltage Grounded System (600V or less): A low voltage grounded system is a system where the local power supply is a transformer with the transformer secondary grounded.
 - 1. Grounding system connections for a premises wired system supplied by a grounded AC service shall have a grounding electrode connector connected to the grounded service conductor at each service, in accordance with the NEC.
 - 2. The grounded circuit conductor shall not be used for grounding non-current carrying parts of equipment, raceways, and other enclosures except where specifically listed and permitted by the NEC.
- N. Embedded Ground Connections
 - 1. Underground and grounding connections embedded in concrete shall be UL listed compression type ground grid connectors.
 - 2. The connection shall be made in accordance with the manufacturer's instructions.
 - 3. The Contractor shall not conceal or cover any ground connections until the Engineer or authorized representative has established that every grounding connection conforms to the Contract Documents and has given the Contractor written confirmation.

O. Ground Ring

1. Furnish trenching and materials necessary to install the ground ring as indicated.
2. Bonding conductor shall be in direct contact with the earth and be of the size indicated.
3. Minimum burial depth 36" or as indicated on the drawings, whichever is greater.
4. Re-compact disturbed soils to original density in 6" layers.

P. Duct Bank Ground: A grounding conductor shall be embedded in every duct bank as indicated.

Q. Ground Rods

1. Locations shall be as indicated.
2. Rods forming an individual ground array shall be equal in length.

R. Shield Grounding

1. Shielded instrumentation cable shall have its shield grounded at one end only unless shop drawings indicate the shield will be grounded at both ends.
2. The grounding point shall be at the control panel or otherwise at the receiving end of the signal carried by the cable.
3. Termination of shield drain wire shall be on its own terminal screw.
4. Terminal screws shall be jumpered together using manufactured terminal block jumpers.
5. Connection to the ground bus shall be via a green No. 12 conductor to the main ground bus for the panel.

END OF SECTION

SECTION 16620

STANDBY GENERATOR

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PART 1 - GENERAL

1.01 SCOPE

- A. Provide complete factory assembled one 480 voltage generator set with digital (microprocessor-based) electronic generator set controls, digital governors, and digital voltage regulators.
- B. Provide factory test, startup by a supplier authorized by the equipment manufacturer(s), and on-site testing of the system.
- C. The generator set manufacturer shall warrant all equipment provided under this section, whether or not it is manufactured by the generator set manufacturer, so that there is one source for warranty and product service. Technicians specifically trained and certified by the manufacturer to support the product and employed by the generator set supplier shall service the generator sets.

1.02 RELATED DOCUMENTS

- A. Section 16050 – Electrical Requirements
- B. Section 16070 – Hangers and Supports
- C. Section 16110 – Electrical Raceway Systems
- D. Section 16111 – Underground Raceway Systems
- E. Section 16120 – Wires and Cables
- F. Section 16450 – Grounding
- G. Section 16640 – Automatic Transfer Switch

1.03 CODES AND STANDARDS

- A. The generator set installation and on-site testing shall conform to the requirements of the following codes and standards, as applicable. The generator set shall include necessary features to meet the requirements of these standards.
 - 1. CSA 282, 1989 Emergency Electrical Power Supply for Buildings
 - 2. IEEE446 – Recommended Practice for Emergency and Standby Power Systems
 - 3. NFPA37 – National Fire Protection Association Standard for Installation and Use of Stationary Combustion Engines and Gas Turbines.
 - 4. NFPA70 – National Electrical Code. Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.
 - 5. NFPA99 – Essential Electrical Systems for Health Care Facilities
 - 6. NFPA110 – Emergency and Standby Power Systems. The generator set shall meet all requirements for Level 1 systems. Level 1 prototype tests required by this standard shall have been performed on a complete and functional unit, component level type tests will not substitute for this requirement.
- B. The generator set and supplied accessories shall meet the requirements of the following standards:
 - 1. NEMA MG1. Alternator shall comply with the requirements of the current version this standard as they apply to AC alternators.
 - 2. UL142 – Sub-base Tanks
 - 3. UL1236 – Battery Chargers
 - 4. UL2200. The generator set shall be listed to UL2200 or submit to an independent third party certification process to verify compliance as installed.

- C. The control system for the generator set shall comply with the following requirements.
 - 1. CSA C22.2, No. 14 – M91 Industrial Control Equipment.
 - 2. EN50082-2, Electromagnetic Compatibility – Generic Immunity Requirements, Part 2: Industrial.
 - 3. EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.
 - 4. FCC Part 15, Subpart B.
 - 5. IEC8528 part 4. Control Systems for Generator Sets
 - 6. IEC Std 801.2, 801.3, and 801.5 for susceptibility, conducted, and radiated electromagnetic emissions.
 - 7. UL508. The entire control system of the generator set shall be UL508 listed and labeled.
- D. The generator set manufacturer shall be certified to ISO 9001 International Quality Standard and shall have third party certification verifying quality assurance in design/development, production, installation, and service, in accordance with ISO 9001.

1.04 SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals.
- B. Shop Drawings
 - 1. Detailed, dimensioned shop drawings and data demonstrating adherence to the requirements of these specifications shall be submitted and approved before fabrication, shipment, or other work under this section begins.
 - 2. Certified custom drawings and custom wiring diagrams of each component in the system and a master wiring diagram showing the entire system on one sheet. This diagram shall include all AC and DC power control connections between the generator, engine, fuel tank system, batteries, and circuit breakers and shall be a custom drawing for this specific installation. A master drawing of the engine/generator set shall also be provided, showing general dimensions, bill of materials, location and size of all connections for fuel, cooling, exhaust, direct current connections, conduit locations, and connections for control and power wiring. Include wire and terminal numbers for all diagrams. Furnish KW output curves, fuel consumption curves, and certified air emission data sheets.
 - 3. Outline drawings and connection diagrams shall be complete enough to enable the installation to be designed completely, and connection diagrams shall give both internal and external connections. Include foundation loading and clearances.
 - 4. Certified emission data.

5. Six copies of complete and detailed instructions for the operation, lubrication, and maintenance of equipment in the system. The manuals shall be furnished after final approval of Shop and working drawings but prior to shipment of equipment. Manuals shall be complete with wiring diagrams, lubrication schedules and recommended lubricants, drawings, cuts, parts lists, and other necessary data. All parts shall be numbered or otherwise clearly identified to facilitate ordering of replacements. Descriptions of all operational control devices and their functions shall also be included.

1.05 ACCEPTABLE MANUFACTURERS

- A. Design Basis Manufacturer: Interstate MTU. Other acceptable manufacturers: Cummins/Onan, Kohler, Caterpillar and Generac.
- B. Equipment specifications and associated drawings with field wiring connections for this project are based on generator sets manufactured by Interstate MTU.
- C. Provide any and all additional conduits and wiring necessary for other manufacturer's generator sets at no additional cost to Owner.
- D. Complete compliance with specifications is required.

PART 2 – PRODUCTS

2.01 GENERATOR SET

- A. Ratings
 1. Generator set shall operate at 1800 rpm and at a voltage of: 480 Volts AC, three phase, 4-wire, 60 hertz.
 2. Capacities:
 - a. Rated at 750 kW, 937.5 kVA at 0.8 PF, standby rating, based on site conditions of: Altitude 1000 ft. and ambient temperatures up to 104°F; this generator shall be supplied with a 1600 Amp, Service entrance rated Automatic Transfer Switch as specified in Section 16640 – Automatic Transfer Switch.
 3. The generator set rating shall be based on emergency/standby service.
 4. Furnish generator set with 24 hour sub-base tank along with platforms on both sides and stairs.
 5. Furnish generator set with 1600 AMP service entrance rated NEMA 1 automatic transfer switch. Refer to section 16640 for details.

B. Performance

1. Voltage regulation shall be plus or minus 0.5% for any constant load between no load and rated load for both parallel and non-parallel applications. Random voltage variation with any steady load from no load to full load shall not exceed plus or minus 0.5%.
2. Frequency regulation shall be isochronous from steady state no load to steady state rated load. Random frequency variation with any steady load from no load to full load shall not exceed plus or minus 0.25%.
3. The diesel engine-generator set shall be capable of single step load pick up of 100% nameplate kW and power factor, less applicable derating factors, with the engine-generator set at operating temperature.
4. Motor starting capability shall be a minimum of 1188 Kva at 105 C rise. The generator set shall be capable of sustaining a minimum of 90% of rated no load voltage with the specified kVA load at near zero power factor applied to the generator set.
5. The alternator shall produce a clean AC voltage waveform, with not more than 5% total harmonic distortion at full linear load, when measured from line to neutral, and with not more than 3% in any single harmonic, and no 3rd order harmonics or their multiples. Telephone influence factor shall be less than 40.
6. The generator set shall be certified by the engine manufacturer to be suitable for use at the installed location and rating, and shall meet all applicable exhaust emission requirements at the time of commissioning.
7. The generator set shall share real and reactive load proportionally within plus or minus 3% with all other generator sets in the system.
8. The time required to automatically start, accelerate to rated speed and voltage, synchronize and parallel all generator sets to the system bus on a normal power failure shall not exceed 15 seconds, assuming that the generator sets are in an ambient temperature of 40F or greater, and water jacket heaters are operating properly.

C. Construction

1. The engine-generator set shall be mounted on a heavy-duty steel base to maintain alignment between components. The base shall incorporate a battery tray with hold-down clamps within the rails.
2. All switches, lamps, and meters in the control system shall be oil-tight and dust-tight. There shall be no exposed points in the control (with the door open) that operate in excess of 50 volts.

D. Connections

1. The generator set load connections shall be composed of silver or tin plated copper bus bars, drilled to accept mechanical or compression terminations of the number and type as shown on the drawings. Sufficient lug space shall be provided for use with cables of the number and size as shown on the drawings.

2. Power connections to auxiliary devices shall be made at the devices, with required protection located at a wall-mounted common distribution panel.
3. Generator set control interfaces to other system components shall be made on a common, permanently labeled terminal block assembly.

2.02 ENGINE AND ENGINE EQUIPMENT

- A. The engine shall be diesel, 4 cycle, radiator and fan cooled. inline 6 cylinders with a minimum displacement of 1413 cu. inches. The horsepower rating of the engine at its minimum tolerance level shall be sufficient to drive the alternator and all connected accessories. Two cycle engines are not acceptable.
- B. An electronic governor system shall provide automatic isochronous frequency regulation. The governing system dynamic capabilities shall be controlled as a function of engine coolant temperature to provide fast, stable operation at varying engine operating temperature conditions. The control system shall actively control the fuel rate and excitation as appropriate to the state of the generator set. Fuel rate shall be regulated as a function of starting, accelerating to start disconnect speed, accelerating to rated speed, and operating in various isochronous or parallel states.
- C. Skid-mounted radiator and cooling system rated for full load operation in 104°F. (50°C.) ambient as measured at the generator air inlet, based on 0.5 in H₂O external static head. Radiator shall be sized based on a core temperature which is 20°F higher than the rated operation temperature, or prototype tested to verify cooling performance of the engine/radiator/fan operation in a controlled environment. Radiator shall be provided with a duct adapter flange. The cooling system shall be filled with a 50/50-ethylene glycol/water mixture by the equipment manufacturer. Rotating parts shall be guarded against accidental contact.
- D. Electric starter(s) capable of three complete cranking cycles without overheating.
- E. Positive displacement, mechanical, full pressure, lubrication oil pump.
- F. Full flow lubrication oil filters with replaceable spin-on canister elements and dipstick oil level indicator.
- G. An engine driven, mechanical, positive displacement fuel pump. Fuel filter with replaceable spin-on canister element. Fuel cooler, suitable for operation of the generator set at full rated load in the ambient temperature specified shall be provided if required for operation due to the design of the engine and the installation.
- H. Replaceable dry element air cleaner with restriction indicator.

- I. Flexible supply and return fuel lines.
- J. Engine mounted battery charging alternator, 40-amp. minimum, and solid-state voltage regulator.
- K. Coolant Heater
 - 1. Engine mounted, thermostatically controlled, coolant heater. Heater voltage shall be 208 volt/1 phase. The coolant heater shall be UL499 listed and labeled; heater shall be factory wired to control panel (furnished and installed by manufacturer).
 - 2. The coolant heater shall be installed on the engine with high temperature silicone hose connections. Steel tubing shall be used for connections into the engine coolant system wherever the length of pipe run exceeds 12". The coolant heater installation shall be specifically designed to provide proper venting of the system. The coolant heaters shall be installed using quick disconnect couplers to isolate the heater for replacement of the heater element. The quick disconnect/automatic sealing couplers shall allow the heater element to be replaced without draining the engine cooling system or significant coolant loss.
 - 3. The coolant heater shall be provided with a 24VDC thermostat, installed at the engine thermostat housing. An AC power connection box shall be provided for a single AC power connection to the coolant heater system.
 - 4. The coolant heater(s) shall be sized as recommended by the engine manufacturer to warm the engine to a minimum of 100°F. (40°C.) in a 40°F. ambient, in compliance with NFPA110 requirements, or the temperature required for starting and load pickup requirements of this specification.
- L. Provide vibration isolators, spring/pad type, quantity as recommended by the generator set manufacturer. Isolators shall include seismic restraints if required by site location.
- M. Starting and Control Batteries shall be calcium/lead antimony type, 24-volt DC, sized as recommended by the engine manufacturer, complete with battery cables and connectors.
- N. Provide an engine exhaust silencer of size and type as recommended by the generator set manufacturer and approved by the engine manufacturer. The mufflers shall be critical grade. Exhaust system shall be installed inside the genset enclosure according to the engine manufacturer's recommendations and applicable codes and standards.
- O. A UL listed/CSA certified 10 amp. voltage regulated battery charger shall be provided for each engine-generator set. The charger will be wall mounted inside the sound attenuated genset enclosure. Input AC voltage shall be 120 VAC and DC output voltage shall be 24 VDC. Chargers shall be equipped with float, taper and equalize charge settings. Operational monitors shall provide visual output along with individual form C contacts rated at 4 amps, 120 FAC, 30VDC for remote indication of:

1. Loss of AC power - red light.
2. Low battery voltage - red light.
3. High Battery voltage - red light.
4. Power ON - green light (no relay contact).

Charger shall include an Analog DC voltmeter and ammeter, 12 hour equalize charge timer, and AC and DC fuses.

2.03 AC GENERATOR

- A. The AC alternator shall be; synchronous, four pole, 2/3 pitch, revolving field, drip-proof construction, single pre-lubricated re-greasable bearing, air cooled by a direct drive centrifugal blower fan, and directly connected to the engine with flexible drive disc. All insulation system components shall meet NEMA MG1 temperature limits for Class F insulation system. Actual temperature rise measured by resistance method at full load shall not exceed 80° Centigrade.
- B. The alternator shall be capable of delivering rated output (kVA) at rated frequency and power factor, at any voltage not more than 5% above or below rated voltage.
- C. A permanent magnet generator (PMG) shall be included to provide a reliable source of excitation power for optimum motor starting and short circuit performance. The PMG and controls shall be capable of sustaining and regulating current supplied to a single phase or three phase fault at approximately 300% of rated current for not more than 10 seconds.
- D. Provide two embedded resistance temperature detectors per phase and temperature indication equipment. The control system shall annunciate high alternator temperature as a fault condition.
- E. Provide anti-condensation heater for the alternator.
- F. The subtransient reactance of the alternator shall not exceed 12%, based on the standby rating of the generator set.
- G. The alternator shall be capable of operation with at least 0.15 per unit reverse kVAR.

2.04 GENERATOR SET CONTROL

- A. Generator Set Control. The generator set shall be provided with a microprocessor-based control system that is designed to provide automatic starting, monitoring, and control functions for the generator set. The control system shall also be designed to allow local

monitoring and control of the generator set, and remote monitoring and control as described in this specification.

1. The control shall be mounted on the generator set. The control shall be vibration isolated and prototype tested to verify the durability of all components in the system under the vibration conditions encountered.

B. Control Switches.

1. Mode Select Switch. The mode select switch shall initiate the following control modes. When in the RUN or Manual position the generator set shall start, and accelerate to rated speed and voltage as directed by the operator. In the OFF position the generator set shall immediately stop, bypassing all time delays. In the AUTO position the generator set shall be ready to accept a signal from a remote device to start and accelerate to rated speed and voltage.
2. EMERGENCY STOP switch. Switch shall be Red "mushroom-head" push-button. Depressing the emergency stop switch shall cause the generator set to immediately shut down, and be locked out from automatic restarting.
3. RESET switch. The RESET switch shall be used to clear a fault and allow restarting the generator set after it has shut down for any fault condition.
4. PANEL LAMP switch. Depressing the panel lamp switch shall cause the entire panel to be lighted with DC control power. The panel lamps shall automatically be switched off 10 minutes after the switch is depressed, or after the switch is depressed a second time.

C. Generator Set AC Output Metering. The generator set shall be provided with a metering set including the following features and functions:

1. Analog voltmeter, ammeter, frequency meter, and kilowatt (KW) meter. Voltmeter and ammeter shall display all three phases. Ammeter and KW meter scales shall be color coded in the following fashion: readings from 0-90% of generator set standby rating: green; readings from 90-100% of standby rating: amber; readings in excess of 100%: red.
2. Digital metering set, 1% accuracy, to indicate generator RMS voltage and current, frequency, output current, output KW, KW-hours, and power factor. Generator output voltage shall be available in line-to-line and line-to-neutral voltages, and shall display all three phase voltages (line to neutral or line to line) simultaneously.
3. Both analog and digital metering are required. The analog and digital metering equipment shall be driven by a single microprocessor, to provide consistent readings and performance.

D. Generator Set Alarm and Status Display.

1. The generator set shall be provided with alarm and status indicating lamps to indicate non-automatic generator status, and existing warning and shutdown conditions. The lamps shall be high-intensity LED type. The lamp condition shall be clearly apparent under bright room lighting conditions. The generator set control

shall indicate the existence of the following alarm and shutdown conditions on an alphanumeric digital display panel:

- low oil pressure (alarm)
- low oil pressure (shutdown)
- oil pressure sender failure (alarm)
- low coolant temperature (alarm)
- high coolant temperature (alarm)
- high coolant temperature (shutdown)
- engine temperature sender failure (alarm)
- low coolant level (alarm or shutdown--selectable)
- fail to crank (shutdown)
- fail to start/overcrank (shutdown)
- overspeed (shutdown)
- low DC voltage (alarm)
- high DC voltage (alarm)
- weak battery (alarm)
- low fuel-daytank (alarm)
- high AC voltage (shutdown)
- low AC voltage (shutdown)
- under frequency (shutdown)
- over current (warning)
- over current (shutdown)
- short circuit (shutdown)
- ground fault (alarm) overload (alarm)
- emergency stop (shutdown)

In addition, the control shall display all warning and shutdown messages produced by the electronic engine control module, if used.

2. Provisions shall be made for indication of four customer-specified alarm or shutdown conditions. Labeling of the customer-specified alarm or shutdown conditions shall be of the same type and quality as the above specified conditions. The non-automatic indicating lamp shall be red, and shall flash to indicate that the generator set is not able to automatically respond to a command to start from a remote location.

E. Engine Status Monitoring.

1. The following information shall be available from a digital status panel on the generator set control:
 - engine oil pressure (psi or kPA)
 - engine coolant temperature (degrees F. or C.)

engine oil temperature (degrees F. or C.)

engine speed (rpm)

number of hours of operation (hours)

number of start attempts

battery voltage (DC volts)

2. The control system shall also incorporate a data logging and display provision to allow logging of the last 10 warning or shutdown indications on the generator set, as well as total time of operation at various loads, as a percent of the standby rating of the generator set.

F. Engine Control Functions.

1. The control system provided shall include a cycle cranking system, which allows for user selected crank time, rest time, and # of cycles. Initial settings shall be for 3 cranking periods of 15 seconds each, with 15-second rest period between cranking periods.
2. The control system shall include an idle mode control, which allows the engine to run in idle mode in the RUN position only. In this mode, the alternator excitation system shall be disabled.
3. The control system shall include an engine governor control, which functions to provide steady state frequency regulation as noted elsewhere in this specification. The governor control shall include adjustments for gain, damping, and a ramping function to control engine speed and limit exhaust smoke while the unit is starting. The governor control shall be suitable for use in paralleling applications without component changes.
4. The control system shall include time delay start (adjustable 0-300 seconds) and time delay stop (adjustable 0-600 seconds) functions.
5. The control system shall include sender failure monitoring logic for speed sensing, oil pressure, and engine temperature which is capable of discriminating between failed sender or wiring components, and an actual failure conditions.
6. The control system shall include all interfaces necessary for proper operation with the paralleling equipment provided under this contract. The generator set supplier shall be responsible for complete compliance to all specification requirements for both the generator set and the paralleling equipment.

G. Alternator Control Functions:

1. The generator set shall include an automatic digital voltage regulation system that is matched and prototype tested by the engine manufacturer with the governing system provided. It shall be immune from mis-operation due to load-induced voltage waveform distortion and provide a pulse width modulated output to the alternator exciter. The voltage regulator shall be full wave rectified design. The voltage regulation system shall be equipped with three-phase RMS sensing and shall control buildup of AC generator voltage to provide a linear rise and limit overshoot. The system shall include a torque-matching characteristic, which shall reduce output

voltage in proportion to frequency below a threshold of [58-59] HZ. The voltage regulator shall include adjustments for gain, damping, and frequency roll-off. Adjustments shall be broad range, and made via digital raise-lower switches, with an alphanumeric LED readout to indicate setting level. Rotary potentiometers for system adjustments are not acceptable.

2. Controls shall be provided to monitor the output current of the generator set and initiate an alarm (over current warning) when load current exceeds 110% of the rated current of the generator set on any phase for more than 60 seconds. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (over current shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445. Performance of this function shall be 3rd party certified.
3. Controls shall be provided to individually monitor all three phases of the output current for short circuit conditions. The control/protection system shall monitor the current level and voltage. The controls shall shut down and lock out the generator set when output current level approaches the thermal damage point of the alternator (short circuit shutdown). The protective functions provided shall be in compliance to the requirements of NFPA70 article 445. Performance of this function shall be 3rd party certified.
4. Controls shall be provided to monitor the KW load on the generator set, and initiate an alarm condition (over load) when total load on the generator set exceeds the generator set rating for in excess of 5 seconds. Controls shall include a load shed control, to operate a set of dry contacts (for use in shedding customer load devices) when the generator set is overloaded.
5. A line to neutral AC over/under voltage monitoring system that responds only to true RMS voltage conditions shall be provided. The system shall initiate shutdown of the generator set when alternator output voltage exceeds 110% of the operator-set voltage level for more than 10 seconds, or with no intentional delay when voltage exceeds 130%. Under voltage shutdown shall occur when the output voltage of the alternator is less than 85% for more than 10 seconds.
6. A battery monitoring system shall be provided which initiates alarms when the DC control and starting voltage is less than 25VDC or more than 32 VDC. During engine cranking (starter engaged), the low voltage limit shall be disabled, and if DC voltage drops to less than 14.4 volts for more than two seconds a "weak battery" alarm shall be initiated.
7. The control System shall include a ground fault monitoring relay. The relay shall be adjustable from 3.8-16200 amps, and include adjustable time delay of 0-10.0 seconds. The relay shall be for indication only, and not trip or shut down the generator set. Note bonding and grounding requirements for the generator set, and provide relay that will function correctly in system as installed.
8. The voltage regulation system shall include provisions for reactive load sharing and electronic voltage matching for paralleling applications. Motorized voltage adjust pot is not acceptable for voltage matching.

- H. The generator set shall be provided with a network communication module to allow Modbus TCP/IP compliant communication with the generator set control by remote devices. The control shall communicate all engine and alternator data.
- I. The generator set shall be provided with a 3 pole, genset mounted main line circuit breaker of size indicated on the plans. The circuit breaker shall incorporate an electronic trip unit that operates to protect the alternator under all overcurrent conditions, or a thermal-magnetic trip with other overcurrent protection devices that positively protect the alternator under overcurrent conditions. The supplier shall submit time overcurrent characteristic curves and thermal damage curve for the alternator, demonstrating the effectiveness of the protection provided. Alternator overcurrent protection that is integrated into the genset mounted paralleling control is also acceptable. A 24 volt shunt trip, aux and trip contacts shall also be included.
- J. Control Interfaces for Remote Monitoring:
 - 1. All control and interconnection points from the generator set to remote components shall be brought to a separate connection box. No field connections shall be made in the control enclosure or in the AC power output enclosure. Provide the following features in the control system:
 - 2. Form "C" dry common alarm contact set rated 2A @ 30VDC to indicate existence of any alarm or shutdown condition on the generator set.
 - 3. One set of contacts rated 2A @ 30VDC to indicate generator set is ready to load. The contacts shall operate when voltage and frequency are greater than 90% of rated condition.
 - 4. A fused 10 amp switched 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit whenever the generator set is running.
 - 5. A fused 20 amp 24VDC power supply circuit shall be provided for customer use. DC power shall be available from this circuit at all times from the engine starting/control batteries.
 - 6. The control shall be provided with a direct serial communication link for the LonWorks communication network interface as described elsewhere in this specification and shown on the drawings.
- K. Provide engine mounted Onan/Cummins Power Command 2.2, or equal Control System unit HMI 220 or equal, Power Command Human Machine Interface.

2.05 OUTDOOR WEATHER-PROTECTIVE ENCLOSURE

- A. The generator set shall be provided with a steel outdoor enclosure with sound attenuation level of 2 (super quiet), with the entire package listed under UL2200. The package shall comply with the requirements of the National Electrical Code for all wiring materials and component spacing. Provide sound barrier skid bottom for additional soundproofing. The total assembly of generator set, enclosure shall be designed to be lifted into place using spreader bars. Housing shall provide ample airflow for generator set operation at rated load in an ambient temperature of 100°F. The housing shall have hinged access doors as required to maintain easy access for all operating and service functions. All doors shall be lockable, and include retainers to hold the door open during service. Enclosure roof shall be cambered to prevent rainwater accumulation. Openings shall be screened to limit access of rodents into the enclosure. All electrical power and control interconnections shall be made within the perimeter of the enclosure.
- B. All sheet metal shall be primed for corrosion protection and finish painted with the manufacturer's standard color using a 2-step electro coating paint process, or equal meeting the performance requirements specified below. All surfaces of all metal parts shall be primed and painted.
 - 1. Painting of hoses, clamps, wiring harnesses, and other non-metallic service parts shall not be acceptable. Fasteners used shall be corrosion resistant, and designed to minimize marring of the painted surface when removed for normal installation or service work.
 - 2. Enclosure shall be constructed of minimum 12 gauge steel for framework and 14 gauge steel for panels. All hardware and hinges shall be stainless steel.
 - 3. A factory-mounted critical grade exhaust silencer shall be installed inside the enclosure. The exhaust shall exit the enclosure through a rain collar and terminate with a rain cap. Exhaust connections to the generator set shall be through seamless flexible connections.
 - 4. Provide flexible coolant and lubricating oil drain lines that extend to the exterior of the enclosure, with internal drain valves and External radiator fill provision.
 - 5. The generator set shall be provided with a sound-attenuated housing which allows the generator set to operate at full rated load in an ambient temperature of up to 100°F.
 - 6. The enclosure shall be insulated with non-hygroscopic materials.
 - 7. Engine-Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 100 percent of rated load for two hours with ambient temperature at top of range specified in system service conditions.
 - a. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.
 - b. Ventilation: Provide temperature-controlled exhaust fan interlocked to prevent operation when engine is running.

8. Space heater: thermostatically controlled and sized to prevent condensation.
9. All fuel oil piping shall be installed within the enclosure and all vent piping shall be extended up inside enclosure and terminated with vent caps.

C. Fuel Tank

1. Provide a sub-base fuel tank for the generator set, sized to allow for full load operation for a minimum of 72 hours operation of the generator set. The sub-base fuel tank shall be UL142 listed and labeled. Installation shall be in compliance to NFPA37. The fuel tank shall be a double-walled, steel construction and include the following features:
 - a. Emergency tank and basin vents.
 - b. Mechanical level gauge.
 - c. Fuel supply and return lines, connected to generator set with flexible fuel lines as recommended by the engine manufacturer and in compliance to UL2200 and NFPA 37 requirements.
 - d. Leak detection provisions, wired to the generator set control for local and remote alarm indication.
 - e. High and low level float switches to indicate fuel level. Wire switches to generator control for local and remote indication of fuel level
 - f. Basin drain.
 - g. Integral lifting provisions.
 - h. Fuel fill port shall be within 6" of the edge of the enclosure and shall be easily accessible.

D. Remote Display and Alarm Panel: An LED indicator light labeled with proper alarm conditions shall identify each alarm event, and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.

1. Overcrank alarm.
2. Low water temperature alarm.
3. High engine temperature prealarm.
4. High engine temperature alarm.
5. Low lube oil pressure alarm.
6. Overspeed alarm.
7. Low-fuel main tank alarm.
8. Low coolant level alarm.
9. Low-cranking voltage alarm.
10. Contacts for local and remote common alarm.
11. Audible-alarm silencing switch.
12. Run-Off-Auto switch.
13. Control switch not in automatic position alarm.

14. Fuel tank derangement alarm.
15. Fuel tank high-level shutdown of fuel-supply alarm.
16. Lamp test.
17. Low-cranking voltage alarm.
18. Generator overcurrent protective device not closed alarm.
19. Remote panel shall be powered by Engine-Generator battery

D. Generator Access Platforms and stairs

1. Provide 48" wide full length platforms and stairs on both sides for access to control panel and engine.
2. Platform grating and members shall be constructed of aluminum and aluminum handrails shall be provided as required. Platform shall extend the entire length of the generator and on the side with the control panel and shall be a minimum of 3' deep and deep enough to fully open the enclosure doors.
3. Submit design drawings for review by engineer.

2.06 ACCESSORIES

- A. Battery charger.
- B. Emergency stop button installed on the exterior of enclosure near electrical panel.
- C. Vibration isolation devices.

2.07 SPARE PARTS

- A. Furnish four sets of the following spare parts shall be furnished:
 1. Air filters.
 2. Oil filters.
 3. Fuel filters

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Equipment shall be installed by the contractor in accordance with final submittals and contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.

- B. Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with manufacturer's instructions and seismic requirements of the site.
- C. Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The contractor shall also perform interconnecting wiring between equipment sections, under the supervision of the equipment supplier.
- D. In addition to the wiring and conduit shown on the drawings, provide any additional inter connection wiring and conduits as required for proper operation in accordance manufacturer's control wiring diagrams.
- E. Equipment shall be initially started and operated by representatives of the manufacturer.
- F. All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to final testing of the system.

3.02 SEQUENCE OF OPERATION

- A. Generator set shall start on receipt of a start signal from remote equipment. The start signal shall be via hardwired connection to the generator set control. The generator set shall complete a time delay start period as programmed into the control.
- B. The generator set control shall initiate the starting sequence for the generator set. The starting sequence shall include the following functions:
 - 1. The control system shall verify that the engine is rotating when the starter is signaled to operate. If the engine does not rotate after two attempts, the control system shall shut down and lock out the generator set, and indicate "fail to crank" shutdown.
 - 2. The engine shall fire and accelerate as quickly as practical to start disconnect speed. If the engine does not start, it shall complete a cycle cranking process as described elsewhere in this specification. If the engine has not started by the completion of the cycle cranking sequence, it shall be shut down and locked out, and the control system shall indicate "fail to start".
 - 3. The engine shall accelerate to rated speed and the alternator to rated voltage. Excitation shall be disabled until the engine has exceeded programmed idle speed, and regulated to prevent over voltage conditions and oscillation as the engine accelerates and the alternator builds to rated voltage.

- C. On reaching rated speed and voltage, the generator set shall operate as dictated by the control system in isochronous, synchronize, load share, load demand, or load govern state.
- D. When all start signals have been removed from the generator set, it shall complete a time delay stop sequence. The duration of the time delay stop period shall be adjustable by the operator.
- E. On completion of the time delay stop period, the generator set control shall switch off the excitation system and shall shut down.
 - 1. Any start signal received after the time stop sequence has begun shall immediately terminate the stopping sequence and return the generator set to isochronous operation.

3.03 FACTORY TESTING

- A. The generator set supplier shall perform a complete operational test on the generator set prior to shipping from the factory. A certified test report shall be provided. Equipment supplied shall be fully tested at the factory for function and performance.
- B. Generator set factory tests on the equipment shall be performed at rated load and rated power factor. Generator sets that have not been factory tested at rated power factor will not be acceptable. Tests shall include: run at full load, maximum power, voltage regulation, transient and steady-state governing, single step load pickup, and function of safety shutdowns.

3.04 ON-SITE ACCEPTANCE TEST

- A. The complete installation shall be tested for compliance with the specification following completion of all site work. Testing shall be conducted by representatives of the manufacturer, with required fuel supplied by Contractor. The Engineer shall be notified in advance and shall have the option to witness the tests.
- B. Installation acceptance tests to be conducted on-site shall include a "cold start" test, a two hour full load test, and a one step rated load pickup test in accordance with NFPA 110. Provide a resistive load bank and make temporary connections for full load test, if necessary.
- C. Perform a power failure test on the entire installed system. This test shall be conducted by opening the power supply from the utility service, and observing proper operation of the system for at least 2 hours. Coordinate timing and obtain approval for start of test with site personnel.

- D. Provide fuel required for on-site test and furnish full tank of fuel after the acceptance test.

3.05 TRAINING

- A. The equipment supplier shall provide training for the facility operating personnel covering operation and maintenance of the equipment provided. The training program shall be not less than 8 hours in duration. Training date shall be coordinated with the facility owner.

3.06 SERVICE AND SUPPORT

- A. The manufacturer of the generator set shall maintain service parts inventory at a central location which is accessible to the service location 24 hours per day, 365 days per year.
- B. The generator set shall be serviced by a local service organization that is trained and factory certified in generator set service. The supplier shall maintain an inventory of critical replacement parts at the local service organization, and in service vehicles. The service organization shall be on call 24 hours per day, 365 days per year.
- C. The manufacturer shall maintain model and serial number records of each generator set provided for at least 20 years.

3.07 WARRANTY

- A. The generator set and associated equipment shall be warranted for a period of not less than 5 years from the date of commissioning against defects in materials and workmanship.
- B. The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, etc.

END OF SECTION

SECTION 16640

AUTOMATIC TRANSFER SWITCH

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PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Provide 1600A/480V/3 phase/4 wire, service entrance rated open transition NEMA 3R rated automatic transfer switch in accordance with drawings and specifications.

1.02 RELATED DOCUMENTS

- A. Section 16050 – Electrical Requirements
- B. Section 16070 – Hangers and Supports
- C. Section 16110 – Electrical Raceway Systems
- D. Section 16111 – Underground Raceway Systems
- E. Section 16120 – Wires and Cables

F. Section 16450 – Grounding

I. Section 16620 – Standby Generator

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
 - 1. Technical data on all major components of transfer switches and other products described in this section. Data is required for the transfer switch mechanism, control system, cabinet, and protective devices specifically listed for use with each transfer switch. Include steady state and fault current ratings, weights, operating characteristics, and furnished specialties and accessories.
 - 2. Single Line Diagram: Show connections between transfer switch, power sources and load.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
 - 1. Dimensioned outline drawings of assembly, including elevations, sections, and details including minimal clearances, conductor entry provisions, gutter space, installed features and devices and material lists for each switch specified.
 - 2. Internal electrical wiring and control drawings.
 - 3. Interconnection wiring diagrams, showing recommended conduit runs and point-to-point terminal connections to generator set.
 - 4. Installation and mounting instructions, including information for proper installation of equipment to meet seismic requirements.
- C. Manufacturer and Supplier Qualification Data
 - 1. The transfer switch manufacturer shall be certified to ISO 9001 International Quality Standard and shall have third party certification verifying quality assurance in design/development, production, installation, and service, in accordance with ISO 9001.
 - 2. The manufacturer of this equipment shall have produced similar equipment for a minimum period of 10 years. When requested, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- D. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
 - 1. Features and operating sequences, both automatic and manual.
 - 2. List of all factory settings of relays, timers and protective devices; provide setting and calibration instructions where applicable.

- E. Warranty documents demonstrating compliance with the project's contract requirements.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The equipment supplier shall maintain a service center capable of providing training, parts, maintenance and emergency repairs to equipment, including transfer switch generator sets and remote monitoring equipment (if applicable) at the site within a response period of less than (eight hours or appropriate time period designated for Project) from time of notification.
 - 1. The transfer switch shall be serviced by technicians employed by, and specially trained and certified by, the generator set supplier and the supplier shall have a service organization that is factory-certified in both generator set and transfer switch service. The supplier shall maintain an inventory of critical replacement parts at the local service organization, and in service vehicles. The service organization shall be on call 24 hours per day, 365 days per year.
 - 2. Submit names, experience level, training certifications, and locations for technicians that will be responsible for servicing equipment at this site.
 - 3. The manufacturer shall maintain model and serial number records of each transfer switch provided for at least 20 years.
- B. Source Limitations: All transfer switches are to be obtained through one source from a single manufacturer. The generator set manufacturer shall warrant transfer switches to provide a single source of responsibility for products provided.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked as suitable for use in emergency, legally required or optional standby use as appropriate for the connected load.
- D. The automatic transfer switch installation and application shall conform to the requirements of the following codes and standards:
 - 1. Transfer switches and enclosures shall be UL 1008 listed and labeled as suitable for use in emergency, legally required, and optional standby applications.
 - 2. CSA 282, Emergency Electrical Power Supply for Buildings, and CSA C22.2, No. 14-M91 Industrial Control Equipment.
 - 3. NFPA 70, National Electrical Code. Equipment shall be suitable for use in systems in compliance with Articles 700, 701 and 702.
 - 4. Comply with NEMA ICS 10-1993 AC Automatic Transfer Switches.
 - 5. IEEE 446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications.
- F. Comply with NFPA 110 – Emergency and Standby Power Systems. The transfer switch shall meet all requirements for Level 1 systems, regardless of the actual circuit level.

- G. The manufacturer shall warrant the material and workmanship of the transfer switch equipment for a minimum of five (5) year from the warranty start date.

1.05 COORDINATION

- A. Size and location of concrete bases and anchor bolt inserts shall be coordinated. Concrete, reinforcement and formwork must meet the requirements specified in Division 03. See section "INSTALLATION" for additional information on installation.

PART 2 - PRODUCTS

2.01 MANUFACTURER AND MODEL NUMBER

- A. Manufacturer and Model Number:
 - 1. ASCO # G03AUSA31600NGXC, Service Entrance Rated 1600 AMP, NEMA 3R rated.
- B. Transfer switches utilizing molded case circuit breakers do not meet the requirements of this specification and will not be accepted.

2.02 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

- A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer.
- B. Fault-Current Closing and Withstand Ratings: UL 1008 WCR ratings must be specifically listed as meeting the requirements for use with protective devices at installation locations, under specified fault conditions. Withstand and closing ratings shall be based on use of the same set of contacts for the withstand test and the closing test. A minimum Fault Current Rating of 65kA must be supplied.
- C. Solid-State Controls: All settings should be accurate to +/- 2% or better over an operating temperature range of - 40 to + 60°C. (- 40 to + 140°F.).
- D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- E. Electrical Operation: Accomplished by a non-fused, momentarily energized solenoid or electric motor operator mechanism, mechanically and electrically interlocked in both directions (except that mechanical interlock is not required for closed transition switches).

- F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
 - 1. Switches using molded-case switches or circuit breakers, or insulated case circuit breaker components are not acceptable.
 - 1. Transfer switches shall be double-throw, electrically and mechanically interlocked, and mechanically held in the Source 1 and Source 2 positions.
 - 2. Main switch contacts shall be high pressure silver alloy. Contact assemblies shall have arc chutes for positive arc extinguishing. Arc chutes shall have insulating covers to prevent inter-phase flashover.
 - 3. Contacts shall be operated by a high-speed electrical mechanism that causes contacts to open or close within three electrical cycles from signal.
 - 4. The power transfer mechanism shall include provisions for manual operation under load with the enclosure door closed. Manual operation may be electromechanical or mechanical, but must be coordinated with control function.
 - 5. Transfer switch shall be provided with flame retardant transparent covers to allow viewing of switch contact operation but prevent direct contact with components that could be operating at line voltage levels.
 - 6. The transfer switch shall include the mechanical and control provisions necessary to allow the device to be field-configured for operating speed. Transfer switch operation with motor loads shall be as is recommended in NEMA MG1.
 - a. Phase angle monitoring/timing equipment is not an acceptable substitute for this functionality.
- G. Control: Transfer switch control shall be capable of communicating with the genset control, other switches and remote programming devices over a high-speed network interface.
- H. Factory wiring: Transfer switch internal wiring shall be composed of pre-manufactured harnesses that are permanently marked for source and destination. Harnesses shall be connected to the control system by means of locking disconnect plug(s), to allow the control system to be easily disconnected and serviced without disconnecting power from the transfer switch mechanism.
- I. Terminals: Terminals shall be pressure type and appropriate for all field wiring. Control wiring shall be equipped with suitable lugs, for connection to terminal strips.
- J. Enclosures: All enclosures shall be third-party certified for compliance to NEMA ICS 6 and UL 508, unless otherwise indicated:
 - 1. The enclosure shall provide wire bend space in compliance to the latest version of NFPA70, regardless of the direction from which the conduit enters the enclosure.
 - 2. Exterior cabinet doors shall provide complete protection for the system's internal components. Doors must have permanently mounted key-type latches. Bolted covers or doors are not acceptable.
 - 3. Transfer switches shall be provided in enclosures that are third party certified for their intended environment per NEMA requirements.

- a. Transfer switches mounted in a controlled indoor environment shall be provided in NEMA Type 1 enclosures (IEC type IP30).

2.03 AUTOMATIC TRANSFER SWITCH

- A. Comply with requirements for Level 1 equipment according to NFPA 110.
- B. Indicated current ratings:
 - 1. Refer to the Project drawings for specifications on the sizes and types of transfer switch equipment, withstand and closing ratings, number of poles, voltage and ampere ratings, enclosure type, and accessories.
 - 2. Main contacts shall be rated for 600 VAC minimum.
 - 3. Transfer switches shall be rated to carry 100% of rated current continuously in the enclosure supplied, in ambient temperatures of -40 to +60°C. (-40 to +140° F.), relative humidity up to 95% (non-condensing), and altitudes up to 10,000' (3000 meters).
- C. Manual Switch Operation: The power transfer mechanism shall include provisions for manual operation under load with the enclosure door closed. Manual operation may be electromechanical or mechanical, but must be coordinated with control function.
- D. Relay Signal: Control shall include provisions for addition of a pre-transfer relay signal, adjustable from 0 to 60 seconds, to be provided if necessary for elevator operation, based on equipment provided for the project.
- E. Control: Transfer switch control shall be provided with necessary equipment and software to communicate with the genset control, other transfer switches, remote annunciation equipment, and other devices over a high speed control network.
- F. Transfer switches that are designated on the drawings as 3-pole shall be provided with a neutral bus and lugs. The neutral bus shall be sized to carry 100% of the current designated on the switch rating.
- H. Automatic Transfer Switch Control Features
 - 1. The transfer switch control system shall be configurable in the field for any operating voltage level up to 600 VAC. Voltage sensing shall be monitored based on the normal voltage at the site. Systems that utilize voltage monitoring based on standard voltage conditions that are not field configurable are not acceptable.
 - 2. All transfer switch sensing shall be configurable from an operator panel or from a Windows 10/11. Designs utilizing DIP switches or other electromechanical devices are not acceptable.
 - 3. The transfer switch shall be configurable to accept a relay contact signal and a network signal from an external device to prevent transfer to the generator service.

4. The transfer switch shall provide a relay contact signal prior to transfer or re-transfer. The time period before and after transfer shall be adjustable in a range of 0 to 60 seconds.
 5. The control system shall be designed and prototype tested for operation in ambient temperatures from - 40°C. to + 60°C. (- 40 to +140°F.). It shall be designed and tested to comply with the requirements of the noted voltage and RFI/EMI standards.
 6. The control shall have optically isolated logic inputs, high isolation transformers for AC inputs and relays on all outputs, to provide optimum protection from line voltage surges, RFI and EMI.
- I. Transfer Switch Control Panel: The transfer switch shall have a microprocessor-based control with a sealed membrane panel incorporating pushbuttons for operator-controlled functions, and LED lamps for system status indicators. The panel shall also include an alphanumeric display for detailed system information. Panel display and indicating lamps shall include permanent labels.
1. The indicator panel LEDs shall display:
 - a. Which source the load is connected to (Source 1 or Source 2).
 - b. Which source or sources are available.
 - c. When switch is not set for automatic operation, the control is disabled.
 - d. When the switch is in test/exercise mode.
 2. The indicator shall have pushbuttons that allow the operator to activate the following functions:
 - a. Activate pre-programmed test sequence.
 - b. Override programmed delays, and immediately go to the next operation.
 - c. Reset the control by clearing any faults.
 - d. Test all of the LEDs by lighting them simultaneously.
 3. The alphanumeric digital display shall be vacuum fluorescent-type, clearly visible in both bright sunlight and no-light conditions over an angle of 120°, and shall display the following:
 - a. AC voltage for all phases, normal and emergency.
 - b. Source status: connected or not connected.
 4. The display panel shall be password-protected, and allow the operator to view and make adjustments:
 - a. Set nominal voltage and frequency for the transfer switch.
 - b. Adjust voltage and frequency sensor operation set points.
 - c. Set up time clock functions.
 - d. Set up load sequence functions.
 - e. Enable or disable control functions including program transition.
 - f. View real-time clock data, operation log (hours connected, times transferred, failures) and service history.
- J. Control Functions: Functions managed by the control shall include:
1. Software adjustable time delays:
 - a. Engine start (prevents nuisance genset starts in the event of momentary power fluctuation): 0 to 120 seconds (default 3 sec).

- b. Transfer normal to emergency (allows genset to stabilize before load is transferred): 0 to 120 seconds (default 3 sec).
 - c. Re-transfer emergency to normal (allows utility to stabilize before load is transferred from genset): 0 to 30 minutes (default 3 sec).
 - d. Engine cooldown: 0 to 30 minutes (default 10 min).
 - e. Programmed transition: 0 to 60 seconds (default 3 sec).
 - 2. Undervoltage sensing: three-phase normal, 3-phase emergency source.
 - a. Pickup: 85 to 98% of nominal voltage (default 90%).
 - b. Dropout: 75 to 98% of nominal voltage (default 90%).
 - c. Dropout time delay: 0.1 to 1.0 seconds (default 0.5 sec).
 - d. Accurate to within +/- 2% of nominal voltage.
 - 3. Over-voltage sensing: three-phase normal, three-phase emergency source.
 - a. Pickup: 95 to 99% of dropout setting (default 95%).
 - b. Dropout: 105 to 135% of nominal voltage (default 110%).
 - c. Dropout time delay: 0.5 to 120 seconds (default 3 sec).
 - d. Accurate to within +/- 2% of nominal voltage.
 - 4. Over/under frequency sensing:
 - a. Pickup: +/- 5 to +/-20% of nominal frequency (default 10%).
 - b. Dropout: +/-1% beyond pickup (default 1%).
 - c. Dropout time delay: 0.1 to 15.0 seconds (default 5 sec).
 - d. Accurate to within +/- 0.05 Hz.
 - 5. Voltage imbalance sensing:
 - a. Dropout: 2 to 10% (default 4%).
 - b. Pickup: 90% of dropout.
 - c. Time delay: 2.0 to 20 seconds (default 5 sec).
 - 6. Phase rotation sensing:
 - a. Time delay: 100 msec.
 - 7. Loss of single-phase detection.
- K. Control features shall include:
- 1. Programmable genset exerciser: A field-programmable control shall periodically start and run the generator with or without transferring the load for a preset time period, then re-transfer and shut down the generator after a preset cool-down period.
 - 2. In event of a loss of power to the control, all control settings, real-time clock setting and the engine start-time delay setting will be retained.
 - 3. The system continuously logs information including the number of hours each source has been connected to the load, the number of times transferred, and the total number of times each source has failed. An event recorder stores information, including time and date-stamp, for up to 50 events.
 - 4. Re-Transfer Inhibit Switch: Inhibits automatic re-transfer control so automatic transfer switch will remain connected to emergency power source as long as it is available regardless of condition of normal source.

5. Transfer Inhibit Switch: Inhibits automatic transfer control so automatic transfer switch will remain connected to normal power source regardless of condition of emergency source.

L. Control Interface

1. Provide one set Form C auxiliary contacts on both sides, operated by transfer switch position, rated 10 amps 250 VAC.

M. Engine Starting Contacts

1. One isolated and normally closed pair of contacts rated 10A at 32 VDC minimum.

2.04 ACCESSORIES

- A. Battery charger.

- B. Quad Ethernet communication module.

PART 3- EXECUTION

3.01 INSTALLATION

- A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details. See Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- B. Floor-Mounting Switch: Anchor to floor by bolting.
1. Floor-mounted transfer switches shall be mounted on concrete pad.
- C. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.02 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.
- B. Field control connections shall be made on a common terminal block that is clearly and permanently labeled.
- C. Transfer switch shall be provided with AL/CU mechanical lugs sized to accept the full output rating of the switch. Lugs shall be suitable for the number and size of conductors shown on the drawings.

- D. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems".
- E. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables".

3.03 SOURCE QUALITY CONTROL

- A. Prior to shipping, factory shall test and inspect components, assembled switches, and associated equipment to ensure proper operation.
- B. Factory shall check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements.
- C. Factory shall perform dielectric strength test complying with NEMA ICS 1.

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: The supplier of the transfer switch(es) and associated equipment shall inspect, test, and adjust components, assemblies, and equipment installations, including connections, and report results in writing.
- B. Manufacturer's representative shall perform tests and inspections and prepare test reports.
- C. After installing equipment and after electrical circuitry has been energized, installer shall test for compliance with requirements.
 - 1. Perform recommended installation tests as recommended in manufacturer's installation and service manuals.
 - 2. After energizing circuits, demonstrate interlocking sequence and operational function for each switch.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
 - b. Verify time-delay settings.
 - c. Verify that the transfer switch is accurately metering AC voltage.
 - d. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.

- D. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner.
 - 1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
 - 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - 3. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.05 DEMONSTRATION

- A. After generator set installation, the generator and transfer switch supplier shall conduct a complete operation, basic maintenance, and emergency service seminar covering generator set and transfer switch equipment, for up to 10 people employed by the Owner.
 - 1. The seminar shall include instruction on operation of the transfer equipment, normal testing and exercise, adjustments to the control system, use of the PC based service and maintenance tools provided under this contract, and emergency operation procedures.
 - 2. The class duration shall be at least 8 hours in length, and include practical operation with the installed equipment.

3.06 OPEN TRANSITION SEQUENCE OF OPERATION

- A. Transfer switch normally connects an energized utility power source (source 1) to loads and a generator set (source 2) to the loads when normal source fails. The normal position of the transfer switch is source 1 (connected to the utility), and no start signal is supplied to the genset.
- B. Generator Set Exercise (Test) With Load Mode. The control system shall be configurable to test the generator set under load. In this mode, the transfer switch shall control the generator set in the following sequence:
 - 1. Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program, or when manually initiated by the operator.
 - 2. The transfer switch shall issue a compatible start command to the generator set. When the control systems senses the generator set at rated voltage and frequency, it shall operate to connect the loads to the generator set by opening the normal source contacts, and closing the alternate source contacts a predetermined time period later. The timing sequence for the contact operation shall be programmable in the controller.

3. The generator set shall operate connected to the load for the duration of the exercise period. If the generator set fails during this period, the transfer switch shall automatically reconnect the generator set to the normal service.
 4. On completion of the exercise period, the transfer switch shall operate to connect the loads to the normal source by opening the alternate source contacts, and closing the normal source contacts a predetermined time period later. The timing sequence for the contact operation shall be programmable in the controller.
 5. The transfer switch shall operate the generator set unloaded for a cooldown period, and then remove the start signal from the generator set. If the normal power fails at any time when the generator set is running, the transfer switch shall immediately connect the system loads to the generator set.
- C. Generator Set Exercise (Test) Without Load Mode. The control system shall be configurable to test the generator set without transfer switch load connected. In this mode, the transfer switch shall control the generator set in the following sequence:
1. Transfer switch shall initiate the exercise sequence at a time indicated in the exercise timer program, or when manually initiated by the operator.
 2. The transfer switch shall issue a compatible start command to the generator set.
 3. When the control systems senses the generator set at rated voltage and frequency, it shall operate the generator set unloaded for the duration of the exercise period.
 4. At the completion of the exercise period, the transfer switch shall remove the start signal from the generator set. If the normal power fails at any time when the generator set is running, the transfer switch shall immediately connect the system loads to the generator set.

3.07 SERVICE AND SUPPORT

- A. The manufacturer shall supply the Service Provider with a complete set of the service and maintenance software required to support the product. The software shall be provided at a training class attended by the user, to qualify the user in proper use of the software. The software shall have the following features and capabilities:
1. The software shall allow adjustment of all functions described herein, adjustment of operating levels of all protective functions, and programming of all optional functions in the controller. Adjustments shall be possible over modem from a facility that is remote from the generator set.
 2. The software shall be capable of storing and displaying data for any function monitored by the generator set control. This data shall be available in common file formats, and on graphical "strip chart" displays.
 3. The software shall automatically record all control operations and adjustments performed by any operator or software user, for tracking of changes to the control.

4. The software shall display all warning, shutdown, and status changes programmed into transfer switch controller. For each event, the control shall provide information on the nature of the event, when it last occurred, and how many times it has occurred.

3.08 WARRANTY

- A. The generator set and associated equipment shall be warranted for a period of not less than 5 years from the date of commissioning against defects in materials and workmanship.
- B. The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, etc.

END OF SECTION

SECTION 16950

ELECTRICAL TESTS

INDEX

PART 1 - GENERAL

- 1.01 THE REQUIREMENT
- 1.02 TESTING
- 1.03 ACCEPTANCE TESTING

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

NOT APPLICABLE

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. This section specifies the work necessary to test, commission, and demonstrate that the electrical work satisfies the criteria of these Specifications and functions as required by the Contract Documents.
- B. The work of this section includes furnishing the labor, equipment, and power required to support the testing indicated in other Divisions of these specifications. Electrical testing indicated herein and functional testing of power and controls not tested under Division 17 - Instrumentation and Controls, shall be completed before commencement of the 30-day test. This scope may require the Contractor to activate circuits, shutdown circuits, run equipment, make electrical measurements, replace blown fuses, and install temporary jumpers, etc.
- C. The requirements of Section 16050 - Electrical Work, General, apply to the work of this section.

1.02 TESTING

- A. General: Carry out tests indicated herein for individual items of materials and equipment in other sections.
- B. The following test requirements supplement test and acceptance criteria that may be stated elsewhere.
 - 1. Lighting: Switching, include remote control, if present in system. Circuitry is in accordance with panel schedules.
 - 2. Power Instrumentation: Demonstrate that voltmeter and ammeter switches are functional. Demonstrate that kilowatt meters are within catalog accuracy as installed.

3. Demonstrate mechanical and/or electrical interlocking by attempting to subvert the intended sequence.
 4. Activate ground fault tripping by operating test features provided with ground current protective systems and by injecting a known and reasonable current in the ground current sensor circuit. In general, ground fault tripping should occur at a ground current equivalent to 20% of phase current. Current injection is not required of circuits 400 amp. or less.
 5. Cable Testing: 480-volt circuits shall be tested for insulation resistance with a 1000-volt megohm meter. Testing shall be done after the 480-volt equipment is terminated. Phase-to-phase A-B, B-C, A-C and phase-to-ground insulation resistance tests shall be performed on each cable. Test results shall be submitted for review 30 days prior to plant operation and any system testing. Equipment which may be damaged during this test shall be disconnected. Perform tests with all other equipment connected to the circuit. In order to be acceptable, the cable must withstand the test high voltage without breakdown, have steady or decreasing leakage current during the high potential test, and have satisfactory comparable megger readings in each megger test. Test results shall be submitted to the Engineer, stating equipment used and time of test. Cable testing and report submittal shall be performed by an organization sanctioned by the manufacturer of the cable to be tested. Testing shall verify the quality of cable terminations.
 6. Test ground interrupter (GFI) receptacles and circuit breakers for proper operation by methods sanctioned by the receptacle manufacturer.
 7. A functional test and check of electrical components is required prior to performing subsystem testing and commissioning. Compartments and equipment shall be cleaned as required by other provisions of these Specifications before commencement of functional testing. Functional testing shall comprise:
 - a. Visual and physical check of cables, circuit breakers, transformers, and connections associated with each item of new and modified equipment.
 8. Complete ground testing of grounding electrodes per requirements below prior to operating the equipment.
- C. Subsystem testing shall occur after the proper operation of alarm and status contacts has been demonstrated or otherwise accepted by the Engineer and after process control devices have been adjusted as accurately as possible. It is intended that the Contractor will adjust limit switches and level switches to their operating points prior to testing and will set pressure switches, flow switches, and timing relays as dictated by operating results.
- D. After initial settings have been completed, each subsystem shall be operated in the manual mode and it shall be demonstrated that operation is in compliance with the Contract Documents. Once the manual mode of operation has been proven, automatic operation shall be demonstrated to verify such items as proper start and stop sequence of pumps, proper operation of valves, proper speed control, etc.

- E. Motor operated valves shall be tested after having been phased and tested for correct motor rotation and after travel and torque limit switches have been adjusted by a representative of the valve manufacturer. Tests shall verify status indication, proper valve travel, and correct command control from local and remote devices.
- F. Provide ground resistance tests on the main grounding electrode or system in the presence of the Engineer and submit results. Utilize the fall-of-potential method or alternative, in accordance with IEEE Standard 81.
- G. Subsystems shall be defined as individual and groups of pumps, conveyor systems, chemical feeders, air conditioning units, ventilation fans, air compressors, etc.

1.03 ACCEPTANCE TESTING

- A. After the installation is complete, and proper operation has been demonstrated, a 30-day acceptance test shall begin. The entire system shall be required to operate for 30 days with no malfunctions, field repairable malfunctions excepted. Any malfunction during the 30-day test which cannot be corrected within 24 hours by the supplier shall be considered a non-field repairable malfunction and, after repairs are complete, the test shall be repeated.
- B. The acceptance test shall apply to all equipment furnished under Division 16 and 17.
- C. Substantial completion must be obtained prior to starting the acceptance test.
- D. Final completion shall not be considered prior to successful completion of the acceptance test.

PART 2 – PRODUCTS

Not Applicable

PART 3 – EXECUTION

Not Applicable

END OF SECTION

SECTION 17100

PROCESS CONTROL AND INSTRUMENTATION SYSTEMS

PART 1 - GENERAL

- 1.01 THE REQUIREMENT
- 1.02 GENERAL
- 1.03 SUBMITTALS
- 1.04 GUARANTEE
- 1.05 WARRANTY

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

NOT APPLICABLE

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. This section describes required modifications to existing process control and instrumentation systems at the Filter Building.
- B. The Contractor shall provide all Process Control and Instrumentation Systems (PCIS) complete and operable, in accordance with the Contract Documents.
- C. The requirements of this section apply to all components of the PCIS unless indicated otherwise.
- D. Related work specified elsewhere:
 - 1. Division 16 - Electrical.

1.02 GENERAL

- A. The Contractor shall use a Automatic Control Systems to modify existing SCADA control system and furnish and install required hardware for the addition of standby generator control and monitoring.

1.03 SUBMITTALS

- A. Submit:
 - 1. Descriptions of process changes.
 - 2. One line diagrams showing the modifications to existing SCADA.
 - 3. Modify PLC programming and screens showing modifications.

1.04 GUARANTEE

- A. Contractor shall guarantee operation of system and that materials and workmanship of equipment be free from defects for period as defined in General Conditions of project manual providing equipment has been operated and maintained in accordance with manufacturer's recommendations.

1.05 WARRANTY

- A. Controls Integrator shall provide a comprehensive two (2) year parts and labor warranty for the modifications implemented during this upgrade.

PART 2 – PRODUCTS

Not Applicable

PART 3 – EXECUTION

Not Applicable

END OF SECTION

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities

From:

Date: August 11, 2025

Subject: Resolution approving the plans, specifications, form of contract and estimate of cost for Water Treatment Facility Standby Generator project

Recommendation: Agenda document is the resolution approving the plans, specifications, form of contract and estimate of cost for Water Treatment Facility Standby Generator project
Board action is to approve this resolution by roll call vote.

Attachments: 1. Res 2025 Approving the Final Plans, Specifications, Form of Contract and Estimate of Cost for the Construction of the Water Treatment Facility Standby

Indianola Municipal Utilities

RESOLUTION APPROVING THE FINAL PLANS, SPECIFICATIONS, FORM OF CONTRACT, AND ESTIMATED COST FOR CONSTRUCTION OF THE WATER TREATMENT FACILITY STANDBY GENERATOR PROJECT

WHEREAS, the Indianola Municipal Utilities Board Of Trustees has authorized the preparation of the proposed plans, specifications, contract documents, and an estimate of cost for construction of the Water Treatment Facility Standby Generator Project; and

WHEREAS, the Indianola Municipal Utilities Board of Trustees has deemed it necessary and desirable to undertake the construction of the Project; and

WHEREAS, IMU has provided notice for a public hearing and notice to bidders regarding the proposed plans, specifications, and form of contract for the Project, and the acceptance of bids; and

WHEREAS, a public hearing has been held regarding objections to the proposed plans, specifications, form of contract, and the cost of the Project, and no objections were raised.

NOW, THEREFORE, BE IT RESOLVED by the Indianola Municipal Utilities Board Of Trustees that the plans, specifications, and form of contract, and estimate of cost referred to in the preamble hereof be and the same are hereby approved, and the aforementioned public improvement to be constructed in accordance with the plans, specifications and form of contract is necessary and desirable.

PASSED AND APPROVED this 11th Day of August, 2025.

Dom Selgrade, Chairperson

ATTEST:

Monica Thompson, Board Secretary

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities

From:

Date: August 11, 2025

Subject: Resolution awarding and approving a contract to Van Maanen Electric, Inc for the Water Treatment Facility Standby Generator Project.

Recommendation: Board action is to approve this resolution by roll call vote.

Attachments:

1. 285114_IMU_WTF_Standby_Generator_Recommendation to Award
2. Res 2025-Approving and Awarding contract and bond for the Water Treatment Facility, Standby Generator Project

August 8, 2025

Monica Thompson
Board of Trustees Secretary
Indianola Municipal Utilities
210 W 2nd Avenue
Indianola, Iowa 50125

INDIANOLA MUNICIPAL UTILITIES
WATER TREATMENT FACILITY
STANDBY GENERATOR
RECOMMENDATION TO AWARD

The Indianola Municipal Utilities received bids until 2:00 P.M., Tuesday, August 5, 2025, for the Water Treatment Facility, Standby Generator project. A total of three bids were received as follows:

<u>Contractor</u>	<u>Total Bid</u>
Van Maanen Electric, Inc.	\$572,486.00
Hildreth Construction Services	\$758,000.00
Price Electric	\$872,575.00

The apparent low bid was submitted by Van Maanen Electric, Inc. from Newton, Iowa in the amount of \$572,486.00.

The engineer's estimate of cost for construction of the project was \$915,000.00.

We recommend the Indianola Municipal Utilities award the contract to Van Maanen Electric, Inc. in the amount of \$572,486.00.

Enclosed is a copy of our tabulation of bids.

Monica Thompson
August 8, 2025
Page 2

If you have any questions or comments concerning the project, please contact us at 515-225-8000.

VEENSTRA & KIMM, INC.

A handwritten signature in blue ink that reads "Vincent Driscoll". The signature is written in a cursive style with a large, looped 'V' and a trailing 'l'.

Vincent Driscoll

VJD:
285114
Enclosures

RESOLUTION 2025-

***APPROVING AND AWARDING THE CONTRACT FOR THE WATER TREATMENT FACILITY, STANDBY
GENERATOR PROJECT***

BE IT RESOLVED BY THE IMU BOARD OF TRUSTEES OF THE CITY OF INDIANOLA, STATE OF IOWA:

The quotation from Van Maanen Electric, Inc. in the amount of \$572,486.00 for the Water Treatment Facility, Standby Generator Project for Indianola Municipal Utilities, Indianola, Iowa; plans for which were approved by this Board on the 11th day of August 2025, is accepted, it being the lowest and most responsible quote for the project.

The IMU General Manager is hereby Authorized to execute a contract with Van Maanen Electric, Inc for the construction of the public improvement, the contract not to be binding on the Board of Trustees until approved by the Board and; that the construction contract for Water Treatment Facility, Standby Generator Project, which has been signed by the Board Chairperson and Board Secretary on behalf of IMU and proof of insurance coverage be and the same are hereby approved as follows:

Contractor:	Van Maanen Electric, Inc.	Newton, Iowa
	_____	_____
	\$572,486.00	
Amount of quote:	_____	
Date of quote:	August 5, 2025	

Portion of project:	All labor and materials	

PASSED AND APPROVED this 11th day of August 2025.

Dom Selgrade, Chairperson

Monica Thompson, Board Secretary

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: Resolution Authorizing Payment #1 for Lime Tower Recoating Project

Recommendation:

Attachments:

1. 1894_001
2. Res 2024- Approving Payment #1 for Lime Tower Recoating Project



VEENSTRA & KIMM INC.
 6775 Vista Drive
 West Des Moines, Iowa 50266
 515.225.8000 // 800.241.8000
 www.v-k.net

ESTIMATE OF CONSTRUCTION COMPLETED							
PARTIAL PAYMENT NO. 1							
PROJECT TITLE: Lime Storage Tower Recoating							
Owner: Indianola Municipal Utilities						Date: August 7, 2025	
Contractor: Central Tank Coatings, Inc.							
Original Contract Amount & Date: \$140,800.00; May 12, 2025						Pay Period: July 1, 2025 to July 31, 2025	
BID ITEMS							
ITEM NO.	DESCRIPTION	UNIT	ESTIMATED (ORIG. CONT.)	UNIT PRICE	EXTENDED PRICE	QUANTITY COMPLETED TO DATE	VALUE COMPLETED TO DATE
1.1	Lime Storage Tower Recoating, all labor, materials and equipment necessary to fully blast and recoat the exterior surfaces and hatches; including structural members, safety ladder, railings, and miscellaneous surfaces of the lime storage tower and exterior of the lime fill pipe and miscellaneous associated work, including cleanup.	LS	1	\$ 130,000.00	\$ 130,000.00	80%	\$104,000.00
1.2	Unforeseen Welding	HR	24	\$ 225.00	\$ 5,400.00	0%	\$0.00
1.3	Unforeseen Grinding	HR	24	\$ 225.00	\$ 5,400.00	0%	\$0.00
Total Value Completed - Bid Items							\$104,000.00

SUMMARY			
		Original Contract	Total Completed
Bid Item Subtotal		\$140,800.00	\$104,000.00
APPROVED CHANGE ORDERS			
Change Order No.	Description/Notes	Total Approved	Total Completed
1		\$0.00	\$0.00
2		\$0.00	\$0.00
3		\$0.00	\$0.00
4		\$0.00	\$0.00
5		\$0.00	\$0.00
6		\$0.00	\$0.00
7		\$0.00	\$0.00
8		\$0.00	\$0.00
9		\$0.00	\$0.00
10		\$0.00	\$0.00
Total Change Orders		\$0.00	\$0.00
		Total Approved	Total Completed
Revised Contract Price		\$140,800.00	\$104,000.00
			Total Completed
Total Materials Stored			\$0.00
Total Completed Plus Materials Stored			\$104,000.00
Retainage (3%)			\$3,120.00
Total Earned Less Retainage			\$100,880.00
APPROVED PARTIAL PAYMENTS			
Partial Payment No.	Period	Total Approved	
1		\$0.00	
2		\$0.00	
3		\$0.00	
4		\$0.00	
5		\$0.00	
6		\$0.00	
7		\$0.00	
8		\$0.00	
9		\$0.00	
10		\$0.00	
		Total Previously Approved	\$0.00
Amount Due This Request			\$100,880.00
Note: The amount \$100,880.00 is recommended for approval for payment in accordance with the terms of the Contract.			
CONTRACT SUMMARY			
ORIGINAL CONTRACT AMOUNT			\$0.00
TOTAL CONTRACT AMOUNT PLUS CHANGE ORDERS			\$140,800.00
THIS PARTIAL PAYMENT			\$100,880.00
TOTAL PARTIAL PAYMENTS INCL THIS PAYMENT			\$100,880.00
BALANCE			\$39,920.00
PERCENT COMPLETE			73.9%
Recommended By: Veenstra & Kimm, Inc.		Contractor: Central Tank Coatings, Inc.	
Approved by: Indianola Municipal Utilities			
Signature	<i>Vincent Driscoll</i>	Signature	<i>Kelly Koehn</i>
Name	Vincent Driscoll	Name	Kelly Koehn
Title	Project Engineer	Title	President
Date	8/7/2025	Date	8/7/2025
Signature	<i>Justin Brand</i>	Signature	<i>Justin Brand</i>
Name	Justin Brand	Name	Justin Brand
Title	Superintendent	Title	Superintendent
Date	8/7/2025	Date	8/7/2025

Indianola Municipal Utilities
RESOLUTION NO 2025-

RESOLUTION Approving Payment #1 for Lime Tower Recoating Project

WHEREAS, on October 14, 2024, the Board approved the contract with Central Tank Inc for the Lime Tower Recoating Project in the amount of \$140,800.00; and,

WHEREAS, on August 7, 2025 Central Tank Inc submitted a recommendation for payment #1 for said contract in the amount of \$100,880.00; and,

NOW, THEREFORE, BE IT RESOLVED by the Indianola Municipal Board of Trustees that:

1. The payment to Central Tank Inc in the amount of \$100,880.00 is hereby approved; and
2. The IMU staff is authorized and directed to execute the payment application on behalf of the IMU Board of Trustees.

Passed and approved this 11th day of August 2025.

Dom Selgrade, Chairperson

ATTEST:

Monica Thompson, Board Secretary

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities

From:

Date: August 11, 2025

Subject: Resolution to Approve Change Order # 1 for Project No. 2024-2025-NOFA7-Phase3-RSNo14-Division 1 - FINAL INSTALLED

Recommendation:

Attachments:

1. Final Change Order for Packet
2. Res 2024- to approve Change Order 1 Project No. 2024-2025-NOFA7-Phase3-RSNo14-Division 1 - FINAL INSTALLED

Project No. 2024-2025-NOFA7-Phase3-RSNo14-Division 1 - FINAL INSTALLED

Item #	Description	Engineer Est.	Actual Installed	Unit Price	Difference
1	Conduit	18,145	18,145	\$ 6.56	\$ -
2	Large HH	16	17	\$ 1,234.78	\$ 1,234.78
3	Small HH	24	25	\$ 584.78	\$ 584.78
4	FOC 12ct	6,915	7,602	\$ 1.81	\$ 1,243.47
5	FOC 96ct	9,275	10,466	\$ 2.43	\$ 2,894.13
6	Fiber Marker	15	5	\$ 93.69	\$ (936.90)
7	Test Station	1	0	\$ 334.10	\$ (334.10)
13	Tracer	1,624	711	\$ 1.21	\$ (1,104.73)

Change Order Amount \$ 3,581.43

Indianola Municipal Utilities
RESOLUTION NO. 2025-_____

**Resolution to Approve Change Order # 1 for Project No. 2024-2025-NOFA7-
Phase3-RSNo14-Division 1 - FINAL INSTALLED**

WHEREAS, TelCom Construction, LLC issued a recommendation for a change of order in the Project No. 2024-2025-NOFA7-Phase3-RSNo14-Division 1 - in the amount of \$ 3,581.43; and

WHEREAS, during the process, TelCom Construction, LLC invoice states a list of charges for equipment and supplies; and

WHEREAS, change order no. 1 to the contract with TelCom Construction, LLC has been prepared to formally amend the contract terms to encompass the change outlined above.

**NOW, THEREFORE, BE IT RESOLVED BY THE IMU BOARD OF TRUSTEES OF
INDIANOLA, IOWA,**

That Change order no. 1 to the Construction Contract with TelCom Construction, LLC for this project is hereby approved; and

The total authorized compensation to TelCom Construction, LLC for this project is increased through approval of change order no. 1 as shown below:

Original Contract \$ 430,429.88

Change Order No. 1 \$3,581.43

Total Revised Contract \$434,011.31

PASSED AND APPROVED this 11th day of August 2025

Dom Selgrade, Chairperson

ATTEST:

Monica Thompson, Board Secretary

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: Resolution Approving Pay App 1 to TelCom for the NOFA 7 Phase 3 Project

Recommendation:

Attachments:

1. TCC Invoice 301053
2. Res 2024- Approving Pay App 1 to TelCom for the NOFA 7 Phase 3 Project

Remit Payments To:

Telcom Construction, LLC
PO Box 856910
Minneapolis, MN 55485-6910



Inquiries:

Telcom Construction Inc
PO Box 189
Clearwater, MN 55320-0189

Indianola Municipal Utilities
ATTN: Kurt Ripperger

210 W 2nd Ave
Indianola, IA 50125

Invoice: 301053

Date: 7/16/25

Reference: NOFA 7 PHASE 3

Customer Invoice Number: 301053 Phase 1

Job Number	Description	Terms
050402102	IMU-NOFA 7 Phase 3	0% / 30 days, Net 30 days

Item	Item Description	Quantity	Labor Rate	Extended Labor	Material Rate	Extended Material	Tax Amount	Extended Total
CONDUIT (1)1 1/2 H	CONDUIT (1)1 1/2 HDPE SDR 1	18145.00	6.00	108,870.00	0.56	10,161.20	0.00	\$119,031.20
FOC 96 COUNT SING	FOC 96 COUNT SINGLE ARMOR	10466.00	1.25	13,082.50	1.18	12,349.88	0.00	\$25,432.38
FOC 12 COUNT SING	FOC 12 COUNT SINGLE ARMORE	7602.00	1.25	9,502.50	0.56	4,257.12	0.00	\$13,759.62
LARGE VAULT 24INX	LARGE VAULT 24INx36INx30IN	17.00	1,200.00	20,400.00	34.78	591.26	0.00	\$20,991.26
MARKER POST	MARKERPOST	5.00	45.00	225.00	48.69	243.45	0.00	\$468.45
SMALL VAULT 13INX2	SMALL VAULT 13INx24INx18IN	25.00	550.00	13,750.00	34.78	869.50	0.00	\$14,619.50
TRACER WIRE	FURNISH AND INSTALL	711.00	1.00	711.00	0.21	149.31	0.00	\$860.31

Extended Total:	\$195,162.72
Tax Total:	\$0.00

Invoice Total:	\$195,162.72
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Indianola Municipal Utilities
RESOLUTION NO 2025-

RESOLUTION Approving Payment to TelCom Construction, LLC for the NOFA 7 Phase 3 Project

WHEREAS, on October 14, 2024, the Board approved the contract with TelCom Construction, LLC for the NOFA 7 Phase 3 project in the amount of \$430,429.88; and,

WHEREAS, on July 16, 2025 TelCom Construction, LLC submitted a recommendation for payment #1 for said contract in the amount of \$195,162.72; and,

NOW, THEREFORE, BE IT RESOLVED by the Indianola Municipal Board of Trustees that:

1. The payment to Telcom Construction, LLC in the amount of \$195,162.72 is hereby approved; and
2. The IMU staff is authorized and directed to execute the payment application on behalf of the IMU Board of Trustees.

Passed and approved this 11th day of August 2025.

Dom Selgrade, Chairperson

ATTEST:

Monica Thompson, Board Secretary

MEMORANDUM

To: IMU Board of Trustees of the Electric, Water and Communications Utilities
From:
Date: August 11, 2025
Subject: Resolution Approving a Technical Services Agreement

Recommendation:

Attachments:

1. Resolution Approving a Technical Services Agreement
2. RS No 17 - IMU NOFA FY 2025 and 2026 Construction Oversight - BID 3 - 2025-08-04

Indianola Municipal Utilities
Resolution 2025-

RESOLUTION APPROVING A TECHNICAL SERVICES AGREEMENT

WHEREAS, the IMU Board of Trustees has approved and authorized the construction of 2024-2025-NOFA7-PHASE3 Div 2 (project); and

WHEREAS, Pursuant to the terms and conditions of the Technical Services Agreement executed and made effective as of the 23rd Day of May 2022, by and between Indianola Municipal Utilities ("Owner") and NewCom Technologies ("Consultant"), Owner hereby requests Consultant to provide construction oversight for the project; and

WHEREAS, Compensation for the Services described above shall be based on an hourly rate, and Total billings for this RS are to not exceed \$18,500.00.

NOW, THEREFORE BE IT RESOLVED, by the Indianola Board of Trustees that construction oversight shall be provided by NewCom Technologies not to exceed the amount of \$\$18,500.00 and the Communications Director is authorized and directed to execute on behalf of Indianola Municipal Utilities the documents required.

Approved this 11th day of August 2025.

Dom Selgrade, IMU Chairperson

ATTEST:

Monica Thompson, BOT Secretary

TECHNICAL SERVICES AGREEMENT

EXHIBIT A

REQUEST FOR SERVICES

RS NO. 17

“CONSTRUCTION OVERSIGHT FOR NETWORK EXTENSIONS: NOFA 7 GRANTS 433551 and 433533 Final Phases”

Between

Indianola Municipal Utilities ("Owner")

And

NewCom Technologies, Inc. ("Consultant")

Pursuant to the terms and conditions of the Technical Services Agreement executed and made effective as of the 23rd Day of May 2022, by and between Indianola Municipal Utilities ("Owner") and NewCom Technologies ("Consultant"), Owner hereby requests Consultant to perform the following Services:

Scope of Services:

Construction oversight for 2024-2025-NOFA7-PHASE3 Div 2.

General work elements are listed below and amended by Consultant after review with Owner:

1. Attend pre-construction meeting
2. NewCom will compare the installation of the project to the design of the project
3. It will be the responsibility of the contractor to maintain accurate redlines of the build
4. Permit compliance verification
5. NewCom is not liable for contractor failing to meet requirements of the permit. NewCom will only view the permit and notify the contractor and Owner of violations as/if they are observed
6. Restoration and cleanup verification
7. NewCom is not liable for the restoration or cleanup of the jobsite. NewCom will only observe the general status of the jobsite post construction and report on said status to Owner
8. Safety Compliance
9. NewCom is not liable for the safety of contractor. NewCom will only observe jobsite and notify contractor and Owner if safety violations are observed
10. Assisting Owner staff with financial/budgetary matters by providing information for grant applications, business plan projections, and legal matters relating to construction, operation, financing, and compliance.
11. Attendance at design review meetings, Board meetings, and related meetings as requested.

REQUEST FOR SERVICES
RS NO. 17

- A. **Additional Owner Responsibilities.** As provided in the Agreement, Owner shall provide Consultant with information reasonably necessary to complete the Services.
- B. **Commencement and Completion of Services.** Consultant shall commence the Services upon notice to proceed from Owner, which notice shall be given by Owner on or after August 4, 2025.
- C. **Compensation.** Compensation for the Services described above shall be based on an hourly rate sheet as follows. Total billings for this RS are to not exceed \$18,500.00.

Construction Oversight and Review	Not To Exceed	\$ 18,500.00

Includes:

- Construction oversight
- Review support structure and confirm it meets contract specifications
- Meetings with Owner and contractors
- GPS route and HH locations

Time & Materials Cost for Calendar Year 2025:

Discipline	Rate/Hour
Principal Consultant	\$280.00
Professional Engineer	\$185.00
Project Management	\$160.00
GIS Analyst	\$130.00
CAD Tech	\$125.00
Field Surveyor	\$115.00
Network Designer	\$135.00
Field Inspector	\$130.00
Clerical	\$89.00
Vehicle Mileage	Current IRS Reimbursement

This Agreement, the Mutual Non-Disclosure Agreement by the parties, Owner's Request for Qualifications, Consultant's response to the Request for Qualifications, the Technical Services Agreement and subsequent RS constitute the entire agreement between the parties. Terms and conditions contained in purchase orders, work orders, or other documents issued by Owner with respect to the Services shall be of no force and effect.

IN WITNESS WHEREOF, the parties have executed this Request for Services on the date(s) indicated below.

Owner

Consultant

REQUEST FOR SERVICES
RS NO. 17

By:

By:

By: Kurt Ripperger
(Printed Name)

By: Justin R. Quinn
(Printed Name)

Title: Communications Director

Title: VP Broadband Services

Date: _____

Date: _____