GWINNETT COUNTY
DEPARTMENT OF FINANCIAL SERVICES
PURCHASING DIVISION

75 Langley Drive | Lawrenceville, GA 30046-6935
O: 770.822.8720 | F: 770.822.8735
GwinnettCounty.com

February 27, 2026

INFORMAL WRITTEN QUOTE
IWQ 121855

Gwinnett County is soliciting competitive informal written Quotes from qualified suppliers for the **Purchase and Start-Up of a Generator at the Peachtree Station Pump Station** for the Department of Water Resources.

Quotes should be typed or submitted in ink and returned to the Attention of Anna West, Purchasing Associate II. Quotes should be received by 5:00 P.M. **March 11, 2026,** by emailing Anna.West@GwinnettCounty.com or sent to the Gwinnett County Financial Services - Purchasing Division – 2nd Floor, 75 Langley Drive, Lawrenceville, Georgia 30046..

Questions regarding quotes should be directed to Anna West, Purchasing Associate II at Anna.West@GwinnettCounty.com or by calling 770-822-7862 by 5:00 P.M. **March 4, 2026**. Quotes are legal and binding upon the vendor when submitted.

Successful contractors will be required to meet insurance requirements. The Insurance Company should be authorized to do business in Georgia by the Georgia Insurance Department and must have an A.M. Best rating of A-7 or higher.

Gwinnett County does not discriminate on the basis of disability in the admission or access to its programs or activities. Any requests for reasonable accommodations required by individuals to fully participate in any open meeting, program or activity of Gwinnett County Government should be directed to the ADA Coordinator at the Gwinnett County Justice and Administration Center, 770-822-8165.

The written quote documents supersede any verbal or written prior communications between the parties.

Award will be made to the supplier submitting the lowest responsive and responsible quote. Gwinnett County reserves the right to reject any or all quotes, to waive technicalities, and to make an award deemed in its best interest. Quotes may be split or awarded in entirety. Gwinnett County reserves the option to negotiate terms, conditions and pricing with the lowest responsive, responsible vendor(s) at its discretion.

We look forward to your quote and appreciate your interest in Gwinnett County.

Anna West
Purchasing Associate II

The following pages <u>should</u> be returned with your quote:

Quote Schedule, Page 2
References, Page 3
Contractor Affidavit, Page 4

FAILURE TO RETURN THIS PAGE AS PART OF YOUR QUOTE DOCUMENT MAY RESULT IN REJECTION OF YOUR QUOTE.

QUOTE SCHEDULE

DELIVERY FOB DESTINATION FREIGHT PRE-PAID AND ALLOWED TO: Gwinnett County Dept. of Water Resources – Central Facility, 684 Winder Hwy, Lawrenceville

Informal Written Quotations are being solicited from qualified suppliers for the following item. Informal Written Quotations may be returned by emailing Anna.West@GwinnettCounty.com. If you have any questions, please contact Anna West, (770) 822-7862 or email.

ITEM #	DESCRIPTION	MFG & NO.	DELIVERY A.R.O.	TOTAL PRICE
1	One (1) diesel engine generator to include shop drawings, O&M manuals, and start-up services as described in the specifications and scope of work.			$
2	One (1) automatic transfer switch to include shop drawings, O&M manuals, and start-up services as described in the specifications and scope of work.			$
			TOTAL PRICE:	$

NOTE: Note: Effective, July 1, 2013 and in accordance with the Georgia Illegal Reform and Enforcement Act, an original signed, notarized and fully completed Contractor Affidavit and Agreement should be included with your quote submittal, if the solicitation is for the physical performance of services for all labor or service contract(s) that exceed $2,499.99 (except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia). Failure to provide the Contractor Affidavit and Agreement with your informal quote submittal may result in the quote being deemed non-responsive and automatic rejection.

Certification of Non-Collusion in Quote Preparation _____
Signature Date

In compliance with the attached specifications and requirements in the Instructions to Vendors, the undersigned offers and agrees, within ninety (90) days of the date of quote opening, to furnish any or all of the items upon which prices are quoted, at the price set opposite each item, delivered to the designated point(s) within the time specified in the fee schedule. By submission of this quote, I understand that Gwinnett County uses Electronic Payments for remittance of goods and services. Vendors should select their preferred method of electronic payment upon notice of award. For more information on electronic payments, please refer to the Electronic Payment information in the instructions to vendors.

Legal Business Name _____

Address _____

Does your company currently have a location within Gwinnett County? Yes ☐ No ☐

Representative Signature _____ Printed Name _____

Telephone Number _____ Fax Number _____

Email Address _____

Contact Person (if someone other than the authorized representative listed above) _____

Telephone Number _____ Fax Number _____

E-Mail Address _____

FAILURE TO RETURN THIS PAGE AS PART OF YOUR QUOTE DOCUMENT MAY RESULT IN REJECTION OF YOUR QUOTE.

REFERENCES

Gwinnett County requests a minimum of three (3) references where work of a similar size and scope has been completed.

Note: References should be customized for each project, rather than submitting the same set of references for every project bid. The references listed should be of similar size and scope of the project being bid on. Do not submit a project list in lieu of this form.

1. Company Name _____

   Brief Description of Project _____

   Completion Date _____

   Contract Amount $_____ Start Dates _____

   Contact Person _____ Telephone _____

   E-Mail Address _____

2. Company Name _____

   Brief Description of Project _____

   Completion Date _____

   Contract Amount $_____ Start Date _____

   Contact Person _____ Telephone _____

   E-Mail Address _____

3. Company Name _____

   Brief Description of Project _____

   Completion Date _____

   Contract Amount $_____ Start Date _____

   Contact Person _____ Telephone _____

   E-Mail Address _____

Company Name _____

GWINNETT COUNTY
DEPARTMENT OF FINANCIAL SERVICES
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IWQ 115572 Purchase and Start-Up of a Diesel Generator at the Peachtree Station Pump Station

CONTRACTOR AFFIDAVIT AND AGREEMENT
(THIS FORM SHOULD BE FULLY COMPLETED AND RETURNED WITH YOUR SUBMITTAL)

By executing this affidavit, the undersigned contractor verifies its compliance with The Illegal Immigration Reform Enhancements for 2013, stating affirmatively that the individual, firm, or corporation which is contracting with the Gwinnett County Board of Commissioners has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security] to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act, in accordance with the applicability provisions and deadlines established therein.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services or the performance of labor pursuant to this contract with the Gwinnett County Board of Commissioners, contractor will secure from such subcontractor(s) similar verification of compliance with the Illegal Immigration Reform and Enforcement Act on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the Gwinnett County Board of Commissioners at the time the subcontractor(s) is retained to perform such service.

_____ _____
E-Verify * User Identification Number Date Registered

_____
Legal Company Name

_____
Street Address

_____
City/State/Zip Code

_____ _____
BY: Authorized Officer or Agent Date
(Contractor Signature)

_____
Title of Authorized Officer or Agent of Contractor

_____
Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
_____ DAY OF _____, 20_____

For Gwinnett County Use Only:

Document ID #_____

Issue Date: _____

Initials: _____

_____
Notary Public
My Commission Expires: _____

* As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is "E-Verify" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

GWINNETT COUNTY
FINANCIAL SERVICES | RISK MANAGEMENT
VENDOR INSURANCE REQUIREMENTS

Insurance:
Contractor shall provide evidence of insurance for at least the coverage and amounts set forth below. All insurance shall be maintained in the form and with a company (or companies) satisfactory to the Gwinnett County Board of Commissioners. The Contractor and their Subcontractor's/vendor's Certificates of Insurance shall require that the County be notified in writing thirty (30) days prior to cancellation, modification, or non-renewal of any insurance policy listed on the certificate(s). Upon request, the County will be provided certified copies of all required insurance policies.

A. **Minimum Coverage**

Commercial General Liability (Occurrence Form):	
General Aggregate (other than Prod/Comp Ops Liability)	$2,000,000
Products/Completed Operations Aggregate	$2,000,000
Personal & Advertising Injury Liability	$1,000,000
Each Occurrence	$1,000,000

- Gwinnett County Board of Commissioners to be named as Additional Insured
- Additional Insured Endorsement CG 20 10 (edition dates of 07/04, 04/13, 12/19 or a substitute endorsement providing equivalent coverage) and CG 2037 (edition dates of 07/04, 04/13, 12/19 or a substitute endorsement providing equivalent coverage) must be provided with your Certificate of Insurance.
- Primary and Non-Contributory Endorsement to be specified in writing
- Contractual Liability
- Broad Form Property Damage
- Severability of Interest
- Underground, explosion, and collapse coverage
- Personal Injury (deleting both contractual and employee exclusions)
- Incidental Medical Malpractice
- Hostile Fire Pollution Wording
- Include Waiver of Subrogation in favor of Gwinnett County Board of Commissioners
- If project or operations are within 50 ft of a railroad, Contractor is required to name the specific Railroad as an Additional Insured and provide a copy of the Additional Insured Endorsement CG2417 or its equivalent.
- In the event the General Liability insurance required by this Contract is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained, or an extended discovery period will be exercised for a period of five (5) years or applicable statute of limitation period following completion of the work.

Automobile Liability to include:	
Combined Single Limit – Each Accident	$1,000,000

- Comprehensive form providing coverage for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of all owned, non-owned, leased, hired, borrowed vehicles, and any other statutorily required automobile coverage.

- Gwinnett County Board of Commissioners to be named as Additional Insured
- Additional Insured Endorsements must be provided with the Certificate of Insurance
- Coverage to include loading and unloading
- Contractual Liability

Worker's Compensation & Employer's Liability Coverage to include:

Workers Compensation	Georgia State Statutory Limits
Employers Liability	
Bodily Injury by Accident – Each Accident	$ 500,000
Bodily Injury by Disease – Policy Limit	$ 500,000
Bodily Injury by Disease – Each Employee	$ 500,000

- Waiver of Subrogation in favor of Gwinnett County Board of Commissioners

Umbrella/Excess Liability Insurance with policy limits as determined by Contract Sums (higher limits may be required depending on the extent of contract):

Contract Sums:

Contracts up to $999,999

Each Occurrence and Aggregate Limit	$1,000,000

Contracts from $1,000,000 to $1,999,999

Each Occurrence and Aggregate Limit	$3,000,000

Contracts from $2,000,000 to $4,999,999

Each Occurrence and Aggregate Limit	$5,000,000

Contracts Over $5,000,000

Each Occurrence and Aggregate Limit	$10,000,000

- Concurrency of Effective Dates with Primary
- Blanket Contractual Liability
- Drop Down Feature
- Umbrella Policy must be as broad as the primary policy.
- Coverage excess over General Liability, Business Auto Liability, and Employers Liability
- In the event the Umbrella/Excess Liability insurance required by this Contract is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of five (5) years or applicable statute of limitation period following completion of the work.
- Evidence of coverage in the form of a Certificate of Insurance shall be provided to the County prior to start of work.
- Gwinnett County Board of Commissioners shall be Additional Insureds.
- Contractor shall be liable for money, securities, or other property of the County.
- Such coverage shall include an owner coverage endorsement for County and County shall be included as a loss payee.
- Additional Insured Endorsements must be provided with the Certificate of Insurance
-

Cyber Liability Insurance: Applies if scope of work includes the storage or transfer of any County data or sensitive data (including but not limited to personally identifiable, health, or payment card data) or the related hosting of database(s) or internet site(s):

Limit of Insurance per Claim	$1,000,000
Aggregate Limit	$1,000,000

The Contractor shall maintain insurance coverage for network security and privacy risks, including, but not limited to, insurance for data breach or introduction of virus or malicious codes, consumer notification, whether or not required by law, forensic investigation, public relations and crisis management and credit or identity monitoring or similar remediation services, unauthorized access, failure of security information theft, damage to destruction of or alteration of electronic information, breach of privacy perils, wrongful disclosure and release of private information, collection, or other negligence in the handling of confidential information, and including coverage for related regulatory fines, defenses, and penalties allowed by law.

Property Insurance:
The Contractor is fully and solely responsible for any physical loss or damage to all tools, equipment, construction office trailers and their contents, vehicles or any other personal property utilized in the performance of the Contractor's work. Contractor agrees to waive its rights of recovery and cause its
insurers, if any, to waive their rights of subrogation against Owner and Company for any such damage or loss, however caused.

Riggers Liability Insurance:
If any work to be performed involves the rigging, lifting. lowering or moving of property or equipment, then those parties performing such work shall carry Rigger's Liability Insurance in an amount adequate to insure against the physical loss or damage to the property or equipment in its care

Aviation Insurance: Applies if scope of work requires the use of aircraft, including helicopters, unmanned aircraft systems (e.g., drones) and/or fixed-wing aircraft:
Maintain (or require aircraft owner or operator to maintain), and Contractor shall furnish proof of, Aircraft Liability insurance with minimum limits of $10,000,000 per occurrence for bodily injury and property damage of all aircraft.

Unmanned aircraft systems, minimum limits of $2,000,000 for bodily injury, property damage, and personal injury (including invasion of privacy) for unmanned aircraft systems, and guest voluntary settlement bodily injury coverage (for any aircraft except unmanned aircraft systems)

- Such policy shall include contractual liability covering all owned and non-owned aircraft
- If the party providing the Aircraft Liability insurance is not Contractor, then Contractor shall require such party to (a) waive any subrogation rights of recovery they and/or their insurance carriers may have against County and any other indemnified parties and (b) name County and such other parties as Additional Insureds
- The Contractor shall (or shall require aircraft owner or operator) to hire, employ, and utilize pilots certified by the Federal Aviation Administration to operate any such aircraft.

B. Gwinnett County Board of Commissioners (and any applicable Authority) must be specified in writing as an Additional Insured on General Liability, Auto Liability and Umbrella Liability policies.

C. Gwinnett County should be provided with a minimum of 30 days advance written notice of cancellation, material change, or non-renewal of policies required by the contract.

D. Certificate Holder should read:
Gwinnett County Board of Commissioners
75 Langley Drive
Lawrenceville, GA 30046-6935

E. Insurance Company, except Worker' Compensation carrier, must have an A.M. Best Rating of A-7 or higher. Certain Workers' Comp funds may be accepted subject to the approval of the Gwinnett County Insurance Unit. European markets including those based in London and domestic surplus lines markets that operate on a non-admitted basis are exempt from this requirement provided that the Contractor's broker/agent can provide financial data to establish that a market is equal to or exceeds the financial strengths associated with the A.M. Best's rating of A-7 or better.

F. Insurance companies providing coverage should be licensed, and authorized to do business by the Office of the Insurance and Safety Fire Commissioner of Georgia ("Insurance Commissioner"), with the exception of non-admitted carriers, in which case the broker placing coverage should be licensed by the Insurance Commissioner. All agents placing coverage should be licensed by the Insurance Commissioner, either as a resident or non-resident.

G. Certificates of Insurance, and any subsequent renewals, must reference each corresponding bid/contract by project name and project/bid number, if applicable.

H. The Contractor shall agree to provide complete certified copies of current insurance policy(ies) or a certified letter from the insurance company(ies) if requested by the County to verify compliance with these insurance requirements.

I. All insurance coverage required to be provided by the Contractor shall state that it is primary over any insurance program carried by the County.

J. Contractor shall incorporate a copy of the insurance requirements as herein provided in each and every subcontract with each and every subcontractor in any tier and shall require each and every subcontractor of any tier to comply with all such requirements. The Contractor agrees that if for any reason a subcontractor fails to procure and maintain insurance as required, all such required Insurance shall be procured and maintained by Contractor at Contractor's expense.

K. No Contractor or Subcontractor shall commence any work of any kind under this Contract until all insurance requirements contained in this Contract have been complied with and until evidence of such compliance satisfactory to Gwinnett County as to form and content has been filed with Gwinnett County. The ACORD Certificate of Insurance or a preapproved substitute is the required form in all cases where reference is made to a Certificate of Insurance or an approved substitute.

L. The Contractor and its insurer(s) shall agree to waive all rights of subrogation against the County, the Board of Commissioners, its officers, officials, employees, and volunteers from losses arising from work performed by the Contractor for the County.

M. Special Form Contractors' Equipment and Contents Insurance covering owned, used, and leased equipment, tools, supplies, and contents is required to perform the services called for in the Contract. The coverage must be on a replacement cost basis. The County will be included as a Loss Payee in this coverage for County owned equipment, tools, supplies, and contents.

N. The Contractor shall make available to the County, through its records or the records of its insurer, information regarding any claim related to a County project. Any loss run information relating to a County project will be made available to the County upon its request.

O. Compliance by the Contractor and Subcontractors with the foregoing insurance requirements shall not relieve the Contractor and Subcontractors of liability under the Contract and any applicable law.

P. The Contractor and all Subcontractors are to comply with the Occupational Safety and Health Act of 1970, Public Law 91-956, and any other laws that may apply to this Contract.

Q. The Contractor shall at a minimum apply risk management practices accepted by the Contractors' industry.

R. The Contractor shall advise the County if required limits of insurance become eroded or impaired.

Surety Bonds (if required)
All of the surety requirements will stay the same except the Surety Company must have the same rating as set forth in item E above.

FAILURE TO RETURN THIS PAGE MAY RESULT IN REMOVAL OF YOUR COMPANY FROM COMMODITY LISTING.

IWQ 121855

Buyer Initials: AW

IF YOU DESIRE TO SUBMIT A "NO BID" IN RESPONSE TO THIS PACKAGE, PLEASE INDICATE BY CHECKING ONE OR MORE OF THE REASONS LISTED BELOW AND EXPLAIN.

___ Do not offer this product or service; remove us from your bidder's list for this item only.

___ Specifications too "tight"; geared toward one brand or manufacturer only.

___ Specifications are unclear.

___ Unable to meet specifications

___ Unable to meet bond requirements

___ Unable to meet insurance requirements

___ Our schedule would not permit us to perform.

___ Insufficient time to respond.

___ Other

_____

_____

_____

_____

_____

_____

COMPANY NAME _____

AUTHORIZED REPRESENTATIVE _____
SIGNATURE

GWINNETT COUNTY
DEPARTMENT OF FINANCIAL SERVICES – PURCHASING DIVISION
GENERAL INSTRUCTIONS FOR VENDORS, TERMS AND CONDITIONS

ATTENTION

FAILURE TO RETURN THE FOLLOWING DOCUMENTS MAY RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND AUTOMATIC REJECTION. THE COUNTY SHALL BE THE SOLE DETERMINANT OF TECHNICALITY VS. NON-RESPONSIVE SUBMITTAL:

1. FAILURE TO USE COUNTY FEE SCHEDULE.

2. FAILURE TO RETURN OR ACKNOWLEDGE APPLICABLE COMPLIANCE/SPECIFICATION SHEETS.

3. FAILURE TO RETURN OR ACKNOWLEDGE APPLICABLE ADDENDA.

4. FAILURE TO PROVIDE INFORMATION ON ALTERNATES OR EQUIVALENTS.

5. FAILURE TO PROVIDE BID BOND, WHEN REQUIRED, WILL RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND AUTOMATIC REJECTION. BID BONDS ARE NOT REQUIRED ON ALL SOLICITATIONS. BOND REQUIREMENTS ARE CLEARLY STATED ON THE INVITATION PAGE. IF CLARIFICATION IS NEEDED, CONTACT THE PURCHASING ASSOCIATE LISTED IN THE INVITATION. **IF BONDS ARE REQUIRED, FORMS WILL BE PROVIDED IN THIS SOLICITATION DOCUMENT.**

6. FAILURE TO PROVIDE CONTRACTOR AFFIDAVIT AND AGREEMENT, WHEN REQUIRED, MAY RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND REJECTED. THE CONTRACTOR AFFIDAVIT AND AGREEMENT IS NOT REQUIRED ON ALL SOLICITATIONS. IF CLARIFICATION IS NEEDED, CONTACT THE PURCHASING ASSOCIATE LISTED IN THE INVITATION.

7. FAILURE TO PROVIDE AN ETHICS AFFIDAVIT WHEN REQUIRED, MAY RESULT IN SUBMITTAL BEING DEEMED NON-RESPONSIVE AND REJECTED. THE ETHICS AFFIDAVIT IS REQUIRED ON ALL FORMAL SOLICITATIONS OVER $100,000.00. IF CLARIFICATION IS NEEDED, CONTACT THE PURCHASING ASSOCIATE LISTED IN THE INVITATION.

I. PREPARATION OF SUBMITTAL

A. Each vendor shall examine the drawings, specifications, schedule, and all instructions. Failure to do so will be at the vendor's risk, as the vendor will be held accountable for their submittal.

B. Each vendor shall furnish all information required by the solicitation form or document. Each vendor shall sign the submittal and print or type his or her name on the fee schedule. The person signing the submittal should initial erasures or other changes. An authorized agent of the vendor must sign the submittal.

C. Fee schedule pricing should have only two decimal places unless otherwise stated. In the event of a calculation error in total price, the unit pricing prevails.

D. Except for solicitations for the sale of real property, individuals, firms, and businesses seeking an award of a Gwinnett County contract may not initiate or continue any verbal or written communications regarding a solicitation with any County officer, elected official, employee, or other County representative other than the Purchasing Associate named in the solicitation between the date of the issuance of the solicitation and the date of the final award. The Purchasing Director will review violations. If determined that such communication has compromised the competitive process, the offer submitted by the individual, firm or business may be disqualified from consideration for award. Solicitations for the sale of real property may allow for verbal or written communications with the appropriate Gwinnett County representative.

E. Sample contracts (if pertinent) are attached. These do NOT have to be filled out with the submittal but are contained for informational purposes only. If awarded, the successful vendor(s) will be required to execute these documents prior to County execution.

F. Effective July 1, 2013 and in accordance with the Georgia Illegal Immigration Reform Enhancements for 2013, an original signed, notarized and fully completed Contractor Affidavit and Agreement should be included with vendor's submittal, if the solicitation is for the physical performance of services for all labor or service contract(s) that exceed $2,499.99 (except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia). Failure to provide the Contractor Affidavit and Agreement with your submittal may result in being deemed non-responsive and automatic rejection.

II. DELIVERY

A. Each vendor should state time of proposed delivery of goods or services.

B. Words such as "immediate," "as soon as possible," etc. should not be used. The known earliest date or the minimum number of calendar days required after receipt of order (delivery A.R.O.) should be stated. If calendar days are used, include Saturday, Sunday, and holidays in the number.

III. EXPLANATION TO VENDORS

Any explanation desired by a vendor regarding the meaning or interpretation of the solicitation, drawings, specifications, etc. must be requested by the question cutoff deadline stated in the solicitation for a reply to reach all vendors before the deadline of the solicitation. Any information given to a prospective vendor concerning a solicitation will be furnished to all prospective vendors as an addendum to the solicitation if such information is necessary or if the lack of such information would be prejudicial to uninformed vendors. The written solicitation documents supersede any verbal or written communications between the parties. Receipt of addenda should be acknowledged in the submittal. **It is the vendor's responsibility to ensure they have all applicable addenda prior to their**

submittal. This may be accomplished by contacting the assigned Purchasing Associate prior to the submittal or visiting the Gwinnett County website.

IV. SUBMISSION OF FORMAL OFFERS/SUBMITTALS

A. Formal bid and proposal submittals shall be enclosed in a sealed package or envelope, addressed to the Gwinnett County Purchasing Division with the name of the vendor, the date and hour of opening and the solicitation number on the face of the package or envelope. Facsimile or emailed submittals will not be considered. Any addenda should be enclosed in the sealed envelopes as well.

B. ADD/DEDUCT: Add or deduct amounts indicated on the outside of the envelope are allowed and will be applied to the lump sum amount. Amount shall be clearly stated and should be initialed by an authorized representative.

C. Samples of items, when required, must be submitted within the time specified and, unless otherwise specified by the County, at no expense to the County. Unless otherwise specified, samples will be returned at the vendor's request and expense, if items are not destroyed by testing.

D. Items offered must meet required specifications and must be of a quality that will adequately serve the use and purpose for which intended.

E. Full identification of each item submitted, including brand name, model, catalog number, etc. must be furnished to identify exactly what the vendor is offering. Manufacturer's literature may be furnished but vendor should not submit excessive marketing material.

F. The vendor must certify that items to be furnished are new and that the quality has not deteriorated to impair its usefulness.

G. Unsigned submittals will not be considered except in cases where it is enclosed with other documents that have been signed. The County will determine acceptability in these cases.

H. Gwinnett County is exempt from federal excise tax and Georgia sales tax regarding goods and services purchased directly by Gwinnett County. Vendors are responsible for federal excise tax and sales tax, including taxes for materials incorporated in county construction projects. Vendors should contact the State of Georgia Sales Tax Division for additional information. Agreements were there is a cost-plus mark-up, mark-up will not be paid on taxes.

I. Information submitted by a vendor in the solicitation process shall be subject to disclosure after the public opening in accordance with the Georgia Open Records Act.

V. WITHDRAWAL DUE TO ERRORS

Vendors must give Gwinnett County Purchasing Division written notice within two (2) business days of completion of the opening stating that they wish to withdraw their submittal without penalty for an obvious clerical or calculation error. Submittal may be withdrawn from consideration if the price was substantially lower than the other submittals due solely to a mistake therein, provided pricing was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake and was due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of the submittal. The unintentional arithmetic error or omission can be clearly proven through inspection of the original work papers, documents, and materials used in preparing the submittal sought to be withdrawn. The vendor's original work papers shall be the sole acceptable evidence of error and mistake if a vendor elects to withdraw their submittal. If a quote or bid submittal is withdrawn under the authority of this provision, the lowest remaining responsive offer shall be deemed to be low bid.

No vendor who is permitted to withdraw their submittal shall, for compensation, supply any material or labor or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid or proposal was submitted.

Vendors who fail to request withdrawal by the required forty-eight (48) hours may automatically forfeit bid bond if a bond was required. Bid may not be withdrawn otherwise.

Withdrawal is not automatically granted and will be allowed solely at Gwinnett County's discretion.

VI. TESTING AND INSPECTION

Since tests may require several days for completion, the County reserves the right to use a portion of any supplies before the results of the tests are determined. Cost of inspections and tests of any item that fails to meet the specifications, shall be borne by the vendor.

VII. F.O.B. POINT

Unless otherwise stated in the request for invitation and any resulting contract, or unless qualified by the vendor, items shall be shipped F.O.B. Destination, Freight Prepaid and Allowed. The seller shall retain title for the risk of transportation, including the filing for loss or damages. The invoice covering the items is not payable until items are delivered and the contract of carriage has been completed. Unless the F.O.B. clause states otherwise, the seller assumes transportation and related charges either by payment or allowance.

VIII. PATENT INDEMNITY

The vendor guarantees to hold the County, its agents, officers, or employees harmless from liability of any nature or kind for use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used in the performance of the contract, for which the vendor is not the patentee, assignee, or licensee.

IX. BID BONDS AND PAYMENT AND PERFORMANCE BONDS (IF REQUIRED, FORMS WILL BE PROVIDED IN THIS DOCUMENT)

A five percent (5%) bid bond, a one hundred percent (100%) performance bond, and a one hundred percent (100%) payment bond must be furnished to Gwinnett County for any solicitation as required in the solicitation package or document. **Failure to submit a bid bond with the proper rating will result in submittal being deemed non-responsive.** Bonding company must be authorized to do business in Georgia by the Georgia Insurance Commission, listed in the Department of the Treasury's publication of companies holding certificates of authority as acceptable surety on Federal bonds and as acceptable reinsuring companies, and have an A.M. Best rating as stated in the insurance requirement of the solicitation. **The bid bond, payment bond, and performance bond must have the proper A.M. Best rating as stated in the solicitation document.**

X. DISCOUNTS

A. Time payment discounts may be considered in arriving at net prices and in award of solicitations. Offers of discounts for payment within ten (10) days following the end of the month are preferred.

B. In connection with any discount offered, time will be computed from the date of delivery and acceptance at destination, or from the date correct invoice or voucher is received, whichever is the later date. Payment is deemed to be made for the purpose of earning the discount on the date of the County check.

XI. AWARD

A. Award will be made to either the highest scoring firm (for proposals) or the lowest responsive and responsible vendor (for quotes/bids). The quality of the articles to be supplied, their conformity with the specifications, their suitability to the requirements of the County, and the delivery terms will be taken into consideration in making the award. The County may make such investigations as it deems necessary to determine the ability of the vendor to perform, and the vendor shall furnish to the County all such information and data for this purpose as the County may request. The County reserves the right to reject any submittal if the evidence submitted by, or investigation of such vendor fails to satisfy the County that such vendor is properly qualified to carry out the obligations of the contract.

B. The County reserves the right to reject or accept any or all offers and to waive technicalities, informalities and minor irregularities in the submittals received.

C. The County reserves the right to make an award as deemed in its best interest, which may include awarding to a single vendor or multiple vendors; or to award the whole solicitation agreement, only part of the agreement, or none of the agreement, based on its sole discretion of its best interest.

D. In the event of proposal scores rounded to the nearest whole number result in a tie score, the award will be based on lowest cost.

E. If proposal negotiations with the highest ranked firm are unsuccessful, the County may then negotiate with the second ranked firm and so on until a satisfactory agreement has been reached.

XII. DELIVERY FAILURES

Failure of a vendor to deliver within the time specified or within reasonable time as interpreted by the Purchasing Director, or failure to make replacement of rejected articles/services when so requested, immediately or as directed by the Purchasing Director, shall constitute authority for the Purchasing Director to purchase in the open market articles/services of comparable grade to replace the articles/services rejected or not delivered. On all such purchases, the vendor shall reimburse the County within a reasonable time specified by the Purchasing Director for any expense incurred in excess of the contract prices, or the County shall have the right to deduct such amount from monies owed the defaulting vendor. Alternatively, the County may penalize the vendor one percent (1%) per day for a period of up to ten (10) days for each day that delivery or replacement is late. Should public necessity demand it, the County reserves the right to use or consume articles/services delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.

XIII. COUNTY FURNISHED PROPERTY

No material, labor or facilities will be furnished by the County unless so provided in the solicitation package.

XIV. REJECTION OF SUBMITTALS

Failure to observe any of the instructions or conditions in this solicitation package may constitute grounds for rejection.

XV. CONTRACT

Each submittal is received with the understanding that the acceptance in writing by the County of the offer to furnish any or all the commodities or services described therein shall constitute a contract between the vendor and the County which shall bind the vendor on his part to furnish and deliver the articles quoted at the prices stated in accordance with the conditions of said accepted submittal. The

County, on its part, may order from such vendor, except for cause beyond reasonable control, and to pay for, at the agreed prices, all articles specified and delivered.

Upon receipt of a solicitation package containing a Gwinnett County "Sample Contract" as part of the requirements, it is understood that the vendor has reviewed the documents with the understanding that Gwinnett County requires that all agreements between the parties must be entered into via this document. If any exceptions are taken to any part, each must be stated in detail and submitted as part of the vendor's submittal. If no exceptions are stated, it is assumed that the vendor fully agrees to the provisions contained in the "Sample Contract" in its entirety.

A

ny Consultant as defined in O.C.G.A. §36-80-28 that is engaged to develop or draft specifications/requirements or serve in a consultative role during the procurement process for any County procurement method, by entering into such an arrangement or executing a contract, the consultant agrees to abide by the current state law and: 1) Avoid any appearance of impropriety and shall follow all policies and procedures of the County, 2) Disclose to the County any material transaction or relationship pursuant to §36-80-28, that is considered a conflict of interest, any involvement in litigation or other dispute, relationship, or financial interest not disclosed in the ethics affidavit, and 3) Acknowledge that any violation or threatened violation of the agreement may cause irreparable injury to the County, entitling the County to seek injunctive relief in addition to all other legal remedies.

When the vendor has performed in accordance with the provisions of this agreement, Gwinnett County shall pay to the vendor, within thirty (30) days of receipt of any department approved payment request and based upon work completed or service provided pursuant to the contract, the sum so requested, less the retainage stated in this agreement, if any. If Gwinnett County fails to pay the vendor within sixty (60) days of receipt of a pay request based upon work completed or service provided pursuant to the contract, the County shall pay the vendor interest at the rate of ½% per month or pro rata fraction thereof, beginning the sixty-first (61st) day following receipt of pay requests. The vendor's acceptance of progress payments or final payment shall release all claims for interest on said payment.

The parties agree that this Contract shall be governed and construed in accordance with the laws of the State of Georgia.

XVI. NON-COLLUSION

Vendor declares that the submittal is not made in connection with any other vendor's submittal for the same commodity or commodities, and that the submittal is bona fide and is in all respects fair and without collusion or fraud. An affidavit of non-collusion shall be executed by each vendor. Collusion and fraud in submittal preparation shall be reported to the State of Georgia Attorney General and the United States Justice Department.

XVII. DEFAULT

The contract may be canceled or annulled by the Purchasing Director in whole or in part by written notice of default to the vendor upon non-performance or violation of contract terms. An award may be made to the next low responsive and responsible vendor, or the next highest scoring responsive and responsible proposer, or articles specified may be purchased on the open market similar to those so terminated. In either event, the defaulting vendor (or their surety) shall be liable to the County for costs to the County in excess of the defaulted contract prices; provided, however, that the vendor shall continue the performance of this contract to the extent not terminated under the provisions of this clause. Failure of the vendor to deliver materials or services within the time stipulated on their offer, unless extended in writing by the Purchasing Director, shall constitute contract default.

XVIII. TERMINATION FOR CAUSE

The County may terminate this agreement for cause upon ten days prior written notice to the vendor of the vendor's default in the performance of any term of this agreement. Such termination shall be without prejudice to any of the County's rights or remedies by law.

XIX. TERMINATION FOR CONVENIENCE

The County may terminate this agreement for its convenience at any time upon 30 days written notice to the vendor. In the event of the County's termination of this agreement for convenience, the vendor will be paid for those services actually performed. Partially completed performance of the agreement will be compensated based upon a signed statement of completion to be submitted by the vendor, which shall itemize each element of performance.

XX. SUBSTITUTIONS

Vendors offering substitutions or who are deviating from the attached specifications shall list such deviations on a separate sheet to be submitted with their offer. The absence of such a substitution list shall indicate that the vendor has taken no exception to the specifications contained herein.

XXI. INELIGIBLE VENDORS

The County may choose not to accept the offer by an individual, firm, or business who is in default on the payment of taxes, licenses, or other monies owed to the County. Additionally, vendors or persons placed on an Ineligible Source List for reasons listed in Part 6, Section II of the Gwinnett County Purchasing Ordinance shall not be eligible to provide any commodities or services to the County during the period such person remains on the Ineligible Source List.

XXII. PENDING LITIGATION

An individual, firm, or business that has litigation pending against the County, or anyone representing a firm or business in litigation against the County, not arising out of the procurement process, will be disqualified.

XXIII. OCCUPATION TAX CERTIFICATE

Each successful vendor must have a valid Gwinnett County occupation tax certificate if the vendor maintains an office within the unincorporated area of Gwinnett County. Incorporated, out of County, and out of State vendors are required to have any and all certificates necessary to do business in any town, County or municipality in the State of Georgia, or as otherwise required by County ordinance or resolution. Vendors may be required to provide evidence of valid certificates. Out of State vendors are required to have a certificate in the Georgia jurisdiction where they receive the most revenue.

XXIV. PURCHASING POLICY AND REVIEW COMMITTEE

The Purchasing Policy & Review Committee has been established to review purchasing procedures and make recommendations for changes; resolve problems regarding the purchasing process; make recommendations for standardization of commodities, schedule buying, qualified products list, annual contracts, supplier performance (Ineligible Source List), and other problems or requirements related to purchasing. The Purchasing Policy & Review Committee has authority to place vendors on the Ineligible Source List for reasons listed in Part 6, Section II of the Gwinnett County Purchasing Ordinance, for a period not to exceed three (3) years.

XXV. AMERICANS WITH DISABILITIES ACT

All vendors for Gwinnett County are required to comply with all applicable sections of the Americans with Disabilities Act (ADA) as an equal opportunity employer. In compliance with the Americans with Disabilities Act (ADA), Gwinnett County provides reasonable accommodations to permit a qualified applicant with a disability to enjoy the privileges of employment equal to those employees without disabilities. Disabled individuals must satisfy job requirements for education background, employment experience, and must be able to perform those tasks that are essential to the job with or without reasonable accommodations. Any requests for the reasonable accommodations required by

individuals to fully participate in any open meeting, program or activity of Gwinnett County should be directed to the ADA Coordinator, 75 Langley Drive, Lawrenceville, Georgia 30046, 770-822-8165.

XXVI. ALTERATIONS OF SOLICITATION AND ASSOCIATED DOCUMENTS

Alterations of County documents are strictly prohibited and will result in automatic disqualification of the vendor's solicitation response. If there are "exceptions" or comments to any of the solicitation requirements or other language, then the firm may make notes to those areas, but may not materially alter any document language.

XXVII. TAX LIABILITY

Local and state governmental entities must notify vendors of their use tax liability on public works projects. Under Georgia law, private vendors are responsible for paying a use tax equal to the sales tax rate on material and equipment purchased under a governmental exemption that is incorporated into a government construction project: excluding material and equipment provided for the installation, repair, or expansion of a public water, gas, or sewer system when the property is installed for general distribution purposes. To the extent the tangible personal property maintains its character (for example, the installation of a kitchen stove), it remains tax-exempt. However, if the installation incorporates the tangible personal property into realty (for example, the installation of sheetrock), it becomes taxable to the private vendor. See O.C.G.A. §48-8-3(2) and O.C.G.A. §48-8-63.

XXVIII. STATE AND FEDERAL LAW REGARDING WORKER VERIFICATION

Effective July 1, 2013 State Law requires that all who enter into a contract for the physical performance of services for all labor or service contract(s) that exceed $2,499.99 (except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia) and that all who enter into a contract for public works as defined by O.C.G.A. §36-91-2(12) for the County, must satisfy the Illegal Immigration Reform Enhancements for 2013 in conjunction with the Federal Immigration Reform and Control Act (IRCA) of 1986, in all manner, and such are conditions of the contract.

The Purchasing Division Director with the assistance of the Internal Audit Division shall be authorized to conduct random audits of a vendor's or subcontractors' compliance with the Illegal Immigration Reform Enhancements for 2013 and the rules and regulations of the Georgia Department of Labor. The vendor and subcontractors shall retain all documents and records of its compliance for a period of five (5) years following completion of the contract or shall abide by the current time requirements at the time of the contract. This requirement shall apply to all contracts for all public works, labor or service contracts that exceed $2,499.99 except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia.

Whenever it appears that a vendor's or subcontractor's records are not sufficient to verify the work eligibility of any individual in the employment of such vendor or subcontractor, the Purchasing Director shall report same to the Department of Homeland Security and may result in termination of the contract if it is determined at any time during the work that the vendor or subcontractor is no longer in compliance with worker verification.

By submitting an offer to the County, vendor agrees that, in the event the vendor employs or contracts with any subcontractor(s) in connection with the covered contract, the vendor will secure from the subcontractor(s) such subcontractor(s') indication of the employee-number category applicable to the subcontractor, as well as attestation(s) from such subcontractor(s) that they follow the Illegal Immigration Reform Enhancements for 2013 in conjunction with all federal requirements. Original signed, notarized Subcontractor Affidavits and Agreements must be maintained by the vendor awarded the contract.

A vendor's or subcontractor's failure to participate in the federal work authorization program as defined above shall be subject to termination of the contract. A vendor's failure to follow Gwinnett

County's instruction to terminate a subcontractor that is not participating in the federal work authorization program may be subject to termination of the contract.

XXIX. **SOLID WASTE ORDINANCE**

No individual, partnership, corporation, or other entity shall engage in solid waste handling except in such a manner as to conform to and comply with the current Gwinnett County Solid Waste Ordinance and all other applicable local, state and federal legislation, rules, regulation, and orders.

XXX. GENERAL CONTRACTORS LICENSE

Effective July 1, 2008: All General Contractors must have a current valid license from the State Licensing Board for Residential and General Contractors, unless specifically exempted from holding such license pursuant to Georgia law (O.C.G.A. §43-41-17).

XXXI. **PRODUCTS MANUFACTURED IN GEORGIA**

When contracting for or purchasing supplies, materials, equipment, or agricultural products that exceeds $100,000.00, excluding beverages for immediate consumption, Gwinnett County shall give preference as far as may be reasonable and practicable to such supplies, materials, equipment, and agricultural products as may be manufactured or produced in this state. Such preference shall not sacrifice quality. Gwinnett County Board of Commissioners shall consider, among other factors, information submitted by the vendor which may include the vendor's estimate of the multiplier effect on gross state domestic product and the effect on public revenues of the state and the effect on public revenues of political subdivisions resulting from acceptance of an offer to sell Georgia manufactured or produced goods as opposed to out-of-state manufactured or produced goods. Any such estimates shall be in writing**.** (O.C.G.A. §36-84-1).

XXXII. INDEMNIFICATION

To the fullest extent permitted by law, the vendor shall, at his sole cost and expense, indemnify, defend, satisfy all judgments, and hold harmless the County, its commissioners, officers, agents, and employees from and against all claims, damages, actions, judgments, costs, penalties, liabilities, losses and expenses, including, but not limited to, attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, action, judgment, cost, penalty, liability, loss or expense (1) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by the negligent acts, errors by any act or omission of the vendor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless whether such claim is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any of the rights or obligations of indemnity which would otherwise exist as to any party or person described in this agreement. In any and all claims against the County, its commissioners, officers, agents, and employees by any employee of the vendor, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation contained herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the vendor or any subcontractor under Worker's Compensation Acts, disability benefit acts, or other employee benefit acts.

Vendor shall also indemnify, hold harmless, insure, and defend the County for damages, losses, or expenses to the extent caused by or resulting from the negligence, recklessness, or intentionally wrongful conduct of the vendor or other persons employed or utilized by the vendor in the performance of a contract that utilizes survey services.

XXXIII. CODE OF ETHICS

Vendors shall disclose under oath the name of all elected officials whom it employs or who have a direct or indirect pecuniary interest in the business entity, its affiliates, or its subcontractors. (This shall not apply to informal purchases as defined by the Purchasing Ordinance.) The vendor shall

execute a Code of Ethics affidavit. Failure to submit the affidavit during the procurement process shall render the offer non-responsive.

Any business entity holding a contract with Gwinnett County that after execution of the contract or issuance of the purchase order employs, subcontracts with, or transfers a direct or indirect pecuniary interest in the business entity to an elected official shall within five (5) days disclose such fact in writing under oath to the Clerk of the Board of Commissioners. Failure to comply, or vendors submitting false information or omitting material information shall be referred to the Purchasing Policy & Review Committee for action pursuant to the Purchasing Ordinance or to the District Attorney for possible criminal prosecution. Note: See Gwinnett County Code of Ethics Ordinance EO2011, Sec. 54-33. The ordinance is available to view in its entirety at www.gwinnettcounty.com.

XXXIV. ELECTRONIC PAYMENT

Vendors accepting procurements should select one of Gwinnett County's electronic payment options.

A. A vendor may select ePayables payment process which allows acceptance of Gwinnett County's virtual credit card as payment for outstanding invoices. The authorized vendor representative must send an email to: vendorelectronicpayment@gwinnettcounty.com and indicate the desire to enroll in Gwinnett County's virtual credit card payment process.

B. A vendor may select Direct Deposit payment process and the payment will be deposited directly into an account at their designated financial institution. To securely enroll in Direct Deposit, either access your online Vendor Login and Registration on the County's web site and update the requested information on the Direct Deposit tab or mail a Direct Deposit Authorization Agreement form.

The County will send a Payment Advice notification via email for both payment types. For more information about Electronic Payments, please visit the Gwinnett County Treasury Division page or click here -> Gwinnett County Electronic Payments.

DIRECTIONS TO GJAC BUILDING FROM I-85

Take I-85 to Georgia Highway 316 (Lawrenceville/Athens exit). Exit Highway 120 (Lawrenceville/Duluth exit) and turn right. At seventh traffic light, turn right onto Langley Drive. Cross Highway 29 through the traffic light and proceed through the roundabout. Visitors can either proceed to the front parking area on the left or to the parking deck behind the building. Click here for additional information about parking. The Purchasing Division is located on second floor of the Gwinnett Justice and Administration Center at 75 Langley Drive, Lawrenceville, Georgia 30046. WE HAVE MOVED BACK TO OUR PERMANENT LOCATION.

CONTRACT DOCUMENTS
FOR

Gwinnett County Department of Water Resources

DIESEL ENGINE GENERATOR AND AUTOMATIC TRANSFER SWITCH PROCUREMENT

IWQ 121855

February 2026

Prepared by:

Engineering Strategies, Inc.
3855 Shallowford Road, Suite 525
Marietta, Georgia 30062
(770) 429-0001

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SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

Paragraph	Title
1.2	Work Covered by Contract Documents
1.3	Coordination
1.4	Project Location
1.5	Quantities
1.6	Communications

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work to be performed under this Contract shall consist of furnishing all labor, materials, tools, equipment and incidentals and performing all Work required to provide and deliver a new diesel engine generator and automatic transfer switch complete, ready to operate and as specified herein.

B. The Work can generally be described as consisting of:

1. Provide submittals and operation and maintenance manuals for proposed generator and automatic transfer switch.
2. Provide a diesel engine generator with specified appurtenances
3. Provide an automatic transfer switch
4. Assist GCDWR with start-up and testing of the generator and automatic transfer switch. GCDWR will have the equipment installed using an annual contractor. Once installed, the Manufacturer shall provide the services of a field technician for start-up and testing.

C. Related Requirements

1. Prepare and submit all required shop drawings of equipment and structural items to be furnished.
2. Label all electrical and control wiring on both ends
3. Perform all warranty work.

D. Perform all work as specified.

1.3 COORDINATION

A. Coordinate delivery of the new equipment with the Owner.

1.4 PROJECT LOCATION

A. The equipment and materials to be furnished are to be delivered to GCDWR's Central Facility located at 684 Winder Hwy., Lawrenceville, GA 30045.

B. The generator will be installed inside the existing pump station building. The available space for the generator is 120" long by 84" wide. Generators and their associated enclosure which are larger than this will not be accepted.

1.5 QUANTITIES

A. The Owner reserves the right to alter the quantities of work to be performed or to extend or shorten the improvements at any time when and as found necessary, and the Contractor shall perform the work as altered, increased or decreased. Payment for such increased or decreased quantity will be made in accordance with the Instructions to Bidders. No allowance will be made for any change in anticipated profits nor shall such changes be considered as waiving or invalidating any conditions or provisions of the Contract.

1.6 COMMUNICATIONS

A. Submit all communications in writing. Use prescribed forms as required by the Owner.

B. Designate in writing the individuals who will be the Contractor's authorized representatives.

END OF SECTION

SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

Paragraph	Title
1.2	Specific Category Requirements
1.3	Routing of Submittals
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2.2	Manufacturer's Literature
2.4	Quality Control Submittals
3.1	Timing of Submittals
3.2	Reviewed Submittals
3.3	Resubmission Requirements
3.4	Attachments

B. Scope

1. The work under this Section includes submittal to the Engineer of shop drawings and product data required by the various Sections of these Specifications. Provide the submittals for the proposed Diesel Engine Generator at the time of and with the submitted quote.
2. Submittal Contents: The submittal contents required are specified in each Section.
3. Definitions: Submittals are categorized as follows:
    a. Shop Drawings:
        1) Shop drawings shall include technical data, drawings, diagrams, procedures and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared.
        2) Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated) or appropriate number of prints hereof, with name of preparer (firm name) indicated. Do not trace or reproduce by any method the Contract Drawings for use as or in lieu of detailed shop drawings. Show dimensions and note dimensions that are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards and special coordination requirements. Do not allow shop drawings to be used in connection with the Work without appropriate final "Action" markings by the Engineer.
        3) Present drawings in a clear and thorough manner. Identify details by reference to sheet and detail, Specification Section, schedule or room numbers shown on the Contract Drawings.

4) Minimum assembly drawings sheet size: 22-inches by 34-inches.

5) Minimum detail sheet size: 8-1/2-inches by 11-inches.

6) Minimum Scale:

a) ¼-inch = 1 foot.

b. Product Data:

1) Product data includes standard printed information on materials, products and systems, not specially prepared for this Project, other than the designation of selections from among available choices printed therein.

2) Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the Project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements that have been checked and special coordination requirements.

c. Miscellaneous submittals related directly to the Work (non-administrative) include warranties, maintenance agreements, workmanship bonds, quality testing and certifying reports, copies of industry standards, operating and maintenance materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the Work but not processed as shop drawings and products.

4. Resubmissions: Clearly identify each correction or change made. The resubmission shall be accompanied by a letter listing all comments made by the Engineer and the actions or response by the manufacturer or vendor to each comment. Where the Engineer's comment applies to multiple areas of the initial submittal the response shall address all areas. The response letter shall also address where supplemental information has been provided and where it is located within the resubmission.

5. Incomplete Submittal Submissions:

a. Engineer will return entire Submittal for Supplier's revision/correction and resubmission.

b. Submittals which do not clearly bear Supplier's specific written indication of Supplier review and approval of Submittal or which are transmitted with an unsigned or uncertified submission form or as may otherwise be required will be returned to Supplier un-reviewed.

6. Non-specified Submissions: Submissions not required under these Contract Documents and not shown on submittal logs generated by the Engineer will not be reviewed, but will be logged for information only, and will be returned to Supplier.

7. Engineer's Review: Engineer will act upon Supplier's Submittal and transmit response to Supplier not later than 15 days after receipt, unless otherwise specified. Resubmittals will be subject to same review time.

8. Schedule Delays:

a. No adjustment of Contract Times or Price will be allowed due to Engineer's review of Submittals, unless all of the following criteria are met:

1) Supplier has notified Engineer in writing that timely review of Submittal in question is critical to progress of Work, and has received Engineer's written acceptance to reflect such on current accepted submissions and progress schedule. Written agreement by Engineer to reduce Submittal review time will be made only for unusual and Supplier-justified reasons. Acceptance of a progress schedule containing Submittal review times less than specified or less

than agreed to in writing by Engineer will not constitute Engineer's acceptance of review times.

2) Engineer has failed to review and return first submission of a Submittal within agreed time indicated on current accepted schedule of submissions or, if no time is indicated thereon, within 15 days after receipt.

3) Supplier demonstrates that delay in progress of Work is directly attributable to Engineer's failure to return Submittal within time indicated and accepted by Engineer.

b. No adjustment of Contract Times or Price will be allowed due to delays in progress of Work caused by rejection and subsequent resubmission of Submittals, including multiple resubmissions.

1.2 SPECIFIC CATEGORY REQUIREMENTS

A. General: Except as otherwise indicated in the individual work sections, comply with the general requirements specified herein for each indicated category of submittal. Include in submittals:

1. The date of submittal and the dates of any previous submittals.
2. The Project title.
3. The submittal number.
4. The Names of:
   a. Supplier.
   b. Manufacturer.
5. Identification of the product, with the specification section number, permanent equipment tag numbers and applicable Drawing No.
6. Applicable standards, such as ASTM or Federal Specification numbers.
7. Notification to the Engineer in writing of any deviations to the requirements of the Contract Documents. The notification of deviation shall be clearly marked by the Supplier in the body of the submittal and stated in text in the Supplier's remarks on the transmittal document of the submittal. Indicate the reasons for the deviations and the benefits to the Project.
8. Identification of revisions on resubmittals.
9. An 8-inch by 4-inch blank space for Engineer's stamps.
10. A stamp or photographic facsimile of a stamp, initialed or signed, including a certification statement of the Supplier's review of the submittal and indicating the submittal's status relative to the requirements of the Contract Documents.
11. Cross out all non-pertinent information on submittal sheets or drawings showing more than one particular item under consideration.

1.3 ROUTING OF SUBMITTALS

A. Route submittals and routine correspondence as follows:

1. Supplier to Engineer (through representative if applicable).
2. Engineer to Supplier and Owner.

B. Additionally, if a submittal is for products, equipment or systems which interface with the Process Instrumentation and Control Systems Supplier (PICSS) or Instrumentation and

Control System Integrator, such submittal shall be reviewed by the PICSS prior to submittal to the Engineer. Include all PICSS review comments with such submittal to the Engineer.

PART 2 PRODUCTS

2.1 SHOP DRAWINGS

A. Unless otherwise specifically directed by the Engineer, make all shop drawings accurately to scale, and large enough and in sufficient detail to show all pertinent features of the submitted item and its method of connection to the Work.

B. Submit all shop drawings electronically to the fullest extent possible. Supplier shall advise when shop drawings cannot be scanned and submitted electronically. In the limited cases where electronic submissions cannot be made, 6 copies of the submittal shall be provided. All electronically submitted shop drawings shall be in a searchable single file Adobe Acrobat Portable Document Format (PDF). The PDF file shall be fully indexed using the Table of Contents, searchable with thumbnails generated. Electronic files shall be scanned in no greater than 300 dpi utilizing optical character recognition (OCR) software. One signed electronic copy of the reviewed submittal shall be returned to the Supplier. Supplier will be responsible for additional markups required for additional distribution to suppliers and subcontractors.

2.2 MANUFACTURER'S LITERATURE

A. Where the content of submitted literature from manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being submitted for the Engineer's review.

B. Submit manufacturer's literature electronically. The literature shall be reviewed and comments, if any, returned to the Supplier with the status of the submittal indicated. One electronic copy shall be returned to the Supplier.

2.3 QUALITY CONTROL SUBMITTALS

A. Certificates:

1. Manufacturer's Certificate of Compliance.

2. Certificates of Successful Testing or Inspection: Submit when testing or inspection is required by Laws and Regulations or governing agency, or is specified in the individual Specification sections.

B. Operation and Maintenance Manual: As required in Section 01 78 23.

C. Statements of Qualification: Evidence of qualification, certification, or registration. As required in these Contract Documents to verify qualifications of professional land surveyors, Engineers, materials testing laboratories, specialty subcontractors, trades, specialists, consultants, installers, and other professionals.

D. Written Test Reports of Each Test and Inspection: As a minimum, include the following:

1. Date of test and date issued, Project title and number, testing laboratory name, address, and telephone number, and name and signature of laboratory inspector.

2. Date and time of sampling or inspection and record of temperature and weather conditions.

3. Identification of product and Specification section, test or inspection in the Project, type of inspection or test with referenced standard or code, certified results of test.

4. Compliance with Contract Documents, and identifying corrective action necessary to bring materials and equipment into compliance.
5. Provide an interpretation of test results, when requested by Engineer.

E. Disposition: Engineer will review, stamp, and indicate requirements for resubmission or acceptance on Submittal as follows:

1. Accepted:
   a. Acceptance will indicate that Submittal conforms to intent of Contract Documents as to form and substance.
   b. Supplier may proceed to perform Submittal related Work.
   c. For electronic submittals, one copy of electronic file will be provided to the Owner and Supplier.
   d. Distribution as follows for hard copy submittals:
      1) One copy furnished Owner.
      2) One copy retained in Engineer's file.
      3) Remaining copies returned to Supplier appropriately annotated.
2. Rejected as Noted:
   a. One copy retained in Engineer's file.
   b. Remaining copies returned to Supplier appropriately annotated.
   c. Supplier shall revise/correct or develop replacement and resubmit.

PART 3 EXECUTION

3.1 TIMING OF SUBMITTALS

A. Make all submittals far enough in advance of scheduled dates for delivery to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.

B. In scheduling, allow sufficient time for the Engineer's review following the receipt of the submittal.

3.2 REVIEWED SUBMITTALS

A. Engineer Review:

1. Allow a minimum of 15 calendar days for the Engineer's initial processing of each submittal requiring review and response, except allow longer periods for submittals needing coordination with subsequent submittals. The Engineer shall inform the Supplier promptly when it is determined that a submittal being processed must be held for coordination.
2. Acceptable submittals with no review comment shall be marked "No Exceptions Noted". A submittal with an "NEN" status shall not be resubmitted.
3. Submittals requiring minor corrections will be marked "Furnish as Corrected". The Supplier may order, fabricate and ship the products, provided the indicated corrections are made. A submittal with an "FAC" status must be completely resubmitted for review and marked "NEN" prior to installation or use of the submitted product. The resubmission shall be accompanied by a letter as referenced in Article 1.1.B.4. above. No payment will be made for materials stored onsite or incorporated into the work until the resubmittal obtains an "NEN" status.

4. Submittals marked “Revise and Resubmit” must be resubmitted with revisions reflecting the Engineer’s comments. The resubmission shall be accompanied by a letter as referenced in Article 1.1.B.4. above. The Supplier shall not order, fabricate or ship items that correspond to an “R&R” submittal.

5. Submittals marked “Rejected” are not acceptable. Upon return of a submittal so marked, the Supplier shall repeat the initial review procedure utilizing acceptable products.

B. No product shall be installed that does not have a corresponding submittal bearing a status of “No Exceptions Noted”. Maintain at the job site a complete set of current submittals indicating the review status established by the Engineer.

C. Use of the “No Exceptions Noted” notation on shop drawings or other submittals is general and shall not relieve the Supplier of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The Engineer's review shall not relieve the Supplier of responsibility for errors of any kind on the submittals. The Engineer’s review shall not relieve the Supplier of responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer, Designer or the Owner, or by any officer or employee thereof, and the Supplier shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material or equipment so reviewed. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Supplier is responsible for dimensions to be confirmed and correlated at the job site. The Supplier is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the work of all trades.

3.3 RESUBMISSION REQUIREMENTS

A. Accept full responsibility for the completeness of each resubmittal. Verify that all corrected data and additional information previously requested by the Engineer are provided on the resubmittal. Accompany the resubmission with a letter as referenced in Article 1.1.B.4. above. Clearly mark and alert the Engineer to the presence of changes within the resubmittal that are other than those required by the Engineer’s comments on the previous submittal. Requirements specified in initial submittals shall also apply to resubmittals.

3.4 ATTACHMENTS

A. Attachments listed below, following “END OF SECTION,” are a part of this Specification:

1. Manufacturer’s Certificate of Compliance

END OF SECTION

Manufacturer's Certificate of Compliance

Project: **Skid Mounted Diesel Pump**	Project No.: **IWQ1-#####**
Owner: Gwinnett County Department of Water Resources	
Equipment/System: Diesel Pump	Spec. Section:43 21 13.16
Equipment Serial No.:	Equipment Tag No.:
Manufacturer:	

Comments:

I hereby certify the above referenced product, material, or service called for by the Contract for the named project will be furnished in accordance with all applicable requirements. I further certify the product, material, or service is of the quality specified and conforms in all respects with the contract requirements, and is in the quantity shown.

Date of Execution: _____

Manufacturer's Authorized Representative: _____
(Print Name)

Manufacturer's Authorized Representative: _____
(Signature)

SECTION 01 60 00

GENERAL EQUIPMENT STIPULATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

Paragraph	Title
1.2	Unit Responsibility
1.3	Patent Royalties
1.4	Equipment Warranty
1.5	Workmanship and Materials
1.6	Equipment Specifications
1.7	Electrical Requirements
1.8	Operating Fluids and Gases
1.9	Lubrication and Lubrication Fittings
1.10	Safety Guards
1.11	Alignment of Motors and Equipment
1.12	Welding and Brazing
1.13	Special Tools and Accessories
1.14	Shop Testing
1.15	Hydraulic Systems
1.16	Noise Criteria
1.17	Failure of Equipment to Perform

B. Scope

1. These general equipment stipulations apply, in general, to all equipment and piping. They supplement the detailed equipment Specifications, but in case of conflict, the detailed equipment Specifications shall govern.
2. Furnish, install, test, and place in acceptable operation all mechanical equipment and all necessary accessories as specified herein, as shown on the Drawings, and as required for a complete and operable system.
3. Provide mechanical equipment complete with all accessories, special tools, spare parts, mountings, and other appurtenances as specified, and as may be required for a complete and operating installation.
4. It is the intent of these Specifications that the Contractor provide the Owner complete and operational equipment/systems. To this end, it is the responsibility of the Contractor to coordinate all interfaces with related mechanical, structural, electrical, instrumentation and control work and to provide necessary ancillary items such as controls, wiring, etc., to make each piece of equipment operational as intended by the Specifications.

5. The completed installation shall be free from excessive vibration, cavitation, noise, and oil or water leaks.

1.2 UNIT RESPONSIBILITY

A. Equipment manufacturers assigned unit responsibility for systems comprised of several components shall be responsible for furnishing a complete system in accordance with the requirements of these Specifications. The manufacturer shall be responsible for all coordination between component manufacturers and shall provide all submittals, installation and start-up services and certifications on the system as a unit.

1.3 PATENT ROYALTIES

A. Include the cost of all royalties and fees for patents covering materials, articles, apparatus, devices or equipment in prices bid.

1.4 EQUIPMENT WARRANTIES

A. Warrant all equipment against faulty or inadequate design, improper assembly or erection, defective materials, breakage or other failure. The warranty period shall be defined in Section 01 78 33 of these Specifications.

1.5 WORKMANSHIP AND MATERIALS

A. Design, fabricate, and assemble all equipment in accordance with the most modern engineering and shop practice. Individual parts shall be manufactured to standard sizes and gauges so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall be new and shall not have been in service at any time prior to delivery, except as required by tests.

B. Provide materials suitable for service conditions. Iron castings shall be tough, close grained, gray iron free from blowholes, flaws or excessive shrinkage and shall conform to ASTM A48, Class 30 minimum. Plugging of defective castings shall not be permitted. Castings shall be annealed to remove internal stresses prior to machining and shall have the mark number and heat number cast on them.

C. Except where otherwise specified, structural and miscellaneous fabricated steel used in items of equipment shall conform to the Standards of the American Institute of Steel Construction. All structural members shall be considered as subject to shock or vibratory loads.

D. Make all replaceable or expendable elements such as filters, screens, drive belts, fuses and lamps easily accessible and replaceable without need of dismantling equipment or piping. Provide standard type of all such items that are readily available from multiple suppliers.

E. Provide stainless steel plugs for threaded openings for drains or vents in pump volutes, compressor or fan scrolls, air receivers, and heat exchangers which are plugged during normal operation.

F. Include detailed installation instructions and a parts list for all equipment delivered to the Project site.

G. Isolate all dissimilar metals to the satisfaction of the Engineer.

1.6 EQUIPMENT SPECIFICATIONS

A. The use of singular or plural terminology in the Specifications is not intended to define the number of units required to fulfill Contract requirements. Bidders must consult the Drawings and Specifications to determine how many units of a particular piece of equipment are required. This does not relieve the Contractor of the responsibility to provide all equipment specified when multiple units are specifically required in the Specifications.

1.7 ELECTRICAL REQUIREMENTS

A. All electrical equipment and appurtenances, including but not limited to motors, panels, conduit and wiring, etc., specified in the equipment specifications shall comply with the applicable requirements of the Division 26 specifications and the latest National Electric Code.

B. In the individual equipment specifications, specified motor horsepower is intended to be the minimum size motor to be provided. If a larger motor is required to meet the specified operating conditions and performance requirements, furnish the larger sized motor and upgrade the electrical service (conduit, wires, starters, etc.) at no additional cost to the Owner.

C. Furnish and install motor starters and controls under Division 26 and Division 40 unless otherwise specified in the individual pump specifications.

1.8 OPERATING FLUIDS AND GASES

A. Provide in sufficient quantity of all operating fluids and gases recommended by the manufacturer and required for operation of the equipment to fill all equipment and to replace all fluids and gases consumed during testing and start-up.

1.9 LUBRICATION AND LUBRICATION FITTINGS

A. Equipment shall be adequately lubricated by systems which require attention no more frequently than weekly during continuous operation. Lubrication systems shall not require attention during start-up or shutdown and shall not waste lubricants.

B. Provide in sufficient quantities lubricants of the type recommended by the equipment manufacturer to fill all lubricant reservoirs and to replace all lubricants consumed during testing, start-up and initial operation. Provide sufficient quantities of lubricants to lubricate all equipment for one year of normal service before final acceptance of the equipment will be made by the Owner.

C. When special run-in oil or storage lubricants are used, flush out and replace with the required service lubricant.

D. Tag each piece of equipment with a cloth tag showing proper type lubricant, period between lubrications, date of lubrication and worker's initials. Have space for 10 lubrication notations.

E. Except for rotating shaft couplings, bring all lubrication fittings to the outside of all equipment so that they are readily accessible from the outside without the necessity of removing covers, plates, housings or guards. Make fittings accessible from safe, permanent platforms or walk areas. Provide bull-neck, check type fittings for use with a portable high pressure grease gun. Provide minimum 3/16-inch stainless steel tubing, securely mounted parallel to equipment lines and protected where exposed to damage for connection from a remote fitting to the point of use.

1.10 SAFETY GUARDS

A. Provide safety guards on all sides of all belt or chain drives, fan blades, couplings and other moving or rotating parts. Fabricate safety guards from 16 USS gauge or heavier galvanized or aluminum-clad sheet steel or 1/2-inch mesh galvanized expanded metal. Band expanded metal safety guards to eliminate sharp edges. Design each guard for easy installation and removal. Provide all necessary supports and accessories for each guard. Supports and accessories, including bolts, shall be galvanized. Design all safety guards in outdoor locations to prevent the entrance of rain and dripping water. Comply with OSHA General Industry Standards, Part 1910, Subpart O, Machinery and Machine Guarding. Provide tachometer access on shaft ends.

1.11 ALIGNMENT OF MOTORS AND EQUIPMENT

A. In every case where a drive motor is connected to a driven piece of equipment by a flexible coupling, the coupling halves shall be disconnected and the alignment between the motor and the equipment checked and corrected. Machinery shall first be properly aligned and leveled by means of steel wedges and shims or jacking screws near anchor bolts. Anchor bolts shall be tightened against the shims on wedges or jacking screws and the equipment shall again be checked for level and alignment before placing grout. Wedges shall not be placed between machined surfaces.

B. In general, follow the procedures set up in the Standards of the Hydraulic Institute, Instructions for Installation, Operation, and Maintenance of Centrifugal Pumps for checking and correcting the alignment. Equipment shall be properly leveled and brought into angular and parallel alignment.

C. Install equipment in such a way that no strain is transmitted to the equipment by piping systems or adjacent equipment.

D. Alignment shall be performed in the manufacturer's shop between drivers and driven equipment. After installation, a laser alignment shall be performed in the field by an independent testing laboratory acceptable to the Engineer and retained by the Contractor. The laser alignment shall be performed in the presence of a qualified manufacturer's field representative. The laser alignment system shall be either a combined laser emitter and laser target detector or separate units for the emitter and detector.

E. Operate the driven equipment under load for at least 90 minutes prior to performing the field alignment. Alignment tolerance values shall be as recommended by the driven equipment manufacturer or as specified in the equipment specification section. Comply with the equipment manufacturer's recommended alignment procedures. Recheck alignment after equipment has operated under load for a minimum of 24 hours.

F. Use either shims or factory installed adjusting bolts to level the equipment and correct a soft foot condition.

G. Provide shims meeting the following Specifications:

1. Commercially die-cut.
2. Made of corrosion and crush resistant stainless steel, which is dimensionally stable when subjected to high compression over long periods of time.
3. Consistent over the whole shim area, without seams or folds from bending.
4. Clean, free from burrs, bumps, nicks, and dents of any kind.
5. Size numbers or trademarks etched into the shim, not printed or stamped.
6. Use the smallest commercial shim that will fit around the hold-down bolt without binding.
7. A maximum of three shims may be used in the overall shim pack.
8. Rest shims on bare metal, not paint or other coatings.
9. For both driver and driven machines, provide a minimum 0.125 inch shim (±0.0003 inch) between all machine feet and mounting base, excluding alignment shims.
10. Select all shims from the proper size pre-cut series (A, B, C, D, etc.) to match the machine mounting bolt size and to maximize coverage of the machine footprint being supported. Use multiple or oversized shims where the area of the machine footprint is 150 percent or greater than the proper size pre-cut series shim footprint.

H. Submit both a shop and a field alignment report containing the following information:

1. Alignment tolerances used.
2. Soft foot.
3. Vertical angularity (pitch) at the coupling point.
4. Vertical offset at the coupling point.
5. Correct soft foot at all feet of both driver and driven machines. Actual allowable uncorrected soft foot measured at any machine foot shall be less than a maximum of 0.002 inch of required shim. This includes soft foot caused by angled foot or base conditions.
6. Horizontal angularity (yaw) at the coupling point.
7. Horizontal offset at the coupling point.

1.12 WELDING AND BRAZING

A. All welds are to be sound and free from embedded scale and slag. All butt welds shall be continuous, and where exposed to view, shall be ground smooth. All continuous welds shall be gas and liquid-tight. Welds in piping shall have full penetration and shall be smooth on the inside of the pipe. Intermittent welds shall have an effective length of at least 2 inches and shall be spaced not more than 6 inches apart.

B. Conform all welding of steel and aluminum, including materials, welding techniques, general safety practices, appearance and quality of welds, and methods of correcting defective work, to the latest requirements of AWS Specifications.

C. Conform structural steel welding to the requirements of the AWS Structural Welding Code. The general recommendations and requirements of the AWS Structural Welding Code shall also apply to welded aluminum structures.

D. The welding process and welding operators shall meet qualification tests and welding performance tests in accordance with the latest provisions of ASME Boiler and Pressure Vessel Code, Section IX, Welding and Brazing Qualifications. Welding process and qualification procedures for welding of pipe shall conform to the latest requirements of ANSI B31.1, Section 327, Welding, and Section 328, Brazing and Soldering. All welding qualification tests shall be witnessed by the Engineer, except as provided herein. All costs associated with the qualification or testing of welders and welding operators shall be borne by the Contractor.

E. Provide reports certifying that the welding procedures, welders and welding operators that the Contractor intends to use meet the requirements specified above. Submit these reports to the Engineer prior to beginning the Work. In the case of welder qualifications for shop welding and for carbon steel field welding, welders presenting certified qualification papers validated within the preceding 6-month period will not be required to take the qualification tests. In the case of field welding of stainless steel or aluminum, all welders shall be required to take the qualification tests regardless of past experience or availability of certified qualification papers.

F. Field welding practices shall conform to OSHA construction standards, Part 1926, Subpart J, Welding and Cutting. Shop welding practices shall conform to OSHA General Industry Standards, Part 1910, Subpart Q, Welding, Cutting, and Brazing.

G. Use welding electrodes for structural steel which conform to the standard recommendations of the AISC. Use welding electrodes for stainless steel which conform to applicable AWS Specifications and shall be as recommended by "Welded Austenitic Chromium-Nickel Stainless Steels, Techniques and Properties", published by the International Nickel Company, New York, New York. Use welding electrodes for aluminum which conform to applicable AWS Specifications.

H. Each welder and welding operator must identify all welds with welder's assigned symbol.

I. Remove welders performing unsatisfactory work from the welding process.

J. The Owner may inspect any weld by radiographic or other means. Repair or replace welds not in accordance with the requirements specified herein at the Contractor's expense. Grounds for rejection of welds include excessive porosity, nonmetallic inclusions, lack of fusion, incomplete penetration and cracking.

1.13 SPECIAL TOOLS AND ACCESSORIES

A. Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments and accessories required for proper maintenance. Special tools and accessories shall include those tools and accessories not normally available in an industrial hardware or mill supply house. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.

1.14 SHOP TESTING

A. Test all equipment in the shop of the manufacturer in a manner which conclusively proves that its characteristics comply fully with the requirements of the Contract Documents and that it will operate in the manner specified or implied.

B. Do not ship any equipment to the project until the Engineer has been furnished a certified copy of test results and has notified the Contractor, in writing, that the results of such tests are acceptable.

C. Forward seven (7) certified copies of the manufacturer's actual test data and interpreted results thereof to the Engineer for review.

D. If required by the individual equipment Specifications, make arrangements for the Owner/Engineer to witness performance tests in the manufacturer's shop. Notify the Engineer ten (10) working days before shop testing commences. Expenses are to be paid by Contractor.

1.15 HYDRAULIC SYSTEMS

A. Securely restrain all pipes, tubes and hoses for hydraulic fluid against movement.

B. Equip all hydraulic fluid reservoirs for hydraulic power packs with a low level shut-off mechanism which shall stop operation of the power pack when the level of fluid in the reservoir reaches a predetermined low level.

C. Equip all hydraulic systems with an alarm to notify the operator of system malfunction.

1.16 NOISE CRITERIA

A. Unless otherwise specified, noise levels for all operating equipment shall not exceed 90 dB at 5 feet from the equipment when measured on the A scale of a calibrated sound level meter at slow response.

B. Meet noise criteria without the use of special external barriers or enclosures.

1.17 FAILURE OF EQUIPMENT TO PERFORM

A. Promptly correct any defects in the equipment or failure to meet the guarantees or performance requirements of the Specifications by replacements or otherwise.

B. If the Contractor fails to make these corrections, or if the improved equipment fails again to meet the guarantees or specified requirements, the Owner, notwithstanding his having made partial payment for work and materials which have entered into the manufacture of

said equipment, may reject said equipment and order the Contractor to remove it from the premises at the Contractor's expense.

C. Upon receipt of said sums of money, the Owner will execute and deliver to the Contractor a bill of sale of all his rights, title, and interest in and to said rejected equipment; provided, however, that said equipment shall not be removed from the premises until the Owner obtains from other sources other equipment to take the place of that rejected.

D. Said bill of sale shall not abrogate Owner's right to recover damages for delays, losses, or other conditions arising out of the basic contract.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 78 23

OPERATING AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

Paragraph	Title
1.2	Submittal Schedule
1.3	Submittal Format
1.4	Contents of Operating and Maintenance Manual

B. Scope

1. Provide four (4) copies of a complete and comprehensive reference manual (Operating and Maintenance Manual) containing operating and maintenance data to enable operators and plant engineers to correctly operate, service and maintain all equipment and accessories covered by the Specifications and Drawings. The data contained in the manual shall explain and illustrate clearly and simply all principles and theory of operation, operating instructions, maintenance procedures, calibration procedures and safety precautions and procedures for the equipment involved.
2. Include the cost of the Operating and Maintenance Manual in the Contract Price. No separate payment will be made for the Operating and Maintenance Manual.
3. Start-up will not be permitted until Operation and Maintenance manuals have been submitted to and approved by the Engineer.

1.2 SUBMITTAL SCHEDULE

A. Submit, for the Engineer's approval, preliminary draft of proposed formats and outlines of contents of manuals within 60 calendar days after the Notice to Proceed. The Engineer will notify the Supplier, in writing, of any deficiencies in the manual and will return one copy of the manual for completion and/or correction.

B. Submit preliminary copy of manuals before the work covered by the Contract Documents is 40 percent complete. Also submit three copies of the manual in digital format as specified below. The Engineer will notify the Supplier, in writing, of any deficiencies in the manual and will return one copy of the manual for completion and/or correction.

C. Resubmissions: Clearly identify each correction or change made. Provide a letter listing all comments made by the Engineer and the actions or response by the manufacturer or vendor to each comment with the resubmission. Where the Engineers comment applies to multiple areas of the initial submittal address all areas in the response. Identify where supplemental information has been provided and where it is located within the resubmission in the response letter.

D. Submit final copies of the revised and completed manual, complete in detail as specified below before the work covered by the Contract Documents is 70 percent complete. Also submit six copies of the manual in digital format as specified below.

E. Digital Copies of Manuals: Provide Operations and Maintenance Manuals in searchable digital format concurrently with both the preliminary and final hard copy submissions.

Materials available in digital format shall be furnished in accordance with the following:

1. Provide all textual data as an electronic file in searchable Adobe Acrobat Portable Document Format (PDF). The PDF file(s) shall be fully indexed using the Table of Contents, searchable with thumbnails generated. File(s) shall be identified by utilization of a "six dot two dot two" convention (XXXXXX.XX.YY.pdf) where X is the eight digit number corresponding to the specification section, and YY is an identification number. All documents shall be scanned at 300dpi or greater utilizing optical character recognition (OCR) software. All text in the document must be text selectable with the exception of pages which are in their entirety drawings or diagrams. Word searches of the PDF document must function successfully. PDF files that fail to comply with the indexing and searchable features described above will not be acceptable. All drawing data shall be provided in DWG version 2010 format or higher.
2. Materials not available in original digital format (available only in paper format) shall be scanned as noted above into a PDF format and cleaned to remove smudges, fingerprints, artifacts, and other extraneous marks. Include the following features, as applicable:
    a. Preserve all notes, version stamps, etc.
    b. Color maps: scanned in not less than the number of colors of the document or 16 colors, whichever is greater.
    c. Color photographs: saved in not less than 256 colors.
    d. Black and white or monochrome scans (non-text): minimum 16 gray scale levels.
    e. File Type: save color maps, color photographs, and black and white and gray scale photograph files as GIF or JPG files, compatible with Adobe Photoshop Version 4.0.
    f. Scan documents in the existing color format of the document, i.e. color documents shall be scanned in color, and black and white or monochrome in gray scale.
3. After the documents are in correct digital format, furnish them to the Engineer on a 1GB Flash Drive or via electronic delivery. Provide a detailed listing of the files provided with all media transmittals. This printout is to include a file name, file size, date of creation, submittal number, and a brief but accurate description of the file. Provide two (2) copies of the Flash Drive for each Operation and Maintenance Manual to the Engineer.

1.3 SUBMITTAL FORMAT

A. Assemble each hard copy of the manual in one or more loose leaf binders, each with title page, typed table of contents, typed list of tables, typed list of figures, and heavy section dividers with reinforced holes and numbered plastic index tabs. Provide uniform 3-ring, hardback type, with transparent vinyl pocket front cover suitable for inserting identifying cover and with a transparent vinyl pocket on the spine for label binders for all manuals. All data shall be punched for binding. Arrange composition and printing so that punching does not obliterate any data. Include the project title, specification section number and title, and manual title on the cover and binding edge of each manual, all as approved by the Engineer.

B. Reduce all copies of shop drawings, figures and diagrams to either 8-1/2 x 11-inches or to 11-inches in the vertical dimension and as near as practical to 17-inches in the horizontal dimensions. Fold such sheets to 8-1/2 x 11-inches. Print the manual and other data on first quality paper, 8-1/2 x 11-inch size with standard 3-hole punching. Label Vol. 1of "X", Vol. 2 of "X", etc., where "X" is the total number of volumes in the set where more than one is required. Include the table of contents for the entire set, identified by volume number in each binder. Text, figures and drawings shall be clearly legible and suitable for dry process reproductions.

C. Provide a cover sheet that includes the following information with each submittal:

1. The date of submittal and the dates of any previous submittals.
2. The Project title.
3. Submittal numbering in accordance with Section 01 33 23 of these Specifications.
4. The names of:
    a. Contractor
    b. Supplier
    c. Manufacturer
5. Identification of the product, with the Specification section number, permanent equipment tag numbers and applicable Drawing No.

D. The Engineer will not recommend final acceptance of the Work until the Operating and Maintenance Manual is complete and satisfactory to Engineer.

1.4 CONTENTS OF OPERATING AND MAINTENANCE MANUAL

A. Include a title page which includes all information specified in Article 1.3, paragraph C. of this Section in each manual. In addition, include manufacturer's address, phone number, facsimile number, and contact; manufacturer's equipment name and model number; supplier's address, phone number, facsimile number, and contact on the title page.

B. Include a table of contents identifying the location of each item listed below, for each component supplied in each manual. For items not applicable to a component, the table of contents shall list N/A for the page number.

C. For all equipment, furnish a complete, detailed listing of all equipment, components and accessories showing component name, manufacturer, model number and quantity information as outlined below:

1. Provide a summary page for each piece of equipment detailing the following information:
    a. Equipment Number
    b. Equipment Description
    c. Serial Number
    d. Model Number
    e. Manufacturer
        1) Address
        2) Phone
        3) Representative
    f. Supplier
        1) Address
        2) Phone
        3) Representative
    g. Local Service Provider
        1) Address
        2) Phone

3) Representative

h. Location of Equipment

i. Equipment Design Criteria

1) HP

2) Flow Rate, etc.

j. Performance Data

k. Normal Operating Characteristics

l. Limiting Conditions

2. Detailed disassembly, overhaul and reassembly, installation, alignment, adjustment and checking instructions.

3. Detailed operating instructions for start-up, calibration, routine and normal operation, regulation and control, safety, shutdown and emergency conditions. Detailed list of settings for relays, pressure switches, temperature switches, level switches, thermostats, alarms, relief valves, rupture discs, etc.

4. Detailed preventative maintenance procedures and schedules, including detailed lubrication instructions and schedules, identification of required lubricants and operating fluids (description, specification and trade name of at least two manufacturers), and diagrams illustrating lubrication points.

5. Detailed guide to equipment and/or process “troubleshooting”.

6. Detailed parts lists identified by title, materials of construction, manufacturer's part number, list of recommended spare parts identified as specified above, current cost list for recommended spare parts, predicted life of parts subject to wear, and an exploded or concise cut-away view of each equipment assembly. The manufacturer’s part numbers must match those used for the spare parts, documentation, identification, and turn-over. Should no spare parts be required, state in the Table of Contents that “No spare parts are required”.

7. Electrical and instrumentation schematics, including motor control centers, control panels, wiring diagrams, instrument panels and analyzer panels. All panels must have as-built schematics inside them at contract close-out.

8. List of all special tools supplied and description of their use. Special tools include any tool not normally available in an industrial hardware or mill supply house. Should no special tools be required, state in the Table of Contents that “No special tools are required”.

9. List of names and addresses of nearest service centers for parts, overhaul and service.

10. Procedures for storing, handling and disposing of any chemicals or products used with the equipment or system.

11. For equipment and systems, also provide the following:

a. Control and wiring diagrams provided by the controls manufacturer.

b. Sequence of operations by the controls manufacturer.

c. Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

12. The supplier's operation and maintenance information will address the particular equipment furnished, with specific details on operation and maintenance practices. General data is not acceptable. Information contained in the manual which is not appropriate to the Project shall be marked out and noted as “N/A”.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 78 33

WARRANTIES AND BONDS

PART 1 GENERAL

1.1 PROJECT MAINTENANCE AND WARRANTY

A. Maintain and keep in good repair the Work covered by these Drawings and Specifications until acceptance by the Owner.

B. Warrant for a period of five (5) year from the date of Start-up and Owner's written acceptance of the Work and/or Owner's written final acceptance of the Project, as defined in the Contract Documents, that the completed Work is free from all defects due to faulty products or workmanship. Promptly make such corrections as may be necessary by reason of such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect throughout the warranty period.

C. The Contractor shall not be obligated to make replacements which become necessary because of ordinary wear and tear, or as a result of improper operation or maintenance, or as a result of improper work or damage by another Contractor or the Owner, or to perform any work which is normally performed by a maintenance crew during operation.

D. In the event of multiple failures of major consequences prior to the expiration of the warranty period described above, disassemble, inspect and modify or replace, as necessary, the affected unit to prevent further occurrences. Replace all related components which may have been damaged or rendered non-serviceable as a consequence of the failure. Provide a new warranty period against defective or deficient design, workmanship, and materials equal to the original warranty period commencing on the day that the item is reassembled and placed back into operation. As used herein, multiple failure shall be interpreted to mean two or more successive failures of the same kind in the same item or failures of the same kind in two or more items. Major failures may include, but are not limited to, cracked or broken housings, piping, or vessels, excessive deflections, bent or broken shafts, broken or chipped gear teeth, premature bearing failure, excessive wear or excessive leakage around seals. Failures which are directly and clearly traceable to operator abuse, such as operations in conflict with published operating procedures or improper maintenance, such as substitution of unauthorized replacement parts, use of incorrect lubricants or chemicals, flagrant over-or under-lubrication and using maintenance procedures not conforming with published maintenance instructions, shall be exempted from the scope of the warranty period. Should multiple failures occur in a given item, disassemble, inspect, modify or replace, as necessary, and re-warrant for the original full warranty period all products of the same size and type.

E. Furnish all labor, materials, tools and equipment required and make such repairs and removals and perform such work or reconstruction as may be made necessary by any structural or functional defect or failure resulting from neglect, faulty workmanship or faulty materials, in any part of the Work performed by the Contractor. Such repair shall also include refilling of trenches, excavations or embankments which show settlement or erosion after backfilling or placement.

F. Except as noted on the Drawings or as specified, all structures such as embankments and fences shall be returned to their original condition prior to the completion of the Contract. Promptly repair any and all damage to any facility not designated for removal, resulting

from the Contractor's operations, at no cost to the Owner.

G. The Contractor shall be responsible for all road and entrance reconstruction and repairs and maintenance of same for a period of one year from the date of final acceptance. In the event the repairs and maintenance are not made immediately and it becomes necessary for the owner of the road to make such repairs, the Contractor shall reimburse the owner of the road for the cost of such repairs.

H. In the event the Contractor fails to proceed to remedy the defects upon notification within 10 days of the date of such notice, the Owner reserves the right to cause the required materials to be procured and the work to be done, as described in the Drawings and Specifications, and to hold the Contractor and the sureties on Contractor's bond liable for the cost and expense thereof.

I. Notice to Contractor for repairs and reconstruction will be made in the form of a registered letter addressed to the Contractor at Contractor's home office.

J. Neither the foregoing paragraphs nor any provision in the Contract Documents, nor any special guarantee time limit implies any limitation of the Contractor's liability within the law of the place of construction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 26 32 13.13

DIESEL ENGINE GENERATOR SETS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

Paragraph	Title
1.2	References
1.3	Submittals
1.4	Quality Assurance
1.5	Delivery, Storage, and Handling
1.6	Field Conditions
1.5	Warranty
2.1	Design Requirements
2.2	Manufacturers
2.3	Engine Equipment
2.4	Thermal Insulation Wrap
2.5	Generator System
2.6	Engine Generator Systems
2.7	Fuel Storage System
2.8	Outdoor Enclosure
2.9	Controls
2.10	Transfer Switch
3.1	Installation
3.2	Field Inspection and Testing
3.3	Training

B. Scope

1. This Section specifies the requirements for providing, factory testing, installing, and on-site acceptance testing of complete and operable standby diesel engine driven generating system (GenSet) with an outdoor metal enclosure, belly tank fuel storage container, and the devices and equipment required for the system operation.
2. Refer to the Section 26 36 00 – Automatic Transfer Switches (ATS) that specifies the ATS supply, custom features, factory tests by the generator manufacturer and the GenSet supplier, and shipping the ATS to the project site for installation. The ATS will not be installed within the GenSet enclosure.
3. The generation system shall include the following:
   a. Digital control, monitoring, and display system.
   b. Cooling system.
   c. Belly tank.

d. Exhaust silencer: mounted inside the enclosure.

e. Noise dampening mounting system.

f. Sound attenuated outdoor enclosure accessories.

g. Accessories: including batteries, battery charger, and block heater.

h. Control system testing.

i. Testing with load bank.

1.2 REFERENCES

A. Reference Standards

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI C57.13	Requirements for Instrument Transformers
IEC 34-5	Rotating Electrical Machines - Part 5: Degrees of Protection by Enclosures for Rotating Machinery
IEC 60529	Guidelines for Panel Testing
ISO	International Organization for Standardization
MG1	Motors and Generators
NEMA MG1	National Electrical Manufacturers Association Standards Publication MG-1
NEMA SG31	Low Voltage Power Circuit Breakers
NEMA SG51	Power Switchgear Assemblies
NFPA 37	National Fire Protection Association Standard 37, Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines
NFPA 70	National Electrical Code (NEC)
NFPA 110	Emergency and Standby Power Systems
OSHA	Occupational Safety and Health Act
SAE J 1349	Society of Automotive Engineers Engine Power Test Code

Reference	Title
UL	Underwriters Laboratories Inc.

1.3 SUBMITTALS

A. Action Submittals/Informational Submittals

1. Product Data

a. Manufacturer's catalog and/or other data confirming conformance to specific design, material and equipment requirements including:

1) Engine

a) Type, aspiration, compression ratio, and combustion cycle

b) Bore, stroke, displacement, and number of cylinders

c) Rotational speed, RPM

d) Engine lubricating oil capacity

e) Engine coolant capacity without radiator

f) Engine coolant capacity with radiator

g) Coolant pump external resistance (maximum)

h) Coolant pump flow at maximum external resistance

i) Exhaust back-pressure (maximum allowable pressure)

j) Combustion air inlet flow rate

k) Exhaust gas, flow rate, stack temperature

l) Exhaust system back pressure (maximum)

m) Heat rejection to:

(1) coolant

(2) aftercooler

(3) lube oil

(4) exhaust

(5) atmosphere

n) Fuel Consumption:

(1) 50% load

(2) 75% load

(3) 100% load

o) Fuel supply system including belly tank, continuous level monitoring and level alarm devices.

2) Generator

a) Model

b) Frame

c) Voltage

d) kW

e) Power Factor

f) Frequency

g) Insulation class

h) Number of leads

i) Weight, total

j) Weight, rotor

3) Efficiency at Rated Voltage

a) Efficiency at 0.8 power factor for 50% load.

b) Efficiency at 0.8 power factor for 75% load.

c) Efficiency at 0.8 power factor for 100% load.

4) Radiator

a) Model

b) Type

c) Heat Rejection: BTU/Hour

d) Fan drive ratio

e) Coolant capacity, radiator

f) Coolant capacity, radiator and engine

5) Power Rating: Nominal full capacity standby kW at 0.8 power factor and corresponding kVA rating.

b. Location and description of supplier's parts and service facility including parts inventory and number of qualified GenSet service personnel.

2. Shop Drawings

a. General dimensions drawings showing overall GenSet measurements, mounting location, and interconnection points for load leads, fuel, exhaust, cooling and drain lines.

b. General dimension drawings for fuel supply and storage system including interconnection points, fuel and drain lines, and level and leak detection equipment, terminal-boxes and panels.

c. Wiring diagrams, schematics and control panel outline drawings published by the manufacturer in Joint Industrial Council (JIC) format for controls and switchgear showing interconnected points and logic diagrams for use by contractor and County.

d. Drawings of GenSet with enclosure showing dimensions (length, width, height), weight (dry and wet), and vibration isolators.

e. Installation requirements showing clearances required for maintenance purposes: Access to main breaker, oil fill line, fuel fill line, etc.

3. Samples

a. Exterior paint color chip for enclosure.

4. Special Procedure Submittals

a. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each

paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Referenced and applicable sections to be marked up and submitted include:

1) Section 26 36 00 – Automatic Transfer Switches

b. A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration

c. Completed Certificate of Unit Responsibility attesting that the Contractor has assigned, and that the manufacturer accepts, unit responsibility in accordance with the requirements of this Section and Section 01 60 00. No other submittal material will be reviewed until the certificate has been received and found to be in conformance with these requirements.

B. Closeout Submittals

1. Operation and Maintenance Data

a. Operation and maintenance information as specified in Section 01 78 23. In addition the following:

1) Operating instructions with description and illustration of engine and generator controls and monitors.

2) Manuals that illustrate and list assemblies, subassemblies and components, except the standard fastening hardware.

3) Preventative maintenance instructions for daily, weekly, monthly, biannual, and annual maintenance requirements. Include a lubrication chart for all components.

4) Routine test procedures for electronic and electrical circuits including the generator.

5) Troubleshooting chart covering the complete GenSet with a description of trouble, probable cause, and suggested remedy.

6) Recommended spare parts list showing consumables anticipated during routine maintenance and test.

7) Wiring diagrams and schematics showing function of electrical components.

8) Complete final submittals including Record As-Built drawings.

9) Manuals and books described above shall be contained in rigid plastic pouches.

b. Provide four (4) hard copies of the O&M Manuals and 3 DVDs with electronic copies of the identical O&M Manual.

c. Instruct the owner in operation and maintenance of the unit.

2. Warranty Documentation

a. Copy of manufacturer's warranty on company letterhead.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Manufacturers

a. The complete power generation system shall be the product of one manufacturer who has been regularly engaged in the production of complete generating systems for at least twenty-five years.

b. Provide equipment meeting all requirements of NEC and all applicable local codes and regulations.

c. All materials and parts of the generator set shall be new and unused. Each component shall be of current manufacture from a firm regularly engaged in the production of such equipment. Units and components offered under these specifications shall be covered by the manufacturer's standard warranty on new machines.

2. Suppliers

a. The supplier shall be the engine-generating system manufacturer's authorized local representative that shall provide installation assistance, start-up services, and Owner's staff training. The supplier shall have 24-hour service availability with factory-trained technicians qualified to perform trouble-shooting, repairs on the system, and warranty compliance services. The supplier of the emergency generator system shall be authorized by the manufacture to complete all warranty work on the complete emergency generator system, including the engine, generator, generator enclosure, and automatic transfer switch. Suppliers that employ third party companies to administer warranty services are not acceptable. The emergency generator supplier shall also provide a temporary generator in the event a warrantable service takes greater than 48 hours to complete. This temporary unit shall be provided at no additional cost to the Owner.

B. Unit Responsibility

1. Assign unit responsibility, as specified in Section 01 60 00, to the manufacturer of the GenSet provided under this section. This manufacturer is the unit responsibility manufacturer and has unit responsibility, as specified in Section 01 60 00, for both the GenSet equipment assembly specified in this section and for the automatic transfer switch specified in Section 26 36 00. Provide a completed, signed, and notarized Certificate of Unit Responsibility.

C. Preconstruction Testing

1. Manufacturer Factory Testing

a. Functional Tests: Perform functional testing of the complete power generation system final assembly at the GenSet manufacturer's factory to assure proper system operation.

1) Load test the GenSet after the assembly is installed into the enclosure and operate continuously without stoppage for a period of four (4) hours.

2) Operate the GenSet for one hour at ½ and ¾ load, and four (4) hours at full load, at 0.8 power factor or greater. Restart the test, if stopped for any reason.

b. Prototype Test: The GenSet manufacturer shall certify that engine, generator, and controls have been tested as complete systems in accordance with NFPA 110 of representative engineering models (not on equipment sold).

c. Sound Test: Provide a GenSet factory test for sound pressure level measured in accordance with IEEE Standard 85, Test Procedure for Airborne Sound

Measurement on rotating electrical machines. Refer to paragraph 2.1 for sound test criteria.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Storage and Handling Requirements

1. Lift generator set using manufacturer approved straps. Only lift by approved lifting lugs on the generator set.

1.6 FIELD CONDITIONS

A. Ambient Conditions

1. The GenSet manufacturer shall verify that the diesel engine is correctly sized and is capable of driving the generator with all accessories in place and operating, at the generator's kW rating after derating for the range of temperatures expected in service and the project site altitude.

B. Installation Location

1. The generator will be installed inside the existing pump station building. The available space for the generator is 120" long by 84" wide. Generators and their associated enclosure which are larger than this will not be accepted.
2. The cooling air exhaust from the generator housing will be ducted through louvers on the side wall of the building.
3. The engine exhaust will be ducted through an exhaust stack which exits the back wall of the building and extends to above the eave height.

1.7 WARRANTY

A. Manufacturer/Supplier Warranty

1. Provide a five (5) year parts and labor warranty, which includes travel time.
2. Include warranty protection for the battery.

PART 2 PRODUCTS

2.1 DESIGN REQUIREMENTS

A. Engine:

1. Rating: Engine brake horsepower shall be sufficient to deliver full rated GenSet kW/kVA when operated at rated rpm and equipped with all engine-mounted parasitic and external loads such as radiator fans, fuel pumps, and cooling water pumps.
2. Fuel: Diesel engines shall be able to deliver rated power when operating on low-sulfur No. 2 diesel fuel having 35 degree API (16°C, 60°F) specific gravity.
3. Fuel Consumption: Diesel fuel rates shall be based on fuel having a low heating value (LHV) of 42,780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/l (7.001 lb. / U.S. gal).

B. Generator:

1. Motor starting: Provide the generator supplier with single line diagrams and any other Contract Documents needed to verify load requirements. In general, large motors shall be started with solid-state starters or variable speed controllers as shown on the single line diagrams. Size the generators to operate the pump stations' loads as shown on the single line diagrams. The generator shall be required to pick up miscellaneous facility

loads first and then sequentially start and run the pump motor loads shown without exceeding the maximum voltage dip and maximum frequency dip variations specified herein, or the maximum temperature limitations of the engine and generator.

2. Generator performance: Voltage dip for motor starting shall not exceed 15% for any individual load step.

C. GenSet Start Time and Load Acceptance: Engines shall start, achieve rated voltage and frequency, and be capable of accepting load within 10 seconds.

D. Noise Requirements and Control:

1. GenSet enclosure sound pressure level when GenSet is fully loaded shall be not greater than Level-2: 70 dBA at 7 meters (23 feet) from enclosure.

E. The generator will be installed inside a wood frame building. The exhaust and cooling air will be ducted to the exterior of the building. Manufacturer shall account for these conditions in the generator design and configuration.

2.2 MANUFACTURERS

A. The Owner and Engineer believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's products, nor shall it be construed that named manufacturers' standard equipment or products will comply with the requirements of this Section.

B. The candidate manufacturers include the following:

1. Cummins-Onan
2. Kohler
3. Caterpillar
4. Engineer approved equal

2.3 ENGINE EQUIPMENT

A. General

1. Provide a single stationary, liquid cooled, 1800 rpm, four-cycle design, direct injection engine with forged steel crankshaft and connecting rods. Systems with dual engine-generators in one enclosure will not be permitted.
2. Engine Cylinder Block: Cast iron with replaceable wet liners with four valves per cylinder. Provide 6, 12, or 16 cylinders engine with turbocharger and after-cool, as required by the GenSet manufacturer.
3. Do not manufacture the GenSet engine with any Class I ozone depleting substances (ODS) as defined by Federal Register Vol. 57 No. 86. Provide a GenSet that is pre-certified EPA Tier-1 emission requirements.
4. Provide a GenSet in compliance with the local Air Pollution Control District (APCD) regulations. Furnish certified test reports for APCD acceptance. Engine emissions shall meet or exceed the US EPA's applicable Tier standards and requirements for stationary, non-road diesel emission standards. The EPA Certification Level shall be based on the specific kWe rating of the GenSet.

B. Structural Steel Frame:

1. Securely mount the generator, radiator, and engine on a heavy welded steel frame structure frame that is stiffened and cross-braced to provide a rigid mounting base.

C. Engine Accessories

1. Equip the engine with manufacturers standard air filters, fuel filters, pressure gauges, lubricating oil cooler, filters, and pressure gauge, water pump and temperature gauge, service hour meter, flywheel, and flywheel housing when applicable.

D. Engine Fuel System:

1. Fuel/Water Separator: Provide a fuel/water separator to protect the fuel system from water damage.
2. Fuel Lines: Provide flexible fuel lines between engine and fuel supply to isolate vibration.
3. Fuel System Maintenance: The fuel transfer pump, injection pumps, rack and pinion assembly, and timing mechanism shall be maintenance and adjustment free for the life of the equipment. The fuel filter shall not require changing more frequently than once per year. Provide a fuel filter with spill containment and catch pan for about three gallons of fuel.

E. Governor:

1. General: The engine governor shall control engine speed and transient load response. The governor shall be selected, installed, and tested by the GenSet manufacturer.
2. Speed Control: The engine governor shall be an electronic speed-control actuator. Speed droop shall be 0 (isochronous) from no load to full rated load.
3. Frequency Regulation: The steady state frequency regulation shall be within 0.25%. Speed shall be sensed by a magnetic pickup off the engine flywheel ring gear.
4. Remote Speed Control: Provide a provision for remote speed adjustment.
5. Actuator: The forward acting actuator shall move to the minimum fuel position in the event of a DC power loss.

F. Cooling System:

1. General: Provide an engine jacket water cooling system that is a closed circuit design with provision for filling, expansion, and de-aeration.
   a. The cooling pump shall be driven by the engine. Auxiliary coolant pumps required for heat exchangers or separate circuit after-cooling shall be engine driven.
   b. The cooling system shall tolerate at least 172 kPa (25 psi) static head. Coolant temperature shall be internally regulated to disconnect external cooling systems until operating temperature is achieved.
2. Engine Mounted Radiator: Heat rejected to the engine jacket water shall be discharged to the atmosphere through a close-coupled radiator.
3. Coolant: The unit shall have an antifreeze / coolant mixture. The radiator shall cool the jacket water while the engine is operating at full site capability and 0.062 kPa (0.25 inch water column) external air restrictions.
   a. Additional restriction affecting airflow shall not limit the radiator's capability to adequately cool at maximum site temperature. Provide air flow to meet ambient conditions at specified ratings at 100% rated connected load.
4. Fan and Belt Guarding: Cover the fan, fan drive, and fan belts with 14 gauge punched steel mesh guarding for personnel protection. Conform the guarding to IEC 34-5, ISO and OSHA standards.
5. Radiator Fan: Provide a propeller type radiator-cooling fan driven from the engine with the air drawn from the engine side and exhausted through the radiator core.

6. Inlet Air System: The engine air cleaner shall be engine mounted with maintenance access. The maximum restriction to the combustion air inlet shall not exceed engine manufacturer requirements where external ducting is provided.

7. Exhaust Air: The exhaust air from the cooling system will be ducted to the exterior of the building through a solid metal duct and wall louver. The cooling system shall be designed to account for the ducting.

G. Exhaust System:

1. As indicated, the generator will be installed inside a building. The exhaust from the generator will be connected to a duct to direct the exhaust to outside the building through the back wall near the roof line. Design the exhaust system for the generator to accommodate the additional backpressure from ducting.

2. General: Provide an engine exhaust system that discharges combustion gases safely and without leakage with minimum restriction. Design the critical sound silencer for minimum restriction without excessive back-pressure.

a. Fabricate engine exhaust piping of Schedule 40 carbon steel, type 321 or 316 stainless steel with long radius 90 degree bends. Install piping with 9-inch minimum clearance from combustible material or incorporate appropriate insulation and shielding, as appropriate for personnel safety. Provide a stainless steel flexible connection between the engine and exhaust piping.

b. Support and anchor exhaust piping to prevent weight or thermal growth being transferred to the engine. Provide flexible expansion fittings to accommodate thermal growth. Provide support dampers and spring isolators to isolate vibration.

c. Pitch long runs of exhaust piping away from the engine and install water traps at the lowest point. Provide a 1-inch diameter capped sample port for emissions testing. Provide ports 90-degrees apart on a straight section of exhaust piping.

d. Extend exhaust stacks to avoid fumes and odors inside enclosure and install to minimize noise.

3. Silencer-Critical: Provide a residential quality silencer. Fully house and enclose the silencer.

2.4 THERMAL INSULATION WRAP

A. General:

1. Provide thermal insulation wrap or other acceptable method for insulating the hot surfaces on generator engines for personnel and structure safety.

B. Surfaces:

1. Wrap hot surfaces within the enclosure to protect personnel and structure, as recommended by the manufacturer.

C. Execution:

1. Provide thermal insulation blanket that is easily removed without damaging the blanket during maintenance or repair of the engine.

2. Provide stainless steel removable lacing. The use of "hot rings" for binding edges or securing blankets is unacceptable.

2.5 GENERATOR SYSTEM

A. Generator:

1. The generator shall be rated 50KW connected for 120/240V, 3phase, 4wire. The generator shall be 12 lead reconnectable for 120/240V, 3phase, 4wire delta connection or for 480/277V, 3phase, 4wire future connections.
2. Provide a generator that is synchronous, four-pole, revolving field, pre-lubricated bearing, air cooled by a direct drive centrifugal blower fan, and directly coupled to the engine with flexible drive discs.
3. The armature shall have skewed laminations of insulated electrical grade steel, two-thirds pitch windings. The rotor shall have amortissuer damper windings of layer-wound, mechanically-wedged winding construction. Dynamically balance the rotor.
4. Insulation system components shall meet NEMA MG1 temperature limits for a Class H insulation system. Actual temperature rise measured by resistance method shall not exceed 125 degrees C to provide additional allowance for internal hot spots.
5. The generator insulation systems shall be suitably impregnated for operation in severe environments for resistance to sand and other air-born contaminants.

B. Exciter:

1. Provide a permanent magnet generator (PMG) to provide excitation power to the automatic voltage regulator for immunity from voltage distortion caused by non-linear loads on the generator.
2. The PMG shall sustain field excitation power for optimum motor starting and shall sustain short circuit current for selective operation and coordination of system overcurrent devices.
3. The PMG exciter insulation systems shall be suitably impregnated for operation in severe environments for resistance to sand and other air-born contaminants.

C. Voltage Regulator:

1. The automatic voltage regulator shall be temperature compensated, digitally controlled pulse width modulated solid-state design, and include over-voltage and over-current protection functions.
2. Over-voltage protection shall sense generator output voltage. In the event of regulator failure or loss of reference, the regulator shall shut down its output on a sustained over-voltage of one-second duration.
3. Over-excitation protection shall sense regulator output and shut down its output if overload exceeds ten seconds duration. Both over-voltage and over-excitation protection shall be latched, requiring the generator to be stopped for reset.
4. Maintain generator output voltage within 1% of rated value for any load variation between no load and full load and drift no more than within 0.5% of rated value at constant temperature.

D. Circuit Breaker:

1. The generator mounted circuit breaker shall be mounted and connected in a guarded drip proof freestanding enclosure meeting, IEC 144 requirements and provided with adequate space for customer power cable lug connections. Cable lugs by supplier, refer to the electrical drawings for circuit conductor sizes and numbers.
2. Provide the following:
    a. Molded case circuit breaker rated for 100% current, 3-pole, single-throw, stationary-mounted with manual operating handle, overload and short circuit trips, complete with cable lugs.

b. UL labeled circuit breaker rated for 600-volt circuits and provided with a solid state over-current trip device.

c. Provide ground-fault protection for circuit breakers rated 1000-amperes and over.

d. A circuit breaker with a 24 Vdc shunt-trip unit wired to terminal board.

e. Three current transformers with 5-ampere secondary windings for the ammeter display, as needed.

f. National Electrical Code required working access space around the Circuit Breaker enclosure.

2.6 ENGINE GENERATOR SYSTEMS

A. Engine Starting System:

1. Provide an engine starting system including 24 Vdc starting motor(s), starter relay, and automatic reset circuit breaker to protect against butt engagement.

2. Furnish and size required cables for power feeder circuit requirements and capable of starting the specified engine within 10 seconds at the elevation and ambient environmental conditions specified herein.

B. Water Jacket Heater:

1. Provide jacket water heater(s) to maintain coolant temperature of 32°C (90°F) while the engine not running. Heaters shall accept 240, 208 or 120Vac single phase power and include thermostatic controls. Reference electrical drawings for appropriate/available voltages.

C. Batteries:

1. Select and supply batteries for GenSet starting and control by the GenSet manufacturer. Battery warranty (3-years) shall be the responsibility of the GenSet manufacturer. Protect batteries from engine fuel leaks.

2. Provide maintenance free SLI lead acid type batteries with through-partition connectors and mount near the starting motor. Mount batteries on a corrosion resistant or coated steel battery rack close to the starting motor as practical and allow personnel access for inspection and maintenance.

3. Provide starting batteries rated 24 Vdc with ampere-hour and ampacity sizing to provide minimum cranking amperes that includes the sizing requirements to allow for engine oil viscosity, ambient starting temperature, project elevation, and accessories. Batteries shall be capable of a minimum of four crank cycles (rolling) of the specified prime mover and have sufficient current available for “break-away” currents for the particular engine used at the specified worse case temperature.

D. Alternator:

1. Install an engine-mounted belt-driven battery charging alternator with an automatic voltage regulator. Alternator and regulator suitable for the application.

E. Battery Charger:

1. Provide a dual rate 10-ampere battery charger that shall accept 120 Vac single phase input to provide 24 Vdc output.

2. Fuse the battery charger on the AC input and DC output, and incorporate current limiting circuitry to avoid the need for a crank disconnect relay. The charger shall be rated for operation at plus 50°C ambient. Charger voltage regulator shall be temperature compensated.

3. Mount a voltage power switch on the face of the charger and shield from accidental switching. Include an AC ammeter and voltmeter and a failure malfunction alarm switch with the charger. House the charger in an enclosure suitable for mounting inside the outdoor enclosure.

2.7 FUEL STORAGE SYSTEM

A. Provide a dual wall subbase fuel tank with adequate capacity to allow the diesel-generator unit to operate continuously to provide for the load as required in paragraph 2.1 for a minimum of 24 hours at full load or a minimum of 100 gallons of fuel, whichever is greater. Construct the tank of coated steel with all access ports and vents located on the top horizontal surface. Pressure and load test the tank according to UL 142 and provide UL listing. The tank shall be capable of supporting the weight of the generator, isolators and enclosure, and shall have four lifting eyes capable of lifting the entire generator set package.

B. Provide low level and leak detector float switches, both wired to control panel alarm lights, dry contact output signals for each status, and a tank mounted fuel gauge. Provide a fuel level transmitter in explosion-proof enclosure on the fuel tank. The transmitter shall be two wire type and connected to the Owner's PLC analog input (4-20mA).

C. Equip the fill opening with a closure designed so that it may be locked and spill containment.

2.8 OUTDOOR ENCLOSURE

A. General:

1. Provide an acoustical enclosure to house the engine generator and the auxiliary equipment required for the electric power generating system. The enclosure shall be a weather-protected, sound attenuated enclosure complete with fire extinguisher and field electrical connection provisions.

B. Sound Attenuation Enclosure:

1. Enclose the entire engine-generator assembly, including the battery, battery charger, control panel, and radiator in an aluminum or galvanized steel enclosure suitable for an outdoor environment. The enclosure shall be a walk-in or non-walk-in, weather protected, sound attenuated structure designed to reduce the generator set noise. Provisions shall be made on the enclosure for mounting the engine exhaust silencer. Provide louvers or dampers to allow adequate radiator ventilation during operation without reducing the rating of the engine-generator unit.

2. Provide stairs and platform from grade to the entrance of the generator enclosure where the elevation difference is greater than 1'-0" from final grade. Include safety rails and platforms on stairs to provide access to all access doors on each side of the generator. Coat materials in accordance with Section 09 91 00 or provide aluminum to provide a corrosion resistant finish.

3. Place sound absorbing insulation at the walls and ceiling with intake and discharge chambers insulated to restrict the transmission of generator set noise. Provide NEC required 3 foot clear workspace in front of the generator circuit breaker and generator control panel. Provide fixed vane weather-proof acoustic intake louvers with hinged access and sized per the engine's cooling and combustion airflow requirements. Provide galvanized perimeter frame structure bracing to allow the enclosure to be removed as a unit without disassembly. Provide crane lifting eyes where required to move enclosure. Provide peaked roof for rain run-off.

C. Doors:

1. Enclosure shall contain four personnel outside entrance double-gasketed doors for entering the engine/generator compartment. Fabricate doors from aluminum with heavy duty continuous stainless steel piano hinge with stainless steel fasteners and pins.
2. Flush mount a lockable outside door latch mechanism. Do not allow hardware to protrude beyond the perimeter of the enclosure to facilitate normal handling and shipping aboard container ships or by highway semi-tractor trailer.

D. Surface Preparation and Painting:

1. Surface preparation and painting for the enclosure by the container manufacture shall be as follows:
   a. Steel sheeting: Galvanized steel.
   b. Steel components: Force dried and painted with a two-part epoxy primer and high gloss finish polyurethane topcoat.
   c. Caulk open seams with a sealant to prevent rust seepage after painting.

E. Exterior Color:

1. Paint the enclosure exterior based on the manufacturer's available, standard color options. The Owner will select paint color.
2. Submit exterior paint color chip for approval and provide one gallon of the same paint for touch up purposes to the Owner.

F. Fire Extinguishers:

1. Provide one 10-pound (4.5 kg) carbon dioxide portable bottle type fire extinguishers wall mounted within the GenSet enclosure.

G. Electrical Connections:

1. House the generator main circuit breaker in a NEMA-12 gasketed metal enclosure installed within the enclosure. Provide a NEMA-12 gasketed terminal box for control and instrumentation wiring, separated from power connections, and show terminal box location in the submittal documentation.

H. Ventilation:

1. Hinge the fixed vane intake louvers for access and size per the engine's cooling and combustion airflow requirements. Separate the intake louver from the exhaust louver.
2. Orient each louver to minimize superheating of the intake air. Use air directional acoustic barrier plates to mitigate sound escaping from the enclosure while not impeding airflow necessary for combustion and cooling. Install water separator to catch and drain of standing water on the louvers.
3. A sound insulated baffle shall be installed six inches below the opening of the fan and shall extend twelve inches beyond the fan opening.
4. The cooling air through the enclosure will be discharged from the housing through ducting to wall louvers on the building exterior wall. The housing shall be provided with the necessary components for connecting the duct to the exhaust air discharge. The exhaust air should be through the end of the generator enclosure in a horizontal direction.

I. Sound Attenuation:

1. The enclosure shall be sound attenuated with composite sandwich construction of perforated metal enclosure either non-flammable mineral fiber or fiberglass. The interior wall surface shall be 20-gauge perforated aluminum metal construction.

2.9 CONTROLS

A. Engine-Generator Control Panel:

1. Have the engine-generator manufacturer design and build the control panel and mount it near the generator with vibration dampening mounting devices.
2. Provide a 100 percent solid state microprocessor based control circuitry, sealed dust tight, watertight modular components, and digital instrumentation. Provide IEC-IP52 or NEMA 12 enclosure ratings. Comply with IEC 60529 or NEMA standards for enclosure protection. Label the control panel with ISO symbols.
3. Display critical parameters such as operating hours, engine RPM, battery DC volts, oil pressure, jacket water temperature, including the specified engine and electrical parameters.
4. Control panel shall provide digital outputs for connection to the SCADA monitoring system:
    a. Run Status
    b. Fault Status
    c. HOA switch, in Auto status
    d. Fuel Tank Leak Alarm
    e. Low fuel level alarm
    f. Fuel level, continuous reading

B. Engine Monitoring Devices:

1. Engine monitoring signals provided by engine mounted lubricating oil pressure and coolant temperature transducers shall communicated over a serial data link through a Data Sending Unit (DSU) to the control panel receiving module. The safety logic shall shut the engine down if the serial data link is lost.

C. Control Functions:

1. Provide control panel front mounted devices such as generator voltage control device, ammeter/voltmeter phase selector switch, control selector switches, and pushbuttons. Provide control and monitor devices identified and labeled with ISO symbols.
2. Provide start-stop logic for cycle cranking and cool down operation and red-mushroom head emergency-stop maintained pushbutton.

D. Control Wiring:

1. GenSet control wiring: Number 16 AWG stranded wire and control panel ground wire
2. Number 12 AWG with green and yellow striped insulation rated. Rate conductors 90°C 600 Vac insulation with UL or CSA listing.
3. Provide wire identification on the conductor 6-inches from the terminal and protect wire from sharp bends and metal edges.
4. Provide four sets of Form-C dry contacts rated at 2 amps for remote customer alarming.

E. Alarm and Shutdown Conditions:

1. Indicate the following alarm and shutdown conditions and provide a RESET device to clear fault:
    a. Low oil pressure: pre-alarm
    b. High engine temperature: pre-alarm

c. Low engine temperature: pre-alarm
d. Low fuel: pre-alarm
e. Low battery DC voltage: pre-alarm
f. Generator output circuit breaker (trip or off): alarm
g. Generator overload: alarm
h. Low oil pressure: shutdown
i. High engine temperature: shutdown
j. Low coolant level: shutdown
k. Over-crank: shutdown
l. Over-speed: shutdown
m. Over-voltage: shutdown
n. Under-voltage: shutdown
o. Under-frequency: shutdown
p. High battery voltage alarm
q. Low battery voltage alarm
r. Normal battery voltage indication
s. Battery charger malfunction alarm
t. Spare (2): alarm and shutdown

F. Metering:
1. Provide digital metering with 0.5% accuracy.
2. Provide true RMS indication that includes the total harmonic voltage and current content:
a. Voltmeter
b. Ammeter
c. Frequency meter
d. Phase select switch
e. Running time

G. Alarm Module:
1. Provide integral digital alarm annunciator for indication and audible alarm per NFPA Standard 110 on the engine-generator control panel. Provide lamp test switches, alarm horn silence-button, and first-out alarm detection.

H. Communications:
1. Provide Modbus TCP communications at the Control Panel to connect to the local Remote Telemetry Unit (RTU). Control panel will communicate over Ethernet link for monitoring and remote start.

2.10 TRANSFER SWITCH

A. Provide an automatic transfer switch as specified in Section 26 36 00 – Automatic Transfer Switches.

PART 3 EXECUTION

3.1 INSTALLATION

A. General:

1. Install and connect the GenSet in accordance with manufacturer's recommendations. Have manufacturer certify installation using forms provided in Section 01 91 13.
2. Verify the equipment pad is sized for the GenSet size per submittal information, level, with ground pad installed.

B. Signs:

1. Provide NEMA MG1-22.61 GenSet nameplate. Provide laminated equipment, device, and panel nameplates per specification Section 26 00 01.

C. Conduit Transitions at Slab:

1. Connection from underground conduits to GenSet equipment shall transition via PVC coated flexible steel conduits. Loose or open cabling will not be permitted.

D. Protection Post Barriers:

1. Provide a minimum 4-inch diameter concrete filled 36-inch high posts around the GenSet. Post shall be removable with locking pin device to keep in place. Provide post at each corner within 3-feet from the enclosure and with 3-feet between posts.

3.2 FIELD INSPECTION AND TESTING

A. Pre-delivery Inspection:

1. Provide a pre-delivery inspection performed by the system manufacturers' local dealer at the dealer's facility to insure no damage occurred in transit. Verify GenSet components, controls, and electrical equipment is included as specified herein. Verify the NEC work access to electrical power equipment and control equipment is provided as specified.

B. Pre-Delivery Supplier Facility Testing:

1. Prior to delivery of the GenSet to the project site, test the GenSet to verify it is free of defects, starts automatically, and carry full load. Perform test at the facility of the system manufacturer's authorized supplier.
2. Conduct the testing on dry type, resistive load banks capable of precise incremental loading. Salt water brine tanks or load banks requiring water as a source of cooling will not be allowed.
3. Provide separate test grade instrumentation to monitor the GenSet using the load bank. Read and compare the GenSet monitoring instruments to the amperage and voltage on each phase. Record both readings and compare in the test report.

C. Pre-Delivery Testing Procedure:

1. Provide a pre-delivery test and operation that includes the ATS setup, test, and operation performed by factory trained technicians with test equipment, facilities, and consumables provided by the supplier.
2. Schedule the Owner representative or Engineer to witness all tests. Perform the test on the complete fabricated GenSet within sound attenuated enclosure.
    a. Check electrical, exhaust, fuel and water connections for proper size, continuity and tightness of fittings.
    b. Check fluids for appropriate levels and jacket water heater operation.

c. Correct defects during the test at no additional cost to the County prior to shipment to the job site.

d. Connect a 100 percent rated resistance load bank equivalent to the nameplate rating at unity power factor.

e. Run the GenSet for 1.5 hours during first initial run for proper engine break-in, (0.5-hour no-load, 0.5-hour at 50 percent rated load, 0.5-hour at 75 percent load) then 100 percent for 2 hours, or similar manufacturer recommended test operation sequence.

f. Extend the test period until oil and water temperatures have stabilized for a period not less than 30 minutes.

g. Maintain test records at fifteen minute intervals to record water temperature, fuel pressure, oil pressure, ambient air temperature, voltage, amperage, frequency, kilowatts and power factor.

h. Test safety devices using methods recommended by the manufacturer.

i. Test results shall be documented and submitted for approval.

j. Setup the control system to allow engine to cool before shutdown.

D. On Site Post-Installation Testing:

1. Following installation, have the system manufacturer's qualified representative perform the following tests by in the presence of the Owner's representative.

a. Pre-start Checks:

1) Oil level

2) Water level

3) Day tank fuel level

4) Battery connection and charge condition

5) Engine to control interconnects

6) GenSet intake/exhaust obstructions

7) Engine room ventilation obstructions

8) Removal of all packing materials

E. Field Tests:

1. Have factory trained technicians perform the GenSet field test at the project site with test equipment, facilities, and consumables including fuel and lubricants provided by the supplier. Provide a full tank of diesel fuel when the testing is completed and the GenSet is available for operation.

2. Owner's representatives shall witness the field tests. Provide to the Engineer written notice of the date field testing will commence a minimum of two weeks prior to that date.

3. Conduct the following field tests:

a. Check electrical exhaust, fuel and water connections for proper size, continuity and tightness of fittings.

b. Check fluids for appropriate levels and jacket water heater operation.

c. Start engine and make initial start-up check of operational equipment.

d. Upon completion of initial start-up and system checkout, schedule the witnessed field test to demonstrate load carrying capability, stability, voltage and frequency.

e. Operate the GenSet for l-hour for proper engine break-in and record water temperature, fuel pressure, oil pressure, ambient air temperature, voltage, amperage, frequency, kilowatts, and power factor.

f. Operate a minimum of 4-hours under full load with consumables necessary for testing furnished by the contractor. Four-hour duration does not include ramp up and ramp down time.

g. Return to normal power source and test the ATS transfer from normal power to standby power and the ATS monitoring functions by simulating the loss of normal power source.

h. Test the ATS initiated "GenSet Start" condition with the load bank.

i. Following ATS testing, return to normal power source and simulate a loss of normal power source to allow the generator to run the facility through three pump cycle operations. During the test, operate the maximum number of pumps that can operate at the same time for one of the pump cycles. If necessary, provide additional water to the wet well for the testing purposes.

j. Run the generator for test duration; monitor the oil and water temperatures and record readings every fifteen minutes.

k. Test the GenSet safety devices using methods recommended by the manufacturer.

l. Setup the unloaded run at the conclusion of the test and the retransfer to normal power to allow engine to cool before engine shutdown.

m. Notify the County's representative of problems and the mitigation plan.

n. Submit the formal Test Results Report for approval.

3.3 TRAINING

A. Contract with the GenSet manufacturer to provide 8-hours of training. Arrange and schedule the training with the Owner.

B. Training shall include the following:

1. Operational information for the specific equipment provided.
2. Operation of the equipment in automatic and manual modes.
3. Troubleshooting.
4. Routine maintenance.

C. Certify training on appropriate forms.

END OF SECTION

SECTION 26 36 00

AUTOMATIC TRANSFER SWITCHES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

Paragraph	Title
1.2	References
1.3	Submittals
1.4	Quality Assurance
1.5	Delivery, Storage, and Handling
1.6	Warranty
2.1	Manufacturer
2.2	Rating
2.3	Control and Monitoring
2.4	Terminations
2.5	Enclosure
2.6	Nameplates
3.1	Field Adjustments
3.2	Wiring
3.3	Field Tests

B. Scope

1. This section specifies automatic transfer switches (ATS) rated 600 volts and less for lighting, HVAC, and motor loads with rating as indicated on the drawings.
2. The ATS shall use electrically-operated, mechanically-held, power rated, electrical contactor and shall provide double throw switching action with number of poles as shown or specified.

1.2 REFERENCES

A. Reference Standards

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid or on the effective date of the Agreement if there were no Bids.
3. If referenced documents have been discontinued by the issuing organization, references

to those documents shall mean the replacement documents issued or otherwise

identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.

4. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
IEEE Standard 446	Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
NEC Article 701 and 702	Legally Required Standby Systems and Optional Standby Systems
NFPA 70 – NEC	National Electric Code
NEMA ICS 6	Enclosures for Industrial Controls and Systems
NEMA Standard ICS10	AC Automatic Transfer Switches
NFPA 110	Emergency and Standby Power Systems
UL 508	Industrial Control Equipment
UL 1008	Standard for Automatic Transfer Switches

1.3 SUBMITTALS

A. Action Submittals/Informational Submittals

1. Product Data

a. List of materials and components shall accompany the arrangement drawing.

b. Manufacturers' data marked to indicate momentary, interrupting, and continuous current ratings of all relevant equipment, components, and devices.

2. Shop Drawings

a. Arrangement drawings of the transfer switch enclosure indicating the front door and rear panel equipment arrangement and dimensions.

b. Elementary and internal connection diagrams.

3. Special Procedure Submittals

a. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements.

b. A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.

c. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.

d. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with

the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. Closeout Submittals

1. Operation and Maintenance Data

a. Operation and maintenance information including product data specified in Section 01 78 23.

b. Final reviewed submittal, record drawings, ATS factory and field configuration settings included in the O&M data.

1.4 QUALITY ASSURANCE

A. Certifications

1. The ATS shall be Underwriters Laboratory listed in accordance with UL 1008.

B. Preconstruction Testing

1. Factory test the ATS to ensure proper operation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements

1. Deliver to site in manufacturer's original packaging.

2. Immediately inspect the equipment to verify no damage has occurred during shipping or delivery.

B. Storage and Handling Requirements

1. Store indoors in a climate controlled location. If equipment is stored outdoors, provide the necessary heaters in the cabinet to prevent moisture from forming in the cabinet.

2. Lift equipment in accordance with manufacturer's recommendations.

1.6 WARRANTY

A. Manufacturer Warranty

1. Provide a five (5) year parts and labor warranty, which includes travel time.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. The Owner and Engineer believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section.

B. This statement, however, shall not be construed as an endorsement of a particular manufacturer's products, nor shall it be construed that named manufacturers' standard equipment or products will comply with the requirements of this Section.

C. Manufacturers

1. Cummins.

2. Caterpillar.

3. Kohler.

4. ASCO.

5. Engineer approved equal.

2.2 RATING

A. Provide an ATS rated 150A, 240V, 3-pole,with solid neutral. The ATS shall be rated 480 Vac and rated to close into and withstand a fault, with the Withstand Closing Rating (WCR) of 65,000 symmetrical amperes.

B. Label the ATS with ratings. Series rated components are not acceptable.

2.3 CONTROL AND MONITORING

A. Include the following devices in the ATS control circuit:

1. Voltage pickup relay, adjustable 85 to 100 percent.
2. Frequency pickup relay, adjustable 90 to 100 percent.
3. Time delay relay for open transition from normal to emergency (TDNE): adjustable from 0.2 to 50 seconds, initially set at 0.2 seconds.
4. Time delay relay for open transition from emergency to normal (TDEN): adjustable from 0 to 30 minutes, initially set at 20 minutes.
5. Time delay for open-transition to allow motor load EMF decay: adjustable from 1 to 10 second, initially set at 7 seconds.
6. Engine cool-down timer: 0-60 minutes, initially set at 30 minutes.
7. ATS transfer test switch mounted on equipment cover or door.
8. Switch position indicating lights.
9. Generator start command: output relay.
10. Provide a plant exerciser with (10) 7 day events, programmable for any day of the week and (24) calendar events, programmable for any month/day to automatically exercise generating plant, programmable in one minute increments. Also include selection of either “no –load” (switch will not transfer) or “load” (switch will transfer) exercise period. Provide an adjustable (15 to 40 minutes, initially set at 30 minutes) cool-down timer, which initiates after re-transfer to normal power, at the end of the exercise period prior to engine shut down. Exerciser shall be key programmable on the switch cover/door. During exercise periods the ATS shall monitor the normal source continuously. If the normal source fails during the exercise period the ATS will terminate the exercise program and automatically and seamlessly change to emergency operation and continue providing power until such time as the normal source returns and satisfies all timers.
11. Monitoring: event logging with data, time, and reason.
12. Output status and alarm contacts:
    a. Normal status (2-sets Form-C)
    b. Standby status (2-sets Form-C)
    c. Trouble alarm (2-sets Form-C)

2.4 TERMINATIONS

A. Coordinate with ATS supplier to provide correct cable entry locations and correct termination lugs as required for the size and quantity of conductors shown. Provide access to the terminations and ATS from the front only. Rear access switches are not acceptable. Provide copper bus, terminations and connections.

2.5 ENCLOSURE

A. Provide an enclosure that is floor or supported from the floor mounted and suitable for outdoor locations as indicated on the drawings and as described below:

1. NEMA 4X (Type316 stainless steel) watertight enclosures: Intended for indoor or outdoor use primarily to provide protection against windblown dust and rain, splashing rain, hose-directed water, and damage from external ice formation.

2.6 NAMEPLATES

A. Identify the switch as indicated on the drawings and provide nameplates in accordance with the requirements of Section 26 00 01.

PART 3 EXECUTION

3.1 FIELD ADJUSTMENTS

A. The time delay relays shall be adjusted to the following values:

1. Normal to emergency time delay: 5 minutes
2. Emergency to normal time delay: 20 minutes
3. Open Position time delay: 3 seconds
4. Voltage pickup: 90 percent
5. Frequency pickup: 95 percent

B. Generator automatic exercise period shall be set as follows:

1. Exercise at no load for 30 minutes once per month.
2. Exercise at full load with complete transfer cycle and cool down once per year.
3. Exercise dates shall be as directed by the owner and programmed by the contractor after final acceptance.

3.2 WIRING

A. Install the control and monitoring wiring as shown.

3.3 FIELD TESTS

A. Perform the following tests on the equipment provided under this section. Conduct tests in accordance with the latest version of UL and NEMA standards.

1. Electrical insulation check to verify the integrity and continuity of the system.
2. Visual inspection to ensure the switch matches the specification requirements and to verify fit and finish meet quality standards.
3. Mechanical tests to verify the switch's power sections are free of mechanical hindrances.
4. Test the ATS using engine-generator set per Section 26 32 13.13 or 26 32 13.16.

B. Acceptance field test the automatic transfer switch in accordance with Section 26 00 01.

C. Conform optional Standby Systems to NFPA 70: NEC Article 702 requirements for installation, wiring, grounding, and for signage.

D. Configure the ATS for scheduled operation in accordance with Owner requested test schedule.

END OF SECTION