THE NEW JERSEY TURNPIKE AUTHORITY

PROCUREMENT AND MATERIALS MANAGEMENT DEPARTMENT

New Jersey Turnpike Administrative Offices
1 Turnpike Plaza
P.O. Box 5042
Woodbridge, New Jersey 07095-5042
Tel. - 732-750-5300 Ext. 8640

REQUEST FOR BID

TITLE: **SINGLE AXLE & TANDEM AXLE DUMP TRUCKS WITH SNOW PACKAGE**

BID NO: **RM-163267 & RM-163265**

DUE DATE: **5-20-21**

TIME: **11:00 AM**

SUBMIT BIDS BEFORE THE DUE DATE AND TIME STATED ABOVE TO THE ABOVE ADDRESS

BIDDER INFORMATION (PLEASE PRINT)

_____
NAME OF BIDDING ENTITY

_____
ADDRESS

_____
CITY, STATE AND ZIP CODE

_____
E-MAIL ADDRESS

_____ _____
REPRESENTATIVE TO CONTACT-NAME & TITLE TELEPHONE NO.

_____ _____
FEDERAL TAX I.D. NO. or TAXPAYER I.D. NO. FAX NO

SECTION I

A. INTRODUCTION

The New Jersey Turnpike Authority (the "Authority") was created by an act of the New Jersey Legislature in 1948, known as the New Jersey Turnpike Authority Act (as amended and supplemented, "Act"). The Act authorizes the Authority to construct, maintain, repair, and operate the New Jersey Turnpike, to collect tolls, and to issue Turnpike Revenue Bonds or Notes, subject to the approval of the Governor, payable from tolls and other revenues of the Authority. On May 27, 2003, the Act was amended to empower the Turnpike to assume all powers, rights, obligations and duties of the New Jersey Highway Authority (the "Highway Authority"), which owned and operated the Garden State Parkway and PNC Bank Arts Center. On July 9, 2003, the Authority assumed all powers, rights, obligations and duties of the Highway Authority. The Authority currently operates both the Garden State Parkway ("GSP") and the New Jersey Turnpike ("Turnpike") (both roads are collectively referred to herein as the ("Roadways").

The Authority is governed by an eight-member Board of Commissioners ("Board"). The Governor of New Jersey appoints each of its members and has the statutory authority to overturn an action of the Board by vetoing any Board action within 10 days of receiving the minutes of the meeting. The Board authorizes awards of all public contracts over $100,000, except in cases where it has delegated authority to the Executive Director.

This bid solicitation is being conducted pursuant to the Authority's enabling statute as found in *N.J.S.A.* 27:23-6.1 and Executive Order number 37 (Corzine 2006) and the regulations and policies of the Authority with regard to public bid procurement.

B. BIDDER GUIDELINES/CHECKLIST

BIDS THAT FAIL TO CONFORM TO THE FOLLOWING REQUIREMENTS MAY BE REJECTED:

1. The Request for Bid ("RFB"), including specifications and related bid documents ("Bids") must be received at or before the due date and time stated on the cover page at the following place: New Jersey Turnpike Authority, Administration Building, 1 Turnpike Plaza, Woodbridge, New Jersey 07095. **LATE BIDS WILL BE RETURNED UNOPENED. ELECTRONIC, EMAILED OR FACSIMILE BIDS WILL NOT BE ACCEPTED. BID OPENING WILL TAKE PLACE VIA TELECONFERENCE CALL ONLY. (SEE PAGE 5)**

2. **The entity submitting a Bid ("Bidder") must provide one original and one copy of the Bid.** The Bid must include all price information. Bid prices shall include delivery of all items F.O.B. destination or as otherwise provided. Price quotes must be firm through issuance of contract.

3. All Bid prices must be typed or written in ink. Quote the specified unit of measure. If bidding an alternate, provide detailed specifications on the exception form attached.

4. All corrections, white-outs, erasures, re-striking of type, or other forms of alteration or the appearance of alteration, to unit and/or total prices must be initialed in ink by the Bidder.

5. **The Bidder should call for the HIGHLY RECOMMENDED PRE-BID MEETING CONFERENCE CALL. See Page 5.**
6. **IF CHECKED, THIS RFB REQUIRES THE FOLLOWING MANDATORY DOCUMENT(S). FAILURE TO COMPLY WILL RESULT IN REJECTION OF THE BID.**

   (a) Bid Bond, Letter of Surety or a Cashier's Check for 10% of the amount Bid ☒

   (b) Ownership Disclosure Statement ☒

   (c) Disclosure of Investment Activities in Iran ☒

   (d) Vendor Disclosure Form ☒

7. **TO FACILITATE THE CONTRACT AWARD PROCESS, THE FOLLOWING DOCUMENTS SHOULD BE SUBMITTED WITH THE BID. IN THE EVENT THE DOCUMENTS ARE NOT SUBMITTED WITH THE BID, THEY SHALL BE SUBMITTED WITHIN THREE (3) BUSINESS DAYS FOLLOWING A VERBAL OR WRITTEN REQUEST FROM THE AUTHORITY.**

   (a) Certification of Registration with the Secretary of State (only if non-NJ corporation) ☒

   (b) Acknowledgement of requirement for Disclosure of Political Contributions (ELEC) ☒

   (c) SBE/WBE/MBE Certificates and Form ☒

8. Bidder must sign the Bid ☒

SEE THE AUTHORITY'S INSTRUCTION TO BIDDERS (ATTACHED) FOR A COMPLETE LIST OF THE AUTHORITY'S STANDARD CONTRACT TERMS AND CONDITIONS, AS WELL AS OTHER FORMS THAT ARE REQUIRED PRIOR TO THE AWARD OF CONTRACT(S).

9. **THE RECOMMENDED LOW BIDDER(S) MUST SUBMIT THE FOLLOWING CHECKED DOCUMENTS PRIOR TO CONTRACT AWARD.**

   (a) Mandatory Equal Employment Opportunity Language ☒

   (b) Affirmative Action Information Sheet with Certificate or Form AA302 ☒

   (c) State Contractor Political Contributions Compliance Public Law 2005, Chapter 51 & EO 117 ☒

   (d) Notice to All Bidders of Set-Off for State Tax ☒

   (e) Insurance Certificate ☒

   (f) State of New Jersey Division of Business Registration Certificate ☒

   (g) Instruction and agreement for Direct Payment (ACH) ☒

SECTION II

A. INTENTION

1. **Sealed Bids (Paper Submission Only)** for RM-163267 & RM-163265 must be received at the New Jersey Turnpike Authority Administrative Offices, 1 Turnpike Plaza, Woodbridge, New Jersey 07095-5042, by the due date and time stated on the cover page of this "RFB".
2. Bidders mailing Bids should allow for their normal mail delivery time to ensure timely receipt of the Public Bids. **Please be advised that using an overnight/next-day delivery service does not guarantee overnight/next-day deliveries to our location. The Authority will not be responsible for any Bid not being received by the required date and time**.
3. It is the intention of the Authority to issue a Purchase Order/"NOA" for the procurement of **SINGLE AXLE & TANDEM AXLE DUMP TRUCKS WITH SNOW PACKAGE.**
4. Items purchased under this contract will be delivered as directed by the Authority.
5. The term of the contract shall be for "one year with the option to extend for two additional one-year terms at the Authority's discretion and the vendor's concurrence".
6. Please contact John Parmigiani with any questions regarding this procurement contract at 732-750-5300 x 8632 or jparmigiani@njta.com

B. BID SHEET INSTRUCTIONS

1. Bidders must follow all instructions in this RFB and in the Instructions to Bidders issued by the Authority, and any other documents issued by the Authority in connection with this RFB (collectively, "Bid Documents").
7. **Bidders must examine the bid documents carefully before bidding and must ask the Director of Procurement and Materials Management Department ('PMM") in writing for any interpretation or correction of any apparent ambiguity, inconsistency or apparent error therein. If necessary, an interpretation or correction to the specifications in the form of an addendum shall be issued at least three (3) days prior to the bid opening by the Director of PMM to Bidders who have obtained the Bid Documents in accordance with *N.J.A.C.* 19:9-2.2(a)(3). Requests for interpretation or correction shall be considered only if received at least 5 business days prior to the Bid opening date**. Please contact John Parmigiani with any questions regarding this procurement contract at 732-750-5300 x 8632 or jparmigiani@njta.com
2. The submission of the Bid is conclusive evidence that the Bidder is fully aware of the conditions, requirements, and details as stated in the Bid Documents. If the Bidder, prior to submitting its Bid, fails to notify the Director of PMM of the existence of an ambiguity or inconsistency in the Bid Documents, a Bid will conclusively be presumed to have been based upon the Authority's interpretation of such ambiguity or inconsistency.
3. All erasures, interpolations or other physical changes on the Bid form shall be signed or initialed by the Bidder. Bids containing any conditions, omissions, erasure's, alterations, or items not called for in this "RFB" or irregularities of any kind, may be rejected by the Authority, in its sole discretion.
4. The Bidder shall not attach conditions, limitations or provisos to its Bid.

5. **The Authority will accept Approved Equivalent items on this Bid.** If a Bidder is basing the RFB on items other than what is specified, and wishes the items proposed to be considered as an "Approved Equivalent", the Bidder shall enter a price on the Bid sheet then submit on the Exception Form in the exact format of the line item on the RFB contained herein, the item number, an item description including manufacturers name, model number, informational brochure(s), and packaging quantities of those items that the Bidder proposes to substitute.

C. BASIS OF AWARD

1. Bidders must supply a price for every item listed. **Bids not having a price for all listed items may be rejected.**

2. Bidders must quote only one price per line item. **If a Bidder quotes multiple prices per line item, the Bid may be rejected**.

3. **The Authority will purchase amounts of any given item as needed, at the sole discretion of the Authority and shall not be bound by any quantities listed. The Authority reserves the right to make reasonable increases to line item quantities.**

4. All items are to be Bid FOB Destination. All shipping, handling, and other costs should be considered in the Bid price(s).

5. The Authority is tax exempt from New Jersey Sales and Excise Tax.

6. **AWARD WILL BE MADE TO THE LOWEST RESPONSIBLE AND RESPONSIVE, (1) ONE BIDDER FOR BOTH BID QUOTATION SHEETS.**

D. MISCELLANEOUS

1. Anticipated Delivery Date: _____

2. **ELECTRONIC PAYMENT: The Vendor will be required to accept payment(s) for goods or services via automatic deposit from the Authority. NO OTHER FORM OF PAYMENT WILL BE PROVIDED. See Exhibit M in the Instructions to Bidders on the Authority's website for the required electronic payment forms:** http://www.njta.com/doing-business/goods-and-services

3. Contract Bond: The successful bidder will be required upon award, to provide a contract bond in an amount of: **0 % of the Contract amount.**

E. CONFERENCE CALL FOR BID OPENING

Please be advised that the public bid opening for Solicitation RM-163267 & RM-163265 which is scheduled for May 20, 2021 will be by **CONFERENCE CALL ONLY. Conference call details are as follows: Dial-in Number: (646) 992-2010 with Access code 129-735-8235**, conference call access will be open 5 minutes prior to opening.

CONFERENCE CALL FOR THE HIGHLY RECOMMENDED PRE-BID MEETING SHALL BE:
May 6, 2021 AT 11:00 AM
Conference call details are as follows: Dial-in Number: (646) 992-2010 with Access code 129-649-7788 conference call access will be open 5 minutes prior to opening.

F. BID QUOTATION PAGE

SINGLE AXLE DUMP TRUCK WITH SNOW PACKAGE GVWR 43,000

Basis of Award - Bid is determined by the sum of all three (3) line items unit prices. IF THE UNIT PRICE OF A LINE ITEM IS ZERO BECAUSE THE BIDDER IS NOT CHARGING THE AUTHORITY FOR SUPPLYING THAT LINE ITEM, ENTER $0.00, HOWEVER, IF THE BIDDER IS NOT SUPPLYING A LINE ITEM, I.E. CANNOT SUPPLY THE EQUIPMENT SPECIFIED, ENTER "NO BID".

NOTE: IT IS THE INTENT OF THE AUTHORITY TO PURCHASE THE APPROXIMATE FOLLOWING LINE ITEMS. HOWEVER, THE AUTHORITY RESERVES THE RIGHT TO PURCHASE VARIOUS QUANTITIES OF LINE ITEMS.

ITEM	QTY	UNIT	DESCRIPTION Single Axle Dump Truck with Snow Package, as per attached Specifications	UNIT PRICE	TOTAL PRICE
1	22	EA	Single Axle Chassis Combination Dump Body with Twin Augers and Center Mounted Spreader as Specified	$	
2	22	EA	11' Power Reversing Snowplow with J-Style Moldboard as Specified	$	
3	4	EA	10' Patrol Wing Plow as Specified	$	
			TOTAL BID PRICE OF LINES 1 THROUGH 3	$	

AWARD WILL BE MADE TO THE LOWEST RESPONSIBLE, RESPONSIVE BIDDER BASED ON THE TOTAL BID PRICE

G. BID QUOTATION PAGE

TANDEM AXLE DUMP TRUCK WITH SNOW PACKAGE

Basis of Award - Bid is determined by the sum of all two (2) line items unit prices. IF THE UNIT PRICE OF A LINE ITEM IS ZERO BECAUSE THE BIDDER IS NOT CHARGING THE AUTHORITY FOR SUPPLYING THAT LINE ITEM, ENTER $0.00, HOWEVER, IF THE BIDDER IS NOT SUPPLYING A LINE ITEM, I.E. CANNOT SUPPLY THE EQUIPMENT SPECIFIED, ENTER "NO BID".

NOTE: It is the INTENT OF THE AUTHORITY TO PURCHASE THE APPROXIMATE FOLLOWING LINE ITEMS. HOWEVER, THE AUTHORITY RESERVES THE RIGHT TO PURCHASE VARIOUS QUANTITIES OF LINE ITEMS.

ITEM	QTY	UNIT	DESCRIPTION Tandem Axle Dump Truck with Snow Package, as per attached Specifications	UNIT PRICE	TOTAL PRICE
1	8	EA	Tandem Axle Chassis with Combination Dump Body with Twin Augers and Center Mounted Spreader, and 10' Patrol Wing Plow as Specified	$	
2	8	EA	11' Power Reversing Snowplow with J-Style Moldboard as Specified	$	
TOTAL BID PRICE OF LINES 1 AND 2				$	

AWARD WILL BE MADE TO THE LOWEST RESPONSIBLE, RESPONSIVE BIDDER BASED ON THE TOTAL BID PRICE.

H. SIGNATURE PAGE

1. **ADDENDA / INQUIRIES:** COMPLETE (if applicable) BEFORE SUBMITTING BID:
   Receipt of Addendum / Inquiries #_____dated_____is hereby acknowledged.
   Receipt of Addendum / Inquiries #_____dated_____is hereby acknowledged.

   ☐ **CHECK BOX IF NO ADDENDA/INQUIRY ISSUED**
   (All Addenda / Inquiries must be acknowledged as indicated above.)

2. **BID IRREVOCABLE:** This offer shall be irrevocable for ninety (90) working days after the date on which the Authority publicly opens this Bid except in those instances where an unsuccessful Bidder has filed a bid protest pursuant to *N.J.A.C.* 19:9-2.12. Upon notification of a protest, Bidders are required to hold their prices for an additional 90 days. All Bidders will be notified in writing of the action taken by the Authority.

3. **OFFER/CERTIFICATION:** The undersigned offers and agrees to furnish to the New Jersey Turnpike Authority the services and/or materials in compliance with all terms, conditions, specifications and addenda of the RFB, Bid Documents, and resulting contract. The undersigned further certifies understanding and compliance with the requirements of the standard terms and conditions as stated in the Instructions to Bidders included with the Bid Documents. The undersigned certifies that he or she executes this Bid with full authority so to do; and that all statements contained in this Bid and in this certification are true and correct, and made with full knowledge that the Authority relies upon the truth of the statements contained herein and in any statements requested by the Authority showing evidence of qualifications in awarding the contract.

   I certify that the foregoing statements made by me are true. I am aware that if any of the foregoing statements made by me are willfully false, I am subject to punishment.

4. **AUTHORIZED SIGNATURE:**_____

   Print Name and Title: _____

   Bidder: _____

   Address: _____

   City, State, Zip: _____

   E-mail address: _____

   Telephone #: _____ Fax: #_____

   Date: _____

SECTION III

New Jersey Turnpike Authority Specifications for:

Single and Tandem Axle Snow Removal Equipment

TECHNICAL SPECIFICATIONS FOR SINGLE AXLE CAB AND CHASSIS:	COMPLY	
GENERAL:	**YES**	**NO**
A. Current production year Mack Granite or Authority approved equivalent SFA (Set Forward Axle) 4x2, 6 Wheel Configuration.		
B. Due to the complexity of the build a list of references shall be provided with similar or larger size fleets to the using Agency.		
C. During the build process the authority reserve the right to inspect the facility performing the Chassis Manufactures Production.		
FRAME:		
A. Main Rail: 11.81" x 3.54" x 0.37", 120,000 PSI Minimum, Main Frame Rail, 23.5" Extension ahead of grille for proper snowplow hitch mounting.		
B. 2,470,000 RBM (Resisting Bending Movement) minimum.		
C. Huck fasteners shall be used for all cross members, fuel tank, and battery box brackets.		
D. Bolt-on or welded frame sections shall not be acceptable.		
E. Bolt-on front tow hooks with opening through the bumper. One right and one left, within easy access to afford quick operator hook up of tow chain. Hooks shall be of drop forged steel with a minimum of 44,500 lbs. working load. Grade 8 bolts shall be used to attach hook to chassis. Each hook shall be curved upward to assure tow chain will not fall off when no tension is present. Welded on hooks shall not be acceptable.		
F. Frame width to be 42" minimum.		
G. Electro-statically painted frame rails. Written certification is required.		
H. Wheelbase & Cab to Axle shall be: Wheelbase: 180" Cab to axle: 92.5"		
I. 44,000 lbs. G.V.W.R. Minimum.		
J. The Authority reserves the right to determine final CA and AF dimension at issuance of Purchase Order.		
K. Passenger side clear space 36" from back of cab.		
L. Rear tow hooks frame mounted.		
M. Frame shall have factory installed severe duty frame tie stiffener: • Shall be designed to provide frame rail to frame rail stability at the bellhousing/flywheel housing connection point location. • Must be capable of preventing excessive frame rail flexing. • Must be capable of providing additional frame stability to the left and right frame rails at both rear motor mount base plate mounting areas. • Shall be Huck® or Authority approved equivalent bolt mounted to the left and right frame rail behind the front axle rear leaf spring mounts and positioned below the transmission bell housing. • The design and installation shall maintain adequate and reasonable hi-center ground clearance, shall not interfere with any other vehicle or accessory components or equipment. • Must be designed to be capable of chassis and driveline component protection from damage associated with the load stresses and impacts consistent with plowing heavy snow in an interstate highway environment. • Must be designed to be durable, performing as outlined herein throughout the expected useful life of the vehicle.		
FRONT BUMPER:		
A. Heavy-duty steel 10" channel shall replace standard front bumper and shall be bolted via grade 8 bolts and self-locking elastic nuts to the front frame extension of the chassis.		
B. The bumper shall have means for mounting the front license plate.		

C. Two (2) steps, one (1) each side shall be constructed of 2" Bustin or Authority approved equivalent material.		
D. Steps shall be 8" wide x 8" deep.		
E. Step brackets shall be a minimum of ⅜" x 2" A36 material.		
FRONT CATWALK:		
A. The front frame extension shall incorporate an aluminum catwalk between the bumper and the chassis.		
B. The catwalk shall be three (3) section aluminum dirt shedding and have a separate top edge for positive foothold.		
C. Material shall be Bustin or Authority approved equivalent and be attached via rust proof stainless steel bolts with self-locking elastic insert nuts.		
D. Catwalk shall be located to provide best possible access to the chassis and engine components.		
E. The outer two (2) sections shall be capable of supporting 500 lbs.		
FRONT AXLE:		
A. 18,000 lbs. capacity front axle.		
B. Forged I-beam construction, heat treated alloy steel.		
C. Greaseable drag link and tie rods.		
D. Unitized wheel hubs, permanently sealed with grease.		
E. Sealed tapered kingpins and bearings for extended axle life.		
F. Weight capacity of front axle **must** be able to accommodate snowplow hitch and snowplow specified in this bid package.		
FRONT SUSPENSION:		
A. 18,000 lbs. capacity front suspension.		
B. Multi-leaf type front springs with shock absorbers.		
C. Spring pins shall be rubber bushed and maintenance free.		
D. Front axle and suspension shall be rated to accommodate GVWR.		
E. Suspension rating shall be accomplished without the use of "Helper Springs" or Auxiliary Air Bags.		
REAR AXLE:		
A. 26,000 lbs. capacity double reduction with driver controlled main locking differential. **No Exceptions**		
B. Axle creep rating of 30,000 lbs. for intended use.		
C. Axle housing shall be fabricated steel with Forged "R" Series spindle ends welded to housing shell.		
D. Rear Axle Spindle Bearing Dimensions: Inner Bearing: 3.75" Outer Bearing: 3.25"		
E. Shall be a top mount style differential for optimal driveline angle.		
F. Axle differential switch shall be LED backlight, labeled "DIFF LOCK". Located in Position 13. Reference drawing: 128 Dashboard Layout		
G. Factory installed synthetic gear lube and magnetic drain plug shall be installed.		
H. Axle ratio shall enable vehicle to cruise at 65 mph at maximum G.V.W.R.		
REAR SUSPENSION:		
A. 26,000 lbs. Multi-Leaf style rear suspension.		
B. Rear Axle and Suspension shall be rated to meet GVWR.		
C. Meritor or Authority approved equivalent suspension.		
BRAKES:		
A. Brake pedal and valve shall be firewall suspended.		

B. ABS anti-lock air brakes with Traction Control.		
C. Diagnostic electronic capability shall inform operator and the mechanic of any malfunctions including area of system failure via Instrument Cluster Display.		
D. Air dryer.		
E. Meritor "S" Cam Type Q" Plus Brakes. **No Exception for Standardization.** Front: 16.5" X 6" Rear: 16.5" x 7"		
F. 18.7 cubic foot gear driven air compressor with dual air supply gauges.		
G. Air pressure gauges shall be located in the instrument cluster.		
H. Automatic slack adjusters.		
I. Air tanks shall be aluminum and painted black.		
J. Air tanks shall have heated automatic drain valve on supply tanks and lanyards on all others.		
K. All air lines shall be color coded.		
L. Dust shields shall be provided on front and rear brakes.		
M. Parking brake alarm shall be provided. Horn shall sound when parking brake is not set with ignition off and any door opened		
N. Three (3) air tanks shall be included: (1) one tank driver side mounted beneath battery box, under cab two (2) tanks passenger side mounted 36" from back of cab perpendicular to frame rails.		
STEERING:		
A. Full hydraulic power steering.		
B. Steering column shall be tilt and telescoping style.		
C. Flat bottom steering wheel for ease of entry and exit.		
D. Steering wheel with cruise control and Bluetooth controls.		
EXHAUST SYSTEM:		
A. Frame mounted single unit DPF and SCR unit mounted under cab passenger side.		
B. Shall meet current US Emission requirements at time of bid without using Federal E.P.A Credits.		
C. Emission system to have bright finish cover.		
D. Exhaust pipe shall be passenger side, vertical mounted outboard of cab. Exhaust system and piping **shall not** extend past back of cab.		
E. Bright finish curved exhaust pipe and heat shield shall be supplied.		
F. System status shall be accessible via the Instrument cluster driver display		
G. Parked Regen control shall be provided and accessible via the instrument cluster driver Display. **No Exceptions**		
ELECTRICAL:		
A. No external Body Builder Module is to be needed, these functions shall be managed by the Vehicle Electrical Control Unit (VECU) and transmitted to the body device via an SAE J1939 connector. It shall be used to transmit control signals that are shared between standalone modules. The information on the SAE J1939 control link is used for control functions, fault messages or diagnostic information also transmits across this link. These control signals shall include engine, transmission, brakes and other vehicle controls needs. Faults shall be displayed and accessed through the Instrument Cluster Display. All wiring to be clearly labeled throughout its run.		
B. A completely designed and coordinated 12V, negative ground system shall be provided; computer voltage may vary. The system shall be designed such that all components are permanently grounded (-) and positively (+) energized where possible.		
C. All components must be selected to meet severe service.		
D. All wiring shall have lug type terminal ends or push-on type with locking modular plugs.		

E. The circuit breakers shall conform to the SAE JSS3 standard, type III, manual reset, and type I automatic reset mounted in a gang type terminal block inside the cab and must be readily accessible for resetting. All fuses shall conform to the SAE J1284, J2077 and JSS4 standards.		
F. All terminals and splice clips shall conform to the SAE J163 standard. The use of Scotch-Loc or equal connectors shall not be accepted.		
G. All high currents shall be distributed through power relays and installed in each circuit. It is recommended that each circuit have both primary and secondary protection devices. The primary device will be an automatic reset circuit breaker, or a manual reset circuit breaker. The secondary protection device may be a circuit breaker or a fuse. It is preferred that the protection device be as close to the power source as practical. The circuit protection shall provide both high and low resistance short circuit protection, while at the same time allowing normal overload conditions (for example, light bulb inrush current or motor start up).		
H. Each circuit shall have the proper size wiring for the protection device, and the load draw shall not exceed 80% of the protection device.		
I. All wiring harness shall have protective coverings to provide extra protection against operating and environmental conditions. The harness coverings may include tape, plastic sleeve or conduit, braid, nonmetallic loom, or other suitable shielding or covering.		
J. The edges of all metal members through which the harness passes shall be de-burred and rolled or bushed with suitable grommets. The wiring harnesses shall be secured or supported at intervals no greater than 18" to prevent rubbing or chafing due to wire movement.		
K. Wiring shall be located to afford protection from heat, road splash, stones, abrasion, grease, oil and fuel. Various types of plastic and metal clips, clamps and ties shall be used to support wiring harnesses.		
L. All external terminal connections shall be soldered and sealed with heat shrink or other approved coatings.		
M. A pre-trip inspection to test exterior light functions shall be supplied that shall enable the operator to test the exterior lights accessed through instrument cluster driver display.		
N. Three (3) 12-volt 2190 CCA maintenance free batteries with over crank protection. Batteries shall be mounted on a steel (powder coated black) box with aluminum (not painted) cover. Battery box to be mounted under driver side cab, forward of fuel tank.		
O. AM/FM radio with weather band, MP3, Bluetooth, clock, and speakers.		
P. Turn signal switch shall include “flash to pass” feature.		
Q. Daytime running lights: a pillar mounted clear lens marker/directional lights in addition to front corner directional shall be provided.		
R. Taillights shall have a separate 8' of cable for left and right-side body lights.		
S. Step mounted oval illuminating lamp mounted each side forward of step, rear facing, backlit rocker switch to be dash mounted on the left side of steering column accessible without entry into cab.		
T. Stop, turn, tail, and back-up lights shall be a Truck Lite model LED or Authority approved equivalent.		
U. The following lights shall automatically turn on when wiper switch is engaged: • Headlights • Taillights • Marker lights		
V. OEM dash-mounted Backlit; rocker switches shall be provided as per Reference drawing: 128 Dashboard Layout. **No Exceptions**		
W. Five (5) LED cab marker lights shall be provided.		
X. Two (2) halogen headlights shall be provided.		
Y. Wipers shall have two (2) speeds with washer and intermittent feature.		
Z. 165-amp Delco Remy 36SI brushless, pad mounted with remote voltage sensor or Authority approved equivalent alternator.		
Gauges & Lights: • Oil pressure		

• Water temperature • Warning lights • Voltmeter • Speedometer • Tachometer • Engine oil temperature • Transmission oil temperature • Pyrometer • Intake air restriction • Diesel fuel • Air tank pressure • DEF • Odometer in driver information center in center of cluster • Trip miles in driver information center in center of cluster • Engine hours in driver information center in center of cluster • Trip hours in driver information center in center of cluster • Rear axle oil temperature in driver information center in center of cluster • Differential Lock engaged diagrammatic backlit Yellow • PTO Engage Reading "PTO" Backlit Green.		
AA. Dual electric horns.		
BB. Single tone rectangular air horn mounted on cab.		
CC. Back-up alarm shall be a Preco 45-AA or Authority approved equivalent. Shock mounted alarm shall be mounted under right taillight.		
DD. Body builder harness shall be located and accessible in the interior of the cab near the driver seat and back wall. Shall consist of the following connections: • Stop/Tail/Turn, Marker light circuits. • Ignition controlled auxiliary feed. • Battery Controlled Auxiliary feed. • (7) Body up fitter switch outputs. • J1939 Connectivity. • Engine Interface Functions. • OEM Body Up Circuit output. • Power Take Off Output. • Speed Control. • Neutral Signal. • Reverse Signal.		
EE. Body Builder Harness shall be a Deutsch HP20 29 Pin Connector or Authority Approved equivalent. Reference Drawing: 128 Body Builder Connector		
FF. Two (2) Body Builder 2.5" floor "Knock Outs" shall be provided for pass through wiring, located behind driver seat and covered by rear wall covering		
GG. Chassis manufacture shall supply 2-way radio wiring with 20-amp fuse protection.		
HH. Chassis manufacture shall supply a 36" wiring harness for separate snowplow head lights and turn signals with LED back-lighted rocker type switch. Located in Position 3. Reference drawing: 128 Dashboard Layout		
II. In addition to the control switch, all lighting and accessories shall turn off with ignition key "off" except for Federal D.O.T. requirements.		
ENGINE:		
A. Mack MP7 or Authority approved equivalent.		
B. Power Curve for the horsepower and torque shall be provided in bid package.		
C. Electronic, 6-cylinder turbo-charged diesel engine.		
D. 395 Horsepower minimum @ 1,500 thru 1,800 RPM 1450 thru 1700 RPM.		
E. 1560 lb./ft. Torque minimum @ 1,000 thru 1,300 RPM 1050 thru 1300 RPM.		

F. 659 Cubic Inch Displacement minimum.		
G. Full wet design cylinder liners.		
H. Chassis mounted air to air charge air cooling system.		
I. High pressure F2 common rail fuel system.		
J. ZF Meritor fuel supply system.		
K. Spin on disposable fuel filter.		
L. Full pressure wet sump lubrication system.		
M. Stainless Steel Plate Oil Cooler.		
N. Lubrication system shall have two (2) spin on full flow disposable single bypass disposable filters.		
O. Magnetic drain plug.		
P. Cooling system thermostats of 180° F.		
Q. Heavy-duty starter with over crank protection.		
R. Air Cleaner under hood single element dry type with inside/outside intake with dash mounted rocker switch back lit and labeled "ENG AIR CONTROL" Located in Position 14. Reference drawing: 128 Dashboard Layout		
S. Cruise control integral with steering wheel.		
T. Provision for remote mounted engine control to include wiring for body builder installation of PTO controls, ignition switch controlled. Located in position 7. Reference drawing: 128 Dashboard Layout		
U. Heavy-duty radiator with electronic modulating viscous fan drive		
V. Ethylene Propylene Diene Monomer (EPDM) hoses or Authority approved equivalent.		
AA. Constant torque heat-shrink radiator clamps.		
BB. 120-volt, 1500-Watt engine block heater with weather protected flip plug cover shall be located under driver's door.		
CC. Extended long-life coolant protected to at least -40° F. The system shall be tagged indicating make, type of anti-freeze and degree of protection.		
DD. Low coolant level warning light and audible alarm.		
EE. Automatic engine shutdown system for oil pressure, coolant temperature, and coolant level with a 30 second delay and auto override.		
FF. Heated fuel/water separator.		
GG. Integrated fuel pressure sensor.		
HH. Oil pan: stainless-steel. **No Exceptions**		
II. Mack Powerleash engine brake or Authority approved equivalent.		
JJ. Engine brake control steering column right side stalk mounted.		
KK. Engine brake shall have low, medium, and high settings.		
LL. Engine brake shall allow driver control to set target speed.		
MM. Engine Capable of 420 brake horsepower @ 2000 rpm minimum.		
NN. Shall include front engine PTO provision.		
OO. Rear engine mount to be severe duty containment type: • Must be designed to separate frame flexing transference to the flywheel housing during plowing operations. • Shall be designed to bi-directionally insulate the driveline and the vehicle frame. • Must be capable of insulating the vehicle frame from drivetrain vibration and torque. • Must be capable of insulating the drivetrain from plow impact and load transference to the vehicle frame. • Must be capable of chassis and driveline component protection from load stresses and impacts consistent with plowing heavy snow in an interstate highway environment. • Must be designed to be durable, performing as outlined herein throughout the expected useful life of the vehicle.		

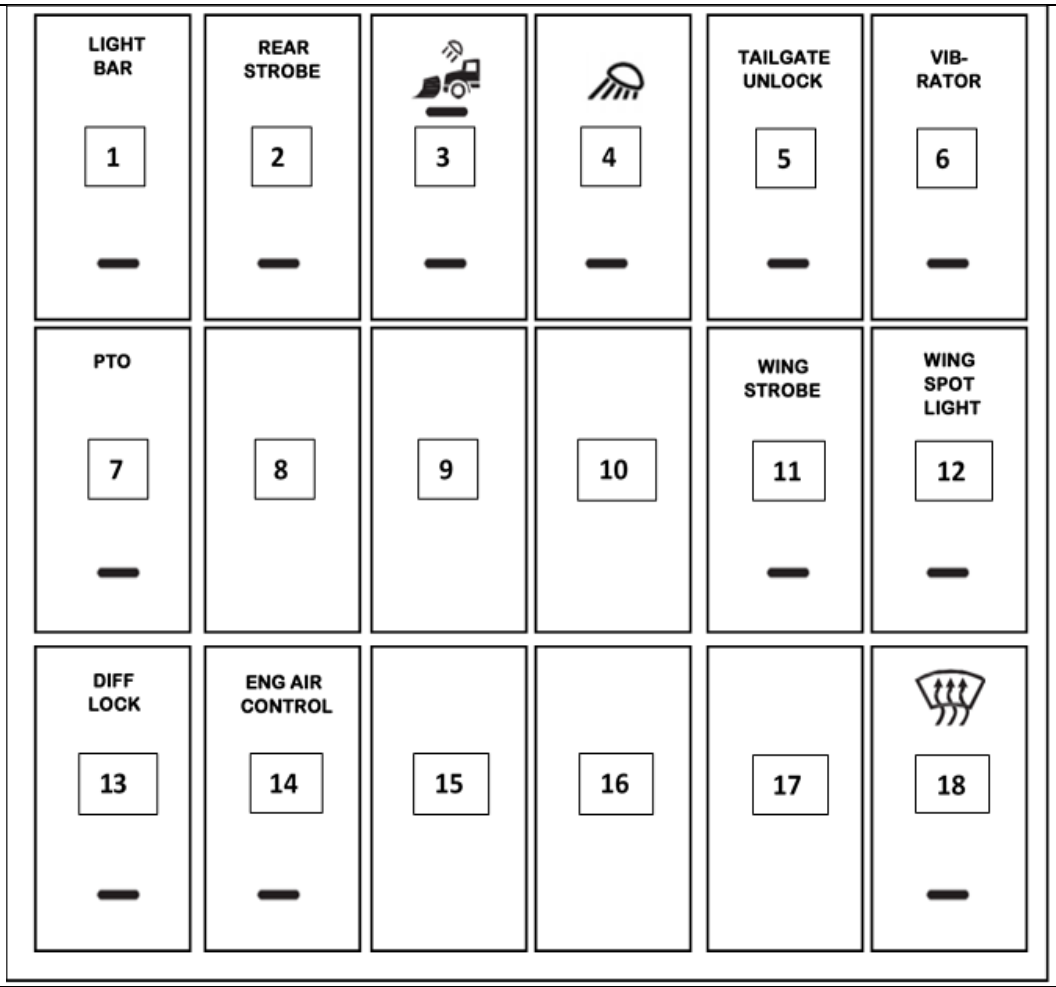
TRANSMISSION:		
A. Allison 4500 RDS **No Exceptions** as per fleet standardization.		
B. Six (6) forward speeds automatic transmission.		
C. Included shall be a transmission oil cooler and temperature gauge.		
D. Transmission Cooler lines shall be Stainless Steel to prevent corrosion. **No Exceptions**		
E. Synthetic transmission fluid shall be used and installed by OEM.		
F. Furnished PTO provision and dash mounted temperature gauge. Located in position 7. Reference drawing: 128 Dashboard Layout		
G. Transmission oil dip stick shall be routed for access at hood door.		
H. Transmission shifter to be dash mounted push button.		
I. Chassis manufacturer installed PTO accommodation for electric/over hydraulic PTO with dash mounted, back-lighted switch and indicator light in gauge cluster. Shall have wiring incorporated and over-speed protection programmed within the OEM electrical system. Located in Position 7. Reference drawing: 128 Dashboard Layout		
DRIVELINE:		
A. Meritor MX176 "Extended Line" or Authority approved equivalent.		
B. Driveline angle not to exceed 2°.		
FUEL TANK:		
A. 72-gallon minimum capacity sleeved aluminum "D" shape fuel tank mounted under cab.		
B. Thermostat controlled electric fuel heater and filter with filter restriction/change indicator.		
C. Fuel tank shall be labeled in 1" high green letters **"DIESEL FUEL ONLY"**.		
D. Vent tube for fuel tank shall be attached to a bracket via zip-tie.		
E. DEF tank shall be mounted driver side right of fuel tank, which is mounted under the cab. DEF tank shall be 6.6 U.S. gallons.		
FRONT TIRES & WHEELS:		
A. Two (2) Goodyear Endurance WHA 315/80R22.5 Tires. **No Exceptions**		
B. Hub piloted grey powder coat paint 22.5x9.00" steel disc wheels.		
C. Wheel-Guard separator between wheel and drum.		
REAR TIRES & WHEELS:		
A. Four (4) Goodyear G622 RSD 12R22.5 Tires. **No Exceptions**		
B. Hub piloted grey powder coat paint 8.25" steel disc wheels.		
C. Wheel-Guard separator between both wheels and between wheel and drum.		
D. Rear plain black mud flaps (No Advertisements).		
CAB:		
A. 2-door conventional cab design.		
B. Conventional cab design shall be galvanized steel. **No Exceptions**		
C. Hood shall be a 3-piece design with stationary bright finished grille.		
D. Cab shall have a 116" minimum bumper to back of cab for adequate room for hydraulic controls		
E. Hood shall have inspection hatch for snowplow application. **No Exceptions**		
F. Driver Display shall display miles, trip miles, engine hours, trip hours, and engine/vehicle system codes.		
G. Included shall be cab rear air bag suspension.		
H. All glass shall be tinted.		
I. Body builder "knockouts" shall be provided in cab floor for body builder connections.		
J. Air operated, high-back vinyl driver seat with headrest and lumbar support and inboard armrest.		
K. High-back vinyl non-suspended passenger seat with headrest.		

L. Both front seats shall have orange colored 3-point seatbelts with automatic retractors.		
M. 3-Point seatbelts with automatic retractors.		
N. Overhead console with radio pocket and wiring provisions		
O. Included shall be front storage pockets.		
P. Two (2) dome lights shall be mounted on headliner controlled by switch on overhead console. Two (2) reading lights mounted on headliner controlled by switch on overhead console.		
Q. Dual sun visors.		
R. In-dash cup holder.		
S. Driver and Passenger door storage pocket.		
T. Rear wall storage pocket.		
U. Interior grab handles on both sides, painted with non-skid paint.		
V. Bright finish grab handles driver and passenger side exterior of cab.		
W. Exterior mirrors shall be comprised of a 15" x 6.8" mirror with an 8" diameter convex mirror located below housing and brackets constructed of stainless steel. A look down 8" x 10" panoramic mirror shall be mounted above passenger door. Both primary mirrors shall be motorized and controlled by a switch located on driver side door panel. Primary and convex mirrors shall be thermostatically heated, Switch located on driver side door panel. West Coast Style only, shell type unacceptable.		
X. Mirrors shall be fitted with two unpluggable wire leads that allow easy replacement		
Y. Two (2) convex hood and fender mounted 10" bright finish heated mirrors mounted Driver and Passenger side. Shall have Three (3) fully adjustable stainless-steel arms, two (2) hood mounted one (1) one fender extension mounted.		
Z. Three (3) cab entry steps both side, bottom to be no higher than 18" from ground. Steps to be dirt shedding type, bright finish aluminum.		
AA. HVAC system shall include heater/defroster/air conditioning.		
BB. Standard instrumentation packages shall be included with plug in type gauges.		
CC. Cab floor covering shall be heavy duty rubber with closed cell rubber backing.		
DD. A stainless-steel grill guard is to be provided. **No Exceptions**		
EE. Hood mounted inner fenders for easy engine accessibility. **No Exceptions**		
FF. Windshield shall be two-piece, heated. Dash mounted OEM switch back lit and diagrammatically labeled. Located in Position 18 Reference drawing: 128 Dashboard Layout		
GG. Windshield wipers to be Artic type with J hook style wiper arms.		
HH. Washer tank shall be located back of cab for Quick Fill access. **No Exceptions**		
II. Washer tank shall have a 4-quart capacity.		
JJ. The chassis dash shall be an ergonomic wing style type for driver convenience.		
KK. Passenger door shall have lower visibility window for enhanced safety.		
LL. Air intake bright finish.		
MM. Exterior sun visor fiberglass painted cab color.		
NN. A non-metallic weatherproof seven (7) pole round pin trailer socket shall be mounted through the hook plate on the upper left side of the pintle hook and OEM wired to the chassis as outlined in Specifications: 7PTC. Exact location shall be determined by contacting the NJTA Inspector prior to mounting.		
OO. OEM installed electronic brake controller wiring and ABS brake controller wiring shall be routed and terminated at a chassis frame cross member bracket mounted weatherproof junction box at the rear of the truck. See Specifications: TCAABC-2018.		
PP. Complete ABS air brake trailer system including a hand valve control and trailer protection valve shall be installed to the Glad Hand outlets on the pintle plate (location to be determined by the Authority) shall be plugged to prevent air leakage (swivel glad hands 45° cast iron, ⅜" port size, 180° rotation). The Glad Hands shall be installed at a location determined by contacting the NJTA Inspector prior to installation.		
REMOTE DIAGNOSIS:		
A. Remote Diagnostic Service shall be provided and standard equipment:		

• To be capable of access complete vehicle history with ASSIST. • Provide detail analysis of critical fault codes with guard dog connect. • Provide proactive support for vehicle diagnostic and repair planning. • 24/7 365 Day staffed analyst center to provide real time assistance. • Triage fault codes to three categories, Preventive Maintenance, Service Needed, Critical Fault. • Notified Fleet Managers real time when faults occur.		
B. The following are to be included with the vehicle at a minimum of the coverage period of the extended warranties: • Over the Air Firmware Updates • Software Updates • Remote Diagnostics • In Person Monitoring		
MISCELLANEOUS:		
A. Provided in cab shall be a dry chemical 5 lb. "UL" listed fire extinguisher suitable for ABC class fires. A quick-release type metal bracket shall be used to mount extinguisher to base of control panel pedestal. Note: Holes shall not be drilled into pedestal to mount quick-release bracket due to wiring running through pedestal. Wires passing through floor at bottom of pedestal must be neatly and uniformly filled with silicone.		
B. Provide a D.O.T. approved reflective triangle kit in cab.		
C. Provide Two (2) wheel chocks.		
PAINT:		
A. All metal parts shall have the mill scale and oil removed by means of a high-pressure chemical cleaner prior to painting.		
B. All frame and running gear shall be painted manufacturers black.		
C. Cab shall be painted with DuPont Dulux Omaha Orange Enamel # 93-082 or approved equivalent. Paint shall be applied in a two-step process with the orange base coat and additional polyurethane overcoat.		
D. Bumper, battery box (not battery cover), frame, and engine oil pan shall be painted Black		
PILOT MODEL:		
A. The contractor shall furnish pilot model truck with body and hoist mounted, as well as the snow plow attachments, spreader, hydraulic equipment and controls mounted and in operating condition, painted and complete in every detail of these specifications for the inspection and approval of the Turnpike Authority or an authorized representative.		
WARRANTY:		
A. All vendors shall provide a basic warranty without cost to New Jersey Turnpike Authority, covering 100% material, labor and parts for one (1) year. Copies of All warranties to be furnished shall be provided in proposal.		
EXTENDED WARRANTIES:		
A. Extended Warranties to be provided for each vehicle as follows: • Chassis Plan 2, 60 Months/100,000 Miles • Engine Plan 2, 60 Months/250,000 Miles • Exhaust Aftertreatment 60 Months/250,000 Miles • Starter/Alternator 60 Months/300,000 Miles • Remote Diagnostics w/Remote Programing 84 Months • Allison Transmission 60 Months		

MANUALS/PARTS AND COMPONENT LISTS:		
A. The vendor shall supply Two hard copies of parts, repair and service manuals covering the truck and all major components. A schematic and parts list for the hydraulic system, dump body, spreader control system, pre-wet system and a copy of the manufacturer's line setting ticket for each vehicle. USB Drive in lieu of manuals are preferred.		
INSPECTIONS:		
A. Vehicles shall be inspected to all Federal and State standards.		
STATEMENT OF ORGIN:		
A. Statement of origin shall be furnished by vendor upon delivery.		
OPERATIONAL TRAINING:		
A. Successful bidder shall include operational training of the complete vehicle to Authority personnel. The training shall be scheduled and take place at two (2) sites, approximately (8) hours each site designated by the New Jersey Turnpike Authority.		
DIAGNOSIS TOOLS:		
A. The awarded vendor shall provide a three (3) year manufacturers Web-based diagnostic, repair, and parts subscription including truck chassis and engine. Must be capable of new module programing by VIN as well as installing manufactures period module updates for engine, body and components.		
B. Diagnostic and repair information for transmission, air-brake system, and other installed components shall be Web-based or PC based software.		
C. Eighteen (18) complete set of factory diagnostic and repair vehicle interface software, to include all necessary cabling and connections for a laptop computer or a handheld device shall be supplied.		
AUTOMOTIVE TECHNICIAN TRAINING:		
A. Accredited manufacturers new model diagnostic and repair training for all truck chassis systems. Training may consist but not limited to the follow subjects: engine, emissions aftertreatment, electrical, electronics, HVAC, body control, brakes, steering, suspension and driveline.		
B. Training shall be supplied from a Representative from the OEM. NO Exceptions.		
C. The awarded vendor shall provide accredited authorized manufacturer new model training on the vehicles listed in this bid package. Forty (40) hours of training per technician shall take place at two (2) designated Authority facilities for approximately fifty (50) technicians at each facility.		

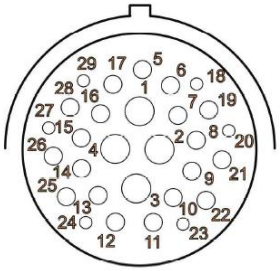
REFERENCE DRAWING: 128 DASHBOARD LAYOUT



REFERENCE DRAWING: 128 BODY BUIDER CONNECTOR

POLE	DESCRIPTION
1	Battery Power (30A)
2	Ignition Power (30A)
3	Stop Lamp
4	Tail Lamp
5	Reverse Signal
6	LH Turn
7	RH Turn
8	Switch # 1 “Light Bar” 20 Amp (IGN)
9	Switch # 2 “Rear Strobe” 20 Amp (IGN)
10	Switch # 4 “Spreader Lamp” 15 Amp (IGN)
11	Switch # 5 “Tailgate” 15 Amp (IGN)
12	Switch # 6 “Vibrator” 15 Amp (IGN)
13	Switch # 11 “Wing Strobe” 20 Amp (IGN)
14	Switch # 12 “Wing Spot Lamp” 15 Amp (IGN)
15	Parking Brake
16	Neutral Signal
17	Indicator Switch (body Lamp)

18	PTO #1 – CA29	
19		
20		FF
21		
22		
23		DECEL
24		ıe/Accel
25		
26		
27	LH Turn/Stop	
28	-	
29	RH Turn/Stop	



TECHNICAL SPECIFICATIONS:	**COMPLY**	
	YES	**NO**
ELECTRICAL:		
A. A completely designed and coordinated 12V, negative ground system shall be provided; computer voltage may vary. The system shall be designed such that all components are permanently grounded (-) and positively (+) energized where possible. All components must be selected to meet severe service. All wiring shall have lug type terminal ends or push-on type with locking modular plugs.		
B. The circuit breakers shall conform to the SAE J553 standard, Type III manual reset, and Type I automatic reset mounted in a gang type terminal block inside the cab and must be readily accessible for resetting. All fuses shall conform to the SAE J1284, J2077 and J554 standards. All terminals and splice clips shall conform to the SAE J163 standard. The use of Scotch-Loc or equal connectors will not be acceptable		
C. All high currents shall be distributed through power relays and installed in each circuit. It is recommended that each circuit have both primary and secondary protection devices. The primary device may be a fusible link, an automatic reset circuit breaker, or a manual reset circuit breaker. The secondary protection device may be a circuit breaker or a fuse. It is preferred that the protection device be as close to the power source as practical. The circuit protection shall provide both high and low resistance short circuit protection, while at the same time allowing normal overload conditions (for example, light bulb inrush current or motor start up). Each circuit shall have the proper size wiring for the protection device, and the load draw shall not exceed 80% of the protection device.		
D. All wiring harness shall have protective coverings to provide extra protection against operating and environmental conditions. The harness coverings may include tape, plastic sleeve or conduit, braid, nonmetallic loom, or other suitable shielding or covering. The edges of all metal members through which the harness passes shall be de-burred or rolled and suitable grommets installed. The wiring harnesses shall be secured or supported at intervals no greater than 18" to prevent rubbing or chafing due to wire movement. Wiring shall be located to afford protection from heat, road splash, salt residue, stones, abrasion, grease, oil and fuel. Various types of non-corrosive clips, clamps and ties may be used to support wiring harnesses.		

E. All external terminal connections shall be soldered and sealed with heat shrink or other approved coatings. The OEM shall provide in-dash switches as indicated on Appendix A (Switch diagrams) and two spares complete with circuit protection, wiring and a junction block for the body builders hook-up. All switches shall be in accessible reach of the operator.		
F. The electrical wiring routing shall be of professional quality. All electrical connections shall have ample di-electrical coating during installation. OEM body builder plug shall terminate inside the cab mounted junction box. All wiring shall be home runs to cab and organized in a junction box Integra Enclosures Part # H141206HFLL. (No substitution, standardization). Mounting hardware and brackets shall be 304 stainless steel and shall be removable from outside of the box. A wiring schematic shall be adhered to the inside of the box lid. Extra wire and cable shall be present to allow the box to be removed and placed on the passenger		
G. This lighting package shall include all necessary cables to connect power supply to the lights. All lighting connections shall use weatherproof connectors and cables shall be home runs to the in-cab junction box or flash controller (No splicing will be permitted). Strobe lights may be internally controlled or controlled by a central flash control. All hardware or brackets used for light mounting shall be stainless steel for corrosion resistance.		

ROTATOR LIGHTS:		
A. One (1) Super-LED Amber Beacon shall be mounted to each side of Light Stanchion or body mounted when Dual auger body option #1 is selected. BBKT30 stainless-steel shelf mount bracket or Authority approved equivalent shall be mounted to the outer vertical side of the cab shield on the driver and passenger sides.		
B. The mounting bracket shall not be wider than the exterior mirrors and the rotor light assembly shall be 1" higher than the cab roof. The rotor light bracket assemblies shall not interfere or have contact with the cab or tarp system components and shall provide adequate strength with a minimum amount of vibration transference to the rotor lights. Mounting shall provide at least 180 degrees of unencumbered projected light.		
C. Whelen Model R416AF or Authority approved equivalent Super-LED amber rotating beacon warning lights.		
D. Power and ground wiring cable for the Amber Beacons shall be type “SO” cord and sized to sufficiently handle current demands of the circuit load. The cable assemblies shall originate at the body builder harness at the cab interior and be routed separately to the left and right beacon light assemblies, the routing shall follow along the same routing path as the body side marker lights, continue upward inside the body bulkhead corners, exit at the highest point of the corner structure throw a grommeted hole and terminate at each beacon assembly with a Deutsch weatherproof two conductor plug and socket treated with dielectric grease. No other splicing or connections shall be acceptable.		
E. A latched “Light Bar” switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (1) of the auxiliary switch pack • 20A circuit protection, Ignition powered • Latching On/Off switch • Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector • The switch shall be backlit and labeled Light Bar.		
DUMP BODY AMBER WARNING LIGHTS:		
A. Located at the rear facing corners of the dump body without interfering with DOT lighting requirements shall be four (4) light heads installed, two (2) on each side of body corner posts at ⅓ increments of the overall corner post height. Each mounting shall be recessed in a shock resistant grommet and each light head shall have a 3½" pigtail with Deutsch weatherproof plug connector treated with dielectric grease.		
B. Amber LED light heads shall be a minimum of 12 square inch oval type with hard coated lenses and shall be SAE J595 compliant and meet or exceed **Type 1** candela output:		

Type 1	20° L	10° L	V	10° R	20° R
5° U	117	191	844	191	117
H	270	421	2400	421	270
5° D	117	191	844	191	117

Chart Key—The preceding graph (Type 1) represents the minimal acceptable direct and off angle candela values, L-Left, R-Right, U-Up, D-Down, V-Vertical, H-horizontal and °-Degree.

C. Light heads shall display diagonally synchronized double flash signals by way of synchronization wiring and light head programing. Mechanical, electronic flasher or module mechanisms are not acceptable.

D. The harness wiring shall be routed to prevent damage, terminate at each light head with a Deutsch weatherproof plug and socket connector treated with dielectric grease and originate in the cab at the body builder harness. No other splicing or connections shall be acceptable.

E. A latched "Rear Strobe" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features:

- Placed in position (2) of the auxiliary switch pack
- 20A circuit protection, Ignition powered
- Latching On/Off switch
- The Switch shall be backlit and labeled rear "Rear Strobe"
- Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector

SNOWPLOW LIGHTS:

A. Snowplow lights shall be used to add normal head light operation from a higher position on the cab facilitating light projection clearance above the attached snowplow.

B. Snowplow lights shall be Trucklite 80990 heated LED plow lights or Authority approved equivalent.

C. Snowplow lights shall provide an alternate high/low beam light source when snowplow is attached.

D. Mounting shall be shock-proof and vibration resistant to NJTA standards on chassis hood with rubber isolation.

E. A formed and welded two-piece, 16" x 2" x .185" stainless steel bracket system shall be provided to accommodate high profile snowplows. Bracket shall provide light base 78" minimum height from ground

F. Lights shall include halogen bulbs, wrap around park/turn lamps.

G. A latched Snowplow switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features:

- Placed in position (3) of the auxiliary switch pack.
- 20A circuit protection, ignition powered.
- Latching On/Off switch.
- The switch shall be backlit and diagrammatically labelled.
- Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector.
- While on, the OEM park, turn, high and low beam light switch operation shall operate the plow lights.
- While on, the chassis headlights shall not operate.

H. Power supply for these additional lights shall be from the existing chassis high/low beam, park and turn signal circuits.

I. Plow light housing shall be of polycarbonate material.

J. All wiring shall be routed to prevent damage (no splices) and be interfaced to OEM harness and be attached at firewall to a seven (7) terminal connection point for ease of hook up and troubleshooting.

K. There shall be **no** splices (must have continuous feed from lights to firewall).

L. Mounting shall be on truck fenders/hood.

M. Original chassis high beam dash mounted indicator shall function when plow

lights are in high beam mode.		
SPREADER LIGHTS:		
A. The spreader lights shall be used to illuminate the salt discharge from the spinner during salting operations as an indicator to the operator that salt is actually being dispensed as intended.		
B. Two (2) Whelen # PFBS12 or Authority approved equivalent, 12 diode, 1,000 lumens, 12v-1.70-amp stud/swivel mount white LED work light.		
C. The light assemblies shall be positioned to illuminate the spreader operation.		
D. Wiring shall be "SO" two (2) conductor quick-disconnect weather pack connector and be impervious to weather and salt. Wires going into spinner light fixture shall be sealed with silicone.		
• A latched "Spreader Light" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (4) of the auxiliary switch pack • 15A circuit protection, Ignition powered • Latching On/Off switch • The switch shall be backlit and diagrammatic labeled • Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector		
ELECTRIC POWERED VIBRATOR:		
A. Martin 12volt DC2500 or Authority approved equivalent electrically powered body vibrator installed underneath each dump body listed in this specification.		
• A momentary "Body Vibrator" switch shall be incorporated within the central chassis switch control interface. • Illuminated indicator light. • Must be depressed/selected to operate. • Placed in position (6) of the auxiliary switch pack • Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector. • The switch shall be backlit and labeled "Vib-rator".		
B. Installation shall be per manufacturers specifications, plate and chain.		
C. Body vibrator shall be mounted in an area of the dump body underside to provide maximum material movement.		
D. Body vibrator installation must include a suitable chain restraint from the vibrator unit to the dump body, not the mounting plate.		
BACKUP AND WING PLOW CAMERAS:		
A. Backup camera on automatic operation for truck in reverse.		
B. Integrated with automatic wing camera operation		
C. Two (2) hardwired Color CCD cameras. One (1) as backup camera, One (1) as wing camera.		
D. Shall be hardwired 130° viewing angle camera (s).		
E. 50' Infrared night vision.		
F. IP69 Rated – certified to keep out dirt and moisture.		
G. Shock resistant with 20G vibration and 100G impact rating.		
H. 7" Digital LED color monitor mounted in NJTA approved location.		
I. Mirror image capable.		
J. Adjustable dash pedestal mount.		
K. Grid lines.		
L. Ruggedized cameras to be mounted in NJTA approved location.		
M. Reverse Signal Input Shall be incorporated into Body builder connector. Reference Drawing: 128 Body Builder Connector		

RUST PROTECTION

A. The complete chassis undercarriage inclusive of cab bottom, axles and complete frame rails, as well as, back side of front bumper, snowplow attachments, engine underside and transmission. Particular attention should be given to all hydraulic fittings and any steel or aluminum components. Reference: Rhomar RH-415 Armour-Seal or Authority approved equivalent.

DUMP BODY LIGHTING:

A. Two (2) 6" oval amber LED lights shall be rubber grommet mounted in each rear corner post (two on each side). Shall be top of post and approximately 1/3 down.

B. All required LED marker lights shall be rubber grommet mounted and conform to DOT requirements in color, reflectivity, and placement.

C. All wiring junction connections shall be contained in a high-impact weatherproof plastic junction box, bracket mounted to the inside of the rear most chassis cross member.

D. All harness wiring shall be routed to prevent damage, terminate at each light head with a weatherproof plug connector treated with dielectric grease and originate at the above stated rear mounted junction box. No other splicing or connections shall be acceptable.

E. Located at the rear facing corners of the dump body without interfering with DOT lighting requirements shall be four (4) light heads installed, two (2) on each side of body corner posts at ⅓ increments of the overall corner post height. Each mounting shall be recessed in a shock resistant grommet and each light head shall have a 3½" pigtail with weatherproof plug connector treated with dielectric grease.

F. Amber LED light heads shall be a minimum of 12 square inch oval type with hard coated lenses and shall be SAE J595 compliant and meet or exceed **Type 1** candela output:

Type 1	20° L	10° L	V	10° R	20° R
5° U	117	191	844	191	117
H	270	421	2400	421	270
5° D	117	191	844	191	117

Chart Key—The preceding graph (Type 1) represents the minimal acceptable direct and off angle candela values, L-Left, R-Right, U-Up, D-Down, V-Vertical, H-horizontal and °-Degree.

G. Light heads shall display diagonally synchronized double flash signals.

H. The harness wiring shall be routed to prevent damage, terminate at each light head with a weatherproof socket connector treated with dielectric grease and originate in the cab at the body builder interface. No other splicing or connections shall be acceptable.

I. A latched "Rear Strobe" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features:

- Placed in position (2) of the auxiliary switch pack
- 20A circuit protection, Ignition powered
- Latching On/Off switch
- The Switch shall be backlit and labeled rear "Rear Strobe"
- Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector

STATIONARY LIGHT STANCHION:

A. Bracket base shall be a minimum of 6" x ¼" rolled steel plate cold pressed to conform to the outside of the chassis frame in an inverted "L" shape, the base shall have two (2) 21/32" holes drilled in the vertical portion at evenly space intervals to match chassis manufacturers holes.

B. The rotor light stanchion structure shall be weld fabricated as follows:

C. Two (2) vertical upright posts shall be a minimum of 4" x 2" Aluminum C-channel set vertically (overall rotor light assembly shall be 1" higher than the cab roof).

D. Two (2) minimum of 3" x 1½" ¼" aluminum C-channel cross braces shall be angularly weld mounted from left to right between the upright posts.

E. E. A minimum of a 2" x 3/16" capped aluminum tube crossbar shall be weld mounted and gusseted with a minimum of 3" x 1½" ¼" C-channel weld mounted between crossbar and channel uprights. The crossbar shall be approximately 9½' wide but shall not be wider than the exterior mirrors.		
F. Mounting uprights shall be constructed using 4" aluminum channel extrusion (3.63 lb./ft minimum 6061-T6).		
G. The cab shield shall have a minimum 4" aluminum reinforcement the width of the stanchion fully welded on the backside and flush with the top of the shield.		
H. There shall be a minimum of four (4) fully welded aluminum braces that extend from the vertical channel to chassis mount brackets.		
I. The rotor light stanchion shall be mounted to the rotor light stanchion mounting bracket using six (6) ½" grade 8 bolts, six (6) steel flat washers, and six (6) grade 8 nylon locking nuts.		
J. Two (2) 12" long sections of ½" o.d. stainless steel tubing shall be weld mounted and evenly spaced along the crossbar and two (2) 12" long sections of ½" o.d. stainless steel tubing shall be weld mounted and evenly spaced along the left side vertical stanchion upright to facilitate rotator light wire routing.		
K. The crossbar shall have a minimum of 3/16" round stainless-steel rotor light mounting plates at each end. The diameter of each plate shall be at least ¼" larger than the diameter of the rotor light base. The plates shall be weld mounted horizontally at the outer most edge without exceeding the width of the crossbar.		
L. The rotor light stanchion assembly shall not interfere or have contact with the cab or the dump body and shall provide adequate strength with a minimum amount of vibration transference to the rotor lights.		
ROTATOR LIGHTS:		
A. One (1) Super-LED Amber Beacon shall be mounted each side of Light Stanchion Specified.		
B. The mounting bracket shall not be wider than the exterior mirrors and the rotor light assembly shall be 1" higher than the cab roof. The rotor light bracket assemblies shall not interfere or have contact with the cab or tarp system components and shall provide adequate strength with a minimum amount of vibration transference to the rotor lights. Mounting shall provide at least 180° of unencumbered projected light. Mounting bracket shall be welded to stationary cab shield		
C. Shall be Whelen Model R416AF or Authority approved Super-LED amber rotating beacon warning lights.		
D. Power and ground wiring cable for the Amber Beacons shall be type "SO" cord and sized to sufficiently handle current demands of the circuit load. The cable assemblies shall originate at the body builder harness at the cab interior and be routed separately to the left and right beacon light assemblies, the routing shall follow along the same routing path as the body side marker lights, continue upward inside the body bulkhead corners, exit at the highest point of the corner structure throw a grommeted hole and terminate at each beacon assembly with a Deutsch weatherproof two conductor plug and socket treated with dielectric grease. No other splicing or connections shall be acceptable.		
E. A latched "Light Bar" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (1) of the auxiliary switch pack. • 20A circuit protection, Ignition powered. • Latching On/Off switch. • Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector. • The switch shall be backlit and labeled Light Bar.		
DUMP BODY AMBER WARNING LIGHTS:		
A. Located at the rear facing corners of the dump body without interfering with DOT lighting requirements shall be four (4) light heads installed, two (2) on each side of body corner posts at ⅓ increments of the overall corner post height. Each mounting shall be recessed in a shock resistant grommet and each light head shall have a 3½" pigtail with Deutsch weatherproof plug connector treated with dielectric grease.		

B. Amber LED light heads shall be a minimum of 12 square inch oval type with hard coated lenses and shall be SAE J595 compliant and meet or exceed **Type 1** candela output:

Type 1	20° L	10° L	V	10° R	20° R
5° U	117	191	844	191	117
H	270	421	2400	421	270
5° D	117	191	844	191	117

Chart Key—The preceding graph (Type 1) represents the minimal acceptable direct and off angle candela values, L-Left, R-Right, U-Up, D-Down, V-Vertical, H-horizontal and °-Degree.

C. Light heads shall display diagonally synchronized double flash signals by way of synchronization wiring and light head programing. Mechanical, electronic flasher or module mechanisms are not acceptable.

D. The harness wiring shall be routed to prevent damage, terminate at each light head with a Deutsch weatherproof plug and socket connector treated with dielectric grease and originate in the cab at the body builder harness. No other splicing or connections shall be acceptable.

E. A latched "Rear Strobe" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features:

- Placed in position (2) of the auxiliary switch pack.
- 20A circuit protection, Ignition powered.
- Latching On/Off switch.
- The Switch shall be backlit and labeled rear "Rear Strobe".
- Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector.

SNOWPLOW LIGHTS:

A. Snowplow lights shall be used to add normal head light operation from a higher position on the cab facilitating light projection clearance above the attached snowplow.

B. Snowplow lights shall be Trucklite 80990 heated LED plow lights or Authority approved equivalent.

C. Snowplow lights shall provide an alternate high/low beam light source when snowplow is attached.

D. Mounting shall be shock-proof and vibration resistant to NJTA standards on chassis hood with rubber isolation.

E. A formed and welded two-piece, 16" x 2" x .185250" stainless steel bracket system shall be provided to accommodate high profile snowplows. Bracket shall provide light base 78" minimum height from ground.

F. Lights shall include halogen bulbs, wrap around park/turn lamps.

- A latched Snowplow switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features:
- Placed in position (3) of the auxiliary switch pack.
- 20A circuit protection, ignition powered.
- Latching On/Off switch.
- The switch shall be backlit and diagrammatically labelled.
- Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector
- While on, the OEM park, turn, high and low beam light switch operation shall operate the plow lights.
- While on, the chassis headlights shall not operate.

G. Power supply for these additional lights shall be from the existing chassis high/low beam, park and turn signal circuits.

H. Plow light housing shall be of polycarbonate material.

I. All wiring shall be routed to prevent damage (no splices) and be interfaced to OEM harness and be attached at firewall to a seven (7) terminal connection point for ease of hook up and troubleshooting.

J. There shall be **no** splices (must have continuous feed from lights to firewall).

K. Mounting shall be on truck fenders/hood.

L. Original chassis high beam dash mounted indicator shall function when plow lights are in high beam mode.		
ELECTRIC POWERED VIBRATOR:		
A. Martin 12-volt DC2500 or Authority approved equivalent electrically powered body vibrator installed underneath each dump body listed in this specification.		
• A momentary "Body Vibrator" switch shall be incorporated within the central chassis switch control interface. • Illuminated indicator light. • Must be depressed/selected to operate. • Placed in position (6) of the auxiliary switch pack. • Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector. • The switch shall be backlit and labeled "Vib-rator".		
B. Installation shall be per manufacturers specifications, plate and chain.		
C. Body vibrator shall be mounted in an area of the dump body underside to provide maximum material movement.		
D. Body vibrator installation must include a suitable chain restraint from the vibrator unit to the dump body, not the mounting plate.		
CENTRAL HYDRAULIC SYSTEM:		
GENERAL:		
A. The complete system provided shall provide pressurized, metered hydraulic fluid to operate the dump body, snowplow, salt spreader, prewet, 3 lane anti ice liquid application through hydraulic cylinders, and hydraulically operated supplemental equipment. The complete system shall consist of standard product offerings and not experimental or prototype products. Functions include dump body, snowplow, salt spreader, vibrator, prewet, anti-icing and anti-vegetation spray systems.		
B. The hydraulic system shall be capable of running three (3) or more hydraulic functions simultaneously without inhibiting the action of the other.		
C. Fluid loss protection system shall be accomplished by means of a level sensor in hydraulic tank.		
D. The complete hydraulic system including cylinders, motors, fittings, valves, hoses, etc. shall conform to the highest quality of commercial hydraulic installation standards of the following organizations: American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), American Iron and Steel Institute (AISI), American Petroleum Institute (API), International Fluid Power Society (IFPS), International Organization for Standardization (ISO), Joint Industry Council (JIC), National Fluid Power Association (NFPA), National Electrical Manufacturer Association (NEMA), Society of Automotive Engineers (SAE), and American Nation Standards Institute (ANSI).		
E. The hydraulic system pressure and flow requirements shall be compatible with the operating rpm ranges of the trucks engine.		
F. Bidder shall submit with bid, complete hydraulic schematic including all components with manufacturer's names and model numbers including operational specifications to enable a review of products offered against the specifications.		
G. The successful bidder shall be responsible to demonstrate at the NJTA facilities the complete functional and performance capabilities of the hydraulic system and all affected components to ensure operational compliance to the functionality specified in these specifications within 7 days of bid opening.		
H. The hydraulic system shall be of the central type; all hydraulic functions are to be powered hydraulically using a single, pressure and flow control (load sensing) pump. Multiple hydraulic functions such as: auger/conveyor; spinner; body lift/lower; plow lift/lower; and plow power reverse must be capable of functioning simultaneously without stopping the action of any one or more hydraulic functions. All electrically operated solenoid valves will have a neutral or de- energized position that automatically positions the pump to a zero flow and low pressure stand by condition. The hydraulic system shall be of the pressure port blocked closed center design. Entire system (hydraulic and electrical) shall have a two-year warranty.		

Hydraulic pump, hydraulic valves, spreader controller, armrest, joystick controller and pre-wet system must all be from same manufacturer to ensure complete system compatibility. Items that are manufactured by one entity and "branded" with another manufacturer's name shall not be accepted as being from a single manufacturer. Manufacturer shall be both ISO 9001 and 14001 certified. **All up fitted fasteners (nuts, bolts, pins, clevises, cotter keys, fittings, hose clamps, and brackets, etc.) shall be stainless steel or be pre-approved by the NJTA Fleet division. No black iron pipe or fittings to be used in the plumbing of the hydraulic system.**		
HYDRAULIC PUMP: The pump shall be a direct driven, heavy-duty, pressure/flow compensated, load sensing variable displacement design Reference: Bosch Rexroth R902534642 (Or Authority approved equal). Output flow shall be no less than 48 GPM at 1800 engine RPM. No less than 6.1 cubic inch displacement is acceptable. Input shaft of pump is of keyed or splined design to standardize mounting configuration. A DIN 2353 standard pressure test point is to be installed directly to the pump port plate. This test point will be used for attaching a pressure gauge for troubleshooting and verifying pressure settings. The test point shall be constructed of corrosion resistant materials. **Note: Body up-fitter shall adjust pump standby and compensator adjustments prior to delivery. Pump standby shall be set to 350 psi and the pump compensator shall be set to 2,000 psi.**		
PUMP CONTROL: The pump control through hydraulic system logic must automatically select and adjust discharge pressure and flow in regard to the highest load demand regardless of the number of functions engaged or the engine RPM.		
PUMP DRIVE: The pump shall be driven off the front of the engine crankshaft using a flexible driveline of the U- joint type and be installed in reference to alignment as per manufacturer's specifications.		
HYDRAULIC OIL SUPPLY TANK/VALVE ENCLOSURE COMBINATION: • The hydraulic reservoir shall have a minimum 40-gallon capacity and be constructed of 11-gauge stainless steel and be internally baffled. Reservoir and enclosure shall be made as one unit. • The valve/tank combination unit shall be mounted the side frame rail of the vehicle and shall be mounted in such a manner as not to transmit any torsional loads. • The design of the enclosure shall allow for easy access to the control valve without the use of tools. **The electronic control modules and mount shall be mounted in such a way that they can be removed from the valve enclosure for easy access to the valve sections.** • The overall height of the valve/tank unit shall not exceed 27.6" including any filters, fillers or fittings. • The overall width along the frame rail of the chassis shall not exceed 39½". • All hydraulic connections shall be made directly to the control valve without the use of bulkhead connections. • The fill port of the reservoir shall be accessible without first having to remove any covers. • Vent Filter or Authority approved equivalent will be installed on the tank. • On the outboard side of the reservoir there shall be a combination level/temperature gauge. • Valve enclosure electronics shall be easily moved in order to provide maintenance and repair of the valve stack. • Valve enclosure shall have a permanent decal affixed to the opposing wall with valve section schematic.		

Reservoir shall have a dedicated clean-out opening of not less than 7½" with a stainless-steel cover. The cover shall be sealed with an O-ring seal. There shall be a 2.5" brass shut-off valve plumbed to the suction port of the tank. Reservoir shall have a 10-micron absolute in-tank return filter sized to allow a minimum of 50 GPM. There shall be a low oil sensor mounted in the tank for use with the low oil shut down system. **Note:** In order to keep the hydraulic valves accessible, no items are to be installed in the valve enclosure that are not part of the hydraulic valve system. **Valve enclosure shall be mounted on the driver's side unless otherwise noted in the prebuild.**		
HYDRAULIC HOSES: A. All hydraulic hoses shall meet or exceed specifications. Each hose assembly shall be cleaned of debris and fitted with JIC swivel connectors on ends where connection to system component is made, except for the suction hose. All pressure line hoses shall meet or exceed SAE specification 100R16 and shall be Gates Mega-flex M2T high pressure hose or pre-approved equal, for sizes up to and including 1" ID. The suction hose is to be 2.5" nominal I.D. SAE specification 100R4 braided fiber, spiral wire reinforced, rubber-covered hose with replaceable bolt-on type fittings. All hydraulic hoses are to be fully installed and ready for operation. Spreader control valve pressure lines and reservoir tank return line to be manifold mounted at center of frame rear cross- member. These lines to be equipped with complete 1/2" 5100 series Aeroquip quick disconnects (coupler and nipple to be supplied) and metal cap and plugs. Galvanized or black iron pipe fittings and connectors are unacceptable. All fittings and connectors shall be of the steel type designed for hydraulic system use. Pipe thread ported components and connectors shall be used only when the specific component is not available with SAE or JIC porting. All pipe thread connectors that are used are to be coated with liquid Teflon pipe sealer before assembly; Teflon tape is unacceptable. Hoses run to the front of truck chassis for snowplow functions shall be manifold mounted behind the front bumper with sufficient access for pump assembly service and snowplow hitch installation. These lines shall be equipped with complete 1/2" "Aeroquip" Model 5100 Series quick disconnects (coupler and nipple to be supplied) and metal caps and plugs. All hydraulic lines shall be routed and clamped with rubber lined two-bolt type HYCON stainless and composite clamps (no steel), with type 304 stainless steel bolts and positioned with maximum available clearance from chassis exhaust system, wear points and service items such as engine oil/fuel filters, etc. Any hydraulic lines located within 10 inches of exhaust system shall be heat shielded. Stainless steel tubing to be used under body and cab in lieu of hosing. Hosing to be used at the ends of stainless-steel tubing to reach each function's quick couplers or connection. Tubing shall be seamless #201 stainless steel construction with a minimum wall thickness of 0.065". The ends must be flared to accommodate a 37-degree JIC fitting. The use of compression fittings is not acceptable. Spacing of each tube to allow for material to fall between each tube. • All stainless tubing must be mounted in polyurethane poly green tube clamps • All hoses to be wire braid reinforced with swaged on high pressure JIC 37 degree tapered seat end fittings • All fittings & adapters to be forged steel (No tapered pipe fittings except on suction hose).		
FILTRATION: Hydraulic Return filter: The hydraulic return filter assembly shall consist of an in-tank return filter housing with a 10-micron absolute rated filter element. The housing shall have an electrical filter condition indicator that will activate a light on the in-cab console when the filter is clogged. Return line filter housing: reference Bosch Rexroth# R987463649 or Authority approved equivalent. Return filter element: reference Bosch Rexroth# R928005927. **Hydraulic Pressure Filter:** The hydraulic pressure filter shall consist of an in-line pressure filter housing, rated to 3600 psi and a flow rate of 87-gpm, with a 10-micron absolute rated filter element. The housing shall incorporate a visual filter condition indicator.		

Pressure filter housing: reference Bosch Rexroth# R928030734. Pressure filter element: reference Bosch Rexroth# R928006863		
HYDRAULIC VALVES: A. All the central hydraulic system valving shall be of mobile design made to withstand exposure to de-icing chemicals and severe weather conditions and shall be mounted in a watertight enclosure. Valving shall be Rexroth M4-12/2X horizontally stackable with power beyond (no substitute standardization). Each function shall have its own valve section. Hybrid or aluminum manifolds shall be unacceptable. Each valve section shall have a built-in flow and pressure compensator to allow simultaneous operation regardless of any other system function. Directional control valves shall be positioned within the assembly by order of flow/pressure to minimize overall differential pressure drop. All function controls shall utilize PWM proportional solenoid valving. All sections are to have control solenoids, manual overrides, and stroke limiters. All valving shall be in one main valve assembly. Multiple valve assemblies are unacceptable. Dump body valve shall allow an empty body to retract in 20 seconds or less. Valve shall have a pressure/temperature transducer mounted in the valve inlet so that the system pressure and temperature shall be displayed on the spreader controller screen. The Rexroth M4/12-2x (Or Authority approved equal) valve must include the following sections: Top Ported Inlet DA Electric Proportional Hoist w/A Port LS Pressure Limiter to 1200 psi. DA Electric Proportional Plow Up/Down DA Electric Proportional Plow Angle DA Electric Proportional wing Plow Up/Down DA Electric Proportional Wing Plow In/Out DA Electric Proportional Auger w/Reverse SA Electric Proportional Spinner SA Electric Proportional Anti-Icing SA Electric Proportional Pre-Wet Power Beyond Outlet Sections are listed outer to inner when mounted on the truck and the location of each valve and its function shall be listed with a decal positioned on the inside of the enclosure vertical wall. Reference additional valve sections needed for optional equipment.		
ELECTRONIC JOYSTICK CONTROLLER: Multifunction Electronic Joystick/Armrest controller shall be a Rexroth CS-150 (Or Authority approved equivalent). The control of all cylinder functions such as body, plow, wing plow, etc. shall be controlled by a single 3-axis multi-function joystick mounted to a padded armrest. The armrest unit shall be pedestal mounted and have both a height and swivel adjustment. The distance from the cab floor to the top of armrest shall be adjustable from 23” to 26”. The dimension from the back of the cab to the back of the armrest should be approximately 13”. Final approval of location and design to be approved during the pilot build process. Pedestal shall be firmly mounted in such a way that it does not contact either driver or passenger seat and is not mounted on the transmission access panel. The width of the armrest unit shall not exceed 6.25". The armrest shall have accommodations for twelve rocker switches or dual function indicator lights. The armrest shall have a mounting location for an optional six-switch add-on module. Three rocker switches to be installed and labeled Aux 1, Aux 2, Aux 3, and be wired into the enclosure between the seats. The joystick shall have a deadman trigger that serves as an electrical interlock to prevent the unintentional movement of any function. No hydraulic movement function shall activate unless the deadman trigger is activated. The joystick shall have six pushbuttons on its face for activating the following: power float, dump body mode, plow mode, body height limit override, spreader pause. Final button configuration shall be approved by the NJTA Automotive Division personnel. The armrest shall have the following indicator lights and switches: power switch, body up indicator light (red), low oil indicator light (red), change filter light (red), auger jam indicator light (red), and low oil override (amber). The joystick shall interface with the spreader controller and give both visual and audible – human voice – indications of joystick operating mode. Anytime the deadman trigger is activated the controller screen shall automatically change to a joystick screen that gives a visual representation of the joystick layout.		

The joystick screen shall also give a visual representation of any active axis. The joystick unit shall use a voice feedback system that will announce to the operator in which mode of operation the joystick is. Anytime the deadman trigger is activated or a mode button is pushed the controller shall announce, in a human voice, the joystick operating mode. The joystick shall have adjustable minimum and maximum output current settings for each function. The adjustment of the minimum and maximum settings shall be accomplished onscreen in the controller programming mode. The use of any kind of tool or external programming device to set the minimum and maximum joystick outputs shall be unacceptable. The armrest shall have a Hydraulic System Depressurization Function Switch. When the depressurize switch is latched and the engine running, the operator shall be able to select and depressurize a hydraulic circuit (plow for example) from the operator's seat. Any residual pressure between the mobile control valve and the implement shall be dissipated to near zero to facilitate the easy removal of implements with quick disconnects. **WING CONTROL:** The wing shall be controlled from the same multifunction joystick specified in the electronic control panel section. There shall be the addition of an emergency button on the face of the joystick that, when depressed, will raise and bring in the wing at the same time. When the emergency button is activated, all other hydraulic functions or demands will deactivate, until button is released. The operating speed of the wing shall be settable and adjustable through the spreader controller programming screen. The armrest unit shall have accommodations to plug in a secondary remote joystick for "wing man" operations. The armrest shall include a bracket for stowing the secondary joystick. Whenever a secondary remote joystick is connected to the armrest, the driver of the vehicle shall be able to give control to or take control from the "wing man".		
LOW OIL SHUTDOWN: A single, normally open, two-position, two-way poppet type solenoid valve (reference: Bosch RexrothR987466761) must be mounted directly to the hydraulic pump discharge port in such a way as to stop all oil flow to the hydraulic system when energized. The solenoid valve must be wired directly to an in-tank mounted level indicator. The level indicator shall be of the float type and mounted from the top of the reservoir. When the float switch contacts close, the shutdown valve blocks pump flow and an enunciator on the main control will be activated. A momentary switch shall be mounted in the main control console for low oil shutdown override. This switch shall be wired in such a way as to de-energize the system shutdown to facilitate fault-finding and equipment stowing. **LOW OIL SHUTDOWN OVERRIDE:** Rocker type/momentary design/amber lens. This switch allows operator or maintenance personnel to operate hydraulic system in case of low oil shutdown.		
BODY UP SWITCH: A double-pole limit switch must be mounted on the body in such a way as to indicate that the bed is not down on the frame rail. The switch must be totally enclosed and be impervious to environment. The 12V output of this switch will be connected to the "Body Up" input on the CS- 150 Armrest. Reference Telemecanique Part# XCKL108H7 (no substitute, standardization)		
SPREADER CONTROL: Spreader controller shall be a Rexroth CS-660 Or Authority Approved Equal The CAN Bus spreader control system shall be ground speed orientated to maintain a pre- determined application rate regardless of vehicle speed. Control shall be by microprocessor for high control accuracy with the outputs being current compensated. Minimum Construction Standards: The spreader controller main body shall be constructed of powder coated steel and extruded anodized aluminum. Plastic, nylon, polymer or fiberglass type materials for the main body shall not be acceptable.		

The controller shall be constructed to meet the following EMC and Environmental standards:

A. Electromagnetic Compatibility – 100v/m, load dump
B. RF Immunity – ISO 11452-2, 400-1000 MHz, 80% mod.1kHz
C. 1 GHz – 2 GHz, 80% mod. 1kHz 25v/m (level 1 sensitivity)
D. Conducted Immunity – ISO 7637-2 (2004), System Pulse 1, 2a, 2b, 3b, 4
E. RF Emissions – CISPR 25:2002-08, 30 MHz – 1 GHz, according to 72/245/EC
F. EN 55025 Electrostatic Discharge – EN 61000-4-2 ISO 10605, Contact +/- 8kV, air discharge +/- 15kV Vibration – ISO 16750-3, 10-2000Hz @ 58 m/s
G. Shock – IEC 60068-2-72, 40 G for 11 ms
H. Moisture – DIN EN 60068-2-30Db; version 2, part 2, Hum=95% 25 to -55°C
I. Salt Spray – DIN 50021-SS, 72h 35° C 5% NaCl
J. Media Resistance – ISO 16750-5, cola, coffee, paint thinner
K. Enclosure Protection – IEC 60529 IP56
L. Cables: All main harness wiring, valve cables and sensor cables shall be 100% tinned from end to end. No exceptions.
M. Display:
N. The controller display shall be a 7" wide WVGA capacitive touch screen with 16.7M colors. The display glass shall be strengthened glass with a minimum thickness of 1.1mm and have a minimum hardness of 6H.
O. The display shall have adjustable backlighting with a brightness of 1350 cd/m².
P. The display shall show the following information while in operation mode:

Q. Time and date
R. Control Mode of Spinner, Conveyor and Liquid Circuits Spinner, conveyor and liquid set points
S. Gate Position
T. Name of material being used
U. Any active error or warning messages Ground speed of vehicle
V. Power float status Joystick mode
W. Functionality:
X. The spreader controller and joystick console shall function as one integrated system controlled by one microprocessor control module.
Y. At a minimum, the system shall have the following inputs and outputs:

28 - Current compensated proportional outputs
14 - Digital outputs
5 - Protected and filtered frequency inputs
8 - Protected and filtered switch inputs
7 - Protected and filtered analogue inputs the controller shall have the following interfaces:
2 – CAN Bus ports 2 – Serial ports
USB port Bluetooth v3.0 + HS
dual band Wi-Fi channels

Z. The system shall be supplied to operate both the conveyor/auger, prewet and anti-icing in closed loop mode.

AA. The spreader controller shall have three rotary detented knobs for operating the spinner, conveyor/auger and liquid. Anything less than three individual rotary knobs shall be unacceptable.

BB. The liquid output shall be controlled by a third knob on the controller dedicated to controlling only the liquid output. Multifunctioning knobs so one single knob designed to control two different outputs shall be unacceptable.

CC. The spinner knob shall activate a pause function when pressed.

DD. The Conveyor knob shall activate a blast function when pressed.

EE. Conveyor/Auger and liquid circuits shall be capable of operating in 5 different modes. The modes shall be manual, open loop, 12V triggered manual, ground speed triggered manual and closed loop.

FF. The controller shall be capable of controlling 4 different solid and liquid materials with each material having up to 9 different application rates.

GG. The calibration of the solid materials shall include a gate position setting. This shall allow the controller to vary conveyor/auger speed in relation to the physical spreader gate opening.

HH. There shall be a settable gate position on the main operator screen to allow the operator to enter the actual gate opening so the controller will maintain the most accurate spreading regardless of gate openings. This setting shall be from fully closed to fully open and anywhere in between.

II. Having just a 2 position, high/low, gate setting shall be considered equal.

JJ. There shall be a configurable Blast function that, when activated, will produce an increased output of material. The Blast function shall be capable of operating in a closed loop mode, a maximum output mode, a stationary mode or the Blast shall be capable of being disabled.

KK. The Blast function shall be capable of being set to automatically turn off with a programmable timer. The setting range of the timer shall be 0-60 seconds.

LL. There shall be a Pause function that is used to stop spreading.
MM. The controller shall be capable of remote activated pause and blast.

NN. There shall be an unload mode that will allow the operator to run any circuit while the vehicle is stationary. Unload shall automatically turn off when the vehicle moves.

OO. The controller, as supplied, shall have a dedicated output for activating a conveyor/auger reverse function.

PP. The minimum and maximum output values of the spinner, conveyor/auger, Anti ice and liquid circuits shall be adjustable in program mode.

QQ. When using a conveyor/auger motor speed sensor the controller shall be capable of automatically adjusting the minimum and maximum output values of the conveyor/auger circuit.

RR. When used with a flow meter the controller shall be capable of automatically adjusting the minimum and maximum output values of the liquid and anti-icing circuits.

SS. Access to program mode shall be by use of either an encrypted USB key or by passcode.

TT. In the case of errors, the controller shall have an audible alarm with an on-screen error message.

UU. The controller shall display error messages in the event of inaccurate spreading, cable breaks, coil shorts, defective sensor, over speed spreading and blasting too long.

VV. While spreading there shall be a status screen that can be accessed and will provide real time spreading information such as conveyor/auger rpm, actual solid material output and actual liquid material output.

XX. The controller shall have a built-in ground speed simulator to allow for system testing and troubleshooting.

YY. All programming parameters shall be able to be transferred to a USB key and the resulting parameter file shall be able to be loaded to other spreader controllers via the USB port. ZZ. All spreading data shall be transferable to a USB key and that data can be uploaded to a Windows based PC. AAA. Any and all software required to view the spreading data on a Windows based PC shall be provided free of charge. BBB. The controller firmware shall be upgradable via the USB port and a USB key. Firmware update files shall be provided free of charge. CCC. The controller shall have dedicated serial ports for interfacing with AVL units and temperature sensors. DDD. The spreader control system shall come with all necessary hardware, cables and software to interface with the current AVL provider of the NJ Turnpike Authority EEE. As supplied the controller shall be capable of passing all spreading data to an AVL unit without having to purchase any additional hardware. FFF. The controller shall have an on-screen error log that can be accessed without being in program mode. GGG. When using a hydraulic pressure transducer, the hydraulic oil pressure shall be displayed on screen. HHH. The controller shall be capable of displaying both road and ambient temperature when a temperature sensor is used. Vaisala III. The controller shall be capable of using road temperature information to alter the solid material output in relation to road temperature. JJJ. The controller shall be capable of using a gate position sensor. The controller will use the gate position information to alter solid material output in relation to the actual gate opening. This feature shall work at a gate position that is all the way closed to all the way open and anywhere in between. A 2-position gate shall not be acceptable. KKK. The controller shall use voice feedback to alert the operator of rate changes or when pause or blast are activated. LLL. The voice feedback shall be in a human voice. MMM. The controller shall interface with a Can Bus joystick and display joystick status information such as joystick mode, direction of movement, percentage of movement and button layout of the joystick. NNN. When interfaced with the joystick the controller shall use a human voice feedback system to alert the operator as to which mode the joystick is in. OOO. All joystick minimum and maximum outputs shall be configured in the controller program mode. The use of external program devices shall be unacceptable. **Note:** Body up fitter is responsible for performing initial setup of the spreader controller. This is to include setting the nulls for each proportional output. Up-fitter shall be responsible for all programing. All groundspeed calibrations shall be performed by the up fitter prior to delivery. NJTA shall provide pounds per mile and spread width information.		
SPREADER REVERSE FEATURE: A momentary switch on the control panel will reverse the auger, in case of clogging or other stoppage, under operator control. This switch will also cut out power to the proportional control for the spinner.		
SPREADER PAUSE FEATURE: A momentary switch on the control panel will pause the auger, under operator control. This switch will also cut power to the proportional control for the spinner.		
BLAST FEATURE:		

Blast mode shall be controlled by means of a spreader touch screen. Blast amount is programmable from 1% to 100% of hydraulic capacity. A separate and clearly defined audible warning alarm shall sound when blast button is in the "on" position for longer than the pre-set blast time. The blast shall also be able to be programmed to operate for a set period of time from 1 to 59 seconds.		
POWER FLOAT: A power-float system (reference: Rexroth R987381753 or Authority approved equivalent) shall be installed in conjunction with the present hydraulic system. The power float system shall provide a reduced pressure to the plow lift cylinder to reduce the amount of down force the plow can transmit to the road surface. The amount of force that the plow can transmit to the road surface shall be adjustable without the use of tools by turning a hand-wheel adjustment on the power float manifold. The power-float manifold shall be plumbed in series with the plow circuit and include counterbalance valves to prevent the plow from drifting when power float is not active. The power-float manifold shall be mounted inside the valve enclosure and be plumbed to the power beyond end cover of the hydraulic valve. The power float system, once turned on, shall engage and disengage automatically by detecting joystick movement. The power-float system shall be integrated with the spreader controller and shall be programmable for a resetting mode or a non-resetting mode. In the resetting mode, the power float will turn itself off when the plow is raised off the ground and will have to be turned on again by the operator. In non-resetting mode the power float shall de-activate when the plow is raised off the ground and automatically re-activate when the plow is returned to the down position.		
CABLE ASSEMBLIES: There shall be no butt splice connections made on any wiring that is part of the central hydraulic system. All electrical connections shall be made either inside the hydraulic enclosure or in the vehicle cab. All connections shall be made inside of a weatherproof enclosure. All electrical cables supplied must come complete with attached watertight "quick disconnect" connectors, shielded, heavy-duty industrial and anti-scuff and cut sheeting. Wire joints must be soldered, and heat-shrink tubing used in all appropriate locations		
FINAL HYDRAULIC TEST AND INSPECTION: Any items not specifically stated herein, but necessary for proper system operation, shall comply with recommended hydraulic industry standards. The vendor shall be responsible for initial servicing and pre-testing of the hydraulic system, which shall include the following: The initial fill of reservoir shall be with a high grade of hydraulic fluid to approximately 40- gallon level. Hydraulic oil specifications must be ISO 32 compatible with the New Jersey Turnpike Authority's specifications. A. A start up and initial high pressure run of all hydraulic system components shall be performed to check for leaks, excess heat buildup, system efficiency, pressure settings, etc. Vendor shall be responsible for replacing any defective components. Vendor will be responsible for initial test of B. spreader and all plow circuits including wing plow if equipped. After initial start-up and system check, vendor will recheck oil level in reservoir. All systems shall be operational, and tests complete prior to the inspection of the pilot model. A hydraulic oil analysis of the vendors bulk tank must be performed and provided to the NJTA within 30-days of delivery of each truck. One test will cover any truck delivered in the 30-day time frame.		
BODY HOIST RAISE LIMIT FEATURE:		
A. The body hoist raise function shall be normally limited to a predetermined height within an adjustable range and shall include a momentary limit override switch with incremental annunciated visual and audible indicators.		

B. A normally closed inductive proximity switch shall be incorporated within the hoist up electrical circuit shall control the body hoist height within an adjustable limit range from 10'2" to 13'6" maximum body height. • The inductive operating clearance shall be set in the middle of the receptive range; this clearance shall be maintained throughout the adjustable height settings without the need to reset the inductive clearance. • The proximity switch shall be field replaceable and include a weatherproof connector. • The switch shall function in a temperature range of between -40° to +170° F and withstand harsh environments.		
C. A momentary "Body Over Height" function shall be incorporated within the hoist up controls to override the inductive proximity switch function and shall include the following features: • Back-lit labeled: Body Over height. • Must be depressed to operate.		
D. Raising the body above the height limit shall require two intentional actions by the operator.		
E. The system shall record when the body height is exceeded.		
F. A visual indicator shall be displayed when the body up limit is reached and shall provide visible and audible alarm when the limit is exceeded. This indicator shall be separate from the body up alarm.		
G. The height limit exceeded alarm indicator shall be red.		
H. An audible alarm shall occur when the body height limit is exceeded.		
PINTLE HOOK & HITCH PLATE:		
A. The pintle hook shall be a forged steel rigid mount design sized to carry 8,000 lbs. vertical load and 40,000 lbs. gross trailer weight.		
B. The pintle hook shall include a secondary cable tethered safety pin with a double wire tab lock. A cotter pin and chain shall not be an acceptable secondary lock pin arrangement.		
C. A 5/8" thick by at least 36" wide formed steel plate, full width of chassis frame rails, with a 3" return flange at the top and bottom shall be bolted to the chassis frame.		
D. Bottom and side support gussets shall be included.		
E. Two (2) swivel ¾" cold rolled steel "D" loops, 3" i.d. shall be attached to the bottom flange.		
F. Properly sized grade 8 bolts shall be used throughout the installation.		
G. The pintle hook height shall be 26" from ground to center of hook.		
H. A non-metallic weatherproof seven (7) pole round pin trailer socket shall be mounted through the hook plate on the upper left side of the pintle hook and OEM wired to the chassis as outlined in Specifications: 7PTC. Exact location shall be determined by contacting the NJTA Inspector prior to mounting.		
I. OEM installed electronic brake controller wiring and ABS brake controller wiring shall be routed and terminated at a chassis frame cross member bracket mounted weatherproof junction box at the rear of the truck. See Specifications: TCAABC-2018.		
J. Chassis manufacturer shall provide Complete ABS air brake trailer system including a hand valve control and trailer protection valve shall be installed The Glad Hand outlets on the pintle plate (location to be determined by the Authority) shall be plugged to prevent air leakage (swivel glad hands 45° cast iron, ⅜" port size, 180° rotation). The Glad Hands shall be installed at a location determined by contacting the NJTA Inspector prior to installation.		
K. There shall be a round 15 pin weather sealed socket mounted on pintle plate for single connection anti-icing power and sensor cable attachment.		
L. Weatherproof sealed socket shall be stainless pin and spring closed formed lid. Socket shall have external stainless-steel attachment points for mechanical latch system.		
M. Molded plug connection allows power and sensor connections shall be in a remote, sealed junction box.		
N. Weatherproof sealed socket shall have 3- 14-gauge wires and 12- 16-gauge 48" wires, minimum in abs shielded cable form.		

O. There shall be 12- 1.5 mm round replaceable nickel-plated brass pins and 3- 2.5 mm replaceable chromed pins within the IP69 sealed socket.		
SNOWPLOW HITCH:		
GENERAL:		
A. This specification describes a heavy-duty side plate truck hitch for mounting on Class 8 trucks for use with crankshaft driven hydraulic pump and Drop Pin loop equipped plows.		
B. The hitch shall be designed 41.25" wide. The appropriate width such that the side plates used to attach it to the truck attach directly to the outside of the front frame rail extensions of the specific truck model it is mounted to. Any shims used to ensure a tight fit between the hitch side plates and the truck frame rail shall not exceed 3/16" total thickness on each side of the truck frame.		
C. The main vertical members of the truck hitch shall be made from steel structural tubing, minimum 4" x 4" x 3/8" wall thickness. The tubing shall be one continuous piece, from the top of the truck hitch to the bottom and capped at ends.		
D. The upper horizontal member that the lift arm attaches to shall be fabricated from minimum 3-1/2" x 3-1/2" x ½" steel structural angle. The lower horizontal member that the base of the lift cylinder attaches to shall be made from minimum 4" x 4" x ¾" steel structural angle, and shall be oriented with the apex of the angle facing directly forward, so that the primary force from the lift cylinder is nearly parallel to one of the 4" legs of the angle.		
E. Automatic coupling of the plow hitch portion will be accomplished by a manual pin and lever that can be secured after the hitch has been coupled. A spring-loaded lock pin shall prevent unwanted locking in the open position or hold the latch closed. It shall have a cross section of 12" square inches and lock automatically when coupling the truck and plow portions. It will allow plow misalignment of a range of 6" in height and 7" left to right of center.		
F. The truck hitch shall include a telescoping lift arm. For maximum safety, the lift arm shall be designed to "fold flat" in a vertical position when the truck hitch is not in use. The hitch shall be designed so that if the hitch lift cylinder is accidentally actuated while the hitch arm is folded down, no damage shall occur to the hitch or truck.		
G. The telescoping lift arm shall include a 4" x 4" x 3/8" square outer tube, a 3" x 3" x 3/8" inner tube, and a minimum of (5) telescoping positions. The outer end of the inner tube shall include a 40-degree bent chain anchor of ½" steel with 3 chain locking slots, which accommodate both 3/8" and ½" lift chains. The outer tube weldment shall have a minimum width of 20" where it attaches to the main portion of the truck hitch, and shall include a full-width, welded top plate of minimum 3/16" steel. The lift arm shall attach to the main portion of the truck hitch using minimum 1-1/4" diameter cold-finished steel pins.		
H. The ears which attach the hydraulic lift cylinder to the lift arm and the main portion of the hitch shall be minimum ¾" thick, or minimum ½" thick with 1" long fully welded steel bushings with minimum 31/64" wall thickness.		
I. Hydraulic lift cylinder shall be 4" bore x 2" diameter rod x 10" stroke, with nitride treated rod for corrosion resistance and chip resistance. Cylinders pins shall be minimum 1" diameter cold-finished steel.		
J. The hitch shall be attached to the truck by two side plates, minimum ½" thick, with a minimum of (8) 5/8" Grade 8 and (2) ¾" Grade 8 bolts per side. Attaching bolts shall have hardened washers on each side and be secured with Grade C top lock nuts.		
K. Each cheek plate shall have ¼" x 1 ½" flat stock welded as diagonal bracing.		
L. There shall be ¼" x 2" angle installed as shear blocking		
M. There shall be ¼" x 2" angle by full width as cross bracing.		
N. There shall be 3/8" x 6" gussets to reinforce lower horizontal member.		
O. All hardware in the entire hitch shall be zinc plated for corrosion resistance.		
SURFACE PREPARATION AND PAINT:		
A. Unit shall be cleaned of oil, grease, mill scale, coatings, corrosion products, and other foreign materials using a commercial blast cleaning process.		

B. All exterior metal shall be painted using DuPont Dulux Black Enamel #93-005 or Authority approved equivalent.		
C. All coatings shall be lead free.		
STAINLESS STEEL DUAL AUGER BODY AND EQUIPMENT:		
11' DUAL AUGER COMBINATION BODY:		
GENERAL:		
A. This combination dump body / material spreader unit shall consist of a hopper, dual discharge / feed augers, spinner disc, power drive, and all components necessary to make a complete operating unit.		
B. This unit shall be factory ready to accept servo controls.		
C. All stainless-steel sheet metal used in the production of this unit shall be 201 finish stainless steel.		
D. Any stainless-steel plate used in the production of this unit must be ¼" or thicker and must be 201 stainless steel.		
E. All fasteners used on the unit must be stainless steel, with an anti-seize compound applied during assembly to prevent galling or seizing.		
F. The manufacturing and production of this unit shall be of the best commercial practices and only materials of the finest quality are to be used.		
G. Bidders must submit with their bid complete specifications on the unit they propose to furnish.		
H. All inside and outside joints on upper body are continuous welded with stainless wire for maximum strength and longevity.		
BODY:		
A. 11' Body shall have a minimum 8 cubic yard struck capacity and a minimum 9.8 cubic yard capacity with sideboards. 2" x 12" oak side boards painted Omaha Orange or Authority approved equivalent.		
B. Body shall not exceed 99" overall width.		
C. Body shall be constructed on heavy duty long sills made of .250" thick 201 stainless. steel plate and shall be not less than 13.75" tall with a 3" formed bottom flange		
D. Body shall incorporate a fully welded auger trough constructed of .250" thick 201 stainless steel plate and shall be 34" wide x 10.5" tall.		
E. Body shall incorporate a sloped, one-piece side/floor design and both shall intersect at and be solid welded to the top edge of the long sills.		
F. 36" high Sides and floor shall be constructed of 7-gauge stainless steel.		
G. Sides shall each be constructed from a single piece of sheet stainless steel and shall include a formed 4" minimum top flange. Sides shall also be formed with three 3/8" radius bends to produce a slope of 38 degrees to the auger trough to facilitate complete body cleanout without raising body.		
H. Inside body length shall be 180" from head sheet to the tailgate.		
I. Side height shall be 46" tall, measured from chassis rails.		
J. Sides shall incorporate a fully boxed, 5" deep x 10" tall, 7-gauge, top rail.		
K. Rear corner posts shall be 10-gauge formed stainless steel, with integral 15" flange-formed rear apron.		
L. Each 10-gauge rear corner post and apron shall be full depth and must be one piece, no splicing. Body shall include a formed stainless-steel asphalt apron permanently attached to the body extending rearwardly from the dump opening and tailgate to channel the flow of material way from the rear of the truck and limit side spill.		
M. The rear corner posts shall be tied together with a .25" 3.00" x 5.00" stainless steel cross angle.		
N. The rear corner posts must be 7.5" deep, 16" wide, and 54" tall.		
O. Each rear corner post shall include two stainless steel .375" x 3.5" x 4.5" chain retainers' ears.		

P. Head sheet shall be two-piece design constructed from 10-gauge upper section and a 7-gauge lower section formed stainless steel. Upper and lower sections shall overlap a minimum of 1" and shall be solid welded.		
Q. Lower section shall be formed to slope 30° to the auger trough.		
R. Head sheet shall be 53" tall measured from the chassis.		
S. Head sheet shall have a 2.5" brake formed reinforced top edge.		
T. Head sheet shall have a 12" x 12" doghouse to recess the telescopic cylinder.		
U. Sideboard pockets shall be constructed of 10-gauge stainless steel, and 2" wide.		
V. Full length integral fenders to be constructed of 10-gauge stainless steel and shall be solid welded to the body sides and front rear corner posts.		
W. Integral fenders shall be 27.625" wide with a 5.75" formed edge for added strength.		
X. The integral fenders shall include a full length minimum 4.5" x 4.5" V-crimp for increased strength.		
Y. Side / fender cavity shall be ready to accept liquid tanks or toolboxes.		
Z. A welded on asphalt lip shall be installed at the rear of the body. It shall be constructed of 7-gauge 201 stainless-steel with sides cut at 54° from horizontal. The slope of the main form shall be 15° from horizontal.		
TAILGATE:		
A. The complete tailgate shall be constructed of 201 stainless steel. Shall be 7-gauge inner plate and 10-gauge formed outer panel.		
B. Conspicuity sheet required on the tailgate, Ref: EQN-122.		
C. The design requires two full height and two partial height vertical braces and three formed horizontal braces to create a six-panel tailgate.		
D. The two vertical braces must be 7" wide, 4" deep, and 40.5" tall.		
E. Horizontal support members will slope 45 degrees to eliminate debris build-up.		
F. Upper hinge legs shall be 8.00" wide x 11.50" tall x 0.75" thick stainless steel for increased upper hinge pin wear surfaces, one piece, no-laminating. Hinge legs shall come with a 1" diameter x 4" long rod welded to them for securing the tarp.		
G. Upper hinge pins to be non-rotating, 3.75" long x 1 ¼" diameter with recessed grease fittings. They shall be fitted with a SS retainer chain welded to the rear corner post to prevent loss when the tailgate is being operated in the double acting position.		
H. Lower latch pins shall be 1 ¼" diameter and rest in double 3/8" thick stainless-steel seats backed up by ¼" thick stainless-steel plates welded to corner posts. A total thickness of 3/8" steel support.		
I. The rear skirt shall be vertical. The body floor shall terminate at the inner tailgate plate.		
J. Tailgate shall be double acting.		
K. Spreader chains shall be 3/8" zinc plated with woven nylon sleeve.		
L. Tailgate shall be equipped with two heavy stainless-steel D-rings to aid in removal.		
M. **IMPORTANT NOTE:** The design of the material delivery system shall eliminate the need for an adjustable or metered door in the tailgate. A single asphalt / coal chute, measuring not less than 17" wide x 8" tall shall be provided for summer season operations. The coal chute will provide for two positions; completely closed or fully open. Coal chute shall be designed with a spring-loaded handle secured in the fully open and provide for fully closed position.		
AIR OPERATED TAILGATE LATCH:		
A. Air tailgate latch shall utilize dual air brake chambers with 5/8" diameter push / pull rod. Air inlet port shall be 3/8" NPT.		
B. Dual latch mechanism shall be over-center positive lock type. It shall not require air cylinder to support load required to keep tailgate latched.		

C. Latch mechanism shall consist of heavy-duty bell-crank supported on a 1 ¼" diameter pivot shaft. Crank and shaft assembly shall be welded to a heavy-duty stainless-steel channel which is welded to the body.		
D. All latching components (excluding the brake chamber) must be constructed of stainless steel. Zinc, calcium or black oxide coated hardware will not be accepted. **No Exceptions**		
E. A latched "Tail Gate" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (5) of the auxiliary switch pack • 15A circuit protection, Ignition powered • Latching On/Off switch • The switch shall be backlit and labeled "Tailgate Unlock" • Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector		
AUGER SYSTEM:		
A. The "dual auger" system shall consist of twin 7" diameter augers running longitudinally with the body. The augers will terminate flush with the inside of the tailgate panel, and feed material the full length of the body to a drop chute located at the rear and underneath the body of the conveyor floors.		
B. The drop chute shall measure not less than 10" wide x 4.375" deep and shall extend down from bottom of the auger trough a minimum of 3". The drop chute must hinged to avoid damage if contact is made with any part of the truck chassis when the body is fully raised.		
C. The auger trough shall be continuous welded and sealed to prevent leaching of salt or brine onto the truck chassis.		
D. **IMPORTANT SAFETY NOTE:** In the interest of protecting the operators and preventing accidental engagement with the feed augers, the auger trough opening shall terminate at a point not less than 4.5" forward from the end of body floor and tailgate. The body floor shall be smooth and uninterrupted after this point. **NO EXCEPTIONS TO THIS CRITICAL SAFETY FEATURE WILL BE ACCEPTED.**		
E. The auger tube shall be constructed from 3.5" Schedule 40 pipe.		
F. The hardened flighting must be continuously welded the full length of the auger.		
G. The hardened flighting shall be ½" thick, with a 6" pitch, and counter-rotating.		
H. The augers shall each be driven by a 63.9 cubic inch hydraulic motors connected to the auger by a spline shaft coupling at the forward end. The driver's side auger I. Shall be driven by a speed sensored motor. No other form of sensoring will be J. Accepted. No gear reduction of any kind will be accepted as equal.		
K. The spline coupling must be continuously welded to the end of the auger pipe to prevent corrosion inside the auger pipe.		
L. The couplings shall be equipped with a grease fitting so that the motor splines and couplings can be lubricated.		
M. The auger will include a 2.00" TGP idler shaft, welded to two (2) .50" thick washers, which are welded solid into the end of the auger pipe to prevent corrosion inside of the auger pipe.		
N. The idler ends of the auger shall be supported by two 4-bolt flange, heavy duty, dust sealed, self-aligning ball bearing. In order to facilitate easier maintenance a central lubrication manifold shall be installed at the (front or rear) of the body.		
O. These bearings must recess in the rear skirt of the body and protected from material being dumped and spread from the body by a stainless-steel cover.		
P. Both augers MUST include full length hard surfacing equal to, or greater than HRC 40, the entire width of the flighting edge.		
Q. The auger must have a welded thrust washer on the pipe to eliminate a forward load on the drive motors and bearings.		
R. A UHMW thrust bearing is required between the thrust washer and the front plate of the auger trough to minimize wear. Any other material will not be accepted.		

S. Free flow of material shall be restricted by using an anti-flow plate positioned at the rear of the body over the augers. The anti-flow plate shall extend inwards from the rear of the tailgate 21.75" and shall eliminate the need for any metered gate or other metering devices. The angle of repose created by the anti-flow plate to the discharge opening shall not be greater than (30) degrees.		
T. The anti-flow plate shall be not less than 34.00" wide x 21.75" deep and shall have a formed flange sloping 45° towards the auger trough.		
U. A protective grate consisting of ½" 304 stainless steel round bar shall be placed over the exposed auger inside the hopper and shall extend in 12" forward from the anti-flow cover. Access to the augers shall be restricted for a minimum distance of 32" from the rear of the body.		
V. The ½" 304 stainless steel round bar shall have 4.00" x 4.00" openings and shall be solid welded at all intersecting points with the body.		
W. Auger trough shall include washout system, Swenson part number 00121-038-05 nozzles.		
REAR MOUNT SPINNER:		
A. The spinner assembly and mounting tube to be constructed from stainless steel		
B. Spinner assembly shall be mounted to the rear hinge, not the body or any part of the truck chassis.		
C. **IMPORTANT NOTE:** In the interest of eliminating conflict with towed equipment such as trailer mounted attenuators; no portion of the spinner mount hardware may extend beyond the pintle plate.		
D. Spinner shall remain in place with body raised, spinner to remain level.		
E. The spinner disc shall be a minimum of 24" in diameter. To eliminate corrosion and provide balance, the disc shall be manufactured of 10-gauge stainless steel.		
F. To provide balance and eliminate corrosion, the spinner vanes shall be manufactured from 10-gauge stainless steel.		
G. The spinner shall have “formed vanes” bolted to the spinner disc with stainless fasteners for easy replacement.		
H. The spinner shall have a conical safety shroud above the disc to protect the chassis and surrounding area from flying aggregates.		
I. The spinner guard shall extend approximately 135 degrees of the overall circumference of the spinner and shall measure not less than 6.25" tall.		
J. The spinner assembly shall mount to a 2" OD DOM stainless steel tube to allow level vertical adjustment, a horizontal swing-away function, and a horizontal telescopic adjustment.		
K. The spinner assembly shall have 6" of vertical adjustment, eight pinned positions for accurate spread pattern control, and eight pinned positions, in ½" increments, for adjusting material drop location onto the spinner disc.		
L. All adjustments shall be made from the rear of the spinner support tube, ensuring ease of access.		
HOIST:		
A. The hoist shall meet NTEA Class 50, with a minimum 25-ton capacity.		
B. The cylinder is to be trunnion mounted telescopic, and double acting.		
C. The lower cylinder trunnion pins shall mount into a heavy-duty lift frame constructed from .25" and .50" carbon steel. Lift frame shall include with two 2.00" thick x 9.00" long x 4.00" tall lift blocks solid welded into the frame to accept the lower trunnion pins.		
D. Each lower trunnion pins shall be captured with a retainer weldment constructed from 1.00" thick x 1.50" wide x 4.75" long carbon steel secured with 5/8" hardware.		
E. Retainers shall be equipped with grease zerks.		
F. The upper cylinder trunnion pins shall mount into a heavy-duty lift frame constructed from .375" and .50" carbon steel. Lift frame shall include with two		

1.25" thick x 11.625" long x 3” tall lift blocks solid welded into the frame to accept the upper trunnion pins.		
G. Each upper trunnion pins shall be captured with a retainer constructed from 1.25" wide x 2.00" tall x 5.00" long carbon steel secured with ½” grade 8 H. hardware. Retainers shall be equipped with grease zerks.		
I. Upper trunnion lift frame weldment shall be recessed into the body doghouse and shall be bolted to the body with a minimum of ten ¾" grade 8 bolts.		
J. Lower lift frame shall include an integral safety body prop. Prop shall be secured into the upright position with a ½" diameter x 3.50" clevis pin. Pin shall be secured to lift frame with stainless steel chain to prevent loss.		
TELESCOPING CYLINDER:		
A. All tubing used in the manufacture of this cylinder shall be honed D.O.M. tubing and must have the corresponding mill specs sheets from the run under which it was produced.		
B. After machining, the tubes and glands shall be submerged in a liquid salt bath nitriding process, polished, and submerged a second time to enhance the. Mechanical properties of the tubing. The 44nitride tubes shall have ten times the corrosion resistance of hard chrome plating, twice the fatigue strength of untreated carbon steel tubing, and a Rockwell hardness of C60-C65.		
C. For simplicity and longevity there shall be no brass, or phenolic wear parts in the cylinder.		
D. The cylinder shall be U-cup type, positioned in the gland nut as a rod seal to wipe against the OD of the tube passing through it. As the cylinder retracts, foreign materials will be removed by means of a wiper, also located in the gland nut, and the tube will be surrounded by oil below the seal. An outer cover shall enclose the cylinder while not in use.		
E. Through means of an oscillating collar near the bottom of the cover, the body can be offset 5 to 7 degrees from side to side without side loading the cylinder. The trunnion pins on the oscillating collar will provide the means for lifting the body at the bottom, which will increase stability.		
F. The cylinder shall mount with the largest section at the bottom.		
G. Cylinder shall include a two-year warranty.		
H. The hoist package shall include ½" and ¾" stainless steel hydraulic tubing running from the rear of the body forward to the hoist cylinder. The tubing shall run in the cavity formed between the auger trough and the driver side long sill. The tubing shall be secured with poly clamshell type clamps.		
CABSHIELD:		
A. Shall be entirely constructed of 10-gauge stainless steel.		
B. Shall extend forward of body 24".		
C. Shall be 84" wide, as to allow the end plates on cab shield align with front edges of the body sides for maximum support. The end gussets tie the end plates to D. the front edges of body sides.		
E. Forward edge shall be “C” formed with 4.75" section height.		
F. Shield pan shall slope 2 degrees for shedding water.		
G. Note: The Cab shield, if the standard lighting option is chosen, will be of a design in which the flanges and gussets are below the horizontal cab shield sheet. The design of this cab shield shall be submitted and approved by the NJTA Fleet Representative prior to the manufacturing of the bed.		
AUGER TROUGH COVER PLATE:		
A. Shall be .250" thick stainless steel, two-piece, that covers the entire auger trough.		
B. It shall attach at the rear with stainless steel bolts and be captured at the front of the body.		
C. Shall contain a heavy-duty stainless-steel d-ring to aid in removal.		
TOP GRATE SCREEN:		
A. The main center support shall be constructed of stainless-steel box beam. The center shall be attached to the body with stainless steel bolts, washers, and nuts.		

No zinc, calcium or black oxide hardware will be accepted.		
B. The top screens shall be constructed of 3/8" stainless steel rods welded to form a 3" square mesh, which is framed by ¼" x 1 ½" flat stainless-steel edge supports and reinforced by ¼" x 1" flat stainless-steel bars.		
C. As there are no fill coverage lower screens, the top screens shall be constructed in a manner that will interlock all screen sections by means of a single bolt in the rear screen section on each side of the body.		
D. Top screens shall be removable and use the "Drop and Lock" type hinge, as screens utilizing other hardware may become damaged, and fail.		
LADDER:		
A. Ladder shall be a six-step ladder of stainless-steel construction. Ladder shall consist of a 3-step fixed upper portion bolted between the side and the fender, and a 3 step lower portion that pulls out from a 10-gauge stainless steel tray under the fender stowed position		
B. Shall have two 24" x 5/8" stainless steel grab handles One each side of ladder top.		
C. The grab handles shall be coated with an industrial strength anti-slip coating.		
PREWET TANKS:		
A. Two tank system forward mounted tanks shall provide a minimum of 200-gallon on-board capacity. Crossover linked		
B. The two tanks shall be rotational molded polyethylene with a .30" wall thickness.		
C. The tanks shall include plumbing to connect RH and LH tanks for ground level filling and emptying with 1½" full port shut off valve		
D. Shall include 1-1/2" female quick fill fittings on each tank.		
E. Each tank shall be secured to the body with no less than two stainless steel straps. The straps shall be covered with a rubber insulator to prevent chafing of the tanks.		
F. Each tank end shall be held in place with a stainless-steel angle fitted with a rubber insulator to prevent chafing of the tanks.		
G. Each tank shall have a combination pressure and vacuum relief vent cap installed which is rated for 10 CFM. Tank caps shall be attached to the tank strap bolt with a stainless-steel cable.		
H. NOTE: Mounting design and method must ensure the tanks will be secured to the body and protected from the effects of vibration and daily use. All plumbing must be properly supported as to prohibit strains and twists on tanks and fittings.		
PREWET APPLICATION LANCE:		
A. There shall be a stainless-steel lance plumbed directly into the auger trough for the purpose of internally mixing pre-wet liquids into the granular aggregates within the auger trough.		
B. A ¾" stainless steel injection lance of not less than 82" in length shall be provided and have application holes sized appropriately to apply 7-gpm at 50 psi.		
C. The stainless-steel plumbing must be removable from the rear for cleaning and servicing.		
D. The stainless-steel plumbing shall be shielded from the granular material to prevent clogging and potential damage by means of an inverted vee positioned above the injection lance and below the auger safety grate.		
E. The inverted vee shall be at least 2.75" x 2.75", constructed from 7-gauge stainless steel and shall run the full length of the auger trough.		
F. Inverted vee shall be mounted under ¼" thick cross supports. Inverted vee and cross supports shall be solid welded to the body.		
PREWET PUMP:		
A. The hydraulically powered pre-wet power unit shall consist of a bronze gear pump, hydraulic motor, relief valve and flow meter all housed in a stainless-steel enclosure.		

B. The bronze gear pump shall be capable of delivering a minimum of 8-gpm at 1800 rpm and handling up to 100 psi.		
C. The hydraulic motor shall be direct coupled to the pump by use of a love joy coupling. The hydraulic motor shall be supplied with hydraulic oil directly from a dedicated valve section in the main hydraulic valve assembly. The motor shall be of the orbital design and have a displacement of 12.5 cubic centimeters.		
D. There shall be an adjustable relief valve installed on the pump outlet. The relief valve shall be plumbed so that when the relief valve opens, it will divert excess flow to the inlet of the pump.		
E. There shall be a paddle wheel style flow meter installed in the pump outlet line. The flow meter shall be used to send flow information to the spreader controller. The spreader controller will use this information to monitor the accuracy of liquid flow, liquid calibration and to determine whether or not liquid is actually flowing through the system		
F. The enclosure shall be constructed of all stainless steel and have a removable lid. The lid shall be secured with a single rubber latch. The enclosure and lid shall also have a separate tab for securing the lid with a single type 304 stainless steel bolt and type 304 stainless steel nylock nut.		
G. There shall be a strainer installed in the plumbing between the liquid tank and the prewet power unit. The strainer shall have a replaceable 50 mesh element		
H. A 1 ½" cam lock style coupling shall be installed ground level for filling of the liquid tanks.		
I. There shall be a ¾" cam lock style quick-disconnect in the spray nozzle line near the rear of the truck to facilitate the removal of the spray nozzle. Located between the prewet power unit and this disconnect shall be an inline check valve to prevent siphoning.		
J. **NOTE:** Location of pump and enclosure shall be determined at prebuild with consideration to ease of access for servicing components.		
CONSPICUITY ENHANCEMENT BODY:		
A. Each dump body rub rail and rear shall include 2" wide conspicuity enhancement.		
B. The enhancement shall be alternating red and white stripes.		
C. Enhancement shall provide reflection even in daylight hours.		
D. Conspicuity tape shall have twelve (12) different patterns of micro-prisms for maximum visibility.		
E. The reflective system shall be impervious to ultraviolet radiation via internal pigmentation with acrylic layer protection.		
F. Conspicuity tape shall withstand all weather conditions and repeated washing and meet all FMVSS 108 requirements.		
CONSPICUITY ENHANCEMENT TAILGATE:		
A. Each dump body tailgate shall include chevron pattern conspicuity enhancement.		
B. All stripes will be six (6) inches wide, forty-five (45) degrees from vertical. a. The yellow stripes shall be Diamond Grade Fluorescent Yellow VIP Reflective Sheeting-3981, pressure sensitive or approved equivalent. b. The black stripes shall be Scotchcal 3650-12, pressure sensitive or approved equivalent.		
C. Enhancement shall provide reflection even in daylight hours.		
D. Conspicuity tape shall have twelve (12) different patterns of micro-prisms for maximum visibility.		
E. The reflective system shall be impervious to ultraviolet radiation via internal pigmentation with acrylic layer protection.		
F. Conspicuity tape shall withstand all weather conditions and repeated washing and meet all FMVSS 108 requirements.		

ELECTRIC DUMP BODY COVERING SYSTEM:		
GENERAL:		
A. Each body shall include a retractable load covering tarp.		
B. Aero Industries Easy Cover Model 575 or Authority approved equivalent with a factory cab operated rocker switch. Length to be adequate to properly cover the dump body of any body configuration.		
C. The arms are powered by (2) underbody springs to be 5/8' diameter coil and color coded for driver and passenger side. The spring and shaft assembly must be in a one-piece holder. and shall be designed to ensure the tarp cannot back-drive.		
D. For replacement purposes, the arm assemblies must be universal to eliminate the need for driver-side and passenger- side components. The arm assembly shall consist of four (4) pieces of high strength 6061 T6 aluminum extrusions with at least a minimum wall thickness of .188 for the ends of the tube for strength purposes. All arm components must be polished. The arm sections shall telescope to allow for length and width adjustment and must be easily replaceable. Arms should be angled at approximately 26 degrees to allow the arms to be recessed in the open position. To minimize friction and wear within the tarp pocket, the rear cross tube shall be round.		
E. The roll-up tube assembly is to be a 6061 T6 aluminum extrusion with zinc plated steel machined end shafts. It shall be a telescoping design so the width can be adjusted without cutting the roll-up tube. The roll-up tube shall be designed so the tarp can easily be attached without drilling any holes.		
F. A one-pieced polished aluminum wind deflector is to be secured to the roller assembly mounting plates. To minimize installation, the wind deflector must be designed so no cutting (to length) or drilling is required.		
G. The roller assembly mounting plates shall be polished aluminum with high-speed flanged, pre-lubricated bearings		
H. The 12-volt electric motor shall have a right-angle gearbox with a removable chrome plastic cover. The gears must be hardened and ground steel, encased in a metal housing.		
I. The cab installed rocker switch is to be self-centering, constructed of metal. A reverse DC contactor and all necessary wire fasteners and electric hardware shall be furnished.		
J. The motor shall carry a three (3) year non-prorated warranty.		
K. The systems shall include a Double-Arm that is attached to the primary swing arms. The second arm shall pivot freely on the primary swing arm and be orientated opposite the rear cross tube to provide gravity assisted downward force to hold the tarp behind the cab shield and minimize tarp lifting or sailing.		
L. The tarp material shall be an RFL dipped, chemically treated fabric, suitable for covering asphalt. The tarp is to finish nine (9) feet wide. The tarp shall have a series of shock cords attached to the tarp, so the tarp's width will constrict enough to fit on the roll-up bar. All sewing is to be lock-stitched; chain stitching is not acceptable. A minimum of two (2) polyester web reinforcements are to be sewn or welded to the tarp longitudinally for stability.		

SNOWPLOW:		
GENERAL:		
A. The snowplow shall be an 11' x 42" power reversible "J" style type.		
B. The snowplow shall be new and of the latest design and be in current production at the time of the submission of bid.		
C. All standard and optional equipment shall be Original Equipment Manufacturers (OEM) items, when available. **No Exceptions**		
D. Bidders must submit with their bid, detailed/technical specifications of their snowplow being bid.		
E. Plows shall be drop pin style interface.		

MOLDBOARD:		
A. The moldboard shall be 4" high and 132" long formed in a "J" shaped blade. The radius shall be approximately 20" and the last 12" a minimum of a 6" radius. Per Drawing: SSP-03		
B. The moldboard shall be constructed with a minimum of 7-gauge steel smooth rolled for additional strength.		
C. The top shall be reinforced at the top by a self-formed channel and the bottom with a one piece 4" x 4" x ½" structural angle.		
D. The cutting-edge banking plate of ⅝" x 4" steel shall be welded and braced with a ½" x 2½" gussets welded between each cutting-edge bolt position.		
E. The edge shall be flush with the moldboard face to prevent snow build up on top of the cutting-edge.		
F. A minimum of twelve (12) full length vertical ribs shall reinforce the moldboard.		
G. The vertical rails shall be constructed of ½" x 3" formed steel continuously welded on both sides of edge to the moldboard sheet and secured at the top to the formed channel and to the structured angle at the bottom.		
H. Two (2) horizontal braces shall also reinforce the moldboard.		
I. The braces shall be constructed of ¼" x 2" x 2" angle or ½" x 3" flat bar continuously welded on both sides to moldboard sheets.		
J. The lower rear cross angle shall be provided with a minimum of ten (10) brackets ¾" thick welded on 88" hinge point centers for attachment to the table assembly at five (5) points with a minimum of 1" (72,000 lbs.) tensile strength pins.		
CUTTING EDGE: STANDARD		
A. The cutting edge shall be fabricated from abrasion resistant steel with a Brinell Hardness of 250 minimum and 325 maximum.		
B. There shall be two (2) each of 1" thick x 8" wide x 66" long cutting edges. **No Exceptions**		
C. The cutting edges to be AASHO standard punched and be easily replaced.		
D. All mounting hardware shall be grade 8.		
CUTTING EDGE: OPTION A		
A. The cutting edge shall be fabricated from abrasion resistant steel in a laminated design combining steel plate, vulcanized rubber, steel carbide holder and Tungsten Carbide Insert (Kueper Tuca SX Wave or Authority approved equivalent).		
B. There shall be two (2) each of 1" thick x 8" wide x 66" long cutting edges installed as a manufactured system including curb bumpers, moldboard shoes and all mounting hardware. **No Exceptions**		
C. The cutting edges to be AASHO standard punched and be easily replaced Per Drawing: SSP-09.		
D. All mounting hardware shall be minimum grade 8.		
CUTTING EDGE: OPTION B		
A. The cutting edge shall be fabricated from abrasion resistant steel in a laminated design combining steel plate, Vulcanized Rubber, and Ceramic Insert (Kueper GK5 or Authority approved equivalent		
B. There shall be two (2) each of 1" thick x 8" wide x 66" long cutting edges installed as a manufactured system including curb bumpers, moldboard shoes and all mounting hardware. **No Exceptions**		
C. The cutting edges to be AASHO standard punched and be easily replaced Per Drawing: SSP-1		
D. All mounting hardware shall be minimum grade 8.		
TRIPPING MECHANISM:		
A. To protect the plow, truck and operator from impact damage, the plow shall include a spring controlled full moldboard hinged spring mechanism. A minimum of six (6) heavy-duty extension springs shall be attached between the table and the moldboard.		

B. The spring materials must be ASTM-A229 oil tempered ½" wire, 4½" o.d. x 24 active coils with the end hooks cold formed to 90° right angles to each other.		
C. The spring force at 30.5" shall be a minimum of 1,050 lbs. and allow 14" of stretch without deformation.		
D. The springs shall maintain the vertical stability of the moldboard while plowing and facilitate a controlled trip/return action when coming in contact with any solid object while plowing.		
E. The trip springs shall be designed to have adjustable spring tension.		
F. Each spring shall be able to be adjusted individually by a threaded "J" hook or equivalent.		
G. The tripping post assembly shall be independent of the springs and must prevent the top of the moldboard from contacting the road surface.		
H. Two (2) 1" diameter pins with a minimum tensile strength of 72,000 lbs. shall connect tripping post to the moldboard and table.		
TABLE: Per Drawing:		
A. The table shall be a circular arc design and be constructed of a one piece solid 4" x 4" x ½" structural angle, a 4" x ¾" bar shall be fabricated to conform to the outside radius with eleven (11) notches 1¼" deep x 1⅛" wide at the bottom and 1½" wide at the outer edge and welded in a vertical position along the underside of the 4" x 4" x ½" structural angle radius.		
B. The notches shall be sheared cut. Flame cutting to achieve curve and notches shall not be acceptable.		
C. Circular arc portion shall be welded at each end with an overlap to structural angles measuring 4" x 4" x ½" that continues the length of the semicircle and joins to the front square tube measuring 4" x 4" x ⅜".		
D. The joining of the semicircle to the front tube shall be reinforced on each side by 3½" x 3½" x ½" structural angle.		
E. The front of the table shall be provided with a minimum of ten (10) brackets ⅝" thick welded on 88" hinge point centers for attachment to the moldboard assembly at five (5) points with a minimum of 1" 72,000 lb. tensile strength pins.		
F. The front center of the table shall be designed for attachment to the "A" frame with a 1¾" diameter vertical pin with locked rotation to the A-frame and secured by a ⅜" roll pin.		
LIFT CHAIN:		
A. The lift chain assembly shall include a zinc plated 7/16" coil proof chain, repair link, two (2) ½" anchor shackles and a 7/16" grab hook clevis.		
B. There shall be two (2) tabs welded on the table for attachment of the lift chain.		
PUSH FRAME:		
A. The push frame shall be constructed of two (2) 4" @ 13.8 lb. ship channels with bracing and be in the form of an "A".		
B. The top and bottom of the push frame shall be ½" triangular shaped plate.		
C. Welded to the front of these triangular plates shall be a pair of ¾" x 4" steel brackets and between them a curved socket member shall be provided to relieve the pivot pin of thrust stress.		
D. The attachment pin at this point shall be a minimum of 1¾" diameter axle quality steel that shall engage with corresponding ears on the front tube of the semicircular frame.		
E. At the center of this box construction of plates and channels in the line of forward rotation shall be an assembly welded to form a continuous thrust beam.		
F. A latch part shall be incorporated which continues further to the rear and presses against a heavy-duty latch spring measuring 5-7/16" o.d. x ¾" diameter spring wire with 9" of free travel.		
G. The spring shall be made of AISI 5160 hot rolled spring steel and shall be heat treated after cooling. Spring shall be closed and ground.		
H. The latch shall seat against a circular plate welded to the rear cross channel.		
I. Lubrication fittings shall be provided to allow ease of movement of slide assembly, which telescopes on the tubular member.		

J. The plow-hitch interface shall be constructed of 2" 1035 steel cold formed into a loop which will accept a 2 ½" pin. This loop shall protrude through and be welded to a 4" x 13# ship channel which, in turn, shall be gusseted and welded to the back of the A-frame		
HYDRAULIC REVERSING CYLINDERS:		
A. The hydraulic reversing mechanism shall consist of two (2) hydraulic cylinders nitride piston rods and a minimum of 2½" diameter and 10" stroke.		
B. The hydraulic cylinder housing shall attach to the push frame and the hydraulic cylinder piston shall attach to the front table tube with 1" pins secured by ¼" roll pins.		
C. Hydraulic cylinders shall be positioned to unlatch the semicircle and angle the moldboard to the desired plowing position.		
D. The latching mechanism shall operate automatically and monitor the moldboard in any of eleven (11) positions from 35° right or left in 7° increments.		
E. High pressure hydraulic hose connections shall be made to each of the two (2) cylinders with long 90° JIC elbow female swivel crimp hose fittings and extend to the rear terminating in male and female brass quick disconnect couplings. This will allow the hoses to be connected during storage. All couplings shall have lanyard attached rubber cap/plug covers.		
F. During operation, the hoses shall connect to the corresponding connections on the Authority trucks.		
MUSHROOM:		
A. The skid shoe assemblies must be of the hand adjustable type, enclosed and fully lubricated with replaceable chilled cast iron shoes "Mushroom" shaped of a minimum of 11" in diameter and 2½" thick.		
B. The design shall include an anti-flip top.		
C. The shoe housing to be constructed of 3" square tubing x 12" long and the shoe post to be constructed of 2½" square tubing x 11" long.		
D. The adjustment shall be accomplished by a threaded 1¼" diameter screw operated by a hand crank with rotating knob, which shall be self- locking and shall operate without the use of any tools. The adjusting screw shall be fully enclosed.		
LEVEL-LIFT ASSEMBLY:		
A. The level-lift assembly shall provide an automatic, mechanically activated mechanical control, which will hold a raised plow moldboard an equal distance from the ground to the bottom of the cutting edge		
B. The level-lift mechanism will hold an equal elevation regardless of height raised above the road surface and regardless of moldboard plowing angle.		
C. The moldboard plowing angle must be able to be changed to any desired position, maintaining equal elevation without first lowering plow, changing plowing angle and then re-lifting.		
PLOW MARKERS:		
A. The snowplow shall be equipped with two (2) 36" orange reinforced markers constructed of ¾" polymer reinforced with a ⅜" galvanized cable.		
B. Each plow marker shall be equipped with a crimped base 2-bolt mount installed at the upper outer most left and right corners of the moldboard and attached to a reinforced rib with bolts and nylock nuts.		
RUBBER BAFFLE:		
A. The snowplow shall be equipped with a ½" thick x 12" wide x 11' long rubber belting baffle.		
B. The baffle shall be bolted to top of moldboard with a ¼" x 2" x 11' steel keeper bar.		
MOLDBOARD SHOE:		
A. The snowplow shall be equipped with two (2) moldboard shoes.		
B. The moldboard shoe shall be constructed of cast steel and have a bearing wear surface of at least 75 square inches each.		
C. The moldboard shoes shall be attached directly behind the cutting edge and be designed to wear evenly with an 8" cutting edge.		

D. The moldboard shoes shall have two (2) 11/16" diameter bolt holes spaced on 12" centers for mounting to the snowplow.		
CURB BUMPER:		
A. Two (2) 2½" x 2½" x 8" cold rolled steel curb bumpers (wrap around style) shall be bolted to the lower left and right outside edge of the moldboard lower angle as part of the cutting-edge assembly.		
B. The bottom edge of the curb bumper shall be positioned at a height equal to the moldboard shoe.		
C. The curb bumper / wraparound shall bolt on as part of the plow blade attachment area.		
WELDING:		
A. All welds shall be continuous.		
B. All welding performed in the manufacturing of the snowplow shall be done by AWS certified welders.		
C. Proof of AWS certification shall be presented upon request.		
PAINT:		
A. All steel parts shall have the mill scale and oil removed by means of a high-pressure chemical cleaner prior to painting.		
B. These surfaces shall be primed with a zinc rich, rust preventive primer.		
C. The finish paint shall be a high quality, high solid, polyurethane type enamel		
D. Moldboard paint color shall be DuPont Dulux Omaha Orange Enamel # 93-082 or Authority approved equivalent.		
E. Turntable assembly paint color shall be DuPont Dulux Omaha Orange Enamel # 93-082 or Authority approved equivalent. Paint shall be applied in a two-step process with the orange base coat and additional polyurethane overcoat.		
PATROL WING PLOW:		
MID MOUNT POSTLESS FULL TRIP MOLDBOARD PATROL WING PLOW SYSTEM:		
GENERAL:		
A. Selection of this option shall include complete patrol wing plow system as specified with all equipment, hydraulics, controls and accessories required for safe operation. System shall include Wing plow laser, wing plow camera, spotlight, wing plow mounted marker and strobe lights mounted in NJTA approved locations.		
B. Moldboard sheet shall be a smooth rolled, curved shape, made from minimum 3/16" thick steel. The moldboard sheet shall extend a minimum of 7" outboard from the outer end of the bottom angle. The moldboard shall include an integral formed channel at the top for strength, measuring a minimum of 3.50" wide and 1.50" tall. The moldboard height shall be a minimum of 29" inboard and 36" outboard, measured vertically from the ground, with a full 8" x 120" cutting edge installed.		
C. Shall include a minimum of six (6) vertical ribs on 10-foot models, each rib shall be full height, extending all the way from the bottom angle to the top formed channel. Each rib shall be .50" thick, 4" wide at the bottom, and a minimum of 3" wide at the top. The outermost end of the moldboard sheet shall be braced by one of these ribs along its full height rib to within .50" of the end of the moldboard sheet, to minimize bending of the moldboard sheet as it hits an obstruction.		
D. All ribs shall be fully welded to a full-length bottom structural angle measuring 4" x 4" x.75".		
E. The moldboard shall be further braced by a row of upper horizontal braces measuring .50 x 3" along the entire length of the moldboard.		

F. The moldboard pivot pin area shall be reinforced with (2) 2.50" OD x 1.53" ID x 3.94" cold-finished steel tubes, fully welded through the moldboard sheet and through a reinforcing plate measuring 16.00 x 16.50 x .50". This reinforcing plate shall be joined with additional structural members to the bottom angle, ribs, and moldboard sheet to form a fully welded box section. The two pivot positions provided allow for adjustment of the wing position for a particular truck configuration, allowing for windrow coverage or more wing swath, at the user's discretion.		
G. Shall include two rows of fully welded and gusseted structural angles, with a series of holes to provide a minimum of (5) push beam attaching points on 10foot moldboards. This will allow the push beam to be attached to the moldboard at the optimal angle for each installation to maximize strength. The lower of these two angles shall measure minimum 3.5" x 3.5" x .50", and the upper of these two angles shall measure minimum 6" x 4" x .50".		
H. Entire moldboard assembly shall be continuously welded.		
I. Moldboard shall be attached to pivot hinge using a 1.50" diameter Grade 8 bolt with slotted nut and cotter pin.		
J. Moldboard shall have replaceable 120" x 8" x .625" cutting edge with 6" x 45 degree cut on leading edge to minimize surface damage.		
MID MOUNT POSTLESS STRUCTURE:		
A. The forward wing structure shall operate using dual parallel arms running perpendicular (90 degrees) to the frame of the truck and shall allow the toe of the moldboard to float freely over the road surface. The front float action shall be mechanical, requiring no hydraulic float function.		
B. The entire structure shall be a maximum of 28.75" in height. Including all fasteners, the entire front structure shall take up no more than 15" of space in the fore-aft direction along the side of the truck.		
C. The forward structure shall include .63" thick x 10" deep side plates welded to a 27.75 x 11.13 x 1.00" thick back plate and shall also include (4) fully welded bushings measuring 2.50" OD x 1.53" ID x 1.00" thick. It shall be further braced with a brake formed-internal stiffener measuring a minimum of 10.88 x 9.00 x 10.56".		
D. The forward structure shall include an integrated crosstube of 6 x 4 x.50" rectangular steel tubing, fully welded and braced to the structure using (2) 23 x 6 x .38" gussets and a 15.5 x 6" brake-formed internal brace.		
E. The lower arm assembly shall include (2) .75" thick x 3.75" tall sides joined by (2) fully greaseable 2.25" OD x 1.53" ID x 10.38" long cold-finished steel tubes, a 15" x 9.75" x .38" plate, a 2.5 x 2.5 x .38" cross angle, and (2) .25" thick full width gussets, all forming a fully welded structure.		
F. The upper arm assembly shall include (2) .75" thick x 4.25" tall sides joined by a fully greaseable 2.25" OD x 1.53" ID x 10.38" long cold-finished steel tube, a 15" x 9.75" x .50" plate, a .50" thick full width brace bar, and a .25" thick full width gusset, all forming a fully welded structure.		
G. The front lifting action shall be provided by a 3" bore x 2" rod x 10" stroke cylinder, with nitride rod for corrosion resistance and chip resistance.		
H. The lift cylinder shall be attached to the rigid front structure on one end, and to the rotating cylinder arm on the other end. The rotating cylinder arm shall rotate on the same axis as the upper arm assembly but shall be completely independent of it. The contact surface between these two arms shall be a minimum of 14.5 square inches to prevent deformation.		
I. The arms shall rotate on (4) 1.50" x 15" Grade 8 bolts, supported over their full length, and secured using (4) nylon insert locknuts.		
J. The outer linkage assembly shall be formed from .50" thick steel plate, minimum 27" x 5.8" x 11.5", braced by (2) .50 x 3" full width steel flat bars. It shall include (4) fully welded bushings measuring 2.50" OD x 1.53" ID x 1.00" thick. It shall further include a 2.50" OD x 1.53" ID x 10.13" long cold-finished steel tube, fully welded and braced to the structure, which shall provide for attachment of the wing hinge.		

K. When mounted under a dump bed, the structure shall be capable of raising the wing 12.63" from the ground, with a full 8" cutting edge installed, measured vertically from the ground to the lowest point on the cutting edge, and shall provide 12.63" of float capability.		
L. When mounted in front of the cab or between the cab and the dump body, the structure shall be capable of raising the wing 14.50" from the ground, with a full 8" cutting edge installed, measured vertically from the ground to the lowest point on the cutting edge, and shall provide 14.50" of float capability.		
WING HINGE FULL TRIP:		
A. The trip hinge assembly shall attach the wing moldboard to the post less front structure. It shall include an inner weldment that attaches to the post less front structure using (2) 1" thick ears and a 1.50" diameter pin. It shall include an outer weldment that attaches to the wing moldboard using a 1.50" diameter Grade 8 bolt and castle nut.		
B. The inner and outer portions of the trip hinge assembly shall be joined by upper and lower linkages, which allow the wing to "trip" out of the way when obstacles are contacted.		
C. Trip force shall be provided by a Timbren Aeon hollow rubber spring, model number A760-75, with a nominal rated capacity of 11,000 lbs., a nominal height of 9.25", nominal OD of 5.31", and a maximum deflection of 5.00". Trip force shall be adjustable by means of tightening or loosening a nylon-insert locknut, which modifies the degree of preload compression on the Timbren spring.		
PUSHBEAM ASSEMBLY:		
A. Shall include two push beam assemblies, one upper and one lower.		
B. Each push beam assembly shall consist of an outer tube assembly with spring cage, an inner tube assembly, and a compression spring, and shall provide for a minimum of (3) telescoping adjustment positions.		
C. The outer tube assembly shall consist of 2.88" OD x 2.32" ID steel tubing, with a 1" thick ear welded on one end for attachment to the rear structure using a steel knuckle and minimum 1" diameter Grade 8 bolt.		
D. The inner tube assembly shall consist of minimum 2.19" diameter cold-finished solid steel round bar, with a 1" thick ear welded on one end for attachment to the moldboard structure using a steel knuckle and minimum 1" diameter Grade 8 bolt.		
E. Both push beams must include a compression spring for shock absorption. Each spring shall be made from minimum .625" diameter wire, with a free length of 7.00" and a spring rate of 1500 pounds per inch and shall be capable of exerting a minimum force of 4400 lbs. at full compression.		
F. Wing shall be lifted into transport position using a 3" bore x 2" rod x 15" stroke double-acting cylinder. Cylinder rod shall be nitrided for corrosion resistance and chip resistance. Barrel end of cylinder shall attach to the rear slide between the two push beams, and rod end shall attach to a sliding ear assembly on the upper push beam. The rod end of the cylinder must include a spherical bearing to allow for proper freedom of movement and eliminate undue stresses.		
G. Wing lift cylinder must include an integral counterbalance valve, built directly into the base of the cylinder, to prevent accidental falling of the wing moldboard in case of hydraulic hose failure or other hydraulic failure. It must further include a "decel" cushioning feature, to reduce the speed of the wing as it stows against the side of the truck.		
H. The sliding cylinder attachment ear and associated "cage" on the upper push beam shall allow for mechanical float at the discharge end of the wing.		
HYDRAULIC LIFT CYLINDER:		
A. Wing shall be lifted into transport position using a 3" bore x 2" rod x 15" stroke double-acting cylinder. Cylinder rod shall be nitrided for corrosion resistance and chip resistance. Cylinder shall attach to the wing rear attachment and the push beam float link using two 1" Grade 8 bolts.		

B. Wing lift cylinder must include an integral counterbalance valve, built directly into the base of the cylinder, to prevent accidental falling of the wing moldboard in case of hydraulic hose failure or other hydraulic failure.		
C. The rod end of the wing lift cylinder shall include a spherical bearing for attachment to the push beam.		
WING REAR ATTACHMENT – GENERAL:		
A. Mounting shall be aft of rear tires, using side plates and cross tube, and attaching to pintle plate.		
WING REAR ATTACHMENT – SIDEPLATES WITH CROSSTUBE:		
A. Rear mount assembly consists of a cross tube assembly using a main member of 6 x 4 x.50" rectangular steel tubing, which extends across the full width of the truck frame underneath the truck and attaches to both frame rails using side plates.		
B. The wing rear attachment shall have a removable ear assembly for attachment of the push beam and lift cylinder. The removable ear assembly shall consist of two .50" thick ears, reinforced with .50" thick x 1" long bushings at each point where the push beam and lift cylinder attach. The two ears shall be welded to a .75" backing plate. The ear assembly, consisting of the ears and backing plate, shall be removable from the wing rear attachment structure by removing a single 1" pin.		
C. The wing rear attachment shall include a 2 degree of freedom adjustable wing bumper stop to restrict the upward motion of the wing. The wing stop shall be adjustable inboard and outboard of the truck by removing a single .75" pin and telescoping two square tubes, each .38" thick. The wing stop shall additionally be adjustable up and down by means of removing two .50" bolts and rotating the wing stop about a fixed axis.		
D. Rear assembly shall include (2) side plate assemblies, minimum .50" thick x 12" wide, with integrally formed or welded stiffeners providing a total depth of 2.50" minimum on each side.		
E. Rear assembly shall further include attaching angles and hardware which effectively secure the cross tube to the side plates, while also allowing for easy removal as necessary for service or summer operations.		
F. Rear assembly shall include a safety chain to secure the wing in the stowed position during transport.		
SURFACE PREPARATION AND PAINT:		
A. Unit shall be cleaned of oil, grease, mill scale, coatings, corrosion products, and other foreign materials using a commercial blast cleaning process.		
B. All exterior metal shall be painted using DuPont Dulux Omaha Orange Enamel # 93-082 or Authority approved equivalent. Paint shall be applied in a two-step process with the orange base coat and additional polyurethane overcoat.		
WING PLOW / TOW PLOW LASER:		
A. The laser shall be a green 532nm CDRH class 3A product with under 5mw of laser power. The laser system must be CFR 21-1040 and OSHA compliant.		
B. The main laser housing shall be weatherproof and hermetically sealed and dry nitrogen charged. The laser output window shall have pneumatic snow removal as well as de-icing.		
C. The laser shall consist of a 5 micron in-line filter between the laser and trucks pneumatic supply. The outside laser dimensions shall not exceed 7" x 10" x 4" including adjustable mount.		
D. The system shall consist of the main laser housing, a 3-pin interconnect cable with mil spec waterproof connector at the laser and a quick disconnect plug in the cab.		
E. There shall be a remote-control box located in the cab of the vehicle to turn the laser on and as well as a de-ice/ snow removal selector.		
F. The laser shall be able to be directed 360° in the horizontal axis and a minimum of ± 30° in the vertical.		
G. The system shall have an operating voltage of 12 VDC positive and negative ground.		
H. The system operating temperature shall be -40°F to +122°F.		

WING PLOW FLOODLIGHT:		
A. The wing plow light shall be used to illuminate the operation area of wing plow. discharge from the spinner during salting operations as an indicator to the operator that salt is actually being dispensed as intended.		
B. One (1) Whelen # PFBS12 or Authority approved equivalent, 12 diode, 1,000 lumens, 12v-1.70-amp stud/swivel mount white LED work light.		
C. The light assemblies shall be positioned to identify the wing plow when in operating position.		
D. Wiring shall be "SO" two (2) conductor quick-disconnect weather pack connector and be impervious to weather and salt. Wires going into spinner light fixture shall be sealed with silicone.		
WING PLOW LIGHTS:		
A. The wing plow lights shall be used to identify the end of wing plow to rear traffic.		
B. One (1) steady burn marker light mounted near the outer edge of the wing. This light shall be powered with the parking lights of the truck.		
C. One led strobe light mounted on the rear of the wing angled rearward when wing is deployed. This light shall be grommet mounted in a 3/16" thick stainless-steel mounting flange and welded to a wing plow vertical support rib.		
D. One (1) Whelen # WPLOWZ3A or Authority approved equivalent. Wing Plow light system.		
E. The light assemblies shall be positioned to illuminate the wing plow operation.		
F. The light assemblies shall be two (2) LINZ6 Amber.		
G. The light assemblies shall be mounted in cast housings for stowed and travel position		
H. Wiring shall be "SO" two (2) conductor quick-disconnect weather pack connector and be impervious to weather and salt. Wires going into spinner light fixture shall be sealed with silicone.		
I. A latched "Wing Strobe" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (11) of the auxiliary switch pack • 15A circuit protection, Ignition powered • Latching On/Off switch • The switch shall be backlit and labeled "Wing Strobe" • Reference Drawing: 128 Dashboard Layout & 128 Body Builder Connector		
WING PLOW CAMERA:		
A. Wing down, wing plow light on, camera on system switch operation for wing plow operation area.		
B. Integrated with Backup camera operation and screen.		
C. Hardwired Color CCD backup camera.		
D. Hardwired 130-Degree viewing angle camera (s).		
E. 50' Infrared night vision.		
F. IP69 Rated – certified to keep out dirt and moisture.		
G. Shock resistant with 20G vibration and 100G impact rating.		
H. 7" Digital LED color monitor mounted in NJTA approved location.		
I. Mirror image capable.		
J. Adjustable dash pedestal mount.		
K. Grid lines.		
L. Ruggedized camera to be mounted in NJTA approved location.		

SECTION IV

New Jersey Turnpike Authority Specifications for:

Tandem Axle Chassis with Dump Body with Associated Equipment

TECHNICAL SPECIFICATIONS FOR TANDEM AXLE CAB AND CHASSIS:	COMPLY	
GENERAL:	**YES**	**NO**
A. Current production year Mack Granite or Authority Approved equivalent SFA (Set Forward Axle) 6x4, 10-wheel configuration.		
B. Due to the complexity of the build a list of References shall be provided with similar or larger size fleets to the using Agency.		
C. During the build process the Authority reserve the right to inspect the facility performing the Chassis Manufactures Production.		
FRAME:		
A. Main Rail: 11.81" x 3.54" x 0.37", 120,000 PSI Minimum, Main Frame Rail, 23.5" extension ahead of grille for proper snowplow hitch mounting.		
B. Frame Reinforcement: 10.87" x 3.05" x 0.20" Full "C" channel insert, one piece extending entire length of main frame rail including extension		
C. 3,920,000 RBM (Resisting Bending Movement) minimum.		
D. Huck fasteners shall be used for all cross members, fuel tank, and battery box brackets.		
E. Bolt-on or welded frame sections shall not be acceptable.		
F. Bolt-on front tow hooks with opening through the bumper. One right and one left, within easy access to afford quick operator hook up of tow chain. Hooks shall be of drop forged steel with a minimum of 44,500 lbs. working load. Grade 8 bolts shall be used to attach hook to chassis. Each hook shall be curved upward to assure tow chain will not fall off when no tension is present. Welded on hooks shall not be acceptable.		
G. Electro-statically painted frame rails. Written certification is required.		
H. Wheelbase & Cab to Axle shall be: Wheelbase: 213" Cab to Trunnion: 123.5"		
I. 64,000 lbs. G.V.W.R.		
J. The Authority reserves the right to determine final CA and AF dimension at issuance of Purchase Order.		
K. Passenger side clear space 36" from back of cab.		
L. Rear tow hooks frame mounted.		
FRONT BUMPER:		
A. Heavy-duty steel 10" channel shall replace standard front bumper and shall be bolted via grade 8 bolts and self-locking elastic nuts to the front frame extension of the chassis.		
B. The bumper shall have means for mounting the front license plate.		
C. Two (2) steps, one (1) each side shall be constructed of 2" Bustin or Authority approved equivalent material.		
D. Steps shall be 8" wide x 8" deep.		
E. Step brackets shall be a minimum of ⅜" x 2" A36 material.		
FRONT CATWALK:		
A. The front frame extension shall incorporate an aluminum catwalk between the bumper and the chassis.		
B. The catwalk shall be two (2) section aluminum dirt shedding and have a separate top edge for positive foothold.		
C. Material shall be Bustin or Authority approved equivalent and be attached via rust proof stainless steel bolts with self-locking elastic insert nuts.		
D. Catwalk shall be located to provide best possible protection and access to crankshaft mounted pump, chassis and engine components.		
E. The outer two (2) sections shall be capable of supporting 500 lbs.		
FRONT AXLE:		
A. 20,000 lbs. capacity front axle. **No Exceptions**		
B. Forged I-beam construction, heat treated alloy steel.		
C. Greaseable drag link and tie rods.		
D. Thrust Bearing type shall be tapered roller bearing.		

E. Permanently Lubed with Synthetic Grease Only. **No Exceptions**		
F. Unitized wheel hubs, permanently sealed with grease.		
G. Sealed tapered kingpins and bearings for extended axle life.		
H. Weight capacity of front axle **must** be able to accommodate snowplow hitch and snowplow specified in this bid package.		
FRONT SUSPENSION:		
A. 20,000 lbs. capacity front suspension. **No Exceptions**		
B. Multi-leaf type front springs with shock absorbers.		
C. Spring pins shall be rubber bushed and maintenance free.		
D. Suspension shall not have a bias to either side unless deemed necessary at the Pre-Construction Conference.		
E. Front Axle and Suspension shall be rated so one is does not exceed the other.		
F. Suspension rating shall be accomplished without the use of "Helper Springs" or Auxiliary Air Bags.		
REAR AXLE:		
A. 46,000 lbs. capacity double reduction with driver controlled main locking differential. **No Exceptions**		
B. 55" Axle spacing.		
C. Axle creep rating of 70,000 lbs.		
D. Magnetic drain plugs only.		
E. Axle housing shall be one-piece cast iron.		
F. Rear axle carrier to be rated for 150,000 GCWR Minimum.		
G. Rear axle spindle bearing dimensions: Inner Bearing: 3.75" Outer Bearing: 3.25"		
H. Axle shaft shall be integral flange type.		
I. Axle shaft shall be induction hardened steel.		
J. Shall be a top mount style differential for optimal driveline angle.		
K. Interaxle power divider with air assisted lockout, automatically biases 75% of power to axle with more traction. Labeled "DIFF LOCK". Located in Position 13. Reference drawing: 129A Dashboard. **No Exceptions**		
L. Driver controlled air assisted inter wheel power divider in each axle, automatically biases 75% of power to wheel end, on same axle, with more traction. Labeled Diagrammatically, Located in Position 15. Reference drawing: 129A Dashboard **No Exceptions**		
M. Factory installed synthetic gear lube and magnetic drain plug shall be installed.		
N. Axle ratio shall enable vehicle to cruise at 65 mph at maximum G.V.W.R.		
O. Meritor or Authority approved equivalent suspension.		
REAR SUSPENSION:		
A. 46,000 lbs. multi leaf.		
B. Creep rating of 62,000 lbs.		
C. Equipped with transverse torque and urethane shock insulators.		
D. Rear axle and suspension shall be rated so one is does not exceed the other.		
E. Air or rubber block suspension shall not be acceptable.		
BRAKES:		
A. Brake pedal and valve shall be firewall suspended.		
B. ABS anti-lock air brakes with traction control.		
C. Diagnostic electronic capability shall inform operator and the mechanic of any malfunctions including area of system failure.		
D. Air dryer.		
E. "Meritor "S" Cam Type Q" Plus Brakes. **No Exception for Standardization.** - Front: 16.5" X 6" - Rear: 16.5" x 7"		
F. 18.7 cubic foot gear driven air compressor with dual air supply gauges.		

G. Air pressure gauges shall be located in the instrument cluster.		
H. Automatic slack adjusters.		
I. Air tanks shall be aluminum and painted black.		
J. Air tanks shall have heated automatic drain valve on supply tanks, lanyards on all others.		
K. All air lines shall be color coded.		
L. Dust shields shall be provided on front and rear brakes.		
M. Parking brake alarm shall be provided. Horn shall sound when parking brake is not set with ignition off and any door opened		
O. Three (3) air tanks to be included; shall be located (1) one tank driver side mounted beneath battery box, under cab two (2) tanks passenger side mounted 36" from back of cab perpendicular to frame rails		
STEERING:		
A. Full hydraulic power steering.		
B. Steering column shall be tilt and telescoping style.		
C. Flat bottom steering wheel for ease of entry and exit.		
D. Steering wheel with cruise control and Bluetooth controls.		
EXHAUST SYSTEM:		
A. Frame mounted single unit DPF and SCR unit mounted under cab passenger side.		
B. Shall meet current US Emission requirements at time of bid without using Federal E.P.A Credits.		
C. Emission system to have bright finish cover.		
D. Exhaust pipe shall be passenger side, vertical mounted outboard of cab. Exhaust system and piping shall not to extend past back of cab.		
E. Bright finish 90° curved exhaust pipe and heat shield shall be supplied.		
F. System status shall be accessible via the instrument cluster driver display.		
G. Parked Regen control shall be provided and accessible via the instrument cluster driver display. **No Exceptions**		
ELECTRICAL:		
A. No external Body Builder Module is to be needed, these functions are to be managed by the Vehicle Electrical Control Unit (VECU) and transmitted to the body device via an SAE J1939 connector. It shall be used to transmit control signals that are shared between standalone modules. The information on the SAE J1939 control link is used for control functions, Fault messages or diagnostic information also transmits across this link. These control signals shall include engine, transmission, brakes and other vehicle controls needs. Faults shall be displayed and accessed through the Instrument Cluster Display. All wiring to be clearly labeled throughout its run.		
B. A completely designed and coordinated 12V, negative ground system shall be provided; computer voltage may vary. The system shall be designed such that all components are permanently grounded (-) and positively (+) energized where possible.		
C. All components must be selected to meet severe service.		
D. All wiring shall have lug type terminal ends or push-on type with locking modular plugs.		
E. The circuit breakers shall conform to the SAE JSS3 standard, type III, manual reset, and type I automatic reset mounted in a gang type terminal block inside the cab and must be readily accessible for resetting. All fuses shall conform to the SAE J1284, J2077 and JSS4 standards.		
F. All terminals and splice clips shall conform to the SAE J163 standard. The use of Scotch-Loc or equal connectors will not be accepted.		
G. All high currents shall be distributed through power relays and installed in each circuit. It is recommended that each circuit have both primary and secondary protection devices. The primary device will be an automatic reset circuit breaker, or a manual reset circuit breaker. The secondary protection device may be a circuit breaker or a fuse. It is preferred that the protection device be as close to the power source as practical. The circuit protection shall provide both high and low resistance short circuit protection, while at the same time allowing normal overload conditions (for example, light bulb inrush current or motor start up).		
H. Each circuit shall have the proper size wiring for the protection device, and the load draw shall not exceed 80% of the protection device.		

I. All wiring harness shall have protective coverings to provide extra protection against operating and environmental conditions. The harness coverings may include tape, plastic sleeve or conduit, braid, nonmetallic loom, or other suitable shielding or covering.		
J. The edges of all metal members through which the harness passes shall be de-burred and rolled or bushed with suitable grommets. The wiring harnesses shall be secured or supported at intervals no greater than 18" to prevent rubbing or chafing due to wire movement.		
K. Wiring shall be located to afford protection from heat, road splash, stones, abrasion, grease, oil and fuel. Various types of plastic and metal clips, clamps and ties shall be used to support wiring harnesses.		
L. All external terminal connections shall be soldered and sealed with heat shrink or other approved coatings.		
M. A pre-trip inspection to test exterior light functions shall be supplied that shall enable the operator to test the exterior lights accessed through instrument cluster		
N. Three (3) 12-volt 2190 CCA maintenance free batteries with over crank protection. Batteries shall be mounted on a steel (powder coated black) box with aluminum (not painted) cover. Battery box to be mounted under driver side cab, forward of fuel tank.		
O. Step mounted oval illuminating lamp mounted each side forward of step, rear facing, backlit rocker Switch to be dash mounted on the left side of Steering Column accessible without entry into cab.		
P. AM/FM radio with weather band, MP3, Bluetooth, clock, and speakers.		
Q. Turn signal switch shall include “flash to pass” feature.		
R. Daytime running lights: a pillar mounted clear lens marker/directional lights in addition to front corner directional shall be provided.		
S. Taillights shall have a separate 8' of cable for left and right-side body lights.		
T. Stop, turn, tail, and back-up lights shall be a Truck Lite model LED or Authority approved equivalent.		
W. The following lights shall automatically turn on when wiper switch is engaged: • Headlights • Taillights • Marker lights		
X. OEM Dash mounted backlit; rocker switches shall be provided as per Reference drawing: 129A Dashboard Layout. **No Exceptions**		
Y. Five (5) LED cab marker lights shall be provided.		
Z. Two (2) halogen headlights shall be provided.		
AA. Wipers shall have two (2) speeds with washer and intermittent feature.		
BB. 165-amp Delco Remy 36SI brushless, pad mounted with remote voltage sensor or Authority approved equivalent alternator.		
Gauges & Lights: • Oil pressure • Diesel fuel • Air tank pressure • DEF • Water temperature • Warning lights • Voltmeter • Speedometer • Tachometer • Engine oil Temperature • Transmission oil Temperature • Application Air Pressure • Odometer in driver information center in center of cluster • Trip miles in driver information center in center of cluster • Engine hours in driver information center in center of cluster • Trip hours in driver information center in center of cluster		

• Rear Axle oil Temperature in driver information center in center of cluster • Differential Lock Engaged indicator diagrammatic backlit Yellow • PTO Engage indicator "PTO" Backlit Green		
CC. Dual electric horns.		
DD. Single tone rectangular air horn mounted to cab roof.		
EE. Back-up alarm shall be a Preco 45-AA or Authority approved equivalent. Shock mounted alarm shall be mounted under right taillight.		
FF. Body builder harness shall be located and accessible in the interior of the cab near the driver seat and back wall. Shall consist of the following connections: • Stop/Tail/Turn, Marker light circuits • Ignition controlled auxiliary feed • Battery Controlled Auxiliary feed • (6) Body up fitter switch outputs • J1939 Connectivity • Engine Interface Functions • OEM Body Up Circuit output • Power Take Off Output • Speed Control • Neutral Signal • Reverse Signal		
GG. Body Builder Harness shall be a Deutsch HP20 29 Pin Connector or Authority approved equivalent. Reference Drawing: 129A Body Builder Connector		
HH. Two (2) body builder 2.5" floor "Knock Outs" shall be provided for pass through wiring, located behind driver seat and covered by rear wall covering.		
II. Chassis manufacture shall supply 2-way radio wiring with 20-amp fuse protection.		
JJ. Chassis manufacture shall supply a 36" wiring harness for separate snowplow head lights and turn signals with LED back-lighted rocker type switch. Located in Position 3. Reference drawing: 129A Dashboard layout.		
KK. In addition to the control switch, all lighting and accessories shall turn off with ignition key "off" except for Federal D.O.T. requirements.		
ENGINE:		
A. Mack MP7 or Authority approved equivalent.		
B. Power curve for the horsepower and torque shall be provided in bid package.		
C. Electronic, 6-cylinder turbo-charged diesel engine.		
D. 425 Horsepower minimum @ 1,500 thru 1,800 RPM.		
E. 1560 lb./ft. Torque minimum @ 1,050 thru 1,200 RPM.		
F. 659 Cubic Inch Displacement.		
G. Full wet design cylinder liners.		
H. Chassis mounted air to air charge air cooling system.		
I. High pressure F2 common rail fuel system.		
J. ZF Meritor fuel supply system.		
K. Spin on disposable fuel filter.		
L. Full pressure wet sump lubrication system.		
M. Stainless-steel plate oil cooler.		
N. Lubrication system shall have 2-spin on full flow disposable single bypass disposable filters.		
O. Magnetic drain plug.		
P. Cooling system thermostats of 180 Degrees F.		
Q. Heavy-duty starter with over crank protection.		
R. Air Cleaner under hood single element dry type with Inside/Outside Intake with Dash mounted Rocker switch back lit and Labeled "ENG AIR CONTROL" Located in Position 14. Reference drawing: 129A Dashboard Layout		

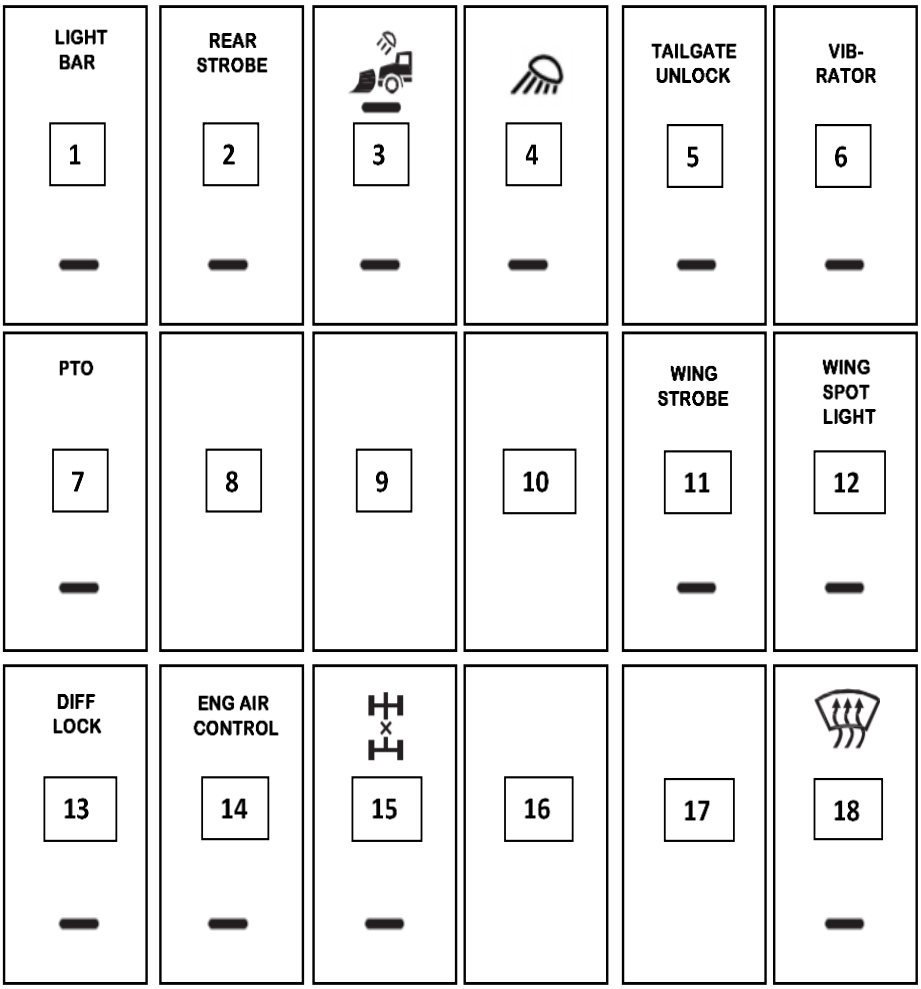
S. Cruise control integral with steering wheel.		
T. Provision for remote mounted engine control to include wiring for body builder installation of PTO controls, ignition switch controlled. Located in position 7. Reference drawing: 129A Dashboard Layout		
U. Heavy-duty radiator with electronic modulating viscous fan drive.		
V. Ethylene Propylene Diene Monomer (EPDM) hoses or Authority approved equivalent.		
W. Constant torque heat shrink radiator clamps.		
X. 120-volt, 1500-watt engine block heater with weather protected flip plug cover shall be located under driver's door.		
Y. Extended long-life coolant protected to at least -40° F. The system shall be tagged indicating make, type of anti-freeze and degree of protection.		
Z. Low coolant level warning light and audible alarm.		
AA. Automatic engine shutdown system for oil pressure, coolant temperature, and coolant level with a 30 second delay and auto override.		
BB. Heated fuel/water separator.		
CC. Integrated fuel pressure sensor.		
DD. Oil pan: stainless-steel. **No Exceptions**		
EE. Mack Powerleash engine brake or Authority approved equivalent.		
FF. Engine brake control steering column right side stalk mounted.		
GG. Engine brake shall have Low, Medium, and High settings.		
HH. Engine brake shall allow driver control to set target speed.		
II. Engine capable of 420 brake horsepower @ 2100 RPM, minimum.		
JJ. Shall include front engine PTO provision.		
KK. Rear engine mount to be severe duty containment type: • Must be designed to separate frame flexing transference to the flywheel housing during plowing operations. • Shall be designed to bi-directionally insulate the driveline and the vehicle frame. • Must be capable of insulating the vehicle frame from drivetrain vibration and torque. • Must be capable of insulating the drivetrain from plow impact and load transference to the vehicle frame. • Must be capable of chassis and driveline component protection from load stresses and impacts consistent with plowing heavy snow in an interstate highway environment. • Must be designed to be durable, performing as outlined herein throughout the expected useful life of the vehicle.		
TRANSMISSION:		
A. Allison 4500 RDS No exceptions as per fleet standardization		
B. Six (6) forward speeds automatic transmission.		
C. Included shall be a transmission oil cooler and temperature gauge.		
D. Transmission Cooler lines to be Stainless Steel to prevent corrosion. **No Exceptions**		
E. Synthetic transmission fluid shall be used and installed by OEM.		
F. Furnished PTO provision and dash mounted temperature gauge. Located in position 7. Reference drawing: 129A Dashboard Layout		
G. Transmission Oil Dip Stick Shall be routed for access at hood door.		
H. Transmission shifter to be dash mounted push button.		
I. Chassis manufacturer installed PTO accommodation for electric/over hydraulic PTO with dash mounted, back-lighted switch and indicator light in gauge cluster. Shall have wiring incorporated and over-speed protection programmed within the OEM electrical system. Located in Position 7. Reference drawing: 129A Dashboard Layout		
DRIVELINE:		
A. Main- Meritor MX176 "Xtended Lube" or Authority approved equivalent.		
B. Inter Axle – Meritor MXL "Xtended Lube" or Authority approved equivalent.		
C. Driveline angle not to exceed 2 degrees. **No Exceptions**		
D. Driveshaft guards to be installed at center bearing.		

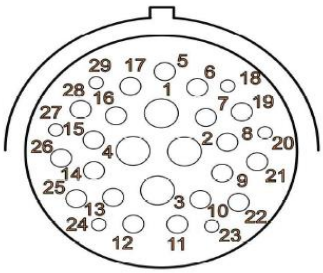
E. Universal joints half round type.		
FUEL TANK:		
A. 72-gallon minimum capacity sleeved aluminum “D” Shape fuel tank mounted under cab.		
B. Thermostat controlled electric fuel heater and filter with filter restriction/change indicator.		
C. Fuel tank shall be labeled in 1" high green letters **“DIESEL FUEL ONLY”**.		
D. Vent tube for fuel tank shall be attached to a bracket via zip-tie.		
E. DEF tank shall be mounted driver side right of Fuel Tank which is mounted under the cab. DEF tank shall be 6.6 U.S. gallons.		
FRONT TIRES & WHEELS:		
A. Two (2) Goodyear Endurance WHA 315/80R22.5 tires. **No Exceptions**		
B. Hub piloted grey powder coat paint 22.5 x 9.00" steel disc wheels.		
C. 285.75 mm bolt circle with 220 mm bore.		
D. Maximum inflation pressure 130 psi.		
E. Wheel-Guard Separator between wheel and drum.		
F. Tire and Wheel to be rated for capacity of axle and suspension.		
REAR TIRES & WHEELS:		
A. Four (8) Goodyear G622 RSD 12R22.5 tires. **No Exceptions**		
B. Hub piloted grey powder coat paint 8.25" steel disc wheels.		
C. 287.75 mm bolt circle with 220 mm bore.		
D. Maximum inflation pressure 120 psi.		
E. Wheel-Guard Separator between both wheels and between wheel and drum.		
F. Tire and Wheel to be rated for capacity of axle and suspension.		
G. Rear plain black mud flaps (No Advertisements).		
CAB:		
A. 2-door conventional cab design.		
B. Conventional cab design shall be galvanized steel. **No Exceptions**		
C. Hood shall be a 3-piece design with stationary bright finished grille.		
D. Cab shall have a 116" Minimum Bumper to Back of cab for adequate room for hydraulic controls		
E. Hood shall have inspection hatch for snowplow application. **No Exceptions**		
F. Driver Display shall display miles, trip miles, engine hours, trip hours, and engine/vehicle system codes.		
G. Included shall be cab rear air bag suspension.		
H. All glass shall be tinted.		
I. Body builder “knockouts” shall be provided in cab floor for body builder connections.		
J. Air operated, high-back vinyl driver seat with headrest and lumbar support and inboard armrest.		
K. High-back vinyl non-suspended passenger seat with headrest.		
L. Both front seats shall have orange colored 3-point seatbelts with automatic retractors.		
M. 3-Point seatbelts with automatic retractors.		
N. Overhead console with radio pocket and wiring provisions		
O. Included shall be front storage pockets.		
P. Two (2) dome lights shall be mounted on headliner controlled by switch on overhead console. Two (2) reading lights mounted on headliner controlled by switch on overhead console.		
Q. Dual sun visors.		
R. In-dash cup holder.		
S. Driver and passenger door storage pocket.		
T. Rear wall storage pocket.		
W. Interior grab handles on both sides, painted with non-skid paint.		
X. Bright finish grab handles driver and passenger side exterior of cab.		
Y. Three (3) cab entry steps both side, bottom to be no higher than 18" from ground. Steps to be dirt shedding type, bright finish aluminum.		
Z. Exterior mirrors shall be comprised of a 15" x 6.8" mirror with a 8" diameter convex mirror located below housing and brackets constructed of stainless steel. A look down 8" x 10" panoramic mirror shall be mounted above passenger door. Both primary mirrors shall be motorized and controlled by a		

switch located on driver side door panel. Primary and convex mirrors shall be thermostatically heated, switch located on driver side door panel. West Coast Style only, shell type unacceptable.		
AA. Two (2) convex hood and fender mounted 10" bright finish heated mirrors mounted driver and passenger side. Shall have three (3) fully adjustable stainless-steel arms, two (2) hood mounted one (1) one fender extension mounted.		
BB. Mirrors shall be fitted with two unpluggable wire leads that allow easy replacement.		
CC. HVAC system shall include heater/defroster/air conditioning.		
DD. Standard instrumentation packages shall be included with plug in type gauges.		
EE. Cab floor covering shall be heavy duty rubber with closed cell rubber backing.		
FF. A stainless-steel grill guard is to be provided. **No Exceptions**		
GG. Hood mounted inner fender for easy engine accessibility. **No Exceptions**		
HH. Windshield to be two-piece, heated. Dash mounted OEM switch back lit and diagrammatically labeled. Located in position 18 Reference drawing: 129A Dashboard Layout		
II. Windshield wipers to be Artic type with J hook style wiper arms.		
JJ. Washer tank shall have a 4-quart capacity.		
KK. Washer tank to be located back of cab for quick fill access. **No Exceptions**		
LL. The chassis dash shall be an ergonomic wing style type for driver convenience.		
MM. Passenger door shall have lower visibility window for enhanced safety.		
NN. Air intake bright finish.		
OO. Exterior sun visor fiberglass painted cab color.		
PP. A non-metallic weatherproof seven (7) pole round pin trailer socket shall be mounted through the hook plate on the upper left side of the pintle hook and OEM wired to the chassis as outlined in Specifications: 7PTC. Exact location shall be determined by contacting the NJTA Inspector prior to mounting.		
QQ. OEM installed electronic brake controller wiring and ABS brake controller wiring shall be routed and terminated at a chassis frame cross member bracket mounted weatherproof junction box at the rear of the truck. See Specifications: TCAABC-2018.		
RR. Complete ABS air brake trailer system including a hand valve control and trailer protection valve shall be installed with the exception of the Glad Hands. The Glad Hand outlets on the pintle plate (location to be determined by the Authority) shall be plugged to prevent air leakage (swivel glad hands 45° cast iron, ⅜" port size, 180° rotation). The Glad Hands shall be installed at a location determined by contacting the NJTA Inspector prior to installation.		
REMOTE DIAGNOSIS:		
A. Remote Diagnostic Service shall be provided and standard equipment • To be capable of access complete vehicle history with ASSIST • Provide detail analysis of critical fault codes with guard dog connect • Provide proactive support for vehicle diagnostic and repair planning • 24/7 365 Day staffed analyst center to provide real time assistance • Triage fault codes to three categories, Preventive Maintenance, Service Needed, Critical Fault • Notified Fleet Managers real time when faults occur		
B. The following are to be included with the vehicle at a minimum of the coverage period of the extended warranties. • Over the Air Firmware Updates • Software Updates • Remote Diagnostics • In Person Monitoring		
MISCELLANEOUS:		
A. Provided in cab shall be a dry chemical 5 lb. "UL" listed fire extinguisher suitable for ABC class fires. A quick-release type metal bracket shall be used to mount extinguisher to base of control panel pedestal. Note: Holes shall not be drilled into pedestal to mount quick-release bracket due to wiring running through pedestal. Wires passing through floor at bottom of pedestal must be neatly and uniformly filled with silicone.		
B. Provide a D.O.T. approved reflective triangle kit in cab.		
C. Provide two (2) wheel chocks.		

PAINT:		
A. All metal parts shall have the mill scale and oil removed by means of a high-pressure chemical cleaner prior to painting.		
B. All frame and running gear shall be painted manufacturers black.		
C. Cab shall be painted with DuPont Dulux Omaha Orange Enamel # 93-082 or Authority approved equivalent. Paint shall be applied in a two-step process with the orange base coat and additional polyurethane overcoat.		
D. Bumper, battery box (not battery cover), frame, and engine oil pan shall be painted black.		
PILOT MODEL:		
A. The contractor shall furnish pilot model truck with body and hoist mounted, as well as the snow plow attachments, spreader, hydraulic equipment and controls mounted and in operating condition, painted and complete in every detail of these specifications for the inspection and approval of the Turnpike Authority or an authorized representative.		
WARRANTY:		
A. All vendors shall provide a basic warranty without cost to New Jersey Turnpike Authority, covering 100% material, labor and parts for One Year. Copies of All warranties to be furnished shall be provided in proposal.		
EXTENDED WARRANTIES:		
B. Extended Warranties to be provided for each vehicle as follows: • Chassis Plan 2, 60 Months/100,000 Miles • Engine Plan 2, 60 Months/250,000 Miles • Exhaust Aftertreatment 60 Months/250,000 Miles • Starter/Alternator 60 Months/300,000 Miles • Remote Diagnostics w/Remote Programing 84 Months • Allison Transmission 60 Months		
MANUALS/PARTS AND COMPONENT LISTS:		
A. The vendor shall supply Two hard copies of parts, repair and service manuals covering the truck and all major components. A schematic and parts list for the hydraulic system, dump body, spreader control system, pre-wet system and a copy of the manufacturer's line setting ticket for each vehicle. USB Drive in lieu of manuals are preferred.		
INSPECTIONS:		
A. Vehicles shall be inspected to all federal and state standards.		
STATEMENT OF ORGIN:		
A. Statement of origin shall be furnished by vendor upon delivery.		
OPERATIONAL TRAINING:		
A. Successful bidder shall include operational training of the complete vehicle to Authority personnel. The training shall be scheduled and take place at two (2) sites, approximately (8) hours each site designated by the New Jersey Turnpike Authority.		
DIAGNOSIS TOOLS:		
A. The awarded vendor shall provide a three (3) year manufacturers Web-based diagnostic, repair, and parts subscription including truck chassis and engine. Must be capable of new module programing by VIN as well as installing manufactures period module updates for engine, body and components.		
B. Diagnostic and repair information for transmission, air-brake system, and other installed components shall be Web-based or PC based software.		
C. Eighteen (18) complete set of factory diagnostic and repair vehicle interface software, to include all necessary cabling and connections for a laptop computer or a handheld device shall be supplied.		
D. **No Exceptions**		
TECHNICAL TRAINING:		
A. Accredited manufacturers new model diagnostic and repair training for all truck chassis systems. Training may consist but not limited to the follow subjects: engine, emissions aftertreatment, electrical, electronics, HVAC, body control, brakes, steering, suspension and driveline.		
B. Training shall be supplied from a Representative from the OEM. **No Exceptions**		
C. The awarded vendor shall provide accredited authorized manufacturer new model training on the vehicles listed in this bid package. Forty (40) hours of training per technician shall take place at two (2) designated Authority facilities for approximately fifty (50) technicians at each facility.		

REFERENCE DRAWING : 128 DASHBOARD LAYOUT





REFERENCE DRAWING: 129A BODY BUIDER CONNECTOR

POLE	DESCRIPTION
1	Battery Power (30A)
2	Ignition Power (30A)
3	Stop Lamp

4	Tail Lamp
5	Reverse Signal
6	LH Turn
7	RH Turn
8	Switch # 1 “Light Bar” 20 Amp (IGN)
9	Switch # 2 “Rear Strobe” 20 Amp (IGN)
10	Switch # 4 “Spreader Lamp” 15 Amp (IGN)
11	Switch # 5 “Tailgate” 15 Amp (IGN)
12	Switch # 6 “Vibrator” 15 Amp (IGN)
13	Switch # 11 “Wing Strobe” 20 Amp (IGN)
14	Switch # 12 “Wing Spot Lamp” 15 Amp (IGN)
15	Parking Brake
16	Neutral Signal
17	Indicator Switch (body Lamp)
18	PTO #1 – CA29
19	PTO #2 – CB7
20	Speed Control ON/OFF
21	BB J11939 +
22	BB J1939 -
23	Speed Control SET/DECEL
24	Speed Control Resume/Accel
25	
26	
27	LH Turn/Stop
28	-
29	RH Turn/Stop

TECHNICAL SPECIFCATIONS FOR EQUIPMENT:	**COMPLY**	
	YES	**NO**
ELECTRICAL:		
A. A completely designed and coordinated 12V, negative ground system shall be provided; computer voltage may vary. The system shall be designed such that all components are permanently grounded (-) and positively (+) energized where possible. All components must be selected to meet severe service. All wiring shall have lug type terminal ends or push-on type with locking modular plugs.		
B. The circuit breakers shall conform to the SAE J553 standard, Type III manual reset, and Type I automatic reset mounted in a gang type terminal block inside the cab and must be readily accessible for resetting. All fuses shall conform to the SAE J1284, J2077 and J554 standards. All terminals and splice clips shall conform to the SAE J163 standard. The use of Scotch-Loc or equal connectors will not be acceptable		
C. All high currents shall be distributed through power relays and installed in each circuit. It is recommended that each circuit have both primary and secondary protection devices. The primary device may be a fusible link, an automatic reset circuit breaker, or a manual reset circuit breaker. The secondary protection device may be a circuit breaker or a fuse. It is preferred that the protection device be as close to the power source as practical. The circuit protection shall provide both high and low resistance short circuit protection, while at the same		

time allowing normal overload conditions (for example, light bulb inrush current or motor start up). Each circuit shall have the proper size wiring for the protection device, and the load draw shall not exceed 80% of the protection device.		
D. All wiring harness shall have protective coverings to provide extra protection against operating and environmental conditions. The harness coverings may include tape, plastic sleeve or conduit, braid, nonmetallic loom, or other suitable shielding or covering. The edges of all metal members through which the harness passes shall be de-burred or rolled and suitable grommets installed. The wiring harnesses shall be secured or supported at intervals no greater than 18" to prevent rubbing or chafing due to wire movement. Wiring shall be located to afford protection from heat, road splash, salt residue, stones, abrasion, grease, oil and fuel. Various types of non-corrosive clips, clamps and ties may be used to support wiring harnesses.		
E. All external terminal connections shall be soldered and sealed with heat shrink or other approved coatings. The OEM shall provide in-dash switches as indicated on Appendix A (Switch diagrams) and two spares complete with circuit protection, wiring and a junction block for the body builders hook-up. All switches shall be in accessible reach of the operator.		
F. The electrical wiring routing shall be of professional quality. All electrical connections shall have ample di-electrical coating during installation. OEM body builder plug shall terminate inside the cab mounted junction box. All wiring shall be home runs to cab and organized in a junction box Integra Enclosures Part # H141206HFLL. (No substitution, standardization). Mounting hardware and brackets shall be 304 stainless steel and shall be removable from outside of the box. A wiring schematic shall be adhered to the inside of the box lid. Extra wire and cable shall be present to allow the box to be removed and placed on the passenger		
G. This lighting package shall include all necessary cables to connect power supply to the lights. All lighting connections shall use weatherproof connectors and cables shall be home runs to the in-cab junction box or flash controller (No splicing will be permitted). Strobe lights may be internally controlled or controlled by a central flash control. All hardware or brackets used for light mounting shall be stainless steel for corrosion resistance.		
ROTATOR LIGHTS:		
A. One (1) Super-LED Amber Beacon shall be mounted to each side of body mounted BBKT30 stainless-steel shelf mount bracket or Authority approved equivalent shall be mounted to the outer vertical side of the cab shield on the driver and passenger sides.		
B. The mounting bracket shall not be wider than the exterior mirrors and the rotor light assembly shall be 1" higher than the cab roof. The rotor light bracket assemblies shall not interfere or have contact with the cab or tarp system components and shall provide adequate strength with a minimum amount of vibration transference to the rotor lights. Mounting shall provide at least 180 degrees of unencumbered projected light.		
C. Shall be Whelen Model R416AF or Authority approved equivalent Super-LED amber rotating beacon warning lights.		
D. Power and ground wiring cable for the Amber Beacons shall be type “SO” cord and sized to sufficiently handle current demands of the circuit load. The cable assemblies shall originate at the body builder harness at the cab interior and be routed separately to the left and right beacon light assemblies, the routing shall follow along the same routing path as the body side marker lights, continue upward inside the body bulkhead corners, exit at the highest point of the corner structure throw a grommeted hole and terminate at each beacon assembly with a Deutsch weatherproof two conductor plug and socket treated with dielectric grease. No other splicing or connections shall be acceptable.		
E. A latched “Light Bar” switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (1) of the auxiliary switch pack • 20A circuit protection, ignition powered • Latching On/Off switch • Reference Drawing: 129A Dashboard Layout & 129A Body Builder Connector • The switch shall be backlit and labeled Light Bar		

DUMP BODY AMBER WARNING LIGHTS:

A. Located at the rear facing corners of the dump body without interfering with DOT lighting requirements shall be four (4) light heads installed, two (2) on each side of body corner posts at ⅓ increments of the overall corner post height. Each mounting shall be recessed in a shock resistant grommet and each light head shall have a 3½" pigtail with Deutsch weatherproof plug connector treated with dielectric grease.

B. Amber LED light heads shall be a minimum of 12 square inch oval type with hard coated lenses and shall be SAE J595 compliant and meet or exceed **Type 1** candela output:

Type 1	20° L	10° L	V	10° R	20° R
5° U	117	191	844	191	117
H	270	421	2400	421	270
5° D	117	191	844	191	117

Chart Key—The preceding graph (Type 1) represents the minimal acceptable direct and off angle candela values, L-Left, R-Right, U-Up, D-Down, V-Vertical, H-horizontal and °-Degree.

C. Light heads shall display diagonally synchronized double flash signals by way of synchronization wiring and light head programing. Mechanical, electronic flasher or module mechanisms are not acceptable.

D. The harness wiring shall be routed to prevent damage, terminate at each light head with a Deutsch weatherproof plug and socket connector treated with dielectric grease and originate in the cab at the body builder harness. No other splicing or connections shall be acceptable.

E. A latched "Rear Strobe" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features:

- Placed in position (2) of the auxiliary switch pack
- 20A circuit protection, Ignition powered
- Latching On/Off switch
- The Switch shall be backlit and labeled rear "Rear Strobe"
- Reference Drawing: 129A Dashboard Layout & 129A Body Builder Connector

SNOWPLOW LIGHTS:

A. Snowplow lights shall be used to add normal head light operation from a higher position on the cab facilitating light projection clearance above the attached snowplow.

B. Snowplow lights shall be Trucklite 80990 Heated LED plow lights or Authority approved equivalent.

C. Snowplow lights shall provide an alternate high/low beam light source when snowplow is attached.

D. Mounting shall be shock-proof and vibration resistant to NJTA standards on chassis hood with rubber isolation.

E. A formed and welded two-piece, 16" x 2" x .185 stainless steel bracket system shall be provided to accommodate high profile snowplows. Bracket shall provide light base 78" minimum height from ground.

F. Lights shall include halogen bulbs, wrap around park/turn lamps.

- A latched Snowplow switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features:
- Placed in position (3) of the auxiliary switch pack
- 20A circuit protection, Ignition powered
- Latching On/Off switch
- The Switch Shall be backlit and Diagrammatically Labelled
- Reference Drawing: 129A Dashboard Layout & 129A Body Builder Connector
- While on, the OEM park, turn, high and low beam light switch operation shall operate the plow lights.
- While on, the chassis headlights shall not operate.

G. Power supply for these additional lights shall be from the existing chassis high/low beam, park and turn signal circuits.		
H. Plow light housing shall be of polycarbonate material.		
I. All wiring shall be routed to prevent damage (no splices) and be interfaced to OEM harness and be attached at firewall to a seven (7) terminal connection point for ease of hook up and troubleshooting.		
J. There shall be **no** splices (must have continuous feed from lights to firewall).		
K. Mounting shall be on truck fenders/hood.		
L. Original chassis high beam dash mounted indicator shall function when plow lights are in high beam mode.		
SPREADER LIGHTS:		
A. The spreader lights shall be used to illuminate the salt discharge from the spinner during salting operations as an indicator to the operator that salt is actually being dispensed as intended.		
B. Two (2) Whelen # PFBS12 or Authority approved equivalent, 12 diode, 1,000 lumens, 12v-1.70-amp stud/swivel mount white LED work light.		
C. The light assemblies shall be positioned to illuminate the spreader operation.		
D. Wiring shall be "SO" two (2) conductor quick-disconnect weather pack connector and be impervious to weather and salt. Wires going into spinner light fixture shall be sealed with silicone.		
• A latched "Spreader Light" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (4) of the auxiliary switch pack • 15A circuit protection, ignition powered • Latching On/Off switch • The switch shall be backlit and diagrammatic labeled • Reference Drawing: 129A Dashboard Layout & 129A Body Builder Connector		
ELECTRIC POWERED VIBRATOR:		
A. Martin 12volt DC2500 or Authority approved equivalent electrically powered body vibrator installed underneath each dump body listed in this specification.		
• A momentary "Body Vibrator" switch shall be incorporated within the central chassis switch control interface • Illuminated indicator light. • Must be depressed/selected to operate • Placed in position (6) of the auxiliary switch pack • Reference Drawing: 129A Dashboard Layout & 129A Body Builder Connector • The switch shall be backlit and labeled "Vib-rator"		
B. Installation shall be per manufacturers specifications, plate and chain.		
C. Body vibrator shall be mounted in an area of the dump body underside to provide maximum material movement.		
D. Body vibrator installation must include a suitable chain restraint from the vibrator unit to the dump body, not the mounting plate.		
BACKUP AND WING PLOW CAMERAS:		
A. Backup camera on automatic operation for truck in reverse.		
B. Integrated with wing camera operation.		
C. Two (2) hardwired color CCD cameras.		
D. Two (2) hardwired 130-degree viewing angle camera (s).		
E. 50' Infrared night vision.		
F. IP69 Rated-certified to keep out dirt and moisture.		
G. Shock resistant with 20G vibration and 100G impact rating.		
H. 7" Digital LED color monitor mounted in NJTA approved location.		
I. Mirror image capable.		

J. Adjustable dash pedestal mount.		
K. Grid lines.		
L. Ruggedized camera to be mounted in NJTA approved location for backing safety as well a wing plow operation.		
M. Reverse Signal Input Shall be incorporated into Body builder connector. Reference Drawing: 129A Body Builder Connector		
RUST PROTECTION:		
A. The complete chassis undercarriage inclusive of cab bottom, axles and complete frame rails, as well as, back side of front bumper, snowplow attachments, engine underside and transmission. Particular attention should be given to all hydraulic fittings and any steel or aluminum components. Reference: Rhomar RH-415 Armour-Seal or approved equal.		

15' DUAL AUGER COMBINATION BODY:		
GENERAL:		
A. This combination dump body / material spreader unit shall consist of a hopper, dual discharge / feed augers, spinner disc, power drive, and all components necessary to make a complete operating unit.		
B. This unit shall be factory ready to accept servo controls.		
C. All stainless-steel sheet metal used in the production of this unit shall be 201 finish stainless steel.		
D. Any stainless-steel plate used in the production of this unit must be ¼" or thicker and must be 201 stainless steel.		
E. All fasteners used on the unit must be stainless steel, with an anti-seize compound applied during assembly to prevent galling or seizing.		
F. The manufacturing and production of this unit shall be of the best commercial practices and only materials of the finest quality are to be used.		
G. Bidders must submit with their bid complete specifications on the unit they propose to furnish.		
H. All inside and outside joints on upper body are continuous welded with stainless wire for maximum strength and longevity.		
BODY:		
A. 15' Body shall have a minimum 12 cubic yard struck capacity and a minimum 15 cubic yard capacity with sideboards. (2" by 12") oak side boards painted Omaha Orange to be included)		
B. Body shall not exceed 99" overall width.		
C. Body shall be constructed on heavy duty long sills made of .250" thick 201 stainless. steel plate and shall be not less than 13.75" tall with a 3" formed bottom flange		
D. Body shall incorporate a fully welded auger trough constructed of .250" thick 201 stainless steel plate and shall be 34" wide x 10.5" tall.		
E. Body shall incorporate a sloped, one-piece side/floor design and both shall intersect at and be solid welded to the top edge of the long sills.		
F. 53" high sides and floor shall be constructed of 7-gauge stainless steel.		
G. Sides shall each be constructed from a single piece of sheet stainless steel and shall include a formed 4" minimum top flange. Sides shall also be formed with three 3/8" radius bends to produce a slope of 38 degrees to the auger trough to facilitate complete body cleanout without raising body.		
H. Inside body length shall be 180" from head sheet to the tailgate.		
I. Side height must be 46" tall, measured from chassis rails.		
J. Sides shall incorporate a fully boxed, 5" deep x 10" tall, 7-gauge, top rail.		
K. Rear corner posts shall be 10-gauge formed stainless steel, with integral 15" high flange-formed rear apron.		

L. Each 10-gauge rear corner post and apron shall be full depth and must be one piece, no splicing. Body shall include a formed stainless-steel asphalt apron permanently attached to the body extending rearwardly from the dump opening and tailgate to channel the flow of material way from the rear of the truck and limit side spill.		
M. The rear corner posts shall be tied together with a .25" x 3.00" x 5.00" stainless steel cross angle.		
N. The rear corner posts must be 7.5" deep, 16" wide, and 54" tall.		
O. Each rear corner post shall include two stainless steel .375" x 3.5" x 4.5"chain retainers' ears.		
P. Headsheet shall be two-piece design constructed from 10-gauge upper section and a 7-gauge lower section formed stainless steel. Upper and lower sections shall overlap a minimum of 1" and shall be solid welded.		
Q. Lower section shall be formed to slope 30° to the auger trough.		
R. Headsheet shall be 67" tall measured from the chassis.		
S. Headsheet shall have a 2.5" brake formed reinforced top edge.		
T. Headsheet shall have a 12" x 12" doghouse to recess the telescopic cylinder.		
U. Sideboard pockets shall be constructed of 10-gauge stainless steel, and 2" wide.		
V. Full length integral fenders to be constructed of 10-gauge stainless steel and shall be solid welded to the body sides and front rear corner posts.		
W. Integral fenders shall be 27.625" wide with a 5.75" formed edge for added strength.		
X. The integral fenders shall include a full length minimum 4.5" x 4.5" V-crimp for increased strength.		
Y. Side / fender cavity shall be capable of accepting liquid tanks or toolboxes.		
Z. A welded on asphalt lip shall be installed at the rear of the body. It shall be constructed of 7-gauge 201 stainless-steel with sides cut at 54° from horizontal. The slope of the main form shall be 15° from horizontal.		
TAILGATE:		
A. The complete tailgate shall be constructed of 201 stainless steel. Shall be 7-gauge inner plate and 10-gauge formed outer panel.		
B. Conspicuity sheet required on the tailgate, Ref: EQN-122.		
C. The design requires two full height and two partial height vertical braces and three formed horizontal braces to create a six-panel tailgate.		
D. The two (2) vertical braces must be 7" wide, 4" deep, and 40.5" tall.		
E. Horizontal support members will slope 45 degrees to eliminate debris build-up.		
F. Upper hinge legs shall be 8.00" wide x 11.50" tall x 0.75" thick stainless steel for increased upper hinge pin wear surfaces, one piece, no-laminating. Hinge legs shall come with a 1" diameter x 4" long rod welded to them for securing the tarp.		
G. Upper hinge pins to be non-rotating, 3.75" long x 1 ¼" diameter with recessed grease fittings. They shall be fitted with a SS retainer chain welded to the rear corner post to prevent loss when the tailgate is being operated in the double acting position.		
H. Lower latch pins shall be 1 ¼" diameter and rest in double 3/8" thick stainless-steel seats backed up by ¼" thick stainless-steel plates welded to corner posts. A total thickness of 3/8" steel support.		
I. The rear skirt shall be vertical. The body floor shall terminate at the inner tailgate plate.		
J. Tailgate shall be double acting.		
K. Spreader chains shall be 3/8" zinc plated with woven nylon sleeve.		
L. Tailgate shall be equipped with two heavy stainless-steel D-rings to aid in removal.		
M. **IMPORTANT NOTE**: The design of the material delivery system shall eliminate the need for an adjustable or metered door in the tailgate. A single asphalt / coal chute, measuring not less than 17" wide x 8" tall shall be provided for summer season operations. The coal chute will provide for two positions; completely closed or fully open. Coal chute shall be designed with a spring-loaded handle secured in the fully open and provide for fully closed position.		

AIR OPERATED TAILGATE LATCH:		
A. Air tailgate latch shall utilize dual air brake chambers with 5/8" diameter push / pull rod. Air inlet port shall be 3/8" NPT.		
B. Dual latch mechanism shall be over-center positive lock type. It shall not require air cylinder to support load required to keep tailgate latched.		
C. Latch mechanism shall consist of heavy-duty bell-crank supported on a 1 ¼" diameter pivot shaft. Crank and shaft assembly shall be welded to a heavy-duty stainless-steel channel which is welded to the body.		
D. All latching components (excluding the brake chamber) must be constructed of stainless steel. Zinc, calcium or black oxide coated hardware will not be accepted. **No Exceptions**		
E. A latched "Tail Gate" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (5) of the auxiliary switch pack • 15A circuit protection, Ignition powered • Latching On/Off switch • The switch shall be backlit and labeled "Tailgate Unlock" • Reference Drawing: 129A Dashboard Layout & 129A Body Builder Connector		
AUGER SYSTEM:		
A. The "dual auger" system shall consist of twin 7" diameter augers running longitudinally with the body. The augers will terminate flush with the inside of the tailgate panel, and feed material the full length of the body to a drop chute located at the rear and underneath the body of the conveyor floors.		
B. The drop chute shall measure not less than 10" wide x 4.375" deep and shall extend down from bottom of the auger trough a minimum of 3". The drop chute must be hinged to avoid damage if contact is made with any part of the truck chassis when the body is fully raised.		
C. The auger trough shall be continuous welded and sealed to prevent leaching of salt or brine onto the truck chassis.		
D. **IMPORTANT SAFETY NOTE**: In the interest of protecting the operators and preventing accidental engagement with the feed augers, the auger trough opening shall terminate at a point not less than 4.5" forward from the end of body floor and tailgate. The body floor shall be smooth and uninterrupted after this point. **NO EXCEPTIONS TO THIS CRITICAL SAFETY FEATURE WILL BE ACCEPTED.**		
E. The auger tube shall be constructed from 3.5" Schedule 40 pipe.		
F. The hardened flighting must be continuously welded the full length of the auger.		
G. The hardened flighting shall be ½" thick, with a 6" pitch, and counter-rotating.		
H. The augers shall each be driven by a 63.9 cubic inch hydraulic motors connected to the auger by a spline shaft coupling at the forward end. The driver's side auger Shall be driven by a speed sensored motor. No other form of sensoring will be accepted. No gear reduction of any kind will be accepted as equal.		
I. The spline coupling must be continuously welded to the end of the auger pipe to prevent corrosion inside the auger pipe.		
J. The couplings shall be equipped with a grease fitting so that the motor splines and couplings can be lubricated.		
K. The auger will include a 2.00" TGP idler shaft, welded to two .50" thick washers, which are welded solid into the end of the auger pipe to prevent corrosion inside of the auger pipe.		
L. The idler ends of the auger shall be supported by two 4-bolt flange, heavy duty, dust sealed, self-aligning ball bearing. In order to facilitate easier maintenance a central lubrication manifold shall be installed at the (front or rear) of the body.		
M. These bearings must be recessed in the rear skirt of the body and protected from material being dumped and spread from the body by a stainless-steel cover.		

N. Both augers MUST include full length hard surfacing equal to, or greater than HRC 40, the entire width of the flighting edge.		
O. The auger must have a welded thrust washer on the pipe to eliminate a forward load on the drive motors and bearings.		
P. A UHMW thrust bearing is required between the thrust washer and the front plate of the auger trough to minimize wear. Any other material will not be accepted.		
Q. Free flow of material shall be restricted by using an anti-flow plate positioned at the rear of the body over the augers. The anti-flow plate shall extend inwards from the rear of the tailgate 21.75" and shall eliminate the need for any metered gate or other metering devices. The angle of repose created by the anti-flow plate to the discharge opening shall not be greater than (30) degrees.		
R. The anti-flow plate shall be not less than 34.00" wide X 21.75" deep and shall have a formed flange sloping 45° towards the auger trough.		
S. A protective grate consisting of ½" 304 stainless steel round bar shall be placed over the exposed auger inside the hopper and shall extend in 12" forward from the anti-flow cover. Access to the augers shall be restricted for a minimum distance of 32” from the rear of the body.		
T. The ½" 304 stainless steel round bar shall have 4.00" x 4.00" openings and shall be solid welded at all intersecting points with the body.		
U. Auger trough shall include washout system, Swenson part number 00121-038-05 nozzles or Authority approved equivalent.		
REAR MOUNT SPINNER:		
A. The spinner assembly and mounting tube to be constructed from stainless steel		
B. Spinner assembly shall be mounted to the rear hinge, not the body or any part of the truck chassis.		
C. **IMPORTANT NOTE:** In the interest of eliminating conflict with towed equipment such as trailer mounted attenuators; no portion of the spinner mount hardware may extend beyond the pintle plate.		
D. Spinner shall remain in place with body raised, spinner to remain level.		
E. The spinner disc shall be a minimum of 24" in diameter. To eliminate corrosion and provide balance, the disc shall be manufactured of 10-gauge stainless steel.		
F. To provide balance and eliminate corrosion, the spinner vanes shall be manufactured from 10-gauge stainless steel.		
G. The spinner shall have “formed vanes” bolted to the spinner disc with stainless fasteners for easy replacement.		
H. The spinner shall have a conical safety shroud above the disc to protect the chassis and surrounding area from flying aggregates.		
I. The spinner guard shall extend approximately 135 degrees of the overall circumference of the spinner and shall measure not less than 6.25" tall.		
J. The spinner assembly shall mount to a 2" OD DOM stainless steel tube to allow level vertical adjustment, a horizontal swing-away function, and a horizontal telescopic adjustment.		
K. The spinner assembly shall have 6" of vertical adjustment, eight pinned positions for accurate spread pattern control, and eight pinned positions, in ½" increments, for adjusting material drop location onto the spinner disc.		
L. All adjustments shall be made from the rear of the spinner support tube, ensuring ease of access.		
HOIST:		
A. The hoist shall meet NTEA Class 50, with a minimum 25-ton capacity.		
B. The cylinder is to be trunnion mounted telescopic, and double acting.		

C. The lower cylinder trunnion pins shall mount into a heavy-duty lift frame constructed from .25" and .50" carbon steel. Lift frame shall include with two (2) 2.00" thick x 9.00" long x 4.00" tall lift blocks solid welded into the frame to accept the lower trunnion pins.		
D. Each lower trunnion pins shall be captured with a retainer weldment constructed from 1.00" thick x 1.50" wide x 4.75" long carbon steel secured with 5/8" hardware.		
E. Retainers shall be equipped with grease zerks.		
F. The upper cylinder trunnion pins shall mount into a heavy-duty lift frame constructed from .375" and .50" carbon steel. Lift frame shall include with two (2) 1.25" thick x 11.625" long x 3" tall lift blocks solid welded into the frame to accept the upper trunnion pins.		
G. Each upper trunnion pins shall be captured with a retainer constructed from 1.25" wide x 2.00" tall x 5.00" long carbon steel secured with ½" grade 8 hardware. Retainers shall be equipped with grease zerks.		
H. Upper trunnion lift frame weldment shall be recessed into the body doghouse and shall be bolted to the body with a minimum of ten ¾" grade 8 bolts.		
I. Lower lift frame shall include an integral safety body prop. Prop shall be secured into the upright position with a ½" diameter x 3.50" clevis pin. Pin shall be secured to lift frame with stainless steel chain to prevent loss.		
TELESCOPING CYLINDER:		
A. All tubing used in the manufacture of this cylinder shall be honed D.O.M. tubing and must have the corresponding mill specs sheets from the run under which it was produced.		
B. After machining, the tubes and glands shall be submerged in a liquid salt bath nitriding process, polished, and submerged a second time to enhance the. Mechanical properties of the tubing. The nitride tubes shall have ten times the corrosion resistance of hard chrome plating, twice the fatigue strength of untreated carbon steel tubing, and a Rockwell hardness of C60-C65.		
C. For simplicity and longevity there shall be no brass, or phenolic wear parts in the cylinder.		
D. The cylinder shall be U-cup type, positioned in the gland nut as a rod seal to wipe against the OD of the tube passing through it. As the cylinder retracts, foreign materials will be removed by means of a wiper, also located in the gland nut, and the tube will be surrounded by oil below the seal. An outer cover shall enclose the cylinder while not in use.		
E. Through means of an oscillating collar near the bottom of the cover, the body can be offset 5 to 7 degrees from side to side without side loading the cylinder. The trunnion pins on the oscillating collar will provide the means for lifting the body at the bottom, which will increase stability.		
F. The cylinder shall mount with the largest section at the bottom.		
G. Cylinder shall include a two-year warranty.		
H. The hoist package shall include ½" and ¾" stainless steel hydraulic tubing running from the rear of the body forward to the hoist cylinder. The tubing shall run in the cavity formed between the auger trough and the driver side longsill. The tubing shall be secured with poly clamshell type clamps.		
CABSHIELD:		
A. Shall be entirely constructed of 10-gauge stainless steel.		
B. Shall extend forward of body 24".		
C. Shall be 84" wide, as to allow the end plates on cab shield align with front edges of the body sides for maximum support. The end gussets tie the end plates to the front edges of body sides.		
D. Forward edge shall be "C" formed with 4.75" section height.		
E. Shield pan shall slope 2 degrees for shedding water.		
F. **Note:** The Cabshield, if the standard lighting option is chosen, will be of a design in which the flanges and gussets are below the horizontal cabshield sheet. The design of this cabshield		

shall be submitted and approved by the NJTA Fleet Representative prior to the manufacturing of the body.		
AUGER TROUGH COVER PLATE:		
A. Shall be .250" thick stainless steel, two-piece, that covers the entire auger trough.		
B. It shall attach at the rear with stainless steel bolts and be captured at the front of the body.		
C. Shall contain a heavy-duty stainless-steel d-ring to aid in removal.		
TOP GRATE SCREEN:		
A. The main center support shall be constructed of stainless-steel box beam. The center shall be attached to the body with stainless steel bolts, washers, and nuts. No zinc, calcium or black oxide hardware will be accepted.		
B. The top screens shall be constructed of 3/8" stainless steel rods welded to form a 3" square mesh, which is framed by ¼" x 1 ½" flat stainless-steel edge supports and reinforced by ¼" x 1" flat stainless-steel bars.		
C. As there are no fill coverage lower screens, the top screens shall be constructed in a manner that will interlock all screen sections by means of a single bolt in the rear screen section on each side of the body.		
D. Top screens shall be removable and use the "Drop and Lock" type hinge, as screens utilizing other hardware may become damaged, and fail.		
LADDERS:		
A. Ladders shall be a six-step ladder of stainless-steel construction. Ladder shall consist of a 3-step fixed upper portion bolted between the side and the fender, and a 3 step lower portion that pulls out from a 10-gauge stainless steel tray under the fender stowed position		
B. Shall have two 24" x 5/8" stainless-steel grab handles One (1) each side of ladder top.		
C. The grab handles shall be 24" 201 stainless steel coated with an industrial strength anti-slip coating.		
PREWET TANKS:		
A. Two (2) tank system forward mounted tanks shall provide a minimum of 320-gallon on-board capacity. Crossover linked.		
B. The two tanks shall be rotational molded polyethylene with a .30" wall thickness.		
C. The tanks shall include plumbing to connect RH and LH tanks for ground level filling and emptying with 1 ½" full port shut off valve		
D. Shall include 1-1/2" female quick fill fittings on each tank.		
E. Each tank shall be secured to the body with no less than two stainless steel straps. The straps shall be covered with a rubber insulator to prevent chafing of the tanks.		
F. Each tank end shall be held in place with a stainless-steel angle fitted with a rubber insulator to prevent chafing of the tanks.		
G. Each tank shall have a combination pressure and vacuum relief vent cap installed which is rated for 10-cfm. Tank caps shall be attached to the tank strap bolt with a stainless-steel cable.		
H. **NOTE**: Mounting design and method must ensure the tanks will be secured to the body and protected from the effects of vibration and daily use. All plumbing must be properly supported as to prohibit strains and twists on tanks and fittings.		
PREWET APPLICATION LANCE:		
A. There shall be a stainless-steel lance plumbed directly into the auger trough for the purpose of internally mixing pre-wet liquids into the granular aggregates within the auger trough.		
B. A ¾" stainless steel injection lance of not less than 82" in length shall be provided and have application holes sized appropriately to apply 7-gpm at 50 psi.		
C. The stainless-steel plumbing must be removable from the rear for cleaning and servicing.		

D. The stainless-steel plumbing shall be shielded from the granular material to prevent clogging and potential damage by means of an inverted vee positioned above the injection lance and below the auger safety grate.		
E. The inverted vee shall be at least 2.75" x 2.75", constructed from 7-gauge stainless steel and shall run the full length of the auger trough.		
F. Inverted vee shall be mounted under ¼" thick cross supports. Inverted vee and cross supports shall be solid welded to the body.		
PREWET PUMP:		
A. The hydraulically powered pre-wet power unit shall consist of a bronze gear pump, hydraulic motor, relief valve and flow meter all housed in a stainless-steel enclosure.		
B. The bronze gear pump shall be capable of delivering a minimum of 8-gpm at 1800 rpm and handling up to 100 psi.		
C. The hydraulic motor shall be direct coupled to the pump by use of a lovejoy coupling. The hydraulic motor shall be supplied with hydraulic oil directly from a dedicated valve section in the main hydraulic valve assembly. The motor shall be of the orbital design and have a displacement of 12.5 cubic centimeters.		
D. There shall be an adjustable relief valve installed on the pump outlet. The relief valve shall be plumbed so that when the relief valve opens, it will divert excess flow to the inlet of the pump.		
E. There shall be a paddle wheel style flow meter installed in the pump outlet line. The flow meter shall be used to send flow information to the spreader controller. The spreader controller will use this information to monitor the accuracy of liquid flow, liquid calibration and to determine whether or not liquid is actually flowing through the system		
F. The enclosure shall be constructed of all stainless steel and have a removable lid. The lid shall be secured with a single rubber latch. The enclosure and lid shall also have a separate tab for securing the lid with a single type 304 stainless steel bolt and type 304 stainless steel nylock nut.		
G. There shall be a strainer installed in the plumbing between the liquid tank and the prewet power unit. The strainer shall have a replaceable 50 mesh element		
H. A 1 ½" cam lock style coupling shall be installed ground level for filling of the liquid tanks.		
I. There shall be a ¾" cam lock style quick disconnect in the spray nozzle line near the rear of the truck to facilitate the removal of the spray nozzle. Located between the prewet power unit and this disconnect shall be an inline check valve to prevent siphoning.		
J. **NOTE:** Location of pump and enclosure shall be determined at prebuild with consideration to ease of access for servicing components.		
CONSPICUITY ENHANCEMENT BODY:		
A. Each dump body rub rail and rear shall include 2" wide conspicuity enhancement.		
B. The enhancement shall be alternating red and white stripes.		
C. Enhancement shall provide reflection even in daylight hours.		
D. Conspicuity tape shall have twelve (12) different patterns of micro-prisms for maximum visibility.		
E. The reflective system shall be impervious to ultraviolet radiation via internal pigmentation with acrylic layer protection.		
F. Conspicuity tape shall withstand all weather conditions and repeated washing and meet all FMVSS 108 requirements.		
CONSPICUITY ENHANCEMENT TAILGATE:		
A. Each dump body tailgate shall include chevron pattern conspicuity enhancement.		
B. All stripes will be six (6) inches wide, forty-five (45) degrees from vertical. a. The yellow stripes shall be Diamond Grade Fluorescent Yellow VIP Reflective Sheeting-3981, pressure sensitive or approved equivalent.		

b. The black stripes shall be Scotchcal 3650-12, pressure sensitive or approved equivalent.		
C. Enhancement shall provide reflection even in daylight hours.		
D. Conspicuity tape shall have twelve (12) different patterns of micro-prisms for maximum visibility.		
E. The reflective system shall be impervious to ultraviolet radiation via internal pigmentation with acrylic layer protection.		
F. Conspicuity tape shall withstand all weather conditions and repeated washing and meet all FMVSS 108 requirements.		

CENTRAL HYDRAULIC SYSTEM:		
GENERAL:		
A. The complete system provided shall provide pressurized, metered hydraulic fluid to operate the dump body, snowplow, wing plow, salt spreader, prewet, 3 lane anti ice liquid application through hydraulic cylinders, and hydraulically operated supplemental equipment. The complete system shall consist of standard product offerings and not experimental or prototype products. Functions include dump body, snowplow, wing plow, salt spreader, prewet, anti-icing and anti-vegetation spray systems.		
B. The hydraulic system shall be capable of running three (3) or more hydraulic functions simultaneously without inhibiting the action of the other.		
C. Fluid loss protection system shall be accomplished by means of a level sensor in hydraulic tank.		
D. The complete hydraulic system including cylinders, motors, fittings, valves, hoses, etc. shall conform to the highest quality of commercial hydraulic installation standards of the following organizations: American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), American Iron and Steel Institute (AISI), American Petroleum Institute (API), International Fluid Power Society (IFPS), International Organization for Standardization (ISO), Joint Industry Council (JIC), National Fluid Power Association (NFPA), National Electrical Manufacturer Association (NEMA), Society of Automotive Engineers (SAE), and American Nation Standards Institute (ANSI).		
E. The hydraulic system pressure and flow requirements shall be compatible with the operating rpm ranges of the trucks engine.		
F. Bidder shall submit with bid, complete hydraulic schematic including all components with manufacturer's names and model numbers including operational specifications to enable a review of products offered against the specifications.		
G. The successful bidder shall be responsible to demonstrate at the NJTA facilities the complete functional and performance capabilities of the hydraulic system and all affected components to ensure operational compliance to the functionality specified in these specifications.		
H. The hydraulic system shall be of the central type; all hydraulic functions are to be powered hydraulically using a single, pressure and flow control (load sensing) pump. Multiple hydraulic functions such as: auger/conveyor; spinner; body lift/lower; plow lift/lower; and plow power reverse must be capable of functioning simultaneously without stopping the action of any one or more hydraulic functions. All electrically operated solenoid valves will have a neutral or de- energized position that automatically positions the pump to a zero flow and low pressure stand by condition. The hydraulic system shall be of the pressure port blocked closed center design. Entire system (hydraulic and electrical) shall have a two-year warranty.		
I. Hydraulic pump, hydraulic valves, spreader controller, armrest, joystick controller and pre-wet system must all be from same manufacturer to ensure complete system compatibility. Items that are manufactured by one entity and "branded" with another manufacturer's name shall not be accepted as being from a single manufacturer. Manufacturer shall be both ISO 9001 and 14001 certified.		
J. All up fitted fasteners (nuts, bolts, pins, clevises, cotter keys, fittings, hose clamps, and brackets, etc.) shall be stainless steel or be pre-approved by the NJTA Fleet division. No black iron pipe or fittings to be used in the plumbing of the hydraulic system.		
HYDRAULIC PUMP:		

A. The pump shall be a direct driven, heavy-duty, pressure/flow compensated, load sensing variable displacement design Reference: Bosch Rexroth R902534642 (Or Authority approved equal). Output flow shall be no less than 48 GPM at 1800 engine RPM. No less than 6.1 cubic inch displacement is acceptable. Input shaft of pump is of keyed or splined design to standardize mounting configuration.		
B. A DIN 2353 standard pressure test point is to be installed directly to the pump port plate. This test point will be used for attaching a pressure gauge for troubleshooting and verifying pressure settings. The test point shall be constructed of corrosion resistant materials.		
C. Note: Body up-fitter shall adjust pump standby and compensator adjustments prior to delivery. Pump standby shall be set to 350 psi and the pump compensator shall be set to 2,000 psi.		
PUMP CONTROL: A. The pump control through hydraulic system logic must automatically select and adjust discharge pressure and flow in regard to the highest load demand regardless of the number of functions engaged or the engine RPM.		
PUMP DRIVE: A. The pump shall be driven off the front of the engine crankshaft using a flexible driveline of the U- joint type and be installed in reference to alignment as per manufacturer's specifications. The driveline shall be of the solid stub shaft design and constructed of C-1137 C.D. bar stock. The 1.375-16 splined section of the stub shaft must be hardened to RC48-53 surface hardness. The pump driveshaft shall be connected to the pump with the following hub and flange parts so the driveshaft can be separated from the pump (Spicer 2-1-1313-4 flange hub, Spicer 2- 2-479 Flange yoke, Spicer 5-1310-1X U-joint). The complete driveline must be rated to accept a working torque of a minimum of 130 foot-pounds. If equipped with grease fittings, fittings shall be positioned for easy access. **Vendor shall supply NJTA with detailed drawing of pump shaft and manufacturers' part numbers.**		
HYDRAULIC OIL SUPPLY TANK/VALVE ENCLOSURE COMBINATION: • The hydraulic reservoir shall have a minimum 40-gallon capacity and be constructed of 11-gauge stainless-steel and be internally baffled. Reservoir and enclosure shall be made as one unit. • The valve/tank combination unit shall be mounted the side frame rail of the vehicle and shall be mounted in such a manner as not to transmit any torsional loads. • The design of the enclosure shall allow for easy access to the control valve without the use of tools. **The electronic control modules and mount shall be mounted in such a way that they can be removed from the valve enclosure for easy access to the valve sections.** • The overall height of the valve/tank unit shall not exceed 27.6" including any filters, fillers or fittings. • The overall width along the frame rail of the chassis shall not exceed 39½". • The valve/tank unit shall not extend more than 30.27" off the chassis frame rail. • All hydraulic connections shall be made directly to the control valve without the use of bulkhead connections. • The fill port of the reservoir shall be accessible without first having to remove any covers. • Vent Filter will be installed on the tank.		

• On the outboard side of the reservoir there shall be a combination level/temperature gauge. • Valve enclosure electronics shall be easily moved in order to provide maintenance and repair of the valve stack. • Valve enclosure shall have a permanent decal affixed to the opposing wall with valve section schematic.		
B. Reservoir shall have a dedicated clean-out opening of not less than 7½" with a stainless-steel cover. The cover shall be sealed with an O-ring seal. There shall be a 2.5" brass shut-off valve plumbed to the suction port of the tank. Reservoir shall have a 10-micron absolute in-tank return filter sized to allow a minimum of 50 GPM. There shall be a low oil sensor mounted in the tank for use with the low oil shut down system. **Note:** Any unit submitted for bid shall have undergone Finite Element Analysis (FEA) testing to ensure the structural integrity of the unit. **Note:** In order to keep the hydraulic valves accessible, no items are to be installed in the valve enclosure that are not part of the hydraulic valve system.		
C. Valve enclosure shall be mounted on the driver's side unless otherwise noted in the prebuild		
HYDRAULIC HOSES: A. All hydraulic hoses shall meet or exceed specifications. Each hose assembly shall be cleaned of debris and fitted with JIC swivel connectors on ends where connection to system component is made, except for the suction hose. All pressure line hoses shall meet or exceed SAE specification 100R16 and shall be Gates Mega-flex M2T high pressure hose or pre-approved equal, for sizes up to and including 1" ID. The suction hose is to be 2.5" nominal I.D. SAE specification 100R4 braided fiber, spiral wire reinforced, rubber-covered hose with replaceable bolt-on type fittings. All hydraulic hoses are to be fully installed and ready for operation. Spreader control valve pressure lines and reservoir tank return line to be manifold mounted at center of frame rear cross- member. These lines to be equipped with complete 1/2" 5100 series Aeroquip quick disconnects (coupler and nipple to be supplied) and metal cap and plugs. Galvanized or black iron pipe fittings and connectors are unacceptable. All fittings and connectors shall be of the steel type designed for hydraulic system use. Pipe thread ported components and connectors shall be used only when the specific component is not available with SAE or JIC porting. All pipe thread connectors that are used are to be coated with liquid Teflon pipe sealer before assembly; Teflon tape is unacceptable. Hoses run to the front of truck chassis for snowplow functions shall be manifold mounted behind the front bumper with sufficient access for pump assembly service and snowplow hitch installation. These lines shall be equipped with complete 1/2" "Aeroquip" Model 5100 Series quick disconnects (coupler and nipple to be supplied) and metal caps and plugs. All hydraulic lines shall be routed and clamped with rubber lined two-bolt type HYCON stainless and composite clamps (no steel), with type 304 stainless steel bolts and positioned with maximum available clearance from chassis exhaust system, wear points and service items such as engine oil/fuel filters, etc. Any hydraulic lines located within 10 inches of exhaust system shall be heat shielded.		
B. Stainless steel tubing to be used under body and cab in lieu of hosing. Hosing to be used at the ends of stainless-steel tubing to reach each function's quick couplers or connection. Tubing shall be seamless #201 stainless steel construction with a minimum wall thickness of 0.065". The ends must be flared to accommodate a 37-degree JIC fitting. The use of compression fittings is not acceptable. Spacing of each tube to allow for material to fall between each tube. • All stainless tubing must be mounted in polyurethane poly green tube clamps • All hoses to be wire braid reinforced with swaged on high pressure JIC 37 degree tapered seat end fittings • All fittings & adapters to be forged steel (No tapered pipe fittings except on suction hose).		
FILTRATION: A. Hydraulic Return filter: The hydraulic return filter assembly shall consist of an in-tank return filter housing with a 10-micron absolute rated filter element. The housing shall have an electrical filter condition indicator that will activate a light on the in-cab console when the filter is clogged. Return line		

filter housing: reference Bosch Rexroth# R987463649. Return filter element: reference Bosch Rexroth# R928005927.		
B. Hydraulic Pressure Filter: The hydraulic pressure filter shall consist of an in-line pressure filter housing, rated to 3600 psi and a flow rate of 87-gpm, with a 10-micron absolute rated filter element. The housing shall incorporate a visual filter condition indicator. Pressure filter housing: reference Bosch Rexroth# R928030734. Pressure filter element: reference Bosch Rexroth# R928006863		
HYDRAULIC VALVES: A. All the central hydraulic system valving shall be of mobile design made to withstand exposure to de-icing chemicals and severe weather conditions and shall be mounted in a watertight enclosure. Valving shall be Rexroth M4-12/2X horizontally stackable with power beyond (no substitute standardization). Each function shall have its own valve section. Hybrid or aluminum manifolds shall be unacceptable. Each valve section shall have a built-in flow and pressure compensator to allow simultaneous operation regardless of any other system function. Directional control valves shall be positioned within the assembly by order of flow/pressure to minimize overall differential pressure drop. All function controls shall utilize PWM proportional solenoid valving. All sections are to have control solenoids, manual overrides, and stroke limiters. All valving shall be in one main valve assembly. Multiple valve assemblies are unacceptable. Dump body valve shall allow an empty body to retract in 20 seconds or less. Valve shall have a pressure/temperature transducer mounted in the valve inlet so that the system pressure and temperature shall be displayed on the spreader controller screen. The Rexroth M4/12-2x (Or Authority approved equal) valve must include the following sections: Top Ported Inlet DA Electric Proportional Hoist w/A Port LS Pressure Limiter to 1200 psi. DA Electric Proportional Plow Up/Down DA Electric Proportional Plow Angle DA Electric Proportional wing Plow Up/Down DA Electric Proportional Wing Plow In/Out DA Electric Proportional Auger w/Reverse SA Electric Proportional Spinner SA Electric Proportional Anti-Icing SA Electric Proportional Pre-Wet Power Beyond Outlet Sections are listed outer to inner when mounted on the truck and the location of each valve and its function shall be listed with a decal positioned on the inside of the enclosure vertical wall. Reference additional valve sections needed for optional equipment.		
ELECTRONIC JOYSTICK CONTROLLER: A. Multifunction Electronic Joystick/Armrest controller shall be a Rexroth CS-150 (Or NJTA approved equal). The control of all cylinder functions such as body, plow, wing plow, etc. shall be controlled by a single 3-axis multi-function joystick mounted to a padded armrest. The armrest unit shall be pedestal mounted and have both a height and swivel adjustment. The distance from the cab floor to the top of armrest shall be adjustable from 23” to 26”. The dimension from the back of the cab to the back of the armrest should be approximately 13”. Final approval of location and design to be approved during the pilot build process. Pedestal shall be firmly mounted in such a way that it does not contact either driver or passenger seat and is not mounted on the transmission access panel.		
B. The width of the armrest unit shall not exceed 6.25".		
C. The armrest shall have accommodations for twelve rocker switches or dual function indicator lights. The armrest shall have a mounting location for an optional six-switch add-on		

module. Three rocker switches to be installed and labeled Aux 1, Aux 2, Aux 3, and be wired into the enclosure between the seats.		
D. The joystick shall have a deadman trigger that serves as an electrical interlock to prevent the unintentional movement of any function. No hydraulic movement function shall activate unless the deadman trigger is activated.		
E. The joystick shall have six pushbuttons on its face for activating the following: power float, dump body mode, plow mode, body height limit override, spreader pause. Final button configuration shall be approved by the NJTA Automotive Division personnel.		
F. The armrest shall have the following indicator lights and switches: power switch, body up indicator light (red), low oil indicator light (red), change filter light (red), auger jam indicator light (red), and low oil override (amber).		
G. The joystick shall interface with the spreader controller and give both visual and audible – human voice – indications of joystick operating mode.		
H. Anytime the deadman trigger is activated the controller screen shall automatically change to a joystick screen that gives a visual representation of the joystick layout.		
I. The joystick screen shall also give a visual representation of any active axis.		
J. The joystick unit shall use a voice feedback system that will announce to the operator in which mode of operation the joystick is.		
K. Anytime the deadman trigger is activated or a mode button is pushed the controller shall announce, in a human voice, the joystick operating mode.		
L. The joystick shall have adjustable minimum and maximum output current settings for each function. The adjustment of the minimum and maximum settings shall be accomplished onscreen in the controller programming mode. The use of any kind of tool or external programming device to set the minimum and maximum joystick outputs shall be unacceptable.		
M. The armrest shall have a Hydraulic System Depressurization Function Switch. When the depressurize switch is latched and the engine running, the operator shall be able to select and depressurize a hydraulic circuit (plow for example) from the operator's seat. Any residual pressure between the mobile control valve and the implement shall be dissipated to near zero to facilitate the easy removal of implements with quick disconnects.		
WING CONTROL:		
A. The wing shall be controlled from the same multifunction joystick specified in the electronic control panel section.		
B. There shall be the addition of an emergency button on the face of the joystick that, when depressed, will raise and bring in the wing at the same time. When the emergency button is activated, all other hydraulic functions or demands will deactivate, until button is released. The operating speed of the wing shall be settable and adjustable through the spreader controller programming screen.		
C. The armrest unit shall have accommodations to plug in a secondary remote joystick for "wing man" operations. The armrest shall include a bracket for stowing the secondary joystick.		
D. Whenever a secondary remote joystick is connected to the armrest, the driver of the vehicle shall be able to give control to or take control from the "wing man".		
LOW OIL SHUTDOWN: A. A single, normally open, two-position, two-way poppet type solenoid valve (reference: Bosch RexrothR987466761) must be mounted directly to the hydraulic pump discharge port in such a way as to stop all oil flow to the hydraulic system when energized. The solenoid valve must be wired directly to an in-tank mounted level indicator. The level indicator shall be of the float type and mounted from the top of the reservoir. When the float switch contacts close, the shutdown valve blocks pump flow and an enunciator on the main control will be activated. A momentary switch shall be mounted in the main control console for low oil shutdown override. This switch shall be wired in such a way as to de-energize the system shutdown to facilitate fault-finding and equipment stowing. **LOW OIL SHUTDOWN OVERRIDE:** A. Rocker type/momentary design/amber lens. This switch allows operator or maintenance personnel to operate hydraulic system in case of low oil shutdown.		

BODY UP SWITCH: A. A double-pole limit switch must be mounted on the body in such a way as to indicate that the bed is not down on the frame rail. The switch must be totally enclosed and be impervious to environment. The 12V output of this switch will be connected to the "Body Up" input on the CS- 150 Armrest. Reference Telemecanique Part# XCKL108H7 (no substitute, standardization)		
SPREADER CONTROL: A. Spreader controller shall be a Rexroth CS-660 Or Authority approved equivalent. The CAN Bus spreader control system shall be ground speed orientated to maintain a pre-determined application rate regardless of vehicle speed. Control shall be by microprocessor for high control accuracy with the outputs being current compensated.		
B. Minimum Construction Standards: The spreader controller main body shall be constructed of powder coated steel and extruded anodized aluminum. Plastic, nylon, polymer or fiberglass type materials for the main body shall not be acceptable.		
C. Electromagnetic Compatibility – 100v/m, load dump		
D. RF Immunity – ISO 11452-2, 400-1000 MHz, 80% mod.1kHz		
E. 1 GHz – 2 GHz, 80% mod. 1kHz 25v/m (level 1 sensitivity)		
F. Conducted Immunity – ISO 7637-2 (2004), System Pulse 1, 2a, 2b, 3b, 4		
G. RF Emissions – CISPR 25:2002-08, 30 MHz – 1 GHz, according to 72/245/EC		
H. EN 55025 Electrostatic Discharge – EN 61000-4-2 ISO 10605, Contact +/- 8kV, air discharge +/- 15kV Vibration – ISO 16750-3, 10-2000Hz @ 58 m/		
I. Shock – IEC 60068-2-72, 40 G for 11 ms.		
J. Moisture – DIN EN 60068-2-30Db; version 2, part 2, Hum=95% 25 to -55°C A. Salt Spray – DIN 50021-SS, 72h 35° C 5% NaCl B. Media Resistance – ISO 16750-5, cola, coffee, paint thinner C. Enclosure Protection – IEC 60529 IP56 D. Cables: All main harness wiring, valve cables and sensor cables shall be 100% tinned from end to end. No exceptions.		
K. Display: a. The controller display shall be a 7" wide WVGA capacitive touch screen with 16.7M colors. The display glass shall be strengthened glass with a minimum thickness of 1.1mm and have a minimum hardness of 6H. b. The display shall have adjustable backlighting with a brightness of 1350 cd/m². c. The display shall show the following information while in operation mode: d. Time and date e. Control Mode of Spinner, Conveyor and Liquid Circuits Spinner, conveyor and liquid set points f. Gate Position g. Name of material being used h. Any active error or warning messages Ground speed of vehicle i. Power float status Joystick mode		
L. Functionality: a. The spreader controller and joystick console shall function as one integrated system controlled by one microprocessor control module. b. At a minimum, the system shall have the following inputs and outputs: 28 - Current compensated proportional outputs 14 - Digital outputs 5 - Protected and filtered frequency inputs 8 - Protected and filtered switch inputs 7 - Protected and filtered analogue inputs the controller shall have the following interfaces: 2 – CAN Bus ports 2 – Serial ports USB port Bluetooth v3.0 + HS		

dual band Wi-Fi channels		
M. The system shall be supplied to operate both the conveyor/auger, prewet and anti-icing in closed loop mode. a. The spreader controller shall have three rotary detented knobs for operating the spinner, conveyor/auger and liquid. Anything less than three individual rotary knobs shall be unacceptable. b. The liquid output shall be controlled by a third knob on the controller dedicated to controlling only the liquid output. Multifunctioning knobs so one single knob designed to control two different outputs shall be unacceptable. c. The spinner knob shall activate a pause function when pressed. d. The Conveyor knob shall activate a blast function when pressed. e. Conveyor/Auger and liquid circuits shall be capable of operating in 5 different modes. f. The modes shall be manual, open loop, 12V triggered manual, ground speed triggered manual and closed loop.		
N. The controller shall be capable of controlling 4 different solid and liquid materials with each material having up to 9 different application rates. a. The calibration of the solid materials shall include a gate position setting. This shall allow the controller to vary conveyor/auger speed in relation to the physical spreader gate opening. b. There shall be a settable gate position on the main operator screen to allow the operator to enter the actual gate opening so the controller will maintain the most accurate spreading regardless of gate openings. This setting shall be from fully closed to fully open and anywhere in between. c. Having just a 2 position, high/low, gate setting shall be considered equal.		
O. There shall be a configurable Blast function that, when activated, will produce an increased output of material. The Blast function shall be capable of operating in a closed loop mode, a maximum output mode, a stationary mode or the Blast shall be capable of being disabled. a. The Blast function shall be capable of being set to automatically turn off with a programmable timer. The setting range of the timer shall be 0-60 seconds. b. There shall be a Pause function that is used to stop spreading. c. The controller shall be capable of remote activated pause and blast. d. There shall be an unload mode that will allow the operator to run any circuit while the vehicle is stationary. Unload shall automatically turn off when the vehicle moves. e. The controller, as supplied, shall have a dedicated output for activating a conveyor/auger reverse function.		
P. The minimum and maximum output values of the spinner, conveyor/auger, Anti ice and liquid circuits shall be adjustable in program mode. a. When using a conveyor/auger motor speed sensor the controller shall be capable of automatically adjusting the minimum and maximum output values of the conveyor/auger circuit. b. When used with a flow meter the controller shall be capable of automatically adjusting the minimum and maximum output values of the liquid and anti-icing circuits. c. Access to program mode shall be by use of either an encrypted USB key or by passcode. d. In the case of errors, the controller shall have an audible alarm with an on-screen error message.		
Q. The controller shall display error messages in the event of inaccurate spreading, cable breaks, coil shorts, defective sensor, over speed spreading and blasting too long. a. While spreading there shall be a status screen that can be accessed and will provide real time spreading information such as conveyor/auger rpm, actual solid material output and actual liquid material output. b. The controller shall have a built-in ground speed simulator to allow for system testing and troubleshooting. c. All programming parameters shall be able to be transferred to a USB key and the resulting parameter file shall be able to be loaded to other spreader controllers via the USB port.		

d. All spreading data shall be transferable to a USB key and that data can be uploaded to a Windows based PC. e. Any and all software required to view the spreading data on a Windows based PC shall be provided free of charge.		
R. The controller firmware shall be upgradable via the USB port and a USB key. Firmware update files shall be provided free of charge. a. The controller shall have dedicated serial ports for interfacing with AVL units and temperature sensors. b. The spreader control system shall come with all necessary hardware, cables and software to interface with the current AVL provider of the NJ Turnpike Authority c. As supplied the controller shall be capable of passing all spreading data to an AVL unit without having to purchase any additional hardware. d. The controller shall have an on-screen error log that can be accessed without being in program mode. e. When using a hydraulic pressure transducer, the hydraulic oil pressure shall be displayed on screen.		
S. The controller shall be capable of displaying both road and ambient temperature when a temperature sensor is used. Vaisala a. The controller shall be capable of using road temperature information to alter the solid material output in relation to road temperature. b. The controller shall be capable of using a gate position sensor. The controller will use the gate position information to alter solid material output in relation to the actual gate opening. This feature shall work at a gate position that is all the way closed to all the way open and anywhere in between. A 2-position gate shall not be acceptable. c. The controller shall use voice feedback to alert the operator of rate changes or when pause or blast are activated. d. The voice feedback shall be in a human voice. e. The controller shall interface with a Can Bus joystick and display joystick status information such as joystick mode, direction of movement, percentage of movement and button layout of the joystick. f. When interfaced with the joystick the controller shall use a human voice feedback system to alert the operator as to which mode the joystick is in. g. All joystick minimum and maximum outputs shall be configured in the controller program mode. The use of external program devices shall be unacceptable.		
T. **Note:** Body up fitter is responsible for performing initial setup of the spreader controller. This is to include setting the nulls for each proportional output. Up-fitter shall be responsible for all programing. All groundspeed calibrations shall be performed by the up fitter prior to delivery. NJTA shall provide pounds per mile and spread width information.		
SPREADER REVERSE FEATURE: A. A momentary switch on the control panel will reverse the auger, in case of clogging or other stoppage, under operator control. This switch will also cut out power to the proportional control for the spinner.		
SPREADER PAUSE FEATURE: A momentary switch on the control panel will pause the auger, under operator control. This switch will also cut power to the proportional control for the spinner.		
BLAST FEATURE: Blast mode shall be controlled by means of a spreader touch screen. Blast amount is programmable from 1% to 100% of hydraulic capacity. A separate and clearly defined audible warning alarm shall sound when blast button is in the "on" position for longer than the pre-set blast time. The blast shall also be able to be programmed to operate for a set period of time from 1 to 59 seconds.		
POWER FLOAT: A. A power-float system (reference: Rexroth R987381753 or Authority approved equal) shall be installed in conjunction with the present hydraulic system. The power float system shall		

provide a reduced pressure to the plow lift cylinder to reduce the amount of down force the plow can transmit to the road surface. The amount of force that the plow can transmit to the road surface shall be adjustable without the use of tools by turning a hand-wheel adjustment on the power float manifold. The power-float manifold shall be plumbed in series with the plow circuit and include counterbalance valves to prevent the plow from drifting when power float is not active. The power-float manifold shall be mounted inside the valve enclosure and be plumbed to the power beyond end cover of the hydraulic valve.		
B. The power float system, once turned on, shall engage and disengage automatically by detecting joystick movement. The power-float system shall be integrated with the spreader controller and shall be programmable for a resetting mode or a non-resetting mode. In the resetting mode, the power float will turn itself off when the plow is raised off the ground and will have to be turned on again by the operator. In non-resetting mode the power float shall de-activate when the plow is raised off the ground and automatically re-activate when the plow is returned to the down position.		
CABLE ASSEMBLIES: A. There shall be no butt splice connections made on any wiring that is part of the central hydraulic system.		
B. All electrical connections shall be made either inside the hydraulic enclosure or in the vehicle cab. All connections shall be made inside of a weatherproof enclosure.		
C. All electrical cables supplied must come complete with attached watertight "quick disconnect" connectors, shielded, heavy-duty industrial and anti-scuff and cut sheeting. Wire joints must be soldered, and heat-shrink tubing used in all appropriate locations.		
FINAL HYDRAULIC TEST AND INSPECTION: A. Any items not specifically stated herein, but necessary for proper system operation, shall comply with recommended hydraulic industry standards. The vendor shall be responsible for initial servicing and pre-testing of the hydraulic system, which shall include the following:		
B. The initial fill of reservoir shall be with a high grade of hydraulic fluid to approximately 40- gallon level. Hydraulic oil specifications must be ISO 32 compatible with the New Jersey Turnpike Authority's specifications.		
C. A start up and initial high pressure run of all hydraulic system components shall be performed to check for leaks, excess heat buildup, system efficiency, pressure settings, etc. Vendor shall be responsible for replacing any defective components. Vendor will be responsible for initial test of spreader and all plow circuits including wing plow if equipped. After initial start-up and system check, vendor will recheck oil level in reservoir. All systems shall be operational, and tests complete prior to the inspection of the pilot model. A hydraulic oil analysis of the vendors bulk tank must be performed and provided to the NJTA within 30-days of delivery of each truck. One test will cover any truck delivered in the 30-day time frame.		
ANTI-ICE FUNCTIONS:		
A. Anti-Ice with operation of up to three booms shall be incorporated with the same display and control system.		
B. The Anti-Ice control shall operate in either a manual or automatic mode with open or closed loop control. The Anti-Ice output shall automatically adjust to maintain a constant application rate in gallon per mile at varying vehicle speed. These modes shall be protected to prevent unauthorized change of these modes.		
C. The control system shall provide continuous diagnostics that will indicate circuit failures. These diagnostic alarms shall identify the function, the hardware module, and terminals that are affected.		
D. There shall be a visible indicator at the valve actuator actuators to indicate when the command signal is active.		
E. The Spreader Control system shall be capable of added functionality for Herbicide Application without adding additional display hardware.		

F. The herbicide control modes will be designed for controlling a chemical and pumping system to apply herbicides for different application techniques. Each application technique will have a selectable control mode.		
PINTLE HOOK & HITCH PLATE:		
A. The pintle hook shall be a forged steel ridge mount design sized to carry an 8,000 lbs. vertical load and 40,000 lbs. gross trailer weight.		
B. The pintle hook shall include a secondary cable tethered safety pin with a double wire tab lock. A cotter pin and chain shall not be an acceptable secondary lock pin arrangement.		
C. A" thick by at least 36" wide formed steel plate, full width of chassis frame rails, with a 3" return flange at the top and bottom shall be bolted to the chassis frame.		
D. Bottom and side support gussets shall be included.		
E. Two (2) swivel ¾" cold rolled steel "D" loops, 3" i.d. shall be attached to the bottom flange.		
F. Properly sized grade 8 bolts shall be used throughout the installation.		
G. The pintle hook height shall be 26" from ground to center of hook.		
H. A non-metallic weatherproof seven (7) pole round pin trailer socket shall be mounted through the hook plate on the upper left side of the pintle hook and OEM wired to the chassis as outlined in Specifications: 7PTC. Exact location shall be determined by contacting the NJTA Inspector prior to mounting.		
I. OEM installed electronic brake controller wiring and ABS brake controller wiring shall be routed and terminated at a chassis frame cross member bracket mounted weatherproof junction box at the rear of the truck. See Specifications: TCAABC-2018.		
J. Complete ABS air brake trailer system including a hand valve control and trailer protection valve shall be installed with the exception of the Glad Hands. The Glad Hand outlets on the pintle plate (location to be determined by the Authority) shall be plugged to prevent air leakage (swivel glad hands 45° cast iron, ⅜" port size, 180° rotation). The Glad Hands shall be installed at a location determined by contacting the NJTA Inspector prior to installation.		
K. There shall be a round 15 pin weather sealed socket mounted on pintle plate for single connection anti-icing power and sensor cable attachment.		
L. Weatherproof sealed socket shall be stainless pin and spring closed formed lid. Socket shall have external stainless-steel attachment points for mechanical latch system.		
M. Molded plug connection allows power and sensor connections shall be in a remote, sealed junction box.		
N. Weatherproof sealed socket shall have 3- 14-gauge wires and 12- 16 gauge 48" wires, minimum in abs shielded cable form.		
O. There shall be 12- 1.5 mm round replaceable nickel-plated brass pins and 3- 2.5 mm replaceable chromed pins within the IP69 sealed socket.		
SNOWPLOW HITCH:		
GENERAL:		
A. This specification describes a heavy-duty side plate truck hitch for mounting on Class 8 trucks for use with crankshaft driven hydraulic pump Drop Pin loop equipped plows.		
B. The hitch shall be designed 41.25" Wide. The appropriate width such that the sideplates used to attach it to the truck attach directly to the outside of the front frame rail extensions of the specific truck model it is mounted to. Any shims used to ensure a tight fit between the hitch sideplates and the truck frame rail shall not exceed 3/16" total thickness on each side of the truck frame.		
C. The main vertical members of the truck hitch shall be made from steel structural tubing, minimum 4" x 4" x 3/8" wall thickness. The tubing shall be one continuous piece, from the top of the truck hitch to the bottom and capped at ends. Between the vertical members shall be a welded 3/8" plate to mount crankshaft driven hydraulic pump.		
D. The upper horizontal member that the lift arm attaches to shall be fabricated from minimum 3-1/2" x 3-1/2" x ½" steel structural angle. The lower horizontal member that the base of the lift cylinder attaches to shall be made from minimum 4" x 4" x ¾" steel structural angle, and shall be oriented with the apex of the angle facing directly forward, so that the primary force from the lift cylinder is nearly parallel to one of the 4" legs of the angle.		

E. Automatic coupling of the plow hitch portion will be accomplished by a manual pin and lever that can be secured after the hitch has been coupled. A spring-loaded lock pin shall prevent unwanted locking in the open position or hold the latch closed. It shall have a cross section of 12" square inches and lock automatically when coupling the truck and plow portions. It will allow plow misalignment of a range of 6" in height and 7" left to right of center.		
F. The truck hitch shall include a telescoping lift arm. For maximum safety, the lift arm shall be designed to "fold flat" in a vertical position when the truck hitch is not in use. The hitch shall be designed so that if the hitch lift cylinder is accidentally actuated while the hitch arm is folded down, no damage shall occur to the hitch or truck.		
G. The telescoping lift arm shall include a 4" x 4" x 3/8" square outer tube, a 3" x 3" x 3/8" inner tube, and a minimum of (5) telescoping positions. The outer end of the inner tube shall include a 40-degree bent chain anchor of ½" steel with 3 chain locking slots, which accommodate both 3/8" and ½" lift chains. The outer tube weldment shall have a minimum width of 20" where it attaches to the main portion of the truck hitch, and shall include a full-width, welded top plate of minimum 3/16" steel. The lift arm shall attach to the main portion of the truck hitch using minimum 1-1/4" diameter cold-finished steel pins.		
H. The ears which attach the hydraulic lift cylinder to the lift arm and the main portion of the hitch shall be minimum ¾" thick, or minimum ½" thick with 1" long fully welded steel bushings with minimum 31/64" wall thickness.		
I. Hydraulic lift cylinder shall be 4" bore x 2" diameter rod x 10" stroke, with nitride treated rod for corrosion resistance and chip resistance. Cylinders pins shall be minimum 1" diameter cold-finished steel.		
J. The hitch shall be attached to the truck by two (2) sideplates, minimum ½" thick, with a minimum of (8) 5/8" Grade 8 and (2) ¾" Grade 8 bolts per side. Attaching bolts shall have hardened washers on each side and be secured with Grade C toplock nuts.		
K. Each cheekplate shall have ¼" x 1 ½" flatstock welded as diagonal bracing.		
L. There shall be ¼" x 2" angle installed as shear blocking		
M. There shall be ¼" x 2" angle by full width as cross bracing.		
N. There shall be 3/8" x 6" gussets to reinforce lower horizontal member.		
O. All hardware in the entire hitch shall be zinc plated for corrosion resistance.		
SURFACE PREPARATION AND PAINT:		
A. Unit shall be cleaned of oil, grease, mill scale, coatings, corrosion products, and other foreign materials using a commercial blast cleaning process.		
B. All exterior metal shall be painted using DuPont Dulux Omaha Orange Enamel # 93-082 or Authority approved equivalent.		
C. All coatings shall be lead free.		
MID MOUNT POSTLESS FULL TRIP MOLDBOARD PATROL WING PLOW:		
GENERAL:		
A. Moldboard sheet shall be a smooth rolled, curved shape, made from minimum 3/16" thick steel. The moldboard sheet shall extend a minimum of 7" outboard from the outer end of the bottom angle. The moldboard shall include an integral formed channel at the top for strength, measuring a minimum of 3.50" wide and 1.50" tall. The moldboard height shall be a minimum of 29" inboard and 36" outboard, measured vertically from the ground, with a full 8" x 120" cutting edge installed.		
B. Shall include a minimum of six (6) vertical ribs on 10-foot models, each rib shall be full height, extending all the way from the bottom angle to the top formed channel. Each rib shall be .50" thick, 4" wide at the bottom, and a minimum of 3" wide at the top. The outermost end of the moldboard sheet shall be braced by one of these ribs along its full height rib to within .50" of the end of the moldboard sheet, to minimize bending of the moldboard sheet as it hits an obstruction.		
C. All ribs shall be fully welded to a full-length bottom structural angle measuring 4" x 4" x.75".		

D. The moldboard shall be further braced by a row of upper horizontal braces measuring .50 x3" along the entire length of the moldboard.		
E. The moldboard pivot pin area shall be reinforced with (2) 2.50" OD x 1.53" ID x 3.94" cold-finished steel tubes, fully welded through the moldboard sheet and through a reinforcing plate measuring 16.00 x 16.50 x .50". This reinforcing plate shall be joined with additional structural members to the bottom angle, ribs, and moldboard sheet to form a fully welded box section. The two pivot positions provided allow for adjustment of the wing position for a particular truck configuration, allowing for windrow coverage or more wing swath, at the user's discretion.		
F. Shall include two rows of fully welded and gusseted structural angles, with a series of holes to provide a minimum of (5) push beam attaching points on 10-foot moldboards. This will allow the push beam to be attached to the moldboard at the optimal angle for each installation to maximize strength. The lower of these two angles shall measure minimum 3.5" x 3.5" x .50", and the upper of these two angles shall measure minimum 6" x 4" x .50".		
G. Entire moldboard assembly shall be continuously welded.		
H. Moldboard shall be attached to pivot hinge using a 1.50" diameter Grade 8 bolt with slotted nut and cotter pin.		
I. Moldboard shall have replaceable 120" x 8" x .625" cutting edge with 6" x 45 degree cut on leading edge to minimize surface damage.		
FRONT POSTLESS STRUCTURE FOR MIDMOUNT PATROL WING:		
A. The forward wing structure shall operate using dual parallel arms running perpendicular (90 degrees) to the frame of the truck and shall allow the toe of the moldboard to float freely over the road surface. The front float action shall be mechanical, requiring no hydraulic float function.		
B. The entire structure shall be a maximum of 28.75" in height. Including all fasteners, the entire front structure shall take up no more than 15" of space in the fore-aft direction along the side of the truck.		
C. The forward structure shall include .63" thick x 10" deep side plates welded to a 27.75 x 11.13 x 1.00" thick back plate and shall also include (4) fully welded bushings measuring 2.50" OD x 1.53" ID x 1.00" thick. It shall be further braced with a brake formed-internal stiffener measuring a minimum of 10.88 x 9.00 x 10.56".		
D. The forward structure shall include an integrated crosstube of 6x4x.50" rectangular steel tubing, fully welded and braced to the structure using (2) 23 x 6 x .38" gussets and a 15.5 x 6" brake-formed internal brace.		
E. The lower arm assembly shall include (2) .75" thick x 3.75" tall sides joined by (2) fully greaseable 2.25" OD x 1.53" ID x 10.38" long cold-finished steel tubes, a 15" x 9.75" x .38" plate, a 2.5 x 2.5 x.38" cross angle, and (2) .25" thick full width gussets, all forming a fully welded structure.		
F. The upper arm assembly shall include (2) .75" thick x 4.25" tall sides joined by a fully greaseable 2.25" OD x 1.53" ID x 10.38" long cold-finished steel tube, a 15" x 9.75" x .50" plate, a .50" thick full width brace bar, and a .25" thick full width gusset, all forming a fully welded structure.		
G. The front lifting action shall be provided by a 3" bore x 2" rod x 10" stroke cylinder, with nitride rod for corrosion resistance and chip resistance.		
H. The lift cylinder shall be attached to the rigid front structure on one end, and to the rotating cylinder arm on the other end. The rotating cylinder arm shall rotate on the same axis as the upper arm assembly but shall be completely independent of it. The contact surface between these two arms shall be a minimum of 14.5 square inches to prevent deformation.		
I. The arms shall rotate on (4) 1.50" x 15" Grade 8 bolts, supported over their full length, and secured using (4) nylon insert locknuts.		
J. The outer linkage assembly shall be formed from .50" thick steel plate, minimum 27" x 5.8" x 11.5", braced by (2) .50 x 3" full width steel flat bars. It shall include (4) fully welded		

bushings measuring 2.50" OD x 1.53" ID x 1.00" thick. It shall further include a 2.50" OD x 1.53" ID x 10.13" long cold-finished steel tube, fully welded and braced to the structure, which shall provide for attachment of the wing hinge.		
K. When mounted under a dump bed, the structure shall be capable of raising the wing 12.63" From the ground, with a full 8" cutting edge installed, measured vertically from the ground to the lowest point on the cutting edge, and shall provide 12.63" of float capability.		
WING HINGE FULL TRIP:		
A. The trip hinge assembly shall attach the wing moldboard to the postless front structure. It shall include an inner weldment that attaches to the postless front structure using (2) 1" thick ears and a 1.50" diameter pin. It shall include an outer weldment that attaches to the wing moldboard using a 1.50" diameter Grade 8 bolt and castle nut.		
B. The inner and outer portions of the trip hinge assembly shall be joined by upper and lower linkages, which allow the wing to "trip" out of the way when obstacles are contacted.		
C. Trip force shall be provided by a Timbren Aeon hollow rubber spring, model number A760-75, with a nominal rated capacity of 11,000 lbs. a nominal height of 9.25", nominal OD of 5.31", and a maximum deflection of 5.00". Trip force shall be adjustable by means of tightening or loosening a nylon-insert locknut, which modifies the degree of preload compression on the Timbren spring.		
PUSHBEAM ASSEMBLY:		
A. Shall include two pushbeam assemblies, one upper and one lower.		
B. Each pushbeam assembly shall consist of an outer tube assembly with spring cage, an inner tube assembly, and a compression spring, and shall provide for a minimum of (3) telescoping adjustment positions.		
C. The outer tube assembly shall consist of 2.88" OD x 2.32" ID steel tubing, with a 1" thick ear welded on one end for attachment to the rear structure using a steel knuckle and minimum 1" diameter Grade 8 bolt.		
D. The inner tube assembly shall consist of minimum 2.19" diameter cold-finished solid steel round bar, with a 1" thick ear welded on one end for attachment to the moldboard structure using a steel knuckle and minimum 1" diameter Grade 8 bolt.		
E. Both pushbeams must include a compression spring for shock absorption. Each spring shall be made from minimum .625" diameter wire, with a free length of 7.00" and a spring rate of 1500 pounds per inch and shall be capable of exerting a minimum force of 4400 lbs. at full compression.		
F. Wing shall be lifted into transport position using a 3" bore x 2" rod x 15" stroke double-acting cylinder. Cylinder rod shall be nitrided for corrosion resistance and chip resistance. Barrel end of cylinder shall attach to the rear slide between the two pushbeams, and rod end shall attach to a sliding ear assembly on the upper pushbeam. The rod end of the cylinder must include a spherical bearing to allow for proper freedom of movement and eliminate undue stresses.		
G. Wing lift cylinder must include an integral counterbalance valve, built directly into the base of the cylinder, to prevent accidental falling of the wing moldboard in case of hydraulic hose failure or other hydraulic failure. It must further include a "decel" cushioning feature, to reduce the speed of the wing as it stows against the side of the truck.		
H. The sliding cylinder attachment ear and associated "cage" on the upper pushbeam shall allow for mechanical float at the discharge end of the wing.		
HYDRAULIC LIFT CYLINDER:		
A. Wing shall be lifted into transport position using a 3" bore x 2" rod x 15" stroke double-acting cylinder. Cylinder rod shall be nitrided for corrosion resistance and chip resistance. Cylinder shall attach to the wing rear attachment and the pushbeam float link using two 1" Grade 8 bolts.		

B. Wing lift cylinder must include an integral counterbalance valve, built directly into the base of the cylinder, to prevent accidental falling of the wing moldboard in case of hydraulic hose failure or other hydraulic failure.		
C. The rod end of the wing lift cylinder shall include a spherical bearing for attachment to the pushbeam.		
WING REAR ATTACHMENT-GENERAL:		
A. A wide variety of rear attachment options shall be available, including but not limited to (a) Mounting forward of rear tires, using sideplates and crosstube, (b) Mounting aft of rear tires, using sideplates and crosstube, (c) Mounting aft of rear tires, attaching to pintle plate, (d) Between tandem mounts, available on a variety of truck and suspension models mounting directly to truck frame aft of rear tires, with no cross tube.		
WING REAR ATTACHMENT-SIDEPLATES WITH CROSSTUBE:		
A. Rear mount assembly consists of a crosstube assembly using a main member of 6 x 4 x.50" rectangular steel tubing, which extends across the full width of the truck frame underneath the truck and attaches to both frame rails using sideplates.		
B. The wing rear attachment shall have a removable ear assembly for attachment of the pushbeam and lift cylinder. The removable ear assembly shall consist of two .50" thick ears, reinforced with .50" thick x 1" long bushings at each point where the pushbeam and lift cylinder attach. The two ears shall be welded to a .75" backing plate. The ear assembly, consisting of the ears and backing plate, shall be removable from the wing rear attachment structure by removing a single 1" pin.		
C. The wing rear attachment shall include a 2 degree of freedom adjustable wing bumper stop to restrict the upward motion of the wing. The wing stop shall be adjustable inboard and outboard of the truck by removing a single .75" pin and telescoping two square tubes, each .38" thick. The wing stop shall additionally be adjustable up and down by means of removing two .50" bolts and rotating the wing stop about a fixed axis.		
D. Rear assembly shall include (2) side plate assemblies, minimum .50" thick x 12" wide, with integrally formed or welded stiffeners providing a total depth of 2.50" minimum on each side.		
E. Rear assembly shall further include attaching angles and hardware which effectively secure the crosstube to the sideplates, while also allowing for easy removal as necessary for service or summer operations.		
F. Rear assembly shall include a safety chain to secure the wing in the stowed position during transport.		
SURFACE PREPARATION AND PAINT:		
A. Unit shall be cleaned of oil, grease, mill scale, coatings, corrosion products, and other foreign materials using a commercial blast cleaning process.		
B. All exterior metal shall be painted using DuPont Dulux Omaha Orange Enamel # 93-082 or Authority approved equivalent.		
WING PLOW / TOW PLOW LASER:		
A. The laser shall be a green 532nm CDRH class 3A product with under 5mw of laser power. The laser system must be CFR 21-1040 and OSHA compliant.		
B. The main laser housing shall be weatherproof and hermetically sealed and dry nitrogen charged. The laser output window shall have pneumatic snow removal as well as de-icing.		
C. The laser shall consist of a 5 micron in-line filter between the laser and trucks pneumatic supply. The outside laser dimensions shall not exceed 7"x 10" x 4".25 including adjustable mount.		
D. The system shall consist of the main laser housing, a 3-pin interconnect cable with mil spec waterproof connector at the laser and a quick disconnect plug in the cab.		

E. There shall be a remote-control box located in the cab of the vehicle to turn the laser on and as well as a de-ice/ snow removal selector.		
F. The laser shall be able to be directed 360° in the horizontal axis and a minimum of ± 30° in the vertical.		
G. The system shall have an operating voltage of 12 VDC positive and negative ground.		
H. The system operating temperature shall be -40°F to +122°F		
WING PLOW FLOODLIGHT:		
A. The wing plow light shall be used to illuminate the operation area of wing plow. discharge from the spinner during salting operations as an indicator to the operator that salt is actually being dispensed as intended.		
B. One (1) Whelen # PFBS12 or Authority approved equivalent, 12 diode, 1,000 lumens, 12v-1.70-amp stud/swivel mount white LED work light.		
C. The light assemblies shall be positioned to identify the wing plow when in operating position.		
D. Wiring shall be "SO" two (2) conductor quick-disconnect weather pack connector and be impervious to weather and salt. Wires going into spinner light fixture shall be sealed with silicone.		
WING PLOW LIGHTS:		
A. The wing plow lights shall be used to identify the end of wing plow to rear traffic.		
B. One (1) steady burn marker light mounted near the outer edge of the wing. This light shall be powered with the parking lights of the truck.		
C. One (1) LED strobe light mounted on the rear of the wing angled rearward when wing is deployed. This light shall be grommet mounted in a 3/16" thick stainless-steel mounting flange and welded to a wing plow vertical support rib.		
D. One (1) Whelen # WPLOWZ3A or Authority approved equivalent. Wing Plow light system.		
E. The light assemblies shall be positioned to illuminate the wing plow operation.		
F. The light assemblies shall be two (2) LINZ6 Amber.		
G. The light assemblies shall be mounted in cast housings for stowed and travel position		
H. Wiring shall be "SO" two (2) conductor quick-disconnect weather pack connector and be impervious to weather and salt. Wires going into spinner light fixture shall be sealed with silicone.		
I. A latched "Wing Strobe" switch shall be incorporated with the chassis auxiliary switch panel and shall include the following features: • Placed in position (11) of the auxiliary switch pack • 15A circuit protection, ignition powered • Latching On/Off switch • The switch shall be backlit and labeled "Wing Strobe" • Reference Drawing: 129A Dashboard Layout & 129A Body Builder Connector		
WING PLOW CAMERA:		
A. Wing down, camera on system switch operation for wing plow operation area.		
B. Integrated with backup camera operation.		
C. Hardwired Color CCD backup camera.		
D. Hardwired 130-Degree viewing angle camera (s).		
E. 50' Infrared night vision.		
F. IP69 Rated – certified to keep out dirt and moisture.		
G. Shock resistant with 20G vibration and 100G impact rating.		
H. 7" Digital LED color monitor mounted in NJTA approved location.		
I. Mirror image capable.		
J. Adjustable dash pedestal mount.		

K. Grid lines.		
L. Ruggedized camera to be mounted in NJTA approved location.		

SNOWPLOW:		
GENERAL:		
A. The snowplow shall be an 11' x 42" power reversible "J" style type.		
B. The snowplow shall be new and of the latest design and be in current production at the time of the submission of bid.		
C. All standard and optional equipment shall be Original Equipment Manufacturers (OEM) items, when available. **No Exceptions**		
D. Bidders must submit with their bid, detailed/technical specifications of their snowplow being bid.		
E. Plows shall be Drop pin style interface.		
MOLDBOARD:		
A. The moldboard shall be 42" high and 132" long formed in a "J" shaped blade. The radius shall be approximately 20" and the last 12" a minimum of a 6" radius. Per Drawing: SSP-03		
B. The moldboard shall be constructed with a minimum of 7-gauge steel smooth rolled for additional strength.		
C. The top shall be reinforced at the top by a self-formed channel and the bottom with a one piece 4" x 4" x ½" structural angle.		
D. The cutting-edge banking plate of ⅝" x 4" steel shall be welded and braced with a ½" x 2½" gussets welded between each cutting-edge bolt position.		
E. The edge shall be flush with the moldboard face to prevent snow build up on top of the cutting-edge.		
F. A minimum of twelve (12) full length vertical ribs shall reinforce the moldboard.		
G. The vertical rails shall be constructed of ½" x 3" formed steel continuously welded on both sides of edge to the moldboard sheet and secured at the top to the formed channel and to the structured angle at the bottom.		
H. Two (2) horizontal braces shall also reinforce the moldboard.		
I. The braces shall be constructed of ¼" x 2" x 2" angle or ½" x 3" flat bar continuously welded on both sides to moldboard sheets.		
J. The lower rear cross angle shall be provided with a minimum of ten (10) brackets ¾" thick welded on 88" hinge point centers for attachment to the table assembly at five (5) points with a minimum of 1" (72,000 lbs.) tensile strength pins.		
CUTTING EDGE: STANDARD		
A. The cutting edge shall be fabricated from abrasion resistant steel with a Brinell Hardness of 250 minimum and 325 maximum.		
B. There shall be two (2) each of 1" thick x 8" wide x 66" long cutting edges. **No Exceptions**		
C. The cutting edges to be AASHO standard punched and be easily replaced.		
D. All mounting hardware shall be grade 8.		
CUTTING EDGE: OPTION A		
A. The cutting edge shall be fabricated from abrasion resistant steel in a laminated design combining steel plate, vulcanized rubber, steel carbide holder and Tungsten Carbide Insert (Kueper Tuca SX Wave or Authority approved equivalent).		
B. There shall be two (2) each of 1" thick x 8" wide x 66" long cutting edges installed as a manufactured system including curb bumpers, moldboard shoes and all mounting hardware. **No Exceptions**		
C. The cutting edges to be AASHO standard punched and be easily replaced Per Drawing: SSP-09.		
D. All mounting hardware shall be minimum grade 8.		

CUTTING EDGE: OPTION B		
A. The cutting edge shall be fabricated from abrasion resistant steel in a laminated design combining steel plate, Vulcanized Rubber, and Ceramic Insert (Kueper GK5 or Authority approved equivalent		
B. There shall be two (2) each of 1" thick x 8" wide x 66 long cutting edges installed as a manufactured system including curb bumpers, moldboard shoes and all mounting hardware. **No Exceptions**		
C. The cutting edges to be AASHO standard punched and be easily replaced Per Drawing: SSP-1		
D. All mounting hardware shall be minimum grade 8.		
TRIPPING MECHANISM:		
A. To protect the plow, truck and operator from impact damage, the plow shall include a spring controlled full moldboard hinged spring mechanism. A minimum of six (6) heavy-duty extension springs shall be attached between the table and the moldboard.		
B. The spring materials must be ASTM-A229 oil tempered ½" wire, 4½" o.d. x 24 active coils with the end hooks cold formed to 90 right angles to each other.		
C. The spring force at 30.5" shall be a minimum of 1,050 lbs. and allow 14" of stretch without deformation.		
D. The springs shall maintain the vertical stability of the moldboard while plowing and facilitate a controlled trip/return action when coming in contact with any solid object while plowing.		
E. The trip springs shall be designed to have adjustable spring tension.		
F. Each spring shall be able to be adjusted individually by a threaded "J" hook or equivalent.		
G. The tripping post assembly shall be independent of the springs and must prevent the top of the moldboard from contacting the road surface.		
H. Two (2) 1" diameter pins with a minimum tensile strength of 72,000 lbs. shall connect tripping post to the moldboard and table.		
TABLE:		
A. The table shall be a circular arc design and be constructed of a one piece solid 4" x 4" x ½" structural angle, a 4" x ¾" bar shall be fabricated to conform to the outside radius with eleven (11) notches 1¼" deep x 1⅛" wide at the bottom and 1½" wide at the outer edge and welded in a vertical position along the underside of the 4" x 4" x ½" structural angle radius.		
B. The notches shall be sheared cut. Flame cutting to achieve curve and notches shall not be acceptable.		
C. Circular arc portion shall be welded at each end with an overlap to structural angles measuring 4" x 4" x ½" that continues the length of the semicircle and joins to the front square tube measuring 4" x 4" x ⅜".		
D. The joining of the semicircle to the front tube shall be reinforced on each side by 3½" x 3½" x ½" structural angle.		
E. The front of the table shall be provided with a minimum of ten (10) brackets ⅝" thick welded on 88" hinge point centers for attachment to the moldboard assembly at five (5) points with a minimum of 1" 72,000 lb. tensile strength pins.		
F. The front center of the table shall be designed for attachment to the "A" frame with a 1¾" diameter vertical pin with locked rotation to the A-frame and secured by a ⅜" roll pin.		
LIFT CHAIN:		
A. The lift chain assembly shall include a zinc plated 7/16" coil proof chain, repair link, two (2) ½" anchor shackles and a 7/16" grab hook clevis.		
B. There shall be two (2) tabs welded on the table for attachment of the lift chain.		
PUSH FRAME:		
A. The push frame shall be constructed of two (2) 4" @ 13.8 lb. ship channels with bracing and be in the form of an "A".		

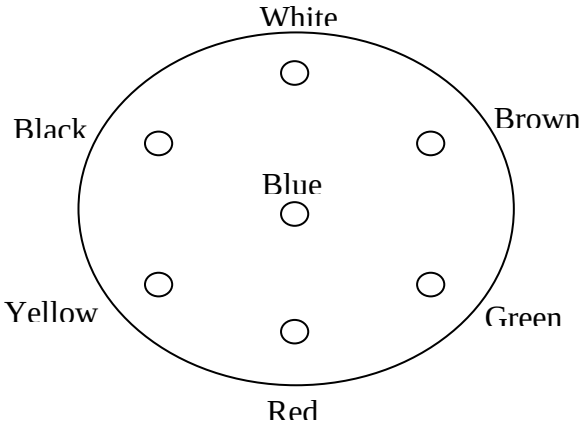
B. The top and bottom of the push frame shall be ½" triangular shaped plate.		
C. Welded to the front of these triangular plates shall be a pair of ¾" x 4" steel brackets and between them a curved socket member shall be provided to relieve the pivot pin of thrust stress.		
D. The attachment pin at this point shall be a minimum of 1¾" diameter axle quality steel that shall engage with corresponding ears on the front tube of the semicircular frame.		
E. At the center of this box construction of plates and channels in the line of forward rotation shall be an assembly welded to form a continuous thrust beam.		
F. A latch part shall be incorporated which continues further to the rear and presses against a heavy-duty latch spring measuring 5-7/16" o.d. x ¾" diameter spring wire with 9" of free travel.		
G. The spring shall be made of AISI 5160 hot rolled spring steel and shall be heat treated after cooling. Spring shall be closed and ground.		
H. The latch shall seat against a circular plate welded to the rear cross channel.		
I. Lubrication fittings shall be provided to allow ease of movement of slide assembly, which telescopes on the tubular member.		
J. The plow-hitch interface shall be constructed of 2" 1035 steel cold formed into a loop which will accept a 2½" pin. This loop shall protrude through and be welded to a 4" x 13# ship channel which, in turn, shall be gusseted and welded to the back of the A-frame.		
HYDRAULIC REVERSING CYLINDERS:		
A. The hydraulic reversing mechanism shall consist of two (2) hydraulic cylinders nitride piston rods and a minimum of 2½" diameter and 10" stroke.		
B. The hydraulic cylinder housing shall attach to the push frame and the hydraulic cylinder piston shall attach to the front table tube with 1" pins secured by ¼" roll pins.		
C. Hydraulic cylinders shall be positioned to unlatch the semicircle and angle the moldboard to the desired plowing position.		
D. The latching mechanism shall operate automatically and monitor the moldboard in any of eleven (11) positions from 35° right or left in 7° increments.		
E. High pressure hydraulic hose connections shall be made to each of the two (2) cylinders with long 90° JIC elbow female swivel crimp hose fittings and extend to the rear terminating in male and female brass quick disconnect couplings. This will allow the hoses to be connected during storage. All couplings shall have lanyard attached rubber cap/plug covers.		
F. During operation, the hoses shall connect to the corresponding connections on the Authority trucks.		
MUSHROOM:		
A. The skid shoe assemblies must be of the hand adjustable type, enclosed and fully lubricated with replaceable chilled cast iron shoes "Mushroom" shaped of a minimum of 11" in diameter and 2½" thick.		
B. The design shall include an anti-flip top.		
C. The shoe housing to be constructed of 3" square tubing x 12" long and the shoe post to be constructed of 2½" square tubing x 11" long.		
D. The adjustment shall be accomplished by a threaded 1¼" diameter screw operated by a hand crank with rotating knob, which shall be self- locking and shall operate without the use of any tools. The adjusting screw shall be fully enclosed.		
LEVEL-LIFT ASSEMBLY:		
A. The level-lift assembly shall provide an automatic, mechanically activated mechanical control, which will hold a raised plow moldboard an equal distance from the ground to the bottom of the cutting edge.		
B. The level-lift mechanism will hold an equal elevation regardless of height raised above the road surface and regardless of moldboard plowing angle.		

C. The moldboard plowing angle must be able to be changed to any desired position, maintaining equal elevation without first lowering plow, changing plowing angle and then re-lifting.		
PLOW MARKERS:		
A. The snowplow shall be equipped with two (2) 36" orange reinforced markers constructed of ¾" polymer reinforced with a ⅜" galvanized cable.		
B. Each plow marker shall be equipped with a crimped base 2-bolt mount installed at the upper outer most left and right corners of the moldboard and attached to a reinforced rib with bolts and nylock nuts.		
RUBBER BAFFLE:		
A. The snowplow shall be equipped with a ½" thick x 12" wide x 11' long rubber belting baffle.		
B. The baffle shall be bolted to top of moldboard with a ¼" x 2" x 11' steel keeper bar.		
MOLDBOARD SHOE:		
A. The snowplow shall be equipped with two (2) moldboard shoes.		
B. The moldboard shoe shall be constructed of cast steel and have a bearing wear surface of at least 75 square inches each.		
C. The moldboard shoes shall be attached directly behind the cutting edge and be designed to wear evenly with an 8" cutting edge.		
D. The moldboard shoes shall have two (2) 11/16" diameter bolt holes spaced on 12" centers for mounting to the snowplow.		
CURB BUMPER:		
A. Two (2) 2½" x 2½" x 8" cold rolled steel curb bumpers (wrap around style) shall be bolted to the lower left and right outside edge of the moldboard lower angle as part of the cutting-edge assembly.		
B. The bottom edge of the curb bumper shall be positioned at a height equal to the moldboard shoe.		
C. The curb bumper / wraparound shall bolt on as part of the plow blade attachment area.		
WELDING:		
A. All welds shall be continuous.		
B. All welding performed in the manufacturing of the snowplow shall be done by AWS certified welders.		
C. Proof of AWS certification shall be presented upon request.		
PAINT:		
A. All steel parts shall have the mill scale and oil removed by means of a high-pressure chemical cleaner prior to painting.		
B. These surfaces shall be primed with a zinc rich, rust preventive primer.		
C. The finish paint shall be a high quality, high solid, polyurethane type enamel		
D. Moldboard paint color shall be DuPont Dulux Omaha Orange Enamel # 93-082 or Authority approved equivalent.		
E. Paint shall be supplied in a two-step process.		
F. Orange base coat and additional polyurethane overcoat.		
G. Turntable assembly paint color shall be DuPont Dulux Black Enamel #93-005 or Authority approved equivalent.		
H. Paint shall be supplied in a two-step process.		
I. Black base coat and additional polyurethane overcoat.		

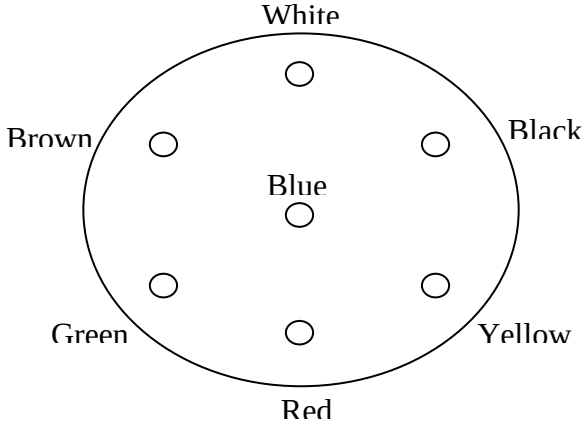
SPECIFICATIONS: 7PTC
REFERENCE: 7-POLE ROUND PIN TRAILER CONNECTORS

CONNECTOR MARKING COLOR	APPLICATION
WHITE	GROUND
BLACK	TAIL LIGHT
BROWN	TAIL LIGHT
YELLOW	LEFT TURN SIGNAL
GREEN	RIGHT TURN SIGNAL
RED	ELECTRIC BRAKE
BLUE	12-VOLT BATTERY-WITH 30-AMP AUTOMATIC BIMETAL THERMAL RESET CIRCUIT PROTECTION.

SOCKET MARKINGS



PLUG MARKINGS

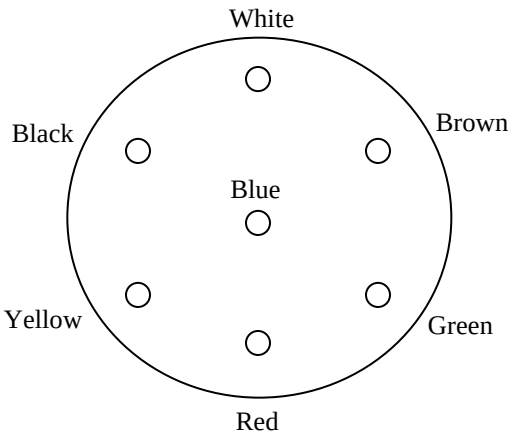


SPECIFICATIONS: TCAABC-2018
REFERENCE: TRAILER CONNECTION / ABS AIR BRAKE CONTROL

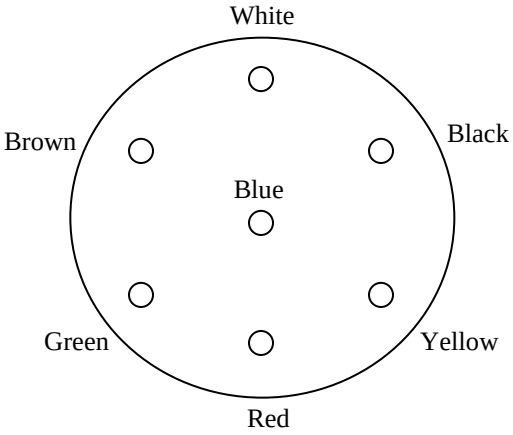
7-Way, Round Pin, Trailer Connectors for Authority Trucks and Trailers

CONNECTOR MARKING COLOR	APPLICATION
WHITE	GROUND
BLACK	TAIL LIGHT
BROWN	TAIL LIGHT
YELLOW	LEFT TURN SIGNAL
GREEN	RIGHT TURN SIGNAL
RED	STOP LAMPS
BLUE	ABS POWER

SOCKET MARKINGS
GREEN RECEPTICLE



PLUG MARKINGS



REFERENCE: SPECIFICATIONS FOR CONSPICUITY ENHANCEMENT TAILGATE

1. All stripes will be six (6) inches wide, forty-five (45) degrees from vertical.

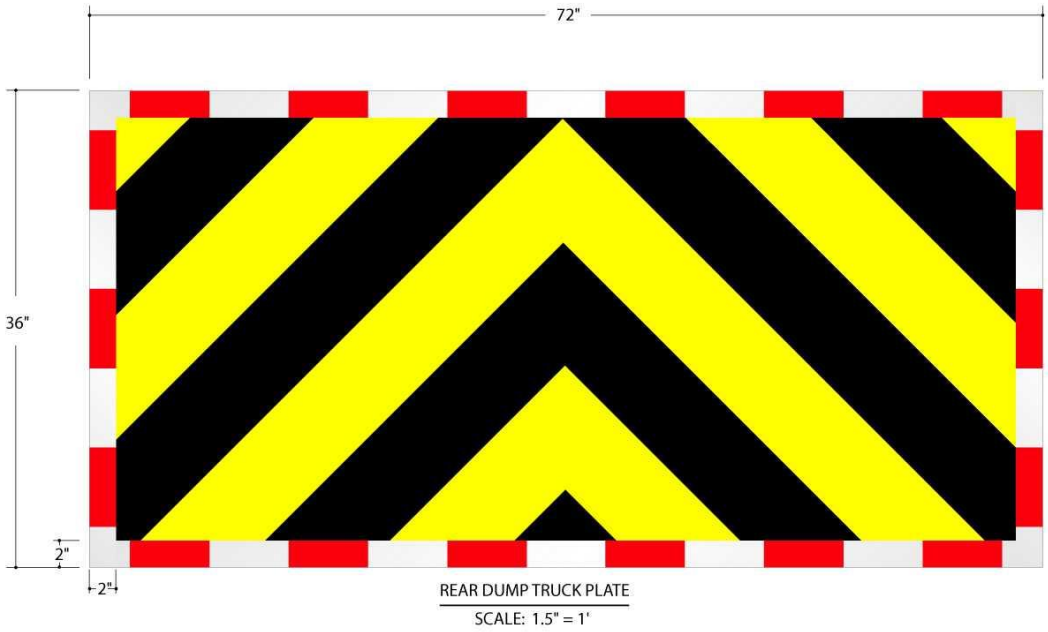
   a. The yellow stripes shall be Diamond Grade Fluorescent Yellow VIP Reflective Sheeting-3981, pressure sensitive or approved equivalent.

   b. The black stripes shall be Scotchcal 3650-12, pressure sensitive or approved equivalent.

2. There shall be a Diamond Grade Conspicuity Marking 981-326, Red 6", White 6" both 2" high, surrounding the top, bottom, and both sides of the stripes, pressure sensitive.

3. The entire rear of the truck body shall be fully covered without covering any lights or accessories.

4. All materials shall be manufactured and applied as approved by the manufacturer.



FAILURE TO COMPLETE ALL AREAS MAY RESULT IN REJECTION OF BID

UNIT INFORMATION FORM

SINGLE AXLE TRUCK CHASSIS:

YEAR: _____ MAKE: _____ MODEL: _____

ENGINE MAKE: _____

MODEL:_____CID:_____HP:_____@_____RPM

ALTERNATOR MAKE: _____ MODEL: _____
AMPS: _____

BATTERY VOLTS/AMPS: _____
C.C.A. @ O° F: _____

TRANSMISSION MAKE: _____

MODEL: _____

BACK-UP ALARM MAKE: _____

TIRE SIZES: FRONT: _____ REAR: _____

MAKE:_____MODEL:_____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

COMBINATION DUMP BODY WITH TWIN AUGERS:

DESCRIPTION:_____

YEAR: _____MAKE: _____MODEL: _____

INSTALLER:_____

SERVICING AGENCY: _____

LOCATED AT:_____

TELEPHONE #: _____

CONTACT: _____

Name & Title

HYDRAULIC SYSTEM:

MAKE: _____

HYDRAULIC PUMP
MODEL: _____

INSTALLER: _____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

11' SNOWPLOW:
MAKE: _____ MODEL: _____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title
10' PATROL WING SNOWPLOW:

MAKE: _____ MODEL: _____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____
CONTACT: _____

Name & Title

TANDEM AXLE TRUCK CHASSIS:

YEAR: _____ MAKE: _____ MODEL: _____

ENGINE MAKE:_____

MODEL:_____CID:_____HP:_____@_____RPM
ALTERNATOR MAKE: _____ MODEL: _____
AMPS: _____

BATTERY VOLTS/AMPS: _____
C.C.A. @ O° F: _____

TRANSMISSION MAKE: _____

MODEL: _____

BACK-UP ALARM MAKE: _____

TIRE SIZES: FRONT: _____ REAR: _____

MAKE:_____MODEL:_____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

COMBINATION DUMP BODY/ TWIN AUGERS/CENTER SPREADER:

DESCRIPTION:_____

YEAR: _____MAKE: _____MODEL: _____

INSTALLER:_____

SERVICING AGENCY: _____

LOCATED AT:_____

TELEPHONE #: _____

CONTACT: _____

Name & Title

HYDRAULIC SYSTEM:

MAKE:_____

HYDRAULIC PUMP
MODEL:_____

INSTALLER:_____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____
Name & Title

11' SNOWPLOW:

MAKE:_____MODEL: _____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

10' PATROL WING SNOWPLOW:

MAKE:_____MODEL:_____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

SECTION V

Exception Form: Bidders may list proposed equivalent items below for consideration by the Authority, and should include the item number, item description, manufacturer's name, model number and packaging quantities of those items which the Bidder proposes to substitute. Bidders may not use this form to attach conditions, limitations, or other provisos to their bid. Please be advised that any proposed equivalent or other exceptions that are deemed to be a material deviation from the specifications shall be a mandatory cause for rejection of the bid.

Delivery Date Exception _____
Warranty Date Exception_____
Vendor's Name_____
Signature of Vendor Responsible Officer_____
Date_____

SECTION VI

ADDITIONAL YEARS PURCHASING OPTION

PROPOSAL TITLE:
SINGLE AXLE & TANDEM AXLE DUMP TRUCKS WITH SNOW PACKAGE

PROJECT # RM- 163267 & RM-163265

3 - Year Open End Option: The Authority shall have the option for one (1) Model Year* from the date of Contract, to order additional units conforming to the requirements of these specifications at the same price and under the same terms and conditions as those contained herein.

The Authority shall further have the option to purchase additional units conforming to these specifications for two (2) additional Model Years. Any unit(s) offered during the two (2) subsequent Model Years shall be of the model equivalent to that specified herein. In the latter instances, if there have been any price changes, the vendor shall submit a request to the Authority covering the aforesaid price changes, and shall include appropriate explanation and justification for any such price changes.

Any such request for price adjustment shall be in writing and directed to the Director, Procurement and Materials Management Department and shall be accompanied by the following evidence as a basis for your request;

1. The published price lists for equipment, which were in effect at the time of your original proposal.
2. The equivalent published price lists in effect at the time of your request.
3. Any additional evidence which the Authority deems necessary in the evaluation of your request.

The Authority shall, within its sole discretion, have the right to accept the price changes proposed by the vendor or if it so desires, re-bid the requirement.

*Model Year is defined as the Model Year of the Manufacturer of the unit(s) offered by you in this Request for Quotation. In that instance where proposals are for equipment for which "Model Year" and "Production Cut-Off Dates" are undefined or non-existent, the "Model Year" is defined, for bid purposes, as one calendar year from the date on which the Contract is accepted. The last date on which orders may be placed for the Model currently in effect is_____.

_____/_____
Name of Company and / Authorized Signature of Bidder

NEW JERSEY TURNPIKE AUTHORITY

P.O. Box 5042
Woodbridge, New Jersey 07095
or
1 Turnpike Plaza
Woodbridge, New Jersey 07095
Tel. – 732-750-5300
Fax – 732-750-5399

INSTRUCTIONS TO BIDDERS

PLEASE READ THE INSTRUCTIONS CAREFULLY BEFORE SUBMITTING YOUR BID

AW/JP - 4/19

TABLE OF CONTENTS

INSTRUCTIONS TO BIDDERS FOR SUBMISSION OF BIDS
STANDARD TERMS AND CONDITIONS

The following Standard Terms and Conditions apply to all contracts, purchase agreements or purchase orders with the New Jersey Turnpike Authority unless specifically stated otherwise in the Invitation to Bid/Request for Bids ("RFB"). Bidders are hereby notified that all Terms and Conditions contained herein will become a part of any contract(s) awarded or order(s) placed as a result of any RFB fully and to the same extent as if copied at length therein. In the case of a conflict between these general Terms and Conditions and the specific provisions of the RFB, the RFB shall control. Failure to comply with each and every one of the below Terms and Conditions, as well as the specific requirements set forth in the RFB, may be grounds for rejection of the bid.

I. DEFINITIONS

The following definitions will be a part of any RFB issued by the New Jersey Turnpike Authority, and any contract(s) awarded or order(s) placed as a result of such documents.

a. "Authority" shall mean the New Jersey Turnpike Authority.

b. "Bidder" shall mean any potential vendor submitting a response to an RFB issued by the Authority.

c. "Contract" shall mean the RFB (including these Standard Terms and Conditions), the response thereto submitted by the bidder, and the Authority's Notice of Award.

d. "Director" shall mean the Director of Procurement & Materials Management Department of the Authority.

e. "Vendor" shall mean the successful bidder who is awarded the contract at issue.

II. STATE LAWS REQUIRING MANDATORY COMPLIANCE BY ALL BIDDERS

A. DIVISION OF REVENUE REGISTRATION-Pursuant to the terms of *N.J.S.A.* 52:32-44, bidders are required to submit to the Authority proof of valid business registration with the New Jersey Division of Revenue in the Department of Treasury, prior to entering into a contract with the Authority. No contract shall be entered into by the Authority unless the bidder first provides proof of valid business registration. In addition, bidders are required to provide to the Authority proof of valid business registration with the Division of Revenue for any and all subcontractors that will be used to provide goods or services under the contract. A copy of the bidder's and any subcontractor's valid Certificate of Registration should be included with the bid submission and must be in effect prior to the contract award.

All questions regarding this requirement should be referred to the Division of Revenue hotline at (609)-292-9292 or/online: http://www.nj.gov/treasury/revenue/forms/njreg.pdf

B. EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE - Bidders must agree not to discriminate in employment and are required to comply with all applicable anti-discrimination laws, including those contained within *N.J.S.A.* 10:2-1 through 10:2-4, *N.J.S.A.* 10:5-1, et seq., and *N.J.S.A.* 10:5-31, et seq., P.L. 1975, c. 127. The mandatory language required by P.L. 1975, c. 127, as set forth in Exhibit A, shall be deemed a material term of any and all contracts, purchase agreements, and purchase orders entered into by the Authority. Bidders must acknowledge their agreement with the terms set forth in Exhibit A by signing where indicated and returning the exhibit with the bid. In addition, Bidders must affirmatively demonstrate compliance with P.L. 1975, c. 127 by submitting with the bid the completed Affirmative Action Information Sheet, set forth in Exhibit B, and any required attachments.

1) Anti-discrimination provision required by *N.J.S.A.* 10:2-1 In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates.

2) No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex.

3) There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of $ 50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and

4) This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

B-1 Equal Pay Reporting Requirement Pursuant to N.J.S.A. 34:11-56.1 et seq.

Pursuant to the Diane B. Allen Equal Pay Act (N.J.S.A. 34:11-56.1 et seq.), any employer, regardless of the location of the employer, that enters into a contract with the Authority to provide any service that is not a public work as defined by N.J.S.A. 34:11-56.25 (5) must file annual Equal Pay Reports with the New Jersey Commissioner of Labor and Workforce Development, including information regarding the compensation and hours worked by employees categorized by gender, race, ethnicity and job category. Forms and instructions for Equal Pay Reports have been adopted for services contractors, which forms must be filed annually by March 31 for the preceding year, using employment figures from any period in October through December. See https://nj.gov/labor/equalpay.html.

C. OWNERSHIP DISCLOSURE FORM-Bidders who are corporations, partnerships or limited liability companies must comply with P.L. 1977, c. 33, *N.J.S.A.* 52:25-24.2, by completing the Ownership Disclosure Form, set forth in Exhibit C, and submitting it with the bid. Failure to do so shall result in rejection of the bid.

D. POLITICAL CONTRIBUTIONS COMPLIANCE-To be eligible for an award, bidders must comply with the requirements of P.L. 2005, c. 51, *N.J.S.A* 19:44 A-20.13 et seq., and with the requirements of Executive Order 117 (Corzine). No award may be made to a bidder who has not complied with these laws regarding political contributions. A more detailed explanation of these requirements is set forth in Exhibit D.

1. **ADDITIONAL DISCLOSURE REQUIREMENTS OF P.L. 2005, C. 271**

Bidders are advised of their responsibility to file annual disclosure statements on political contributions with the New Jersey Election Law Enforcement Commission (ELEC), pursuant to P.L. 2005, c. 271, section 3, if they receive contracts in excess of $50,000 from any public entity in a calendar year. It is the bidder's responsibility to determine if filing is necessary. Failure to so file can result in the imposition of financial penalties by ELEC. Bidders must include with their bid a statement acknowledging this requirement, on the form set forth in Exhibit E. Additional information about this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

E. PREVAILING WAGE ACT-The New Jersey Prevailing Wage Act, *N.J.S.A.* 34:11-56.26 et seq., is hereby made a part of every contract entered into on behalf of the Authority, except those contracts which are not within the contemplation of the Act. The bidder's signature on its bid is its guarantee that neither it nor any subcontractors it might employ to perform the work covered by the contract has been suspended or debarred by the New Jersey Department of Labor and Workforce Development for violation of the provisions of the Prevailing Wage Act and/or the Public Works Contractor Registration Act. The bidder's signature on its bid is its guarantee that both it and any subcontractors it might employ to perform the work covered by the contract will comply with the provisions of the Prevailing Wage and Public Works Contractor Registration Acts, where required.

F. PUBLIC WORKS CONTRACTOR REGISTRATION ACT-The New Jersey Public Works Contractor Registration Act requires all contractors, subcontractors and lower tier subcontractors who bid on or engage in any contract for "public work," as defined in *N.J.S.A.* 34:11-56.51, to be first registered with the Department of Labor and Workforce Development. No vendor or subcontractor, including lower tier subcontractors, shall engage in the performance of any public work subject to the contract unless they are registered pursuant to this Act. Bidders can submit a valid copy of their Public Works Contractor Registration Certificate and valid copies of the Registration Certificates for all subcontractors along with the bid, but the certificate(s) must be submitted prior to contract award. The Registration Certificate(s) shall be maintained at the worksite and shall be made readily available for inspection at any time. Pursuant to *N.J.S.A.* 34:11-56.55 applications for registration shall not be accepted as a substitute for a Registration Certificate for subcontractors.

Any questions regarding this requirement should be directed to the Division of Wage and Hour Compliance, Department of Labor and Workforce Development at (609) 292-9464.

G. FOREIGN CORPORATION-If applicable, the bidder shall register as a "Foreign Corporation" with the Secretary of the State of New Jersey, designating a resident agent for the service of process. Foreign corporations must obtain a certificate of authority to do business in NJ pursuant to *N.J.S.A.* 14A:13-3. Written proof of such registration must be included with the bid submission.

H. SMALL BUSINESS ENTERPRISE SET-ASIDE CONTRACT FOR GOODS AND SERVICES
It is the policy of the Authority that small business enterprises ("SBE") as determined and defined by the State of New Jersey, Division of Revenue and Enterprise Services ("Division") in the Department of the Treasury (*N.J.A.C.*17:13-1.2) have the opportunity to compete for and participate in the performance of contracts and subcontract for construction and for the purchase of goods and services. The Authority further requires that its contractors/vendors agree to take all necessary and responsible steps, in accordance with *N.J.S.A.* 52:32-17 et seq. and *N.J.A.C.* 17:13-1 et seq. to ensure that SBE's have these opportunities, as an aid in meeting the commitment of its SBE Programs. When applicable the Authority will designate the contract as a SBE Set-Aside Contract. In such cases requests for bid proposals shall be confined to businesses registered with the Division as an SBE in either Category 1, 2, or 3. Bid proposals from businesses not designated as an SBE, when applicable, will be rejected.

I. CODE OF ETHICS: Bidders are advised that the Authority has adopted the New Jersey Uniform Code of Ethics, a copy of which can be viewed by going to the following web site: http://nj.gov/ethics/docs/ethics/uniformcode.pdf By submitting a bid, bidders agree to be subject to the intent and purpose of said Code and to the requirements of the New Jersey State Ethics Commission.

1) No vendor shall pay, offer to pay, or agree to pay, either directly or indirectly, any fee, commission, compensation, gift, gratuity, or other thing of value of any kind to any State officer or employee or special State officer or employee, as defined by *N.J.S.A.* 52:13D-13b. and e., in the Department of the Treasury or any other agency with which such vendor transacts or offers or proposes to transact business, or to any member of the immediate family, as defined by *N.J.S.A.* 52:13D-13i., of any such officer or employee, or any partnership, firm, or corporation with which they are employed or associated, or in which such officer or employee has an interest within the meaning of *N.J.S.A.* 52:13D-13g.

2) The solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by any State officer or employee or special State officer or employee from any State vendor shall be reported in writing forthwith by the vendor to the Attorney General and the Executive Commission on Ethical Standards.

3) No vendor may, directly or indirectly, undertake any private business, commercial or entrepreneurial relationship with, whether or not pursuant to employment, contract or other agreement, express or implied, or sell any interest in such vendor to, any State officer or employee or special State officer or employee having any duties or responsibilities in connection with the purchase, acquisition or sale of any property or services by or to any State agency or any instrumentality thereof, or with any person, firm or entity with which he is employed or associated or in

which he has an interest within the meaning of *N.J.S.A.* 52:13D-13g. Any relationships subject to this provision shall be reported in writing forthwith to the Executive Commission on Ethical Standards, which may grant a waiver of this restriction upon application of the State officer or employee or special State officer or employee upon a finding that the present or proposed relationship does not present the potential, actuality or appearance of a conflict of interest.

4) No vendor shall influence, or attempt to influence or cause to be influenced, any State officer or employee or special State officer or employee in his official capacity in any manner which might tend to impair the objectivity or independence of judgment of said officer or employee.

5) No vendor shall cause or influence, or attempt to cause or influence, any State officer or employee or special State officer or employee to use, or attempt to use, his official position to secure unwarranted privileges or advantages for the vendor or any other person.

6) The provisions cited shall not be construed to prohibit a State officer or employee or special State officer or employee from receiving gifts from or contracting with vendors under the same terms and conditions as are offered or made available to members of the general public subject to any guidelines the Executive Commission on Ethical Standards may promulgate as stated above.

J. VENDOR LOCATION DISCLOSURE-Pursuant to *N.J.S.A.* 52:34-13.2, every contract entered into by the Authority primarily for the performance of services shall specify that all services performed under the contract or performed under any subcontract awarded under the contract shall be performed within the United States. The statute requires all bidders to disclose the origin and location of the performance of their services, including any subcontracted services that are the subject matter of the contract. Bidders must include with their bid a completed Vendor Disclosure Form, attached hereto as Exhibit G.

J-1 DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN- Pursuant to *N.J.S.A.* 52:32-58, the bidder must certify that neither the bidder, nor one of its parents, subsidiaries, and/or affiliates (as defined in *N.J.S.A.* 52:32-56(e)(3)), is listed on the Department of the Treasury's List of Persons or Entities Engaging in Prohibited Investment Activities in Iran and that neither is involved in any of the investment activities set forth in *N.J.S.A.* 52:32-56(f). If the bidder is unable to so certify, the bidder shall provide a detailed and precise description of such activities. Bidders must include with their bid a completed Disclosure of Investment Activities in Iran, attached hereto as Exhibit G-1.

K. SET-OFF FOR OUTSTANDING TAX LIABILITY-Bidders are advised that pursuant to P.L. 1995, c. 159, effective January 1, 1996, and notwithstanding any provision of the law to the contrary, the State of New Jersey has the right to set-off any tax indebtedness from payments made under contracts with the Authority. The State's rights are explained in more detail in Exhibit H, attached. Bidders must provide a copy of Exhibit H acknowledging that they have received notice of the State's right of set-off prior to contract award.

L. MSDS REQUIREMENTS-Any vendor, Vendor, or subcontractor who provides the Authority materials in the form of a single chemical substance or a mixture containing two or more chemical substances, or who delivers to or stores such materials at an Authority facility, must provide the Authority with a clear, legible copy of the manufacturer's most recent Material Safety Data Sheet (MSDS) for each and every one of those materials, pursuant to *N.J.A.C.* 8:59-2.2(i).

M. LABELING REQUIREMENTS-Any vendor, Vendor or subcontractor who provides the Authority materials which fall under the purview of the New Jersey Worker and Community Right-to-Know-Act, *N.J.S.A.* 34:5A-1 et seq., or who stores any such materials at an Authority facility, shall ensure that each and every container of those materials is labeled in accordance with the Act and its regulations.

N. VOC REQUIREMENTS-Any architectural coating, as defined by *N.J.A.C.* 7:27-23.2, provided to the Authority for its use or used and applied by any vendor or subcontractor in conjunction with an Authority project must comply with each and every requirement of the New Jersey Department of Environmental Protection's Volatile Organic Compounds in Consumer Products (VCC) regulations, *N.J.A.C.* 7:27-23.1 et seq.

O. COMPLIANCE WITH STATE AND FEDERAL LAWS-The vendor must comply with all local, state and federal laws, rules and regulations applicable to the contract at issue and to the work to be done thereunder.

P. SAFETY & HEALTH REQUIREMENTS-The goods, services and/or equipment provided through the contract at issue shall be so designed and installed to meet all applicable federal and state safety and health regulations and national consensus standards including, but not limited to US DOL-OSHA, NJ LWD-PEOSHA, NFPA and ANSI standards

Q. CHOICE OF LAW-It is agreed and understood that any contract entered into and/or purchase orders placed as a result of any RFB issued by the Authority shall be governed and construed and the rights and obligations of the parties thereto shall be determined in accordance with the laws of the STATE OF NEW JERSEY.

III. BID PREPARATION

A. BID SUBMISSION-Unless the Authority has made provision for bids to be submitted online, bids must be submitted in paper format, in ink or typewritten. If space is provided on the RFB for bid details, bids must be submitted using that document. Paper bids must be signed and returned in a sealed envelope addressed to the New Jersey Turnpike Authority with the bid opening date, time and bid identification on the outside of the envelope. Bidders shall state on such form a unit price for each item, and extend such unit price by multiplying same by the indicated quantities on the bids solicited by the Authority.

All bids must be received in the Authority's Purchasing Department on or before the date and time specified on the RFB. Bids received after the time indicated shall be rejected and returned to the bidder(s) unopened after being processed in accordance with established Authority procedures. The Authority will not be responsible for late postal or delivery service.

B. CORRECTIONS-Any correction of an entry made on the bid should be initialed by a duly authorized representative of the bidder. If the total price is found to be incorrectly computed, discrepancies will be corrected by the Authority on the basis of the written unit prices, and determination of the low bidder will be made on the basis of the correct total price so determined.

C. BID PRICES-All prices quoted shall be firm and not subject to increase during the term of the contract, unless otherwise specified in the RFB. Prices shall include transportation and delivery to the site designated by the Authority in the RFB. All delivery charges shall be borne by the vendor.

D. PAYMENT TERMS-The bidder shall state the terms, if any, requested for the Authority to make payment within a certain period of time after receipt of the bidder's invoice.

E. ALTERNATES-All items are to be quoted as specified in the RFB or as an approved equivalent. In those cases when an alternate product is offered, it is the bidder's responsibility to provide detailed specifications, brand, make and model of the alternate offered, in the bidder's response/bid submission. In the event a bidder fails to take exception to the published bid specifications, the Authority shall evaluate the bid as offering the specified product/service. The Authority shall determine, at its sole discretion, if any alternate product offered is acceptable as an approved equivalent.

In the event the Authority specifies a model number or item that has been replaced/superseded by another model number or item, the bidder may quote the replacement item as an alternate. In this case, the bidder must specify the manufacturer and model number of the replacement item on the response/bid submission and must supply detailed descriptive literature and/or prints with that submission. The Authority will evaluate the proposed item to determine, in its sole discretion, whether it is an approved equivalent.

IV. BIDDER GUARANTEES AND MISCELLANEOUS CONTRACT REQUIREMENTS

A. WARRANTY-The bidder hereby represents and warrants that the equipment offered is standard new equipment, latest model of regular stock product, with parts regularly used for the type of equipment offered, that such parts are all in production and none likely to be discontinued; also, that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice.

The bidder shall unconditionally guarantee all new equipment for a term of one year from time of acceptance by the Authority unless specified otherwise in the RFB, and shall render prompt service of such equipment without charge, regardless of geographic location. The bidder shall maintain sufficient quantities of parts necessary for proper service to equipment at distribution points and service headquarters.

B. BID SECURITY-Bidder shall submit with its bid proposal, fully executed by its bonding company and itself, either: (1) the standard form Authority Letter of Surety (attached hereto as Exhibit I), or (2) the standard form Authority Proposal Bond (attached hereto as Exhibit J), in the amount of 10% of its bid price. In lieu of the Letter of Surety or Proposal Bond, the bidder may elect to furnish with its bid proposal a Cashier's check in the amount of 10% of the bid price as a performance warranty deposit. This bid surety will be held by the Authority until award of the contract to insure compliance by the successful bidder with the terms and obligations of the bid including, but not limited to, delivery date.

C. CONTRACT BOND-The vendor shall, within ten (10) calendar days of receipt of the Notice of Award, furnish and deliver the Contract Bond on the standard form of the Authority, attached hereto as Exhibit K. The Contract Bond shall be in a sum of up to 100% of the total amount bid for the contract, as specified in the RFB, and shall be maintained by the vendor until final payment is made. In the event of insolvency of the Surety, the vendor shall forthwith furnish and maintain other Surety satisfactory to the Authority.

D. ELECTRONIC PAYMENT - With the award of this contract, the successful vendor(s) will be required to receive their payment(s) electronically and invoices should be emailed to; invoicefb@njta.com In order to receive your payments via automatic deposit from the Authority, complete and return the "Authorization Agreement for Direct Payments (ACH Credits)" Form with an **original voided check or bank letter**. The form must include ABA number (routing or transit number), bank account number and if the bank account is a checking or savings account. The form and instructions are located in the Instruction to Bidders on the Authority's website http://www.state.nj.us/turnpike/purchasing.html. The completed form along with the required voided check or bank letter should be emailed to achvendor@njta.com

E. NON-COLLUSION-. The bidder's signature on its bid is its guarantee that said bidder has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the referenced contract; and that all statements contained in the bid and any additional statements requested by the Authority are true and correct, and made with full knowledge that the Authority relies upon the truth of the statements contained therein in awarding the contract.

The bidder's signature on its bid is its guarantee, in accordance with *N.J.S.A.* 52:34-15, that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by the bidder for the purpose of securing business.

V. INSURANCE AND INDEMNIFICATION

A. INSURANCE-The bidder shall procure and maintain at its own expense for the entire term of the contract insurance for liability for damages imposed by law and assumed under this contract, of the kinds and in the amounts hereinafter provided. All insurance companies used must be authorized to do business in the State of New Jersey and must carry an A.M. Best Rating of A-/VII or better. Before commencing any services hereunder, the bidder shall furnish to the Authority a certificate(s) of insurance (together with declaration pages if requested by the Authority) showing that it has complied with this Section. All certificate(s) and notices of cancellation or change shall be mailed to: Director, Purchasing Department, New Jersey Turnpike Authority, P.O. Box 5042, Woodbridge, New Jersey 07095. Upon request, the bidder shall furnish the Authority with a certified copy of each policy itself, including the provision establishing premiums.

The type and minimum limits of insurance shall be:

1. **Commercial General Liability Insurance.** The minimum limits of liability for this insurance per accident shall be as follows:

• Bodily injury and property damage each occurrence combined single limit	$2,000,000.00
• Personal injury each occurrence	$2,000,000.00
• General Aggregate	$2,000,000.00
• Products Aggregate	$2,000,000.00
• Fire Damage Legal Liability	$100,000.00
• Medical Payments	$5,000.00

The above required Commercial General Liability Insurance shall name the Authority, its Commissioners, officers, employees, and agents as additional insureds. The coverage to be provided under this policy shall be at least as broad as the standard basic unamended and unendorsed Commercial General Liability Policy. The insurance policy shall be endorsed to include Personal Injury, Broad Form Property Damage, Contractual Liability (including the deletion of the coverage restriction related to work conducted within fifty (50) feet of a railroad), Products/Completed Operations, Independent Consultants and XCU if applicable. Products/Completed Operations coverage shall remain in force for a period of two (2) years following the completion and/or termination of the contract.

2. **Business Automobile Liability Insurance.** The Comprehensive Automobile Liability policy shall cover owned, non-owned, and hired vehicles with minimum limits as follows:

   Combined Single Limit of Liability for Bodily Injury or Property Damage for any one accident: $2,000,000.

This policy shall name the Authority, its Commissioners, officers, employees and agents as additional insured.

3. **Workers Compensation and Employers' Liability Insurance.** Workers Compensation Insurance shall be provided in accordance with the requirements of the laws of the State of New Jersey and shall include an All-States endorsement or similar statement in the policy declarations, extending coverage to any state which may be interpreted to have legal jurisdiction. Employers' Liability Insurance shall be provided with a limit of liability of not less than $1,000,000 for each accident.

4. **Certificate and Endorsement Requirements**
   Each of the above required policies shall contain the endorsements as stated below:

   (a) Thirty (30) days notice of cancellation or any restriction in coverage by registered mail to the Authority.

   (b) All policies, except Workers Wage and Employers' Liability Insurance, shall contain a waiver of subrogation clause in favor of the Authority.

   (c) With respect to Commercial General Liability and Automobile Liability policies, the other insurance clause under each policy shall be amended to read as follows: "This policy will act as primary insurance and not contribute with policies issued to the Authority."

The vendor shall also require that all of its contracting parties comply with the insurance requirements stated above including providing evidence of such insurance coverages in the same manner as stated above.

Due to future changes in economic financial and/or insurance market conditions the Authority at its discretion may modify the above stated insurance requirements.

NOTWITHSTANDING THAT MINIMUM AMOUNTS OF INSURANCE COVERAGE CARRIED OR REQUIRED TO BE CARRIED BY THE BIDDER ARE SPECIFIED HEREIN, THE LIABILITY OF THE BIDDER SHALL NOT BE LIMITED TO THE AMOUNTS SO SPECIFIED AND SHALL EXTEND TO ANY AND ALL LIABILITY IN EXCESS OF THE INSURANCE COVERAGES SO PROVIDED NOR SHALL THESE MINIMUM LIMITS PRECLUDE THE AUTHORITY FROM TAKING ANY ACTION AVAILABLE TO IT UNDER THE PROVISIONS OF THE CONTRACT OR OTHERWISE IN LAW.

B. INDEMNIFICATION-Vendor agrees to defend, indemnify and save harmless the Authority, its Commissioners, officers, employees, and agents and each and every one of them against and from all liabilities, judgments, threatened, pending or completed actions, suits, demands for damages or costs of every kind and description actually and reasonably incurred (including attorney's fees and costs and court costs) (collectively "Liabilities") including, without implied limitations, Liabilities for damage to property or Liabilities for injury or death of the officers, agents and employees of either the vendor or the Authority, resulting from any act or omission or willful misconduct of the vendor or any of its officers, agents, sub-consultants, or employees

in any manner related to the subject matter of the contract. In the event that the vendor fails to defend, indemnify and save harmless the Authority, its Commissioners, officers, employees, and agents, and each and every one of them, in accordance with this Section, any money due to the vendor under and by virtue of the contract as shall be considered necessary by the Authority may be retained by the Authority and held until any and all liabilities shall have been settled and suitable evidence to that effect furnished to the Authority. The obligations in this Section shall survive the termination, expiration or rescission of the contract.

C. PATENT INDEMNIFICATION-The vendor hereby agrees that it will indemnify, defend and save harmless the Authority, its Commissioners, officers, agents and servants from all suits, actions, claims and judgments of any kind or character whatsoever for infringement of patent, trademark or copyright regarding the items bid herein that may be brought by any person, corporation or firm.

VI. DELIVERY REQUIREMENTS

A. DELIVERY DATE-A FIRM delivery date must be stated on the bid. Statements such as "stock" or "immediate" are not acceptable. Where the RFB calls for delivery within a specified time, it shall be indicated in the bid whether delivery will be made within the time specified.

B. F.O.B.-Price shall include delivery to the Authority F.O.B. destination, freight paid to any destination on the New Jersey Turnpike or Garden State Parkway. No additional charge will be allowed for any transportation cost resulting from partial shipments made at vendor's convenience when a single shipment is ordered. Prices quoted are firm throughout the term of the contract for complete delivery of quantities specified.

Bids submitted on an F.O.B. destination basis are mandatory; however, in instances where customs of the trade or unusual circumstances dictate F.O.B. shipping point, an estimate of the shipping charges must be noted on the bid and may be accepted in the Director's sole discretion. In such cases, actual shipping charges are to be prepaid and added to the invoice.

C. DELIVERY-Upon award of the contract:

1. Deliveries shall be made at such time and in such quantities as ordered in strict accordance with conditions stated in the RFB.

2. Deliveries may be set on a scheduled basis as arranged between the Authority and the vendor. It shall be the responsibility of the vendor to maintain an adequate supply stock.

3. The vendor will be responsible, at the point of delivery, for the delivery of material in such quality and condition as required by Paragraph IV.A. hereof and in accordance with good commercial practice.

4. Items delivered must be strictly in accordance with those bid upon.

5. As applicable, bidders must state in the space provided on the RFB/bid solicitation documents the number of days required to make delivery after notification to ship.

6. In the event delivery is not made within the number of days stipulated, the Authority may purchase the required material from any available source. The difference in price, if any, will be paid by the vendor failing to meet its commitments.

VII. OTHER TERMS AND CONDITIONS

A. **CONTRACT PERIOD- Except as otherwise stated in the RFB, the term of the contract shall be for one (1) year, with the option to extend for two (2) one-year options, at the Authority's discretion, and with vendor's concurrence.**

B. EXTENSION OPTION-If, in the opinion of the Director, it is in the best interest of the Authority to extend any contract beyond the original term, for a period of all or any part of a year, the vendor will be so notified of the Director's intent, prior to the expiration date of the existing contract. The Authority reserves the right to make up to two extensions of this contract for not more than one year each. If the extension is acceptable to the Authority at the original prices and on the original terms, notice will be given to the vendor by the Director in writing. If the original contract required a Contract Bond, a new Contract Bond must be submitted to cover the period of the extension. The same insurance requirements will be required for each extension period.

C. TERMINATION OF CONTRACT-The contract awarded may be terminated by the Authority at any time for inadequate or improper performance, or for breach of any terms, conditions, or obligations of the contract by the vendor, as determined by the Authority, or if the vendor shall make an assignment for the benefit of creditors, or file a voluntary petition in bankruptcy, or if an involuntary petition in bankruptcy is filed against the vendor and the act of bankruptcy therein alleged is not denied by the vendor, or if denied, is found by a court or jury. Further, the Authority reserves the right to terminate any contract for any reason provided written notice has been given by the Director to the vendor at least thirty (30) days prior to such proposed termination date.

The notice of termination shall be in writing, and shall be effective upon receipt by the vendor. Upon termination, the Authority shall be liable only for payment for goods or services properly delivered or performed in accordance with the contract. The Authority shall have the right to purchase non-delivered goods, to replace defective goods or services on the open market and hold the vendor liable for the difference between the price set forth in the contract for such goods or services and the prices paid on the open market, or pursue any other right available by law. In addition, the Authority shall have the right, without the necessity of court proceedings, to recover all equipment, material or supplies that are the property of the Authority and have been entrusted with the vendor to be used in the performance of said contract. Nothing in this paragraph is intended to limit the Authority's right to legally pursue all costs which exceed the amount due and owing the vendor under said contract. The list of remedies in this paragraph is not exclusive.

D. SCOPE-The total quantities of any contract are estimated. There is no guarantee of any minimum quantity. It is understood and agreed that contract prices shall cover the quantities actually required and ordered by the Authority during the term of the contract, whether more or less than the approximate quantity stated.

E. BIDDERS FACILITIES-The Authority reserves the right to inspect the bidder's establishment before making an award.

F. TESTING-The Authority reserves the right to have the material tested prior to the award and during the contract by an independent testing laboratory, to determine if the material meets the specifications of the RFB. If required for testing purposes, the low bidder shall submit a reasonable quantity of the product as samples. If these samples prove satisfactory, the contract shall be awarded. If they do not prove satisfactory, a test shall be made of the next low bidder's sample, until satisfactory products are found to meet requirements. Should the laboratory find that any shipment does not meet specifications, the Authority shall have the right to reject same.

G. INSPECTION- All work done and supplies furnished shall be subject to inspection, testing and rejection by the Authority, or its representatives, at all times and places, both during manufacture and at destination. After award of the contract, should the result of any test or inspections show that the material supplied fails to meet the requirements of the Authority, the material shall be rejected and immediately replaced by the vendor. Rejected supplies or materials will be returned at the vendor's risk, and all inspection, handling and transportation charges to and from the Authority's delivery site will be assumed by the vendor. The vendor shall bear any and all expenses resulting from delay caused by failure to meet test or inspection standards. Should the Authority for any reason decide to accept any shipment which fails to meet specifications, the Authority may make an appropriate price adjustment with regard to same.

H. AWARDS-Comparison of bids will be based on the total price stated in the bid and an award will be based on the total price, terms and delivery date given by the bidder. If the total price is found to have been incorrectly computed, discrepancies will be corrected by the Authority on the basis of the unit prices and a determination of the low bidder will be made on the basis of the corrected total price. The Authority shall not be liable for any failure on its part to detect or correct errors, and the Authority's action in connection therewith shall not give rise to any rights to the bidder.

I. NOTICE TO VENDORS AND AUTHORITY DEPARTMENTS-The Authority is authorized to order, and vendors are authorized to ship only those items covered by the contract. If a review of orders placed by the Authority reveals that material other than that covered by the contract has been ordered and delivered, the Director will take such steps as are necessary to have the material returned regardless of the time elapsed between the date of delivery and discovery of the violation. A full refund to the Authority by the vendor will be required.

J RIGHT TO AUDIT-Vendor shall keep and maintain proper and adequate books, records and accounts accurately reflecting all costs and amounts billed to Authority under the contract at issue. Authority, its employees, officers, or representatives shall have the right upon written request and reasonable notice, to inspect and examine all of the vendor's books and records related to the contract. Such records shall be retained by vendor for at least five (5) years from the termination of the contract. In no event shall books and records be disposed of or destroyed of prior to five (5) years from the termination of the contract or during any dispute or claim between the Authority and vendor with regard to the contract at issue.

1. In accordance with the New Jersey Office of the State Comptroller ("OSC") document retention policy *N.J.A.C.* 17:44-2.2 - The vendor shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the OSC upon request.

K. TAXES-The Authority is exempt from Federal Excise Tax, New Jersey State Sales and Use Tax and other tax as applicable.

L. TRANSFER OF BUSINESS-It is understood by all parties that, if, during the term of the contract, the vendor disposes of its business by sale, transfer or by any means to another party, all obligations are transferred to such purchaser.

M. INTERAGENCY COOPERATIVE PURCHASING-Pursuant to *N.J.S.A.* 27:23-6.1(a), vendors may receive inquiries by the entities listed below, with respect to extending this contract to them based upon the same prices, terms and conditions:

South Jersey Transportation Authority
New Jersey Sports & Exposition Authority
New Jersey Meadowlands Commission
New Jersey Water Supply Authority
Port Authority of New York & New Jersey
Delaware River Port Authority
Higher Education Student Assistance Authority

N. CONTRACT CHANGES-During the term of contract, no change will be permitted in any of its conditions and specifications unless the vendor receives written approval from the Director.

Should the vendor find at any time that existing conditions make modification in requirements necessary, the vendor shall promptly report such matter to the Director for consideration and decision.

O. SUBCONTRACTING OR ASSIGNMENT-The contract may not be subcontracted or assigned by the vendor, in whole or in part, without the prior written consent of the Director. In the event that bidder proposes to subcontract some or all of the services to be provided under the contract, it shall state so in its bid and attach for approval a list of said subcontractors and an itemization of the goods and/or services to be supplied by them.

P. REJECTION OF BIDS-Failure to comply with mandatory requirements of the bid shall be considered grounds for rejection. The Authority retains the right to reject any or all bids, to waive informalities and minor irregularities and to rebid the entire contract.

Q. LIABILITIES OR DEBTS OWED TO THE AUTHORITY- The failure by any Contractor or subcontractor during the term of the Contract to satisfy in a timely manner any outstanding debts or fees owed to the Authority, whenever incurred, including but not limited to those related to nonpayment of tolls or administrative fees, as required by *N.J.A.C.* 19:9-1.19 and *N.J.A.C.* 19:9-9.2, shall be grounds for suspension or termination of the Contract, in the sole discretion of the Authority.

EXHIBIT A
MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
***N.J.S.A.* 10:5-31 et seq., *N.J.A.C.* 17:27**

GOODS, PROFESSIONAL SERVICES AND GENERAL SERVICE CONTRACTS

During the performance of this contract, the contractor agrees as follows:

A. The Contractor or Subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment and that employees are treated during employment without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

B. The Contractor or Subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity, or expression, disability, nationality or sex.

C. The Contractor or Subcontractor will send to each labor union with which it has a collective bargaining agreement a notice, to be provided by the agency contracting officer, advising the labor union of the Contractor's commitments under this chapter and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

D. The Contractor or Subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to *N.J.S.A.* 10:5-31 et seq., as amended and supplemented from time to time, and the Americans with Disabilities Act.

E. The Contractor or Subcontractor agrees to make good faith efforts to meet targeted county employment goals established in accordance with *N.J.A.C.* 17:27-5.2.

F. The Contractor or Subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities and labor unions, that it does not discriminate on the basis of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

G. The Contractor or Subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personal testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

H. In conforming with the targeted employment goals, the Contractor or Subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

I. The Contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

i. LETTER OF FEDERAL AFFIRMATIVE ACTION PLAN APPROVAL
ii. CERTIFICATE OF EMPLOYEE INFORMATION REPORT
iii. EMPLOYEE INFORMATION REPORT FORM AA302

The Contractor and its Subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Public Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code at *N.J.A.C.* 17:27**

Submitted by:

Firm Name: _____

Signature: _____

Print Name: _____

Title: _____

Date: _____

EXHIBIT B
AFFIRMATIVE ACTION INFORMATION SHEET

BIDDERS ARE REQUIRED TO SUBMIT ONE OF THE FOLLOWING FORMS RELATING TO COMPLIANCE WITH AFFIRMATIVE ACTION REGULATIONS. **PLEASE COMPLETE AND RETURN THIS FORM AND ANY REQUIRED DOCUMENTS WITH THE BID**.

1. The bidder has a Federal Affirmative Action Plan Approval which consists of a valid letter from the United States Department of Labor Office of Federal Contract Compliance Programs (Good for one year of the date of letter).

   YES____ NO_____

   If Yes, a photocopy of the Letter of Approval is to be submitted with the bid.

(OR)

2. The bidder has submitted an Affirmative Action Employee Information Report (Form AA302) to the State Treasurer, and the State Treasurer has approved said report pursuant to *N.J.A.C.* 17:27-4.6.

   YES____ NO_____

   If Yes, a photocopy of the Certificate of Employee Information Report is to be submitted with the bid. (Expiration Date on Certificate)
   Certificate Number _____

(OR)

3. The bidder has submitted an Employee Information Report (Form AA302) to the State Treasurer, and the State Treasurer has not yet approved said report.

   YES____ NO_____

   If Yes, a photocopy of the Form AA302 is to be submitted with the bid.

   If you are the successful Proposer and have none of the above, please contact the Procurement and Materials Management Department at **(732) 750-5300 ext. 8628** within five (5) days of notification of award for AA-302 Form. This AA-302 Form must be forwarded to the States' Affirmative Action Office with a copy returned to the Authority's Procurement and Materials Management Department.

The signature below certifies that one of the above forms of Affirmative Action evidence has been submitted, and all information contained above is correct to the best of my knowledge.

Signed_____ Date Signed _____

Print Name and Title _____

Bidder's Company Name _____

Address_____

Telephone Number _____ Fax Number_____

EXHIBIT C
OWNERSHIP DISCLOSURE FORM

BID SOLICITATION: _____BIDDER/PROPOSER: _____

PART 1

PLEASE COMPLETE THE QUESTIONS BELOW BY CHECKING EITHER THE "YES" OR "NO" BOX. ALL PARTIES ENTERING INTO A CONTRACT WITH THE NEW JERSEY TURNPIKE AUTHORITY ARE REQUIRED TO COMPLETE THIS FORM PURSUANT TO *N.J.S.A*. 52:25-24.2

PLEASE NOTE THAT IF THE BIDDER/PROPOSER IS A NON-PROFIT ENTITY, THIS FORM IS NOT REQUIRED.

1. Are there any individuals, corporations, partnerships, or limited liability companies owning a **10% or greater** interest in the Bidder/Proposer?

   YES ☐ NO ☐

IF THE ANSWER TO QUESTION 1 IS "NO", PLEASE SIGN AND DATE THE FORM.

IF THE ANSWER TO QUESTION 1 IS "YES", PLEASE ANSWER QUESTIONS 2-4 BELOW.

2. Of those parties owning a 10% or greater interest in the Bidder/Proposer, are any of those parties individuals?

   YES ☐ NO ☐

3. Of those parties owning a 10% or greater interest in the Bidder/Proposer, are any of those parties **corporations, partnerships, or limited liability companies?**

   YES ☐ NO ☐

4. If your answer to Question 3 is "YES", are there any parties owning a **10% or greater** interest in the corporation, partnership, or limited liability company referenced in Question 3?

   YES ☐ NO ☐

IF ANY OF THE ANSWERS TO QUESTIONS 2-4 ARE "YES", PLEASE PROVIDE THE REQUESTED INFORMATION IN PART 2.

PART 2

PLEASE PROVIDE FURTHER INFORMATION RELATED TO QUESTIONS 2-4 ANSWERED AS "YES".

If you answered "YES" for questions 2, 3, or 4 you must disclose identifying information related to the individuals, corporations, partnerships, and/or limited liability companies owning a 10% or greater interest in the Bidder/Proposer. Further, if one or more of these entities is itself a corporation, partnership, or limited liability company, you must also disclose all parties that own a 10% or greater interest in that corporation, partnership, or limited liability company. This information is required by statute.

INDIVIDUALS

NAME_____ **DATE OF BIRTH**_____

ADDRESS 1_____

ADDRESS 2_____

CITY_____ **STATE**_____ **ZIP**_____

NAME_____ **DATE OF BIRTH**_____

ADDRESS 1_____

ADDRESS 2_____

CITY_____ **STATE**_____ **ZIP**_____

NAME_____ **DATE OF BIRTH**_____

ADDRESS 1_____

ADDRESS 2_____

CITY_____ **STATE**_____ **ZIP**_____

Attach Additional Sheets if Necessary.

PART 2 continued

PARTNERSHIPS/CORPORATIONS/LIMITED LIABILITY COMPANIES

ENTITY NAME _____

PARTNER NAME _____

ADDRESS 1_____

ADDRESS 2_____

CITY_____ **STATE**_____ **ZIP**_____

ENTITY NAME _____

PARTNER NAME _____

ADDRESS 1_____

ADDRESS 2_____

CITY_____ **STATE**_____ **ZIP**_____

ENTITY NAME _____

PARTNER NAME _____

ADDRESS 1_____

ADDRESS 2_____

CITY_____ **STATE**_____ **ZIP**_____

Attach Additional Sheets if Necessary.

In the alternative, to comply with the ownership disclosure requirement, a Bidder/Proposer with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10% or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10% or greater beneficial interest , also shall submit links to the websites containing the last annual filings with the federal securities and Exchange Commission or the foreign equivalent and the relevant page number(s) of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest. *N.J.S.A* 52:25-24.2.

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Bidder/Proposer, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the New Jersey Turnpike Authority is relying on the information contained herein, and that the Bidder/Proposer is under a continuing obligation from the date of this certification through the completion of any contract(s) with the New Jersey Turnpike Authority to notify the New Jersey Turnpike Authority in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the New Jersey Turnpike Authority, permitting the New Jersey Turnpike Authority to declare any contract(s) resulting from this certification void and unenforceable.

_____ _____

Signature Date

_____

Print Name and Title

_____

FEIN/SSN

EXHIBIT D
State Contractor Political Contributions Compliance
Public Law 2005, Chapter 51 and Executive Order 117

In order to safeguard the integrity of State government procurement by imposing restrictions to insulate the award of State contracts from political contributions that pose the risk of improper influence, purchase of access, or the appearance thereof, Executive Order 134 (McGreevey) was signed on September 22, 2004 and became effective October 15, 2004. EO134 was applicable to all State agencies, the principal departments of the executive branch, any division, board, bureau, office, commission within or created by a principal executive branch department, and any independent State authority, board, commission, instrumentality or agency. EO134 was superseded by P.L. 2005, c. 51, signed into law on March 22, 2005 ("Chapter 51"). In September 2008, Executive Order 117 (Corzine) was signed and became effective November 15, 2008. EO117, which applies only prospectively, extends Chapter 51's political contribution restrictions by expanding the definition of "business entity" to include, for example, more corporate shareholders and sole proprietors. EO117 and Chapter 51 contain restrictions and reporting requirements that will necessitate a thorough review of their provisions by bidders.

Pursuant to the requirements of Chapter 51 and EO117, the terms and conditions set forth in this Exhibit are material terms of any contract entered into by the Authority.

DEFINITIONS

For the purpose of this Exhibit, the following shall be defined as follows:

a) "**Contribution"** – means a contribution reportable by the recipient under the New Jersey Campaign Contributions and Expenditures Reporting Act, P.L. 1973, c. 83, *N.J.S.A.* 19:44A-1 et seq., and implementing regulations set forth at *N.J.A.C.* 19:25-7 and *N.J.A.C.* 19:25-10.1 et seq., made on or after October 15, 2004. As of January 1, 2005, contributions in excess of $300 are reportable.

b) "**Business Entity"** – means any natural or legal person; business corporation (and any officer, person, or business entity that owns or controls 10% or more of the corporation's stock); professional services corporation (and any of its officers or shareholders); limited liability company (and any members); general partnership (and any partners); limited partnership (and any partners); in the case of a sole proprietorship: the proprietor; a business trust, association or any other legal commercial entity organized under the laws of New Jersey or any other state or foreign jurisdiction, including its principals, officers, or partners. The definition of a business entity also includes (i) all principals who own or control more than 10 percent of the profits or assets of a business entity; (ii) any subsidiaries directly or indirectly controlled by the business entity; (iii) any political organization organized under section 527 of the Internal Revenue Code that is directly or indirectly controlled by the business entity, other than a candidate committee, election fund, or political party committee; and (iv) if a business entity is a natural person, that person's spouse, civil union partner or child, residing in the same household, except for contributions by spouses, civil union partners, or resident children to a candidate for whom the contributor is eligible to vote, or to a political party committee within whose jurisdiction the contributor resides.

PROHIBITION ON CONTRACTS/BREACH OF EXISTING CONTRACT

As set forth in Chapter 51 and EO117, the Authority shall not enter into a contract to procure from any Business Entity services or any material, supplies or equipment, or to acquire, sell or lease any land or building, where the value of the transaction exceeds $17,500, if that Business Entity has solicited or made any contribution of money, or pledge of contribution, including in-kind contributions, to a candidate committee and/or election fund of any candidate for or holder of the public office of Governor or Lieutenant Governor, or to any State, county or municipal political party committee, or legislative leadership committee during specified time periods.

Further, it shall be a breach of the terms of any contract with the Authority for any Business Entity who has been awarded the contract, during the term of the contract or any extension thereof, to:

(i) make or solicit a contribution in violation of Chapter 51 or EO117;
(ii) knowingly conceal or misrepresent a contribution given or received;
(iii) make or solicit contributions through intermediaries for the purpose of concealing or misrepresenting the source of the contribution;
(iv) make or solicit any contribution on the condition or with the agreement that it will be contributed to a campaign committee or any candidate of holder of the public office of Governor or Lieutenant Governor, or to any State, county or municipal party committee, or legislative leadership committee;
(v) engage or employ a lobbyist or consultant with the intent or understanding that such lobbyist or consultant would make or solicit any contribution, which if made or solicited by the Business Entity itself, would subject that entity to the restrictions of Chapter 51 or EO117;
(vi) fund contributions made by third parties, including consultants, attorneys, family members, and employees;
(vii) engage in any exchange of contributions to circumvent the intent of Chapter 51 or EO117; or
(viii) directly or indirectly through or by any other person or means, do any act which would subject that entity to the restrictions of Chapter 51 or EO117.

CERTIFICATION AND DISCLOSURE REQUIREMENTS

Prior to the award of any contract or agreement, the Authority shall notify any Business Entity to which it intends to award a contract of the need to submit to the Authority a completed Certification and Disclosure of Political Contributions form, as issued by the State Treasurer. **The intended awardee will receive the applicable form from the Authority's Purchasing Department to be completed and returned to the Authority for submission to the State Treasurer.**

In completing this form, the Business Entity must certify that no contributions prohibited by Chapter 51 or EO117 have been made by the Business Entity and must report all contributions the Business Entity made during the preceding four years to any political organization organized under 26 U.S.C. § 527 of the Internal Revenue Code that also meets the definition of a "continuing political committee" within the meaning of *N.J.S.A.* 19:44A-3(n) and *N.J.A.C.* 19:25-1.7. Failure to submit the required forms will preclude award of the contract at issue, as well as future contract opportunities.

Upon approval by the State Treasurer, the Authority will issue a contract. However, if the State Treasurer determines that any contribution or action by a Business Entity poses a conflict of interest in the awarding of the contract or agreement at issue, the State Treasurer shall disqualify the Business Entity from award of such contract.

Once approved by the State Treasurer, a Business Entity's Political Contributions Certification is valid for a two (2) year period from the date of approval. If, prior to the award of a contract, the State Treasurer confirms to the Authority that the intended awardee has an approved Certification that will remain valid for the term of the contract, the Authority may waive the requirement that the awardee complete an additional Certification and Disclosure of Political Contributions form.

Any Business Entity entering into a contract with the Authority is required, on a continuing basis, to report to the Authority any contributions it makes during the term of the contract, and any extension(s) thereof, at the time any such contribution is made. Such reports shall be subject to review by the Authority and the State Treasurer. If the State Treasurer determines that any such contribution poses a conflict of interest, such contribution shall be deemed a material breach of the contract or agreement at issue.

EXHIBIT E
NEW JERSEY ELECTION LAW ENFORCEMENT COMMISSION
REQUIREMENT FOR DISCLOSURE OF POLITICAL CONTRIBUTIONS

All business entities are advised of their responsibility to file on annual disclosure statement of political contributions with the New Jersey Election Law Enforcement Commission (ELEC) pursuant to N.J.S.A. 19:44A-20.27 if they receive contracts in excess of $50,000.00 from public entities in a calendar year. Business entities are responsible for determining if filing is necessary. Additional information on this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us

DISCLOSURE OF CONTRIBUTIONS TO NEW JERSEY ELECTION LAW ENFORCEMENT COMMISSION IN ACCORDANCE WITH *N.J.S.A.* 19:44A-20.27

The undersigned Bidder submitting the bid for the goods/services herein hereby acknowledges its responsibility to file an annual disclosure statement of political contributions with the New Jersey Election Law Enforcement Commission (ELEC) pursuant to *N.J.S.A.* 19:44A-20.27 if in receipt of contracts in excess of $50,000.00 from public entities in a calendar year. Bidder further acknowledges that business entities are solely responsible for determining if filing is necessary and that all statements contained in said bid and in this certification, are true and correct, and made with full knowledge that the New Jersey Turnpike Authority relies upon the truth of the statements contained in said bid and in statements contained in this certification in awarding the contract at issue.

I certify that I am authorized to make the foregoing statements on behalf of the Bidder and that the foregoing statements made by me are true. I am aware that if any of the foregoing statements made by me are willfully false, I am subject to punishment.

AUTHORIZED SIGNATURE:_____

Print Name and Title:_____

Bidder :_____

Date: _____

EXHIBIT F
SMALL/MINORITY/WOMAN OWNED BUSINESS ENTERPRISE

If your firm is registered with the State of New Jersey as a Small Business Enterprise (SBE) and/or certified as a Woman Business Enterprise (WBE), a Minority Business Enterprise (MBE), a Veteran Owned Business (VOB) or as a Disabled Veteran Owned Business (DVOB), you must send a copy of the Registration/Certification Form(s) with your quotation.

Please check off the gross receipt category of your business if registered as an SBE

SBE CATEGORY 1	$0- $500,000	_____
SBE CATEGORY 2	$500,001 thru $5,000,000	_____
SBE CATEGORY 3	$5,000,001 thru $12,000,000	_____
NOT APPLICABLE		_____

SBE Registration # _____

Please check below if applicable

W B E _____ M B E _____ VOB _____ DVOB _____

COMPANY_____

SIGNATURE _____

NAME _____

TITLE _____

DATE _____

_____

EXHIBIT G
VENDOR DISCLOSURE FORM

Please be advised that in accordance with *N.J.S.A.*52:34-13.2, the New Jersey Turnpike Authority has developed this form under the policy and procedures directed under this Order. In entering into contracts, the State contracting agencies must consider the requirements of New Jersey's contracting laws, the best interests of the State of New Jersey and its citizens, as well as applicable federal and international requirements.

The State contracting agencies shall ensure that all vendors seeking to enter into any contract in which services are procured on behalf of the State of New Jersey must disclose:

A. The location by country where services under the contract will be performed; and
B. Any subcontracting of services under the contract and the location by country where any subcontracted services will be performed.

THE LOCATION BY COUNTRY WHERE SERVICES UNDER THIS CONTRACT WILL BE PERFORMED:

Contractor Name: _____

Address: _____

Country: _____

Subcontractor #1 Name: _____

Address: _____

Country: _____

Subcontractor #2 Name: _____

Address: _____

Country: _____

(For additional subcontractors, attach additional copies of this form)

I certify that all information is true and correct to the best of my knowledge.

Signature: _____

Print Name: _____ Title: _____

EXHIBIT G-1
NEW JERSEY TURNPIKE AUTHORITY
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

NAME OF CONTRACTOR /BIDDER: _____

PART 1: CERTIFICATION

CONTRACTORS/BIDDERS **MUST COMPLETE** PART 1 BY CHECKING **EITHER BOX**.

FAILURE TO CHECK ONE OF THE BOXES SHALL RENDER THE PROPOSAL NON-RESPONSIVE.

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list follows this certification and can also be found on the State of New Jersey, Department of Treasury, Division of Purchase and Property website at http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Contractors/Bidders **must** review this list prior to completing the below certification. **FAILURE TO COMPLETE THE CERTIFICATION WILL RENDER A CONTRACTOR'S/BIDDER'S PROPOSAL NON-RESPONSIVE.** If the Authority finds a person or entity to be in violation of law, it shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

PLEASE CHECK THE APPROPRIATE BOX:

☐ **I certify, pursuant to Public Law 2012, c. 25, that neither the contractor/bidder listed above nor any of the contractor's/bidder's parents, subsidiaries, or affiliates is listed** on the N.J. Department of the Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List") . I further certify that I am the person listed above, or I am an officer or representative of the entity listed above and I am authorized to make this certification on its behalf. ***I will skip Part 2 and sign and complete the CERTIFICATION below.***

OR

☐ **I am unable to certify as above because the contractor/bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the CERTIFICATION below.** Failure to provide such will result in the proposal being rendered a non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

Part 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

You must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the requested information below. Please provide thorough answers to each question. If you need to make additional entries, provide the requested information on a separate sheet

Name_____Relationship to Contractor/Bidder _____

Description of Activities

_____

_____

Duration of Engagement_____Anticipated Cessation Date_____

Contractor/Bidder Contact Name_____Contact Phone Number_____

CERTIFICATION

MUST BE SIGNED BY BIDDER

I being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above referenced person or entity. I acknowledge that the New Jersey Turnpike Authority ("Authority") is relying on the information contained herein and thereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the Authority to notify the Authority in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with the Authority and that the Authority at its option may declare any contract(s) resulting from this certification void and unenforceable.

FULL NAME (print)**: _____ SIGNATURE_____**

TITLE: _____DATE: _____

EXHIBIT H
NOTICE TO ALL BIDDERS
SET-OFF FOR STATE TAX

Please be advised that pursuant to P.L. 1995, c. 159, effective January 1, 1996 and notwithstanding any provision of the law to the contrary, whenever any taxpayer, partnership, or S corporation under contract to provide goods or services or construction projects to the State of New Jersey or its agencies or instrumentalities, including the legislative and judicial branches of State government, is entitled to payment for those goods or services or construction projects and at the same time the taxpayer, or the partner or shareholder of that entity, is indebted for any State tax, the Director of the Division of Taxation shall seek to set-off that taxpayer's, partner's or shareholder's share of the payment due to the taxpayer, partnership, or S corporation. The amount of set-off shall not allow for the deduction of any expenses or other deductions which might be attributable to a partner or shareholder subject to set-off under this act. No payment shall be made to the taxpayer, the provider of goods or services, or the contractor or subcontractor of construction projects pending resolution of the indebtedness.

The Director of Division of Taxation shall give notice of the set-off to the taxpayer, the provider of goods or services, or the contractor or subcontractor of construction projects and provide an opportunity for a hearing with thirty (30) days of such notice under the procedures for protests established under *N.J.S.A.* 54:49-18. No requests for conference, protest or subsequent appeal to the Tax Court from any protest under this section shall stay the collection of the indebtedness. Interest that may be payable by the State pursuant to P.L. 1987, c. 184, *N.J.S.A.* 52:32-32 et seq. to the taxpayer, the provider of goods or services, or the contractor or subcontractor of construction projects shall be stayed.

"I HAVE BEEN ADVISED OF THIS NOTICE."

COMPANY_____

SIGNATURE _____

NAME_____

TITLE _____

DATE _____

_____

EXHIBIT I

LETTER OF SURETY

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____as PRINCIPAL: and

_____as Surety and duly qualified to transact business in the State of New Jersey, are hereby held and firmly bound unto the New Jersey Turnpike Authority in the sum by which the amount of the Contract, covering the attached proposal, properly and lawfully executed by and between the New Jersey Turnpike Authority and some third party, may exceed the amount bid by the Principal for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this_____day of_____A.D.

Two Thousand and_____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the Principal has submitted to the New Jersey Turnpike Authority a certain Proposal, attached hereto and hereby made a part hereof, to enter into a Contract in writing for Contract No. _____of the New Jersey Turnpike Authority;

NOW, THEREFORE,

(a) If said Proposal shall be rejected by the New Jersey Turnpike Authority, or in the alternative,

(b) If said Proposal shall be accepted by the New Jersey Turnpike Authority, and the Principal shall duly execute the Contract Agreement and furnish the required Contract Bond, within the stipulated time,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Authority may accept such Proposal; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

[Corporate Seal]

_____

_____

WITNESS OR ATTEST:

_____

_____ _____

Principal

[Corporate Seal]

_____

_____

WITNESS OR ATTEST:

_____

_____ _____

Surety

EXHIBIT J

PROPOSAL BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as PRINCIPAL: and

_____ as Surety and duly qualified to transact business in the State of New Jersey, are hereby held and firmly bound unto the New Jersey Turnpike Authority in the sum of

_____ Dollars and

_____Cents $_____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this_____day of_____A.D.

Two Thousand and_____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the Principal has submitted to the New Jersey Turnpike Authority a certain Proposal, attached hereto and hereby made a part hereof, to enter into a Contract in writing for Contract No. _____of the New Jersey Turnpike Authority;

NOW, THEREFORE,

(a) If said Proposal shall be rejected by the New Jersey Turnpike Authority, or in the alternative,

(b) If said Proposal shall be accepted by the New Jersey Turnpike Authority and the Principal shall duly execute the Contract Agreement and furnish the required Contract Bond, within the stipulated time,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Authority may accept such proposal; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____

[Corporate Seal]

_____

WITNESS OR ATTEST

_____

_____

_____

Principal

_____

[Corporate Seal]

_____

WITNESS OR ATTEST:

_____

_____

_____

Surety

EXHIBIT K
CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS:

That we,_____

Duly organized under the Laws of the_____
(An individual, a partnership, a corporation)
State of _____ and having a usual place of _____

_____ at _____as

Principal, and _____a

corporation duly organized under the Laws of the State of _____ and duly authorized to do business in the State of New Jersey and having a usual place of business at _____ as Surety, are holden and stand firmly bound and obligated unto the New Jersey Turnpike Authority, as Obligee, in the sum of _____lawful money of the United States of America, to and for the true payment whereof we bind ourselves and each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas, the above named Principal did on the _____ day of _____, 201_____, enter into a contract with the Obligee, New Jersey Turnpike Authority generally described as follows: _____ which said contract is made part of this Bond the same as though set forth herein.

Now, if the said Principal shall well and faithfully do and perform the things agreed by the Principal to be done and performed according to the terms of said contract, and shall pay all lawful claims of laborers and other beneficiaries as defined by *N.J.S.A* 2A:44-143 for labor performed or materials, provisions, provender of other supplies, or teams, fuels, oils, implements or machinery furnished, used or consumed in the carrying forward, performing or completing of said contract, we agreeing and assenting that this undertaking shall be for the benefit of laborers and any beneficiary as defined in *N.J.S.A* 2A:44-143 having a just claim, as well as, for the Obligee herein, then this obligation shall be void; otherwise, the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in anywise affect the obligation of said Surety on its bond, and the Surety hereby waives notice of same.

IN WITNESS WHEREOF, we have hereunto set our hands and seals

this _____day of _____ in the year 201_____.

_____

_____

WITNESS OR ATTEST _____

_____ _____

PRINCIPAL

[CORPORATE SEAL]

_____

_____

WITNESS OR ATTEST: _____

_____ _____

SURETY

[CORPORATE SEAL]

EXHIBIT L
CERTIFICATION AND REQUEST FOR WAIVER
OF THE COMPREHENSIVE AUTOMOBILE LIABILITY INSURANCE REQUIREMENT

Purchase Requisition #_____

I hereby request an exemption from the New Jersey Turnpike Authority's Comprehensive Automobile Liability Insurance policy for the above reference Purchase Requisition. I certify that if the company referenced below (hereinafter, "the Company") is the successful low bidder the Company will utilize a recognized, commercial third party shipper (i.e. UPS, Federal Express, DHL, U.S. Postal Service, Air Borne Express, etc..) to deliver all Goods to the New Jersey Turnpike Authority. By signing this certification, a representation is made that no vehicle either owned, rented or leased by the Company will be used for the delivery of any goods to the New Jersey Turnpike Authority, and that, any delivery made will be restricted to the use of third parties providing package delivery service in the ordinary course of business. Accordingly, a waiver of Comprehensive Automobile Liability Insurance is hereby requested.

_____
The Company (insert name of Company)

By:_____
(print and sign name)

_____
Title

_____
Date

$2MM WAIVER

EXHIBIT M

INSTRUCTIONS FOR DIRECT PAYMENTS (ACH CREDITS)

PLEASE PRINT ALL ENTRIES (except for signature)

COMPANY NAME – Enter your company's name as registered with the New Jersey Turnpike Authority

NJTA VENDOR ID NUMBER – Enter the number assigned to your company by the New Jersey Turnpike Authority*

TELEPHONE NUMBER - Enter your telephone number, including area code

EMAIL ADDRESS - Enter your email address. You will receive detailed notification of ACH payment

DEPOSITORY NAME – Enter the name of your depository bank/financial institution

BRANCH - Enter the name of your bank's branch office/location

CITY/STATE/ZIP CODE – Enter your bank's address

ROUTING NUMBER (DFI ID) – Enter your bank's routing number. This is your bank's nine position American Banking Association number, also known as the bank transit code

ACCOUNT NUMBER – Enter your checking or savings account number. This is a variable length field

NAME AND TITLE– Enter the name and title of the person who has the authority to accept ACH payment as an alternative to receiving check payment for your company

AUTHORIZED SIGNATORY – Enter your signature

If you require assistance, please call Carol Sabanos at (732) 750-5300, ext. 8149 or email her at achvendor@njta

Following completion, forward the form (attached with the required **original** voided check or bank letter) to: New Jersey Turnpike Authority, ATTN: Accounts Payable, Finance Department/AP, PO Box 5042, Woodbridge, NJ 07095-5042 **or** you may scan and email the completed form (with the required **original** voided check or bank letter) to achvendor@njta

New Jersey Turnpike Authority
ATTN: Accounts Payable, Finance Department
PO Box 5042
Woodbridge, NJ 07095-5042

Revised JP 02//2019

AUTHORIZATION AGREEMENT FOR DIRECT PAYMENTS (ACH CREDITS)

Company Name _____NJTA Vendor ID _____

Telephone Number_____Email Address_____

I (we) hereby authorize New Jersey Turnpike Authority (NJTA) to initiate ACH credit entries to my (our) □ Checking Account / □ Savings Account (select one) indicated below at the depository financial institution named below, hereafter called DEPOSITORY.

I (we) acknowledge that that origination of ACH transactions to my (our) account must comply with the provisions of U.S. law.

Depository Name _____Branch _____

City _____State _____Zip _____

Routing Number (DFI ID) _____ Account Number _____

This authorization is to remain in full force and effect until New Jersey Turnpike Authority (NJTA) has received written notification from me (or either of us) of its termination in such time and in such manner so as to afford New Jersey Turnpike Authority and DEPOSITORY a reasonable opportunity to act on it.

Name(s) _____Title _____
(please print)

Date _____ Authorized Signatory_____

PLEASE INCLUDE AN ORIGINAL VOIDED CHECK OR BANK LETTER WITH THIS FORM.

For NJTA use only:

Received by: _____ Date: _____

Revised JP 02//2019