

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
CONTRACT FOR PROCUREMENT**

REQUEST FOR PROPOSAL TITLE: Snow Plow Truck Turnkey Package

REQUEST FOR PROPOSAL NO.: 065-30-19-050

This agreement is entered into between the state of North Dakota, acting by and through its Director of Transportation, hereinafter referred to as NDDOT, whose address is 608 East Boulevard Avenue, Bismarck, North Dakota, and Bert's Truck Equipment, hereinafter referred to as the Contractor, whose address is 3804 Hwy. 75 North, Moorhead, Minnesota 56560.

In consideration of the mutual covenants herein set forth, NDDOT and the Contractor agree as follows:

1. That in consideration of the payments to be made by NDDOT, the Contractor agrees to provide the services and/or goods in accordance and in conformity with this contract, the Contractor's proposal, dated March 12, 2019, NDDOT's request for proposal issued on February 5, 2019, and any purchase orders issued as a result of this contract. The Contractor's proposal, NDDOT's request for proposal, and any purchase orders are incorporated by reference herein. If discrepancies exist between the Contractor's proposal, and NDDOT's request for proposal, or this contract, NDDOT's request for proposal, and this contract shall govern.
2. NDDOT agrees to pay the Contractor for the work, when completed and accepted in accordance with this contract.
Payments are to be made upon presentation of an invoice by the Contractor, and by the terms of this contract.
3. The work shall be done pursuant to this contract, to the laws of the state of North Dakota, and to the satisfaction of NDDOT, in accordance with the rules and regulations made pursuant to state and federal law.
4. The Contractor, in employing and maintaining labor, shall do so in conformity with state and federal law and this contract.
5. Payments by NDDOT beyond the current state biennium shall be contingent on sufficient funds being appropriated by the Federal Government or State Legislature for the Department. In the event of insufficient appropriations in future bienniums, NDDOT may give a minimum of 30 days notice to terminate this agreement/contract and have no further obligation to the Contractor.
6. All work products and copyrights of the contract which result from this contract are the exclusive property of NDDOT.
7. Notwithstanding any rules regarding the choice of law or venue, it is agreed by the parties that this contract shall be governed by and construed in accordance with applicable Federal Law and the laws of the state of North Dakota, at the time this contract was executed. All disputes arising from this agreement shall be brought in the South Central District Court of the state of North Dakota.
8. This agreement constitutes the entire agreement between the parties. No waiver, consent, modification, or change of terms of this agreement shall bind either party unless in writing and signed by both parties. Such waiver, consent, modification, or change, if made, shall be effective only in the specific instance and for the specific purpose given. There are no understandings, agreements, or representations, oral or written, not specified herein regarding this agreement. The Contractor, by the signature below of its authorized representative, hereby acknowledges that the Contractor has read this agreement, understands it, and agrees to be bound by its terms and conditions.



9. The terms of this agreement shall not be waived, altered, modified, supplemented, or amended, in any manner whatsoever, except by written instrument signed by the parties.
10. The Contractor shall not assign any portion of the work under this agreement, execute any contract, or obligate itself in any manner with a third party with respect to its rights and responsibilities to this agreement without written consent of NDDOT. Any agreement with a subcontractor does not create a contractual relationship between the NDDOT and the subcontractor.
11. The Contractor shall not assign nor transfer the contractor's interests or duties under this agreement without the express written consent of the state.
12. The Contractor agrees to comply with all applicable laws and rules, including, but not limited to, those relating to nondiscrimination, accessibility, and civil rights.
13. The Appendices A and E of the Title VI Assurances, attached, are hereby incorporated into and made a part of this agreement.
14. Termination
 - a. This contract may be terminated by mutual consent of both parties, or by either party upon 30 days' notice, in writing and delivered by certified mail or in person.
 - b. In addition, NDDOT may terminate this contract effective upon delivery of written notice to the Contractor, or at such later date as may be established by NDDOT, under any of the following conditions:
 - i. If NDDOT funding from federal, state, or other sources is not obtained and continued at levels sufficient to allow for purchase of the indicated quantity of services. The contract may be modified by agreement of the parties in writing to accommodate a reduction in funds.
 - ii. If federal or state regulations or guidelines are modified, changed, or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this contract or are no longer eligible for the funding proposed for payments authorized by this contract.
 - iii. If any license or certificate required by law or regulation to be held by the Contractor to provide the services required by the contract is for any reason denied, revoked, or not renewed.
- Any such termination of this contract under (i), (ii), or (iii), above, shall be without prejudice to any obligations or liabilities of either party already accrued prior to such termination.
 - c. NDDOT, by written notice to the Contractor, may terminate the whole or any part of this agreement.
 - i. If the Contractor fails to provide services called for by this contract within the time specified herein or any extension thereof; or
 - ii. If the Contractor fails to perform any of the other provisions of this contract, or so fails to pursue the work as to endanger performance of this contract in accordance with its terms, and after receipt of written notice from NDDOT, fails to correct such failures within ten days or such longer period as NDDOT may authorize.
15. The Risk Management Appendix, attached, is hereby incorporated into and made a part of this agreement.



16. This agreement becomes effective when all parties have signed and it shall terminate on 12/31/2020.

EXECUTED the date last below signed.

WITNESS:

Brenda Sowl

NAME (TYPE OR PRINT)

Brenda Sowl

SIGNATURE

To be signed by Owner; Partner; Corp. Pres., Vice Pres., or other authorized Corp. Officer. (If signed by other authorized Corp. Officer, please attach copy of Power of Attorney or other documentation showing authority to sign.)

CONTRACTOR:

Jeremy K Gregoire

NAME (TYPE OR PRINT)

Jeremy K Gregoire

SIGNATURE

President

TITLE

4-2-19

DATE

WITNESS:

Sandra Goebel

NAME (TYPE OR PRINT)

Sandra Goebel

SIGNATURE

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

Mark Nelson

DIRECTOR (TYPE OR PRINT)

Mark Nelson

SIGNATURE

04/11/19

DATE

APPROVED as to execution this
10th day of April 2019
ATTORNEY GENERAL
By [Signature]
SPECIAL ASST. ATTORNEY GENERAL

APPROVED as to substance by:

Robin Rehburg

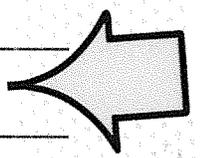
DIVISION DIRECTOR (TYPE OR PRINT)

Robin Rehburg

SIGNATURE

4-10-19

DATE



CLA 1043 (Div. 50)
L.D. Approved 2-17-05; 10-14



**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX A OF THE TITLE VI ASSURANCES**

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees as follows:

1. Compliance with Regulations: The Contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. Information and Reports: The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Recipient or the Federal Highway Administration as appropriate, and will set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

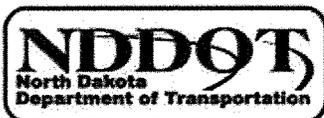


**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX E OF THE TITLE VI ASSURANCES**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.P.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).





TRUCK EQUIPMENT

“Celebrating 80 years 1939-2019”

March 12th, 2019

Vanessa Brosten
North Dakota State Fleet
608 East Boulevard Avenue
Bismarck, ND 58505-0700

Dear Vanessa:

Bert's Truck Equipment is pleased to submit the following **“Request for Proposal”** for the for the State of North Dakota “Turnkey Snow Plow Truck Equipment” for your 2019 and 2020 calendar year.

For the past 80 years, Bert's Truck Equipment has provided our customers with the highest quality equipment backed by years of professional installations. Because we have been building “turnkey” plow trucks for over 31 years, we have an in-depth knowledge and understanding of the upcoming project and the highly skilled staff to meet the states expectations and requirements.

Bert's Truck Equipment is proud to be a long time member in good standing of the National Truck Equipment Association.

Please feel free to contact me if you have any questions or concerns regarding our proposals. We look forward to serving the North Dakota Department of Transportation's equipment needs!

Sincerely

Jim McLaughlin
Commercial, Fleet, and Government Sales

YOUR TRUCK EQUIPMENT HEADQUARTERS

(218) 233-8681
FAX (218) 233 9548
1-800-232-3787

3804 HWY 75 NORTH
MOORHEAD, MN 56560

jimmc@bertsonline.com



TRUCK EQUIPMENT

“Celebrating 80 years 1939-2019”

Production Schedule 2019-2020

Bert's Truck Equipment understands the importance of the North Dakota's Department of Transportations need to have the turn key snowplow trucks completed on time with little or no re-work required. We have always prided ourselves with the highest quality installation and timely delivery. It is with this understanding that we propose the timeline for completion of the state's plow trucks.

Time per chassis

Bert's Truck Equipment would complete up to 21 chassis per build in 120 calendar days from the time the first chassis is delivered to us and all necessary components are available for installation. The estimated starting date would be mid to late August or early September 2019 (Sooner if components are available and a mutually agreed starting day is established)

We feel that this schedule is reasonable and allows adequate time to complete each unit yet insure the highest quality workmanship. Any add on units could be completed in a 7-8 day turn around depending on the equipment being installed.

YOUR TRUCK EQUIPMENT HEADQUARTERS

(218) 233-8681
FAX (218) 233 9548
1-800-232-3787

3804 HWY 75 NORTH
MOORHEAD, MN 56560

jimmc@bertsonline.com

original

RFP Number: 065-30-19-050
Proposal Response Sheets

TURNKEY PACKAGE ITEM #1

Purchase price and labor to install 14' dump & spreader box, hydraulic system, plow lights, warning light system, quick hitch, 11' underbody scraper, 10' rear-mount snow wing and hopper pre-wet system.

Specification Number	Description	Unit Price Ea.
SSP-22-2ADSUBW SSP-01	14' dump & spreader box, hydraulic system, plow lights, strobe system, plow quick hitch, furnished and installed. Estimated Quantity total 28	\$ 93,978 ⁰⁰
SSP-95-4180-2	11' underbody scraper furnished and installed.	\$ 11,723 ⁰⁰
SSP-95-4200-23	10' rear mount snow wing, left or right hand	\$ 12,845 ⁰⁰
SSP-95-5700-4	400 gallon hopper pre-wet system furnished and installed. 540 gallon	\$ 5,495 ⁰⁰
Total package price each.		\$ 124,041 ⁰⁰
Package price x 28 = Total Contract Price for Package #1		\$ 3,473,248 ⁰⁰

TURNKEY PACKAGE ITEM #2

Purchase price and labor to install 14' dump box, hydraulic system, plow lights, warning light system, quick hitch, 11' underbody scraper, 10' rear mount snow wing, tailgate sander, box vibrator, and hopper pre-wet system.

Specification Number	Description	Unit Price Ea.
SSP-22-2AUBW SSP-01	14' dump box, hydraulic system, plow lights, strobe system, plow quick hitch, furnished and installed. Estimated Quantity total 13	\$ 72,918 ⁰⁰
SSP-95-4180-2	11' underbody scraper furnished and installed.	\$ 11,723 ⁰⁰
SSP-95-4200-23	10' rear mount snow wing, left or right hand	\$ 12,845 ⁰⁰
SSP-95-2400-4	Tailgate sander furnished and installed.	\$ 6118 ⁰⁰
SSP-95-5700-10	150 gallon tailgate pre-wet system furnished and installed.	\$ 3865 ⁰⁰
Box vibrator, Cougar model DC-3200, Tend Air model RV-3500 or approved equal, furnished and installed as per manufacturer's instructions with mounting and location to be approved by NDDOT.		\$ 995 ⁰⁰
Total package price.		\$ 108,464 ⁰⁰
Package price x 13 = Total Contract Price for Package #2		\$ 1,410,032 ⁰⁰

Truck Delivery Charges Per Unit for the Following Destinations:

Bismarck - \$ 270⁰⁰

Dickinson - \$ 390⁰⁰

Valley City - \$ 90⁰⁰

Grand Forks - \$ 100⁰⁰

Devils Lake - \$ 230⁰⁰

Williston - \$ 525⁰⁰

Minot - \$ 360⁰⁰

Fargo - \$ 0

PROPOSED DELIVERY TIME FOR 21 UNITS IN 2019: 120 DAYS (AFTER RECEIPT OF CHASSIS)

PROPOSED DELIVERY TIME FOR 21 UNITS IN 2020: 120 DAYS (AFTER RECEIPT OF CHASSIS)

ITEM #3

Option: Purchase additional complete quick hitch assemblies with installation hardware for life of contract.

FOB: Bismarck, ND. Price each \$ 2368⁰⁰.

ITEM #4

Option: Purchase additional quick hitch assemblies without lift cylinder and with complete installation hardware for life of contract.

FOB: Bismarck, ND. Price each \$ 2110⁰⁰.

ITEM #5

Option: Purchase additional stainless steel tailgate spreaders with side shields, installation hardware, and as specified within for life of contract.

FOB: Bismarck, ND. Price each \$ 5809⁰⁰. *with short hose kit deduct - 300⁰⁰ if hose kit + couplers not needed*

ITEM #6

Option: Force America 6100-3 lane programming package with individual loose wires for lane selection. Truck portion of trailer anti-ice wiring harness. All necessary hydraulic plumbing and couplers needed to connect to the right rear of truck.

Price each installed \$ 1738⁰⁰.

ITEM #7

Option: Force America 5 joystick controller and 2 additional valve sections with all necessary hydraulic plumbing with stucchi couplers to connect to the trailer at the rear of truck.

Price each installed \$ 8230⁰⁰.

ITEM #8

Option: Purchase additional 14' stainless steel dump/spreader box with cylinder, brine tanks, installation hardware, and as specified within for life of contract.

FOB: Fargo, ND. Price each w/o labor \$ 43,900⁰⁰.

ITEM #9

Option: Purchase additional 14' stainless steel dump box with cylinder, installation hardware, and as specified within for life of contract.

FOB: Fargo, ND. Price each w/o labor \$ 19870.

ITEM #10

Option: Purchase fixed 11' underbody scraper including installation and hydraulics.

Add \$ 8058⁰⁰.

ITEM #11

Option: Mounting/hardware for dual wing.

Add/Deduct \$ 0.

ITEM #12

Option: Purchase addition Paraglide type wing post and counterbalance valve with complete installation hardware for life of contract.

FOB: Bismarck, ND Price each w/o labor \$ 4098⁰⁰ Front Post Assembly.

ITEM #13

Option: Purchase heavy duty flatbed to support brine tank, approximately 8'Wx17.5'L, stake pockets, rub rails, treadplate floor and countersunk LED lighting. With bulkhead, ploy fenders w/stainless brackets, rear hinge and front hold down pins, body props and pintle plate. E-coated premier and painted black with hardener or powder coated.

FLATBED MAKE: Kuapbeide MODEL: PHHJT-183

FOB: Fargo, ND. Price w/o labor \$ 10,180⁰⁰.

ITEM #14

Option: Purchase additional 304 stainless steel tailgate spreaders that mounts to a dump/spreader style box, direct drive, single auger, 8" round drop shoots 3.5" long on both ends of sander and with complete installation hardware for the life of contract. Monroe MS969, Bonnell Bon-RCA6-DD-AS-ND or approved equal.

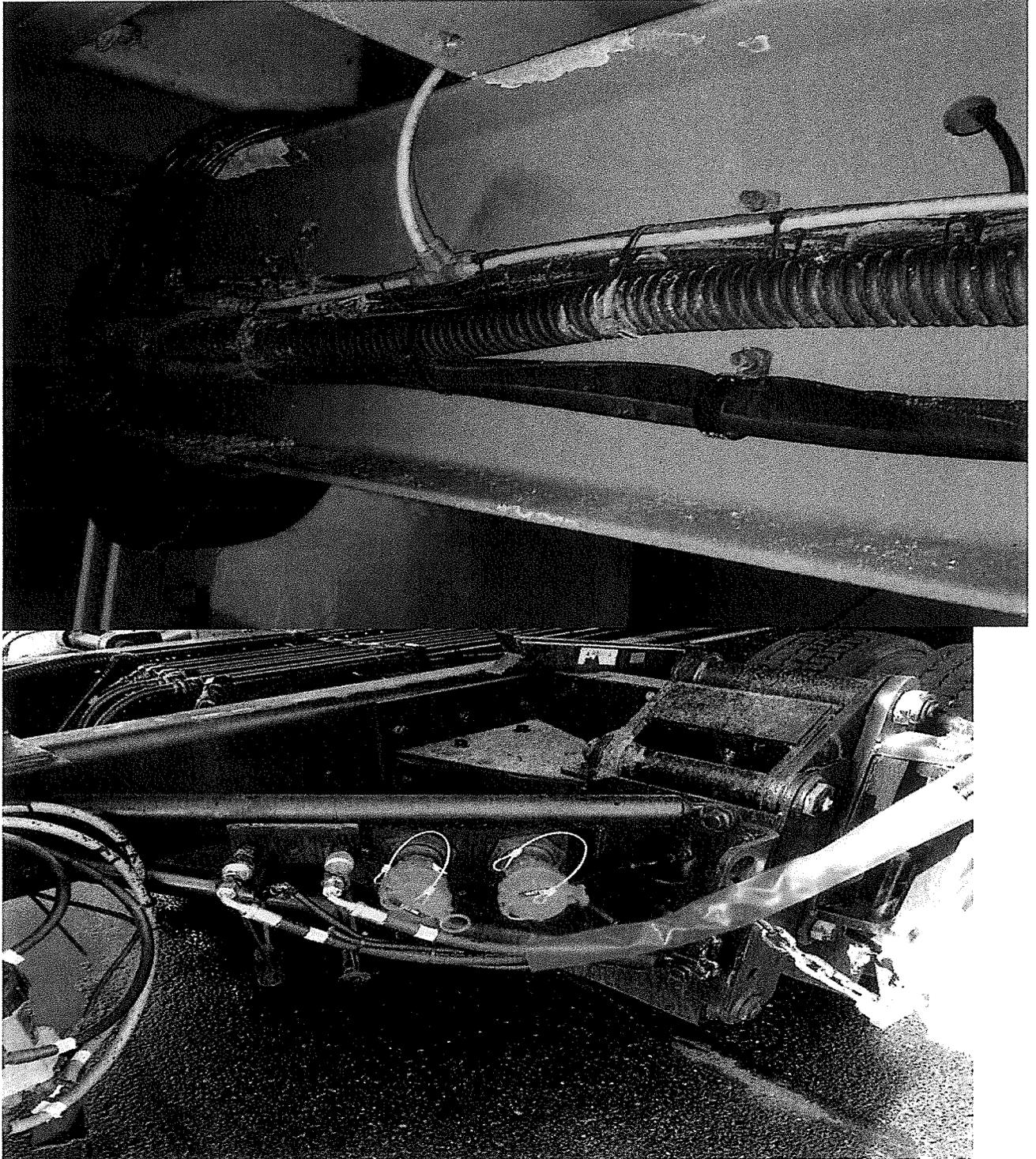
FOB: Fargo, ND. Price each w/o labor \$ 5690⁰⁰

Price each includes installation, plumbed and wired for auger reverse \$ 7235⁰⁰

ITEM#15

Option: Truck wash system installed on the inside of truck frame rail consisting of 1.25" Kanaflex 390 (EDPM rubber, polyethylene helix, synthetic braid, smooth bore, corrugated OD or equal) popularly secured. 2" male inlet and outlet adaptor mounted on wing support with dust covers.

Price each installed \$ 1060⁰⁰



ITEM #16

Option: Oil Gear Hydraulic pump FASD60-R-CS in lieu of Force America FASD45R.

Add \$ 1215⁰⁰

Receipt of the following addenda to the RFP, by date, is acknowledged:

Amendment #1 2-22-19

Amendment #2 3-8-19

SIGNED: Jeremy K. Gregoire

FULL NAME: Jeremy Karl Gregoire
(Please Print)

TITLE: President

FIRM NAME: Bert's Truck Equipment of Moorhead, Inc

FIRM ADDRESS: Po Box 336, Moorhead, MN 56566

FIRM PHONE NUMBER: 218-233-8681 FIRM FAX NUMBER: 218-233-9548

EMAIL ADDRESS: Jeremy@bertsonline.com

Proposals must remain open and valid for at least 90 DAYS from the deadline specified for submission of proposals. Proposals may be withdrawn at any time prior to proposal opening date.

The signatory agrees that the NDDOT has the right to reject any or all proposals for any reason.

Amendment No. 1

To: ALL INTERESTED SUPPLIERS

From: Vanessa Brosten, Purchasing Agent II
North Dakota Department of Transportation

Date: February 22, 2019

Re: RFP 065-30-19-050, Snow Plow Truck Turnkey Package

Section 1.03, RFP Schedule established a deadline for receipt of questions. The responses to these questions are provided as addenda to the solicitation. The solicitation is amended to include any new information provided in this amendment.

✓ **Question 1)** Plow Lights Item "iv": The specifications call for the mounting brackets to use existing holes in the "Grill". We have a concern that the grill is stationary to the frame and does not move when the hood is to be opened; therefore, it may be necessary to have the plow light mounting frame attached to the hood so that the hood can be opened. This may require us to drill new holes. Would this be acceptable?

✓ **Answer 1)** Reference Specifications page 13, 10 (b) (iv) and page 27, 19 (c) (vi).
Change first sentence to read: 2"x2"x1/4" Aluminum angle to be fastened with bolts to grill/hood.
RFP Specifications is hereby amended.

✓ **Question 2)** The new monitor for the 6100 Force America control will probably not fit where it has been mounted in the past. Does the state have an alternate location where it should be mounted?

Answer 2) If unable to mount to dash, Force America bracket #1133252 must be used.
RFP Specifications is hereby amended.

✓ **Question 3)** In the rear mounted wing specification 1(a) the front toe stowed height is minimum of 13". In the past the state has accepted a front minimum toe height of 12". Is this acceptable?

Answer 3) Yes, a front minimum toe height of 12" is acceptable.
RFP Specifications is hereby amended.

✓ **Question 4)** Section 11-b-ii of the dump body hoist. In the past the state has accepted an inverted style telescopic hoist with a harden chrome surface. It exceeds the specifications. Is this still acceptable?

Answer 4) Yes, as long as it meets or exceeds the specification it is acceptable.
No amendment necessary.

✓ **Question 5)** On page 8, Control Center, Item g (2) of the hydraulic controls. Our scraper does not require the 3 second requirement to activate the automatic scraper down pressure. If our product doesn't need this requirement, does it need to be provided.

Answer 5) No.
No amendment necessary.

Question 6) With regards to glass filled epoxy paint or Ameron marine coating, there is no UV protection to either product. It will fade and turn gray over time. Will the state require any type of UV stable topcoat over these areas? If so, can you be specific?

Answer 6) A previous specification had called for any mild steel parts must be painted with PPG Glass Filled AntiChip Epoxy Primer and coated with PPG CPC PB 221 2K High Solids Urethane AUE-360 (Spectacon 360) marine grade paint. The top coat mentioned may be black in color. Orange components should be painted orange in color. Black components should be painted black in color. Axalta NASON is also acceptable with an epoxy primer, orange or black in the respective color. RFP Specifications is hereby amended.

Vendors are instructed to acknowledge receipt of and compliance with this amendment by signing below and returning this acknowledgement with your proposal.

Any questions regarding this amendment must be submitted in writing to the undersigned Procurement Officer.

Vanessa Brosten, Procurement Officer
PHONE: 701-328-4466
FAX: 701-328-0310
E-MAIL: vbrosten@nd.gov

By my signature below, I hereby acknowledge receipt of and compliance with this amendment to the above referenced solicitation.

PRINTED NAME OF BIDDER OR OFFEROR <u>and</u> TITLE <i>Jeremy K. Gregoire - President</i>	
SIGNATURE <i>Jeremy K. Gregoire</i>	DATE <i>3-8-19</i>

Amendment No. 2

To: ALL INTERESTED SUPPLIERS
From: Vanessa Brosten, Purchasing Agent II
North Dakota Department of Transportation
Date: March 8, 2019
Re: RFP 065-30-19-050, Snow Plow Truck Turnkey Package

The following correction has been made.

Reference the RFP document, page 33 of 39, Turnkey Package Item #1:

Specification Number SSP-95-5700-4 states: 400 gallon hopper pre-wet system furnished and installed.

✓ CHANGE TO: 540 gallon hopper pre-wet system furnished and installed.

Vendors are instructed to acknowledge receipt of and compliance with this amendment by signing below and returning this acknowledgement with your bid or proposal.

Any questions regarding this amendment must be submitted in writing to the undersigned Procurement Officer.

Vanessa Brosten, Procurement Officer
PHONE: 701-328-4466
FAX: 701-328-0310
E-MAIL: vbrosten@nd.gov

By my signature below, I hereby acknowledge receipt of and compliance with this amendment to the above referenced solicitation.

PRINTED NAME OF BIDDER OR OFFEROR <u>and TITLE</u> Jeremy K. Gregoire - President	
SIGNATURE Jeremy K. Gregoire	DATE 3-8-19

STATE OF NORTH DAKOTA

**North Dakota Department of Transportation
State Fleet Services
608 East Boulevard Avenue
Bismarck, ND 58505-0700**

Request For Proposal (RFP)

RFP Title: **Snow Plow Truck Turnkey Package**

RFP Number: **065-30-19-050**

Date of Issue: **2/5/2019**

Purpose of RFP:

The North Dakota Department of Transportation, State Fleet Services, is soliciting proposals for the purchase and installation of approximately 21 turnkey snow and ice control truck packages beginning in July 2019 to be completed for the 2019-2020 winter season and an additional order of approximately 21 snow and ice control turnkey truck packages to be completed in 2020 for the 2020-2021 winter season.

The turnkey packages include dump bodies, hydraulic systems, emergency lighting, anti-icing, sanding, and snow removal equipment installed on NDDOT provided tandem axle truck chassis. It is relevant that the units meet the requirements to operate in the extreme adverse winter weather conditions experienced while performing snow removal from the North Dakota state highway system.

The units shall include features which are regularly featured as standard production. The units shall conform in strength, quality of material, and workmanship to that provided by the best manufacturing and engineering practices of the industry.

Offerors shall represent, by proposals submitted, that the equipment is new, current model year, completely assembled, painted, tested, and ready for operation.

Offerors shall provide, in their proposals, complete equipment specifications, manufacturer brochures, a list of three users with letters of reference, phone numbers of contact persons, warranties, parts and service location, detailed list of optional equipment and accessory prices, and proposed delivery schedule.

Procurement Officer: Vanessa Brosten
PHONE: 701-328-4466
FAX: 701-328-0310
E-MAIL: vbrosten@nd.gov

Offerors are not required to return this form.

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**SECTION ONE
INTRODUCTION AND INSTRUCTIONS**

1.01

Purpose of the RFP

The North Dakota Department of Transportation, State Fleet Services, is soliciting proposals for the purchase and installation of approximately 21 turnkey snow and ice control truck packages beginning in July 2019 to be completed for the 2019-2020 winter season and an additional order of approximately 21 snow and ice control turnkey truck packages to be completed in 2020 for the 2020-2021 winter season.

The turnkey packages include dump bodies, hydraulic systems, emergency lighting, anti-icing, sanding, and snow removal equipment installed on NDDOT provided tandem axle truck chassis. It is relevant that the units meet the requirements to operate in the extreme adverse winter weather conditions experienced while performing snow removal from the North Dakota state highway system.

1.02

Contact Personnel, Telephone, Fax, E-mail

The procurement officer is the point of contact for this RFP. All vendor communications regarding this RFP must be directed to the procurement officer. Please do not add the procurement officer to any marketing distribution lists.

PROCUREMENT OFFICER: **Vanessa Brosten**

PHONE: **701-328-4466**

FAX: **701-328-0310**

TTY Users call: 7-1-1

E-MAIL: vbrosten@nd.gov

PROJECT MANAGER: **Tim Paul**

PHONE: **701-328-1465**

FAX: **701-328-2514**

TTY Users call: 7-1-1

E-MAIL: tpaul@nd.gov

Unauthorized contact regarding the RFP with other state employees or official other than the responsible procurement officer is sufficient grounds for disqualification, and the vendor may be suspended or disbarred from the state bidders list.

1.03

RFP Schedule

This schedule of events represents the State's best estimate of the schedule that will be followed for this RFP. If a component of this schedule, such as the deadline for receipt of proposals, is delayed, the rest of the schedule will be shifted by the same number of days.

The approximate RFP schedule is as follows:

- RFP Issued: **2/5/2019**
- Deadline for receipt of questions and objections related to the RFP: **2/19/2019**
- Responses to questions / RFP amendments (if required) **2/22/2019**
- Proposals due by: **3/12/2019; 3:00 PM Central**
- Proposal Evaluation Committee evaluation completed by approximately : **3/18/2019**
- State issues Notice of Intent to Award a Contract approximately: **3/19/2019**
- State issues contract approximately: **3/29/2019**
- Contract start: **4/5/2019**

1.04

Proposal Receipt Deadline – Late Proposals Rejected

Proposals must be received by the purchasing agency at the location specified no later than **3:00 P.M., CENTRAL, on March 12, 2019**. Proposals will not be publicly read at the opening.

An offeror is responsible for ensuring its proposal is received by the State prior to the proposal receipt deadline identified in the RFP schedule. A solicitation amendment will be issued if this deadline is changed. An offeror may contact the procurement officer to inquire whether its proposal has been received. Offerors assume the risk of the method of dispatch chosen. The State assumes no responsibility for delays caused by any delivery service. Postmarking by the deadline shall not substitute for actual proposal receipt by the State. Proposals delivered late will be rejected pursuant to [N.D.A.C. § 4-12-08-13](#).

1.05

Proposal Opening

This is a formal sealed Request for Proposal process. Proposals will be secured and held unopened until the Proposal Receipt Deadline. A public opening will not be held. At the specified date and time, each proposal will be opened in a manner to avoid disclosure of the contents to the competing offerors.

1.06

Assistance to Offerors with a Disability

Offerors with a disability that need assistance with the RFP or events in the RFP schedule should contact the procurement officer as soon as possible so that reasonable accommodation can be made.

1.07

Deadline for Receipt of Questions and Objections

Offerors should carefully review the RFP including all attachments. Offerors may ask questions to obtain clarification, request additional information, or object to material in the RFP. Questions and objections must be submitted to the procurement officer in writing by the deadline identified in the RFP schedule. If no deadline is specified, questions or objections must be received at least seven days prior to the Proposal Receipt Deadline. The Procurement Officer may elect to respond to questions received after the deadline. Oral communications is considered unofficial and non-binding on the State.

Questions and objections should include a reference to the applicable RFP section or subsection. Email is the preferred method of submission with the RFP number cited in the email subject line.

Responses to questions and requests for clarifications will be distributed as a solicitation amendment, unless the question can be answered by referring the offeror to a specific section.

1.08

Approved Vendor Registration Requirements

VENDORS MUST BE APPROVED PRIOR TO CONTRACT SIGNING

Proposals will be accepted from vendors that are not currently approved vendors on the State's bidders list; however, the successful offeror will be required to become approved prior to contract signing.

Bidders List and Secretary of State Registration Process. Contact the OMB State Procurement Office for assistance at 701-328-2773 or email infospo@nd.gov.

1. Visit the Bidders List Application forms and instructions are available online at: <https://www.nd.gov/omb/vendor>.
2. Check the Bidders List to determine if the person or firm is already registered: <https://apps.nd.gov/csd/spo/services/bidder/main.htm>
3. An offeror that needs to complete the registration process shall:
 - a. Register with the Secretary of State (fees apply) and obtain a "System ID" number.

- b. Submit a [Bidders List Application](#) including selecting [commodity codes](#). The commodity codes used for this solicitation are: 065-30.

The successful offeror must register and become approved within **60 CALENDAR DAYS** from the date of the Notice of Intent to Award. If an offeror fails to become approved by the time specified by the Procurement Officer, its proposal will be determined to be non-responsive, and its proposal will be rejected.

1.09

Pre-proposal Conference

No pre-proposal conference will be held for this RFP.

1.10

State Procurement Website (SPO Online)

This RFP and any related amendment and notices will be posted on the North Dakota Office of Management and Budget website - State Procurement Online system. Offerors are responsible for checking this website to obtain all information and documents related to this RFP: <https://www.nd.gov/omb/vendor/bidding-opportunities-spo-online>

Select "[SPO Online](#)." From the left menu click Bidder Resources, then click State Procurement Online. The Bidder Services Main Menu will appear, click on "Recent Solicitations" under the Solicitation section. Recent solicitations are listed by close date.

Notices related to this RFP will be sent to the Bidders List for the needed commodity or service and other known potential offerors.

Offerors not having completed the Bidders List registration may request to receive notices related to this RFP by contacting the procurement officer in writing with the following information: RFP title, business name, contact person, mailing address, telephone number, and email address.

1.11

Amendments to the RFP

If an amendment to this RFP is issued, it will be provided to all offerors on the Bidders List for the solicitation and to those prospective offerors who have contacted the procurement officer to receive notices related to the RFP. Any amendments to the RFP will be posted to SPO Online.

1.12

News Releases

Offerors shall not make any news releases related to this RFP without prior approval of the State.

1.13

Letter of Interest

Vendors interested in receiving any notices related to this RFP are invited to contact the procurement officer with the name of their firm, contact person, mailing address, telephone number, fax number, and e-mail address. The sole purpose of the letter of interest is to provide the purchasing agency with a contact person to receive any notices related to the RFP. Submission of a letter of interest is not a requirement for submitting a proposal.

SECTION TWO BACKGROUND INFORMATION

2.01 Background Information

The North Dakota Department of Transportation, State Fleet Services, is soliciting proposals for the purchase and installation of approximately 21 turnkey snow and ice control truck packages beginning in July 2019 to be completed for the 2019-2020 winter season and an additional order of approximately 21 snow and ice control turnkey truck packages to be completed in 2020 for the 2020-2021 winter season. These numbers are approximate and NDDOT reserves the right to add or delete from these numbers based upon budget authority and need.

The turnkey packages include dump bodies, hydraulic systems, emergency lighting, anti-icing, sanding, and snow removal equipment installed on NDDOT provided tandem axle truck chassis. It is relevant that the units meet the requirements to operate in the adverse weather conditions experienced while performing snow removal from the North Dakota state highway system.

The units shall include features, which are regularly featured as standard production. The units shall conform in strength, quality of material, and workmanship to that provided by the best manufacturing and engineering practices of the industry.

Offerors shall represent, by proposals submitted, that the equipment is new, current model year, completely assembled, painted, tested, and ready for operation.

Offerors shall provide, in their proposals, complete equipment specifications, manufacturer brochures, warranties, parts and service location, detailed list of optional equipment and accessory prices, a proposed delivery schedule, and a list of three users with letters of reference, phone numbers of contact persons.

SECTION THREE SCOPE OF WORK

3.01 Scope of Work/Specification Guidelines

These guidelines are intended to provide offeror with a detailed description of the turnkey packages. The State of North Dakota realizes that manufacturers differ in their design, encourage the submission of more than one proposal, and will objectively review all proposals.

The "Snow Plow Turnkey Truck Package" specifications including additional terms & conditions for delivery schedule and project bonus for early completion are posted as a separate attachment and must be completed and included with the proposal.

The make, model and configuration of the truck chassis will be provided via addendum to proposal labeled "Chassis Specifications" approximately one to two weeks in advance of proposal opening to assist the offeror with planning and pricing.

3.02 Location of Work

The work is to be performed, completed, and managed at the vendor's location.

The State will not provide workspace for the contractor.

The offeror should include in its price proposal: transportation, lodging, and per diem costs sufficient to pay for one or more person(s) to make the trips necessary to the specified delivery locations to deliver the completed units.

3.03 Prior Experience

No specific minimums have been set for this RFP; however experience will be weighted by the proposal review team.

3.04 Required Licenses

At the time specified by the deadline for submission of proposals, the offeror must have and keep current any professional licenses and permits required by federal, state, and local laws for performance of this contract. Offerors that do not possess required licenses at the time proposals are due will be determined non-responsive.

3.05 Deliverables

The contractor will be required to provide the following deliverables;

- a. Approximately 42 snow plow trucks completed, inspected and approved by NDDOT and ready for operation
- b. Operating CDs and/or manuals including maintenance information wiring diagrams, and parts lists for equipment installed
- c. Minimum twelve month warranty

SECTION FOUR GENERAL CONTRACT INFORMATION

4.01 Contract Term and Renewal Option

The State intends to enter into a contract with an effective date beginning **4/5/2019** and ending **12/31/2020**. The NDDOT reserves the right to execute up to one option to renew this contract for a period of twenty four (24) months, not to exceed forty eight (48) months total. This contract will not automatically renew. The contractor will provide written notice to the NDDOT of its interest in renewing the contract at least sixty (60) days before the scheduled contract expiration date. Renewals will be documented by amendment.

4.02 Contract Type and Price Adjustment

This contract is a firm fixed price with adjustment contract.

The contract prices shall be firm for the first twenty four (24) months of the contract period. All prices in the contract may be subject to price adjustment (increase or decrease) and re-negotiated at the end of the initial contract period, if the renewal option is used.

NDDOT estimates approximately 19 turnkey snow and ice control truck packages beginning July 2021 to be completed for the 2021-2022 winter season and an additional order of approximately 19 snow and ice control turnkey truck packages to be completed in 2022 for the 2022-2023 winter season. These numbers are approximate and NDDOT reserves the right to add or delete from these numbers based upon budget authority and need.

The request for price adjustment must be submitted to the NDDOT with justification for the proposed change(s). The NDDOT will respond as follows:

- a) The request may be granted,
- b) The contract may be cancelled, or
- c) The contract may be continued without

If a price adjustment is approved, the adjustment will be effective on January 1, 2021 through December 31, 2022. Changes in pricing will be documented by an amendment.

The State shall also be advised of and receive the benefit of any price decrease. The same notification and review process will apply to a decrease in cost.

4.03 Standard Contract Provisions

The successful offeror will be required to sign and submit the contract attached to this RFP (Appendix A). The contractor must comply with the contract provisions set out in this attachment. Any objections to the contract provisions must be set out in the offeror's proposal. No alteration of these provisions will be permitted without prior written approval from the purchasing agency.

Offerors are instructed to contact the procurement officer in writing by the deadline set for questions with any concerns regarding the contract provisions.

4.04 Proposal as a Part of the Contract

Part or all of this RFP and the successful proposal may be incorporated into the contract.

4.05 Additional Terms and Conditions

The State reserves the right to add, delete, or modify terms and conditions during contract negotiations.

4.06 Supplemental Terms and Conditions

Proposals including supplemental terms and conditions will be accepted, but supplemental conditions that conflict with those contained in this RFP or that diminish the State's rights under any contract resulting from the RFP will be considered null and void. The State is not responsible for identifying conflicting supplemental terms and conditions before issuing a contract award. After award of contract:

- (a) if conflict arises between a supplemental term or condition included in the proposal and a term or condition of the RFP, the term or condition of the RFP will prevail; and
- (b) if the State's rights would be diminished as a result of application of a supplemental term or condition included in the proposal, the supplemental term or condition will be considered null and void.

4.07 Contract Approval

This RFP does not, by itself, obligate the State. The State's obligation shall commence when the State signs the contract. Upon written notice to the contractor, the State may set a different starting date for the contract. The State shall not be responsible for any work done by the contractor, even work done in good faith, if it occurs prior to the contract start date set by the STATE.

4.08 Contract Changes - Unanticipated Amendments

During the course of this contract, the contractor may be required to perform additional work. That work will be within the general scope of the initial contract. When additional work is required, the project manager designated by the State will provide the contractor a written description of the additional work and request the contractor to submit a firm time schedule for accomplishing the additional work and a firm price for the additional work. Cost and pricing data must be provided to justify the cost of amendments.

The contractor will not commence additional work until the project director has secured any required State approvals necessary for the amendment and issued a written contract amendment, approved by the purchasing agency.

4.09 Indemnification and Insurance Requirements

Offerors must review the attached Risk Management Appendix for indemnification and insurance requirements. The indemnification and insurance provisions will be incorporated into the final contract.

Objections to any of the provisions of the Indemnification and Insurance Requirements must be made in writing to the attention of the procurement officer by the time and date set for receipt of questions. No alteration of these provisions will be permitted without prior written approval from the purchasing agency in consultation with the North Dakota Risk Management Division.

Upon receipt of the Notice of Intent to Award, the successful offeror must obtain the required insurance coverage and provide the procurement officer with proof of coverage prior to contract approval. The coverage must be satisfactory to the purchasing agency, in consultation with the North Dakota Risk Management Division. An offeror's failure to provide evidence of insurance coverage is a material breach and grounds for withdrawal of the award or termination of the contract.

4.10 Taxes and Taxpayer Identification

The State is not responsible for and will not pay itemized local, state, or federal taxes. Purchases of tangible personal property made by a state government agency is exempt from sales tax. The state sales tax exemption number is E-2001, and certificates will be furnished upon request by the purchasing agency. The contractor must provide a valid Vendor Tax Identification Number as a provision of the contract.

The purchasing agency will determine if services provided under this contract are 1099 reportable. The purchasing agency may require the contractor to submit a W9.

The state tax exemption number should not be used by contractors in the performance of a contract.

A contractor or service provider performing any contract, including service contracts, for the United States Government, State of North Dakota, counties, cities, school districts, park board or any other political subdivisions within North Dakota is not exempt from payment of sales or use tax on materials, tangible personal property, and supplies used or consumed in carrying out contracts. In these cases, the contractor is required to file returns and pay sales and use tax just as required for contracts with private parties. Contact the North Dakota Tax Department at 701-328-1246 or visit its website at <https://www.nd.gov/tax/tax-resources/> for more information.

A contractor performing any contract, including a service contract, within North Dakota is also subject to the corporation income tax, individual income tax, and withholding tax reporting requirements, whether the contract is performed by a corporation, partnership, or other business entity, or as an employee of the contractor. In the case of employees performing the services in the state, the contractor is required to withhold state income tax from the employees' compensation and remit to the state as required by law. Contact the North Dakota Tax Department at 701-328-1248 or visit its website for more information.

4.11 F.O.B. Point and Freight

All commodities purchased through this contract will be Free on Board ("F.O.B.") final destination, freight prepaid. Unless specifically stated otherwise, all prices offered must include the delivery costs to any location within the State of North Dakota. Title will pass to the State at destination, and the vendor will be responsible for any freight claims.

4.12

Proposed Payment Procedures

The State will make payments based on completed and inspected individual delivered units. Each billing must consist of an invoice including serial numbers of installed equipment, delivery location, and NDDOT assigned vehicle license number. No payment will be made until the project director has approved invoice.

4.13

Contract Funding

Approval or continuation of a contract resulting from this solicitation is contingent upon continuing appropriation. The contract may be terminated by the state or modified by agreement of both parties in the event funding from federal, state, or other sources is not obtained and continued at sufficient levels.

4.14

Payment Terms

No payment will be made until the purchasing agency approves the contract.

Payment for commodities and services received under contracts will normally be made within 30 calendar days after receipt and acceptance by the purchasing agency or after receipt of a correct invoice, whichever is later. Payment inquiries must be directed to the purchasing agency.

Prompt Payment Discount Terms offered by the contractor may be taken by the purchasing agency if payment is made within the specified terms.

4.15

Contract Personnel

The project manager designated by the purchasing agency must approve any change of the contractor's project team members named in the proposal, in advance and in writing. Personnel changes that are not approved by the State may be grounds for the State to terminate the contract.

4.16

Right to Inspect Place of Business

At reasonable times, the State may inspect those areas of the contractor's place of business that are related to the performance of a contract. If the State makes an inspection, the contractor must provide reasonable assistance.

4.17

Inspection & Modification - Reimbursement for Unacceptable Deliverables

The contractor is responsible for the completion of all work set out in the contract. All work is subject to inspection, evaluation, and approval by the project manager designated by the State. The State may employ all reasonable means to ensure that the work is progressing and being performed in compliance with the contract. Should the project manager determine that corrections or modifications are necessary in order to accomplish its intent; the project manager may direct the contractor to make changes. The contractor will not unreasonably withhold changes.

Substantial failure of the contractor to perform the contract may cause the State to terminate the contract. In this event, the State may require the contractor to reimburse monies paid (based on the identified portion of unacceptable work received) and may seek associated damages.

4.18

Termination for Default

If the project manager designated by the purchasing agency determines that the contractor has refused to perform the work or has failed to perform the work with diligence as to ensure its timely and accurate completion, the State may, by providing written notice to the contractor, terminate the contractor's right to proceed with part

or all or the remaining work.

This clause does not restrict the State's right to termination under the contract provisions of the Contract for Procurement, attached.

4.19

Work Product, Equipment, and Material

All work product, equipment or materials created or purchased under this contract belong to the State and must be delivered to State at State's request upon termination of this contract, unless otherwise agreed in writing by the purchasing agency.

4.20

Assignment

Contractor may not assign or otherwise transfer or delegate any right or duty without the State's express written consent. However, the contractor may enter into subcontracts provided that the subcontract acknowledges the binding nature of this contract and incorporates this contract, including any attachments.

4.21

Disputes - Applicable Law and Venue

Any dispute arising out of this agreement will be resolved under the laws of the State of North Dakota.

SECTION FIVE EVALUATION CRITERIA AND CONTRACTOR SELECTION

THE TOTAL NUMBER OF POINTS USED TO SCORE THIS CONTRACT IS 100

5.01

Applicability and Specifications

Thirty five Percent (35%) of the total possible evaluation points will be assigned to this criterion.

Proposals will be evaluated against the questions set out below:

- [a] Has the offeror demonstrated a thorough understanding of the applicability of the snow plow unit?
- [b] How well has the offeror presented the specifications and literature about their snow plow truck package with minimal specification deviations?
- [c] Has the offeror demonstrated an understanding of the deliverables the State expects it to provide?
- [d] Does the offer propose a delivery schedule that is acceptable to the State of North Dakota?
- [e] Is the proposal submitted responsive to all material requirements in the RFP?

5.02

Parts and Service

Ten Percent (10%) of the total possible evaluation points will be assigned to this criterion.

Proposals will be evaluated against the questions set out below:

- [a] Does the offeror provide a means for prompt delivery of parts?
- [b] Does the offeror have a distributor for parts within ND or in a bordering city?

[c] Does the offeror have a servicing vendor within ND or in a bordering city?

[d] Does the offeror provide a means for prompt repair service and support for all delivery locations?

5.03

Product History, Experience and References

Ten Percent (10%) of the total possible evaluation points will be assigned to this criterion.

Proposals will be evaluated against the questions set out below:

[a] Does the offeror provide a good history of their products?

[b] Does the offeror provide the minimum number of references as required in the specifications?

[c] Are the referenced users satisfied with their existing units?

[d] Has the offeror provided evidence of a high level of experience in the manufacturing and support of the product?

5.04

Warranty

Five Percent (5%) of the total possible points will be assigned to this criterion.

Proposals will be evaluated against the questions set out below:

[a] Does the offeror provide a prompt means to handle warranty repair?

[b] Does the warranty coverage meet the needs of the State of North Dakota?

[c] Does the offeror provide a vendor to handle warranty repairs within ND or a bordering city?

[d] Does the offeror provide follow up services to the eight delivery locations for the purposes of correcting any problems that may arise during the warranty period?

5.05

Contract Cost

Forty Percent (40%) of the total possible evaluation points will be assigned to cost.

Any prompt payment discounts terms proposed by the offeror will not be considered in evaluating cost. The cost amount used for evaluation may be affected by the application of North Dakota preference laws (N.D.C.C. § 44-08-01). The lowest cost proposal will receive the maximum number of points allocated to cost. The point allocations for cost on the other proposals will be evaluated according to the method set forth in the Proposal Evaluation form attached to this RFP.

5.06

Site Inspection of Offeror's Facility

The State may conduct on-site visits to the offeror's firm or offeror's customer where comparable service is being performed to evaluate the offeror's capacity to perform the contract. An offeror must agree, at risk of being found non-responsive and having its proposal rejected, to provide the State reasonable access to relevant portions of its work sites. Individuals designated by the purchasing agency will conduct the site inspection at the State's expense.

SECTION SIX PROPOSAL FORMAT AND CONTENT

6.01 Proposal Preparation

The State discourages overly lengthy and costly proposals. An offeror must prepare its proposal using the prescribed proposal format and provide all the requested information; this will enable the proposal to be evaluated fairly and completely. If an offeror submits more than one proposal, each proposal must be prepared in accordance with these instructions.

6.02 Introduction

Proposals must include the complete name and address of offeror's firm and the name, mailing address, and telephone number of the person the State should contact regarding the proposal.

Proposals must confirm that the offeror will comply with all provisions in this RFP. The proposal must disclose any instances where the firm or any individuals working on the contract has a possible conflict of interest and, if so, the nature of that conflict (e.g. employed by the State of North Dakota).

Proposals must be signed by a company officer empowered to bind the company. An offeror's failure to include these items in the proposals may cause the proposal to be determined to be non-responsive and the proposal may be rejected.

6.03 Proposal Submission

Sealed proposals are required; therefore, proposals cannot be submitted by email or fax to the procurement officer. Offerors may email or fax proposals to a third party to place in a sealed envelope and deliver by the deadline for proposal submission.

Offerors must submit in 3 ring binders with indexing, ONE ORIGINAL (1) AND FOUR COPIES (4) of its proposal without pricing in a sealed envelope or package.

ONE (1) cost proposal is to be submitted in a separate sealed envelope or package, clearly labeled "Cost Proposal."

Envelopes or packages containing proposals must be clearly addressed as described below to ensure proper delivery and to avoid being opened by the State before the deadline for receipt. Envelopes or packages must be addressed as follows:

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
FINANCIAL MANAGEMENT, PROCUREMENT
RFP 065-30-19-050, SNOW PLOW TRUCK TURNKEY PACKAGE
608 EAST BOULEVARD AVENUE
BISMARCK, ND 58505-0700

6.04 Applicability and Specifications

Offerors must provide comprehensive narrative statements that illustrate their understanding of the requirements of the snow plow truck turnkey package, deliverables, and contract terms and conditions. Offerors must also identify any pertinent issues and potential problems related to the project.

**6.05
Parts and Service**

Offerors must illustrate how they will provide the parts and services in a timely manner as required to support the installed equipment.

**6.06
Product History, Experience and References**

Offerors must provide comprehensive narrative statements that describe the company experience and product history. In addition, offerors must also provide three (3) reference names and phone numbers for similar units the offeror's firm has completed. The State reserves the right to contact any references provided by the offeror. Offerors are invited to provide letters of reference from previous clients.

**6.07
Warranty**

Offerors must provide detailed explanation of warranty coverage, methods of how warranty repairs will be handled promptly, and the vendor name and location handling the warranty repairs.

**6.08
Cost Proposal**

Offerors should describe any discounts terms for prompt payment. Discounts for prompt payment will not be considered in evaluating cost.

Offerors must complete cost proposal attached to this RFP or prepare a cost proposal following the same format.

**6.09
Required Enclosures**

Offerors must provide all documents, samples, or other information specifically required in this RFP.

1. Proposal Response Sheet
2. Completed specifications with any deviations
3. Product Literature
4. Letters of reference
5. History of products installed
6. Warranty information
7. Parts and service information

**SECTION SEVEN
STANDARD PROPOSAL INFORMATION**

**7.01
Authorized Signature**

An individual authorized to bind the offeror to the provisions of the RFP must sign all proposals.

**7.02
Offeror Responsible For Costs**

Offeror is responsible for all costs associated with the preparation, submittal, presentation, and evaluation of any proposal.

**7.03
Conflict of Interest**

Under state laws and rules, a state employee or official shall not participate directly or indirectly in a procurement when the state employee or officials knows of a conflict of interest. Potential conflicts of interest include state employees or their immediate family members employed by the firm, seeking employment with the firm, or with a financial interest in the firm. Potential conflicts of interest will be addressed in accordance with [N.D.A.C. § 4-12-04-04](#). [, N.D.C.C. § 12.1-13-03].

Persons employed by the State of North Dakota, or within one year thereafter, may be prohibited from acquiring a pecuniary interest in a public contract or transaction. Offerors should review N.D.C.C. § 12.1-13-02 to ensure compliance and avoid such conflict(s) of interest.

**7.04
Attempt to Influence**

Offerors must not give or offer to give anything to a state employee or official anything that might influence, or appear to influence procurement decisions. Suspected attempt to influence will be handled in accordance with [N.D.A.C. § 4-12-04-05](#).

**7.05
Collusion Prohibited**

Offerors must prepare proposals independently, without collusion. Suspected collusion will be handled in accordance with [N.D.A.C § 4-12-04-06](#).

**7.06
Offeror's Certification**

By signature on the proposal, an offeror certifies that it complies with:

- a) the laws of the State of North Dakota;
- b) North Dakota Administrative Code;
- c) all applicable local, state, and federal laws, code, and regulations;
- d) the applicable portion of the Federal Civil Rights Act of 1964;
- e) the Equal Employment Opportunity Act and the regulations issued by the federal government;
- f) the Americans with Disabilities Act of 1990 and the regulations issued by the federal government;
- g) all terms, conditions, and requirements set forth in this RFP;
- h) a condition that the proposal submitted was independently arrived at, without collusion;
- i) a condition that the offer will remain open and valid for the period indicated in this solicitation; and
- j) a condition that the firm and any individuals working on the contract do not have a possible conflict of interest (e.g. employed by the State of North Dakota).

If any offeror fails to comply with the provisions stated in this paragraph, the State reserves the right to reject the proposal, terminate the contract, or consider the contractor in default.

7.07

Offer Held firm

Proposals must remain open and valid for at least **90 DAYS** from the deadline specified for submission of proposals. In the event award is not made within **90 DAYS**, the State will send a written request to all offerors deemed susceptible for award asking offerors to hold their price firm for a longer specified period of time.

7.08

Amendments to Proposals and Withdrawals of Proposals

Offerors may amend or withdraw proposals prior to the deadline set for receipt of proposals. No amendments will be accepted after the deadline unless they are in response to the State's request. After the deadline, offerors may make a written request to withdraw proposals and provide evidence that a substantial mistake has been made. The procurement officer may permit withdrawal of the proposal upon verifying that a substantial mistake has been made.

7.09

Alternate Proposals

Offerors may submit more than one proposal for evaluation.

Alternate proposals (proposals that offer something different than what is requested) will be considered.

7.10

Subcontractors

Subcontractors may be used to perform work under this contract. If an offeror intends to use subcontractors, the offeror must identify this information in the proposal:

- (a) The complete name of the subcontractor;
- (b) the complete address of the subcontractor;
- (c) the type of work the subcontractor will be performing;
- (d) the percentage of work the subcontractor will be providing;
- (e) and three references from customers of each named subcontractor.

If a proposal with subcontractors is selected, the offeror must provide the following information concerning each prospective subcontractor within **SEVEN WORKING DAYS** from the date of the State's request:

- (a) Evidence, as set out in the relevant section of this RFP, that the subcontractor is a registered bidder and, if applicable, holds a valid North Dakota business license; and
- (b) a written statement, signed by each proposed subcontractor, that clearly verifies that the subcontractor is committed to render the services required by the contract,

An offeror's failure to provide this information, within the time set, may cause the State to consider its proposal non-responsive and reject it. The substitution of one subcontractor for another may be made only at the discretion and prior written approval of the State's procurement officer or contract manager designated by the State.

7.11

Joint Ventures

Joint ventures will not be allowed.

7.12

Proposals Subject To North Dakota Open Records Laws

All proposals and other material submitted become the property of the State and may be returned only at the State's option. All proposals and related information, including detailed cost information, are exempt records and will be held in confidence until an award is made, in accordance with N.D.C.C. § 54-44.4-10(2).

Offerors may make a written request that trade secrets and other proprietary data contained in proposals be

held confidential. Material considered confidential by the offeror must be clearly identified, and the offeror must include a brief statement that sets out the reasons for confidentiality. See the North Dakota Office of the Attorney General website for additional information. <http://www.ag.state.nd.us/OpenRecords/ORM.htm>

After award, proposals will be subject to the North Dakota open records law. Records are closed or confidential only if specifically stated in law. If a request for public information is received, the procurement officer, in consultation with the Office of the Attorney General, will determine whether the information is an exception to the North Dakota open records law, and the information will be processed appropriately.

7.13

Evaluation of Proposals

All proposals will be reviewed to determine if they are responsive to the requirements of this solicitation. The procurement officer or an evaluation committee will evaluate responsive proposals. The evaluation will be based solely on the evaluation factors set forth in this RFP. The evaluation will consider information obtained subsequent to any discussions with offerors determined to be reasonable for award and any demonstrations, oral presentations, or site inspections, if required in this RFP.

7.14

Right of Rejection

The State reserves the right to reject any proposals, in whole or in part. Proposals received from debarred or suspended vendors will be rejected. The procurement officer may reject any proposal that is not responsive to all of the material and substantial terms, conditions, and performance requirements of the RFP.

Offerors may not qualify the proposal nor restrict the rights of the State. If an offeror does so, the procurement officer may determine the proposal to be a non-responsive counter-offer and the proposal may be rejected.

The procurement officer may waive minor informalities that:

- do not affect responsiveness;
- are merely a matter of form or format;
- do not change the relative standing or otherwise prejudice other offers;
- do not change the meaning or scope of the RFP;
- are insignificant, negligible, or immaterial in nature;
- do not reflect a material change in the work; or
- do not constitute a substantial reservation against a requirement or provision,

The State reserves the right to reject any proposal determined to be not responsive, and to reject the proposal of an offeror determined to be not responsible. The State also reserves the right to refrain from making an award if it determines it to be in its best interest.

7.15

Clarification of Offers

In order to determine if a proposal is reasonably susceptible for award, communications by the procurement officer or evaluation committee are permitted with an offeror to clarify uncertainties or eliminate confusion concerning the contents of a proposal and determine responsiveness to the RFP requirements. Discussions will be limited to the specific section of the RFP or proposal indicated by the State.

In conducting discussions, there may be no disclosure of any information derived from proposals submitted by competing offerors. Clarifications may not result in material or substantive change to the proposals.

Discussions are generally conducted by telephone or internet-based conference.

7.16

Discussions and Best and Final Offers

The State is not obligated to request best and final offers; therefore, offerors should submit their best terms (technical and cost) in response to this RFP.

If the State determines there is a need for any additional information, substantial clarification or changes to the RFP or proposals, the State may request for best and final offers from offerors that have submitted proposals determined to be reasonably susceptible for award. The best and final offer request will describe the additional information, clarification, or change being requested.

A date and time will be established for receipt of best and final offers. If an offeror does not submit a best and final offer, the State shall consider its original proposal as its best and final offer.

Best and final offers will be evaluated using the evaluation criteria stated in the RFP. The State may request more than one Best and Final Offer.

Offerors with a disability needing accommodation should contact the procurement officer prior to the date set for discussions so that reasonable accommodation can be made.

7.17

Preference Laws

The preference given to a resident North Dakota offeror will be equal to the preference given or required by the state of the nonresident bidder. A "resident" North Dakota bidder, offeror, seller, or contractor is one that has maintained a bona fide place of business within this State for at least one year prior to the date on which a contract was awarded. For a listing of state preference laws, visit the following website:

http://egov.oregon.gov/DAS/PFSS/SPO/reciprocal_detail.shtml or contact the North Dakota State Procurement Office at 701-328-2740.

7.18

Contract Negotiation

After final evaluation, the procurement officer may negotiate with the offeror of the highest-ranked proposal. Negotiations, if held, will be within the scope of the request for proposals and limited to those items that would not have an effect on the ranking of proposals. If the highest-ranked offeror fails to provide necessary information for negotiations in a timely manner, or fails to negotiate in good faith, the State may terminate negotiations and negotiate with the offeror of the next highest-ranked proposal.

If contract negotiations are commenced, they will be held:

North Dakota Department of Transportation
Transportation Building
608 East Boulevard Avenue
Bismarck, ND

If contract negotiations are held, the offeror will be responsible for all cost including its travel and per diem expenses.

7.19

Failure to Negotiate

The State may terminate negotiations, reject a proposal as nonresponsive, and continue or commence negotiations with other offerors reasonably susceptible for award, if the offeror:

- fails to provide necessary information for negotiation in a timely manner,
- fails to negotiate in good faith,
- is unable to successfully negotiate contract terms that are acceptable to the STATE, or
- indicates that it cannot perform the contract within the budgeted funds.

7.20

Notice of Intent to Award - Offeror Notification of Selection

After proposals have been evaluated and the successful offeror selected, notice of intent to award will be promptly issued to all offerors that submitted proposals. Upon issuance of this notice, the procurement file becomes an open record.

The successful offeror named in the Notice of Intent to Award is advised not to begin work, purchase materials, or enter into subcontracts until the successful offeror and the State sign the contract.

7.21

Protest and Appeal

An interested party may protest a solicitation pursuant to [N.D.C.C. § 54-44.4-12](#) and [N.D.A.C. § 4-12-14-01](#). When a solicitation contains a deadline for submission of questions and objections, protests of the solicitation will not be allowed if these faults have not been brought to the attention of the procurement officer before the specified deadline.

An offeror that has submitted a response to a solicitation and is aggrieved may protest an award or notice of intent to award pursuant to [N.D.C.C. § 54-44.4-12](#) and [N.D.A.C. § 4-12-14-02](#). The protest must be submitted in writing to the procurement officer during the protest period, which is seven calendar days beginning the day after the notice of intent to award is issued.

The protestor may appeal the decision of the procurement officer to the Director of Office of Management and Budget (OMB) within seven calendar days after receiving notice of the decision pursuant to [N.D.C.C. § 54-44.4-12](#) and [N.D.A.C. § 4-12-14-03](#).

SECTION EIGHT ATTACHMENTS

8.01

Attachments

1. Proposal Evaluation Form
2. Contract Form
3. Risk Management and Civil Rights Appendix
4. Proposal Response Sheets
5. Sample Notice of Intent to Award
6. Offeror Checklist

PROPOSAL EVALUATION FORM

All proposals will be reviewed for responsiveness and then evaluated using the criteria set out herein.

INSTRUCTIONS FOR EVALUATORS

Each evaluation criterion has been assigned a specific number of points. The questions under each evaluated area help you measure the quality of the offeror’s response. Do not assign points to individual questions, instead, award a total score for each evaluation criterion.

RATING SCALE FOR ASSESSING VENDOR RESPONSES

This rating scale is intended to establish guidelines within that range to ensure members of the RFP evaluation committee perform their evaluation with consistency. You may assign any value for a given criteria from 0 to the maximum number of points. A zero value typically constitutes no response or an inability of the vendor to meet the criterion. In contrast, the maximum value should constitute a high standard of meeting the criterion. If a specific criterion would only yield a yes or no response (e.g., offeror can submit an electronic report in required format by noon Friday), the evaluator should award either the maximum points or a zero.

For Example: “Experience and Qualifications” is an evaluation criteria receiving a weighting of 20% of the total possible points. Using a 100 Point Scale, a maximum of 20 points can be awarded. The rating scale would be:

Rating Scale (20 POINT Maximum)	
Point Value	Explanation
0	None. Not addressed or response of no value
1-5	Fair. Limited applicability
6-10	Good. Some applicability
11-15	Very Good. Substantial applicability
16-20	Excellent. Total applicability

COST PROPOSAL

If offerors were required to place cost proposals in a separate sealed envelope, do not open the cost proposal until the technical proposals have been evaluated.

Not all members of the evaluation need to evaluate the cost proposal. The cost proposals may be evaluated by selected members of the evaluation committee, reviewed by group, and recorded on the evaluation summary sheets.

Any prompt payment discounts terms offered by the vendor are not taken into consideration in evaluating cost. However, the cost proposals of nonresident offerors may be adjusted by the application of preference laws, if applicable. Contact the State Procurement Office at 701-328-2683 for assistance in applying preference laws.

EVALUATION CRITERIA AND SCORING

Person or Firm Name _____

Name of Proposal Evaluation (PEC) Member _____

Date of Review _____

RFP Title/Number _____

THE TOTAL NUMBER OF POINTS USED TO SCORE THIS CONTRACT IS 100

6.04
Applicability and Specifications

Weight 35 Percent. Maximum Point Value for this Section
100 Points x 35 Percent = 35 Points

Table with 2 columns: Point Value, Explanation. Rows include 0 (None), 1-9 (Fair), 10-17 (Good), 18-26 (Very Good), 27-35 (Excellent).

Proposals will be evaluated against the questions set out below. Do not assign points to individual questions, instead, award a total score for each evaluation criterion.

[a] Has the offeror demonstrated a thorough understanding of the applicability of the snow plow unit?

EVALUATOR'S NOTES

Two horizontal lines for notes.

[b] How well has the offeror presented the specifications and literature about their snow plow truck package with minimal specification deviations?

EVALUATOR'S NOTES

Two horizontal lines for notes.

[c] Has the offeror demonstrated an understanding of the deliverables the State expects it to provide?

EVALUATOR'S NOTES

Two horizontal lines for notes.

[d] Does the offer propose a delivery schedule that is acceptable to the State of North Dakota?

EVALUATOR'S NOTES

[e] Is the proposal submitted responsive to all material requirements in the RFP?

EVALUATOR'S NOTES

**EVALUATOR'S POINT TOTAL FOR
6.04**

**6.05
Parts and Service**

Weight **10 Percent**. Maximum Point Value for this Section
100 Points x **10 Percent** = **10 Points**

Rating Scale (10 POINT Maximum)	
Point Value	Explanation
0	None. Not addressed or response of no value
1-2	Fair. Limited applicability
3-5	Good. Some applicability
6-7	Very Good. Substantial applicability
8-10	Excellent. Total applicability

Proposals will be evaluated against the questions set out below. Do not assign points to individual questions, instead, award a total score for each evaluation criterion.

[a] Does the offeror provide a means for prompt delivery of parts?

EVALUATOR'S NOTES

[b] Does the offeror have a distributor for parts within ND or in a bordering city?

EVALUATOR'S NOTES

[c] Does the offeror have a servicing vendor within ND or in a bordering city?

EVALUATOR'S NOTES

[d] Does the offeror provide a means for prompt repair service and support for all delivery locations?

EVALUATOR'S NOTES

EVALUATOR'S POINT TOTAL FOR 6.05

**6.06
Product History and References**

Weight **10 Percent**. Maximum Point Value for this Section
100 Points x **10 Percent** = **10 Points**

Rating Scale (10 POINT Maximum)	
Point Value	Explanation
0	None. Not addressed or response of no value
1-2	Fair. Limited applicability
3-5	Good. Some applicability
6-7	Very Good. Substantial applicability
8-10	Excellent. Total applicability

Proposals will be evaluated against the questions set out below. Do not assign points to individual questions, instead, award a total score for each evaluation criterion.

[a] Does the offeror provide a good history of their products?

EVALUATOR'S NOTES

[b] Does the offeror provide the minimum number of references as required in the specifications?

EVALUATOR'S NOTES

[c] Are the referenced users satisfied with their units?

EVALUATOR'S NOTES

[d] Has the offeror provided evidence of a high level of experience in the manufacturing and support of the product?

EVALUATOR'S NOTES

EVALUATOR'S POINT TOTAL FOR 6.06

**6.07
Warranty**

Weight **5 Percent**. Maximum Point Value for this Section
100 Points x **5 Percent** = **5 Points**

Rating Scale (5 POINT Maximum)	
Point Value	Explanation
0	None. Not addressed or response of no value
1-2	Fair. Limited applicability
3	Good. Some applicability
4	Very Good. Substantial applicability
5	Excellent. Total applicability

Proposals will be evaluated against the questions set out below. Do not assign points to individual questions, instead, award a total score for each evaluation criterion.

[a] Does the offeror provide a prompt means to handle warranty repair?

EVALUATOR'S NOTES

[b] Does the warranty coverage meet the needs of the State of North Dakota?

EVALUATOR'S NOTES

[c] Does the offeror provide a vendor to handle warranty repairs within ND or in a bordering city?

EVALUATOR'S NOTES

[d] Does the offeror provide follow up services to the eight delivery locations for the purposes of correcting any problems that may arise during the warranty period?

EVALUATORS NOTES

EVALUATOR'S POINT TOTAL FOR 6.07

**6.08
Contract Cost**

Weight **40 Percent**. Maximum Point Value for this Section
100 Points x **40 Percent** = **40 Points**

Applying Preference Laws

The State will calculate evaluation points awarded to cost proposals. Any prompt payment discount terms proposed by the offeror will not be considered in evaluating cost.

The cost amount used for evaluation may be affected by the application of North Dakota Preference laws in accordance with [N.D.C.C. § 44-08-01](#). The preference given to a resident offeror will be equal to the preference given or required by the state of the nonresident offeror (i.e. reciprocal preference). For more information, refer to [Guidelines to North Dakota Purchasing Preference Laws](#).

The cost amount used for evaluation may also be affected by the application of other costs required to implement the proposed solution to determine the total cost of the solution (i.e. cost for ITD to host a State hosted solution).

Converting Cost to Points

After applying any reciprocal preference, the lowest cost proposal will receive the maximum number of points allocated to cost. The point allocations for cost on the other proposals will be determined as follows:

Price of Lowest Cost Proposal

Price of Proposal Being Rated X Total Points for Cost Available = Awarded Points

COST PROPOSAL EVALUATION

See Attachment 4 – Proposal Response Sheet

EVALUATOR'S POINT TOTAL FOR 6.08

**Request for Proposal
Evaluation Summary**

Name of RFP:		
RFP Number:		
Vendor Being Evaluated:		
Evaluator Name:		
Date:		
Technical Evaluation <i>(Maximum 60 Points)</i>	Maximum Points by Category	Score
1. Applicability and Specifications	35	
2. Parts and Service	10	
3. Product History, Experience and References	10	
4. Warranty	5	
Cost Evaluation (Maximum 40 Points) 1. Make adjustments for reciprocal preference, if necessary. See list of States Preference Laws: http://www.oregon.gov/DAS/SSD/SPO/reciprocal_detail.shtml 2. Calculated points awarded for price. <u>Price of Lowest Cost Proposal</u> Price of Proposal Being Rated X 40 points = Awarded Points		
5. Cost	40	
Total		

**Request for Proposal
Evaluation Totals**

Name of RFP:						
Name of Offeror:						
Date:						
Technical Evaluation Criteria	60 POINTS Maximum	Evaluator	Evaluator	Evaluator	Evaluator	Evaluator
1. Applicability and Specifications	35					
2. Parts and Service	10					
3. Product History, Experience and References	10					
4. Warranty	5					
Evaluator Totals						
Grand Total	Note: Sum of all individual scores.					
Technical Proposal Score	Note: Total of individual points divided by the number of evaluators (60 POINT MAXIMUM).					
Cost Propose Score	Note: (40 POINT MAXIMUM)					
TOTAL						

**Request for Proposal
Summary of Evaluation Committee Totals**

Name of RFP:						
Date:						
Technical Evaluation Criteria	60 POINTS Maximum	Vendor 1	Vendor 2	Vendor 3	Vendor 4	Vendor 5
1. Applicability and Specifications	35					
2. Parts and Service	10					
3. Product History and References	10					
4. Warranty	5					
Technical Proposal Score						
Cost Proposals Score						
Grand Total						

CONTRACT – Next 3 Pages

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
CONTRACT FOR PROCUREMENT**

REQUEST FOR PROPOSAL TITLE: Snow Plow Truck Turnkey Package

REQUEST FOR PROPOSAL NO.: 065-30-19-050

This agreement is entered into between the state of North Dakota, acting by and through its Director of Transportation, hereinafter referred to as NDDOT, whose address is 608 East Boulevard Avenue, Bismarck, North Dakota, and _____, hereinafter referred to as the Contractor, whose address is _____.

In consideration of the mutual covenants herein set forth, NDDOT and the Contractor agree as follows:

1. That in consideration of the payments to be made by NDDOT, the Contractor agrees to provide the services and/or goods in accordance and in conformity with this contract, the Contractor's proposal, dated _____, NDDOT's request for proposal issued on _____, and any purchase orders issued as a result of this contract. The Contractor's proposal, NDDOT's request for proposal, and any purchase orders are incorporated by reference herein. If discrepancies exist between the Contractor's proposal, and NDDOT's request for proposal, or this contract, NDDOT's request for proposal, and this contract shall govern.
2. NDDOT agrees to pay the Contractor for the work, when completed and accepted in accordance with this contract.

Payments are to be made upon presentation of an invoice by the Contractor, and by the terms of this contract.
3. The work shall be done pursuant to this contract, to the laws of the state of North Dakota, and to the satisfaction of NDDOT, in accordance with the rules and regulations made pursuant to state and federal law.
4. The Contractor, in employing and maintaining labor, shall do so in conformity with state and federal law and this contract.
5. Payments by NDDOT beyond the current state biennium shall be contingent on sufficient funds being appropriated by the Federal Government or State Legislature for the Department. In the event of insufficient appropriations in future bienniums, NDDOT may give a minimum of 30 days notice to terminate this agreement/contract and have no further obligation to the Contractor.
6. All work products and copyrights of the contract which result from this contract are the exclusive property of NDDOT.
7. Notwithstanding any rules regarding the choice of law or venue, it is agreed by the parties that this contract shall be governed by and construed in accordance with applicable Federal Law and the laws of the state of North Dakota, at the time this contract was executed. All disputes arising from this agreement shall be brought in the South Central District Court of the state of North Dakota.
8. This agreement constitutes the entire agreement between the parties. No waiver, consent, modification, or change of terms of this agreement shall bind either party unless in writing and signed by both parties. Such waiver, consent, modification, or change, if made, shall be effective only in the specific instance and for the specific purpose given. There are no understandings, agreements, or representations, oral or written, not specified herein regarding this agreement. The Contractor, by the signature below of its authorized representative, hereby acknowledges that the Contractor has read this agreement, understands it, and agrees to be bound by its terms and conditions.



9. The terms of this agreement shall not be waived, altered, modified, supplemented, or amended, in any manner whatsoever, except by written instrument signed by the parties.
 10. The Contractor shall not assign any portion of the work under this agreement, execute any contract, or obligate itself in any manner with a third party with respect to its rights and responsibilities to this agreement without written consent of NDDOT. Any agreement with a subcontractor does not create a contractual relationship between the NDDOT and the subcontractor.
 11. The Contractor shall not assign nor transfer the contractor's interests or duties under this agreement without the express written consent of the state.
 12. The Contractor agrees to comply with all applicable laws and rules, including, but not limited to, those relating to nondiscrimination, accessibility, and civil rights.
 13. The Appendices A and E of the Title VI Assurances, attached, are hereby incorporated into and made a part of this agreement.
 14. Termination
 - a. This contract may be terminated by mutual consent of both parties, or by either party upon 30 days' notice, in writing and delivered by certified mail or in person.
 - b. In addition, NDDOT may terminate this contract effective upon delivery of written notice to the Contractor, or at such later date as may be established by NDDOT, under any of the following conditions:
 - i. If NDDOT funding from federal, state, or other sources is not obtained and continued at levels sufficient to allow for purchase of the indicated quantity of services. The contract may be modified by agreement of the parties in writing to accommodate a reduction in funds.
 - ii. If federal or state regulations or guidelines are modified, changed, or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this contract or are no longer eligible for the funding proposed for payments authorized by this contract.
 - iii. If any license or certificate required by law or regulation to be held by the Contractor to provide the services required by the contract is for any reason denied, revoked, or not renewed.
- Any such termination of this contract under (i), (ii), or (iii), above, shall be without prejudice to any obligations or liabilities of either party already accrued prior to such termination.
- c. NDDOT, by written notice to the Contractor, may terminate the whole or any part of this agreement.
 - i. If the Contractor fails to provide services called for by this contract within the time specified herein or any extension thereof; or
 - ii. If the Contractor fails to perform any of the other provisions of this contract, or so fails to pursue the work as to endanger performance of this contract in accordance with its terms, and after receipt of written notice from NDDOT, fails to correct such failures within ten days or such longer period as NDDOT may authorize.
15. The Risk Management Appendix, attached, is hereby incorporated into and made a part of this agreement.



16. This agreement becomes effective when all parties have signed and it shall terminate on 12/31/2020.

EXECUTED the date last below signed.

WITNESS:

NAME (TYPE OR PRINT)

SIGNATURE

To be signed by **Owner; Partner; Corp. Pres., Vice Pres., or other authorized Corp. Officer.** (If signed by other authorized Corp. Officer, please attach copy of Power of Attorney or other documentation showing authority to sign.)

WITNESS:

NAME (TYPE OR PRINT)

SIGNATURE

CONTRACTOR:

NAME (TYPE OR PRINT)

SIGNATURE

TITLE

DATE

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

DIRECTOR (TYPE OR PRINT)

SIGNATURE

DATE

APPROVED as to substance by:

DIVISION DIRECTOR (TYPE OR PRINT)

SIGNATURE

DATE

CLA 1043 (Div. 50)
L.D. Approved 2-17-05; 10-14



RISK MANAGEMENT AND CIVIL RIGHTS APPENDIX – Next 3 Pages

Risk Management Appendix

Supply Contracts with Private Individuals, Companies, Corporations, Etc.:

Each party agrees to assume its own liability for any and all claims of any nature including all costs, expenses and attorney's fees which may in any manner result from or arise out of this agreement.

Contractor, or Contractor's delivery agent, shall secure and keep in force during the term of this agreement, from insurance companies, government self-insurance pools or government self-retention funds authorized to do business in North Dakota, the following insurance coverages:

- 1) **Commercial general liability** and **automobile liability** insurance.
- 2) **Workers compensation** insurance.

Contractor shall produce certificates of insurance or copies of insurance policies upon request by the State.

When a portion of a Contract is sublet, the Contractor shall obtain insurance protection (as outlined above) to provide liability coverage to protect the Contractor and the State as a result of work undertaken by the Subcontractor. In addition, the Contractor shall ensure that any and all parties performing work under the Contract are covered by public liability insurance as outlined above. All Subcontractors performing work under the Contract are required to maintain the same scope of insurance required of the Contractor. The Contractor shall be held responsible for ensuring compliance with those requirements by all Subcontractors.

RM Consulted 2007
Revised 6-07



**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX A OF THE TITLE VI ASSURANCES**

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees as follows:

1. Compliance with Regulations: The Contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. Information and Reports: The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Recipient or the Federal Highway Administration as appropriate, and will set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.



**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX E OF THE TITLE VI ASSURANCES**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.P.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).



Proposal Response Sheets– Next 5 Pages

Instructions: ONE (1) completed set of cost proposal response sheets is to be submitted in a separate sealed envelope or package, clearly labeled “Cost Proposal.”

Proposals must be signed by a company officer empowered to bind the company. An offeror's failure to include these items in the proposals may cause the proposal to be determined to be non-responsive and the proposal may be rejected.

**RFP Number: 065-30-19-050
Proposal Response Sheets**

TURNKEY PACKAGE ITEM #1

Purchase price and labor to install 14' dump & spreader box, hydraulic system, plow lights, warning light system, quick hitch, 11' underbody scraper, 10' rear-mount snow wing and hopper pre-wet system.

Specification Number	Description	Unit Price Ea.
SSP-22-2ADSUBW SSP-01	14' dump & spreader box, hydraulic system, plow lights, strobe system, plow quick hitch, furnished and installed. Estimated Quantity total 28	\$
SSP-95-4180-2	11' underbody scraper furnished and installed.	\$
SSP-95-4200-23	10' rear mount snow wing, left or right hand	\$
SSP-95-5700-4	400 gallon hopper pre-wet system furnished and installed.	\$
Total package price each.		\$
Package price x 28 = Total Contract Price for Package #1		\$

TURNKEY PACKAGE ITEM #2

Purchase price and labor to install 14' dump box, hydraulic system, plow lights, warning light system, quick hitch, 11' underbody scraper, 10' rear mount snow wing, tailgate sander, box vibrator, and hopper pre-wet system.

Specification Number	Description	Unit Price Ea.
SSP-22-2AUBW SSP-01	14' dump box, hydraulic system, plow lights, strobe system, plow quick hitch, furnished and installed. Estimated Quantity total 13	\$
SSP-95-4180-2	11' underbody scraper furnished and installed.	\$
SSP-95-4200-23	10' rear mount snow wing, left or right hand	\$
SSP-95-2400-4	Tailgate sander furnished and installed.	\$
SSP-95-5700-10	150 gallon tailgate pre-wet system furnished and installed.	\$
Box vibrator, Cougar model DC-3200, Tend Air model RV-3500 or approved equal, furnished and installed as per manufacturer's instructions with mounting and location to be approved by NDDOT.		\$
Total package price.		\$
Package price x 13 = Total Contract Price for Package #2		\$

Truck Delivery Charges Per Unit for the Following Destinations:

Bismarck - \$ _____

Dickinson - \$ _____

Valley City - \$ _____

Grand Forks - \$ _____

Devils Lake - \$ _____

Williston - \$ _____

Minot - \$ _____

Fargo - \$ _____

PROPOSED DELIVERY TIME FOR 21 UNITS IN 2019: _____ DAYS (AFTER RECEIPT OF CHASSIS)

PROPOSED DELIVERY TIME FOR 21 UNITS IN 2020: _____ DAYS (AFTER RECEIPT OF CHASSIS)

ITEM #3

Option: Purchase additional complete quick hitch assemblies with installation hardware for life of contract.

FOB: Bismarck, ND. Price each \$ _____.

ITEM #4

Option: Purchase additional quick hitch assemblies without lift cylinder and with complete installation hardware for life of contract.

FOB: Bismarck, ND. Price each \$ _____.

ITEM #5

Option: Purchase additional stainless steel tailgate spreaders with side shields, installation hardware, and as specified within for life of contract.

FOB: Bismarck, ND. Price each \$ _____.

ITEM #6

Option: Force America 6100-3 lane programming package with individual loose wires for lane selection. Truck portion of trailer anti-ice wiring harness. All necessary hydraulic plumbing and couplers needed to connect to the right rear of truck.

Price each installed \$ _____.

ITEM #7

Option: Force America 5 joystick controller and 2 additional valve sections with all necessary hydraulic plumbing with stucchi couplers to connect to the trailer at the rear of truck.

Price each installed \$ _____.

ITEM #8

Option: Purchase additional 14' stainless steel dump/spreader box with cylinder, brine tanks, installation hardware, and as specified within for life of contract.

FOB: Fargo, ND. Price each w/o labor \$ _____.

ITEM #9

Option: Purchase additional 14' stainless steel dump box with cylinder, installation hardware, and as specified within for life of contract.

FOB: Fargo, ND. Price each w/o labor \$ _____.

ITEM #10

Option: Purchase fixed 11' underbody scraper including installation and hydraulics.

Add \$ _____.

ITEM #11

Option: Mounting/hardware for dual wing.

Add/Deduct \$ _____.

ITEM #12

Option: Purchase addition Paraglide type wing post and counterbalance valve with complete installation hardware for life of contract.

FOB: Bismarck, ND Price each w/o labor \$ _____.

ITEM #13

Option: Purchase heavy duty flatbed to support brine tank, approximately 8'Wx17.5'L, stake pockets, rub rails, treadplate floor and countersunk LED lighting. With bulkhead, ploy fenders w/stainless brackets, rear hinge and front hold down pins, body props and pintle plate. E-coated premier and painted black with hardener or powder coated.

FLATBED MAKE: _____ MODEL: _____

FOB: Fargo, ND. Price w/o labor \$ _____.

ITEM #14

Option: Purchase additional 304 stainless steel tailgate spreaders that mounts to a dump/spreader style box, direct drive, single auger, 8" round drop shoots 3.5" long on both ends of sander and with complete installation hardware for the life of contract. Monroe MS969, Bonnell Bon-RCA6-DD-AS-ND or approved equal.

FOB: Fargo, ND. Price each w/o labor \$ _____.

Price each includes installation, plumbed and wired for auger reverse \$ _____.

ITEM#15

Option: Truck wash system installed on the inside of truck frame rail consisting of 1.25" Kanaflex 390 (EDPM rubber, polyethylene helix, synthetic braid, smooth bore, corrugated OD or equal) popularly secured. 2" male inlet and outlet adaptor mounted on wing support with dust covers.

Price each installed \$ _____



ITEM #16

Option: Oil Gear Hydraulic pump FASD60-R-CS in lieu of Force America FASD45R.

Add \$ _____.

Receipt of the following addenda to the RFP, by date, is acknowledged:

SIGNED: _____

FULL NAME: _____
(Please Print)

TITLE: _____

FIRM NAME: _____

FIRM ADDRESS: _____

FIRM PHONE NUMBER: _____ FIRM FAX NUMBER: _____

EMAIL ADDRESS: _____

Proposals must remain open and valid for at least 90 DAYS from the deadline specified for submission of proposals. Proposals may be withdrawn at any time prior to proposal opening date.

The signatory agrees that the NDDOT has the right to reject any or all proposals for any reason.

**STATE OF NORTH DAKOTA
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
608 EAST BOULEVARD AVENUE
BISMARCK, ND 58505-0700**

NOTICE OF INTENT TO AWARD

Date

Solicitation Number and Title: [065-30-19-050, Snow Plow Turnkey Truck Package](#)

Opening Date and Time: [March 12, 2019; 3:00 PM Central](#)

A response to the solicitation was submitted by:

[Insert name of bidder or offeror](#)

[Insert name of bidder or offeror](#)

Responses were evaluated according to the criteria stated in the solicitation. We announce our intent to award a contract to:

[Insert name\(s\) of bidder or offeror](#)

We would like to thank you for your time and efforts in preparing a response to this solicitation. We invite you to contact the Procurement Officer if you would like additional information or have any questions about the evaluation process.

You are reminded that any protests of this decision must be submitted to the Procurement Officer within seven (7) calendar days after the issuance of this notice. The protest must be in writing, clearly identify the solicitation number and title, and detail the nature of the protest.

The successful company is instructed not to begin work, purchase materials, or enter into subcontracts relating to the project until both the recipient and state sign the contract.

We appreciate your interest in doing business with the State of North Dakota.

Sincerely,

Vanessa Brosten
Procurement Officer
E-mail: vbrosten@nd.gov
Telephone: 701-328-4466
TTY Users call: 7-1-1

CHECKLIST FOR OFFERORS

- Submit any questions, comments, or requests for clarification to the procurement officer by the deadline for submission of questions.
- Review the Attachments 2 and 3. State any objections to any of the provisions in the Contract Form or Indemnification and Insurance Requirements prior to the deadline for submission of questions.
- Be sure an individual authorized to bind the offeror to the provisions of the RFP signs the proposal.
- Comply with the North Dakota Secretary of State and the North Dakota State Procurement Office Registration requirements prior to the deadline stated in the RFP.
- Comply with professional licensing requirements, and provide copies of certifications, if required.
- Provide the information about the qualifications of the firm that will be working on the project.
- Provide the information about all subcontractors that will be working on the project as required in section 7.10 of the proposal.
- Identify all known federal requirements that apply to the proposal, the evaluation, or the contract.
- Provide the required number of letters of reference.
- Provide all documents or materials that must be submitted with the RFP.
- Identify and label and sections of the proposal you feel contain confidential information.
- Provide completed specifications with any deviations clearly stated.
- Provide product literature with history, warranty, service, parts, and product support information.
- Provide ONE ORIGINAL (1) AND FOUR COPIES (4) of the proposal without pricing in a sealed envelope or package.
- Provide proposal response sheets, completed in their entirety, plus complete list of options with pricing, submitted in a separate sealed envelope or package, clearly labeled "cost proposal".

SPECIFIC TERMS & CONDITIONS

General Information. The time required to build and integrate 20 new trucks into the fleet system is 120 days or less. In order to expedite the equipment installation process, the successful bidder may have the trucks drop shipped from the OEM to a plow/body manufacturer for some or all of the assembly; however the bidder must correct any deficiencies to the installations found by the inspection team within the borders of ND, a bordering city, or a location agreed to with NDDOT. If any installation of equipment is performed at a plow/body manufacturer, the bidder must provide round trip transportation and per diem for 2 NDDOT employees from Bismarck ND to inspect and approve the prototype.

Award. Award will be made to the offeror whose proposal best meets the specifications and other requirements of the request for proposal (RFP) and is the best proposal based on selection committee's review and scoring of all proposals using the guidelines outlined in the RFP. Minor deficiencies or technical variances, which by their nature, are restrictive to a given manufacturer, may be waived if, in the judgment of the RFP committee it would be in the best interest of the state of North Dakota and would not prejudice the rights of other offerors. The state reserves the right to reject any and all proposals in whole or in part. The state reserves the right to award by item, groups of items, or total proposal cost for all items.

Required Delivery Schedule, Acceptance, and Payment. Upon award, a staggered delivery schedule will be created based on number and type of trucks awarded to the contractor(s). The timetable will begin when at least three chassis are delivered to the contractor. Time will be allowed for prior contractor projects to be completed. Two additional working days will be allowed per package type for prototype time. State Fleet Services will arrange to have the chassis delivered to the successful contractor(s). **All trucks must pass a final inspection and be accepted by NDDOT at the contractor(s) location within ND, a bordering city, or other location as agreed to with NDDOT. Any deficiencies identified by the inspection team must be made at the inspection site or otherwise agreed upon location to bring the truck into compliance before delivery can be made.** Final inspections will be made as trucks are completed and delivery must be made within one week of each final inspection. Payment will not be made until trucks have been delivered and accepted by the delivery location. Payment will be withheld on final unit until calibration and training requirements have been met. Vendor is to contact named NDDOT representative to schedule inspections at least 5 days in advance.

Performance incentive. It is of the best interest of the state to complete the trucks in a timely manner; therefore, the following incentive has been created: If the contractor(s) delivers all trucks to the respective shipping location before the required delivery date an additional award of 3% of the total award will be paid to the vendor. No performance incentive will be awarded for delivery after the required delivery date or if trucks fail to pass the final inspection and do not meet the acceptance requirements of NDDOT. No sacrifices in quality of product or workmanship will be accepted to meet this incentive.

Progress Reports. The successful bidder(s) shall provide monthly progress reports addressing the status of accessories received; work completed, and report any problems affecting the completion schedules. Such reports will be provided to State Fleet Services on the first of every month, beginning the first full month after delivery of the chassis. Periodic inspections will be made by the state to answer questions and insure quality.

Force Majeure. If execution of this contract shall be delayed or suspended, and if such failure arises out of causes beyond the control of and without fault or negligence of the contractor, the contractor shall notify State Fleet Services, in writing, within twenty-four (24) hours after the deal. Such causes may include but are not limited to acts of nature, war, acts of public enemy, acts of any government entity in its sovereign or contractual capacity, fires, floods, epidemics, strikes, and unusually severe weather. The state reserves the right to adjust the timetable in such an event.

Liquidated Damages. Time is of the essence in this contract. Failure to start and complete all work specified within the time allowed shall constitute material breach of contract. The "time allowed" will be based upon the timetable developed at the time of award and calculated when the first chassis is delivered to vendor, following the guidelines stated above. Failure of the successful offeror/contractor to deliver the completed trucks within the time allowed will result in damages, and for each consecutive day in excess, a sum of \$50 per truck per day shall be withheld from payment due the contractor. Such amount shall not be construed as a penalty but as a minimum value of liquidated damages that may be deducted from payment due to the contractor if such delay occurs.

Supplemental Purchases. Additional turnkey packages may be ordered from this proposal up to or exceeding the quantities of the initial order until **December 31, 2020**. The total proposal price is to include all discounts and deductions, and is to be less federal and state taxes, for which exemption certifications will be furnished upon request. Pricing shall be firm for the first 60 days of the contract period, after which time the contractor may submit a request for a price increase to the Procurement Officer. Request for a price increase or decrease must include a copy of the manufacturer's official notice or other evidence that the increase or decrease is applicable to all customers. Price increases will become effective 30 days after the receipt of the request, except the state reserves the right to accept or reject within 30 days or cancel the contract. All shipments are to be billed at prices in effect at the time of order, not the date the shipment is made.

Fleet Services Specifications in This Section

SSP-01 Warning Light System

SSP-22-2AUBW 58,000 GVW Tandem with Dump Box, for Underbody Scraper
and Snow Wing

SSP-22-2ADSUBW 58,000 GVW Tandem with Dump & Spreader Box, for
Underbody Scraper and Snow Wing

Fleet Services Informational Data & Photos

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS FOR
SIX LIGHT HEAD 12 VOLT SYNCHRONIZED LED WARNING LIGHT SYSTEM
WHELEN DOT-LED™ OR PRE-APPROVED EQUAL**

Bidders Instructions: Indicate compliance to the specifications on the “COMPLY YES/NO” line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the “SPECIFICATION DEVIATIONS” line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances. (All new products must be provided to NDDOT for testing purposes. Only products approved as a result of this request will be accepted.

	COMPLY YES	NO	SPECIFICATION DEVIATIONS
1) Two Whelen LED SS Micro Edge® 180° Light heads, or pre-approved equal.	—	—	_____
a) Aluminum I-beam structured housing.	—	—	_____
b) Shatter-resistant amber polycarbonate lenses with smooth exterior.	—	—	_____
c) Each Micro Freedom shall contain super-LED lamps with each having eighteen lamps that are mounted in two straight rows of nine amber LED's over nine clear LED's that will mounted behind a highly polished dual reflector per head.	—	—	_____
d) The combination of the two light heads must produce a 360° pattern output pattern.	—	—	_____
e) Micro Edges to alternate with the rear LED light heads of the system.	—	—	_____
f) Rectangular dimensions approximately 12.3"L x 4.67"H x 9.3"W.	—	—	_____
2) Four rear Whelen 400 super-LED directional light heads with aluminum housings, or pre-approved equal.	—	—	_____
a) Rectangular approximately 3 1/2" W x 5"H x 3 1/2"D housings.	—	—	_____
b) Shatter-resistant polycarbonate lenses with smooth exterior.	—	—	_____
i) Attached with stainless steel screws into a nylon mounting bracket.	—	—	_____
c) Two pair, one pair amber and one pair clear.	—	—	_____
i) Pairs independently controlled both from each other and from front.	—	—	_____
d) Wide angle linear LED's capable of emitting 180° of light.	—	—	_____
e) Heavy duty DOT solid state flasher with diagnostics.	—	—	_____
3) No less than 240 lineal feet TPE 3 conductor 600V 14 AWG stranded, pre-tinned copper flexible to -40° with no less than 30 feet of same type cable for each micro edge.	—	—	_____
4) Accessories			
a) Waterproof connectors, W441D/W442D/W441D/W446D, or pre-approved equal. Vendor to provide ample connector quantities for system installation to allow for disconnect of amber and clear light heads at LB box.	—	—	_____
b) Two one-inch PVC LB conduit fittings.	—	—	_____
c) The bid price shall include any miscellaneous items and special tools necessary to provide a complete installation.	—	—	_____
5) NOTE: Panel switches and indicator lamps provided by others.			
6) Vendor is to provide hands-on technical assistance to the installers.	—	—	_____
7) Manufacturer's written warranty of 2 years for complete system with 5 years on LED panels and LED ballasts.	—	—	_____

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR
HYDRAULICS AND DUMP BOX FOR UNDERBODY & WING
(FOR TANDEM AXLE TRUCK – APPROXIMATELY 58,000 LBS G.V.W.)**

Bidders Instructions: Indicate compliance to the specifications on the “COMPLY YES/NO” line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the “SPECIFICATION DEVIATIONS” line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

General Information:

The hydraulics, box, and installation by the successful bidder must be complete in every aspect of the following specifications. All stainless steel components to be made of 201 or 304 grade. The painting of all installed accessories shall be complete and absolute, including primer. All minor items including, but not limited to, conduit, connectors, tape, paint, fittings, fuses, etc., are the responsibility of the bidder. When specifications do not clearly identify the proper installation or it is obvious there is an error, Tim Paul at State Fleet Services (701-328-1465) must be contacted for direction. A plan for mounting locations of the tool box, hydraulic reservoir, valve enclosure, ladder, etc. must be submitted to State Fleet and a prototype will be approved. It shall be the responsibility of the installer to relocate OEM and non-OEM components to accommodate the accessories if required by NDDOT. Frame modifications to accommodate pump, or other equipment installation are not acceptable. Complete hydraulic system provided to be from one common supplier or source. No additional monetary amount will be allowed.

	COMPLY YES	NO	SPECIFICATION DEVIATIONS
8) Hydraulics – Rear engine power take off (REPTO).	—	—	_____
a) Hydraulic pump: Force America FASD45R	—	—	_____
i) 6.0 CID.	—	—	_____
ii) 24.7 GPM at 1000 RPM.	—	—	_____
iii) Load sensing with adjustable compensator with system pressure set for optimum performance of installed components.	—	—	_____
iv) 1 ¼” keyed shaft w/hardened formed key.	—	—	_____
v) Side ported.	—	—	_____
vi) Automatic electric pump outlet shut off if oil level drops to an insufficient level, with override switch.	—	—	_____
vii) Pump to be mounted with pressure compensator orientated to top side of pump	—	—	_____
b) Balanced drive line: Spicer 1310/1350/1380 series or equal.	—	—	_____
i) Splined slip yoke on one end of driveline to allow for movement.	—	—	_____
ii) 4 bolt flange for mounting on both ends of drive line.	—	—	_____
iii) Non Greaseable U-joints.	—	—	_____
iv) Two set screws on hydraulic pump flange 90° apart	—	—	_____
v) Tube to be filled with material to prevent driveline moan.	—	—	_____
vi) Use anti-seize when assembling removable parts and pump housing to mounting bracket.	—	—	_____
vii) REPTO adapter to be forged steel construction the installer responsible to provide adaptor if needed.	—	—	_____

Specifications for Hydraulics & Dump Box, Approximately 58,000 lbs G.V.W.

SSP-22-2AUBW

**COMPLY
YES NO**

**SPECIFICATION
DEVIATIONS**

v) Scraper angle, adjustable cross-port relief set @ 1200 psi. or at scraper manufacturers recommendation.	—	—	
vi) Wing toe (post), 4-way, adjustable work port relief up and down.	—	—	
vii) Wing heel, 4-way, proportional control, adjustable work port relief up and down.	—	—	
viii) Auger, proportional, 4-way with minimum flow rate of 21 GPM, adjustable work port relief. (1) Plumbed and wired for auger reverse.	—	—	
ix) Anti-ice, proportional, 2-way with minimum flow rate of 14 GPM.	—	—	
x) Spinner, proportional, 2-way with minimum flow rate of 7 GPM. (1) Note: The last two functions, Anti-ice and Spinner will be supplied with a two-function manifold using Hirschman or ITT cannon type connectors. This manifold would also include an integral end cover function.	—	—	
xi) Valve Enclosure to have the capability of housing 9 to 13 valve sections: Designed to be weatherproof and protect the valves and valve operators from road contaminants. Located vertically on cab guard on drivers side (see attached photo). Must provide rubber bumper to protect cab from valve enclosure door. (1) Easy serviceability with unobstructed access to all valves under cover. (2) Valve Enclosure to have removable weather-tight access panel on inboard side to permit field removal of spool valves without removing valve manifold assembly from enclosure.	—	—	
f) Spreader Control			
i) Force America 6100 or pre-approved equal. The electronic spreader control shall be designed for precise, closed loop control of granular material and direct liquid application. The unit must be protected from reverse polarity, as well as over-voltage protected.	—	—	
ii) The unit must be supplied with easy to service speedometer connection, valve control connection, and main power connection.	—	—	
iii) The unit must have full featured micro-processor control and provide operational modes for manual, open loop, or closed loop. In addition, the unit must be compatible with information management systems (GPS), provide rotary auger speed adjustment, rotary spinner speed adjustment, and ground based blast mode momentary, timed, or distance. Must have standby mode.	—	—	
iv) Temperature sensor, which shall be capable of displaying ambient air and pavement temperature simultaneously and must be compatible with the specified Force America 6100 sander controller. Temperature sensor shall be mounted to the mirror bracket of the truck and wire routed into the cab and connected directly to the 6100 sander control core module. Wireless sensor connection is accepted.	—	—	
v) Features (1) Remote mounted, 10" color LCD to display all spreader functions. (2) Five current compensated valve drive outputs. (3) Three types of material and ten programmable spread rates.	—	—	

Specifications for Hydraulics & Dump Box, Approximately 58,000 lbs G.V.W.

SSP-22-2AUBW

**COMPLY
YES NO**

**SPECIFICATION
DEVIATIONS**

(4) Bi-directional RS232 for data collection.	—	—	
(5) The electronic spreader firmware shall be upgradeable by downloading files from the supplier's web site at no charge to NDDOT for the life of the unit.	—	—	
(6) Closed loop granular feedback sensor and cabling.	—	—	
(7) Programming shall provide for automatic default to open loop in the event of a feedback failure.	—	—	
(8) Unit must have the ability to cross calibrate from closed loop to open loop operation.	—	—	
(9) Multi-lane dual boom direct liquid.	—	—	
(10) Supervisor access security key for each district.	—	—	
(11) Unit shall have a stationary unload feature for granular, prewet, and anti-ice functions.	—	—	
(12) Application rate limit adjustable from 20-3000 lb/mile. Hydraulic vendor to assist with final calibration upon delivery.	—	—	
g) Control Center			
i) Force America Patrol Commander Ultra Series or pre-approved equal. The control center must be an integral unit used for controlling the work functions of the electro/hydraulic control valves. The control center is to have the capabilities to install the spreader control box as a separate item to the control panel. The control panel is to have the capabilities to joystick control the miniature proportional joysticks for valve control of the dump box, front plow, underbody scraper, wing toe, and wing heel along with underbody scraper and wing disabling switches. Two-step select and operate systems are not acceptable.	—	—	
ii) Single miniature joystick shall control the hoist with center interlock or dead-man switch, and also contain integral dual axis miniature proportional joystick controls for plow, underbody scraper and wing along with three push button switches for spreader blast, standby, and box vibrator. The scraper control must be held in the down position for 3 seconds to activate automatic scraper down pressure mode. The controller must activate pre-wet ball valve in conjunction with the sander.	—	—	
iii) There shall be a pressure transducer installed in the scraper circuit to monitor the down pressure on the scraper. The transducer shall be wired into the valve module and the scraper pressure shall be read on the 10" color LCD spreader display.	—	—	
h) Wiring			
i) All wiring shall have color-coding with amp style connectors to connect the control panel and to valve enclosure. All connector pins shall be gold style to ensure good connections between the connecting halves. All wiring inside the valve enclosure shall have LED lights to indicate which valves are operating when function is required. All wiring inside of the enclosure shall be connected to the amp style connector to facilitate proper connection between the inside of the box and the outside of the box.	—	—	
ii) The wire ends are to be ITT or Cannon type connectors to connect the wire harness to the valves. The wire harness shall be wrapped to provide protection of the wires and used as a way to bundle the wires in a neat package.	—	—	

Specifications for Hydraulics & Dump Box, Approximately 58,000 lbs G.V.W.

SSP-22-2AUBW

	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
iii) The main control panel shall have its own power source with on/off to be controlled by ignition key switch via relay.	---	---	_____
iv) Parts manuals, service literature, driver, and 6 hours service training per location must be supplied at no extra charge. Payment contingent on performance.	---	---	_____
v) Each truck style box shall be wired identically and have the same color/size wiring to each circuit.	---	---	_____
i) Seat mounted hydraulic and sander controls to move with the seat suspension. The length and height not to obstruct the view of the operator dashboard. The position to be determined by the vendor and NDDOT. Bracket to be made of aluminum.	---	---	_____
i) The design and location must be approved on prototype (see attached photo). All openings shall be grommetted and sealed with an appropriate caulking. Final mount to be approved.	---	---	_____
j) Switches and Indicator Lights			
i) The switch panel will be included, installed, pre-wired and circuit breaker protected by OEM of truck.	---	---	_____
ii) Panel Switches:			
(1) Front and rear amber warning.	---	---	_____
(2) Rear clear warning.	---	---	_____
(3) Work light.	---	---	_____
(4) Momentary switch for box vibrator.	---	---	_____
(5) Momentary switch for hydraulic pump override.	---	---	_____
(6) Air tailgate.	---	---	_____
iii) Body vendor to provide the following:			
(1) Switches and indicators to be mounted in control panel. All switches, functions & names shall be backlit/illuminated.	---	---	_____
(a) Auto recall switch(ability to lift all plows)	---	---	_____
(b) Wing disable switch.	---	---	_____
(c) Underbody disable switch.	---	---	_____
(d) Auxiliary switch.	---	---	_____
(e) Spreader switch.	---	---	_____
(f) All switch labeling to include OEM switches if not provided by truck manufacturer. Any additional labels provided by the truck manufacturer to be left in truck cab for future labeling of any unused switches.	---	---	_____
(2) Indicator lights for body up/down (red), low hydraulic oil, oil temp, located in the panel. The warning lights shall flash when activated, audible alarms to be disabled.	---	---	_____
(3) An 80-amp thermal breaker with manual reset shall be provided in the wire between the power source and the switch panel. (Mounting location to be approved by NDDOT)	---	---	_____
(a) Power wire from battery to 80amp thermal breaker shall be protected by 100 amp fuse located in battery box to protect circuit between battery and thermal breaker	---	---	_____
(4) One wire shall be run from the switch accessory and one wire form the battery to the switch panel.	---	---	_____

- k) Special Accessory Wiring
 - i) Requirements – a 75 amp constant duty relay shall be provided to remove specified accessory circuits from the ignition key switch to prevent switch overloads, yet retaining key switch on/off control. Circuits controlled through relay shall include all console switches and functions, except plow lights and FM radio power source. Accessible terminals shall also be available for controlling additional department-installed equipment. This relay may be part of the hydraulic control counsel circuitry. ____
 - ii) Headlight switching control will be part of the OEM truck bid. ____
- l) Hydraulic hoses to be U.S. made WeatherHead™, Parker™ or approved equal as follows:
 - i) 2" suction line – SAE 100 R4 ____
 - ii) 1" pressure (pump to valves) – SAE 100 R2 ____
 - iii) Hoist (not smaller than port size) – SAE 100 R2 ____
 - iv) Return line 1 ¼" – SAE 100 R1 ____
 - v) Plow lift, reversing ½" – SAE 100 R2 ____
 - (1) Reversing hoses terminated with Pioneer 9500 series ½" female lever quick coupler breakaway kit No. 9500-4 mounted to driver's side of quick hitch at height of the top of truck frame. (See photo) ____
- m) Hydraulic lines for the sander shall be routed through the rear box corner with through fittings, Parker brass anchor connectors 207ACBH or equal into box corner and flat face quick couplers with tethered dust caps at that point. They should be routed to the side, which is most efficient for the type of sander to be installed. A protective shield shall be installed to protect hoses from wheel spray. The return shall be split outside of box and have one 1" and one ½" coupler to allow for two return hoses from tailgate sander. (Mounting location to be approved by NDDOT)
 - i) Two main supply sander lines shall be ¾" schedule 80 high-pressure pipe. Return line pipe to be 1" no less than SAE R1. Black pipe acceptable, to be spaced for material to fall through. Design to be approved on prototype. ____
 - ii) Hose from valve body and from sander connection, high-pressure line shall be two wire SAE 100 R2 rated. ____
 - iii) Hose from reservoir and from sander connection to the return line shall be no less than one wire 1250 psi and must be plumbed in ahead of the return line filter. ____
 - iv) Sander lines are to be fastened with hold-downs, which are removable for maintenance and shall keep the lines free from interference of hoist functions. ____
- n) All pressure line fittings shall use high-pressure steel adapter fittings with swivel couplings to allow easy hose or component removal. (JIC 37° flare fittings wherever possible and practical) Return lines must use appropriate fittings for pressure present. All hoses from the back of the black pipe to the anchor connectors in the box must have 37° flare swivel fittings throughout. ____
- o) All test ports for testing shall be accessible for connecting test gauge. ____

Specifications for Hydraulics & Dump Box, Approximately 58,000 lbs G.V.W.

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- p) All hydraulic hoses to be routed, secured, and protected from pinching or abrasion. Securing of hoses to be designed to withstand severe ice and snow buildup. Use heavy J-hook style hose hangers as necessary. Routing and support to be approved.

9) Dump Box

- a) 8 cubic yard capacity with 10 yard ends.
- b) Approximate inside dimensions: 14' x 7' x 2'-4". Width of box to extend over rear duals.
- c) Front and rear ends to be minimum 6" higher than sides and equipped with pockets for 2" wide sideboards.
- d) ¼" stainless steel floor, 7-gauge stainless steel sides and tailgate, with steel certification.
- e) 30-degree minimum slope on side running boards.
- f) Boxed top rail at sides and front.
- g) Sides to have a boxed type 8 gauge full length horizontal side brace with a minimum 30-degree top slope. The bottom sill shall have an additional 3" x ½" x 6' loader strike plate. Both sides.
- h) Front head to have a centered V-type brace.
- i) Free standing/stationary cab guard shall be approximately 24" with width to widest point of cab and adequate height to provide proper cab clearance. Cab guard shall allow for the chassis exhaust system to pass through or alongside to give the best cab protection without modification of the exhaust system. If the exhaust system must be modified it must be approved. All modifications are at the box vendor's expense. (See drawing)
 - i) Cab shield panel to be minimum 10 gauge stainless steel.
 - ii) Uprights shall be standard 6" channel to top part of cab and for cross member.
 - (1) Upright flanges shall face away from center of chassis.
 - (2) Each upright shall be bolted with a minimum of 4 each of 5/8" grade 8 bolts to chassis rails.
 - (3) 6" channel to be placed between the uprights (flanges down) on the top of the frame rails and properly welded to uprights. This channel shall not be welded to frame rails. Hydraulic tank brackets to be welded to topside of channel.
 - iii) Top cross member shall be welded to uprights and gusseted with two ¼" plates of 6" x 6" x 8 ½" dimensions at rear part of assembly.
 - iv) Cab shield shall be continuously welded or bolted with grade 8 bolts to uprights and top cross member.
 - (1) Reinforced and welded to cross member with two 3" – 4.1# channel irons, which are extended the full length of the cab shield and align with the 6" channel uprights.
 - (2) Adequately gusseted from 3" channel iron to 6" channel iron.
 - (3) Welded to 3" channel irons with flanges downward.
 - (4) Have provisions that do not allow ponding of water.
 - v) ¼" x 2" x 2" angle iron shall be welded at bottom of cab shield between uprights to support cab shield.
 - vi) Rubber seal/wiper between shield and dump body. Shall not allow accumulation of material between body and cab guard.
 - vii) Shovel holder for long handle square spade attached to upright.

Specifications for Hydraulics & Dump Box, Approximately 58,000 lbs G.V.W.

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- viii) Must have prototype approved. _____
- j) Crossmemberless subframe _____
- k) Body longitudinals to be minimum of 8" steel I beam or deep flared fully boxed ¼" stainless steel. _____
- l) Double acting tailgate with formed boxed outer edge and boxed horizontal center braces having 30 degree slope top edge. _____
- m) D-ring attached to inside top center for lifting purposes. _____
- n) Air tailgate with single cylinders and solenoid Velvac kit #320178, 3/8" airline and air supply to be taken from air tank with tractor protection valve. Installation shall allow operation of the tailgate should the air operated device fail. _____
 - i) Solenoid valve to be located in truck cab. _____
 - ii) Shaft to be retracted in closed or off position. _____
 - iii) The manual tailgate control lever shall have a detachable bolt connection or "corn pin" device. _____
 - iv) Stainless steel tailgate linkage with exception to threaded rods, blocks and clevises. _____
- o) Top and bottom tailgate hinge pins to be 1" diameter. _____
 - i) Tailgate hinge pins and latching mechanisms to be greaseable. _____
- p) 5/16" spreader chains attached to upper sides of tailgate with upper and lower anchors that permit hinging tailgate to top or bottom. Chain to be encased in hydraulic hose sheathing. Center hooks for extra chain _____
- q) Continuous welds throughout. _____
- r) Stainless steel ladder – mounted curbside. Must fold up for transport. _____
 - i) Fabricated with approximately 5 rungs with access from about a 2' grade. Ladder design must be approved by NDDOT. _____
 - ii) Mounted on front side of box ahead of dual tires. _____
 - iii) When in transport position, must not extend beyond main edge of body more than 3". Adequate latch system to keep in place while traveling. Ladder shall not extend beyond top of box sideboard (with sideboards in place) _____
 - iv) Fixed slip resistant grip strut rungs with no sharp corners welded to inside of box allowing a person to climb into box. _____
 - v) Skid resistant/epoxy-bonded coating on top of each rung. Bustin Industrial Products Firm-grip™ grating, formed channel tread grip, or equal may be substituted for skid resistant coating on the rungs. _____
- s) All additional electrical wiring must be circuit breaker protected. _____
- t) Back-up alarm, self-adjusting sound level, 87 thru 107 decibels, and lifetime warranty ECCO SA901, Target Tech 210505, or approved equal. To be mounted to the bottom of the right taillight guard. _____
- 10) Lights – NOTE:** All wiring for the tail and clearance lights shall be protected from wear and tear and shielded from mud and ice buildup. All holes for wiring must be grommeted. _____
 - a) Dump Box _____
 - i) Lights to meet ICC regulations. _____
 - ii) Clearance lights and reflectors - Minimum two amber clearance lights in front and two red clearance lights in rear of box. _____

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- (2) Wiring for light heads from chassis frame to top of cab guard to be routed through metal conduit attached to the cab guard upright or split loom and tube clamps may be used as long as the clamps have maximum spacing of 12 inches. _____
- iii) LED warning light system with heavy duty DOT solid state flasher with diagnostics. _____
- iv) Rear light electrical connectors housed in PVC access fitting connectors and PVC fittings provided by the strobe system supplier. _____
- v) Rear light support – 1 ½” square telespar steel tubing mounted approximately 60 degrees on rear of box and roughly adjustable from 9’ – 12’. Tubing to be angled to the rear but not extending more than 18” behind box. Square tube support bracket not acceptable. Mounting brackets to be as high on the side of box as possible without interfering with tailgate operation or hinge pin removal. _____
 - (1) See pictures of DOT support bracket to allow telespar tubing to pivot from vertical to horizontal. Nylon bushings shall be installed on both sides of pivot pin to hold telespar tubing from vibration but still allow free pivot movement. DOT will supply prototype bracket to awarded vendor. _____
 - (2) Amber LED lights to be mounted to top of support. Clear LED lights to be mounted ½ the distance from top of support to top of box. **Auxiliary Stop/Turn/Tail light to be mounted below the white warning light on rear telespar.** Stainless steel fasteners to be used for the mounting of the aluminum light heads to the telespar along with nylon isolating washers placed between telespar and aluminum light head to prevent corrosion caused by dissimilar metals. _____
- e) One wing and one underbody scraper 12V LED work light, located at the rear corners of the cab. One sander work light located under left taillight housing. Final location to be determined upon award. All three lights to be wired to one work light switch. Truck Lite #8160 or equal
 - i) Housings to be corrosion and impact resistant. _____
 - (1) Weatherproof. _____
 - ii) Universal mounting stud and adjustable bracket. _____

11) Hoist

- a) NTEA rated and classified. _____
- b) Class 80, telescopic. _____
 - i) Cylinder to have full power up and full power down. _____
 - ii) Melonized cylinder rod surfaces with a predominance of single-phase epsilon nitride to cover entire surface. _____
- c) Minimum hinge pin diameter – 1 15/16” hardened steel. _____
- d) Minimum dumping angle – 50 degrees at 12” overhang. _____
- e) Minimum of 1 ½” chassis frame extending beyond wing cross tube to allow for pintle plate mounting. _____
- f) In cab, box up indicator light (see panel switches), to be coil spring wobble lever, sealed, snap action switch, frame mounted, Grainger stock no. 3A096 or equal. _____

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- g) Safety prop(s) to support body at 20-degree angle, frame mounted, self-aligning for one person operation, easily accessible. Prototype to be approved.
-

12) General

- a) Paint – All non-stainless steel to be primed and painted; **any modified pieces and spot painting must be painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: <https://www.ppgpmc.com>.**
- b) Spot painting must include hardener and be applied with spray gun.
- c) Mud flaps front and rear of rear tires, 24" wide by 30" long, made of 5/16" quality rubber. Stainless steel brackets. The rear flaps must be quick to remove through the use of a 1/2" round rod and spring clip and free swinging. The front flaps fastened permanently with anti-sail devices mounted to prevent tire contact.
- d) Tool box 18" x 18" x 24". All **Stainless Steel** 14 gauge construction, bottom hinged door. Full-length corrosion resistant hinge. Key lockable paddle latch with adjustable striker plate. Full neoprene door seal. Two chain or cable door retainers. Drip rail or door recess. Acceptable brand: Buyer. Other brands must be pre-approved.
 - i) Mounted with 2" mild steel channel, two cross supports under floor of box and gusseted. Mounting contact areas between tool box and steel to be isolated with fuel tank rubber belting or similar
- e) Must use stainless steel fasteners when mounting to stainless steel. Except where strength is needed.
- f) Appropriate steps must be taken to keep mild steel and stainless steel cross contamination from occurring.
- g) Install 45' of reflexite V82 red and white reflective conspicuity tape on box. Location to be approved by NDDOT.
- h) **Wiring harnesses not to be tied to hydraulic lines.**

13) Snow Plow Quick Hitch, Falls 26B, Monroe FLS26BND, Henderson H46B-ND, or equal. Remount trucks tow hooks. **Mounting and location to be approved.**

- a) Snowplow connecting mechanism shall be the Rapid Push Bar Quick Coupler as manufactured by Little Falls Machine, Inc., Monroe, Henderson or equal.
- b) Quick coupler system shall incorporate push arm receptor sockets with spring loaded tapered pins for proper pin alignment. Grease zerks installed for pin lubrication. Pin retractor mechanism shall be conveniently located for ease of operation.
- c) Mounting system shall adapt to frame rails of truck chassis and shall be adequately braced with grade 8 frame bolts meeting SAE J-429 specification to the truck chassis frame by minimum 3/4" x 4" A-36 steel bars which will be additionally reinforced. Stabilizer arms shall be attached to the frame by means of 1/2" thick steel Z brackets. **Push arms tight against hitch frame.** Vertical risers and plow lifting yoke shall be low profile to allow clearance for tilting hood without tilting or disconnecting plow hitch.
- d) Universal lift arm to be adjustable inward/outward using heavy-duty square tube within square tube with pin adjustment. Shall be capable of lifting reversible or V-plows weighing as much as 3000 lbs.
- e) Hydraulic plow lift cylinder shall be minimum 4" x 10" single acting type with chrome-plated rod. Hydraulic cylinder shall be certified to a minimum of twice (2X) the working pressure (2250PSI) of the hydraulic system.

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- f) Hydraulic ball valve at lift cylinder to shut off oil flow when plow is not in use. _____
- g) Mounting height shall be 15" to center of connecting pin. Hitch to be cushioned with rubber bumper anywhere tilting engine hood may strike when opened. _____
- h) Complete hitch shall be primed and painted to match the truck frame. _____

14) REAR HITCH PLATE

Trailers pull plate, pintle hitch, D-rings, electrical connector, and glad hands installed on the truck. See enclosed drawing. Note: disregard the location of the light plug-ins on the drawing. The successful vendor must approve the entire hitch design with NDDOT and build a prototype for approval on the first truck.

- a) Must be made using 3/4" material for the plate and gussets. _____
- b) Must provide a Holland PH410 pintle hitch rated at 20,000lb vertical load and 100,000lb gross trailer weight installed with grade eight bolts and lock nuts. _____
- c) Two D-rings on each side of the pintle hitch rated for 100,000lb of gross trailer weight between the two. Tandemloc® 9202-DS79 or equal _____
- d) 2.5" receiver welded into the plate below the pintle hitch. To be used for towing as well as spinner mounting. _____
- e) Pull plate must be properly braced and welded to be rated for 100,000lb gross trailer weight. _____
- f) The round seven pin trailer light connector and two glad hands are to be mounted in hitch plate. Air glad hands one on either side of pintle hitch. 7 pin trailer connections to be above LH glad hand. 7 pin trailer connection must not be positioned above pintle hitch for clearance issues with trailer tongue. See attached picture for guidance. Final location and process must be approved by NDDOT. _____

15) Warranty

- a) One-year full unconditional warranty, manufacturer's warranty shall apply if for longer period. _____

16) Delivery

- a) Truck must be test driven and all hydraulic, brine, plow, sander, and electrical functions must be tested to make sure they work properly, and that there are no fluid leaks. All vendor installed attachments to be greased/lubricated. **Grease bank hoses must be primed/prefilled.** Truck must pass a final inspection performed by NDDOT employees before delivery can be made. _____

BODY MAKE: _____ MODEL: _____

HOIST MAKE: _____ MODEL: _____

PUMP MAKE: _____ MODEL: _____

QUICK HITCH MAKE: _____ MODEL: _____

LED WARNING LIGHT SYSTEM MANUFACTURER: _____

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR
HYDRAULICS AND DUMP & SPREADER BOX FOR UNDERBODY & WING
(FOR TANDEM AXLE TRUCK – APPROXIMATELY 58,000 LBS G.V.W.)**

Bidders Instructions: Indicate compliance to the specifications on the “COMPLY YES/NO” line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the “SPECIFICATION DEVIATIONS” line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

General Information:

The hydraulics, box, and installation by the successful bidder must be complete in every aspect of the following specifications. All stainless steel components to be made of 201 or 304 grade. The painting of all installed accessories shall be complete and absolute, including primer. All minor items including, but not limited to, conduit, connectors, tape, paint, fittings, fuses, etc., are the responsibility of the bidder. When specifications do not clearly identify the proper installation or it is obvious there is an error, Tim Paul at State Fleet Services (701-328-1465) must be contacted for direction. A plan for mounting locations of the tool box, hydraulic reservoir, valve enclosure, ladder, etc. must be submitted to State Fleet and a prototype will be approved. It shall be the responsibility of the installer to relocate OEM and non-OEM components to accommodate the accessories if required by NDDOT. Frame modifications to accommodate pump, or other equipment installation are not acceptable. Complete hydraulic system provided to be from one common supplier or source. No additional monetary amount will be allowed.

COMPLY	SPECIFICATION
YES NO	DEVIATIONS

17) Hydraulics – Rear engine power take off (Repto).	—	—	
a) Hydraulic pump: Force America FASD45R	—	—	
i) 6.0 CID.	—	—	
ii) 24.7 GPM at 1000 RPM.	—	—	
iii) Load sensing with adjustable compensator with system pressure set for optimum performance of installed components.	—	—	
iv) 1 ¼” keyed shaft w/hardened formed key.	—	—	
v) Side ported.	—	—	
vi) Automatic electric pump outlet shut off if oil level drops to an insufficient level, with override switch.	—	—	
vii) Pump to be mounted with pressure compensator orientated to top side	—	—	
b) Balanced driveline: Spicer 1310/1350/1380 series or equal.	—	—	
i) Splined slip yoke on one end of driveline to allow for movement.	—	—	
ii) 4 bolt flange for mounting on both ends of drive line.	—	—	
iii) Non greaseable U-joints	—	—	
iv) Two sets screws on hydraulic pump flange 90° apart.	—	—	
v) Tube to be filled with material to prevent driveline moan.	—	—	
v) Use anti-seize when assembling removable parts and pump housing to mounting bracket.	—	—	
vi) REPTO adapter to be forged steel construction the installer responsible to provide adaptor if needed.	—	—	
c) Mounting: Shaft centerline at least one degree to the repto centerline not to create more than a three-degree angle. Shaft to have enough movement to allow removal of driveshaft without loosening or removing hydraulic pump.	—	—	

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
iii) Body vendor provided bracket fabricated to mount in the extended frame rails.	---	---	_____
d) Reservoir: mounted between cab guard uprights, 10 gauge steel, 40-gallon capacity with baffle. Tank dimensions and height to be determined on prototype. Tank to be secured down by steel straps.(see drawing)	---	---	_____
iii) Basket type filler breather cap.	---	---	_____
iv) Magnetic drain plug, easily accessible.	---	---	_____
v) 3" OD with 2" ID NPT suction strainer with 100 mesh screen type filter.	---	---	_____
vi) Separate return port for control drain line.	---	---	_____
vii) Sight temperature gauge externally mounted.	---	---	_____
viii) 2" full flow brass ball valve for suction line shutoff.	---	---	_____
ix) Electric level and temperature sending unit, wired to control panel and back lit for "low oil" and "oil temp" warning.	---	---	_____
x) In-tank return filter to handle flow requirements and have porting of at least 1 ¼". Filter to have both visual and electrical indicators. Filter element shall be 10 micron "absolute" rated for no less than 80 GPM. Filter assembly shall be TS-1600-25-1-0/ZSRE-409-10 approved equal.	---	---	_____
xi) In-line pressure filter system to be installed between pump outlet and valve body inlet. Pressure filter to be mounted near hydraulic reservoir and orientated to allow for easy unobstructed service. Filter to have electrical restriction indicator viewable on in-cab LCD screen. Filter to be Eaton#300150 or equal. 60GPM flow minimum, 3,000 psi. Filter housing kit to be Force America # HP17125VG30EPUG5S2AE7050P or equal	---	---	_____
xii) Hydraulic system shall be filled with the hydraulic oil under current contract with NDDOT. The contract vendor is to provide oil to the installer at contract price. Pricing available from State Fleet or https://secure.apps.state.nd.us/csd/spo/services/bidder/listCurrentContracts.htm . Oil to be Cenex, Quicklift® HTB Low Viscosity winter fluid.	---	---	_____
e) Electro/Hydraulic Valves: Shall be Force America add-a-fold or approved equal. The control valves shall be pulse-width modulated and where indicated proportionally controlled. All segments shall have heavy-duty continuous coils and connections shall be Hirshman or ITT Cannon type connectors. Each segment shall be equipped with a manual override. Each segment shall have adjustable flow control. Valve sections to be arranged as follows:	---	---	_____
iii) Hoist, 4-way double acting with down side 500 psi relief, proportional control.	---	---	_____
iv) Plow lift, 3-way.	---	---	_____
v) Plow angle, 4-way.	---	---	_____
vi) Scraper lift, 4-way, adjustable to maintain a constant psi of 300-500 hydraulic pressure down on road.	---	---	_____
vii) Scraper angle, adjustable cross-port relief set @ 1200 psi or at scraper manufacturer's recommendation.	---	---	_____
viii) Wing toe (post), 4-way, adjustable work port relief up and down.	---	---	_____

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
ix) Wing heel, 4-way, proportional control, adjustable work port relief up and down.	___	___	_____
x) Auger, proportional, 2-way with minimum flow rate of 21 GPM, adjustable work port relief.	___	___	_____
xi) Anti-ice, proportional, 2-way with minimum flow rate of 14 GPM.	___	___	_____
xii) Spinner, proportional, 2-way with minimum flow rate of 7 GPM.	___	___	_____
(1) Note: The last two functions, Anti-ice and Spinner will be supplied with a two-function manifold using Hirschman or ITT cannon type connectors. This manifold would also include an integral end cover function.	___	___	_____
xiii) Valve Enclosure to have the capability of housing 10 to 11 valve sections: Designed to be weatherproof and protect the valves and valve operators from road contaminants. Located vertically on cab guard on drivers side (see attached photo). Must provide rubber bumper to protect cab from valve enclosure door.	___	___	_____
(1) Easy serviceability with unobstructed access to all valves under cover.	___	___	_____
(2) Valve Enclosure to have removable weather-tight access panel on inboard side to permit field removal of spool valves without removing valve manifold assembly from enclosure.	___	___	_____
f) Spreader Control			
iii) Force America 6100 or pre-approved equal. The electronic spreader control shall be designed for precise, closed loop control of granular material and direct liquid application. The unit must be protected from reverse polarity, as well as over-voltage protected.	___	___	_____
iv) The unit must be supplied with easy to service speedometer connection, valve control connection, and main power connection.	___	___	_____
v) The unit must have full featured micro-processor control and provide operational modes for manual, open loop, or closed loop. In addition, the unit must be compatible with information management systems (GPS), provide rotary auger speed adjustment, rotary spinner speed adjustment, and ground based blast mode momentary, timed, or distance. Must have standby mode.	___	___	_____
vi) Temperature sensor, which shall be capable of displaying ambient air and pavement temperature simultaneously and must be compatible with the specified Force America 6100 sander controller. Temperature sensor shall be mounted to the mirror bracket of the truck and wire routed into the cab and connected directly to the 6100 sander control core module. Wireless sensor connection is accepted	___	___	_____
vii) Features			
(1) Remote mounted, 10" color LCD to display all spreader functions.	___	___	_____
(2) Five current compensated valve drive outputs.	___	___	_____
(3) Three types of material and ten programmable spread rates.	___	___	_____
(4) Bi-directional RS232 for data collection.	___	___	_____
(5) The electronic spreader firmware shall be upgradeable by downloading files from the supplier's web site at no charge to NDDOT for the life of the unit.	___	___	_____

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
(6) Closed loop granular feedback sensor and cabling.	—	—	_____
(7) Programming shall provide for automatic default to open loop in the event of a feedback failure.	—	—	_____
(8) Unit must have the ability to cross calibrate from closed loop to open loop operation.	—	—	_____
(9) Multi-lane dual boom direct liquid.	—	—	_____
(10) Supervisor access security key for each district.	—	—	_____
(11) Unit shall have a stationary unload feature for granular, prewet, and anti-ice functions.	—	—	_____
(12) Application rate limit adjustable from 20-3000 lb/mile. Hydraulic vendor to assist with final calibration upon delivery.	—	—	_____
g) Control Center			
iii) Force America Patrol Commander Ultra Series or pre-approved equal. The control center must be an integral unit used for controlling the work functions of the electro/hydraulic control valves. The control center is to have the capabilities to install the spreader control box as a separate item to the control panel. The control panel is to have the capabilities to joystick control the miniature proportional joysticks for valve control of the dump box, front plow, underbody scraper, wing toe, and wing heel along with underbody scraper and wing disabling switches. Two-step select and operate systems are not acceptable.	—	—	_____
iv) Single miniature joystick shall control the hoist with center interlock or dead-man switch, and also contain integral dual axis miniature proportional joystick controls for plow, underbody scraper and wing along with three push button switches for spreader blast, standby, and auxiliary function. The scraper control must be held in the down position for 3 seconds to activate automatic scraper down pressure mode. The controller must activate pre-wet ball valve in conjunction with the sander.	—	—	_____
v) There shall be a pressure transducer installed in the scraper circuit to monitor the down pressure on the scraper. The transducer shall be wired into the valve module and the scraper pressure shall be read on the 10" color LCD spreader display.	—	—	_____
h) Wiring			
iii) All wiring shall have color-coding with amp style connectors to connect the control panel and to valve enclosure. All connector pins shall be gold style to ensure good connections between the connecting halves. All wiring inside the valve enclosure shall have LED lights to indicate which valves are operating when function is required. All wiring inside of the enclosure shall be connected to the amp style connector to facilitate proper connection between the inside of the box and the outside of the box.	—	—	_____
iv) The wire ends are to be ITT or Cannon type connectors to connect the wire harness to the valves. The wire harness shall be wrapped to provide protection of the wires and used as a way to bundle the wires in a neat package.	—	—	_____
v) The main control panel shall have its own power source with on/off to be controlled by ignition key switch via relay.	—	—	_____

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
vi) Parts manuals, service literature, driver, and 6 hours service training per location must be supplied at no extra charge. Payment contingent on performance.	—	—	_____
vii) Each truck style box shall be wired identically and have the same color/size wiring to each circuit.	—	—	_____
i) Seat mounted hydraulic and sander controls to move with the seat suspension. The length and height not to obstruct the view of the operator dashboard. The position to be determined by the vendor and NDDOT. Bracket to be made of aluminum.	—	—	_____
iii) The design and location must be approved on prototype (see attached photo). All openings shall be grommetted and sealed with an appropriate caulking. Final mount to be approved.	—	—	_____
j) Switches and Indicator Lights			
iii) The switch panel will be included, installed, pre-wired and circuit breaker protected by OEM of truck.	—	—	_____
iv) Panel Switches:			
(1) Front and rear amber warning.	—	—	_____
(2) Rear clear warning.	—	—	_____
(3) Work light.	—	—	_____
(4) Momentary switch for box vibrator.	—	—	_____
(5) Momentary switch for hydraulic pump override.	—	—	_____
(6) Air tailgate.	—	—	_____
v) Body vendor to provide the following:			
(1) Switches and indicators to be mounted in control panel. All switches, functions & names shall be backlit or illuminated.	—	—	_____
(a) Auto recall switch (give you the ability to lift all plows).	—	—	_____
(b) Wing disable switch.	—	—	_____
(c) Underbody disable switch.	—	—	_____
(d) Liquid switch.	—	—	_____
(e) Spreader switch.	—	—	_____
(a) All switch labeling to include OEM switches if not provided by truck manufacturer. Any additional labels provided by the truck manufacturer to be left in truck cab for future labeling of any unused switches.	—	—	_____
(2) Indicator lights for body up/down (red), low hydraulic oil, oil temp, located in the panel. The warning lights shall flash when activated, audible alarms to be disabled.	—	—	_____
(3) An 80-amp thermal breaker with manual reset shall be provided in the wire between the power source and the control center.	—	—	_____
(a) Power wire from battery to 80amp thermal breaker shall be protected by 100 amp fuse located in battery box to protect circuit between battery and thermal breaker	—	—	_____
(4) One wire shall be run from the switch accessory and one wire form the battery to the switch panel.	—	—	_____

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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- d) Minimum 7 gauge stainless steel, one piece sides of a radius or trapezoidal design or of not less than a 35° slope if non radius or trapezoidal. Understructure and floor to be minimum of 3/16" stainless steel. (Welded 2-piece with double reinforcement is acceptable) _____
- e) Front and rear ends to be minimum 6" higher than sides and equipped with pockets for 2" wide sideboards. _____
- f) Body longitudinals should be of height to provide sufficient clearance between body-mount fenders and top of wing post _____
- g) Integral box mounted rear fenders to cover wheels of truck chassis. Designed with no raised edges to trap material and the strength to carry and support a minimum of 200 gal pre-wet tanks filled to capacity with fluid chemicals weighing up to 14 lbs per gallon. (One each side). _____
 - iii) Brine tanks not to protrude beyond fender width. _____
- h) Boxed top rail at sides and front. _____
- i) Free standing/stationary cab guard shall be approximately 24" with width to widest point of cab and adequate height to provide proper cab clearance. Cab guard shall incorporate square tubing into the front corners to allow for adjustable warning light supports. Cab guard shall allow for the chassis exhaust system to pass through or alongside to give the best cab protection without modification of the exhaust system. If the exhaust system must be modified it must be approved. All modifications are at the box vendor's expense. (See drawing) _____
 - iii) Cab shield panel to be minimum 10 gauge stainless steel. _____
 - iv) Uprights shall be standard 6" channel to top part of cab and for cross member. _____
 - (1) Upright flanges shall face away from center of chassis. _____
 - (2) Each upright shall be bolted with a minimum of 4 each of 5/8" grade 8 bolts to chassis rails. _____
 - (3) 6" channel to be placed between the uprights (flanges down) on the top of the frame rails and properly welded to uprights. This channel shall not be welded to frame rails. Hydraulic tank brackets to be welded to topside of channel. _____
 - v) Top cross member shall be welded to uprights and gusseted with two 1/4" plates of 6" x 6" x 8 1/2" dimensions at rear part of assembly. _____
 - vi) Cab shield shall be continuously welded or bolted with grade 8 bolts to uprights and top cross member. _____
 - (1) Reinforced and welded to cross member with two 3" – 4.1# channel irons, which are extended the full length of the cab shield and align with the 6" channel uprights. _____
 - (2) Adequately gusseted from 3" channel iron to 6" channel iron. _____
 - (3) Welded to 3" channel irons with flanges downward. _____
 - (4) Have provisions that do not allow ponding of water. _____
 - vii) 1/4" x 2" x 2" angle iron shall be welded at bottom of cab shield between uprights to support cab shield. _____
 - viii) Rubber seal/wiper between shield and dump body. Shall not allow accumulation of material between body and cab guard. _____
 - ix) Shovel holder for long handle square spade attached to upright. _____
 - x) Must have prototype approved. _____
- j) Tailgate with formed boxed outer edge and boxed horizontal center braces having 30 degree slope top edge. Outer vertical channels of boxed perimeter to be 1/4" thick for additional strength. _____

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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- k) D-ring attached to inside or outside top center for lifting purposes. _____
- l) Air tailgate with dual cylinders and solenoid Velac kit #320178, 3/8" airline and air supply to be taken from air tank with tractor protection valve. Installation shall allow operation of the tailgate should the air operated device fail. Solenoid valve to be located in truck cab. _____
- m) Top and bottom tailgate hinge pins to be 1" diameter, minimum
 - iii) Tailgate hinge pins and latching mechanisms to be greaseable. _____
- n) 5/16" spreader chains attached to upper sides of tailgate with upper and lower anchors that permit hinging tailgate to top or bottom. Chain to be encased in hydraulic hose sheathing. _____
- o) Material door in bottom center of tailgate with self-locking adjustable screw jack opening to control material volume accessible from ground level. Rubber seal on the bottom of material door. _____
- p) The body conveyor shall be a minimum of 28" width and shall have 26,000 pound tensile strength per strand pintle chain AL667XH or better with 1 1/2" x 1/2" bar flights welded top and bottom to every other link.
 - iii) Rear conveyor shaft shall have full width rubber belting connected from floor pan and extending over rear shaft and protrude slightly through passing floor chain bar flights to effectively wipe every bar flight clean as it passes over rear sprocket. _____
 - iv) Conveyor shall be driven by a minimum single 25:1 planetary or two 6:1 spur gear boxes and high torque/low speed hydraulic motor(s), eight tooth sprockets keyed to 2" drive shafts. Single planetary gearbox must be protected from damage with a keyed surface area rated for use with the specified output of the gearbox. Heavy duty, dust sealed, self-aligning four bolt flange bearings. At least one of the conveyor drive motors must have an integral speed sensor with 100 pulses per revolution to operate in conjunction with the closed loop ground speed controller. Speed sensor connection must be tied up in an accessible position near motor to keep out of debris and allow for easy access for diagnostics. NO EXCEPTIONS. _____
 - v) Front idler shaft shall be 2" with eight tooth sprockets keyed to shaft, mounted supported by heavy duty, dust sealed bearings. _____
 - vi) Chain tension adjustment shall use stainless steel threaded rod and lock nut with slide rail system. NO EXCEPTIONS.
 - (1) Body to have decal located at each side floor chain adjustment point; denoting the factory recommended chain tension/deflection measurement.** _____
 - vii) Grease banks as necessary for easy access to lubrication points. _____
 - viii) Conveyor to have removable cover made of stainless steel to prevent debris from dropping on the truck frame. _____
- q) Spinner assembly, complete, with all mounting hardware and instructions, is to be supplied with the truck for mounting at NDDOT district locations. Spinner shall be an open disc with a deflector to guide sand away from truck. Spinner shall also be designed for quick removal by one man during non-sanding applications. Quick couplers with tethered dust caps for spinner to be mounted rear side of box. Design must be approved. (See photo example) _____

- vi) Light support – **2”x2”x1/4” Aluminum** angle to be fastened with existing grill bolts. Angle to be approximately 2’ long, not to exceed hood height. Light mounted to **1 1/2” aluminum square tubing**. Angle welded to top of square tubing and angle braced to extend light to position directly above OEM headlights. All fasteners attached to factory hood/grille must use rubber or other insulating/dampening material between hood/grille and plow light bracket. Design to be approved.

- vii) Wiring to be connected to OEM wiring at hood hinge area and can be disconnected using a GM weatherpack connector or approved equal.

- viii) All wire splices shall be soldered and protected with heat shrink covering.

- ix) Wires to be properly grounded.

- d) Top/Rear plow light system. **SIX LIGHT HEAD SYNCHRONIZED LED WARNING LIGHT SYSTEM** (Must meet specification SSP-01) **NOTE:** All wiring for strobe lights shall be protected from abrasion and shielded from mud and ice buildup. All holes for wiring must be grommited.

- iii) Four rear mounted remote LED light head assemblies, two amber and two clear. Continuous individual wiring from each light to the rear electrical housing and then to the control panel.

- iv) Two cab guard mounted 180 degree LED strobe light head assemblies. Continuous individual wiring from each light to the control panel.

- (1) Mount level to front corners of cab guard, extendable from width of cab guard to outside (102” width) of mirrors through use of tube-in-tube design. Design must be approved. (See Photo example)

- (2) Wiring for light heads from chassis frame to top of cab guard to be routed through metal conduit attached to the cab guard upright or split loom and tube clamps may be used as long as the clamps have maximum spacing of 12 inches.

- v) One inside cab mounted four-outlet LED ballast/junction box.

- vi) LED warning light system with heavy duty DOT solid state flasher with diagnostics.

- vii) Rear light support – 1 1/2” square telespar steel tubing mounted approximately 60 degrees on rear of box and roughly adjustable up to 12’. Tubing to be angled to the rear but not extending more than 18” behind box. Square tube support bracket not acceptable. Mounting brackets to be as high on the side of box as possible without interfering with tailgate operation or hinge pin removal.

- (1) See pictures of DOT support bracket to allow telespar tubing to pivot from vertical to horizontal. Nylon bushing/washers shall be installed on both sides of pivot pin to hold telespar tubing from vibration but still allow free pivot movement. DOT will supply prototype bracket to awarded vendor.

- (2) Amber LED lights to be mounted to top of support. Clear LED lights to be mounted 1/2 the distance from top of support to top of box. **Auxiliary Stop/Turn/Tail light to be mounted below the white warning light on rear telespar.** Stainless steel fasteners to be used for the mounting of the aluminum light heads to the telespar along with nylon isolating washers placed between telespar and aluminum light head to prevent corrosion caused by dissimilar metals.

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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(3) Wiring to be routed through the center of the telspar.

- e) One wing and one underbody scraper 12V LED work light, located at the rear corners of the cab. One sander work light located under left taillight housing. Final location to be determined upon award. All three lights to be wired to one work light switch. Truck Lite #8160 or equal
- iii) Housings to be corrosion and impact resistant.
- (1) Weatherproof.
- iv) Universal mounting stud and adjustable bracket.

20) Hoist

- b) NTEA rated and classified.
- c) Class 80, telescopic.
- iii) Cylinder to have full power up and power down top stage.
- iv) Melonized cylinder rod surfaces with a predominance of single-phase epsilon nitride to cover entire surface.
- d) Minimum hinge pin diameter – 1 15/16” hardened steel.
- e) Minimum dumping angle – 50 degrees at 12” overhang.
- f) Minimum of 1 1/2” chassis frame extending beyond wing cross tube to allow for pintle plate mounting.
- g) In cab, box up indicator light (see panel switches), to be coil spring wobble lever, sealed, snap action switch, frame mounted, Grainger stock no. 3A096 or equal.
- h) Safety prop(s) to support body at 20-degree angle, frame mounted, self-aligning for one person operation, easily accessible. Prototype to be approved.

21) General

- b) Paint – All non-stainless steel to be primed and painted; **any modified pieces and spot painting must be painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: <https://www.ppgpmc.com>**
- c) Spot painting must include hardener and be applied with spray gun.
- d) Mud flaps front and rear of rear tires, 24” wide by 30” long, made of 5/16” quality rubber. Stainless steel brackets. The rear flaps must be quick to remove through the use of a 1/2” round rod and spring clip and free swinging. The front flaps fastened permanently with anti-sail devices mounted to prevent tire contact.
- c) Tool box 18” x 18” x 24”. All **Stainless Steel** 14 gauge construction, bottom hinged door. Full-length corrosion resistant hinge. Key lockable paddle latch with adjustable striker plate. Full neoprene door seal. Two chain or cable door retainers. Drip rail or door recess. Acceptable brand: Buyer. Other brands must be pre-approved.
- iii) Mounted with 2” mild steel channel, two cross supports under floor of box and gusseted. Mounting contact areas between stainless and mild steel to be isolated with fuel tank rubber belting or similar.
- e) Must use stainless steel fasteners when mounting stainless steel. Except where strength is needed.
- f) Appropriate steps must be taken to keep mild steel and stainless steel cross contamination from occurring.
- h) Install 45’ of reflexite V82 red and white reflective conspicuity tape on box. Location to be approved by NDDOT.
- i) **Wiring harnesses not to be tied to hydraulic lines.**

22) Snow Plow Quick Hitch, Falls 26B, Monroe FLS26BND, Henderson H46B-ND or equal. Remount trucks tow hooks. Mounting and location to be approved.

- a) Snowplow connecting mechanism shall be the Rapid Push Bar Quick Coupler as manufactured by Little Falls Machine, Inc., Monroe, Henderson or equal.
- b) Quick coupler system shall incorporate push arm receptor sockets with spring loaded tapered pins for proper pin alignment. Grease zerks installed for pin lubrication. Pin retractor mechanism shall be conveniently located for ease of operation.
- c) Mounting system shall adapt to frame rails of truck chassis and shall be adequately braced with grade 8 frame bolts meeting SAE J-429 specification to the truck chassis frame by minimum 3/4" x 4" A-36 steel bars which will be additionally reinforced. Stabilizer arms shall be attached to the frame by means of 1/2" thick steel Z brackets. Vertical risers and plow lifting yoke shall be low profile to allow clearance for tilting hood without tilting or disconnecting plow hitch.
- d) Universal lift arm to be adjustable inward/outward using heavy-duty square tube within square tube with pin adjustment. Shall be capable of lifting reversible or V-plows weighing as much as 3000 lbs.
- e) Hydraulic plow lift cylinder shall be minimum 4" x 10" single acting type with chrome-plated rod. Hydraulic cylinder shall be certified to a minimum of twice (2X) the pressure (2250PSI) of the hydraulic system.
- f) Hydraulic ball valve at lift cylinder to shut off oil flow when plow is not in use.
- g) Mounting height shall be 15" to center of connecting pin. Hitch to be cushioned with rubber bumper or similar anywhere tilting engine hood may strike when opened.
- h) Complete hitch shall be primed and painted to match the truck frame.

23) Rear Hitch Plate:

Trailers pull plate, pintle hitch, D-rings, electrical connector, and glad hands installed on the truck. See enclosed drawing. Note: disregard the location of the light plug-ins on the drawing. The successful vendor must approve the entire hitch design with NDDOT and build a prototype for approval on the first truck.

- b) Must be made using 3/4" material for the plate and gussets.
- c) Must provide a Holland PH410 pintle hitch rated at 20,000lb vertical load and 100,000lb gross trailer weight installed with grade eight bolts and lock nuts.
- d) Two D-rings on each side of the pintle hitch rated for 100,000lb of gross trailer weight between the two.
- e) 2.5" receiver welded into the plate below the pintle hitch.
- f) Pull plate must be properly braced and welded to be rated for 100,000lb gross trailer weight.
- g) The round seven pin trailer light connector and two glad hands are to be mounted in hitch plate. Air glad hands one on either side of pintle hitch. 7 pin trailer connections to be above LH glad hand. 7 pin trailer connection must not be positioned above pintle hitch for clearance issues with trailer tongue. See attached picture for guidance. Final location and process must be approved by NDDOT.

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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- h) RH or LH rear wing post mount to be integrated into hitch plate and be bolt removable for summer operations. Must use wing manufacturers recommended bracketry to attach to hitch plate and design be approved by manufacturer. See attached photo for reference.

24) Warranty

- a) One-year full unconditional warranty, manufacturer's warranty shall apply if for longer period.

25) Delivery

- a) Truck must be test driven and all hydraulic, brine, plow, sander, and electrical functions must be tested to make sure they work properly, and that there are no fluid leaks. All vendor installed attachments to be greased/lubricated. **Grease bank hoses must be primed/prefilled.** Truck must pass a final inspection performed by NDDOT employees before delivery can be made. Truck must be test driven and all hydraulic, brine, plow, sander, and electrical functions must be tested to make sure they work properly, and that there are no fluid leaks. All vendor installed attachments to be greased/lubricated. Truck must pass a final inspection performed by NDDOT employees before delivery can be made.

BODY MAKE: _____ MODEL: _____

HOIST MAKE: _____ MODEL: _____

PUMP MAKE: _____ MODEL: _____

QUICK HITCH MAKE: _____ MODEL: _____

LED WARNING LIGHT SYSTEM MANUFACTURER: _____



Adjustable mounting brackets for LED light heads



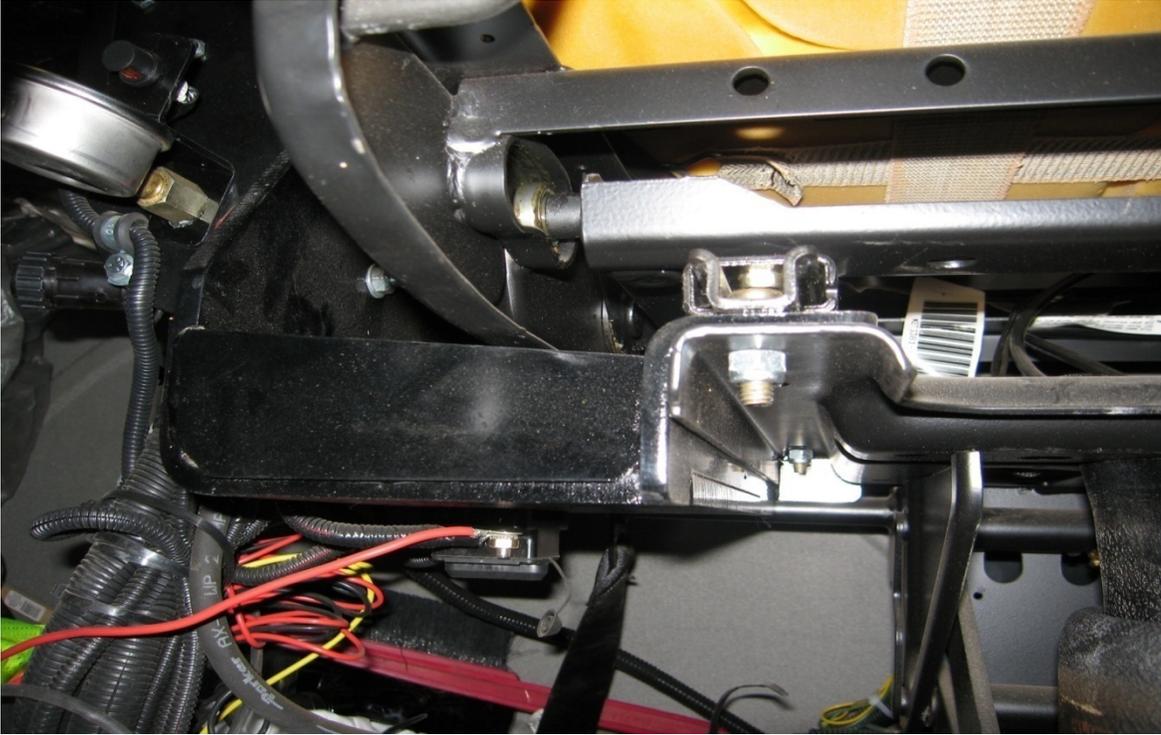
Example of spinner type



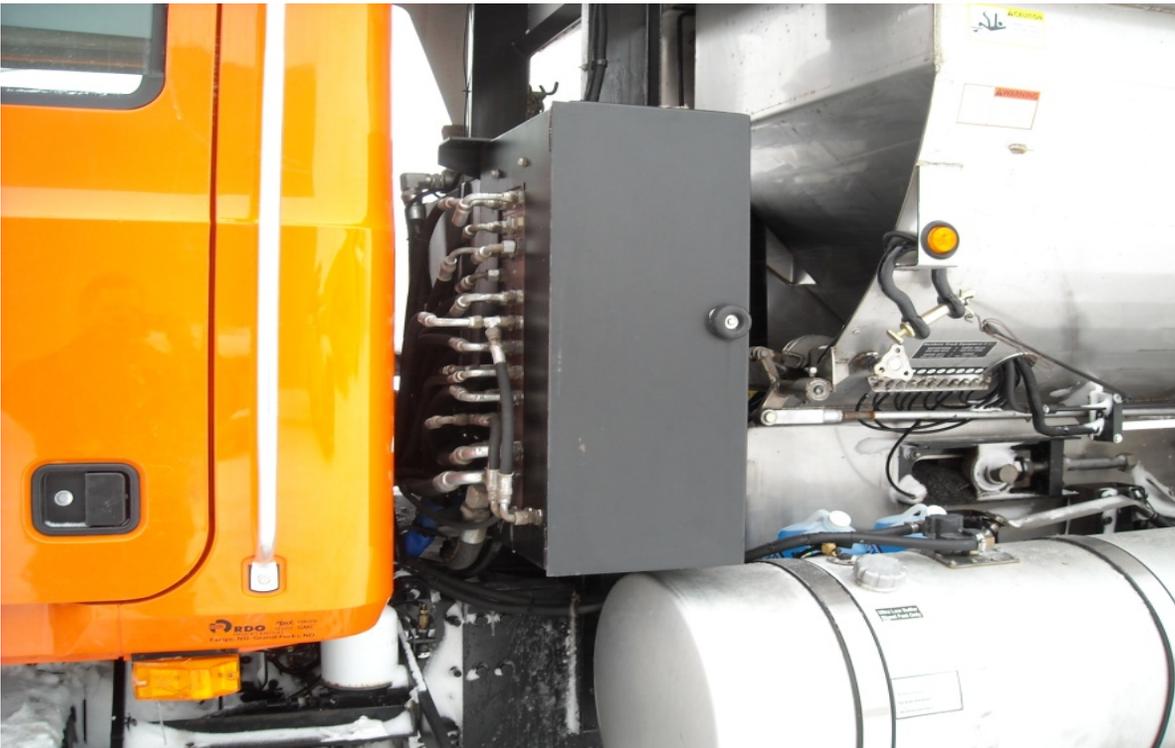
Front plow quick coupler mount



Example of rear LED light bracket



Seat mounted hydraulic and sander controller bracket



Vertical valve enclosure

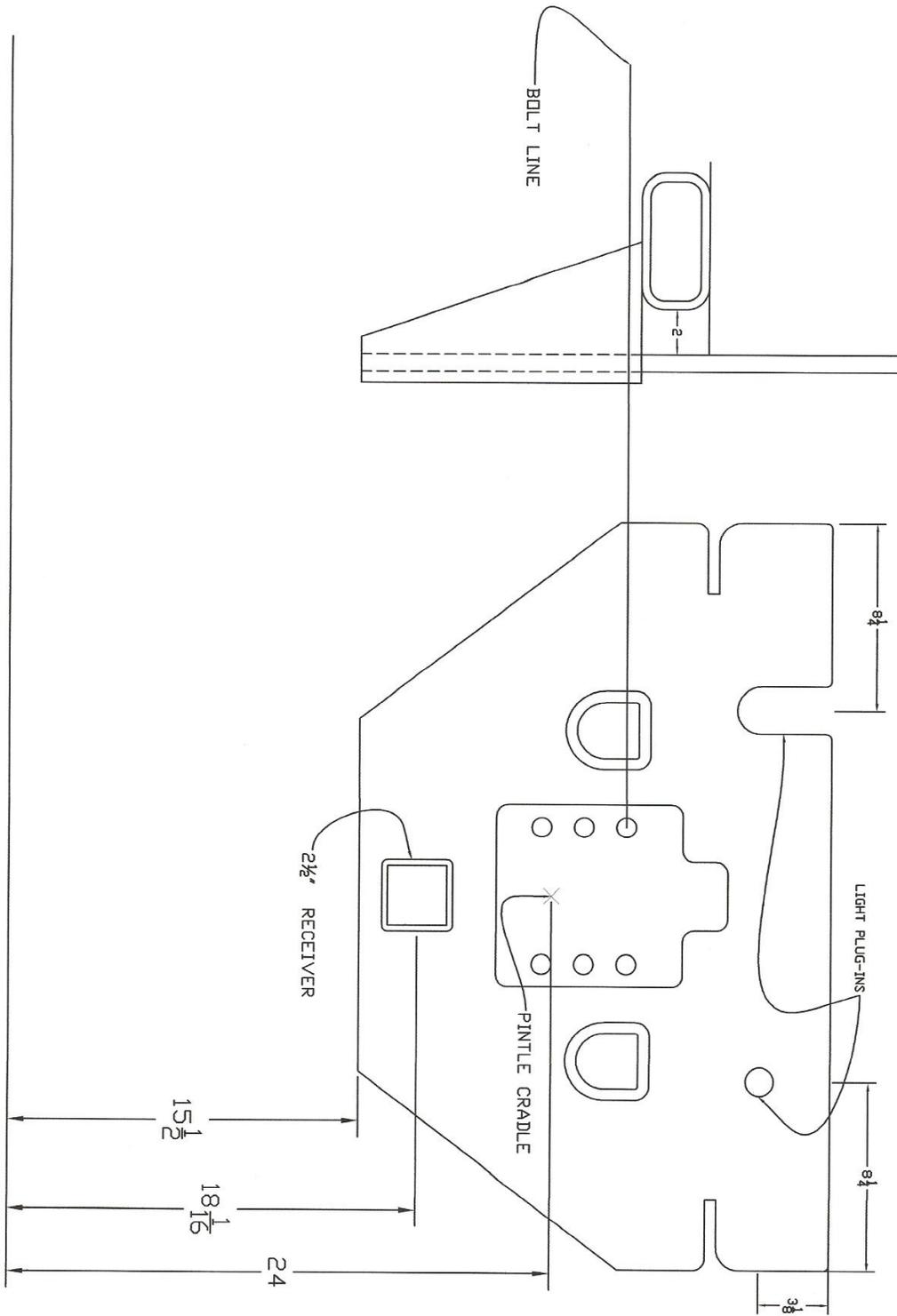


Picture of Integrated rear wing mount (RH wing)

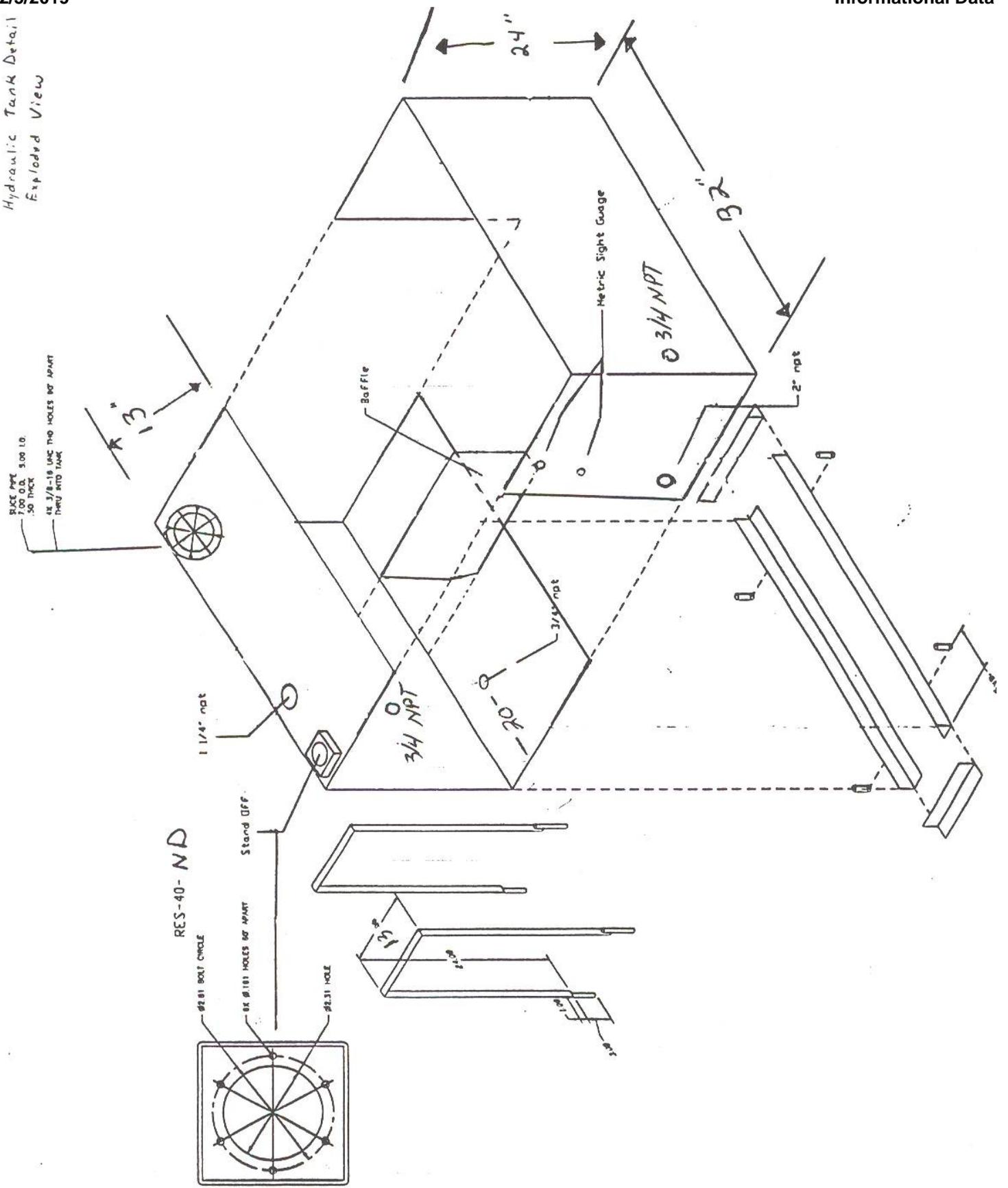


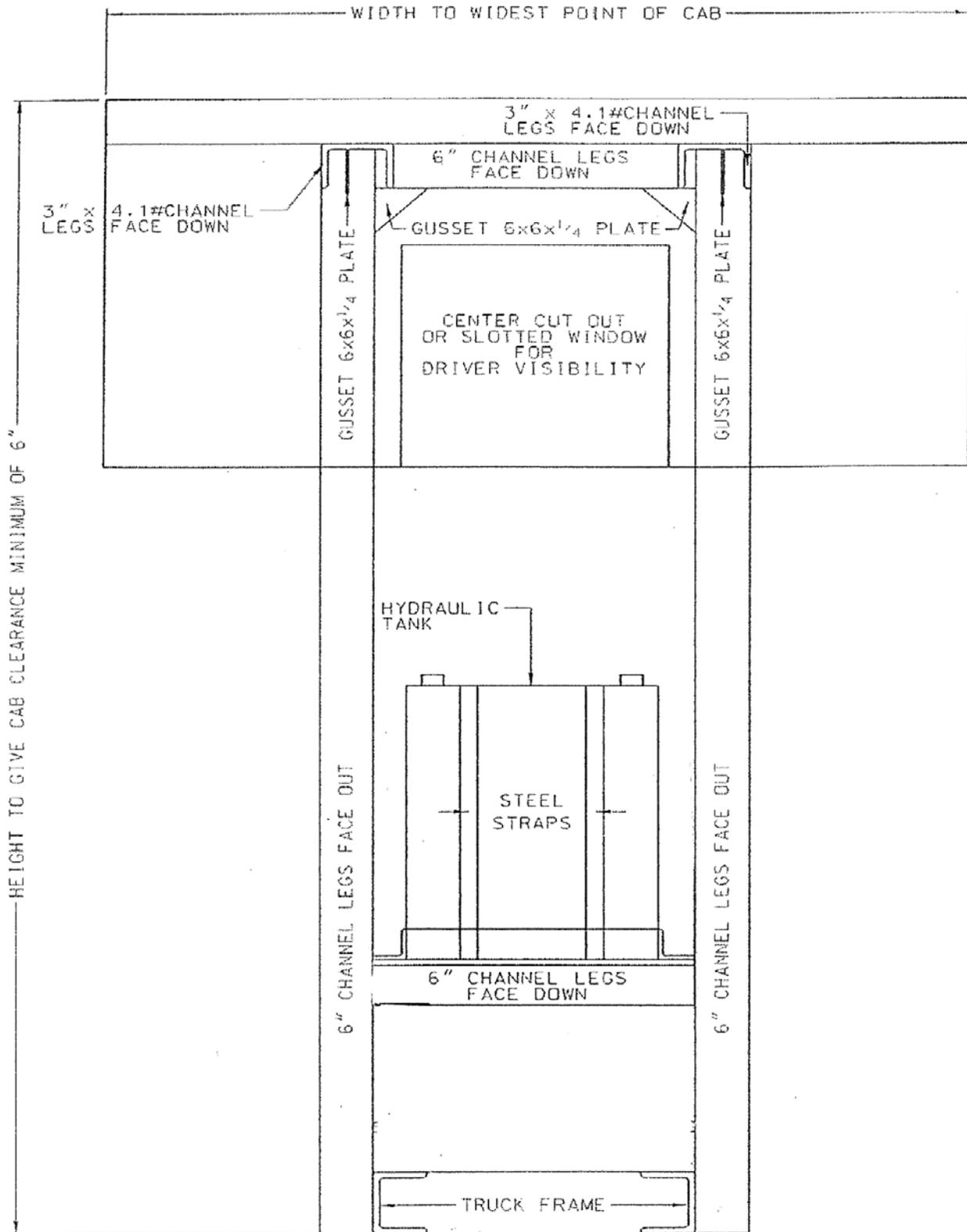
Preferred Hitch component locations

PROPOSED HITCH

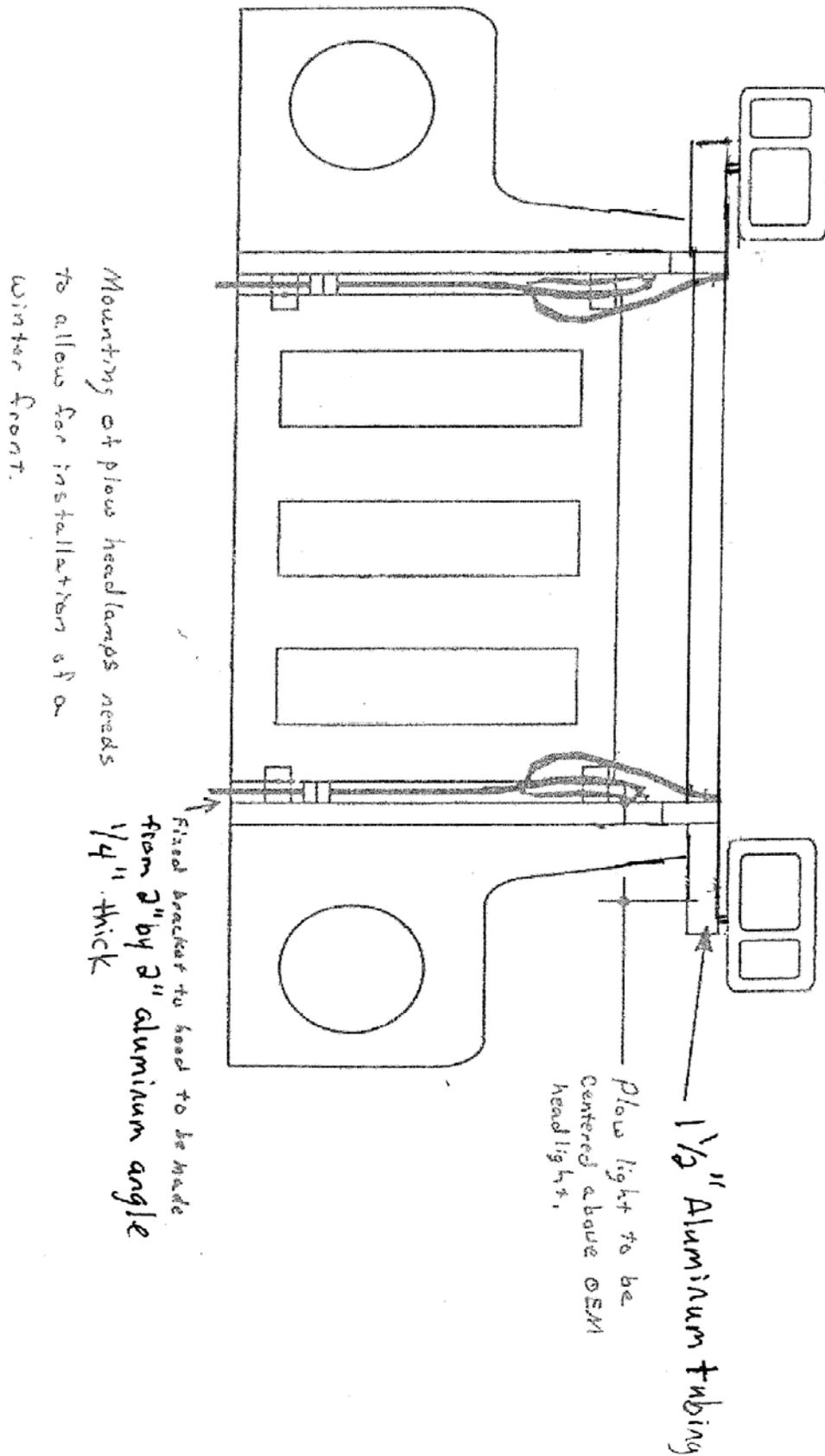


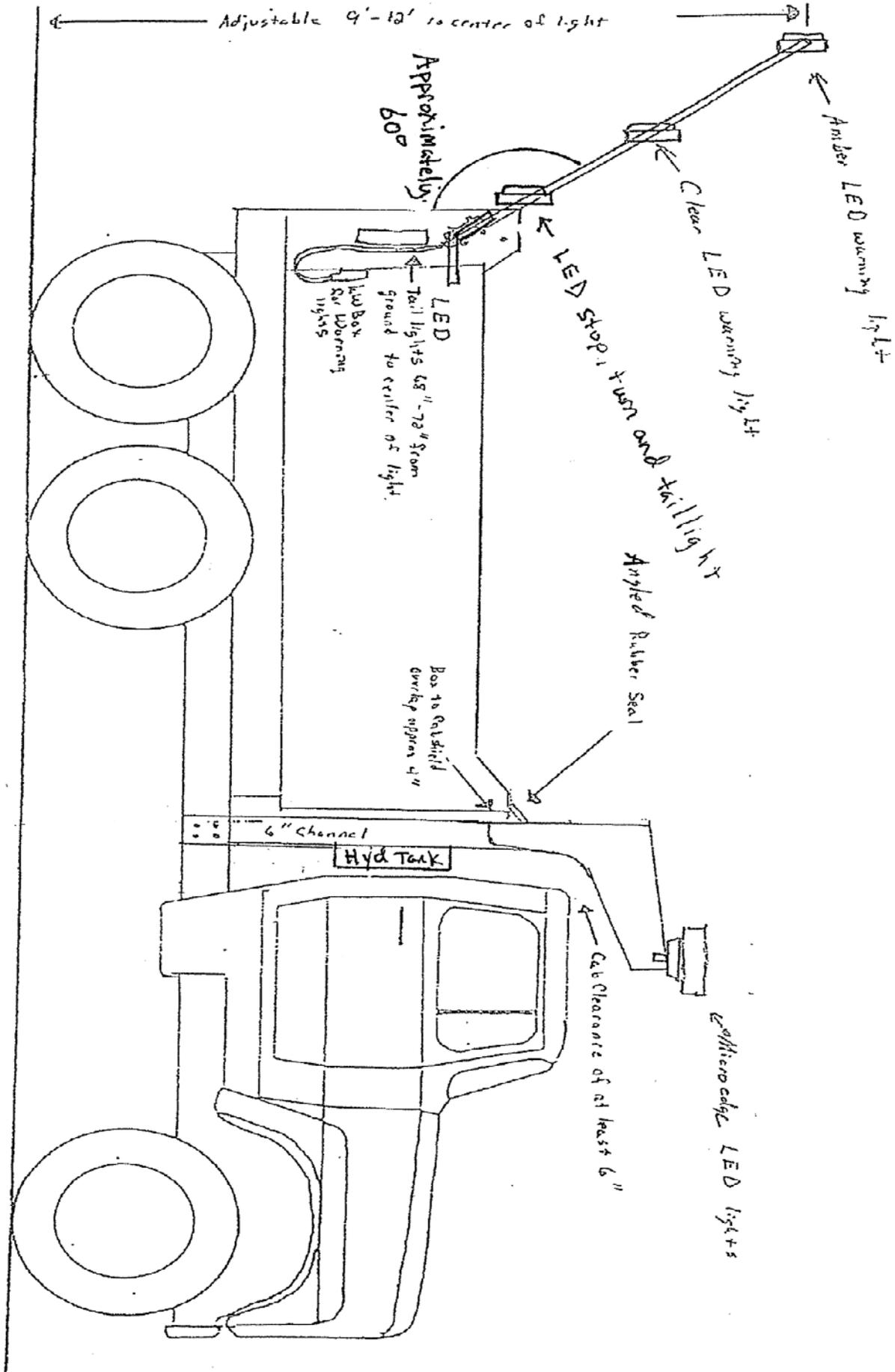
Hydraulic Tank Detail
Exploded View



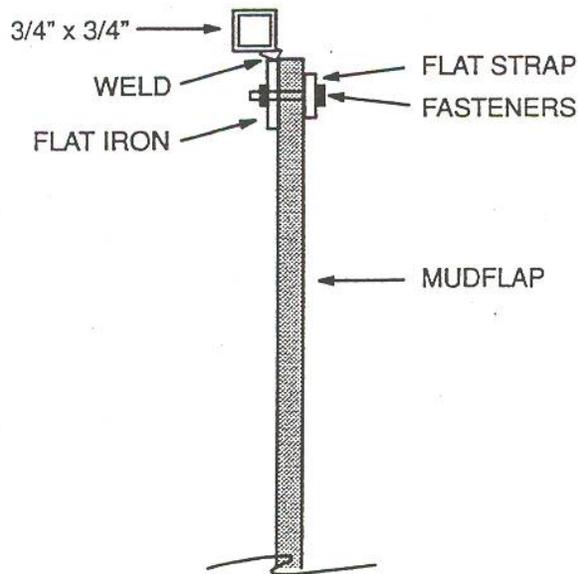
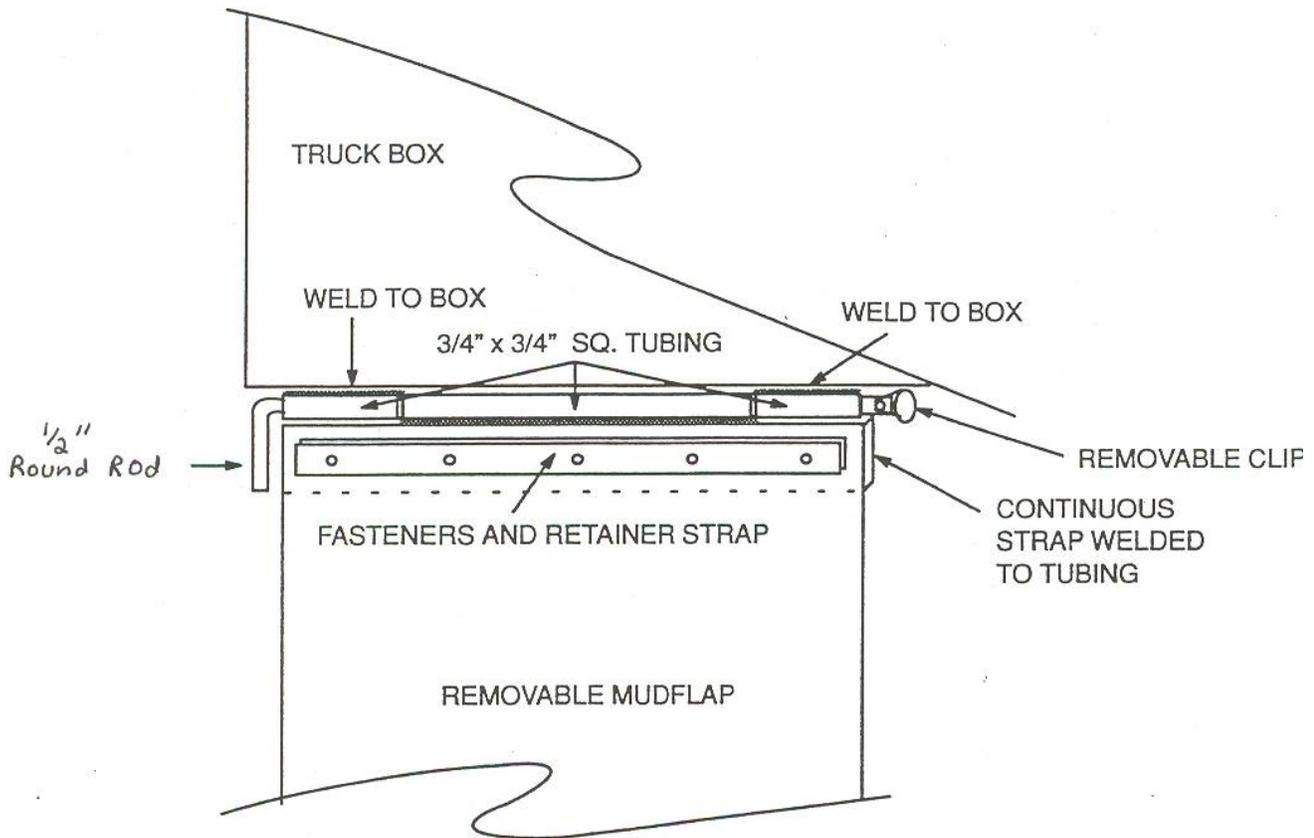


PLOW HEADLAMPS





REAR MUDFLAP DETAILS



Maintenance & Engineering Services Specifications This Section

SSP-95-4180-2	11' Underbody Scraper
SSP-95-4200-23	10' Rear Mount Snow Wing
SSP-95-2400-4	Tailgate Spreader
SSP-95-5700-4	270 Gallon Fender Mount Gravity Pre-wet System
SSP-95-5700-10	150 Gallon Tailgate Mount Gravity Pre-wet System

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
 SPECIFICATIONS
 FOR
 UNDERBODY REVERSIBLE SCRAPER, 11'
 (MONROE 3500-11, ROOT F-89-11 WITH OPTIONS, FALLS IBR-11 WITH OPTIONS,
 HENKE UBS-XH11, HENDERSON H-UBS-11, OR PRE-APPROVED EQUAL)**

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe an 11' underbody scraper to be furnished and installed on a 58,000 GVW tandem axle truck. The underbody will be installed on the same chassis with a rear wing. The underbody shall work in combination with the 10' rear wing and discharge material onto the wing without leaving a ridge between the wing and underbody. The underbody shall be designed for high-speed snow plowing, removing hard packed snow, or scraping ice. The underbody shall be of all steel fabrication, of rugged construction, and properly braced and reinforced. The underbody shall be standard production of the latest model with standard accessories and in addition meet **or exceed** the following minimum specifications.

Installation: The underbody scraper shall be installed according to the manufacturer's instruction and to the acceptance of the NDDOT. The underbody shall be installed at a height of 20", ± 0.5" as space allows, from the bottom side of the circle to the ground on a bare chassis (**NO EXCEPTIONS**). **Two grease banks shall be installed for easy greasing of the hanger rod, reversing cylinders and center bushing.** Six to Eight grease ports equally spaced shall be plumbed into the hanger board / rod connection. The grease ports on the hanger board shall be split to two separate banks with equal ports per side. The center bushing grease port may be plumbed to either grease bank. The grease banks shall be mounted on the ends of the hanger board for easy access and rotate with the underbody. A metal fitting shall be used at the grease port. Grease hose tubing shall be used to connect the grease port to the grease bank. The grease hose tubing shall be Parker Paraflex Hytron HLB02, 1/8" ID, 3,000 PSI rated or equal. The fittings shall be 1/8" straight and/or 1/8" swivel from Parker or equal. The grease hose tubing shall be secured to the front of the hanger board. The grease tubing shall be properly secured to prevent from being caught or rubbed on hardware or other components. Where the tubing is susceptible to contact with other components, it shall be wrapped or protected. **All grease hoses to be primed/prefilled with grease.** The circle mount stop blocks shall be chamfered and welded on all accessible sides of the block. Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck @ (701)328-2565.

	COMPLY	NO	SPECIFICATION DEVIATIONS
1. CIRCLE	YES	NO	
a. 1" thick steel	_____	_____	_____
b. One piece, notchless	_____	_____	_____
c. 5" hardened center pin/bushing	_____	_____	_____
i. Lubricated by grease bank	_____	_____	_____
d. Cylinders will be mounted with 1.5" hardened pivot pins or grade 8 bolts and lock nuts	_____	_____	_____
e. 13" hold down blocks with polyurethane or steel wear pads preferred but not required (Note: manufacturer's standard production model according to sales literature is required)	_____	_____	_____

		COMPLY		SPECIFICATION DEVIATIONS
		YES	NO	
2. HANGER				
a.	3/4" thick plate steel one piece hanger bracket or equal	_____	_____	_____
b.	A 36 or equal steel	_____	_____	_____
c.	10"--30# structural member or equal	_____	_____	_____
i.	Channel hanger board	_____	_____	_____
ii.	1/2" x 7 1/2" reinforcing	_____	_____	_____
iii.	Full hinge length 4" S & C 13.8# channel, 1/2" x 3" x 3" angle, or equal	_____	_____	_____
3. MOLDBOARD				
a.	11' wide x 1" thick x 20" high	_____	_____	_____
b.	Heat treated carbon steel	_____	_____	_____
c.	Offset and punched and spaced according to AASHTO standards to accept 5/8" bolts for tungsten carbide cutting edges (cutting edge furnished by NDDOT)	_____	_____	_____
d.	Clearance height with moldboard in fully raised position from the bottom of the frog to the ground approximately 10"	_____	_____	_____
e.	Two heavy duty shock absorber assemblies or hydraulic accumulator system	_____	_____	_____
f.	1' square piece of expanded steel or machine punched grip strut on the drivers and passenger side back of the moldboard to be under the side truck step	_____	_____	_____
4. HINGE				
a.	2 1/2 " O.D. solid carbon or 1 3/4" cold rolled steel shaft	_____	_____	_____
i.	96" long	_____	_____	_____
b.	Minimum three hinges	_____	_____	_____
c.	Greased by grease bank	_____	_____	_____
5. HYDRAULIC COMPONENTS				
a.	Two 3 1/2" double acting reversing cylinders	_____	_____	_____
i.	2" nitrated cylinder rod	_____	_____	_____

COMPLY		SPECIFICATION DEVIATIONS
YES	NO	

- ii. Crossover relief valve _____
- iii. Cylinders lubrication points must be on grease bank. _____
- b. Two 3" double acting moldboard actuating cylinders _____
 - i. 1.5" nitrated cylinder rod _____
 - ii. 2" O.D. trunion bearings _____
- c. Externally mounted hydraulic steel tubing or hydraulic hose with wear resistant coating protectant. All hydraulic hose must meet minimum specification as outlined in the truck box specification. _____
- d. Set to apply and maintain 500 psi moldboard down force _____
 - i. Manufacturer's pressure relief valve shall be omitted from installation and relief controlled through hydraulic valving from hydraulic vendor _____

6. Manuals, as applicable

- a. Two operator's manuals _____
- b. Two lubrication schedules _____
- c. Two parts books _____
- d. Two Technical Repair Manual _____

7. Paint

Moldboard, mounting brackets, circle, cylinders and other hardware to be factory powder coated black. All other surfaces and any modified pieces must be painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: <https://www.ppgpmc.com> _____

8. Warranty

One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period _____

The underbody scraper shall be delivered mounted on the truck for immediate use. The underbody scraper shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: _____ MODEL: _____

PARTS/SERVICE DEALER/WARRANTY: _____ TELEPHONE: _____

BIDDER: _____

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR

REAR MOUNT SNOW WING, 10'
(FALLS SDL-10, MONROE 10-DFWMB/ND, HENDERSON HWS-10, OR PRE-APPROVED EQUAL)

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a 10' rear mounted patrol snow wing to be furnished and installed on a 58,000 GVW tandem axle truck. The wing will be installed on the same chassis with an underbody scraper. The wing shall work in combination with the 11' underbody scraper and receive material from the underbody and discharge the material without leaving a ridge between the wing and underbody. The wing shall be of all steel fabrication, of rugged construction, and properly braced and reinforced. The wing shall be standard production of the latest model with standard accessories and in addition meet **or exceed** the following minimum specifications.

Installation: The snow wing shall be installed according to the manufacturer's instructions and to the acceptance of the NDDOT. The front wing lift shall be installed in front of the tandem axles under the truck box and shall not be out beside the box. The rear push tube brace assembly shall be installed behind the rear axles on 6" of after frame behind the spring assembly. **The rear push tube brace shall be installed directly to trucks rear hitch plate using manufacturers approved bracketry.** Steel plates that extend down from the truck frame that hold the rear push tube brace are not acceptable. All connections to the truck frame shall be bolted connections using grade 8 frame bolts, meeting SAE J-429 specifications. The wing brace tube shall be capable of being removed without having to disconnect from frame or removing hitch. The disconnect point shall be on the wing side and shall be bolt together plates at this disconnect point, welded to the cross tube and shall be bolted together with a minimum of four 3/4" G8 bolts. For sample see photo. The final design shall be approved by the NDDOT Maintenance & Engineering Services Division, Shawn Hauck, (701) 328-2565

The wing shall be installed to allow the moldboard toe to fully float taking account for truck sag due to loading. The moldboard toe shall not apply any down pressure. The hydraulic hoses shall have swivel couplers and 37° JIC fittings connected to bulkhead fittings through truck frame. **Quick-couplers are not to be used, as they rapidly develop leaks.** The JIC connections shall be located up as high as possible to limit their contact with road material. A fluorescent orange tubular plow marker shall be attached to the top of the wing moldboard heel to delineate the outside edge of the wing. The tubular marker shall have a weep hole drilled into the base of the marker to allow moisture to seep out. The wing LED warning light mounting location shall be approved by the NDDOT and shall be wired to the same in cab control switch as the amber body warning lights. Any questions and weekly updates shall be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck @ 701-328-2565.

		COMPLY		SPECIFICATION
		YES	NO	DEVIATIONS
1.	Stored/folded-up clearance			
	a. Front 13"	_____	_____	_____
	b. Rear 90"	_____	_____	_____
2.	Lift			
	a. Cab-controlled hydraulic lift cylinder	_____	_____	_____
	i. Cylinder rods to be nitrated rods	_____	_____	_____
	b. All hydraulic postless-style or parallel lift design (Note: slide-type or cable operation is not acceptable)	_____	_____	_____

COMPLY		SPECIFICATION DEVIATIONS
YES	NO	

- c. Heel lift _____
- d. Floatation both heel and toe _____
- e. Wing Loc or equal outboard lift cylinder hydraulic locking device _____

3. **Moldboard**

- a. 50,000 PSI 10-gauge EX-TEN 50 (MILD STEEL NOT ACCEPTABLE) _____
- b. Overall moldboard length 10' _____
- c. 100% continuously welded _____
- d. 3/4" thick frog _____
- e. Frog to be square hole punched and spaced according to AASHTO standards to accept two 3' (one on each end) and one 4' (in the center) tungsten carbide cutting edges secured with 5/8" bolts, there shall be sufficient holes in the frog so all of the holes in the cutting edge can be used (cutting edges furnished by NDDOT) _____
- f. Full length top and bottom supports _____
- g. Height at front 29" _____
- h. Height at rear 29" _____
- i. Spring-cushioned push tube with shear pin _____
- j. Push tube pin location, pinned 18" from outside end maximum _____
- k. Weight of moldboard minimum 600 lbs maximum 1550 lbs _____
- l. 28" high fluorescent orange tubular plow marker kit, Buyers or Catco model 1308105 or equal _____
- m. Wing lift eye/pick point, 2 each mounted so that the wing can be lifted evenly when being removed _____

4. **Mount**

- a. Right or Left side, rear mount to be flange mounted for easy removal _____
- a. **Parallel-lift or post-less style mount allowing full floatation of moldboard toe.** _____
- b. Front mount cross brace to both frame rails shall allow sufficient vertical clearance for the drive shaft with tandems at full articulation _____

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
c. The ears on the rear push tube brace that the push tube pins to shall be in line with the push tube (Note: ears at 90° to the truck frame are not acceptable)	_____	_____	_____
d. The rear of the push tube shall be attached to the rear push tube brace with a 1/2" grade 5 bolt that will act as the shear point for the wing. The rear push tube brace shall allow the push tube to fall away if bolt shears	_____	_____	_____
e. Heavy duty 3 1/2" O.D. d" wall thickness outer pipe, 2 1/2" O.D. d" wall thickness inner pipe rear push tube with bracing mounted behind rear axles	_____	_____	_____
i. The push tube shall have a 3/8" weep hole drilled at the top and bottom of both ends of the tube to allow moisture to escape	_____	_____	_____
ii. The push tube spring shall have a minimum of 4 braces	_____	_____	_____
iii. Push tube length adjustment to be secured with bolt and lock nut. Hitch pin with hair pin not acceptable.	_____	_____	_____
f. Adjustable heavy duty push tube as close as possible to 90° angle to the moldboard not to exceed maximum 18" from the outside end of the moldboard	_____	_____	_____
g. Close-in transport position 24" maximum to outside of wing, push tube shall rest against a T-brace type stop with a rubber cushion bumper when wing is in transport position	_____	_____	_____
h. T-brace type stop shall be located below the bottom of the box height so not to strike the box or interfere with the box operation	_____	_____	_____
i. Wing drift safety chain mounted to T-brace stop, fixed at the cab (front) end and loose at the box (back) end	_____	_____	_____
j. Wing drift chain mounted to front post with a fixed and loose end	_____	_____	_____
k. Grease bank to combine grease points for lift into one location. The grease hose tubing shall be Parker Paraflex Hytron HLB02, 1/8" ID, 3,000 PSI rated or equal. The fittings shall be 1/8" straight and/or 1/8" swivel from Parker or equal. High pressure grease hose to be connected to all wing lift grease locations. Any locations not accessible with hose must have adequate length or angled zerk for easy access.	_____	_____	_____
2. Weight of complete assembly, minimum 1,600 lbs maximum 2,200 lbs	_____	_____	_____
3. Wing plow warning light, Whelen TIR3 Super LED, WPLOW1A	_____	_____	_____
a. Shall be wired to the truck rear amber warning light switch	_____	_____	_____

		COMPLY		SPECIFICATION DEVIATIONS
		YES	NO	
	b. Wiring on the wing shall be routed through conduit or in an acceptable manner to protect wire from being damaged, if the wiring can be routed through existing moldboard supports, it shall be secured in an acceptable manner using Waytek button head ties part no. 21087, or equal. Any holes that the wiring runs through must be Grommeted	_____	_____	_____
	c. Wing warning light shall have a weatherproof connection and be capable of being unplugged at the front wing post	_____	_____	_____
4.	Reflective tape shall be placed on the top of the toe cylinder (Note: see picture for location)	_____	_____	_____
5.	Manuals, as applicable			
	a. Two operator's manuals	_____	_____	_____
	b. Two lubrication schedules	_____	_____	_____
	c. Two parts books	_____	_____	_____
	d. Two Technical Repair Manual	_____	_____	_____
6.	Paint			
	Moldboard to be powder coated and painted orange. Mounting brackets, push tube, and other hardware to be factory powder coated black. All other surfaces and any modified pieces must be spray painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: https://www.ppgpmc.com	_____	_____	_____
7.	Warranty			
	One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period	_____	_____	_____

The snow wing shall be delivered mounted on the truck and ready for immediate use. The snow wing shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: _____ MODEL: _____

PARTS/SERVICE DEALER/WARRANTY: _____ TELEPHONE: _____

BIDDER: _____

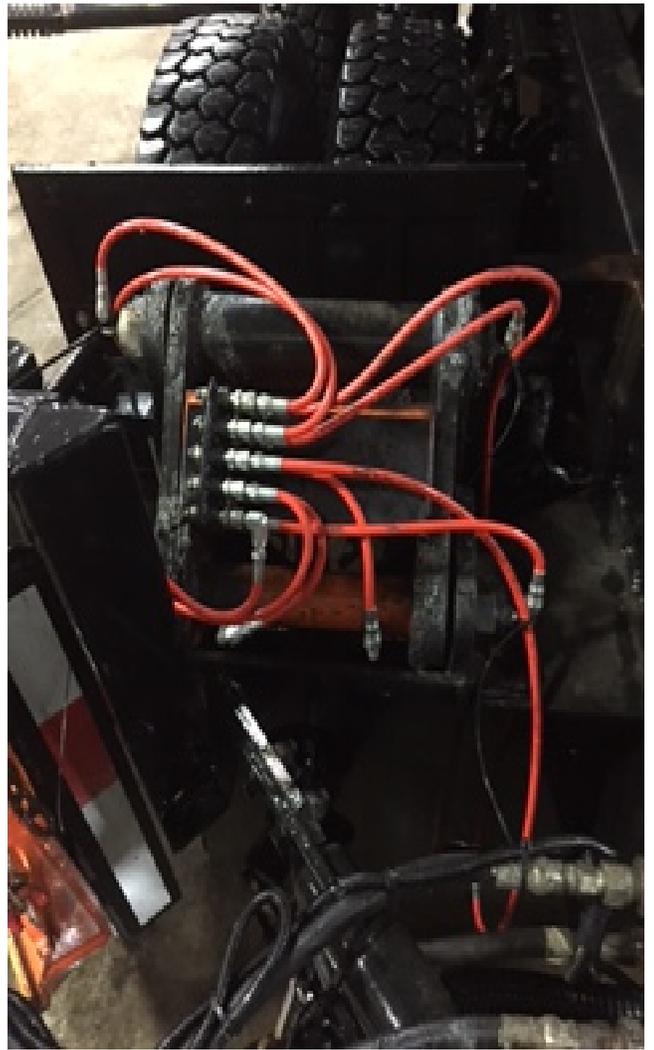
These are sample images for informational purposes only, actual products are to be approved by the NDDOT, Maintenance & Engineering Division



Example of rear wing brace tube and disconnect flange



Example of reflective tape on wing toe cylinder



Example of grease bank and hose for toe lift.

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
 SPECIFICATIONS
 FOR
 SAND AND CHEMICAL TAILGATE SPREADER, #304 STAINLESS STEEL
 DIRECT DRIVE, SINGLE AUGER, SINGLE SPINNER
 (MONROE MS9, SWENSON SB9, HENDERSON TGS9-ND, OR PRE-APPROVED EQUAL)**

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a #304 stainless steel tailgate spreader to be furnished and installed. The tailgate spreader shall mount on the rear of a truck dump box below the regular tailgate in a manner to allow use of the dump body with the spreader attached. The tailgate spreader shall be standard production of the latest model with standard accessories and in addition meet **or exceed** the following minimum specifications:

Installation: The tailgate spreader shall be installed according to the manufacturer's instruction and to the acceptance/approval of the NDDOT, Maintenance & Engineering Office. The trough and side pans of the tailgate spreader shall be of close enough tolerances as to prevent any gravity fed leaks. If required the vendor may have to modify pans/shields to enable close fit without the use of any temporary sealant or foam. The hydraulic hoses shall be routed under the tailgate area and down along the spinner hanger bracket and secured allowing full operation of the cover plate, clean out door, and spinner without needing to disconnect hoses. All hydraulic hoses shall be quick coupled, including the return lines. The spinner hoses shall be run independent of the auger hoses up to the truck to allow for easy removal. The spinner return must be quick coupled using a 1/2" coupler. The auger return must be quick coupled using a 3/4" coupler. All hardware mounted to the spreader shall be stainless steel or other non-corrosive material and approved by the NDDOT. The spreader shall be calibrated to apply 0 - 3,000 pounds/mile by use of the in cab ground speed spreader control. Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck phone: (701)328-2565.

	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
1. Auger			
a. Single auger	_____	_____	_____
b. 9" diameter	_____	_____	_____
c. 1 1/2" shaft	_____	_____	_____
d. 3/8" flight thickness	_____	_____	_____
e. Greaseable, sealed, self-aligning bearings	_____	_____	_____
i. Four bolt flange	_____	_____	_____
f. Direct drive	_____	_____	_____
i. Low speed, high torque hydraulic motor directly coupled to auger	_____	_____	_____
ii. Non-corrosive bushing for auger attachment	_____	_____	_____

4

		COMPLY		SPECIFICATION DEVIATIONS
		YES	NO	
i.	Molded one-piece polyurethane as manufactured by C.U.E. #P0652, Thombert #1001357, or approved equal	_____	_____	_____
ii.	Bolt on hub	_____	_____	_____
iii.	1/2" thick disc	_____	_____	_____
iv.	1" high vanes	_____	_____	_____
v.	Direct mount to motor	_____	_____	_____
e.	Motor mounted under spinner	_____	_____	_____
f.	Adjustable spread patterns--right, left, and center--one, two, or three lanes	_____	_____	_____
g.	Self-leveling	_____	_____	_____
h.	10 gauge #304 stainless steel guards and deflectors	_____	_____	_____
i.	Spinner shield to keep material off truck undercarriage	_____	_____	_____
j.	Removable assembly	_____	_____	_____
4.	Hydraulic components			
a.	All hydraulic hoses, connections, and quick couplers, 1/2" pressure and 3/4" return line for auger and all 1/2" for spinner	_____	_____	_____
i.	Hydraulic hoses routed as stated above in the installation instructions	_____	_____	_____
ii.	All hydraulic hoses shall have a tethered cap or plug to prevent any contamination	_____	_____	_____
iii.	Quick coupled to truck hydraulics	_____	_____	_____
iv.	Spinner pressure and return hydraulic hose must be Independently routed and attached to the truck box to allow for easy removal of spinner (location of couplers to be approved on first truck)	_____	_____	_____
b.	Low speed, high torque hydraulic auger motor	_____	_____	_____
c.	Low speed, high torque hydraulic spinner motor	_____	_____	_____
5.	Mounting			
	Quick disconnect mounting pins. Pins must be supported on inside of body corner and welded on exterior to prevent from pulling off body			
a.	Mounting hardware, shall be non-corrosive or stainless steel	_____	_____	_____

4

COMPLY		SPECIFICATION DEVIATIONS
YES	NO	

b. Convenient chain lifting slots

_____	_____	_____
-------	-------	-------

6. **Manuals, as applicable**

a. Two operator's manuals

_____	_____	_____
-------	-------	-------

b. Two lubrication schedules

_____	_____	_____
-------	-------	-------

c. Two parts books

_____	_____	_____
-------	-------	-------

d. Two Technical Repair Manual

_____	_____	_____
-------	-------	-------

7. **Standards**

Unit shall meet OSHA standards

_____	_____	_____
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8. **Warranty**

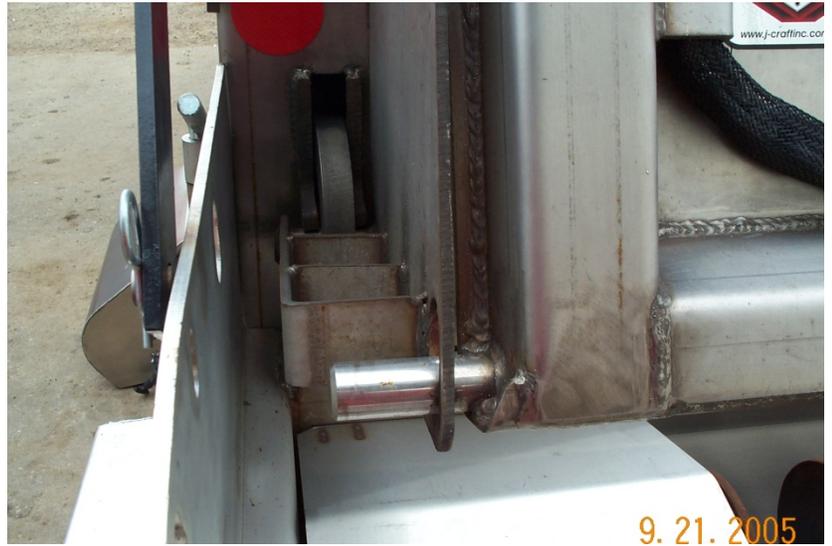
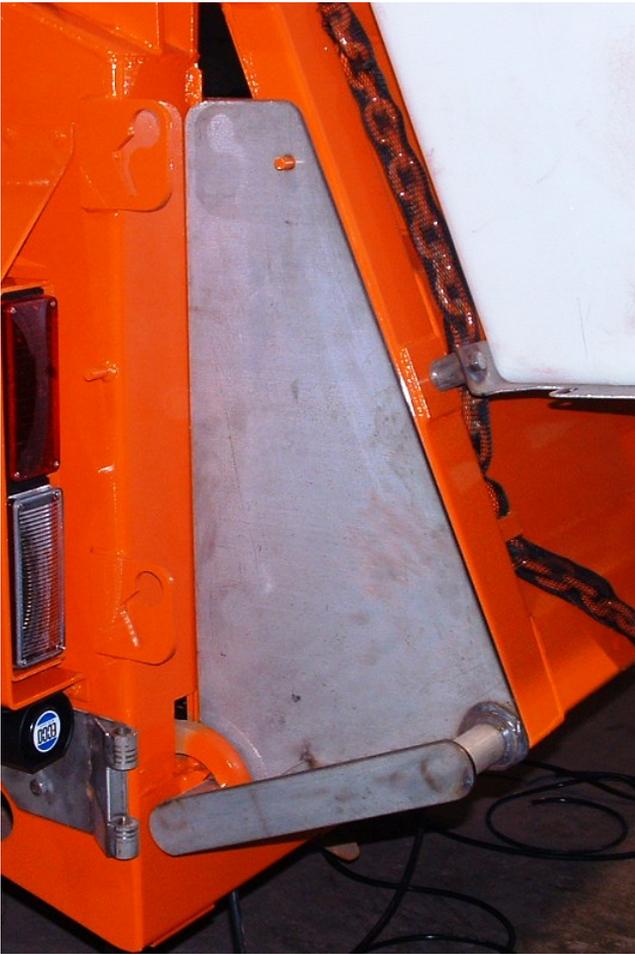
One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period

_____	_____	_____
-------	-------	-------

The tailgate spreader shall be delivered mounted on a truck dump box. The tailgate spreader shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: _____ MODEL: _____

PARTS/SERVICE DEALER/WARRANTY: _____ TELEPHONE: _____



These are sample images for informational purposes only, actual products are to be approved by the NDDOT, Maintenance & Engineering Division



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR

LIQUID PRE-WET SYSTEM, RADIUS DUMP FENDER MOUNT, GRAVITY FLOW

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a gravity flow liquid pre-wet system for the application of de-icing solution directly onto the material being spread by the spreader. The pre-wet system shall be compatible with a variety of de-icing solutions including sodium chloride, calcium chloride, magnesium chloride, potassium acetate, CMA, and Ice Ban. The pre-wet system shall be capable of being mounted on a single axle or tandem axle truck. The tanks shall fit over a rigid body mounted fender. The fender shall have no raised edges to trap material and openings in the front and rear inboard corners to allow accumulated material to escape. The tanks must rest directly on top of rubber mat on top of fender or a completely smooth surface. Either option shall provide space on all sides, except bottom, of tank to allow debris to fall or be washed away. The pre-wet system shall come complete with all the hardware that is required to apply liquid de-icing solution to granular material at the spreader spinner. The pre-wet system shall be standard production of the latest model with standard accessories and in addition meet the following minimum specifications:

Installation: The pre-wet system shall be installed according to the manufacturer's instruction and to the acceptance/approval of the NDDOT. A 1" schedule 80 stainless steel threaded pipe nipple or equal non-corrosive fitting shall be properly attached to the spreader spinner assembly. A 1" poly 90° elbow shall be threaded into the pipe nipple. A manual ball valve must be installed after the electric ball valve to control regulate flow into the spinner discharge hose. This valve will allow for fine tuning/calibration of liquid application. A 1" Banjo quick coupler with cover caps shall be plumbed in line to quick disconnect the poly braid hose from the spreader spinner assembly. The tanks shall be positioned for easy access to the fill ports.

The system shall be calibrated to apply 3 gallons per minute by means of in-line ball valve with 1/2" supply hose with filled tanks for head pressure. All electrical and plumbing connections shall be secured so they will not fail with heavy snow and ice buildup on them. There shall be a manual ball valve installed on the outlet circuit of each tank with common fill tube in between. These ball valves will allow calibrated flow to fill both tanks equally. See photo. The vendor must use flanged fittings with SS clamps wherever possible for all plumping rather than threaded fittings. Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck phone: (701)328-2565.

Table with 3 columns: Specification, Comply Yes/No, and Specification Deviations. Row 1: 1. Liquid Reservoir. Sub-rows a-f: 2 - polyethylene rotationally molded or equal tanks, one for each side of the spreader body; Tank capacity drivers side - 270 gallon minimum, or similar approved size; Tank capacity passenger (wing) side - 270 gallon minimum or similar approved size; Trapezoidal, triangular type shape that fills the void created by the bottom of the spreader body; UV stabilized; 3/8" wall thickness or design liquid rating of 14.5 lbs per gallon.

4

COMPLY		SPECIFICATION DEVIATIONS
YES	NO	

- | | | | | |
|----|--|-------|-------|-------|
| g. | Anti-slosh baffle built into top of tank at the opening(s) | _____ | _____ | _____ |
| h. | fill port with spin on lids and rubber gaskets, or threaded steel cap | _____ | _____ | _____ |
| i. | Prefer to have no lids on tank, only threaded bung | _____ | _____ | _____ |
| j. | 1¼" minimum , bottom quick fill port | _____ | _____ | _____ |
| k. | 1" suction port (Note: if the 1¼" port is used for discharge, the port must be necked down to 1") | _____ | _____ | _____ |
| l. | Vapor vent at top of tank, sized large enough to prevent damage to tank when re-filling tanks. | _____ | _____ | _____ |
| | i. Tank Vent to be located only on forward of LH and RH tanks to prevent spillage when body is raised. Tank vent is to be plumbed to empty and fluid back into the box of the truck, no fluid shall leak onto the ground with the box up or down.
<u>Prototype design must be approved by NDDOT personnel.</u> | _____ | _____ | _____ |

2. **Hardware**

- | | | | | |
|----|--|-------|-------|-------|
| a. | All parts in contact with the de-icing solution shall be of non-corrosive material | _____ | _____ | _____ |
| b. | Three #304 stainless steel mounting brackets per tank without a cradle that are lined with rubber or equal belting material to prevent tank wear due to vibration (preferred) OR two 3" and 15,000 lb web breakage rating UV stabilized nylon straps per tank secured to the fender with 1,000 lb rated and 3,000 lb breakage triangle eye with bolted connections and lock nuts to the fender. #304 stainless steel skids may be mounted under tanks, but bottom of tanks are to rest on single continuous smooth surface, heavy enough gauge to ensure not stress points to cause leaks. Tanks may rest on full coverage rubber mat and lie directly on fender as long as there are no raised areas to collect water and debris and space exists between body side and tank sides to prevent wear on tanks and allow debris to be flushed away clean all around tank. | _____ | _____ | _____ |
| c. | The tanks shall not stick out beyond the side of the steel fender. The fender shall be sturdy enough to serve as a bump rail from small impacts from a loader tractor or pay loader. | _____ | _____ | _____ |
| d. | Tanks shall be plumbed to fill and dispense together | _____ | _____ | _____ |
| e. | 1½" plumbing and 2" male cam lock fitting with female cover cap for quick bottom fill plumbed opposite side of the wing with easy access with gloves on. Adequate reinforcement shall be made to support the fill side plumbing from stress and weight when connected to the supply line. Stainless steel or other non-corrosive hardware shall be used | _____ | _____ | _____ |

4

COMPLY		SPECIFICATION DEVIATIONS
YES	NO	

- | | | | | |
|----|--|-------|-------|-------|
| f. | Glass reinforced polyethylene fittings | _____ | _____ | _____ |
| g. | All full-port plumbing, reducers or bushings not allowed except from transition from 2" fill port to remainder of 1-1/2" system. | _____ | _____ | _____ |
| h. | Clear 1" polyester braid reinforced plastic discharge hose for cold weather use | _____ | _____ | _____ |
| i. | Remote control electric ball valve, 1" full port flanged fittings with ss clamps | _____ | _____ | _____ |
| | i. Spray Systems Co. model 344BEC-24-C
(NO EXCEPTIONS) | _____ | _____ | _____ |
| | ii. 1" flanged connections w/ss clamps | _____ | _____ | _____ |
| | iii. Single pole double throw switch (3 wire) | _____ | _____ | _____ |
| | iv. Wetted parts of nylon, teflon, polypropylene, or viton | _____ | _____ | _____ |
| | v. Tank low level sensor | _____ | _____ | _____ |
| | vi. Cab control switch and indicator light provided in spreader control or switch bank | _____ | _____ | _____ |
| j. | 3-1/2" standard ball valve with flanged fittings | _____ | _____ | _____ |
| | i. Polypropylene | _____ | _____ | _____ |
| k. | 1" standard ball valve with flanged fittings (to regulate discharge) | _____ | _____ | _____ |
| | i. Polypropylene | _____ | _____ | _____ |
| l. | 1" schedule 80 mild steel threaded pipe nipple or equal non-corrosive fitting | _____ | _____ | _____ |
| m. | 1" poly 90° elbow | _____ | _____ | _____ |
| n. | 1" Banjo or equal quick coupler with cover caps | _____ | _____ | _____ |
| 3. | Manuals, as applicable | | | |
| | a. Two operator's manuals | _____ | _____ | _____ |
| | b. Two parts books | _____ | _____ | _____ |
| 4. | Warranty | | | |
| | One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period | _____ | _____ | _____ |

The pre-wet system shall be delivered mounted onto the truck chassis rear fenders. The pre-wet system shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: _____ MODEL: _____

PARTS/SERVICE/WARRANTY DEALER: _____ TELEPHONE: _____

The following are sample images for informational purposes only, actual products are to be approved by the NDDOT, Maintenance & Engineering Division



4



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR

LIQUID PRE-WET SYSTEM, TAILGATE MOUNT, GRAVITY FLOW
(FORCE TG-150-EGF, MONROE TAILGATE, SWENSON LSSF-T, OR PRE-APPROVED EQUAL)

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a gravity flow liquid pre-wet system to be furnished and installed for the application of de-icing solution directly onto the material being spread by the tailgate spreader. The pre-wet system shall be compatible with a variety of de-icing solutions including sodium chloride, calcium chloride, magnesium chloride, potassium acetate, CMA, and Ice Ban. The liquid reservoir tank shall be mounted on the tailgate of a tandem axle truck dump box and be sized as specified. The pre-wet system shall come complete with all the hardware that is required to apply liquid de-icing solution to granular material at the spreader trough at the discharge side. The pre-wet system shall be standard production of the latest model with standard accessories and in addition meet or exceed the following minimum specifications:

Installation: The pre-wet system shall be installed according to the manufacturer's instruction and to the acceptance of the NDDOT. The hose dispensing the liquid shall be routed not to interfere with the spreader operation and supported to maintain liquid application to the spreader trough at the discharge side. A 3/4" stainless steel threaded pipe nipple or equal non corrosive fitting shall be properly attached to the spreader discharge end side plate. A 3/4" poly 90" elbow shall be threaded into the pipe nipple. A 3/4" Banjo quick coupler with cover caps shall be plumbed in line to quick disconnect the poly braid hose from the spreader. The tank shall be mounted to overhang the truck tailgate and positioned for easy access to the fill ports. The tank shall be mounted as low as possible on the tailgate and high enough not to interfere with the operation of the spreader cover plate. The mounting structure shall be a rigid connection to the tailgate, fixed not to fall off, and extend a minimum of 70" wide across the back of the tailgate to distribute the load along the entire tailgate. The tank's mounting structure shall not require the use of tools to remove from the tailgate. The bottom of the mounting structure shall be fastened by a pin type clip and not bolted into the tailgate. The tailgate shall be reinforced where the mounting structure meets the tailgate. The mounting of the tailgate prewet mounting structure shall be approved by the NDDOT, Maintenance and Engineering Office. The system shall be calibrated to apply 3 gallons per minute with a 1/2 discharge hose with filled tank for head pressure. All electrical and plumbing connections shall be secured so they will not fail with heavy snow and ice buildup on them. The wiring for the electric ball valve shall be long enough to extend to the side of the truck box for connection to the power lead. The switch and wiring must allow for the ball valve to be activated by both the individual brine switch and also through the sander standby button on the Force 6100 controller. The vendor must use flanged fittings with SS clamps wherever possible for all plumping rather than threaded fittings. Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck phone: (701)328-2565.

Table with 3 columns: Item Description, COMPLY YES, COMPLY NO, SPECIFICATION DEVIATIONS. Row 1: 1. Liquid Reservoir. Sub-rows a-e: Polyethylene rotationally molded or fiberglass tank; Trapezoidal, rectangular, or "D" shaped (oval or cylindrical is not acceptable); Tank capacity - minimum 135 gallon, maximum 150 gallon; UV stabilized; 3/8" wall thickness or design liquid rating of 14.5 lbs per gallon.

COMPLY		SPECIFICATION DEVIATIONS
YES	NO	

- | | | | | |
|----|--|-------|-------|-------|
| f. | Rectangular or "D" shaped tanks shall be horizontal mount | _____ | _____ | _____ |
| g. | Anti-slosh baffle built into top of tank at the opening(s) | _____ | _____ | _____ |
| h. | 3" fill port with spin on lid and rubber gaskets | _____ | _____ | _____ |
| i. | Spin on lids shall be tethered to prevent being separated from tank | _____ | _____ | _____ |
| j. | 1¼" bottom quick fill port located on both sides of the tank for right or left side fill, ports should be molded into the tank | _____ | _____ | _____ |
| k. | 1" suction port located on both sides of the tank for right or left side discharge (Note: if the 1¼" port is used for discharge, the port must be necked down to 1") | _____ | _____ | _____ |
| l. | 1" vent at top of tank, or largest available from manufacturer | _____ | _____ | _____ |
| m. | Maximum 84" wide | _____ | _____ | _____ |

2. Hardware

- | | | | | |
|------|--|-------|-------|-------|
| a. | All parts in contact with the de-icing solution shall be of non corrosive material | _____ | _____ | _____ |
| b. | All full port plumbing | _____ | _____ | _____ |
| c. | #304 stainless steel cradle to support the full weight of the tank with two #304 stainless steel mounting brackets without a cradle that are lined with rubber or equal belting material to prevent tank wear due to vibration (preferred) OR two 3" and 15,000 lb web breakage rating UV stabilized nylon straps secured to the cradle with 1,000 lb rated and 3,000 lb breakage triangle eye bolted connections with lock nuts to the cradle | _____ | _____ | _____ |
| d. | 1½" plumbing and 2" male cam lock fitting with female cover cap for quick bottom fill with flanged fittings and ss clamps | _____ | _____ | _____ |
| e. | Glass reinforced polypropylene fittings with flanged fittings and ss clamps | _____ | _____ | _____ |
| f. | Clear 1" polyester braid reinforced plastic discharge hose for cold weather use | _____ | _____ | _____ |
| g. | Remote control electric ball valve, 1" full port | _____ | _____ | _____ |
| i. | Spray Systems Co. model 344BEC-24-C
(NO EXCEPTIONS) | _____ | _____ | _____ |
| ii. | 1" flanged connections and ss clamps | _____ | _____ | _____ |
| iii. | Single pole double throw switch (3 wire) | _____ | _____ | _____ |

		COMPLY		SPECIFICATION DEVIATIONS
		YES	NO	
iv.	Wetted parts of nylon, Teflon, polypropylene, or Viton	_____	_____	_____
v.	Tank low level sensor	_____	_____	_____
vi.	Cab control switch and indicator light provided in spreader control or switch bank	_____	_____	_____
vii.	Wiring from control valve shall be long enough to reach the side of the truck box for connection	_____	_____	_____
h.	1½" standard ball valve with flanged fittings	_____	_____	_____
i.	Polypropylene	_____	_____	_____
i.	1" standard ball valve with flanged fittings (for regulating discharge)	_____	_____	_____
i.	Polypropylene	_____	_____	_____
j.	1" stainless steel threaded pipe nipple or equal non corrosive fitting	_____	_____	_____
k.	1" poly 90" elbow	_____	_____	_____
l.	1" Banjo or equal quick coupler with cover caps	_____	_____	_____
3.	Manuals, as applicable			
a.	Two operator's manuals	_____	_____	_____
b.	Two parts books	_____	_____	_____
4.	Warranty			
	One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period	_____	_____	_____

The pre-wet system shall be delivered mounted onto the truck tailgate. The pre-wet system shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: _____ MODEL: _____

PARTS/SERVICE/WARRANTY DEALER: _____ TELEPHONE: _____

BIDDER: _____

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR
TRUCK, TANDEM AXLE, SET BACK AXLE
58,000 LB G.V.W., 80,000 LB G.C.W.
INTL HVHD, MACK GU813, FREIGHTLINER 114SD**

Bidders Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

These trucks shall be fitted with rear-mounted snow wings attached on the right side and an underbody scraper blade. Mounting requires a 24" ground clearance area under the frame back of cab and 18" ground clearance under cab (see attached drawings). Locations of the components and exhaust system shall accommodate these installations.

		COMPLY	SPECIFICATION
		YES NO	DEVIATIONS
1) Axle			
a) Front I-beam type – 20,000 lb with shock absorbers.	✓	—	_____
b) Rear – 40,000 lb	✓	—	_____
c) Wheelbase – Approximately 195"-214". Distance between center of bogey to back of cab, 138"-148" to be determined after award.	✓	—	_____
d) Minimum of 70" AF	✓	—	_____
2) Body			
a) Air ride cab	✓	—	_____
b) Air conditioning – heater and defroster. Inside/outside air control, with dust filter. Inlet to be screened to prevent debris entry. Automatic A/C shut down if overheating occurs.	✓	—	_____
c) Steps and external grab handles for entry into cab to include grab handle on drivers inside door panel.	✓	—	_____
d) Hood – tilt	✓	—	_____
e) Stationary grill with maximum 2" opening.	✓	—	_____
f) Horn – air to include cover(s) if mounted on roof of cab.	✓	—	_____
g) Seating			
i) Driver and passenger seat, cloth, air ride suspension, high back or head restraint. Seat belt retractor. Three point shoulder harness. Ezyrider, National 2000 or approved equal. The State of North Dakota is requesting the highest possible seat back to be engineered into this chassis to protect the driver, (up to 6' 5" tall), from hitting his/her head on the back of the cab in a rear end collision.	✓	—	_____
h) Side mirrors, two (one each side 102" width) adjustable approximately 16"x 6" each. Electrically defrosted. Electric adjustable, driver controlled. Passenger side only approximately 8" convex mirror mounted bottom of mirror.	✓	—	_____
i) Front fender mounted electrically heated mirrors on each side.	✓	—	_____
i) Approximately 8" adjustable convex heated mirror.	✓	—	_____
ii) Separate switch for heated mirrors with no time out feature.	✓	—	_____
j) Steering, power with dual steering gears.	✓	—	_____

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
i) 18" steering wheel, with tilt.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
k) Paint, Omaha Orange or equal. Basecoat/clear coat or imron 6000. Exterior under cab to be primed and painted or approved rubberized undercoating. Paint number to be provided at time of award.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
l) Maximum cab noise level of 80 db.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
m) Cab headliner.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
n) Power windows.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
o) Front wheel wells to be skirted/guarded from engine compartment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
p) Power outlet (cigar lighter type).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
q) Heated Windshield.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
i) Separate switch for heated windshield with no time out feature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
r) Tinted glass.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
s) Dual sun visors.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
t) Dome light	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
u) Cab rear window	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
v) Book/manual pocket storage located on back wall of cab and/or overhead.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
3) Differential			
a) Tandem axle drive	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
b) Ratio to be determined after award.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
c) U-joints, half round, not less than Spicer No. SPL-250 with heavy tube.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
i) Inter-axle, half round, not less than Spicer No. SPL-170.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
d) Driver control full locking differential, both axles.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
e) Lube oil pump.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
f) Synthetic gear lube.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
4) Electrical – 12 Volt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
a) Batteries, minimum of three 12volt, 900 CCA each, Group 31, Jump stud.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
b) Alternator, 130 amp minimum.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
c) Hour meter, solid state, engine controller activated, inside cab.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
d) AM/FM radio	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
e) Heavy-duty windshield wipers, two speed including intermittent with washers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
f) Tachometer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
g) Gauges – volt, oil, coolant, temperature, fuel, transmission temperature and air.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
h) Circuit breakers required.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
i) Kysor solid state signal flasher or approved equal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
j) Lights to meet all ICC regulations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
k) Body builder junction box and connector kit for body builder or sealed connector at the end of frame include clearance lights, taillights, turn signals, backup lights and stop lights.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
l) Dielectric grease in all electrical connection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
m) Headlamp circuit pre-wired for the attachment of plow lights.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____

	COMPLY YES	NO	SPECIFICATION DEVIATIONS
i) Instrument panel switch to alternate between OEM and plow headlamps.	✓	—	_____
ii) Plow lamp wiring to extend to hood hinge area.	✓	—	_____
iii) High beam indicator shall function in either mode.	✓	—	_____
n) Vehicle speed sensor circuit with a pulse rate of 50,000 PPM wired into cab for ground speed oriented equipment installation.	✓	—	_____
o) Instrument panel switch package.	✓	—	_____
i) Power to be supplied via relay controlled by ignition switch.	✓	—	_____
ii) Switch panel to be protected by minimum 60 amp main circuit breaker.	✓	—	_____
(1) Body vendor will install individual circuit breakers for switches.			
iii) Switches to be configured to control these functions:			
(1) Amber warning.(on/off 6A)	✓	—	_____
(2) Clear warning.(on/off 4A)	✓	—	_____
(3) Work light.(on/off 10A)	✓	—	_____
(4) Momentary switch for box vibrator.(N.O. 15A)	✓	—	_____
(5) Momentary switch for hydraulic pump override.(N.C. 15A)	✓	—	_____
(6) Air tailgate.(on/off 10A)	✓	—	_____
iv) All switches, functions & names shall be backlit/illuminated and means of labeling provided.	✓	—	_____
5) Engine – wet sleeved – diesel- 13L class	✓	—	_____
a) Minimum 425 horsepower.	✓	—	_____
b) Minimum 1550 lb-ft of torque.	✓	—	_____
c) Minimum warranty: First 100,000 miles or 84 months , whichever comes first.	✓	—	_____
i) 100% engine parts/labor including turbo, fuel injectors and exhaust aftertreatment .	✓	—	_____
d) Provide 2 years of towing on warrantable repair to the nearest authorized repair facility.	✓	—	_____
e) Corrosion resistant steel, aluminum or composite oil pan.	✓	—	_____
f) Fan clutch automatic on/off, Horton, Kysor or equal	✓	—	_____
g) Cooling system to contain extended life coolant.	✓	—	_____
h) Custom fitted winter front (heavy duty) mounted to grill.	✓	—	_____
i) Engine block heater – 1500 watt minimum.	✓	—	_____
j) Air cleaner, dry element.	✓	—	_____
i) Air cleaner restriction gauge dash mounted.	✓	—	_____
k) Inside/outside air intake of Precleaner/separation module.	✓	—	_____
l) Engine coolant or return fuel heated thermostatic controlled fuel heater with water separation system designed for optimum performance for engine under subzero severe snow plowing conditions.	✓	—	_____
m) Automatic engine shut down system. Preprogrammed with 15 minute idle shut down.	✓	—	_____
n) Rear engine PTO.	✓	—	_____

6) Frame

- a) Exhaust system – vertical exhaust system with turn out minimum of 18" to 24" above cab. Right side mounted. Heat guard shield to cover from bottom of cab to top of door. ✓
- b) Single frame- Minimum 120,000 psi 21.47 section modulus RBM 2,576,000. ✓
- c) Fuel tank – minimum 100 gal aluminum, with gauge. Single tank mounted left side frame rail back of cab with filler location at forward end of tank or under cab if under body scraper clearance can be obtained. ✓
- d) Frame – black ✓
- e) Seven wire connector box in back of frame for towing units. Connector hook-up shall be connected to rear tail and brake light harness so trailer has tail, signal and brake lights. ✓
- f) Minimum 15" integral front frame extension. ✓
- g) Front tow hooks. ✓

7) Springs – Hendrickson Haulmaax® model HMX400 suspension with shock absorbers.

- a) Front, 20,000 lb (10,000 lb each) at ground. ✓
- b) Rear, 40,000 lb (20,000 lb each) at ground. ✓

8) Transmission

- a) Allison automatic 4000 RDS ✓
- b) 6 speed ✓
- c) Synthetic transmission oil. ✓
- d) Transmission oil cooler lines to be double steel braided hose or stainless steel lines. ✓
- e) Automatic neutral with the application of the park brake without override switch. ✓
- f) I/P or control console mounted low oil sensor. ✓
- g) Push button shift selector, instrument panel mount preferred, but not required. ✓
- h) Transmission ECU to be mounted in cab. If dealer relocated, location must be approved. ✓

9) Wheels

- a) Front tires – 425/65R 22.5, 18-ply tubeless, all standard tread. ✓
- b) Rear tires – 11:00R x 22.5, 14-ply, tubeless all highway traction open shoulder. ✓
- c) Dual tires on driving axles. ✓
- d) Brakes – air with compressor not less than 15.5 CFM. Auxiliary air brake filler source via Schrader valve. ✓
 - i) Integral or compressor mounted safety valve, Midland SN 161 or equal. May be omitted if Bendix AD-IS integrated solution air dryer is used. ✓
 - ii) Compressor air intake shall be drawn from filtered engine air intake. ✓
- e) Brake system heated desiccant type dryer with spin on cartridge or Bendix AD-IS total system integrated solution air dryer mounted outside of the frame. ✓
- f) Sealed air chambers – MGM TRS 3030T or approved equal. ✓

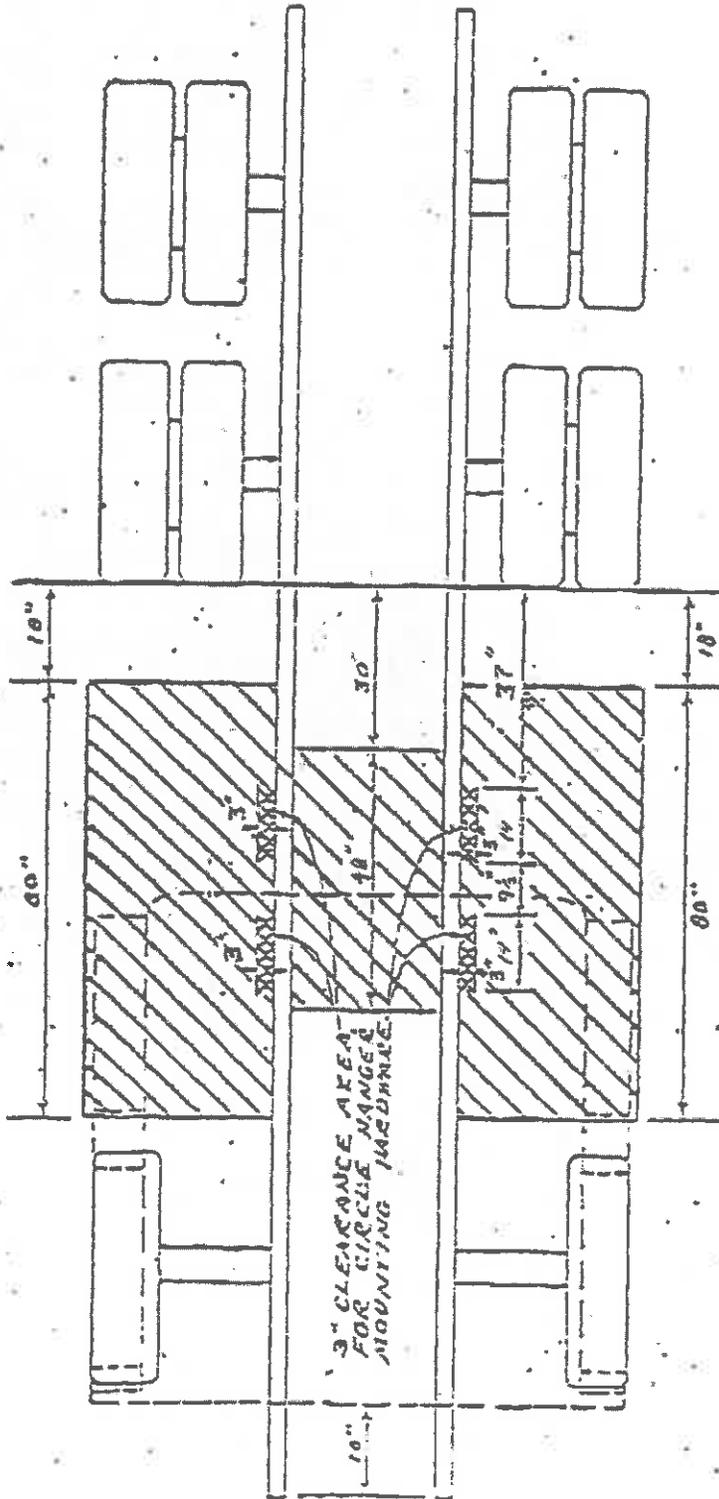
- i) Position to meet asphalt spreader/paver clearance requirements. ✓
 - g) Suspended brake pedal. ✓
 - h) Disc wheel, hub piloted. Mylar wheel guard spacers for all wheels. ✓
 - i) Front wheel bearing oilers or permanently lubed with synthetic grease. ✓
 - j) Rear powder coated wheel rim size 8.25".** ✓
 - k) Front powder coated wheel rim size 12.25".** ✓
 - l) Front and rear dust shields. ✓
 - m) Four wheel trailer-tractor package complete to end of frame, including glad hands and dummy couplings. ✓
 - n) Four corner parking brake. ✓
- 10) General
- a) Web-based service manuals preferred otherwise eight complete shop service manuals on CD-ROM provided to State Fleet Services for distribution. ✓
 - b) Dealer or manufacturer to provide minimum 2 hours introduction of model at district locations. ✓
 - c) Must have a factory approved warranty facility that can perform recalls, electronic diagnoses, engine and major repairs within a radius of 175 miles of each district headquarters. ✓

The truck is to be delivered as a complete unit ready for operation.

TRUCK MAKE: INTERNATIONAL MODEL: HV HD

DELIVERY POINT: FOB box and hydraulics installer, bidder will be notified of delivery point.

TOP VIEW
(CIRCLE HANGER & SCRAPER MOUNTING AREA)



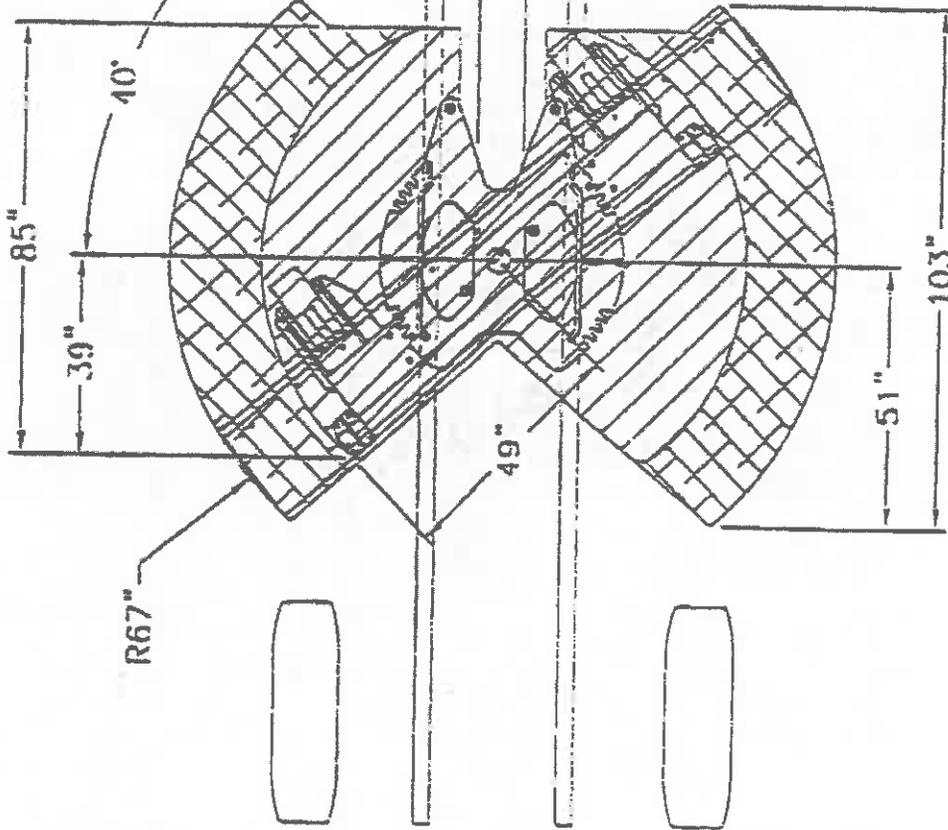
ROOT SPRING SCRAPER CO.
MOUNTING SPECS.
MODEL F-55
and F-89

XXXX CIRCLE HANGER MOUNTING AREA
ZZZZ 24" GROUND CLEARANCE AREA

Exhibit A

ALL MEASUREMENTS ARE BASED ON A LOADED TRUCK

40° MAXIMUM ROTATION



10" WIDE AREA OVER THE CENTER OF THE CIRCLE
MAY ONLY REQUIRE 2 1/2" OF GROUND CLEARANCE

25.5" GROUND CLEARANCE
FOR THIS AREA

18" GROUND CLEARANCE
FOR THIS AREA

		CLEARANCE LAYOUT <small>TRUCK APPLICATION</small> SCRAPER MS-2511	
FABRIK AETID TOLONDU ANCHEREN 10 CMIS AIRKARAR 11 KONFANNESS	DR. BY: ERZ CR. BY: SCALE: DATE: 09-06-1996	DRAWING: SHEET #	DRAWING: SHEET #
1051 West 7th Street Monroe, Va 53586-8100 800/328-8127 FAX: 540/328-4278		MS2511 CLEARANCE LAYOUT	



HV613 SBA

Sales Proposal For:

ND DOT

Presented By:

Nelson Leasing, Inc.

Prepared For:
ND DOT
Tim Paul
608 E Boulevard Ave.
Bismarck, ND 58505-0606
(701)328 - 2683
Reference ID: 430 hp r/h wing

Presented By:
Nelson Leasing, Inc.
Barry Wegner
2700 East Hwy 12
PO Box 993
Willmar MN 56201 -
(320)235-2770

Thank you for the opportunity to provide you with the following quotation on a new International truck. I am sure the following detailed specification will meet your operational requirements, and I look forward to serving your business needs.

Model Profile
2020 HV613 SBA (HV613)

AXLE CONFIG:	6X4
APPLICATION:	Front Plow and Underbelly Scraper with Spreader
MISSION:	Requested GVWR: 58000. Calc. GVWR: 60000 Calc. Start / Grade Ability: 26.09% / 3.13% @ 55 MPH Calc. Geared Speed: 81.8 MPH
DIMENSION:	Wheelbase: 207.00, CA: 139.90, Axle to Frame: 77.00
ENGINE, DIESEL:	{International A26} EPA 2017, 430HP @ 1700 RPM, 1550 lb-ft Torque @ 1000 RPM, 2100 RPM Governed Speed, 430 Peak HP (Max)
TRANSMISSION, AUTOMATIC:	{Allison 4000 RDS} 5th Generation Controls, Close Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, On/Off Highway
CLUTCH:	Omit Item (Clutch & Control)
AXLE, FRONT NON-DRIVING:	{Meritor MFS-20-133A} Wide Track, I-Beam Type, 20,000-lb Capacity
AXLE, REAR, TANDEM:	{Meritor MT-40-14X-4DCR-P} Single Reduction, 40,000-lb Capacity, with Lube Oil Pump, w/ 433"(11mm) Wall Housing Thickness, Driver Controlled Locking Differential in Forward-Rear and Rear-Rear Axle, R Wheel Ends Gear Ratio: 4.88
CAB:	Conventional
TIRE, FRONT:	(2) 425/65R22.5 Load Range L HTC1 (CONTINENTAL), 465 rev/mile, 68 MPH, All-Position
TIRE, REAR:	(8) 11R22.5 Load Range G HYBRID HD3 (CONTINENTAL), 493 rev/mile, 75 MPH, Drive
SUSPENSION, REAR, TANDEM:	{Hendrickson HMX-400-54} Walking Beam, 40,000-lb Capacity, 54" Axle Spacing, Rubber Springs, with Transverse Torque Rods, Rubber End Bushings
PAINT:	Cab schematic 100WN Location 1: 0311, Omaha Orange (Std) Chassis schematic N/A

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
HV61300	Base Chassis, Model HV613 SBA with 207.00 Wheelbase, 139.90 CA, and 77.00 Axle to Frame.	8530/3948	12478
1570	TOW HOOK, FRONT (2) Frame Mounted	8/0	8
1AND	AXLE CONFIGURATION {Navistar} 6x4	0/0	0
	<u>Includes</u> : DRIVESHAFT 1810 Series Transmission to Rear Axle : INNER-AXLE SHAFT 1710 Series Forward Rear Axle to Rear Rear Axle		
	<u>Notes</u> : Pricing may change if axle configuration is changed.		
1CAJ	FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.866" x 3.622" x 0.433" (276.0mm x 92.0mm x 11.1mm); 456.0" (11582mm) Maximum OAL	203/445	648
1LLK	BUMPER, FRONT Omit Item	-91/15	-76
1WDS	FRAME EXTENSION, FRONT Integral; 20" In Front of Grille	137/-32	105
1WHP	WHEELBASE RANGE 183" (465cm) Through and Including 248" (630cm)	0/0	0
1WMA	CROSSMEMBER, INTERMEDIATE (1) 5-Piece ilo Each Single Dogbone with 4x2, 4x4 Chassis and Each Double Dogbone with 6x4, 6x6 and 8x6 Tridem Chassis	32/18	50
1WPZ	CROSSMEMBER, SUSPENSION (2) 5-Piece Steel Replacing (2) Double Dogbone, Forward and Rear	-2/123	121
2ARY	AXLE, FRONT NON-DRIVING {Meritor MFS-20-133A} Wide Track, I-Beam Type, 20,000-lb Capacity	186/0	186
3AGA	SUSPENSION, FRONT, SPRING Parabolic Taper Leaf, Shackle Type, 20,000-lb Capacity, with Shock Absorbers	57/0	57
4091	BRAKE SYSTEM, AIR Dual System for Straight Truck Applications	0/0	0
	<u>Includes</u> : BRAKE LINES Color and Size Coded Nylon : DRAIN VALVE Twist-Type : GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster : PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel : QUICK RELEASE VALVE On Rear Axle for Spring Brake Release: 1 for 4x2, 2 for 6x4 : SLACK ADJUSTERS, FRONT Automatic (with Air Cam Brakes) : SLACK ADJUSTERS, REAR Automatic (with Air Cam Brakes) : SPRING BRAKE MODULATOR VALVE R-7 for 4x2, SR-7 with relay valve for 6x4/8x6		
4193	BRAKES, FRONT, AIR CAM 16.5" x 6", Includes 24 SqIn Long Stroke Brake Chambers	26/0	26
4619	TRAILER CONNECTIONS Four-Wheel, with Hand Control Valve and Tractor Protection Valve, for Straight Truck	0/0	0
4732	DRAIN VALVE {Berg} with Pull Chain, for Air Tank	0/0	0
4AZJ	AIR BRAKE ABS {Bendix AntiLock Brake System} Full Vehicle Wheel Control System (4-Channel) with Automatic Traction Control	0/0	0
4EBD	AIR DRYER {Wabco System Saver 1200} with Heater	12/6	18
4EVH	BRAKE CHAMBERS, REAR AXLE {MGM TR3030LP3TSHD} 30/30 Spring Brake	0/82	82

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
4EXV	BRAKE CHAMBERS, FRONT AXLE {Bendix} 24 SqIn	18/0	18
4LAA	SLACK ADJUSTERS, FRONT {Haldex} Automatic	0/0	0
4LGA	SLACK ADJUSTERS, REAR {Haldex} Automatic	0/0	0
4NDB	BRAKES, REAR, AIR CAM S-Cam; 16.5" x 7.0"; Includes 30/30 Sq.In. Long Stroke Brake Chamber and Spring Actuated Parking Brake	0/52	52
4SPM	AIR COMPRESSOR {Bendix BA-921 Head Unload} 15.9 CFM Capacity, Single Cylinder	0/0	0
4VCL	AIR TANK LOCATION (2) Mounted 25" Back of Cab, Outside Right Rail, with Ground Clearance	0/0	0
4VHT	AIR DRYER LOCATION Mounted to Outside Left Rail on Fuel Water Separator Bracket	0/0	0
4WBX	DUST SHIELDS, FRONT BRAKE for Air Brakes	5/0	5
4WDM	DUST SHIELDS, REAR BRAKE for Air Brakes	0/12	12
4WDU	HAND CONTROL VALVE, AIR for Trailer Brakes, Omit Item	0/0	0
4WDW	BRAKE CHAMBERS, SPRING on Rear/Rear Axle Located Inside Rear Tire Envelope (Meets Asphalt Spreader/Paver Clearance Requirements)	0/0	0
5708	STEERING COLUMN Tilting	12/4	16
5CAW	STEERING WHEEL 4-Spoke; 18" Dia., Black	0/0	0
5PTB	STEERING GEAR (2) {Sheppard M100/M80} Dual Power	91/-6	85
6DDC	DRIVESHAFT SYSTEM SPL250XL Driveshaft and SPL170XL Interaxle Shaft in lieu of 1810 Driveshaft and 1710 Interaxle Shaft	0/0	0
7BEV	AFTERTREATMENT COVER Steel, Black	0/0	0
7BLG	EXHAUST SYSTEM Single Horizontal Aftertreatment Device, Frame Mounted Right Side Under Cab; Includes Single Vertical Tail Pipe, Frame Mounted Right Side Back of Cab, for Improved Ground Clearance	79/36	115
7SDX	ENGINE COMPRESSION BRAKE Omit	-48/-1	-49
7WAZ	TAIL PIPE (1) Turnback Type, Non-Bright, for Single Exhaust	0/0	0
7WBU	EXHAUST HEIGHT 11' 6"	2/0	2
7WDN	MUFFLER/TAIL PIPE GUARD (1) Non-Bright Aluminum	0/0	0
8000	ELECTRICAL SYSTEM 12-Volt, Standard Equipment	0/0	0
8518	CIGAR LIGHTER Includes Ash Cup	0/0	0
8718	POWER SOURCE Cigar Type Receptacle without Plug and Cord	1/0	1
8GXJ	ALTERNATOR {Leece-Neville AVI160P2013} Brush Type; 12 Volt 160 Amp. Capacity, Pad Mount	0/0	0
8HAA	BODY BUILDER WIRING To Rear of Frame, with Stop, Tail, Turn, and Marker Lights Circuits, Ignition Controlled Auxiliary Feed and Ground, Less Trailer Socket	2/0	2
8MJU	BATTERY SYSTEM {Fleetrite} Maintenance-Free, (3) 12-Volt 2850CCA Total	12/9	21
8RMP	RADIO AM/FM/WB/Clock/3.5MM Auxiliary Input	2/0	2
8RMV	SPEAKERS (2) 6.5" Dual Cone Mounted in Doors	0/0	0

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
8THJ	AUXILIARY HARNESS 3.0' for Auxiliary Front Head Lights and Turn Signals for Front Plow Applications	2/0	2
8VAY	HORN, ELECTRIC Disc Style	0/0	0
8VUW	BATTERY BOX Steel, with Plastic Cover, 25" Wide, 2-3 Battery Capacity, Mounted Left Side Under Cab in Back of DEF Tank	25/-11	14
8VZR	SWITCH, BODY CIRCUITS, MID for Bodybuilder, 6 Momentary Switches in Instrument Panel; One Power Module with 6 Channels, 20 Amp Max. Per Channel, 80 Amp Max Output, Switches Control Power Module Through Multiplex Wiring, Mounted in Cab Behind Driver Seat	1/0	1
8WBW	JUMP START STUD Remote Mounted	2/0	2
8WPH	CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade	0/0	0
8WXG	STARTING MOTOR {Mitsubishi Electric Automotive America 105P} 12-Volt, with Soft-Start	0/0	0
8XAH	CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III with Trip Indicators, Replaces All Fuses	0/0	0
8XGT	TURN SIGNALS, FRONT Includes LED Side Turn Lights Mounted on Fender	0/0	0
8XHN	HORN, AIR Black, Single Trumpet, with Lanyard Pull Cord	0/0	0
9585	FENDER EXTENSIONS Rubber	0/0	0
9AAB	LOGOS EXTERIOR Model Badges	0/0	0
9AAE	LOGOS EXTERIOR, ENGINE Badges	0/0	0
9HAT	GRILLE Stationary, with Vendor Painted Grille & Headlight Bezels, Argent NAV 8752	0/0	0
9HBN	INSULATION, SPLASH PANELS for Sound Abatement	3/0	3
9WAC	BUG SCREEN Mounted Behind Grille	5/0	5
9WBK	FRONT END Tilting, Fiberglass, with Three Piece Construction Includes Long Hood	0/0	0
10060	PAINT SCHEMATIC, PT-1 Single Color, Design 100 <u>Includes</u> : PAINT SCHEMATIC ID LETTERS "WN"	0/0	0
10761	PAINT TYPE Base Coat/Clear Coat, 1-2 Tone	0/0	0
10WWP	MUD FLAPS, FRONT WHEELS (2) Rubber, Behind Front Wheels, Mounted on Fender Extension, for Tire Size 425/445	0/0	0
11001	CLUTCH Omit Item (Clutch & Control)	-137/-19	-156
12703	ANTI-FREEZE Red, Extended Life Coolant; To -40 Degrees F/ -40 Degrees C, Freeze Protection	0/0	0
12864	BLOCK HEATER, ENGINE {Phillips} 120V/1500W	4/0	4
12BEB	ENGINE, DIESEL {International A26} EPA 2017, 430HP @ 1700 RPM, 1550 lb-ft Torque @ 1000 RPM, 2100 RPM Governed Speed, 430 Peak HP (Max)	0/0	0
12THT	FAN DRIVE {Horton Drivemaster} Direct Drive Type, Two Speed with Residual Torque Device for Disengaged Fan Speed	0/0	0

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
12VAG	AIR CLEANER Single Element, with Integral Snow Valve and In-Cab Control	2/0	2
12VHC	FEDERAL EMISSIONS {International A26} EPA, OBD and GHG Certified for Calendar Year 2019	0/0	0
12VYL	ACCESSORY WIRING, SPECIAL for Road Speed Wire Coiled Under Instrument Panel for Customer Use	0/0	0
12WEG	COLD STARTING EQUIPMENT Automatic; with Engine ECM Control	0/0	0
12WPU	PTO, ENGINE REAR for N13/A26 Engines (Ratio 1.276:1)	0/0	0
12WPX	OIL PAN Rust Protected (Resistive Coating), For N13/A26 Engines	0/0	0
12WTA	FAN DRIVE SPECIAL EFFECTS Fan Cooling Ring with Fan Shroud Effects, Engine Mounted	0/0	0
12WZE	EMISSION COMPLIANCE Federal, Does Not Comply with California Clean Air Idle Regulations	0/0	0
12XBD	RADIATOR Aluminum; Welded, Front to Back CrossFlow System, 1292 SqIn, 1008 SqIn CAC	0/0	0
13ATR	TRANSMISSION, AUTOMATIC {Allison 4000 RDS} 5th Generation Controls, Close Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, On/Off Highway	268/108	376
13AWW	OIL COOLER, AUTO TRANSMISSION {Modine} Water to Oil Type	25/0	25
13WEH	AUTOMATIC NEUTRAL Allison WT Transmission Shifts to Neutral When Parking Brake is Engaged and Remains in Neutral When Parking Brake is Disengaged, without On/Off Switch	0/0	0
13WET	TRANSMISSION SHIFT CONTROL for Column Mounted Stalk Shifter	0/0	0
13WLM	TRANSMISSION OIL Synthetic; 63 thru 76 Pints	0/0	0
13WUS	ALLISON SPARE INPUT/OUTPUT for Rugged Duty Series (RDS); General Purpose Trucks Modified for Single Input Auto Neutral	0/0	0
13WYH	TRANSMISSION TCM LOCATION Located Inside Cab	0/0	0
13WYU	SHIFT CONTROL PARAMETERS Allison 3000 or 4000 Series Transmissions, 5th Generation Controls, Performance Programming	0/0	0
13XAN	PTO LOCATION No PTO	0/0	0
14GVL	AXLE, REAR, TANDEM {Meritor MT-40-14X-4DCR-P} Single Reduction, 40,000-lb Capacity, with Lube Oil Pump, w/.433"(11mm) Wall Housing Thickness, Driver Controlled Locking Differential in Forward-Rear and Rear-Rear Axle, R Wheel Ends . Gear Ratio: 4.88	0/1925	1925
14ULX	SUSPENSION, REAR, TANDEM {Hendrickson HMX-400-54} Walking Beam, 40,000-lb Capacity, 54" Axle Spacing, Rubber Springs, with Transverse Torque Rods, Rubber End Bushings	0/492	492
14WAL	SUSPENSION/REAR-AXLE IDENTITY for Meritor Tandem Rear Axles with Bar-Pin Beam Attachment Type Suspensions	0/0	0
14WBV	SHOCK ABSORBERS, REAR (4) for Hendrickson HMX Suspension Only, Mounted from Frame to Beam	0/31	31
14WMJ	AXLE, REAR, LUBE {EmGard FE-75W-90} Synthetic Oil; 50 thru 64.99 Pints	0/0	0

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
15DYP	DEF TANK 9.5 US Gal (36L) Capacity, Frame Mounted Outside Left Rail, Under Cab	0/0	0
15LMG	LOCATION FUEL/WATER SEPARATOR Mounted Outside Left Rail, 11" Back of Cab	0/0	0
15LML	FUEL/WATER SEPARATOR {Davco Fuel Pro 382} 120 VAC Plug-in Electric Pre-Heater, Coolant Heated, Includes Water-in-Fuel Sensor	0/0	0
15SNU	FUEL TANK Top Draw, Non-Polished Aluminum, D-Style, 19" Tank Depth, 100 US Gal (379L), 6" Above the Frame Rail, Mounted Left Side, Back of Cab	4/38	42
15WCS	FUEL COOLER Less Thermostat; Mounted in Front of Cooling Module	15/0	15
16030	CAB Conventional	0/0	0
16BAM	AIR CONDITIONER with Integral Heater & Defroster	0/0	0
16GDC	GAUGE CLUSTER Base Level; English with English Speedometer and Tachometer, for Air Brake Chassis, Includes Engine Coolant Temperature, Primary and Secondary Air Pressure, Fuel and DEF Gauges, Oil Pressure Gauge, Includes 3 Inch Monochromatic Text Display	0/0	0
16HGH	GAUGE, OIL TEMP, AUTO TRANS for Allison Transmission	1/0	1
16HHE	GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} with Black Bezel Mounted in Instrument Panel	2/0	2
16HKT	IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster	0/0	0
16JNV	SEAT, DRIVER {National 2000} Air Suspension, High Back with Integral Headrest, Cloth, Isolator, 1 Chamber Lumbar, 2 Position Front Cushion Adjust, -3 to +14 Degree Back Angle Adjust	0/0	0
16RPX	SEAT, PASSENGER {National} Air-Suspension, High Back with Integral Headrest, Cloth, Isolated, 1 Chamber Lumbar, 2 Position Front Cushion Adjustment, -3 to +14 Degree Seat Back Adjustment	57/22	79
16SED	GRAB HANDLE (2) Black, Aluminum; for Cab Entry Mounted Left and Right each Side at "B" Pillar	0/0	0
16SJW	MIRROR, CONVEX, HOOD MOUNTED (2) {Lang Mekra} Heated, Left and Right Sides 7.44" Sq	9/0	9
16SNP	MIRRORS (2) Power Adjust, Thermostatically Controlled Heated Heads, Black Heads, Brackets and Arms, 7.55" x 14.1" Flat Glass, 7.48" x 6.77" Convex Glass Both Sides	0/0	0
16VKK	CAB INTERIOR TRIM Diamond, for Day Cab	0/0	0
	<u>Includes</u> : CONSOLE, OVERHEAD Molded Plastic with Dual Storage Pockets, Retainer Nets and CB Radio Pocket; Located Above Driver and Passenger : DOME LIGHT, CAB Door Activated and Push On-Off at Light Lens, Timed Theater Dimming, Reading Lights; Integral to Overhead Console, Center Mounted : SUN VISOR (3) Padded Vinyl; 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Vanity Mirror and Toll Ticket Strap, plus 1 Auxiliary Visor (Front Only), Driver Side		
16VSL	WINDSHIELD Heated, Single Piece	1/0	1
16WJU	WINDOW, POWER (2) and Power Door Locks, Left and Right Doors, Includes Express Down Feature	5/0	5

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
16XJN	INSTRUMENT PANEL Flat Panel	0/0	0
16XZC	CAB REAR SUSPENSION Provides Rear PTO and PTO Driveshaft Clearance	0/0	0
16ZBT	ACCESS, CAB Steel, Driver & Passenger Sides, Two Steps Per Door, for use with Regular and Extended Cabs	0/0	0
27DTZ	WHEELS, FRONT {Accuride 29303} DISC; 22.5x13.00 Rims, Powder Coat Steel, 5-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs, Offset 4.95"	120/0	120
28DTU	WHEELS, REAR {Accuride 29001} DUAL DISC; 22.5x7.50 Rims, Powder Coat Steel, 5-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs	0/40	40
29WAP	WHEEL GUARDS, FRONT {Accuride} for Metric Hub Piloted Wheels with Flanged Mounting Nuts Mounted Between Hub and Wheel	2/0	2
7372135428	(8) TIRE, REAR 11R22.5 Load Range G HYBRID HD3 (CONTINENTAL), 493 rev/mile, 75 MPH, Drive	0/72	72
7752665412	(2) TIRE, FRONT 425/65R22.5 Load Range L HTC1 (CONTINENTAL), 465 rev/mile, 68 MPH, All-Position	124/0	124
Services Section:			
40127	WARRANTY Standard for HV513, HV613 Models, Effective with Vehicles Built July 1, 2017 or Later, CTS-2030A	0/0	0
40SUL	SRV CONTRACT, EXT ENGINE/AFTR {Navistar} To 84-Month/100,000 Miles (160,000 km), Includes Engine, Engine Electronics, Turbocharger, Water Pump and Fuel Injectors, Aftertreatment Coverage for International A26 Engines	0/0	0
Total Component Weight:		9814/7409	17223
	Die electric grease in all exterior connectors outside of the firewall	0/0	0
	Cab Undercoating	0/0	0
	cab connector kit, 7 way connector, Glad hands, and couplers	0/0	0
	Programming	0/0	0
	Winterfront Installation	0/0	0
	Install Schrader valve	0/0	0
	Switch layout	0/0	0
Total Goods Purchased:		0/0	0

The weight calculations included in this proposal are an estimate of future vehicle weight. The actual weight as manufactured may be different from the estimated weight. Navistar, Inc. shall not be liable for any consequences resulting from any differences between the estimated weight of a vehicle and the actual weight.

<u>Description</u>	<u>(US DOLLAR)</u>	<u>Price</u>
Total Factory List Price Including Options:		\$238,337.00
Total Goods Purchased:		\$1,162.00
Freight	\$2,650.00	
Total Freight:		\$2,650.00
Total Factory List Price Including Freight:		\$242,149.00
Less Customer Allowance:		(\$137,849.00)
Total Vehicle Price:		\$104,300.00
Total Sale Price:		\$104,300.00
Total Per Vehicle Sales Price:		\$104,300.00
Total For 35 Vehicle Sales:		\$3,650,500.00
Net Sales Price:		\$3,650,500.00

Please feel free to contact me regarding these specifications should your interests or needs change. I am confident you will be pleased with the quality and service of an International vehicle.

Approved by Seller:

Accepted by Purchaser:

GM/TRUCK SALES 1/29/2019
Official Title and Date

Firm or Business Name


Authorized Signature

Authorized Signature and Date

This proposal is not binding upon the seller without
Seller's Authorized Signature

Official Title and Date

The TOPS FET calculation is an estimate for reference purposes only. The seller or retailer is responsible for calculating and reporting/paying appropriate FET to the IRS.



HV613 SBA

Sales Proposal For:

ND DOT

Presented By:

Nelson Leasing, Inc.



“Celebrating 80 years 1939-2019”

Past Experience and Future Guarantee

Bert's Truck Equipment has unprecedented experience and knowledge when it comes to building “turnkey” plow trucks. In just the last 21 years we have built over 600 plow trucks for municipalities, counties and state agencies, including over 190 units over the last nineteen years for the North Dakota Department of Transportation.



Our past history with the Department of Transportation speaks for itself. In the past, we have consistently produced quality units of all types and delivered them on time. Additionally, we have a deep commitment to customer satisfaction ensuring the products installed meet the specifications and perform as expected.

Our highly experienced technicians know the importance of performing high quality installations and delivering trucks ready to work. We take pride in our products and more importantly pride in our workmanship and customer service. We continually seek to improve processes, products, and workmanship by implementing new technologies and streamlining production.

As our past projects proved, we have always taken the necessary steps and procedures to ensure that the final products that are delivered meet and exceed not only the ND DOT standards but also our standards. Our quality is exemplified time and time again in our workmanship and it shows in the final products we deliver.

Bert's Truck Equipment has assembled a team of professionals who take great pride in their work and have the best possible knowledge in the industry when it comes to building plow trucks. It is what they do, and they do it to the highest standard each and every time.

THE TRUCK EQUIPMENT HEADQUARTERS

(218) 233-8681

FAX (218) 233 9548

1-800-232-3787

3804 HWY 75 NORTH
MOORHEAD, MN 56560

jimmc@bertsonline.com



“Celebrating 80 years 1939-2019”

Bert's Truck Equipment realizes that besides selling quality products, excellent product support and parts availability is crucial to our customers.

On average we stock over one million dollars of parts inventory and supplies. Because of our close proximity to our major suppliers, we are able to supply non-stocked parts in a timely manner, usually in one to two business days. Parts such as hydraulic cylinders, conveyor chains, spinner assemblies and other items that may be needed on short notice will also be supplied in a timely manner, usually in one to 7-10 business days.

In addition and specifically for the ND DOT, we will would constantly review and work with the ND DOT and our suppliers to make sure the parts you need are available in a timely manner. By doing this, almost any parts needed would be available in one to two days and in many cases the same day.

In addition we realize that excellent communication is important. We will make routine visits to the ND DOT facilities in Fargo and Bismack and also visit to the other districts as time allows or the need arises. Also, the representatives from the manufactures represented in this proposal will periodically make visits to ensure any issues that may occur are handled in a timely manner.

Parts and Service Locations

Bert's Truck Equipment, Inc
Josh Radcliffe, Service Manager
3804 Hwy. 75 North
Moorhead, MN 56560
218-233-8681
800-232-3787 (toll free)
218-233-9548 Fax

Parts Department

Dan Bentley, Parts Manager and Purchasing
Coordinator
218-233-8681
800-232-3787 (toll free)
218-233-9548 Fax
Email: danb@bertsonline.com

Key Contacts:

President:

Jeremy Gregoire, President and Operations
Manager
Barry Berg, Shop Forman and Body Shop
Manager
218-233-8681
800-232-3787 (toll free)
218-233-9548 Fax
Email: jeremy@bertsonline.com

Sales Department

Jim McLaughlin, Commercial, Fleet and
Government, Sales
218-233-8681
800-232-3787 (toll free)
218-233-9548 Fax
701-361-1847 (Jim's Mobile Number)
Email: jimmc@bertsonline.com

YOUR TRUCK EQUIPMENT HEADQUARTERS

(218) 233-8681
FAX (218) 233 9548
1-800-232-3787

3804 HWY 75 NORTH
MOORHEAD, MN 56560

jimmc@bertsonline.com



"Celebrating 80 years 1939-2019"

The Bert's Truck Equipment Team!

Jeremy Gregoire



President and Operations Manager: 25 years truck equipment experience. Jeremy serves as President and Operations Manager for the past 13 years. His duties include overseeing daily operations and coordinating all contract projects.

Barry Berg



Shop Forman: 26 years body shop and general shop experience management and plow truck design and installation. Barry works hands on with his technicians and works closely with the end user to make sure that specifications and installations are correct and are the highest quality of products and installation.

Andy Anderson:



Installation Technician: 20 years truck equipment experience. Andy specializes in Pre-wet system installation as well as electrical and hydraulic installation and plumbing of snowplow truck equipment.

Pat Hiller:



Installation Technician: 13 years truck equipment experience. Pat specializes in custom steel, aluminum and stainless steel fabrications and equipment installation

Dan Paquin:



Installation Technician: 28 years truck equipment experience. Dan specializes in custom fabrication, Hydraulics and equipment installation.

Jim McLaughlin



Commercial, Fleet and Government Sales: 29 years truck equipment sales experience: Jim handles commercial, fleet and government Sales for Bert's and works with our suppliers and manufactures to ensure the specifications are correct and prepares the necessary RFP's and bid documents.

Dan Bently:



Parts Department Manager/Purchasing: 24 years parts and Hydraulic components Sales experience. Dan orders all necessary parts and equipment and well as processes as well as coordinates all warranty requests.

Mitch Schulte

Vice President and National Sales manager for Falls Plows

Doug Loyes:

Outside Sales Representative Force America: 32 years hydraulic systems sales and service experience related to snow and ice control: Doug has served as the territorial manager for Forces America for the past six years. Doug specializes in system design and onsite training. Doug also does on site problem analysis and trouble shooting.

Joe Bonnell

President of Bonnell Industries. Bonnell Ind. Inc is a Family owned business. 60 years in Service. Currently in third generation ownership. The current owner, Joe Bonnell purchased Bonnell Ind. Inc. in 2009. Bonnell Ind. is a manufacturer of snow and ice control equipment. Bonnell also does truck equipment installation. Bonnell believes the difference in being successful is listening to the customer and building products that help the customer find value in ownership. Bonnell takes pride in quality and customer service. The company mission statement says it all. "We are committed to manufacturing, distributing, installing and servicing the best and most innovative solutions for our customers in the truck and road equipment industry, constantly striving to improve industry standards and to exceed the customer's expectations." Bonnell Ind. Inc. believes taking the path of quality and integrity is not always the easiest path to take – however Bonnell has always found success in treating people right.

YOUR TRUCK EQUIPMENT HEADQUARTERS

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1-800-232-3787

**3804 HWY 75 NORTH
MOORHEAD, MN 56560**

jimmc@bertsonline.com



"Celebrating 80 years 1939-2019"

Warranty Parts & Service Locations

Warranty Parts and Service available at:

Bert's Truck Equipment, Inc

3804 Hwy. 75 North

Moorhead, MN 56560

218-233-8681

800-232-3787 (toll free)

218-233-9548 Fax

Key Contacts:

Service Department:

Jeremy Gregoire, President and Operations Manager

Barry Berg, Plow Shop Forman and Body Shop Manager

218-233-8681

800-232-3787 (toll free)

218-233-9548 Fax

Email: jeremy@bertsonline.com

Josh Radcliffe, Service Manager

3804 Hwy. 75 North

Moorhead, MN 56560

218-233-8681

800-232-3787 (toll free)

218-233-9548 Fax

Parts Department

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218-233-9548 Fax

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jimmc@bertsonline.com



Bonnell parts availability.

March 6, 2019

Reference: State of North Dakota contract. (Bert's Truck Equipment)

Bonnell Ind. Inc. manufacture snow and ice control equipment here in Dixon Illinois. The Commander MCR-14 is a current production body. All the components used to manufacture this body – are current model design and in production. Many of the components used to manufacture the Commander Body – are available from several sources. As for Bonnell Performance - we stock parts here in Dixon Illinois and are capable of direct shipping parts where needed. Bonnell currently has over 2.8 million dollars of inventory. If notified before 2:00PM Bonnell can Next day ship stock parts – that same day.

Bonnell Service and Parts Dept.



"Celebrating 80 years 1939-2018"

Warranty Policies Summaries'

Major Manufactures Warranty Policies Summaries (See manufacture Warranty statements for complete policies)

Bonnell Industries

Two year Limited warranty on Commander Series Bodies and Pre-wet systems

Mailhot Cylinders

Two year limited warranty on Mailhot Cylinders.

Falls Snow and Ice Control Products

One year Limited Warranty on Plows, Plow wings, Scrapers, sanders, and hitch assemblies. **Falls SDLP-10 Post Wing will carry a two year limited warranty**
This is an Additional year Warranty for ND DOT Fleet!

Hydraulic Components-Force America

One year Limited Warranty on Pump, Valve Assemblies, Reservoir, Controls, and miscellaneous components.

Whelen Light Systems

Two year limited Warranty on lighting components. **Five year** limited warranty on LED Light heads.

Swenson Manufacturing Warranty

One year limited warranty on spreaders

Bert's Truck Equipment Installation and Fabrication

One year limited warranty for fabricated parts and installation procedures performed by Bert's Truck Equipment on material defects or faulty installation

THE TRUCK EQUIPMENT HEADQUARTERS

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MOORHEAD, MN 56560

jimmc@bertsonline.com

S D L P - 1 0 A - A D

A D D o t 2 y e a r w a r r a n t y

Falls® Limited Warranty

Little Falls Machine, Inc. warrants that all parts and equipment are tested and inspected. Little Falls Machine, Inc. will repair or, at the option of Little Falls Machine, Inc., replace those parts which prove defective due to material or workmanship under normal use for a period of one (1) year from the date of retail sale or date of invoice from Little Falls Machine, Inc. whichever is later. Expendable items such as pins, runners, cutting edges, or springs are excluded from this warranty. Trade accessories such as hydraulic cylinders, valves, motors, control cables are warranted to the extent of the manufacturer's stated warranty and not by Little Falls Machine, Inc.

Little Falls Machine, Inc. warrants that the products manufactured by us to be in accordance with our published specifications or those specifications agreed to by us in writing at the time of sale. The obligation of Little Falls Machine, Inc. is expressly limited to repairing or replacing, at its option, any product not meeting such specifications within the warranty period.

LIMITATIONS OF WARRANTY AND DAMAGES

LITTLE FALLS MACHINE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF.

IN NO EVENT SHALL LITTLE FALLS MACHINE, INC. BE HELD LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR DAMAGES RESULTING FROM MISAPPLICATION, ABUSE, MISUSE, ACTS OF GOD, UNAUTHORIZED ALTERATION OF THE FALLS PRODUCT, OR SUBSTITUTION OF PARTS NOT AUTHORIZED IN WRITING BY LITTLE FALLS MACHINE, INC.

To obtain service under this warranty the consumer must return the defective Falls product to the dealer from which the product was purchased or to any authorized Falls Snow Products dealer, transportation and freight charges prepaid. Only Falls Snow Products dealers are authorized to perform the obligations under this warranty.

No person is authorized to alter or amend this warranty or to create any warranty other than that set forth herein without the expressed written consent of Little Falls Machine, Inc.

Little Falls Machine, Inc. reserves the right to make improvement changes on any of our products without prior notice.

Falls® is the registered trademark of Little Falls Machine, Inc.

Crysteel Manufacturing Incorporated

5 Year

Customer Satisfaction Pledge

Crysteel's Customer Satisfaction Pledge is designed to be the most comprehensive warranty in the truck equipment industry. This pledge covers new products for a period of five (5) years, and is not restricted by vehicle mileage or when product is invoiced to our distributors. Our warranty begins when our product is put into service by the final customer.

This warranty covers our products for defective material and/or workmanship at a rate of 100 % for the first (3) years and at a rate of 50 % for years 4 and 5. This warranty covers:

- Crysteel manufactured product
- OEM Products purchased by Crysteel as part of our product
- The repair of warranted product
- The replacement of warranted product
- Labor to replace warranted product
- Freight for replacement product
- Warranted product return freight (if required)

This warranty is limited to product supplied under the Crysteel Mfg. name and does not cover distributor modifications. Primer warranty is limited to adherence to metal surfaces only and does not include the inside or understructure of dump bodies. Crysteel will not assume responsibility for travel, loss of use, or downtime expenses. This warranty is void if the product has been obviously abused or subjected to other than normal usage.

Procedures For Warranted Product:

1. Identify the serial number for the dump body, hoist, and/or warranted component's package and establish the vehicle's in-service date (vehicle's invoice date).
2. Contact Crysteel Customer Contact personnel to receive an authorization (RA) to return warranted product.
3. The Customer Contact person will create an order to replace the warranted product and determine the labor credit amount. The part(s) will then be shipped "no charge".
4. The Customer Contact person will create and mail a separate RA letter for each product being returned. The RA letter will contain shipping instructions.
5. If required, the distributor will affix the provided shipping label on the part to be returned and ship immediately as instructed on RA letter.
6. In order to receive credit for labor, the distributor must fax a copy of the shipping bill of lading to Crysteel. Fax #: 507-726-2490
7. After 30 days, Crysteel will invoice the distributor for any unreturned parts.



“Celebrating 80 years 1939-2019”

References

Hydraulics by Force America

Blaine Laaveg

Cass County Highway Dept
1201 Main Avenue West
West Fargo, ND 58078
701-298-2370

Jerry Edin

Itasca County Highway Dept
24650 County Road 76
Grand Rapids, MN 55744
218-327-4738

Ed Huotari

Clear Water County Highway Dept
113 7th ST NE
Bagley, MN 56621
218-694-6132

Charlie Charboneau

MN DOT-Detroit Lakes
1000 Highway 10 West
Detroit Lakes, MN 56501
218-846-3654

Bonnell Manufacturing (Commander Body)

Blaine Laaveg

Cass County Highway Dept
1201 Main Avenue West
West Fargo, ND 58078
701-298-2370

Steve Moore

City of Moorhead Public Works
700 15th Ave North
Moorhead, MN 56560
218-299-5421

Scott Duerre

Mountrail County Highway Dept
8103 61st Street SW
Stanley, ND 58784
701-639-2390

CITY OF DIXON

121 West Second Street
Dixon, IL 61021
Contact: Jeff Kuhn
Phone: 815-440-2364

BOONE COUNTY HIGHWAY DEPT

9759 Illinois Route #76
Belvidere, IL 61008
Contact: Scott Sell
Phone: 815-509-4723

ROAD DISTRICT OF GRAFTON TOWNSHIP

10109 Vine Street
Huntley, IL 60142
Contact: Tom Poznanski
Phone: 847-669-5070

MARENGO TOWNSHIP

4010 North Route #23
Marengo, IL 60152
Contact: Dave Schirmer
Phone: 815-568-8636

VILLAGE OF HUNTLEY

10987 Main Street
Huntley, IL 60142
Contact: Dan Ruggles
Phone: 847-669-3450

Crysteel Dump Bodies

Bob Ramstad

Norman County Highway Dept

814 East Main
Ada, MN 56510
218-784-7126

Jerry Edin

Itasca County Highway Dept

24650 County Road 76
Grand Rapids, MN 55744
218-327-4738

Jim Kielty

MN DOT-Duluth

1123 Mesabi Ave
Duluth, MN 55811
218-725-2821

Ed Huotari

Clear Water County Highway Dept

113 7th ST NE
Bagley, MN 56621
218-694-6132

Swenson Products

Charlie Charboneau

MN DOT-Detroit Lakes

1000 Highway 10 West
Detroit Lakes, MN 56501
218-846-3654

Blaine Laaveg

Cass County Highway Dept

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Itasca County Highway Dept
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Duluth, MN 55811
218-725-2821

Allan Erickson

City of Fargo, Central Shop
402 23rd Street North
Fargo, ND 58102
701-241-1459

Note: All Products and manufactures are currently being or have been used by ND Dot

THE TRUCK EQUIPMENT HEADQUARTERS

(218) 233-8681
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1-800-232-3787

3804 HWY 75 NORTH
MOORHEAD, MN 56560

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**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS FOR
SIX LIGHT HEAD 12 VOLT SYNCHRONIZED LED WARNING LIGHT SYSTEM
WHELEN DOT-LED™ OR PRE-APPROVED EQUAL**

Bidders Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances. (All new products must be provided to NDDOT for testing purposes. Only products approved as a result of this request will be accepted.

	COMPLY YES NO	SPECIFICATION DEVIATIONS
1) Two Whelen LED SS Micro Edge® 180° Light heads, or pre-approved equal.	✓	_____
a) Aluminum I-beam structured housing.	✓	_____
b) Shatter-resistant amber polycarbonate lenses with smooth exterior.	✓	_____
c) Each Micro Freedom shall contain super-LED lamps with each having eighteen lamps that are mounted in two straight rows of nine amber LED's over nine clear LED's that will mounted behind a highly polished dual reflector per head.	✓	_____
d) The combination of the two light heads must produce a 360° pattern output pattern.	✓	_____
e) Micro Edges to alternate with the rear LED light heads of the system.	✓	_____
f) Rectangular dimensions approximately 12.3"L x 4.67"H x 9.3"W.	✓	_____
2) Four rear Whelen 400 super-LED directional light heads with aluminum housings, or pre-approved equal.	✓	_____
a) Rectangular approximately 3 1/2" W x 5"H x 3 1/2"D housings.	✓	_____
b) Shatter-resistant polycarbonate lenses with smooth exterior.	✓	_____
i) Attached with stainless steel screws into a nylon mounting bracket.	✓	_____
c) Two pair, one pair amber and one pair clear.	✓	_____
i) Pairs independently controlled both from each other and from front.	✓	_____
d) Wide angle linear LED's capable of emitting 180° of light.	✓	_____
e) Heavy duty DOT solid state flasher with diagnostics.	✓	_____
3) No less than 240 lineal feet TPE 3 conductor 600V 14 AWG stranded, pre-tinned copper flexible to -40° with no less than 30 feet of same type cable for each micro edge.	✓	_____
4) Accessories		
a) Waterproof connectors, W441D/W442D/W441D/W446D, or pre-approved equal. Vendor to provide ample connector quantities for system installation to allow for disconnect of amber and clear light heads at LB box.	✓	_____
b) Two one-inch PVC LB conduit fittings.	✓	_____
c) The bid price shall include any miscellaneous items and special tools necessary to provide a complete installation.	✓	_____
5) NOTE: Panel switches and indicator lamps provided by others.		
6) Vendor is to provide hands-on technical assistance to the installers.	✓	_____
7) Manufacturer's written warranty of 2 years for complete system with 5 years on LED panels and LED ballasts.	✓	_____

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	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
c) Mounting: Shaft centerline at least three degree to the repto centerline not to create more than a four-degree angle. Shaft to have enough movement to allow removal of driveshaft without loosening or removing hydraulic pump.	✓	—	_____
i) Body vendor provided bracket fabricated on frame rails.	✓	—	_____
d) Reservoir: mounted between cab guard uprights, 10 gauge stainless steel, 40-gallon capacity with baffle. Tank dimensions and height to be determined on prototype. Tank to be secured down by steel straps.(see drawing)	✓	—	_____
i) Basket type filler breather cap.	✓	—	_____
ii) Magnetic drain plug, easily accessible.	✓	—	_____
iii) 3" OD with 2" ID NPT suction strainer with 100-mesh screen type filter.	✓	—	_____
iv) Separate return port for control drain line.	✓	—	_____
v) Sight temperature gauge externally mounted.	✓	—	_____
vi) 2" full flow brass ball valve for suction line shutoff.	✓	—	_____
vii) Electric level and temperature sending unit, wired to control panel and back lit for "low oil" and "oil temp" warning.	✓	—	_____
viii) In-tank return filter to handle flow requirements and have porting of at least 1 ¼". Filter to have both visual and electrical indicators. Filter element shall be 10 micron "absolute" rated for no less than 80 GPM. Filter assembly shall be TS-1600-25-1-0/ZSRE-409-10 approved equal.	✓	—	_____
ix) In-line pressure filter system to be installed between pump outlet and valve body inlet. Pressure filter to be mounted near hydraulic reservoir and orientated to allow for easy unobstructed service. Filter to have electrical restriction indicator viewable on in-cab LCD screen. Filter to be Eaton#300150 or equal. 60GPM flow minimum, 3,000 psi. Filter housing kit to be Force America # HP17125VG30EPUG5S2AE7050P or equal	✓	—	_____
x) Hydraulic system shall be filled with the hydraulic oil under current contract with NDDOT. The contract vendor is to provide oil to the installer at contract price. Pricing available from State Fleet or https://secure.apps.state.nd.us/csd/spo/services/bidder/listCurrentContracts.htm . Oil to be Cenex, Quicklift® HTB Low Viscosity winter fluid.	✓	—	_____
e) Electro/Hydraulic Valves: Shall be Force America add-a-fold or approved equal. The control valves shall be pulse-width modulated and where indicated proportionally controlled. All segments shall have heavy-duty continuous coils and connections shall be Hirshman or ITT Cannon type connectors. Each segment shall be equipped with a manual override. Each segment shall have adjustable flow control. Valve sections to be arranged as follows:	✓	—	_____
i) Hoist, 4-way double acting with down side 500 psi relief, proportional control.	✓	—	_____
ii) Plow lift, 3-way.	✓	—	_____
iii) Plow angle, 4-way.	✓	—	_____
iv) Scraper lift, 4-way, adjustable to maintain a constant psi of 300-500 hydraulic pressure down on road.	✓	—	_____

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	COMPLY	YES	NO	SPECIFICATION DEVIATIONS
v) Scraper angle, adjustable cross-port relief set @ 1200 psi. or at scraper manufacturers recommendation.	✓			
vi) Wing toe (post), 4-way, adjustable work port relief up and down.	✓			
vii) Wing heel, 4-way, proportional control, adjustable work port relief up and down.	✓			
viii) Auger, proportional, 4-way with minimum flow rate of 21 GPM, adjustable work port relief.	✓			
(1) Plumbed and wired for auger reverse.	✓			
ix) Anti-ice, proportional, 2-way with minimum flow rate of 14 GPM.	✓			
x) Spinner, proportional, 2-way with minimum flow rate of 7 GPM.	✓			
(1) Note: The last two functions, Anti-ice and Spinner will be supplied with a two-function manifold using Hirschman or ITT cannon type connectors. This manifold would also include an integral end cover function.	✓			
xi) Valve Enclosure to have the capability of housing 9 to 13 valve sections: Designed to be weatherproof and protect the valves and valve operators from road contaminants. Located vertically on cab guard on drivers side (see attached photo). Must provide rubber bumper to protect cab from valve enclosure door.	✓			
(1) Easy serviceability with unobstructed access to all valves under cover.	✓			
(2) Valve Enclosure to have removable weather-tight access panel on inboard side to permit field removal of spool valves without removing valve manifold assembly from enclosure.	✓			
f) Spreader Control				
i) Force America 6100 or pre-approved equal. The electronic spreader control shall be designed for precise, closed loop control of granular material and direct liquid application. The unit must be protected from reverse polarity, as well as over-voltage protected.	✓			
ii) The unit must be supplied with easy to service speedometer connection, valve control connection, and main power connection.	✓			
iii) The unit must have full featured micro-processor control and provide operational modes for manual, open loop, or closed loop. In addition, the unit must be compatible with information management systems (GPS), provide rotary auger speed adjustment, rotary spinner speed adjustment, and ground based blast mode momentary, timed, or distance. Must have standby mode.	✓			
iv) Temperature sensor, which shall be capable of displaying ambient air and pavement temperature simultaneously and must be compatible with the specified Force America 6100 sander controller. Temperature sensor shall be mounted to the mirror bracket of the truck and wire routed into the cab and connected directly to the 6100 sander control core module. Wireless sensor connection is accepted.	✓			
v) Features				
(1) Remote mounted, 10" color LCD to display all spreader functions.	✓			
(2) Five current compensated valve drive outputs.	✓			
(3) Three types of material and ten programmable spread rates.	✓			

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	COMPLY	NO	SPECIFICATION
	YES	NO	DEVIATIONS
(4) Bi-directional RS232 for data collection.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(5) The electronic spreader firmware shall be upgradeable by downloading files from the supplier's web site at no charge to NDDOT for the life of the unit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(6) Closed loop granular feedback sensor and cabling.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(7) Programming shall provide for automatic default to open loop in the event of a feedback failure.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(8) Unit must have the ability to cross calibrate from closed loop to open loop operation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(9) Multi-lane dual boom direct liquid.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(10) Supervisor access security key for each district.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(11) Unit shall have a stationary unload feature for granular, prewet, and anti-ice functions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(12) Application rate limit adjustable from 20-3000 lb/mile. Hydraulic vendor to assist with final calibration upon delivery.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
g) Control Center			
i) Force America Patrol Commander Ultra Series or pre-approved equal. The control center must be an integral unit used for controlling the work functions of the electro/hydraulic control valves. The control center is to have the capabilities to install the spreader control box as a separate item to the control panel. The control panel is to have the capabilities to joystick control the miniature proportional joysticks for valve control of the dump box, front plow, underbody scraper, wing toe, and wing heel along with underbody scraper and wing disabling switches. Two-step select and operate systems are not acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
ii) Single miniature joystick shall control the hoist with center interlock or dead-man switch, and also contain integral dual axis miniature proportional joystick controls for plow, underbody scraper and wing along with three push button switches for spreader blast, standby, and box vibrator. The scraper control must be held in the down position for 3 seconds to activate automatic scraper down pressure mode. The controller must activate pre-wet ball valve in conjunction with the sander.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
iii) There shall be a pressure transducer installed in the scraper circuit to monitor the down pressure on the scraper. The transducer shall be wired into the valve module and the scraper pressure shall be read on the 10" color LCD spreader display.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
h) Wiring			
i) All wiring shall have color-coding with amp style connectors to connect the control panel and to valve enclosure. All connector pins shall be gold style to ensure good connections between the connecting halves. All wiring inside the valve enclosure shall have LED lights to indicate which valves are operating when function is required. All wiring inside of the enclosure shall be connected to the amp style connector to facilitate proper connection between the inside of the box and the outside of the box.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
ii) The wire ends are to be ITT or Cannon type connectors to connect the wire harness to the valves. The wire harness shall be wrapped to provide protection of the wires and used as a way to bundle the wires in a neat package.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____

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	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
iii) The main control panel shall have its own power source with on/off to be controlled by ignition key switch via relay.	✓		
iv) Parts manuals, service literature, driver, and 6 hours service training per location must be supplied at no extra charge. Payment contingent on performance.	✓		
v) Each truck style box shall be wired identically and have the same color/size wiring to each circuit.	✓		
i) Seat mounted hydraulic and sander controls to move with the seat suspension. The length and height not to obstruct the view of the operator dashboard. The position to be determined by the vendor and NDDOT. Bracket to be made of aluminum.	✓		
i) The design and location must be approved on prototype (see attached photo). All openings shall be grommetted and sealed with an appropriate caulking. Final mount to be approved.	✓		
j) Switches and Indicator Lights			
i) The switch panel will be included, installed, pre-wired and circuit breaker protected by OEM of truck.	✓		
ii) Panel Switches:			
(1) Front and rear amber warning.	✓		
(2) Rear clear warning.	✓		
(3) Work light.	✓		
(4) Momentary switch for box vibrator.	✓		
(5) Momentary switch for hydraulic pump override.	✓		
(6) Air tailgate.	✓		
iii) Body vendor to provide the following:			
(1) Switches and indicators to be mounted in control panel. All switches, functions & names shall be backlit/illuminated.	✓		
(a) Auto recall switch(ability to lift all plows)	✓		
(b) Wing disable switch.	✓		
(c) Underbody disable switch.	✓		
(d) Auxiliary switch.	✓		
(e) Spreader switch.	✓		
(f) All switch labeling to include OEM switches if not provided by truck manufacturer. Any additional labels provided by the truck manufacturer to be left in truck cab for future labeling of any unused switches.	✓		
(2) Indicator lights for body up/down (red), low hydraulic oil, oil temp, located in the panel. The warning lights shall flash when activated, audible alarms to be disabled.	✓		
(3) An 80-amp thermal breaker with manual reset shall be provided in the wire between the power source and the switch panel. (Mounting location to be approved by NDDOT)	✓		
(a) Power wire from battery to 80amp thermal breaker shall be protected by 100 amp fuse located in battery box to protect circuit between battery and thermal breaker	✓		
(4) One wire shall be run from the switch accessory and one wire form the battery to the switch panel.	✓		

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k) Special Accessory Wiring

i) Requirements – a 75 amp constant duty relay shall be provided to remove specified accessory circuits from the ignition key switch to prevent switch overloads, yet retaining key switch on/off control. Circuits controlled through relay shall include all console switches and functions, except plow lights and FM radio power source. Accessible terminals shall also be available for controlling additional department-installed equipment. This relay may be part of the hydraulic control counsel circuitry.

ii) Headlight switching control will be part of the OEM truck bid.

l) Hydraulic hoses to be U.S. made WeatherHead™, Parker™ or approved equal as follows:

i) 2" suction line – SAE 100 R4

ii) 1" pressure (pump to valves) – SAE 100 R2

iii) Hoist (not smaller than port size) – SAE 100 R2

iv) Return line 1 ¼" – SAE 100 R1

v) Plow lift, reversing ½" – SAE 100 R2

(1) Reversing hoses terminated with Pioneer 9500 series ½" female lever quick coupler breakaway kit No. 9500-4 mounted to driver's side of quick hitch at height of the top of truck frame. (See photo)

m) Hydraulic lines for the sander shall be routed through the rear box corner with through fittings, Parker brass anchor connectors 207ACBH or equal into box corner and flat face quick couplers with tethered dust caps at that point. They should be routed to the side, which is most efficient for the type of sander to be installed. A protective shield shall be installed to protect hoses from wheel spray. The return shall be split outside of box and have one 1" and one ½" coupler to allow for two return hoses from tailgate sander. (Mounting location to be approved by NDDOT)

i) Two main supply sander lines shall be ¾" schedule 80 high-pressure pipe. Return line pipe to be 1" no less than SAE R1. Black pipe acceptable, to be spaced for material to fall through. Design to be approved on prototype.

ii) Hose from valve body and from sander connection, high-pressure line shall be two wire SAE 100 R2 rated.

iii) Hose from reservoir and from sander connection to the return line shall be no less than one wire 1250 psi and must be plumbed in ahead of the return line filter.

iv) Sander lines are to be fastened with hold-downs, which are removable for maintenance and shall keep the lines free from interference of hoist functions.

n) All pressure line fittings shall use high-pressure steel adapter fittings with swivel couplings to allow easy hose or component removal. (JIC 37° flare fittings wherever possible and practical) Return lines must use appropriate fittings for pressure present. All hoses from the back of the black pipe to the anchor connectors in the box must have 37° flare swivel fittings throughout.

o) All test ports for testing shall be accessible for connecting test gauge.

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- p) All hydraulic hoses to be routed, secured, and protected from pinching or abrasion. Securing of hoses to be designed to withstand severe ice and snow buildup. Use heavy J-hook style hose hangers as necessary. Routing and support to be approved.

✓

9) Dump Box

- a) 8 cubic yard capacity with 10 yard ends.
- b) Approximate inside dimensions: 14' x 7' x 2'-4". Width of box to extend over rear duals.
- c) Front and rear ends to be minimum 6" higher than sides and equipped with pockets for 2" wide sideboards.
- d) 1/4" stainless steel floor, 7-gauge stainless steel sides and tailgate, with steel certification.
- e) 30-degree minimum slope on side running boards.
- f) Boxed top rail at sides and front.
- g) Sides to have a boxed type 8 gauge full length horizontal side brace with a minimum 30-degree top slope. The bottom sill shall have an additional 3" x 1/2" x 6' loader strike plate. Both sides.
- h) Front head to have a centered V-type brace.
- i) Free standing/stationary cab guard shall be approximately 24" with width to widest point of cab and adequate height to provide proper cab clearance. Cab guard shall allow for the chassis exhaust system to pass through or alongside to give the best cab protection without modification of the exhaust system. If the exhaust system must be modified it must be approved. All modifications are at the box vendor's expense. (See drawing)
 - i) Cab shield panel to be minimum 10 gauge stainless steel.
 - ii) Uprights shall be standard 6" channel to top part of cab and for cross member.
 - (1) Upright flanges shall face away from center of chassis.
 - (2) Each upright shall be bolted with a minimum of 4 each of 5/8" grade 8 bolts to chassis rails.
 - (3) 6" channel to be placed between the uprights (flanges down) on the top of the frame rails and properly welded to uprights. This channel shall not be welded to frame rails. Hydraulic tank brackets to be welded to topside of channel.
 - iii) Top cross member shall be welded to uprights and gusseted with two 1/4" plates of 6" x 6" x 8 1/2" dimensions at rear part of assembly.
 - iv) Cab shield shall be continuously welded or bolted with grade 8 bolts to uprights and top cross member.
 - (1) Reinforced and welded to cross member with two 3" - 4.1# channel irons, which are extended the full length of the cab shield and align with the 6" channel uprights.
 - (2) Adequately gusseted from 3" channel iron to 6" channel iron.
 - (3) Welded to 3" channel irons with flanges downward.
 - (4) Have provisions that do not allow ponding of water.
 - v) 1/4" x 2" x 2" angle iron shall be welded at bottom of cab shield between uprights to support cab shield.
 - vi) Rubber seal/wiper between shield and dump body. Shall not allow accumulation of material between body and cab guard.
 - vii) Shovel holder for long handle square spade attached to upright.

✓

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- (1) Minimum 9 diode high count LED lamps, Grote G3002 red, Grote G3003 yellow or equal. ✓
- iii) **Relocate factory LED Stop/Turn/Tail & Backup lights** to have a 4" x 1/4" stainless steel bolted on rectangular shield around them. Taillights mounted on the outer edge of the box with bolt on brackets leaving a 1" air gap between housing and box side. Height 68" – 72" from ground level to center of S/T/T light. Exact location to be approved. ✓
 - (1) Stop/Turn/Tail light to be Whelen 700 series, (7" x 3") or pre-approved equal mounted in 700 series rectangular stainless steel housing. Located below the white warning light on rear telespar. ✓
- b) Front Plow Lights – **NOTE:** All wiring to have protective covering and routed so as not to be pinched or worn prematurely from rubbing or chafing. Truck will be factory wired for plow lights to the hood hinge area with switch installed on instrument panel.
 - i) **Truck Lite #80990** snowplow lights or equal. ✓
 - ii) Housings to be corrosion and impact resistant. ✓
 - iii) LED lamps. ✓
 - (1) High/low beam, 12 volt. ✓
 - (2) Turn signal/parking lamp. ✓
 - iv) Light support – **2"x2"x1/4" Aluminum** angle to be fastened with existing grill bolts. Angle to be approximately 2' long, not to exceed hood height. Light mounted to **1 1/2" aluminum square tubing**. Angle welded to top of square tubing and angle braced to extend light to position directly above OEM headlights. All fasteners attached to factory hood/grille must use rubber or other insulating/dampening material between hood/grille and plow light bracket. Design to be approved. ✓
 - v) Wiring to be connected to OEM wiring at hood hinge area and can be disconnected using a GM WeatherPack connector or approved equal. ✓
 - vi) All wire splices shall be soldered and protected with heat shrink covering. ✓
 - vii) Wires to be properly grounded. ✓
- c) Top/Rear plow light system. **SIX LIGHT HEAD SYNCHRONIZED LED WARNING LIGHT SYSTEM** (Must meet specification SSP-01) **NOTE:** All wiring for strobe lights shall be protected from abrasion and shielded from mud and ice buildup. All holes for wiring must be grommited. ✓
 - i) Four rear mounted remote LED Warning light head assemblies, two amber and two clear. Continuous individual wiring from each light to the rear electrical housing and then to the control panel. ✓
 - ii) Two cab guard mounted 180 degree LED warning light head assemblies. Continuous individual wiring from each light to the control panel. ✓
 - (1) Mount level to front corners of cab guard, extendable from width of cab guard to outside width of mirrors through use of tube-in-tube design. Design must be approved. (See photo example) ✓

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- g) Safety prop(s) to support body at 20-degree angle, frame mounted, self-aligning for one person operation, easily accessible. Prototype to be approved.



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12) General

- a) Paint – All non-stainless steel to be primed and painted; **any modified pieces and spot painting must be painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: <https://www.ppgpmc.com>.**
- b) Spot painting must include hardener and be applied with spray gun.
- c) Mud flaps front and rear of rear tires, 24" wide by 30" long, made of 5/16" quality rubber. Stainless steel brackets. The rear flaps must be quick to remove through the use of a 1/2" round rod and spring clip and free swinging. The front flaps fastened permanently with anti-sail devices mounted to prevent tire contact.
- d) Tool box 18" x 18" x 24". All **Stainless Steel** 14 gauge construction, bottom hinged door. Full-length corrosion resistant hinge. Key lockable paddle latch with adjustable striker plate. Full neoprene door seal. Two chain or cable door retainers. Drip rail or door recess. Acceptable brand: Buyer. Other brands must be pre-approved.
 - i) Mounted with 2" mild steel channel, two cross supports under floor of box and gusseted. Mounting contact areas between tool box and steel to be isolated with fuel tank rubber belting or similar
- e) Must use stainless steel fasteners when mounting to stainless steel. Except where strength is needed.
- f) Appropriate steps must be taken to keep mild steel and stainless steel cross contamination from occurring.
- g) Install 45' of reflexite V82 red and white reflective conspicuity tape on box. Location to be approved by NDDOT.
- h) **Wiring harnesses not to be tied to hydraulic lines.**

✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		

13) Snow Plow Quick Hitch, Falls 26B, Monroe FLS26BND, Henderson H46B-ND, or equal. Remount trucks tow hooks. **Mounting and location to be approved.**

- a) Snowplow connecting mechanism shall be the Rapid Push Bar Quick Coupler as manufactured by Little Falls Machine, Inc., Monroe, Henderson or equal.
- b) Quick coupler system shall incorporate push arm receptor sockets with spring loaded tapered pins for proper pin alignment. Grease zerks installed for pin lubrication. Pin retractor mechanism shall be conveniently located for ease of operation.
- c) Mounting system shall adapt to frame rails of truck chassis and shall be adequately braced with grade 8 frame bolts meeting SAE J-429 specification to the truck chassis frame by minimum 3/4" x 4" A-36 steel bars which will be additionally reinforced. Stabilizer arms shall be attached to the frame by means of 1/2" thick steel Z brackets. **Push arms tight against hitch frame.** Vertical risers and plow lifting yoke shall be low profile to allow clearance for tilting hood without tilting or disconnecting plow hitch.
- d) Universal lift arm to be adjustable inward/outward using heavy-duty square tube within square tube with pin adjustment. Shall be capable of lifting reversible or V-plows weighing as much as 3000 lbs.
- e) Hydraulic plow lift cylinder shall be minimum 4" x 10" single acting type with chrome-plated rod. Hydraulic cylinder shall be certified to a minimum of twice (2X) the working pressure (2250PSI) of the hydraulic system.

✓		Falls 26B-ND
✓		
✓		
✓		
✓		
✓		

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- f) Hydraulic ball valve at lift cylinder to shut off oil flow when plow is not in use. ✓
- g) Mounting height shall be 15" to center of connecting pin. Hitch to be cushioned with rubber bumper anywhere tilting engine hood may strike when opened. ✓
- h) Complete hitch shall be primed and painted to match the truck frame. ✓

14) REAR HITCH PLATE

Trailers pull plate, pintle hitch, D-rings, electrical connector, and glad hands installed on the truck. See enclosed drawing. Note: disregard the location of the light plug-ins on the drawing. The successful vendor must approve the entire hitch design with NDDOT and build a prototype for approval on the first truck.

- a) Must be made using 3/4" material for the plate and gussets. ✓
- b) Must provide a Holland PH410 pintle hitch rated at 20,000lb vertical load and 100,000lb gross trailer weight installed with grade eight bolts and lock nuts. ✓
- c) Two D-rings on each side of the pintle hitch rated for 100,000lb of gross trailer weight between the two. Tandemloc® 9202-DS79 or equal ✓
- d) 2.5" receiver welded into the plate below the pintle hitch. To be used for towing as well as spinner mounting. ✓
- e) Pull plate must be properly braced and welded to be rated for 100,000lb gross trailer weight. ✓
- f) The round seven pin trailer light connector and two glad hands are to be mounted in hitch plate. Air glad hands one on either side of pintle hitch. 7 pin trailer connections to be above LH glad hand. 7 pin trailer connection must not be positioned above pintle hitch for clearance issues with trailer tongue. See attached picture for guidance. Final location and process must be approved by NDDOT. ✓

15) Warranty

- a) One-year full unconditional warranty, manufacturer's warranty shall apply if for longer period. ✓

5 year limited warranty on Body + Hoist

16) Delivery

- a) Truck must be test driven and all hydraulic, brine, plow, sander, and electrical functions must be tested to make sure they work properly, and that there are no fluid leaks. All vendor installed attachments to be greased/lubricated. **Grease bank hoses must be primed/prefilled.** Truck must pass a final inspection performed by NDDOT employees before delivery can be made. ✓

BODY MAKE: Crysteel MODEL: select stainless steel 14'
 HOIST MAKE: Crysteel MODEL: M63138DA
 PUMP MAKE: Force America MODEL: FAS045-R-CS-Repto-kit
 QUICK HITCH MAKE: Falls MODEL: ^{5 pin} 46B 26B-ND
 LED WARNING LIGHT SYSTEM MANUFACTURER: Whelen

Bert's Truck Equip. of Mhd
 3804 Hwy 75 N
 Moorhead, Mn 56560

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR
HYDRAULICS AND DUMP & SPREADER BOX FOR UNDERBODY & WING
(FOR TANDEM AXLE TRUCK – APPROXIMATELY 58,000 LBS G.V.W.)**

Bidders Instructions: Indicate compliance to the specifications on the “COMPLY YES/NO” line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the “SPECIFICATION DEVIATIONS” line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

General Information:

The hydraulics, box, and installation by the successful bidder must be complete in every aspect of the following specifications. All stainless steel components to be made of 201 or 304 grade. The painting of all installed accessories shall be complete and absolute, including primer. All minor items including, but not limited to, conduit, connectors, tape, paint, fittings, fuses, etc., are the responsibility of the bidder. When specifications do not clearly identify the proper installation or it is obvious there is an error, Tim Paul at State Fleet Services (701-328-1465) must be contacted for direction. A plan for mounting locations of the tool box, hydraulic reservoir, valve enclosure, ladder, etc. must be submitted to State Fleet and a prototype will be approved. It shall be the responsibility of the installer to relocate OEM and non-OEM components to accommodate the accessories if required by NDDOT. Frame modifications to accommodate pump, or other equipment installation are not acceptable. Complete hydraulic system provided to be from one common supplier or source. No additional monetary amount will be allowed.

	COMPLY YES	NO	SPECIFICATION DEVIATIONS
17) Hydraulics – Rear engine power take off (Repto).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
a) Hydraulic pump: Force America FASD45R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
i) 6.0 CID.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
ii) 24.7 GPM at 1000 RPM.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
iii) Load sensing with adjustable compensator with system pressure set for optimum performance of installed components.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
iv) 1 ¼” keyed shaft w/hardened formed key.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
v) Side ported.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
vi) Automatic electric pump outlet shut off if oil level drops to an insufficient level, with override switch.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
vii) Pump to be mounted with pressure compensator orientated to top side	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
b) Balanced driveline: Spicer 1310/1350/1380 series or equal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
i) Splined slip yoke on one end of driveline to allow for movement.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
ii) 4 bolt flange for mounting on both ends of drive line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
iii) Non greaseable U-joints	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
iv) Two sets screws on hydraulic pump flange 90° apart.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
v) Tube to be filled with material to prevent driveline moan.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
v) Use anti-seize when assembling removable parts and pump housing to mounting bracket.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
vi) REPTO adapter to be forged steel construction the installer responsible to provide adaptor if needed.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
c) Mounting: Shaft centerline at least one degree to the repto centerline not to create more than a three-degree angle. Shaft to have enough movement to allow removal of driveshaft without loosening or removing hydraulic pump.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____

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Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

SSP-22-2ADSUBW

	COMPLY	YES	NO	SPECIFICATION	DEVIATIONS
iii) Body vendor provided bracket fabricated to mount in the extended frame rails.	✓				
d) Reservoir: mounted between cab guard uprights, 10 gauge steel, 40-gallon capacity with baffle. Tank dimensions and height to be determined on prototype. Tank to be secured down by steel straps.(see drawing)	✓				
iii) Basket type filler breather cap.	✓				
iv) Magnetic drain plug, easily accessible.	✓				
v) 3" OD with 2" ID NPT suction strainer with 100 mesh screen type filter.	✓				
vi) Separate return port for control drain line.	✓				
vii) Sight temperature gauge externally mounted.	✓				
viii) 2" full flow brass ball valve for suction line shutoff.	✓				
ix) Electric level and temperature sending unit, wired to control panel and back lit for "low oil" and "oil temp" warning.	✓				
x) In-tank return filter to handle flow requirements and have porting of at least 1 1/4". Filter to have both visual and electrical indicators. Filter element shall be 10 micron "absolute" rated for no less than 80 GPM. Filter assembly shall be TS-1600-25-1-0/ZSRE-409-10 approved equal.	✓				
xi) In-line pressure filter system to be installed between pump outlet and valve body inlet. Pressure filter to be mounted near hydraulic reservoir and orientated to allow for easy unobstructed service. Filter to have electrical restriction indicator viewable on in-cab LCD screen. Filter to be Eaton#300150 or equal. 60GPM flow minimum, 3,000 psi. Filter housing kit to be Force America # HP17125VG30EPUG5S2AE7050P or equal	✓				
xii) Hydraulic system shall be filled with the hydraulic oil under current contract with NDDOT. The contract vendor is to provide oil to the installer at contract price. Pricing available from State Fleet or https://secure.apps.state.nd.us/csd/spo/services/bidder/listCurrentContracts.htm . Oil to be Cenex, Quicklift® HTB Low Viscosity winter fluid.	✓				
e) Electro/Hydraulic Valves: Shall be Force America add-a-fold or approved equal. The control valves shall be pulse-width modulated and where indicated proportionally controlled. All segments shall have heavy-duty continuous coils and connections shall be Hirshman or ITT Cannon type connectors. Each segment shall be equipped with a manual override. Each segment shall have adjustable flow control. Valve sections to be arranged as follows:	✓				
iii) Hoist, 4-way double acting with down side 500 psi relief, proportional control.	✓				
iv) Plow lift, 3-way.	✓				
v) Plow angle, 4-way.	✓				
vi) Scraper lift, 4-way, adjustable to maintain a constant psi of 300-500 hydraulic pressure down on road.	✓				
vii) Scraper angle, adjustable cross-port relief set @ 1200 psi or at scraper manufacturer's recommendation.	✓				
viii) Wing toe (post), 4-way, adjustable work port relief up and down.	✓				

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	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
ix) Wing heel, 4-way, proportional control, adjustable work port relief up and down.	✓	—	_____
x) Auger, proportional, 2-way with minimum flow rate of 21 GPM, adjustable work port relief.	✓	—	_____
xi) Anti-ice, proportional, 2-way with minimum flow rate of 14 GPM.	✓	—	_____
xii) Spinner, proportional, 2-way with minimum flow rate of 7 GPM.	✓	—	_____
(1) Note: The last two functions, Anti-ice and Spinner will be supplied with a two-function manifold using Hirschman or ITT cannon type connectors. This manifold would also include an integral end cover function.	✓	—	_____
xiii) Valve Enclosure to have the capability of housing 10 to 11 valve sections: Designed to be weatherproof and protect the valves and valve operators from road contaminants. Located vertically on cab guard on drivers side (see attached photo). Must provide rubber bumper to protect cab from valve enclosure door.	✓	—	_____
(1) Easy serviceability with unobstructed access to all valves under cover.	✓	—	_____
(2) Valve Enclosure to have removable weather-tight access panel on inboard side to permit field removal of spool valves without removing valve manifold assembly from enclosure.	✓	—	_____
f) Spreader Control			
iii) Force America 6100 or pre-approved equal. The electronic spreader control shall be designed for precise, closed loop control of granular material and direct liquid application. The unit must be protected from reverse polarity, as well as over-voltage protected.	✓	—	_____
iv) The unit must be supplied with easy to service speedometer connection, valve control connection, and main power connection.	✓	—	_____
v) The unit must have full featured micro-processor control and provide operational modes for manual, open loop, or closed loop. In addition, the unit must be compatible with information management systems (GPS), provide rotary auger speed adjustment, rotary spinner speed adjustment, and ground based blast mode momentary, timed, or distance. Must have standby mode.	✓	—	_____
vi) Temperature sensor, which shall be capable of displaying ambient air and pavement temperature simultaneously and must be compatible with the specified Force America 6100 sander controller. Temperature sensor shall be mounted to the mirror bracket of the truck and wire routed into the cab and connected directly to the 6100 sander control core module. Wireless sensor connection is accepted	✓	—	_____
vii) Features			
(1) Remote mounted, 10" color LCD to display all spreader functions.	✓	—	_____
(2) Five current compensated valve drive outputs.	✓	—	_____
(3) Three types of material and ten programmable spread rates.	✓	—	_____
(4) Bi-directional RS232 for data collection.	✓	—	_____
(5) The electronic spreader firmware shall be upgradeable by downloading files from the supplier's web site at no charge to NDDOT for the life of the unit.	✓	—	_____

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	COMPLY	NO	SPECIFICATION
	YES	NO	DEVIATIONS
(6) Closed loop granular feedback sensor and cabling.	✓	—	_____
(7) Programming shall provide for automatic default to open loop in the event of a feedback failure.	✓	—	_____
(8) Unit must have the ability to cross calibrate from closed loop to open loop operation.	✓	—	_____
(9) Multi-lane dual boom direct liquid.	✓	—	_____
(10) Supervisor access security key for each district.	✓	—	_____
(11) Unit shall have a stationary unload feature for granular, prewet, and anti-ice functions.	✓	—	_____
(12) Application rate limit adjustable from 20-3000 lb/mile. Hydraulic vendor to assist with final calibration upon delivery.	✓	—	_____
g) Control Center			
iii) Force America Patrol Commander Ultra Series or pre-approved equal. The control center must be an integral unit used for controlling the work functions of the electro/hydraulic control valves. The control center is to have the capabilities to install the spreader control box as a separate item to the control panel. The control panel is to have the capabilities to joystick control the miniature proportional joysticks for valve control of the dump box, front plow, underbody scraper, wing toe, and wing heel along with underbody scraper and wing disabling switches. Two-step select and operate systems are not acceptable.	✓	—	_____
iv) Single miniature joystick shall control the hoist with center interlock or dead-man switch, and also contain integral dual axis miniature proportional joystick controls for plow, underbody scraper and wing along with three push button switches for spreader blast, standby, and auxiliary function. The scraper control must be held in the down position for 3 seconds to activate automatic scraper down pressure mode. The controller must activate pre-wet ball valve in conjunction with the sander.	✓	—	_____
v) There shall be a pressure transducer installed in the scraper circuit to monitor the down pressure on the scraper. The transducer shall be wired into the valve module and the scraper pressure shall be read on the 10" color LCD spreader display.	✓	—	_____
h) Wiring			
iii) All wiring shall have color-coding with amp style connectors to connect the control panel and to valve enclosure. All connector pins shall be gold style to ensure good connections between the connecting halves. All wiring inside the valve enclosure shall have LED lights to indicate which valves are operating when function is required. All wiring inside of the enclosure shall be connected to the amp style connector to facilitate proper connection between the inside of the box and the outside of the box.	✓	—	_____
iv) The wire ends are to be ITT or Cannon type connectors to connect the wire harness to the valves. The wire harness shall be wrapped to provide protection of the wires and used as a way to bundle the wires in a neat package.	✓	—	_____
v) The main control panel shall have its own power source with on/off to be controlled by ignition key switch via relay.	✓	—	_____

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	COMPLY		SPECIFICATION
	YES	NO	DEVIATIONS
vi) Parts manuals, service literature, driver, and 6 hours service training per location must be supplied at no extra charge. Payment contingent on performance.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
vii) Each truck style box shall be wired identically and have the same color/size wiring to each circuit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
i) Seat mounted hydraulic and sander controls to move with the seat suspension. The length and height not to obstruct the view of the operator dashboard. The position to be determined by the vendor and NDDOT. Bracket to be made of aluminum.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
iii) The design and location must be approved on prototype (see attached photo). All openings shall be grommetted and sealed with an appropriate caulking. Final mount to be approved.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
j) Switches and Indicator Lights			
iii) The switch panel will be included, installed, pre-wired and circuit breaker protected by OEM of truck.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
iv) Panel Switches:			
(1) Front and rear amber warning.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(2) Rear clear warning.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(3) Work light.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(4) Momentary switch for box vibrator.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(5) Momentary switch for hydraulic pump override.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(6) Air tailgate.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
v) Body vendor to provide the following:			
(1) Switches and indicators to be mounted in control panel. All switches, functions & names shall be backlit or illuminated.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(a) Auto recall switch (give you the ability to lift all plows).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(b) Wing disable switch.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(c) Underbody disable switch.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(d) Liquid switch.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(e) Spreader switch.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(a) All switch labeling to include OEM switches if not provided by truck manufacturer. Any additional labels provided by the truck manufacturer to be left in truck cab for future labeling of any unused switches.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(2) Indicator lights for body up/down (red), low hydraulic oil, oil temp, located in the panel. The warning lights shall flash when activated, audible alarms to be disabled.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(3) An 80-amp thermal breaker with manual reset shall be provided in the wire between the power source and the control center.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(a) Power wire from battery to 80amp thermal breaker shall be protected by 100 amp fuse located in battery box to protect circuit between battery and thermal breaker	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
(4) One wire shall be run from the switch accessory and one wire form the battery to the switch panel.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____

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k) Special Accessory Wiring

iii) Requirements – a 75 amp constant duty relay shall be provided to remove specified accessory circuits from the ignition key switch to prevent switch overloads, yet retaining key switch on/off control. Circuits controlled through relay shall include all console switches and functions, except plow lights and FM radio power source. Accessible terminals shall also be available for controlling additional department-installed equipment. This relay may be part of the hydraulic control counsel circuitry.

✓

iv) Headlight switching control will be part of the OEM truck package.

✓

l) Hydraulic hoses to be U.S. made Weatherhead, Parker or approved equal as follows:

iii) 2" suction line – SAE 100 R4

✓

iv) 1" pressure (pump to valves) – SAE 100 R2

✓

v) Hoist (not smaller than port size) – SAE 100 R2

✓

vi) Return line 1 ¼" – SAE 100 R1

✓

vii) Plow lift, reversing ½" – SAE 100 R2

✓

(1) Reversing hoses terminated with Pioneer 9500 series ½" female lever quick coupler breakaway kit No. 9500-4 mounted to driver's side of quick hitch at height of the top of truck frame. (See photo)

✓

viii) Hose from valve body to sander connection high-pressure line shall be sized according to body manufacturer recommendation and be two wire SAE 100 R2 rated.

✓

(1) Any piping must be schedule 80 high-pressure pipe to be spaced for material to fall through. Design to be approved on prototype.

✓

ix) Hose from reservoir and from sander connection to the return line shall be no less than one wire 1250 psi and must be plumbed in ahead of the return line filter.

✓

m) All pressure line fittings shall use high-pressure steel adapter fittings with swivel couplings to allow easy hose or component removal. (JIC 37° flare fittings wherever possible and practical) Return lines must use appropriate fittings for pressure present. All hoses from the back of the black pipe to the sander connection must have 37° flare swivel fittings throughout.

✓

n) All test ports for testing shall be accessible for connecting test gauge.

✓

o) All hydraulic hosing to be routed, secured, and protected from pinching or abrasion. Securing of hoses to be designed to withstand severe ice and snow buildup. Use heavy J-hook style hose hangers as necessary. Routing and support to be approved.

✓

18) Dump & Spreader Box

b) Body shall be of standard production, versatile, with the ability to be used as a dump body or as a spreader to allow material to discharge through the tailgate onto a spinner assembly. The body shall be capable of containing material inside box without leaking.

✓

Bowling 14'52
Commander

c) The body shall be 14' in length and top outside width shall be 96", with a minimum of 8 cubic yard capacity. Continuous welds throughout.

✓

✓

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

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- k) D-ring attached to inside or outside top center for lifting purposes. ✓
- l) Air tailgate with dual cylinders and solenoid Velac kit #320178, 3/8" airline and air supply to be taken from air tank with tractor protection valve. Installation shall allow operation of the tailgate should the air operated device fail. Solenoid valve to be located in truck cab. ✓
- m) Top and bottom tailgate hinge pins to be 1" diameter, minimum ✓
 - iii) Tailgate hinge pins and latching mechanisms to be greaseable. ✓
- n) 5/16" spreader chains attached to upper sides of tailgate with upper and lower anchors that permit hinging tailgate to top or bottom. Chain to be encased in hydraulic hose sheathing. ✓
- o) Material door in bottom center of tailgate with self-locking adjustable screw jack opening to control material volume accessible from ground level. Rubber seal on the bottom of material door. ✓
- p) The body conveyor shall be a minimum of 28" width and shall have 26,000 pound tensile strength per strand pintle chain AL667XH or better with 1 1/2" x 1/2" bar flights welded top and bottom to every other link. ✓
 - iii) Rear conveyor shaft shall have full width rubber belting connected from floor pan and extending over rear shaft and protrude slightly through passing floor chain bar flights to effectively wipe every bar flight clean as it passes over rear sprocket. ✓
 - iv) Conveyer shall be driven by a minimum single 25:1 planetary or two 6:1 spur gear boxes and high torque/low speed hydraulic motor(s), eight tooth sprockets keyed to 2" drive shafts. Single planetary gearbox must be protected from damage with a keyed surface area rated for use with the specified output of the gearbox. Heavy duty, dust sealed, self-aligning four bolt flange bearings. At least one of the conveyor drive motors must have an integral speed sensor with 100 pulses per revolution to operate in conjunction with the closed loop ground speed controller. Speed sensor connection must be tied up in an accessible position near motor to keep out of debris and allow for easy access for diagnostics. NO EXCEPTIONS. ✓
- v) Front idler shaft shall be 2" with eight tooth sprockets keyed to shaft, mounted supported by heavy duty, dust sealed bearings. ✓
- vi) Chain tension adjustment shall use stainless steel threaded rod and lock nut with slide rail system. NO EXCEPTIONS. ✓
 - (1) **Body to have decal located at each side floor chain adjustment point; denoting the factory recommended chain tension/deflection measurement.** ✓
- vii) Grease banks as necessary for easy access to lubrication points. ✓
- viii) Conveyor to have removable cover made of stainless steel to prevent debris from dropping on the truck frame. ✓
- q) Spinner assembly, complete, with all mounting hardware and instructions, is to be supplied with the truck for mounting at NDDOT district locations. Spinner shall be an open disc with a deflector to guide sand away from truck. Spinner shall also be designed for quick removal by one man during non-sanding applications. Quick couplers with tethered dust caps for spinner to be mounted rear side of box. Design must be approved. (See photo example) ✓

*60 pulse motor
Approved in The
Past & currently
In use*

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- vi) Light support – 2"x2"x1/4" Aluminum angle to be fastened with existing grill bolts. Angle to be approximately 2' long, not to exceed hood height. Light mounted to 1 1/2" aluminum square tubing. Angle welded to top of square tubing and angle braced to extend light to position directly above OEM headlights. All fasteners attached to factory hood/grille must use rubber or other insulating/dampening material between hood/grille and plow light bracket. Design to be approved. ✓
- vii) Wiring to be connected to OEM wiring at hood hinge area and can be disconnected using a GM weatherpack connector or approved equal. ✓
- viii) All wire splices shall be soldered and protected with heat shrink covering. ✓
- ix) Wires to be properly grounded. ✓
- d) Top/Rear plow light system. SIX LIGHT HEAD SYNCHRONIZED LED WARNING LIGHT SYSTEM (Must meet specification SSP-01) NOTE: All wiring for strobe lights shall be protected from abrasion and shielded from mud and ice buildup. All holes for wiring must be grommeted. ✓
 - iii) Four rear mounted remote LED light head assemblies, two amber and two clear. Continuous individual wiring from each light to the rear electrical housing and then to the control panel. ✓
 - iv) Two cab guard mounted 180 degree LED strobe light head assemblies. Continuous individual wiring from each light to the control panel. ✓
 - (1) Mount level to front corners of cab guard, extendable from width of cab guard to outside (102" width) of mirrors through use of tube-in-tube design. Design must be approved. (See Photo example) ✓
 - (2) Wiring for light heads from chassis frame to top of cab guard to be routed through metal conduit attached to the cab guard upright or split loom and tube clamps may be used as long as the clamps have maximum spacing of 12 inches. ✓
- v) One inside cab mounted four-outlet LED ballast/junction box. ✓
- vi) LED warning light system with heavy duty DOT solid state flasher with diagnostics. ✓
- vii) Rear light support – 1 1/2" square telespar steel tubing mounted approximately 60 degrees on rear of box and roughly adjustable up to 12'. Tubing to be angled to the rear but not extending more than 18" behind box. Square tube support bracket not acceptable. Mounting brackets to be as high on the side of box as possible without interfering with tailgate operation or hinge pin removal. ✓
 - (1) See pictures of DOT support bracket to allow telespar tubing to pivot from vertical to horizontal. Nylon bushing/washers shall be installed on both sides of pivot pin to hold telespar tubing from vibration but still allow free pivot movement. DOT will supply prototype bracket to awarded vendor. ✓
 - (2) Amber LED lights to be mounted to top of support. Clear LED lights to be mounted 1/2 the distance from top of support to top of box. **Auxiliary Stop/Turn/Tail light to be mounted below the white warning light on rear telespar.** Stainless steel fasteners to be used for the mounting of the aluminum light heads to the telespar along with nylon isolating washers placed between telespar and aluminum light head to prevent corrosion caused by dissimilar metals. ✓

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(3) Wiring to be routed through the center of the telspar. ✓

- e) One wing and one underbody scraper 12V LED work light, located at the rear corners of the cab. One sander work light located under left taillight housing. Final location to be determined upon award. All three lights to be wired to one work light switch. Truck Lite #8160 or equal
- iii) Housings to be corrosion and impact resistant.
- (1) Weatherproof.
- iv) Universal mounting stud and adjustable bracket.

20) Hoist

- b) NTEA rated and classified.
- c) Class 80, telescopic.
- iii) Cylinder to have full power up and power down top stage.
- iv) Melonized cylinder rod surfaces with a predominance of single-phase epsilon nitride to cover entire surface.
- d) Minimum hinge pin diameter – 1 15/16" hardened steel.
- e) Minimum dumping angle – 50 degrees at 12" overhang.
- f) Minimum of 1 1/2" chassis frame extending beyond wing cross tube to allow for pintle plate mounting.
- g) In cab, box up indicator light (see panel switches), to be coil spring wobble lever, sealed, snap action switch, frame mounted, Grainger stock no. 3A096 or equal.
- h) Safety prop(s) to support body at 20-degree angle, frame mounted, self-aligning for one person operation, easily accessible. Prototype to be approved.

21) General

- b) Paint – All non-stainless steel to be primed and painted; **any modified pieces and spot painting must be painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: <https://www.ppgpmc.com>**
- c) Spot painting must include hardener and be applied with spray gun.
- d) Mud flaps front and rear of rear tires, 24" wide by 30" long, made of 5/16" quality rubber. Stainless steel brackets. The rear flaps must be quick to remove through the use of a 1/2" round rod and spring clip and free swinging. The front flaps fastened permanently with anti-sail devices mounted to prevent tire contact.
- c) Tool box 18" x 18" x 24". All **Stainless Steel** 14 gauge construction, bottom hinged door. Full-length corrosion resistant hinge. Key lockable paddle latch with adjustable striker plate. Full neoprene door seal. Two chain or cable door retainers. Drip rail or door recess. Acceptable brand: Buyer. Other brands must be pre-approved.
- iii) Mounted with 2" mild steel channel, two cross supports under floor of box and gusseted. Mounting contact areas between stainless and mild steel to be isolated with fuel tank rubber belting or similar.
- e) Must use stainless steel fasteners when mounting stainless steel. Except where strength is needed.
- f) Appropriate steps must be taken to keep mild steel and stainless steel cross contamination from occurring.
- h) Install 45' of reflexite V82 red and white reflective conspicuity tape on box. Location to be approved by NDDOT.
- i) **Wiring harnesses not to be tied to hydraulic lines.**

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 3804 Hwy 75 N
 Moorhead, Mn 56560

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

SSP-22-2ADSUBW

22) Snow Plow Quick Hitch, Falls 26B, Monroe FLS26BND, Henderson H46B-ND or equal. Remount trucks tow hooks. Mounting and location to be approved.

- a) Snowplow connecting mechanism shall be the Rapid Push Bar Quick Coupler as manufactured by Little Falls Machine, Inc., Monroe, Henderson or equal.
- b) Quick coupler system shall incorporate push arm receptor sockets with spring loaded tapered pins for proper pin alignment. Grease zerks installed for pin lubrication. Pin retractor mechanism shall be conveniently located for ease of operation.
- c) Mounting system shall adapt to frame rails of truck chassis and shall be adequately braced with grade 8 frame bolts meeting SAE J-429 specification to the truck chassis frame by minimum 3/4" x 4" A-36 steel bars which will be additionally reinforced. Stabilizer arms shall be attached to the frame by means of 1/2" thick steel Z brackets. Vertical risers and plow lifting yoke shall be low profile to allow clearance for tilting hood without tilting or disconnecting plow hitch.
- d) Universal lift arm to be adjustable inward/outward using heavy-duty square tube within square tube with pin adjustment. Shall be capable of lifting reversible or V-plows weighing as much as 3000 lbs.
- e) Hydraulic plow lift cylinder shall be minimum 4" x 10" single acting type with chrome-plated rod. Hydraulic cylinder shall be certified to a minimum of twice (2X) the pressure (2250PSI) of the hydraulic system.
- f) Hydraulic ball valve at lift cylinder to shut off oil flow when plow is not in use.
- g) Mounting height shall be 15" to center of connecting pin. Hitch to be cushioned with rubber bumper or similar anywhere tilting engine hood may strike when opened.
- h) Complete hitch shall be primed and painted to match the truck frame.

✓	—	—	Falls 26B-ND
✓	—	—	—
✓	—	—	—
✓	—	—	—
✓	—	—	—
✓	—	—	—
✓	—	—	—
✓	—	—	—

23) Rear Hitch Plate:

Trailers pull plate, pintle hitch, D-rings, electrical connector, and glad hands installed on the truck. See enclosed drawing. Note: disregard the location of the light plug-ins on the drawing. The successful vendor must approve the entire hitch design with NDDOT and build a prototype for approval on the first truck.

- b) Must be made using 3/4" material for the plate and gussets.
- c) Must provide a Holland PH410 pintle hitch rated at 20,000lb vertical load and 100,000lb gross trailer weight installed with grade eight bolts and lock nuts.
- d) Two D-rings on each side of the pintle hitch rated for 100,000lb of gross trailer weight between the two.
- e) 2.5" receiver welded into the plate below the pintle hitch.
- f) Pull plate must be properly braced and welded to be rated for 100,000lb gross trailer weight.
- g) The round seven pin trailer light connector and two glad hands are to be mounted in hitch plate. Air glad hands one on either side of pintle hitch. 7 pin trailer connections to be above LH glad hand. 7 pin trailer connection must not be positioned above pintle hitch for clearance issues with trailer tongue. See attached picture for guidance. Final location and process must be approved by NDDOT.

✓	—	—	—
✓	—	—	—
✓	—	—	—
✓	—	—	—
✓	—	—	—

Bert's Truck Equip. of Mhd
 3804 Hwy 75 N
 Moorhead, Mn 56560

Specifications for Hydraulics & Dump/Spreader Box, Approximately 58,000 lbs G.V.W.

SSP-22-2ADSUBW

- h) RH or LH rear wing post mount to be integrated into hitch plate and be bolt removable for summer operations. Must use wing manufacturers recommended bracketry to attach to hitch plate and design be approved by manufacturer. See attached photo for reference.

✓

24) Warranty

- a) One-year full unconditional warranty, manufacturer's warranty shall apply if for longer period.

✓

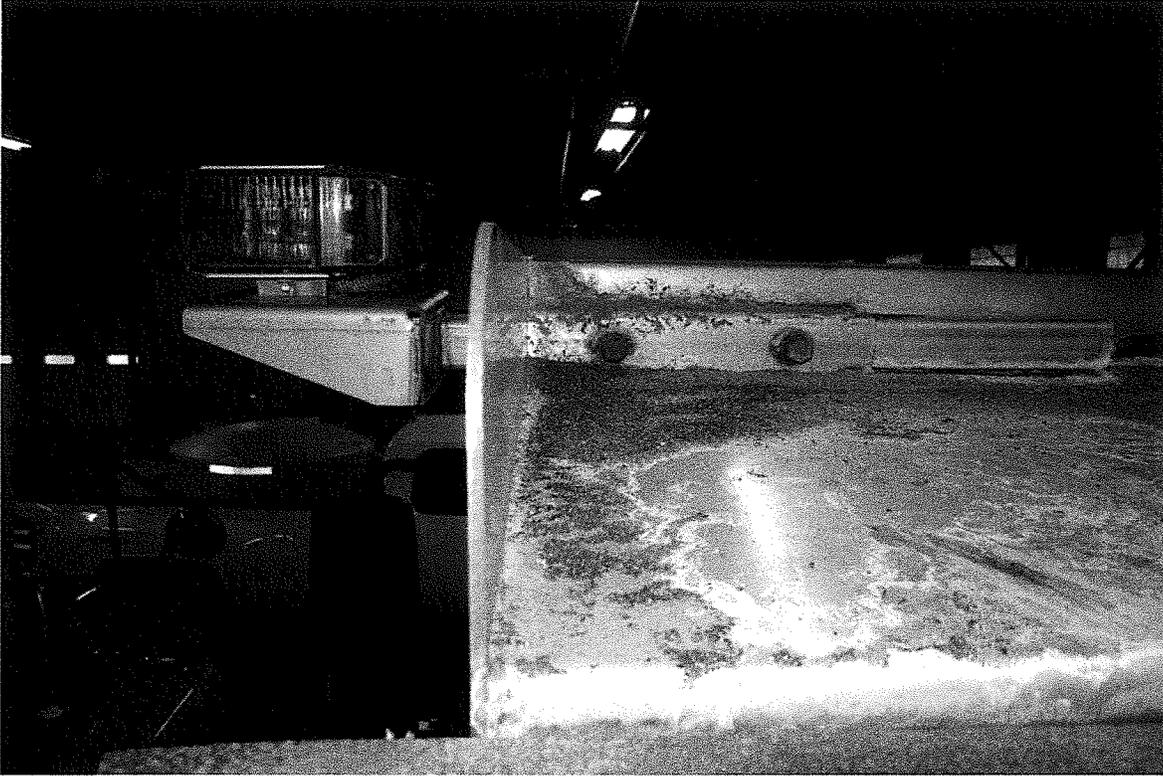
25) Delivery

- a) Truck must be test driven and all hydraulic, brine, plow, sander, and electrical functions must be tested to make sure they work properly, and that there are no fluid leaks. All vendor installed attachments to be greased/lubricated. **Grease bank hoses must be primed/prefilled.** Truck must pass a final inspection performed by NDDOT employees before delivery can be made. Truck must be test driven and all hydraulic, brine, plow, sander, and electrical functions must be tested to make sure they work properly, and that there are no fluid leaks. All vendor installed attachments to be greased/lubricated. Truck must pass a final inspection performed by NDDOT employees before delivery can be made.

✓

BODY MAKE: Bonnell MODEL: Commander 14' SS - MD - DOT
 HOIST MAKE: Mailhot MODEL: CS-130-S-S-3-DA
 PUMP MAKE: Force America MODEL: FASD45-R-CS-Repto-kit
 QUICK HITCH MAKE: Falls MODEL: 26B-MD
 LED WARNING LIGHT SYSTEM MANUFACTURER: Wheley

Bert's Truck Equip. of Mhd
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 Moorhead, Mn 56560

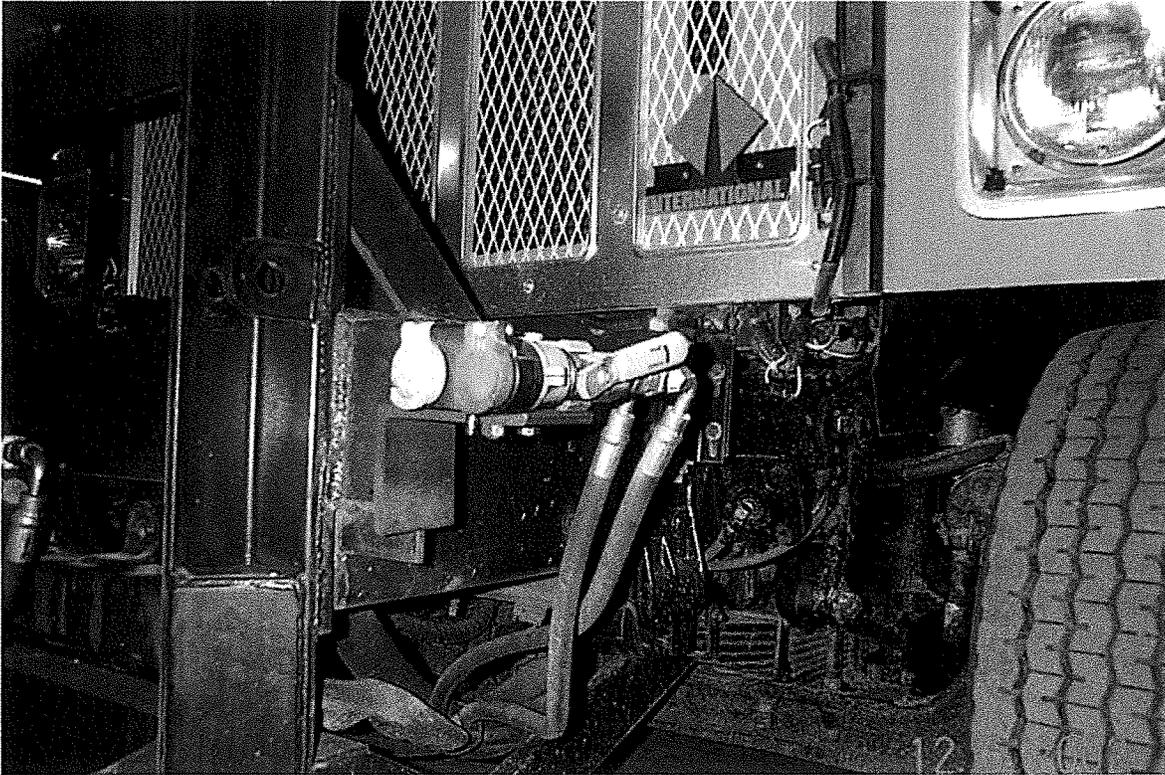


Adjustable mounting brackets for LED light heads



Example of spinner type

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Moorhead, Mn 56560

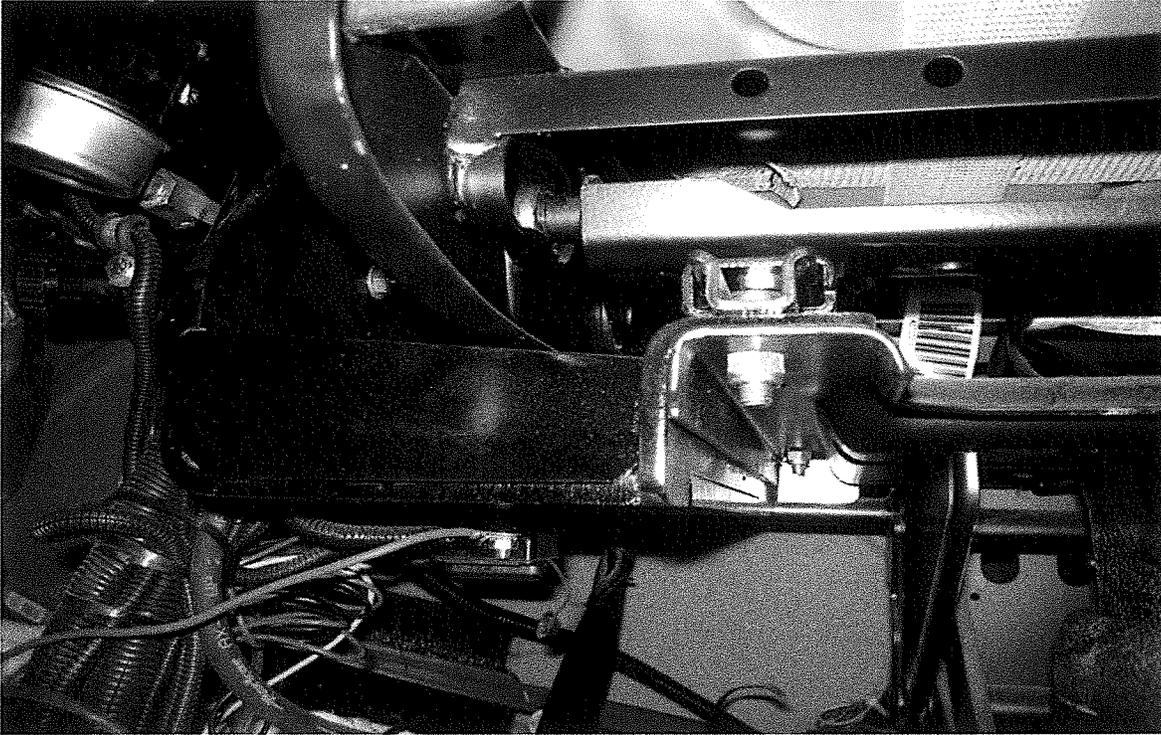


Front plow quick coupler mount

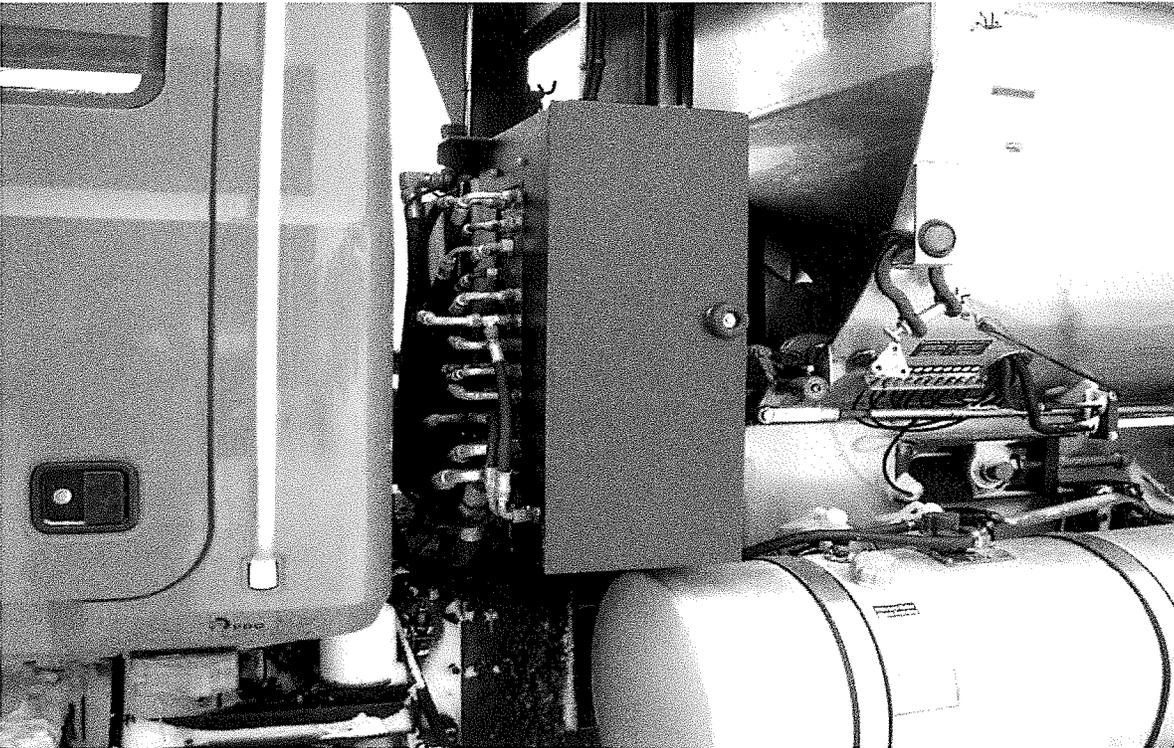


Example of rear LED light bracket

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3804 Hwy 75 N
Moorhead, Mn 56560

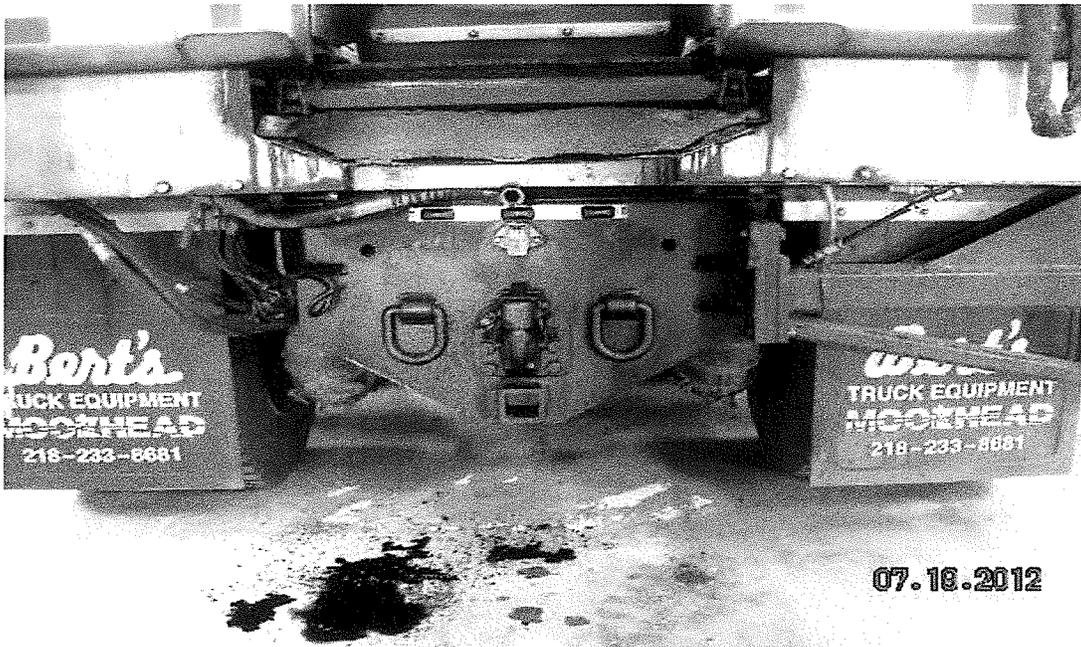


Seat mounted hydraulic and sander controller bracket

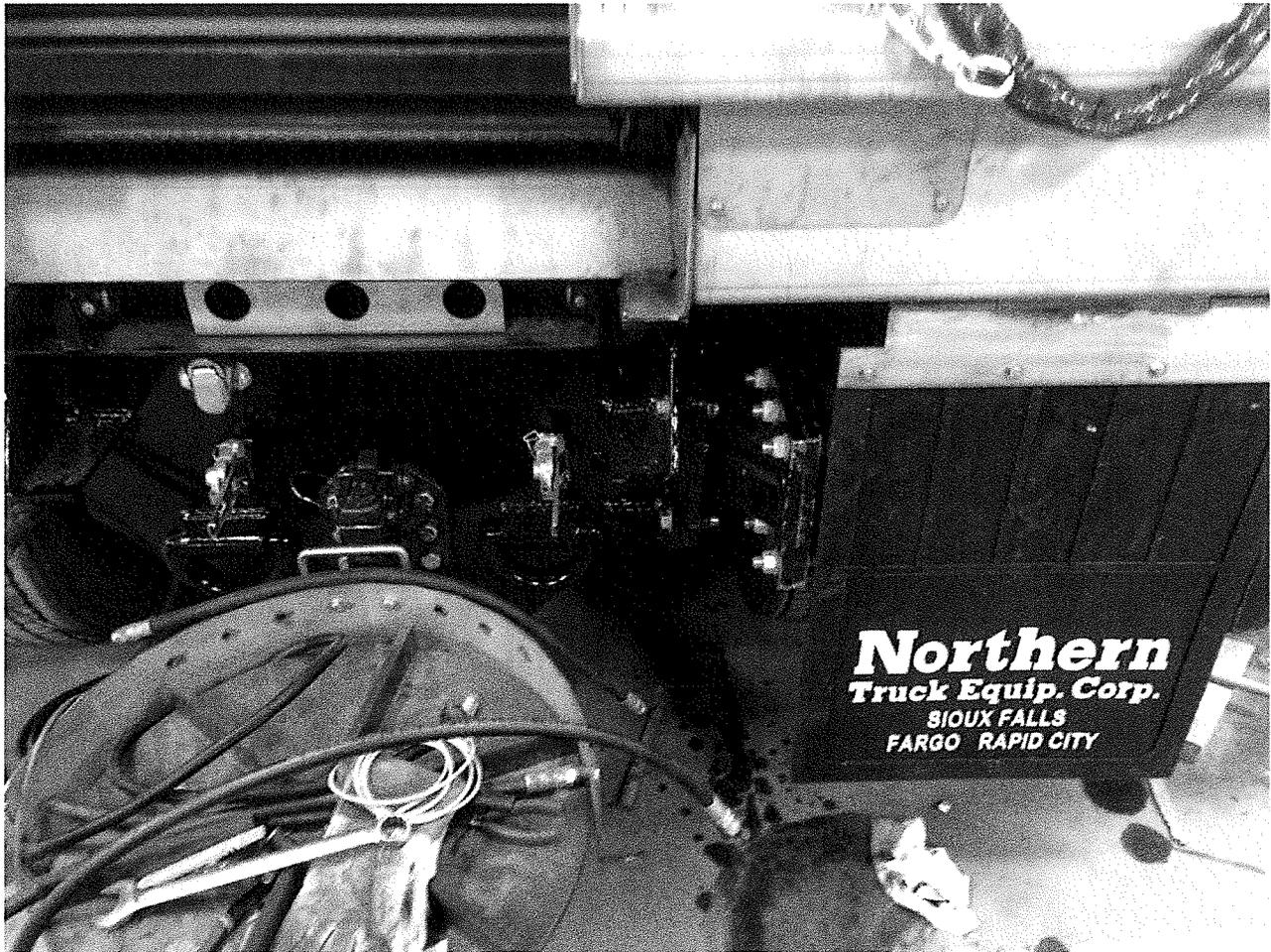


Vertical valve enclosure

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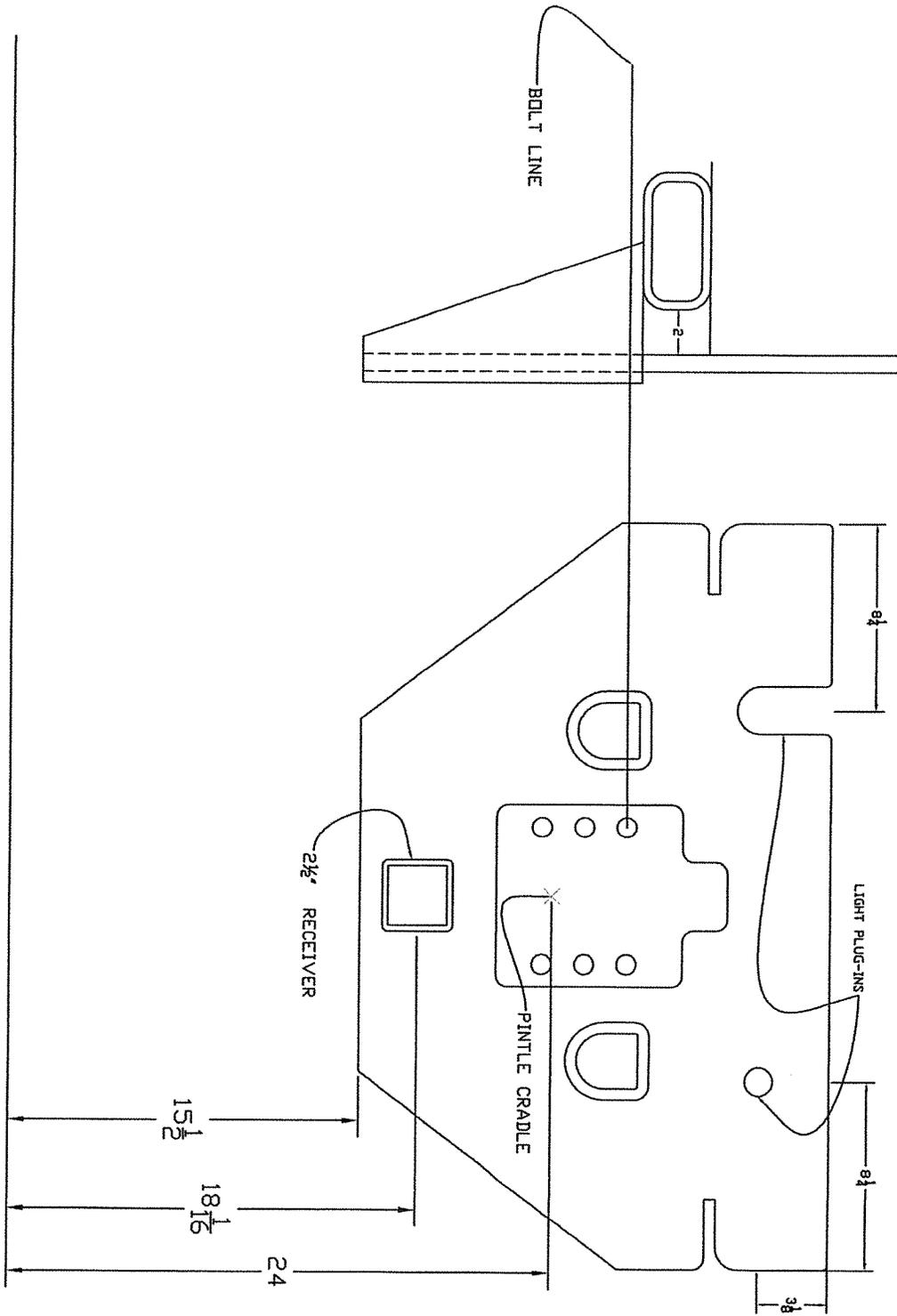
Picture of Integrated rear wing mount (RH wing)



Preferred Hitch component locations

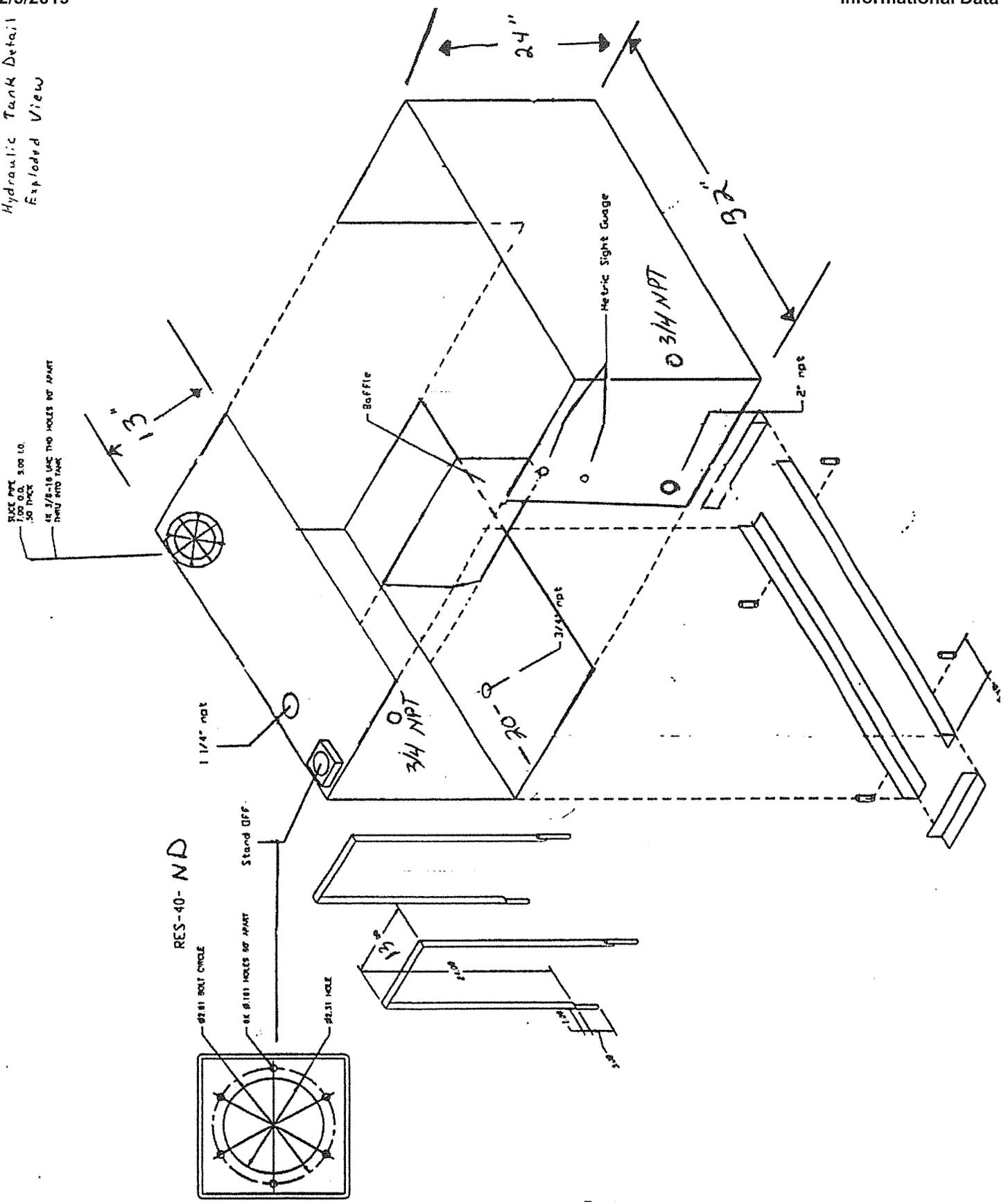
Bert's Truck Equip. of Mhd
3804 Hwy 75 N
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PROPOSED HITCH

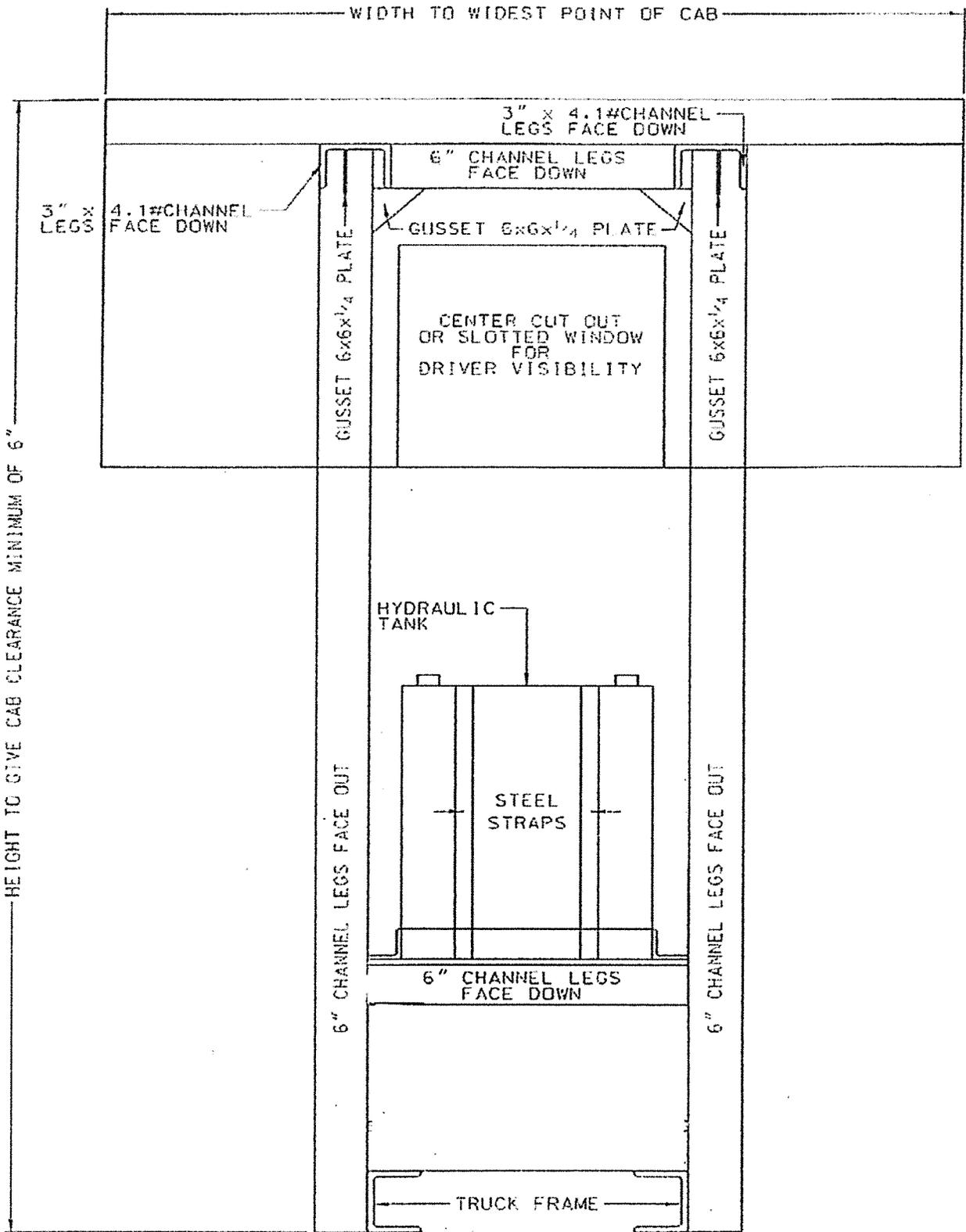


Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

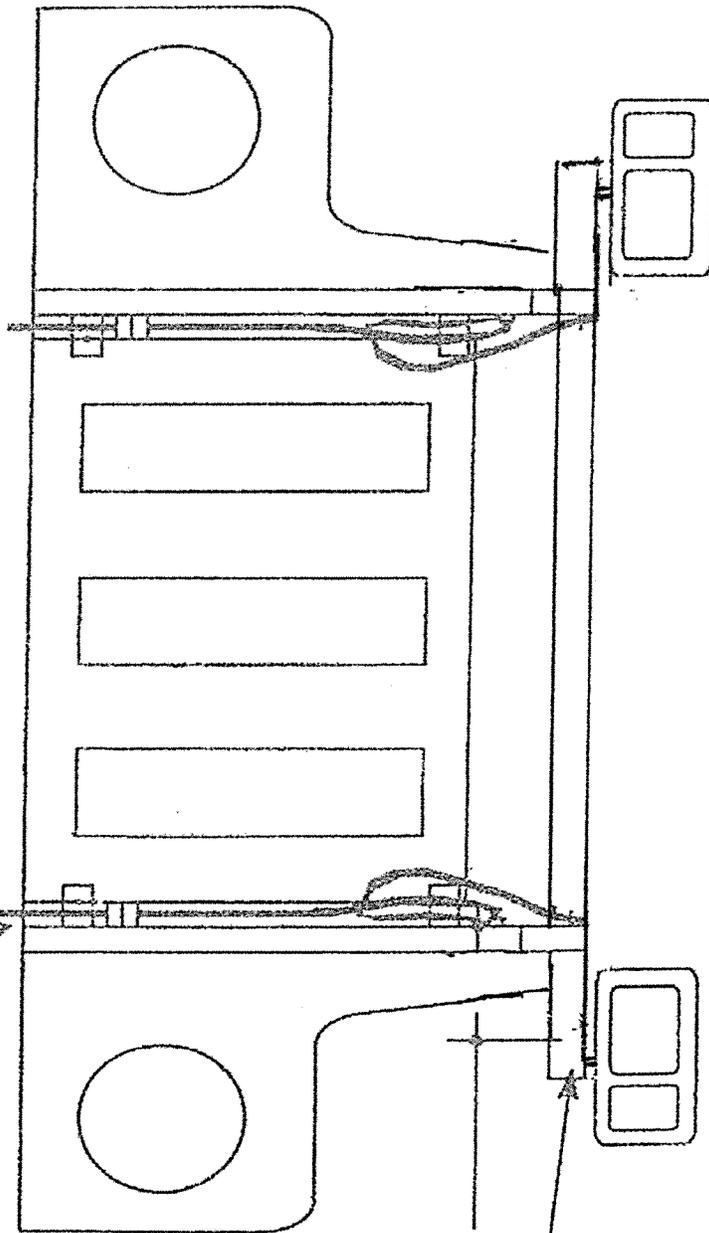
Hydraulic Tank Detail
Exploded View



Bert's Truck Equip. of Mhd
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Moorhead, Mn 56560



PLOW HEADLAMPS



Mounting of plow headlamps needs
to allow for installation of a
winter front.

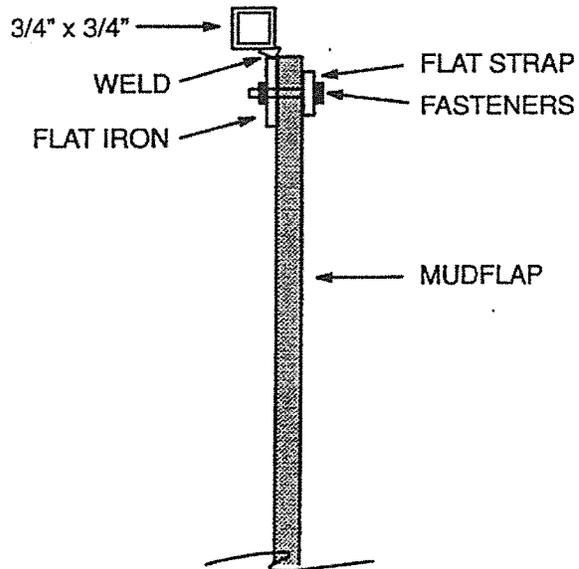
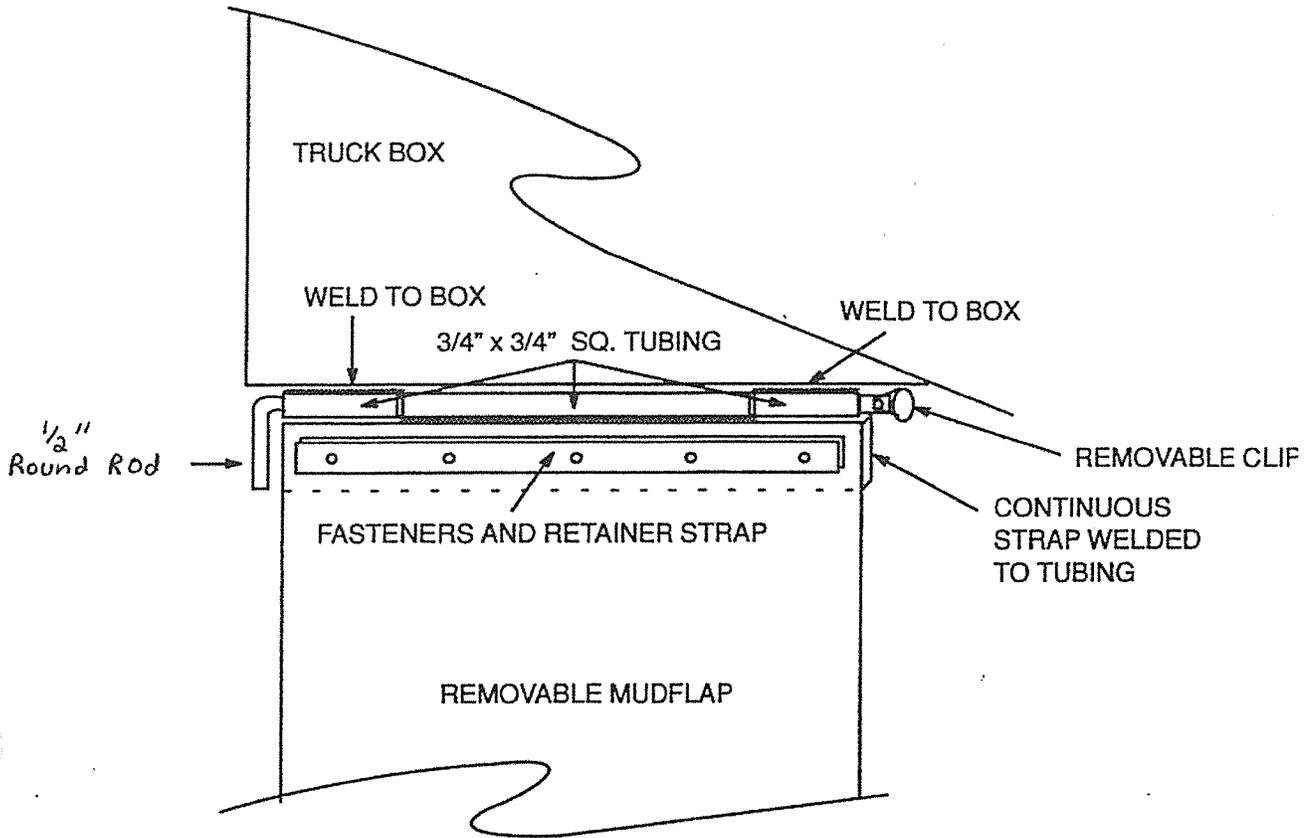
Fixed bracket to hood to be made
from 2" by 2" aluminum angle
1/4" thick

Plow light to be
centered above OEM
headlight.

1 1/2" Aluminum tubing

Bert's Truck Equip. of Mhd
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REAR MUDFLAP DETAILS



Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

Maintenance & Engineering Services Specifications This Section

SSP-95-4180-2	11' Underbody Scraper
SSP-95-4200-23	10' Rear Mount Snow Wing
SSP-95-2400-4	Tailgate Spreader
SSP-95-5700-4	270 Gallon Fender Mount Gravity Pre-wet System
SSP-95-5700-10	150 Gallon Tailgate Mount Gravity Pre-wet System

Bert's Truck Equip. of Mnd
3804 Hwy 75 N
Moorhead, Mn 56560

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
 SPECIFICATIONS
 FOR
 UNDERBODY REVERSIBLE SCRAPER, 11'
 (MONROE 3500-11, ROOT F-89-11 WITH OPTIONS, FALLS IBR-11 WITH OPTIONS,
 HENKE UBS-XH11, HENDERSON H-UBS-11, OR PRE-APPROVED EQUAL)

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe an 11' underbody scraper to be furnished and installed on a 58,000 GVW tandem axle truck. The underbody will be installed on the same chassis with a rear wing. The underbody shall work in combination with the 10' rear wing and discharge material onto the wing without leaving a ridge between the wing and underbody. The underbody shall be designed for high-speed snow plowing, removing hard packed snow, or scraping ice. The underbody shall be of all steel fabrication, of rugged construction, and properly braced and reinforced. The underbody shall be standard production of the latest model with standard accessories and in addition meet **or exceed** the following minimum specifications.

Installation: The underbody scraper shall be installed according to the manufacturer's instruction and to the acceptance of the NDDOT. The underbody shall be installed at a height of 20", ± 0.5" as space allows, from the bottom side of the circle to the ground on a bare chassis (**NO EXCEPTIONS**). Two grease banks shall be installed for easy greasing of the hanger rod, reversing cylinders and center bushing. Six to Eight grease ports equally spaced shall be plumbed into the hanger board / rod connection. The grease ports on the hanger board shall be split to two separate banks with equal ports per side. The center bushing grease port may be plumbed to either grease bank. The grease banks shall be mounted on the ends of the hanger board for easy access and rotate with the underbody. A metal fitting shall be used at the grease port. Grease hose tubing shall be used to connect the grease port to the grease bank. The grease hose tubing shall be Parker Paraflex Hytron HLB02, 1/8" ID, 3,000 PSI rated or equal. The fittings shall be 1/8" straight and/or 1/8" swivel from Parker or equal. The grease hose tubing shall be secured to the front of the hanger board. The grease tubing shall be properly secured to prevent from being caught or rubbed on hardware or other components. Where the tubing is susceptible to contact with other components, it shall be wrapped or protected. **All grease hoses to be primed/prefilled with grease.** The circle mount stop blocks shall be chamfered and welded on all accessible sides of the block. Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck @ (701)328-2565.

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
1. CIRCLE			
a. 1" thick steel	X		
b. One piece, notchless	X		
c. 5" hardened center pin/bushing	X		
i. Lubricated by grease bank	X		
d. Cylinders will be mounted with 1.5" hardened pivot pins or grade 8 bolts and lock nuts	X		
e. 13" hold down blocks with polyurethane or steel wear pads preferred but not required (Note: manufacturer's standard production model according to sales literature is required)	X		

COMPLY
YES NO SPECIFICATION
DEVIATIONS

2. HANGER

- a. 3/4" thick plate steel one piece hanger bracket or equal _____
- b. A 36 or equal steel _____
- c. 10"--30# structural member or equal _____
 - i. Channel hanger board _____
 - ii. 1/2" x 7 1/2" reinforcing _____
 - iii. Full hinge length 4" S & C 13.8# channel, 1/2" x 3" x 3" angle, or equal _____

3. MOLDBOARD

- a. 11' wide x 1" thick x 20" high _____
- b. Heat treated carbon steel _____
- c. **Offset and** punched and spaced according to AASHTO standards to accept 5/8" bolts for tungsten carbide cutting edges (cutting edge furnished by NDDOT) _____
- d. Clearance height with moldboard in fully raised position from the bottom of the frog to the ground approximately 10" _____
- e. Two heavy duty shock absorber assemblies or hydraulic accumulator system _____
- f. 1' square piece of expanded steel or machine punched grip strut on the drivers and passenger side back of the moldboard to be under the side truck step _____

4. HINGE

- a. 2 1/2 " O.D. solid carbon or 1 3/4" cold rolled steel shaft _____
 - i. 96" long _____
- b. Minimum three hinges _____
- c. Greased by grease bank _____

5. HYDRAULIC COMPONENTS

- a. Two 3 1/2" double acting reversing cylinders _____
 - i. 2" nitrated cylinder rod _____

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3804 Hwy 75 N
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	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
ii. Crossover relief valve	X		
iii. Cylinders lubrication points must be on grease bank.	X		
b. Two 3" double acting moldboard actuating cylinders	X		
i. 1.5" nitrated cylinder rod	X		
ii. 2" O.D. trunion bearings	X		
c. Externally mounted hydraulic steel tubing or hydraulic hose with wear resistant coating protectant. All hydraulic hose must meet minimum specification as outlined in the truck box specification.	X		
d. Set to apply and maintain 500 psi moldboard down force	X		
i. Manufacturer's pressure relief valve shall be omitted from installation and relief controlled through hydraulic valving from hydraulic vendor	X		

6. Manuals, as applicable

a. Two operator's manuals	X		
b. Two lubrication schedules	X		
c. Two parts books	X		
d. Two Technical Repair Manual	X		

7. Paint

Moldboard, mounting brackets, circle, cylinders and other hardware to be factory powder coated black. All other surfaces and any modified pieces must be painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: <https://www.ppgpmc.com>

X		
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8. Warranty

One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period

X		
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The underbody scraper shall be delivered mounted on the truck for immediate use. The underbody scraper shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: Falls MODEL: IBR-11A-ND

PARTS/SERVICE DEALER/WARRANTY: Bert's Truck Equipment TELEPHONE: 800-232-3787

Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

BIDDER: _____

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR
REAR MOUNT SNOW WING, 10'
(FALLS SDL-10, MONROE 10-DFWMB/ND, HENDERSON HWS-10, OR PRE-APPROVED EQUAL)

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a 10' rear mounted patrol snow wing to be furnished and installed on a 58,000 GVW tandem axle truck. The wing will be installed on the same chassis with an underbody scraper. The wing shall work in combination with the 11' underbody scraper and receive material from the underbody and discharge the material without leaving a ridge between the wing and underbody. The wing shall be of all steel fabrication, of rugged construction, and properly braced and reinforced. The wing shall be standard production of the latest model with standard accessories and in addition meet **or exceed** the following minimum specifications.

Installation: The snow wing shall be installed according to the manufacturer's instructions and to the acceptance of the NDDOT. The front wing lift shall be installed in front of the tandem axles under the truck box and shall not be out beside the box. The rear push tube brace assembly shall be installed behind the rear axles on 6" of after frame behind the spring assembly. **The rear push tube brace shall be installed directly to trucks rear hitch plate using manufacturers approved bracketry.** Steel plates that extend down from the truck frame that hold the rear push tube brace are not acceptable. All connections to the truck frame shall be bolted connections using grade 8 frame bolts, meeting SAE J-429 specifications. The wing brace tube shall be capable of being removed without having to disconnect from frame or removing hitch. The disconnect point shall be on the wing side and shall be bolt together plates at this disconnect point, welded to the cross tube and shall be bolted together with a minimum of four 3/4" G8 bolts. For sample see photo. The final design shall be approved by the NDDOT Maintenance & Engineering Services Division, Shawn Hauck, (701) 328-2565

The wing shall be installed to allow the moldboard toe to fully float taking account for truck sag due to loading. The moldboard toe shall not apply any down pressure. The hydraulic hoses shall have swivel couplers and 37° JIC fittings connected to bulkhead fittings through truck frame. Quick-couplers are not to be used, as they rapidly develop leaks. The JIC connections shall be located up as high as possible to limit their contact with road material. A fluorescent orange tubular plow marker shall be attached to the top of the wing moldboard heel to delineate the outside edge of the wing. The tubular marker shall have a weep hole drilled into the base of the marker to allow moisture to seep out. The wing LED warning light mounting location shall be approved by the NDDOT and shall be wired to the same in cab control switch as the amber body warning lights. Any questions and weekly updates shall be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck @ 701-328-2565.

	COMPLY YES	NO	SPECIFICATION DEVIATIONS
1. Stored/folded-up clearance			12" Approved
a. Front 13"	✓		
b. Rear 90"	✓		
2. Lift			
a. Cab-controlled hydraulic lift cylinder	✓		
i. Cylinder rods to be nitrated rods	✓		
b. All hydraulic postless-style or parallel lift design (Note: slide-type or cable operation is not acceptable)	✓		

		COMPLY		SPECIFICATION DEVIATIONS
		YES	NO	
c.	Heel lift	✓		
d.	Floataion both heel and toe	✓		
e.	Wing Loc or equal outboard lift cylinder hydraulic locking device	✓		
3. Moldboard				
a.	50,000 PSI 10-gauge EX-TEN 50 (MILD STEEL NOT ACCEPTABLE)	✓		
b.	Overall moldboard length 10'	✓		
c.	100% continuously welded	✓		
d.	3/4" thick frog	✓		
e.	Frog to be square hole punched and spaced according to AASHTO standards to accept two 3' (one on each end) and one 4' (in the center) tungsten carbide cutting edges secured with 5/8" bolts, there shall be sufficient holes in the frog so all of the holes in the cutting edge can be used (cutting edges furnished by NDDOT)	✓		
f.	Full length top and bottom supports	✓		
g.	Height at front 29"	✓		
h.	Height at rear 29"	✓		
i.	Spring-cushioned push tube with shear pin	✓		
j.	Push tube pin location, pinned 18" from outside end maximum	✓		
k.	Weight of moldboard minimum 600 lbs maximum 1550 lbs	✓		
l.	28" high fluorescent orange tubular plow marker kit, Buyers or Catco model 1308105 or equal	✓		
m.	Wing lift eye/pick point, 2 each mounted so that the wing can be lifted evenly when being removed	✓		
4. Mount				
a.	Right or Left side, rear mount to be flange mounted for easy removal	✓		
a.	Parallel-lift or post-less style mount allowing full floatation of moldboard toe.	✓		
b.	Front mount cross brace to both frame rails shall allow sufficient vertical clearance for the drive shaft with tandems at full articulation	✓		

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3804 Hwy 75 N
Moorhead, Mn 56560

		COMPLY		SPECIFICATION
		YES	NO	DEVIATIONS
c.	The ears on the rear push tube brace that the push tube pins to shall be in line with the push tube (Note: ears at 90" to the truck frame are not acceptable)	✓		
d.	The rear of the push tube shall be attached to the rear push tube brace with a 1/2" grade 5 bolt that will act as the shear point for the wing. The rear push tube brace shall allow the push tube to fall away if bolt shears	✓		
e.	Heavy duty 3 1/2" O.D. d" wall thickness outer pipe, 2 1/2" O.D. d" wall thickness inner pipe rear push tube with bracing mounted behind rear axles	✓		
i.	The push tube shall have a 3/8" weep hole drilled at the top and bottom of both ends of the tube to allow moisture to escape	✓		
ii.	The push tube spring shall have a minimum of 4 braces	✓		
iii.	Push tube length adjustment to be secured with bolt and lock nut. Hitch pin with hair pin not acceptable.	✓		
f.	Adjustable heavy duty push tube as close as possible to 90" angle to the moldboard not to exceed maximum 18" from the outside end of the moldboard	✓		
g.	Close-in transport position 24" maximum to outside of wing, push tube shall rest against a T-brace type stop with a rubber cushion bumper when wing is in transport position	✓		
h.	T-brace type stop shall be located below the bottom of the box height so not to strike the box or interfere with the box operation	✓		
i.	Wing drift safety chain mounted to T-brace stop, fixed at the cab (front) end and loose at the box (back) end	✓		
j.	Wing drift chain mounted to front post with a fixed and loose end	✓		
k.	Grease bank to combine grease points for lift into one location. The grease hose tubing shall be Parker Paraflex Hytron HLB02, 1/8" ID, 3,000 PSI rated or equal. The fittings shall be 1/8" straight and/or 1/8" swivel from Parker or equal. High pressure grease hose to be connected to all wing lift grease locations. Any locations not accessible with hose must have adequate length or angled zerk for easy access.	✓		
2.	Weight of complete assembly, minimum 1,600 lbs maximum 2,200 lbs	✓		
3.	Wing plow warning light, Whelen TIR3 Super LED, WPLOW1A	✓		
a.	Shall be wired to the truck rear amber warning light switch	✓		

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3804 Hwy 75 N
Moorhead, Mn 56560

		COMPLY		SPECIFICATION
		YES	NO	DEVIATIONS
	b. Wiring on the wing shall be routed through conduit or in an acceptable manner to protect wire from being damaged, if the wiring can be routed through existing moldboard supports, it shall be secured in an acceptable manner using Waytek button head ties part no. 21087, or equal. Any holes that the wiring runs through must be Grommeted	✓		
	c. Wing warning light shall have a weatherproof connection and be capable of being unplugged at the front wing post	✓		
4.	Reflective tape shall be placed on the top of the toe cylinder (Note: see picture for location)	✓		
5.	Manuals, as applicable			
	a. Two operator's manuals	✓		
	b. Two lubrication schedules	✓		
	c. Two parts books	✓		
	d. Two Technical Repair Manual	✓		
6.	Paint			
	Moldboard to be powder coated and painted orange. Mounting brackets, push tube, and other hardware to be factory powder coated black. All other surfaces and any modified pieces must be spray painted with black PPG glass filled epoxy primer or Ameron Marine Coatings black paint. See: https://www.ppgpmc.com	✓		
7.	Warranty			
	One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period	✓		

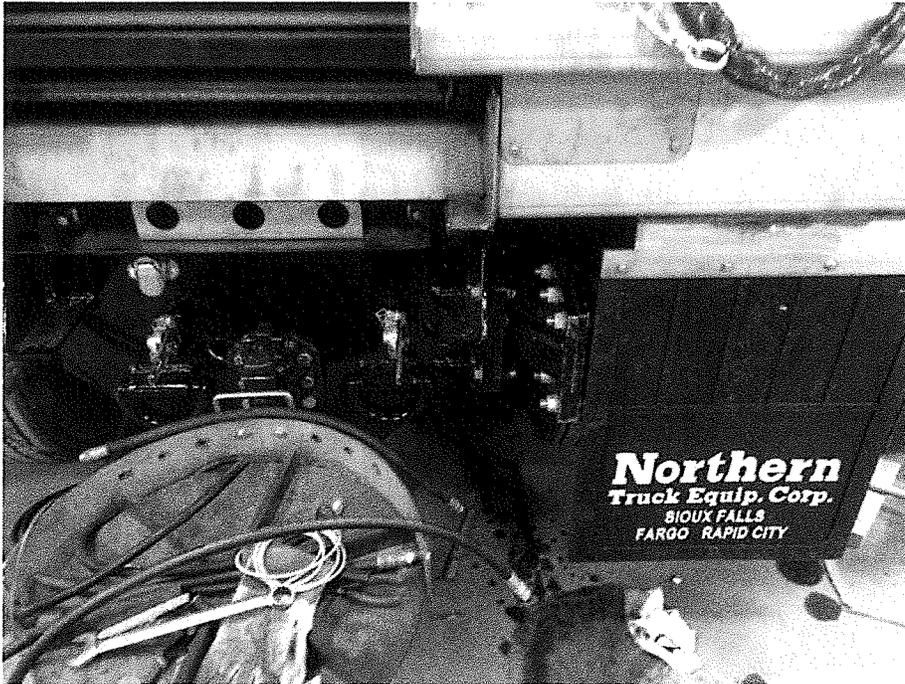
The snow wing shall be delivered mounted on the truck and ready for immediate use. The snow wing shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: Falls MODEL: SDLP-10A-ND-Postlers

PARTS/SERVICE DEALER/WARRANTY: Bert's Truck Equipment TELEPHONE: 800-232-3787

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3804 Hwy 75 N
Moorhead, Mn 56560

These are sample images for informational purposes only, actual products are to be approved by the NDDOT, Maintenance & Engineering Division



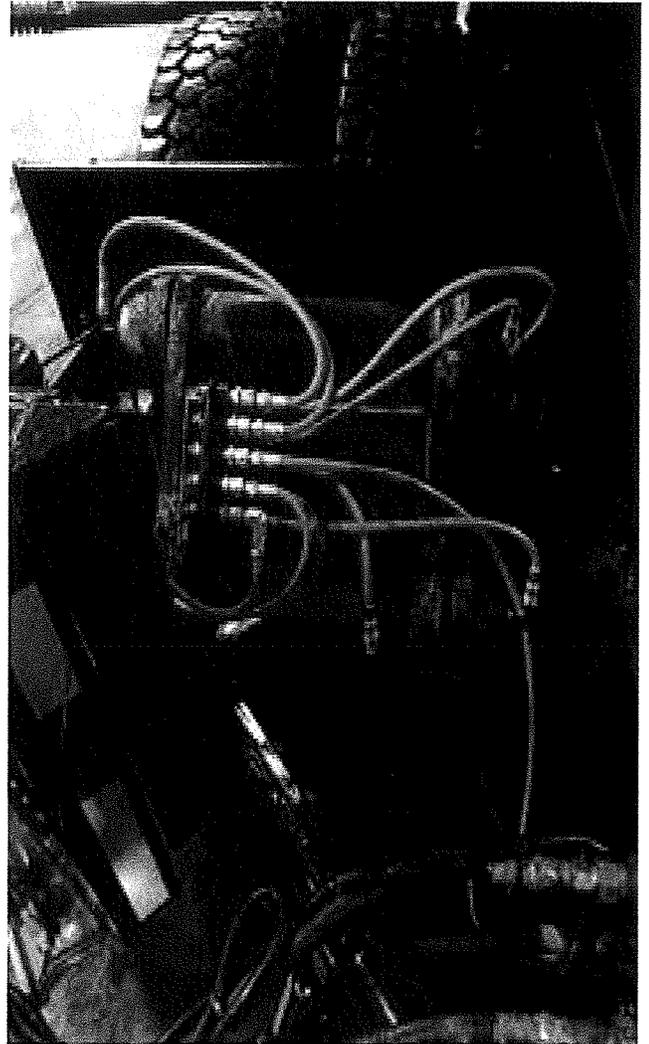
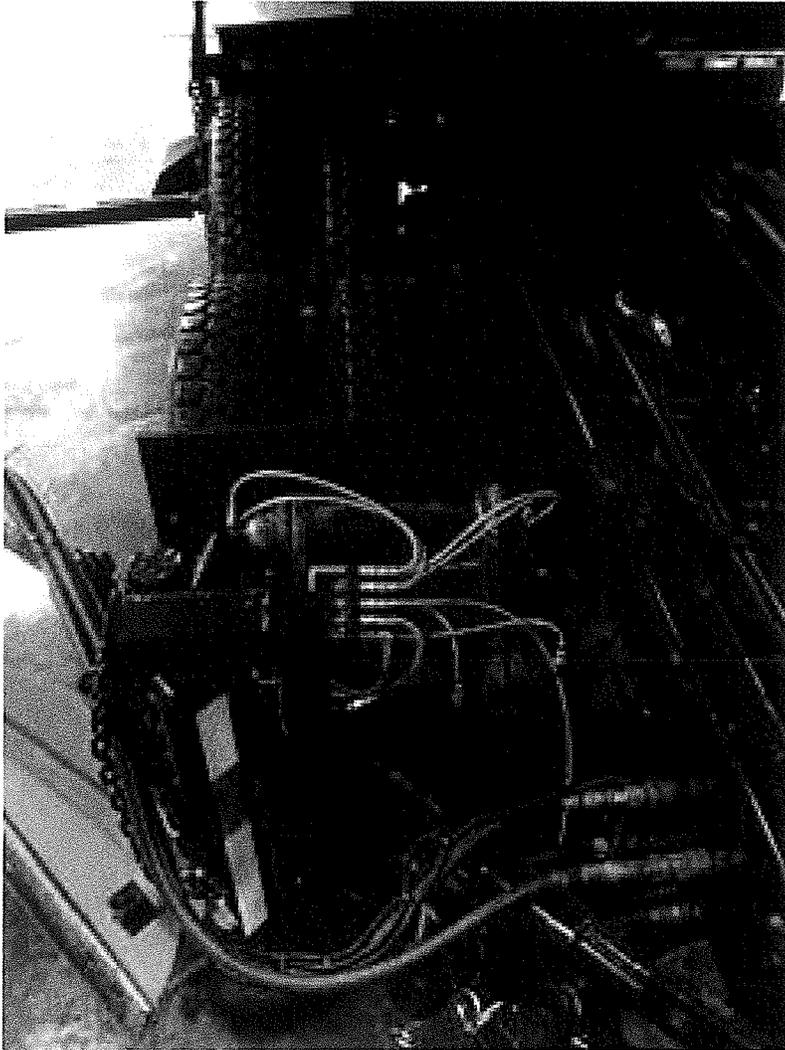
Example of rear wing brace tube and disconnect flange



Example of reflective tape on wing toe cylinder

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3804 Hwy 75 N
Moorhead, Mn 56560

BIDDER: _____



Example of grease bank and hose for toe lift.

Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

BIDDER: _____

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR
SAND AND CHEMICAL TAILGATE SPREADER, #304 STAINLESS STEEL
DIRECT DRIVE, SINGLE AUGER, SINGLE SPINNER
(MONROE MS9, SWENSON SB9, HENDERSON TGS9-ND, OR PRE-APPROVED EQUAL)**

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a #304 stainless steel tailgate spreader to be furnished and installed. The tailgate spreader shall mount on the rear of a truck dump box below the regular tailgate in a manner to allow use of the dump body with the spreader attached. The tailgate spreader shall be standard production of the latest model with standard accessories and in addition meet **or exceed** the following minimum specifications:

Installation: The tailgate spreader shall be installed according to the manufacturer's instruction and to the acceptance/approval of the NDDOT, Maintenance & Engineering Office. The trough and side pans of the tailgate spreader shall be of close enough tolerances as to prevent any gravity fed leaks. If required the vendor may have to modify pans/shields to enable close fit without the use of any temporary sealant or foam.

The hydraulic hoses shall be routed under the tailgate area and down along the spinner hanger bracket and secured allowing full operation of the cover plate, clean out door, and spinner without needing to disconnect hoses. All hydraulic hoses shall be quick coupled, including the return lines. The spinner hoses shall be run independent of the auger hoses up to the truck to allow for easy removal. The spinner return must be quick coupled using a 1/2" coupler. The auger return must be quick coupled using a 3/4" coupler. All hardware mounted to the spreader shall be stainless steel or other non-corrosive material and approved by the NDDOT. The spreader shall be calibrated to apply 0 - 3,000 pounds/mile by use of the in cab ground speed spreader control. Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck phone: (701)328-2565.

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
1. Auger			
a. Single auger	✓		
b. 9" diameter	✓		
c. 1 1/2" shaft	✓		
d. 3/8" flight thickness	✓		
e. Greaseable, sealed, self-aligning bearings	✓		
i. Four bolt flange	✓		
f. Direct drive	✓		
i. Low speed, high torque hydraulic motor directly coupled to auger	✓		
ii. Non-corrosive bushing for auger attachment	✓		

COMPLY		SPECIFICATION DEVIATIONS
YES	NO	

iii. Integral feedback sensor/speed sensor capable of 100 pulses per revolution. The sensor shall be mounted internally in the motor housing and have a rigid 4-pin connector mounted externally on the housing. This sensor shall be compatible with the DOT closed loop system Force America 6100 controller

✓		
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2. Spreader Trough

- a. 7 gauge #304 stainless steel body
- b. All joining pins and cotter/hairpins are to be stainless steel
- c. 7 gauge #304 stainless steel cover plate
- d. 1/4" #304 stainless steel end plates
- e. Full-width, hinged-bottom, clean-out panel
- f. Lock--unlock latches without use of tools
- g. Easy remove anti-flow shields
- h. Hopper to accommodate 84" inside box width
- i. Overall length 102" maximum
- j. Side shields shall be 1/4" stainless steel. The side shields shall serve both as a material spill shield as well as a tailgate prop. The side shield shall be attached and removed without the need for tools or special equipment. The top pin shall be welded to the truck box and the shield shall slide onto the pin and be clipped on. Provisions must be made to keep the side shields rigid to the tailgate without movement. The side shield design shall be approved by the NDDOT. See photo for example.
- k. All pans, plates and mating surfaces must be custom fitted if necessary as to prevent any leaks of material when the auger is not engaged. This typically is 1/8" gap or smaller. Use of foam or temporary sealant is not accepted

✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		

3. Spinner Assembly

- a. All metal components shall be #304 stainless steel, **NO EXCEPTIONS**
- b. Mounted independent of clean-out panel
- c. Mounted on opposite side of wing
- d. 18" spinner

✓		
✓		
✓		
✓		

Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

	COMPLY YES	NO	SPECIFICATION DEVIATIONS
i. Molded one-piece polyurethane as manufactured by C.U.E. #P0652, Thombert #1001357, or approved equal	✓		
ii. Bolt on hub	✓		
iii. 1/2" thick disc	✓		
iv. 1" high vanes	✓		
v. Direct mount to motor	✓		
e. Motor mounted under spinner	✓		
f. Adjustable spread patterns--right, left, and center--one, two, or three lanes	✓		
g. Self-leveling	✓		
h. 10 gauge #304 stainless steel guards and deflectors	✓		
i. Spinner shield to keep material off truck undercarriage	✓		
j. Removable assembly	✓		

4. Hydraulic components

a. All hydraulic hoses, connections, and quick couplers, 1/2" pressure and 3/4" return line for auger and all 1/2" for spinner	✓		
i. Hydraulic hoses routed as stated above in the installation instructions	✓		
ii. All hydraulic hoses shall have a tethered cap or plug to prevent any contamination	✓		
iii. Quick coupled to truck hydraulics	✓		
iv. Spinner pressure and return hydraulic hose must be independently routed and attached to the truck box to allow for easy removal of spinner (location of couplers to be approved on first truck)	✓		
b. Low speed, high torque hydraulic auger motor	✓		
c. Low speed, high torque hydraulic spinner motor	✓		

5. Mounting

Quick disconnect mounting pins. Pins must be supported on inside of body corner and welded on exterior to prevent from pulling off body

a. Mounting hardware, shall be non-corrosive or stainless steel	✓		
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4

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
b. Convenient chain lifting slots	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6. Manuals, as applicable			
a. Two operator's manuals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Two lubrication schedules	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Two parts books	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d. Two Technical Repair Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. Standards			
Unit shall meet OSHA standards	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. Warranty			
One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

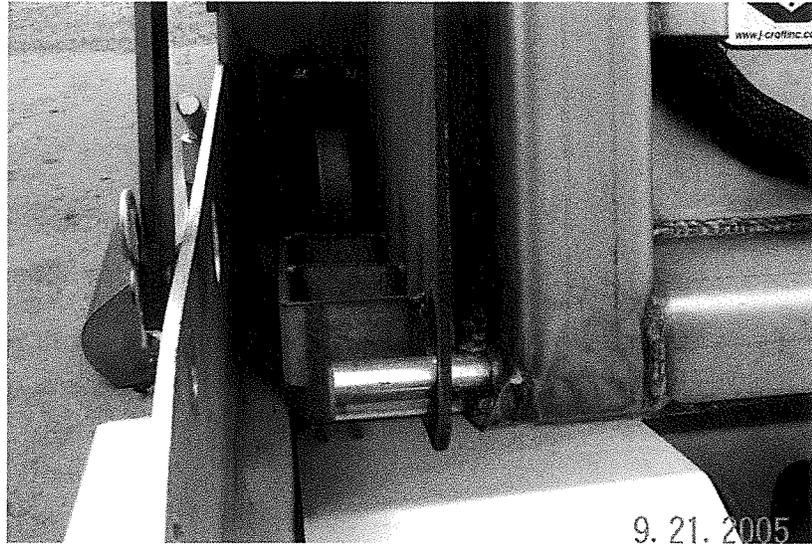
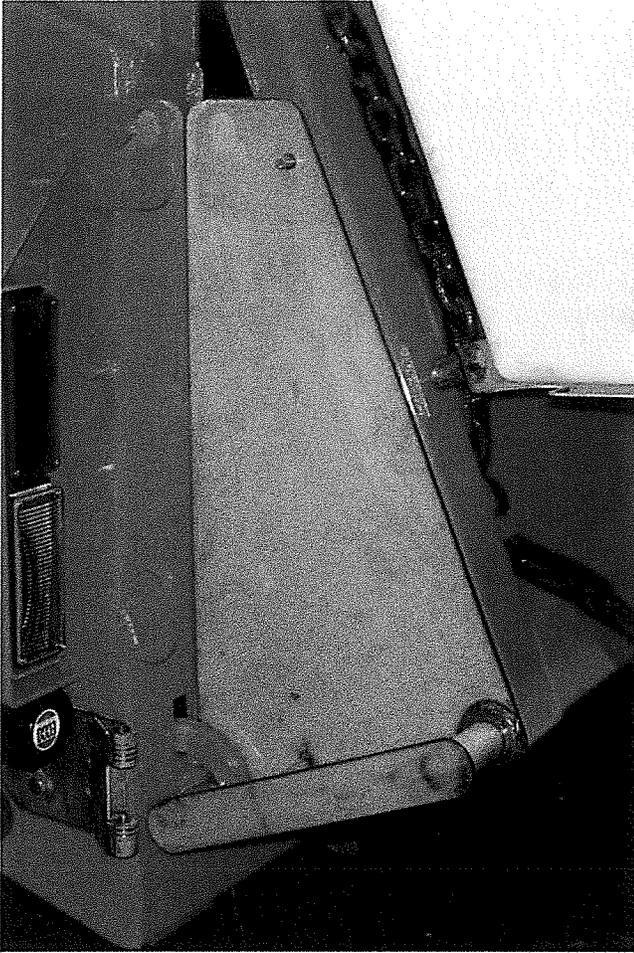
The tailgate spreader shall be delivered mounted on a truck dump box. The tailgate spreader shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: Swenson MODEL: SBD-9-304SS

PARTS/SERVICE DEALER/WARRANTY: Bert's Truck Equipment TELEPHONE: 800-232-3787

Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

BIDDER: _____



These are sample images for informational purposes only, actual products are to be approved by the NDDOT, Maintenance & Engineering Division



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIFICATIONS
FOR
LIQUID PRE-WET SYSTEM, RADIUS DUMP FENDER MOUNT, GRAVITY FLOW

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a gravity flow liquid pre-wet system for the application of de-icing solution directly onto the material being spread by the spreader. The pre-wet system shall be compatible with a variety of de-icing solutions including sodium chloride, calcium chloride, magnesium chloride, potassium acetate, CMA, and Ice Ban. The pre-wet system shall be capable of being mounted on a single axle or tandem axle truck. The tanks shall fit over a rigid body mounted fender. The fender shall have no raised edges to trap material and openings in the front and rear inboard corners to allow accumulated material to escape. The tanks must rest directly on top of rubber mat on top of fender or a completely smooth surface. Either option shall provide space on all sides, except bottom, of tank to allow debris to fall or be washed away. The pre-wet system shall come complete with all the hardware that is required to apply liquid de-icing solution to granular material at the spreader spinner. The pre-wet system shall be standard production of the latest model with standard accessories and in addition meet the following minimum specifications:

Installation: The pre-wet system shall be installed according to the manufacturer's instruction and to the acceptance/approval of the NDDOT. A 1" schedule 80 stainless steel threaded pipe nipple or equal non-corrosive fitting shall be properly attached to the spreader spinner assembly. A 1" poly 90" elbow shall be threaded into the pipe nipple. A manual ball valve must be installed after the electric ball valve to control regulate flow into the spinner discharge hose. This valve will allow for fine tuning/calibration of liquid application. A 1" Banjo quick coupler with cover caps shall be plumbed in line to quick disconnect the poly braid hose from the spreader spinner assembly. The tanks shall be positioned for easy access to the fill ports.

The system shall be calibrated to apply 3 gallons per minute by means of in-line ball valve with 1/2 " supply hose with filled tanks for head pressure. All electrical and plumbing connections shall be secured so they will not fail with heavy snow and ice buildup on them. There shall be a manual ball valve installed on the outlet circuit of each tank with common fill tube in between. These ball valves will allow calibrated flow to fill both tanks equally. See photo. The vendor must use flanged fittings with SS clamps wherever possible for all plumbing rather than threaded fittings. Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck phone: (701)328-2565.

Table with 3 columns: Item Description, COMPLY YES, NO, and SPECIFICATION DEVIATIONS. Row 1: 1. Liquid Reservoir. Sub-rows a-f describe tank requirements and UV stabilization. All 'COMPLY' boxes are checked.

4

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
g. Anti-slosh baffle built into top of tank at the opening(s)	✓		
h. fill port with spin on lids and rubber gaskets, or threaded steel cap	✓		
i. Prefer to have no lids on tank, only threaded bung	✓		
j. 1 1/4" minimum , bottom quick fill port	✓		
k. 1" suction port (Note: if the 1 1/4" port is used for discharge, the port must be necked down to 1")	✓		
l. Vapor vent at top of tank, sized large enough to prevent damage to tank when re-filling tanks.	✓		
i. Tank Vent to be located only on forward of LH and RH tanks to prevent spillage when body is raised. Tank vent is to be plumbed to empty and fluid back into the box of the truck, no fluid shall leak onto the ground with the box up or down. <u>Prototype design must be approved by NDDOT personnel.</u>	✓		

2. **Hardware**

a. All parts in contact with the de-icing solution shall be of non-corrosive material	✓		
b. Three #304 stainless steel mounting brackets per tank without a cradle that are lined with rubber or equal belting material to prevent tank wear due to vibration (preferred) OR two 3" and 15,000 lb web breakage rating UV stabilized nylon straps per tank secured to the fender with 1,000 lb rated and 3,000 lb breakage triangle eye with bolted connections and lock nuts to the fender. #304 stainless steel skids may be mounted under tanks, but bottom of tanks are to rest on single continuous smooth surface, heavy enough gauge to ensure not stress points to cause leaks. Tanks may rest on full coverage rubber mat and lie directly on fender as long as there are no raised areas to collect water and debris and space exists between body side and tank sides to prevent wear on tanks and allow debris to be flushed away clean all around tank.	✓		
c. The tanks shall not stick out beyond the side of the steel fender. The fender shall be sturdy enough to serve as a bump rail from small impacts from a loader tractor or pay loader.	✓		
d. Tanks shall be plumbed to fill and dispense together	✓		
e. 1 1/2" plumbing and 2" male cam lock fitting with female cover cap for quick bottom fill plumbed opposite side of the wing with easy access with gloves on. Adequate reinforcement shall be made to support the fill side plumbing from stress and weight when connected to the supply line. Stainless steel or other non-corrosive hardware shall be used	✓		

Bert's Truck Equip. of Mhd
3804 Hwy 76 N
Meerhead, Mn 56560

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		COMPLY		SPECIFICATION DEVIATIONS
		YES	NO	
f.	Glass reinforced polyethylene fittings	✓		
g.	All full-port plumbing, reducers or bushings not allowed except from transition from 2" fill port to remainder of 1-1/2" system.	✓		
h.	Clear 1" polyester braid reinforced plastic discharge hose for cold weather use	✓		
i.	Remote control electric ball valve, 1" full port flanged fittings with ss clamps	✓		
i.	Spray Systems Co. model 344BEC-24-C (NO EXCEPTIONS)	✓		
ii.	1" flanged connections w/ss clamps	✓		
iii.	Single pole double throw switch (3 wire)	✓		
iv.	Wetted parts of nylon, teflon, polypropylene, or viton	✓		
v.	Tank low level sensor	✓		
vi.	Cab control switch and indicator light provided in spreader control or switch bank	✓		
j.	3-1½" standard ball valve with flanged fittings	✓		
i.	Polypropylene	✓		
k.	1" standard ball valve with flanged fittings (to regulate discharge)	✓		
i.	Polypropylene	✓		
l.	1" schedule 80 mild steel threaded pipe nipple or equal non-corrosive fitting	✓		
m.	1" poly 90" elbow	✓		
n.	1" Banjo or equal quick coupler with cover caps	✓		
3.	Manuals, as applicable			
a.	Two operator's manuals	✓		
b.	Two parts books	✓		
4.	Warranty			
	One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period	✓		

Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

The pre-wet system shall be delivered mounted onto the truck chassis rear fenders. The pre-wet system shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: Bonnell MODEL: 540 - ND-DOT

PARTS/SERVICE/WARRANTY DEALER: Bert's Truck Equipment TELEPHONE: 800-232-3787

The following are sample images for informational purposes only, actual products are to be approved by the NDDOT, Maintenance & Engineering Division



Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

BIDDER: _____

4



Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

BIDDER: _____

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
 SPECIFICATIONS
 FOR
 LIQUID PRE-WET SYSTEM, TAILGATE MOUNT, GRAVITY FLOW
 (FORCE TG-150-EGF, MONROE TAILGATE, SWENSON LSSF-T, OR PRE-APPROVED EQUAL)

Bidder's Instructions: Indicate compliance to the specifications on the "COMPLY YES/NO" line by each specification. Indicate any deviations from the specifications whether the minimum specifications are met or not on the "SPECIFICATION DEVIATIONS" line. Failure to comply with bid specifications may result in rejection of the bid. The state reserves the right to waive minor deficiencies or technical variances.

The intent of this specification is to describe a gravity flow liquid pre-wet system to be furnished and installed for the application of de-icing solution directly onto the material being spread by the tailgate spreader. The pre-wet system shall be compatible with a variety of de-icing solutions including sodium chloride, calcium chloride, magnesium chloride, potassium acetate, CMA, and Ice Ban. The liquid reservoir tank shall be mounted on the tailgate of a tandem axle truck dump box and be sized as specified. The pre-wet system shall come complete with all the hardware that is required to apply liquid de-icing solution to granular material at the spreader trough at the discharge side. The pre-wet system shall be standard production of the latest model with standard accessories and in addition meet **or exceed** the following minimum specifications:

Installation: The pre-wet system shall be installed according to the manufacturer's instruction and to the acceptance of the NDDOT. The hose dispensing the liquid shall be routed not to interfere with the spreader operation and supported to maintain liquid application to the spreader trough at the discharge side. A 3/4" stainless steel threaded pipe nipple or equal non corrosive fitting shall be properly attached to the spreader discharge end side plate. A 3/4" poly 90" elbow shall be threaded into the pipe nipple. A 3/4" Banjo quick coupler with cover caps shall be plumbed in line to quick disconnect the poly braid hose from the spreader. The tank shall be mounted to overhang the truck tailgate and positioned for easy access to the fill ports. The tank shall be mounted as low as possible on the tailgate and high enough not to interfere with the operation of the spreader cover plate. The mounting structure shall be a rigid connection to the tailgate, fixed not to fall off, and extend a minimum of 70" wide across the back of the tailgate to distribute the load along the entire tailgate. The tank's mounting structure shall not require the use of tools to remove from the tailgate. The bottom of the mounting structure shall be fastened by a pin type clip and not bolted into the tailgate. The tailgate shall be reinforced where the mounting structure meets the tailgate. The mounting of the tailgate prewet mounting structure shall be approved by the NDDOT, Maintenance and Engineering Office. The system shall be calibrated to apply 3 gallons per minute with a 1/2 discharge hose with filled tank for head pressure. All electrical and plumbing connections shall be secured so they will not fail with heavy snow and ice buildup on them. The wiring for the electric ball valve shall be long enough to extend to the side of the truck box for connection to the power lead. The switch and wiring must allow for the ball valve to be activated by both the individual brine switch and also through the sander standby button on the Force 6100 controller. **The vendor must use flanged fittings with SS clamps wherever possible for all plumbing rather than threaded fittings.** Any questions and weekly updates should be referred to NDDOT, Maintenance and Engineering Services Division, Shawn Hauck phone: (701)328-2565.

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
1. Liquid Reservoir			
a. Polyethylene rotationally molded or fiberglass tank	✓		
b. Trapezoidal, rectangular, or "D" shaped (oval or cylindrical is not acceptable)	✓		
c. Tank capacity - minimum 135 gallon, maximum 150 gallon	✓		
d. UV stabilized	✓		
e. 3/8" wall thickness or design liquid rating of 14.5 lbs per gallon	✓		

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
f. Rectangular or "D" shaped tanks shall be horizontal mount	✓		
g. Anti-slosh baffle built into top of tank at the opening(s)	✓		
h. 3" fill port with spin on lid and rubber gaskets	✓		
i. Spin on lids shall be tethered to prevent being separated from tank	✓		
j. 1¼" bottom quick fill port located on both sides of the tank for right or left side fill, ports should be molded into the tank	✓		
k. 1" suction port located on both sides of the tank for right or left side discharge (Note: if the 1¼" port is used for discharge, the port must be necked down to 1")	✓		
l. 1" vent at top of tank, or largest available from manufacturer	✓		
m. Maximum 84" wide	✓		
2. Hardware			
a. All parts in contact with the de-icing solution shall be of non corrosive material	✓		
b. All full port plumbing	✓		
c. #304 stainless steel cradle to support the full weight of the tank with two #304 stainless steel mounting brackets without a cradle that are lined with rubber or equal belting material to prevent tank wear due to vibration (preferred) OR two 3" and 15,000 lb web breakage rating UV stabilized nylon straps secured to the cradle with 1,000 lb rated and 3,000 lb breakage triangle eye bolted connections with lock nuts to the cradle	✓		
d. 1½" plumbing and 2" male cam lock fitting with female cover cap for quick bottom fill with flanged fittings and ss clamps	✓		
e. Glass reinforced polypropylene fittings with flanged fittings and ss clamps	✓		
f. Clear 1" polyester braid reinforced plastic discharge hose for cold weather use	✓		
g. Remote control electric ball valve, 1" full port	✓		
i. Spray Systems Co. model 344BEC-24-C (NO EXCEPTIONS)	✓		
ii. 1" flanged connections and ss clamps	✓		
iii. Single pole double throw switch (3 wire)	✓		

Bert's Truck Equip. of Mhd
3804 Hwy 75 N
Moorhead, Mn 56560

	COMPLY		SPECIFICATION DEVIATIONS
	YES	NO	
iv. Wetted parts of nylon, Teflon, polypropylene, or Viton	✓		
v. Tank low level sensor	✓		
vi. Cab control switch and indicator light provided in spreader control or switch bank	✓		
vii. Wiring from control valve shall be long enough to reach the side of the truck box for connection	✓		
h. 1½" standard ball valve with flanged fittings	✓		
i. Polypropylene	✓		
i. 1" standard ball valve with flanged fittings (for regulating discharge)	✓		
i. Polypropylene	✓		
j. 1" stainless steel threaded pipe nipple or equal non corrosive fitting	✓		
k. 1" poly 90" elbow	✓		
l. 1" Banjo or equal quick coupler with cover caps	✓		
3. Manuals, as applicable			
a. Two operator's manuals	✓		
b. Two parts books	✓		
4. Warranty			
One-year full unconditional warranty, manufacturer's warranty shall apply if for a longer period	✓		

The pre-wet system shall be delivered mounted onto the truck tailgate. The pre-wet system shall be delivered free of any defects due to shipping or workmanship. Any defects identified shall be remedied immediately at no additional cost to the NDDOT. Product literature shall be submitted with the bid.

MAKE: Varitech MODEL: LDS-TG150-E6F-ND
 PARTS/SERVICE/WARRANTY DEALER: Bert's Truck Equipment TELEPHONE: 800-232-3787

Bert's Truck Equip. of Mhd
 3804 Hwy 75 N
 Moorhead, Mn 56560

BIDDER: _____

MCR - SERIES

MID-CONVEYOR. CHAIN-TYPE CONVEYOR. REAR DISCHARGE.

FEATURES & BENEFITS:

1. Available in a variety of carbon and stainless steel materials for cost effectiveness, corrosion resistance and added durability.
2. Heavy-duty 667XH conveyor chain for added strength and longevity. Other optional chain configurations available upon request.
3. Prism-shaped tapered body design allows compacted and irregularly shaped materials to exit the rear of the dump body without lodging.
4. 6-panel tailgate with 1-1/2" diameter stainless steel pivot and locking pins for superior strength and corrosion resistance.
5. Tailgate is locked in place with twin pneumatic cylinders and over-center latch mechanisms to ensure trouble-free operation.
6. Manifold grease system ensures all critical wear points are serviced.
7. Central conveying system allows the Commander dump body to remain safely on the truck chassis during operation.
8. Hydraulic motor and planetary gearbox combination provides optimum torque to power the conveyor chain through the toughest unloading conditions.
9. Stainless steel corner post and tailgate trip mechanism is standard on carbon steel models to provide additional corrosion resistance.



SHOWN WITH
OPTIONAL ACCESSORIES

COMMANDER
MULTI-PURPOSE BODIES

CAPACITY SPECIFICATIONS

MODEL NUMBER	BODY LENGTH	MINIMUM TRUCK CHASSIS REQUIREMENT	STRUCK SIDE WALL CAPACITY	STRUCK TAILGATE CAPACITY*	HEAPED BODY CAPACITY	MAXIMUM LIQUID CAPACITY
MCR09	9'	72" C/A	6.3 yd ³	8.2 yd ³	9.6 yrd ³	250 gal
MCR10	10'	84" C/A	7.1 yd ³	9.1 yd ³	10.7 yrd ³	300 gal
MCR11	11'	96" C/A	8.0 yd ³	10.1 yd ³	11.9 yrd ³	300 gal
MCR12	12'	108" C/A	8.8 yd ³	11.1 yd ³	13.1 yrd ³	380 gal
MCR13	13'	96" C/T	9.6 yd ³	12.1 yd ³	14.4 yrd ³	540 gal
MCR14	14'	108" C/T	10.4 yd ³	13.1 yd ³	15.6 yrd ³	540 gal
MCR15	15' - 2"	120" C/T	11.3 yd ³	14.2 yd ³	16.8 yrd ³	540 gal
MCR16	16' - 2"	132" C/T	12.1 yd ³	15.2 yd ³	18.0 yrd ³	550 gal

* With Side Boards

BODY DIMENSIONS

Bulkhead height 50 ½"
 Inside body width 87"
 Long sill height..... 14 ½"
 Side wall height..... 40 ½"
 Tailgate height..... 49 ½"

BODY CONSTRUCTION

Bulkhead..... 7 gauge
 Floor ¼"
 Long sill..... ¼"
 Side wall..... 7 gauge
 Tailgate..... 7 gauge

CONVEYOR CHAIN

Type..... 667XH Pintle
 Tensile Strength 26,000 lbs per strand
 Crossbar Profile ½" x 1 ½"
 Crossbar Spacing..... every-other link
 Chain Width..... 30 ½" c/c

OPTIONAL ACCESSORIES

- | | | | |
|--------------------------|-----------------------------|---|-----------------------|
| 1. Air foil | 11 Poly tank pre-wet system | 15. Removable subfloor with cleanout door | 17 Tarp kit |
| 2 Cab shield | 12 Rear material spreader | 16 Side boards- wood or metal | 18. Top apron screen |
| 3. Chain oiler | 13. Rear spill pan | | 19. Vibrator |
| 4. Conveyor chain cover | 14. Hoist kit | | 20. Rear gravel chute |
| 5 Fenders- poly or metal | | | |
| 6 Light packages | | | |
| 7. Motor feedback sensor | | | |
| 8 Mud flaps | | | |
| 9 Observation ladder | | | |
| 10. Body riser kit | | | |



www.bonnell.com • (800) 851-9664 • info@bonnell.com
 1335 Franklin Grove Rd. • Dixon, IL 61021



CERTIFIED BONNELL DEALER:

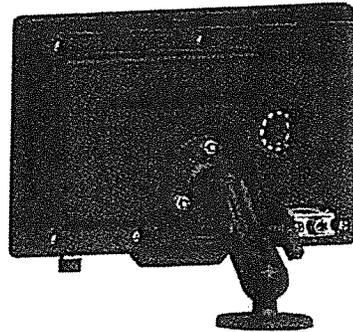
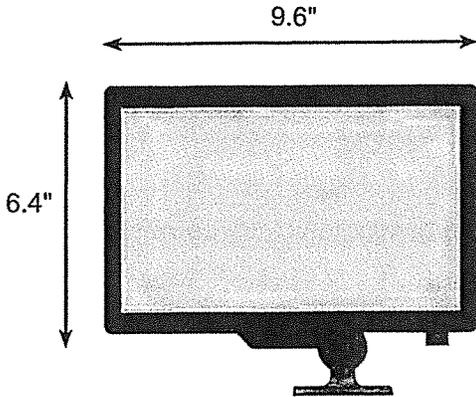
F E A T U R E S

The 6100 control system is the industry-leading integrated CAN Bus joystick and spreader controller. Embedded within the 10" color LCD, this controller comes fully equipped with camera integration and PreCise MRM cellular and GPS technologies greatly reducing the footprint of components within the cab.

- **High Resolution 10" Color LCD**
 - Displays information-rich graphical spreader data along with up to three camera feeds eliminating the need for multiple displays within the cab.
- **CAN Bus Central Processing**
 - Provides high-level diagnostics and eliminates bulky harnessing.
- **Connectivity**
 - Plug-and-play with a single connector to a trailer system, spreader body or other slide in attachments.
- **AVL/GPS Integration Onboard**
 - Fully integrated with PreCise[®] MRM hardware and antennas for accurate reporting on route, location, material application, accessory details and more.
 - Convenient over-the-air updates, configuration and troubleshooting.
- **Wireless Technology**
 - Integrated support for PreCise MRM ARC Wireless Air & Road Conditions System
- **Joystick Options**
 - Available as a standalone spreader controller or integrated within our Patrol Commander Ultra or CommandAll Single joystick consoles.



Product Specifications



Bright, bold 10" color LCD screen featuring thin borders, capacitance touch for ease of calibration, and a fully-adjustable mounting option for quick installation.



Cellular Technology

Convenient over-the-air updates, configuration and troubleshooting.



Two USB Ports

Import and export settings without the need of a computer.



AVL/GPS Integration with Antenna

Integrated PreCise MRM hardware & antennas for accurate mapping, reporting and real-time information.



Multiple Camera Feeds

Supports three camera feeds, eliminating the need for multiple displays within the cab.

Technical Specifications

Size	6.4" H x 9.6" W x 2.6" D
Case Material	ABS plastic
Screen Size	10.1"
Screen Resolution	1024 x 600 px
Touch Panel	Capacitive
Backlighting	LED
Operating Voltage	9-16 VDC
Operating Current	2A
Max System Current	40A
Discrete Digital Inputs	3
Current Loop (4-20mA) Input...	1
Dashkey Input	1
Speedometer	Dual Adjustable Trip Point, with pull up enable
USB 2.0 Type A	2
Composite Video Inputs	3

Outputs	8
• Relay Outputs 1-5	Shared 15A
• Solid State Outputs 6-8	0.25A Each
5V Reference	0.1A Limited
12V Reference	0.1A Limited
Connectivity:	4G Cellular/GPS/2.4 Ghz 802.15.4
Electrical Protection Type	Over-current, reverse polarity, load dump, ESD
Electrical Testing	J1113/4: Bulk Current Injection 1-400MHz
.....	J1113/21: Immunity to Electromagnetic Fields 20-1000MHz
.....	CISPR 25: RF Radiated Emissions
.....	J1113/13: ESD 4 & 8kV Direct, 4/8/15kV Air
Mechanical Testing	SAE1455 Shock
.....	SAE1455 Swept Sine Vibration
.....	SAE1455 Random Vibration

1-888-99-FORCE

501 East Cliff Road Burnsville, Minnesota 55337 www.forceamerica.com

Sales and Service Centers

Bismarck, ND	800-624-7568	Dallas, TX	800-893-7225	Milwaukee, WI	800-722-5844
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FORCE[®]
America INC.



INNOVATIVE ELECTRONIC SOLUTIONS

Spreader & Joystick Controls

SPREADER CONTROLS

At FORCE America we proudly engineer and manufacture innovative electronic spreader controls designed for winter maintenance. We offer a range of controller options to meet the needs of all sizes of trucks and fleets, providing the power and efficiency needed to fight snow and ice with precision.

SSC6100



The 6100 control system is the industry-leading integrated CAN Bus joystick and spreader controller. Embedded within the 10" color LCD, this controller comes fully equipped with camera integration, antenna and PreCise MRM cellular and GPS technologies greatly reducing the footprint of components within the cab.

Features

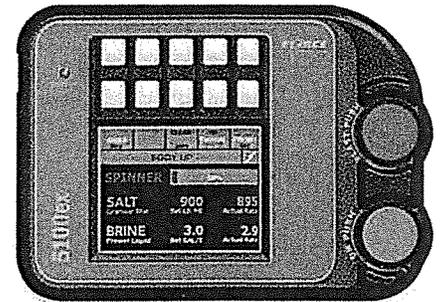
- High Resolution 10" Color Touchscreen LCD
- Multiple Camera Feeds
- CAN Bus Central Processing
- Single Connector for Attachments
- Integrated AVL/GPS & Onboard Antenna
- PreCise MRM ARC Wireless Air & Road Conditions System
- Over-The-Air Updates, Configuration and Troubleshooting

5100ex

The 5100ex is a fully-integrated, all-in-one spreader control designed for heavy duty winter maintenance operations. Its compact, modern design offers intuitive navigation and comfort for a commanding solution with a wide range of control.

Features

- Manual, open and closed loop controller capabilities
- Optional integrated control for the plow and hoist operation
- Ergonomic, compact design for comfortable operation
- Bright, bold color LCD touchscreen
- Backlit rocker switches for easy viewing at all times
- Interlock for use of critical functions
- Fully adjustable mounting options
- Built-in USB port for data retrieval and firmware upgrades



SSC3100



Simple, manual spreading is what the SSC3100 spreader control is designed to do. This powerful yet conveniently simple controller provides the functionality needed with an ease of operation. This turnkey spreader is ready to go right out of the box.

Features

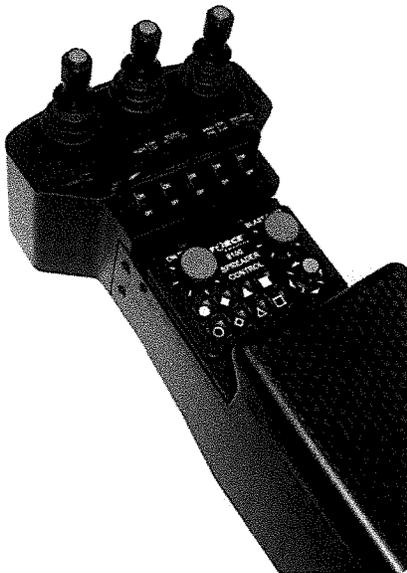
- Proportional controls for granular and liquid applications
- Minimum and maximum settings adjustable through the calibration mode
- Preconfigured to spread on initial power-up
- Optional groundspeed interrupt
- Intuitive Control knobs
- Color LEDs around the dials illuminate the numbers as rates are increased
- Fully adjustable mounting options

JOYSTICK CONTROLS

Our spreader controls are compatible with our thoughtfully designed joystick control systems. We work hard to engineer durable, ergonomic armrests that are rugged yet comfortable. We offer different mounting options designed for maximum driver comfort for the work ahead.

PATROL COMMANDER® ULTRA

(Compatible with 5100ex or SSC6100 spreader controls)



The Patrol Commander™ Ultra Series Controller for medium and heavy duty plow trucks is a fully proportional control with integrated spreader control. Ergonomic design allows one-handed, finger-tip control of all spreader functions and up to nine hydraulic functions. Rigid construction ensures product quality for the life of the vehicle.

Features

- Fully proportional controls
- Multiple joystick types and configurations available
- Redundant dual output joysticks for advanced diagnostics
- LED backlit nomenclature
- CAN Bus Technology
- Multiple float options available

COMMANDALL® SINGLE

(Compatible with SSC6100 only)

The CommandAll Single is a high-quality, dual-axis hall-effect joystick with redundant outputs for guaranteed reliability. This rugged yet comfortable handle has six programmable push buttons that are able to be preset to the requirements of your fleet. A programmable interlock trigger allows for safe use of critical functions. Backlit switches are available for quick access to other special or auxiliary features.

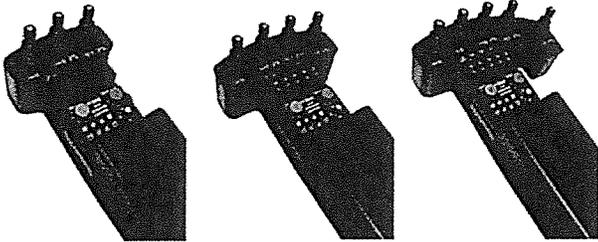
Features

- Dual-axis joystick with redundant outputs for advanced diagnostics
- Six programmable pushbuttons
- System interlock trigger
- LED backlit nomenclature
- CAN Bus Technology
- Multiple float options available



AVAILABLE OPTIONS

MULTIPLE JOYSTICKS



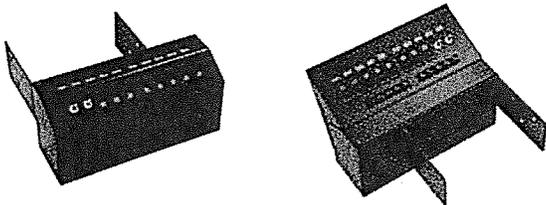
Customize your joystick controller with 3, 4 or 5 joystick configurations and choose from multiple joystick types. Our flexible design is sure to meet your specific system needs.

CAB MOUNTING

Choose to mount the joystick and armrest to the floor with our slim Floor Mount Base or mount to the seat with our heavy-duty Seat Mount. Also available is our Display Mount Bracket that attaches directly to our armrest for easy installation and minimal cab space. All mounting options offer proper positioning for maximum driver comfort.



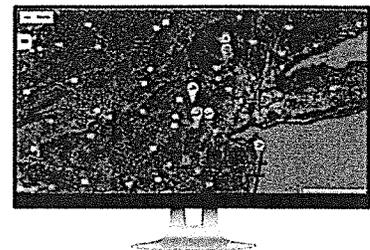
SWITCH BOX ACCESSORY



Optional Switch Box accessory fits up to ten switches and is available in our standard or inview configuration. Designed to be mounted on the side of your armrest, all switches are within arm's reach of the driver to allow for easier and safer access to important functions.

PRECISE[®] MOBILE RESOURCE MANAGEMENT

As part of the FORCE America family, the PreCise MRM solution is integrated deeply within our control systems. Accurate route, maintenance and material usage management, asset tracking, detailed mapping, and comprehensive reporting are all available as a part of a total system approach. PreCise MRM goes beyond AVL/GPS to provide a complete fleet management solution.



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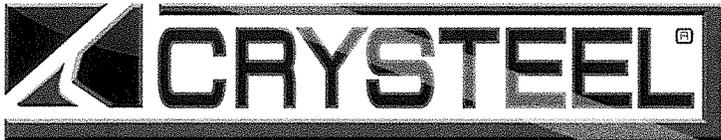
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SELECT

MEDIUM & HEAVY DUTY
DUMP BODIES



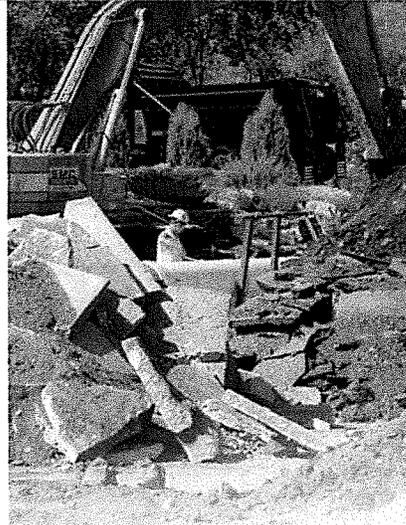
CONTRACTORS

ASPHALT

PUBLIC WORKS

DEMOLITION

GENERAL



www.CRYSTEEL.com



**BUILD IT
YOUR WAY**



Made in USA

CRYSTEEL Select DUMP BODIES

SELECT CUSTOM DUMP BODY PROGRAM

Crysteel's exclusive "Build it Your Way" program is more than just a concept — it's a customer-driven ordering system that makes manufacturing to specific requests a reality.

The Select Body program allows you to essentially design your own dump body without incurring the extra cost and time normally associated with custom designed products. You can design a dump body best suited for your application in a 5-through 20-cu yd capacity. Crysteel offers body lengths in 6-inch increments. Adjust your front, side and rear heights in 2-inch increments.

Choose between traditional square body styles or elliptical bodies, and then choose the best steel to fit your specific application. Front body choices include sloped front, straight front or bailmount design. Rear choices range from asphalt, sloped, and power tailgate designs. And even more choices are available!

All Select dump bodies include the most comprehensive warranty in the truck equipment industry. Crysteel's Customer Satisfaction Pledge covers new products for a period of five (5) years, and is not restricted by vehicle mileage.

Get your job done right with a Select dump body from Crysteel.

VOCATIONAL STEEL

Selecting the proper steel to build your dump body is extremely important to the performance of your body. Steel comes in many strengths and thickness and it is important to know that thicker is not always better.

The high strength steels available allow the use of thinner materials that have higher yield ratings to add strength and can reduce body weight significantly. Lighter, stronger bodies increase body life, payload capacity, and hauling revenues. Build your body your way to best fit your applications.

Yield Strength Value at given thickness	Typicals				Available Steel with Crysteel Select Bodies				
	Thickness	Yield (psi)	Tensile (psi)	Brinell	Type of Steel	Front	Sides	Rear	Floor
4,707.50	10 ga	35,000	85,000	180	Stainless Steel	x	x	x	x
6,275.50	7 ga	35,000	85,000	180	Stainless Steel	x	x	x	x
6,725.00	10 ga	50,000	65,000	143	A1011 GR50 (X-Ten) Steel	x	x	x	x
8,750.00	1/4"	35,000	85,000	180	Stainless Steel	x	x	x	x
8,965.00	7 ga	50,000	65,000	143	A1011 GR50 (X-Ten) Steel	x	x	x	x
11,960.00	11 ga	100,000	110,000	250	100XF Steel		x	x	
12,500.00	1/4"	50,000	65,000	143	A1011 GR50 (X-Ten) Steel	x	x	x	x
16,440.00	8 ga	100,000	110,000	250	100XF Steel	x	x	x	
21,875.00	1/8"	175,000	205,000	450	AR450 Steel		x		
27,115.00	3/16"	145,000	180,000	450	AR450 Steel	x	x	x	x
36,250.00	1/4"	145,000	180,000	450	AR450 Steel	x	x	x	x

Specifications subject to change.

BODY STYLE OPTIONS

PARADOX SELECT

- 8" radius corners formed between floor and sidewalls to reduce hang up of material
- Lower load center of gravity



RAPTOR SELECT

- Smooth, streamline style
- 18" radius opening offers easy clean-out
- Elliptical design resists denting with less flat surface for material to hit



FRONT OPTIONS

- Sloped front
- Straight front
- Bailmount



Sloped front design allows for far forward mounting of the dump body while providing a convenient area for reservoir and toolbox.



Bailmount front completely eliminates the doghouse for excellent clean-out and increases capacity.

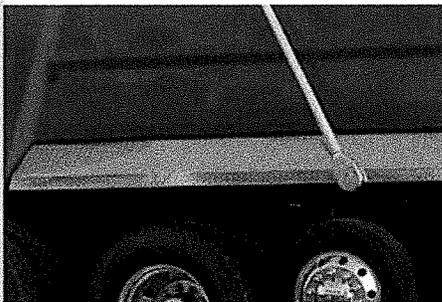
SIDE OPTIONS

Elliptical

- Sloping sides
- Tarprail (upper and lower)
- Fenders (aluminum or steel)
- Ladder (rigid or folding)

Traditional (square)

- Sloping sides
- Tarprail (upper and lower)
- Front contoured corner posts
- Single Panel (with or without fender)
- Double Panel
- Vertical and/or horizontal side braces
- Ladder (rigid or folding)



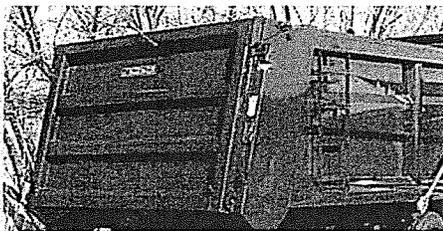
Full length aluminum fenders are a great side option to save weight while providing a stylish look.



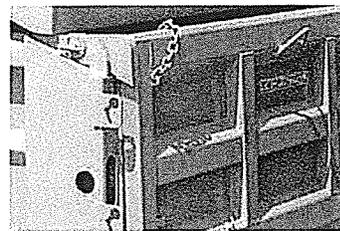
Sloping sides eliminate the need for sideboards and offer better weight distribution by allowing more payload at the front of the body.

REAR OPTIONS

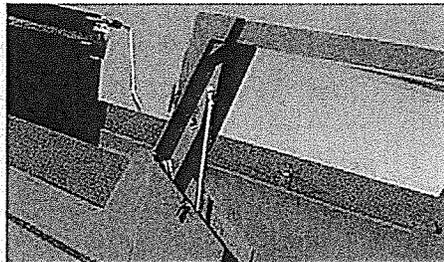
- Asphalt rear
- Sloped rear
- Straight rear
- Power tailgate (hydraulic or air)
- Tailgate release (manual or air)
- Patchgate (sliding)
- Multiple rear light configurations
- Tailgate hardware (7" or 12" offset or double link)
- Tailgate bracing (horizontal, vertical, full rib)



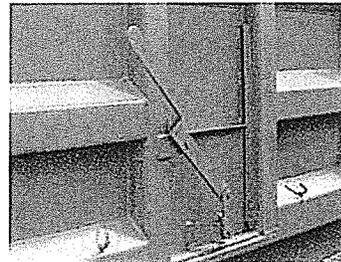
Asphalt tailgate eliminates the need for a spreader apron and allows you to pull away from the paving unit while the body is raised.



Straight rear with horizontal and vertical tailgate braces.



Power tailgate creates an opening 18" higher than tailgate itself.



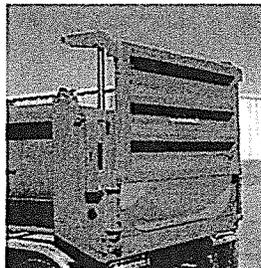
Traditional sliding rear patchgate features easy operation.

HIGH 'N SLIDE™

Multi-Function Tailgate

Exclusive, Patent #8,414,083

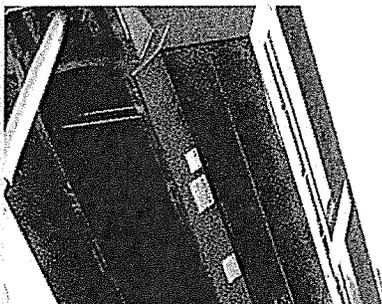
- Traditional dump-through
- Sliding
- High-lift



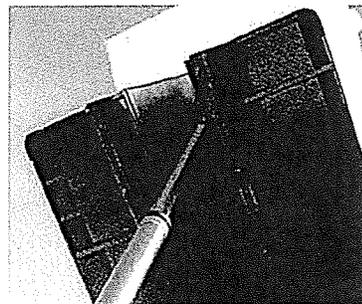
Performs like a standard tailgate and a high-lift tailgate, will also slide in tracks to allow metering of asphalt and spreading of gravel.

UNDERSTRUCTURE OPTIONS

- Western Tubular (heated or non-heated) understructure
- Western I-Beam understructure
- Interlocking understructure



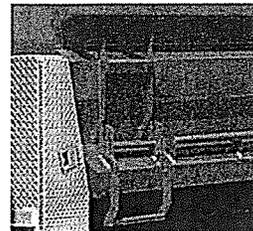
Western Tubular understructure offers easy cleanup and maintenance with less material hang up.



Traditional interlocking understructure for added strength and rigidity.

ADDITIONAL OPTIONS

- Cabshields
- Pull or Electric Asphalt Tarp
- Solid Poly Side Boards
- Spillshields
- Poly Fenders
- Vibrator (installed)
- Steps inside body
- Sloped front toolbox
- Back-up alarm
- Body up light kits
- LED lights



CRYSTEEL

HAS THE BODY FOR YOU

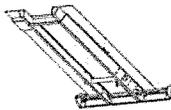
ASPHALT CONTRACTORS

As an Asphalt contractor you need functionality and versatility in the dump body you use. Crysteel offers you both the ability to custom design your body with features like a sloped front that promotes better clean out, as well as an asphalt rear that allows you to pull away from a paver box without lowering your body. Being functionally efficient on the job saves time and improves profit margins.

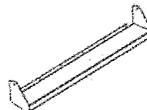
Asphalt/Sloped Rear



Heated Floors



Asphalt Apron



Sloped Front

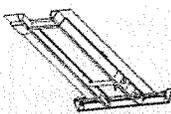


BUILD IT YOUR WAY

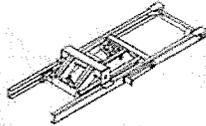
PUBLIC WORKS CONTRACTORS

Providing a clear and concise set of equipment specifications is the key to getting the versatile dump body you need for your fleet. Crysteel can help you develop that perfect body and hoist specification by providing you with key information on different body styles, features and options, plus help you with the types of steel that you need to best deal with the different materials you haul.

Western Understructure



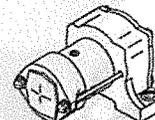
Roller Combo Hoist



Power High-Lift Tailgate



Vibrator

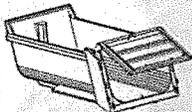


BUILD IT YOUR WAY

DEMOLITION CONTRACTORS

Designing a dump body to hold up to the rigors of large rock, concrete chunks with rebar, and construction rip-rap requires a little planning and forethought. Crysteel dump bodies can be designed and built to stand up to the toughest stuff you can dish out. All this without sacrificing good looks for performance.

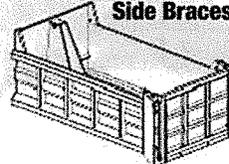
Elliptical



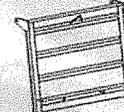
Power High-Lift Tailgate



Vertical & Horizontal Side Braces



Double Panel Tailgate



BUILD IT YOUR WAY

GENERAL CONTRACTORS

You may never know from one day to the next what you might need your dump body to haul. Being able to design a dump body that will handle the tougher loads, yet lighter where it can be, allows you to keep the weight down to maximize the hauling capacity of lighter aggregates. Keeping your costs in line without sacrificing performance can be a challenge, but Crysteel can help you customize a dump body that will fit your application.

Sloped Sides with Horizontal Side Brace



Sloped/Asphalt Rear



Sloped Front



Vertical Side Braces



BUILD IT YOUR WAY

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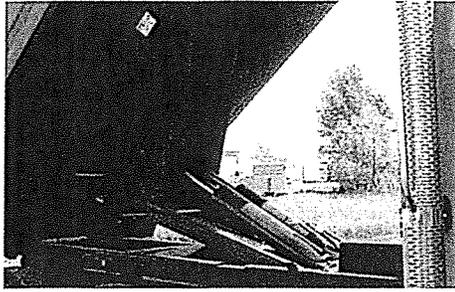
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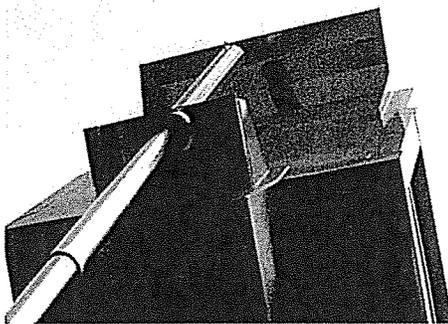
HOIST OPTIONS



The patented Roller Combo hoist is designed to provide more power at breakaway and has power to spare at the end of the cycle.

ROLLER COMBO™ (UNDERBODY WITH SUBFRAME)

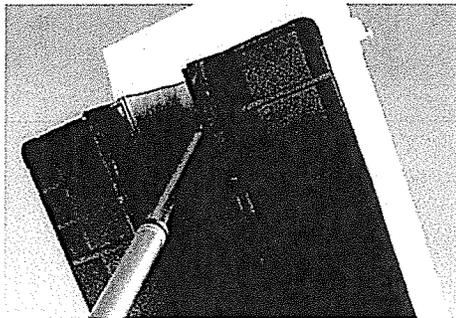
Model	NTEA Class	Dump Body Sizes (ft)	Hoist Capacity Range (tons)	Maximum Operating Pressure (PSI)	Std. Pump GPM @ 1000 RPM	Std. Reservoir Size (gal.)	Approx. Weigh. (lbs.)
RC540	40	8 - 10	13.8 - 18.4	3250	6	10	745
RC650	50	8 - 11	17.7 - 26.6	3250	6	10	770
RC750	50	9 - 11	15.3 - 19.7	2000	10	10	795
RC860	60	9 - 12	17.9 - 25.7	2000	10	10	830
RC690	90	12 - 16	24.3 - 34.0	2200	15	18	1850
RC6100	100	14 - 17	27.8 - 34.8	2700	15	18	1850



Marathon Telescopic hoist offers powerful lifting without wasted doghouse space. Features no-bleed cylinders.

MARATHON TELESCOPIC (TRUNNION MOUNTED)

Model	NTEA Class	Dump Body Sizes (ft)	Hoist Capacity Range (tons)	Maximum Operating Pressure (PSI)	Std. Pump GPM @ 1000 RPM	Std. Reservoir Size (gal.)	Approx. Weight (lbs.)
M5390	70	9 - 10	29.8 - 36.8	2500	10	16	650
M5399	70	11	27.5	2500	15	16	690
M53117	80	12 - 13	24.9 - 28.3	2500	15	23	780
M63138	120	14 - 15	42.0 - 46.4	2500	20	28	890
M63153	120	16	41.8	2500	20	28	950



The Turbo Telescopic hoist is known for its high quality and reliability. Features no-bleed cylinders.

TURBO TELESCOPIC (CONVENTIONAL MOUNT)

Model	NTEA Class	Dump Body Sizes (ft)	Hoist Capacity Range (tons)	Maximum Operating Pressure (PSI)	Std. Pump GPM @ 1000 RPM	Std. Reservoir Size (gal.)	Approx. Weight (lbs.)
T5380	60	9 - 10	23.1	2500	10	16	713
T5398	70	11 - 12	22.8 - 25.4	2500	15	16	817
T53114	70	13 - 14	22.5 - 24.6	2500	15	16	840
T63113	110	13 - 14	36.4 - 39.7	2500	20	28	867
T63131	110	15	37.4	2500	20	28	900
T63148	120	16 - 17	36.2 - 38.8	2500	20	28	930
T73129	120	15	56.6	2500	25	40	1010
T73147	120	16 - 17	56.4 - 60.4	2500	25	40	1042
T74167	120	18 - 19	39.0 - 41.4	2500	25	40	1096
T74191	120	20 - 21	39.5 - 41.7	2500	25	40	1128

Specifications subject to change.



CRYSTEEL MANUFACTURING, INC.

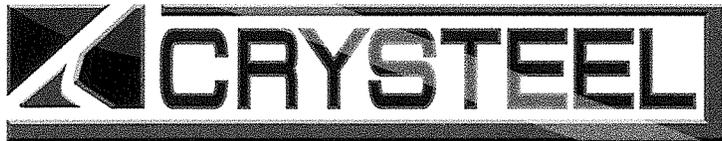
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www.crysteel.com • E-mail sales@crysteel.com



Every body and hoist is backed by Crysteel's industry-leading 5-year Customer Satisfaction Pledge. For more information on Crysteel's 5 Year Warranty, please ask your Crysteel Distributor or visit us at www.crysteel.com.



Sold by:



MARATHON

TELESCOPIC HOIST

- *To 47-Ton Capacity.*
- *Maintenance free cylinder pivots.*
- *Trunnion mount provides solid stability.*
- *Hard chrome-plated cylinder surface.*



www.**CRYSTEEL**.com



CRYSTEEL'S MARATHON PROVIDES POWER, PERFORMANCE, AND ENDURANCE

The Marathon Telescopic Hoist offers powerful lifting action while minimizing wasted doghouse space for maximum hauling capacity. Plus, because the Marathon is trunnion-mounted, its stability is unmatched by conventional top pinned telescopic hoists.

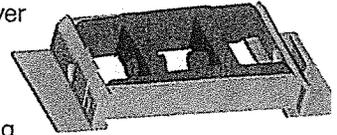
Smooth acting final stages finish the job to a minimum 50° dump angle. High pressure maintenance-free twin

lip seals never need adjusting. Built-in wipers keep the cylinder surface and seals clean and free of dirt, grit, and dust build-up.

FLOATING CRADLE

Crysteel's Floating Cradle is designed to reduce the bending stress levels between the truck frame and dump body frame that occur when a truck is

traveling over uneven terrain.



The Floating Cradle allows the hoist cylinder to pivot up to 2.5 degrees side to side reducing this bending tension. The Crysteel Floating Cradle is specially designed for haulers that move in and out of construction and demolition sites, gravel pits, and mining operations.

The Floating Cradle is used on the M63138, M63153, and M63117 models.

EXCELLENT STABILITY

Because the Marathon's body and truck pivots are only a few inches apart, and because the Marathon lifts directly from the body's longitudinals, body twist and leaning are minimized for excellent stability.

COMPREHENSIVE 5-YEAR WARRANTY

Crysteel Manufacturing's Customer Satisfaction Pledge is designed to be the most comprehensive warranty in the truck equipment industry. This pledge covers new products for a period of five (5) years, and is not restricted by vehicle mileage. Complete details available at www.crysteel.com.

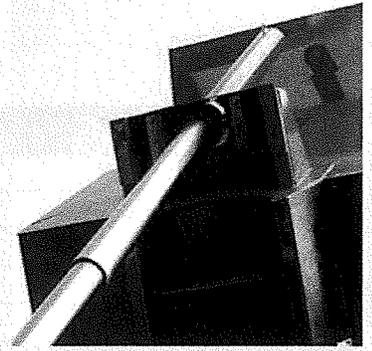
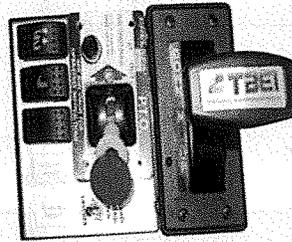


Crysteel Marathon's ingenious body mount lifts directly on the longbeams for efficient power delivery and superior stability, throughout the dump cycle.



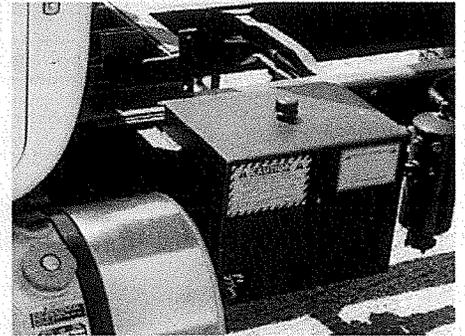
Quality Performance Features

- Cylinder pivots on maintenance-free, greaseless composite Teflon® bearings.
- Reinforced lower cylinder tube and full-width angle hinge help ensure stability.
- Single-lever locking shifter with sealed cable.
- Reservoirs have sight gauge for easy visual inspection.



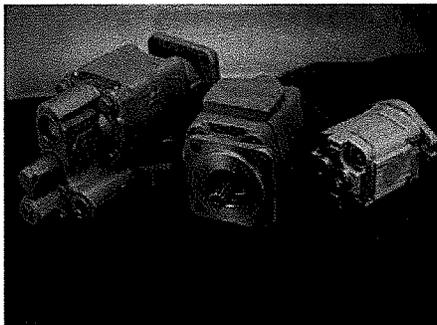
Optional Features

- Double-acting cylinders.
- Air shift control.
- Remote-mount bracket with drive-line kit for pump.
- Remote-mount valve with power beyond capabilities.
- Full-length subframe.
- Removable pin and/or composite bearing rear hinges.
- Remote underbody stabilizer.
- Less hydraulics.
- Return line filter kit.
- "Body up" indicator light kit.



HIGH PERFORMANCE CRYSTEEL HYDRAULICS

- Oversized hydraulic hoses keep cycle time fast.
- O-ring ports keep connections leak-free for years of trouble-free service.
- Direct-mount gear pump/valve combination for easy installation.
- Large seals and wipers seal out grit and never need adjusting.
- 2500 psi-rated cylinders match up easily with your central hydraulic system.



MARATHON TELESCOPIC HOIST

MARATHON HOIST SPECIFICATIONS

	M5390	M5399	M53117	M63117	M63138	M63153
NTEA Performance Class	70	70	80	120	120	120
Number of Stages	3	3	3	3	3	3
Active Stage Sizes (in.)	5,4,3	5,4,3	5,4,3	6,5,4	6,5,4	6,5,4
Total Stroke (in.)	90	99	117	117	138	153
Cylinder Rated Pressure (PSI)	2500	2500	2500	2500	2500	2500
Cylinder Style	Inverted	Inverted	Inverted	Inverted	Inverted	Inverted
Std. Pump GMP @1000 RPM	20	20	20	20	20	20
Std. Reservoir Type	Outside Frame					
Std. Reservoir Size (gal.)	16	16	23	23	28	28
Recommended Body Length (ft.)	9-10.5	11-11.5	12-13.5	12-13.5	14-15.5	16-16.5
Floor Height (inches)	8	8	8	8	8	8
Approximate Weight (lbs.)	650	690	780	820	890	950

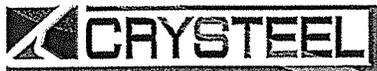
MARATHON HOIST LOAD CAPACITY IN TONS*

Marathon Model	NTEA Class	Body Length (ft.)							
		9	10	11	12	13	14	15	16
M5390	70	36.8	29.8						
M5399	70			27.5					
M53117	80				28.3	24.9			
M63117	120				49.3	44.1			
M63138	120						46.4	42.0	
M63153	120								41.8

Specifications subject to change.

*Capacities based on water-level load, 12" overhang, 50° dump angle, and includes body weight.

CAUTION: The combined weights of truck, body, hoist and load must not exceed the truck's Gross Vehicle Weight rating.



CRYSTEEL MANUFACTURING, INC.

Lake Crystal, MN • 1-800-533-0494 • FAX 507-726-2559

www.crysteel.com • E-mail crysteel@tbei.com



Sold by:

Crysteel's Customer Satisfaction Pledge is designed to be the most comprehensive warranty in the truck equipment industry. This pledge covers new products for a period of five (5) years, and is not restricted by vehicle mileage, and begins when the final customer puts our product into service.

This warranty covers our products for defective material and/or workmanship at a rate of 100% for the first (3) years and at a rate of 50% for years 4 and 5.

For more information on Crysteel's 5 Year Warranty, please visit us at www.crysteel.com

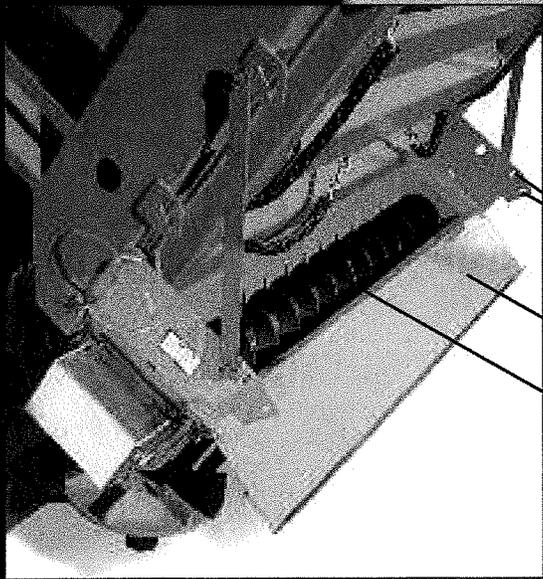
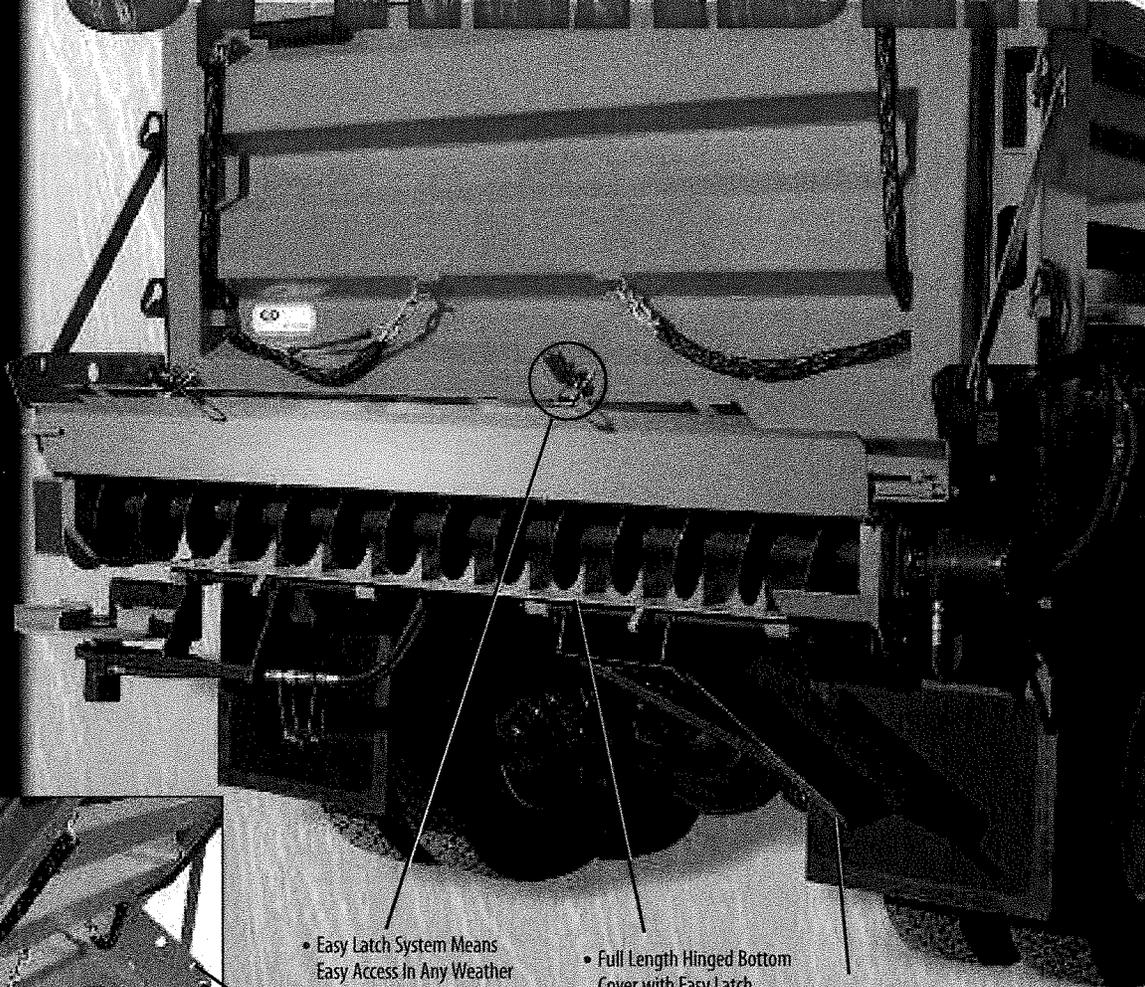


STAINLESS STEEL TAILGATE SPREADER

● Falls

Model
1ASD9SS

When it comes to
versatility, value
and dependability,
you won't find a better
spreader on the road.



• Easy Latch System Means Easy Access In Any Weather

• 2-Position Gate Opening Gives You Flow Control

• Full-Length Hinged-Top Cover Delivers Fast Access And One-Person Dumping

• Heavy-duty construction throughout for durability, dependability and value.

• Full Length Hinged Bottom Cover with Easy Latch System for Easy Clean Out

• Berm Chute Delivers Flow To Road Shoulder

Our Exclusive Features Include:

- 3/8" Thick Auger, 9" Diameter.
- Oversize Hopper Opening To Reduce "Bridging."
- Parker TorqLink TBO & Roller Stator Hydraulic Motors.
- Self-Leveling Spinner with Six (6) Flights.
- Hopper Constructed of 7 Gauge Stainless Steel.
- End Plates Constructed of 1/4" Stainless Steel.
- Right or Left Hand Discharge.
- Auger Shaft Tapped To Accept Speed Sensor.
- Direct Hydraulic Shaft and Spinner Drive.

Falls SPECIFICATIONS

The following specifications are designed to help you acquire a
Falls® Direct Drive, Single Auger, Hydraulic Stainless Steel Tailgate Spreader
or its equal. The dimension within the specifications are intended to indicate the size, type, and quality of unit desired.

Hopper: Shall be minimum ¼" (6.35mm) stainless steel, 96" (244m) auger trough welded to ¼" (6.35mm) end plates. Internal seams to be continuously welded to eliminate corrosion pockets. Hopper shall be designed for easy auger removal. Top cover shall be one piece and hinged for "dump over" capability. Bottom cover/clean-out door shall be one piece and hinged that one person can quickly open without tools to provide easy clean out of the auger. Top cover shall have two-position opening to accommodate various end gate configurations and sanding material consistency. Top and bottom cover shall be constructed of the same material as the hopper. All covers shall have permanently attached locking handles. Anti-flow cover shall be provided over discharge opening to prevent material spillage when auger is stopped.

Auger and Drive: Auger shall be minimum 9" (228.6mm) diameter. Flighting shall be minimum ¾" (9.53mm) with 6" (152.4mm) pitch. Flighting shall be welded to 2½" (63.5mm) I.D.X 1¾" (44.5mm) O.D. steel tubing and supported by 1¼" (31.75mm) shaft and shall be factory adapted to accept automatic spreader controls. The helical coil shall be mono-directional capable of feeding granular material in either direction. Auger direction shall be controlled by the hydraulic connection to the auger motor. Bearings shall be 1¼" (31.75mm) self-aligning type with lubrication fittings. Auger drive shall be high-torque, low-speed hydraulic motor mounted directly to the auger. Auger motor shall be mounted on four (4) Lord's CBA12-200 center-bonded grommets to compensate for misalignment due to torque and other factors.

Spinner: Shall be 18" (457m) diameter with six (6) replacement flights formed to provide uniform material spreading with low trajectory. Spinner and flights shall be minimum .179" (4.55mm) carbon steel. Spinner shall be adjustable left and right to control spreader pattern. Spinner shall be removable and shall include a deflector shield. Spinner drive shall be direct-mounted high torque, low-speed hydraulic motor mounted directly to the spinner (optional polyurethane spinner available).

Berm Chute: Shall be included for RH dispersal of granular material.

Mounting: Shall include mounting plates, hardware, quick disconnect pins, and tailgate spill shields. Lifting slots for chain hoist shall be provided in the end plates for easy handling.

Hydraulics: Short hose kit (from auger and spinner to rear of truck) shall be provided with terminal or junction plate. Dual flow control valve for independent speed control of auger and spinner shall be provided.

Hydraulics (optional):

1. Long hose kit (from control valve to rear of truck) shall be provided.
2. Dual flow control valve for independent speed control of auger and spinner shall be provided.

Paint: Available in all Falls standard colors.

Warranty: 12 month limited warranty.

YOUR DEALER IS:

Specifications are subject to change without notice.

The policy and promise of Little Falls Machine, Inc. is continuing product improvement. Design change and structural alterations may occur without prior notice. Such changes will not sacrifice quality or product integrity.

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0410-250-RP

Falls
LITTLE FALLS MACHINE, INC.

300 Lindbergh Drive South
Little Falls, MN 56345
Phone 800-772-PLOW
(320) 632-9266
Fax (320) 632-3484
www.fallsplows.com

Falls

SDLP Series
with Rear Lift

Featuring

**ACTIVE
FLOAT**
TECHNOLOGY

SCRAPER- MOUNTED POSTLESS SNOWWING



- Winter-Proven Design
- 1-3/4" Grade 8 Wing Hinge Bolt
- Two (2) Cylinder Control for Precise Positioning
- Nitrided Cylinders for Increased Corrosion Resistance
- Double-Boxed Wing Construction Eliminates Twisting
- Engineered with "Active Float" Design—
allows smooth transitions over obstacles without chatter
- Works in Conjunction with Underchassis Scraper to Eliminate Windows
- Shown with Optional Nitrogen-Accumulated Hydraulic Push Bar Extension with Rear Lift

Falls SPECIFICATIONS

MODEL	SDLP-9A	SDLP-10A	SDLP-11A
Overall length	9' 6"	10' 6"	11' 6"
Overall height, front	30"		
Overall height, rear	30"		
Moldboard thickness	10 gauge hi-tensile steel, A607-50		
Cutting Edge (AASHO Punched)	1/2" x 6" x 9'	1/2" x 6" x 10'	1/2" x 6" x 11'
Push Bar	One (1) adjustable spring-cushioned – Hydraulic extension optional		
Clearing width	60" – 90"	70" – 100"	80" – 110"
Front lift height	12"		
Rear lift height	96"	102"	108"
Weight, wing only	580 lbs.	640 lbs.	700 lbs.
Weight, wing & mountings	1700 lbs.	1760 lbs.	1820 lbs.

Valves required: Two (2) double-acting hydraulic control valves.

Options available: Trip edge; nitrogen-accumulated hydraulic push bar extension.

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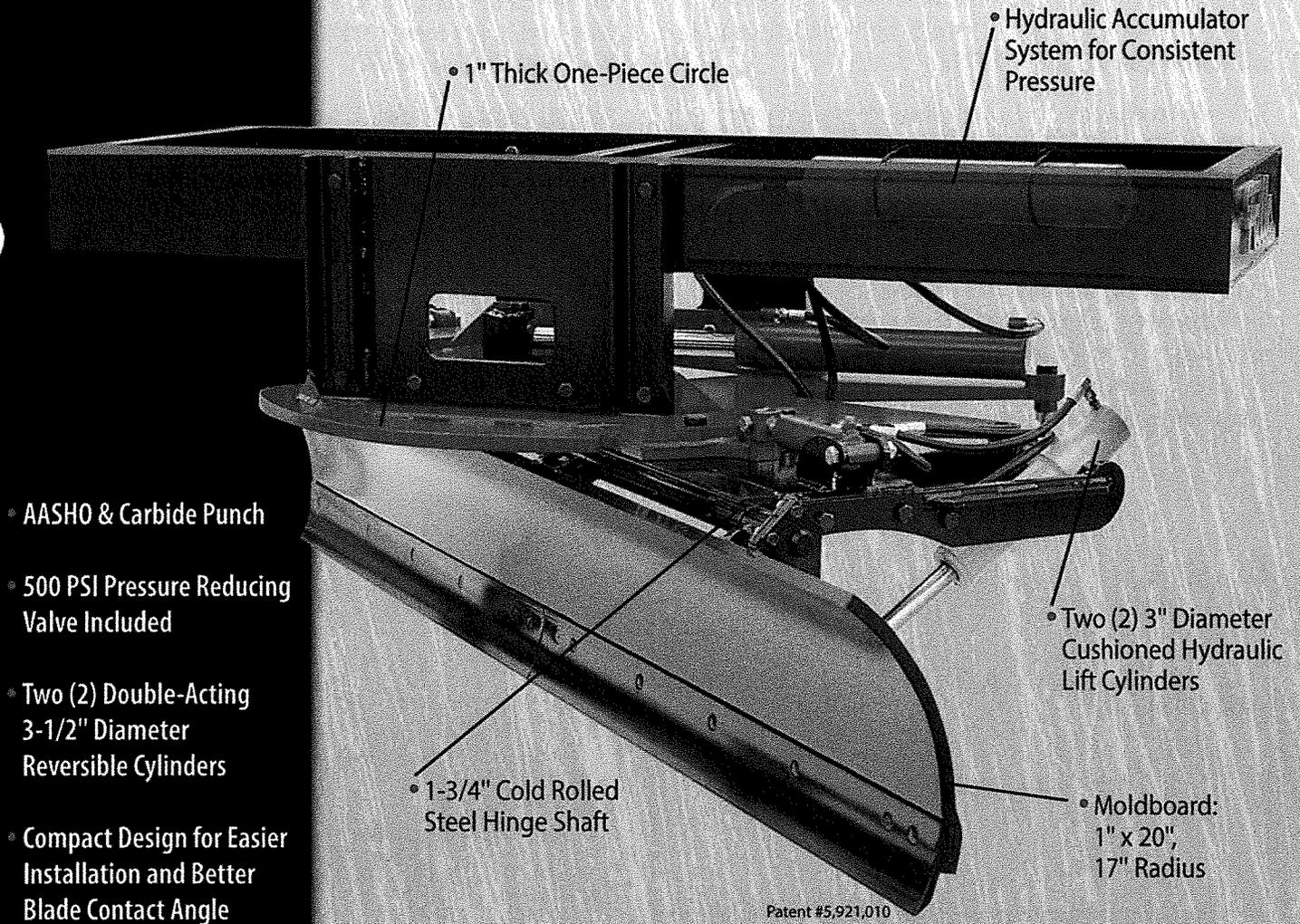
LITTLE FALLS MACHINE, INC.

300 Lindbergh Drive South
Little Falls, MN 56345
Toll-Free 800-772-PLOW
Phone (320) 632-9266
Fax (320) 632-3484
www.fallsplovs.com

Falls

Model IBR-10A

REVERSIBLE LEAF UNDERBODY SCRAPER TRUCK MOUNT



• 1" Thick One-Piece Circle

• Hydraulic Accumulator System for Consistent Pressure

• AASHO & Carbide Punch

• 500 PSI Pressure Reducing Valve Included

• Two (2) Double-Acting 3-1/2" Diameter Reversible Cylinders

• Compact Design for Easier Installation and Better Blade Contact Angle

• Two (2) 3" Diameter Cushioned Hydraulic Lift Cylinders

• 1-3/4" Cold Rolled Steel Hinge Shaft

• Moldboard: 1" x 20", 17" Radius

Patent #5,921,010

Falls[®] SPECIFICATIONS

The following specifications are designed to assist you in acquiring a Falls[®] Reversible Underbody Snow and Ice Scraper or its equal. The dimensions within the specifications are intended to indicate the size, type, and quality of unit desired.

Moldboard: Shall be minimum 1" thick x 20" SEF heat-treated 40/50 carbon steel smooth rolled to a 1" radius. Moldboard shall be formed to accept double bevel curved cutting edges. Moldboard shall be punched to accept AASHO standard cutting edges as well as standard carbide punched blades. Moldboard shall come supplied with two (2) 1/2" x 6" cutting edges. Moldboard ends to be clearly marked with reflective tape.

Hydraulic Lift Cylinders: Shall be two (2) minimum double acting 3" diameter ID x 11-1/2" stroke. The cylinder shafts shall be minimum 1-1/2" diameter and shall be coated with minimum 36 hour salt spray chrome. Hydraulic cylinders shall have an operating pressure of 2500 psi and shall be tested for a minimum 7500 psi burst strength. Hydraulic cylinders shall have urethane Poly-pack seals and urethane wiper.

Hydraulic Accumulator: The hydraulic lift cylinder shall be protected with a nitrogen-charged hydraulic piston-type accumulator, 231 cu. in. capacity, to allow scraper moldboard movement due to road surface irregularities. Accumulator shall be precharged to 375 psi. Coil springs for shock abatement are not acceptable. Very important — No exceptions!

Pressure Reducing Valve: A pressure reducing valve shall be provided for installation in the accumulator circuit and shall not allow "bleed out" or dumping of oil in the circuit. Maximum pressure not to exceed 500 psi. A liquid-filled pressure gauge, 0-1000 psi, shall be installed in the cab for monitoring. Very important — No exceptions!

Power Reverse Assembly: Reversing circle shall be minimum 1" thick A-36 steel plate. Circle shall be one (1) piece and shall provide for 45 degrees rotation left or right. Circle shall be equipped with two (2) double-acting hydraulic cylinders minimum 3-1/2" diameter ID x 18" stroke. The cylinder shafts shall be minimum 2" diameter and shall be coated with minimum 36 hour salt spray chrome. Hydraulic cylinders shall have an operating pressure of 2500 psi and shall be tested for a minimum 7500 psi burst strength. Hydraulic cylinders shall have urethane Poly-pack seals and urethane wiper. Hydraulic cushion valve shall be provided.

Mounting Assembly: Hinge shaft shall be minimum 1-3/4" cold-rolled round steel. Hanger assembly shall consist of 1/2" A-36 plate steel and 4" x 13.8 lb. car & ship channel.

Weight: 10 foot — 2100 lbs. 11 foot — 2250 lbs.

Paint: Shall be black.

ID & Warranty: Unit shall be identified with a metal plate riveted to the moldboard. ID tag shall include model, serial number, and manufacture. 12 month limited warranty.

Approved models: Include Falls[®] Model IBR-10A or equal. Non-approved makes and models must contact procurement office or bidding agency a minimum of two (2) weeks prior to bid opening for evaluation.

Options: 10, 11, & 12 ft. moldboard lengths.

YOUR DEALER IS:

Specifications are subject to change without notice.

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Little Falls, MN 56345

Toll-free 800-772-PLOW

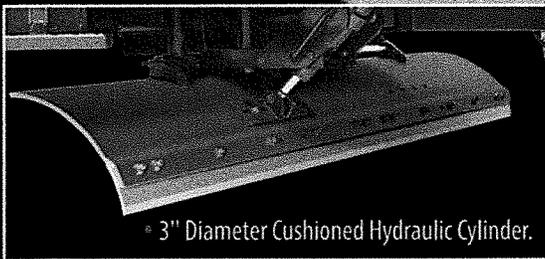
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Falls

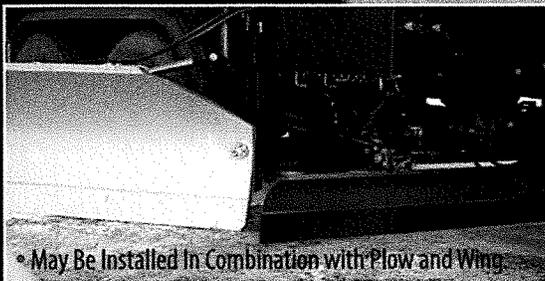
Model IB-10A

UNDERBODY SCRAPER TRUCK MOUNT



• 3" Diameter Cushioned Hydraulic Cylinder.

Patent Pending



• May Be Installed In Combination with Plow and Wmg

- Moldboard: 3/4" x 20" x 10 ft., 17" radius.
- AASHO & Carbide Punch.
- Two (2), 1/2" x 6" DBC Cutting Edges.
- Hydraulic Accumulator System for Consistent Pressure.

- 1-1/2" Cold Rolled Steel Hinge Shaft.
- High-Visibility End Markings.
- 500 PSI Pressure Reducing Valve Included.
- Heavy-Duty Construction Throughout.
- Compact Design For Easier Installation and Better Blade Contact Angle.

Falls[®] SPECIFICATIONS

The following specifications are designed to assist you in acquiring a

Falls[®] Underbody Snow and Ice Scraper

or its equal. The dimensions within the specifications are intended to indicate the size, type, and quality of unit desired.

Moldboard: Shall be minimum 3/4" thick x 20" SEF 40/50 carbon steel smooth rolled to a 17" radius. Moldboard shall be formed to accept double bevel curved cutting edges. Moldboard shall be punched to accept AASHO standard cutting edges as well as standard carbide punching. Moldboard shall come supplied with two (2) 1/2" x 6" cutting edges. Moldboard shall be drilled to allow mounting the lift cylinder on the left or right side of the chassis frame. Moldboard ends to be clearly marked with reflective tape.

Hydraulic Cylinder: Shall be minimum 3" diameter double-acting with 11-12" stroke. The cylinder shaft shall be minimum 1-1/2" diameter and shall be coated with minimum 36 hour salt spray chrome. Hydraulic cylinder shall have an operating pressure of 2500 psi and shall be tested for a minimum 7500 psi burst strength. Hydraulic cylinder shall have urethane Polypack seals and urethane wiper.

Hydraulic Accumulator: The hydraulic lift cylinder shall be protected with a nitrogen-charged hydraulic piston-type accumulator, 116 cu. in. capacity, to allow scraper moldboard movement due to road surface irregularities. Accumulator shall be precharged to 375 psi. Coil springs for shock abatement are not acceptable.

Pressure Reducing Valve: A pressure reducing valve shall be provided for installation in the accumulator circuit and shall not allow "bleed out" or dumping of oil in the circuit. Maximum pressure not to exceed 500 psi. A liquid-filled pressure gauge, 0-1000 psi, shall be installed in the cab for monitoring.

Mounting Assembly: Hinge shaft shall be minimum 1-1/2" cold-rolled steel. Hanger arms shall be minimum 2-3/8" OD x 1-13/16" ID DOM tubing.

Paint: Shall be black.

ID & Warranty: Unit shall be identified with a metal plate riveted to the moldboard. ID tag shall include model, serial number, and manufacturer. 12-month limited warranty.

Options: 10, 11, & 12 ft. moldboard lengths. 1" thick moldboard.

Approved models include Falls Model IB-10A or equal.

Non-approved makes and models must contact procurement office or bidding agency a minimum of two (2) weeks prior to bid opening for evaluation.

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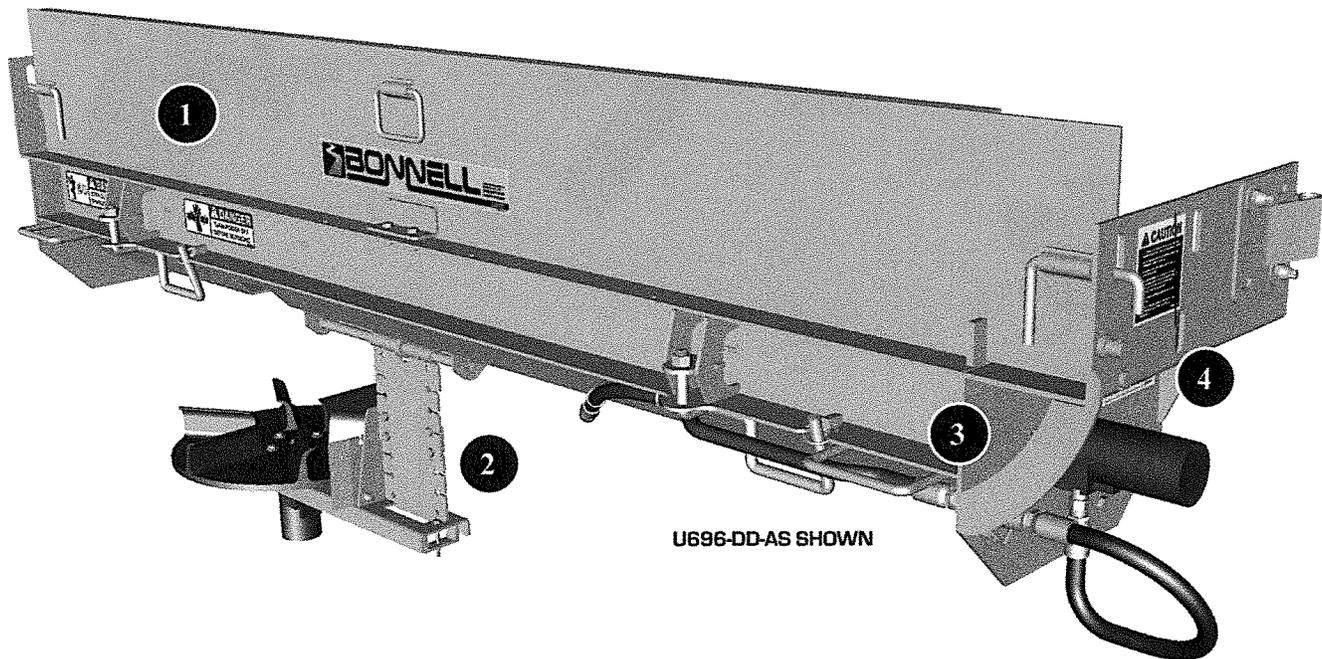
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www.fallsplows.com

U-SERIES UNDER TAILGATE SPREADER

STANDARD FEATURES

1. One piece rigid body with end plates continuously welded to auger trough.
2. Adjustable height spinner assembly, pinned on to bottom door, with 18" poly spinner disc.
3. Hydraulic safety interlock system
4. Two hydraulic motor operation - one at the auger and one at the spinner for independent variable speed control.



- **Quick Mount Kit - Quickly mount and dismount your spreader by removing 4 pins (no bolts). Brackets are bolted to the spreader body for replacement and adjustment purposes.**
- **Easy adjustable anti-flow plate without the use of tools.**

The "U" Series Under-Tailgate Spreader from Bonnell Industries is the most rugged on the market today.

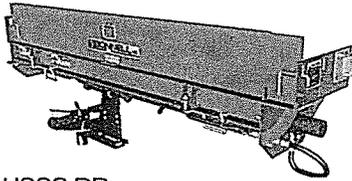
Available in either carbon or stainless steel construction, and with direct drive or gearbox drive options, Bonnell Industries has the undertailgate spreader that fits your application.

Safety, quality and durability - Bonnell Industries is the only name you need to know in snow and ice control.

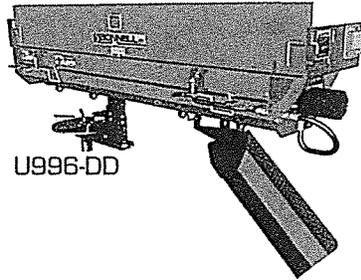
Est. 1960

"U" Series Under-Tailgate Specifications

"U" Series Spreaders	U696-DD	U996-DD
Weight	665 Lbs	760 Lbs
Length		96"
Height (without spinner)		19"
Height (with spinner)		35"
Width (without spinner)		20.5"
Width (with spinner)		20.5"
Spinner Diameter/Material	18" polyurethane	
Trough material	7 Ga. formed	
End plates	1/4" carbon	7 Ga. stainless
Auger configuration	1 - 6" dia. x 4" pitch	1 - 9" dia. x 4" pitch
Auger Drive	Direct Drive	



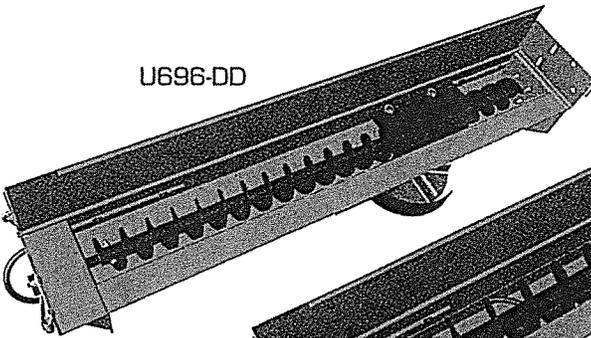
U696-DD



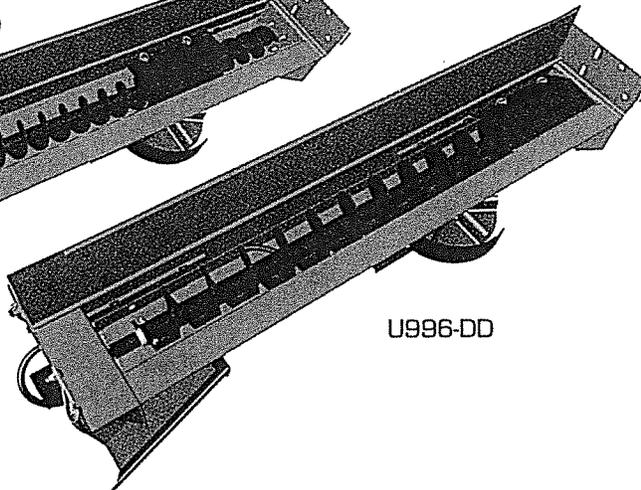
U996-DD



U996-DD-AS



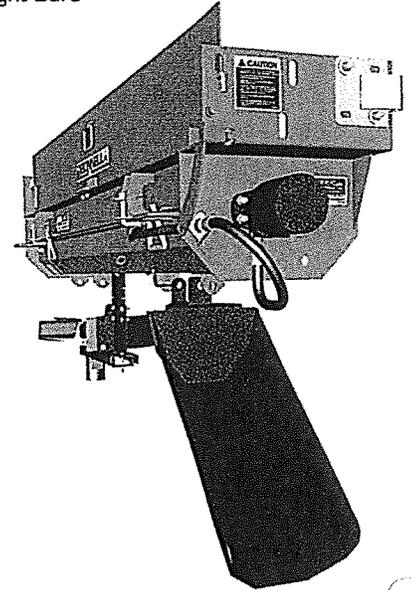
U696-DD



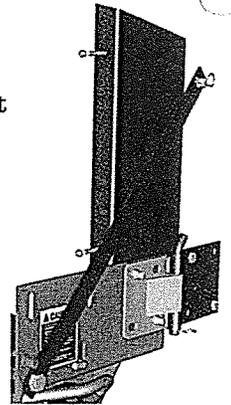
U996-DD

Options:

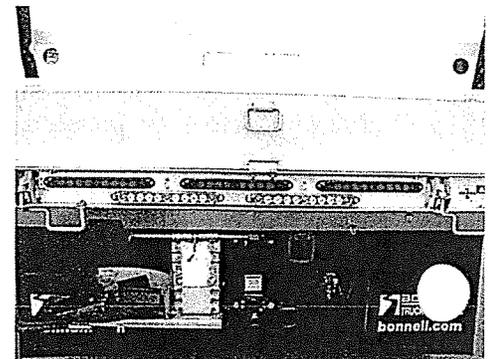
- Stainless Steel - AS
- Gearbox Drive - GB
- Special Paint
- Berm Chute (Standard on U996)
- Center, left, or right discharge
- Sensored motor
- Prewet Boom
- Light Bars



Quick Mount Kit



U696 Light Bar



1385 Franklin Grove Rd. • Dixon, IL 61021 • www.bonnell.com
 (815) 284-3819 • (800) 851-9664 • Fax (815) 284-8815

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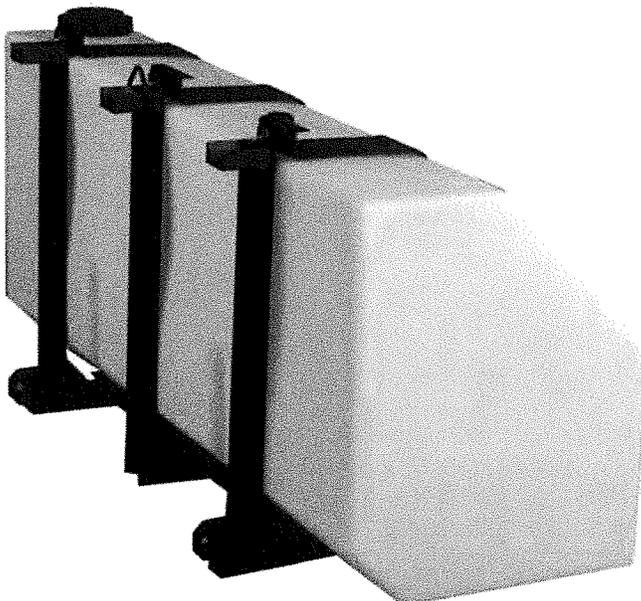
The Tailgate series of tanks are designed for medium and heavy duty truck pre-wetting applications. Featuring a minimum specific gravity rating of 1.9 and UV stabilized material the Tailgate series of tanks offer extra long life with reduced bulging, and are capable of applying liquids of all specific gravities.

The Tailgate series of tanks can be used in manual, open-looped and closed-loop pre-wetting application.

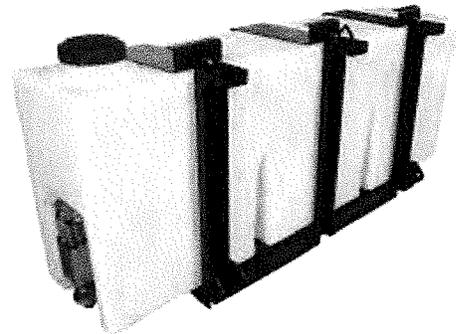
Tailgate Series Tanks

FEATURES

- **Molded Internal Baffles**
Improved vehicle stability with less material movement
- **Extra Heavy Duty Tank**
Able to accurately apply high specific gravity liquids
- **High-Density, UV Stabilized Polyethylene Plastic**
Exceptional protection from sun deterioration for extended life
- **Extra Large 5" Vented Fill Cap**
Allows easy access to tank for maintenance, service and top filling
- **Splash Proof Vent**
Prevents spilling associated with liquid sloshing
- **1-1/2" Quick Disconnect Fill Port**
Ground accessible fill and drain port
- **Optional Stainless Steel Carrier**
Pre-engineered mounting system fits the most popular truck frames
- **Bulkhead Tank Connections**
Service connectors easily with replaceable parts
- **Suction Filter Cartridge Standard**
Protects pump for added life
- **Integrated Power Unit Mounting**
No secondary enclosure parts to mount, maintain, or replace



Tailgate 150 Gallon Tank



S-SERIES™

UNDER TAILGATE SPREADERS OVERVIEW

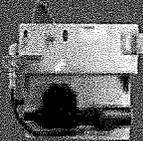
- UNDER TAILGATE
- FOR GROUND CLEARANCES > 44"
- 4 STANDARD CONFIGURATIONS
- BUILT-IN SAFETY SYSTEM

GENERAL SPECIFICATIONS

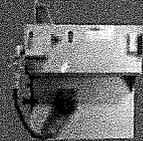
Width:	96 inches
Depth:	18 inches
Height:	19 inches
Weight:	450 to 600 lbs*
Flow Rate:	6-21 lbs/rev* *Varies by model



Swenson S-Series spreaders are designed to mount below all standard dump body tailgates and feature several standard configurations to exactly meet your spreader objectives. Available in two powerful drive systems, a High Performance, Low Maintenance Direct Drive or a Heavy Duty Gearbox Drive. The adjustable spinner frame allows the spreader to be mounted on vehicles of varying heights while providing the appropriate minimum spinner clearance and precise spread control.



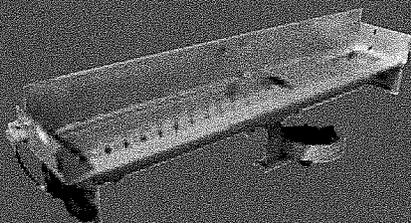
Gearbox drive provides better control



Direct drive provides high performance, low maintenance



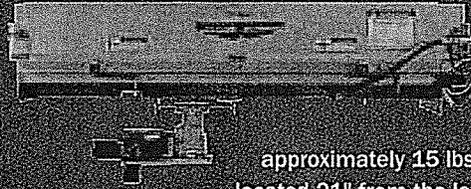
S-Series spreaders are equipped with separate hydraulic motors for the auger and spinner to allow for independent control of each function. Swenson's unique hydraulic safety interlock system which disables the auger during clean out and maintenance operations—provides for optimum operator safety.



FEATURES	BENEFITS
Performance Advantages	
Separate hydraulic motors allow independent control of the auger and the spinner	Provides better spreading performance through better overall control
Spinner stabilizer kit keeps spinner parallel to the road	Maintains consistent spread pattern
Productivity Advantages	
Direct Drive motor is easily serviced and maintained	Provides efficient operation and easier troubleshooting during maintenance operations
Adjustable in height spinner frame can be mounted on various height vehicles	Saves time during installation
Unit mounts below the dump body to allow normal dump body operations when spreader is not in use	Saves time by eliminating in season installations and maximizes year-round equipment investment
Anti-flow plate prevents material free flow	Minimizes material waste
Hinged cover protects spreader during normal dump body operations	Makes dump truck functional during non spreading operations
Hinged bottom door makes clean out and blockage removal easy	Faster clean out, improves productivity
Safety Advantages	
Hydraulic Safety Interlock System disables auger when opening bottom door & top cover	Provides safer clean out and maintenance operations
Optional trough-mounted spinner bracket moves the weight of the spinner off the bottom door and back onto the body of the unit while maintaining spinner center of gravity below the pivot point	Minimizes operator injuries and equipment damage during maintenance

S-SERIES/SAD

FEATURES	BENEFITS
Performance Advantages	
Drop port is located 21" from left end plate discharges approx. 15 lbs./rev.	Optimized for Salt/Aggregate mixture
Safety Advantages	
Single 6" continuous and reverse flitted auger unloads material from both sides of dump bed	Provides maximum truck stability

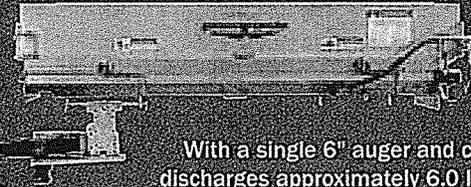


The industry standard Swenson SAD is designed to spread free-flowing granular material. It discharges

approximately 15 lbs/rev. with the drop port located 21" from the left end plate - this unit spreads primarily behind the vehicle. The SAD features a single 6" auger with continuous and reversed fliting for even material unloading.

S-SERIES/SBD-6

FEATURES	BENEFITS
Performance Advantages	
Single 6" auger with continuous fliting discharges approximately 6.0 lbs/rev.	Optimized for Salt/Aggregate mixture
Productivity Advantages	
Drop ports are located at either extreme ends of trough to allow material placement on the centerline from right or left-hand lane	Maximizes spreading effectiveness for multiple lane applications
Spinner is positioned within sight of operator provides visual Indicator of spreading operation	Minimizes unproductive spreading operations

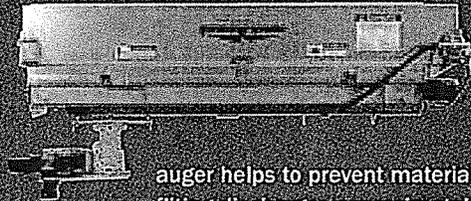


The SBD-6 is designed to spread free-flowing granular material for extreme left or right end discharge applications.

With a single 6" auger and continuous fliting this unit discharges approximately 6.0 lbs/rev. with drop ports located at the extreme ends of the trough to allow two-lane spreading. The SBD-6 positions the spinner within sight of the operator.

S-SERIES/SBD-9[†]

FEATURES	BENEFITS
Performance Advantages	
Large 9" auger discharges materials approximately 21 lbs/rev.	Best for moving large volumes of material
Productivity Advantages	
Drop ports are located at either extreme ends of trough to allow material placement on the centerline from right or left-hand lane	Maximizes spreading effectiveness for multiple lane applications
Large 9" auger helps prevent material tunneling	Means less time unclogging materials for increased productivity
Spinner is positioned within sight of operator provides visual Indicator of spreading operation	Minimizes unproductive spreading operations



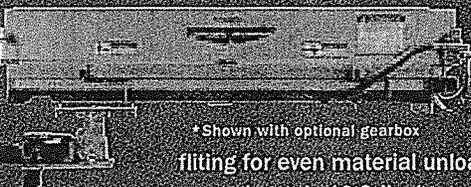
The SBD-9 model is designed to spread larger aggregate or larger volumes of free flowing granular material for extreme left or right end discharge applications. The single 9"

auger helps to prevent material tunneling has continuous fliting discharges approximately 21 lbs/rev. and can be used for deicing and limited shouldering operations (berm chute included). The SBD-9 positions the spinner within sight of the operator.

[†] Not recommended for straight salt applications due to high output volume
15:1 Gearbox is not available for SBD-9

S-SERIES/SCD

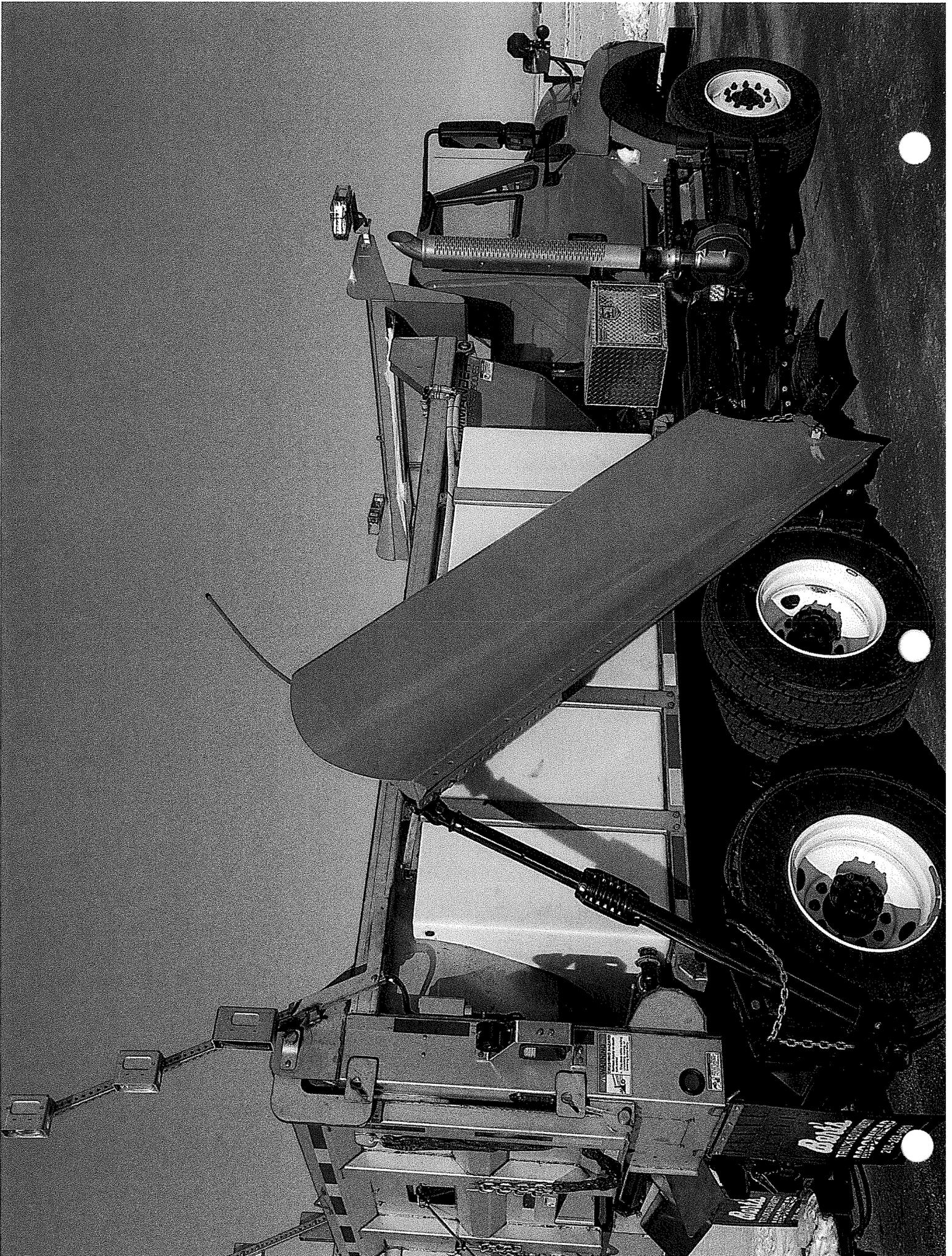
FEATURES	BENEFITS
Performance Advantages	
Drop port is located 7 5/8" from left end plate discharges approx. 10.9 lbs./rev.	Optimized for Salt/Aggregate mixture
Safety Advantages	
Single 6" continuous and reverse flitted auger unloads from both sides of dump bed for uniform weight distribution	Provides maximum truck stability

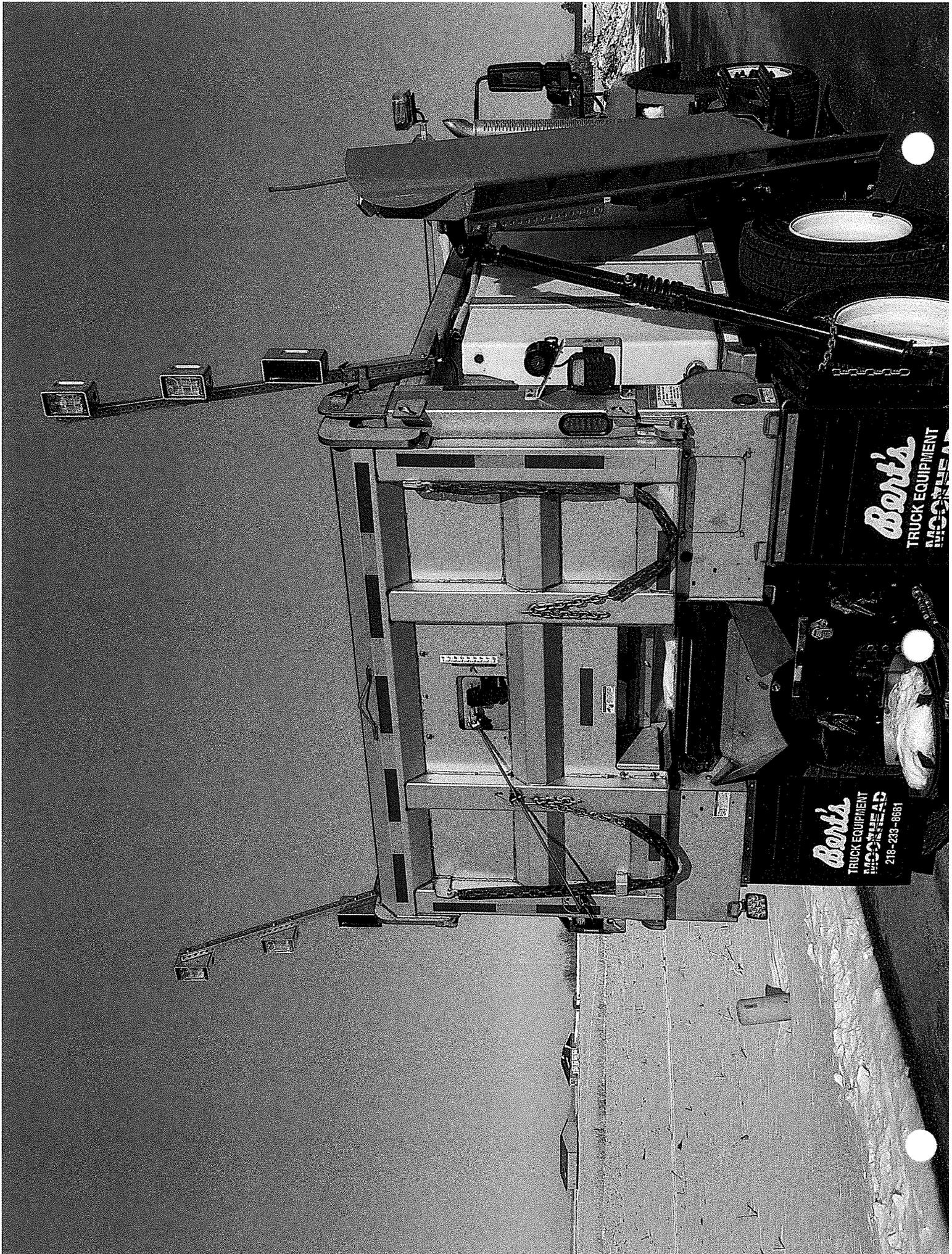


The SCD model is designed to spread free flowing granular material, and features a single 6" auger with continuous and reversed

fliting for even material unloading. The SCD discharges approximately 10.9 lbs/rev. with the drop port located 7 5/8" from left end plate. It can be easily setup to either spread behind the vehicle or cover two lanes. This unit's design, positions the spinner within sight of the operator.







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