Form No. DTMB-3521 (Rev. 4/2012)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract change will not be executed unless form is filed

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
PROCUREMENT
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48913

CHANGE NOTICE NO.5
To

CONTRACT NO. 071B9200317

Between

THE STATE OF MICHIGAN

And

NAME & ADDRESS OF CONTRACTOR:	PRIMARY CONTACT	EMAIL
Truck & Trailer Specialties, Inc	Dan Bouwman	dbouwman@ttspec.com
6726 Hanna lake Rd., SE	TELEPHONE	CONTRACTOR #, MAIL CODE
Des Plaines, IL 60017	(616) 698-8215	

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
CONTRACT COMPLIANCE INSPECTOR:	MDOT	Jeff Turner	(517) 334-7763	TurnerJ3@michigan.gov
BUYER:	DTMB	Klatra Pickett	(517) 373-7374	pickettk@michigan.gov

INITIAL CONTRACT SUMMARY:

DESCRIPTION:
For winter maintenance truck components.

INITIAL TERM	EFFECTIVE DATE	INITIAL EXPIRATION DATE	AVAILABLE OPTIONS
Three years	September 14, 2009	September 30, 2012	Two, one year
PAYMENT TERMS	F.O.B	SHIPPED	SHIPPED FROM
N/A	N/A	N/A	N/A

ALTERNATE PAYMENT OPTIONS:	AVAILABLE TO MiDEAL PARTICIPANTS
☐ P-card ☐ Direct Voucher (DV) ☐ Other	☐ YES ☒ NO

MINIMUM DELIVERY REQUIREMENTS:
N/A

DESCRIPTION OF CHANGE NOTICE:

OPTION EXERCISED: ☒ NO ☐ YES	IF YES, NEW EXPIRATION DATE:	

Per agency request and Ad Board Approval on April 3, 2012, additional funds of $3,000,000.00 have been added to this contract.

VALUE/COST OF CHANGE NOTICE:	$3,000,000.00
ESTIMATED REVISED AGGREGATE CONTRACT VALUE:	$6,600,225.00

Form No. DMB 234A (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Failure to deliver in accordance with Contract terms and conditions and this notice may be considered in default of Contract

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET **February 21, 2012**
PROCUREMENT
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 4
TO
CONTRACT NO. 071B9200317

between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Truck & Trailer Specialties, Inc.** **6726 Hanna Lake Rd., SE** **Dutton, MI 49316** **Email: dbouwman@ttspec.com**	TELEPHONE (616) 698-8215 Dan Bouwman CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 373-7374 **Klatra Pickett**
Contract Compliance Inspector: Jeff Turner (517) 334-7763 **Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation**	
CONTRACT PERIOD: **3 yrs. + 2 one-year options** From: **September 14, 2009** To: **September 30, 2012**	
TERMS **1% Net 10 Days**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	

THIS CONTRACT IS EXTENDED TO AUTHORIZED MIDEAL MEMBERS.

NATURE OF CHANGE(S):

Effective February 16, 2012 the Buyer has been changed to:

Klatra Pickett
Phone: (517) 373-7374
pickettk@michigan.gov

AUTHORITY/REASON:

Per DTMB Procurement's approval.

TOTALESTIMATED CONTRACT VALUE REMAINS: $3,600,225.00

Form No. DMB 234A (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Failure to deliver in accordance with Contract terms and conditions and this notice may be considered in default of Contract

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET **May 17, 2011**
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 3
TO
CONTRACT NO. 071B9200317

between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR	TELEPHONE (616) 698-8215 Dan Bouwman
Truck & Trailer Specialties, Inc. **6726 Hanna Lake Rd., SE** **Dutton, MI 49316** **Email: dbouwman@ttspec.com**	CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 373-0301 **Sue Cieciwa**

Contract Compliance Inspector: Jeff Turner (517) 334-7763

Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation

CONTRACT PERIOD: 3 yrs. + 2 one-year options	From: **September 14, 2009**	To: **September 30, 2012**
TERMS **1% Net 10 Days**	SHIPMENT **N/A**	
F.O.B. **N/A**	SHIPPED FROM **N/A**	
MINIMUM DELIVERY REQUIREMENTS **N/A**		

NATURE OF CHANGE (S):

THIS CONTRACT IS EXTENDED TO LOCAL UNITS OF GOVERNMENT.

Effective immediately, this Contract is hereby INCREASED by $500,000.00.

In addition, price increases are effective immediately for the following items:

Item No.	Unit	Commodity #	Description	Unit Price	New Unit Price	% Increase
2	EA.	060-61	Fuel tank and hydraulic reservoirs per specification # HYDTANK.C09	$2,690.00	$2,859.00	6.3%
7	EA.	065-30	11 foot stainless steel dump bodies and hoists per specification # 04-11SSDMP.C09	$14,182.00	$15,032.00	6%
8	EA.	065-30	14 foot stainless steel dump bodies and hoists per specification # 04-14SSDMP.C09	$17,724.00	$18,787.00	6%
9	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 1, per specification # CMBBDY.C09	$40,688.00 $38,064.00	$44,024.00 (14') $41,186.00 (11')	8.2%

Price Increases – continued:

Item No.	Unit	Commodity #	Description	Unit Price	New Unit Price	% Increase
10	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 2, per specification # CMBBDY.C09	$33,937.00 $31,262.00	$36,685.00 (14') $33,794.00 (11')	8.1%
11	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 3, per specification # CMBBDY.C09	$31,864.00 $29,234.00	$34,636.00 (14') $31,778.00 (11')	8.7%
12	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 4, per specification # CMBBDY.C09	$35,294.00 $33,791.00	$38,047.00 (14') $36,426.00 (11')	7.8%
15	EA.	760-06	Side mount wing plow, right or left, per specification # 57-0901SMW.C09	$5,308.00	$5,568.00	4.9%
16	EA.	765-66	11 foot stainless steel hopper box material spreaders per specification # 60-11SS.C09	$9,292.00	$10,056.00	8.3%
17	EA.	765-66	14 foot stainless steel hopper box material spreaders per specification # 60-14SS.C09	$11,013.00	$12,124.00	10.1%
18	EA.	765-61	34" Husting Plow Hitch and Cylinder Assembly per specification # 04-PLOWJACK.C09	$744.00	$792.00	6.5%

Revised <u>Attachment A, Price Proposal</u> is attached.

All other terms, conditions, specifications and pricing remain the same.

AUTHORITY/REASON:

Contract increase per agency request dated April 18, 2011 and State Administrative Board approval on May 17, 2011. Price increase per vendor request dated May 10, 2011 and DTMB, Purchasing Operations approval.

TOTAL REVISED ESTIMATED CONTRACT VALUE: $3,600,225.00

Attachment A, Price Proposal

Winter Maintenance Truck Components						
Item No.	Unit	Commodity #	Description	Est. Usage	Unit Price	Notes
1	EA.	060-61	Pre-wet Systems per specification # 04-PREWET.C09	15	$3,167.00	
2	EA.	060-61	Fuel tank and hydraulic reservoirs per specification # HYDTANK.C09	50	**$2,859.00**	
3	EA.	060-61	Ground speed oriented spreader control systems with electric over hydraulic joystick controls per specification # GRDSPD.C09	50	$4,110.00	see option enclosed
4	EA.	060-61	Hydraulic system, closed center, piston pump, ground speed controlled, system 1, per specification # HYD-PP.C09	14	$8,656.00	see option for SS enclosures
5	EA.	060-61	Hydraulic system, closed center, piston pump, ground speed controlled, system 2, per specification # HYD-PP.C10	36	$8,571.00	see option for SS enclosures
6	EA.	065-25	Automatic electric tarp assemblies per specification # 04-TARPS.C09	50	$1,239.00	
7	EA.	065-30	11 foot stainless steel dump bodies and hoists per specification # 04-11SSDMP.C09	12	**$15,032.00**	
8	EA.	065-30	14 foot stainless steel dump bodies and hoists per specification # 04-14SSDMP.C09	21	**$18,787.00**	
9	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 1, per specification # CMBBDY.C09	6	**$44,024.00**	Pricing is for 14' unit. 11' pricing is **$41,186.00**
10	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 2, per specification # CMBBDY.C09	6	**$36,685.00**	Pricing is for 14' unit. 11' pricing is **$33,794.00**
11	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 3, per specification # CMBBDY.C09	6	**$34,636.00**	Pricing is for 14' unit. 11' pricing is **$31,778.00**

Attachment A, Price Proposal (Continued)

Winter Maintenance Truck Components						
Item No.	Unit	Commodity #	Description	Est. Usage	Unit Price	Notes
12	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 4, per specification # CMBBDY.C09	6	**$38,047.00**	Pricing is for 14' unit. 11' pricing is **$36,426.00**
13	EA.	760-06	12' Under-Body Scraper, Folding Mold Board Style Snow Blade, Hydraulic Angling, Per specification # 55-FMBBLD.C09		$6,792.00	
14	EA	760-06	12' Under-Body Scraper, Mop Style Snow Blade, Hydraulic Angling, per specification # 55-MOPBLD.C09		$6,637.00	
15	EA	760-06	Side mount wing plow, right or left, per specification # 57-0901SMW.C09	36	**$5,568.00**	
16	EA.	765-66	11 foot stainless steel hopper box material spreaders per specification # 60-11SS.C09	14	**$10,056.00**	see attachment for cross auger, spinner, y chute options
17	EA.	765-66	14 foot stainless steel hopper box material spreaders per specification # 60-14SS.C09	36	**$12,124.00**	see attachment for cross auger, spinner, y chute attachments
18	EA.	765-61	34" Husting Plow Hitch and Cylinder Assembly Per specification # 04-PLOWJACK.C09		**$792.00**	

Form No. DMB 234A (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Failure to deliver in accordance with Contract terms and conditions and this notice may be considered in default of Contract

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET December 17, 2010
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 2 (REVISED***)
TO
CONTRACT NO. 071B9200317
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR	TELEPHONE Dan Bouwman **(616) 698-8215**
Truck & Trailer Specialties, Inc. **6726 Hanna Lake Rd., SE** **Dutton, MI 49316** **Email: dbouwman@ttspec.com**	CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 373-0301 **Sue Cieciwa**
Contract Compliance Inspector: Jeff Turner (517) 334-7763	
Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation	
CONTRACT PERIOD: **3 yrs. + 2 one-year options** From: **September 14, 2009** To: **September 30, 2012**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	

NATURE OF CHANGE (S):

Effective immediately, the following item is hereby ADDED to this Contract:

Description	Unit Price
34" Husting Plow Hitch and Cylinder Assembly	**$744.00**

- per MDOT Specification # 04-PLOWJACK.C09, dated March 2009, eight (8) pages

All other terms, conditions, specifications and pricing remain the same.

AUTHORITY/REASON:

Per agency request by email dated December 10, 2010 and vendor proposal dated December 10, 2010.

TOTAL ESTIMATED CONTRACT VALUE REMAINS: $3,100,225.00***

Form No. DMB 234A (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Failure to deliver in accordance with Contract terms and conditions and this notice may be considered in default of Contract

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET December 17, 2010
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 2
TO
CONTRACT NO 071B9200317

between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Truck & Trailer Specialties, Inc.** **6726 Hanna Lake Rd., SE** **Dutton, MI 49316** **Email: dbouwman@ttspec.com**	TELEPHONE Dan Bouwman **(616) 698-8215** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 373-0301 **Sue Cieciwa**
Contract Compliance Inspector: Jeff Turner (517) 334-7763 **Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation**	
CONTRACT PERIOD: **3 yrs. + 2 one-year options** From: **September 14, 2009** To: **September 30, 2012**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	

NATURE OF CHANGE (S):

Effective immediately, the following item is hereby ADDED to this Contract:

Description	Unit Price
34" Husting Plow Hitch and Cylinder Assembly	**$744.00**

- per MDOT Specification # 04-PLOWJACK.C09, dated March 2009, eight (8) pages

All other terms, conditions, specifications and pricing remain the same.

AUTHORITY/REASON:

Per agency request by email dated December 10, 2010 and vendor proposal dated December 10, 2010.

TOTAL ESTIMATED CONTRACT VALUE REMAINS: $3,304,925.00

Form No. DMB 234 (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract will not be executed unless form is filed

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY MANAGEMENT AND BUDGET **December 1, 2010**
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 1(REVISED**)
TO
CONTRACT NO. 071B9200317
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Truck & Trailer Specialties, Inc.** **6726 Hanna Lake Rd., SE** **Dutton, MI 49316** **dbouwman@ttspec.com**	TELEPHONE Dan Bouwman **(616) 698-8215** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-1647 **Irene Pena**
Contract Compliance Inspector: Jeff Turner **Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation**	
CONTRACT PERIOD: **3 yrs. + 2 one-year options** From: **September 14, 2009** To: **September 30, 2012**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

NATURE OF CHANGE(S):

Effective immediately, money is being moved from contract 071B9200319 in the amount of $110,300.00and added to this contract. Contract 071B9200319 was cancelled due to non performance. In addition, the following items are added to this contract:**

1. **Underbody scraper, folding moldboard style, per spec #55-FMBBLP.C09**
2. **Underbody scraper, mop style, per spec #55-MOPBLD.C09**

AUTHORITY/REASON(S):

Per vendor and DTMB Purchasing Operations agreement and the approval of the State Ad Board on September 1, 2009.

INCREASE: $110,300.00**

TOTAL REVISED ESTIMATED CONTRACT VALUE: $3,100,225.00

Form No. DMB 234 (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract will not be executed unless form is filed

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY MANAGEMENT AND BUDGET November 15, 2010
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE NO. 1
TO
CONTRACT NO. 071B9200317
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Truck & Trailer Specialties, Inc.** **6726 Hanna Lake Rd., SE** **Dutton, MI 49316** **dbouwman@ttspec.com**	TELEPHONE Dan Bouwman **(616) 698-8215** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-1647 **Irene Pena**
Contract Compliance Inspector: Jeff Turner **Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation**	
CONTRACT PERIOD: 3 yrs. + 2 one-year options From: **September 14, 2009** To: **September 30, 2012**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

NATURE OF CHANGE(S):

Effective immediately, money is being moved from contract 071B9200319 in the amount of $315,000.00 and added to this contract. Contract 071B9200319 was cancelled due to non performance. In addition, the following items are added to this contract:

3. **Underbody scraper, folding moldboard style, per spec #55-FMBBLP.C09**
4. **Underbody scraper, mop style, per spec #55-MOPBLD.C09**

AUTHORITY/REASON(S):

Per vendor and DTMB Purchasing Operations agreement and the approval of the State Ad Board on September 1, 2009.

INCREASE: $315,000.00

TOTAL REVISED ESTIMATED CONTRACT VALUE: $3,304,925.00

Form No. DMB 234 (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract will not be executed unless form is filed

STATE OF MICHIGAN
DEPARTMENT OF MANAGEMENT AND BUDGET
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

September 21, 2009

NOTICE
OF
CONTRACT NO. 071B9200317
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Truck & Trailer Specialties, Inc.** **6726 Hanna Lake Rd., SE** **Dutton, MI 49316**	TELEPHONE Dan Bouwman **(616) 698-8215** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-1647 **Irene Pena**
Contract Compliance Inspector: Jeff Turner **Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation**	
CONTRACT PERIOD: **3 yrs. + 2 one-year options** From: **September 14, 2009** To: **September 30, 2012**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

The terms and conditions of this Contract are those of ITB #071I9200218, this Contract Agreement and the vendor's quote dated 07/09/09. In the event of any conflicts between the specifications, and terms and conditions, indicated by the State and those indicated by the vendor, those of the State take precedence.

Estimated Contract Value: $2,989,925.00

Form No. DMB 234 (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract will not be executed unless form is filed

STATE OF MICHIGAN
DEPARTMENT OF MANAGEMENT AND BUDGET
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CONTRACT NO. 071B9200317
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Truck & Trailer Specialties, Inc.** **6726 Hanna Lake Rd., SE** **Dutton, MI 49316**	TELEPHONE Dan Bouwman **(616) 698-8215** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-1647 **Irene Pena**
Contract Compliance Inspector: Jeff Turner **Winter Maintenance Truck Build Up Parts – Michigan Department of Transportation**	
CONTRACT PERIOD: **3 yrs. + 2 one-year options** From: **September 14, 2009** To: **September 30, 2012**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION: **The terms and conditions of this Contract are those of ITB #071I9200218, this Contract Agreement and the vendor's quote dated 07/09/09. In the event of any conflicts between the specifications, and terms and conditions, indicated by the State and those indicated by the vendor, those of the State take precedence.** **Estimated Contract Value: $2,989,925.00**	

THIS IS NOT AN ORDER: This Contract Agreement is awarded on the basis of our inquiry bearing the ITB No. 071I9200218. Orders for delivery will be issued directly by the Department of Michigan Department of Transportation through the issuance of a Purchase Order Form.

All terms and conditions of the invitation to bid are made a part hereof.

FOR THE CONTRACTOR:	**FOR THE STATE:**
Truck & Trailer Specialties Firm Name	Signature
Authorized Agent Signature	**Anthony DesChenes, Director** Name/Title
Authorized Agent (Print or Type)	**Commodities Division, Purchasing Operations** Division
Date	Date

Article 1 – Statement of Work (SOW)

1.010 Project Identification

1.011 Project Request

This Contract is for Winter Maintenance Truck Components for the Michigan Department of Transportation (MDOT).

1.012 Background

This is a three-year contract for Winter Maintenance Truck Components in compliance with the attached specifications. Exact quantities to be purchased are unknown, however the Contractor will be required to furnish all such materials and services as may be ordered during this CONTRACT period. Quantities specified if any, are estimates based on prior purchases, and the State is not obligated to purchase in these or any other quantities. Orders for delivery will be issued directly to the Contractor by MDOT on the Direct Purchase Order Contract Release Form and MiDEAL members (local units of government).

1.020 Scope of Work and Deliverables

1.021 In Scope

Contractor shall provide the Winter Maintenance Truck Components as specified in Attachment A, Price Proposal and Attachment B, specifications and deliver in the time frame specified below, to various locations throughout the state.

Contractor Response:

Will comply

1.022 Work and Deliverable

Contractor must provide Deliverables/Services and staff, and otherwise do all things necessary for or incidental to the performance of work, as set forth below:

Contractor must provide Deliverables/Services and staff, and otherwise do all things necessary for or incidental to the performance of work, as set forth below:

Provide Winter Maintenance Truck Components in compliance with the attached MDOT specification #CMBBDY.C09.

Contractor Response to Task:

Will comply

1.030 Roles and Responsibilities

1.031 Contractor Staff, Roles, and Responsibilities

Contractor shall discuss their ordering/customer service capabilities. This includes having the capacity to receive orders electronically, by phone, facsimile, and by written order. Contractors shall have internal controls, approved by Purchasing Operations, to insure that authorized individuals with the State place orders. The contractor shall verify orders that have quantities that appear to be abnormal or excessive.

It is the preference of the State of Michigan that the Contractor have an accessible customer service department with an individual specifically assigned to State of Michigan accounts. It is the preference of the State of Michigan that the Contractor has experienced sales representatives make timely personal visits to State accounts. The Contractor's customer service must respond to State agency inquiries promptly. It is the preference of the State of Michigan that the Contractor provides a statewide toll-free number for customer service calls.

Any supplies and services to be furnished under this Contract shall be ordered by issuance of a purchase order, unless otherwise defined within the Contract, orders will be issued by the Michigan Department of Transportation.

All purchase orders are subject to the terms and conditions of this Contract. In the event of a conflict between a purchase order and the contract, the contract shall control.

If mailed, a purchase order is considered "issued" when the State deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods.

Contractor Response:

Will comply

1.040 Project Plan

1.041 Project Plan Management

The contractor will carry out this project under the direction and control of MDOT, Office of Operations Administrative Services, Fleet Administration & Operations. Contact in Field Support is Gary Rose, 517-322-3360.

Contractor Response:

Agreed

1.042 Reports

Contractor shall discuss their capabilities related to generating reports. The Contractor shall be able to provide various reports, when requested by MDOT. Reports should include status of delivery, production, material test data, performance investigations and remedial actions, and any and all developments that may be vital to appropriate execution and application of all contract terms. Reports should be submitted electronically to the Michigan Department of Transportation, Fleet Administration & Operations

Contractor's awarded contracts that are available for purchases by MiDEAL program members (authorized local units of government), must submit reports of purchasing activities to Purchasing Operations, DMB on a quarterly basis. Reports shall include, at a minimum, an itemized listing of purchasing activities by each agency, with the agency name, and the total value of purchases for each agency, and a grand total of all purchases.

Contractor Response:

1.050 Acceptance

1.051 Criteria

The following criteria will be used by the State to determine Acceptance of the Services or Deliverables provided under this SOW:

Winter Maintenance Truck Components are inspected for compliance with the attached specification and approved or rejected upon delivery.

1.052 Final Acceptance- Reserved

1.060 Proposal Pricing

1.061 Proposal Pricing

For authorized Services and Price List, see Attachment A.

Contractors are encouraged to offer quick payment terms (i.e. 1% discount off invoice if paid within 10 days). This information can be noted on the Contractors price proposal (see Attachment A) and/or a separated attachment. This may be a factor considered in our award decision.

Contractor's out-of-pocket expenses are not separately reimbursable by the State unless, on a case-by-case basis for unusual expenses, the State has agreed in advance and in writing to reimburse Contractor for the expense at the State's current travel reimbursement rates. See **www.michigan.gov/dmb** for current rates.

State Administrative Fee

The Contractor must collect an Administrative Fee on the sales transacted under this Contract. The Contractor must remit the Administrative Fee in U.S. dollars within 30 days after the end of the quarterly sales reporting period. The Administrative Fee equals One (1) percent of the total quarterly sales reported. Contractor must include the Administrative Fee in their prices.

The Contractor must remit any monies due as a result of the close-out report at the time the close-out report is submitted to Purchasing Operations.

The Contractor must pay the Administrative Fee by check. To ensure the payment is credited properly, the Contractor must identify the check as an "Administrative Fee" and include the following information with the payment: *Applicable State BPO Number, report amount(s), and reporting period covered.*

Contractor must forward the check to the following address:

Department of Management and Budget
Financial Services – Cashier Unit
Lewis Cass Building
320 South Walnut St.
P.O. Box 30681
Lansing, MI 48909

Please make check payable to: State of Michigan

1.062 Price Term

(X) Fixed with prospective re-determination at an agreed upon time

Prices quoted are the maximum for a period of 365 days from the date the Contract becomes effective.

Prices are subject to change at the end of each 365-day period. Such changes shall be based on changes in actual costs incurred. Documentation of such changes must be provided with the request for price change in order to substantiate any requested change. Purchasing Operations reserves the right to consider various pertinent information sources to evaluate price increase requests (such as the CPI and PPI, US City Average, as published by the US Department of Labor, Bureau of Labor Statistics). Purchasing Operations also reserves the right to consider other information related to special economic and/or industry circumstances, when evaluating a price change request. Changes may be either increases or decreases, and may be requested by either party. Approved changes shall be firm for the remainder of the contract period unless further revised at the end of the next 365-day

period. Requests for price changes shall be RECEIVED IN WRITING AT LEAST TEN DAYS PRIOR TO THEIR EFFECTIVE DATE, and are subject to written acceptance before becoming effective. In the event new prices are not acceptable, the CONTRACT may be cancelled. **The Contractor remains responsible for performing according to the contract terms at the contract price for all orders received before price revisions are approved or before the contract is cancelled.**

1.063 Tax Excluded from Price

(a) Sales Tax: For purchases made directly by the State, the State is exempt from State and Local Sales Tax. Prices must not include the taxes. Exemption Certificates for State Sales Tax will be furnished upon request.

(b) Federal Excise Tax: The State may be exempt from Federal Excise Tax, or the taxes may be reimbursable, if articles purchased under any resulting Contract are used for the State's exclusive use. Certificates showing exclusive use for the purposes of substantiating a tax free, or tax-reimbursable sale will be sent upon request. If a sale is tax exempt or tax reimbursable under the Internal Revenue Code, prices must not include the Federal Excise Tax.

1.064 Holdback

The State shall have the right to hold back, as a retainage, an amount equal to 2/10th of 1% of per unit cost of all amounts invoiced by Contractor for Services/Deliverables. The amounts held back shall be released to Contractor after the State has granted Final Acceptance.

1.070 Commodity Requirements and Terms

Product Quality

1.0701 Specifications

Definite Specifications - All commodities and/or services to be furnished hereunder shall conform to the specifications as noted in the "Invitation to Bid" and/or copies of specifications attached.

Descriptive literature that contains complete specifications or the complete specifications must be included with alternate bids.

1.0702 Alternate Bids- Reserved

1.0703 Research and Development

Contractor shall discuss their ability to invest in new product development and research to stay current with ongoing demands.

Contractor Response:

Will comply

1.0704 Quality Assurance Program

Contractors to provide detail regarding any Quality Assurance Program(s) that are currently in place within their organization.

Contractor Response:

No formal quality assurance plan is in place.

1.0705 Warranty for Products or Services

Contractors shall discuss all aspects of their warranty. This shall include the warranty associated with the actual product being proposed, as well as the warranty associated with any service work performed under the contract. Contractors shall also discuss how they will handle any repairs that need to be made due to damaged or defective product, how installation problems will be rectified, and the process State agencies should follow to report warranty issues.

Contractor Response:

Will comply. All equipment specified in our bid proposal includes at least a 1 year parts and labor warranty. Items with extended warranty are defined by the specifications. The warranty dates are effective with the "in service" date after it has been installed by the MDOT. Warranty registration with serial numbers attached at "in service dates" should be completed by MDOT to expedite any warranty issues that occur. Warranty repairs will be handled through our office and repair facility if it is determined to be in the best interest of the MDOT. Customer authorized repairs will be allowed to expedite repairs and limit down time. Proper warranty information, prior to repairs, shall be forwarded to Truck & Trailer in order to receive credit for repairs.

1.0706 Training

Contractors shall discuss their training capabilities and the training to be included in the Contract. The Contractor shall provide training to individual agencies, when necessary, on aspects of ordering, shipping, billing, and receiving. At the request of the Contract Administrator, the Contractor shall provide in-service training to agency personnel on products, installation, and product safety issues. The Contractor shall also provide agency training jointly with the State as needed during the period covered by the contract at no additional charge.

Contractor Response:

Will comply. Factory authorized trainers will be utilized for training on hydraulic systems and ground speed controllers. We also have staff persons qualified for training in the hydraulic systems, as well as, ground speed controllers, and will utilize our own staff when it is more expedient to do so. We also provide a semi-annual school that MDOT mechanics would be eligible to attend. The curriculum includes a general hydraulic training seminar, as well as, specific training on ground speed controllers and Rexroth valves and pumps. As has always been our policy, staff members will be available for trouble shooting problems that may occur after the systems have been placed in service.

1.0707 Special Programs

The State is interested in any other special programs that vendor's may have. Please discuss these programs, such as return policies, trade-in programs allowing the return of new product not needed, quantity discounts, etc.

Contractor Response:

While most of the equipment specified is non-standard/custom equipment, there are a few items that are standard OEM offerings, the Dickey-john joystick controllers are standard offerings. We have submitted optional pricing for Cirus controllers in lieu of the Dickey-john joystick controllers. As part of the bid, we have included travel costs associated with preconstruction meeting for three persons from MDOT. At that time, all custom prints are available for review, correction, and modifications. Preconstruction meetings have eliminated the need to return new product that did not fit the chassis or perform as per specifications or expectations. All quantity discounts available have been applied to the bid package pricing.

1.0708 Security

This Contract may require frequent deliveries to State of Michigan facilities. Contractors shall discuss in their proposals all measures utilized by their firm to ensure the security and safety of these buildings. This shall include, but is not limited to, performance of security background checks on all personnel assigned to State of Michigan facilities (i.e. delivery people) and how they are performed, what the security check consists of, the name of the company that performs the security checks, use of uniforms and ID badges, etc. If security

background checks are performed on staff, Contractors shall indicate the name of the company that performs the check as well as provide a document stating that each employee has satisfactorily completed a security check and is suitable for assignment to State facilities. Upon request by the State, Contractors shall provide the results of all security background checks.

Upon review of the security measures included in a Contractor's proposal and if that Contractor is awarded the contract, the State will decide whether to issue State ID badges to the Contractor's delivery personnel or accept the ID badge issued to delivery personnel by the Contractor.

The State may decide to also perform a security background check. If so, Contractors will be required to provide to the State a list of all delivery people that will service State of Michigan facilities, including name and date of birth (social security number or driver license number would also be helpful).

The Contractor and its subcontractors shall comply with the security access requirements of individual State facilities; see section 2.051, Background Checks and Security.

Contractor Response:

Security background checks are not currently performed, but would be if required by the Michigan Department of Transportation.

Delivery Capabilities

1.0709 Time Frames

It is requested that all orders be delivered within 120 calendar days after receipt of order. However, vendors shall discuss in detail the various delivery programs available. The State is interested in both a standard delivery program and a quick-ship program. Please discuss the delivery time associated with each program, as well as if there are quantity and other limitations for the quick ship program.

Contractor Response:

Almost all of the equipment specified in this Contract would be considered custom/non-standard. Lead times for custom equipment is rarely less than 90-120 days. Costs associated with "on ground inventory" can be minimized when placing orders. If annual quantities are ordered, delivery dates for the various items can be specified. A way to best utilize budget dollars is to specify delivery dates for the various items. This would minimize inventory costs, provide the installation team a steady supply of materials, as well as, more effectively utilize the outside storage at the OAS facility.

1.0710 Minimum Order

It is requested that there is no minimum order.

Please indicate in the space provided on the attached Item Listing any additional charge (handling fee) to be applicable on orders indicated in the Contractor's proposal or on the attached Item Listing.

Contractor Response:

No minimum order required.

1.0711 Packaging

The Contractor is requested to provide packaging that most closely meets these packaging sizes. However, Contractors can submit alternates. The state reserves the right of final approval on packaging offered by the Contractor.

Packaging and containers, etc., shall be in accordance with supplier's commercial practice and shall meet the requirements of Department of Transportation (D.O.T.) and rail and motor carrier freight classifications in effect at time of shipment, which will permit application of the lowest freight rate.

Contractor Response:

Will comply

1.0712 Palletizing

Shipments shall be palletized whenever possible and shall conform to the following:

- Manufacturer's standard 4-way shipping pallets are acceptable.
- Maximum height: 5'6"; including pallet.
- Maximum weight: 3500 pounds; including pallet.
- Pallets are to be securely banded or shrink-wrapped.
- The cost of palletizing must be included in the unit price.

Contractor Response:

Will comply with items that can be palletized. Most items in the bid are larger than can be palletized.

1.0713 Delivery Term

Prices shall be quoted "F.O.B. Delivered" with transportation charges prepaid on all orders to the State, or on all orders totaling or in excess of the Contractor's minimum order requirement stated on the Item Listing.

Other F.O.B. terms will not be accepted and shall disqualify a Contractor from further consideration. This supersedes "Instructions" contained within the DMB-285, Request for Proposal form.

Freight Charges - Should an agency order below the minimum order requirement of a Contract, or should a vendor quote F.O.B. Shipping Point on one-time purchases, the Contractor should choose the most economically advantageous carrier and must be approved by the using agency.

United Parcel Service (UPS) must be used in instances where the weight of the shipment is less than 150 lbs., or where shipments could be separated into smaller parcels such as three (3) 50 lb. packages. Also, if the shipment weighs less than 150 lbs, but costs $3000 or more, it must be sent by the appropriate carrier listed above.

If the Contractor fails to follow these shipping instructions, the State shall pay the carrier used and deduct the difference from the Contractor's invoice for the amount that was charged and the amount that would have been charged if the requested carrier had been used.

Contractor Response:

Will comply

1.0714 Contract Performance

Indicate if the Contractor has had a contract terminated for default in the last three years. Termination for default is defined as notice to stop performance which was delivered to the Contractor due to the Contractor's non-performance or poor performance and the issue of performance was either (a) not litigated due to inaction on the part of the Contractor, or (b) litigated and determined that the Contractor was in default. If the Contractor has not had a contract terminated for default, the Contractor must affirmatively state this under "Reason" below.

If no terminations exist, the Contractor must affirmatively state this.

Note: If the Contractor has had a contract terminated for default in this period, the Contractor must submit full details including the other party's name, address, and phone number Purchasing Operations will evaluate the facts and may, at its sole discretion, reject the proposal on the grounds of past experience.

Termination: None
Reason:

1.0715 Place of Performance

Contractors, in the performance of any resulting contract, must state if they intend to use one or more plants or facilities located at a different address from the address indicated in section 4.011. The following information must be provided for these plants or facilities:

Place of Performance Full address	Owner/Operator of facility to be used	Percent (%) of Contract value to be Performed at listed Location
NA		

1.0716 Environmental Requirements

Energy Efficiency Purchasing Policy – The State shall seek wherever possible to purchase energy efficient products. This may include giving preference to U.S. Environmental Protection Agency (EPA) certified 'Energy Star' products for any category of products for which EPA has established Energy Star certification. For other purchases, the State may include energy efficiency as one of the priority factors to consider when choosing among comparable bids.

Environmental Purchasing Policy – The State of Michigan has committed to encourage the use of products and services that impact the environment less than competing products. This can be best accomplished by including environmental considerations in purchasing decisions, while remaining fiscally responsible, to promote practices that improve worker health, conserve natural resources, and prevent pollution. Environmental components that may be considered in Best Value Purchasing evaluation include: recycled content and recyclability; energy efficiency; and the presence of undesirable materials in the products, especially those toxic chemicals which are persistent and bio-accumulative. Contractors able to supply products containing recycled and environmentally preferable materials that meet performance requirements are encouraged to offer them in bids and proposals. Information on any relevant third party certification (such as Green Seal, Energy Star, etc.) should also be provided.

I. Recycled Content and Recyclability

A. Recycled Packaging. Contractors may offer some or all of the following items listed below or provide alternative proposal as to how packaging materials can be reduced, eliminated or otherwise made more environmentally preferable. It is desirable that Contractors offer packaging which:

a. is made from recycled content which meets or exceeds all federal and state recycled content guidelines (currently 35% post-consumer for all corrugated cardboard)
b. minimizes or eliminates the use of polystyrene or other difficult to recycle materials
c. minimizes or eliminates the use packaging and containers and, in the alternative, minimizes or eliminates the use of non-recyclable packaging and containers
d. provides for a return program where packaging can be returned to a specific location for recycling
e. contains materials which are easily recyclable in Michigan.

All Contractors are requested to indicate below an estimate of the percentage of recycled materials, if any, contained in each item bid. Higher percentages of recycled materials are preferred. Product performance is paramount, whether containing recycled material or not; however, preference will be given to products that perform up to specification and are environmentally preferable without compromising quality.

0 % (Total estimated percentage of recovered material)

0 % (Estimated percentage of post-consumer material)

0 % (Estimated percentage of post-industrial waste)

Certification

I, Dan Bouwman (name of certifier), am an officer or employee responsible for the performance of this contract and hereby certify that the percentage of recovered material content for EPA-designated products met the applicable contract specifications.
DB (Initial)

II. Materials Identification and Tracking

A. Hazardous Material Identification. 'Hazardous material', as used in this clause, includes any material defined as hazardous under the latest version of federal Emergency Planning and Community Right-to-Know Act of 1986 (including revisions adopted during the term of the contract).

(1) The Contractor must list any hazardous material, as defined in §370.20 (a) of 40 CFR, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material (if none, enter 'None')	Identification Number
None	

(2) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(3) The apparently successful Contractor agrees to submit, for each item as required prior to award, a Material Safety Data Sheet for each hazardous material identified in paragraph (1) of this clause. Data shall be submitted in accordance with Section 312 of the federal Emergency Planning and Community Right-to-Know Act, whether or not the apparently successful Contractor is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful Contractor being considered non-responsive and ineligible for award.

B. Mercury Content. It is the clear intent of state agencies to avoid purchasing products that contain intentionally-added mercury whenever possible. Contractors shall offer mercury-free product alternatives whenever available. Should mercury-free alternatives not exist, as presently is the case with a few select products and devices such as fluorescent lamps or where the alternative is not yet cost competitive, such as dental amalgam, Contractors shall offer the lowest mercury content available for a given application. Contractors shall disclose whenever products contain added-mercury by using the following format.

( ) Product contains added-Mercury (attach an explanation that includes: the amount or concentration of mercury and justification as to why this particular product is essential).
In addition, the Contractor shall also ensure that all products to be purchased containing intentionally added-mercury shall be labeled as: “product contains mercury/recycle or dispose of properly.” For instances where space constraints limit the amount or size of print, the chemical symbol “Hg” followed by a picture of a trash container with a diagonal line through it shall suffice for labeling requirements.
CONTRACTORS PLEASE NOTE: Michigan Law Prohibits the sale of mercury-containing thermostats, thermometers, sphygmomanometers (blood pressure monitors) and other types of medical devices. For specific details visit: http://www.michigan.gov/deq/0,1607,7-135-3307_29693_4175-160230--,00.html

C. Brominated Flame Retardants (BFR). Contractors shall disclose whether the products being offered contain toxic flame retardants. Contractors are encouraged to provide BFR-free alternatives when available.

(X) Product does not contain BFR’s

( ) Product does contain BFR’s (attach an explanation)

D. Ozone Depleting Substances

‘Ozone-depleting substance’, as used in this clause, means any substance the Environmental Protection Agency designates in 40 CFR part 82 as:

(1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or

(2) Class II, including, but not limited to, hydrochlorofluorocarbons.

The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR part 82, Subpart E, as follows:

‘Warning: Contains (or manufactured with, if applicable) None (insert the name of the substance(s).), a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere.’

A. Clean Air and Water

Vendor certifies that any facility to be used in the performance of this contract has all the necessary environmental permits and is in consistent compliance with all applicable environmental requirements and has no outstanding unresolved violations.

The vendor will immediately notify the state, before award, of the receipt of any communication from the Environmental Protection Agency or any state environmental agency, of civil or criminal enforcement for any facility that the vendor proposes to use in the performance of this contract.
DB (Initial)

B. Emergency Planning and Community Right-to-Know Reporting - By signing this offer, the Contractor certifies that:

(1) The owner or operator of each facility that will be used in the performance of this contract is in compliance with the filing and reporting requirements described in sections 302, 304, 311, 312 and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11001, et. seq.) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13101, et. seq.). EPCRA filing and reporting requirements include emergency planning notification, release reporting, hazardous chemical inventory reporting, and toxic chemical release inventory (TRI) reporting.

(2) The owner or operator of each facility that will be used in the performance of this contract will maintain compliance with the filing and reporting requirements described in sections 302, 304, 311, 312 and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11001, et. seq.) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13101, et. seq.) for the life of the contract. DB (Initial)

1.0717 Subcontractors

Indicate below **ALL** work to be subcontracted under this Contract (use additional attachment if necessary; estimates are acceptable):

Description of Work to be sub-contracted	**Percent (%) of total contract value to be sub-contracted**	**Sub-contractor's name and principal place of business (City and State)**
None		

1.0718 Reports and Meetings

Meetings as required by specifications.

1.0719 Samples/Models- Reserved

1.080 Additional Requirements- Reserved

1.081 Additional Terms and Conditions specific to this RFP - Reserved

Article 2, Terms and Conditions

2.000 Contract Structure and Term

2.001 Contract Term

This Contract is for a period of three (3) years beginning 9/14/2009 through 9/30/2012. All outstanding Purchase Orders must also expire upon the termination (cancellation for any of the reasons listed in **Section 2.150**) of the Contract, unless otherwise extended under the Contract. Absent an early termination for any reason, Purchase Orders issued but not expired, by the end of the Contract's stated term, will remain in effect for the balance of the fiscal year for which they were issued.

2.002 Options to Renew

This Contract may be renewed in writing by mutual agreement of the parties not less than 30 days before its expiration. The Contract may be renewed for up to two (2) additional one (1) year periods.

2.003 Legal Effect

Contractor shall show acceptance of this Contract by signing two copies of the Contract and returning them to the Contract Administrator. The Contractor shall not proceed with the performance of the work to be done under the Contract, including the purchase of necessary materials, until both parties have signed the Contract to show acceptance of its terms, and the Contractor receives a contract release/purchase order that authorizes and defines specific performance requirements.

Except as otherwise agreed in writing by the parties, the State assumes no liability for costs incurred by Contractor or payment under this Contract, until Contractor is notified in writing that this Contract (or Change Order) has been approved by the State Administrative Board (if required), approved and signed by all the parties, and a Purchase Order against the Contract has been issued.

2.004 Attachments & Exhibits

All Attachments and Exhibits affixed to any and all Statement(s) of Work, or appended to or referencing this Contract, are incorporated in their entirety and form part of this Contract.

2.005 Ordering

The State will issue a written Purchase Order, Blanket Purchase Order, Direct Voucher or Procurement Card Order, which must be approved by the Contract Administrator or the Contract Administrator's designee, to order any Services/Deliverables under this Contract. All orders are subject to the terms and conditions of this Contract. No additional terms and conditions contained on either a Purchase Order or Blanket Purchase Order apply unless they are also specifically contained in that Purchase Order's or Blanket Purchase Order's accompanying Statement of Work. Exact quantities to be purchased are unknown, however, the Contractor will be required to furnish all such materials and services as may be ordered during the CONTRACT period. Quantities specified, if any, are estimates based on prior purchases, and the State is not obligated to purchase in these or any other quantities.

2.006 Order of Precedence

(a) The Contract, including any Statements of Work and Exhibits, to the extent not contrary to the Contract, each of which is incorporated for all purposes, constitutes the entire agreement between the parties with respect to the subject matter and supersedes all prior agreements, whether written or oral, with respect to the subject matter and as additional terms and conditions on the purchase order must apply as limited by **Section 2.005.**

(b) In the event of any inconsistency between the terms of the Contract and a Statement of Work, the terms of the Statement of Work will take precedence (as to that Statement of Work only); provided, however, that a Statement of Work may not modify or amend the terms of the Contract, which may be modified or amended only by a formal Contract amendment.

2.007 Headings

Captions and headings used in the Contract are for information and organization purposes. Captions and headings, including inaccurate references, do not, in any way, define or limit the requirements or terms and conditions of the Contract.

2.008 Form, Function & Utility

If the Contract is for use of more than one State agency and if the Deliverable/Service does not the meet the form, function, and utility required by that State agency, that agency may, subject to State purchasing policies, procure the Deliverable/Service from another source.

2.009 Reformation and Severability

Each provision of the Contract is severable from all other provisions of the Contract and, if one or more of the provisions of the Contract is declared invalid, the remaining provisions of the Contract remain in full force and effect.

2.010 Consents and Approvals

Except as expressly provided otherwise in the Contract, if either party requires the consent or approval of the other party for the taking of any action under the Contract, the consent or approval must be in writing and must not be unreasonably withheld or delayed.

2.011 No Waiver of Default

If a party fails to insist upon strict adherence to any term of the Contract then the party has not waived the right to later insist upon strict adherence to that term, or any other term, of the Contract.

2.012 Survival

Any provisions of the Contract that impose continuing obligations on the parties, including without limitation the parties' respective warranty, indemnity and confidentiality obligations, survive the expiration or termination of the Contract for any reason. Specific references to survival in the Contract are solely for identification purposes and not meant to limit or prevent the survival of any other section.

2.020 Contract Administration

2.021 Issuing Office

This Contract is issued by the Department of Management and Budget, Purchasing Operations and the Michigan Department of Transportation agency] (collectively, including all other relevant State of Michigan departments and agencies, the "State"). Purchasing Operations is the sole point of contact in the State with regard to all procurement and contractual matters relating to the Contract. Purchasing Operations **is the only State office authorized to change, modify, amend, alter or clarify the prices, specifications, terms and conditions of this Contract.** The Contractor Administrator within Purchasing Operations for this Contract is:

Irene Pena, Buyer Specialist
Purchasing Operations
Department of Management and Budget
Mason Bldg, 2nd Floor
PO Box 30026
Lansing, MI 48909
Email: Penai1@michigan.gov
Phone: (517) 241-1647

2.022 Contract Compliance Inspector (CCI)

After DMB-PurchOps receives the properly executed Contract, it is anticipated that the Director of Purchasing Operations, in consultation with the Michigan Department of Transportation, will direct the person named below, or any other person so designated, to monitor and coordinate the activities for the Contract on a day-to-day basis during its term. However, monitoring of this Contract implies **no authority to change, modify, clarify, amend,**

or otherwise alter the prices, terms, conditions and specifications of the Contract as that authority is retained by DMB Purchasing Operations. The Contract Compliance Inspector for this Contract is:

Jeff Turner
Michigan Department of Transportation
2522 W. Main St., Lansing, MI, 48917
turnerj3@mi.gov
(517) 334-7763
(517) 334-6569

2.023 Project Manager

The following individual will oversee the project:

Jeff Turner
Michigan Department of Transportation
2522 W. Main St., Lansing, MI, 48917
turnerj3@mi.gov
(517) 334-7763
(517) 334-6569

2.024 Change Requests

The State reserves the right to request from time to time any changes to the requirements and specifications of the Contract and the work to be performed by the Contractor under the Contract. During the course of ordinary business, it may become necessary for the State to discontinue certain business practices or create Additional Services/Deliverables. At a minimum, to the extent applicable, the State would like the Contractor to provide a detailed outline of all work to be done, including tasks necessary to accomplish the services/deliverables, timeframes, listing of key personnel assigned, estimated hours for each individual per task, and a complete and detailed cost justification.

If the Contractor does not so notify the State, the Contractor has no right to claim thereafter that it is entitled to additional compensation for performing that service or providing that deliverable.

Change Requests:

(a) By giving Contractor written notice within a reasonable time, the State must be entitled to accept a Contractor proposal for Change, to reject it, or to reach another agreement with Contractor. Should the parties agree on carrying out a Change, a written Contract Change Notice must be prepared and issued under this Contract, describing the Change and its effects on the Services and any affected components of this Contract (a "Contract Change Notice").

(b) No proposed Change must be performed until the proposed Change has been specified in a duly executed Contract Change Notice issued by the Department of Management and Budget, Purchasing Operations.

(c) If the State requests or directs the Contractor to perform any activities that Contractor believes constitute a Change, the Contractor must notify the State that it believes the requested activities are a Change before beginning to work on the requested activities. If the Contractor fails to notify the State before beginning to work on the requested activities, then the Contractor waives any right to assert any claim for additional compensation or time for performing the requested activities. If the Contractor commences performing work outside the scope of this Contract and then ceases performing that work, the Contractor must, at the request of the State, retract any out-of-scope work that would adversely affect the Contract.

2.025 Notices

Any notice given to a party under the Contract must be deemed effective, if addressed to the party as addressed below, upon: (i) delivery, if hand delivered; (ii) receipt of a confirmed transmission by facsimile if a copy of the notice is sent by another means specified in this Section; (iii) the third Business Day after being sent by U.S. mail,

postage pre-paid, return receipt requested; or (iv) the next Business Day after being sent by a nationally recognized overnight express courier with a reliable tracking system.

State:
State of Michigan
Purchasing Operations
Attention: Irene Pena, Buyer Specialist
PO Box 30026
530 West Allegan
Lansing, Michigan 48909

Contractor:
Truck and Trailer Specialties, Inc.
Attention: Dan Bouwman
6726 Hanna Lake Rd., SE
Dutton, MI 49315

Either party may change its address where notices are to be sent by giving notice according to this Section.

2.026 Binding Commitments

Representatives of Contractor must have the authority to make binding commitments on Contractor's behalf within the bounds set forth in the table. Contractor may change the representatives from time to time upon written notice.

2.027 Relationship of the Parties

The relationship between the State and Contractor is that of client and independent contractor. No agent, employee, or servant of Contractor or any of its Subcontractors must be or must be deemed to be an employee, agent or servant of the State for any reason. Contractor will be solely and entirely responsible for its acts and the acts of its agents, employees, servants and Subcontractors during the performance of the Contract.

2.028 Covenant of Good Faith

Each party must act reasonably and in good faith. Unless stated otherwise in the Contract, the parties will not unreasonably delay, condition or withhold the giving of any consent, decision or approval that is either requested or reasonably required of them in order for the other party to perform its responsibilities under the Contract.

2.029 Assignments

(a) Neither party may assign the Contract, or assign or delegate any of its duties or obligations under the Contract, to any other party (whether by operation of law or otherwise), without the prior written consent of the other party; provided, however, that the State may assign the Contract to any other State agency, department, division or department without the prior consent of Contractor and Contractor may assign the Contract to an affiliate so long as the affiliate is adequately capitalized and can provide adequate assurances that the affiliate can perform the Contract. The State may withhold consent from proposed assignments, subcontracts, or novations when the transfer of responsibility would operate to decrease the State's likelihood of receiving performance on the Contract or the State's ability to recover damages.

(b) Contractor may not, without the prior written approval of the State, assign its right to receive payments due under the Contract. If the State permits an assignment, the Contractor is not relieved of its responsibility to perform any of its contractual duties, and the requirement under the Contract that all payments must be made to one entity continues.

(c) If the Contractor intends to assign the contract or any of the Contractor's rights or duties under the Contract, the Contractor must notify the State in writing at least 90 days before the assignment. The Contractor also must provide the State with adequate information about the assignee within a reasonable amount of time before the assignment for the State to determine whether to approve the assignment.

2.030 General Provisions

2.031 Media Releases

News releases (including promotional literature and commercial advertisements) pertaining to the RFP and Contract or project to which it relates shall not be made without prior written State approval, and then only in accordance with the explicit written instructions from the State. No results of the activities associated with the RFP and Contract are to be released without prior written approval of the State and then only to persons designated.

2.032 Contract Distribution

Purchasing Operations retains the sole right of Contract distribution to all State agencies and local units of government unless other arrangements are authorized by Purchasing Operations.

2.033 Permits

Contractor must obtain and pay any associated costs for all required governmental permits, licenses and approvals for the delivery, installation and performance of the Services. The State must pay for all costs and expenses incurred in obtaining and maintaining any necessary easements or right of way.

2.034 Website Incorporation

The State is not bound by any content on the Contractor's website, even if the Contractor's documentation specifically referenced that content and attempts to incorporate it into any other communication, unless the State has actual knowledge of the content and has expressly agreed to be bound by it in a writing that has been manually signed by an authorized representative of the State.

2.035 Future Bidding Preclusion

Contractor acknowledges that, to the extent this Contract involves the creation, research, investigation or generation of a future RFP, it may be precluded from bidding on the subsequent RFP. The State reserves the right to disqualify any Contractor if the State determines that the Contractor has used its position (whether as an incumbent Contractor, or as a Contractor hired to assist with the RFP development, or as a Vendor offering free assistance) to gain a competitive advantage on the RFP.

2.036 Freedom of Information

All information in any proposal submitted to the State by Contractor and this Contract is subject to the provisions of the Michigan Freedom of Information Act, 1976 Public Act No. 442, as amended, MCL 15.231, et seq (the "FOIA").

2.037 Disaster Recovery

Contractor and the State recognize that the State provides essential services in times of natural or man-made disasters. Therefore, except as so mandated by Federal disaster response requirements, Contractor personnel dedicated to providing Services/Deliverables under this Contract will provide the State with priority service for repair and work around in the event of a natural or man-made disaster.

2.040 Financial Provisions

2.041 Fixed Prices for Services/Deliverables

Each Statement of Work or Purchase Order issued under this Contract shall specify (or indicate by reference to the appropriate Contract Exhibit) the firm, fixed prices for all Services/Deliverables, and the associated payment milestones and payment amounts. The State may make progress payments to the Contractor when requested as work progresses, but not more frequently than monthly, in amounts approved by the Contract Administrator, after negotiation. Contractor must show verification of measurable progress at the time of requesting progress payments.

2.042 Adjustments for Reductions in Scope of Services/Deliverables

If the scope of the Services/Deliverables under any Statement of Work issued under this Contract is subsequently reduced by the State, the parties shall negotiate an equitable reduction in Contractor's charges under such Statement of Work commensurate with the reduction in scope.

2.043 Services/Deliverables Covered

For all Services/Deliverables to be provided by Contractor (and its Subcontractors, if any) under this Contract, the State shall not be obligated to pay any amounts in addition to the charges specified in this Contract.

2.044 Invoicing and Payment – In General

(a) Each Statement of Work issued under this Contract shall list (or indicate by reference to the appropriate Contract Exhibit) the prices for all Services/Deliverables, equipment and commodities to be provided, and the associated payment milestones and payment amounts.

(b) Each Contractor invoice will show details as to charges by Service/Deliverable component and location at a level of detail reasonably necessary to satisfy the State's accounting and charge-back requirements. Invoices for Services performed on a time and materials basis will show, for each individual, the number of hours of Services performed during the billing period, the billable skill/labor category for such person and the applicable hourly billing rate. Prompt payment by the State is contingent on the Contractor's invoices showing the amount owed by the State minus any holdback amount to be retained by the State in accordance with **Section 1.064**.

(c) Correct invoices will be due and payable by the State, in accordance with the State's standard payment procedure as specified in 1984 Public Act No. 279, MCL 17.51 et seq., within 45 days after receipt, provided the State determines that the invoice was properly rendered.

N/A:

(d) All invoices should reflect actual work done. Specific details of invoices and payments will be agreed upon between the Contract Administrator and the Contractor after the proposed Contract Agreement has been signed and accepted by both the Contractor and the Director of Purchasing Operations, Department of Management & Budget. This activity will occur only upon the specific written direction from Purchasing Operations.

The specific payment schedule for any Contract(s) entered into, as the State and the Contractor(s) will mutually agree upon. The schedule should show payment amount and should reflect actual work done by the payment dates, less any penalty cost charges accrued by those dates. As a general policy statements shall be forwarded to the designated representative by the 15th day of the following month.

The Government may make progress payments to the Contractor when requested as work progresses, but not more frequently than monthly, in amounts approved by the Contract Administrator, after negotiation. Contractor must show verification of measurable progress at the time of requesting progress payments.

(d) Contract Payment Schedule

1. Contractor request for performance-based payment.
   The Contractor may submit requests for payment of performance-based payments not more frequently than monthly, in a form and manner acceptable to the Contract Administrator. Unless otherwise authorized by the Contract Administrator, all performance-based payments in any period for which payment is being requested shall be included in a single request, appropriately itemized and totaled.

2. Approval and payment of requests.
   a) The Contractor shall not be entitled to payment of a request for performance-based payment prior to successful accomplishment of the event or performance criterion for which payment is requested. The Contract Administrator shall determine whether the event or performance criterion for which payment is requested has been successfully accomplished in accordance with the terms of the contract. The Contract Administrator may, at any time, require the Contractor to substantiate the successful performance of any event or performance criterion, which has been or is represented as being payable.

b) A payment under this performance-based payment clause is a contract financing payment under the Quick Payment Terms in **Section 1.061** of this Contract.

c) The approval by the Contract Administrator of a request for performance-based payment does not constitute an acceptance by the Government and does not excuse the Contractor from performance of obligations under this Contract.

2.045 Pro-ration

To the extent there are any Services that are to be paid for on a monthly basis, the cost of such Services shall be pro-rated for any partial month.

2.046 Antitrust Assignment

The Contractor assigns to the State any claim for overcharges resulting from antitrust violations to the extent that those violations concern materials or services supplied by third parties to the Contractor, toward fulfillment of this Contract.

2.047 Final Payment

The making of final payment by the State to Contractor does not constitute a waiver by either party of any rights or other claims as to the other party's continuing obligations under the Contract, nor will it constitute a waiver of any claims by one party against the other arising from unsettled claims or failure by a party to comply with this Contract, including claims for Services and Deliverables not reasonably known until after acceptance to be defective or substandard. Contractor's acceptance of final payment by the State under this Contract shall constitute a waiver of all claims by Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still unsettled.

2.048 Electronic Payment Requirement

Electronic transfer of funds is required for payments on State Contracts. Contractors are required to register with the State electronically at http://www.cpexpress.state.mi.us. As stated in Public Act 431 of 1984, all contracts that the State enters into for the purchase of goods and services shall provide that payment will be made by electronic fund transfer (EFT).

2.050 Taxes

2.051 Employment Taxes

Contractors are expected to collect and pay all applicable federal, state, and local employment taxes, including the taxes.

2.052 Sales and Use Taxes

Contractors are required to be registered and to remit sales and use taxes on taxable sales of tangible personal property or services delivered into the State. Contractors that lack sufficient presence in Michigan to be required to register and pay tax must do so as a volunteer. This requirement extends to: (1) all members of any controlled group as defined in § 1563(a) of the Internal Revenue Code and applicable regulations of which the company is a member, and (2) all organizations under common control as defined in § 414(c) of the Internal Revenue Code and applicable regulations of which the company is a member that make sales at retail for delivery into the State are registered with the State for the collection and remittance of sales and use taxes. In applying treasury regulations defining "two or more trades or businesses under common control" the term "organization" means sole proprietorship, a partnership (as defined in § 701(a)(2) of the Internal Revenue Code), a trust, an estate, a corporation, or a limited liability company.

2.060 Contract Management

2.061 Contractor Personnel Qualifications

All persons assigned by Contractor to the performance of Services under this Contract must be employees of Contractor or its majority-owned (directly or indirectly, at any tier) subsidiaries (or a State-approved Subcontractor) and must be fully qualified to perform the work assigned to them. Contractor must include a similar provision in any subcontract entered into with a Subcontractor. For the purposes of this Contract, independent contractors engaged by Contractor solely in a staff augmentation role must be treated by the State as if they were employees of Contractor for this Contract only; however, the State understands that the relationship between Contractor and Subcontractor is an independent contractor relationship.

2.062 Contractor Key Personnel

(a) The Contractor must provide the Contract Compliance Inspector with the names of the Key Personnel.

(b) Key Personnel must be dedicated as defined in the Statement of Work to the Project for its duration in the applicable Statement of Work with respect to other individuals designated as Key Personnel for that Statement of Work.

(c) The State will have the right to recommend and approve in writing the initial assignment, as well as any proposed reassignment or replacement, of any Key Personnel. Before assigning an individual to any Key Personnel position, Contractor will notify the State of the proposed assignment, will introduce the individual to the appropriate State representatives, and will provide the State with a resume and any other information about the individual reasonably requested by the State. The State reserves the right to interview the individual before granting written approval. In the event the State finds a proposed individual unacceptable, the State will provide a written explanation including reasonable detail outlining the reasons for the rejection.

(d) Contractor must not remove any Key Personnel from their assigned roles on the Contract without the prior written consent of the State. The Contractor's removal of Key Personnel without the prior written consent of the State is an unauthorized removal ("Unauthorized Removal"). Unauthorized Removals does not include replacing Key Personnel for reasons beyond the reasonable control of Contractor, including illness, disability, leave of absence, personal emergency circumstances, resignation or for cause termination of the Key Personnel's employment. Unauthorized Removals does not include replacing Key Personnel because of promotions or other job movements allowed by Contractor personnel policies or Collective Bargaining Agreement(s) as long as the State receives prior written notice before shadowing occurs and Contractor provides 30 days of shadowing unless parties agree to a different time period. The Contractor with the State must review any Key Personnel replacements, and appropriate transition planning will be established. Any Unauthorized Removal may be considered by the State to be a material breach of the Contract, in respect of which the State may elect to exercise its termination and cancellation rights.

(e) The Contractor must notify the Contract Compliance Inspector and the Contract Administrator at least 10 business days before redeploying non-Key Personnel, who are dedicated to primarily to the Project, to other projects. If the State does not object to the redeployment by its scheduled date, the Contractor may then redeploy the non-Key Personnel.

2.063 Re-assignment of Personnel at the State's Request

The State reserves the right to require the removal from the Project of Contractor personnel found, in the judgment of the State, to be unacceptable. The State's request must be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request must be based on legitimate, good-faith reasons. Replacement personnel for the removed person must be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed personnel, the State agrees to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any incident with removed personnel results in delay not reasonably anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Service will not be counted for a time as agreed to by the parties.

2.064 Contractor Personnel Location

All staff assigned by Contractor to work on the Contract will perform their duties either primarily at Contractor's offices and facilities or at State facilities. Without limiting the generality of the foregoing, Key Personnel will, at a minimum, spend at least the amount of time on-site at State facilities as indicated in the applicable Statement of Work. Subject to availability, selected Contractor personnel may be assigned office space to be shared with State personnel.

2.065 Contractor Identification

Contractor employees must be clearly identifiable while on State property by wearing a State-issued badge, as required. Contractor employees are required to clearly identify themselves and the company they work for whenever making contact with State personnel by telephone or other means.

2.066 Cooperation with Third Parties

Contractor agrees to cause its personnel and the personnel of any Subcontractors to cooperate with the State and its agents and other contractors including the State's Quality Assurance personnel. As reasonably requested by the State in writing, the Contractor will provide to the State's agents and other contractors reasonable access to Contractor's Project personnel, systems and facilities to the extent the access relates to activities specifically associated with this Contract and will not interfere or jeopardize the safety or operation of the systems or facilities. The State acknowledges that Contractor's time schedule for the Contract is very specific and agrees not to unnecessarily or unreasonably interfere with, delay or otherwise impeded Contractor's performance under this Contract with the requests for access.

2.067 Contract Management Responsibilities

The Contractor will be required to assume responsibility for all contractual activities, whether or not that Contractor performs them. Further, the State will consider the Contractor to be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the anticipated Contract. If any part of the work is to be subcontracted, the Contract must include a list of subcontractors, including firm name and address, contact person and a complete description of work to be subcontracted. The State reserves the right to approve subcontractors and to require the Contractor to replace subcontractors found to be unacceptable. The Contractor is totally responsible for adherence by the subcontractor to all provisions of the Contract. Any change in subcontractors must be approved by the State, in writing, prior to such change.

2.068 Contractor Return of State Equipment/Resources

The Contractor must return to the State any State-furnished equipment, facilities and other resources when no longer required for the Contract in the same condition as when provided by the State, reasonable wear and tear excepted.

2.070 Subcontracting by Contractor

2.071 Contractor full Responsibility

Contractor shall have full responsibility for the successful performance and completion of all of the Services and Deliverables. The State will consider Contractor to be the sole point of contact with regard to all contractual matters under this Contract, including payment of any and all charges for Services and Deliverables.

2.072 State Consent to delegation

Contractor shall not delegate any duties under this Contract to a Subcontractor unless the Department of Management and Budget, Purchasing Operations has given written consent to such delegation. The State shall have the right of prior written approval of all Subcontractors and to require Contractor to replace any Subcontractors found, in the reasonable judgment of the State, to be unacceptable. The State's request shall be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request shall be based on legitimate, good-faith reasons. Replacement Subcontractor(s) for the removed Subcontractor shall be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed Subcontractor, the State will agree to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any such incident with a removed Subcontractor results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLA for the affected Work will not be counted in time agreed upon by the parties.

2.073 Subcontractor bound to Contract

In any subcontracts entered into by Contractor for the performance of the Services, Contractor shall require the Subcontractor, to the extent of the Services to be performed by the Subcontractor, to be bound to Contractor by the terms of this Contract and to assume toward Contractor all of the obligations and responsibilities that Contractor, by this Contract, assumes toward the State. The State reserves the right to receive copies of and

review all subcontracts, although Contractor may delete or mask any proprietary information, including pricing, contained in such contracts before providing them to the State. The management of any Subcontractor will be the responsibility of Contractor, and Contractor shall remain responsible for the performance of its Subcontractors to the same extent as if Contractor had not subcontracted such performance. Contractor shall make all payments to Subcontractors or suppliers of Contractor. Except as otherwise agreed in writing by the State and Contractor, the State will not be obligated to direct payments for the Services other than to Contractor. The State's written approval of any Subcontractor engaged by Contractor to perform any obligation under this Contract shall not relieve Contractor of any obligations or performance required under this Contract. Attached as **Exhibit A** is a list of the Subcontractors, if any, approved by the State as of the execution of this Contract, together with a copy of the applicable subcontract.

2.074 Flow Down

Except where specifically approved in writing by the State on a case-by-case basis, Contractor shall flow down the obligations in **Sections 2.031, 2.060, 2.100, 2.110, 2.120, 2.130, 2.200** in all of its agreements with any Subcontractors.

2.075 Competitive Selection

The Contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the Contract.

2.080 State Responsibilities

2.081 Equipment

The State will provide only the equipment and resources identified in the Statements of Work and other Contract Exhibits.

2.082 Facilities

The State must designate space as long as it is available and as provided in the Statement of Work, to house the Contractor's personnel whom the parties agree will perform the Services/Deliverables at State facilities (collectively, the "State Facilities"). The Contractor must have reasonable access to, and unless agreed otherwise by the parties in writing must observe and comply with all rules and regulations relating to each of the State Facilities (including hours of operation) used by the Contractor in the course of providing the Services. Contractor agrees that it will not, without the prior written consent of the State, use any State Facilities or access any State information systems provided for the Contractor's use, or to which the Contractor otherwise gains access in the course of performing the Services, for any purpose other than providing the Services to the State.

2.090 Security

2.091 Background Checks

On a case-by-case basis, the State may investigate the Contractor's personnel before they may have access to State facilities and systems. The scope of the background check is at the discretion of the State and the results will be used to determine Contractor personnel eligibility for working within State facilities and systems. The investigations will include Michigan State Police Background checks (ICHAT) and may include the National Crime Information Center (NCIC) Finger Prints. Proposed Contractor personnel may be required to complete and submit an RI-8 Fingerprint Card for the NCIC Finger Print Check. Any request for background checks will be initiated by the State and will be reasonably related to the type of work requested.

All Contractor personnel will also be expected to comply with the State's security and acceptable use policies for State IT equipment and resources. See http://www.michigan.gov/dit. Furthermore, Contractor personnel will be expected to agree to the State's security and acceptable use policies before the Contractor personnel will be accepted as a resource to perform work for the State. It is expected the Contractor will present these documents to the prospective employee before the Contractor presents the individual to the State as a proposed resource. Contractor staff will be expected to comply with all Physical Security procedures in place within the facilities where they are working.

2.092 Security Breach Notification

If the Contractor breaches this Section, the Contractor must (i) promptly cure any deficiencies and (ii) comply with any applicable federal and state laws and regulations pertaining to unauthorized disclosures. Contractor and the State will cooperate to mitigate, to the extent practicable, the effects of any breach, intrusion, or unauthorized use or disclosure. Contractor must report to the State in writing any use or disclosure of Confidential Information, whether suspected or actual, other than as provided for by the Contract within 10 days of becoming aware of the use or disclosure or the shorter time period as is reasonable under the circumstances.

2.093 PCI Data Security Requirements- Reserved

2.100 Confidentiality

2.101 Confidentiality

Contractor and the State each acknowledge that the other possesses and will continue to possess confidential information that has been developed or received by it. As used in this Section, "Confidential Information" of Contractor must mean all non-public proprietary information of Contractor (other than Confidential Information of the State as defined below) which is marked confidential, restricted, proprietary or with a similar designation. "Confidential Information" of the State must mean any information which is retained in confidence by the State (or otherwise required to be held in confidence by the State under applicable federal, state and local laws and regulations) or which, in the case of tangible materials provided to Contractor by the State under its performance under this Contract, is marked as confidential, proprietary or with a similar designation by the State. "Confidential Information" excludes any information (including this Contract) that is publicly available under the Michigan FOIA.

2.102 Protection and Destruction of Confidential Information

The State and Contractor will each use at least the same degree of care to prevent disclosing to third parties the Confidential Information of the other as it employs to avoid unauthorized disclosure, publication or dissemination of its own confidential information of like character, but in no event less than reasonable care. Neither Contractor nor the State will (i) make any use of the Confidential Information of the other except as contemplated by this Contract, (ii) acquire any right in or assert any lien against the Confidential Information of the other, or (iii) if requested to do so, refuse for any reason to promptly return the other party's Confidential Information to the other party. Each party will limit disclosure of the other party's Confidential Information to employees and Subcontractors who must have access to fulfill the purposes of this Contract. Disclosure to, and use by, a Subcontractor is permissible where (A) use of a Subcontractor is authorized under this Contract, (B) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the Subcontractor's scope of responsibility, and (C) Contractor obligates the Subcontractor in a written Contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor and of any Subcontractor having access or continued access to the State's Confidential Information may be required to execute an acknowledgment that the employee has been advised of Contractor's and the Subcontractor's obligations under this Section and of the employee's obligation to Contractor or Subcontractor, as the case may be, to protect the Confidential Information from unauthorized use or disclosure.

Promptly upon termination or cancellation of the Contract for any reason, Contractor must certify to the State that Contractor has destroyed all State Confidential Information.

2.103 Exclusions

Notwithstanding the foregoing, the provisions of **Section 2.080** will not apply to any particular information which the State or Contractor can demonstrate (i) was, at the time of disclosure to it, in the public domain; (ii) after disclosure to it, is published or otherwise becomes part of the public domain through no fault of the receiving party; (iii) was in the possession of the receiving party at the time of disclosure to it without an obligation of confidentiality; (iv) was received after disclosure to it from a third party who had a lawful right to disclose the information to it without any obligation to restrict its further disclosure; or (v) was independently developed by the receiving party without reference to Confidential Information of the furnishing party. Further, the provisions

of **Section 2.080** will not apply to any particular Confidential Information to the extent the receiving party is required by law to disclose the Confidential Information, provided that the receiving party (i) promptly provides the furnishing party with notice of the legal request, and (ii) assists the furnishing party in resisting or limiting the scope of the disclosure as reasonably requested by the furnishing party.

2.104 No Implied Rights

Nothing contained in this Section must be construed as obligating a party to disclose any particular Confidential Information to the other party, or as granting to or conferring on a party, expressly or impliedly, any right or license to the Confidential Information of the other party.

2.105 Respective Obligations

The parties' respective obligations under this Section must survive the termination or expiration of this Contract for any reason.

2.110 Records and Inspections

2.111 Inspection of Work Performed

The State's authorized representatives must at all reasonable times and with 10 days prior written request, have the right to enter Contractor's premises, or any other places, where the Services are being performed, and must have access, upon reasonable request, to interim drafts of Deliverables or work-in-progress. Upon 10 Days prior written notice and at all reasonable times, the State's representatives must be allowed to inspect, monitor, or otherwise evaluate the work being performed and to the extent that the access will not reasonably interfere or jeopardize the safety or operation of the systems or facilities. Contractor must provide all reasonable facilities and assistance for the State's representatives.

2.112 Examination of Records

For seven years after the Contractor provides any work under this Contract (the "Audit Period"), the State may examine and copy any of Contractor's books, records, documents and papers pertinent to establishing Contractor's compliance with the Contract and with applicable laws and rules. The State must notify the Contractor 20 days before examining the Contractor's books and records. The State does not have the right to review any information deemed confidential by the Contractor to the extent access would require the confidential information to become publicly available. This provision also applies to the books, records, accounts, documents and papers, in print or electronic form, of any parent, affiliated or subsidiary organization of Contractor, or any Subcontractor of Contractor performing services in connection with the Contract.

2.113 Retention of Records

Contractor must maintain at least until the end of the Audit Period all pertinent financial and accounting records (including time sheets and payroll records, and information pertaining to the Contract and to the Services, equipment, and commodities provided under the Contract) pertaining to the Contract according to generally accepted accounting principles and other procedures specified in this Section. Financial and accounting records must be made available, upon request, to the State at any time during the Audit Period. If an audit, litigation, or other action involving Contractor's records is initiated before the end of the Audit Period, the records must be retained until all issues arising out of the audit, litigation, or other action are resolved or until the end of the Audit Period, whichever is later.

2.114 Audit Resolution

If necessary, the Contractor and the State will meet to review each audit report promptly after issuance. The Contractor will respond to each audit report in writing within 30 days from receipt of the report, unless a shorter response time is specified in the report. The Contractor and the State must develop, agree upon and monitor an action plan to promptly address and resolve any deficiencies, concerns, and/or recommendations in the audit report.

2.115 Errors

(a) If the audit demonstrates any errors in the documents provided to the State, then the amount in error must be reflected as a credit or debit on the next invoice and in subsequent invoices until the amount is paid or refunded in full. However, a credit or debit may not be carried for more than four invoices. If a balance remains after four invoices, then the remaining amount will be due as a payment or refund within 45 days of the last quarterly invoice that the balance appeared on or termination of the contract, whichever is earlier.

(b) In addition to other available remedies, the difference between the payment received and the correct payment amount is greater than 10%, then the Contractor must pay all of the reasonable costs of the audit.

2.120 Warranties

2.121 Warranties and Representations

The Contractor represents and warrants:

(a) It is capable in all respects of fulfilling and must fulfill all of its obligations under this Contract. The performance of all obligations under this Contract must be provided in a timely, professional, and workman-like manner and must meet the performance and operational standards required under this Contract.

(b) The Contract Appendices, Attachments and Exhibits identify the equipment and software and services necessary for the Deliverable(s) to perform and Services to operate in compliance with the Contract's requirements and other standards of performance.

(c) It is the lawful owner or licensee of any Deliverable licensed or sold to the State by Contractor or developed by Contractor under this Contract, and Contractor has all of the rights necessary to convey to the State the ownership rights or licensed use, as applicable, of any and all Deliverables. None of the Deliverables provided by Contractor to the State under this Contract, nor their use by the State, will infringe the patent, copyright, trade secret, or other proprietary rights of any third party.

(d) If, under this Contract, Contractor procures any equipment, software or other Deliverable for the State (including equipment, software and other Deliverables manufactured, re-marketed or otherwise sold by Contractor under Contractor's name), then in addition to Contractor's other responsibilities with respect to the items in this Contract, Contractor must assign or otherwise transfer to the State or its designees, or afford the State the benefits of, any manufacturer's warranty for the Deliverable.

(e) The contract signatory has the power and authority, including any necessary corporate authorizations, necessary to enter into this Contract, on behalf of Contractor.

(f) It is qualified and registered to transact business in all locations where required.

(g) Neither the Contractor nor any Affiliates, nor any employee of either, has, must have, or must acquire, any contractual, financial, business, or other interest, direct or indirect, that would conflict in any manner or degree with Contractor's performance of its duties and responsibilities to the State under this Contract or otherwise create an appearance of impropriety with respect to the award or performance of this Agreement. Contractor must notify the State about the nature of the conflict or appearance of impropriety within two days of learning about it.

(h) Neither Contractor nor any Affiliates, nor any employee of either has accepted or must accept anything of value based on an understanding that the actions of the Contractor or Affiliates or employee on behalf of the State would be influenced. Contractor must not attempt to influence any State employee by the direct or indirect offer of anything of value.

(i) Neither Contractor nor any Affiliates, nor any employee of either has paid or agreed to pay any person, other than bona fide employees and consultants working solely for Contractor or the Affiliate, any fee,

commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract.

(j) The prices proposed by Contractor were arrived at independently, without consultation, communication, or agreement with any other Contractor for the purpose of restricting competition; the prices quoted were not knowingly disclosed by Contractor to any other Contractor; and no attempt was made by Contractor to induce any other person to submit or not submit a proposal for the purpose of restricting competition.

(k) All financial statements, reports, and other information furnished by Contractor to the State as part of its response to the RFP or otherwise in connection with the award of this Contract fairly and accurately represent the business, properties, financial condition, and results of operations of Contractor as of the respective dates, or for the respective periods, covered by the financial statements, reports, other information. Since the respective dates or periods covered by the financial statements, reports, or other information, there have been no material adverse change in the business, properties, financial condition, or results of operations of Contractor.

(l) All written information furnished to the State by or for the Contractor in connection with this Contract, including its bid, is true, accurate, and complete, and contains no untrue statement of material fact or omits any material fact necessary to make the information not misleading.

(m) It is not in material default or breach of any other contract or agreement that it may have with the State or any of its departments, commissions, boards, or agencies. Contractor further represents and warrants that it has not been a party to any contract with the State or any of its departments that was terminated by the State or the department within the previous five years for the reason that Contractor failed to perform or otherwise breached an obligation of the contract.

(n) If any of the certifications, representations, or disclosures made in the Contractor's original bid response change after contract award, the Contractor is required to report those changes immediately to the Department of Management and Budget, Purchasing Operations.

2.122 Warranty of Merchantability

Goods provided by Contractor under this agreement shall be merchantable. All goods provided under this Contract shall be of good quality within the description given by the State, shall be fit for their ordinary purpose, shall be adequately contained and packaged within the description given by the State, shall conform to the agreed upon specifications, and shall conform to the affirmations of fact made by the Contractor or on the container or label.

2.123 Warranty of Fitness for a Particular Purpose

When the Contractor has reason to know or knows any particular purpose for which the goods are required, and the State is relying on the Contractor's skill or judgment to select or furnish suitable goods, there is a warranty that the goods are fit for such purpose.

2.124 Warranty of Title

Contractor shall, in providing goods to the State, convey good title in those goods, whose transfer is right and lawful. All goods provided by Contractor shall be delivered free from any security interest, lien, or encumbrance of which the State, at the time of contracting, has no knowledge. Goods provided by Contractor, under this Contract, shall be delivered free of any rightful claim of any third person by of infringement or the like.

2.125 Equipment Warranty- Reserved

2.126 Equipment to be New

If applicable, all equipment provided under this Contract by Contractor shall be new where Contractor has knowledge regarding whether the equipment is new or assembled from new or serviceable used parts that are like new in performance or has the option of selecting one or the other. Equipment that is assembled from new or serviceable used parts that are like new in performance is acceptable where Contractor does not have knowledge or the ability to select one or other, unless specifically agreed otherwise in writing by the State.

2.127 Prohibited Products

The State will not accept salvage, distressed, outdated or discontinued merchandise. Shipping of such merchandise to any State agency, as a result of an order placed against the Contract, shall be considered default by the Contractor of the terms and conditions of the Contract and may result in cancellation of the Contract by the State. The brand and product number offered for all items shall remain consistent for the term of the Contract, unless Purchasing Operations has approved a change order pursuant to **Section 2.024**.

2.128 Consequences For Breach

In addition to any remedies available in law, if the Contractor breaches any of the warranties contained in this section, the breach may be considered as a default in the performance of a material obligation of this Contract.

2.130 Insurance

2.131 Liability Insurance

The Contractor must provide proof of the minimum levels of insurance coverage as indicated below. The insurance must protect the State from claims which may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether the services are performed by the Contractor, or by any subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

The Contractor waives all rights against the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents for recovery of damages to the extent these damages are covered by the insurance policies the Contractor is required to maintain under this Contract.

All insurance coverages provided relative to this Contract/Purchase Order are PRIMARY and NON-CONTRIBUTING to any comparable liability insurance (including self-insurances) carried by the State.

The insurance must be written for not less than any minimum coverage specified in this Contract or required by law, whichever is greater.

The insurers selected by Contractor must have an A.M. Best rating of A or better, or as otherwise approved in writing by the State, or if the ratings are no longer available, with a comparable rating from a recognized insurance rating agency. All policies of insurance required in this Contract must be issued by companies that have been approved to do business in the State.
See www.michigan.gov/dleg.

Where specific limits are shown, they are the minimum acceptable limits. If Contractor's policy contains higher limits, the State must be entitled to coverage to the extent of the higher limits.

The Contractor is required to pay for and provide the type and amount of insurance checked ☑ below:

☑ 1. Commercial General Liability with the following minimum coverage:

$2,000,000 General Aggregate Limit other than Products/Completed Operations
$2,000,000 Products/Completed Operations Aggregate Limit
$1,000,000 Personal & Advertising Injury Limit
$1,000,000 Each Occurrence Limit

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSUREDS on the Commercial General Liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

☑ 2. If a motor vehicle is used to provide services or products under this Contract, the Contractor must have vehicle liability insurance on any auto including owned, hired and non-owned vehicles used in Contractor's business for bodily injury and property damage as required by law.

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSUREDS on the vehicle liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

☑ 3. Workers' compensation coverage must be provided according to applicable laws governing the employees and employers work activities in the state of the Contractor's domicile. If the applicable coverage is provided by a self-insurer, proof must be provided of approved self-insured authority by the jurisdiction of domicile. For employees working outside of the state of qualification, Contractor must provide appropriate certificates of insurance proving mandated coverage levels for the jurisdictions where the employees' activities occur.

Any certificates of insurance received must also provide a list of states where the coverage is applicable.

The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company. This provision must not be applicable where prohibited or limited by the laws of the jurisdiction in which the work is to be performed.

☑ 4. Employers liability insurance with the following minimum limits:

$100,000 each accident
$100,000 each employee by disease
$500,000 aggregate disease

☐ 5. Employee Fidelity, including Computer Crimes, insurance naming the State as a loss payee, providing coverage for direct loss to the State and any legal liability of the State arising out of or related to fraudulent or dishonest acts committed by the employees of Contractor or its Subcontractors, acting alone or in collusion with others, in a minimum amount of one million dollars ($1,000,000.00) with a maximum deductible of fifty thousand dollars ($50,000.00).

☐ 6. Umbrella or Excess Liability Insurance in a minimum amount of ten million dollars ($10,000,000.00), which must apply, at a minimum, to the insurance required in Subsection 1 (Commercial General Liability) above.

☐ 7. Professional Liability (Errors and Omissions) Insurance with the following minimum coverage: three million dollars ($3,000,000.00) each occurrence and three million dollars ($3,000,000.00) annual aggregate.

☐ 8. Fire and Personal Property Insurance covering against any loss or damage to the office space used by Contractor for any reason under this Contract, and the equipment, software and other contents of the office space, including without limitation, those contents used by Contractor to provide the Services to the State, up to its replacement value, where the office space and its contents are under the care, custody and control of Contractor. The policy must cover all risks of direct physical loss or damage, including without limitation, flood and earthquake coverage and coverage for computer hardware and software. The State must be endorsed on the policy as a loss payee as its interests appear.

2.132 Subcontractor Insurance Coverage

Except where the State has approved in writing a Contractor subcontract with other insurance provisions, Contractor must require all of its Subcontractors under this Contract to purchase and maintain the insurance coverage as described in this Section for the Contractor in connection with the performance of work by those Subcontractors. Alternatively, Contractor may include any Subcontractors under Contractor's insurance on the coverage required in this Section. Subcontractor(s) must fully comply with the insurance coverage required in

this Section. Failure of Subcontractor(s) to comply with insurance requirements does not limit Contractor's liability or responsibility.

2.133 Certificates of Insurance and Other Requirements

Contractor must furnish to DMB-PurchOps, certificate(s) of insurance verifying insurance coverage or providing satisfactory evidence of self-insurance as required in this Section (the "Certificates"). The Certificate must be on the standard "accord" form or equivalent. **THE CONTRACT OR PURCHASE ORDER NO. MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING.** All Certificate(s) are to be prepared and submitted by the Insurance Provider. All Certificate(s) must contain a provision indicating that coverages afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without 30 days prior written notice, except for 10 days for non-payment of premium, having been given to the Director of Purchasing Operations, Department of Management and Budget. The notice must include the Contract or Purchase Order number affected. Before the Contract is signed, and not less than 20 days before the insurance expiration date every year thereafter, the Contractor must provide evidence that the State and its agents, officers and employees are listed as additional insureds under each commercial general liability and commercial automobile liability policy. In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.

The Contractor must maintain all required insurance coverage throughout the term of the Contract and any extensions and, in the case of claims-made Commercial General Liability policies, must secure tail coverage for at least three years following the expiration or termination for any reason of this Contract. The minimum limits of coverage specified above are not intended, and must not be construed, to limit any liability or indemnity of Contractor under this Contract to any indemnified party or other persons. Contractor is responsible for all deductibles with regard to the insurance. If the Contractor fails to pay any premium for required insurance as specified in this Contract, or if any insurer cancels or significantly reduces any required insurance as specified in this Contract without the State's written consent, then the State may, after the State has given the Contractor at least 30 days written notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor, or the Contractor must pay that cost upon demand by the State.

2.140 Indemnification

2.141 General Indemnification

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Contractor in the performance of this Contract and that are attributable to the negligence or tortious acts of the Contractor or any of its subcontractors, or by anyone else for whose acts any of them may be liable.

2.142 Code Indemnification

To the extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State from any claim, loss, or expense arising from Contractor's breach of the No Surreptitious Code Warranty.

2.143 Employee Indemnification

In any claims against the State of Michigan, its departments, divisions, agencies, sections, commissions, officers, employees and agents, by any employee of the Contractor or any of its subcontractors, the indemnification obligation under the Contract must not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Contractor or any of its subcontractors under worker's disability compensation acts, disability benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.

2.144 Patent/Copyright Infringement Indemnification

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that the action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Contractor or its subcontractors, or the operation of the equipment, software, commodity or service, or the use or reproduction of any documentation provided with the equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or service, or its operation, become or in the State's or Contractor's opinion be likely to become the subject of a claim of infringement, the Contractor must at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if the option is not reasonably available to the Contractor, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if the option is not reasonably available to Contractor, (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Contractor has no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; (ii) use of the equipment in a configuration other than implemented or approved in writing by the Contractor, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Contractor under this Contract.

2.145 Continuation of Indemnification Obligations

The Contractor's duty to indemnify under this Section continues in full force and effect, notwithstanding the expiration or early cancellation of the Contract, with respect to any claims based on facts or conditions that occurred before expiration or cancellation.

2.146 Indemnification Procedures

The procedures set forth below must apply to all indemnity obligations under this Contract.

(a) After the State receives notice of the action or proceeding involving a claim for which it will seek indemnification, the State must promptly notify Contractor of the claim in writing and take or assist Contractor in taking, as the case may be, any reasonable action to avoid the imposition of a default judgment against Contractor. No failure to notify the Contractor relieves the Contractor of its indemnification obligations except to the extent that the Contractor can prove damages attributable to the failure. Within 10 days following receipt of written notice from the State relating to any claim, the Contractor must notify the State in writing whether Contractor agrees to assume control of the defense and settlement of that claim (a "Notice of Election"). After notifying Contractor of a claim and before the State receiving Contractor's Notice of Election, the State is entitled to defend against the claim, at the Contractor's expense, and the Contractor will be responsible for any reasonable costs incurred by the State in defending against the claim during that period.

(b) If Contractor delivers a Notice of Election relating to any claim: (i) the State is entitled to participate in the defense of the claim and to employ counsel at its own expense to assist in the handling of the claim and to monitor and advise the State about the status and progress of the defense; (ii) the Contractor must, at the request of the State, demonstrate to the reasonable satisfaction of the State, the Contractor's financial ability to carry out its defense and indemnity obligations under this Contract; (iii) the Contractor must periodically advise the State about the status and progress of the defense and must obtain the prior written approval of the State before entering into any settlement of the claim or ceasing to defend against the claim and (iv) to the extent that any principles of Michigan governmental or public law may be involved or challenged, the State has the right, at its own expense, to control the defense of that portion of the claim involving the principles of Michigan governmental or public

law. But the State may retain control of the defense and settlement of a claim by notifying the Contractor in writing within 10 days after the State's receipt of Contractor's information requested by the State under clause (ii) of this paragraph if the State determines that the Contractor has failed to demonstrate to the reasonable satisfaction of the State the Contractor's financial ability to carry out its defense and indemnity obligations under this Section. Any litigation activity on behalf of the State, or any of its subdivisions under this Section, must be coordinated with the Department of Attorney General. In the event the insurer's attorney represents the State under this Section, the insurer's attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.

(c) If Contractor does not deliver a Notice of Election relating to any claim of which it is notified by the State as provided above, the State may defend the claim in the manner as it may deem appropriate, at the cost and expense of Contractor. If it is determined that the claim was one against which Contractor was required to indemnify the State, upon request of the State, Contractor must promptly reimburse the State for all the reasonable costs and expenses.

2.150 Termination/Cancellation

2.151 Notice and Right to Cure

If the Contractor breaches the contract, and the State in its sole discretion determines that the breach is curable, then the State will provide the Contractor with written notice of the breach and a time period (not less than 30 days) to cure the Breach. The notice of breach and opportunity to cure is inapplicable for successive or repeated breaches or if the State determines in its sole discretion that the breach poses a serious and imminent threat to the health or safety of any person or the imminent loss, damage, or destruction of any real or tangible personal property.

2.152 Termination for Cause

(a) The State may terminate this contract, for cause, by notifying the Contractor in writing, if the Contractor (i) breaches any of its material duties or obligations under this Contract (including a Chronic Failure to meet any particular SLA), or (ii) fails to cure a breach within the time period specified in the written notice of breach provided by the State

(b) If this Contract is terminated for cause, the Contractor must pay all costs incurred by the State in terminating this Contract, including but not limited to, State administrative costs, reasonable attorneys' fees and court costs, and any reasonable additional costs the State may incur to procure the Services/Deliverables required by this Contract from other sources. Re-procurement costs are not consequential, indirect or incidental damages, and cannot be excluded by any other terms otherwise included in this Contract, provided the costs are not in excess of 50% more than the prices for the Service/Deliverables provided under this Contract.

(c) If the State chooses to partially terminate this Contract for cause, charges payable under this Contract will be equitably adjusted to reflect those Services/Deliverables that are terminated and the State must pay for all Services/Deliverables for which Final Acceptance has been granted provided up to the termination date. Services and related provisions of this Contract that are terminated for cause must cease on the effective date of the termination.

(d) If the State terminates this Contract for cause under this Section, and it is determined, for any reason, that Contractor was not in breach of contract under the provisions of this section, that termination for cause must be deemed to have been a termination for convenience, effective as of the same date, and the rights and obligations of the parties must be limited to that otherwise provided in this Contract for a termination for convenience.

2.153 Termination for Convenience

The State may terminate this Contract for its convenience, in whole or part, if the State determines that a termination is in the State's best interest. Reasons for the termination must be left to the sole discretion of the State and may include, but not necessarily be limited to (a) the State no longer needs the Services or products specified in the Contract, (b) relocation of office, program changes, changes in laws, rules, or regulations make implementation of the Services no longer practical or feasible, (c) unacceptable prices for Additional Services or

New Work requested by the State, or (d) falsification or misrepresentation, by inclusion or non-inclusion, of information material to a response to any RFP issued by the State. The State may terminate this Contract for its convenience, in whole or in part, by giving Contractor written notice at least 30 days before the date of termination. If the State chooses to terminate this Contract in part, the charges payable under this Contract must be equitably adjusted to reflect those Services/Deliverables that are terminated. Services and related provisions of this Contract that are terminated for cause must cease on the effective date of the termination.

2.154 Termination for Non-Appropriation

(a) Contractor acknowledges that, if this Contract extends for several fiscal years, continuation of this Contract is subject to appropriation or availability of funds for this Contract. If funds to enable the State to effect continued payment under this Contract are not appropriated or otherwise made available, the State must terminate this Contract and all affected Statements of Work, in whole or in part, at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The State must give Contractor at least 30 days advance written notice of termination for non-appropriation or unavailability (or the time as is available if the State receives notice of the final decision less than 30 days before the funding cutoff).

(b) If funding for the Contract is reduced by law, or funds to pay Contractor for the agreed-to level of the Services or production of Deliverables to be provided by Contractor are not appropriated or otherwise unavailable, the State may, upon 30 days written notice to Contractor, reduce the level of the Services or the change the production of Deliverables in the manner and for the periods of time as the State may elect. The charges payable under this Contract will be equitably adjusted to reflect any equipment, services or commodities not provided by reason of the reduction.

(c) If the State terminates this Contract, eliminates certain Deliverables, or reduces the level of Services to be provided by Contractor under this Section, the State must pay Contractor for all Work-in-Process performed through the effective date of the termination or reduction in level, as the case may be and as determined by the State, to the extent funds are available. This Section will not preclude Contractor from reducing or stopping Services/Deliverables or raising against the State in a court of competent jurisdiction, any claim for a shortfall in payment for Services performed or Deliverables finally accepted before the effective date of termination.

2.155 Termination for Criminal Conviction

The State may terminate this Contract immediately and without further liability or penalty in the event Contractor, an officer of Contractor, or an owner of a 25% or greater share of Contractor is convicted of a criminal offense related to a State, public or private Contract or subcontract.

2.156 Termination for Approvals Rescinded

The State may terminate this Contract if any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services under Constitution 1963, Article 11, § 5, and Civil Service Rule 7-1. In that case, the State will pay the Contractor for only the work completed to that point under the Contract. Termination may be in whole or in part and may be immediate as of the date of the written notice to Contractor or may be effective as of the date stated in the written notice.

2.157 Rights and Obligations upon Termination

(a) If the State terminates this Contract for any reason, the Contractor must (a) stop all work as specified in the notice of termination, (b) take any action that may be necessary, or that the State may direct, for preservation and protection of Deliverables or other property derived or resulting from this Contract that may be in Contractor's possession, (c) return all materials and property provided directly or indirectly to Contractor by any entity, agent or employee of the State, (d) transfer title in, and deliver to, the State, unless otherwise directed, all Deliverables intended to be transferred to the State at the termination of the Contract and which are resulting from the Contract (which must be provided to the State on an "As-Is" basis except to the extent the amounts paid by the State in respect of the items included compensation to Contractor for the provision of warranty services in respect of the materials), and (e) take any action to mitigate and limit any potential damages, or requests for Contractor adjustment or termination settlement costs, to the maximum practical extent, including terminating or limiting as

otherwise applicable those subcontracts and outstanding orders for material and supplies resulting from the terminated Contract.

(b) If the State terminates this Contract before its expiration for its own convenience, the State must pay Contractor for all charges due for Services provided before the date of termination and, if applicable, as a separate item of payment under this Contract, for Work In Process, on a percentage of completion basis at the level of completion determined by the State. All completed or partially completed Deliverables prepared by Contractor under this Contract, at the option of the State, becomes the State's property, and Contractor is entitled to receive equitable fair compensation for the Deliverables. Regardless of the basis for the termination, the State is not obligated to pay, or otherwise compensate, Contractor for any lost expected future profits, costs or expenses incurred with respect to Services not actually performed for the State.

(c) Upon a good faith termination, the State may assume, at its option, any subcontracts and agreements for services and deliverables provided under this Contract, and may further pursue completion of the Services/Deliverables under this Contract by replacement contract or otherwise as the State may in its sole judgment deem expedient.

2.158 Reservation of Rights

Any termination of this Contract or any Statement of Work issued under it by a party must be with full reservation of, and without prejudice to, any rights or remedies otherwise available to the party with respect to any claims arising before or as a result of the termination.

2.160 Termination by Contractor

2.161 Termination by Contractor

If the State breaches the Contract, and the Contractor in its sole discretion determines that the breach is curable, then the Contractor will provide the State with written notice of the breach and a time period (not less than 30 days) to cure the breach. The Notice of Breach and opportunity to cure is inapplicable for successive and repeated breaches.

The Contractor may terminate this Contract if the State (i) materially breaches its obligation to pay the Contractor undisputed amounts due and owing under this Contract, (ii) breaches its other obligations under this Contract to an extent that makes it impossible or commercially impractical for the Contractor to perform the Services, or (iii) does not cure the breach within the time period specified in a written notice of breach. But the Contractor must discharge its obligations under **Section 2.160** before it terminates the Contract.

2.170 Transition Responsibilities

2.171 Contractor Transition Responsibilities

If the State terminates this contract, for convenience or cause, or if the Contract is otherwise dissolved, voided, rescinded, nullified, expires or rendered unenforceable, the Contractor agrees to comply with direction provided by the State to assist in the orderly transition of equipment, services, software, leases, etc. to the State or a third party designated by the State. If this Contract expires or terminates, the Contractor agrees to make all reasonable efforts to effect an orderly transition of services within a reasonable period of time that in no event will exceed 30 days. These efforts must include, but are not limited to, those listed in **Sections 2.141, 2.142, 2.143, 2.144, and 2.145.**

2.172 Contractor Personnel Transition

The Contractor must work with the State, or a specified third party, to develop a transition plan setting forth the specific tasks and schedule to be accomplished by the parties, to effect an orderly transition. The Contractor must allow as many personnel as practicable to remain on the job to help the State, or a specified third party, maintain the continuity and consistency of the services required by this Contract. In addition, during or following the transition period, in the event the State requires the Services of the Contractor's subcontractors or vendors, as necessary to meet its needs, Contractor agrees to reasonably, and with good-faith, work with the State to use the

Services of Contractor's subcontractors or vendors. Contractor will notify all of Contractor's subcontractors of procedures to be followed during transition.

2.173 Contractor Information Transition

The Contractor agrees to provide reasonable detailed specifications for all Services/Deliverables needed by the State, or specified third party, to properly provide the Services/Deliverables required under this Contract. The Contractor will provide the State with asset management data generated from the inception of this Contract through the date on which this Contractor is terminated in a comma-delineated format unless otherwise requested by the State. The Contractor will deliver to the State any remaining owed reports and documentation still in Contractor's possession subject to appropriate payment by the State.

2.174 Contractor Software Transition

The Contractor must reasonably assist the State in the acquisition of any Contractor software required to perform the Services/use the Deliverables under this Contract. This must include any documentation being used by the Contractor to perform the Services under this Contract. If the State transfers any software licenses to the Contractor, those licenses must, upon expiration of the Contract, transfer back to the State at their current revision level. Upon notification by the State, Contractor may be required to freeze all non-critical changes to Deliverables/Services.

2.175 Transition Payments

If the transition results from a termination for any reason, reimbursement must be governed by the termination provisions of this Contract. If the transition results from expiration, the Contractor will be reimbursed for all reasonable transition costs (i.e. costs incurred within the agreed period after contract expiration that result from transition operations) at the rates agreed upon by the State. The Contractor will prepare an accurate accounting from which the State and Contractor may reconcile all outstanding accounts.

2.176 State Transition Responsibilities

In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the State agrees to perform the following obligations, and any others upon which the State and the Contractor agree:

(a) Reconciling all accounts between the State and the Contractor;
(b) Completing any pending post-project reviews.

2.180 Stop Work

2.181 Stop Work Orders

The State may, at any time, by written stop work order to Contractor, require that Contractor stop all, or any part, of the work called for by the Contract for a period of up to 90 calendar days after the stop work order is delivered to Contractor, and for any further period to which the parties may agree. The stop work order must be identified as a stop work order and must indicate that it is issued under this **Section 2.150**. Upon receipt of the stop work order, Contractor must immediately comply with its terms and take all reasonable steps to minimize incurring costs allocable to the work covered by the stop work order during the period of work stoppage. Within the period of the stop work order, the State must either: (a) cancel the stop work order; or (b) terminate the work covered by the stop work order as provided in **Section 2.130**.

2.182 Cancellation or Expiration of Stop Work Order

The Contractor must resume work if the State cancels a Stop Work Order or if it expires. The parties will agree upon an equitable adjustment in the delivery schedule, the Contract price, or both, and the Contract must be modified, in writing, accordingly, if: (a) the stop work order results in an increase in the time required for, or in Contractor's costs properly allocable to, the performance of any part of the Contract; and (b) Contractor asserts its right to an equitable adjustment within 30 calendar days after the end of the period of work stoppage; provided that, if the State decides the facts justify the action, the State may receive and act upon a Contractor proposal submitted at any time before final payment under the Contract. Any adjustment will conform to the requirements of **Section 2.024**.

2.183 Allowance of Contractor Costs

If the stop work order is not canceled and the work covered by the stop work order is terminated for reasons other than material breach, the termination must be deemed to be a termination for convenience under **Section 2.130**, and the State will pay reasonable costs resulting from the stop work order in arriving at the termination settlement. For the avoidance of doubt, the State is not be liable to Contractor for loss of profits because of a stop work order issued under this **Section 2.150.**

2.190 Dispute Resolution

2.191 In General

Any claim, counterclaim, or dispute between the State and Contractor arising out of or relating to the Contract or any Statement of Work must be resolved as follows. For all Contractor claims seeking an increase in the amounts payable to Contractor under the Contract, or the time for Contractor's performance, Contractor must submit a letter, together with all data supporting the claims, executed by Contractor's Contract Administrator or the Contract Administrator's designee certifying that (a) the claim is made in good faith, (b) the amount claimed accurately reflects the adjustments in the amounts payable to Contractor or the time for Contractor's performance for which Contractor believes the State is liable and covers all costs of every type to which Contractor is entitled from the occurrence of the claimed event, and (c) the claim and the supporting data are current and complete to Contractor's best knowledge and belief.

2.192 Informal Dispute Resolution

(a) All disputes between the parties must be resolved under the Contract Management procedures in this Contract. If the parties are unable to resolve any disputes after compliance with the processes, the parties must meet with the Director of Purchasing Operations, DMB, or designee, for the purpose of attempting to resolve the dispute without the need for formal legal proceedings, as follows:

(i) The representatives of Contractor and the State must meet as often as the parties reasonably deem necessary to gather and furnish to each other all information with respect to the matter in issue which the parties believe to be appropriate and germane in connection with its resolution. The representatives must discuss the problem and negotiate in good faith in an effort to resolve the dispute without the necessity of any formal proceeding.

(ii) During the course of negotiations, all reasonable requests made by one party to another for non-privileged information reasonably related to the Contract will be honored in order that each of the parties may be fully advised of the other's position.

(iii) The specific format for the discussions will be left to the discretion of the designated State and Contractor representatives, but may include the preparation of agreed upon statements of fact or written statements of position.

(iv) Following the completion of this process within 60 calendar days, the Director of Purchasing Operations, DMB, or designee, must issue a written opinion regarding the issue(s) in dispute within 30 calendar days. The opinion regarding the dispute must be considered the State's final action and the exhaustion of administrative remedies.

(b) This Section will not be construed to prevent either party from instituting, and a party is authorized to institute, formal proceedings earlier to avoid the expiration of any applicable limitations period, to preserve a superior position with respect to other creditors, or under **Section 2.163**.

(c) The State will not mediate disputes between the Contractor and any other entity, except state agencies, concerning responsibility for performance of work under the Contract.

2.193 Injunctive Relief

The only circumstance in which disputes between the State and Contractor will not be subject to the provisions of **Section 2.162** is where a party makes a good faith determination that a breach of the terms of the Contract by the other party is the that the damages to the party resulting from the breach will be so immediate, so large or severe and so incapable of adequate redress after the fact that a temporary restraining order or other immediate injunctive relief is the only adequate remedy.

2.194 Continued Performance

Each party agrees to continue performing its obligations under the Contract while a dispute is being resolved except to the extent the issue in dispute precludes performance (dispute over payment must not be deemed to preclude performance) and without limiting either party's right to terminate the Contract as provided in **Section 2.150**, as the case may be.

2.200 Federal and State Contract Requirements

2.201 Nondiscrimination

In the performance of the Contract, Contractor agrees not to discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin, ancestry, age, sex, height, weight, marital status, physical or mental disability. Contractor further agrees that every subcontract entered into for the performance of this Contract or any purchase order resulting from this Contract will contain a provision requiring non-discrimination in employment, as specified here, binding upon each Subcontractor. This covenant is required under the Elliot Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, et seq., and the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, et seq., and any breach of this provision may be regarded as a material breach of the Contract.

2.202 Unfair Labor Practices

Under 1980 PA 278, MCL 423.321, et seq., the State must not award a Contract or subcontract to an employer whose name appears in the current register of employers failing to correct an unfair labor practice compiled under section 2 of the Act. This information is compiled by the United States National Labor Relations Board. A Contractor of the State, in relation to the Contract, must not enter into a contract with a Subcontractor, manufacturer, or supplier whose name appears in this register. Under section 4 of 1980 PA 278, MCL 423.324, the State may void any Contract if, after award of the Contract, the name of Contractor as an employer or the name of the Subcontractor, manufacturer or supplier of Contractor appears in the register.

2.203 Workplace Safety and Discriminatory Harassment

In performing Services for the State, the Contractor must comply with the Department of Civil Services Rule 2-20 regarding Workplace Safety and Rule 1-8.3 regarding Discriminatory Harassment. In addition, the Contractor must comply with Civil Service regulations and any applicable agency rules provided to the Contractor. For Civil Service Rules, see http://www.mi.gov/mdcs/0,1607,7-147-6877---,00.html.

2.204 Prevailing Wage – Reserved

Note: All items under this contract are manufactured goods and are not subject to prevailing wage regulations.

2.210 Governing Law

2.211 Governing Law

The Contract must in all respects be governed by, and construed according to, the substantive laws of the State of Michigan without regard to any Michigan choice of law rules that would apply the substantive law of any other jurisdiction to the extent not inconsistent with, or pre-empted by federal law.

2.212 Compliance with Laws

Contractor shall comply with all applicable state, federal and local laws and ordinances in providing the Services/Deliverables.

2.213 Jurisdiction

Any dispute arising from the Contract must be resolved in the State of Michigan. With respect to any claim between the parties, Contractor consents to venue in Ingham County, Michigan, and irrevocably waives any objections it may have to the jurisdiction on the grounds of lack of personal jurisdiction of the court or the laying

of venue of the court or on the basis of forum non conveniens or otherwise. Contractor agrees to appoint agents in the State of Michigan to receive service of process.

2.220 Limitation of Liability

2.221 Limitation of Liability

Neither the Contractor nor the State is liable to each other, regardless of the form of action, for consequential, incidental, indirect, or special damages. This limitation of liability does not apply to claims for infringement of United States patent, copyright, trademark or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

2.230 Disclosure Responsibilities

2.231 Disclosure of Litigation

(a) Disclosure. Contractor must disclose any material criminal litigation, investigations or proceedings involving the Contractor (and each Subcontractor) or any of its officers or directors or any litigation, investigations or proceedings under the Sarbanes-Oxley Act. In addition, each Contractor (and each Subcontractor) must notify the State of any material civil litigation, arbitration or proceeding which arises during the term of the Contract and extensions, to which Contractor (or, to the extent Contractor is aware, any Subcontractor) is a party, and which involves: (i) disputes that might reasonably be expected to adversely affect the viability or financial stability of Contractor or any Subcontractor; or (ii) a claim or written allegation of fraud against Contractor or, to the extent Contractor is aware, any Subcontractor by a governmental or public entity arising out of their business dealings with governmental or public entities. The Contractor must disclose in writing to the Contract Administrator any litigation, investigation, arbitration or other proceeding (collectively, "Proceeding") within 30 days of its occurrence. Details of settlements which are prevented from disclosure by the terms of the settlement may be annotated. Information provided to the State from Contractor's publicly filed documents referencing its material litigation will be deemed to satisfy the requirements of this Section.

(b) Assurances. If any Proceeding disclosed to the State under this Section, or of which the State otherwise becomes aware, during the term of this Contract would cause a reasonable party to be concerned about:

(i) the ability of Contractor (or a Subcontractor) to continue to perform this Contract according to its terms and conditions, or

(ii) whether Contractor (or a Subcontractor) in performing Services for the State is engaged in conduct which is similar in nature to conduct alleged in the Proceeding, which conduct would constitute a breach of this Contract or a violation of Michigan law, regulations or public policy, then the Contractor must provide the State all reasonable assurances requested by the State to demonstrate that:

(a) Contractor and its Subcontractors will be able to continue to perform this Contract and any Statements of Work according to its terms and conditions, and

(b) Contractor and its Subcontractors have not and will not engage in conduct in performing the Services which is similar in nature to the conduct alleged in the Proceeding.

(c) Contractor must make the following notifications in writing:

(1) Within 30 days of Contractor becoming aware that a change in its ownership or officers has occurred, or is certain to occur, or a change that could result in changes in the valuation of its capitalized assets in the accounting records, Contractor must notify DMB PurchOps.

(2) Contractor must also notify DMB PurchOps within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership or officers.

(3) Contractor must also notify DMB PurchOps within 30 days whenever changes to company affiliations occur.

2.232 Call Center Disclosure- Reserved

2.233 Bankruptcy

The State may, without prejudice to any other right or remedy, terminate this Contract, in whole or in part, and, at its option, may take possession of the "Work in Process" and finish the Works in Process by whatever appropriate method the State may deem expedient if:
(a) the Contractor files for protection under the bankruptcy laws;
(b) an involuntary petition is filed against the Contractor and not removed within 30 days;
(c) the Contractor becomes insolvent or if a receiver is appointed due to the Contractor's insolvency;
(d) the Contractor makes a general assignment for the benefit of creditors; or
(e) the Contractor or its affiliates are unable to provide reasonable assurances that the Contractor or its affiliates can deliver the services under this Contract.

Contractor will fix appropriate notices or labels on the Work in Process to indicate ownership by the State. To the extent reasonably possible, materials and Work in Process must be stored separately from other stock and marked conspicuously with labels indicating ownership by the State.

2.240 Performance

2.241 Time of Performance

(a) Contractor must use commercially reasonable efforts to provide the resources necessary to complete all Services and Deliverables according to the time schedules contained in the Statements of Work and other Exhibits governing the work, and with professional quality.
(b) Without limiting the generality of **Section 2.211(a),** Contractor must notify the State in a timely manner upon becoming aware of any circumstances that may reasonably be expected to jeopardize the timely and successful completion of any Deliverables/Services on the scheduled due dates in the latest State-approved delivery schedule and must inform the State of the projected actual delivery date.
(c) If the Contractor believes that a delay in performance by the State has caused or will cause the Contractor to be unable to perform its obligations according to specified Contract time periods, the Contractor must notify the State in a timely manner and must use commercially reasonable efforts to perform its obligations according to the Contract time periods notwithstanding the State's failure. Contractor will not be in default for a delay in performance to the extent the delay is caused by the State.

2.242 Service Level Agreements (SLAs)

2.243 Liquidated Damages- Reserved

2.244 Excusable Failure

Neither party will be liable for any default, damage or delay in the performance of its obligations under the Contract to the extent the default, damage or delay is caused by government regulations or requirements (executive, legislative, judicial, military or otherwise), power failure, electrical surges or current fluctuations, lightning, earthquake, war, water or other forces of nature or acts of God, delays or failures of transportation, equipment shortages, suppliers' failures, or acts or omissions of common carriers, fire; riots, civil disorders; strikes or other labor disputes, embargoes; injunctions (provided the injunction was not issued as a result of any fault or negligence of the party seeking to have its default or delay excused); or any other cause beyond the reasonable control of a party; provided the non-performing party and its Subcontractors are without fault in causing the default or delay, and the default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented by the non-performing party through the use of alternate sources, workaround plans or other means, including disaster recovery plans.

If a party does not perform its contractual obligations for any of the reasons listed above, the non-performing party will be excused from any further performance of its affected obligation(s) for as long as the circumstances prevail. But the party must use commercially reasonable efforts to recommence performance whenever and to whatever extent possible without delay. A party must promptly notify the other party in writing immediately after the excusable failure occurs, and also when it abates or ends.

If any of the above-enumerated circumstances substantially prevent, hinder, or delay the Contractor's performance of the Services/provision of Deliverables for more than 10 Business Days, and the State determines that performance is not likely to be resumed within a period of time that is satisfactory to the State in its reasonable discretion, then at the State's option: (a) the State may procure the affected Services/Deliverables from an alternate source, and the State is not be liable for payment for the unperformed Services/ Deliverables not provided under the Contract for so long as the delay in performance continues; (b) the State may terminate any portion of the Contract so affected and the charges payable will be equitably adjusted to reflect those Services/Deliverables terminated; or (c) the State may terminate the affected Statement of Work without liability to Contractor as of a date specified by the State in a written notice of termination to the Contractor, except to the extent that the State must pay for Services/Deliverables provided through the date of termination.

The Contractor will not have the right to any additional payments from the State as a result of any Excusable Failure occurrence or to payments for Services not rendered/Deliverables not provided as a result of the Excusable Failure condition. Defaults or delays in performance by Contractor which are caused by acts or omissions of its Subcontractors will not relieve Contractor of its obligations under the Contract except to the extent that a Subcontractor is itself subject to an Excusable Failure condition described above and Contractor cannot reasonably circumvent the effect of the Subcontractor's default or delay in performance through the use of alternate sources, workaround plans or other means.

2.250 Approval of Deliverables

2.251 Delivery Responsibilities

Unless otherwise specified by the State within an individual order, the following must be applicable to all orders issued under this Contract.

(a) Shipment responsibilities - Services performed/Deliverables provided under this Contract must be delivered "F.O.B. Destination, within Government Premises." The Contractor must have complete responsibility for providing all Services/Deliverables to all site(s) unless otherwise stated. Actual delivery dates will be specified on the individual purchase order.

(b) Delivery locations - Services will be performed/Deliverables will be provided at every State of Michigan location within Michigan unless otherwise stated in the SOW. Specific locations will be provided by the State or upon issuance of individual purchase orders.

(c) Damage Disputes - At the time of delivery to State Locations, the State must examine all packages. The quantity of packages delivered must be recorded and any obvious visible or suspected damage must be noted at time of delivery using the shipper's delivery document(s) and appropriate procedures to record the damage. Where there is no obvious or suspected damage, all deliveries to a State Location must be opened by the State and the contents inspected for possible internal damage not visible externally within 14 days of receipt. Any damage must be reported to the Contractor within five days of inspection.

2.252 Delivery of Deliverables

Where applicable, the Statements of Work/POs contain lists of the Deliverables to be prepared and delivered by Contractor including, for each Deliverable, the scheduled delivery date and a designation of whether the Deliverable is a document ("Written Deliverable"), a good ("Physical Deliverable") or a Service. All Deliverables must be completed and delivered for State review and written approval and, where applicable, installed according to the State-approved delivery schedule and any other applicable terms and conditions of the Contract.

2.253 Testing

(a) Before delivering any of the above-mentioned Statement of Work Physical Deliverables or Services to the State, Contractor will first perform all required quality assurance activities to verify that the Physical Deliverable or Service is complete and conforms with its specifications listed in the applicable Statement of Work or Purchase Order. Before delivering a Physical Deliverable or Service to the State, Contractor must certify to the State that (1) it has performed the quality assurance activities, (2) it has performed any applicable testing, (3) it has corrected all material deficiencies discovered during the quality assurance activities and testing, (4) the

Deliverable or Service is in a suitable state of readiness for the State's review and approval, and (5) the Deliverable/Service has all Critical Security patches/updates applied.

(b) If a Deliverable includes installation at a State Location, then Contractor must (1) perform any applicable testing, (2) correct all material deficiencies discovered during the quality assurance activities and testing, and (3) inform the State that the Deliverable is in a suitable state of readiness for the State's review and approval. To the extent that testing occurs at State Locations, the State is entitled to observe or otherwise participate in testing.

2.254 Approval of Deliverables, In General

(a) All Deliverables (Physical Deliverables and Written Deliverables) and Services require formal written approval by the State, according to the following procedures. Formal approval by the State requires the State to confirm in writing that the Deliverable meets its specifications. Formal approval may include the successful completion of Testing as applicable in **Section 2.253**, to be led by the State with the support and assistance of Contractor. The approval process will be facilitated by ongoing consultation between the parties, inspection of interim and intermediate Deliverables and collaboration on key decisions.

(b) The State's obligation to comply with any State Review Period is conditioned on the timely delivery of Deliverables/Services being reviewed.

(c) Before commencement of its review or testing of a Deliverable/Service, the State may inspect the Deliverable/Service to confirm that all components of the Deliverable/Service have been delivered without material deficiencies. If the State determines that the Deliverable/Service has material deficiencies, the State may refuse delivery of the Deliverable/Service without performing any further inspection or testing of the Deliverable/Service. Otherwise, the review period will be deemed to have started on the day the State receives the Deliverable or the Service begins, and the State and Contractor agree that the Deliverable/Service is ready for use and, where applicable, certification by Contractor according to **Section 2.223**.

(d) The State will approve in writing a Deliverable/Service after confirming that it conforms to and performs according to its specifications without material deficiency. The State may, but is not be required to, conditionally approve in writing a Deliverable/Service that contains material deficiencies if the State elects to permit Contractor to rectify them post-approval. In any case, Contractor will be responsible for working diligently to correct within a reasonable time at Contractor's expense all deficiencies in the Deliverable/Service that remain outstanding at the time of State approval.

(e) If, after three opportunities (the original and two repeat efforts), the Contractor is unable to correct all deficiencies preventing Final Acceptance of a Deliverable/Service, the State may: (i) demand that the Contractor cure the failure and give the Contractor additional time to cure the failure at the sole expense of the Contractor; or (ii) keep the Contract in force and do, either itself or through other parties, whatever the Contractor has failed to do, and recover the difference between the cost to cure the deficiency and the contract price plus an additional sum equal to 10% of the cost to cure the deficiency to cover the State's general expenses provided the State can furnish proof of the general expenses; or (iii) terminate the particular Statement of Work for default, either in whole or in part by notice to Contractor provided Contractor is unable to cure the breach. Notwithstanding the foregoing, the State cannot use, as a basis for exercising its termination rights under this Section, deficiencies discovered in a repeat State Review Period that could reasonably have been discovered during a prior State Review Period.

(f) The State, at any time and in its reasonable discretion, may halt the testing or approval process if the process reveals deficiencies in or problems with a Deliverable/Service in a sufficient quantity or of a sufficient severity that renders continuing the process unproductive or unworkable. If that happens, the State may stop using the Service or return the applicable Deliverable to Contractor for correction and re-delivery before resuming the testing or approval process.

2.255 Process For Approval of Written Deliverables

The State Review Period for Written Deliverables will be the number of days set forth in the applicable Statement of Work following delivery of the final version of the Deliverable (and if the Statement of Work does not state the State Review Period, it is by default five Business Days for Written Deliverables of 100 pages or less and 10

Business Days for Written Deliverables of more than 100 pages). The duration of the State Review Periods will be doubled if the State has not had an opportunity to review an interim draft of the Written Deliverable before its submission to the State. The State agrees to notify Contractor in writing by the end of the State Review Period either stating that the Deliverable is approved in the form delivered by Contractor or describing any deficiencies that must be corrected before approval of the Deliverable (or at the State's election, after approval of the Deliverable). If the State notifies the Contractor about deficiencies, the Contractor will correct the described deficiencies and within 30 Business Days resubmit the Deliverable in a form that shows all revisions made to the original version delivered to the State. Contractor's correction efforts will be made at no additional charge. Upon receipt of a corrected Deliverable from Contractor, the State will have a reasonable additional period of time, not to exceed the length of the original State Review Period, to review the corrected Deliverable to confirm that the identified deficiencies have been corrected.

2.256 Process for Approval of Services

The State Review Period for approval of Services is governed by the applicable Statement of Work (and if the Statement of Work does not state the State Review Period, it is by default 30 Business Days for Services). The State agrees to notify the Contractor in writing by the end of the State Review Period either stating that the Service is approved in the form delivered by the Contractor or describing any deficiencies that must be corrected before approval of the Services (or at the State's election, after approval of the Service). If the State delivers to the Contractor a notice of deficiencies, the Contractor will correct the described deficiencies and within 30 Business Days resubmit the Service in a form that shows all revisions made to the original version delivered to the State. The Contractor's correction efforts will be made at no additional charge. Upon implementation of a corrected Service from Contractor, the State will have a reasonable additional period of time, not to exceed the length of the original State Review Period, to review the corrected Service for conformity and that the identified deficiencies have been corrected.

2.257 Process for Approval of Physical Deliverables

The State Review Period for approval of Physical Deliverables is governed by the applicable Statement of Work (and if the Statement of Work does not state the State Review Period, it is by default 30 continuous Business Days for a Physical Deliverable). The State agrees to notify the Contractor in writing by the end of the State Review Period either stating that the Deliverable is approved in the form delivered by the Contractor or describing any deficiencies that must be corrected before approval of the Deliverable (or at the State's election, after approval of the Deliverable). If the State delivers to the Contractor a notice of deficiencies, the Contractor will correct the described deficiencies and within 30 Business Days resubmit the Deliverable in a form that shows all revisions made to the original version delivered to the State. The Contractor's correction efforts will be made at no additional charge. Upon receipt of a corrected Deliverable from the Contractor, the State will have a reasonable additional period of time, not to exceed the length of the original State Review Period, to review the corrected Deliverable to confirm that the identified deficiencies have been corrected.

2.258 Final Acceptance

Unless otherwise stated in the Article 1, Statement of Work or Purchase Order, "Final Acceptance" of each Deliverable must occur when each Deliverable/Service has been approved by the State following the State Review Periods identified in **Sections 2.251-2.257**. Payment will be made for Deliverables installed and accepted. Upon acceptance of a Service, the State will pay for all Services provided during the State Review Period that conformed to the acceptance criteria.

2.260 Ownership

2.261 Ownership of Work Product by State

The State owns all Deliverables as they are works made for hire by the Contractor for the State. The State owns all United States and international copyrights, trademarks, patents or other proprietary rights in the Deliverables.

2.262 Vesting of Rights

With the sole exception of any preexisting licensed works identified in the SOW, the Contractor assigns, and upon creation of each Deliverable automatically assigns, to the State, ownership of all United States and international copyrights, trademarks, patents, or other proprietary rights in each and every Deliverable, whether or not registered by the Contractor, insofar as any the Deliverable, by operation of law, may not be considered work

made for hire by the Contractor for the State. From time to time upon the State's request, the Contractor must confirm the assignment by execution and delivery of the assignments, confirmations of assignment, or other written instruments as the State may request. The State may obtain and hold in its own name all copyright, trademark, and patent registrations and other evidence of rights that may be available for Deliverables.

2.263 Rights in Data

(a) The State is the owner of all data made available by the State to the Contractor or its agents, Subcontractors or representatives under the Contract. The Contractor will not use the State's data for any purpose other than providing the Services, nor will any part of the State's data be disclosed, sold, assigned, leased or otherwise disposed of to the general public or to specific third parties or commercially exploited by or on behalf of the Contractor. No employees of the Contractor, other than those on a strictly need-to-know basis, have access to the State's data. Contractor will not possess or assert any lien or other right against the State's data. Without limiting the generality of this Section, the Contractor must only use personally identifiable information as strictly necessary to provide the Services and must disclose the information only to its employees who have a strict need-to-know the information. The Contractor must comply at all times with all laws and regulations applicable to the personally identifiable information.

(b) The State is the owner of all State-specific data under the Contract. The State may use the data provided by the Contractor for any purpose. The State will not possess or assert any lien or other right against the Contractor's data. Without limiting the generality of this Section, the State may use personally identifiable information only as strictly necessary to utilize the Services and must disclose the information only to its employees who have a strict need to know the information, except as provided by law. The State must comply at all times with all laws and regulations applicable to the personally identifiable information. Other material developed and provided to the State remains the State's sole and exclusive property.

2.264 Ownership of Materials

The State and the Contractor will continue to own their respective proprietary technologies developed before entering into the Contract. Any hardware bought through the Contractor by the State, and paid for by the State, will be owned by the State. Any software licensed through the Contractor and sold to the State, will be licensed directly to the State.

2.270 State Standards

2.271 Existing Technology Standards

The Contractor will adhere to all existing standards as described within the comprehensive listing of the State's existing technology standards at http://www.michigan.gov/dit.

2.272 Acceptable Use Policy

To the extent that Contractor has access to the State computer system, Contractor must comply with the State's Acceptable Use Policy, see http://www.michigan.gov/ditservice. All Contractor employees must be required, in writing, to agree to the State's Acceptable Use Policy before accessing the State system. The State reserves the right to terminate Contractor's access to the State system if a violation occurs.

2.273 Systems Changes

Contractor is not responsible for and not authorized to make changes to any State systems without written authorization from the Project Manager. Any changes Contractor makes to State systems with the State's approval must be done according to applicable State procedures, including security, access and configuration management procedures.

2.280 Extended Purchasing

Act Number 431 of the Public Acts of 1984 permits the State of Michigan, Department of Management and Budget, to provide purchasing services to any city, village, county, township, school district, intermediate school district, non-profit hospital, institution of higher education, community, or junior college. As a result of the enactment of this legislation, the MIDEAL Program has been developed. This program extends the use of state contracts to program members. The governmental agency must enter into an agreement with the State of

Michigan to become authorized to participate, thus ensuring that local units of government secure a greater return for the expenditure of public funds.

In those cases, contract vendors supply merchandise at the established State of Michigan contract prices and terms. The contract vendor must submit invoices and pay the authorized MIDEAL member on a direct and individual basis according to contract terms.

IT IS MANDATORY THAT ALL CONTRACTS RESULTING FROM THIS RFP WILL BE MADE AVAILABLE TO ALL STATE OF MICHIGAN AGENCIES AND AUTHORIZED MIDEAL PURCHASING PROGRAM MEMBERS.

Please Visit Mi DEAL at www.michigan.gov/buymichiganfirst under MiDEAL.

Estimated requirements for authorized local units of government are not included in the quantities shown in this RFP.

2.282 State Employee Purchases- Reserved

2.290 Environmental Provision

2.291 Environmental Provision

Energy Efficiency Purchasing Policy – The State seeks wherever possible to purchase energy efficient products. This includes giving preference to U.S. Environmental Protection Agency (EPA) certified 'Energy Star' products for any category of products for which EPA has established Energy Star certification. For other purchases, the State may include energy efficiency as one of the priority factors to consider when choosing among comparable products.

Environmental Purchasing Policy – The State of Michigan is committed to encouraging the use of products and services that impact the environment less than competing products. The State is accomplishing this by including environmental considerations in purchasing decisions, while remaining fiscally responsible, to promote practices that improve worker health, conserve natural resources, and prevent pollution. Environmental components that are to be considered include: recycled content and recyclability; energy efficiency; and the presence of undesirable materials in the products, especially those toxic chemicals which are persistent and bioaccumulative. The Contractor should be able to supply products containing recycled and environmentally preferable materials that meet performance requirements and is encouraged to offer such products throughout the duration of this Contract. Information on any relevant third party certification (such as Green Seal, Energy Star, etc.) should also be provided.

Hazardous Materials:
For the purposes of this Section, "Hazardous Materials" is a generic term used to describe asbestos, ACBMs, PCBs, petroleum products, construction materials including paint thinners, solvents, gasoline, oil, and any other material the manufacture, use, treatment, storage, transportation or disposal of which is regulated by the federal, state or local laws governing the protection of the public health, natural resources or the environment. This includes, but is not limited to, materials the as batteries and circuit packs, and other materials that are regulated as (1) "Hazardous Materials" under the Hazardous Materials Transportation Act, (2) "chemical hazards" under the Occupational Safety and Health Administration standards, (3) "chemical substances or mixtures" under the Toxic Substances Control Act, (4) "pesticides" under the Federal Insecticide Fungicide and Rodenticide Act, and (5) "hazardous wastes" as defined or listed under the Resource Conservation and Recovery Act.
(a) The Contractor must use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material according to all federal, State and local laws. The State must provide a safe and suitable environment for performance of Contractor's Work. Before the commencement of Work, the State must advise the Contractor of the presence at the work site of any Hazardous Material to the extent that the State is aware of the Hazardous Material. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor must immediately stop all affected Work, notify the State in writing about the conditions encountered, and take appropriate health and safety precautions.

(b) Upon receipt of a written notice, the State will investigate the conditions. If (a) the material is a Hazardous Material that may present a substantial danger, and (b) the Hazardous Material was not brought to the site by the Contractor, or does not result in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Materials, the State must order a suspension of Work in writing. The State must proceed to have the Hazardous Material removed or rendered harmless. In the alternative, the State must terminate the affected Work for the State's convenience.

(c) Once the Hazardous Material has been removed or rendered harmless by the State, the Contractor must resume Work as directed in writing by the State. Any determination by the Michigan Department of Community Health or the Michigan Department of Environmental Quality that the Hazardous Material has either been removed or rendered harmless is binding upon the State and Contractor for the purposes of resuming the Work. If any incident with Hazardous Material results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Work will not be counted in time as mutually agreed by the parties.

(d) If the Hazardous Material was brought to the site by the Contractor, or results in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Material, or from any other act or omission within the control of the Contractor, the Contractor must bear its proportionate share of the delay and costs involved in cleaning up the site and removing and rendering harmless the Hazardous Material according to Applicable Laws to the condition approved by applicable regulatory agency(ies).

Michigan has a Consumer Products Rule pertaining to labeling of certain products containing volatile organic compounds. For specific details visit http://www.michigan.gov/deq/0,1607,7-135-3310_4108-173523--,00.html

Refrigeration and Air Conditioning:
The Contractor shall comply with the applicable requirements of Sections 608 and 609 of the Clean Air Act (42 U.S.C. 7671g and 7671h) as each or both apply to this contract.

Environmental Performance:
Waste Reduction Program - Contractor shall establish a program to promote cost-effective waste reduction in all operations and facilities covered by this contract. The Contractor's programs shall comply with applicable Federal, State, and local requirements, specifically including Section 6002 of the Resource Conservation and Recovery Act (42 U.S.C. 6962, et seq.).

2.300 Other Provisions

2.311 Forced Labor, Convict Labor, Forced or Indentured Child Labor, or Indentured Servitude Made Materials

Equipment, materials, or supplies, that will be furnished to the State under the Contract must not be produced in whole or in part by forced labor, convict labor, forced or indentured child labor, or indentured servitude.

"Forced or indentured child labor" means all work or service: exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or performed by any person under the age of 18 under a contract the enforcement of which can be accomplished by process or penalties.

Attachment A, Price Proposal

The State of Michigan is interested in payment terms that reflect cost savings to the State based on an accelerated payment process. Contractor is offering 1% discount if paid within 10 days.

Winter Maintenance Truck Components						
Item No.	Unit	Commodity #	Description	Est. Usage	Unit Price	Ext. Amount
1	EA.	060-61	Pre-wet Systems per specification # 04-PREWET.C09	15	$3,167.00	$47,505.00
2	EA.	060-61	Fuel tank and hydraulic reservoirs per specification # HYDTANK.C09	50	$2,690.00	$134,500.00
3	EA.	060-61	Ground speed oriented spreader control systems with electric over hydraulic joystick controls per specification # GRDSPD.C09	50	$4,110.00	$205,500.00 see option enclosed
4	EA.	060-61	Hydraulic system, closed center, piston pump, ground speed controlled, system 1, per specification # HYD-PP.C09	14	$8,656.00	$121,184.00 see option for SS enclosures
5	EA.	060-61	Hydraulic system, closed center, piston pump, ground speed controlled, system 2, per specification # HYD-PP.C10	36	$8,571.00	$308,556.00 see option for SS enclosures
6	EA.	065-25	Automatic electric tarp assemblies per specification # 04-TARPS.C09	50	$1,239.00	$61,950.00
7	EA.	065-30	11 foot stainless steel dump bodies and hoists per specification # 04-11SSDMP.C09	12	$14,182.00	$170,184.00
8	EA.	065-30	14 foot stainless steel dump bodies and hoists per specification # 04-14SSDMP.C09	21	$17,724.00	$372,204.00
9	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 1, per specification # CMBBDY.C09	6	$40,688.00	$244,128.00 Pricing is for 14' unit. See enclosure for 11' pricing
10	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 2, per specification # CMBBDY.C09	6	$33,937.00	$203,622.00 Pricing is for 14' unit. See enclosure for 11' pricing

11	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 3, per specification # CMBBDY.C09	6	$31,864.00	$191,184.00 Pricing is for 14' unit. See enclosure for 11' pricing
12	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 4, per specification # CMBBDY.C09	6	$35,294.00	$211,764.00 Pricing is for 14' unit. See enclosure for 11' pricing
13	EA.	760-06	Side mount wing plow, right or left, per specification # 57-0901SMW.C09	36	$5,308.00	$191,088.00
14	EA.	765-66	11 foot stainless steel hopper box material spreaders per specification # 60-11SS.C09	14	$9,292.00	$130,088.00 see attachment for cross auger, spinner, y chute options
15	EA.	765-66	12 foot stainless steel hopper box material spreaders per specification # 60-14SS.C09	36	$11,013.00	$396,468.00 see attachment for cross auger, spinner, y chute attachments

Attachment B: MDOT Standard Specifications

MDOT Specification# 04-PREWET.C09 – Eight (8) Pages

MDOT Specification# HYDTANK.C09 – Nine (9) Pages

MDOT Specification# GRDSPD.C09 – Sixteen (16) Pages

MDOT Specifications# HYD-PP.C09 – Thirteen (13) Pages

MDOT Specification# 04-TARPS.C09 – Nine (9) Pages

MDOT Specification# 04-11SSDMP.C09 – Sixteen (16) Pages

MDOT Specification# 04-14SSDMP.C09 – Fourteen (14) Pages

MDOT Specification# CMBBDY.C09 – Twenty-one (21) Pages

MDOT Specification# 55-FMBBLD.C09 – Twelve (12) Pages

MDOT Specification# 55-MOPBLD.C09 – Ten (10) Pages

MDOT Specification# 57-0901SMW.C09 – Ten (10) Pages

MDOT Specification# 60-11SS.C09 – Fifteen (15) Pages

MDOT Specification# 60-14SS.C09 – Fifteen (15) Pages

MDOT SPECIFICATION# 04-PREWET.C09

GROUND SPEED CONTROLLED PRE-WET SYSTEMS

I GENERAL

It is the intent of this specification to establish an optional use contract for ground speed controlled pre-wet systems to be mounted on MDOT winter maintenance trucks. They must be the latest model in current production, satisfactory to meet the performance and design characteristics required in this specification. They shall be built in accordance with all FMVSS, OSHA, MIOSHA, and ANSI standards.

The timely delivery of the pre-wet systems is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet FMVSS standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, Or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and Fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

IX LIQUIDATED DAMAGES - continued

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations may be considered acceptable only in the following circumstances:

1. All blank spaces are completed with either yes or no, and if no list the type of deviation.

2. MDOT minimum requirements are met or exceeded.

3. MDOT maximum requirements are not exceeded.

4. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

1. I.T.B. No. 071I9200218 **2. Date:** 07/09/2009

3. Name and Address of Contractor
Truck & Trailer Specialities, Inc.
6726 Hanna Lake
Dutton, MI 49316

4. Phone Number (616) 698-8215

X SPECIFICATIONS – continued

5. Name, address, and phone number of Michigan dealership for warranty, parts and, service.

Same as Above

6. Vendor Contact Person

A. Print name: Daniel Bouwman

B. Signature: _____

C. Phone: (616) 698-8215

D. Fax: (616) 698-0972

7. Subcontractor, body installer, Etc.

A. Company Name and Address

NA

B. Subcontractor contact person

1. Printed Name: NA
2. Phone:
3. Fax:

8. BASIC SPECIFICATIONS	YES	NO	DEVIATION
Delivery for complete PO shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact **Jeff Turner at 517-334-7763** at least 48 hours prior to delivery	_X___	____	_____
Pre-wet liquid pump shall be directly coupled to the hydraulic motor	_X__	____	_____
Pre-wet pump shall be capable of 7gpm and constructed with a built in system relief valve	_X_	____	_____
Pre-wet pump shall be constructed with bronze type gears	_X___	____	_____
Pre-wet pump/motor shall be mounted inside a NEMA type enclosure with a hinged door for access	_X___	____	_____
A Dickey-john flow meter shall also be mounted in the enclosure	_X__	____	_____
Stainless steel hydraulic lines for the pump motor shall be plumbed to bulkhead fittings mounted on the side of the enclosure	_X___	____	_____
Pre-wet pump system shall have a poly check valve to be mounted in the discharge line to the spray nozzles	_X___	____	_____
Pre-wet systems shall include a nozzle kit including:			
a. Three (3) 2gpm spray nozzles	_X___	____	_____
b. All necessary hoses and fittings	_X___	____	_____
c. Stainless steel guards to be installed with the nozzles	_X___	____	_____

8. BASIC SPECIFICATIONS – continued	**YES**	**NO**	**DEVIATION**
Liquid tanks shall be 100 gallon minimum capacity for combination body trucks and 100 gallon capacity for slide-in V-box bodies	_X___	____	_____
Each body shall be equipped with twin tanks and shall be fitted with an equalizing hose between tanks	_X___	____	_____
Tanks shall be fitted with 2 inch cam-lock fittings for bulk filling	_X___	____	_____
Tanks shall be constructed of 3/8 inch wall rotationally molded polypropylene and shall have built in baffles	_X___	____	_____
Each tank shall have a minimum 3 inch fill opening at the top	_X___	____	_____
Tanks shall fit existing MDOT combination bodies and slide in material spreaders	_X___	____	_____
Tanks shall be fitted with the proper poly type tank vents	_X___	____	_____
Discharge fittings shall be molded type	_X___	____	_____
Spin welded or flange type fittings shall **NOT** be acceptable	_X___	____	_____
Tanks shall be provided with stainless steel mounting brackets and all necessary stainless steel hardware and attachments	_X___	____	_____
Tank kits for the combination bodies and the slide in bodies shall include a one (1) piece stainless steel tray that is as long as the tank	_X___	____	_____
The V-box kits shall include brackets that bolt directly to the V-box cross members	_X___	____	_____
A stainless steel pump enclosure mounting bracket shall be supplied with pre-wet system	_X___	____	_____

8. BASIC SPECIFICATIONS – continued	**YES**	**NO**	**DEVIATION**
A bulk fill kit with poly cam-lock fittings and poly Shut-off valve shall be provided	_X__	____	_____
A flusher kit consisting of a poly directional ball valve and a separate suction hose shall also be provided to be installed in the liquid supply line from the tank to the pump	_X__	____	_____
A quick disconnect poly cam fitting kits shall be supplied for the liquid discharge line to the spinner	_X__	____	_____

Comments _____

_____

End of Specification

MDOT SPECIFICATION# HYDTANK.C09

FUEL TANK AND HYDRAULIC RESEVOIR ASSEMBLY

I GENERAL

It is the intent of this specification to establish an optional use contract for fuel tank and hydraulic reservoir assemblies. All specifications contained herein are considered minimum and must be met.

The timely delivery of the fuel tank and hydraulic reservoir assemblies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days. **The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is received by the successful vendor.**

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if

such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

1. All blank spaces are completed with either yes or no, and if no list the type of deviation.

2. MDOT minimum requirements are met or exceeded.

3. MDOT maximum requirements are not exceeded.

4. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

IX SPECIFICATIONS - continued

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517-334-7763 at least 48 hours prior to delivery	_X___	____	_____

Comments _____

_____

TANKS	YES	NO	DEVIATION
Tanks shall be combination, behind the cab style with angle carriage bracket and angle truck frame brackets	_X___	____	_____
Angle carriage bracket approximate size shall be 15 inches x 77 inches. Carriage shall have two (2) 3-½ inch cross tubes with four (4) 3-½ inch mounting brackets with a 1-5/8 inch round hole centered at 11-¾ inches x 39-¼ inches	_X__	____	_____
Rubber blocks placed under tanks for insulation shall be retained by ¼ inch steel bar wrapped completely around rubber and welded to frame.	____	_X___	Not needed
Tanks shall be attached to the angle bracket using ¼ inch flat brackets welded to the tanks to match up with angle iron bracket of the carriage	_X___	____	_____
Brackets shall be bolted together with at least four (4) brackets attached to the fuel tank and two (2) attached to the hydraulic tank	_X__	____	_____
Tank truck frame mounting brackets shall be 4 inch x 12 inch x 17 inch x ½ inch angle with three evenly spaced gussets. The top of the angle bracket will have two (2) elongated holes 1-½ inch long x 11/16 inch wide	_X___	____	_____
There shall be four (4) round sandwich mounts to fasten the carriage frame to the truck frame mount. The mounts will have a 5/8 inch bolt and be made of fuel resistant rubber	_X___	____	_____
Tanks and frame shall have all metal surfaces pre-cleaned and prepped prior to applying black powder coat	_X___	____	_____
Both fuel and hydraulic tanks shall be painted black	_X___	____	_____
Supporting frame for tanks shall be self cleaning and painted black	_X___	____	_____
Fuel capacity shall be 115 gallons minimum	_X___	____	_____
Hydraulic oil reservoir shall be 30 gallons minimum	_X___	____	_____
Preferred model, Riverside TP or approved equal	____	_X___	Monroe Type
Approximate overall dimensions shall be 34 inches tall x 14 inches wide x 76 inches long	_X___	____	_____
Construction shall be of pickled and oiled, #7 gauge steel	_X___	____	_____

Each tank shall have a magnetic drain plug, be pressure tested for leaks, and be FHWA labeled	_X___	____	_____
Fuel tank shall have a cleanout in the top, on each side of the baffle for inspection and cleaning.	_X___	____	_____
Hydraulic tank shall have one (1) cleanout of the same size	_X___	____	_____
Cleanout gaskets shall be interchangeable	_X___	____	_____
Hydraulic tank shall have provisions for one (1) Zinga RF-1618-S-25-EP15-0 tank top mounted return filter with bypass, bolted and gasketed	_X___	____	_____
A ¾ - 16 straight thread fitting shall be located in the front of the tank 12 inches up from the bottom	_X___	____	_____
Hydraulic tanks shall have a:			
a. Screen in the fill	_X___	____	_____
b. Lockable breather cap with filtered vent	_X___	____	_____
c. 3 inch NPT flange for suction outlet	_X___	____	_____
d. Steel suction strainer (Zinga #2030-3 or equivalent) with a 2 inch NPT ID	_X___	____	_____
e. Combined level/temperature gauge mounted on outside end of tank approximately 6 inches from the top of the reservoir to the top hole in the gauge	_X___	____	_____
f. Two 1 1/16"-12 straight thread fitting in bottom	_X___	____	_____
Fuel and hydraulic tanks shall be delivered clean with no contamination particles in excess of 5 microns	_X___	____	_____
Fuel tanks shall have a pickup sump 6 inch x 6 inch x 3 inch with two (2) ¾ -16 straight thread fittings, one out the bottom and one out the front	_X___	____	_____
Sump shall be out side of the truck frame with a ¾ -16 straight thread fitting near the sump	_X___	____	_____
Fuel tanks shall be shipped with sending units for fuel level, shipped loose, and standard baffles within the tank	_X___	____	_____
Fuel sending units shall be ISS PRO RA9531-ISS-LP	_X___	____	_____

Fuel tanks shall have ball check vent on top of the tank and a male safety filler cap with chain	_X___	____	_____
LOW OIL ALERT	**YES**	**NO**	**DEVIATION**
A Gems part # 15570 low oil sensor shall be provided and installed in the hydraulic tank	_X___	____	_____
A 1 inch NPT fitting shall be located in the top of the Hydraulic tank for the low oil sensor	_X___	____	_____
Low oil level sensor shall be connected to a normally open, energize to close, solenoid operated control valve provided by vendor	_X___	____	_____
Solenoid shall be actuated by the closing of a ground connection through the sensor to automatically shut off pump pressure port flow to all down stream functions	_X___	____	_____
Sensor shall also be connected to a light on the console to alert operator of the low oil condition	_X___	____	_____
FILTRATION	**YES**	**NO**	**DEVIATION**
A Zinga RF-1618-S-25-EP15-0 tank top mounted return filter with a 1 ¼ inch straight thread port and a 25psi electronic bypass switch attached to an indicator light on the control module to indicate if the filter goes to bypass condition	_X___	____	_____
Bypass switch shall be GEM # PS32-20-2MNB-A-FLS18-IP-FS25PSIR	_X___	____	_____
Filter unit shall have a pressure drop of less than 3psi @ 40gpm with 150 SSU oil	_X___	____	_____
Filter unit shall have a 1 ½ inch NPT port out the bottom of the canister and extended drop tube	_X___	____	_____
Two Zinga RE409-10 or equivalent replacement elements shall be furnished	_X___	____	_____

End of Specification

MDOT SPECIFICATION# GRDSPD.C09

GROUND SPEED ORIENTED SALT DISTRIBUTION SYSTEM

I GENERAL

It is the intent of this specification to establish an optional use contract for ground speed oriented salt distribution systems and electric over hydraulic joystick controls to be installed by **MDOT**. These systems will be used in conjunction with a closed center valve and load sense/pressure compensated piston pump, **to be supplied by MDOT**. The system is designed to control the salt and liquid distribution of MDOT winter maintenance trucks. All units will be equipped to control pre-wetting systems with granular spreaders. Electric over hydraulic joysticks are to control the underbody scraper up/down, left/right, front plow up/down, left/right, dump body and mid-mount wing up/down. Spreader functions shall be ground speed controlled with in-cab display and control. **The control must be capable and wired for the pre-wetting system.** All specifications contained herein are considered minimum and must be met.

The timely delivery of the ground speed oriented salt distribution systems and electric over hydraulic joystick controls is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet FMVSS standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

IX LIQUIDATED DAMAGES - continued

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

5. All blank spaces are completed with either yes or no, and if no list the type of deviation.

6. MDOT minimum requirements are met or exceeded.

7. MDOT maximum requirements are not exceeded.

8. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

X SPECIFICATIONS - continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT. **MDOT must approve any deviations to this specification.**

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery required: 120 days ARO	_X___	____	_____
Product literature provided with bid	____	____	_____
Warranty shall be 1 year parts and labor or manufacturers warranty which ever is greater	_X___	____	_____

BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Parts and materials shall be current production components of the make and part number specified herein, substitutions, if any, shall require review and approval prior to the bid and must be equivalent to or exceed the material and performance characteristics and product quality of the specified component	_X___	____	_____

REMOTE VALVE CONTROLS

Remote valve joystick controllers shall be located in the cab of the truck, within easy reach of the driver, mounted in a console unit to be supplied by MDOT	_X___	____	_____
Joystick controllers shall have the capability to provide proportional control to the hydraulic Pulse Width Modulated (PWM) valves	_X___	____	_____
The microprocessor controlled valve drivers shall be located within the base of the joystick controllers	_X___	____	_____
Approximate controller base dimension shall be 4 inches x 4 inches	_X___	____	_____
Controllers shall have a user selectable interface to be compatible with a Rexroth model M4 hydraulic valve	_X___	____	_____
Controllers shall be mounted in a modular base that accepts one to four controllers and be available in a dual or single axis configuration	_X___	____	_____
Power shall be introduced into the first controller and then feed from the first controller to the second controller and continue on	_X___	____	_____

SINGLE AXIS CONTROLS	YES	NO	DEVIATION
Single axis controller shall have of a single push button, red in color, that is mounted in the joystick handle	_X___	____	_____
Red button shall serve as a safety lockout, whereas output from the control will not activate without first depressing the push button	_X___	____	_____
All other components shall be black in color	_X___	____	_____
Controller shall contain a microprocessor with two control channels and the stick shall be gated such that the handle only moves in one axis (front to back)	_X___	____	_____
Controller shall be user selectable to provide PWM signal outputs of 50, 100, 150, and 250Hz for PWM valves	_X___	____	_____
Low and high speed limit calibrations shall be set utilizing two (2) user accessible potentiometers	_X___	____	_____
Electrostatic discharge and electromagnetic interference protection shall be provided	_X___	____	_____
Controller shall consist of a single axis controller and 15 foot valve cable	_X__	____	_____
Single axis joysticks shall control both the dump body and the wing, if so equipped, with the use of a covered toggle switch provided by MDOT	_X___	____	_____
There shall be 9 single axis joystick controllers required	_X___	____	_____
Dual axis controllers shall be mounted in the modular base with all components black in color	_X___	____	_____
Controller base shall contain a microprocessor with four control channels	_X___	____	_____
Controller shall have a float mode available, in that the front PWM signal will be engaged at 100% until the user activates the rear PWM signal	_X___	____	_____
Float mode will only be used with float compatible hydraulic systems as a loss of steering may result	_X___	____	_____
Controller shall be gated so that only one channel can be activated at a time except when in float, which allows the front axis and left or right channel to be activated at the same time	_X___	____	_____

Controller shall be user selectable to provide PWM signal outputs of 50, 100, 150, and 250Hz for PWM valves _X___ ____ _____

Electrostatic discharge and electromagnetic interference protection shall be provided _X___ ____ _____

Controller shall consist of a dual axis controller and 15 foot valve cable _X___ ____ _____

There shall be 18 dual axis joystick controllers required _X___ ____ _____

Comment: System will require 2 of these per truck. Pricing is based on 2 units.

BASE PLATE

Standard base plate shall be able to accommodate up to four (4) of the modular joystick controllers _X___ ____ _____

Base plate kit shall consist of a base plate, end plates, installation/operation instruction sheet, 10 foot power cable with 10 amp fuse _X___ ____ _____

Power shall be introduced into the first controller and then feed from the first controller to the second controller and to continue on _X___ ____ _____

There shall be 9 base plate kits required _X___ ____ 1 Per Truck

Comment: _____

_____

GROUND SPEED SYSTEM - GENERAL

System shall have the capability to maintain a uniform application rate of granular deicing materials and liquid materials simultaneously (based on granular output) _X___ ____ _____

System shall have the capability of being used as a liquid only control and monitor boom shutoff inputs _X___ ____ _____

System shall have the flexibility of closed loop control of the spinner in order to maintain a desired spinner RPM or spread width _X___ ____ _____

Comment_____

_____

GROUND SPEED SYSTEM- CONSOLE

Control console shall have an easy to read dot matrix display

which is capable of displaying a minimum of two (2) control channel application rates, ground speed, spread width, time/date, gate height, liquid level, simultaneously	_X___	____	_____
Control console shall contain a microprocessor and have a minimum of three (3) closed loop control channels	_X___	____	_____
One control channel shall be used for application of granular material on a pounds (kilograms) per mile (kilometer) or area based (pounds per square foot/grams per square meter)	_X___	____	_____
A second channel shall be used for control of liquid material on a gallons (liters) per mile (kilometer) and gallons (liters) per square yard (meter)	_X___	____	_____
A third channel will be used for controlling the spinner speed and be capable of utilizing a feedback sensor to the close the loop in order to maintain a desired spinner rpm and a spread width	_X___	____	_____
Console shall have no more than one (1) switch on the front panel which is used to cycle display screen from operate, view accumulators, select materials, and turn the unit on or off	_X___	____	_____
Console shall have sufficient memory capable of recording the following information and display as current run totals and season totals:			
a. Miles(kilometers), tons (metric/English), and gallons (liters) spread while in automatic control mode	_X___	____	_____
b. Miles(kilometers), tons (metric/English), and gallons (liters) spread while in BLAST mode	_X___	____	_____
c. Total miles (kilometers), tons (metric/English), and gallons (liters) spread in automatic control mode	_X___	____	_____
d. Total vehicle miles (kilometers) driven	_X___	____	_____
e. Liquid gallons (liters) sprayed during pre-wetting and anti-icing applications	_X___	____	_____
f. Real time spent spreading granular, spraying liquid, and blasting	_X___	____	_____
g. Ambient and road surface temperature F° (C°)	_X___	____	_____
Console shall also record system information which includes:			
a. Time and date event recording of application rate history indicating when truck was started and turned off, type of materials spread, and application rates that were selected by the operator	_X___	____	_____
b. Time and date event recording of alarm history indicating when control system was operating in an error condition (application error, manual			

override, or loss of feedback sensor)	_X___	____	_____
c. Time and event recording of vehicle maximum speed alarm set point being exceeded	_X___	____	_____
d. Time and date event recording of on/off history indicating when control was in automatic control mode versus off as well as when blast function was activated	_X___	____	_____
Control console will automatically adjust the amount of granular material being applied when the closed loop spinner is in operation and the spread width knob setting is increased or decreased (this shall provide for spreading granular material in pounds per lane mile or pounds (kilograms) per square yard (meter)	_X___	____	_____
Control console shall have visual display of when unit is operating in application rate error, unload or blast condition, manual speed and automatic manual override condition, and built in ground speed simulator	_X___	____	_____
Truck ID can be entered into the unit that has a unique code for each truck	_X___	____	_____
This ID would also show up on the DaRT Reports so that data tracking can be done on an entire fleet of trucks	_X___	____	_____
Console shall have the capability of being switched from English units to metric units as well as multiple languages	_X___	____	_____
For **6 Combination Body trucks**, units shall have EPC control for speed of cross conveyor and two (2) position switch to control direction	_X___	____	_____
A two (2) position switch to control main conveyor direction and spinner shall be provided	_X___	____	_____
This switch shall be wired into the main controller to maintain ground speed control	_X___	____	_____
Unit shall be programmable for at least four (4) types of material, four (4) liquids, and capable of controlling pre-wet and anti-icing with boom controls without changing consoles or modules	_X___	____	_____
Wiring for operation of pre-wet valve shall be included with all units	_X___	____	_____
Units shall include a two (2) year warranty on the processor and console	_X___	____	_____

Data logging information shall be available for download through a handheld device capable of holding up to 25 truck downloads, easily attachable to the unit via a cable permanently attached to the unit with information that can be formatted with standard Windows™ programs	_X___	____	_____
Unit shall be capable of Low Hopper Level Warning to alert the operator of a low level of material in the hopper **(Low Level Sensor will not be provided in this specification, the capability will be for future options or upgrades. Unit must be wired accordingly for this option)**	_X___	____	_____
Controller shall beep and flash a warning to the operator	_X___	____	_____
Console shall be programmed with a detachable keyboard with menu driven screens to aid in programming process	_X___	____	_____
Keyboard shall be removable after programming is complete which eliminates the need of lockout codes or keys	_X___	____	_____
Unit shall be USA made product	_X___	____	_____
Console calibration mode:			
a. Automatic calibration procedures for granular and liquid channels to determine the granular spreader constant of conveyor/auger and liquid sprayer constant of flow meter	_X___	____	_____
b. Ground speed calibration procedure in units of 1 mile or 1 kilometer	_X___	____	_____
c. Dual ground speed axle calibrations will allow users with dual axles to calibrate both and use both constants for ground speed	_X___	____	_____
d. Programmable operation frequency of PWM valves from 20 to 250Hz	_X___	____	_____
e. Automatic calibration procedure that will determine the PWM offset and saturation points of valve as well as system gain and enter into the console's memory	_X___	____	_____
f. Programmable blast timed button or on/off when blast button is pressed and then released	_X___	____	_____
g. Spinner calibration procedure to allow for open loop operation of spinner to coordinate spread width knob position with a specific spread width for lane mile application of material	_X___	____	_____
h. Calibration procedures shall only be accessible with plug in programmable keyboard	_X___	____	_____
Console programming features:			
a. Program independent application rates for up to			

	four (4) separate granular materials and four (4) separate liquid materials	_X___	____	_____
b.	Application rates may be preset for ten fixed rates or to expand application rate choices, a preset minimum rate, preset maximum rate and rate change increments between	_X___	____	_____
c.	A blast application rate is provided for each material for control of the blast function	_X___	____	_____
d.	All of the granular and liquid materials can have user defined labels to aid in easy selection of the correct material by the operator	_X___	____	_____
e.	Reset of granular current and season accumulators	_X___	____	_____
f.	Reset of liquid current and season accumulators	_X___	____	_____
g.	Ability to lockout granular and liquid materials availability in the operate mode	_X___	____	_____
h.	Program the console for use as a granular and liquid material control, a liquid only control, or a granular only control	_X___	____	_____
i.	When liquid only control is selected, the operate screen automatically configures itself and displays a five (5) segment boom shutoff graph	_X___	____	_____
j.	All programming features are only accessible with plug-in keyboard	_X___	____	_____
k.	Capability to program console for automatic switch of liquid materials from pre-wet (gal/ton) to liquid only (gal/lane mile) for anti-icing	_X___	____	_____
l.	Material flow/hopper level input alarm has a user defined text for the alarm allowing for various types of sensors or inputs to be used and the text can be changes to fit each application	_X___	____	_____
m.	Have provisions to work with a low oil level sensor connected to a normally open, energize to close, solenoid operated control valve, actuated by the closing of a ground connection through the sensor, to automatically shutoff pump pressure (also connected to a light on the console to alert operator)	_X___	____	_____
n.	Control console programming shall include the capability of "granular reduction". Granular application rates will automatically be reduced to a preset percentage when the liquid pre-wet system is applied	_X___	____	_____

Comment_____

_____

OPERATOR REMOTE SWITCH MODULE	**YES**	**NO**	**DEVIATION**
A remote switch module shall be used for operator convenience which contains switches to:			

a. Power liquid and granular channels on or off individually _X___ ____ _____
b. Allow liquid and granular application rates to be increased or decreased separately _X___ ____ _____
c. Provide a momentary push button switch used for blast mode _X___ ____ _____

d. Master spreader switch for off automatic and unload of granular, liquid, and spinner channels _X___ ____ _____
e. Provide a twenty position rotary knob for adjustment of spinner speed _X___ ____ _____

Remote switch module shall be backlit for visibility and use during night operation _X___ ____ _____

Remote switch module shall allow operator to select materials to be applied __X__ ____ _____

Comment_____

_____

GRANULAR CONTROL

Hydraulic valves (MDOT provided) have pulse width modulated dual control valves to control hydraulic flow to spinner and conveyor motors.

Modulated valve drivers for adaptation to various pulse width modulated valves shall be provided _X___ ____ _____

Unit shall be compatible with Hall Effect conveyor feed rate sensored hydraulic motors (MDOT provided) with at least 50 pulses per revolution of motor _X___ ____ _____

Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device _X__ ____ _____

Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights _X___ ____ _____

Comment_____

_____

LIQUID CONTROL	YES	NO	DEVIATION
Flow meter shall be provided for accurate measurement of liquid sprayed	__X__	____	_____
A modulated valve driver (20amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate	_X___	____	_____
System shall have in line ball valve control capability available in ½ inch, ¾ inch, 1 inch, and 2 inch sizes	_X___	____	_____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# HYD-PP.C09

HYDRAULIC SYSTEM, CLOSED CENTER, PISTON PUMP, GROUND SPEED CONTROLLED

I GENERAL

It is the intent of this specification to establish an optional use contract for hydraulic systems with a closed center sectional type load sensing valve and load sense/pressure compensated piston pump. The system is designed to control the functions of a Winter Maintenance Truck with a dump body (double acting lift cylinders for the box-up/down) and slide in spreader; or a combination body with cross auger and spinner. It shall also operate standard functions such as underbody blade with swing and front plow with swing. **All units will be equipped to control pre-wetting systems with granular spreaders and mid mount wings.** Spreader functions shall be ground speed controlled with in-cab display and control (supplied by separate vendor). All specifications contained herein are considered minimum and must be met. **Hydraulic valve must be compatible with Dickey-john Control Point Ground Speed Controls.** [*Side delivery augers on Combination Bodies will require reversing operation along with the main delivery conveyor, front to rear. Pump capacity may have to be increased and valves and controls may have to be added to compensate for additional functions.*]

Note: MDOT will be installing these hydraulic systems on:

(System One) – Single or tandem axle trucks with 11 or 14 foot combination bodies, front cross auger with left spinner and rear spinner or rear cross augers, with regular or zero velocity spinners. **Tandem valvebodies shall include a section for side mounted wing.**

(System Two) – Single or tandem axle trucks with dump body, slide-in material spreader, cross auger, regular or zero velocity spinner or rear y-chute with spinner. **Tandem valvebodies shall include a section for side mounted wing.**

All valves shall have an EPC section to control a wing.

The timely delivery of the hydraulic systems is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

9. All blank spaces are completed with either yes or no, and if no list the type of deviation.

10. MDOT minimum requirements are met or exceeded.

11. MDOT maximum requirements are not exceeded.

12. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	YES	NO	DEVIATION
Delivery shall be 120 days ARO	_X___	____	_____
Parts and material are to be current production components of the make and part number specified herein, substitutions, if any, will require review and approval prior to the bid and must be equivalent to or exceed the material and performance characteristics, and product quality of the specified component	_X___	____	_____
Pump shall be driven from the front of the engine crankshaft via a Spicer 1310 series drive-line assembly, or equal, with a splined slip yoke and fixed end yokes assembled per MDOT specifications	_X___	____	_____
Two (2) setscrews will be drilled for, and secured by, a safety wire and all cross and bearing assemblies will have grease fittings that are readily accessible	_X___	____	_____
The splined slip joint shall have a readily accessible grease fitting also	_X___	____	_____
Furnish a variable volume, pressure, and flow compensated, load sensing axial piston pump	_X___	____	_____
The pump shall offer the following features as standard:			
a. Internal bleed down compensator	_X___	____	_____
b. Bolt on compensator with separate adjustments for stand by and main pressure	_X___	____	_____
c. SAE C mounting flange	_X__	____	_____
d. SAE code 62 flanged pressure port	_X__	____	_____
e. SAE code 61 flanged suction port size 2-½ inch	_X___	____	_____
f. 1-½ inch SAE keyed input shaft	_X___	____	_____
g. One piece input shaft for long service life	_X___	____	_____
h. Preferred model **Rexroth** model **A10V100** or approved equal	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
The pump shall be of cast iron construction, **6.0cir** displacement for all truck systems	_X___	____	_____
The hydraulic control valve shall be a closed center sectional type valve, load sense, individually pressure and flow compensated, rated at minimum 40gpm	_X___	____	_____
The valve shall be assembled with a mid inlet to allow a maximum flow into P (pressure port) of 52gpm	_X___	____	_____
The P port must be SAE 16, tank (T) SAE 20 X, Y, L, M ports SAE 6	_X___	____	_____
The valve shall feature individual sections for all functions The A & B work-ports shall be SAE 12	_X___	____	_____
The valve shall include a cartridge type shuttle network with access opposite the working ports for serviceability	_X___	____	_____
All valve functions shall be pilot solenoid operated	_X___	____	_____
All valve functions shall include individual load sense pressure adjustment for each work port	_X__	____	_____
Valve section flow to be determined by spool selection, for proper proportional joystick operation at maximum band width the spool stroke will not be limited in travel to obtain flow requirements except in the down travel position under induced load conditions	__X__	____	_____
Spool flows shall be easily field adjustable within a range by the addition or subtraction of shims or adjusting nuts, adjustment shall not reduce main spool travel	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
For serviceability when enclosure mounted the solenoid coils and the individual work port load sense pressure controls shall be adjustable and accessible on the same side of the valve	_X___	____	_____
Push pin manual overrides on the proportional coils shall be covered to exclude corrosion	_X___	____	_____
Coils will be one piece assemblies with covered manual overrides	_X___	____	_____
All valve functions shall include stroke limiter	_X___	____	_____
All valve functions shall have adjustable flow compensators, either shim or screw adjustment is acceptable	_X___	____	_____
The hydraulic pilot supply will be internal to the valve	_X___	____	_____
All units shall include a pre-wet and a wing valve	_X___	____	_____
Rexroth model M4-12 series 2 or equal	_X___	____	_____
All sections are to be fully proportional electric	_X___	____	_____
Left End Cover: Blank			
Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	_X___	____	_____
Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	_X___	____	_____
Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief down and 1,400psi load sense relief up	_X___	____	_____
Section 5: Hoist, 4 way Low boy, 24g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	_X___	____	_____
Mid Inlet: Must have adjustable anti-cavitation relief valve	_X___	____	_____
Section 6: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control	_X___	____	_____

Note: Special for Side mounted wing included on all valve assemblies:

Section 7:			
a. Main conveyor, 2 way, 15gpm, motor spooled, Adjustable load sense pressure control for slide-in hoppers SAE 12 A&B work-ports	_X___	____	_____
b. Main conveyor 4 way, 30gpm, motor spooled, adjustable load sense pressure control section for combination body with front cross auger and front & rear spinners SAE 12 A&B work-ports	_X___	____	_____
c. Main conveyor 2 way, 30gpm, motor spooled section, SAE 12 A&B work-ports adjustable load sense pressure control for combination body with rear cross auger	_X___	____	_____
Section 8: Spinner (rear), 2 way, 7gpm, motor spooled, adjustable load sense pressure control for slide-in hoppers SAE 12 A&B work-ports	__X__	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Section 9: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control either front or rear cross auger	_X___	____	_____
Section 10: Pre-wet, 4 way, 8gpm, motor spooled, SAE 12 A&B work-ports, adjustable load sense pressure control	_X___	____	_____
Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner attachment, port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	_X___	____	_____
Section valves must be identifiable by a model number stamped in the bottom of the valve section and easily readable after assembly, for simplifying the circuit hook-up	_X___	____	_____
Remote Valve Controls are PWM type controls and will be furnished by the Ground Speed Oriented Salt Distribution vendor	_X___	____	_____
Low Oil Alert: A low oil level sensor (**Sensor furnished by hydraulic tank vendor**) of the solid state, non mechanical, non float type, to be connected to a normally open, energize to close, solenoid operated control valve of the cartridge and manifold design to be directly bolted to the pump pressure port. Actuation shall be by the closing of a ground connection through the low oil level sensor, to automatically shut off pump pressure port flow to all down stream functions in the event of low hydraulic oil level, and also connected to a light on the Dickey-john console to alert the driver of the low oil condition	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Training: Vendor to provide eight (8) hours training at various MDOT facilities throughout the state including the Upper Peninsula	_X___	____	_____
Training to include: operation, calibration, maintenance, troubleshooting, and repair	_X___	____	_____
Michigan based, factory trained personnel to provide training and calibration assistance	_X___	____	_____
Factory should have a warranty service center within one day ground UPS	_X___	____	_____
Systems shall be shipped accessible by fork lift, on pallets	_X___	____	_____
Billing shall be per unit/truck and as delivered	_X___	____	_____
One (1) set, operator, maintenance, and parts manuals per system	_X___	____	_____
Warranty shall be minimum One (1) year parts and labor	_X___	____	_____
Drive line shall be engine driven Spicer, splined slip joint And be shipped assembled per MDOT specifications	_X__	____	_____
Hydraulic pump shall be variable volume, pressure and flow compensated, 100cc displacement, load sensing, **Rexroth A10V100**	_X___	____	_____
Hydraulic pump shall be:			
a. Cast iron construction	_X___	____	_____
b. 1-½ inch keyed one piece input shaft	_X___	____	_____
c. SAE "C" mount	_X___	____	_____
d. 2-½ inch flanged suction port	_X___	____	_____
e. 1-¼ inch flanged pressure port	_X___	____	_____
f. Provide a pressure test port	_X___	____	_____

Control valves shall be:

a. Closed center sectional type _X___ ____ _____
b. Load sense pressure compensated _X___ ____ _____
c. Inlet maximum flow 52gpm, work port 34gpm _X___ ____ _____
d. Rexroth M4-12 left hand assembly _X___ ____ _____

Model ID numbers shall be stamped on valves, visible when assembled _X___ ____ _____

Low oil shut down valve shall be normally open, energize to close, solenoid operated control valve, cartridge and manifold design, to be bolted directly to pump pressure port _X___ ____ _____

Valves shall be assembled in the proper configuration and tagged and packaged per the configuration _X___ ____ _____

EPC valves shall be compatible with Dickey-john Control Point ground speed controls _X___ ____ _____

Preconstruction meeting shall be required _X___ ____ _____

9. TECHNICAL ASSISTANCE

The vendor is expected to provide technical assistance and expertise on the installation of all hydraulic components listed in this Specification. This shall be provided at the build up location, MDOT A&E Garage in Lansing, MI. In addition, technical support and trouble shooting for all components furnished shall be provided to all MDOT garages statewide during the warranty period.

The estimated hours required, not including travel time, for this shall be a minimum of 80 hours. This support may be scheduled such as three hours per week over a period of months during the truck build up or may be on call as needed. The vendor shall complete the following for their technical support person or persons.

Name: Bob Slocum/Dan Bouwman

Office Address: 6726 Hanna Lake, Dutton, MI 49316

Office phone number: (616) 698-8215

Office Fax: (616) 698-0972

Cell phone number : (616) 889-7495

10. COST

Suggested Model:
a. Pump, Rexroth, Model A10V100 _X___ ____ _____
b. Valve, Rexroth, Model M4-12 _X___ ____ _____

Contractor to List Make and Model Offered:

_____

Literature provided for Make and Model _X___ ____ _____

Per unit cost, per system:

System One, Single or tandem axle trucks with 11 or 14 foot combination bodies, front cross auger with left spinner and rear spinner or rear cross augers, with regular or zero velocity spinners. **Tandem valvebodies shall include a section for side mounted wing.**

Each $8,656.00

System Two, Single or tandem axle trucks with dump body, slide-in material spreader, cross auger, regular or zero velocity spinner or rear y-chute with spinner. **Tandem valvebodies shall include a section for side mounted wing.**

Each $8,571.00

Vendor to list any deviations from specifications:

_____

_____

_____

End of Specification

MDOT SPECIFICATION# 04-TARPS.C09

TARP ASSEMBLIES FOR WINTER MAINTENANCE TRUCKS

I GENERAL

It is the intent of this specification to establish an optional use contract for 11 foot and 14 foot automatic electric tarp assemblies to be mounted on MDOT winter maintenance trucks. They must be the latest model in current production, satisfactory to meet the performance and design characteristics required in the specification. They shall be built in accordance with all FMVSS, OSHA, MIOSHA, and ANSI standards.

The timely delivery of the tarp assemblies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet FMVSS standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without

the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations may be considered acceptable only in the following circumstances:

5. All blank spaces are completed with either yes or no, and if no list the type of deviation.

6. MDOT minimum requirements are met or exceeded.

7. MDOT maximum requirements are not exceeded.

8. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery for complete PO shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517/334-7763 at least 48 hours prior to delivery	_X___	____	_____

TARP	**YES**	**NO**	**DEVIATION**
Tarp shall be made of high quality minimum 18oz material with a urethane coating on both sides	_X___	____	_____

Tarp shall have a 350° F temperature rating	_X___	____	_____
Main body of tarp shall be constructed of a single piece of material	_X___	____	_____
Tarp tube pocket shall be lined with a solid weave material	_X___	____	_____
Tarp shall have rear corners reinforced by doubling the 18oz material in the corners	_X___	____	_____
Edges shall be heat welded to bind them	_X___	____	_____
Any stitching shall be bonded polyester thread	_X___	____	_____
Tarps shall not have side or tail flaps	_X___	____	_____

Comments _____

_____

COMPONENT CONSTRUCTION	**YES**	**NO**	**DEVIATION**
Components shall be constructed of 6005 T5 aluminum which exceed the 6061 T6 ratings	_X___	____	_____
Springs shall be Teflon coated for added rust and wear protection	_X___	____	_____

Comments _____

_____

ARMS AND SPRINGS	**YES**	**NO**	**DEVIATION**
Tarp arms shall be aluminum extrusions in the shape of a modified oval with two flat sides for maximum strength to weight ratio	_X___	____	_____
Springs shall be spiral torsion style	_X___	____	_____
Springs shall be designed for easy replacement without replacing whole arm	_X__	____	_____

Comments _____

_____

PIVOTS	**YES**	**NO**	**DEVIATION**
Pivots shall be bearing mounted on a 1-¼ inch pin that has			

been nitro caburized to stop corrosion	_X___	____	_____
Pivots shall be mounted through the side rail of the body	_X___	____	_____
Pivots shall be adjustable by simply adjusting hook pin height or by adding/subtracting spiral torsion springs	_X___	____	_____
Pivot tubes shall be polished, with four (4) springs per side, 84 inches long	_X___	____	_____

Comments _____

_____

BOWS	**YES**	**NO**	**DEVIATION**
Bow arms shall have 90° corners welded in them	_X___	____	_____
Bow arms shall be polished	_X___	____	_____

Comments _____

_____

TENSION BOW	**YES**	**NO**	**DEVIATION**
System shall include gravity powered tarp tensioning bow to assist in holding the tarp down behind cab shield to prevent sailing	_X___	____	_____
Tension arm shall mount on the main pivot arm; it shall **NOT** attach to the cab shield or main dump body	_X___	____	_____
Tension bow arms shall have 90° elbows welded in them	_X___	____	_____
Tension bow arms shall be polished	_X___	____	_____

Comments _____

_____

TARP SPOOL	**YES**	**NO**	**DEVIATION**
Tarp spool shall include a one piece polished aluminum wind deflector that can be cut to fit any truck	_X___	____	_____
Ends of wind deflector shall incorporate mounts for strobe lights and drive motor	_X___	____	_____

Tarp spool shall include a tarp axle with five (5) full

length pre-threaded grooves for mounting the tarp	_X___	____	_____
Axle shall have a Nitro carburized stub shaft to help prevent corrosion between a-similar metals	_X___	____	_____
Tarp spools shall include all electrical components needed to wire truck for easy in cab operation	_X___	____	_____
Tarp spools shall be designed so as NOT to trap debris on the in the cab shield and allow for easy cleaning of cab shield	_X___	____	_____

Comments _____

_____

WARRANTY	**YES**	**NO**	**DEVIATION**
Warranty on system, less tarp itself, shall 1 year	_X___	____	_____
Gear motor shall have a minimum three (3) year non-prorated warranty against defects and wear out	_X___	____	_____

Comments _____

_____

TARP DRIVE	**YES**	**NO**	**DEVIATION**
Tarp drive shall have controls mounted in cab	_X___	____	_____
Tarp drive shall have a 12volt gear motor	_X___	____	_____
Tarp drive shall be chrome plated	_X___	____	_____
Tarp drive shall have a tool steel Nitro carburized output shaft	_X___	____	_____
There shall be NO chain drives in the construction of the gear motor	_X___	____	_____
The tarp control system shall include a remote mounted, solenoid controlled, polarity reversing switch, a three position, non-detent control switch, circuit protection, and enough 6 gauge dual conductor wire to extend from the batteries to solenoid switch and to the tarp motor	_X___	____	_____

Comments _____

_____

End of Specification

MDOT SPECIFICATION # 04-11SSDMP.C09

DUMP BODY, STAINLESS STEEL, 8 cu. yd., 11FT., W/ UNDER BODY HOIST and 1/2 CAB PROTECTOR

I GENERAL

It is the intent of this specification to establish an optional use contract for stainless steel dump bodies, of approximately 8 cu. yd. with an underbody hoist. Each shall consist of a minimum 132 inch length by 87 inch inside width box. Each box shall include an underbody hoist with double acting cylinder, ½ cab protector (attached per MDOT specifications), air operated tail gate latches and designed to accommodate most vertical exhaust stacks without modification. The bodies will have holes pierced and studs mounted per MDOT specifications. MDOT will install this dump box on a **44,000 GVW** single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch C.A., and 187 inch C.E.

The timely delivery of the dump bodies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order,

and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return this portion of the specification to provide information in the spaces that follow for the equipment offered with this quotation. This information will be used initially by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order, and by MDOT then comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

* All blank spaces are completed.

* MDOT minimum requirements are met or exceeded.

* MDOT maximum requirements are not exceeded.

* The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

* The words "As Required" are entered for MDOT requirements not noted with maximums or minimums.

X SPECIFICATIONS – continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. Failure to make such alteration will be cause for non-acceptance by MDOT.

GENERAL	**YES**	**NO**	**DEVIATION**
Delivery time shall be 120 Days ARO	_X___	____	_____
Body shall measure 132 inches long, 40 inch high front, 34 inch high sides and tailgate	_X___	____	_____
Body shall have inside width of 87 inches	_X___	____	_____
Body shall have outside width of 96 inches	_X___	____	_____
Capacity shall be approximately 8 cubic yards	_X___	____	_____
"Body raised" light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W20ME2 12V - 24V supplied with each body **No Exceptions**	_X___	____	_____

Comment_____

_____

FLOOR	**YES**	**NO**	**DEVIATION**
Floor shall be constructed of ¼ inch AR400 plate steel, 180,000 PSI tensile strength and yield of 145,000 PSI	_X___	____	_____
Floor shall have 9 inch radius wings if ¼ inch A1011 carbon steel at sides and front	_X___	____	_____

Comment_____

_____

UNDERSTUCTURE	YES	NO	DEVIATION
Understructure shall be crossmemberless	_X___	____	_____
All welding shall be continuous	_X___	____	_____
Fabricated longsills shall be of ¼ inch CQ carbon steel inner panels and ¼ inch CQ carbon steel outer panels	_X___	____	_____
Interior of longsills shall be coated with rust inhibitor coating at factory	_X___	____	_____
Rear rubrail shall be full width, fabricated design, 7-gauge 201or 304 stainless steel, **Channel style rear aprons are not acceptable**	_X___	____	_____
A wiring stud 2-5/16 inch x ¾ inch stainless steel threaded shall be installed on the underside of the floor, 3 inches in from the inside of the left longsill and 3-¼ inches forward of the rear rubrail	_X___	____	_____
Support plates shall be installed from the rubrails to the floor	_X___	____	_____
a. open at the front and rear	_X___	____	_____
b. made of A1011 carbon steel	_X___	____	_____
c. notched opening 68-80 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	_X___	____	_____
Longsills shall have 3 inch passageway in the rear of the longitudinals for wiring	_X___	____	_____

Comment_____

_____

FRONT BULKHEAD & ½ CAB SHIELD	YES	NO	DEVIATION
Front bulkhead shall be constructed of 7-gauge 201or 304 polished stainless steel with pressed in brace for rigidity	_X___	____	_____
Front of body shall have a 1-¼ inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up from lower edge	_X___	____	_____
½ cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	_X___	____	_____

½ cab shield shall be of 7-gauge 201 or 304 stainless steel with flat plate style reinforcements on top	_X___	____	_____
Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward hole shall be 1-3/8 inches down from top and they shall be parallel with box sides	_X___	____	_____
A grab handle made of 5/8 inch stainless steel rod, 20 inches long and three inches high, shall be welded to the cab shield and the bulk head, diagonally	_X___	____	_____
Threaded wiring studs 2-5/16 inch x ¾ inch stainless steel, shall be installed on the front bulkhead and cab shield	_X___	____	_____
a. Studs shall be placed along the left side of front bulkhead beginning 7 inches up from the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs are to start 4 inches from the rear bend towards the front on 16 inch centers	_X___	____	_____
b. Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-½ inches down from the top bend	_X___	____	_____

Comment_____

_____

TAILGATE	**YES**	**NO**	**DEVIATION**
Tailgate shall be double acting	_X___	____	_____
Tailgate shall be fully boxed, double walled design	_X___	____	_____
All horizontal surfaces shall be dirt shedding	_X___	____	_____
Inner wall shall be ¼ inch AR400 to match the strength and durability of the floor and shall be primer coated	_X__	____	_____
Outer wall shall be 10-gauge 201or 304 stainless steel	_X___	____	_____

X

All tailgate hardware visible on outside of body shall be 201or 304 stainless steel	_X___	____	_____
Upper tailgate hinges shall be 1-½ inch thick 201or 304 stainless steel with 5 inch offset	_X__	____	_____
Upper and lower pins shall be 1-¼ inch 201or 304 stainless steel	_X___	____	_____
All tailgate hinges shall be greaseable	_X___	____	_____
A 201 or 304 stainless steel grab handle shall be located on the lower left corner of the tailgate	_X___	____	_____
Upper and lower dogleg slotted chain keepers shall be 201 or 304 stainless steel, with sufficient plated chain to lay tailgate flat	_X___	____	_____
Chain shall be removable, 3/8 inch, high tensile plated type	_X___	____	_____
5/8 inch 201or 304 stainless steel lift loop shall be welded on the outside	_X___	____	_____
All pivot points shall be grease zerk lubricated	_X___	____	_____
201 or 304 stainless steel latches shall be retractable, grease zerk lubricated with zerks on the outside of the rear cornerposts for accessibility	_X___	____	_____
Tailgate release shall be air operated	_X___	____	_____
Air cylinder shall be 3-½ inch diameter and meet military specifications for cold weather service	_X___	____	_____
Air cylinder housing shall be aluminum	_X___	____	_____
Air cylinder rod shall be stainless steel	_X___	____	_____

Comment_____

_____

SIDES	**YES**	**NO**	**DEVIATION**
Sides of dump body shall be 7-gauge 201 or 304 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength	_X___	____	_____

All welds shall be continuous	_X___	____	_____
Sides shall have a reverse-bend design	_X___	____	_____
Top rail shall be fully boxed and dirt shedding	_X___	____	_____
Rubrail shall have 45-degree slope to the flat side	_X___	____	_____
One integral break-formed strengthening brace per side	_X___	____	_____
Front pillars shall be full-depth, radiused, 201 or 304 stainless steel	_X___	____	_____
Rear pillars shall be full-depth, 201 or 304 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar	_X___	____	_____
Pillars shall be dirt shedding	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the sloped surface of the left rubrail, 2 inches below the breakline, 19 and 21-½ inches back from the front post	_X___	____	_____
Two threaded wiring studs 2-5/16 inch x ¾ inch stainless steel shall be located 4 inches above sloped surface of the left rubrail, 12 and 20-¾ inches forward of the rear corner post	_X___	____	_____
Three (3) 1-½ inch holes shall be located on the sloped surface of the left rubrail, 1-¾ inches below the breakline. They shall be 2, 4-½, and 7 inches forward of the rear cornerpost	_X___	____	_____
Two (2) 9/16 inch holes shall be located on the flat portion of the left rubrail, 1 inch down from the breakline, 2 and 14 inches back from the front post	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the sloped surface of the right rubrail, 2 inches below the breakline, 19 and 21-½ inches back from the front post	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the flat portion of the rubrail, 2-½ inches below the breakline, 31 and 37-3/8 inches back from the front post	_X__	____	_____

	YES	NO	DEVIATION
Holes shall be provided in both rear pillars:	_X___	____	_____
a. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 30-½ inches from the bottom of the rubrail	_X___	____	_____
b. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 30-½ inches from the bottom of the rubrail with a ½ x 13 stainless steel nut welded on the inside of pillar	_X___	____	_____
c. A 1-¼ inch hole shall be located 6-¾ inches forward of the rear of the pillar and 13 inches up from the bottom of the rubrail	_X___	____	_____
d. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 13 inches up from the bottom of the rubrail	_X___	____	_____
e. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
f. A 5/8 inch hole shall be located 4-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
g. A 5/8 inch hole shall be located 3-¾ inches in from of the rear of the pillar and ½ inch below the bottom of the rubrail.	_X___	____	_____
h. The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.375 inches apart.	_X___	____	_____

	YES	NO	DEVIATION
A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner post to the front side of the rear corner post on each side of the body	_X___	____	_____
The tarp rail shall include supports to the body sides located on 24 inch centers	_X___	____	_____
Both the tarp rail and the gussets shall be constructed of type 201or 304 stainless steel	_X___	____	_____

Comment_____

_____

HOIST	YES	NO	DEVIATION
Hoist shall be Crysteel Roller Combo Model # RC 750 or approved equal	_X___	____	_____
Hoist shall be NTEA Performance Class 50 NTEA Type VII	_X___	____	_____
Hoist shall have one, double acting, single stage cylinder	_X___	____	_____
Cylinder bore shall be 7 inches	_X___	____	_____
Cylinder shaft diameter shall be 2-¼ inches	_X___	____	_____
Cylinder stroke shall be 21-5/8 inches	_X___	____	_____
Cylinder shaft shall be chromed SW85 steel with 85,000psi yield strength	_X___	____	_____
Cylinders shall have maximum operating pressure of 2,200psi with internal bypass to protect cylinder from damage	_X___	____	_____

7. HOIST - continued	**YES**	**NO**	**DEVIATION**
Cylinder base (raise) port size shall be SAE-10 (7/8-14)	_X___	____	_____
Rod port (lower) shall be SAE-8 (3/4-16)	_X___	____	_____
Cylinder displacement:			
a. up shall be 832.2 cubic inches	_X__	____	_____
b. down shall be 746.5 cubic inches	_X___	____	_____
Load capacity shall be 15.3 tons @ 50 degree dump angle	_X___	____	_____
Hoist shall have 13-¾ inch mounting height	_X___	____	_____
Hoist shall have "Roller Combo" design with the initial lift point ahead of the center line of the body, directing the force of the hoist cylinder upwards for more breakaway power before transferring it to a scissors action	_X___	____	_____
Greaseless composite bearings shall be provided at all critical pivot points	_X___	____	_____
Hoist shall have full length sub-frame that is the same length as the dump body	_X___	____	_____
Sub-frame shall have 4-¾ inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength	_X___	____	_____
Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have four (4) grease zerks	_X___	____	_____
Rear hinge shall be fabricated with structural steel that is 5 inch x 3 inch x 3/8 inch x 36-½ inch	_X___	____	_____

7. HOIST - continued	**YES**	**NO**	**DEVIATION**
Hinge pins shall be 1-¾ inch x 5-13/16 inch round stainless steel with greaseless composite bearings	_X___	____	_____
Two (2) body props shall be provided to support empty body weight	_X___	____	_____
Hoist must be listed in the NTEA dump body hoist chart	_X___	____	_____

Comment_____

_____

BODY PREPARATION	**YES**	**NO**	**DEVIATION**
Entire body shall be cleaned and rinsed	_X___	____	_____
Floor, floor radius, inner panel of the tailgate and the entire understructure shall be primed with high quality two-part urethane gray primer	_X___	____	_____
Floor, floor radius, inner panel of the tailgate and the entire understructure shall have a two-part urethane black finish coat over the gray primer	_X___	____	_____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# 04-14SSDMP.C09

DUMP BODY, STAINLESS STEEL, 10 cu. yd., 14FT., W/ UNDER BODY HOIST and ½ CAB PROTECTOR

I GENERAL

It is the intent of this specification to establish an optional use contract for stainless steel dump bodies, of approx. 10 cu. yd. with an underbody hoist. Each shall consist of a minimum 168 inch length by 87 inch inside box width. Each box shall include an underbody hoist with double acting cylinder, ½ cab protector (attached per MDOT specifications); air operated tail gate latches and designed to accommodate most vertical exhaust stacks without modification. The bodies will have holes pierced and studs mounted per MDOT specifications. MDOT will install this dump box on a **64,000 GVW** tandem axle, cab and chassis with chassis measurements of approximately 218 inch W.B., 136 inch C.A. and 192 inch C.E.

The timely delivery of the dump bodies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. This inspection shall be after all major components are installed on the extended van chassis but before final paint. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

IX LIQUIDATED DAMAGES – continued

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.
The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is issued.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return this portion of the specification to provide information in the spaces that follow for the equipment offered with this quotation. This information will be used initially by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order, and by MDOT then comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

* All blank spaces are completed.

* MDOT minimum requirements are met or exceeded.

* MDOT maximum requirements are not exceeded.

* The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

* The words "As Required" are entered for MDOT requirements not noted with maximums or minimums.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. Failure to make such alteration will be cause for non-acceptance by MDOT.

GENERAL	**YES**	**NO**	**DEVIATION**
Delivery time shall be 120 Days ARO	_X___	____	_____
Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate	_X___	____	_____
Body shall have inside width of 87 inches	_X___	____	_____
Body shall have outside width of 96 inches	_X___	____	_____
Capacity shall be approximately 10 cubic yards	_X___	____	_____
"Body raised" light shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W20ME2 12V - 24V **No Exceptions**	_X___	____	_____

Comment_____

_____

FLOOR	**YES**	**NO**	**DEVIATION**
Floor shall be constructed of ¼ inch AR400 plate steel, 180,000 PSI tensile strength and yield of 145,000 PSI	_X___	____	_____

Floor shall have 9 inch radius wings if ¼ inch A1011 carbon steel at **sides only**	_X___	____	_____

Comment_____

_____

UNDERSTUCTURE	**YES**	**NO**	**DEVIATION**
Understructure shall be crossmemberless	_X___	____	_____
All welding shall be continuous	_X___	____	_____
Fabricated longsills shall be of ¼ inch CQ carbon steel inner panels and ¼ inch CQ carbon steel outer panels	_X___	____	_____
Interior of longsills shall be coated with rust inhibitor coating at factory	_X___	____	_____
Rear rubrail shall be full width, fabricated design, 7-gauge 201 or 304 stainless steel. **Channel style rear aprons are not acceptable**	_X___	____	_____
A wiring stud 2-5/16 inch x ¾ inch stainless steel threaded shall be installed on the underside of the floor, 3 inches in from the inside of the left longsill and 3-¼ inches forward of the rear rubrail	_X___	____	_____
Support plates shall be installed from the rubrails to the floor	_X___	____	_____
a. open at the front and rear	_X___	____	_____
b. made of A1011 carbon steel	_X___	____	_____
c. notched opening 68-80 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	_X___	____	_____
Longsills shall have 3 inch passageway in the rear of the longitudinals for wiring	_X___	____	_____

Comment_____

_____

FRONT BULKHEAD & ½ CAB SHIELD	**YES**	**NO**	**DEVIATION**
Front bulkhead shall be constructed of 7-gauge 201 or 304 stainless steel with pressed in brace for rigidity	_X___	____	_____
Front of body shall have a 1-¼ inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up from lower edge	_X___	____	_____

½ cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	_X___	____	_____
½ cab shield shall be of 7-gauge 201 or 304 stainless steel with flat plate style reinforcements on top	_X___	____	_____

FRONT BULKHEAD & ½ CAB SHIELD	**YES**	**NO**	**DEVIATION**
Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward hole shall be 1-3/8 inches down from top and they shall be parallel with box sides	_X___	____	_____
A grab handle made of 5/8 inch stainless steel rod, 20 inches long and three inches high, shall be welded to the cab shield and the bulk head, diagonally	_X___	____	_____
Wiring studs 2-5/16 inch x ¾ inch stainless steel threaded, shall be installed on the front bulkhead and cab shield	_X___	____	_____
a. Studs shall be placed along the left side of front bulkhead beginning 7 inches up from the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs are to start 4 inches from the rear bend towards the front of the cab shield on 16 inch centers	_X___	____	_____
b. Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-½ inches down from the top bend	_X___	____	_____

Comment_____

_____

TAILGATE	**YES**	**NO**	**DEVIATION**
Tailgate shall be double acting	_X___	____	_____
Tailgate shall be fully boxed, double walled design	_X___	____	_____
All horizontal surfaces shall be dirt shedding	_X___	____	_____
Inner wall shall be ¼ inch AR400 to match the strength and durability of the floor and shall be primer coated	_X___	____	_____
Outer wall shall be 10-gauge 201 or 304			

stainless steel	_X___	____	_____
All tailgate hardware visible on outside of body shall be stainless steel.	_X___	____	_____
Upper tailgate hinges shall be 1-½ inch thick 201 or 304 stainless steel with 5 inch offset	_X___	____	_____
Upper and lower pins shall be 1-¼ inch stainless steel	_X___	____	_____
All tailgate hinges shall be greaseable	_X___	____	_____
A grab handle shall be located on the lower left corner of the tailgate	_X___	____	_____
Upper and lower dogleg slotted chain keepers shall be stainless steel, with sufficient plated chain to lay tailgate flat	_X___	____	_____
Chain shall be removable, 3/8 inch, high tensile plated type	_X___	____	_____
5/8 inch stainless steel lift loop shall be welded on the outside	_X___	____	_____
All pivot points shall be grease zerk lubricated	_X___	____	_____
Stainless steel latches shall be retractable, grease zerk lubricated with zerks on the outside of the rear cornerposts for accessibility	_X___	____	_____
Tailgate release shall be air operated	_X___	____	_____
Air cylinder shall be 3 ½ inch diameter, meet military specifications for cold weather service	_X___	____	_____
Air cylinder housing shall be aluminum	_X___	____	_____
Air cylinder rod shall be stainless steel	_X___	____	_____

Comment_____

_____

SIDES	**YES**	**NO**	**DEVIATION**
Sides of dump body shall be 7-gauge 201 or 304 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength	_X___	____	_____

Finish shall be polished	_X___	____	_____
All welds shall be continuous	_X___	____	_____
Sides shall have a reverse-bend design	_X___	____	_____
Top rail shall be fully boxed and dirt shedding	_X___	____	_____
Rubrail shall have 45-degree slope to the flat side	_X___	____	_____
one integral break-formed strengthening brace per side	_X___	____	_____
Front pillars shall be full-depth, radiused, 201 or 304 stainless steel	_X___	____	_____
Rear pillars shall be full-depth, 201 or 304 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar	_X___	____	_____
Pillars shall be dirt shedding	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the sloped surface of the left rubrail, 2 inches below the breakline, 19 and 21.5 inches back from the front post	_X___	____	_____
Two (2) threaded wiring studs 2-5/16 inch x ¾ inch stainless steel shall be located 4 inches above sloped surface of the left rubrail, 12 and 20 ¾ inches forward of the rear corner post	_X___	____	_____
Three (3) 1-½ inch holes shall be located on the sloped surface of the left rubrail, 1-¾ inches below the breakline. They shall be 2, 4-½, and 7 inches forward of the rear cornerpost	_X___	____	_____
Two (2) 9/16 inch holes shall be located on the flat portion of the left rubrail, 1 inch down from the breakline, 2 and 14 inches back from the front post	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the sloped surface of the right rubrail, 2 inches below the breakline, 19 and 21.5 inches back from the front post	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the flat portion of the rubrail, 2-½ inches			

below the breakline, 54-½ and 60 ¾ inches back from the front post	_X___	____	_____
A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner post to the front side of the rear corner post on each side of the body	_X___	____	_____
The tarp rail shall include supports to the body sides located on 24 inch centers	_X___	____	_____
Both the tarp rail and the gussets shall be constructed of type 201or 304 stainless steel	_X___	____	_____
Holes shall be provided in both rear pillars:	_X___	____	_____
a. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 30 ½ inches from the bottom of the rubrail with a ½ x 13 stainless steel nut welded on the inside of pillar	_X___	____	_____
b. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 30 ½ inches from the bottom of the rubrail	_X___	____	_____
c. A 1-¼ inch hole shall be located 6-¾ inches forward of the rear of the pillar and 13 inches up from the bottom of the rubrail	_X___	____	_____

6. SIDES - continued	**YES**	**NO**	**DEVIATION**
d. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 13 inches up from the bottom of the rubrail	_X___	____	_____
e. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
f. A 5/8 inch hole shall be located			

4-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
g. A 5/8 inch hole shall be located 3-¾ inches in from of the rear of the pillar and ½ inch below the bottom of the rubrail.	_X___	____	_____
h. The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.375 inches apart.	_X___	____	_____

Comment_____

_____

HOIST	**YES**	**NO**	**DEVIATION**
Hoist shall be Crysteel Roller Combo Model # RC 690 or approved equal	_X___	____	_____
Hoist shall be NTEA Performance Class 90 NTEA Type VII	_X___	____	_____
Hoist shall have two, double acting, single stage cylinders	_X___	____	_____
Cylinder bore shall be 6 inches	_X___	____	_____
Cylinder shaft diameter shall be 2-3/8 inches	_X___	____	_____
Cylinder stroke shall be 32-½ inches	_X___	____	_____
Cylinder shaft shall be chromed SW85 steel with 85,000psi yield strength	_X___	____	_____
Cylinders shall have maximum operating pressure of 2,200psi with internal bypass to protect cylinder from damage	_X___	____	_____
Cylinder base (raise) port size shall be SAE-12 (1-16)	_X___	____	_____
Rod port (lower) shall be SAE-10 (7/8-14)	_X___	____	_____
Cylinder displacement:			
a. up shall be 1837.8 cubic inches	_X___	____	_____
b. down shall be 1579.4 cubic inches	_X___	____	_____

Load capacity shall be 28.4 tons @ 50° dump angle	_X___	____	_____
Hoist shall have 17-½ inch mounting height	_X___	____	_____
Hoist shall have "Roller Combo" design with the initial lift point ahead of the center line of the body, directing the force of the hoist cylinder upwards for more breakaway power before transferring it to a scissors action	_X___	____	_____
Greaseless composite bearings shall be provided at all critical pivot points except primary hoist pivot	_X___	____	_____
Hoist shall have full length sub-frame that is the same length as the dump body	_X___	____	_____
Sub-frame shall have 5-1/8 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength	_X___	____	_____
Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have six (6) grease zerks	_X___	____	_____
Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch	_X___	____	_____
Hinge pins shall be 2-3/8 inch x 6 inch round stainless steel with greaseless composite bearings	_X___	____	_____
Two (2) body props shall be provided to support empty body weight	_X___	____	_____
Hoist must be listed in the NTEA dump body hoist chart	_X___	____	_____

Comment_____

_____

BODY PREPARATION	**YES**	**NO**	**DEVIATION**
Entire body shall be cleaned and rinsed	_X___	____	_____
All mild steel surfaces, floor, floor radius, inner panel of the tailgate and the entire understructure shall be primed with high quality two-part urethane gray primer	_X___	____	_____
All mild steel surfaces, floor, floor radius, inner panel of			

the tailgate and the entire understructure shall have a
two-part urethane black finish coat over the gray primer _X___ ____ _____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# CMBBDY.C09

COMBINATION 45° SLOPED SIDE DUMP AND SPREADER BODY, HOIST, REAR DISCHARGE AND DISTRIBUTION SYSTEMS

I GENERAL

It is the intent of this specification to establish an optional use contract for:

Item 1 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor having a belt over main flight chain, with reversing rear cross auger, with left side zero velocity spreaders. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive rear for dump body conveyor, and all components necessary to make complete operating units.

Item 2 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor having a belt over main flight chain, rear tip up poly spinner only. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive rear for dump body conveyor, and all components necessary to make a complete operating unit.

Item 3 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor, with reversing rear cross auger and poly spinner only. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive rear for dump body conveyor, and all components necessary to make a complete operating unit.

Item 4 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor having a belt over main flight chain, with reversing front cross auger having a front spinner on left side and dump chute on right. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive front and rear for dump body conveyor, and all components necessary to make a complete operating unit.

These combination dump and spreader bodies shall be capable of hauling and dumping or rapidly discharging crushed rock, gravel, hot mix asphalt, sand, chips, and abrasive or chemical for ice control. MDOT will install these dump and spreader bodies on a **64,000 GVWR** tandem axle, cab and chassis with chassis measurements of approx. 218 inch W.B., 136 inch C.A., and 192 inch C.E. for the 14 foot bodies and **44,000 GVW** single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch C.A., and 187 inch C.E for the 11 foot bodies.

The timely delivery of the combination dump and spreader bodies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days. **The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is issued.**

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

13. All blank spaces are completed with either yes or no, and if no list the type of deviation.

14. MDOT minimum requirements are met or exceeded.

15. MDOT maximum requirements are not exceeded.

16. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517-334-7763 at least 48 hours prior to delivery	_X___	____	_____

Comments _____

_____

BODY	**YES**	**NO**	**DEVIATION**
14 foot bodies shall have an approximate struck capacity of 9-½ cu/yd minimum for rear discharge and 9 cu/yd minimum for front discharge without removable side boards	_X___	____	_____
Bodies shall be of type 201 or 304 stainless steel construction	_X___	____	_____
Overall height above truck frame shall not exceed 55 inches without cab shield	_X___	____	_____
Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches	_X___	____	_____
Top of floor to the top of the side wall shall be approximately 44 inches	_X___	____	_____
Body shall be rigidly constructed with a boxed top rail construction of 7 gauge type 201 or 304 stainless steel, 3 inch height x 3 inch depth	_X___	____	_____
Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless steel, spaced on 30 inch centers minimum	_X___	____	_____

Side sheeting for the "V" body shall be 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Body longitudinals shall be constructed of ¼ inch type 201 or 304 stainless steel with minimum 12 inch height and include two (2) 3 inch ID cross over tubes for installation of hydraulic hoses and wiring	_X___	____	_____
Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 6 inch round stainless steel with greaseless composite bearings	_X___	____	_____
Two (2) body props shall be provided to support empty body weight	_X___	____	_____
Body floor shall be bolted in with 1 inch welds at all four corners and supported by 7 gauge 3 inch x 3 inch cross angles located on 12 inch centers	_X___	____	_____
Body longitudinals shall be supported under chain by 4 inch formed cross members on 24 inch centers	_X___	____	_____
All channel supports under the floor shall be constructed of ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Return angle on the longitudinals shall be 4-½ inch boxed type for additional support and any retention of material	_X___	____	_____
All joints on body shall be continuous welded	_X___	____	_____
Overall width of the body at fenders shall be approximately 96 inches to provide full top cover of rear tires	_X___	____	_____
Two (2) covered access openings shall be provided below the body interior: a. For accessing the rear gear boxes for maintenance	_X___	____	_____
Rear of body shall be flat to allow installation of MDOT approved accessories	_X___	____	_____
Rear corner posts shall be boxed in and drilled and tapped to accept MDOT rear lighting arrangement	_X___	____	_____
Both rear side posts shall have one (1) 1-¼ inch hole, two (2) 13/16 inch holes and four (4) 9/16 inch holes with ½ inch stainless steel nuts welded to the backside	_X___	____	_____

Additional wire/cable retention studs shall be installed	_X___	____	_____
Hole and stud locations shall be determined by MDOT at pre-construction meeting	_X___	____	_____
A heavy-ribbed, reinforced, offset, hinged, rear end-gate with double latch and air operated release shall be easily removed	_X___	____	_____
Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside	_X___	____	_____
Cylinders mounted forward of the front of the body will **NOT** be acceptable	_X___	____	_____
All bolts used shall be stainless steel	_X___	____	_____
Body sides shall be 45° sloped	_X___	____	_____
All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader	_X___	____	_____
Body shall include all items needed to be fully operational	_X___	____	_____
All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and workmanship to best commercial practice	_X___	____	_____
Standard equipment shall be furnished except were operational or conflicting equipment is specified	_X___	____	_____

Comments _____

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10. CONVEYOR	**YES**	**NO**	**DEVIATION**
Conveyor shall be pintle chain type running longitudinally with the body feeding material to the hinged rear end-gate opening and/or the front cross auger	_X___	____	_____
Overall conveyor width shall be 34 inches minimum	_X___	____	_____
Bolt in conveyor floor with 1 inch welds at all four corners shall be ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Conveyor chain shall be heat-treated 2-¼ inch pitch pintle type with 15/32 inch pins and have a 26,000 pound tensile			

strength, manufactured in the USA	_X___	____	_____
Cross bars ½ inch x 1-½ inch shall be positioned on approximately 2-¼ inch centers and welded on both the top and bottom of the bar	_X___	____	_____
Two (2) high torque, variable speed 6:1 gearboxes and hydraulic motors (White Roller Stator) with ground speed sensor having 100 pulses/revolution capability on one of the gearboxes shall be provided	_X___	____	_____
Rear discharge bodies shall have drive located at the rear of the conveyor	_X___	____	_____
Front and rear discharge bodies shall have drives located, one at the front and one at the rear	_X___	____	_____
Eight toothed, case hardened to 40-48 Rc, self cleaning drive sprockets shall be keyed to the 2 inch drive and idler shafts	_X___	____	_____
Conveyor drive shaft shall have heavy duty, dust sealed self-aligning four bolt flange bearings	_X___	____	_____
Heavy duty idler assembly with side rail style adjusters and 1-¼ inch adjusting bolt shall provide 9 inches of adjustment for proper conveyor chain tension	_X___	____	_____
¼ inch type 201 or 304 stainless steel conveyor bottom shall be replaceable and have rear "roller" lip with wiper belt	_X___	____	_____

Comments _____

_____

TAILGATE	**YES**	**NO**	**DEVIATION**
Tailgate shall be minimum of 6 inches higher than sides of body	_X___	____	_____
Tailgate shall be manufactured of minimum 3/16 inch, type 201or 304 stainless steel with, 5 panel, boxed perimeter of 3 inch formed channel	_X___	____	_____
Tailgate shall have a 3 inch x 3 inch D-ring welded to the top center of tailgate	_X___	____	_____
Tailgate shall be double acting with squared perimeter and two (2) horizontal braces of 3/16 inch material the full width of the tailgate	_X___	____	_____

Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner	_X___	____	_____
Material door shall extend 16 inches into the interior of the body to prevent material from escaping through the partially opened door over the conveyor	_X___	____	_____
An adjustable discharge gate or door with an opening of at least 21 inches x 8-½ inches of a minimum of ¼ inch thick with a heavy duty screw-type operated adjustment mechanism on passenger's side and at bottom edge of tailgate	_X___	____	_____
Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins	_X___	____	_____
Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type	_X___	____	_____
Tailgate latches shall be air operated by a 3-½ inch air cylinder kit	_X___	____	_____
Cylinder kits shall fit the existing brackets without modification and may be shipped loose, with the body	_X___	____	_____

Comments _____

_____

POWER DRIVE AND CONTROLS	**YES**	**NO**	**DEVIATION**
Hydraulic drive shall include two (2) geroler-type, high-torque, low speed hydraulic motors integrally mounted to the conveyor gear cases, **these motors shall be White Roller Stator only, no exceptions**	_X___	____	_____
One of these hydraulic motors shall be equipped with an application rate sensor with 100 pulses per revolution	_X___	____	_____
Sensor shall be a Hall Effect speed type	_X___	____	_____
Heavy duty, high torque hydraulic motor shall be integrally mounted to the spinner hub assembly and shall power the spinner	_X___	____	_____
Hydraulic tubing shall be used where practical, rated			

along with hydraulic hose to withstand 1-½ times system operating pressure requirements	_X___	____	_____
Hydraulic tubing shall be ¾ inch minimum I.D.	_X___	____	_____
All tubing shall be secured to body with polymer retaining blocks	_X___	____	_____

Comments _____

_____

HOIST	**YES**	**NO**	**DEVIATION**
11 foot, 45°, combination dump/spreader body hoist shall be include:			
a. Double acting hoist cylinder	_X___	____	_____
b. Hard chrome plated hoist cylinder surfaces	_X___	____	_____
c. Inverted, trunnion mounted cylinder	_X___	____	_____
d. 5 inch, 4 inch, 3 inch active sections	_X___	____	_____
e. NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi	_X___	____	_____
f. Cylinder total stroke of 99 inches	_X___	____	_____
14 foot, 45°, combination dump/spreader body hoist shall be include:			
a. Double acting hoist cylinder	_X___	____	_____
b. Hard chrome plated hoist cylinder surfaces	_X___	____	_____
c. Inverted, trunnion mounted cylinder	_X___	____	_____
d. 6 inch, 5 inch, 4 inch active sections	_X___	____	_____
e. NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi	_X___	____	_____
f. Cylinder total stroke of 138 inches	_X___	____	_____

Comments _____

_____

14. REVERSING REAR CROSS AUGER	**YES**	**NO**	**DEVIATION**
Cross auger shall be of modular design, constructed of 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Auger trough shall be constructed of 7 gauge type 201 or 304 stainless steel with ¼ inch type 201 stainless steel end plates	_X___	____	_____
The auger trough shall be made to fit to the discharge trough on the combination body	_X___	____	_____

Auger housing shall include a three (3) piece hinged lid	_X___	____	_____
All three (3) section covers shall open and close independently of each other and center section shall be the width of the combination body main conveyor	_X___	____	_____
The auger trough shall have discharge openings on each end of the trough and shall be supplied with a cover that can be used in either opening	_X___	____	_____
Auger trough shall include a full opening bottom for material cleanout	_X___	____	_____
Auger motor shall be directly coupled to the auger shaft with a stainless steel coupler	_X___	____	_____
Drive motor shall be a 45CID with 7/8 inch o-ring ports	_X___	____	_____
Shafts shall be 1-½ inch and supported by a heavy duty 1-½ inch sealed, self aligning, re-lubable four (4) bolt flange bearing	_X___	____	_____
Exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Auger shall be 9 inch diameter with continuous one way flighting with a 4 inch pitch	_X___	____	_____
Flighting shall be a minimum of 5/16 inch thick on the outer edge and welded to a 2-7/8 inch OD schedule 40 pipe	_X___	____	_____
All bearings shall be equipped with grease fittings	_X___	____	_____
A spinner shall be supplied for all the units that are not equipped with a zero velocity spinner assembly	_X___	____	_____
Spinner assembly shall include a direct coupled 3.0CID drive motor, an 18 inch poly spinner disc, and a mounting bracket that attaches to the left side of the auger trough	_X___	____	_____
All supports and brackets shall be type 201or 304stainless steel	_X___	____	_____
Spinner disc shall include a shroud to prevent the discharge of materials towards the chassis	_X___	____	_____
Spinner assembly shall be mounted independently of the bottom cleanout door and have an easy one-man mount and dismount	_X___	____	_____
Standard spinner disk shall be 18 inches in diameter and manufactured from red polyurethane material	_X___	____	_____

Spinner disk shall be direct mounted to the hydraulic motor by means of a cast iron hub	_X___	____	_____
Six (6) formed flights on the spinner disk shall be cupped for even spreading	_X___	____	_____
Spinner motor shall be low speed/high torque type	_X___	____	_____
Quick disconnect mounting hardware shall be provided	_X___	____	_____
All 201 stainless steel parts shall be in bare condition	_X___	____	_____

Comments _____

_____

REVERSING SPLIT FRONT CROSS AUGER	**YES**	**NO**	**DEVIATION**
Reversing front cross auger shall be constructed of type 201or 304 stainless steel, modular design, frame mounted with spinner on left side and chute on right side	_X___	____	_____
Cross auger shall be capable of easily mounting the spinner on either side without modification	_X___	____	_____
Auger shall be 96 inches long, 19 inches wide utilizing two (2) auger assemblies with one-way flighting	_X___	____	_____
Auger assemblies shall be 6 inch diameter flighting, 3/8 inch thick with a 4 inch pitch	_X___	____	_____
Auger shall have a stainless steel floor supported by angle iron substructure	_X___	____	_____
Auger shall be direct driven by a two (2) 10 cu/in displacement White motors	_X___	____	_____
Shafts shall be 1 inch and supported by a heavy duty 1 inch sealed, self aligning, relubable two (2) bolt flange bearings	_X___	____	_____
Exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Cross auger shall be capable of reversing direction to either side	_X___	____	_____
Body shall have an adjustable gate opening for the cross auger, easily adjustable by operator	_X__	____	_____

Main conveyor shall discharge into the center of cross auger	_X___	____	_____
Cross auger shall be mounted to the truck chassis frame and stay with the chassis when box is raised	_X___	____	_____
Cross auger shall have 201 or 304 stainless steel covers for both sides of auger housing	_X___	____	_____

Comments _____

_____

REAR TIP UP SPINNER ASSEMBLY	**YES**	**NO**	**DEVIATION**
Spinner frame shall be of 10 gauge type 201or 304 stainless steel	_X___	____	_____
X Spinner chute shall be designed to be compatible with the body tailgate and conveyor	_X___	____	_____
Chute shall be a minimum of 27 inches wide and 10 inches deep	_X___	____	_____
Spinner shall be designed to be installed on the rear tailgate using 3/8 inch, 201or 304 stainless steel plates	_X___	____	_____
Mounting plates shall have an integral hinge design and allow spinner removal by removing four (4) bolts	_X___	____	_____
Hinge rods shall be ¾ inch diameter 201or 304 stainless steel	_X___	____	_____
Top of chute shall be reinforced with type 201or 304 stainless steel ¼ inch x 2-½ inch x 2-½ inch angles and ¼ inch x 1-½ inch plate for the hinge rods	_X___	____	_____
Chute shall be designed with two (2) internal adjustable deflectors and a hinged cover for the top of the chute made of 10 gauge 201 or 304 stainless steel	_X___	____	_____
All hardware shall be stainless steel	_X___	____	_____
Distributor disc shall be 24 inches in diameter, constructed of ½ inch polyurethane with six (6) 1-3/4 inch high x 9 inch long polyurethane fins for clockwise rotation	_X___	____	_____
Top mounted 3.2 CI spinner hydraulic motor with .875 ORB ports shall be high torque, low speed with the spinner disc cast hub mounted directly to the motor shaft	_X___	____	_____
Four (4) 7 gauge 201 or 304 stainless steel baffles shall be			

provided to control spread width and direction	_X___	____	_____
Baffles shall be of type 201 or 304 stainless steel, easily adjusted without the use of tools	_X___	____	_____
There shall be one section ahead, one section to the rear, and one section minimum on each side of spinner	_X___	____	_____
A hand winch rated at a minimum 800 pound capacity with integral brake shall be provided to raise and lower spinner assembly	_X___	____	_____
Spinner assembly shall tip-up removing the front hinge rod, engaging the winch, and using the same hinge rod to lock the spinner in the stored position	_X___	____	_____
Mounting bracket, cable, pulley, and mounting hardware shall be including	_X___	____	_____

Comments _____

_____

OPTIONAL BELT OVER CHAIN	**YES**	**NO**	**BEVIATION**
Main conveyor shall have the option of a belt over the conveyor chain	_X___	____	_____
Chain shall be 667XH type with ½ inch x 1-½ inch cross bars on 4-½ inch centers	_X___	____	_____
A 3/8 inch hi-temp rubber belt rated for 212° shall be bolted over the top of the chain, to every cross bar with a minimum of 6 stainless steel bolts and washers on every cross bar	_X___	____	_____
Chain shield shall be equipped with rubber hi-temp side seals	_X___	____	_____

Comments _____

_____

CAB PROTECTOR	**YES**	**NO**	**DEVIATION**
Half cab protector shall be 7 gauge type 201or 304 stainless steel, installed by vendor on the front of the body	_X___	____	_____
All welding shall be continuous	_X___	____	_____
End plates shall be streamlined to prevent sharp			

corners or edges	_X___	____	_____
A stainless steel grab handle shall be located on the cab protector	_X___	____	_____
Cab protector shall extend forward of the body a minimum of 24 inches	_X___	____	_____
Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body	_X___	____	_____
MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction	_X___	____	_____

Comments _____

_____

FENDERS	**YES**	**NO**	**DEVIATION**
Body shall be equipped with 7 gauge type 201 or 304 stainless steel fenders	_X___	____	_____
Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body	_X___	____	_____
Overall length of fenders shall be 81 inches on 11 foot bodies and 108 inches on 14 foot bodies	_X___	____	_____

Comments _____

_____

HEAD SHEET	**YES**	**NO**	**DEVIATION**
Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back	_X___	____	_____
Front slope shall be contoured to match the slope of the side sheeting and be continuous welded were the side meets the front on both the inside and the outside	_X___	____	_____
Front sheet to include an enclosure for a front mounted telescopic hoist	_X___	____	_____
A hoist mounting that is in front of the body will not be acceptable	_X___	____	_____
Front shall be at least 6 inches higher than the sides	_X___	____	_____

All horizontal surfaces shall be dirt shedding _X___ ____ _____

Comments _____

_____

ZERO VELOCITY SPREADER	**YES**	**NO**	**DEVIATION**
Spreader housing shall be 10 gauge 201 or 304 stainless steel	_X___	____	_____
Housing shall have a 12 inch x 14 inch opening with three flexible bolt on flares to divert material into housing	_X___	____	_____
Housing opening shall have two (2) safety bars of 3/16 inch 201 or 304 stainless steel to prevent large objects from entering housing opening	_X___	____	_____
Spreader impeller shall dispense material onto roadway, and be manufactured from type 201 stainless steel and shall include replaceable end bits	_X___	____	_____
Impeller shall have four (4) 4-¾ inch x 4 inch paddles, 16 inches in diameter with a 1 inch bore steel hub integrally welded to impeller	_X___	____	_____
Impeller motor shall be low speed/high torque "orbital type" hydraulic wheel motor with 3 cu/in displacement	_X__	____	_____
Motor shall be capable of applications up to 800rpm	_X_	____	_____
Motor shall be Parker type with a stainless steel output shaft	__X__	____	_____
An in line flow meter with a hall affect speed sensor shall be provided with speed sensor and brad Harrison type connector to interface with control console	_X___	____	_____
A sensor cable with LED indicator lights shall be provided to interface the Hall Effect flow meter sensor to a Dickey-john Control Point controller	__X__	____	_____
Spinner assembly shall be mounted with approximately 6 inches ground clearance and be adjustable in height. mount shall have prior approval of MDOT	__X__	____	_____
Spinner assembly shall lift 6 inches by actuating in cab switch	_X___	____	_____
Spinner assembly shall rotate 45° right and left of center position by actuating remote in cab switch	__X__	____	_____
Direction of spinner assembly shall be displayed on console by indicator lights	_X___	____	_____
Spinner assembly shall include up/down actuating cylinder,			

right/left actuating cylinder with a built in position sensor, and a deflector actuating cylinder	_X___	____	_____
A closed center, electric actuated valve shall be provided with the zero velocity spinner to control the up/down, right/left, and deflector functions	_X___	____	_____

Cab controls for the zero velocity spinner shall include switches for up/down, right /left, deflector up/down, a position display, and all necessary wiring harness to interface the controls to the valve _X___ ____ _____

Comments _____

_____

MISCELLANIOUS	**YES**	**NO**	**DEVIATION**
A grease extension kit shall be provided and installed at the front and the rear of the body	_X___	____	_____
Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage	_X___	____	_____
Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot points for the over center cam that operates the tailgate linkage	_X___	____	_____
Swing up type side ladder constructed of type 201 orr 304 stainless steel shall be provided by manufacturer and shipped loose for custom fitting by MDOT	_X___	____	_____
All lighting shall be provided by MDOT	_X___	____	_____
Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	_X___	____	_____
Hinge shall include composite bushings and a 2.25 inch stainless steel or nitrated pivot pin	_X___	____	_____
Mounting angle for the hinge shall be 4 inch x 8 inch x 3/8 inch	_X___	____	_____
Combination bodies shall be supplied with wing post enclosures	_X___	____	_____

Enclosures shall be shipped loose and shall be 11 inches tall

x 11 inches deep on one end and 5 inches tall x 11 inches deep and 10 inches wide overall with the step down being 6 inches by 5-½ inches with a 45 ° angle (example can be viewed at preconstruction meeting) _X___ ____ _____

Enclosures shall be constructed of 10 gauge type 201 or 304 stainless steel and shall include 4 sides and a top _X___ ____ _____

A 1.25 inch x ¼ inch, 201 or 304 stainless steel flat stock tarp tie rail, welded to side braces, full length of body _X___ ____ _____

Tarp tie rail shall be installed just above the 45 degree break on the side braces _X____ ____ _____

The enclosure will be installed on the fenders where the wing post extends through the fender _X___ ____ _____

Comments _____

_____

Price per unit – item 1	14 ft. body	$40,688.00
	11 ft. body	$38,064.00
Price per unit – item 2	14 ft. body	$33,937.00
	11 ft. body	$31,262.00
Price per unit – item 3	14 ft. body	$31,864.00
	11 ft. body	$29,234.00
Price per unit – item 4	14 ft. body	$35,294.00
	11 ft. body	$33,791.00

End of Specification

MDOT SPECIFICATION# 55-MOPBLD.C09

UNDER-BODY SCRAPER, MOP STYLE SNOW BLADE, HDRAULIC ANGLING

I GENERAL

It is the intent of this specification is to establish an optional use contract for under-body scrapers/snow blades, with a single hinge "mop style", and hydraulically operated for raise/lower and angling. It shall consist of a heat treated high carbon moldboard approx. 1 inch thick x 20 inches wide x 12 foot long. The unit will be complete with hanger board, dual swing cylinder circle, hydraulic lift & swing cylinders and mounting plates with hardware. **Unit must be capable of mounting 5/8 inch x 6 inch x 4 foot carbide cutting edges.** All parts whether or not specifically mentioned, but necessary to provide a complete operating unit or which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and workmanship to best commercial practice. Standard equipment shall be furnished except where optional or conflicting equipment is specified.

MDOT will install these scraper blades on 44,000 GVW single axle 4 x 2, dump trucks with chassis measurements of approximately 186 inch W.B., 108 inch C.A. and 171 inch C.E. or 64,000 GVW tandem axle 6 x 4, dump trucks with chassis measurements of approximately 211 inch W.B., 136 inch C.T. and 213 inch C.E.

The timely delivery of the "mop style" mold board underbody scrapers is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.
The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is received by the successful vendor.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order.

In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

17. All blank spaces are completed with either yes or no, and if no list the type of deviation.

18. MDOT minimum requirements are met or exceeded.

19. MDOT maximum requirements are not exceeded.

20. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. **Contractor shall contact Jeff Turner at 517-334-7763 at least 48 hours prior to delivery**	_X___	____	_____

Comments: Monroe Model FMB-12-MI

MOLD BOARD	**YES**	**NO**	**DEVIATION**
Mold board shall be 1 inch thick x 20 inches high x 12 feet long, heat treated carbon steel, press formed with pressed offset for cutting edges, and AASHO punched for mounting USS blades, roll formed will not be acceptable	_X___	____	_____
Blades shall have hole spacing for 5/8 inch x 6 inch x 4 feet, carbide cutting edges	_X___	____	_____
Blades shall have two (2) holes of a 3 inch spacing for each end of the 4 foot cutting edge	_X___	____	_____
Mold board shall be assembled to the circle, the reversing cylinders, hanger brackets and mounting box shall be shipped loose, but kitted with the scraper assembly	_X___	____	_____

Comments _____

10. REVERSING TABLE (CIRCLE)	YES	NO	DEVIATION
Reversing table shall be 1 inch solid one (1) piece circle, no "notches", with infinite plowing positions available to 45°	_X___	____	_____
Because of rear wing installation, circle must **not** exceed 55-¼ inches in length	_X___	____	_____
To maximize circle strength and durability, the cut outs for the hanger board 3 inch pin bosses, shall **not** exceed 4-5/8 inch wide x 15 inches long and follow the contour of the circle OR 4-5/8 inch wide x 18-½ inches long	_X___	____	_____
Power reversing shall be accomplished with two (2) 4 inch ID, 4-½ inch OD, double acting cylinders	_X___	____	_____
Power reverse double acting cylinders shall provide a hydraulic lock for holding mold board in place while in use	_X___	____	_____
Cylinder rods shall be nitrided, 2 inch diameter, cast iron heads, 2 inch thick base and rod ends with grease zerks	_X___	____	_____
Heads shall have external locks to prevent backing out and poly pack seals on the head and piston	_X___	____	_____
Cylinders shall be mounted with 2 inch hardened pivot pins	_X___	____	_____
Cross over relief (cushion) valve will be furnished and set for 1,800psi and 30gpm for reversing protection	_X___	____	_____
Reversing circle with hardened center bushing (RC 51-58), will pivot on a hardened 5 inch center pin with grease groove and be attached with (3) ¾ inch grade 8 mounting bolts to prevent hole elongation and will be lubricated with a grease zerk	_X___	____	_____
Circle clamp blocks shall be 20 inch long x 7 inches deep minimum and shall not extend beyond the circle when fully reversed at 45 degrees in both left and right rotation	_X___	____	_____
Circle clamp blocks shall be contoured to the circle and bolted to the hanger board with three 1 inch grade 8 bolts as close to the circle as possible for maximum strength	_X___	____	_____
Circle clamp blocks shall have 3/8 inch UHMW poly wear plate for ease of movement of hanger board and			

replacement	_X___	____	_____
Rear of circle for the reversing cylinder mounts shall be braced by a ¾ inch x 3 inch bar gusset under the bottom side and the bracing to support the rear cylinder pin and boss	_X___	____	_____
Because of rear wing mount, additional circle support from the chassis frame to the circle at the rear will **not** be acceptable	_X___	____	_____
The hold down block shall include a lower half welded to the hanger plate, which will act as a stop block against the rear of the circle for a positive stop	_X___	____	_____

Comments _____

_____

11. HANGER BRACKETS	**YES**	**NO**	**DEVIATION**
Hanger brackets shall be one piece solid ¾ inch x 22 inch x 25-½ inch, A36 or equal steel plate for maximum strength	_X___	____	_____

Comments _____

_____

12. HANGER BOARD	**YES**	**NO**	**DEVIATION**
Hanger board shall consist of formed ½ inch plate and reinforced by ½ inch x 7-½ inch x 60 inch long flat plate and a ¾ inch bar full length of hinge OR 10 inch, 30 pound Ship and Car (S&C) channel, reinforced by ½ inch x 8 inch plate welded under the circle clamps which is welded to 4 inch, 13.8 pound S&C channel to provide seating for hinge tubing	_X___	____	_____
Cylinder pin mounting tubes will be 3 inch OD, reinforced at the base with two (2) ½ inch plates	_X_	____	_____

HANGER BOARD - continued	**YES**	**NO**	**DEVIATION**
Hinge tubes shall be 3-¼ inch OD.344 inch wall thickness, 36 inches long OR 34-7/16 inches long with two (2) grease zerks each	_X___	____	_____

Comments _____

13. HINGE	YES	NO	DEVIATION
Hinge line shall be a solid shaft 96 inches long and have three (3) mold board anchor points	_X___	____	_____
Hinge shaft shall be 2-½ inch diameter cold rolled 1018 steel with the two (2) outer hinges being 3-¼ inch x 6 inch and one (1) center hinge being 3-½ inch x 10-¾ inch minimum in length and .344 inch wall thickness mechanical tubing OR 15 inch center hinge	_X___	____	_____
Hinge shall be reinforced with one (1) wrap around ½ inch gusset on the outer two (2) and two (2) gussets on the inner hinge	_X___	____	_____
Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength	_X___	____	_____
There shall be four (4) grease zerks on the hinge shaft	_X___	____	_____
Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board OR on the outer hinges	_X___	____	_____

Comments _____

MOLD BOARD ACTIVATION	YES	NO	DEVIATION
Mold board actuation shall be accomplished by two (2) 3-½ inch ID x 10 inch stroke minimum double acting cylinders with 2 inch minimum nitrided piston rods	_X___	____	_____
Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks OR no cross tube	_X___	____	_____
Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port	_X___	____	_____
Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring OR 3 bolt system	_X___	____	_____
Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch			

x 6 inch relief slot at the bottom, which are trunnion mounted with ¾ inch thick reinforced steel trunnion brackets OR no slots	_X___	____	_____
Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts	_X___	____	_____
A grease zerk shall be provided at the cylinder head	_X___	____	_____
Mold board cushioning shall be through two (2) heavy duty shock assemblies with two (2) internally mounted 586lb/inch 13/16 inch wire AISI 5161 steel springs	_X___	____	_____

Comments _____

_____

STANDARD EQUIPMENT	**YES**	**NO**	**DEVIATION**
Hydraulic steel tubing will be externally mounted with machined polymer hold down blocks	_X___	____	_____
Hoses, tubing, and ports on actuating cylinders shall be 3/8 inch NPT minimum	_X___	____	_____
Ports on reversing cylinders shall be ¾ inch ORB	_X___	____	_____
All fabricated sub-components shall be shot blasted and powder coated black prior to assembly OR hand cleaned and painted	_X___	____	_____
All bolts, nuts, and washers shall be Grade 8	_X___	____	_____
Warranty on material and workmanship shall be 12 months, after the vehicle in service date	_X__	____	_____
No cutting edges shall be furnished	_X___	____	_____

End of Specification

MDOT SPECIFICATION# 57-0901SMW.C09

WING PLOW, BEHIND SCRAPER MOUNT, 9 FOOT, RIGHT OR LEFT

I GENERAL

It is the intent of this specification to establish an optional use contract for 9ft, right or left, side behind scraper mounted wings, for mounting on tandem axle, 64,000 GVW, snow plow trucks with an underbody scraper blade. The tandem axle trucks will be mounted with a 14ft dump body with slide in spreader or combination body. On delivery to MDOT, it shall be completely equipped with

all features necessary for its mounting and operation. The snow plow shall be built in accordance with all FMVSS, OSHA, MIOSHA, and ANSI standards. It must be the latest model in current production, satisfactory to meet the performance and design characteristics required in the specification.

The timely delivery of the wing plows is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.
The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is received by the successful vendor.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

21. All blank spaces are completed with either yes or no, and if no list the type of deviation.

22. MDOT minimum requirements are met or exceeded.

23. MDOT maximum requirements are not exceeded.

24. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

IX SPECIFICATIONS - continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution**

is required vendor shall note this in the Deviation to Specifications section of this specification. Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to: MDOT, OOAS Garage Operations, 2522 W. Main St., Lansing, MI, 48917 **Jeff Turner** **Phone: 517/334-7763**	__X__	____	_____
Wings shall be designed to mount behind the underbody blade and shall have a mold board length of 113 inches at the top and 108 inches at the bottom	_X___	____	_____
Mold board height shall measure 33 inches inboard and 33 inches outboard with cutting edge	_X___	____	_____
Mold board shall be 3/16 inch A36 steel	_X___	____	_____
Top of mold board shall be formed into a 2-¾ inch x 1 inch channel for additional strength with ½ inch ID x 84 inch schedule 40 pipe welded to top for wiring	_X___	____	_____
Bottom angle shall be 4 inch x 4 inch x ¾ inch and reinforced between the cutting edge holes with ten (10) 3 inch x 3 inch x ½ inch gussets	_X___	____	_____
There shall be six (6) ½ inch mold board reinforcement ribs tapered from 4 inches at the bottom to 2-½ inches at the top	_X___	____	_____
There shall be two (2) horizontal reinforcement angles between the discharge end last two ribs, bottom 4 inch x 3 inch x ½ inch reinforcement angle shall have seven (7) evenly spaced 5/8 inch holes for pusharm adjustment, top 4 inch x 4 inch x ½ inch reinforcement angle shall have seven (7) evenly spaced 5/8 inch holes for pusharm adjustment	_X___	____	_____
Front attachment pivot plate will be ½ inch steel, completely boxed and supported with ½ inch and 3/16 inch plate	_X___	____	_____
Pivot tube for the 1-½ inch pivot bolt shall have a minimum .625 inch wall and be welded 100% to the inside of the ½ inch pate and outside of the mold board	_X___	____	_____
A ½ inch safety stop eyelet shall be on the front of the mold board and a ½ inch centered lift loop	_X___	____	_____

All seems and joints shall be 100% continuous welded	_X___	____	_____
Cutting edge shall be fabricated of 1084 hot rolled steel	_X___	____	_____
Cutting edge shall be 9 feet in length and 5/8 inch x 8 inch AASHO punched	_X___	____	_____
Mold board shall be equipped with mold board shoes	_X___	____	_____
Shoes shall be bolted on with the cutting edge	_X___	____	_____
One (1) shoe shall be installed on both the toe end and the heel end	_X___	____	_____
Shoes shall be heavy duty cast iron construction	_X___	____	_____
Base of shoe shall be 10 inches long x 4-½ inches wide x 4-½ inches thick	_X___	____	_____
Bottom of shoe shall be cut at approximately 10° angle to match attack angle of mold board	_X___	____	_____
A ½ inch x 4 inch x 6 inch cross tube passing thru two (2) mounting plates of 36 inches tall x 12 inches wide x ½ for mounting the wing to the frame of the truck **(Side plates shall be unpainted)**	_X___	____	_____
The cross tube shall pass behind the underbody blade "circle"	_X___	____	_____
Outboard of the cross tube a fabricated 7 inch I-beam 25 inches high, vertically attached, shall be the foundation of the front wing post assembly	_X___	____	_____
I-beam shall be interlaced design, made of 3/8 inch EX-Ten material	_X___	____	_____

BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
I-beam shall be designed so there are **no** welds that restrict the ¾ inch slide plate movement	_X___	____	_____
I-beam shall have an integral return and diagonal bracing	_X___	____	_____
Diagonal bracing shall be reinforced with ½ inch x			

1-½ inch bar	_X___	____	_____
The ¾ inch slide plate shall have a 6-¼ inch slot for the float and two (2) ¾ inch attaching ears reinforced with two (2) 3/8 inch x 2-½ inch bar	_X___	____	_____
Outboard portion of I-beam shall have two (2) ¾ inch x ¾ inch steel bar welded to the outermost edges so as to provide a slide wherein a 25 inch x 6 inch x ¾ inch slide plate shall be mounted	_X___	____	_____
Two (2) grease zerks shall be on each side of the post to lubricate the slide plate	_X___	____	_____
Slide shall have an integral 6-¼ inch mechanical float whose purpose is to allow vertical action to the toe of the wing mold board	_X___	____	_____
Slide shall allow for mounting of the mold boards banjo plate	_X___	____	_____
Pin for banjo plate shall be 1-½ inch diameter	_X___	____	_____
Banjo plate/hinge for moldboard shall be fabricated of ¾ inch material, reinforced with ½ inch bar and have two (2) 1 inch thick reinforced ears for the hinge pin	_X___	____	_____
The bolt for retaining the mold board shall be 1 ½-6 x 7 G8 HHCS Zinc plated with castle nut and cotter pin	_X___	____	_____
Bolt shall be drilled for the cotter pin	_X___	____	_____
Front slide assembly shall be actuated by a single 4 inch ID x 12 inch stroke, 2 inch rod, double acting cylinder	_X___	____	_____
Slide cylinder shall have a 1 inch pin at the base and a 1-¼ inch bolt at the rod end	_X___	____	_____
The rod end shall have an offset cross tube mount to eliminate side load on the cylinder	_X___	____	_____
Slide cylinder shall have ¾ - 16 ORB ports and polypak seals	_X___	____	_____
Lifting action for the heel end of the wing shall be accomplished via a single 3 inch ID x 15 inch stroke, nitrated 2 inch rod, ¾-16ORB ports, polypak seals, double acting hydraulic deceleration cylinder.	_X_____		_____
Heel cylinder shall be attached to the upper rear pusharm slide assembly	_X___	____	_____
Wing shall be operated by hydraulic lift, **no cables or**			

chains shall be accepted	_X___	____	_____
Rear wing mount shall be fabricated from 4 inch x 6 inch x ½ inch steel tube, and shall include one (1) 12 inch x 15 inch x ½ inch plate and six (6) 3 inch x 3 inch x ½ inch gussets for tube reinforcement	_X___	____	_____
Rear pusharm/cylinder mounting plate shall include two (2) ½ inch plates, flame cut with three (3) offset mounting holes to mount the rear pusharms and the heel lift cylinder fabricated from ½ inch plate	_X___	____	_____
Rear wing mounting post and rear pusharm/cylinder mounting plate with gussets shall be fully assembled and shot blasted and powder coated	_X___	____	_____
The rear upper pusharm shall be equipped with an external slide assembly to allow for mechanical float and attachment of the heel lift cylinder	_X___	____	_____
Rear pusharms and heel lift cylinder shall be attached with 1-¼ inch bolts for attach and detach	_X___	____	_____
There shall be two (2) rear wing heavy duty, 2-½ inch schedule 80, adjustable, spring cushioned lift arms including safety shear pins, 6 feet long fully extended	_X___	____	_____
Wing shall be capable of mounting with an overlap to the scraper discharge to prevent a windrow between the scraper and the wing mold board	_X___	____	_____
Wing shall have a minimum of 6-½ foot clearing path when in he winging position	_X___	____	_____
All fabricated components shall be shot blasted and washed prior to powder coating	_X___	____	_____
Mounting components shall be powder coated black **(Except side mount plates and rear cross tube and mount)**	_X___	____	_____
All welding on the mold board shall be 100% continuous	_X___	____	_____
Mounting hardware shall include schedule 80 pipe bracing, two (2) pipe balls, a flame cut ¾ inch support plate, Grade 8 nuts, bolts, and washers necessary for a complete installation	_X___	____	_____
A sequencing valve shall be supplied with the wings	_X___	____	_____
Sequencing valve shall be adjustable for both the up sequencing of the wing and the down sequencing of the wing	_X___	____	_____

Lock valves shall be built into the sequencing valve to prevent both the toe and heel cylinder from drifting when in the stored position	_X___	____	_____
The sequencing valve shall allow wing to hydraulically drift up when in the plowing position	_X___	____	_____
Sequencing valve shall be equipped with an adjustable metering valve to control the speed at which the blade drops when going from the stored position to the plow position	_X___	____	_____
Four (4) 3 inch x 3 inch x ½ inch angle 4 inches long shall have one (1) 21/32 inch hole in center of one leg **(no powder coat on this item)**	_X___	____	_____
A 3 inch x 3 inch x 3/8 inch tube 26 inches long to brace front wing cross support shall be provided **(no powder coat on this item)**	_X___	____	_____
Two (2) 3 inch x 3 inch x 3/8 inch x 11 inch angle iron bracket shall be provided for support of the side plates **(no powder coat on this item)**	_X___	____	_____
Each wing assembly shall be furnished with an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W20ME2 12V - 24V to activate a "wing down" light, shipped loose **(MDOT will furnish light) <u>No Exceptions</u>**	_X___	____	_____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# 60-11SS.C09

HOPPER BOX MATERIAL SPREADER, 11 FOOT AND DISTRIBUTION SYSTEMS

I GENERAL

It is the intent of this specification to establish an optional use contract for slide in type hopper box material spreaders with rear y-chutes or cross augers to uniformly spread salt, sand or a combination of both for treatment of icy roads. They shall consist of an 84 inch wide x 11 foot long stainless steel hopper box, a pintle type flight chain conveyor, with a cross auger with left side spinner and hydraulic motor, or a cross auger, left side zero velocity spinner and hydraulic motor or a y-chute spreader with spinner and hydraulic motor. The operation of the spreader will be controlled by a ground speed oriented hydraulic system supplied by MDOT. MDOT will install this spreader in a 44,000 GVW single axle truck with 11 foot dump box and a closed center load sensing hydraulic system.

The timely delivery of the hopper box material spreaders is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

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The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days. **The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is received by the successful vendor.**

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

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Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

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26. MDOT minimum requirements are met or exceeded.

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IX SPECIFICATIONS - continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT OOAS Garage Operations, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517-334-7763 at least 48 hours prior to delivery	_X__	____	_____

Comments: Monroe Model, MV132-84-50

SPREADER BODY	**YES**	**NO**	**DEVIATION**
Spreader body length shall be 11 feet	_X___	____	_____
Spreader overall height shall be approximately 50 inches without extensions	_X___	____	_____
Spreader overall width shall be approximately 84 inches	_X___	____	_____
Spreader body and vertical bracing shall be 10 gauge type 201 or 304 stainless steel	_X___	____	_____
Longitudinal support members shall be 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Spreader body, vertical bracing, and longitudinal members shall be configured approximately as shown in drawings supplied by MDOT upon request	_X___	____	_____
Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	_X___	____	_____
Vertical bracing shall be placed in such a manner to allow future installation of two (2) 180 gallon liquid tanks	_X___	____	_____
End panels shall slope inward at the bottom (approximately 18°)	_X___	____	_____
Lateral crossmembers shall be structural stainless steel supporting channels 3 inch x 1-½ inch x 4.75 pounds/foot	_X___	____	_____
Crossmembers shall set on a longitudinal stainless steel			

angle of 2 inch x 3 inch x ¼ inch	_X___	____	_____
Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel.	_X____	____	_____
Additional reinforcement on both the inside and outside of the body is required to support the hold down brackets	_X___	____	_____
Two (2) hold down brackets constructed of 6 inch x 5 inch x ¼ inch stainless steel plate with a 3 inch tall piece of 5 inch stainless steel channel welded to the center shall be welded to the body centered 25-¼ back of front bulkhead on the top vertical surface, 3-½ inches from top, one (1) each side	_X___	____	_____
Spreader shall be equipped with a bolt-in conveyor floor of ¼ inch type 201 or 304 stainless steel supported every 12 inches with 3/16 inch x 1-7/16 x 1-7/16 stainless angles	_X___	____	_____
A wiper belt shall be at the rear most end of the floor to direct material into the center region of the chute assembly	_X___	____	_____
Wiper belt in the front to prevent material leakage	_X___	____	_____
Floor shall be tack welded at all four (4) corners with approximately 1 inch weld bead to ensure the floor will not come loose should the bolts loosen	_X___	____	_____
Long sills shall be slotted each end with openings at the extreme ends for ease of idler and drive sprocket shaft replacement	_X___	____	_____
12 inch x 18 inch triangular gussets, with embossments, shall be welded from the hopper assembly to the long sills in each side for additional support	_X___	____	_____
Long sills shall have an additional 2 inch x 2 inch x ¼ inch stainless steel angle welded to the bottom of each side to support the cross auger	_X___	____	_____

SPREADER BODY - continued	**YES**	**NO**	**DEVIATION**
Four (4) 8 inch x 8 inch x 3/16 inch 201 or 304 stainless triangular gussets shall be welded to the top of each corner on the hopper shell	_X___	____	_____

Comments

_____

_____

FEED GATE OPENING	**YES**	**NO**	**DEVIATION**
A 10 gauge type 201 or 304 stainless steel feed gate approximately 12 inch x 18 inch with a ruler, shall be provided in the unloading end of the box with a heavy duty screw type mechanism with ½ inch stainless steel handle shall regulate material discharge	_X___	____	_____
The crank handle shall be extended so that it is not more than 72 inches from the ground with the V box installed	_X___	____	_____
Handle screw type mechanism shall be located on the drivers side of spreader	_X___	____	_____
Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	_X___	____	_____

Comments

_____

_____

CONVEYOR	**YES**	**NO**	**DEVIATION**
Conveyor shall be maximum 24 inches wide, with heavy duty type 201 or 304 stainless steel formed chain shields over the chain strands, exposing only the drag bars to the material	_X___	____	_____

CONVEYOR - continued	**YES**	**NO**	**DEVIATION**

All chain joints and pins shall be thoroughly lubricated with salt resistant 9102 Syntemp from Lubrication Engineers, Fort Worth, Texas	_X___	____	_____
Conveyor chain shall be 667XH heat treated 2.25 pitch, self-cleaning, pintle-type with 15/32 inch pins and a tensile strength of 26,000 pounds	_X___	____	_____
Eight tooth cast iron sprockets with 1 ½ inch drive and idler shafts, and four (4) bolt relubable flange bearings shall be provided	_X___	____	_____
Cross bars ½ inch x 1-½ inch x 18-¾ inches shall be positioned on approximately 2-¼ inch centers, welded top and bottom	_X___	____	_____
Overall chain width shall not exceed 22-¼ inches	_X___	____	_____
A heavy duty, spring loaded, idler adjustment assembly (sufficient to carry the extra load or weight of the conveyor chain with added cross bars), shall provide 9 inches of travel for proper conveyor chain tension. Spring must be rated at a minimum of 708 PSI and be 6 inches long 2.187 inch OD	_X___	____	_____
Adjuster screw shall be a minimum of ¾ inch stainless steel	_X___	____	_____
Adjuster shall be extended so the adjustment can be made at the rear of the spreader with jam nuts at the rear	_X___	____	_____

Comments _____

_____

WELDS AND FASTENERS	**YES**	**NO**	**DEVIATION**
All welds shall be continuous, inside and outside and cleaned of weld slag and spatter	_X___	____	_____
Bolts on the spreader body shall all be 201 or 304 stainless steel	_X___	____	_____

Comments

_____

_____

GREASE TUBES	**YES**	**NO**	**DEVIATION**
Grease tubes shall be provided from the front to the rear of the spreader body as shown on drawings supplied by MDOT upon request for ease of lubrication of front			

conveyor bearings (both sides)	_X___	____	_____

Comments

_____

_____

HYDRAULIC MOTORS	YES	NO	DEVIATION
Spinner motors shall be manufacturers standard for the spreader capacity specified	_X___	____	_____
Spinner disc fins shall be designed for clockwise rotation	_X___	____	_____
Conveyor drive motor shall be a White Roller Stator and equipped with a Hall effect type speed sensor that produces 50 or more pulses per revolution	_X___	____	_____

Comments

_____

GEAR REDUCTION CONVEYOR DRIVE	YES	NO	DEVIATION
Gear reduction shall be approximately 50:1 with hardened, precision- machined, worm type gear with Timken tapered roller bearings on the output shaft	_X___	____	_____
Gear case shall be oil tight, equipped with filler, drain, and oil level drain plugs	_X___	____	_____
Conveyor motor shall be mounted directly to the gear case	_X___	____	_____
Conveyor drive motor shall be positioned on the forward side of the gearbox	_X___	____	_____
Offset gearbox mounting plate shall be minimum ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Gearbox driveshaft shall not extend beyond case opposite the drive motor	_X___	____	_____
A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft	_X___	____	_____
A shear key inside the gear box is **NOT** acceptable	_X___	____	_____

Comments

_____

_____

CROSS AUGER	YES	NO	DEVIATION

Cross auger shall be capable of moving free-flowing granular material to either a left or right opening	_X___	____	_____
Trough, lids and bottom assembly shall be 7 gauge 201 or 304 stainless steel with ¼ inch one-piece endplates and 96 inch overall width	_X___	____	_____
The rear of the conveyor shall be reinforced with a 2 inch x 5 inch x 7 gauge tube with the bottom trough latch system attached to this tube	_X___	____	_____
A 7 gauge, four (4) sided, 201 or 304 stainless steel chute extension shall be designed to lower the cross auger assembly to allow discharge on to a spinner or direct placement attachment. The chute shall be height adjustable	_X___	____	_____
The chute extension shall allow unloading of the hopper box without going through the cross auger	_X___	____	_____
The three-piece combination cover and top openings shall be designed to be mounted to the bottom of the reinforced longsills on a hopper box	_X___	____	_____
The unobstructed, hinged bottom shall allow clogged material to drop out when it is opened for easy cleanout	_X___	____	_____
A centered 201 or 304 stainless steel lift handle shall be included	_X___	____	_____
Bottom trough shall have three (3) solid ½ inch pipe hinges	_X___	____	_____
Bottom opening shall have a removable door that can be either left or right mount	_X___	____	_____
All latches shall be captive, heavy duty 201 or 304 stainless steel that will work in the coldest weather without the use of tools and have a safety lock	_X___	____	_____
Endplates shall have convenient chain hoist lifting slots placed at the balance points to provide easy level mounting and dismounting of the conveyor	_X___	____	_____
Auger shall be a full 7 foot in length with one-way flighting for left or right hand discharge of material	_X___	____	_____
Auger shall be 9 inch diameter, 4 inch pitch and 5/16 inch thick on the outer edge and welded to a 2-7/8 inch OD schedule 40 pipe. EWR pipe/tubing	_X___	____	_____
Shafts shall be 1-½ inch and supported by a heavy duty 1-½			

inch sealed, self aligning, relubable four (4) bolt flange bearing The exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Auger shall be driven by a hydraulic, direct drive motor, 45 cubic inch, 1-¼ inch – 14 spline shaft with 7/8 inch)O-ring ports	_X___	____	_____
Shaft coupler shall be stainless steel	_X___	____	_____
The spinner assembly is mounted to the bottom cleanout door and have an easy one man mount and dismount	_X___	____	_____
Spinner disc shall be 18 inches in diameter and manufactured from polyurethane material	_X___	____	_____
Six (6) formed spinner flights shall be manufactured from polyurethane	_X___	____	_____
Spinner disc shall be mounted directly to the hydraulic motor by means of a cast iron spinner hub	_X___	____	_____
Spinner motor shall be a low speed high torque motor	_X___	____	_____
Spinner shall be completely adjustable for all normal variations of spread patterns	_X___	____	_____
All interior seams shall be continuously electronically welded to eliminate corrosion pockets	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
Mounting hardware shall be 201 or 304 stainless steel and Provided	_X___	____	_____
All stainless steel parts shall be in bare stainless	_X___	____	_____
All mild steel parts shall be painted black	_X___	____	_____

Comments _____

_____

ZERO VELOCITY SPREADER	YES	NO	DEVIATION
Spreader housing shall be 10 gauge 201 or 304 stainless steel	_X___	____	_____
Housing shall have a 12 inch x 14 inch opening with three flexible bolt on flares to divert material into housing	_X___	____	_____
Housing opening shall have two (2) safety bars of 3/16 inch 201 or 304 stainless steel to prevent large objects from entering housing opening	_X___	____	_____
Spreader impeller shall dispense material onto roadway, and be manufactured from type 201 or 304 stainless steel and shall include replaceable end bits	_X___	____	_____
Impeller shall have four (4) 4-¾ inch x 4 inch paddles, 16 inches in diameter with a 1 inch bore steel hub integrally welded to impeller	_X___	____	_____
Impeller motor shall be low speed/high torque "orbital type" hydraulic wheel motor with 3 cu/in displacement	_X___	____	_____
Motor shall be capable of applications up to 800rpm	_X___	____	_____
Motor shall be Parker type with a stainless steel output shaft	_X___	____	_____

ZERO VELOCITY SPREADER - continued	**YES**	**NO**	**DEVIATION**
An in line flow meter with a hall affect speed sensor shall be provided with a Brad Harrison type connector to interface with control console	_X___	____	_____
A sensor cable with LED indicator lights shall be provided to interface the Hall Effect flow meter sensor to a Dickey-john Control Point controller	_X___	____	_____
Spinner assembly shall be mounted with approximately 6 inches ground clearance and be adjustable in height. Mount bracket(s) MUST have MDOT written approval	_X___	____	_____
Spinner assembly shall lift 6 inches by actuating in cab switch	_X___	____	_____
Spinner assembly shall rotate 45° right and left of center position by actuating remote in cab switch	_X___	____	_____
Direction of spinner assembly shall be displayed on console by indicator lights	_X___	____	_____
Spinner assembly shall include up/down actuating cylinder, right/left actuating cylinder with a built in position sensor, and a deflector actuating cylinder	_X___	____	_____
A closed center, electric actuated valve shall be provided with the zero velocity spinner to control the up/down, right/left, and deflector functions	_X___	____	_____
Cab controls for the zero velocity spinner shall include switches for up/down, right/left, deflector up/down, a position display, and all necessary wiring harnesses to interface the controls to the valve	_X___	____	_____

Comments

_____

_____

"Y" CHUTE DISTRIBUTOR	**YES**	**NO**	**DEVIATION**
Bid shall include non-stainless "Y" chute distributor, one for item 3 spreader, fabricated and assembled as noted in the following MDOT drawings accept where this specification differs, specification takes precedence:			
63-790-1 (1/98) 63-790-2 (6/87) 63-790-3 (1/98) 63-790-4 (6/87)	_X___	____	_____
A 1 inch x ¼ inch safety guard shall be welded at the top of the cutout for the spinner **(Exceeds drawings)**	_X___	____	_____

Chute assemblies shall be designed to be fastened to the 2 inch x 2 inch x ¼ inch type 201 stainless angle members of the spreader body with six (6) 3/8 diameter grade 5 bolts	_X___	____	_____
Chute assemblies shall be powder coated orange to match Dupont IMRON #43106-U or equal	_X___	____	_____
Chute assemblies may be shipped loose and separate from spreaders	_X___	____	_____
Vendor shall supply air cylinders to operate both the directional and drop chute doors	_X___	____	_____
Cylinders shall be 1-½ inch x 4 inch and have a stainless steel rod and bore with poly piston head	_X___	____	_____
Cylinders shall be mounted and functional upon delivery	_X___	____	_____
Hinges for the chute doors shall be constructed of type 201 or 304stainless steel **(Exceeds drawings)**	__X__	____	_____
Each door shall have three (3) hinges, a continuous hinge is not acceptable **(Exceeds drawings)**	____	____	_____

Comments: See attachment for pricing on cross auger, accuplace spinner, trough hung spinner and Y chute assemblies.

End of Specification

I GENERAL

It is the intent of this specification to establish an optional use contract for slide in type hopper box material spreaders to uniformly spread salt, sand or a combination of both for treatment of icy roads. They shall consist of an 84 inch wide x 14 foot long stainless steel hopper box, a pintle type flight chain conveyor, with a cross auger with left side spinner and hydraulic motor, or a cross auger, left side zero velocity spinner and hydraulic motor or a y-chute spreader with spinner and hydraulic motor. The operation of the spreader will be controlled by a ground speed oriented hydraulic system. MDOT will install this spreader in a 64,000 GVW tandem axle truck with 14 foot dump box and a closed center load sensing hydraulic system.

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Comments: Monroe Model MV168-84-56/MI

_____

_____

SPREADER BODY	**YES**	**NO**	**DEVIATION**
Spreader body length shall be 14 feet	_X___	____	_____
Spreader overall height shall be approximately 56 inches without extensions or splices, one piece sides and ends	_X___	____	_____
Spreader overall width shall be approximately 84 inches	_X___	____	_____
Spreader body and vertical bracing shall be 10 gauge type 201 or 304 stainless steel	_X___	____	_____
Longitudinal support members shall be 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Spreader body, vertical bracing, and longitudinal members shall be configured approximately as shown in drawings supplied by MDOT upon request	_X___	____	_____
Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	_X___	____	_____
Vertical bracing shall be placed in such a manner to allow future installation of four (4) 180 gallon liquid tanks	_X___	____	_____
End panels shall slope inward at the bottom (approximately 18°)	_X___	____	_____
Lateral crossmembers shall be structural stainless steel			

supporting channels 3 inch x 1-½ inch x 4.75 pounds/foot	_X___	____	_____
Crossmembers shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch	_X___	____	_____
Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel	_X___	____	_____
Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting	_X___	_____	_____
Two (2) hold down brackets constructed of 6 inch x 5 inch x ¼ inch stainless steel plate with a 3 inch tall piece of 5 inch stainless steel channel welded to the center shall be welded to the body centered 25-¼ back of front bulkhead on the top vertical surface, 3-½ inches from top, one (1) each side	_X___	____	_____
Additional reinforcement on both the inside and outside of the body is required to support the hold down brackets	_X___	____	_____
Spreader shall be equipped with a bolt-in conveyor floor of ¼ inch type 201 or 304 stainless steel supported every 12 inches with 3/16 inch x 1-7/16 x 1-7/16 stainless angles	_X___	____	_____
A wiper belt shall be at the rear most end of the floor to direct material into the center region of the chute assembly	_X___	____	_____
Wiper belt in the front to prevent material leakage	_X___	____	_____
Floor shall be tack welded at all four (4) corners with approximately 1 inch weld bead to ensure the floor will not come loose should the bolts loosen	_X___	____	_____
Long sills shall be slotted each end with openings at the extreme ends for ease of idler and drive sprocket shaft replacement	_X___	____	_____
12 inch x 18 inch triangular gussets, with embossments, shall be welded from the hopper assembly to the long sills in each side for additional support	_X___	____	_____
Long sills shall have an additional 2 inch x 2 inch x ¼ Inch 201 or 304 stainless steel angle welded to the bottom of each side to support the cross augers and y-chute	_X___	____	_____

9. SPREADER BODY – continued	**YES**	**NO**	**DEVIATION**
Four (4) 8 inch x 8 inch x 3/16 inch 201 or 304 stainless triangular gussets shall be welded to the top of each corner on the hopper shell	_X___	____	_____

Comments _____

_____

10. FEED GATE OPENING	YES	NO	DEVIATION
A 10 gauge type 201 or 304 stainless steel feed gate approximately 12 inch x 18 inch with a ruler, shall be provided in the unloading end of the box with a heavy duty screw type mechanism with ½ inch stainless steel handle shall regulate material discharge	_X___	____	_____
The crank handle shall be extended so that it is not more than 72 inches from the ground with the V box installed	_X___	____	_____
Handle screw type mechanism shall be located on the drivers side of spreader	_X___	____	_____
Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	_X___	____	_____

Comments _____

_____

CONVEYOR	YES	NO	DEVIATION
Conveyor shall be maximum 24 inches wide, with heavy duty type 201 or 304 stainless steel formed chain shields over the chain strands, exposing only the drag bars to the material	_X___	____	_____
All chain joints and pins shall be thoroughly lubricated with salt resistant 9102 Syntemp from Lubrication Engineers, Fort Worth, Texas	_X___	____	_____
Conveyor chain shall be 667XH heat treated 2.25 pitch, self-cleaning, pintle-type with 15/32 inch pins and a tensile strength of 26,000 pounds	_X___	____	_____
Eight tooth cast iron sprockets with 1 ½ inch drive and idler shafts, and four (4) bolt relubable flange bearings shall be provided	_X___	____	_____
Cross bars ½ inch x 1-½ inch x 18-¾ inches shall be positioned on approximately 2-¼ inch centers, welded top and bottom	_X___	____	_____
Overall chain width shall not exceed 22-¼ inches	_X___	____	_____
A heavy duty, spring loaded, idler adjustment assembly (sufficient to carry the extra load or weight of the conveyor			

chain with added cross bars), shall provide 9 inches of travel for proper conveyor chain tension. Spring must be rated at a minimum of 708 PSI and be 6 inches long 2.187 inch OD	_X___	____	_____
Adjuster screw shall be a minimum of ¾ inch stainless steel	_X___	____	_____
Adjuster shall be extended so the adjustment can be made at the rear of the spreader with jam nuts at the rear	_X___	____	_____

Comments _____

_____

WELDS AND FASTENERS	**YES**	**NO**	**DEVIATION**
All welds shall be continuous, inside and outside and cleaned of weld slag and spatter	_X___	____	_____
Bolts on the spreader body shall all be 201 or 304 stainless steel	_X___	____	_____

Comments _____

_____

GREASE TUBES	**YES**	**NO**	**DEVIATION**
Grease tubes shall be provided at rear of the spreader body for ease of lubrication of front conveyor bearings (both sides)	_X___	____	_____

Comments _____

_____

HYDRAULIC MOTORS	**YES**	**NO**	**DEVIATION**
Spinner motors shall be manufacturers standard for the spreader capacity specified	_X___	____	_____
Spinner disc fins shall be designed for clockwise rotation	_X___	____	_____
Conveyor drive motor shall be a White Roller Stator and equipped with a Hall effect type speed sensor that produces 50 or more pulses per revolution	_X___	____	_____

Comments _____

_____

GEAR REDUCTION CONVEYOR DRIVE	**YES**	**NO**	**DEVIATION**

Gear reduction shall be approximately 50:1 with hardened, precision- machined, worm type gear with Timken tapered roller bearings on the output shaft	_X___	____	_____
Gear case shall be oil tight, equipped with filler, drain, and oil level drain plugs	_X___	____	_____
Conveyor motor shall be mounted directly to the gear case	_X___	____	_____
Conveyor drive motor shall be positioned on the forward side of the gearbox	_X___	____	_____
Offset gearbox mounting plate shall be minimum ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Gearbox driveshaft shall not extend beyond case opposite the drive motor	_X___	____	_____
A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft	_X___	____	_____
A shear key inside the gear box is **NOT** acceptable	_X__	____	_____

Comments _____

_____

CROSS AUGER	**YES**	**NO**	**DEVIATION**
Cross auger shall be capable of moving free-flowing granular material to either a left or right opening	_X___	____	_____
Trough, lids and bottom assembly shall be 7 gauge 201 or 304 stainless steel with ¼ inch one-piece endplates and 96 inch overall width	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
The rear of the conveyor shall be reinforced with a 2 inch x 5 inch x 7 gauge tube with the bottom trough latch system attached to this tube	_X___	____	_____
A 7 gauge, four (4) sided, 201 or 304 stainless steel chute extension shall be designed to lower the cross auger assembly to allow discharge on to a spinner or direct placement attachment. The chute shall be height adjustable	_X___	____	_____
The chute extension shall allow unloading of the hopper			

box without going through the cross auger	_X___	____	_____
The three-piece combination cover and top openings shall be designed to be mounted to the bottom of the reinforced longsills on a hopper box	_X___	____	_____
The unobstructed, hinged bottom shall allow clogged material to drop out when it is opened for easy cleanout	_X___	____	_____
A centered 201 or 304 stainless steel lift handle shall be included	_X___	____	_____
Bottom trough shall have three (3) solid ½ inch pipe hinges	_X___	____	_____
Bottom opening shall have a removable door that can be either left or right mount	_X___	____	_____
All latches shall be captive, heavy duty 201 or 304 stainless steel that will work in the coldest weather without the use of tools and have a safety lock	_X___	____	_____
Endplates shall have convenient chain hoist lifting slots placed at the balance points to provide easy level mounting and dismounting of the conveyor	_X___	____	_____
Auger shall be a full 7 foot in length with one-way flighting for left or right hand discharge of material	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
Auger shall be 9 inch diameter, 4 inch pitch and 5/16 inch thick on the outer edge and welded to a 2-7/8 inch OD schedule 40 pipe. EWR pipe/tubing	_X___	____	_____
Shafts shall be 1-½ inch and supported by a heavy duty 1-½ inch sealed, self aligning, relubable four (4) bolt flange bearing The exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Auger shall be driven by a hydraulic, direct drive motor, 45 cubic inch, 1-¼ inch – 14 spline shaft with 7/8 inch)O-ring ports	_X___	____	_____

Shaft coupler shall be stainless steel	_X___	____	_____
The spinner assembly is mounted to the bottom cleanout door and have an easy one man mount and dismount	_X___	____	_____
Spinner disc shall be 18 inches in diameter and manufactured from polyurethane material	_X___	____	_____
Six (6) formed spinner flights shall be manufactured from polyurethane	_X___	____	_____
Spinner disc shall be mounted directly to the hydraulic motor by means of a cast iron spinner hub	_X___	____	_____
Spinner motor shall be a low speed high torque motor	_X___	____	_____
Spinner shall be completely adjustable for all normal variations of spread patterns	_X___	____	_____
All interior seams shall be continuously electronically welded to eliminate corrosion pockets	_X___	____	_____
Mounting hardware shall be 201 or 304 stainless steel and provided	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
All stainless steel parts shall be in bare stainless	_X___	____	_____
All mild steel parts shall be painted black	_X___	____	_____

Comments _____

_____

ZERO VELOCITY SPREADER	**YES**	**NO**	**DEVIATION**
Spreader housing shall be 10 gauge, 201 or 304 stainless steel	_X___	____	_____
Housing shall have a 12 inch x 14 inch opening with three flexible bolt on flares to divert material into housing	_X___	____	_____

Housing opening shall have two (2) safety bars of 3/16 inch 201 or 304 stainless steel to prevent large objects from entering housing opening	_X___	____	_____
Spreader impeller shall dispense material onto roadway, and be manufactured from type 201 or 304 stainless steel and shall include replaceable end bits	_X___	____	_____
Impeller shall have four (4) 4-¾ inch x 4 inch paddles, 16 inches in diameter with a 1 inch bore steel hub integrally welded to impeller	_X___	____	_____
Impeller motor shall be low speed/high torque "orbital type" hydraulic wheel motor with 3 cu/in displacement	_X___	____	_____
Motor shall be capable of applications up to 800rpm.	_X___	____	_____
Motor shall be Parker type with a stainless steel output shaft	_X___	____	_____
An in line flow meter with a hall affect speed sensor shall be provided with a Brad Harrison type connector to interface with control console	_X___	____	_____
A sensor cable with LED indicator lights shall be provided to interface the Hall Effect flow meter sensor to a Dickey-john Control Point controller	_X___	____	_____
Spinner assembly shall be mounted with approximately 6 inches ground clearance and be adjustable in height. Mount bracket(s) MUST have MDOT written approval	_X___	____	_____
Spinner assembly shall lift 6 inches by actuating in cab switch	_X___	____	_____
Spinner assembly shall rotate 45° right and left of center position by actuating remote in cab switch	_X___	____	_____
Direction of spinner assembly shall be displayed on console by indicator lights	_X___	____	_____
Spinner assembly shall include up/down actuating cylinder, right/left actuating cylinder with a built in position sensor, and a deflector actuating cylinder	_X___	____	_____
A closed center, electric actuated valve shall be provided with the zero velocity spinner to control the up/down, right/left, and deflector functions	_X___	____	_____
Cab controls for the zero velocity spinner shall include switches for up/down, right/left, deflector up/down, position display, and all necessary wiring harnesses to interface the controls to the valve	_X___	____	_____ a

Comments _____

_____

"Y" CHUTE DISTRIBUTOR	**YES**	**NO**	**DEVIATION**
Bid shall include non-stainless "Y" chute distributor, one for item 3 spreader, fabricated and assembled as noted in the following MDOT drawings accept where this specification differs, specification takes precedence:			
63-790-1 (1/98) 63-790-2 (6/87) 63-790-3 (1/98) 63-790-4 (6/87)	_X___	____	_____
A 1 inch x ¼ inch safety guard shall be welded at the top of the cutout for the spinner **(Exceeds drawings)**	_X___	____	_____
Chute assemblies shall be designed to be fastened to the 2 inch x 2 inch x ¼ inch type 201 stainless angle members of the spreader body with six (6) 3/8 diameter grade 5 bolts	_X___	____	_____
Chute assemblies shall be powder coated orange to match Dupont IMRON #43106-U or equal	_X___	____	_____
Chute assemblies may be shipped loose and separate from spreaders	_X___	____	_____
Vendor shall supply air cylinders to operate both the directional and drop chute doors	____	____	_____
Cylinders shall be 1-½ inch x 4 inch and have a stainless steel rod and bore with poly piston head	_X___	____	_____
Cylinders shall be mounted and functional upon delivery	_X___	____	_____
Hinges for the chute doors shall be constructed of type 201 or 304stainless steel **(Exceeds drawings)**	_X___	____	_____
Each door shall have three (3) hinges, a continuous hinge is not acceptable **(Exceeds drawings)**	_X___	____	_____

Comments _____

_____

End of Specification <u>Attachment A, Price Proposal</u>

The State of Michigan is interested in payment terms that reflect cost savings to the State based on an accelerated payment process. Contractor is offering 1% discount if paid within 10 days.

Winter Maintenance Truck Components						
Item No.	Unit	Commodity #	Description	Est. Usage	Unit Price	Ext. Amount

1	EA.	060-61	Pre-wet Systems per specification # 04-PREWET.C09	15	$3,167.00	$47,505.00
2	EA.	060-61	Fuel tank and hydraulic reservoirs per specification # HYDTANK.C09	50	$2,690.00	$134,500.00
3	EA.	060-61	Ground speed oriented spreader control systems with electric over hydraulic joystick controls per specification # GRDSPD.C09	50	$4,110.00	$205,500.00 see option enclosed
4	EA.	060-61	Hydraulic system, closed center, piston pump, ground speed controlled, system 1, per specification # HYD-PP.C09	14	$8,656.00	$121,184.00 see option for SS enclosures
5	EA.	060-61	Hydraulic system, closed center, piston pump, ground speed controlled, system 2, per specification # HYD-PP.C10	36	$8,571.00	$308,556.00 see option for SS enclosures
6	EA.	065-25	Automatic electric tarp assemblies per specification # 04-TARPS.C09	50	$1,239.00	$61,950.00
7	EA.	065-30	11 foot stainless steel dump bodies and hoists per specification # 04-11SSDMP.C09	12	$14,182.00	$170,184.00
8	EA.	065-30	14 foot stainless steel dump bodies and hoists per specification # 04-14SSDMP.C09	21	$17,724.00	$372,204.00
9	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 1, per specification # CMBBDY.C09	6	$40,688.00	$244,128.00 Pricing is for 14' unit. See enclosure for 11' pricing
10	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 2, per specification # CMBBDY.C09	6	$33,937.00	$203,622.00 Pricing is for 14' unit. See enclosure for 11' pricing
11	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 3, per specification # CMBBDY.C09	6	$31,864.00	$191,184.00 Pricing is for 14' unit. See enclosure for 11' pricing
12	EA.	065-30	11 or 14 foot 45 degree side combination dump and spreader bodies item 4, per specification # CMBBDY.C09	6	$35,294.00	$211,764.00 Pricing is for 14' unit. See enclosure for 11' pricing
13	EA.	760-06	Side mount wing plow, right or left, per specification # 57-0901SMW.C09	36	$5,308.00	$191,088.00

14	EA.	765-66	11 foot stainless steel hopper box material spreaders per specification # 60-11SS.C09	14	$9,292.00	$130,088.00 see attachment for cross auger, spinner, y chute options
15	EA.	765-66	12 foot stainless steel hopper box material spreaders per specification # 60-14SS.C09	36	$11,013.00	$396,468.00 see attachment for cross auger, spinner, y chute attachments

Attachment B: MDOT Standard Specifications

MDOT Specification# 04-PREWET.C09 – Eight (8) Pages

MDOT Specification# HYDTANK.C09 – Nine (9) Pages

MDOT Specification# GRDSPD.C09 – Sixteen (16) Pages

MDOT Specifications# HYD-PP.C09 – Thirteen (13) Pages

MDOT Specification# 04-TARPS.C09 – Nine (9) Pages

MDOT Specification# 04-11SSDMP.C09 – Sixteen (16) Pages

MDOT Specification# 04-14SSDMP.C09 – Fourteen (14) Pages

MDOT Specification# CMBBDY.C09 – Twenty-one (21) Pages

MDOT Specification# 57-0901SMW.C09 – Ten (10) Pages

MDOT Specification# 60-11SS.C09 – Fifteen (15) Pages

MDOT Specification# 60-14SS.C09 – Fifteen (15) Pages

MDOT SPECIFICATION# 04-PREWET.C09

GROUND SPEED CONTROLLED PRE-WET SYSTEMS

I GENERAL

It is the intent of this specification to establish an optional use contract for ground speed controlled pre-wet systems to be mounted on MDOT winter maintenance trucks. They must be the latest model in current production, satisfactory to meet the performance and design characteristics required in this specification. They shall be built in accordance with all FMVSS, OSHA, MIOSHA, and ANSI standards.

The timely delivery of the pre-wet systems is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet FMVSS standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, Or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and Fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

IX LIQUIDATED DAMAGES - continued

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations may be considered acceptable only in the following circumstances:

9. All blank spaces are completed with either yes or no, and if no list the type of deviation.

10. MDOT minimum requirements are met or exceeded.

11. MDOT maximum requirements are not exceeded.

12. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

1. I.T.B. No. 071I9200218 **2. Date:** 07/09/2009

3. Name and Address of Contractor
Truck & Trailer Specialities, Inc.
6726 Hanna Lake
Dutton, MI 49316

4. Phone Number (616) 698-8215

X SPECIFICATIONS – continued

5. Name, address, and phone number of Michigan dealership for warranty, parts and, service.

Same as Above

6. Vendor Contact Person

A. Print name: Daniel Bouwman

B. Signature: _____

C. Phone: (616) 698-8215

D. Fax: (616) 698-0972

7. Subcontractor, body installer, Etc.

A. Company Name and Address

NA

B. Subcontractor contact person

1. Printed Name: NA
2. Phone:
3. Fax:

8. BASIC SPECIFICATIONS	YES	NO	DEVIATION
Delivery for complete PO shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact **Jeff Turner at 517-334-7763** at least 48 hours prior to delivery	_X___	____	_____
Pre-wet liquid pump shall be directly coupled to the hydraulic motor	_X__	____	_____
Pre-wet pump shall be capable of 7gpm and constructed with a built in system relief valve	_X_	____	_____
Pre-wet pump shall be constructed with bronze type gears	_X___	____	_____
Pre-wet pump/motor shall be mounted inside a NEMA type enclosure with a hinged door for access	_X___	____	_____
A Dickey-john flow meter shall also be mounted in the enclosure	_X__	____	_____
Stainless steel hydraulic lines for the pump motor shall be plumbed to bulkhead fittings mounted on the side of the enclosure	_X___	____	_____
Pre-wet pump system shall have a poly check valve to be mounted in the discharge line to the spray nozzles	_X___	____	_____
Pre-wet systems shall include a nozzle kit including:			
d. Three (3) 2gpm spray nozzles	_X___	____	_____
e. All necessary hoses and fittings	_X___	____	_____
f. Stainless steel guards to be installed with the nozzles	_X___	____	_____

8. BASIC SPECIFICATIONS – continued	**YES**	**NO**	**DEVIATION**
Liquid tanks shall be 100 gallon minimum capacity for combination body trucks and 100 gallon capacity for slide-in V-box bodies	_X___	____	_____
Each body shall be equipped with twin tanks and shall be fitted with an equalizing hose between tanks	_X___	____	_____
Tanks shall be fitted with 2 inch cam-lock fittings for bulk filling	_X___	____	_____
Tanks shall be constructed of 3/8 inch wall rotationally molded polypropylene and shall have built in baffles	_X___	____	_____
Each tank shall have a minimum 3 inch fill opening at the top	_X___	____	_____
Tanks shall fit existing MDOT combination bodies and slide in material spreaders	_X___	____	_____
Tanks shall be fitted with the proper poly type tank vents	_X___	____	_____
Discharge fittings shall be molded type	_X___	____	_____
Spin welded or flange type fittings shall **NOT** be acceptable	_X___	____	_____
Tanks shall be provided with stainless steel mounting brackets and all necessary stainless steel hardware and attachments	_X___	____	_____
Tank kits for the combination bodies and the slide in bodies shall include a one (1) piece stainless steel tray that is as long as the tank	_X___	____	_____
The V-box kits shall include brackets that bolt directly to the V-box cross members	_X___	____	_____
A stainless steel pump enclosure mounting bracket shall be supplied with pre-wet system	_X___	____	_____

8. BASIC SPECIFICATIONS – continued	**YES**	**NO**	**DEVIATION**
A bulk fill kit with poly cam-lock fittings and poly Shut-off valve shall be provided	_X__	____	_____
A flusher kit consisting of a poly directional ball valve and a separate suction hose shall also be provided to be installed in the liquid supply line from the tank to the pump	_X__	____	_____
A quick disconnect poly cam fitting kits shall be supplied for the liquid discharge line to the spinner	_X__	____	_____

Comments _____

_____

End of Specification

MDOT SPECIFICATION# HYDTANK.C09

FUEL TANK AND HYDRAULIC RESEVOIR ASSEMBLY

I GENERAL

It is the intent of this specification to establish an optional use contract for fuel tank and hydraulic reservoir assemblies. All specifications contained herein are considered minimum and must be met.

The timely delivery of the fuel tank and hydraulic reservoir assemblies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days. **The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is received by the successful vendor.**

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for

liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

33. All blank spaces are completed with either yes or no, and if no list the type of deviation.

34. MDOT minimum requirements are met or exceeded.

35. MDOT maximum requirements are not exceeded.

36. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	YES	NO	DEVIATION
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517-334-7763 at least 48 hours prior to delivery	_X___	____	_____

Comments _____

_____

TANKS	YES	NO	DEVIATION
Tanks shall be combination, behind the cab style with angle carriage bracket and angle truck frame brackets	_X___	____	_____
Angle carriage bracket approximate size shall be 15 inches x 77 inches. Carriage shall have two (2) 3-½ inch cross tubes with four (4) 3-½ inch mounting brackets with a 1-5/8 inch round hole centered at 11-¾ inches x 39-¼ inches	_X__	____	_____
Rubber blocks placed under tanks for insulation shall be retained by ¼ inch steel bar wrapped completely around rubber and welded to frame.	____	_X___	Not needed
Tanks shall be attached to the angle bracket using ¼ inch flat brackets welded to the tanks to match up with angle iron bracket of the carriage	_X___	____	_____
Brackets shall be bolted together with at least four (4) brackets attached to the fuel tank and two (2) attached to the hydraulic tank	_X__	____	_____
Tank truck frame mounting brackets shall be 4 inch x 12 inch x 17 inch x ½ inch angle with three evenly spaced gussets. The top of the angle bracket will have two (2) elongated holes 1-½ inch long x 11/16 inch wide	_X___	____	_____
There shall be four (4) round sandwich mounts to fasten the carriage frame to the truck frame mount. The mounts will have a 5/8 inch bolt and be made of fuel resistant rubber	_X___	____	_____
Tanks and frame shall have all metal surfaces pre-cleaned and prepped prior to applying black powder coat	_X___	____	_____
Both fuel and hydraulic tanks shall be painted black	_X___	____	_____
Supporting frame for tanks shall be self cleaning and painted black	_X___	____	_____
Fuel capacity shall be 115 gallons minimum	_X___	____	_____
Hydraulic oil reservoir shall be 30 gallons minimum	_X___	____	_____
Preferred model, Riverside TP or approved equal	____	_X___	Monroe Type
Approximate overall dimensions shall be 34 inches tall x 14 inches wide x 76 inches long	_X___	____	_____
Construction shall be of pickled and oiled, #7 gauge steel	_X___	____	_____
Each tank shall have a magnetic drain plug, be pressure			

tested for leaks, and be FHWA labeled	_X___	____	_____
Fuel tank shall have a cleanout in the top, on each side of the baffle for inspection and cleaning.	_X___	____	_____
Hydraulic tank shall have one (1) cleanout of the same size	_X___	____	_____
Cleanout gaskets shall be interchangeable	_X___	____	_____
Hydraulic tank shall have provisions for one (1) Zinga RF-1618-S-25-EP15-0 tank top mounted return filter with bypass, bolted and gasketed	_X___	____	_____
A ¾ - 16 straight thread fitting shall be located in the front of the tank 12 inches up from the bottom	_X_____		_____
Hydraulic tanks shall have a:			
g. Screen in the fill	_X___	____	_____
h. Lockable breather cap with filtered vent	_X___	____	_____
i. 3 inch NPT flange for suction outlet	_X___	____	_____
j. Steel suction strainer (Zinga #2030-3 or equivalent) with a 2 inch NPT ID	_X___	____	_____
k. Combined level/temperature gauge mounted on outside end of tank approximately 6 inches from the top of the reservoir to the top hole in the gauge	_X___	____	_____
l. Two 1 1/16"-12 straight thread fitting in bottom	_X___	____	_____
Fuel and hydraulic tanks shall be delivered clean with no contamination particles in excess of 5 microns	_X___	____	_____
Fuel tanks shall have a pickup sump 6 inch x 6 inch x 3 inch with two (2) ¾ -16 straight thread fittings, one out the bottom and one out the front	_X___	____	_____
Sump shall be out side of the truck frame with a ¾ -16 straight thread fitting near the sump	_X___	____	_____
Fuel tanks shall be shipped with sending units for fuel level, shipped loose, and standard baffles within the tank	_X___	____	_____
Fuel sending units shall be ISS PRO RA9531-ISS-LP	_X___	____	_____

Fuel tanks shall have ball check vent on top of the tank and

a male safety filler cap with chain	_X___	____	_____
LOW OIL ALERT	**YES**	**NO**	**DEVIATION**
A Gems part # 15570 low oil sensor shall be provided and installed in the hydraulic tank	_X___	____	_____
A 1 inch NPT fitting shall be located in the top of the Hydraulic tank for the low oil sensor	_X___	____	_____
Low oil level sensor shall be connected to a normally open, energize to close, solenoid operated control valve provided by vendor	_X___	____	_____
Solenoid shall be actuated by the closing of a ground connection through the sensor to automatically shut off pump pressure port flow to all down stream functions	_X___	____	_____
Sensor shall also be connected to a light on the console to alert operator of the low oil condition	_X___	____	_____
FILTRATION	**YES**	**NO**	**DEVIATION**
A Zinga RF-1618-S-25-EP15-0 tank top mounted return filter with a 1 ¼ inch straight thread port and a 25psi electronic bypass switch attached to an indicator light on the control module to indicate if the filter goes to bypass condition	_X___	____	_____
Bypass switch shall be GEM # PS32-20-2MNB-A-FLS18-IP-FS25PSIR	_X___	____	_____
Filter unit shall have a pressure drop of less than 3psi @ 40gpm with 150 SSU oil	_X___	____	_____
Filter unit shall have a 1 ½ inch NPT port out the bottom of the canister and extended drop tube	_X___	____	_____
Two Zinga RE409-10 or equivalent replacement elements shall be furnished	_X___	____	_____

End of Specification

MDOT SPECIFICATION# GRDSPD.C09

GROUND SPEED ORIENTED SALT DISTRIBUTION SYSTEM

I GENERAL

It is the intent of this specification to establish an optional use contract for ground speed oriented salt distribution systems and electric over hydraulic joystick controls to be installed by **MDOT**. These systems will be used in conjunction with a closed center valve and load sense/pressure compensated piston pump, **to be supplied by MDOT**. The system is designed to control the salt and liquid distribution of MDOT winter maintenance trucks. All units will be equipped to control pre-wetting systems with granular spreaders. Electric over hydraulic joysticks are to control the underbody scraper up/down, left/right, front plow up/down, left/right, dump body and mid-mount wing up/down. Spreader functions shall be ground speed controlled with in-cab display and control. **The control must be capable and wired for the pre-wetting system.** All specifications contained herein are considered minimum and must be met.

The timely delivery of the ground speed oriented salt distribution systems and electric over hydraulic joystick controls is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet FMVSS standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

IX LIQUIDATED DAMAGES - continued

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

37. All blank spaces are completed with either yes or no, and if no list the type of deviation.

38. MDOT minimum requirements are met or exceeded.

39. MDOT maximum requirements are not exceeded.

40. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

X SPECIFICATIONS - continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT. **MDOT must approve any deviations to this specification.**

BASIC SPECIFICATIONS	YES	NO	DEVIATION
Delivery required: 120 days ARO	_X___	____	_____
Product literature provided with bid	____	____	_____
Warranty shall be 1 year parts and labor or manufacturers warranty which ever is greater	_X___	____	_____

BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Parts and materials shall be current production components of the make and part number specified herein, substitutions, if any, shall require review and approval prior to the bid and must be equivalent to or exceed the material and performance characteristics and product quality of the specified component	_X___	____	_____

REMOTE VALVE CONTROLS

Remote valve joystick controllers shall be located in the cab of the truck, within easy reach of the driver, mounted in a console unit to be supplied by MDOT	_X___	____	_____
Joystick controllers shall have the capability to provide proportional control to the hydraulic Pulse Width Modulated (PWM) valves	_X___	____	_____
The microprocessor controlled valve drivers shall be located within the base of the joystick controllers	_X___	____	_____
Approximate controller base dimension shall be 4 inches x 4 inches	_X___	____	_____
Controllers shall have a user selectable interface to be compatible with a Rexroth model M4 hydraulic valve	_X___	____	_____
Controllers shall be mounted in a modular base that accepts one to four controllers and be available in a dual or single axis configuration	_X___	____	_____
Power shall be introduced into the first controller and then feed from the first controller to the second controller and continue on	_X___	____	_____

SINGLE AXIS CONTROLS	YES	NO	DEVIATION
Single axis controller shall have of a single push button, red in color, that is mounted in the joystick handle	_X___	____	_____
Red button shall serve as a safety lockout, whereas output from the control will not activate without first depressing the push button	_X___	____	_____
All other components shall be black in color	_X___	____	_____
Controller shall contain a microprocessor with two control channels and the stick shall be gated such that the handle only moves in one axis (front to back)	_X___	____	_____
Controller shall be user selectable to provide PWM signal outputs of 50, 100, 150, and 250Hz for PWM valves	_X___	____	_____
Low and high speed limit calibrations shall be set utilizing two (2) user accessible potentiometers	_X___	____	_____
Electrostatic discharge and electromagnetic interference protection shall be provided	_X___	____	_____
Controller shall consist of a single axis controller and 15 foot valve cable	_X__	____	_____
Single axis joysticks shall control both the dump body and the wing, if so equipped, with the use of a covered toggle switch provided by MDOT	_X___	____	_____
There shall be 9 single axis joystick controllers required	_X___	____	_____
Dual axis controllers shall be mounted in the modular base with all components black in color	_X___	____	_____
Controller base shall contain a microprocessor with four control channels	_X___	____	_____
Controller shall have a float mode available, in that the front PWM signal will be engaged at 100% until the user activates the rear PWM signal	_X___	____	_____
Float mode will only be used with float compatible hydraulic systems as a loss of steering may result	_X___	____	_____
Controller shall be gated so that only one channel can be activated at a time except when in float, which allows the front axis and left or right channel to be activated at the same time	_X___	____	_____
Controller shall be user selectable to provide PWM signal			

outputs of 50, 100, 150, and 250Hz for PWM valves	_X___	____	_____
Electrostatic discharge and electromagnetic interference protection shall be provided	_X___	____	_____
Controller shall consist of a dual axis controller and 15 foot valve cable	_X___	____	_____
There shall be 18 dual axis joystick controllers required	_X___	____	_____

Comment: System will require 2 of these per truck. Pricing is based on 2 units.

BASE PLATE

Standard base plate shall be able to accommodate up to four (4) of the modular joystick controllers	_X___	____	_____
Base plate kit shall consist of a base plate, end plates, installation/operation instruction sheet, 10 foot power cable with 10 amp fuse	_X___	____	_____
Power shall be introduced into the first controller and then feed from the first controller to the second controller and to continue on	_X___	____	_____
There shall be 9 base plate kits required	_X___	____	1 Per Truck

Comment: _____

_____

GROUND SPEED SYSTEM - GENERAL

System shall have the capability to maintain a uniform application rate of granular deicing materials and liquid materials simultaneously (based on granular output)	_X___	____	_____
System shall have the capability of being used as a liquid only control and monitor boom shutoff inputs	_X___	____	_____
System shall have the flexibility of closed loop control of the spinner in order to maintain a desired spinner RPM or spread width	_X___	____	_____

Comment_____

_____

GROUND SPEED SYSTEM- CONSOLE

Control console shall have an easy to read dot matrix display which is capable of displaying a minimum of two (2) control channel application rates, ground speed, spread width,

time/date, gate height, liquid level, simultaneously	_X___	____	_____
Control console shall contain a microprocessor and have a minimum of three (3) closed loop control channels	_X___	____	_____
One control channel shall be used for application of granular material on a pounds (kilograms) per mile (kilometer) or area based (pounds per square foot/grams per square meter)	_X___	____	_____
A second channel shall be used for control of liquid material on a gallons (liters) per mile (kilometer) and gallons (liters) per square yard (meter)	_X___	____	_____
A third channel will be used for controlling the spinner speed and be capable of utilizing a feedback sensor to the close the loop in order to maintain a desired spinner rpm and a spread width	_X___	____	_____
Console shall have no more than one (1) switch on the front panel which is used to cycle display screen from operate, view accumulators, select materials, and turn the unit on or off	_X___	____	_____
Console shall have sufficient memory capable of recording the following information and display as current run totals and season totals:			
h. Miles(kilometers), tons (metric/English), and gallons (liters) spread while in automatic control mode	_X___	____	_____
i. Miles(kilometers), tons (metric/English), and gallons (liters) spread while in BLAST mode	_X___	____	_____
j. Total miles (kilometers), tons (metric/English), and gallons (liters) spread in automatic control mode	_X___	____	_____
k. Total vehicle miles (kilometers) driven	_X___	____	_____
l. Liquid gallons (liters) sprayed during pre-wetting and anti-icing applications	_X___	____	_____
m. Real time spent spreading granular, spraying liquid, and blasting	_X___	____	_____
n. Ambient and road surface temperature F° (C°)	_X___	____	_____
Console shall also record system information which includes:			
e. Time and date event recording of application rate history indicating when truck was started and turned off, type of materials spread, and application rates that were selected by the operator	_X___	____	_____
f. Time and date event recording of alarm history indicating when control system was operating in an error condition (application error, manual override, or loss of feedback sensor)	_X___	____	_____
g. Time and event recording of vehicle maximum speed alarm set point being exceeded	_X___	____	_____

h. Time and date event recording of on/off history indicating when control was in automatic control mode versus off as well as when blast function was activated	_X___	____	_____
Control console will automatically adjust the amount of granular material being applied when the closed loop spinner is in operation and the spread width knob setting is increased or decreased (this shall provide for spreading granular material in pounds per lane mile or pounds (kilograms) per square yard (meter)	_X___	____	_____
Control console shall have visual display of when unit is operating in application rate error, unload or blast condition, manual speed and automatic manual override condition, and built in ground speed simulator	_X___	____	_____
Truck ID can be entered into the unit that has a unique code for each truck	_X___	____	_____
This ID would also show up on the DaRT Reports so that data tracking can be done on an entire fleet of trucks	_X___	____	_____
Console shall have the capability of being switched from English units to metric units as well as multiple languages	_X___	____	_____
For **6 Combination Body trucks**, units shall have EPC control for speed of cross conveyor and two (2) position switch to control direction	_X___	____	_____
A two (2) position switch to control main conveyor direction and spinner shall be provided	_X___	____	_____
This switch shall be wired into the main controller to maintain ground speed control	_X___	____	_____
Unit shall be programmable for at least four (4) types of material, four (4) liquids, and capable of controlling pre-wet and anti-icing with boom controls without changing consoles or modules	_X___	____	_____
Wiring for operation of pre-wet valve shall be included with all units	_X___	____	_____
Units shall include a two (2) year warranty on the processor and console	_X___	____	_____
Data logging information shall be available for download through a handheld device capable of holding up to 25 truck downloads, easily attachable to the unit via a cable permanently attached to the unit with information that			

can be formatted with standard Windows™ programs	_X___	____	_____
Unit shall be capable of Low Hopper Level Warning to alert the operator of a low level of material in the hopper **(Low Level Sensor will not be provided in this specification, the capability will be for future options or upgrades. Unit must be wired accordingly for this option)**	_X___	____	_____
Controller shall beep and flash a warning to the operator	_X___	____	_____
Console shall be programmed with a detachable keyboard with menu driven screens to aid in programming process	_X___	____	_____
Keyboard shall be removable after programming is complete which eliminates the need of lockout codes or keys	_X___	____	_____
Unit shall be USA made product	_X___	____	_____
Console calibration mode:			
i. Automatic calibration procedures for granular and liquid channels to determine the granular spreader constant of conveyor/auger and liquid sprayer constant of flow meter	_X___	____	_____
j. Ground speed calibration procedure in units of 1 mile or 1 kilometer	_X___	____	_____
k. Dual ground speed axle calibrations will allow users with dual axles to calibrate both and use both constants for ground speed	_X___	____	_____
l. Programmable operation frequency of PWM valves from 20 to 250Hz	_X___	____	_____
m. Automatic calibration procedure that will determine the PWM offset and saturation points of valve as well as system gain and enter into the console's memory	_X___	____	_____
n. Programmable blast timed button or on/off when blast button is pressed and then released	_X___	____	_____
o. Spinner calibration procedure to allow for open loop operation of spinner to coordinate spread width knob position with a specific spread width for lane mile application of material	_X___	____	_____
p. Calibration procedures shall only be accessible with plug in programmable keyboard	_X___	____	_____
Console programming features:			
o. Program independent application rates for up to four (4) separate granular materials and four (4) separate liquid materials	_X___	____	_____
p. Application rates may be preset for ten fixed rates or to expand application rate choices, a preset minimum rate, preset maximum rate and rate change			

increments between	_X___	____	_____
q. A blast application rate is provided for each material for control of the blast function	_X___	____	_____
r. All of the granular and liquid materials can have user defined labels to aid in easy selection of the correct material by the operator	_X___	____	_____
s. Reset of granular current and season accumulators	_X___	____	_____
t. Reset of liquid current and season accumulators	_X___	____	_____
u. Ability to lockout granular and liquid materials availability in the operate mode	_X___	____	_____
v. Program the console for use as a granular and liquid material control, a liquid only control, or a granular only control	_X___	____	_____
w. When liquid only control is selected, the operate screen automatically configures itself and displays a five (5) segment boom shutoff graph	_X___	____	_____
x. All programming features are only accessible with plug-in keyboard	_X___	____	_____
y. Capability to program console for automatic switch of liquid materials from pre-wet (gal/ton) to liquid only (gal/lane mile) for anti-icing	_X___	____	_____
z. Material flow/hopper level input alarm has a user defined text for the alarm allowing for various types of sensors or inputs to be used and the text can be changes to fit each application	_X___	____	_____
aa. Have provisions to work with a low oil level sensor connected to a normally open, energize to close, solenoid operated control valve, actuated by the closing of a ground connection through the sensor, to automatically shutoff pump pressure (also connected to a light on the console to alert operator)	_X___	____	_____
bb. Control console programming shall include the capability of "granular reduction". Granular application rates will automatically be reduced to a preset percentage when the liquid pre-wet system is applied	_X___	____	_____

Comment_____

_____

OPERATOR REMOTE SWITCH MODULE	**YES**	**NO**	**DEVIATION**
A remote switch module shall be used for operator convenience which contains switches to:			
f. Power liquid and granular channels on or off individually	_X___	____	_____
g. Allow liquid and granular application rates to be increased or decreased separately	_X___	____	_____
h. Provide a momentary push button switch used for blast mode	_X___	____	_____

i. Master spreader switch for off automatic and unload of granular, liquid, and spinner channels _X___ ____ _____

j. Provide a twenty position rotary knob for adjustment of spinner speed _X___ ____ _____

Remote switch module shall be backlit for visibility and use during night operation _X___ ____ _____

Remote switch module shall allow operator to select materials to be applied __X__ ____ _____

Comment_____

_____

GRANULAR CONTROL

Hydraulic valves (MDOT provided) have pulse width modulated dual control valves to control hydraulic flow to spinner and conveyor motors.

Modulated valve drivers for adaptation to various pulse width modulated valves shall be provided _X___ ____ _____

Unit shall be compatible with Hall Effect conveyor feed rate sensored hydraulic motors (MDOT provided) with at least 50 pulses per revolution of motor _X___ ____ _____

Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device _X__ ____ _____

Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights _X___ ____ _____

Comment_____

_____

LIQUID CONTROL	**YES**	**NO**	**DEVIATION**
Flow meter shall be provided for accurate measurement of liquid sprayed	__X__	____	_____
A modulated valve driver (20amps) shall be provided to drive PWM hydraulic valve for desired volume of			

liquid application rate _X___ ____ _____

System shall have in line ball valve control capability available in ½ inch, ¾ inch, 1 inch, and 2 inch sizes _X___ ____ _____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# HYD-PP.C09

HYDRAULIC SYSTEM, CLOSED CENTER, PISTON PUMP, GROUND SPEED CONTROLLED

I GENERAL

It is the intent of this specification to establish an optional use contract for hydraulic systems with a closed center sectional type load sensing valve and load sense/pressure compensated piston pump. The system is designed to control the functions of a Winter Maintenance Truck with a dump body (double acting lift cylinders for the box-up/down) and slide in spreader; or a combination body with cross auger and spinner. It shall also operate standard functions such as underbody blade with

swing and front plow with swing. **All units will be equipped to control pre-wetting systems with granular spreaders and mid mount wings.** Spreader functions shall be ground speed controlled with in-cab display and control (supplied by separate vendor). All specifications contained herein are considered minimum and must be met. **Hydraulic valve must be compatible with Dickey-john Control Point Ground Speed Controls.** [*Side delivery augers on Combination Bodies will require reversing operation along with the main delivery conveyor, front to rear. Pump capacity may have to be increased and valves and controls may have to be added to compensate for additional functions.*]

Note: MDOT will be installing these hydraulic systems on:

(System One) – Single or tandem axle trucks with 11 or 14 foot combination bodies, front cross auger with left spinner and rear spinner or rear cross augers, with regular or zero velocity spinners. **Tandem valvebodies shall include a section for side mounted wing.**

(System Two) – Single or tandem axle trucks with dump body, slide-in material spreader, cross auger, regular or zero velocity spinner or rear y-chute with spinner. **Tandem valvebodies shall include a section for side mounted wing.**

All valves shall have an EPC section to control a wing.

The timely delivery of the hydraulic systems is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the

date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

41. All blank spaces are completed with either yes or no, and if no list the type of deviation.

42. MDOT minimum requirements are met or exceeded.

43. MDOT maximum requirements are not exceeded.

44. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Parts and material are to be current production components of the make and part number specified herein, substitutions, if any, will require review and approval prior to the bid and must be equivalent to or exceed the material and performance characteristics, and product quality of the specified component	_X___	____	_____
Pump shall be driven from the front of the engine crankshaft via a Spicer 1310 series drive-line assembly,			

or equal, with a splined slip yoke and fixed end yokes assembled per MDOT specifications	_X___	____	_____
Two (2) setscrews will be drilled for, and secured by, a safety wire and all cross and bearing assemblies will have grease fittings that are readily accessible	_X___	____	_____
The splined slip joint shall have a readily accessible grease fitting also	_X___	____	_____
Furnish a variable volume, pressure, and flow compensated, load sensing axial piston pump	_X___	____	_____
The pump shall offer the following features as standard:			
i. Internal bleed down compensator	_X___	____	_____
j. Bolt on compensator with separate adjustments for stand by and main pressure	_X___	____	_____
k. SAE C mounting flange	_X__	____	_____
l. SAE code 62 flanged pressure port	_X__	____	_____
m. SAE code 61 flanged suction port size 2-½ inch	_X___	____	_____
n. 1-½ inch SAE keyed input shaft	_X___	____	_____
o. One piece input shaft for long service life	_X___	____	_____
p. Preferred model **Rexroth** model **A10V100** or approved equal	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
The pump shall be of cast iron construction, **6.0cir** displacement for all truck systems	_X___	____	_____
The hydraulic control valve shall be a closed center sectional type valve, load sense, individually pressure and flow compensated, rated at minimum 40gpm	_X___	____	_____
The valve shall be assembled with a mid inlet to allow a maximum flow into P (pressure port) of 52gpm	_X___	____	_____
The P port must be SAE 16, tank (T) SAE 20 X, Y, L, M ports SAE 6	_X___	____	_____
The valve shall feature individual sections for all functions The A & B work-ports shall be SAE 12	_X___	____	_____
The valve shall include a cartridge type shuttle network with access opposite the working ports for serviceability	_X___	____	_____
All valve functions shall be pilot solenoid operated	_X___	____	_____
All valve functions shall include individual load sense pressure adjustment for each work port	_X__	____	_____
Valve section flow to be determined by spool selection, for proper proportional joystick operation at maximum band width the spool stroke will not be limited in travel to obtain flow requirements except in the down travel position under induced load conditions	__X__	____	_____
Spool flows shall be easily field adjustable within a range by the addition or subtraction of shims or adjusting nuts, adjustment shall not reduce main spool travel	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
For serviceability when enclosure mounted the solenoid coils and the individual work port load sense pressure controls shall be adjustable and accessible on the same side of the valve	_X___	____	_____
Push pin manual overrides on the proportional coils shall be covered to exclude corrosion	_X___	____	_____
Coils will be one piece assemblies with covered manual overrides	_X___	____	_____
All valve functions shall include stroke limiter	_X___	____	_____
All valve functions shall have adjustable flow compensators, either shim or screw adjustment is acceptable	_X___	____	_____
The hydraulic pilot supply will be internal to the valve	_X___	____	_____
All units shall include a pre-wet and a wing valve	_X___	____	_____
Rexroth model M4-12 series 2 or equal	_X___	____	_____
All sections are to be fully proportional electric	_X___	____	_____
Left End Cover: Blank			
Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	_X___	____	_____
Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	_X___	____	_____
Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief down and 1,400psi load sense relief up	_X___	____	_____
Section 5: Hoist, 4 way Low boy, 24g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	_X___	____	_____
Mid Inlet: Must have adjustable anti-cavitation relief valve	_X___	____	_____
Section 6: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control	_X___	____	_____

<u>Note: Special for Side mounted wing included on all valve assemblies:</u>

Section 7:			
d. Main conveyor, 2 way, 15gpm, motor spooled, Adjustable load sense pressure control for slide-in hoppers SAE 12 A&B work-ports	_X___	____	_____
e. Main conveyor 4 way, 30gpm, motor spooled, adjustable load sense pressure control section for combination body with front cross auger and front & rear spinners SAE 12 A&B work-ports	_X___	____	_____
f. Main conveyor 2 way, 30gpm, motor spooled section, SAE 12 A&B work-ports adjustable load sense pressure control for combination body with rear cross auger	_X___	____	_____
Section 8: Spinner (rear), 2 way, 7gpm, motor spooled, adjustable load sense pressure control for slide-in hoppers SAE 12 A&B work-ports	__X__	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Section 9: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control either front or rear cross auger	_X___	____	_____
Section 10: Pre-wet, 4 way, 8gpm, motor spooled, SAE 12 A&B work-ports, adjustable load sense pressure control	_X___	____	_____
Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner attachment, port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	_X___	____	_____
Section valves must be identifiable by a model number stamped in the bottom of the valve section and easily readable after assembly, for simplifying the circuit hook-up	_X___	____	_____
Remote Valve Controls are PWM type controls and will be furnished by the Ground Speed Oriented Salt Distribution vendor	_X___	____	_____
Low Oil Alert: A low oil level sensor (**Sensor furnished by hydraulic tank vendor**) of the solid state, non mechanical, non float type, to be connected to a normally open, energize to close, solenoid operated control valve of the cartridge and manifold design to be directly bolted to the pump pressure port. Actuation shall be by the closing of a ground connection through the low oil level sensor, to automatically shut off pump pressure port flow to all down stream functions in the event of low hydraulic oil level, and also connected to a light on the Dickey-john console to alert the driver of the low oil condition	_X___	____	_____

8. BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
Training: Vendor to provide eight (8) hours training at various MDOT facilities throughout the state including the Upper Peninsula	_X___	____	_____
Training to include: operation, calibration, maintenance, troubleshooting, and repair	_X___	____	_____
Michigan based, factory trained personnel to provide training and calibration assistance	_X___	____	_____
Factory should have a warranty service center within one day ground UPS	_X___	____	_____
Systems shall be shipped accessible by fork lift, on pallets	_X___	____	_____
Billing shall be per unit/truck and as delivered	_X___	____	_____
One (1) set, operator, maintenance, and parts manuals per system	_X___	____	_____
Warranty shall be minimum One (1) year parts and labor	_X___	____	_____
Drive line shall be engine driven Spicer, splined slip joint And be shipped assembled per MDOT specifications	_X__	____	_____
Hydraulic pump shall be variable volume, pressure and flow compensated, 100cc displacement, load sensing, **Rexroth A10V100**	_X___	____	_____
Hydraulic pump shall be:			
g. Cast iron construction	_X___	____	_____
h. 1-½ inch keyed one piece input shaft	_X___	____	_____
i. SAE "C" mount	_X___	____	_____
j. 2-½ inch flanged suction port	_X___	____	_____
k. 1-¼ inch flanged pressure port	_X___	____	_____
l. Provide a pressure test port	_X___	____	_____

Control valves shall be:

e. Closed center sectional type	_X___	____	_____
f. Load sense pressure compensated	_X___	____	_____
g. Inlet maximum flow 52gpm, work port 34gpm	_X___	____	_____
h. Rexroth M4-12 left hand assembly	_X___	____	_____
Model ID numbers shall be stamped on valves, visible when assembled	_X___	____	_____
Low oil shut down valve shall be normally open, energize to close, solenoid operated control valve, cartridge and manifold design, to be bolted directly to pump pressure port	_X___	____	_____
Valves shall be assembled in the proper configuration and tagged and packaged per the configuration	_X___	____	_____
EPC valves shall be compatible with Dickey-john Control Point ground speed controls	_X___	____	_____
Preconstruction meeting shall be required	_X___	____	_____

9. TECHNICAL ASSISTANCE

The vendor is expected to provide technical assistance and expertise on the installation of all hydraulic components listed in this Specification. This shall be provided at the build up location, MDOT A&E Garage in Lansing, MI. In addition, technical support and trouble shooting for all components furnished shall be provided to all MDOT garages statewide during the warranty period.

The estimated hours required, not including travel time, for this shall be a minimum of 80 hours. This support may be scheduled such as three hours per week over a period of months during the truck build up or may be on call as needed. The vendor shall complete the following for their technical support person or persons.

Name: Bob Slocum/Dan Bouwman

Office Address: 6726 Hanna Lake, Dutton, MI 49316

Office phone number: (616) 698-8215

Office Fax: (616) 698-0972

Cell phone number : (616) 889-7495

10. COST

Suggested Model:

c. Pump, Rexroth, Model A10V100	_X___	____	_____
d. Valve, Rexroth, Model M4-12	_X___	____	_____

Contractor to List Make and Model Offered:

_____

Literature provided for Make and Model _X___ ____ _____

Per unit cost, per system:

System One, Single or tandem axle trucks with 11 or 14 foot combination bodies, front cross auger with left spinner and rear spinner or rear cross augers, with regular or zero velocity spinners. **Tandem valvebodies shall include a section for side mounted wing.**

Each $8,656.00

System Two, Single or tandem axle trucks with dump body, slide-in material spreader, cross auger, regular or zero velocity spinner or rear y-chute with spinner. **Tandem valvebodies shall include a section for side mounted wing.**

Each $8,571.00

Vendor to list any deviations from specifications:

_____

_____

_____

End of Specification

MDOT SPECIFICATION# 04-TARPS.C09

TARP ASSEMBLIES FOR WINTER MAINTENANCE TRUCKS

I GENERAL

It is the intent of this specification to establish an optional use contract for 11 foot and 14 foot automatic electric tarp assemblies to be mounted on MDOT winter maintenance trucks. They must be the latest model in current production, satisfactory to meet the performance and design characteristics required in the specification. They shall be built in accordance with all FMVSS, OSHA, MIOSHA, and ANSI standards.

The timely delivery of the tarp assemblies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet FMVSS standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without

the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations may be considered acceptable only in the following circumstances:

13. All blank spaces are completed with either yes or no, and if no list the type of deviation.

14. MDOT minimum requirements are met or exceeded.

15. MDOT maximum requirements are not exceeded.

16. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery for complete PO shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517/334-7763 at least 48 hours prior to delivery	_X___	____	_____

TARP	**YES**	**NO**	**DEVIATION**
Tarp shall be made of high quality minimum 18oz material with a urethane coating on both sides	_X___	____	_____

Tarp shall have a 350° F temperature rating	_X___	____	_____
Main body of tarp shall be constructed of a single piece of material	_X___	____	_____
Tarp tube pocket shall be lined with a solid weave material	_X___	____	_____
Tarp shall have rear corners reinforced by doubling the 18oz material in the corners	_X___	____	_____
Edges shall be heat welded to bind them	_X___	____	_____
Any stitching shall be bonded polyester thread	_X___	____	_____
Tarps shall not have side or tail flaps	_X___	____	_____

Comments _____

_____

COMPONENT CONSTRUCTION	**YES**	**NO**	**DEVIATION**
Components shall be constructed of 6005 T5 aluminum which exceed the 6061 T6 ratings	_X___	____	_____
Springs shall be Teflon coated for added rust and wear protection	_X___	____	_____

Comments _____

_____

ARMS AND SPRINGS	**YES**	**NO**	**DEVIATION**
Tarp arms shall be aluminum extrusions in the shape of a modified oval with two flat sides for maximum strength to weight ratio	_X___	____	_____
Springs shall be spiral torsion style	_X___	____	_____
Springs shall be designed for easy replacement without replacing whole arm	_X__	____	_____

Comments _____

_____

PIVOTS	**YES**	**NO**	**DEVIATION**
Pivots shall be bearing mounted on a 1-¼ inch pin that has			

been nitro caburized to stop corrosion	_X___	____	_____
Pivots shall be mounted through the side rail of the body	_X___	____	_____
Pivots shall be adjustable by simply adjusting hook pin height or by adding/subtracting spiral torsion springs	_X___	____	_____
Pivot tubes shall be polished, with four (4) springs per side, 84 inches long	_X___	____	_____

Comments _____

_____

BOWS	**YES**	**NO**	**DEVIATION**
Bow arms shall have 90° corners welded in them	_X___	____	_____
Bow arms shall be polished	_X___	____	_____

Comments _____

_____

TENSION BOW	**YES**	**NO**	**DEVIATION**
System shall include gravity powered tarp tensioning bow to assist in holding the tarp down behind cab shield to prevent sailing	_X___	____	_____
Tension arm shall mount on the main pivot arm; it shall **NOT** attach to the cab shield or main dump body	_X___	____	_____
Tension bow arms shall have 90° elbows welded in them	_X___	____	_____
Tension bow arms shall be polished	_X___	____	_____

Comments _____

_____

TARP SPOOL	**YES**	**NO**	**DEVIATION**
Tarp spool shall include a one piece polished aluminum wind deflector that can be cut to fit any truck	_X___	____	_____
Ends of wind deflector shall incorporate mounts for strobe lights and drive motor	_X___	____	_____
Tarp spool shall include a tarp axle with five (5) full			

length pre-threaded grooves for mounting the tarp	_X___	____	_____
Axle shall have a Nitro carburized stub shaft to help prevent corrosion between a-similar metals	_X___	____	_____
Tarp spools shall include all electrical components needed to wire truck for easy in cab operation	_X___	____	_____
Tarp spools shall be designed so as NOT to trap debris on the in the cab shield and allow for easy cleaning of cab shield	_X___	____	_____

Comments _____

_____

WARRANTY	**YES**	**NO**	**DEVIATION**
Warranty on system, less tarp itself, shall 1 year	_X___	____	_____
Gear motor shall have a minimum three (3) year non-prorated warranty against defects and wear out	_X___	____	_____

Comments _____

_____

TARP DRIVE	**YES**	**NO**	**DEVIATION**
Tarp drive shall have controls mounted in cab	_X___	____	_____
Tarp drive shall have a 12volt gear motor	_X___	____	_____
Tarp drive shall be chrome plated	_X___	____	_____
Tarp drive shall have a tool steel Nitro carburized output shaft	_X___	____	_____
There shall be NO chain drives in the construction of the gear motor	_X___	____	_____
The tarp control system shall include a remote mounted, solenoid controlled, polarity reversing switch, a three position, non-detent control switch, circuit protection, and enough 6 gauge dual conductor wire to extend from the batteries to solenoid switch and to the tarp motor	_X___	____	_____

Comments _____

_____

End of Specification

MDOT SPECIFICATION # 04-11SSDMP.C09

DUMP BODY, STAINLESS STEEL, 8 cu. yd., 11FT., W/ UNDER BODY HOIST and 1/2 CAB PROTECTOR

I GENERAL

It is the intent of this specification to establish an optional use contract for stainless steel dump bodies, of approximately 8 cu. yd. with an underbody hoist. Each shall consist of a minimum 132 inch length by 87 inch inside width box. Each box shall include an underbody hoist with double acting cylinder, ½ cab protector (attached per MDOT specifications), air operated tail gate latches and designed to accommodate most vertical exhaust stacks without modification. The bodies will have holes pierced and studs mounted per MDOT specifications. MDOT will install this dump box on a **44,000 GVW** single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch C.A., and 187 inch C.E.

The timely delivery of the dump bodies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement or any units delivered after the delivery date will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for more than one unit the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order,

and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return this portion of the specification to provide information in the spaces that follow for the equipment offered with this quotation. This information will be used initially by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order, and by MDOT then comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

* All blank spaces are completed.

* MDOT minimum requirements are met or exceeded.

* MDOT maximum requirements are not exceeded.

* The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

* The words "As Required" are entered for MDOT requirements not noted with maximums or minimums.

X SPECIFICATIONS – continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. Failure to make such alteration will be cause for non-acceptance by MDOT.

GENERAL	**YES**	**NO**	**DEVIATION**
Delivery time shall be 120 Days ARO	_X___	____	_____
Body shall measure 132 inches long, 40 inch high front, 34 inch high sides and tailgate	_X___	____	_____
Body shall have inside width of 87 inches	_X___	____	_____
Body shall have outside width of 96 inches	_X___	____	_____
Capacity shall be approximately 8 cubic yards	_X___	____	_____
"Body raised" light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W20ME2 12V - 24V supplied with each body **No Exceptions**	_X___	____	_____

Comment_____

_____

FLOOR	**YES**	**NO**	**DEVIATION**
Floor shall be constructed of ¼ inch AR400 plate steel, 180,000 PSI tensile strength and yield of 145,000 PSI	_X___	____	_____
Floor shall have 9 inch radius wings if ¼ inch A1011 carbon steel at sides and front	_X___	____	_____

Comment_____

_____

UNDERSTUCTURE	YES	NO	DEVIATION
Understructure shall be crossmemberless	_X___	____	_____
All welding shall be continuous	_X___	____	_____
Fabricated longsills shall be of ¼ inch CQ carbon steel inner panels and ¼ inch CQ carbon steel outer panels	_X___	____	_____
Interior of longsills shall be coated with rust inhibitor coating at factory	_X___	____	_____
Rear rubrail shall be full width, fabricated design, 7-gauge 201or 304 stainless steel, **Channel style rear aprons are not acceptable**	_X___	____	_____
A wiring stud 2-5/16 inch x ¾ inch stainless steel threaded shall be installed on the underside of the floor, 3 inches in from the inside of the left longsill and 3-¼ inches forward of the rear rubrail	_X___	____	_____
Support plates shall be installed from the rubrails to the floor	_X___	____	_____
a. open at the front and rear	_X___	____	_____
b. made of A1011 carbon steel	_X___	____	_____
c. notched opening 68-80 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	_X___	____	_____
Longsills shall have 3 inch passageway in the rear of the longitudinals for wiring	_X___	____	_____

Comment_____

_____

FRONT BULKHEAD & ½ CAB SHIELD	YES	NO	DEVIATION
Front bulkhead shall be constructed of 7-gauge 201or 304 polished stainless steel with pressed in brace for rigidity	_X___	____	_____
Front of body shall have a 1-¼ inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up from lower edge	_X___	____	_____
½ cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	_X___	____	_____

½ cab shield shall be of 7-gauge 201 or 304 stainless steel with flat plate style reinforcements on top	_X___	____	_____
Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward hole shall be 1-3/8 inches down from top and they shall be parallel with box sides	_X___	____	_____
A grab handle made of 5/8 inch stainless steel rod, 20 inches long and three inches high, shall be welded to the cab shield and the bulk head, diagonally	_X___	____	_____
Threaded wiring studs 2-5/16 inch x ¾ inch stainless steel, shall be installed on the front bulkhead and cab shield	_X___	____	_____
a. Studs shall be placed along the left side of front bulkhead beginning 7 inches up from the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs are to start 4 inches from the rear bend towards the front on 16 inch centers	_X___	____	_____
b. Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-½ inches down from the top bend	_X___	____	_____

Comment_____

_____

TAILGATE	**YES**	**NO**	**DEVIATION**
Tailgate shall be double acting	_X___	____	_____
Tailgate shall be fully boxed, double walled design	_X___	____	_____
All horizontal surfaces shall be dirt shedding	_X___	____	_____
Inner wall shall be ¼ inch AR400 to match the strength and durability of the floor and shall be primer coated	_X__	____	_____
Outer wall shall be 10-gauge 201or 304 stainless steel	_X___	____	_____

X

All tailgate hardware visible on outside of body shall be 201or 304 stainless steel	_X___	____	_____
Upper tailgate hinges shall be 1-½ inch thick 201or 304 stainless steel with 5 inch offset	_X__	____	_____
Upper and lower pins shall be 1-¼ inch 201or 304 stainless steel	_X___	____	_____
All tailgate hinges shall be greaseable	_X___	____	_____
A 201 or 304 stainless steel grab handle shall be located on the lower left corner of the tailgate	_X___	____	_____
Upper and lower dogleg slotted chain keepers shall be 201 or 304 stainless steel, with sufficient plated chain to lay tailgate flat	_X___	____	_____
Chain shall be removable, 3/8 inch, high tensile plated type	_X___	____	_____
5/8 inch 201or 304 stainless steel lift loop shall be welded on the outside	_X___	____	_____
All pivot points shall be grease zerk lubricated	_X___	____	_____
201 or 304 stainless steel latches shall be retractable, grease zerk lubricated with zerks on the outside of the rear cornerposts for accessibility	_X___	____	_____
Tailgate release shall be air operated	_X___	____	_____
Air cylinder shall be 3-½ inch diameter and meet military specifications for cold weather service	_X___	____	_____
Air cylinder housing shall be aluminum	_X___	____	_____
Air cylinder rod shall be stainless steel	_X___	____	_____

Comment_____

_____

SIDES	**YES**	**NO**	**DEVIATION**
Sides of dump body shall be 7-gauge 201 or 304 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength	_X___	____	_____

All welds shall be continuous	_X___	____	_____
Sides shall have a reverse-bend design	_X___	____	_____
Top rail shall be fully boxed and dirt shedding	_X___	____	_____
Rubrail shall have 45-degree slope to the flat side	_X___	____	_____
One integral break-formed strengthening brace per side	_X___	____	_____
Front pillars shall be full-depth, radiused, 201 or 304 stainless steel	_X___	____	_____
Rear pillars shall be full-depth, 201 or 304 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar	_X___	____	_____
Pillars shall be dirt shedding	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the sloped surface of the left rubrail, 2 inches below the breakline, 19 and 21-½ inches back from the front post	_X___	____	_____
Two threaded wiring studs 2-5/16 inch x ¾ inch stainless steel shall be located 4 inches above sloped surface of the left rubrail, 12 and 20-¾ inches forward of the rear corner post	_X___	____	_____
Three (3) 1-½ inch holes shall be located on the sloped surface of the left rubrail, 1-¾ inches below the breakline. They shall be 2, 4-½, and 7 inches forward of the rear cornerpost	_X___	____	_____
Two (2) 9/16 inch holes shall be located on the flat portion of the left rubrail, 1 inch down from the breakline, 2 and 14 inches back from the front post	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the sloped surface of the right rubrail, 2 inches below the breakline, 19 and 21-½ inches back from the front post	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the flat portion of the rubrail, 2-½ inches below the breakline, 31 and 37-3/8			

	YES	NO	DEVIATION
inches back from the front post	_X__	____	_____
Holes shall be provided in both rear pillars:	_X___	____	_____
a. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 30-½ inches from the bottom of the rubrail	_X___	____	_____
b. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 30-½ inches from the bottom of the rubrail with a ½ x 13 stainless steel nut welded on the inside of pillar	_X___	____	_____
c. A 1-¼ inch hole shall be located 6-¾ inches forward of the rear of the pillar and 13 inches up from the bottom of the rubrail	_X___	____	_____
d. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 13 inches up from the bottom of the rubrail	_X___	____	_____
e. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
f. A 5/8 inch hole shall be located 4-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
g. A 5/8 inch hole shall be located 3-¾ inches in from of the rear of the pillar and ½ inch below the bottom of the rubrail.	_X___	____	_____
h. The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.375 inches apart.	_X___	____	_____

	YES	NO	DEVIATION
A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner post to the front side of the rear corner post on each side of the body	_X___	____	_____
The tarp rail shall include supports to the body sides located on 24 inch centers	_X___	____	_____
Both the tarp rail and the gussets shall be constructed of type 201or 304 stainless steel	_X___	____	_____

Comment_____

_____

HOIST	YES	NO	DEVIATION
Hoist shall be Crysteel Roller Combo Model # RC 750 or approved equal	_X___	____	_____
Hoist shall be NTEA Performance Class 50 NTEA Type VII	_X___	____	_____
Hoist shall have one, double acting, single stage cylinder	_X___	____	_____
Cylinder bore shall be 7 inches	_X___	____	_____
Cylinder shaft diameter shall be 2-¼ inches	_X___	____	_____
Cylinder stroke shall be 21-5/8 inches	_X___	____	_____
Cylinder shaft shall be chromed SW85 steel with 85,000psi yield strength	_X___	____	_____
Cylinders shall have maximum operating pressure of 2,200psi with internal bypass to protect cylinder from damage	_X___	____	_____

7. HOIST - continued	**YES**	**NO**	**DEVIATION**
Cylinder base (raise) port size shall be SAE-10 (7/8-14)	_X___	____	_____
Rod port (lower) shall be SAE-8 (3/4-16)	_X___	____	_____
Cylinder displacement:			
a. up shall be 832.2 cubic inches	_X__	____	_____
b. down shall be 746.5 cubic inches	_X___	____	_____
Load capacity shall be 15.3 tons @ 50 degree dump angle	_X___	____	_____
Hoist shall have 13-¾ inch mounting height	_X___	____	_____
Hoist shall have "Roller Combo" design with the initial lift point ahead of the center line of the body, directing the force of the hoist cylinder upwards for more breakaway power before transferring it to a scissors action	_X___	____	_____
Greaseless composite bearings shall be provided at all critical pivot points	_X___	____	_____
Hoist shall have full length sub-frame that is the same length as the dump body	_X___	____	_____
Sub-frame shall have 4-¾ inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength	_X___	____	_____
Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have four (4) grease zerks	_X___	____	_____
Rear hinge shall be fabricated with structural steel that is 5 inch x 3 inch x 3/8 inch x 36-½ inch	_X___	____	_____

7. HOIST - continued	**YES**	**NO**	**DEVIATION**
Hinge pins shall be 1-¾ inch x 5-13/16 inch round stainless steel with greaseless composite bearings	_X___	____	_____
Two (2) body props shall be provided to support empty body weight	_X___	____	_____
Hoist must be listed in the NTEA dump body hoist chart	_X___	____	_____

Comment_____

_____

BODY PREPARATION	**YES**	**NO**	**DEVIATION**
Entire body shall be cleaned and rinsed	_X___	____	_____
Floor, floor radius, inner panel of the tailgate and the entire understructure shall be primed with high quality two-part urethane gray primer	_X___	____	_____
Floor, floor radius, inner panel of the tailgate and the entire understructure shall have a two-part urethane black finish coat over the gray primer	_X___	____	_____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# 04-14SSDMP.C09

DUMP BODY, STAINLESS STEEL, 10 cu. yd., 14FT., W/ UNDER BODY HOIST and ½ CAB PROTECTOR

I GENERAL

It is the intent of this specification to establish an optional use contract for stainless steel dump bodies, of approx. 10 cu. yd. with an underbody hoist. Each shall consist of a minimum 168 inch length by 87 inch inside box width. Each box shall include an underbody hoist with double acting cylinder, ½ cab protector (attached per MDOT specifications); air operated tail gate latches and designed to accommodate most vertical exhaust stacks without modification. The bodies will have holes pierced and studs mounted per MDOT specifications. MDOT will install this dump box on a **64,000 GVW** tandem axle, cab and chassis with chassis measurements of approximately 218 inch W.B., 136 inch C.A. and 192 inch C.E.

The timely delivery of the dump bodies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. This inspection shall be after all major components are installed on the extended van chassis but before final paint. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

IX LIQUIDATED DAMAGES – continued

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.
The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is issued.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return this portion of the specification to provide information in the spaces that follow for the equipment offered with this quotation. This information will be used initially by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order, and by MDOT then comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

* All blank spaces are completed.

* MDOT minimum requirements are met or exceeded.

* MDOT maximum requirements are not exceeded.

* The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

* The words "As Required" are entered for MDOT requirements not noted with maximums or minimums.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. Failure to make such alteration will be cause for non-acceptance by MDOT.

GENERAL	**YES**	**NO**	**DEVIATION**
Delivery time shall be 120 Days ARO	_X___	____	_____
Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate	_X___	____	_____
Body shall have inside width of 87 inches	_X___	____	_____
Body shall have outside width of 96 inches	_X___	____	_____
Capacity shall be approximately 10 cubic yards	_X___	____	_____
"Body raised" light shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W20ME2 12V - 24V **No Exceptions**	_X___	____	_____

Comment_____

_____

FLOOR	**YES**	**NO**	**DEVIATION**
Floor shall be constructed of ¼ inch AR400 plate steel, 180,000 PSI tensile strength and yield			

of 145,000 PSI	_X___	____	_____
Floor shall have 9 inch radius wings if ¼ inch A1011 carbon steel at **sides only**	_X___	____	_____

Comment_____
_____

UNDERSTUCTURE	**YES**	**NO**	**DEVIATION**
Understructure shall be crossmemberless	_X___	____	_____
All welding shall be continuous	_X___	____	_____
Fabricated longsills shall be of ¼ inch CQ carbon steel inner panels and ¼ inch CQ carbon steel outer panels	_X___	____	_____
Interior of longsills shall be coated with rust inhibitor coating at factory	_X___	____	_____
Rear rubrail shall be full width, fabricated design, 7-gauge 201 or 304 stainless steel. **Channel style rear aprons are not acceptable**	_X___	____	_____
A wiring stud 2-5/16 inch x ¾ inch stainless steel threaded shall be installed on the underside of the floor, 3 inches in from the inside of the left longsill and 3-¼ inches forward of the rear rubrail	_X___	____	_____
Support plates shall be installed from the rubrails to the floor	_X___	____	_____
a. open at the front and rear	_X___	____	_____
b. made of A1011 carbon steel	_X___	____	_____
c. notched opening 68-80 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	_X___	____	_____
Longsills shall have 3 inch passageway in the rear of the longitudinals for wiring	_X___	____	_____

Comment_____

_____

FRONT BULKHEAD & ½ CAB SHIELD	**YES**	**NO**	**DEVIATION**
Front bulkhead shall be constructed of 7-gauge 201 or 304 stainless steel with pressed in brace for rigidity	_X___	____	_____

Front of body shall have a 1-¼ inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up from lower edge	_X___	____	_____
½ cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	_X___	____	_____
½ cab shield shall be of 7-gauge 201 or 304 stainless steel with flat plate style reinforcements on top	_X___	____	_____

FRONT BULKHEAD & ½ CAB SHIELD	**YES**	**NO**	**DEVIATION**
Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward hole shall be 1-3/8 inches down from top and they shall be parallel with box sides	_X___	____	_____
A grab handle made of 5/8 inch stainless steel rod, 20 inches long and three inches high, shall be welded to the cab shield and the bulk head, diagonally	_X___	____	_____
Wiring studs 2-5/16 inch x ¾ inch stainless steel threaded, shall be installed on the front bulkhead and cab shield	_X___	____	_____
a. Studs shall be placed along the left side of front bulkhead beginning 7 inches up from the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs are to start 4 inches from the rear bend towards the front of the cab shield on 16 inch centers	_X___	____	_____
b. Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-½ inches down from the top bend	_X___	____	_____

Comment_____

_____

TAILGATE	**YES**	**NO**	**DEVIATION**
Tailgate shall be double acting	_X___	____	_____
Tailgate shall be fully boxed, double walled design	_X___	____	_____

All horizontal surfaces shall be dirt shedding	_X___	____	_____
Inner wall shall be ¼ inch AR400 to match the strength and durability of the floor and shall be primer coated	_X___	____	_____
Outer wall shall be 10-gauge 201 or 304 stainless steel	_X___	____	_____
All tailgate hardware visible on outside of body shall be stainless steel.	_X___	____	_____
Upper tailgate hinges shall be 1-½ inch thick 201 or 304 stainless steel with 5 inch offset	_X___	____	_____
Upper and lower pins shall be 1-¼ inch stainless steel	_X___	____	_____
All tailgate hinges shall be greaseable	_X___	____	_____
A grab handle shall be located on the lower left corner of the tailgate	_X___	____	_____
Upper and lower dogleg slotted chain keepers shall be stainless steel, with sufficient plated chain to lay tailgate flat	_X___	____	_____
Chain shall be removable, 3/8 inch, high tensile plated type	_X___	____	_____
5/8 inch stainless steel lift loop shall be welded on the outside	_X___	____	_____
All pivot points shall be grease zerk lubricated	_X___	____	_____
Stainless steel latches shall be retractable, grease zerk lubricated with zerks on the outside of the rear cornerposts for accessibility	_X___	____	_____
Tailgate release shall be air operated	_X___	____	_____
Air cylinder shall be 3 ½ inch diameter, meet military specifications for cold weather service	_X___	____	_____
Air cylinder housing shall be aluminum	_X___	____	_____
Air cylinder rod shall be stainless steel	_X___	____	_____

Comment_____

SIDES	YES	NO	DEVIATION
Sides of dump body shall be 7-gauge 201 or 304 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength	_X___	____	_____
Finish shall be polished	_X___	____	_____
All welds shall be continuous	_X___	____	_____
Sides shall have a reverse-bend design	_X___	____	_____
Top rail shall be fully boxed and dirt shedding	_X___	____	_____
Rubrail shall have 45-degree slope to the flat side	_X___	____	_____
one integral break-formed strengthening brace per side	_X___	____	_____
Front pillars shall be full-depth, radiused, 201 or 304 stainless steel	_X___	____	_____
Rear pillars shall be full-depth, 201 or 304 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar	_X___	____	_____
Pillars shall be dirt shedding	_X___	____	_____
Two (2) 11/16 inch holes shall be located on the sloped surface of the left rubrail, 2 inches below the breakline, 19 and 21.5 inches back from the front post	_X___	____	_____
Two (2) threaded wiring studs 2-5/16 inch x ¾ inch stainless steel shall be located 4 inches above sloped surface of the left rubrail, 12 and 20 ¾ inches forward of the rear corner post	_X___	____	_____
Three (3) 1-½ inch holes shall be located on the sloped surface of the left rubrail, 1-¾ inches below the breakline. They shall be 2, 4-½, and 7 inches forward of the rear cornerpost	_X___	____	_____
Two (2) 9/16 inch holes shall be located on the flat portion of the left rubrail, 1 inch down			

from the breakline, 2 and 14 inches back from the front post _X___ ____ _____

Two (2) 11/16 inch holes shall be located on the sloped surface of the right rubrail, 2 inches below the breakline, 19 and 21.5 inches back from the front post _X___ ____ _____

Two (2) 11/16 inch holes shall be located on the flat portion of the rubrail, 2-½ inches below the breakline, 54-½ and 60 ¾ inches back from the front post _X___ ____ _____

A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner post to the front side of the rear corner post on each side of the body _X___ ____ _____

The tarp rail shall include supports to the body sides located on 24 inch centers _X___ ____ _____

Both the tarp rail and the gussets shall be constructed of type 201or 304 stainless steel _X___ ____ _____

Holes shall be provided in both rear pillars: _X___ ____ _____

a. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 30 ½ inches from the bottom of the rubrail with a ½ x 13 stainless steel nut welded on the inside of pillar _X___ ____ _____
b. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 30 ½ inches from the bottom of the rubrail _X___ ____ _____
c. A 1-¼ inch hole shall be located 6-¾ inches forward of the rear of the pillar and 13 inches up from the bottom of the rubrail _X___ ____ _____

6. SIDES - continued	**YES**	**NO**	**DEVIATION**
d. A 5/8 inch hole shall be located 4-¾ inches from the rear of the pillar and 13 inches up from the bottom of the rubrail	_X___	____	_____
e. A 13/16 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
f. A 5/8 inch hole shall be located 4-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	_X___	____	_____
g. A 5/8 inch hole shall be located 3-¾ inches in from of the rear of the pillar and ½ inch below the bottom of the rubrail.	_X___	____	_____
h. The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.375 inches apart.	_X___	____	_____

Comment_____

_____

HOIST	**YES**	**NO**	**DEVIATION**
Hoist shall be Crysteel Roller Combo Model # RC 690 or approved equal	_X___	____	_____
Hoist shall be NTEA Performance Class 90 NTEA Type VII	_X___	____	_____
Hoist shall have two, double acting, single stage cylinders	_X___	____	_____
Cylinder bore shall be 6 inches	_X___	____	_____
Cylinder shaft diameter shall be 2-3/8 inches	_X___	____	_____
Cylinder stroke shall be 32-½ inches	_X___	____	_____
Cylinder shaft shall be chromed SW85 steel with 85,000psi yield strength	_X___	____	_____

Cylinders shall have maximum operating pressure of 2,200psi with internal bypass to protect cylinder from damage	_X___	____	_____
Cylinder base (raise) port size shall be SAE-12 (1-16)	_X___	____	_____
Rod port (lower) shall be SAE-10 (7/8-14)	_X___	____	_____
Cylinder displacement:			
a. up shall be 1837.8 cubic inches	_X___	____	_____
b. down shall be 1579.4 cubic inches	_X___	____	_____
Load capacity shall be 28.4 tons @ 50° dump angle	_X___	____	_____
Hoist shall have 17-½ inch mounting height	_X___	____	_____
Hoist shall have "Roller Combo" design with the initial lift point ahead of the center line of the body, directing the force of the hoist cylinder upwards for more breakaway power before transferring it to a scissors action	_X___	____	_____
Greaseless composite bearings shall be provided at all critical pivot points except primary hoist pivot	_X___	____	_____
Hoist shall have full length sub-frame that is the same length as the dump body	_X___	____	_____
Sub-frame shall have 5-1/8 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength	_X___	____	_____
Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have six (6) grease zerks	_X___	____	_____
Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch	_X___	____	_____
Hinge pins shall be 2-3/8 inch x 6 inch round stainless steel with greaseless composite bearings	_X___	____	_____
Two (2) body props shall be provided to support empty body weight	_X___	____	_____
Hoist must be listed in the NTEA dump			

body hoist chart	_X___	____	_____

Comment_____

_____

BODY PREPARATION	**YES**	**NO**	**DEVIATION**
Entire body shall be cleaned and rinsed	_X___	____	_____
All mild steel surfaces, floor, floor radius, inner panel of the tailgate and the entire understructure shall be primed with high quality two-part urethane gray primer	_X___	____	_____
All mild steel surfaces, floor, floor radius, inner panel of the tailgate and the entire understructure shall have a two-part urethane black finish coat over the gray primer	_X___	____	_____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# CMBBDY.C09

COMBINATION 45° SLOPED SIDE DUMP AND SPREADER BODY, HOIST, REAR DISCHARGE AND DISTRIBUTION SYSTEMS

I GENERAL

It is the intent of this specification to establish an optional use contract for:

Item 1 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor having a belt over main flight chain, with reversing rear cross auger, with left side zero velocity spreaders. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive rear for dump body conveyor, and all components necessary to make complete operating units.

Item 2 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor having a belt over main flight chain, rear tip up poly spinner only. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive rear for dump body conveyor, and all components necessary to make a complete operating unit.

Item 3 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor, with reversing rear cross auger and poly spinner only. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive rear for dump body conveyor, and all components necessary to make a complete operating unit.

Item 4 – 11 or 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor having a belt over main flight chain, with reversing front cross auger having a front spinner on left side and dump chute on right. Conveyor floor shall be ¼ inch type 201 stainless steel, dual power drive front and rear for dump body conveyor, and all components necessary to make a complete operating unit.

These combination dump and spreader bodies shall be capable of hauling and dumping or rapidly discharging crushed rock, gravel, hot mix asphalt, sand, chips, and abrasive or chemical for ice control. MDOT will install these dump and spreader bodies on a **64,000 GVWR** tandem axle, cab and chassis with chassis measurements of approx. 218 inch W.B., 136 inch C.A., and 192 inch C.E. for the 14 foot bodies and **44,000 GVW** single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch C.A., and 187 inch C.E for the 11 foot bodies.

The timely delivery of the combination dump and spreader bodies is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is awarded. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days. **The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is issued.**

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

45. All blank spaces are completed with either yes or no, and if no list the type of deviation.

46. MDOT minimum requirements are met or exceeded.

47. MDOT maximum requirements are not exceeded.

48. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT's Fleet Operations Garage, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517-334-7763 at least 48 hours prior to delivery	_X___	____	_____

Comments _____

_____

BODY	**YES**	**NO**	**DEVIATION**
14 foot bodies shall have an approximate struck capacity of 9-½ cu/yd minimum for rear discharge and 9 cu/yd minimum for front discharge without removable side boards	_X___	____	_____
Bodies shall be of type 201 or 304 stainless steel construction	_X___	____	_____
Overall height above truck frame shall not exceed 55 inches without cab shield	_X___	____	_____
Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches	_X___	____	_____
Top of floor to the top of the side wall shall be			

approximately 44 inches	_X___	____	_____
Body shall be rigidly constructed with a boxed top rail construction of 7 gauge type 201 or 304 stainless steel, 3 inch height x 3 inch depth	_X___	____	_____
Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless steel, spaced on 30 inch centers minimum	_X___	____	_____
Side sheeting for the "V" body shall be 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Body longitudinals shall be constructed of ¼ inch type 201 or 304 stainless steel with minimum 12 inch height and include two (2) 3 inch ID cross over tubes for installation of hydraulic hoses and wiring	_X___	____	_____
Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 6 inch round stainless steel with greaseless composite bearings	_X___	____	_____
Two (2) body props shall be provided to support empty body weight	_X___	____	_____
Body floor shall be bolted in with 1 inch welds at all four corners and supported by 7 gauge 3 inch x 3 inch cross angles located on 12 inch centers	_X___	____	_____
Body longitudinals shall be supported under chain by 4 inch formed cross members on 24 inch centers	_X___	____	_____
All channel supports under the floor shall be constructed of ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Return angle on the longitudinals shall be 4-½ inch boxed type for additional support and any retention of material	_X___	____	_____
All joints on body shall be continuous welded	_X___	____	_____
Overall width of the body at fenders shall be approximately 96 inches to provide full top cover of rear tires	_X___	____	_____

Two (2) covered access openings shall be provided below the body interior:

b. For accessing the rear gear boxes for

maintenance	_X___	____	_____
Rear of body shall be flat to allow installation of MDOT approved accessories	_X___	____	_____
Rear corner posts shall be boxed in and drilled and tapped to accept MDOT rear lighting arrangement	_X___	____	_____
Both rear side posts shall have one (1) 1-¼ inch hole, two (2) 13/16 inch holes and four (4) 9/16 inch holes with ½ inch stainless steel nuts welded to the backside	_X___	____	_____
Additional wire/cable retention studs shall be installed	_X___	____	_____
Hole and stud locations shall be determined by MDOT at pre-construction meeting	_X___	____	_____
A heavy-ribbed, reinforced, offset, hinged, rear end-gate with double latch and air operated release shall be easily removed	_X___	____	_____
Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside	_X___	____	_____
Cylinders mounted forward of the front of the body will **NOT** be acceptable	_X___	____	_____
All bolts used shall be stainless steel	_X___	____	_____
Body sides shall be 45° sloped	_X___	____	_____
All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader	_X___	____	_____
Body shall include all items needed to be fully operational	_X___	____	_____
All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and workmanship to best commercial practice	_X___	____	_____
Standard equipment shall be furnished except were operational or conflicting equipment is specified	_X___	____	_____

Comments _____

_____

10. CONVEYOR	YES	NO	DEVIATION
Conveyor shall be pintle chain type running longitudinally with the body feeding material to the hinged rear end-gate opening and/or the front cross auger	_X___	____	_____
Overall conveyor width shall be 34 inches minimum	_X___	____	_____
Bolt in conveyor floor with 1 inch welds at all four corners shall be ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Conveyor chain shall be heat-treated 2-¼ inch pitch pintle type with 15/32 inch pins and have a 26,000 pound tensile strength, manufactured in the USA	_X___	____	_____
Cross bars ½ inch x 1-½ inch shall be positioned on approximately 2-¼ inch centers and welded on both the top and bottom of the bar	_X___	____	_____
Two (2) high torque, variable speed 6:1 gearboxes and hydraulic motors (White Roller Stator) with ground speed sensor having 100 pulses/revolution capability on one of the gearboxes shall be provided	_X___	____	_____
Rear discharge bodies shall have drive located at the rear of the conveyor	_X___	____	_____
Front and rear discharge bodies shall have drives located, one at the front and one at the rear	_X___	____	_____
Eight toothed, case hardened to 40-48 Rc, self cleaning drive sprockets shall be keyed to the 2 inch drive and idler shafts	_X___	____	_____
Conveyor drive shaft shall have heavy duty, dust sealed self-aligning four bolt flange bearings	_X___	____	_____
Heavy duty idler assembly with side rail style adjusters and 1-¼ inch adjusting bolt shall provide 9 inches of adjustment for proper conveyor chain tension	_X___	____	_____
¼ inch type 201 or 304 stainless steel conveyor bottom shall be replaceable and have rear "roller" lip with wiper belt	_X___	____	_____

Comments _____

_____

TAILGATE	YES	NO	DEVIATION
Tailgate shall be minimum of 6 inches higher than sides of body	_X___	____	_____
Tailgate shall be manufactured of minimum 3/16 inch, type 201or 304 stainless steel with, 5 panel, boxed perimeter of 3 inch formed channel	_X___	____	_____
Tailgate shall have a 3 inch x 3 inch D-ring welded to the top center of tailgate	_X___	____	_____
Tailgate shall be double acting with squared perimeter and two (2) horizontal braces of 3/16 inch material the full width of the tailgate	_X___	____	_____
Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner	_X___	____	_____
Material door shall extend 16 inches into the interior of the body to prevent material from escaping through the partially opened door over the conveyor	_X___	____	_____
An adjustable discharge gate or door with an opening of at least 21 inches x 8-½ inches of a minimum of ¼ inch thick with a heavy duty screw-type operated adjustment mechanism on passenger's side and at bottom edge of tailgate	_X___	____	_____
Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins	_X___	____	_____
Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type	_X___	____	_____
Tailgate latches shall be air operated by a 3-½ inch air cylinder kit	_X___	____	_____
Cylinder kits shall fit the existing brackets without modification and may be shipped loose, with the body	_X___	____	_____

Comments _____

_____

POWER DRIVE AND CONTROLS	YES	NO	DEVIATION
Hydraulic drive shall include two (2) geroler-type, high-torque, low speed hydraulic motors integrally mounted to the conveyor gear cases, **these motors shall be White Roller Stator only, no exceptions**	_X___	____	_____
One of these hydraulic motors shall be equipped with an application rate sensor with 100 pulses per revolution	_X___	____	_____
Sensor shall be a Hall Effect speed type	_X___	____	_____
Heavy duty, high torque hydraulic motor shall be integrally mounted to the spinner hub assembly and shall power the spinner	_X___	____	_____
Hydraulic tubing shall be used where practical, rated along with hydraulic hose to withstand 1-½ times system operating pressure requirements	_X___	____	_____
Hydraulic tubing shall be ¾ inch minimum I.D.	_X___	____	_____
All tubing shall be secured to body with polymer retaining blocks	_X___	____	_____

Comments _____

_____

HOIST	YES	NO	DEVIATION
11 foot, 45°, combination dump/spreader body hoist shall be include:			
g. Double acting hoist cylinder	_X___	____	_____
h. Hard chrome plated hoist cylinder surfaces	_X___	____	_____
i. Inverted, trunnion mounted cylinder	_X___	____	_____
j. 5 inch, 4 inch, 3 inch active sections	_X___	____	_____
k. NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi	_X___	____	_____
l. Cylinder total stroke of 99 inches	_X___	____	_____
14 foot, 45°, combination dump/spreader body hoist shall be include:			
g. Double acting hoist cylinder	_X___	____	_____
h. Hard chrome plated hoist cylinder surfaces	_X___	____	_____
i. Inverted, trunnion mounted cylinder	_X___	____	_____
j. 6 inch, 5 inch, 4 inch active sections	_X___	____	_____
k. NTEA Class 120, rated at 46.4 tons lift			

	capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi	_X___	____	_____
l.	Cylinder total stroke of 138 inches	_X___	____	_____

Comments _____

_____

14. REVERSING REAR CROSS AUGER	**YES**	**NO**	**DEVIATION**
Cross auger shall be of modular design, constructed of 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Auger trough shall be constructed of 7 gauge type 201 or 304 stainless steel with ¼ inch type 201 stainless steel end plates	_X___	____	_____
The auger trough shall be made to fit to the discharge trough on the combination body	_X___	____	_____
Auger housing shall include a three (3) piece hinged lid	_X___	____	_____
All three (3) section covers shall open and close independently of each other and center section shall be the width of the combination body main conveyor	_X___	____	_____
The auger trough shall have discharge openings on each end of the trough and shall be supplied with a cover that can be used in either opening	_X___	____	_____
Auger trough shall include a full opening bottom for material cleanout	_X___	____	_____
Auger motor shall be directly coupled to the auger shaft with a stainless steel coupler	_X___	____	_____
Drive motor shall be a 45CID with 7/8 inch o-ring ports	_X___	____	_____
Shafts shall be 1-½ inch and supported by a heavy duty 1-½ inch sealed, self aligning, re-lubable four (4) bolt flange bearing	_X___	____	_____
Exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Auger shall be 9 inch diameter with continuous one way flighting with a 4 inch pitch	_X___	____	_____
Flighting shall be a minimum of 5/16 inch thick on the outer edge and welded to a 2-7/8 inch OD schedule 40 pipe	_X___	____	_____

All bearings shall be equipped with grease fittings	_X___	____	_____
A spinner shall be supplied for all the units that are not equipped with a zero velocity spinner assembly	_X___	____	_____
Spinner assembly shall include a direct coupled 3.0CID drive motor, an 18 inch poly spinner disc, and a mounting bracket that attaches to the left side of the auger trough	_X___	____	_____
All supports and brackets shall be type 201or 304stainless steel	_X___	____	_____
Spinner disc shall include a shroud to prevent the discharge of materials towards the chassis	_X___	____	_____
Spinner assembly shall be mounted independently of the bottom cleanout door and have an easy one-man mount and dismount	_X___	____	_____
Standard spinner disk shall be 18 inches in diameter and manufactured from red polyurethane material	_X___	____	_____
Spinner disk shall be direct mounted to the hydraulic motor by means of a cast iron hub	_X___	____	_____
Six (6) formed flights on the spinner disk shall be cupped for even spreading	_X___	____	_____
Spinner motor shall be low speed/high torque type	_X___	____	_____
Quick disconnect mounting hardware shall be provided	_X___	____	_____
All 201 stainless steel parts shall be in bare condition	_X___	____	_____

Comments _____

_____

REVERSING SPLIT FRONT CROSS AUGER	**YES**	**NO**	**DEVIATION**
Reversing front cross auger shall be constructed of type 201or 304 stainless steel, modular design, frame mounted with spinner on left side and chute on right side	_X___	____	_____
Cross auger shall be capable of easily mounting the spinner on either side without modification	_X___	____	_____
Auger shall be 96 inches long, 19 inches wide utilizing two			

(2) auger assemblies with one-way flighting	_X___	____	_____
Auger assemblies shall be 6 inch diameter flighting, 3/8 inch thick with a 4 inch pitch	_X___	____	_____
Auger shall have a stainless steel floor supported by angle iron substructure	_X___	____	_____
Auger shall be direct driven by a two (2) 10 cu/in displacement White motors	_X___	____	_____
Shafts shall be 1 inch and supported by a heavy duty 1 inch sealed, self aligning, relubable two (2) bolt flange bearings	_X___	____	_____
Exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Cross auger shall be capable of reversing direction to either side	_X___	____	_____
Body shall have an adjustable gate opening for the cross auger, easily adjustable by operator	_X__	____	_____
Main conveyor shall discharge into the center of cross auger	_X___	____	_____
Cross auger shall be mounted to the truck chassis frame and stay with the chassis when box is raised	_X___	____	_____
Cross auger shall have 201 or 304 stainless steel covers for both sides of auger housing	_X___	____	_____

Comments _____

_____

REAR TIP UP SPINNER ASSEMBLY	**YES**	**NO**	**DEVIATION**
Spinner frame shall be of 10 gauge type 201or 304 stainless steel X	_X___	____	_____
Spinner chute shall be designed to be compatible with the body tailgate and conveyor	_X___	____	_____
Chute shall be a minimum of 27 inches wide and 10 inches deep	_X___	____	_____
Spinner shall be designed to be installed on the rear tailgate			

using 3/8 inch, 201or 304 stainless steel plates	_X___	____	_____
Mounting plates shall have an integral hinge design and allow spinner removal by removing four (4) bolts	_X___	____	_____
Hinge rods shall be ¾ inch diameter 201or 304 stainless steel	_X___	____	_____
Top of chute shall be reinforced with type 201or 304 stainless steel ¼ inch x 2-½ inch x 2-½ inch angles and ¼ inch x 1-½ inch plate for the hinge rods	_X___	____	_____
Chute shall be designed with two (2) internal adjustable deflectors and a hinged cover for the top of the chute made of 10 gauge 201 or 304 stainless steel	_X___	____	_____
All hardware shall be stainless steel	_X___	____	_____
Distributor disc shall be 24 inches in diameter, constructed of ½ inch polyurethane with six (6) 1-3/4 inch high x 9 inch long polyurethane fins for clockwise rotation	_X___	____	_____
Top mounted 3.2 CI spinner hydraulic motor with .875 ORB ports shall be high torque, low speed with the spinner disc cast hub mounted directly to the motor shaft	_X___	____	_____
Four (4) 7 gauge 201 or 304 stainless steel baffles shall be provided to control spread width and direction	_X___	____	_____
Baffles shall be of type 201 or 304 stainless steel, easily adjusted without the use of tools	_X___	____	_____
There shall be one section ahead, one section to the rear, and one section minimum on each side of spinner	_X___	____	_____
A hand winch rated at a minimum 800 pound capacity with integral brake shall be provided to raise and lower spinner assembly	_X___	____	_____
Spinner assembly shall tip-up removing the front hinge rod, engaging the winch, and using the same hinge rod to lock the spinner in the stored position	_X___	____	_____
Mounting bracket, cable, pulley, and mounting hardware shall be including	_X___	____	_____

Comments _____

_____

OPTIONAL BELT OVER CHAIN	YES	NO	BEVIATION
Main conveyor shall have the option of a belt over the conveyor chain	_X___	____	_____
Chain shall be 667XH type with ½ inch x 1-½ inch cross bars on 4-½ inch centers	_X___	____	_____
A 3/8 inch hi-temp rubber belt rated for 212° shall be bolted over the top of the chain, to every cross bar with a minimum of 6 stainless steel bolts and washers on every cross bar	_X___	____	_____
Chain shield shall be equipped with rubber hi-temp side seals	_X___	____	_____

Comments _____

_____

CAB PROTECTOR	YES	NO	DEVIATION
Half cab protector shall be 7 gauge type 201or 304 stainless steel, installed by vendor on the front of the body	_X___	____	_____
All welding shall be continuous	_X___	____	_____
End plates shall be streamlined to prevent sharp corners or edges	_X___	____	_____
A stainless steel grab handle shall be located on the cab protector	_X___	____	_____
Cab protector shall extend forward of the body a minimum of 24 inches	_X___	____	_____
Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body	_X___	____	_____
MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction	_X___	____	_____

Comments _____

_____

FENDERS	YES	NO	DEVIATION
Body shall be equipped with 7 gauge type 201 or 304			

stainless steel fenders	_X___	____	_____
Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body	_X___	____	_____
Overall length of fenders shall be 81 inches on 11 foot bodies and 108 inches on 14 foot bodies	_X___	____	_____

Comments _____

_____

HEAD SHEET	**YES**	**NO**	**DEVIATION**
Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back	_X___	____	_____
Front slope shall be contoured to match the slope of the side sheeting and be continuous welded were the side meets the front on both the inside and the outside	_X___	____	_____
Front sheet to include an enclosure for a front mounted telescopic hoist	_X___	____	_____
A hoist mounting that is in front of the body will not be acceptable	_X___	____	_____
Front shall be at least 6 inches higher than the sides	_X___	____	_____
All horizontal surfaces shall be dirt shedding	_X___	____	_____

Comments _____

_____

ZERO VELOCITY SPREADER	**YES**	**NO**	**DEVIATION**
Spreader housing shall be 10 gauge 201 or 304 stainless steel	_X___	____	_____
Housing shall have a 12 inch x 14 inch opening with three flexible bolt on flares to divert material into housing	_X___	____	_____
Housing opening shall have two (2) safety bars of 3/16 inch 201 or 304 stainless steel to prevent large objects from entering housing opening	_X___	____	_____
Spreader impeller shall dispense material onto roadway, and be manufactured from type 201 stainless steel and shall include replaceable end bits	_X___	____	_____

Impeller shall have four (4) 4-¾ inch x 4 inch paddles, 16 inches in diameter with a 1 inch bore steel hub integrally welded to impeller _X___ ____ _____

Impeller motor shall be low speed/high torque "orbital type" hydraulic wheel motor with 3 cu/in displacement _X__ ____ _____

Motor shall be capable of applications up to 800rpm _X_ ____ _____

Motor shall be Parker type with a stainless steel output shaft __X__ ____ _____

An in line flow meter with a hall affect speed sensor shall be provided with speed sensor and brad Harrison type connector to interface with control console _X___ ____ _____

A sensor cable with LED indicator lights shall be provided to interface the Hall Effect flow meter sensor to a Dickey-john Control Point controller __X__ ____ _____

Spinner assembly shall be mounted with approximately 6 inches ground clearance and be adjustable in height. mount shall have prior approval of MDOT __X__ ____ _____

Spinner assembly shall lift 6 inches by actuating in cab switch _X___ ____ _____

Spinner assembly shall rotate 45° right and left of center position by actuating remote in cab switch __X__ ____ _____

Direction of spinner assembly shall be displayed on console by indicator lights _X___ ____ _____

Spinner assembly shall include up/down actuating cylinder, right/left actuating cylinder with a built in position sensor, and a deflector actuating cylinder _X___ ____ _____

A closed center, electric actuated valve shall be provided with the zero velocity spinner to control the up/down, right/left, and deflector functions _X___ ____ _____

Cab controls for the zero velocity spinner shall include switches for up/down, right /left, deflector up/down, a position display, and all necessary wiring harness to interface the controls to the valve _X___ ____ _____

Comments _____

_____

MISCELLANIOUS	YES	NO	DEVIATION
A grease extension kit shall be provided and installed at the front and the rear of the body	_X___	____	_____
Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage	_X___	____	_____
Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot points for the over center cam that operates the tailgate linkage	_X___	____	_____
Swing up type side ladder constructed of type 201 orr 304 stainless steel shall be provided by manufacturer and shipped loose for custom fitting by MDOT	_X___	____	_____
All lighting shall be provided by MDOT	_X___	____	_____
Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	_X___	____	_____
Hinge shall include composite bushings and a 2.25 inch stainless steel or nitrated pivot pin	_X___	____	_____
Mounting angle for the hinge shall be 4 inch x 8 inch x 3/8 inch	_X___	____	_____
Combination bodies shall be supplied with wing post enclosures	_X___	____	_____
Enclosures shall be shipped loose and shall be 11 inches tall x 11 inches deep on one end and 5 inches tall x 11 inches deep and 10 inches wide overall with the step down being 6 inches by 5-½ inches with a 45 ° angle (example can be viewed at preconstruction meeting)	_X___	____	_____
Enclosures shall be constructed of 10 gauge type 201 or 304 stainless steel and shall include 4 sides and a top	_X___	____	_____
A 1.25 inch x ¼ inch, 201 or 304 stainless steel flat stock tarp tie rail, welded to side braces, full length of body	_X___	____	_____
Tarp tie rail shall be installed just above the 45 degree break on the side braces	_X____	____	_____

The enclosure will be installed on the fenders where the wing post extends through the fender _X___ ____ _____

Comments _____

_____

Price per unit – item 1	14 ft. body	$40,688.00
	11 ft. body	$38,064.00
Price per unit – item 2	14 ft. body	$33,937.00
	11 ft. body	$31,262.00
Price per unit – item 3	14 ft. body	$31,864.00
	11 ft. body	$29,234.00
Price per unit – item 4	14 ft. body	$35,294.00
	11 ft. body	$33,791.00

End of Specification

MDOT SPECIFICATION# 57-0901SMW.C09

WING PLOW, BEHIND SCRAPER MOUNT, 9 FOOT, RIGHT OR LEFT

I GENERAL

It is the intent of this specification to establish an optional use contract for 9ft, right or left, side behind scraper mounted wings, for mounting on tandem axle, 64,000 GVW, snow plow trucks with an underbody scraper blade. The tandem axle trucks will be mounted with a 14ft dump body with slide in spreader or combination body. On delivery to MDOT, it shall be completely equipped with all features necessary for its mounting and operation. The snow plow shall be built in accordance with all FMVSS, OSHA, MIOSHA, and ANSI standards. It must be the latest model in current production, satisfactory to meet the performance and design characteristics required in the specification.

The timely delivery of the wing plows is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed

liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.
The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is received by the successful vendor.

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

49. All blank spaces are completed with either yes or no, and if no list the type of deviation.

50. MDOT minimum requirements are met or exceeded.

51. MDOT maximum requirements are not exceeded.

52. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

IX SPECIFICATIONS - continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	YES	NO	DEVIATION
Delivery shall be 120 days ARO	_X___	____	_____

Delivery shall be to:

MDOT, OOAS Garage Operations,
2522 W. Main St.,
Lansing, MI, 48917
Jeff Turner
Phone: 517/334-7763 __X__ ____ _____

Wings shall be designed to mount behind the underbody blade and shall have a mold board length of 113 inches at the top and 108 inches at the bottom _X___ ____ _____

Mold board height shall measure 33 inches inboard and 33 inches outboard with cutting edge _X___ ____ _____

Mold board shall be 3/16 inch A36 steel _X___ ____ _____

Top of mold board shall be formed into a 2-¾ inch x 1 inch channel for additional strength with ½ inch ID x 84 inch schedule 40 pipe welded to top for wiring _X___ ____ _____

Bottom angle shall be 4 inch x 4 inch x ¾ inch and reinforced between the cutting edge holes with ten (10) 3 inch x 3 inch x ½ inch gussets _X___ ____ _____

There shall be six (6) ½ inch mold board reinforcement ribs tapered from 4 inches at the bottom to 2-½ inches at the top _X___ ____ _____

There shall be two (2) horizontal reinforcement angles between the discharge end last two ribs, bottom 4 inch x 3 inch x ½ inch reinforcement angle shall have seven (7) evenly spaced 5/8 inch holes for pusharm adjustment, top 4 inch x 4 inch x ½ inch reinforcement angle shall have seven (7) evenly spaced 5/8 inch holes for pusharm adjustment _X___ ____ _____

Front attachment pivot plate will be ½ inch steel, completely boxed and supported with ½ inch and 3/16 inch plate _X___ ____ _____

Pivot tube for the 1-½ inch pivot bolt shall have a minimum .625 inch wall and be welded 100% to the inside of the ½ inch pate and outside of the mold board _X___ ____ _____

A ½ inch safety stop eyelet shall be on the front of the mold board and a ½ inch centered lift loop _X___ ____ _____

All seems and joints shall be 100% continuous welded _X___ ____ _____

Cutting edge shall be fabricated of 1084 hot rolled steel _X___ ____ _____

Cutting edge shall be 9 feet in length and 5/8 inch x

8 inch AASHO punched	_X___	____	_____
Mold board shall be equipped with mold board shoes	_X___	____	_____
Shoes shall be bolted on with the cutting edge	_X___	____	_____
One (1) shoe shall be installed on both the toe end and the heel end	_X___	____	_____
Shoes shall be heavy duty cast iron construction	_X___	____	_____
Base of shoe shall be 10 inches long x 4-½ inches wide x 4-½ inches thick	_X___	____	_____
Bottom of shoe shall be cut at approximately 10° angle to match attack angle of mold board	_X___	____	_____
A ½ inch x 4 inch x 6 inch cross tube passing thru two (2) mounting plates of 36 inches tall x 12 inches wide x ½ for mounting the wing to the frame of the truck **(Side plates shall be unpainted)**	_X___	____	_____
The cross tube shall pass behind the underbody blade "circle"	_X___	____	_____
Outboard of the cross tube a fabricated 7 inch I-beam 25 inches high, vertically attached, shall be the foundation of the front wing post assembly	_X___	____	_____
I-beam shall be interlaced design, made of 3/8 inch EX-Ten material	_X___	____	_____

BASIC SPECIFICATIONS - continued	**YES**	**NO**	**DEVIATION**
I-beam shall be designed so there are **no** welds that restrict the ¾ inch slide plate movement	_X___	____	_____
I-beam shall have an integral return and diagonal bracing	_X___	____	_____
Diagonal bracing shall be reinforced with ½ inch x 1-½ inch bar	_X___	____	_____
The ¾ inch slide plate shall have a 6-¼ inch slot for the float and two (2) ¾ inch attaching ears reinforced with two (2) 3/8 inch x 2-½ inch bar	_X___	____	_____
Outboard portion of I-beam shall have two (2) ¾ inch x ¾ inch steel bar welded to the outermost edges so as to provide a slide wherein a 25 inch x 6 inch x ¾ inch			

slide plate shall be mounted	_X___	____	_____
Two (2) grease zerks shall be on each side of the post to lubricate the slide plate	_X___	____	_____
Slide shall have an integral 6-¼ inch mechanical float whose purpose is to allow vertical action to the toe of the wing mold board	_X___	____	_____
Slide shall allow for mounting of the mold boards banjo plate	_X___	____	_____
Pin for banjo plate shall be 1-½ inch diameter	_X___	____	_____
Banjo plate/hinge for moldboard shall be fabricated of ¾ inch material, reinforced with ½ inch bar and have two (2) 1 inch thick reinforced ears for the hinge pin	_X___	____	_____
The bolt for retaining the mold board shall be 1 ½-6 x 7 G8 HHCS Zinc plated with castle nut and cotter pin	_X___	____	_____
Bolt shall be drilled for the cotter pin	_X___	____	_____
Front slide assembly shall be actuated by a single 4 inch ID x 12 inch stroke, 2 inch rod, double acting cylinder	_X___	____	_____
Slide cylinder shall have a 1 inch pin at the base and a 1-¼ inch bolt at the rod end	_X___	____	_____
The rod end shall have an offset cross tube mount to eliminate side load on the cylinder	_X___	____	_____
Slide cylinder shall have ¾ - 16 ORB ports and polypak seals	_X___	____	_____
Lifting action for the heel end of the wing shall be accomplished via a single 3 inch ID x 15 inch stroke, nitrated 2 inch rod, ¾-16ORB ports, polypak seals, double acting hydraulic deceleration cylinder.	_X___	____	_____
Heel cylinder shall be attached to the upper rear pusharm slide assembly	_X___	____	_____
Wing shall be operated by hydraulic lift, **no cables or chains shall be accepted**	_X___	____	_____
Rear wing mount shall be fabricated from 4 inch x 6 inch x ½ inch steel tube, and shall include one (1) 12 inch x 15 inch x ½ inch plate and six (6) 3 inch x 3 inch x ½ inch gussets for tube reinforcement	_X___	____	_____

Rear pusharm/cylinder mounting plate shall include two (2) ½ inch plates, flame cut with three (3) offset mounting holes to mount the rear pusharms and the heel lift cylinder fabricated from ½ inch plate	_X___	____	_____
Rear wing mounting post and rear pusharm/cylinder mounting plate with gussets shall be fully assembled and shot blasted and powder coated	_X___	____	_____
The rear upper pusharm shall be equipped with an external slide assembly to allow for mechanical float and attachment of the heel lift cylinder	_X___	____	_____
Rear pusharms and heel lift cylinder shall be attached with 1-¼ inch bolts for attach and detach	_X___	____	_____
There shall be two (2) rear wing heavy duty, 2-½ inch schedule 80, adjustable, spring cushioned lift arms including safety shear pins, 6 feet long fully extended	_X___	____	_____
Wing shall be capable of mounting with an overlap to the scraper discharge to prevent a windrow between the scraper and the wing mold board	_X___	____	_____
Wing shall have a minimum of 6-½ foot clearing path when in he winging position	_X___	____	_____
All fabricated components shall be shot blasted and washed prior to powder coating	_X___	____	_____
Mounting components shall be powder coated black **(Except side mount plates and rear cross tube and mount)**	_X___	____	_____
All welding on the mold board shall be 100% continuous	_X___	____	_____
Mounting hardware shall include schedule 80 pipe bracing, two (2) pipe balls, a flame cut ¾ inch support plate, Grade 8 nuts, bolts, and washers necessary for a complete installation	_X___	____	_____
A sequencing valve shall be supplied with the wings	_X___	____	_____
Sequencing valve shall be adjustable for both the up sequencing of the wing and the down sequencing of the wing	_X___	____	_____
Lock valves shall be built into the sequencing valve to prevent both the toe and heel cylinder from drifting when in the stored position	_X___	____	_____
The sequencing valve shall allow wing to hydraulically			

drift up when in the plowing position	_X___	____	_____
Sequencing valve shall be equipped with an adjustable metering valve to control the speed at which the blade drops when going from the stored position to the plow position	_X___	____	_____
Four (4) 3 inch x 3 inch x ½ inch angle 4 inches long shall have one (1) 21/32 inch hole in center of one leg **(no powder coat on this item)**	_X___	____	_____
A 3 inch x 3 inch x 3/8 inch tube 26 inches long to brace front wing cross support shall be provided **(no powder coat on this item)**	_X___	____	_____
Two (2) 3 inch x 3 inch x 3/8 inch x 11 inch angle iron bracket shall be provided for support of the side plates **(no powder coat on this item)**	_X___	____	_____
Each wing assembly shall be furnished with an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W20ME2 12V - 24V to activate a "wing down" light, shipped loose **(MDOT will furnish light) <u>No Exceptions</u>**	_X___	____	_____

Comment_____

_____

End of Specification

MDOT SPECIFICATION# 60-11SS.C09

HOPPER BOX MATERIAL SPREADER, 11 FOOT AND DISTRIBUTION SYSTEMS

I GENERAL

It is the intent of this specification to establish an optional use contract for slide in type hopper box material spreaders with rear y-chutes or cross augers to uniformly spread salt, sand or a combination of both for treatment of icy roads. They shall consist of an 84 inch wide x 11 foot long stainless steel hopper box, a pintle type flight chain conveyor, with a cross auger with left side spinner and hydraulic motor, or a cross auger, left side zero velocity spinner and hydraulic motor or a y-chute spreader with spinner and hydraulic motor. The operation of the spreader will be controlled by a ground speed oriented hydraulic system supplied by MDOT. MDOT will install this spreader in a 44,000 GVW single axle truck with 11 foot dump box and a closed center load sensing hydraulic system.

The timely delivery of the hopper box material spreaders is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

The calendar days shall be counted from the date the purchase order is received by the successful vendor. Failure to meet this requirement will cause the vendor to pay the damages listed in this specification under **Liquidated Damages.**

Contact person for this specification is **Jeff Turner at (517) 334-7763.** Office hours are 7:00 am to 3:30pm Monday through Friday except Holidays.

II GENERAL WORKMANSHIP

Workmanship is expected to be of high quality throughout in accordance with acceptable industry-wide practice and, where applicable, to meet all FMVSS, OSHA, MIOSHA, and ANSI standards.

III PRODUCT LITERATURE

Contractor is to return manufacturer's product literature for the make and model offered with the bid. The literature is to show supporting data for the performance and design characteristics required in the specification.

IV PRECONSTRUCTION MEETING AND PROGRESS SCHEDULE

Within 30 days of the purchase order date the Contractor is to meet with Department personnel in Lansing to provide a written progress schedule and completion date for the work and to review terms and requirements of the order.

V PILOT MODEL INSPECTION

Any Purchase Order that is for one or more units the successful Contractor will be required as part of this order to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the vendor and MDOT.

VI MANUALS

Contractor is to provide two sets of operating, maintenance, and parts manuals with each unit at time of delivery.

VII WARRANTY

Contractor is to provide a one-year warranty on all components, including parts and labor, or manufacturers warranty which ever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

VIII DELIVERY

Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: Jeff Turner (517-334-7763) at least 48 hours before delivery.**

IX LIQUIDATED DAMAGES

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay.

The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

A. If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.

B. If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days. **The delivery date for all units on this PO shall be 120 days from the day the Purchase Order is received by the successful vendor.**

C. Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

X SPECIFICATIONS

Contractor is to complete and return the following portions of the specification. This shall provide detailed information for the equipment offered with this quotation. This information will be used by the Office of Purchasing in determining acceptability of the bid prior to award of purchase order. In addition, MDOT will use this information when comparing as delivered equipment with the information provided here by the vendor.

Quotations will be considered acceptable only in the following circumstances:

53. All blank spaces are completed with either yes or no, and if no list the type of deviation.

54. MDOT minimum requirements are met or exceeded.

55. MDOT maximum requirements are not exceeded.

56. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

IX SPECIFICATIONS - continued

If requirements are not available from the manufacturer, the Contractor will be expected to make the appropriate substitution at the dealership prior to delivery. **When an appropriate substitution is required vendor shall note this in the Deviation to Specifications section of this specification.** Failure to make such alteration will be cause for non-acceptance by MDOT.

BASIC SPECIFICATIONS	**YES**	**NO**	**DEVIATION**
Delivery shall be 120 days ARO	_X___	____	_____
Delivery shall be to MDOT OOAS Garage Operations, 2522 W. Main St., Lansing, MI, 48917, between the hours of 8:00am and 2:30pm, Monday through Friday, except Public Holidays. Contractor shall contact Jeff Turner at 517-334-7763 at least 48 hours prior to delivery	_X__	____	_____

Comments: Monroe Model, MV132-84-50

SPREADER BODY	**YES**	**NO**	**DEVIATION**
Spreader body length shall be 11 feet	_X___	____	_____
Spreader overall height shall be approximately 50 inches without extensions	_X___	____	_____
Spreader overall width shall be approximately 84 inches	_X___	____	_____
Spreader body and vertical bracing shall be 10 gauge type 201 or 304 stainless steel	_X___	____	_____
Longitudinal support members shall be 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Spreader body, vertical bracing, and longitudinal members shall be configured approximately as shown in drawings supplied by MDOT upon request	_X___	____	_____
Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	_X___	____	_____
Vertical bracing shall be placed in such a manner to allow future installation of two (2) 180 gallon liquid tanks	_X___	____	_____
End panels shall slope inward at the bottom (approximately 18°)	_X___	____	_____
Lateral crossmembers shall be structural stainless steel supporting channels 3 inch x 1-½ inch x 4.75 pounds/foot	_X___	____	_____

Crossmembers shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch	_X___	____	_____
Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel.	_X____	____	_____
Additional reinforcement on both the inside and outside of the body is required to support the hold down brackets	_X___	____	_____
Two (2) hold down brackets constructed of 6 inch x 5 inch x ¼ inch stainless steel plate with a 3 inch tall piece of 5 inch stainless steel channel welded to the center shall be welded to the body centered 25-¼ back of front bulkhead on the top vertical surface, 3-½ inches from top, one (1) each side	_X___	____	_____
Spreader shall be equipped with a bolt-in conveyor floor of ¼ inch type 201 or 304 stainless steel supported every 12 inches with 3/16 inch x 1-7/16 x 1-7/16 stainless angles	_X___	____	_____
A wiper belt shall be at the rear most end of the floor to direct material into the center region of the chute assembly	_X___	____	_____
Wiper belt in the front to prevent material leakage	_X___	____	_____
Floor shall be tack welded at all four (4) corners with approximately 1 inch weld bead to ensure the floor will not come loose should the bolts loosen	_X___	____	_____
Long sills shall be slotted each end with openings at the extreme ends for ease of idler and drive sprocket shaft replacement	_X___	____	_____
12 inch x 18 inch triangular gussets, with embossments, shall be welded from the hopper assembly to the long sills in each side for additional support	_X___	____	_____
Long sills shall have an additional 2 inch x 2 inch x ¼ inch stainless steel angle welded to the bottom of each side to support the cross auger	_X___	____	_____

SPREADER BODY - continued	**YES**	**NO**	**DEVIATION**
Four (4) 8 inch x 8 inch x 3/16 inch 201 or 304 stainless triangular gussets shall be welded to the top of each corner on the hopper shell	_X___	____	_____

Comments

_____

_____

FEED GATE OPENING	**YES**	**NO**	**DEVIATION**
A 10 gauge type 201 or 304 stainless steel feed gate approximately 12 inch x 18 inch with a ruler, shall be provided in the unloading end of the box with a heavy duty screw type mechanism with ½ inch stainless steel handle shall regulate material discharge	_X___	____	_____
The crank handle shall be extended so that it is not more than 72 inches from the ground with the V box installed	_X___	____	_____
Handle screw type mechanism shall be located on the drivers side of spreader	_X___	____	_____
Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	_X___	____	_____

Comments

_____

_____

CONVEYOR	**YES**	**NO**	**DEVIATION**
Conveyor shall be maximum 24 inches wide, with heavy duty type 201 or 304 stainless steel formed chain shields over the chain strands, exposing only the drag bars to the material	_X___	____	_____

CONVEYOR - continued	**YES**	**NO**	**DEVIATION**
All chain joints and pins shall be thoroughly lubricated with salt resistant 9102 Syntemp from Lubrication Engineers, Fort Worth, Texas	_X___	____	_____
Conveyor chain shall be 667XH heat treated 2.25 pitch, self-cleaning, pintle-type with 15/32 inch pins and a tensile strength of 26,000 pounds	_X___	____	_____
Eight tooth cast iron sprockets with 1 ½ inch drive and idler shafts, and four (4) bolt relubable flange bearings shall be provided	_X___	____	_____
Cross bars ½ inch x 1-½ inch x 18-¾ inches shall be positioned on approximately 2-¼ inch centers, welded top and bottom	_X___	____	_____
Overall chain width shall not exceed 22-¼ inches	_X___	____	_____
A heavy duty, spring loaded, idler adjustment assembly (sufficient to carry the extra load or weight of the conveyor chain with added cross bars), shall provide 9 inches of travel for proper conveyor chain tension. Spring must be rated at a minimum of 708 PSI and be 6 inches long 2.187 inch OD	_X___	____	_____
Adjuster screw shall be a minimum of ¾ inch stainless steel	_X___	____	_____
Adjuster shall be extended so the adjustment can be made at the rear of the spreader with jam nuts at the rear	_X___	____	_____

Comments _____

_____

WELDS AND FASTENERS	**YES**	**NO**	**DEVIATION**
All welds shall be continuous, inside and outside and cleaned of weld slag and spatter	_X___	____	_____
Bolts on the spreader body shall all be 201 or 304 stainless steel	_X___	____	_____

Comments

_____

GREASE TUBES	YES	NO	DEVIATION
Grease tubes shall be provided from the front to the rear of the spreader body as shown on drawings supplied by MDOT upon request for ease of lubrication of front conveyor bearings (both sides)	_X___	____	_____

Comments

_____

_____

HYDRAULIC MOTORS	YES	NO	DEVIATION
Spinner motors shall be manufacturers standard for the spreader capacity specified	_X___	____	_____
Spinner disc fins shall be designed for clockwise rotation	_X___	____	_____
Conveyor drive motor shall be a White Roller Stator and equipped with a Hall effect type speed sensor that produces 50 or more pulses per revolution	_X___	____	_____

Comments

_____

GEAR REDUCTION CONVEYOR DRIVE	YES	NO	DEVIATION
Gear reduction shall be approximately 50:1 with hardened, precision- machined, worm type gear with Timken tapered roller bearings on the output shaft	_X___	____	_____
Gear case shall be oil tight, equipped with filler, drain, and oil level drain plugs	_X___	____	_____
Conveyor motor shall be mounted directly to the gear case	_X___	____	_____
Conveyor drive motor shall be positioned on the forward side of the gearbox	_X___	____	_____
Offset gearbox mounting plate shall be minimum ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Gearbox driveshaft shall not extend beyond case opposite the drive motor	_X___	____	_____

A coupling with a ½ inch shear bolt shall be provided

between the gear box and the conveyor drive shaft	_X___	____	_____
A shear key inside the gear box is **NOT** acceptable	_X___	____	_____

Comments

_____

_____

CROSS AUGER	**YES**	**NO**	**DEVIATION**
Cross auger shall be capable of moving free-flowing granular material to either a left or right opening	_X___	____	_____
Trough, lids and bottom assembly shall be 7 gauge 201 or 304 stainless steel with ¼ inch one-piece endplates and 96 inch overall width	_X___	____	_____
The rear of the conveyor shall be reinforced with a 2 inch x 5 inch x 7 gauge tube with the bottom trough latch system attached to this tube	_X___	____	_____
A 7 gauge, four (4) sided, 201 or 304 stainless steel chute extension shall be designed to lower the cross auger assembly to allow discharge on to a spinner or direct placement attachment. The chute shall be height adjustable	_X___	____	_____
The chute extension shall allow unloading of the hopper box without going through the cross auger	_X___	____	_____
The three-piece combination cover and top openings shall be designed to be mounted to the bottom of the reinforced longsills on a hopper box	_X___	____	_____
The unobstructed, hinged bottom shall allow clogged material to drop out when it is opened for easy cleanout	_X___	____	_____
A centered 201 or 304 stainless steel lift handle shall be included	_X___	____	_____
Bottom trough shall have three (3) solid ½ inch pipe hinges	_X___	____	_____
Bottom opening shall have a removable door that can be either left or right mount	_X___	____	_____
All latches shall be captive, heavy duty 201 or 304 stainless steel that will work in the coldest weather without the use of tools and have a safety lock	_X___	____	_____

Endplates shall have convenient chain hoist lifting slots placed at the balance points to provide easy level mounting and dismounting of the conveyor	_X___	____	_____
Auger shall be a full 7 foot in length with one-way flighting for left or right hand discharge of material	_X___	____	_____
Auger shall be 9 inch diameter, 4 inch pitch and 5/16 inch thick on the outer edge and welded to a 2-7/8 inch OD schedule 40 pipe. EWR pipe/tubing	_X___	____	_____
Shafts shall be 1-½ inch and supported by a heavy duty 1-½ inch sealed, self aligning, relubable four (4) bolt flange bearing The exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Auger shall be driven by a hydraulic, direct drive motor, 45 cubic inch, 1-¼ inch – 14 spline shaft with 7/8 inch)O-ring ports	_X___	____	_____
Shaft coupler shall be stainless steel	_X___	____	_____
The spinner assembly is mounted to the bottom cleanout door and have an easy one man mount and dismount	_X___	____	_____
Spinner disc shall be 18 inches in diameter and manufactured from polyurethane material	_X___	____	_____
Six (6) formed spinner flights shall be manufactured from polyurethane	_X___	____	_____
Spinner disc shall be mounted directly to the hydraulic motor by means of a cast iron spinner hub	_X___	____	_____
Spinner motor shall be a low speed high torque motor	_X___	____	_____
Spinner shall be completely adjustable for all normal variations of spread patterns	_X___	____	_____
All interior seams shall be continuously electronically welded to eliminate corrosion pockets	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
Mounting hardware shall be 201 or 304 stainless steel and Provided	_X___	____	_____
All stainless steel parts shall be in bare stainless	_X___	____	_____
All mild steel parts shall be painted black	_X___	____	_____

Comments _____

_____

ZERO VELOCITY SPREADER	**YES**	**NO**	**DEVIATION**
Spreader housing shall be 10 gauge 201 or 304 stainless steel	_X___	____	_____
Housing shall have a 12 inch x 14 inch opening with three flexible bolt on flares to divert material into housing	_X___	____	_____
Housing opening shall have two (2) safety bars of 3/16 inch 201 or 304 stainless steel to prevent large objects from entering housing opening	_X___	____	_____
Spreader impeller shall dispense material onto roadway, and be manufactured from type 201 or 304 stainless steel and shall include replaceable end bits	_X___	____	_____
Impeller shall have four (4) 4-¾ inch x 4 inch paddles, 16 inches in diameter with a 1 inch bore steel hub integrally welded to impeller	_X___	____	_____
Impeller motor shall be low speed/high torque "orbital type" hydraulic wheel motor with 3 cu/in displacement	_X___	____	_____
Motor shall be capable of applications up to 800rpm	_X___	____	_____
Motor shall be Parker type with a stainless steel output shaft	_X___	____	_____

ZERO VELOCITY SPREADER - continued	**YES**	**NO**	**DEVIATION**
An in line flow meter with a hall affect speed sensor shall be provided with a Brad Harrison type connector to interface with control console	_X___	____	_____
A sensor cable with LED indicator lights shall be provided to interface the Hall Effect flow meter sensor to a Dickey-john Control Point controller	_X___	____	_____
Spinner assembly shall be mounted with approximately 6 inches ground clearance and be adjustable in height. Mount bracket(s) MUST have MDOT written approval	_X___	____	_____
Spinner assembly shall lift 6 inches by actuating in cab switch	_X___	____	_____
Spinner assembly shall rotate 45° right and left of center position by actuating remote in cab switch	_X___	____	_____
Direction of spinner assembly shall be displayed on console by indicator lights	_X___	____	_____
Spinner assembly shall include up/down actuating cylinder, right/left actuating cylinder with a built in position sensor, and a deflector actuating cylinder	_X___	____	_____
A closed center, electric actuated valve shall be provided with the zero velocity spinner to control the up/down, right/left, and deflector functions	_X___	____	_____
Cab controls for the zero velocity spinner shall include switches for up/down, right/left, deflector up/down, a position display, and all necessary wiring harnesses to interface the controls to the valve	_X___	____	_____

Comments

_____

_____

"Y" CHUTE DISTRIBUTOR	**YES**	**NO**	**DEVIATION**
Bid shall include non-stainless "Y" chute distributor, one for item 3 spreader, fabricated and assembled as noted in the following MDOT drawings accept where this specification differs, specification takes precedence:			
63-790-1 (1/98) 63-790-2 (6/87) 63-790-3 (1/98) 63-790-4 (6/87)	_X___	____	_____

A 1 inch x ¼ inch safety guard shall be welded at the top of the cutout for the spinner **(Exceeds drawings)**	_X___	____	_____
Chute assemblies shall be designed to be fastened to the 2 inch x 2 inch x ¼ inch type 201 stainless angle members of the spreader body with six (6) 3/8 diameter grade 5 bolts	_X___	____	_____
Chute assemblies shall be powder coated orange to match Dupont IMRON #43106-U or equal	_X___	____	_____
Chute assemblies may be shipped loose and separate from spreaders	_X___	____	_____
Vendor shall supply air cylinders to operate both the directional and drop chute doors	_X___	____	_____
Cylinders shall be 1-½ inch x 4 inch and have a stainless steel rod and bore with poly piston head	_X___	____	_____
Cylinders shall be mounted and functional upon delivery	_X___	____	_____
Hinges for the chute doors shall be constructed of type 201 or 304stainless steel **(Exceeds drawings)**	__X__	____	_____
Each door shall have three (3) hinges, a continuous hinge is not acceptable **(Exceeds drawings)**	____	____	_____

Comments: See attachment for pricing on cross auger, accuplace spinner, trough hung spinner and Y chute assemblies.

End of Specification

MDOT SPECIFICATION# 60-14SS.C09

HOPPER BOX MATERIAL SPREADER, 14 FOOT AND DISTRIBUTION SYSTEMS

I GENERAL

It is the intent of this specification to establish an optional use contract for slide in type hopper box material spreaders to uniformly spread salt, sand or a combination of both for treatment of icy roads. They shall consist of an 84 inch wide x 14 foot long stainless steel hopper box, a pintle type flight chain conveyor, with a cross auger with left side spinner and hydraulic motor, or a cross auger, left side zero velocity spinner and hydraulic motor or a y-chute spreader with spinner and hydraulic motor. The operation of the spreader will be controlled by a ground speed oriented hydraulic system. MDOT will install this spreader in a 64,000 GVW tandem axle truck with 14 foot dump box and a closed center load sensing hydraulic system.

The timely delivery of the hopper box material spreaders is essential to the department's ability to meet its scheduled build-up of its winter maintenance fleet and its ability to maintain the highway system in a safe manner. **All units listed in this specification shall be completed and delivered in 120 calendar days.** If units are delivered to MDOT and do not meet the specifications they will not be considered completed until all complaints are resolved.

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60. The Contractor's offering falls within the minimum and maximum range if both are noted in the same specification item.

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Comments: Monroe Model MV168-84-56/MI

_____

_____

SPREADER BODY	**YES**	**NO**	**DEVIATION**
Spreader body length shall be 14 feet	_X___	____	_____
Spreader overall height shall be approximately 56 inches without extensions or splices, one piece sides and ends	_X___	____	_____
Spreader overall width shall be approximately 84 inches	_X___	____	_____
Spreader body and vertical bracing shall be 10 gauge type 201 or 304 stainless steel	_X___	____	_____
Longitudinal support members shall be 7 gauge type 201 or 304 stainless steel	_X___	____	_____
Spreader body, vertical bracing, and longitudinal members shall be configured approximately as shown in drawings supplied by MDOT upon request	_X___	____	_____
Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	_X___	____	_____
Vertical bracing shall be placed in such a manner to allow future installation of four (4) 180 gallon liquid tanks	_X___	____	_____

End panels shall slope inward at the bottom (approximately 18°)	_X___	____	_____
Lateral crossmembers shall be structural stainless steel supporting channels 3 inch x 1-½ inch x 4.75 pounds/foot	_X___	____	_____
Crossmembers shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch	_X___	____	_____
Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel	_X___	____	_____
Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting	_X___	_____	_____
Two (2) hold down brackets constructed of 6 inch x 5 inch x ¼ inch stainless steel plate with a 3 inch tall piece of 5 inch stainless steel channel welded to the center shall be welded to the body centered 25-¼ back of front bulkhead on the top vertical surface, 3-½ inches from top, one (1) each side	_X___	____	_____
Additional reinforcement on both the inside and outside of the body is required to support the hold down brackets	_X___	____	_____
Spreader shall be equipped with a bolt-in conveyor floor of ¼ inch type 201 or 304 stainless steel supported every 12 inches with 3/16 inch x 1-7/16 x 1-7/16 stainless angles	_X___	____	_____
A wiper belt shall be at the rear most end of the floor to direct material into the center region of the chute assembly	_X___	____	_____
Wiper belt in the front to prevent material leakage	_X___	____	_____
Floor shall be tack welded at all four (4) corners with approximately 1 inch weld bead to ensure the floor will not come loose should the bolts loosen	_X___	____	_____
Long sills shall be slotted each end with openings at the extreme ends for ease of idler and drive sprocket shaft replacement	_X___	____	_____
12 inch x 18 inch triangular gussets, with embossments, shall be welded from the hopper assembly to the long sills in each side for additional support	_X___	____	_____
Long sills shall have an additional 2 inch x 2 inch x ¼ Inch 201 or 304 stainless steel angle welded to the bottom of each side to support the cross augers and y-chute	_X___	____	_____

9. SPREADER BODY – continued	**YES**	**NO**	**DEVIATION**
Four (4) 8 inch x 8 inch x 3/16 inch 201 or 304 stainless triangular gussets shall be welded to the top of each corner on the hopper shell	_X___	____	_____

Comments _____

_____

10. FEED GATE OPENING	**YES**	**NO**	**DEVIATION**
A 10 gauge type 201 or 304 stainless steel feed gate approximately 12 inch x 18 inch with a ruler, shall be provided in the unloading end of the box with a heavy duty screw type mechanism with ½ inch stainless steel handle shall regulate material discharge	_X___	____	_____
The crank handle shall be extended so that it is not more than 72 inches from the ground with the V box installed	_X___	____	_____
Handle screw type mechanism shall be located on the drivers side of spreader	_X___	____	_____
Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	_X___	____	_____

Comments _____

_____

CONVEYOR	**YES**	**NO**	**DEVIATION**
Conveyor shall be maximum 24 inches wide, with heavy duty type 201 or 304 stainless steel formed chain shields over the chain strands, exposing only the drag bars to the material	_X___	____	_____
All chain joints and pins shall be thoroughly lubricated with salt resistant 9102 Syntemp from Lubrication Engineers, Fort Worth, Texas	_X___	____	_____
Conveyor chain shall be 667XH heat treated 2.25 pitch, self-cleaning, pintle-type with 15/32 inch pins and a tensile strength of 26,000 pounds	_X___	____	_____
Eight tooth cast iron sprockets with 1 ½ inch drive and idler shafts, and four (4) bolt relubable flange bearings shall be provided	_X___	____	_____

Cross bars ½ inch x 1-½ inch x 18-¾ inches shall be positioned on approximately 2-¼ inch centers, welded top and bottom	_X___	____	_____
Overall chain width shall not exceed 22-¼ inches	_X___	____	_____
A heavy duty, spring loaded, idler adjustment assembly (sufficient to carry the extra load or weight of the conveyor chain with added cross bars), shall provide 9 inches of travel for proper conveyor chain tension. Spring must be rated at a minimum of 708 PSI and be 6 inches long 2.187 inch OD	_X___	____	_____
Adjuster screw shall be a minimum of ¾ inch stainless steel	_X___	____	_____
Adjuster shall be extended so the adjustment can be made at the rear of the spreader with jam nuts at the rear	_X___	____	_____

Comments _____

_____

WELDS AND FASTENERS	**YES**	**NO**	**DEVIATION**
All welds shall be continuous, inside and outside and cleaned of weld slag and spatter	_X___	____	_____
Bolts on the spreader body shall all be 201 or 304 stainless steel	_X___	____	_____

Comments _____

_____

GREASE TUBES	**YES**	**NO**	**DEVIATION**
Grease tubes shall be provided at rear of the spreader body for ease of lubrication of front conveyor bearings (both sides)	_X___	____	_____

Comments _____

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HYDRAULIC MOTORS	**YES**	**NO**	**DEVIATION**
Spinner motors shall be manufacturers standard for the spreader capacity specified	_X___	____	_____
Spinner disc fins shall be designed for clockwise rotation	_X___	____	_____

Conveyor drive motor shall be a White Roller Stator and equipped with a Hall effect type speed sensor that produces 50 or more pulses per revolution	_X___	____	_____

Comments _____

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GEAR REDUCTION CONVEYOR DRIVE	**YES**	**NO**	**DEVIATION**
Gear reduction shall be approximately 50:1 with hardened, precision- machined, worm type gear with Timken tapered roller bearings on the output shaft	_X___	____	_____
Gear case shall be oil tight, equipped with filler, drain, and oil level drain plugs	_X___	____	_____
Conveyor motor shall be mounted directly to the gear case	_X___	____	_____
Conveyor drive motor shall be positioned on the forward side of the gearbox	_X___	____	_____
Offset gearbox mounting plate shall be minimum ¼ inch type 201 or 304 stainless steel	_X___	____	_____
Gearbox driveshaft shall not extend beyond case opposite the drive motor	_X___	____	_____
A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft	_X___	____	_____
A shear key inside the gear box is **NOT** acceptable	_X__	____	_____

Comments _____

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CROSS AUGER	**YES**	**NO**	**DEVIATION**
Cross auger shall be capable of moving free-flowing granular material to either a left or right opening	_X___	____	_____
Trough, lids and bottom assembly shall be 7 gauge 201 or 304 stainless steel with ¼ inch one-piece endplates and 96 inch overall width	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
The rear of the conveyor shall be reinforced with a 2 inch x 5 inch x 7 gauge tube with the bottom trough latch system attached to this tube	_X___	____	_____
A 7 gauge, four (4) sided, 201 or 304 stainless steel chute extension shall be designed to lower the cross auger assembly to allow discharge on to a spinner or direct placement attachment. The chute shall be height adjustable	_X___	____	_____
The chute extension shall allow unloading of the hopper box without going through the cross auger	_X___	____	_____
The three-piece combination cover and top openings shall be designed to be mounted to the bottom of the reinforced longsills on a hopper box	_X___	____	_____
The unobstructed, hinged bottom shall allow clogged material to drop out when it is opened for easy cleanout	_X___	____	_____
A centered 201 or 304 stainless steel lift handle shall be included	_X___	____	_____
Bottom trough shall have three (3) solid ½ inch pipe hinges	_X___	____	_____
Bottom opening shall have a removable door that can be either left or right mount	_X___	____	_____
All latches shall be captive, heavy duty 201 or 304 stainless steel that will work in the coldest weather without the use of tools and have a safety lock	_X___	____	_____
Endplates shall have convenient chain hoist lifting slots placed at the balance points to provide easy level mounting and dismounting of the conveyor	_X___	____	_____
Auger shall be a full 7 foot in length with one-way flighting for left or right hand discharge of material	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
Auger shall be 9 inch diameter, 4 inch pitch and 5/16 inch thick on the outer edge and welded to a 2-7/8 inch OD schedule 40 pipe. EWR pipe/tubing	_X___	____	_____
Shafts shall be 1-½ inch and supported by a heavy duty 1-½ inch sealed, self aligning, relubable four (4) bolt flange bearing The exposed end of the shaft on the opposite end of the motor shall include a stainless steel cover	_X___	____	_____
Auger shall be driven by a hydraulic, direct drive motor, 45 cubic inch, 1-¼ inch – 14 spline shaft with 7/8 inch)O-ring ports	_X___	____	_____
Shaft coupler shall be stainless steel	_X___	____	_____
The spinner assembly is mounted to the bottom cleanout door and have an easy one man mount and dismount	_X___	____	_____
Spinner disc shall be 18 inches in diameter and manufactured from polyurethane material	_X___	____	_____
Six (6) formed spinner flights shall be manufactured from polyurethane	_X___	____	_____
Spinner disc shall be mounted directly to the hydraulic motor by means of a cast iron spinner hub	_X___	____	_____
Spinner motor shall be a low speed high torque motor	_X___	____	_____
Spinner shall be completely adjustable for all normal variations of spread patterns	_X___	____	_____
All interior seams shall be continuously electronically welded to eliminate corrosion pockets	_X___	____	_____
Mounting hardware shall be 201 or 304 stainless steel and provided	_X___	____	_____

CROSS AUGER - continued	**YES**	**NO**	**DEVIATION**
All stainless steel parts shall be in bare stainless		_X___	____ _____
All mild steel parts shall be painted black		_X___	____ _____

Comments _____

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ZERO VELOCITY SPREADER	**YES**	**NO**	**DEVIATION**
Spreader housing shall be 10 gauge, 201 or 304 stainless steel		_X___	____ _____
Housing shall have a 12 inch x 14 inch opening with three flexible bolt on flares to divert material into housing		_X___	____ _____
Housing opening shall have two (2) safety bars of 3/16 inch 201 or 304 stainless steel to prevent large objects from entering housing opening		_X___	____ _____
Spreader impeller shall dispense material onto roadway, and be manufactured from type 201 or 304 stainless steel and shall include replaceable end bits		_X___	____ _____
Impeller shall have four (4) 4-¾ inch x 4 inch paddles, 16 inches in diameter with a 1 inch bore steel hub integrally welded to impeller		_X___	____ _____
Impeller motor shall be low speed/high torque "orbital type" hydraulic wheel motor with 3 cu/in displacement		_X___	____ _____
Motor shall be capable of applications up to 800rpm.		_X___	____ _____
Motor shall be Parker type with a stainless steel output shaft		_X___	____ _____
An in line flow meter with a hall affect speed sensor shall be provided with a Brad Harrison type connector to interface with control console		_X___	____ _____
A sensor cable with LED indicator lights shall be provided to interface the Hall Effect flow meter sensor to a Dickey-john Control Point controller		_X___	____ _____
Spinner assembly shall be mounted with approximately 6 inches ground clearance and be adjustable in height. Mount bracket(s) MUST have MDOT written approval		_X___	____ _____
Spinner assembly shall lift 6 inches by actuating in cab switch		_X___	____ _____

Spinner assembly shall rotate 45° right and left of center position by actuating remote in cab switch	_X___	____	_____
Direction of spinner assembly shall be displayed on console by indicator lights	_X___	____	_____
Spinner assembly shall include up/down actuating cylinder, right/left actuating cylinder with a built in position sensor, and a deflector actuating cylinder	_X___	____	_____
A closed center, electric actuated valve shall be provided with the zero velocity spinner to control the up/down, right/left, and deflector functions	_X___	____	_____
Cab controls for the zero velocity spinner shall include switches for up/down, right/left, deflector up/down, position display, and all necessary wiring harnesses to interface the controls to the valve	_X___	____	_____ a

Comments _____

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"Y" CHUTE DISTRIBUTOR	**YES**	**NO**	**DEVIATION**
Bid shall include non-stainless "Y" chute distributor, one for item 3 spreader, fabricated and assembled as noted in the following MDOT drawings accept where this specification differs, specification takes precedence:			
63-790-1 (1/98) 63-790-2 (6/87) 63-790-3 (1/98) 63-790-4 (6/87)	_X___	____	_____
A 1 inch x ¼ inch safety guard shall be welded at the top of the cutout for the spinner **(Exceeds drawings)**	_X___	____	_____
Chute assemblies shall be designed to be fastened to the 2 inch x 2 inch x ¼ inch type 201 stainless angle members of the spreader body with six (6) 3/8 diameter grade 5 bolts	_X___	____	_____
Chute assemblies shall be powder coated orange to match Dupont IMRON #43106-U or equal	_X___	____	_____
Chute assemblies may be shipped loose and separate from spreaders	_X___	____	_____
Vendor shall supply air cylinders to operate both the directional and drop chute doors	____	____	_____
Cylinders shall be 1-½ inch x 4 inch and have a stainless			

steel rod and bore with poly piston head	_X___	____	_____
Cylinders shall be mounted and functional upon delivery	_X___	____	_____
Hinges for the chute doors shall be constructed of type 201 or 304stainless steel **(Exceeds drawings)**	_X___	____	_____
Each door shall have three (3) hinges, a continuous hinge is not acceptable **(Exceeds drawings)**	_X___	____	_____

Comments _____

_____

End of Specification