

# **T Russell, Little Sand Bay Road**

**Old CTH K – Termini**

## **Local Street, Bayfield County**

**I.D. 8357-01-72**

### **Estimate Documentation**

This Estimate was prepared by Luke Sander, Design Engineer, and QA/QC by Aaron Palmer, P.E., Project Manager, Westbrook Associated Engineers, Inc. The 2017 Estimator catalog, AASHTOWare Project (AWP) bid history, and 2016 Wisbid unit prices were used in the estimate process.

PS&E Date: May 1, 2017

Letting Date: August 8, 2017

Project Length: 2.631 miles

#### **Executive Summary:**

- This project is a rural roadway rehabilitation project that includes a section of pulverize and relay, and shoulder widening through the entire corridor. Also, several culvert pipes will be lined with two pipes being removed and replaced.
- Utilities will be relocated prior to construction.
- Little Sand Bay Road will be open to through traffic and will be constructed under flagging operations.
- The work is to be completed by November 16, 2017.
- The estimate was created with the assumption that good competition will keep the prices near Estimator/AWP prices.

#### **Estimator Parameters:**

- Work Type – General (no dominate work type with the asphalt and base aggregate items accounting for the largest project cost.)
- Season – Fall (August 2017 let)
- County – Bayfield County (all work is contained within the county limits).

## Item Level Components:

(These are the items that require item level documentation for this proposal. The items are identified to indicate which items require further documentation.)

- Significant Items (major dollar items totaling approximately 80% of the contract dollars).
  - Excavation Common
  - Base Aggregate Dense 1¼-Inch
  - Pulverize and Relay
  - HMA Pavement 4 LT 58-34 S
  - Culvert Pipe Liners (size) 03. 24-Inch
  - Mobilization
  - Salvaged Topsoil
  - Silt Fence
- Items without Estimator Regression Curves (includes SPVs and lump sum items)
  - HMA Pavement 4 LT 58-34 S
  - Apron Endwalls 48-Inch
  - Culvert Pipe Corrugated Polyethylene 18-Inch
  - Mobilization
  - Traffic Control Project
  - Construction Staking Supplemental Control (project)
  - SPV Culvert Pipe Corrugated Polyethylene 48-Inch

## Management Consultant Comments during 90% Review:

Update AASHTOWare file to include specific info on CAT Work type, Fed Work Cat, etc... **Work categories added to estimate.**

Follow instructions in user guide for providing validated proposal estimate.  
**Validation attached to estimate documentation.**

Add cold weather paving bid item. **Added bid item to estimate.**

Add an undistributed quantity for temporary ditch checks. **Undistributed quantity added to quantities.**

**Project Detail Cost Estimate Spreadsheet****Project ID: 8357-01-72****Project Description: T Russell, Little Sand Bay Road, Old CTH K - Termini, Local Street, Bayfield County****Category: 0010 Roadway Items**

Item Code		Item Description	Units	Est. Qty	Unit Price	Amount	Significant Items Amount	Remarks
201.0105		Clearing	STA	10.000	350.00000	3,500.00		
201.0205		Grubbing	STA	10.000	266.50000	2,665.00		
203.0100		Removing Small Pipe Culverts	EACH	2.000	447.50000	895.00		
204.0110		Removing Asphaltic Surface	SY	140.000	11.25000	1,575.00		
205.0100		Excavation Common	CY	3,934.000	9.65000	37,963.10	37,963.10	See significant item notes.
305.0110		Base Aggregate Dense 3/4-Inch	TON	465.000	27.25000	12,671.25		
305.0120		Base Aggregate Dense 1 1/4-Inch	TON	11,360.000	12.75000	144,840.00	144,840.00	See significant item notes.
325.0100		Pulverize and Relay	SY	18,240.000	1.25000	22,800.00	22,800.00	See significant item notes.
450.4000		HMA Cold Weather Paving	TON	3,114.000	3.00000	9,342.00		
460.5244		HMA Pavement 4 LT 58-34 S	TON	3,114.000	60.00000	186,840.00	186,840.00	See significant item notes.
520.1018		Apron Endwalls for Culvert Pipe 18-Inch	EACH	2.000	205.00000	410.00		
520.1048		Apron Endwalls for Culvert Pipe 48-Inch	EACH	2.000	1,000.00000	2,000.00		Estimated unit price from WisBid history.
520.9700.S		Culvert Pipe Liners (size) 01. 15-Inch	LF	64.000	60.00000	3,840.00		
520.9700.S		Culvert Pipe Liners (size) 02. 18-Inch	LF	211.000	80.00000	16,880.00		
520.9700.S		Culvert Pipe Liners (size) 03. 24-Inch	LF	347.000	100.00000	34,700.00	34,700.00	See significant item notes.
520.9700.S		Culvert Pipe Liners (size) 04. 30-Inch	LF	49.000	120.00000	5,880.00		
520.9750.S		Cleaning Culvert Pipes for Liner Verification	EACH	11.000	435.00000	4,785.00		
530.0118		Culvert Pipe Corrugated Polyethylene 18-Inch	LF	60.000	40.00000	2,400.00		Estimated unit price from WisBid history.
606.0200		Riprap Medium	CY	10.000	90.55000	905.50		
619.1000		Mobilization	EACH	1.000	39,500.00000	39,500.00	39,500.00	Assume 6.5% of total project.
624.0100		Water	MGAL	100.000	24.10000	2,410.00		
625.0500		Salvaged Topsoil	SY	16,450.000	1.45000	23,852.50	23,852.50	See significant item notes.
627.0200		Mulching	SY	21,200.000	0.20000	4,240.00		
628.1504		Silt Fence	LF	10,610.000	1.65000	17,506.50	17,506.50	See significant item notes.
628.1520		Silt Fence Maintenance	LF	21,220.000	0.02000	424.40		
628.1905		Mobilizations Erosion Control	EACH	2.000	285.00000	570.00		
628.1910		Mobilizations Emergency Erosion Control	EACH	2.000	195.00000	390.00		
628.2004		Erosion Mat Class I Type B	SY	10,830.000	1.15000	12,454.50		
628.7504		Temporary Ditch Checks	LF	50.000	8.70000	435.00		
628.7555		Culvert Pipe Checks	EACH	51.000	16.80000	856.80		
629.0205		Fertilizer Type A	CWT	3.500	81.15000	284.03		
630.0120		Seeding Mixture No. 20	LB	150.000	8.95000	1,342.50		

643.0100	Traffic Control (project) 01. 8357-01-72	EACH	1.000	10,000.00000	10,000.00	Estimated unit price from WisBid history.
643.0900	Traffic Control Signs	DAY	720.000	1.32000	950.40	
645.0120	Geotextile Type HR	SY	30.000	4.40000	132.00	
646.0103	Pavement Marking Paint 4-Inch	LF	42,936.000	0.25000	10,734.00	
650.4500	Construction Staking Subgrade	LF	13,890.000	0.15000	2,083.50	
650.5000	Construction Staking Base	LF	13,890.000	0.40000	5,556.00	
650.6000	Construction Staking Pipe Culverts	EACH	2.000	170.20000	340.40	
650.9910	Construction Staking Supplemental Control (project)	LS	1.000	1,000.00000	1,000.00	
650.9920	Construction Staking Slope Stakes	LF	13,890.000	0.45000	6,250.50	
690.0150	Sawing Asphalt	LF	370.000	2.20000	814.00	
ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	5.00000	6,000.00	
ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	5.00000	1,500.00	
SPV.0090	Special 01. Culvert Pipe Corrugated Polyethylene 48-Inch	LF	50.000	85.00000	4,250.00	Compared to similar bid items.
			<b>Significant Items Target:</b>		519,015.10	
			<b>Totals:</b>		648,768.88	508,002.10

## ***Significant Items***

### **Bid Item 205.0100 - Excavation Common (CY)**

Quantity: 3,934 CY Final Unit Price: \$9.65/CY

Estimator regression had a unit price of \$9.568 and AASHTOWare Project (AWP) regression had a unit price of \$9.63. Based on those two references assume a unit price of \$9.65/CY.

### **Bid Item 305.0120 - Base Aggregate Dense 1 1/4-Inch (TON)**

Quantity: 11,360 TON Final Unit Price: \$12.75/TON

Estimator regression had a unit price of \$12.17 and AASHTOWare Project (AWP) regression had a unit price of \$13.05. Wisbid history was also used in the comparison. After comparing the three separate sources a unit price of \$12.75/TON was selected.

*WisBid Comparison*

Project No.	County	Quantity	Unit Prices				Average
			Contractor 1	Contractor 2	Contractor 3		
20160614013	Chippewa	12160	\$ 9.19	\$ 9.56	\$ 12.25	\$	10.33
20160614013	Chippewa	12160	\$ 11.38	\$ 11.63	\$ 11.45	\$	11.49
20160510037	Marathon	12220	\$ 11.95	\$ 13.00	\$ 11.81	\$	12.25
20160510038	Marathon	12220	\$ 11.70	\$ 12.75	\$ 11.62	\$	12.02
<b>Total</b>						<b>\$</b>	<b>11.52</b>

### **Bid Item 325.0100 - Pulverize and Relay (SY)**

Quantity: 18,240 SY Final Unit Price: \$1.25/SY

Estimator regression had a unit price of \$1.066 and AASHTOWare Project (AWP) regression had a unit price of \$1.30. Also checked a project let March 2016 in the NE Region that had a unit price of \$1.20 from six different contractors with a 13,000 SY quantity. We will use a unit price of \$1.25.

### **Bid Item 460.5244 - Asphaltic Surface (TON)**

Quantity: 3,114 tons Final Unit Price: \$60.00/Ton

Estimator did not have regression data for this item. See below for similar WisBid project quantities and unit prices. Assume a unit price of \$60.00.

*WisBid Comparison*

Project No.	County	Quantity	Unit Prices				Average
			Contractor 1	Contractor 2	Contractor 3		
20160510052	Sawyer	3464	\$ 60.10	-	-	\$	60.10
60160510051	Bayfield	6390	\$ 37.76	-	-	\$	37.76
<b>Total</b>						<b>\$</b>	<b>48.93</b>

## ***Significant Items***

### **Bid Item 520.9700.S - Culvert Pipe Liners 24-Inch (LF)**

Quantity: 347 LF

Final Unit Price: \$100.00/LF

Estimator regression had a unit price of \$112.52/LF and AWP had a unit price of \$80.32; however, these unit prices are derived from all sizes of pipe liners and is not a good representation for 24-Inch liners. After looking at recent WisBid history, we will assume a \$100/LF unit price.

#### *WisBid Comparison*

Project No.	County	Quantity	Unit Prices				Average
			Contractor 1	Contractor 2	Contractor 3		
20150414032	Bayfield	366	\$ 94.50	-	-	\$	94.50
20160412040	Pierce	204	\$ 101.79	-	-	\$	101.79
20161213042	Bayfield	488	\$ 99.00	\$ 85.00	\$ 85.00	\$	89.67
<b>Total</b>							<b>\$ 95.32</b>

### **Bid Item 619.1000 - Mobilization (EACH)**

Quantity: 1 EACH

Final Unit Price: \$28,000.00

Assumed 6.5% of the total project for mobilization. Referred to WisDOT's Percent Mobilization by Work Type (2011-2015) worksheet for guidance. Chose 6.5% based on the median average for a general work type from 2011-

### **Bid Item 625.0500 - Salvaged Topsoil (SY)**

Quantity: 16,450 SY

Final Unit Price: \$1.45/SY

Estimator regression had a unit price of \$1.299/SY and AWP had a unit price of \$1.44/ SY. We will assume a unit price of \$1.45/SY.

### **Bid Item 628.1504 - Silt Fence (LF)**

Quantity: 10,610 LF

Final Unit Price: \$1.65/LF

Estimator regression had a unit price of \$1.638/LF and AWP had a unit price of \$1.67/LF. We will assume a unit price of \$1.65/LF.

# Proposal Validation Results

[Help](#)

- Proposal 'C8357-01-72' is valid.
- Project '8357-01-72' is valid.