



**TRANSPORTATION CABINET**

Frankfort, Kentucky 40622  
www.transportation.ky.gov/

**Steven L. Beshear**  
Governor

**Michael W. Hancock, P.E.**  
Secretary

August 17, 2015

CALL NO. 301  
CONTRACT ID NO. 151242  
ADDENDUM # 1

Subject: Mason County, FD04 SPP 081 1448 005-007  
Letting August 21, 2015

- (1) Revised - Plan Sheet - R2H
- (2) Revised - Bid Items - Pages 118-121 of 121
- (3) Added - Note - Pages 1-4 of 4

Proposal revisions are available at <http://transportation.ky.gov/Construction-Procurement/>.

Plan revisions are available at <http://www.lynnimaging.com/kytransportation/>.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

A handwritten signature in cursive script that reads "Rachel Mills".

Rachel Mills, P.E.  
Director  
Division of Construction Procurement

RM:ks  
Enclosures



An Equal Opportunity Employer M/F/D

# GENERAL SUMMARY

COUNTY OF	ITEM NO.	SHEET NO.
MASON	9-8303.0	R2H

REVISED 8/17/2015

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

ITEM CODE	ITEM	UNIT	TOTAL PROJECT	
1310	REMOVE PIPE	LF	78	
1585	REMOVE DROP BOX INLET (3)	EACH	2	
1810	STANDARD CURB AND GUTTER	LF	14261	
1820	LIP CURB AND GUTTER	LF	216	
1821	LIP CURB AND GUTTER MOD	LF	277	
1875	STANDARD HEADER CURB	LF	581	
1880	BARRIER HEADER CURB	LF	32	
1904	REMOVE CURB	LF	191	
1946	MOUNTABLE MEDIAN TYPE 2A	SQ YD	70	
1982	DELINEATOR FOR GUARDRAIL - WHITE	EACH	82	
1984	DELINEATOR FOR BARRIER - WHITE	EACH	43	
2003	RELOCATE TEMPORARY CONCRETE BARRIER (3)	LF	800	
2091	REMOVE PAVEMENT	SQ YD	92	
2159	TEMPORARY DITCH	LF	4173	
2200	ROADWAY EXCAVATION (A)	CU YD	101118	
2223	GRANULAR EMBANKMENT (9) (12)	CU YD	243	
2242	WATER (2)	M GAL	3.38	
2351	GUARDRAIL STEEL "W" BEAM SINGLE FACE	LF	2393.75	
2360	GUARDRAIL TERMINAL SECTION NUMBER 1	EACH	3	
2367	GUARDRAIL END TREATMENT TYPE 1	EACH	6	
2381	REMOVE GUARDRAIL	LF	1064	
2391	GUARDRAIL END TREATMENT TYPE 4A (4)	EACH	6	
2397	TEMPORARY GUARDRAIL (3)	LF	2100	
2429	RIGHT-OF-WAY MONUMENT TYPE 1	EACH	138	
2432	WITNESS POST	EACH	3	
2483	CHANNEL LINING CLASS II	TON	1051	
2484	CHANNEL LINING CLASS III	TON	299	
2545	CLEARING AND GRUBBING (1)	LS	1	
2555	CONCRETE CLASS B (9)	CU YD	142.6	
2562	TEMPORARY SIGNS (3)	SQ FT	782.5	
2568	MOBILIZATION	LS	1	
2569	DEMOBILIZATION	LS	1	
2585	EDGE KEY	LF	373	
2596	FABRIC-GEOTEXTILE TYPE I	SQ YD	810	
2599	FABRIC-GEOTEXTILE TYPE IV	SQ YD	80437	
2600	FABRIC-GEOTEXTILE TYPE IV FOR PIPE	SQ YD	20221	
2611	HANDRAIL - TYPE A-1	LF	1874	
2625	REMOVE HEADWALL	EACH	7	
2650	MAINTAIN AND CONTROL TRAFFIC (11)	LS	1	
2671	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	2	
2690	SAFELOADING	CU YD	8.3	
2701	TEMPORARY SILT FENCE	LF	4173	
2703	SILT TRAP TYPE "A"	EACH	34	
2704	SILT TRAP TYPE "B"	EACH	34	
2705	SILT TRAP TYPE "C"	EACH	34	
2706	CLEAN SILT TRAP TYPE "A"	EACH	204	
2707	CLEAN SILT TRAP TYPE "B"	EACH	204	
2708	CLEAN SILT TRAP TYPE "C"	EACH	204	
2709	CLEAN TEMPORARY SILT FENCE	LF	2000	
2720	SIDEWALK-4 IN CONCRETE	SQ YD	443	
2726	STAKING	LS	1	
2731	REMOVE STRUCTURE (6)	LS	1	
3171	CONCRETE BARRIER WALL TY 9T (3)	LF	2000	

ITEM CODE	ITEM	UNIT	TOTAL PROJECT	
5950	EROSION CONTROL BLANKET	SQ YD	4263	
5952	TEMPORARY MULCH	SQ YD	163650	
5953	TEMPORARY SEEDING AND PROTECTION (5)	SQ YD	16365	
5960	FERTILIZER 10-20-20	TON	8.5	
5963	INITIAL FERTILIZER	TON	5.1	
5992	AGRICULTURAL LIMESTONE	TON	102	
5985	SEEDING AND PROTECTION	SQ YD	163650	
5990	SODDING (10)	SQ YD	532	
6510	PAVEMENT STRIPING - TEMP PAINT - 4 INCH (3)	LF	33384	
6514	PAVEMENT STRIPING - PERM PAINT - 4 INCH	LF	23865	
6567	PAVE MARKING - THERMO STOP BAR - 12 INCH	LF	182	
6569	PAVE MARKING - THERMO CROSS-HATCH	SQ FT	2091	
6568	PAVE MARKING - THERMO STOP BAR - 24 INCH	LF	284	
6574	PAVE MARKING - THERMO CURV ARROW	EACH	24	
8001	STRUCTURE EXCAVATION-COMMON (9)	CU YD	296	
8903	CRASH CUSHION TY VI CLASS BT TL3	EACH	4	
10020NS	FUEL ADJUSTMENT	DOLLAR	94373	
10030NS	ASPHALT ADJUSTMENT	DOLLAR	123375	
20550ND	SAWCUT PAVEMENT	LF	7885	
21289ED	LONGITUDINAL EDGE KEY (7)	LF	1165	
23139EN	STRIPING REMOVAL (3)	LF	33400	
23274EN11F	TURF REINFORCEMENT MAT TY 1	SQ YD	3575	
23624EC	REMOVE AND RESET CRASH CUSHION (3)	EACH	4	
24814EC	PIPELINE INSPECTION	LF	7406	
23158ES505	DETECTABLE WARNINGS	SQ FT	424	
23017EN	REMOVE AND DISPOSE OF ASBESTOS CEMENT PIPE (13)	LF	500	

- (A) EXCAVATION INCLUDES:
- 77,545 CY COMMON EXCAVATION (B)
  - 3,624 CY SOLID ROCK EXCAVATION
  - 1,120 CY DITCH EXCAVATION
  - 7,267 CY TRANSVERSE BENCHING
  - 11,522 CY EMBANKMENT BENCHING
  - 40 CY DITCH EXC FROM PIPE DRAIN SUMMARY

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  - 101,118 CY TOTAL EXCAVATION
- EMBANKMENT INCLUDES:
- 62,736 CY EMBANKMENT

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  - 62,736 CY TOTAL EMBANKMENT

NOTE:  
ESTIMATE FOR EARTHWORK CALCULATIONS FOR DESIGN ONLY. THE CONTRACTOR IS ADVISED THAT THE EARTHWORK CALCULATIONS SHOWN ARE FOR INFORMATION ONLY. ASSUMPTIONS FOR SHRINKAGE AND SWELL FACTORS ARE THE CONTRACTOR'S RESPONSIBILITY.

- (1) APPROXIMATELY 34 ACRES
- (2) ESTIMATED AT 2.125 M. GALLON PER MILE
- (3) FOR MAINTENANCE OF TRAFFIC; SEE NOTES (SHEET R59) FOR LOCATIONS OF TEMPORARY BARRIER AND GUARDRAIL
- (4) INCLUDES EXTRA 4 END TREATMENT TY 4A FOR MOT
- (5) ESTIMATED AT 10% SEEDING & PROTECTION
- (6) FOR ASPHALT PAVED ENTRANCE STRUCTURE (EXISTING SHOPPING CENTER ENTRANCE)
- (7) TO INCLUDE MILLING OF EXISTING LANE WHERE RIGHT TURN LANE IS ADDED ON A-A HIGHWAY AND US62X (SEE DETAIL ON SHEET R2D)
- (8) ADDITIONAL EXCAVATION MAY BE REQUIRED WHERE RECOMMENDED IN THE GEOTECHNICAL NOTES
- (9) FOR RETAINING WALL, GRAVITY TYPE, NON-REINFORCED ALONG US 62X (SEE SHEET R127 FOR DETAIL AND BASE DIMENSION MODIFICATION)
- (10) FOR DITCH LINING AT MULTIPLE LOCATIONS; SEE DITCH CHARTS ON PLAN SHEETS
- (11) TO INCLUDE ALL ITEMS NOT SPECIFICALLY LISTED ON SUMMARY SHEETS NEEDED TO MAINTAIN AND CONTROL TRAFFIC THROUGHOUT CONSTRUCTION
- (12) TO MEET STANDARD SPECIFICATIONS AND DETAILS AS SHOWN IN THE GEOTECHNICAL NOTES
- (13) EXACT LOCATIONS AND QUANTITIES TO BE DETERMINED

USER: PEC travis-m  
 DATE: 6/29/2015  
 FILE NAME: General Summary.dgn  
 E-SHEET NAME: General Summary.dgn

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## PROPOSAL BID ITEMS

151242

Page 1 of 4

Report Date 8/17/15

### Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00001		DGA BASE	2,685.00	TON		\$	
0020	00003		CRUSHED STONE BASE	16,585.00	TON		\$	
0030	00080		CRUSHED AGGREGATE SIZE NO 23	27,750.00	TON		\$	
0040	00100		ASPHALT SEAL AGGREGATE	10.00	TON		\$	
0050	00103		ASPHALT SEAL COAT	2.00	TON		\$	
0060	00190		LEVELING & WEDGING PG64-22	56.00	TON		\$	
0070	00214		CL3 ASPH BASE 1.00D PG64-22	24,698.00	TON		\$	
0080	00221		CL2 ASPH BASE 0.75D PG64-22	2,701.00	TON		\$	
0090	00301		CL2 ASPH SURF 0.38D PG64-22	1,343.00	TON		\$	
0100	00388		CL3 ASPH SURF 0.38B PG64-22	2,757.00	TON		\$	
0110	02101		CEM CONC ENT PAVEMENT-8 IN	1,312.00	SQYD		\$	
0120	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	
0130	02677		ASPHALT PAVE MILLING & TEXTURING	26.00	TON		\$	

### Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0140	01310		REMOVE PIPE	78.00	LF		\$	
0150	01585		REMOVE DROP BOX INLET	2.00	EACH		\$	
0160	01810		STANDARD CURB AND GUTTER	14,261.00	LF		\$	
0170	01820		LIP CURB AND GUTTER	216.00	LF		\$	
0180	01821		LIP CURB AND GUTTER MOD	277.00	LF		\$	
0190	01875		STANDARD HEADER CURB	581.00	LF		\$	
0200	01880		BARRIER HEADER CURB	32.00	LF		\$	
0210	01904		REMOVE CURB	191.00	LF		\$	
0220	01946		MOUNTABLE MEDIAN TYPE 2A	70.00	SQYD		\$	
0230	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	82.00	EACH		\$	
0240	01984		DELINEATOR FOR BARRIER - WHITE	43.00	EACH		\$	
0250	02003		RELOCATE TEMP CONC BARRIER	800.00	LF		\$	
0260	02091		REMOVE PAVEMENT	92.00	SQYD		\$	
0270	02159		TEMP DITCH	4,173.00	LF		\$	
0280	02200		ROADWAY EXCAVATION	101,118.00	CUYD		\$	
0290	02223		GRANULAR EMBANKMENT	243.00	CUYD		\$	
0300	02242		WATER	3.38	MGAL		\$	
0310	02351		GUARDRAIL-STEEL W BEAM-S FACE	2,393.75	LF		\$	
0320	02360		GUARDRAIL TERMINAL SECTION NO 1	3.00	EACH		\$	
0330	02367		GUARDRAIL END TREATMENT TYPE 1	6.00	EACH		\$	
0340	02381		REMOVE GUARDRAIL	1,064.00	LF		\$	
0350	02391		GUARDRAIL END TREATMENT TYPE 4A	6.00	EACH		\$	
0360	02397		TEMP GUARDRAIL	2,100.00	LF		\$	
0370	02429		RIGHT-OF-WAY MONUMENT TYPE 1	138.00	EACH		\$	
0380	02432		WITNESS POST	3.00	EACH		\$	
0390	02483		CHANNEL LINING CLASS II	1,051.00	TON		\$	
0400	02484		CHANNEL LINING CLASS III	299.00	TON		\$	
0410	02545		CLEARING AND GRUBBING (APPROXIMATELY 34 ACRES)	1.00	LS		\$	

**PROPOSAL BID ITEMS**

REVISED ADDENDUM #1: 8-17-15

151242

Page 2 of 4

Report Date 8/17/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0420	02555		CONCRETE-CLASS B	142.60	CUYD		\$	
0430	02562		TEMPORARY SIGNS	782.50	SQFT		\$	
0440	02585		EDGE KEY	373.00	LF		\$	
0450	02596		FABRIC-GEOTEXTILE TYPE I	810.00	SQYD		\$	
0460	02599		FABRIC-GEOTEXTILE TYPE IV	80,437.00	SQYD		\$	
0470	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	20,221.00	SQYD	\$2.00	\$	\$40,442.00
0480	02611		HANDRAIL-TYPE A-1	1,874.00	LF		\$	
0490	02625		REMOVE HEADWALL	7.00	EACH		\$	
0500	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0510	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		\$	
0520	02690		SAFELOADING	8.30	CUYD		\$	
0530	02701		TEMP SILT FENCE	4,173.00	LF		\$	
0540	02703		SILT TRAP TYPE A	34.00	EACH		\$	
0550	02704		SILT TRAP TYPE B	34.00	EACH		\$	
0560	02705		SILT TRAP TYPE C	34.00	EACH		\$	
0570	02706		CLEAN SILT TRAP TYPE A	204.00	EACH		\$	
0580	02707		CLEAN SILT TRAP TYPE B	204.00	EACH		\$	
0590	02708		CLEAN SILT TRAP TYPE C	204.00	EACH		\$	
0600	02709		CLEAN TEMP SILT FENCE	2,000.00	LF		\$	
0610	02720		SIDEWALK-4 IN CONCRETE	443.00	SQYD		\$	
0620	02726		STAKING	1.00	LS		\$	
0630	02731		REMOVE STRUCTURE	1.00	LS		\$	
0640	03171		CONCRETE BARRIER WALL TYPE 9T	2,000.00	LF		\$	
0650	05950		EROSION CONTROL BLANKET	4,263.00	SQYD		\$	
0660	05952		TEMP MULCH	163,650.00	SQYD		\$	
0670	05953		TEMP SEEDING AND PROTECTION	16,365.00	SQYD		\$	
0680	05960		FERTILIZER 10-20-20	8.50	TON		\$	
0690	05963		INITIAL FERTILIZER	5.10	TON		\$	
0700	05985		SEEDING AND PROTECTION	163,650.00	SQYD		\$	
0710	05990		SODDING	532.00	SQYD		\$	
0720	05992		AGRICULTURAL LIMESTONE	102.00	TON		\$	
0730	06510		PAVE STRIPING-TEMP PAINT-4 IN	33,384.00	LF		\$	
0740	06514		PAVE STRIPING-PERM PAINT-4 IN	23,865.00	LF		\$	
0750	06567		PAVE MARKING-THERMO STOP BAR-12IN	182.00	LF		\$	
0760	06568		PAVE MARKING-THERMO STOP BAR-24IN	284.00	LF		\$	
0770	06569		PAVE MARKING-THERMO CROSS-HATCH	2,091.00	SQFT		\$	
0780	06574		PAVE MARKING-THERMO CURV ARROW	24.00	EACH		\$	
0790	08001		STRUCTURE EXCAVATION-COMMON	296.00	CUYD		\$	
0800	08903		CRASH CUSHION TY VI CLASS BT TL3	4.00	EACH		\$	
0810	10020NS		FUEL ADJUSTMENT	94,373.00	DOLL	\$1.00	\$	\$94,373.00
0820	10030NS		ASPHALT ADJUSTMENT	123,375.00	DOLL	\$1.00	\$	\$123,375.00
0830	20550ND		SAWCUT PAVEMENT	7,885.00	LF		\$	
0840	21289ED		LONGITUDINAL EDGE KEY	1,165.00	LF		\$	
0850	23017EN		REM AND DISPOSE OF ASBESTOS CEMENT PIPE	500.00	LF		\$	
0860	24814EC		PIPELINE INSPECTION (REVISED: 8-17-12)	7,406.00	LF		\$	
0870	23139EN		STRIPING REMOVAL	33,400.00	LF		\$	
0880	23158ES505		DETECTABLE WARNINGS	424.00	SQFT		\$	
0890	23274EN11F		TURF REINFORCEMENT MAT 1	3,575.00	SQYD		\$	
0900	23624EC		REMOVE AND RESET CRASH CUSHION	4.00	EACH		\$	

**PROPOSAL BID ITEMS**

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Page 3 of 4

Report Date 8/17/15

**Section: 0003 - DRAINAGE**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0910	00078		CRUSHED AGGREGATE SIZE NO 2	6.00	TON		\$	
0920	00440		ENTRANCE PIPE-15 IN	447.00	LF		\$	
0930	00441		ENTRANCE PIPE-18 IN	46.00	LF		\$	
0940	00443		ENTRANCE PIPE-24 IN	74.00	LF		\$	
0950	00452		ENTRANCE PIPE-24 IN EQUIV	52.00	LF		\$	
0960	00461		CULVERT PIPE-15 IN	307.00	LF		\$	
0970	00462		CULVERT PIPE-18 IN	136.00	LF		\$	
0980	00464		CULVERT PIPE-24 IN	56.00	LF		\$	
0990	00468		CULVERT PIPE-36 IN	74.00	LF		\$	
1000	00520		STORM SEWER PIPE-12 IN	26.00	LF		\$	
1010	00521		STORM SEWER PIPE-15 IN	2,785.00	LF		\$	
1020	00522		STORM SEWER PIPE-18 IN	3,354.00	LF		\$	
1030	00524		STORM SEWER PIPE-24 IN	284.00	LF		\$	
1040	00526		STORM SEWER PIPE-30 IN	75.00	LF		\$	
1050	01000		PERFORATED PIPE-4 IN	396.00	LF		\$	
1060	01005		PERFORATED PIPE EDGE DRAIN-4 IN	9,235.00	LF		\$	
1070	01006		PERFORATED PIPE EDGE DRAIN-6 IN	2,412.00	LF		\$	
1080	01010		NON-PERFORATED PIPE-4 IN	626.00	LF		\$	
1090	01011		NON-PERFORATED PIPE-6 IN	51.00	LF		\$	
1100	01024		PERF PIPE HEADWALL TY 2-4 IN	1.00	EACH		\$	
1110	01028		PERF PIPE HEADWALL TY 3-4 IN	5.00	EACH		\$	
1120	01202		PIPE CULVERT HEADWALL-15 IN	6.00	EACH		\$	
1130	01204		PIPE CULVERT HEADWALL-18 IN	12.00	EACH		\$	
1140	01210		PIPE CULVERT HEADWALL-30 IN	1.00	EACH		\$	
1150	01432		SLOPED BOX OUTLET TYPE 1-15 IN	1.00	EACH		\$	
1160	01433		SLOPED BOX OUTLET TYPE 1-18 IN	1.00	EACH		\$	
1170	01434		SLOPED BOX OUTLET TYPE 1-24 IN	6.00	EACH		\$	
1180	01450		S & F BOX INLET-OUTLET-18 IN	1.00	EACH		\$	
1190	01451		S & F BOX INLET-OUTLET-24 IN	1.00	EACH		\$	
1200	01453		S & F BOX INLET-OUTLET-36 IN	2.00	EACH		\$	
1210	01456		CURB BOX INLET TYPE A	45.00	EACH		\$	
1220	01480		CURB BOX INLET TYPE B	7.00	EACH		\$	
1230	01487		CURB BOX INLET TYPE F	1.00	EACH		\$	
1240	01490		DROP BOX INLET TYPE 1	1.00	EACH		\$	
1250	01496		DROP BOX INLET TYPE 3	6.00	EACH		\$	
1260	01511		DROP BOX INLET TYPE 5D	4.00	EACH		\$	
1270	01514		DROP BOX INLET TYPE 5E	1.00	EACH		\$	
1280	01550		DROP BOX INLET TYPE 12A	28.00	LF		\$	
1290	01577		DROP BOX INLET TYPE 14	4.00	EACH		\$	
1300	01580		DROP BOX INLET TYPE 15	1.00	EACH		\$	
1310	01643		JUNCTION BOX-24 IN	2.00	EACH		\$	
1320	01645		JUNCTION BOX-36 IN	2.00	EACH		\$	
1330	08100		CONCRETE-CLASS A	15.03	CUYD		\$	
1340	23480EC		CURE IN PLACE PIPE LINER-18 IN	100.00	LF		\$	
1350	23562EC		DROP BOX INLET TYPE 12A MODIFIED	60.00	LF		\$	
1360	23952EC		DRAINAGE JUNCTION BOX TY B	3.00	EACH		\$	

### PROPOSAL BID ITEMS

151242

Page 4 of 4

Report Date 8/17/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1370	24599EC		CURE IN PLACE PIPE LINER 36 IN	96.00	LF		\$	

#### Section: 0004 - SIGNALIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1380	04793		CONDUIT-1 1/4 IN	1,982.00	LF		\$	
1390	04795		CONDUIT-2 IN	160.00	LF		\$	
1400	04811		ELECTRICAL JUNCTION BOX TYPE B	14.00	EACH		\$	
1410	04820		TRENCHING AND BACKFILLING	2,142.00	LF		\$	
1420	04830		LOOP WIRE	3,130.00	LF		\$	
1430	04844		CABLE-NO. 14/5C	6,586.00	LF		\$	
1440	04850		CABLE-NO. 14/1 PAIR	2,051.00	LF		\$	
1450	04885		MESSENGER-10800 LB	1,035.00	LF		\$	
1460	04895		LOOP SAW SLOT AND FILL	1,226.00	LF		\$	
1470	04931		INSTALL CONTROLLER TYPE 170	2.00	EACH		\$	
1480	04932		INSTALL STEEL STRAIN POLE	12.00	EACH		\$	
1490	04950		REMOVE SIGNAL EQUIPMENT	2.00	EACH		\$	
1500	06472		INSTALL SPAN MOUNTED SIGN	2.00	EACH		\$	
1510	20094ES835		TEMP RELOCATION OF SIGNAL HEAD	36.00	EACH		\$	
1520	20188NS835		INSTALL LED SIGNAL-3 SECTION	15.00	EACH		\$	
1530	20266ES835		INSTALL LED SIGNAL- 4 SECTION	3.00	EACH		\$	
1540	20408ES835		INSTALL LED BEACON-12 IN	8.00	EACH		\$	
1550	23068NN		REMOVE & REINSTALL COORDINATING UNIT	2.00	EACH		\$	
1560	23157EN		TRAFFIC SIGNAL POLE BASE	56.00	CUYD		\$	
1570	24525EC		ADVANCE WARNING FLASHER	2.00	EACH		\$	

#### Section: 0005 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1580	02568		MOBILIZATION	1.00	LS		\$	
1590	02569		DEMOBILIZATION	1.00	LS		\$	

## **SPECIAL NOTE FOR PIPELINE INSPECTION**

**1.0 DESCRIPTION.** The Department will perform visual inspections on all pipe on the project. A video inspection will be required on projects having more than 250 linear feet of storm sewer and/or culvert pipe and on routes with an ADT of greater than 1,000 vehicles. Conduct video inspections on all pipe located under the roadway and 50 percent of the remaining pipe not under the roadway. Storm sewer runs and outfall pipes not under the roadway take precedence over rural entrance pipes. Contractors performing this item of work must be prequalified with the Department in the work type J51 (Video Pipe Inspection and Cleaning). Deflection testing shall be completed using a mandrel in accordance with the procedure outlined below or by physical measurement for pipes greater than 36 inches in diameter. Mandrel testing for deflection must be completed prior to the video inspection testing. Unless otherwise noted, Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

**2.0 VIDEO INSPECTION.** Ensure pipe is clear of water, debris or obstructions. Complete the video inspection and any necessary measurement prior to placing the final surface over any pipe. When paving will not be delayed, take measurements 30 days or more after the completion of earthwork to within 1 foot of the finished subgrade. Notify the Engineer a minimum of 24 hours in advance of inspection and notify the Engineer immediately if distresses or locations of improper installation are logged.

### **2.1 INSPECTION FOR DEFECTS AND DISTRESSES**

**A)** Begin at the outlet end and proceed through to the inlet at a speed less than or equal to 30 ft/minute. Remove blockages that will prohibit a continuous operation.

**B)** Document locations of all observed defects and distresses including but not limited to: cracking, spalling, slabbing, exposed reinforcing steel, sags, joint offsets, joint separations, deflections, improper joints/connections, blockages, leaks, rips, tears, buckling, deviation from line and grade, damaged coatings/paved inverts, and other anomalies not consistent with a properly installed pipe.

**C)** During the video inspection provide a continuous 360 degree pan of every pipe joint.

**D)** Identify and measure all cracks greater than 0.1" and joint separations greater than 0.5".

**E)** Video Inspections are conducted from junction to junction which defines a pipe run. A junction is defined as a headwall, drop box inlet, curb box inlet, manhole, buried junction, or other structure that disturbs the continuity of the pipe. Multiple pipe inspections may be conducted from a single set up location, but each pipe run must be on a separate video file and all locations are to be referenced from nearest junction relative to that pipe run.

**F)** Record and submit all data on the TC 64-765 and TC 64-766 forms.

**3.0 MANDREL TESTING.** Mandrel testing will be used for deflection testing. For use on Corrugated Metal Pipe, High Density Polyethylene Pipe, and Polyvinyl Chloride Pipe,



use a mandrel device with an odd number of legs (9 minimum) having a length not less than the outside diameter of the mandrel. The diameter of the mandrel at any point shall not be less than the diameter specified in Section 3.6. Mandrels can be a fixed size or a variable size.

**3.1** Use a proving ring or other method recommended by the mandrel manufacturer to verify mandrel diameter prior to inspection. Provide verification documentation for each size mandrel to the Engineer.

**3.2** All deflection measurements are to be based off of the AASHTO Nominal Diameters. Refer to the chart in section 3.6.

**3.3** Begin by using a mandrel set to the 5.0% deflection limit. Place the mandrel in the inlet end of the pipe and pull through to the outlet end. If resistance is met prior to completing the entire run, record the maximum distance achieved from the inlet side, then remove the mandrel and continue the inspection from the outlet end of the pipe toward the inlet end. Record the maximum distance achieved from the outlet side.

**3.4** If no resistance is met at 5.0% then the inspection is complete. If resistance occurred at 5.0% then repeat 3.1 and 3.2 with the mandrel set to the 10.0% deflection limit. If the deflection of entire pipe run cannot be verified with the mandrel then immediately notify the Engineer.

**3.5** Care must be taken when using a mandrel in all pipe material types and lining/coating scenarios. Pipe damaged during the mandrel inspection will be video inspected to determine the extent of the damage. If the damaged pipe was video inspected prior to mandrel inspection then a new video inspection is warranted and supersedes the first video inspection. Immediately notify the Engineer of any damages incurred during the mandrel inspection and submit a revised video inspection report.

**3.6** AASHTO Nominal Diameters and Maximum Deflection Limits.

Base Pipe Diameter (inches)	AASHTO Nominal Diameter (inches)	Max. Deflection Limit (inches)	
		5.0%	10.0%
15	14.76	14.02	13.28
18	17.72	16.83	15.95
24	23.62	22.44	21.26
30	29.53	28.05	26.58
36	35.43	33.66	31.89
42	41.34	39.27	37.21
48	47.24	44.88	42.52
54	53.15	50.49	47.84
60	59.06	56.11	53.15

**4.0 PHYSICAL MEASUREMENT OF PIPE DEFLECTION.** Alternate method for deflection testing when there is available access or the pipe is greater than 36 inches in diameter, as per 4.1. Use a contact or non-contact distance instrument. A leveling device is recommended for establishing or verifying vertical and horizontal control.

**4.1** Physical measurements may be taken after installation and compared to the AASHTO Nominal Diameter of the pipe as per Section 3.6. When this method is used, determine the smallest interior diameter of the pipe as measured through the center point of the pipe (D2). All measurements are to be taken from the inside crest of the corrugation. Take the D2 measurements at the most deflected portion of the pipe run in question and at intervals no greater than ten (10) feet through the run. Calculate the deflection as follows:

$$\% \text{ Deflection} = [(AASHTO \text{ Nominal Diameter} - D2) / AASHTO \text{ Nominal Diameter}] \times 100\%$$

Note: The Engineer may require that preset monitoring points be established in the culvert prior to backfilling. For these points the pre-installation measured diameter (D1) is measured and recorded. Deflection may then be calculated from the following formula:

$$\% \text{ Deflection} = [(D1 - D2) / D1] (100\%)$$

**4.2** Record and submit all data.

**5.0 DEDUCTION SCHEDULE.** All pipe deductions shall be handled in accordance with the tables shown below.

<b>FLEXIBLE PIPE DEFLECTION</b>	
Amount of Deflection (%)	Payment
0.0 to 5.0	100% of the Unit Bid Price
5.1 to 9.9	50% of the Unit Bid Price <sup>(1)</sup>
10 or greater	Remove and Replace <sup>(2)</sup>

<sup>(1)</sup> Provide Structural Analysis for HDPE and metal pipe. Based on the structural analysis, pipe may be allowed to remain in place at the reduced unit price. <sup>(2)</sup> The Department may allow the pipe to remain in place with no pay to the Contractor in instances where it is in the best interest to the public and where the structural analysis demonstrates that the pipe should function adequately.

<b>RIGID PIPE REMEDIATION TABLE PIPE</b>	
Crack Width (inches)	Payment
≤ 0.1	100% of the Unit Bid Price
Greater than 0.1	Remediate or Replace <sup>(1)</sup>

<sup>(1)</sup> Provide the Department in writing a method for repairing the observed cracking. Do not begin work until the method has been approved.

**6.0 PAYMENT.** The Department will measure the quantity in linear feet of pipe to inspect. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24814EC	Pipeline Inspection	Linear Foot
10065NS	Pipe Deflection Deduction	Dollars