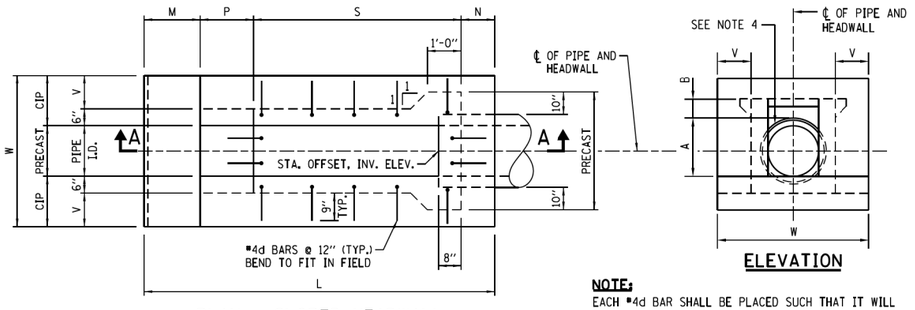
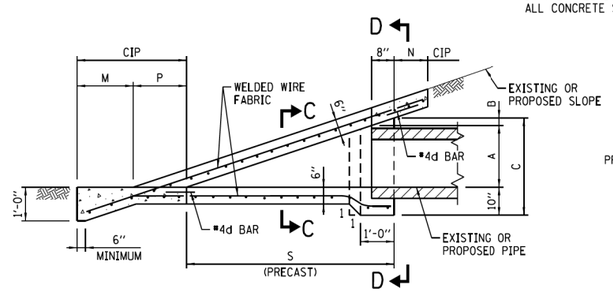


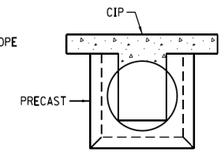
PLAN - SLOPED HEADWALL

ELEVATION

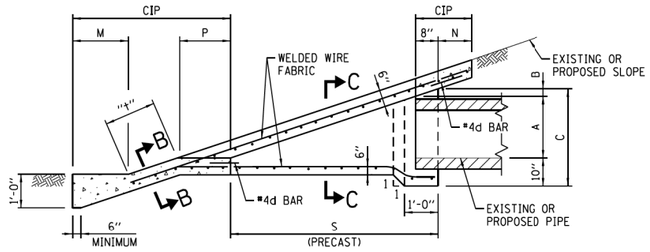
NOTE:
EACH #4d BAR SHALL BE PLACED SUCH THAT IT WILL PROJECT 9" INTO THE CAST IN PLACE (CIP) CONCRETE AND IT SHALL BE 3" BELOW THE TOP SURFACE. HOOKS IN THE PRECAST SECTION SHALL BE TIPPED TO CLEAR ALL CONCRETE SURFACES A MIN. OF 2".



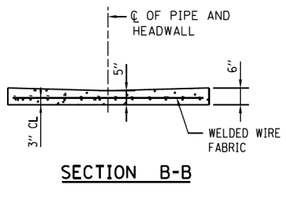
SECTION A-A
(FOR PIPE AT DITCH FLOW LINE)



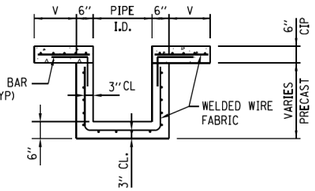
SECTION D-D



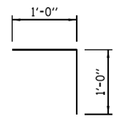
SECTION A-A
(FOR PIPE ABOVE DITCH FLOW LINE)



SECTION B-B



SECTION C-C



BAR #4d

Paul Kovacs
APPROVED..... CHIEF ENGINEER DATE 2-7-2012

DIMENSIONS AND QUANTITIES FOR ONE SLOPED HEADWALL TYPE III

1 TO 3 SLOPE

PIPE I.D.	DIMENSIONS A	B	C	N	M	P	S	L	V	W	PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE FABRIC SQ. YD.	REINF. STEEL MARK	SIZE	NO.	LENGTH	LBS.
6"	9"	2¾"	1'-9¾"	1'-0"	1'-8"	1'-6¾"	2'-11¼"	7'-2"	1'-0"	3'-6"	.19	.51	2.67	d6	#4	12	2'-0"	16
12"	1'-3½"	2¾"	2'-4¼"	1'-0"	1'-8"	1'-6¾"	4'-6¾"	8'-9½"	1'-0"	4'-0"	.36	.65	3.80	d12	#4	14	2'-0"	19
15"	1'-6½"	2¾"	2'-7¼"	1'-0"	1'-8"	1'-6¾"	5'-3¾"	9'-6½"	1'-0"	4'-3"	.47	.73	5.13	d15	#4	16	2'-0"	21
18"	1'-10"	2¾"	2'-10¾"	1'-0"	1'-8"	1'-6¾"	6'-2¼"	10'-5"	1'-0"	4'-6"	.61	.80	5.65	d18	#4	18	2'-0"	24
21"	2'-1"	2¾"	3'-1¾"	1'-0"	1'-9"	1'-6¾"	6'-11¼"	11'-3"	1'-3"	5'-3"	.74	1.0	7.42	d21	#4	22	2'-0"	29
24"	2'-4½"	2¾"	3'-5¼"	1'-0"	2'-0"	1'-6¾"	7'-9¾"	12'-4½"	1'-6"	6'-0"	.86	1.24	8.80	d24	#4	24	2'-0"	32
27"	2'-7½"	2¾"	3'-8¼"	1'-1½"	2'-3"	1'-6¾"	8'-6¾"	13'-6"	1'-9"	6'-9"	1.03	1.53	12.35	d27	#4	24	2'-0"	32
30"	2'-11"	2¾"	3'-11¾"	1'-3"	2'-6"	1'-6¾"	9'-5¼"	14'-9"	2'-0"	7'-6"	1.22	2.00	15.08	d30	#4	26	2'-0"	35

1 TO 4 SLOPE

PIPE I.D.	DIMENSIONS A	B	C	N	M	P	S	L	V	W	PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE FABRIC SQ. YD.	REINF. STEEL MARK	SIZE	NO.	LENGTH	LBS.
6"	9"	2"	1'-9"	1'-0"	1'-8"	2'-1"	3'-8"	8'-5"	1'-0"	3'-6"	.21	.57	3.27	d6	#4	12	2'-0"	16
12"	1'-3½"	2"	2'-3½"	1'-0"	1'-8"	2'-1"	5'-10"	10'-7"	1'-0"	4'-0"	.44	.75	4.58	d12	#4	16	2'-0"	21
15"	1'-6½"	2"	2'-6½"	1'-0"	1'-8"	2'-1"	6'-10"	11'-7"	1'-0"	4'-3"	.57	.83	5.66	d15	#4	18	2'-0"	24
18"	1'-10"	2"	2'-10"	1'-0"	1'-8"	2'-1"	8'-0"	12'-11"	1'-0"	4'-6"	.73	.93	7.57	d18	#4	22	2'-0"	29
21"	2'-1"	2"	3'-1"	1'-0"	1'-9"	2'-1"	9'-0"	13'-10"	1'-3"	5'-3"	.89	1.16	9.83	d21	#4	24	2'-0"	32
24"	2'-4½"	2"	3'-4½"	1'-0"	2'-0"	2'-1"	10'-2"	15'-3"	1'-6"	6'-0"	1.12	1.45	12.51	d24	#4	28	2'-0"	37
27"	2'-7½"	2"	3'-7½"	1'-1½"	2'-3"	2'-1"	11'-2"	16'-7"	1'-9"	6'-9"	1.32	1.77	13.28	d27	#4	30	2'-0"	40
30"	2'-11"	2"	3'-11"	1'-3"	2'-6"	2'-1"	12'-4"	18'-2"	2'-0"	7'-6"	1.58	2.14	18.77	d30	#4	32	2'-0"	43

1 TO 6 SLOPE

PIPE I.D.	DIMENSIONS A	B	C	N	M	P	S	L	V	W	PRE CAST CONC. CU. YD.	CAST-IN-PLACE CU. YD.	WELDED WIRE FABRIC SQ. YD.	REINF. STEEL MARK	SIZE	NO.	LENGTH	LBS.
6"	9"	1½"	1'-8½"	1'-0"	1'-8"	3'-0"	5'-3"	10'-11"	1'-0"	3'-6"	.29	.71	4.11	d6	#4	16	2'-0"	21
12"	1'-3½"	1½"	2'-3"	1'-0"	1'-8"	3'-0"	8'-6"	14'-2"	1'-0"	4'-0"	.60	.96	7.27	d12	#4	22	2'-0"	29
15"	1'-6½"	1½"	2'-6"	1'-0"	1'-8"	3'-0"	10'-0"	15'-8"	1'-0"	4'-3"	.79	1.07	8.91	d15	#4	26	2'-0"	35
18"	1'-10"	1½"	2'-9½"	1'-0"	1'-8"	3'-0"	11'-9"	17'-5"	1'-0"	4'-6"	1.03	1.20	10.95	d18	#4	28	2'-0"	37
21"	2'-1"	1½"	3'-0½"	1'-0"	1'-9"	3'-0"	13'-3"	19'-0"	1'-3"	5'-3"	1.29	1.51	14.00	d21	#4	34	2'-0"	45
24"	2'-4½"	1½"	3'-4"	1'-0"	2'-0"	3'-0"	15'-0"	21'-0"	1'-6"	6'-0"	1.59	1.89	15.49	d24	#4	38	2'-0"	51
27"	2'-7½"	1½"	3'-7"	1'-1½"	2'-3"	3'-0"	16'-6"	22-10½"	1'-9"	6'-9"	1.90	2.30	21.82	d27	#4	40	2'-0"	53
30"	2'-11"	1½"	3'-10½"	1'-3"	2'-6"	3'-0"	18'-3"	25'-0"	2'-0"	7'-6"	2.27	2.79	26.60	d30	#4	44	2'-0"	59

NOTES:

1. THE CAST IN PLACE (CIP) SLOPED HEADWALL SHALL BE CONSTRUCTED FLUSH WITH EXISTING OR PROPOSED SLOPE.
2. CLASS SI CONCRETE SHALL BE USED THROUGHOUT.
3. WELDED WIRE FABRIC SHALL BE EPOXY COATED 6x6-W4xW4, 58 LBS. PER 100 SQ.FT.
4. ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED.
5. BAR BENDING DETAILS ARE DIMENSIONED OUT TO OUT OF BARS.
6. COVER FROM FACE OF CONCRETE TO FACE OF REINFORCEMENT BAR SHALL BE 3" FOR SURFACES FORMED AGAINST EARTH AND 2" FOR ALL OTHER SURFACES UNLESS OTHERWISE SHOWN.
7. PRECAST UNIT USE IS OPTIONAL. THE ENTIRE STRUCTURE MAY BE CAST IN PLACE.
8. AFTER THE PRECAST SLOPED HEADWALL HAS BEEN PLACED, THE SPACE BETWEEN THE HEADWALL AND PIPE SHALL BE COMPLETELY FILLED WITH AN APPROVED NON-SHRINK GROUT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI. THE COST FOR FURNISHING AND PLACING THE GROUT SHALL BE INCIDENTAL TO SLOPED HEADWALLS.
9. THE SLOPED HEADWALL DETAILS SHOWN ON THIS DRAWING ARE FOR USE ONLY WITH PIPES HAVING DIAMETER OR SPAN OF 30" OR LESS.
10. QUANTITIES FOR CONCRETE, WELDED WIRE FABRIC, AND REINFORCING STEEL SHOWN IN THE SCHEDULES OF QUANTITIES ARE BASED ON A "t" DIMENSION OF 0'-0" AND A 1:2 SLOPE.
11. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).
12. I.D. DENOTES INSIDE DIAMETER OF PIPE. O.D. DENOTES OUTSIDE DIAMETER OF PIPE.

DATE	REVISIONS
6-1-2009	ADDED TABLE INFORMATION
	ADDED DIMENSION NOTATIONS
	TO SLOPED HEADWALL
3-1-2010	REVISED NOTES
1-1-2011	REVISED NOTES
2-7-2012	REVISED NOTES

Illinois Tollway
Open Roads for a Faster Future

SLOPED HEADWALLS
TYPE III DETAILS

STANDARD B10-05

BOWMAN, BARRETT & ASSOCIATES INC.
CONSULTING ENGINEERS
Chicago, Illinois
312.228.0100
www.bbandainc.com

FILE NAME = $FILES$	USER NAME = default	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = H:1"=10' V:1"=5'	CHECKED - RGR	REVISED -
	PLOT DATE = 6/18/2012	DATE - 6/19/2012	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOLLWAY STANDARD DRAWING

SCALE: | SHEET NO. N/A OF N/A SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	49-1-R-1	LAKE	677	623
		CONTRACT NO. 60L77		
		ILLINOIS FED. AID PROJECT		

S:\11801\05_CADD\60L77 IL 173\60L77 Sheets\D160L77-sht-15THA details.dgn