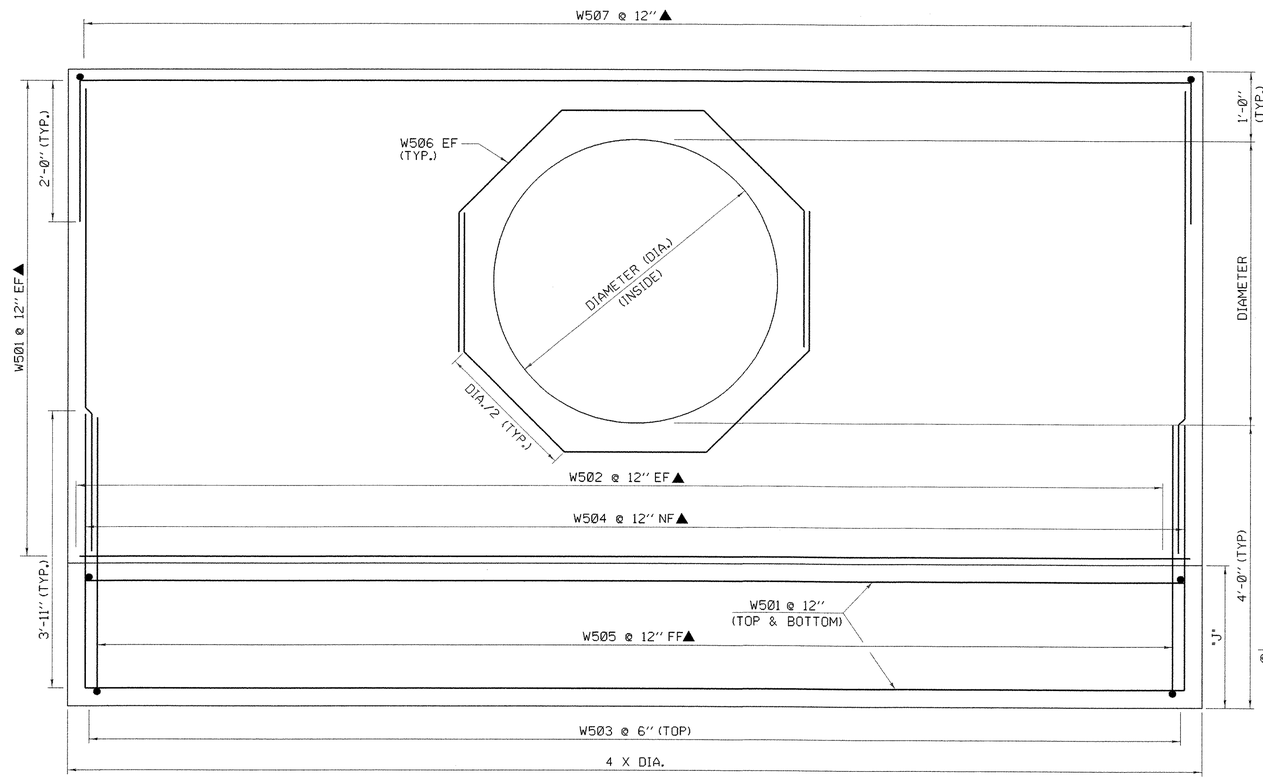
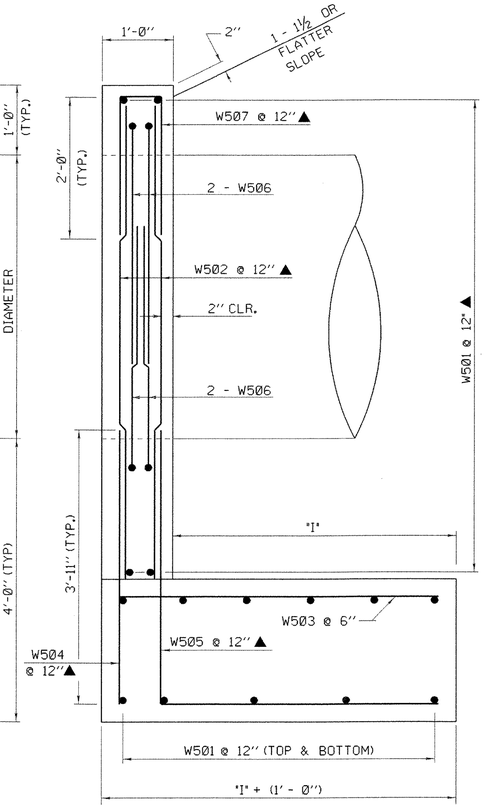
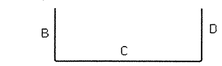
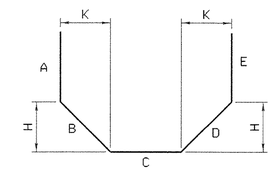


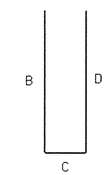




REBAR TYPE: I7



REBAR TYPE: I4



REBAR TYPE: S10

DESIGN CRITERIA

1. ASSUMED ALLOWABLE LOAD FOR SPREAD FOOTINGS
   - ON SOIL: 4 KSF
   - ON LEDGE: 10 KSF
2. REINFORCING STEEL GRADE: 60 KSI
3. CONCRETE CLASS B: 3500 PSI
4. SOIL UNIT WEIGHT: 140 PSF
5. ASSUMED FOOTING FRICTION COEFFICIENT: 0.55
6. SOIL FRICTION ANGLE: 33.67°
7. DEDUCT VOLUME OF PIPE.
8. ALL EXPOSED EDGES WILL BE CHAMFERED ONE INCH.
9. ALL REBAR CLEARANCES SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.
10. CONSTRUCTION JOINT SURFACE SHALL BE ROUGH.

REBAR NOTES:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD

PIPE DIAMETER	48"	42"	36"	30"	24"	18"
DIMENSION "I"	48"	48"	42"	42"	36"	36"
DIMENSION "J"	24"	24"	18"	18"	12"	12"
CONCRETE QUANTITY (CY)	9.61	8.20	5.63	4.54	2.85	2.05
LENGTH OF BARS	1130'	949'	767'	635'	495'	360'
WEIGHT OF BARS (LB)	1179	990	800	662	516	376

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 48"

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	H	K
1	28	5	15'-6"	W501	STR.							
2	34	5	6'-9"	W502	STR.							
3	33	5	4'-6"	W503	STR.							
4	17	5	3'-11"	W504	STR.							
5	17	5	7'-10"	W505	17		3'-11"	3'-11"	—			
6	4	5		W506	14	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	1'-5"	1'-5"
7	17	5		W507	S10		2'-0"	0'-7"	2'-0"			

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 42"

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	H	K
1	26	5	13'-6"	W501	STR.							
2	30	5	6'-3"	W502	STR.							
3	29	5	4'-6"	W503	STR.							
4	15	5	3'-11"	W504	STR.							
5	15	5	7'-10"	W505	17		3'-11"	3'-11"	—			
6	4	5		W506	14	1'-9"	1'-9"	1'-9"	1'-9"	1'-9"	1'-2⅞"	1'-2⅞"
7	15	5		W507	S10		2'-0"	0'-7"	2'-0"			

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 36"

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	H	K
1	24	5	11'-6"	W501	STR.							
2	26	5	6'-3"	W502	STR.							
3	25	5	4'-0"	W503	STR.							
4	13	5	3'-11"	W504	STR.							
5	13	5	7'-4"	W505	17		3'-11"	3'-5"	—			
6	4	5		W506	14	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-0¾"	1'-0¾"
7	13	5		W507	S10		2'-0"	0'-7"	2'-0"			

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 30"

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	H	K
1	24	5	9'-6"	W501	STR.							
2	22	5	5'-9"	W502	STR.							
3	21	5	4'-10"	W503	STR.							
4	11	5	3'-11"	W504	STR.							
5	11	5	7'-4"	W505	17		3'-11"	3'-5"	—			
6	4	5		W506	14	1'-3"	1'-3"	1'-3"	1'-3"	1'-3"	0'-10⅝"	0'-10⅝"
7	11	5		W507	S10		2'-0"	0'-7"	2'-0"			

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 24"

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	H	K
1	24	5	7'-6"	W501	STR.							
2	18	5	5'-9"	W502	STR.							
3	17	5	3'-6"	W503	STR.							
4	9	5	3'-11"	W504	STR.							
5	9	5	6'-10"	W505	17		3'-11"	2'-11"	—			
6	4	5		W506	14	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	0'-8½"	0'-8½"
7	9	5		W507	S10		2'-0"	0'-7"	2'-0"			

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL DIA. 18"

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	H	K
1	22	5	5'-6"	W501	STR.							
2	14	5	5'-3"	W502	STR.							
3	13	5	3'-6"	W503	STR.							
4	7	5	3'-11"	W504	STR.							
5	7	5	6'-10"	W505	17		3'-11"	2'-11"	—			
6	4	5		W506	14	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-6⅜"	0'-6⅜"
7	7	5		W507	S10		2'-0"	0'-7"	2'-0"			

NOT TO SCALE

REVISIONS AND CORRECTIONS

MAR. 12, 2007 - ORIGINAL APPROVAL DATE

APPROVED

Kevin S. Marshia
ROADWAY, TRAFFIC & SAFETY ENGINEER

Richard Tetreault
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

REINFORCED CONCRETE STRAIGHT HEADWALL

VERMONT AGENCY OF TRANSPORTATION

STANDARD D-33