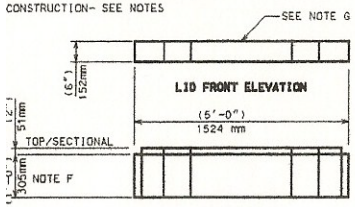
HARTMANEW SYSTEM
ALTERNATIVE TO TYPE D-W END WALL

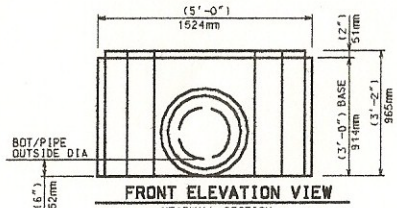
DESCRIPTION- THIS WORK IS THE CONSTRUCTION OF HEADWALLS AND ENDWALLS FOR PIPE CULVERTS USING STAY IN PLACE FORMS.

MATERIAL-STAY IN PLACE FORM
-COARSE AGGREGATE SECTION 703.2
-OTHER MATERIAL
* CLASS A OR C CONCRETE, FLOWABLE MIX, OR APPROVED AGGREGATE-SECTIONS 220,703,704.
* GALVANIZED SCREWS

CONSTRUCTION- SEE NOTES

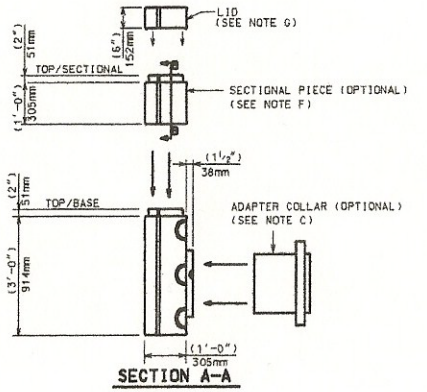


SECTION B-B

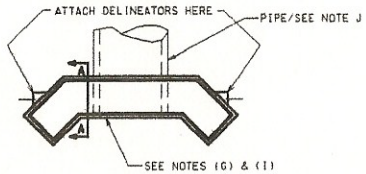


FRONT ELEVATION VIEW
HEADWALL SECTION

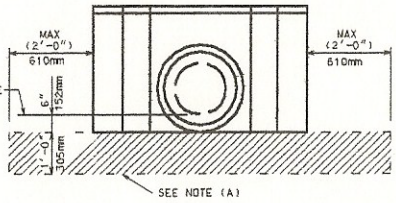
NOTE:
SECTIONAL PIECES SHOWN IN SECTION B-B CAN BE ADDED TO INCREASE HEIGHT, OR LID CAN BE PLACED DIRECTLY ON BASE.



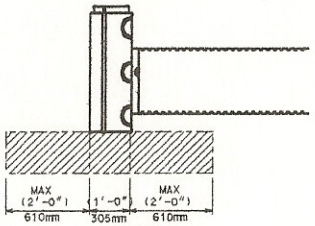
SECTION A-A



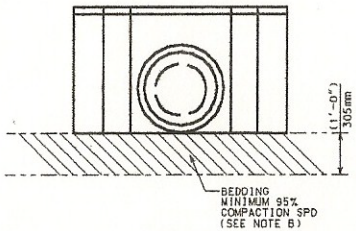
PLAN VIEW OF LID



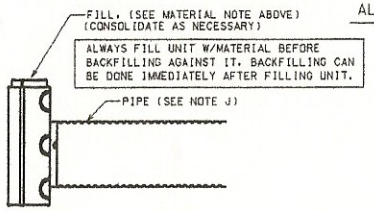
EXCAVATION
FRONT VIEW



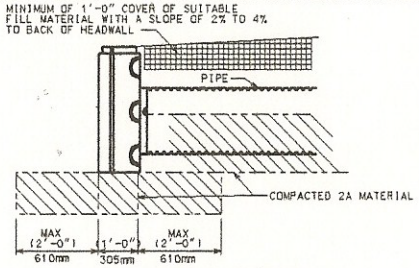
EXCAVATION
SIDE VIEW



BEDDING

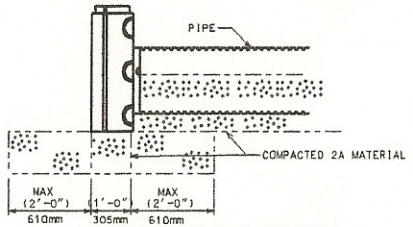


FILLING UNIT W/MATERIAL



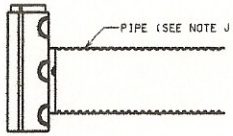
PLACE AROUND PIPE & STAY IN PLACE FORM AS PER SECTION 601.3(e) & STANDARD DRAWINGS

BACKFILL



PLACE AROUND PIPE & STAY IN PLACE FORM AS PER SECTION 601.3(e) & STANDARD DRAWINGS

FLOWABLE BACKFILL DETAIL



ALTERNATIVE TO INSTALLING END WALL ON SKEWED PIPE

NOTES

CONSTRUCTION- IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF SECTION 601.3 & AS FOLLOWS:

(A)-EXCAVATION. EXCAVATE AS REQ'D FOR GENERAL PIPE INSTALLATION AS PER SECTION 601.3(b). AT THE LOCATION OF ENDWALL EXCAVATE AN ADDITIONAL 1' DEPTH BELOW THE STAY IN PLACE FORM. NOTE THE BOTTOM OF THE FORM IS A MINIMUM OF 6" BELOW THE OUTSIDE DIA. OF THE PIPE CULVERT. EXCAVATE MAXIMUM 2' WIDTH IN EACH DIRECTION AROUND THE STAY IN PLACE FORM.

(B)-BEDDING. CONSTRUCT BEDDING BY PLACING 1' OF 2A SUB-BASE COMPACTED TO 95% SPD
*IF SOIL CONDITIONS REQUIRE, POUR CONCRETE FOOTER OR APRON TO SET THE END WALL ON.
IF SCOURING IS A CONCERN, HEADWALL MAY BE PLACED ON A CONCRETE FOOTER, OR RIP-RAP STONE MAY BE PLACED IN THE DITCH BELOW THE ENDWALL. THE PIPE MAY ALSO BE EXTENDED OUT A FOOT OR TWO FROM THE FACE OF THE HEADWALL.

(C)-PIPE SIZE ADJUSTMENT. (OPTIONAL) INSERT ADAPTER COLLAR TO ADJUST OPENING FOR SMALLER PIPE SIZES. SLIDE COLLAR INTO STAY IN PLACE FORM MATCHING MALE TO FEMALE PLUG ON THE BOTTOM OF BACK OF STAY IN PLACE FORM. ATTACH (3)GALVANIZED SCREWS @ SPACES PROVIDED ON THE COLLAR.

(D) END WALL POSITIONING. POSITION THE END WALL ON THE END OF THE PIPE. ADJUST AS NECESSARY. PLACE (3)GALVANIZED SCREWS THRU THE SPACES PROVIDED & INTO THE PIPE. USE A SCREW TYPE COMPATIBLE WITH THE TYPE OF PIPE BEING INSTALLED. PRE-DRILL SCREW HOLES IN PIPE WHERE NECESSARY.
NOTE: END WALL MUST BE SET & ADJUSTED PRIOR TO FILLING.

(E)-PLACEMENT OF CONCRETE. PLACE CLASS A CONCRETE INTO STAY IN PLACE FORMS. CONSOLIDATE AS NECESSARY.

(F)-HEIGHT ADJUSTMENT SECTION. PLACE THE HEIGHT ADJUSTMENT SECTIONAL PIECE ONTO THE CONCRETE FILLED STAY IN PLACE FORM. ATTACH W/(4)GALVANIZED SCREWS AT EACH OF THE INSIDE CORNERS. PLACE CONCRETE AS PER NOTE (E).

(G)- CAP PLACEMENT. PLACE CAP & ATTACH W/(4) GALVANIZED SCREWS @ EACH CORNER.

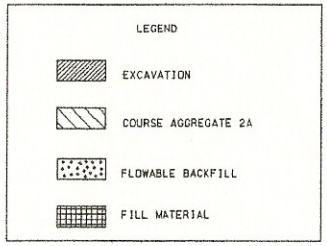
(H)-BACKFILL. PLACE #2A SUBBASE BACKFILL AROUND PIPE & STAY IN PLACE FORM AS PER SECTION 601.3(E) AND STANDARD DRAWINGS.

(I)-REFLECTIVE TAPE/DELINEATORS (OPTIONAL). ATTACH DELINEATORS @ PROTRUSIONS ON BACK CORNERS OF LID.

(J)- TO SECURE THE HARTMAN ENDWALL PARALLEL TO THE PIPE INSTEAD OF AT A SKEW PARALLEL TO THE ROAD, EXTEND THE PIPE ONLY ENOUGH SO THAT ANY PART OF ENDWALL IS NOT BURIED UNDER NORMAL TOE OF SLOPE.

NOTE: WORKS BEST W/HDPE PIPE BUT CAN BE USED W/CMP OR RCP PIPE.

PIPE TYPE	SIZES (I.D.)	SIZES (I.D.)	SIZES (I.D.)
HDPE	(18") 457mm	(15") 381mm	(12") 305mm
RCP	(18") 457mm	(15") 381mm	(12") 305mm
CMP	–	(15") 381mm	(12") 305mm



ISSUED	DESCRIPTION	DATE	BY

CUSTOMER
OWNER HARTMAN EW INC.
PROJECT HARTMAN EW SYSTEM PRODUCT APPROVAL
LOCATION STATEWIDE

HARTMAN EW SYSTEM FOR END WALLS

ISSUE

SCALE:
DATE: 8/02

SHEET 1 OF 1

DRAWING No.