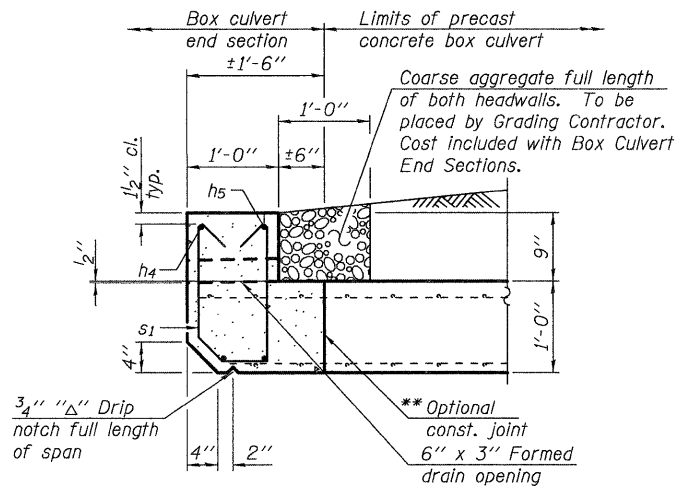
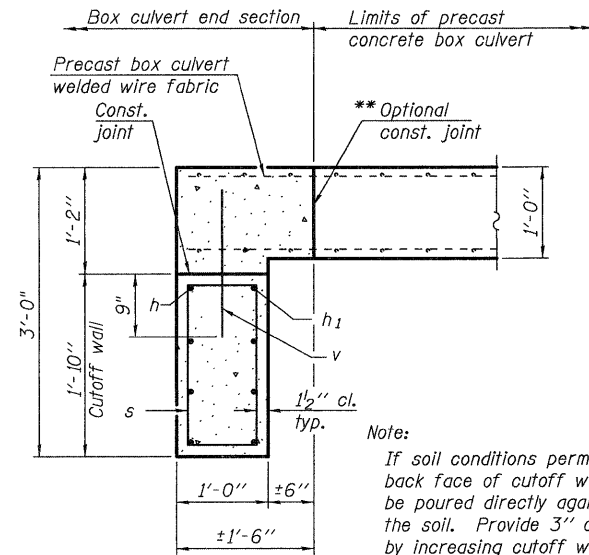


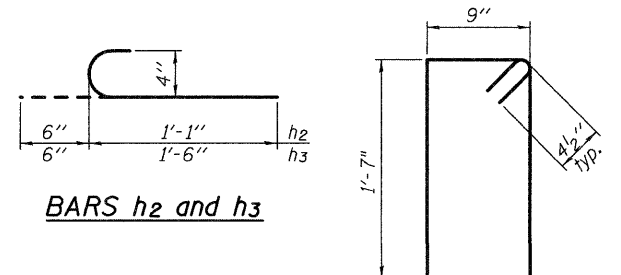
SECTION B-B
(Downstream Section)



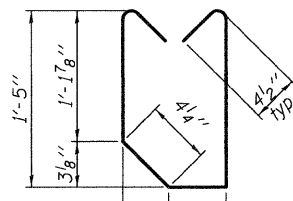
SECTION B-B
(Upstream Section)



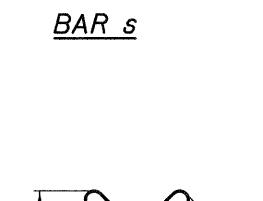
SECTION C-C
(Typical both ends)



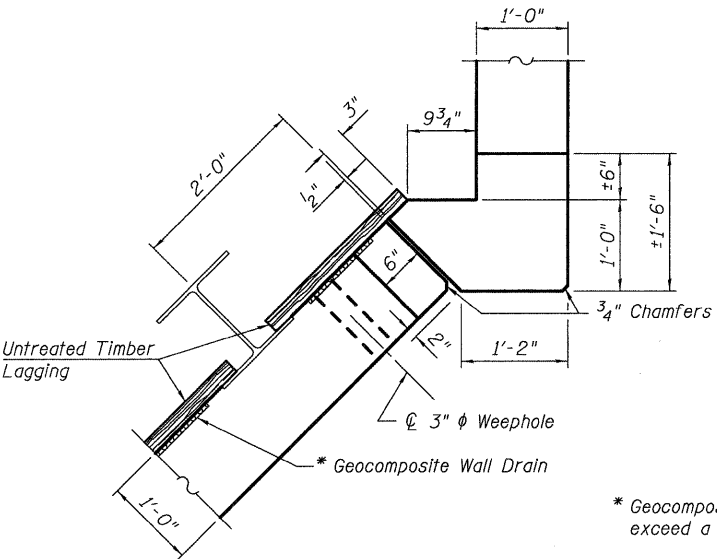
BARS h2 and h3



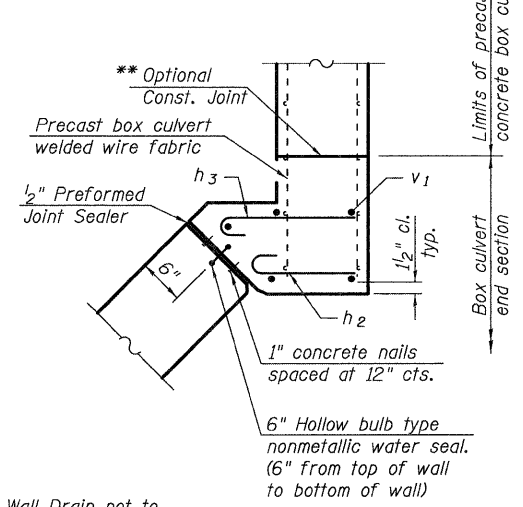
BAR s1



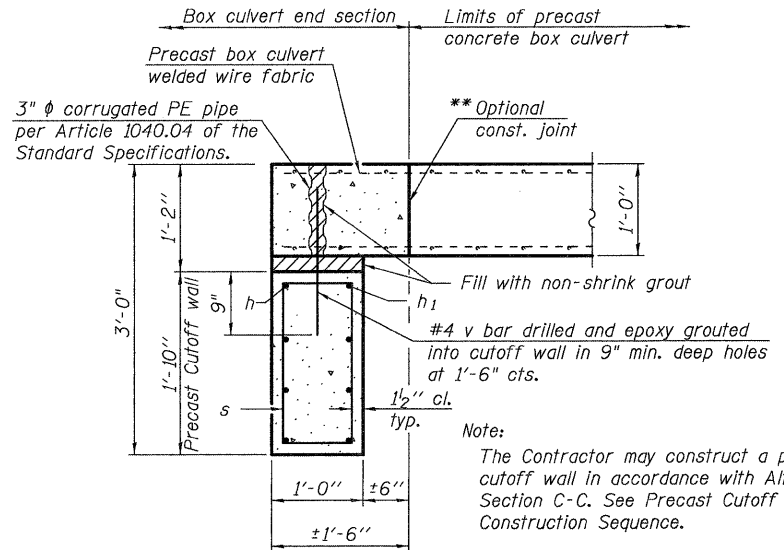
BAR s2



SECTION D-D
(Showing dimensions, wall drain, and weephole.)



SECTION D-D
(Showing reinforcement and seal)



ALTERNATE SECTION C-C
(Typical both ends)

ONE END SECTION BILL OF MATERIAL
(For information only)

Bar	No.	Size	Length	Shape
h	4	#5	14'-2"	—
h1	4	#5	15'-6"	—
h2	34	#4	1'-7"	U
h3	34	#4	2'-0"	U
h4	2	#6	14'-2"	—
h5	2	#6	15'-6"	—
h6	64	#5	14'-9"	—
s	13	#4	5'-5"	□
s1	13	#4	4'-2"	□
s2	13	#4	4'-4"	□
v	9	#4	1'-8"	—
v1	10	#5	11'-5"	—
v2	32	#5	23'-6"	—
Concrete Structures			Cu. Yd.	13.4
Stud Shear Connectors			Each	66
Reinforcement Bars			Pound	2,280
Bar Splacers			Each	10
Furnishing Soldier Piles (HP Section)			Foot	182
Drilling and Setting Soldier Piles (in soil)			Cu. Ft.	327
Untreated Timber Lagging			Sq. Ft.	308
Concrete Box Culverts			Cu. Yd.	4.8
Geocomposite Wall Drain			Sq. Ft.	93

*** Only s1 or s2 bars are required for each end section.

The above pay items will not be measured for payment but shall be included in the contract unit price for Box Culvert End Sections of the culvert number specified.

- *** The Contractor may construct the 1'-6" barrel portion of the box culvert end section using any of the following methods:
1. Cast monolithic with the precast concrete box culvert sections.
 2. Completed by the precaster using the optional construction joint shown prior to the pieces being shipped to the field.
 3. Cast in the field after the adjacent precast concrete box culvert section has been constructed. If the Contractor chooses this option and chooses to provide a precast cutoff wall as shown in Alternate Section C-C, the #4 v bars may be cast with the precast cutoff wall and the barrel portion of the end section may be cast directly onto the cutoff wall omitting the PE pipe and non-shrink grout shown in Alternation Section C-C.

If the Contractor chooses options #1 or #2, details of the water seal installation shall be provided to the Engineer for review and approval. The water seal is required to be continuous for the full height. Also with options #1 or #2, the #5 bar splacers detailed in the cutoff wall shall be omitted and the v1 bars shall be lengthened to extend into the bottom slab of the end section. The minimum lay length of the combined box culvert end segment shall be 4'-0" for options #1 and #2.

PRECAST CUTOFF WALL CONSTRUCTION SEQUENCE

1. Perform excavation and set precast end cutoff wall in place.
2. Backfill accordingly and place bedding for precast box culvert sections.
3. Set precast box culvert section in place.
4. Drill and epoxy grout reinforcement in end cutoff wall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.

If the Contractor chooses to provide a precast cutoff wall, details of the water seal installation shall be provided to the Engineer for review and approval. The water seal is required to be continuous for the full height.