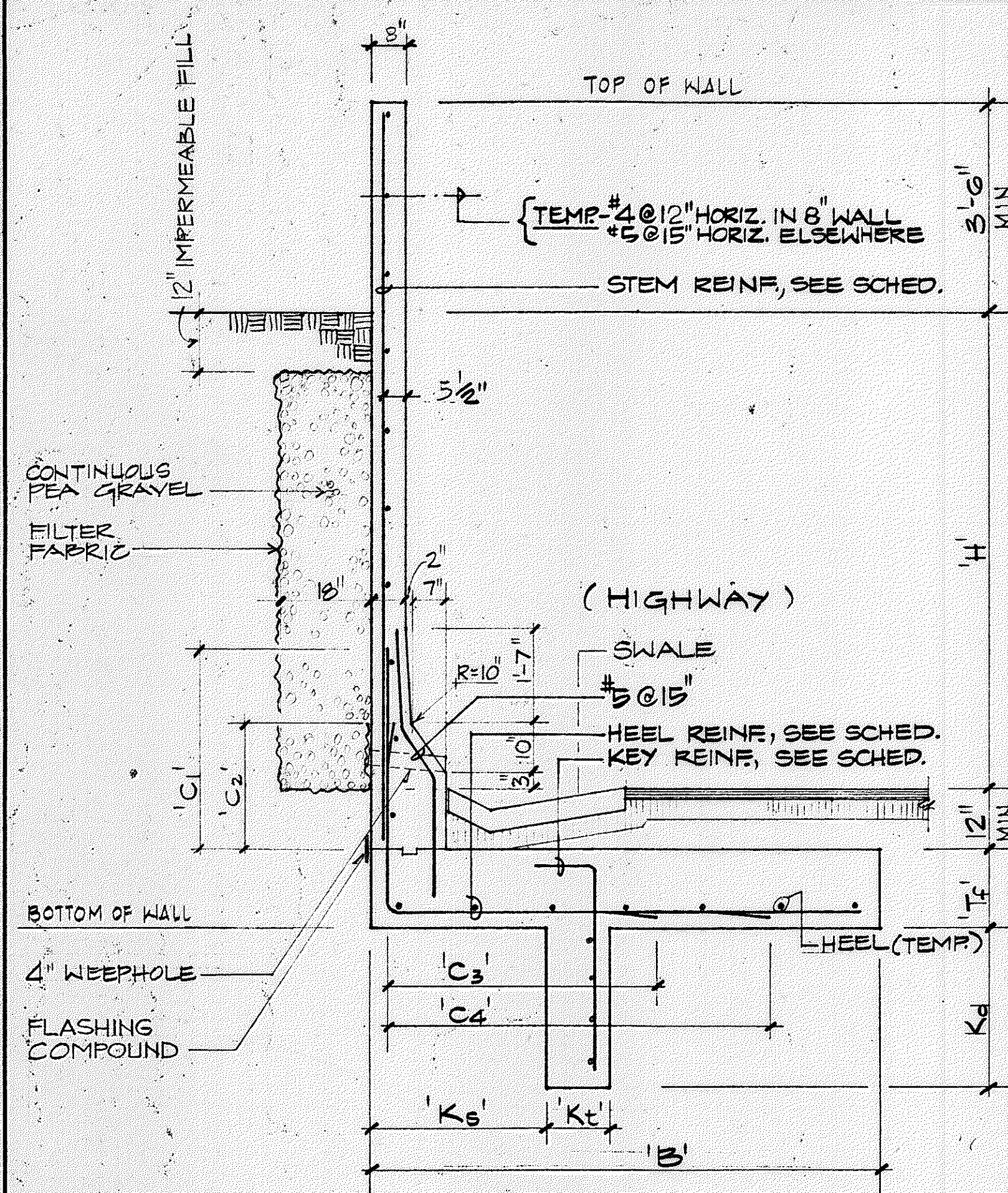
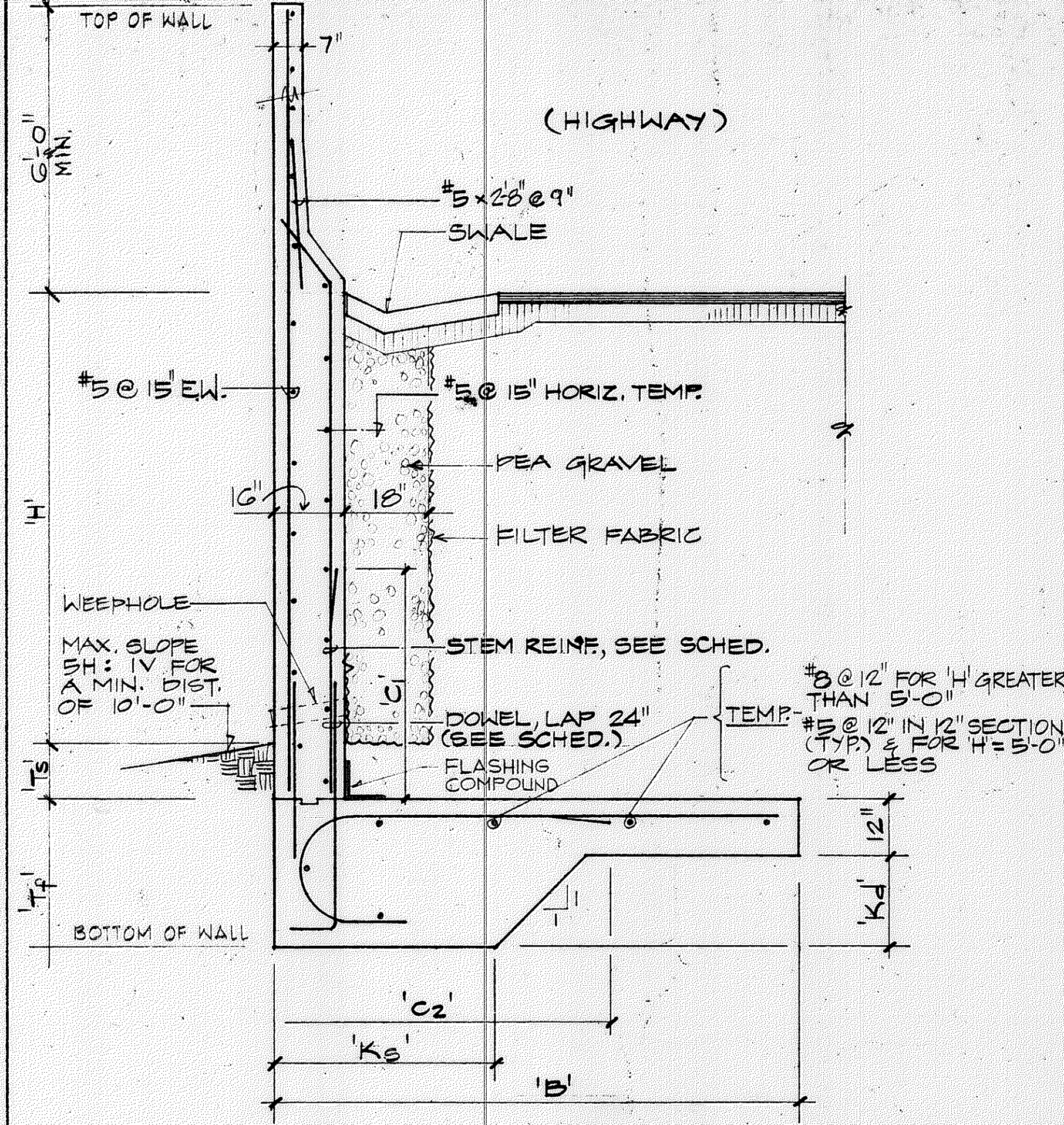




A TYPE 'A' RET. WALL DET.
SCALE: 1/2" = 1'-0"

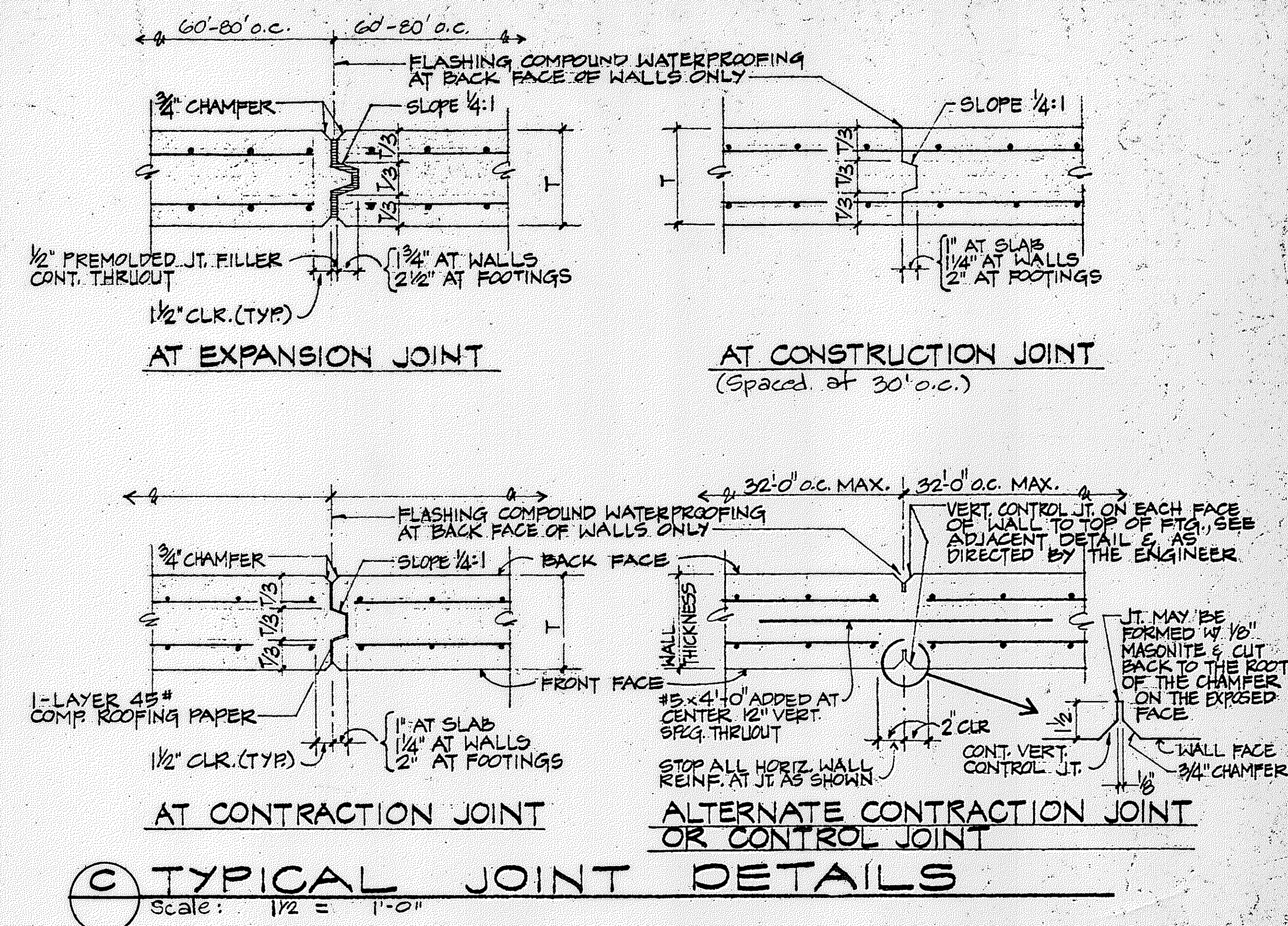
'H'	'B'	'Kd'	'Kt'	'Ks'	'Tf'	STEM REINF.	KEY REINF.	REINF.	C ₁ (%)	C ₂ (%)	C ₃ (%)	C ₄ (%)	TEMP.
12'	14'-6"	53"	16"	5'-0"	20"	#5@12"	#5@11" E.W.	#8@4"	8'-0" (33)	2'-6" (67)	5'-0" (33)	10'-0" (33)	#6@12"
10'	11'-2"	42"	16"	4'-0"	18"	#5@18"	DO.	#8@6"	6'-0" (33)	2'-6" (67)	4'-0" (33)	8'-0" (33)	#6@14"
8'	8'-6"	32"	12"	3'-0"	16"	#5@18"	DO.	#6@6"	3'-4" (50)	2'-0" (50)	4'-6" (50)	---	#6@15"
6'	5'-10"	21"	12"	2'-0"	14"	#5@18"	#5@13" E.W.	#6@18"	DO	DO	---	---	#5@12"
4'	3'-6"	10"	12"	1'-0"	12"	#4@12"	DO.	#5@12"	DO	DO	---	---	#5@14"
2'	1'-9"	0"	---	---	12"	DO.	---	DO.	DO	DO	---	---	#5@14"



B TYPE 'B' RET. WALL DET.
SCALE: 1/2" = 1'-0"

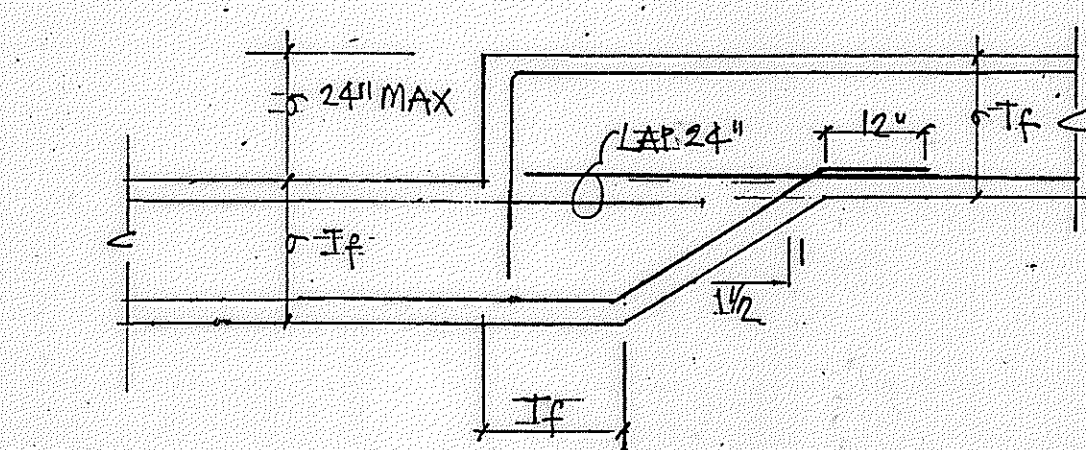
H	B	Ts	Kd	Ks	STEM DOWEL *	STEM REINF.	C ₁ (%)	HEEL REINF.	C ₂ (%)
10'	12'-0"	12"	20"	48"	#6 @ 5"	#5 @ 5"	6'-0" (50)	#8 @ 4 1/2"	7'-0" (50)
9'	10'-7"	12"	20"	48"	DO.	DO.	5'-0" (50)	#8 @ 6"	6'-0" (50)
8'	9'-4"	12"	20"	48"	#6 @ 7"	DO.	4'-0" (50)	#8 @ 9"	---
7'	8'-3"	12"	20"	36"	#6 @ 9"	#5 @ 9"	---	#8 @ 12"	---
6'	7'-5"	12"	18"	30"	DO.	DO.	---	#8 @ 12"	---
5'	6'-9"	12"	16"	16"	#5 @ 9"	DO.	---	#6 @ 5"	3'-6" (50)
4'	6'-2"	12"	14"	16"	DO.	DO.	---	#5 @ 5"	3'-0" (50)
3'	5'-9"	12"	12"	16"	DO.	DO.	---	#5 @ 7"	---
2'	5'-7"	12"	9"	16"	DO.	DO.	---	#5 @ 9"	---
1'	5'-7"	12"	6"	16"	DO.	DO.	---	#5 @ 12"	---
0'	5'-6"	24"	0"	0"	DO.	DO.	---	DO.	---

* DOWEL NOTE: IF REINFORCING IS SAME SIZE AS DOWEL THEN THE SPLICE IS OPTIONAL.

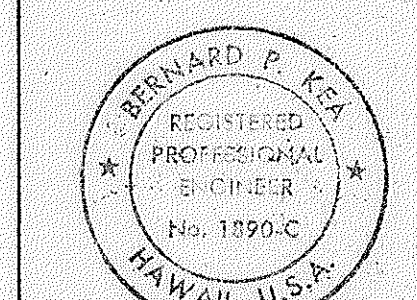


- REINFORCED CONCRETE**
- ALL CONCRETE SHALL BE CLASS A, CONFORMING TO HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (1985).
 - ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 40.
 - UNLESS OTHERWISE NOTED, SPLICES, LAPS, DOWEL EXTENSIONS AND EMBEDMENTS SHALL BE 30 BAR DIAMETERS MINIMUM.
 - ALL REINFORCING BARS MARKED 'CONT.' OR 'TEMP.' ON THE PLANS SHALL BE LAPPED 30 BAR DIAMETERS MINIMUM.
 - STAGGER ALL SPLICES WHERE POSSIBLE.
 - REBARS SHALL BE SUPPORTED, BENT AND PLACED AS PER "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" ACI 315 (LATEST).
 - MINIMUM COVER IN INCHES FOR REBARS FOR CAST-IN-PLACE CONCRETE:
CONCRETE CAST AGAINST EARTH 3"
FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
#5 AND SMALLER 2"
#6 AND LARGER 2"
 - AT TIME CONCRETE IS PLACED, REINFORCING SHALL BE FREE FROM MUD, OIL, LAITANCE OR OTHER COATINGS ADVERSELY AFFECTING BOND CAPACITY.
 - REINFORCEMENT, ANCHOR BOLTS, DOWELS AND ALL OTHER EMBEDDED ITEMS SHALL BE POSITIVELY SECURED BEFORE POURING.

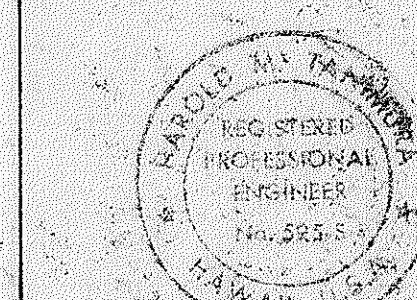
- RETAINING WALLS**
- ALL FOOTINGS SHALL BEAR ON FIRM UNDISTURBED NATURAL SOILS OR PROPERLY COMPACTED STRUCTURAL FILL.
 - THE UPPER ONE FOOT OF BACKFILL BEHIND WALLS SHALL CONSIST OF AN IMPERVIOUS, NON-EXPANSIVE, COHESIVE SOIL TO MINIMIZE SEEPAGE OF SURFACE WATER BEHIND WALLS.
 - WEEPHOLES, 4 INCHES IN DIAMETER, SHALL BE SPACED NOT MORE THAN 8 FEET ON CENTER ALONG WALLS. AN 18 INCH MINIMUM THICK CONTINUOUS PEA GRAVEL DRAIN SHALL BE PLACED ALONG THE ENTIRE LENGTH OF WALLS CONNECTING THE WEEPHOLES.
 - IN LIEU OF WEEPHOLES, A 6 INCH DIAMETER CONTINUOUS PERFORATED DRAIN PIPE SHALL BE PLACED IN THE CONTINUOUS PEA GRAVEL DRAIN. PERFORATIONS SHALL FACE DOWNWARD. AT LEAST ONE OUTLET SHALL BE PROVIDED FOR EVERY 50 FEET OF PIPE.
 - WALL DESIGN IS BASED ON SOILS INVESTIGATION REPORT BY PSC ASSOCIATES, INC., JOB NO. 87101.11. THIS REPORT SHALL BE MADE A PART OF THE CONSTRUCTION DOCUMENTS AND RECOMMENDATIONS THEREIN SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE AMENDED BY PSC ASSOCIATES, INC. IN WRITING.



D TYP. STEPPED FTG. DETAIL
N.T.S.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Bernard P. Kea
Signature



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BARRIER WALL DETAILS

KAMEHAMEHA HIGHWAY WIDENING
PROJ. NO. 99C-01-90

SCALE: AS NOTED DATE: JAN. 1990
SHEET NO. 1 OF 3 SHEETS

