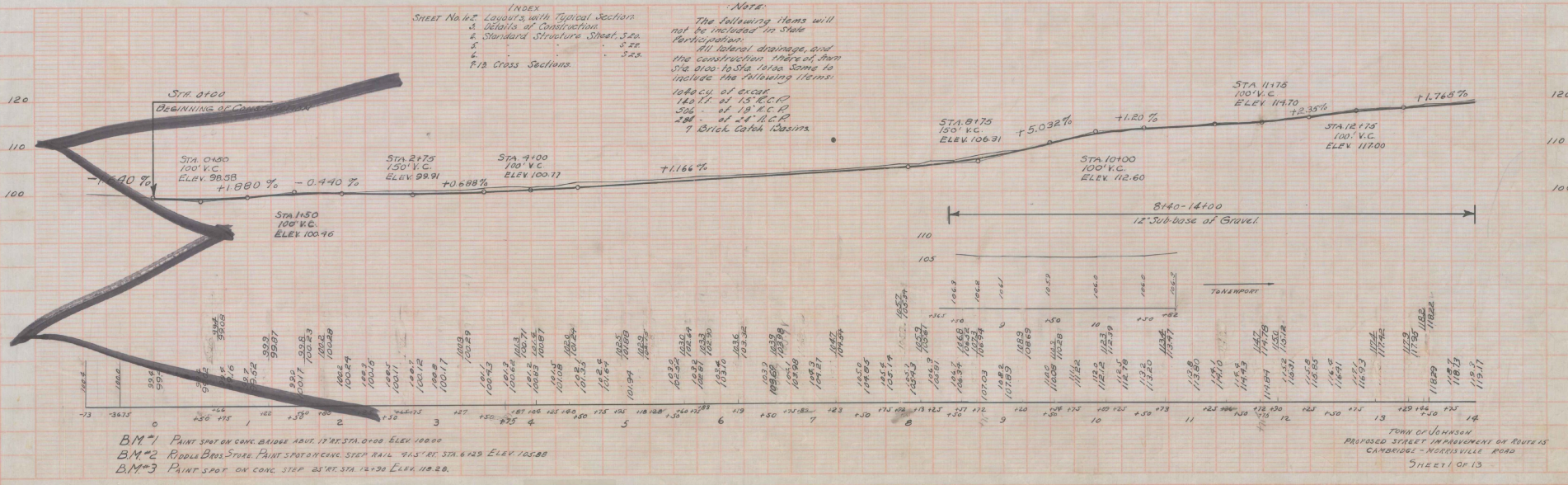
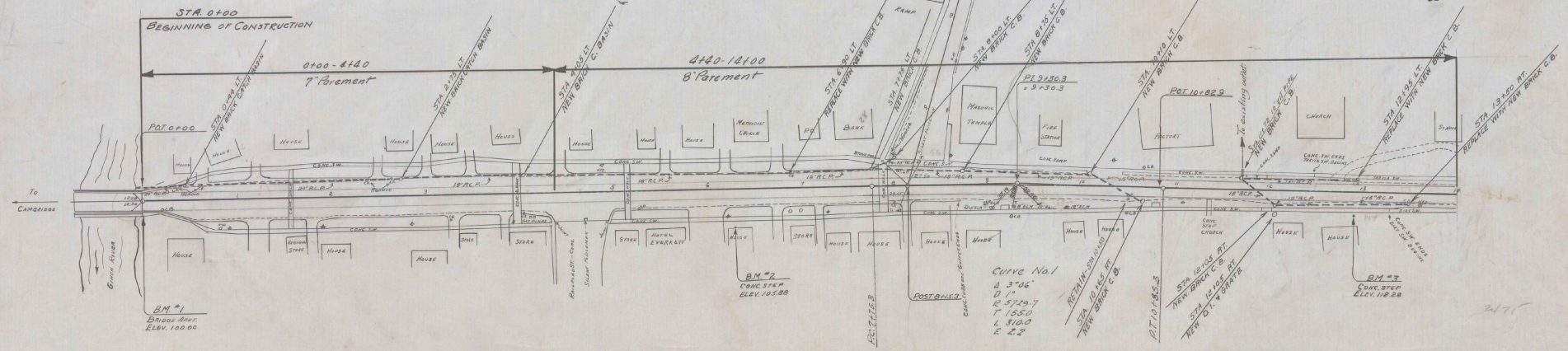


STATION	STATIONS	DIAM.	LENGT.	STATION	CONC. A.	STEEL GRATES
0149 LT	0100 LT - 0444 LT	24	44	1210 RT	1.7	99
2175 LT	0144 LT - 2175 LT	24	240			
4105 LT	2175 LT - 4105 LT	18	135			
6190 LT	4105 LT - 6190 LT	18	285			
7175 LT	6190 LT - 7175 LT	18	88			
8100 LT	7175 LT - 8100 LT	15	28			
8175 LT	7175 LT - 8175 LT	15	96			
10110 LT	8175 LT - 10110 LT	15	190			
10165 RT	10110 LT - 10165 RT	15	50			
11172 LT	11172 LT - 12105 RT	18	44			
12105 RT	12105 RT - 12105 RT	18	5			
12195 LT	12105 RT - 12195 LT	15	144			
13150 RT	11172 LT - 12195 LT	15	128			



**INDEX**  
 SHEET No. 12 Layouts with Typical Sections  
 & Details of Construction  
 & Standard Structure Sheet 322  
 & P.B. Cross Sections.

**NOTE:**  
 The following items will not be included in State Participation:  
 All lateral drainage, and the construction thereof of from STA 0100 to STA 10100. Some to include the following items:  
 100 cu. yd. of excor.  
 140 ft. of 18" R.C.P.  
 500 ft. of 18" R.C.P.  
 48 ft. of 24" R.C.P.  
 7 Brick Catch Basins.

BM #1 PAINT SPOT ON CONC. BRIDGE ABUT. 17' RT. STA. 0100 ELEV. 100.00  
 BM #2 RIBBLE BRICK SPOT ON CONC. STEEL RAIL 94.5' RT. STA. 6125 ELEV. 105.88  
 BM #3 PAINT SPOT ON CONC. STEP 45' RT. STA. 12130 ELEV. 118.28

TOWN OF JOHNSON  
 PROPOSED STREET IMPROVEMENT BY ROUTES  
 CAMBRIDGE - NORTHVILLE ROAD  
 SHEET 11 OF 13

JOHNSON - F 133-L



STATE OF VERMONT

DEPARTMENT OF HIGHWAYS

STATE OF VERMONT

DEPARTMENT OF HIGHWAYS

JOHNSON STATE P. NO. 133-L EXTENSION  
Form Eng. 3A Summary Sheet No. JUNE 30, 1932

JOHNSON STATE NO. 133-L EXTENSION  
Form Eng. 3A Summary Sheet No. JUNE 30, 1932

APPROXIMATE SUMMARY OF QUANTITIES				APPROXIMATE SUMMARY OF QUANTITIES				Type of Road <u>ONE COURSE CEMENT CONCRETE PAVEMENT</u>					
QUANTITIES	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS	ITEM NUMBER	STATIONS		PAV'T WIDTHS		EQUATIONS	
								FROM	TO			+	-
135	Cu. Yds.	Common Excavation	10	508	Lin. Ft.	12" Reinforced Concrete	49-A			18 ft			
	Cu. Yds.	Solid Rock Excavation	10		Lin. Ft.	15"							
	Cu. Yds.	Borrow	11		Lin. Ft.	16"		0+00	13+18	1318.0			
1120	Cu. Yds.	Common Excavation including Borrow	10-11	40	Lin. Ft.	18" " "	49-C						
	Cu. Yds.	Sub-base of Field or Quarry Stone	12A	48	Lin. Ft.	24" " "	49-D						
	Cu. Yds.	Sub-base of Crushed Rock or Slag	12B		Lin. Ft.	30"							
					Lin. Ft.	36"							
100	Cu. Yds.	Sub-base of Gravel	12-B		Lin. Ft.	12"							
	Cu. Yds.	Telford Base Course	12D		Lin. Ft.	15"							
	Cu. Yds.	Sub-base of Sand	12E		Lin. Ft.	16"							
	Cu. Yds.	Structure Excavation	15		Lin. Ft.	18"							
	Cu. Yds.	Broken Stone Base Course	16		Lin. Ft.	24"							
					Lin. Ft.	30"							
					Lin. Ft.	36"							
	Cu. Yds.	Gravel Surface Course	20A		Lin. Ft.	Relaying Pipe Culverts	51						
	Cu. Yds.	Gravel Surface Course (Crushed)	20B		Lump	Sum	55						
	Cu. Yds.	Gravel Shoulders	21		Lin. Ft.	Temporary Bridge	56						
	Cu. Yds.	Bituminous Macadam Surface Course	22A		Lin. Ft.	Timber Piling	57						
	Gals.	Oil Asphalt	22B		M. B. M.	Timber Grillage	57						
	Gals.	Refined Tar	22C		Cu. Yds.	Stone Fill	60						
515	Cu. Yds.	One Course Cement Concrete Pavement	23		Cu. Yds.	Plain Rip Rap	61						
	Cu. Yds.	One Course Cement Concrete Pavement Type B	23B		Cu. Yds.	Rip Rap for Bank Protection	62						
	Sq. Yds.	Bituminous Concrete Surface Course			Cu. Yds.	Plain Rubble Paving	70A						
	Sq. Yds.	Single Bituminous Surface Treatment	25		Cu. Yds.	Grouted Rubble Paving	70B						
	Sq. Yds.	Double Bituminous Surface Treatment	26		Sq. Yds.	Plain Cement Concrete Gutter	73						
	Sq. Yds.	Natural Rock Asphalt Surface	27		Sq. Yds.	Plain Cobble Gutter	74A						
					Sq. Yds.	Grouted Cobble Gutter	74B						
	Cu. Yds.	Concrete Class AA (1-1-3)	34AA		Each	Leaching Basins	75						
16.6	Cu. Yds.	Concrete Class A	33A		Each	Catch Basins	76						
	Cu. Yds.	Concrete Class B (1-2-5)	34B		Each	Changing Elevations of Manholes and Catch Basins	77						
1435	lbs.	Reinforcing Steel	34		Each	Drop Inlet Grates	78						
	lbs.	Structural Steel	36A										
	Lump	Sum	36B										
	Sq. Yds.	Waterproofing Membrane	37										
2.7	Cu. Yds.	Cement Rubble Masonry	43										
	Cu. Yds.	Dry Rubble Masonry	44										
	Sq. Yds.	Repointing Masonry	45										
	Lin. Ft.	6" Vitrified Clay Pipe	50B	7									
	Lin. Ft.	8" Vitrified Clay Pipe	50C										
	Lin. Ft.	10" Vitrified Clay Pipe	50D										
	Lin. Ft.	12" Vitrified Clay Pipe	50E										
DETAILED SUMMARY OF QUANTITIES													
135	SOLID ROCK EXCAVATION As per sections			16.6	CONCRETE CLASS A Drop Inlets								
135	Total			16.6	Total								
632	COMMON EXCAVATION INCLUDING BORROW Excavation as per sections			1435	REINFORCING STEEL Drop Inlets								
-	Borrow			1435	Total								
488	Culvert Excavation				CEMENT RUBBLE MASONRY Headwalls								
1120	Total				Total								
100	SUB-BASE OF GRAVEL Sub-base			2.7									
100	Total			2.7									
513	ONE COURSE CEMENT CONCRETE PAVEMENT Pavement												
2	Ramp sta. 13+18												
515	Total												

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STATE OF VERMONT

DEPARTMENT OF HIGHWAYS

JOHNSON F. A. P. NO. 133-L  
Form Eng. 3A Summary Sheet No. 1931-2 192

STATE OF VERMONT

DEPARTMENT OF HIGHWAYS

JOHNSON F. A. P. NO. 133-L  
Form Eng. 3A Summary Sheet No. 1931-2 192

APPROXIMATE SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS	ITEM NUMBER
Cu. Yds.		Common Excavation	10
Cu. Yds.		Solid Rock Excavation	10
Cu. Yds.		Borrow	11
Cu. Yds.		Common Excavation including Borrow	10-11
Cu. Yds.		Sub-base of Field or Quarry Stone	12A
Cu. Yds.		Sub-base of Crushed Rock or Slag	12B
Cu. Yds.		Sub-base of Gravel	12C
Cu. Yds.		Telford Base Course	12D
Cu. Yds.		Sub-base of Sand	12E
Cu. Yds.		Structure Excavation	15
Cu. Yds.		Broken Stone Base Course	16
Cu. Yds.		Gravel Surface Course	20A
Cu. Yds.		Gravel Surface Course (Crushed)	20B
Cu. Yds.		Gravel Shoulders	21
Cu. Yds.		Bituminous Macadam Surface Course	22A
Gals.		Oil Asphalt	22B
Gals.		Refined Tar	22C
Cu. Yds.		One Course Cement Concrete Pavement Type A	23 A
Cu. Yds.		One Course Cement Concrete Pavement Type B	23B
Sq. Yds.		Bituminous Concrete Surface Course	
Sq. Yds.		Single Bituminous Surface Treatment	25
Sq. Yds.		Double Bituminous Surface Treatment	26
Sq. Yds.		Natural Rock Asphalt Surface	27
Cu. Yds.		Concrete Class AA (1-1-3)	34AA
Cu. Yds.		Concrete Class A (1-2-4)	34A
Cu. Yds.		Concrete Class B (1-2-5)	34B
lbs.		Reinforcing Steel	35
lbs.		Structural Steel	36A
Lump		Sum	
Sum		Steel Superstructure	36B
Sq. Yds.		Waterproofing Membrane	37
Cu. Yds.		Cement Rubble Masonry	43
Cu. Yds.		Dry Rubble Masonry	44
Sq. Yds.		Repointing Masonry	45
Lin. Ft.		6" Vitrified Clay Pipe	50B
Lin. Ft.		8" Vitrified Clay Pipe	50C
Lin. Ft.		10" Vitrified Clay Pipe	50D
Lin. Ft.		12" Vitrified Clay Pipe	50E

APPROXIMATE SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS	ITEM NUMBER
Lin. Ft.	12"	Pipe	
Lin. Ft.	15"	Pipe	
Lin. Ft.	18"	Pipe	
Lin. Ft.	24"	Pipe	
Lin. Ft.	30"	Pipe	
Lin. Ft.	36"	Pipe	
Lin. Ft.	12"	Pipe	
Lin. Ft.	15"	Pipe	
Lin. Ft.	16"	Pipe	
Lin. Ft.	18"	Pipe	
Lin. Ft.	24"	Pipe	
Lin. Ft.	30"	Pipe	
Lin. Ft.	36"	Pipe	
Lin. Ft.		Relaying Pipe Culverts	
Lump		Temporary Bridge	
Lin. Ft.		Timber Piling	
M. B. M.		Timber Grillage	
Cu. Yds.		Stone Fill	
Cu. Yds.		Plain Rip Rap	
Cu. Yds.		Rip Rap for Bank Protection	
Lin. Ft.		Tile Un' erdrain	
Lin. Ft.		Wood Guard Rail	
Lin. Ft.		Cable Guard Rail	
Cu. Yds.		Plain Rubble Paving	
Cu. Yds.		Grouted Rubble Paving	
Sq. Yds.		Plain Cement Concrete Gutter	
Sq. Yds.		Plain Cobble Gutter	
Sq. Yds.		Grouted Cobble Gutter	
Each		Leaching Basins	
Each		Catch Basins	
Each		Changing Elevations of Manholes and Catch Basins	
Each		Drop Inlet Grates	

DETAILED SUMMARY OF QUANTITIES

Type of Road ONE COURSE CEMENT CONCRETE PAVEMENT

STATIONS		EQUATIONS		TOTAL	
FROM	TO	7"	8"	PAVT 0100-8140	PAVT 8140-2475
0+00	4+40	440			
4+40	8+40		400		
8+40	17+80		940		
17+80	24+75	695			
		1135	1380		
				2475 ft	1931-2
		← 1931 →		11932	TOTAL
ITEM	PAVT 0100-8140	LATERAL SYSTEM	GRAVEL 8140-2475	PAVT 8140-2475	
SOLID ROCK EXCAVATION	40	-	60	-	100 cu
COMMON EXCAVATION					
As per Sections	612	-	672	-	1284 "
Culverts	300	1040	1060	-	2400
Overrun	288	-	1028	-	1316
Removal of Surface Course	-	-	-	273	273
TOTAL	1200	1040	2760	273	5273 cu
SUB-BASE OF GRAVEL			1090		1090 cu
PAVEMENT	7"	171	-	270	441
	8"	178	-	418	596
TOTAL		349	-	688	1037 cu
CONC. CLASS A			5	-	5 cu
BEINF. STEEL			300	-	300 #
12" R.C. PIPE				156	156 lf
15" " "			140	576	716 lf
18" " "			506	160	666 lf
24" " "			254	-	284 lf
RELAYING PIPE CULVERTS				100	100 lf
CATCH BASINS			7	17	24 each
CHANGING ELEV. OF C.B.				1	1 "
DROP INLET GRATES				1	1 "
GRAVEL SURFACE COURSE				273	273 cu



APPROXIMATE SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS	ITEM NUMBER
100	Cu. Yds.	Common Excavation	10
	Cu. Yds.	Solid Rock Excavation (est)	10
	Cu. Yds.	Borrow	11
5000	Cu. Yds.	Common Excavation including Borrow	10-11
	Cu. Yds.	Sub-base of Field or Quarry Stone	12A
	Cu. Yds.	Sub-base of Crushed Rock or Slag	12B
600	Cu. Yds.	Sub-base of Gravel	12B
	Cu. Yds.	Telford Base Course	12D
	Cu. Yds.	Sub-base of Sand	12E
	Cu. Yds.	Structure Excavation	15
	Cu. Yds.	Broken Stone Base Course	16
	Cu. Yds.	Gravel Surface Course	20A
	Cu. Yds.	Gravel Surface Course (Crushed)	20B
	Cu. Yds.	Gravel Shoulders	21
	Cu. Yds.	Bituminous Macadam Surface Course	22A
	Gals.	Oil Asphalt	22B
	Gals.	Refined Tar	22C
	Cu. Yds.	One Course Cement Concrete Pavement Type A	23 A
	Cu. Yds.	One Course Cement Concrete Pavement Type B	23B
	Sq. Yds.	Bituminous Concrete Surface Course	24
	Sq. Yds.	Single Bituminous Surface Treatment	25
	Sq. Yds.	Double Bituminous Surface Treatment	26
	Sq. Yds.	Natural Rock Asphalt Surface	27
	Cu. Yds.	Concrete Class AA (1-13-3)	34AA
	Cu. Yds.	Concrete Class A	33A
	Cu. Yds.	Concrete Class B (1-2-5)	34B
300	lbs.	Reinforcing Steel	34
	lbs.	Structural Steel	36A
	Lump	Sum	36B
	Sq. Yds.	Waterproofing Membrane	37
	Cu. Yds.	Cement Rubble Masonry	43
	Cu. Yds.	Dry Rubble Masonry	44
	Sq. Yds.	Repointing Masonry	45
	Lin. Ft.	6" Vitrified Clay Pipe	50B
	Lin. Ft.	8" Vitrified Clay Pipe	50C
	Lin. Ft.	10" Vitrified Clay Pipe	50D
	Lin. Ft.	12" Vitrified Clay Pipe	50E

DETAILED SUMMARY OF QUANTITIES

1282	cu. yd.	Common Excavation Including Borrow
2200	"	Earth Exca. as per sections
1316	"	Culverts x 1.5 (1600)
5000	"	Overrun
		Total
489	cu. yd.	SUB-BASE OF GRAVEL
111	"	Plans
600	"	Overrun
		Total
14	cu. yd.	CONCRETE CLASS A
3.6	"	Culverts
1.0	"	Overrun
		Total
99	lbs.	REINFORCING STEEL
261	"	Culverts
300	"	Overrun
		Total

QUANTITIES	UNIT	ITEMS	ITEM NUMBER
156	Lin. Ft.	12" Road Conc.	Pipe
716	Lin. Ft.	15"	Pipe
	Lin. Ft.	16"	Pipe
666	Lin. Ft.	18"	Pipe
284	Lin. Ft.	24"	Pipe
	Lin. Ft.	30"	Pipe
	Lin. Ft.	36"	Pipe
	Lin. Ft.	12"	Pipe
	Lin. Ft.	15"	Pipe
	Lin. Ft.	16"	Pipe
	Lin. Ft.	18"	Pipe
	Lin. Ft.	24"	Pipe
	Lin. Ft.	30"	Pipe
	Lin. Ft.	36"	Pipe
100	Lin. Ft.	Relaying Pipe Culverts (est)	51
	Lump	Sum	55
	Lin. Ft.	Temporary Bridge	56
	M. B. M.	Timber Piling	57
	M. B. M.	Timber Grillage	57
	Cu. Yds.	Stone Fill	60
	Cu. Yds.	Plain Rip Rap	61
	Cu. Yds.	Rip Rap for Bank Protection	62
	Lin. Ft.	Tile Un'erdrain	65
	Lin. Ft.	Wood Guard Rail	66
	Lin. Ft.	Cable Guard Rail	67
	Cu. Yds.	Plain Rubble Paving	70A
	Cu. Yds.	Grouted Rubble Paving	70B
	Sq. Yds.	Plain Cement Concrete Gutter	73
	Sq. Yds.	Plain Cobble Gutter	74A
	Sq. Yds.	Grouted Cobble Gutter	74B
	Each	Leaching Basins	75
24	Each	Catch Basins (Arch)	76
1	Each	Changing Elevations of Manholes and Catch Basins	77
1	Each	Drop Inlet Grates	78

STATIONS		Type of Road One Course Cement Concrete Pavement		EQUATIONS	
FROM	TO	7"	8"	+	-
0+00.0	4+400	660.0			
4+200	17+80.0		1380.0		
17+80.0	24+75.0	695.0			
		1135.0	1380.0		
Total length of Construction = 24750 ft. = 0.469 Miles.					

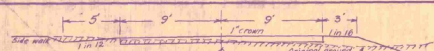
Note:  
 The following items will not be included in State Participation:  
 All lateral drainage, and the construction thereof, from Sta. 0+00 to Sta. 10+00. Same to include the following items:  
 1000 cu. of exca. @ 1.5  
 100 l.f. of 15" M.C.P.  
 500 l.f. of 18" M.C.P.  
 284 l.f. of 24" M.C.P.  
 7 Arch. Catch Basins.

716  
 100  
 576

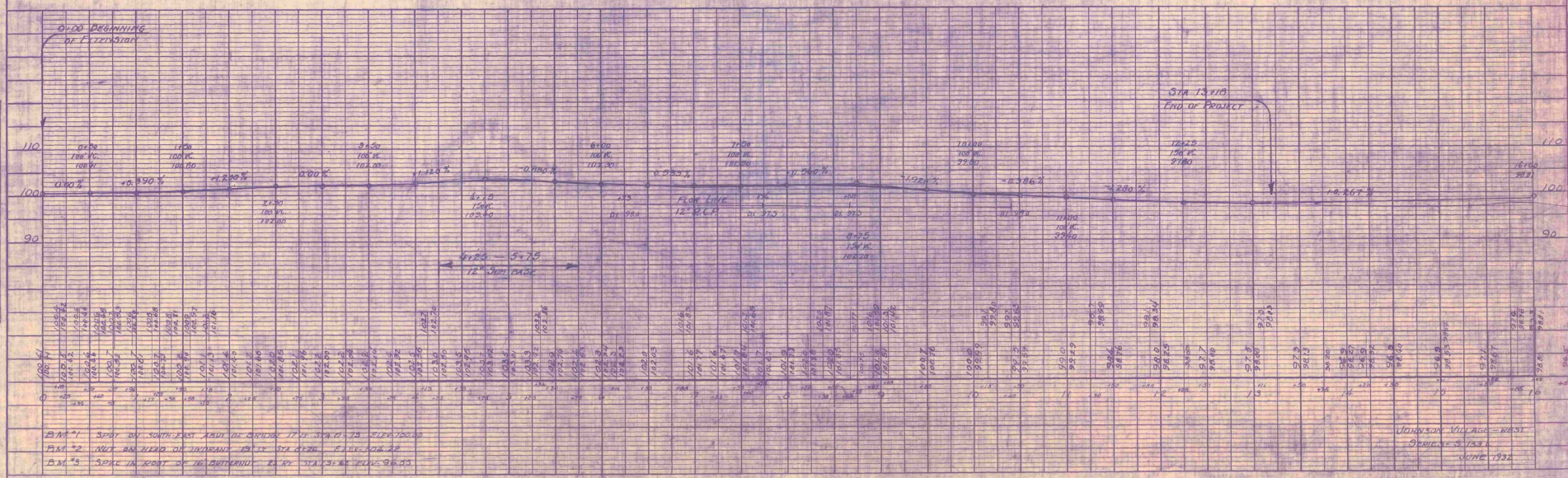
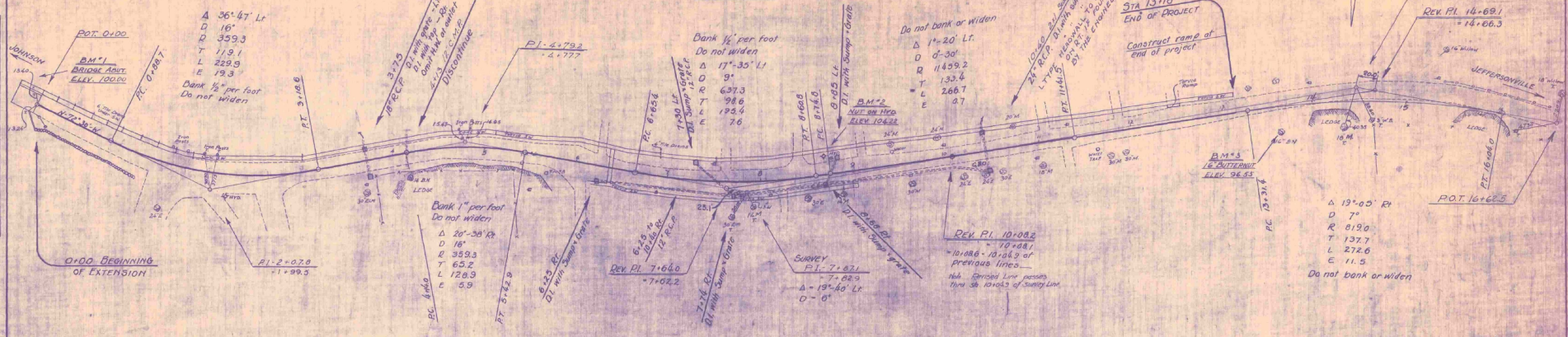
F1084

— INDEX OF SHEETS —  
 Sheet 1 Layout & Typical Section  
 2 Side Street Sheet 3-20  
 3-6 Cross Sections

STATION TO STATION	L.S.E.	R.C.P.	PLAN LENGTH	STATION POSITION	CONC.	STEEL	GUTTER	HEADWALL
3+75	E	18"	40'	3+75	LT	1.8	152	7
6+25	RT	12"	148'	3+75	RT	2.1	189	—
7+30	LT	12"	56'	6+25	RT	1.7	146	—
7+74	RT	12"	96'	7+74	RT	2.6	189	—
8+05	LT	12"	36'	7+30	LT	1.3	146	—
8+66	RT	12"	172'	8+05	LT	1.8	152	—
10+40	E	24"	48'	8+66	RT	1.7	146	—
				10+40	RT	2.1	189	27



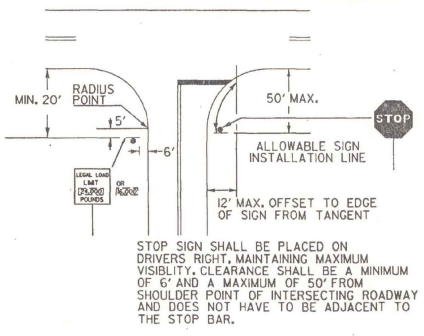
DRAINAGE SYSTEM



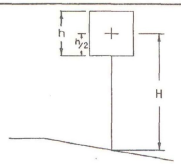
PLAN  
 DRAWN BY  
 CHECKED BY  
 DATE

PROFILE  
 DRAWN BY  
 CHECKED BY  
 DATE

BM #1 SPOT ON NORTH EAST CORNER OF BRIDGE AT STA 3+75 ELEV. 100.00  
 BM #2 NOT RECORDED ON TOWER AT STA 10+40 ELEV. 104.22  
 BM #3 SPOT IN FRONT OF LE BUTTERED RAMP AT STA 13+18 ELEV. 96.55



**LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS**



SIGN AREA (FT<sup>2</sup>) X H (FT) = <SV (SELECTION VALUE)

**POST SELECTION CHART**

POST REFERENCE: PROPER MOUNTING OF SIGNS ON APPROPRIATE SIZE POSTS IS COVERED IN DETAIL ON STANDARD E-160 FOR FLANGED CHANNEL POSTS AND STANDARD E-162 FOR TUBULAR ALUMINUM POSTS. FOR CONVENIENCE POST SELECTION TABLES ARE ALSO SHOWN AT LEFT.

WHEN SV VALUES EXCEED THOSE SHOWN ON THE TABLES THE TOTAL SV MAY BE DIVIDED BY TWO AND THAT VALUE USED TO SELECT AN APPROPRIATE SIZE AND MATERIAL FOR A TWO POST INSTALLATION. HOWEVER, TWO POST ASSEMBLIES WHICH REQUIRE UNUSUALLY LONG POSTS, EITHER BECAUSE OF STEEP SLOPES OR TOTAL HEIGHT OF THE SIGN OR SIGNS DISPLAYED, SHOULD ALWAYS BE MOUNTED ON ALUMINUM TUBES TO TAKE ADVANTAGE OF THE GREATER EMBEDMENT DEPTH.

POST SIZE	SV
2 LB./FT. (ONE POST INSTALLATION)	32
2 LB./FT. (TWO POST INSTALLATION)	62
2.5 LB./FT.	77
3 LB./FT.	107

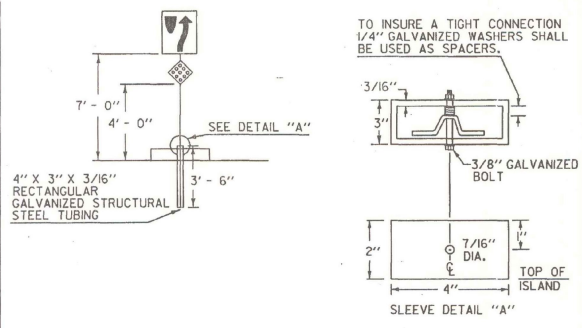
POST SIZE	SV (FT.)
3" DIA.	257
3" SQUARE TUBE	350
4" DIA.	477

SINGLE 2 LB. AND 2.5 LB. PER FOOT POSTS SHALL ONLY BE USED IN URBAN AREAS.

\* USE ON SINGLE POST INSTALLATIONS ONLY

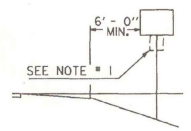
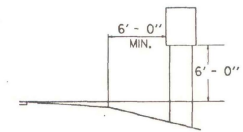
**FLANGED CHANNEL STEEL SIGN POSTS**

**TUBULAR ALUMINUM SIGN POSTS**

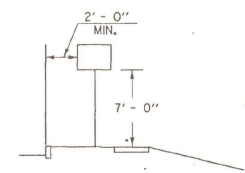
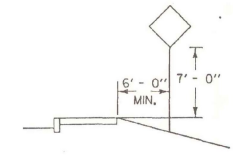


**WARNING SIGNS ON ISLAND IN THE LINE OF TRAFFIC**

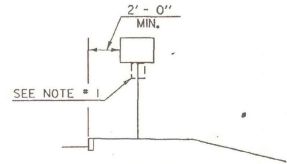
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY



**RURAL**



IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..



**URBAN**

**NOTES:**

1. IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

REVISIONS AND CORRECTIONS

APPROVED  
 JAN. 23, 1989  
 DATE  
*David R. Kelly*  
 CHIEF ENGINEER  
*Arthur Jones*  
 DIRECTOR OF PLANNING AND PRE-CONSTRUCTION  
*Stanley B. MacArthur*  
 TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FINAL APPROVAL PENDING.

**STANDARD SIGN PLACEMENT CONVENTIONAL ROAD**



**STANDARD E-121**

1932

Johnson  
133-L

1932