

CONVENTIONAL SIGNS & ABBREVIATIONS

STATE LINE	TIMBER	TRUNK HIGHWAY R/W LINE
COUNTY LINE	BRUSH	RAILROAD R/W LINE
TOWNSHIP OR RANGE LINE	ORCHARD	PRESENT ROAD R/W LINE
SECTION LINE	ROCK LEDGE	EXCAVATION
QUARTER LINE	SAND	EARTH
SIXTEENTH LINE	EDGE OF CUT	LOOSE ROCK
RIGHT-OF-WAY LINE	TOE OF EMBANKMENT	SOLID ROCK
PROPERTY LINE (Except Land Lines)	CATCH BASIN	EMBANKMENT
VACATED PLATTED PROPERTY	MANHOLE	OVERHAUL
CORPORATE OR CITY LIMITS	FIRE HYDRANT	SURFACING
TRUNK HIGHWAY CENTER LINE	ARC LAMP	HAND DITCHING
RETAINING WALL	OTHER LAMPS (State Road)	SPECIAL EXCAVATION
STEAM RAILROAD	RAILROAD CROSSING SIGN	SPECIAL PLOWING
ELECTRIC RAILROAD	RAILROAD CROSSING BELL	GUARD RAIL
RAILROAD RIGHT-OF-WAY LINE	ELECTRIC WARNING SIGN	CORRUGATED METAL CULVERT
CREEK	CROSSING GATE	SECTIONAL CONCRETE CULVERT
RAPIDS OR WATERFALL	CATTLE GUARD	TON MILES
DRY RUN	OVERHEAD (Highway Over)	TELEPHONE POLE
DRAINAGE DITCH	UNDERPASS (Highway Under)	POWER POLE
HIGH TENSION LINE	ABUTMENT, WALL & PIER	PLACE
POWER POLE LINE	GIRDER BRIDGE	INPLACE
TELEPHONE OR TELEGRAPH LINE	TRUSS	REPLACE
CULVERTS - PLAIN	TRESTLE	RIGHT
WITH ENDWALLS	BUILDING (One Story Frame)	LEFT
WITH WINGWALLS	F-FRAME C-CONCRETE	INTERSECTION ANGLE
DROP INLET	S-STONE T-TILE	RADIUS
GUARD RAIL	B-BRICK S-STUCCO	LENGTH OF CURVE
WIRE FENCE	IRON PIPE	POINT OF CURVE
RAILROAD SNOW FENCE	STONE MONUMENT	POINT OF TANGENT
BOARD OR HIGHWAY SNOW FENCE	WOOD STAKE OR HUB	POINT OF INTERSECTION
STONE WALL OR FENCE	MEANDER CORNER	VERTICAL CURVE
HEDGE		BENCH MARK
WATER PIPE		ELEVATION
SEWER PIPE		ACRES
DRAIN TILE		
GRAVEL PIT		
SAND PIT		
CLAY PIT		
ROCK QUARRY		
SPRINGS		
MARSH		



MINNESOTA HIGHWAY DEPARTMENT  
CONSTRUCTION PLAN FOR  
**TRUNK HIGHWAY NO. 12**

IN ST. PAUL  
From *A point on the E. of University Ave. distant 200' southeasterly of the intersection of said E. & the West 1/4 line of Sec. 33, T. 28 N. & R. 23 W.* To *A point on the E. of University Ave. distant 111' Northwesterly of the West property line of Vandellia St.*  
MINNESOTA N.R.M. NO. 307, SECTION D (1935)

GROSS LENGTH - 2610 FEET - 0.494 MILES  
LENGTH OF EXCEPTIONS - 0.0 FEET - 0.0 MILES  
NET LENGTH - 2610 FEET - 0.494 MILES  
PLAN, 1 Inch = 200 Feet  
PROFILE, Horz. 1 Inch = 200 Feet. Vert. 1 Inch = 20 Feet  
(Horz. 1 Inch = 100 Feet  
Vert. 1 Inch = 10 Feet  
Cross-Sections, 1 Inch = 10 Feet  
WORKING PLANS  
LAYOUT  
SCALE, 1 Inch = 1200 Feet

Specifications approved by the Chief of the Bureau Oct. 4, 1925  
with special provisions shall govern.

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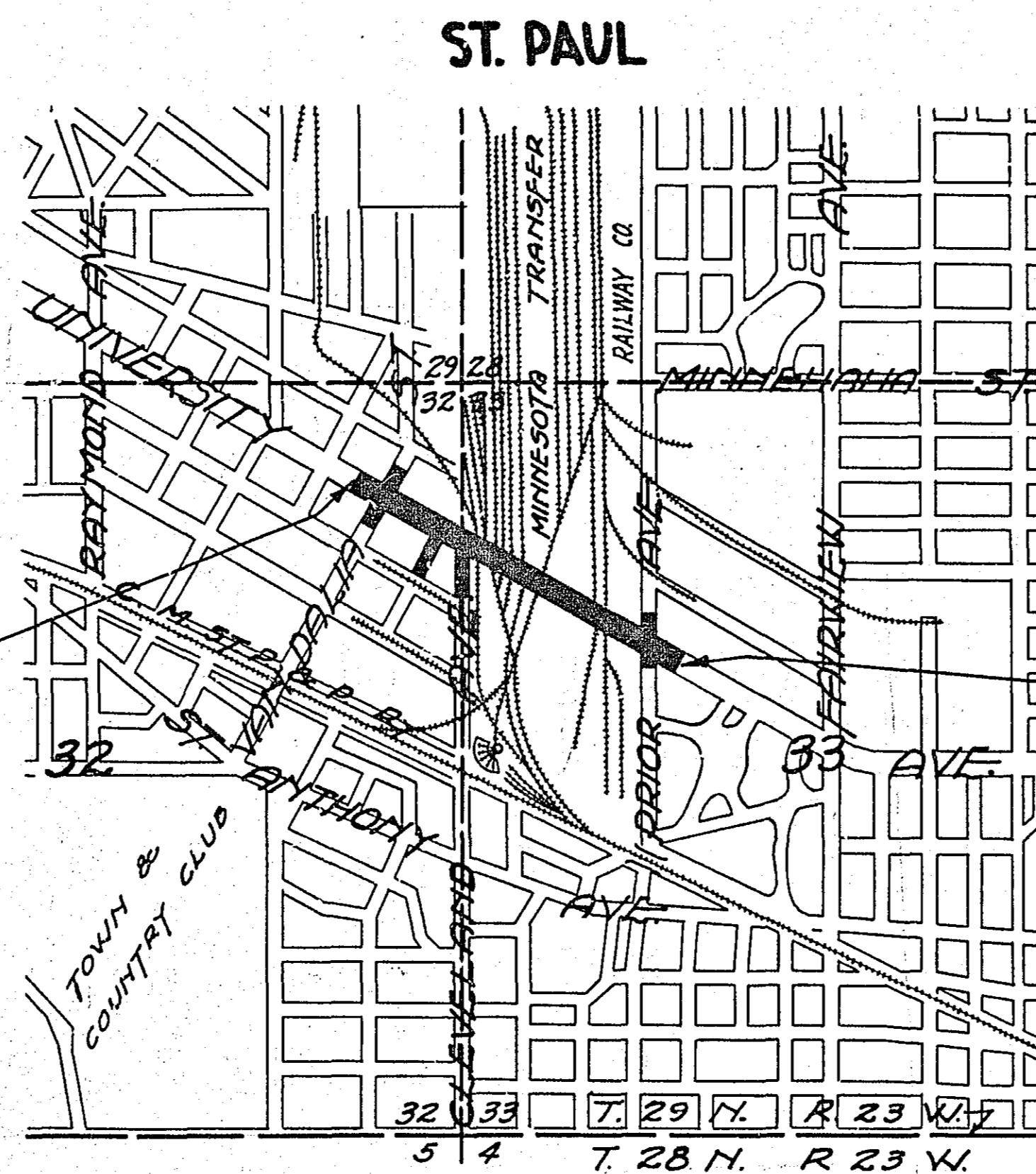
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CONVENTIONAL SIGNS USED ON PAVING PLANS

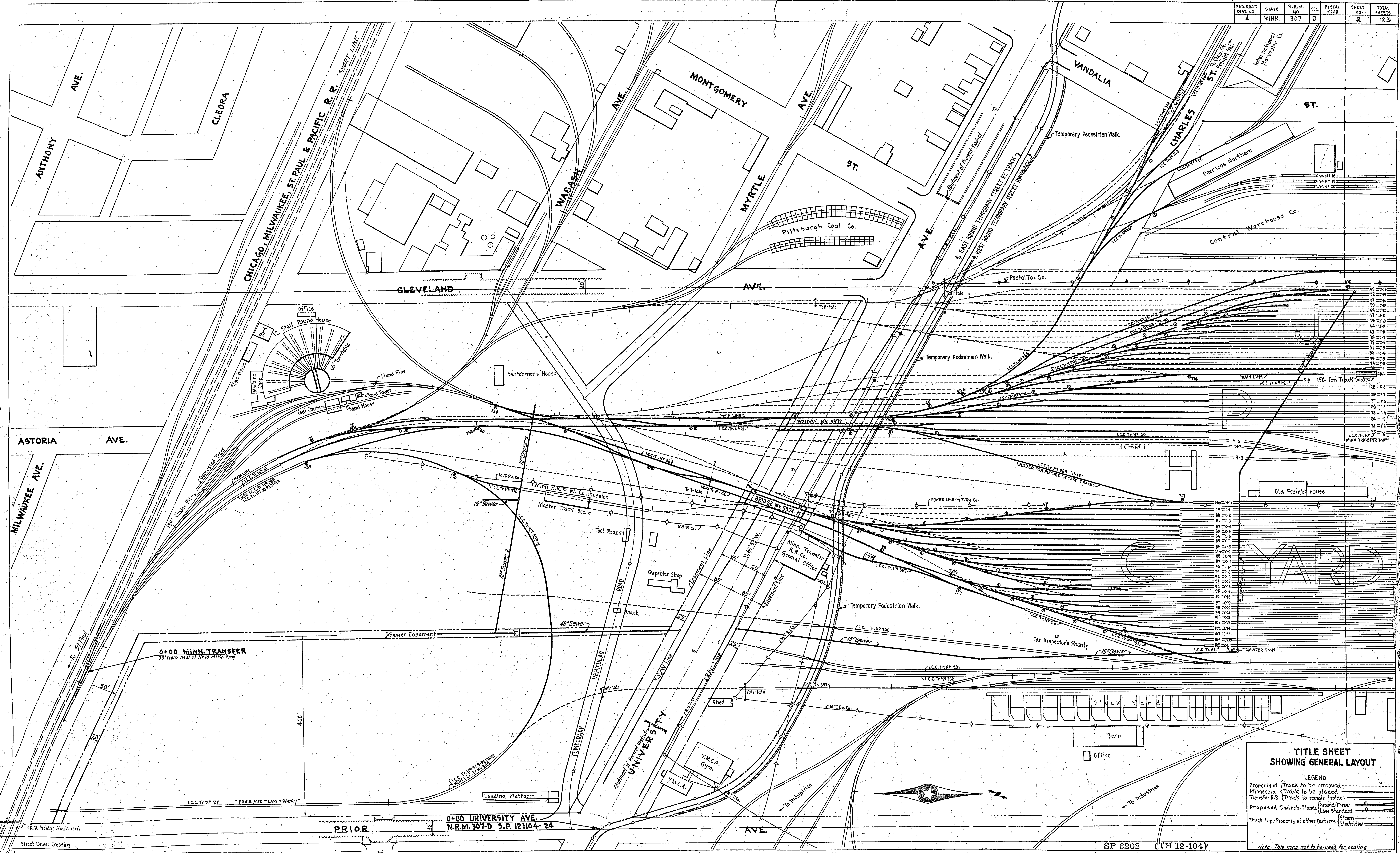
PROPOSED CURBS	
EXISTING CURBS	
PROPOSED SEWERS & STORM WATER DRAINS OR SIDE INLET, CATCH BASIN & MANHOLE CONNECTIONS (Notation denotes size and type)	12" V.C.P.
EXISTING SEWERS	
PROPOSED MANHOLE NO. 1	M.H. 1
" NO. 2	M.H. 2
EXISTING MANHOLES	M.H.
" CATCH BASINS	C.C.B.
PROPOSED CATCH BASINS (Notation denotes type) O3A or O1A	
EXISTING SIDE INLETS IN PRESENT CURB	S.I.
PROPOSED SIDE INLETS IN NEW CURB	S.I.
" " PRESENT CURB	S.I.
PROPOSED WOOD HEADERS	W.H.
" EXPANSION JOINTS	E.J.
" CONTRACTION JOINTS	C.J.
EXISTING SIDEWALKS	
PROPOSED 4" MONOLITHIC CONCRETE SIDEWALK	

END OF PROJECT S.P. 12-104-24 N.R.M. No. 307-D  
Sta. 74+10

BEG. OF PROJECT S.P. 12-104-24 N.R.M. No. 307-D  
Sta. - (2+00)



Planned by C. W. Lilly  
ENGINEER OF PUBLIC WORKS  
Recommended for Approval W. H. Zimmerman  
DISTRICT ENGINEER  
Recommended for Approval O. L. Kipp  
CONSTRUCTION ENGINEER  
Approved Feb. 8 1935 J. J. Bellino  
CHIEF ENGINEER & DEPUTY COMMISSIONER  
Recommended for Approval [Signature Box]  
DISTRICT ENGINEER. B. OF P. R.  
Recommended for Approval [Signature Box]  
CHIEF ENGINEER. B. OF P. R.  
Approved [Signature Box]  
DIRECTOR. B. OF P. R.



**TITLE SHEET  
SHOWING GENERAL LAYOUT**

**LEGEND**

- Property of (Track to be removed)
- Minnesota (Track to be placed)
- Transfer R.R. (Track to remain in place)
- Proposed Switch-Stands (Ground-Throw)
- (Low Standard)
- Track Imp.-Property of other Carriers (Steam)
- (Electrified)

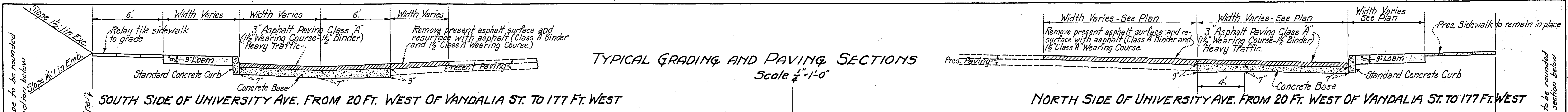
*Note: This map not to be used for scaling*





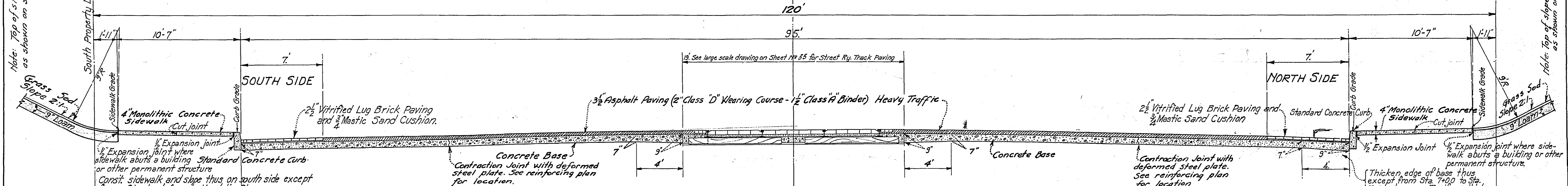
No	ITEM	UNIT	BRIDGE No 5371	BRIDGE No 5372	PAVING & GRADING					MINNESOTA TRANSFER OFFICE BUILDING	Y.M.C.A. BUILDING	SEWERS	SUBGRADE TREATMENT	TEMPORARY ST. RAILWAY	PERMANENT ST. RAILWAY	TEMPORARY VEHICULAR ROAD	TEMPORARY RAILWAY	PERMANENT RAILWAY	ST. LIGHTING FIRE ALARM AND TRAFFIC CONTROL	SAFETY ISLANDS	PEDESTRIAN WALK	TOTAL ESTIMATED QUANTITIES	ESTIMATED UNIT PRICES	AMOUNTS	TOTALS	No
					UNIVERSITY AVE.	PRIOR AVE.	CLEVELAND AVE.	MONTGOMERY ST.	VANDALIA ST.																	
191	Furnish & Install G.M.Culvert 15 inch.	Lin.Ft.																				120				191
192	Install Cable Guard Rail	Lin.Ft.														340						340				192
193																										193
194	Bituminous Plant Mix Binder Course	Ton														628.2						628.2				194
195	Bituminous Plant Mix Wearing Course	Ton														314.1						314.1				195
196																										196
197																										197
198																										198
199																										199
200																										200
201																										201
202	Lay Temporary Railway Track	Lin.Ft.														5000						5000				202
203	Install Temporary Turnouts	Turnout														20						20				203
204	Raise Temporary Railway Track	Foot-Station														112						112				204
205	Removal of Temporary Railway Track	Lin.Ft.														5000						5000				205
206	Removal of Temporary Turnouts	Turnout														20						20				206
207																										207
208																										208
209																										209
210																										210
211																										211
212	Removal of Present Railway Track	Lin.Ft.															55832					55832				212
213	Removal of Present Turnouts	Turnout															77					77				213
214	Removal of Present No 11 1/2 Frogs	Frog															16					16				214
215	Removal of Present Tell-tale Poles	Tell-tale Pole															15					15				215
216	Condition Turnout Ties	M.F.B.M.															40					40				216
217	Condition Rail	Gross Ton															360					360				217
218	Lay Permanent Railway Track	Lin.Ft.															40752					40752				218
219	Line & Surface Permanent Railway Track	Lin.Ft.															49965					49965				219
220	Gravel Track Surfacing Material - Fine Graded	Ton												495			19800					20295				220
221	Gravel Track Surfacing Material - Coarse Graded	Ton															500					500				221
222	Install Permanent No 6 Turnouts	Turnout															3					3				222
223	Install Permanent No 7 Turnouts	Turnout															8					8				223
224	Install Permanent No 8 Turnouts	Turnout															60					60				224
225	Install Permanent No 9 Turnouts	Turnout															17					17				225
226	Install 19" 85 lb. Track Crossings	Track Crossing															2					2				226
227	Remove Defective Ties & Place Sound Ties	Tie															1000					1000				227
228	Install Bridge Guard Rail	Lin.Ft.															1104					1104				228
229	Install Rail Braces on Curves	Rail Brace															200					200				229
230	Install Gauge Rods on Curves	Gauge Rod															87					87				230
231	Stone Masonry Car Stop & Walls	Cu.Yd.															33					33				231
232																										232
233																										233
234																										234
235																										235
236	Lighting & Trolley Standards	Standard																	44			44				236
237	Three Cell Duct Line	Lin.Ft.																	2386			2386				237
238	Single Cell Duct Line	Lin.Ft.																	2475			2475				238
239	Street Lighting Cable	Lin.Ft.																	10000			10000				239
240	Interlocking Cable For Traffic Signals	Lin.Ft.																	2300			2300				240
241	Traffic Signals	Signal																	11			11				241
242	Traffic Controllers & Cabinets	Controller & Cabinet																	3			3				242
243	Fire Alarm Cable & Fire Alarm System	Lin.Ft.																	4000			4000				243
244	Illuminated Street Signs	Sign																	7			7				244
245																										245
246																										246
247																										247
248																										248
249	Safety Island	Per Island																			2	2				249
250																										250
251																										251
252	Oiled Cinders 2 inch	Sq.Yd.																				1258				252
253	Rail Fence	Lin.Ft.																				2027				253
254	Dummy Posts	Post																				15				254

**TYPICAL GRADING AND PAVING SECTIONS**  
Scale  $\frac{1}{4}'' = 1'-0''$



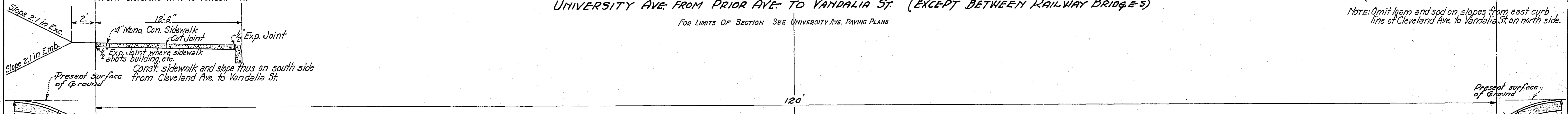
**SOUTH SIDE OF UNIVERSITY AVE. FROM 20 FT. WEST OF VANDALIA ST. TO 177 FT. WEST**

**NORTH SIDE OF UNIVERSITY AVE. FROM 20 FT. WEST OF VANDALIA ST. TO 177 FT. WEST**



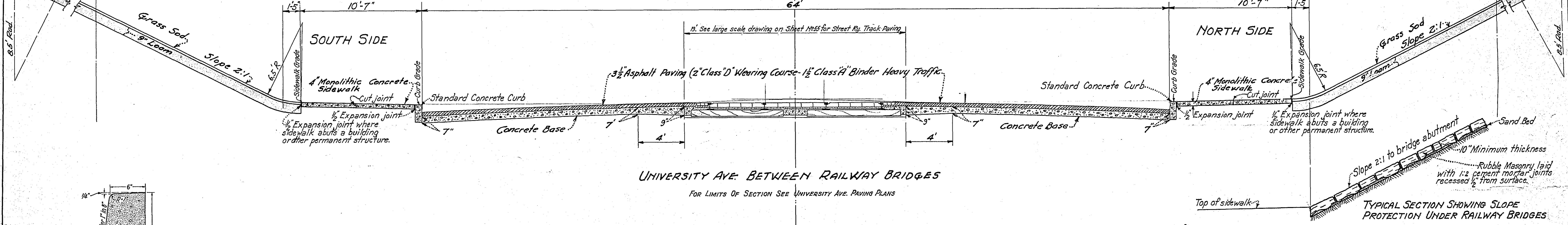
**UNIVERSITY AVE. FROM PRIOR AVE. TO VANDALIA ST. (EXCEPT BETWEEN RAILWAY BRIDGES-5)**

FOR LIMITS OF SECTION SEE UNIVERSITY AVE. PAVING PLANS

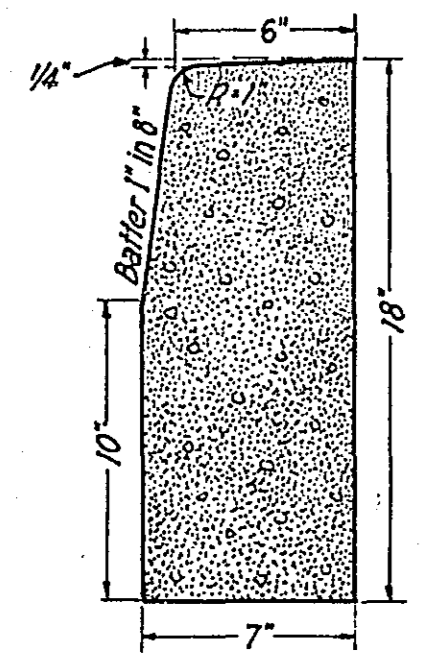


**UNIVERSITY AVE. BETWEEN RAILWAY BRIDGES**

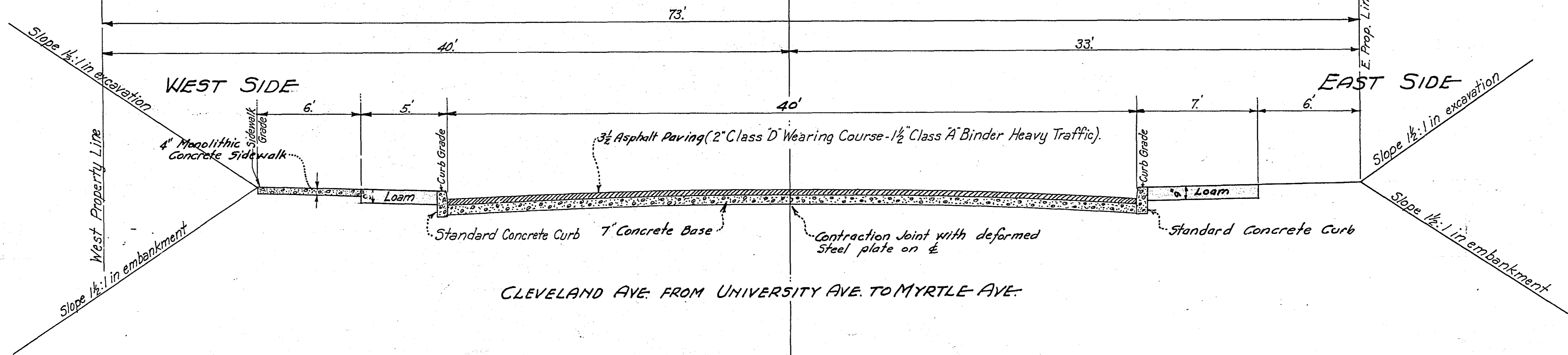
FOR LIMITS OF SECTION SEE UNIVERSITY AVE. PAVING PLANS



**TYPICAL SECTION SHOWING SLOPE PROTECTION UNDER RAILWAY BRIDGES**

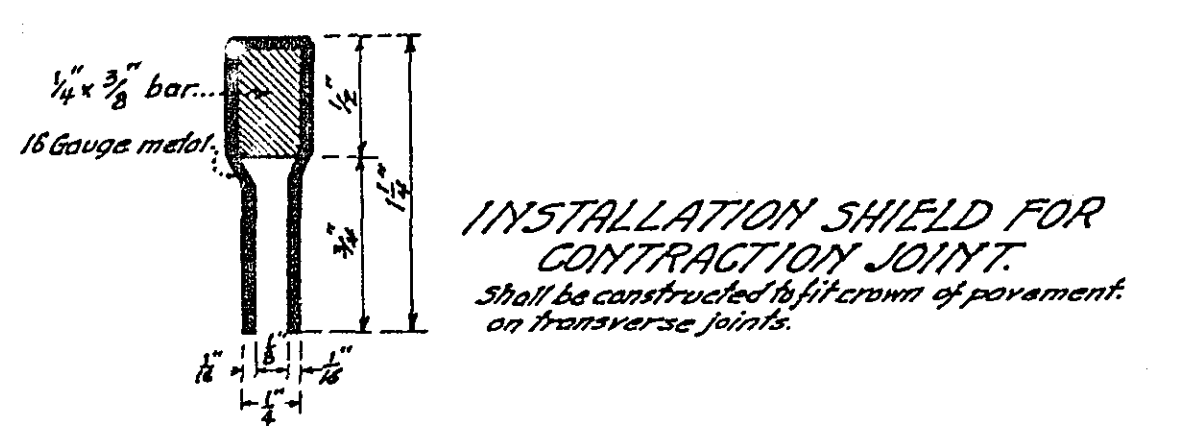
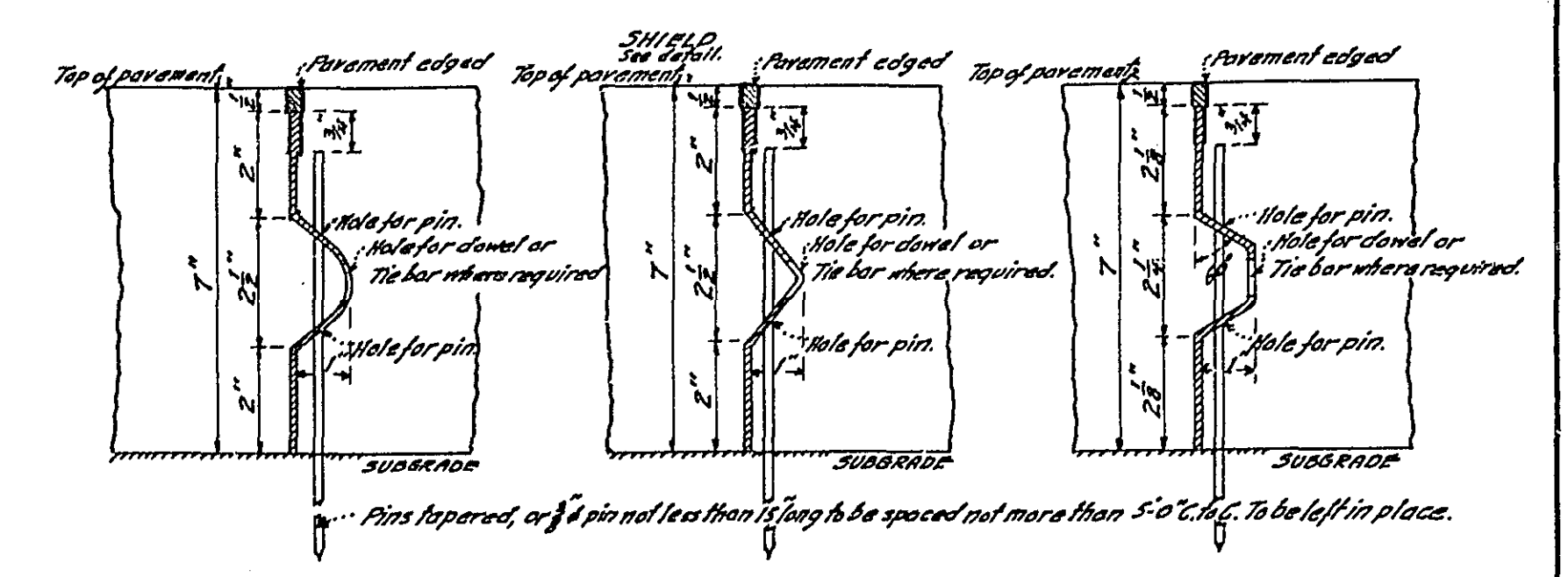
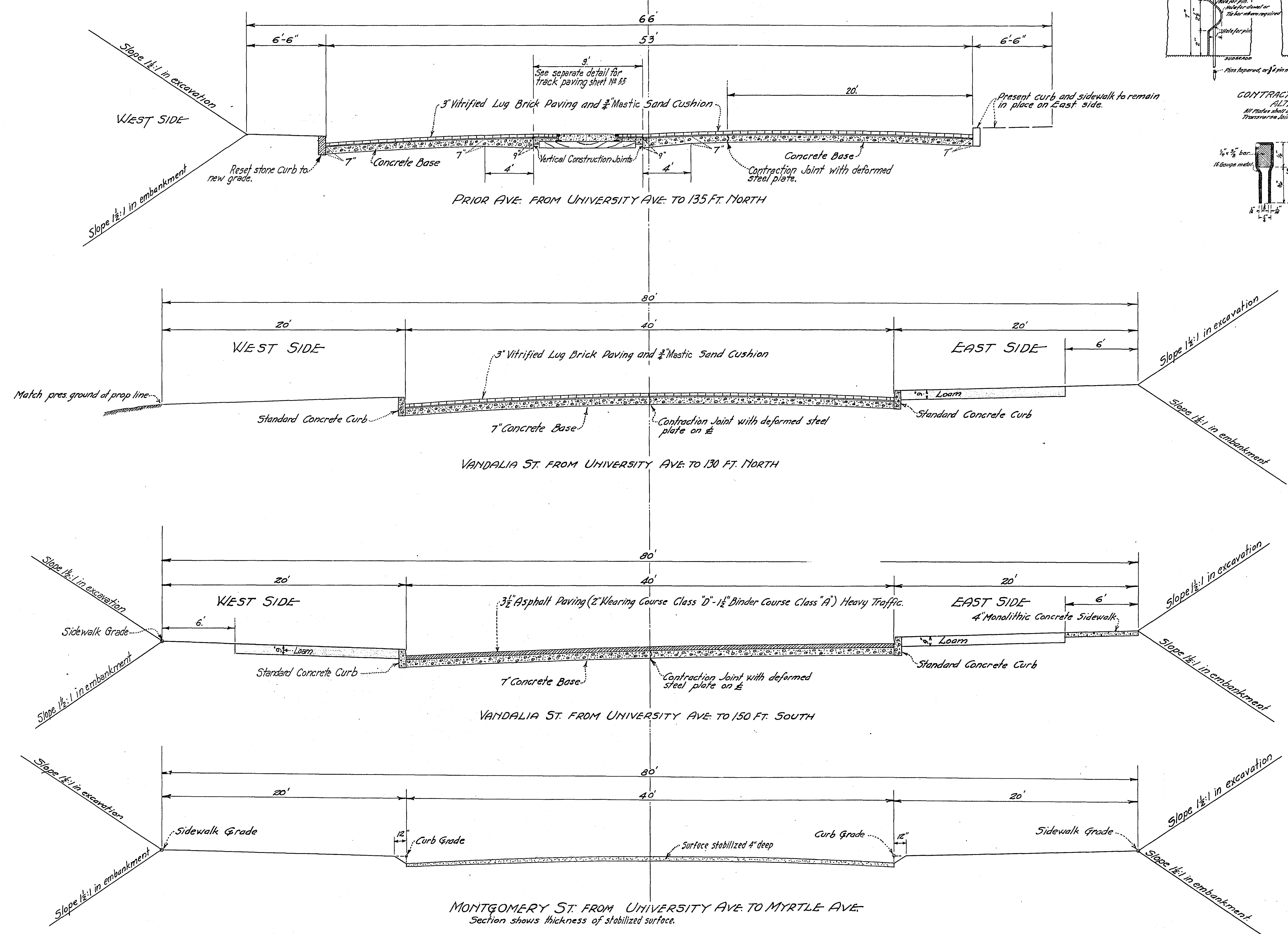


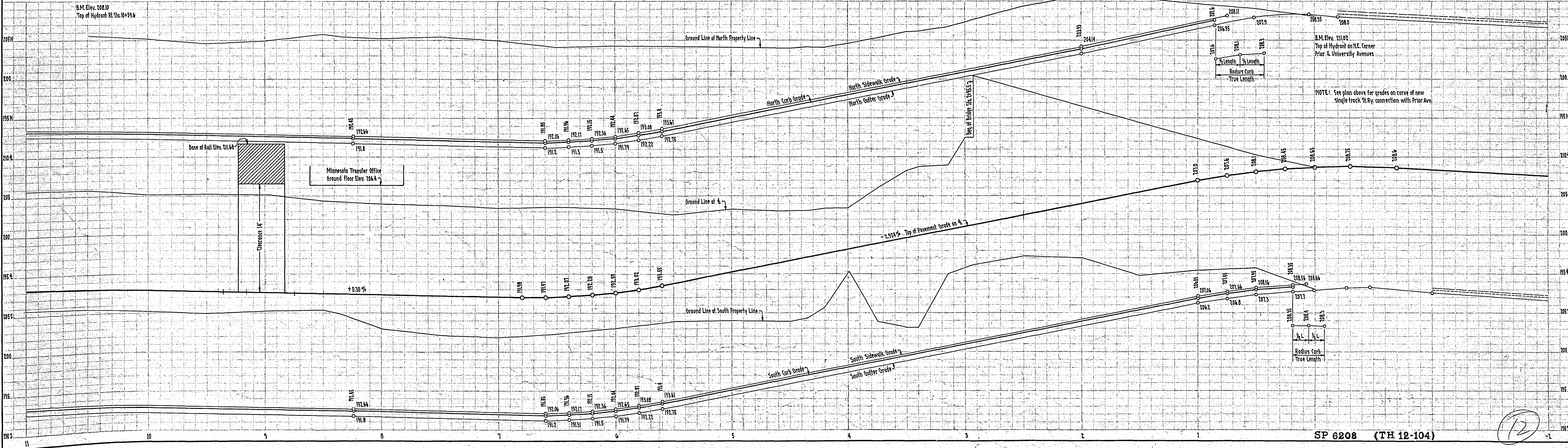
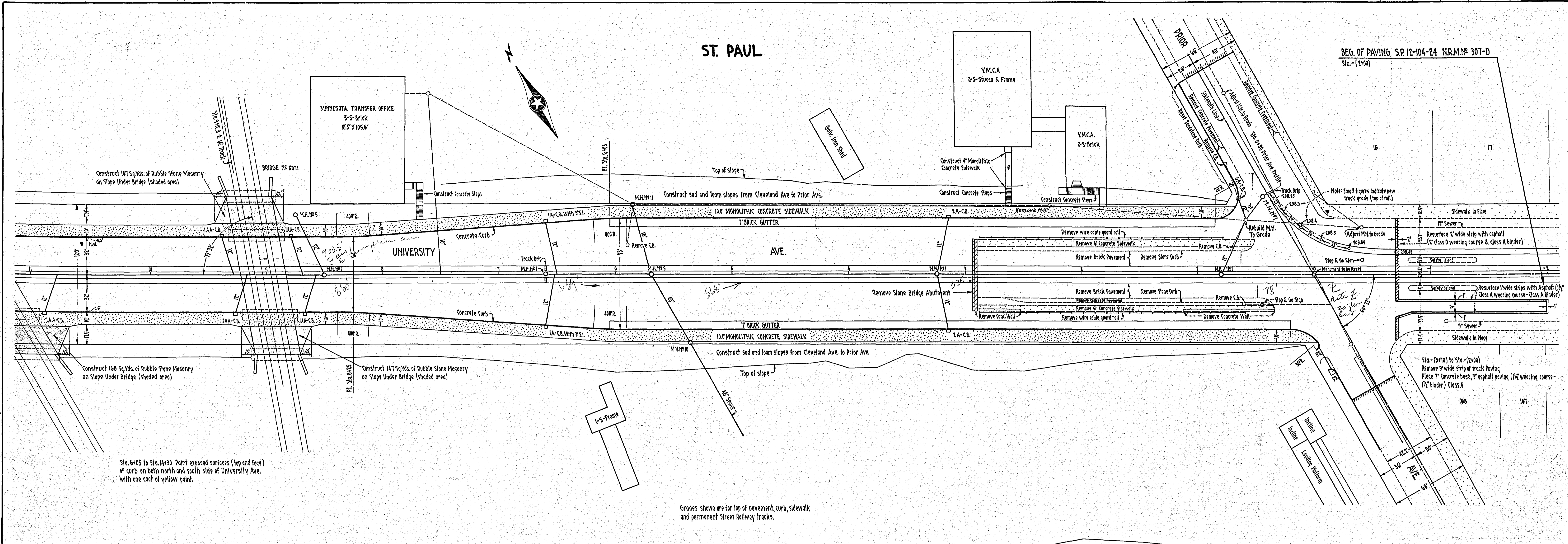
**STANDARD CONCRETE CURB SECTION**



**CLEVELAND AVE. FROM UNIVERSITY AVE. TO MYRTLE AVE.**

TYPICAL GRADING AND PAVING SECTIONS  
Scale 1/4" = 1'-0"







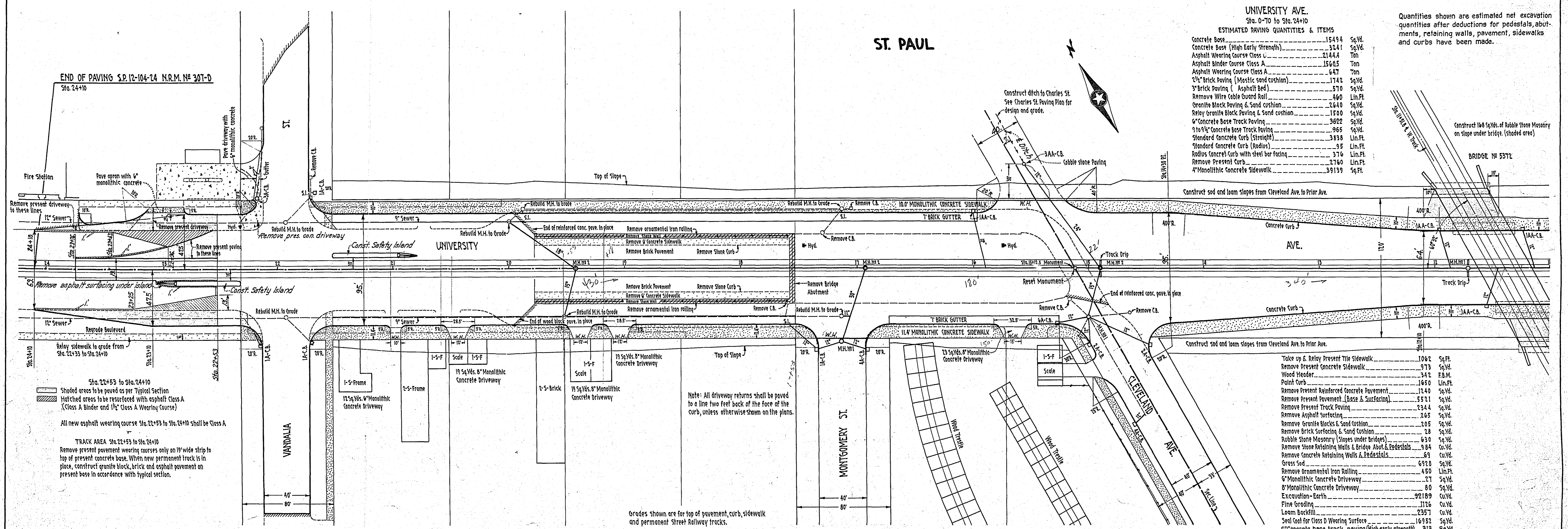
# ST. PAUL

## UNIVERSITY AVE. Sta. 0+70 to Sta. 24+10

### ESTIMATED PAVING QUANTITIES & ITEMS

Concrete Base	1549.4	Sq.Yd.
Concrete Base (High Early Strength)	324.1	Sq.Yd.
Asphalt Wearing Course Class C	2144.4	Ton
Asphalt Binder Course Class A	1560.5	Ton
Asphalt Wearing Course Class A	64.7	Ton
2" Brick Paving (Mastic sand cushion)	1742	Sq.Yd.
3" Brick Paving (Asphalt Bed)	570	Sq.Yd.
Remove Wire Cable Guard Rail	460	Lin.Ft.
Granite Block Paving & Sand Cushion	2640	Sq.Yd.
Relay Granite Block Paving & Sand Cushion	1500	Sq.Yd.
6" Concrete Base Track Paving	3622	Sq.Yd.
9" to 9 1/2" Concrete Base Track Paving	965	Sq.Yd.
Standard Concrete Curb (Straight)	3838	Lin.Ft.
Standard Concrete Curb (Radius)	95	Lin.Ft.
Radius Concrete Curb with steel bar facing	376	Lin.Ft.
Remove Present Curb	2760	Lin.Ft.
4" Monolithic Concrete Sidewalk	39139	Sq.Ft.

Quantities shown are estimated net excavation quantities after deductions for pedestals, abutments, retaining walls, pavement, sidewalks and curbs have been made.



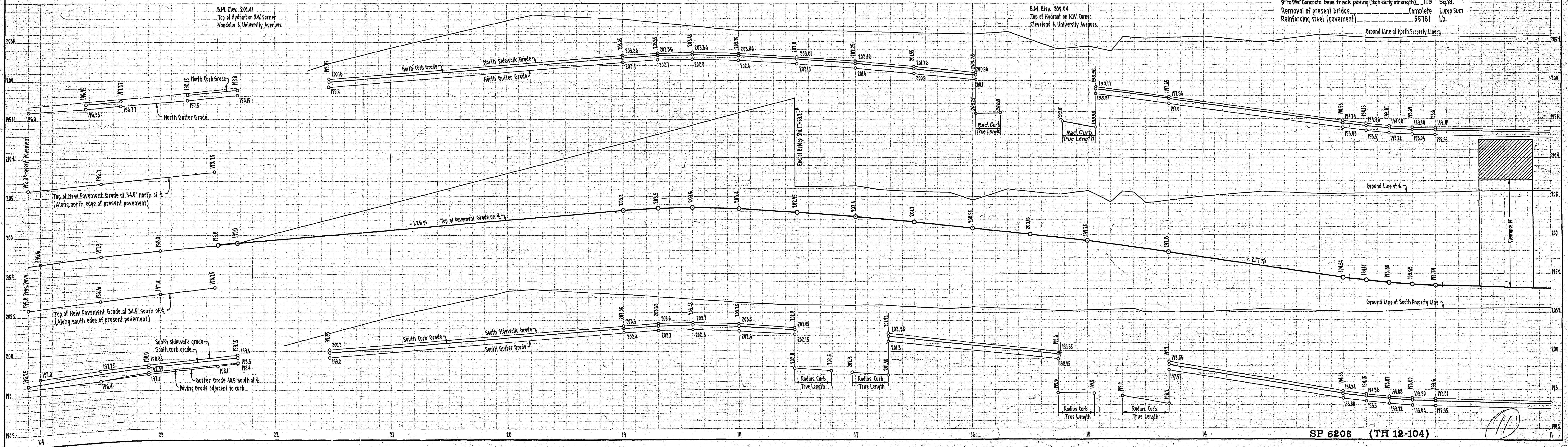
END OF PAVING S.P. 12-104-24 N.R.M. No 307-D  
Sta. 24+10

Sta. 22+53 to Sta. 24+10  
Shaded areas to be paved as per Typical Section  
Hatched areas to be resurfaced with asphalt Class A (Class A Binder and 1 1/2" Class A Wearing Course)  
All new asphalt wearing course Sta. 22+53 to Sta. 24+10 shall be Class A

TRACK AREA Sta. 22+53 to Sta. 24+10  
Remove present pavement wearing courses only on 19' wide strip to top of present concrete base. When new permanent track is in place, construct granite block, brick and asphalt pavement on present base in accordance with typical section.

Note: All driveway returns shall be paved to a line two feet back of the face of the curb, unless otherwise shown on the plans.

Grades shown are for top of pavement, curb, sidewalk and permanent Street Railway tracks.



SP 6208 (TH 12-104)

Sta. 37+81 to Sta. 37+86 Lt.  
P-8 Lin. Ft. Standard Concrete Curb (Radius)

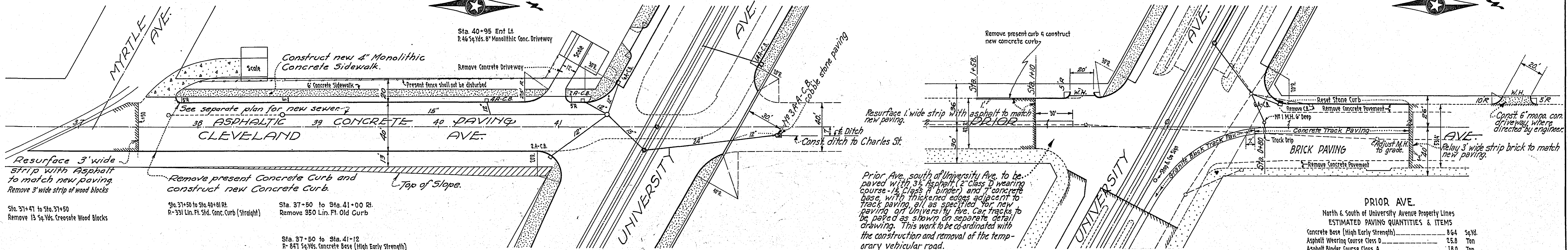
Sta. 37+86 to Sta. 40+22 Lt.  
P-296 Lin. Ft. Standard Concrete Curb (Straight)

Sta. 40+95 Ent. Lt.  
P-23 Lin. Ft. Standard Concrete Curb (Radius)

Sta. 37+78 to Sta. 41+05 Lt.  
Remove 339 Lin. Ft. Old Curb

Sta. 37+78 to Sta. 41+29 Lt.  
Remove 119 Sq. Yds. Old Conc. S.W.  
P-1968 Sq. Ft. New Conc. S.W.

Note: All driveway returns shall be paved to a line 2' back of the face of the curb, unless otherwise shown on the plans.



Sta. 37+47 to Sta. 37+50  
Remove 13 Sq. Yds. Greosote Wood Blocks

Sta. 37+50 to Sta. 40+81 Rt.  
P-331 Lin. Ft. Std. Conc. Curb (Straight)

Sta. 37+50 to Sta. 41+00 Rt.  
Remove 350 Lin. Ft. Old Curb

Sta. 37+50 to Sta. 41+12  
P-847 Sq. Yds. Concrete Base (High Early Strength)  
P-798 Sq. Yd. New Conc. Base  
P-146.5 Tons Class "A" Asphalt Binder Course  
P-204.7 Tons Class "D" Asphalt Wearing Course  
Remove 1685 Sq. Yds. Present Pavement

Note: Sta. 36+58 to Sta. 37+50  
Provide opening in curb for temporary vehicular road.  
Remove 92 Lin. Ft. Present Curb  
Place 92 Lin. Ft. Standard Concrete Curb (straight)  
Place 230 F.B.M. Wood Header  
Take up and relay 2 Sq. Yds. Greosote Wood blocks.

Note:  
Provide opening in curb for temporary road at Wabash Ave. See Sheet No. 58  
Remove 20 Lin. Ft. Present Curb.  
Place 20 Lin. Ft. Standard Concrete Curb (straight)  
Place 50 F.B.M. Wood Header  
Take up and relay 10 Sq. Yds. Greosote Wood blocks.

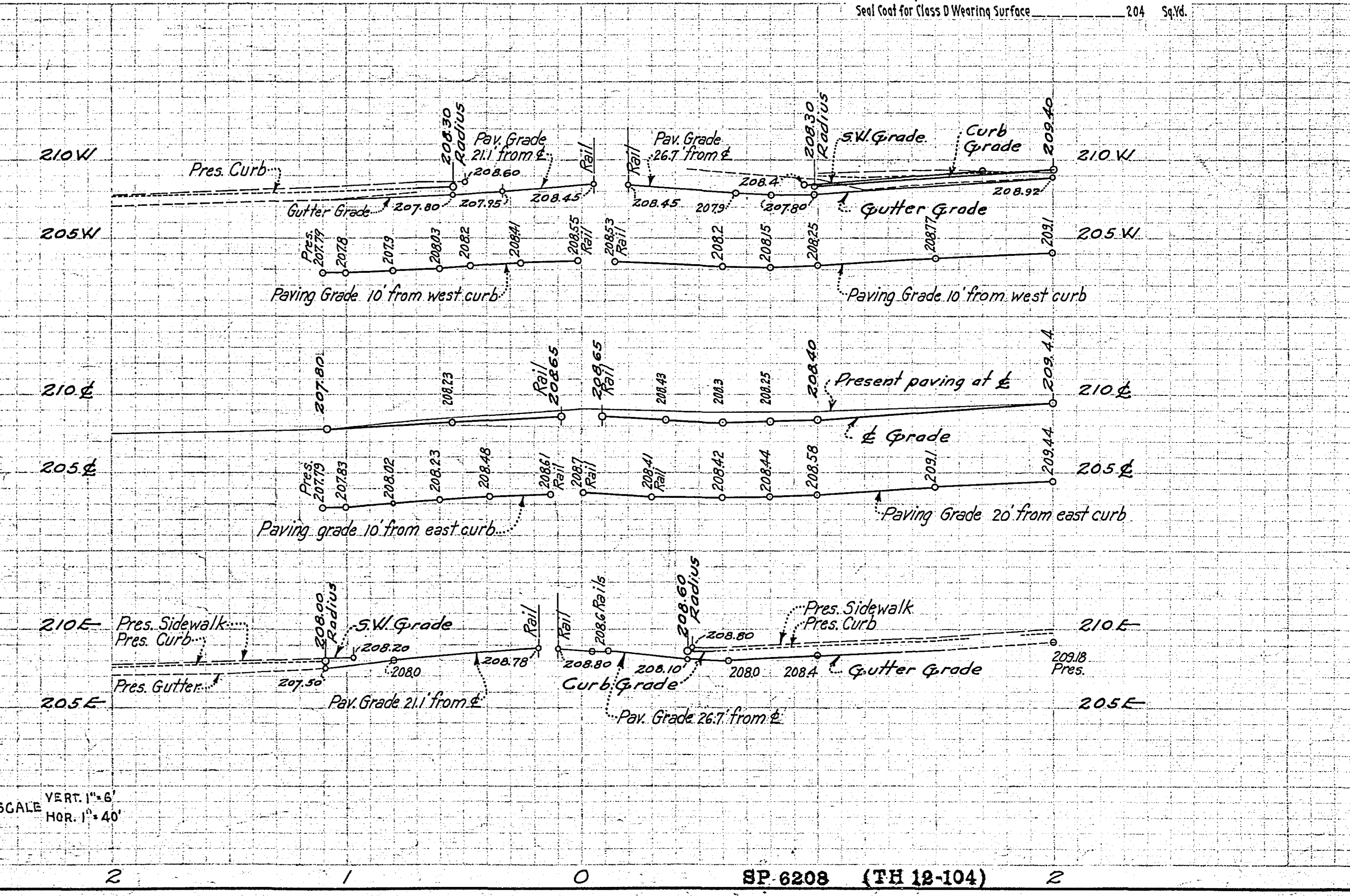
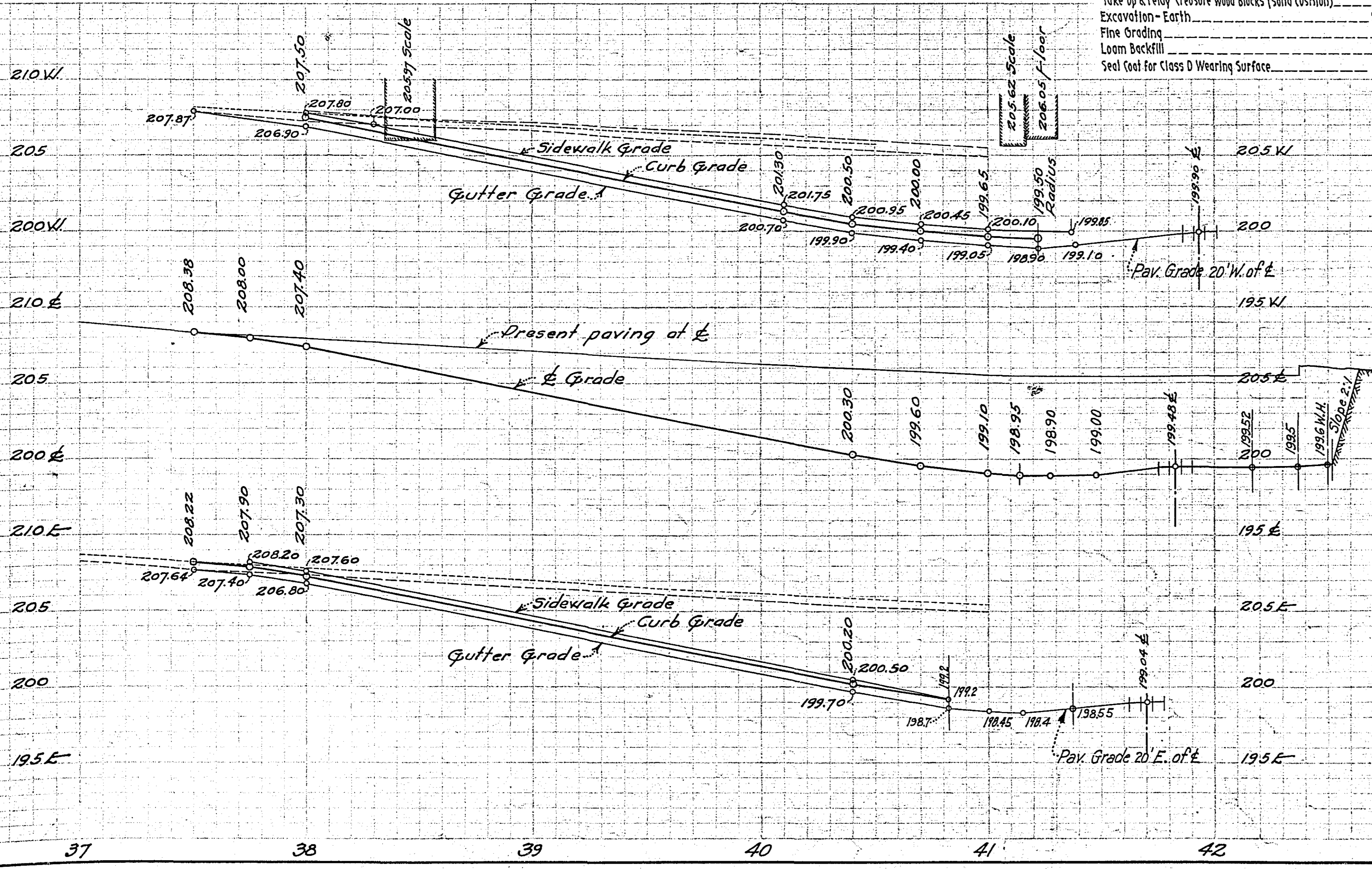
**CLEVELAND AVE.**  
South of University Avenue Property Line  
ESTIMATED PAVING QUANTITIES & ITEMS

Concrete Base	79.8	Sq. Yd.
Concrete Base (High Early Strength)	84.7	Sq. Yd.
Asphalt Wearing Course Class D	209.7	Ton
Asphalt Binder Course Class A	146.5	Ton
8" Monolithic Concrete Driveway	4.6	Sq. Yd.
Remove Present Pavement (Base & Surfacing)	1685	Sq. Yd.
Standard Concrete Curb (Straight)	739	Lin. Ft.
Standard Concrete Curb (Radius)	31	Lin. Ft.
Remove Present Curb	801	Lin. Ft.
4" Monolithic Concrete Sidewalk	1968	Sq. Ft.
Remove Present Concrete Sidewalk	219	Sq. Yd.
Remove Greosote Wood Blocks	13	Sq. Yd.
Wood Header	280	F.B.M.
Take up & relay Greosote Wood blocks (sand cushion)	12	Sq. Yd.
Excavation - Earth	2963	Cu. Yd.
Fine Grading	77	Cu. Yd.
Loom Backfill	99	Cu. Yd.
Seal Coat for Class D Wearing Surface	1658	Sq. Yd.

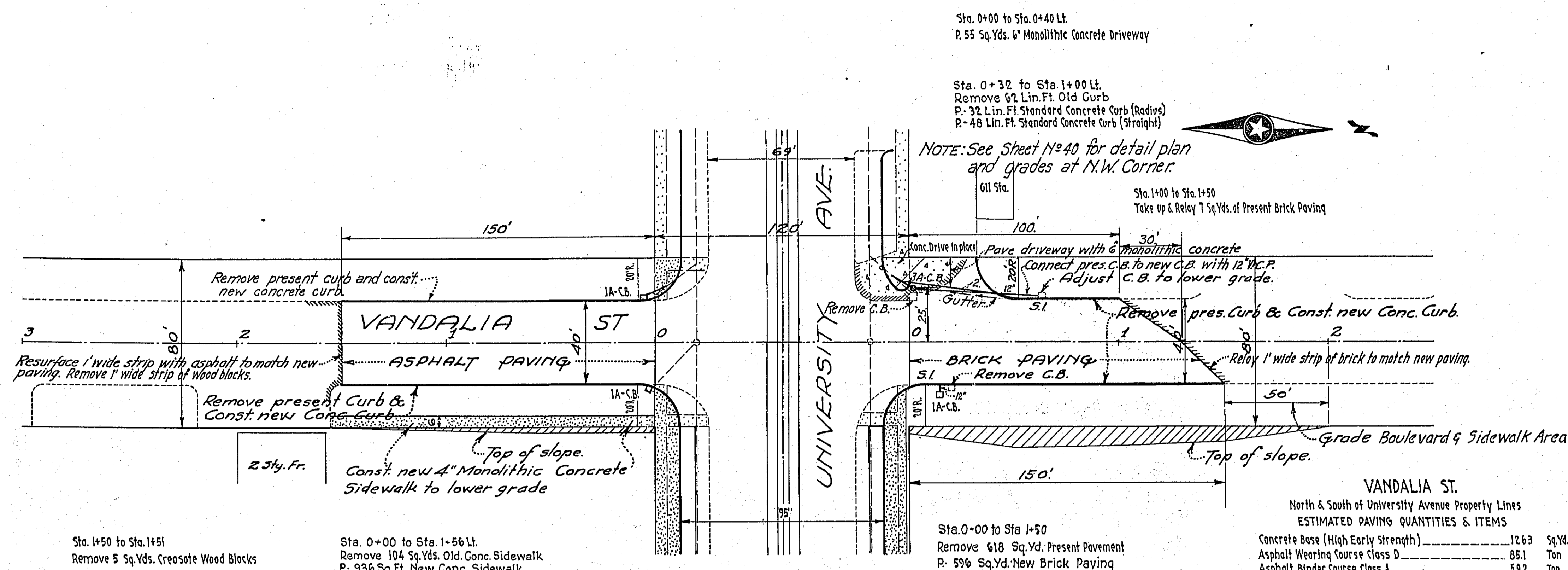
Quantities shown are estimated net excavation quantities after deductions for pedestals, abutments, retaining walls, pavement, sidewalks and curbs have been made.

**PRIOR AVE.**  
North & South of University Avenue Property Lines  
ESTIMATED PAVING QUANTITIES & ITEMS

Concrete Base (High Early Strength)	8.64	Sq. Yd.
Asphalt Wearing Course Class D	25.8	Ton
Asphalt Binder Course Class A	18.0	Ton
3" Brick Paving (mastic sand cushion)	109	Sq. Yd.
3" Brick Paving (Asphalt bed)	30	Sq. Yd.
6" Concrete Base Track Paving	84	Sq. Yd.
9" to 9 1/2" Concrete Base Track Paving	9	Sq. Yd.
1/2" One Course Concrete Track Paving	1.1	Sq. Yd.
Granite Block Paving & Sand Cushion	24	Sq. Yd.
6" Monolithic Concrete Driveway	19	Sq. Yd.
Take up & Relay Present Brick Paving	1.1	Sq. Yd.
Remove Present Track Paving	85	Sq. Yd.
Remove Present Pavement (Base & Surfacing)	390	Sq. Yd.
Remove Asphalt Surfacing	10	Sq. Yd.
Standard Concrete Curb (Straight)	77	Lin. Ft.
Standard Concrete Curb (Radius)	35	Lin. Ft.
Take up & Reset Stone Curb	59	Lin. Ft.
Remove Present Curb	135	Lin. Ft.
Wood Header	221	F.B.M.
Excavation - Earth	125	Cu. Yd.
Fine Grading	41	Cu. Yd.
Seal Coat for Class D Wearing Surface	204	Sq. Yd.



SCALE VERT. 1"=6'  
HOR. 1"=40'



Sta. 1+50 to Sta. 1+51  
Remove 5 Sq.Yds. Creosote Wood Blocks

Sta. 0+00 to Sta. 1+50 Lt.  
Remove 104 Sq.Yds. Old Conc. Sidewalk  
P. 936 Sq.Ft. New Conc. Sidewalk.

Sta. 0+00 to Sta. 1+50 L.I. & R.I.  
Remove 300 Lin. Ft. Old Curb  
P. 285 Lin. Ft. Standard Concrete Curb (Straight)

Sta. 0+00 to Sta. 1+50  
Remove 667 Sq.Yd. Present Pavement  
P. 667 Sq.Yd. New Conc. Base (High Early Strength)  
P. 89.7 Tons Class 'A' Asphalt Binder Course  
P. 85.1 Tons Class 'D' Asphalt Wearing Course

Sta. 0+00 to Sta. 0+40 Lt.  
P. 55 Sq.Yds. 6" Monolithic Concrete Driveway

Sta. 0+32 to Sta. 1+00 Lt.  
Remove 62 Lin. Ft. Old Curb  
P. 32 Lin. Ft. Standard Concrete Curb (Radius)  
P. 48 Lin. Ft. Standard Concrete Curb (Straight)

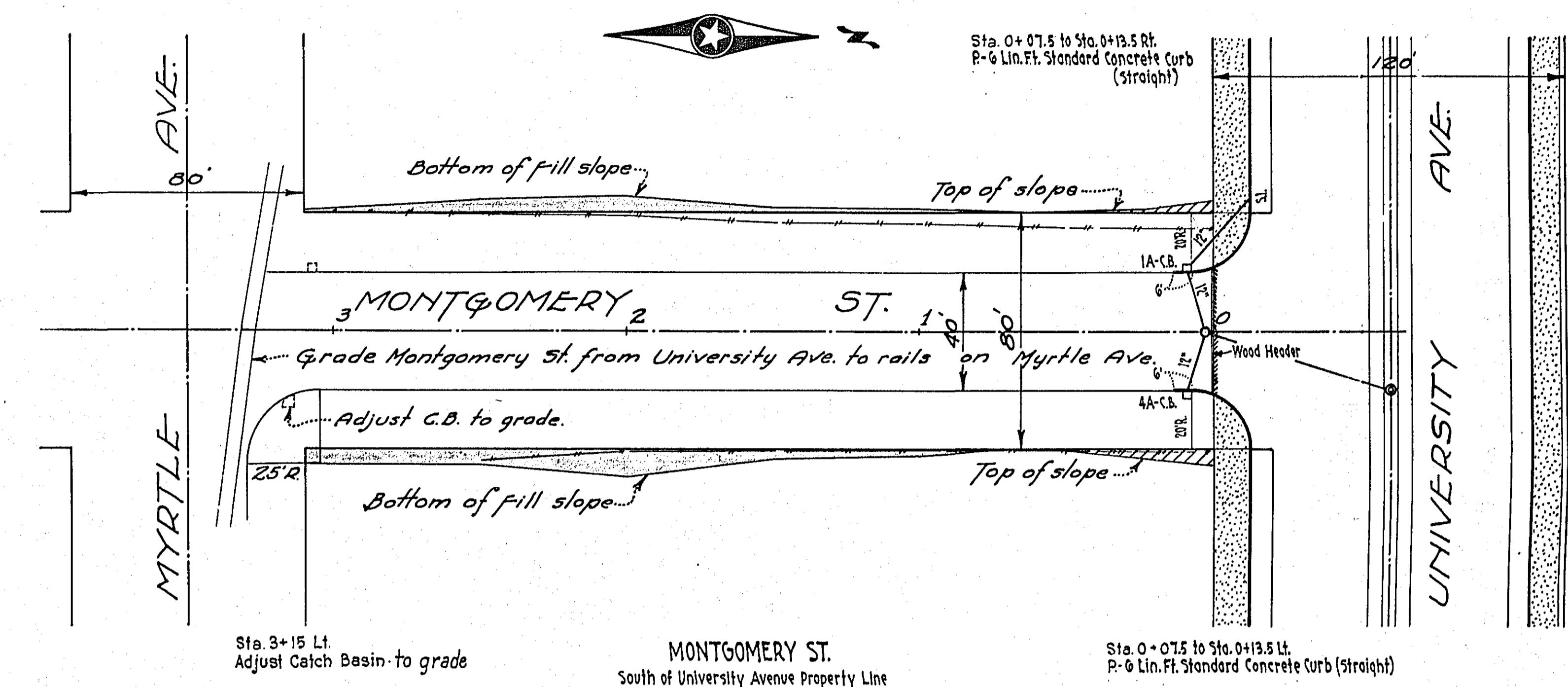
NOTE: See Sheet No. 40 for detail plan and grades at N.W. Corner.

Oil Sta. Sta. 1+00 to Sta. 1+50  
Take up & Relay 7 1/4 Yds. of Present Brick Paving

Remove present curb & const. new conc. curb  
Relay 1' wide strip of brick to match new paving.  
Remove pres. curb & const. new conc. curb.  
Remove C.B.  
Relay 1' wide strip of brick to match new paving.

**VANDALIA ST.**  
North & South of University Avenue Property Lines  
ESTIMATED PAVING QUANTITIES & ITEMS

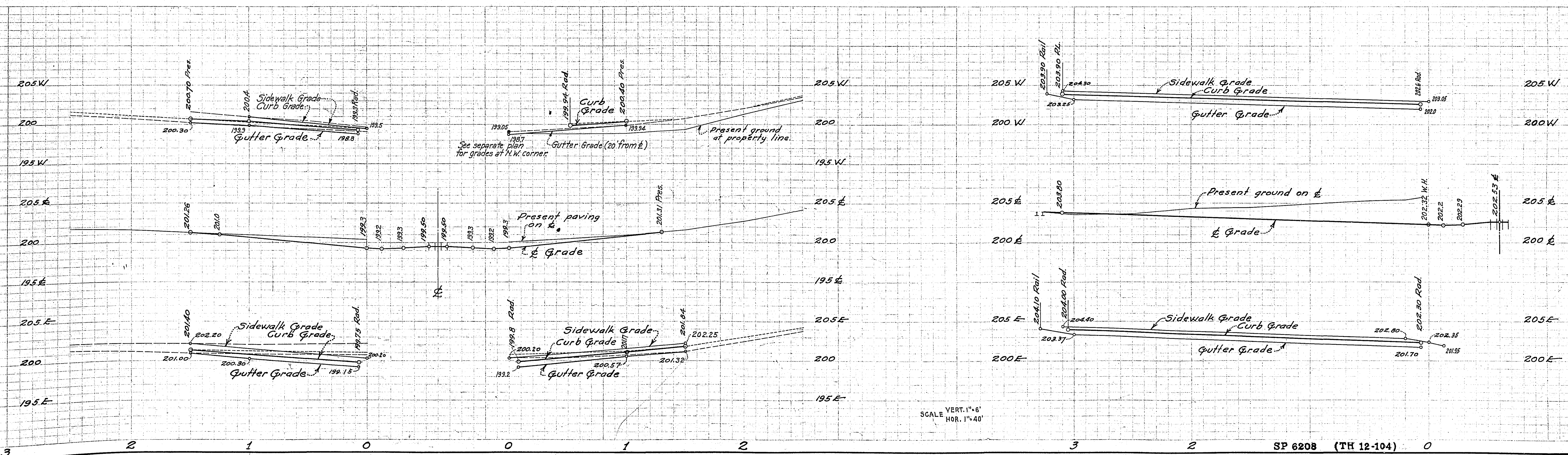
Concrete Base (High Early Strength)	12.63	Sq.Yd.
Asphalt Wearing Course Class D	85.1	Ton
Asphalt Binder Course Class A	53.2	Ton
3" Brick Paving (mastic sand cushion)	59.6	Sq.Yd.
6" Monolithic Concrete Driveway	55	Sq.Yd.
Take up & Relay Present Brick Paving	7	Sq.Yd.
Remove Present Pavement (Base & Surfacing)	12.85	Sq.Yd.
Standard Concrete Curb (Straight)	41.6	Lin. Ft.
Standard Concrete Curb (Radius)	32	Lin. Ft.
Remove Present Curb	51.2	Lin. Ft.
4" Monolithic Concrete Sidewalk	93.6	Sq.Ft.
Remove Present Concrete Sidewalk	10.4	Sq.Yd.
Remove Creosote Wood Blocks	5	Sq.Yd.
Excavation-Earth	32.0	Cu.Yd.
Fine Grading	5.8	Cu.Yd.
Loom Backfill	1.68	Cu.Yd.
Seal Coat for Class D Wearing Surface	6.73	Sq.Yd.



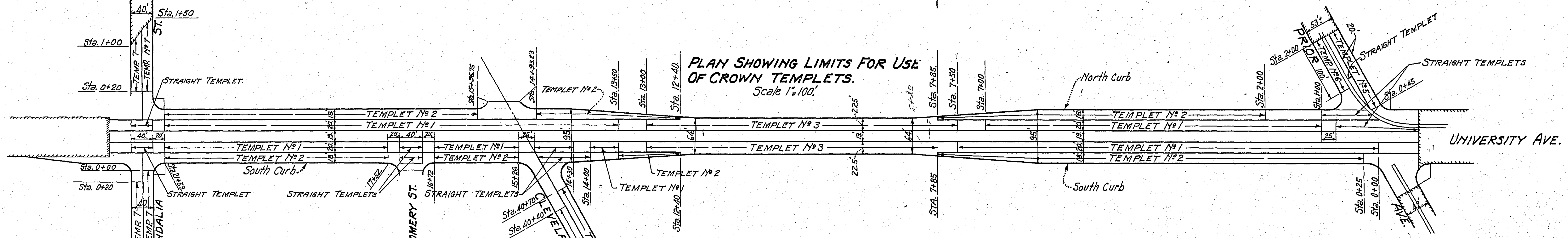
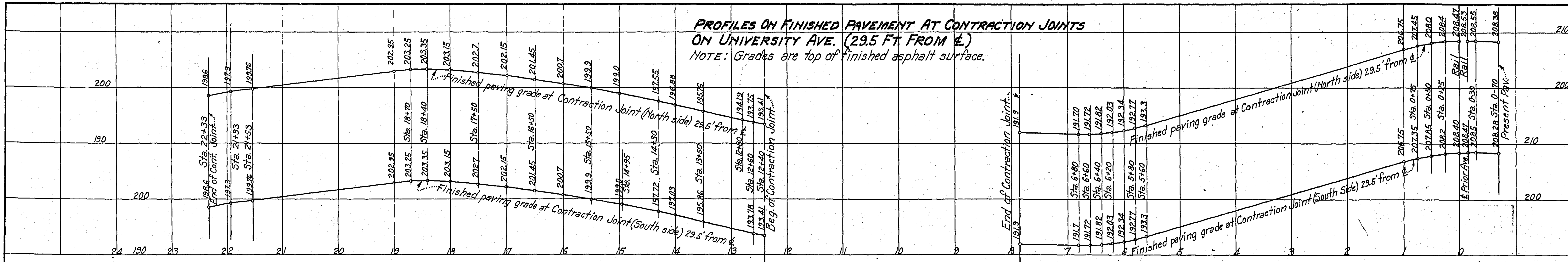
Quantities shown are estimated net excavation quantities after deductions for pedestals, abutments, retaining walls, pavement, sidewalks and curbs have been made.

**MONTGOMERY ST.**  
South of University Avenue Property Line  
ESTIMATED PAVING QUANTITIES & ITEMS

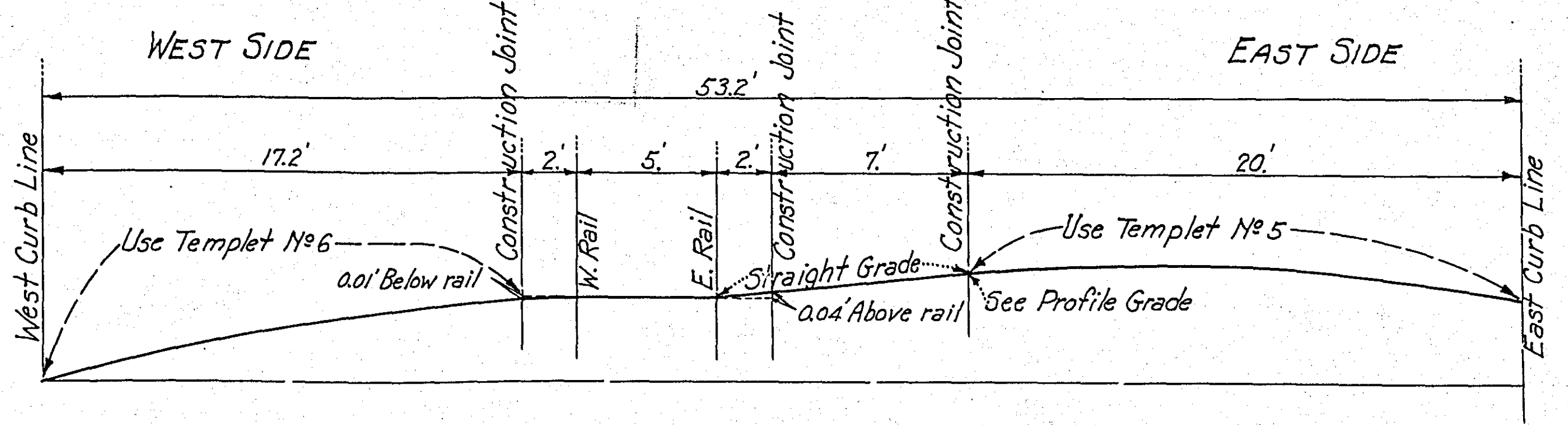
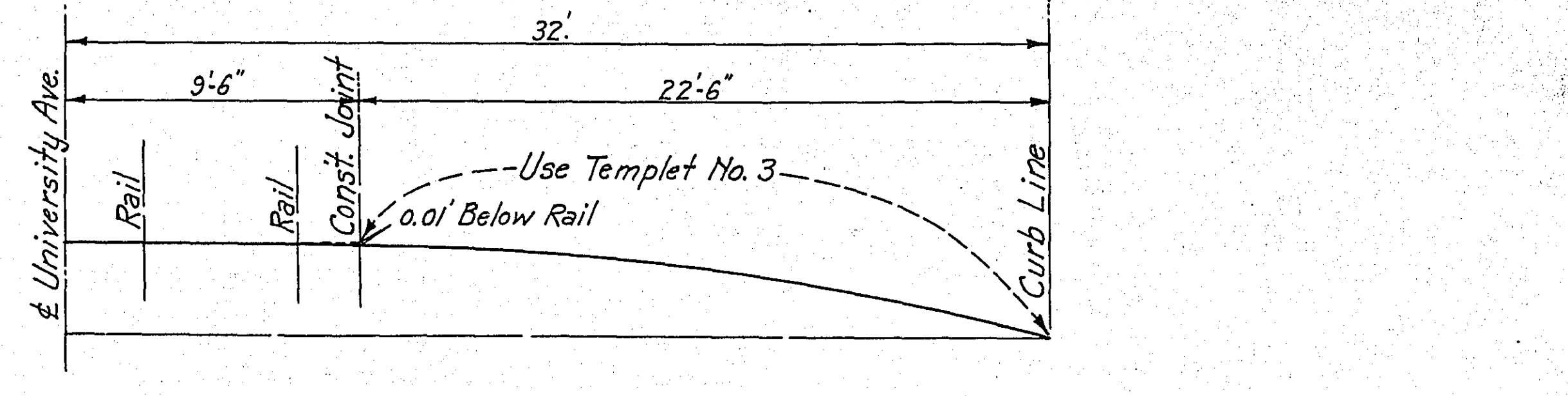
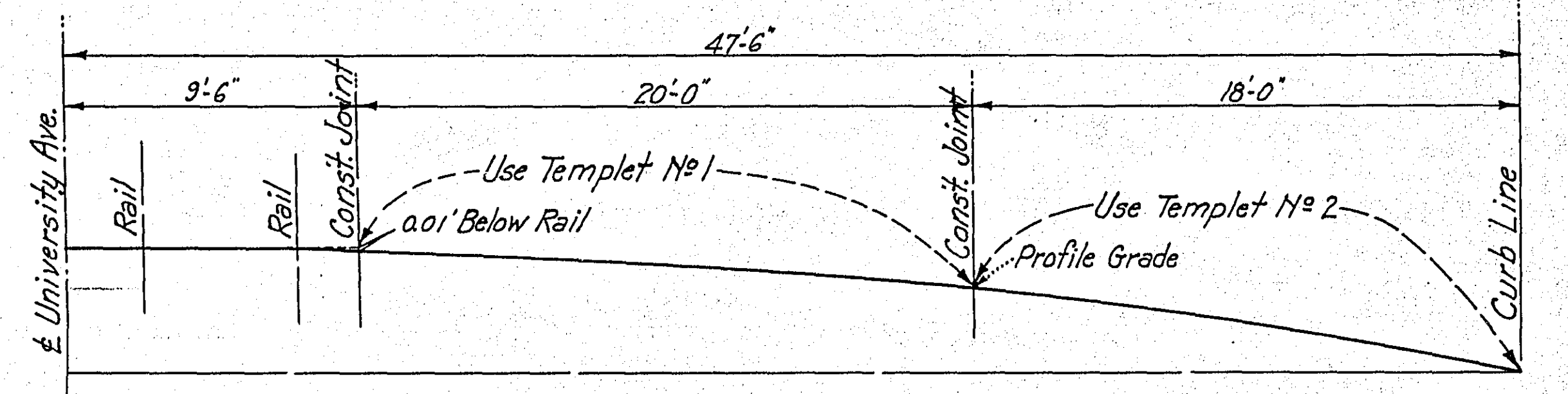
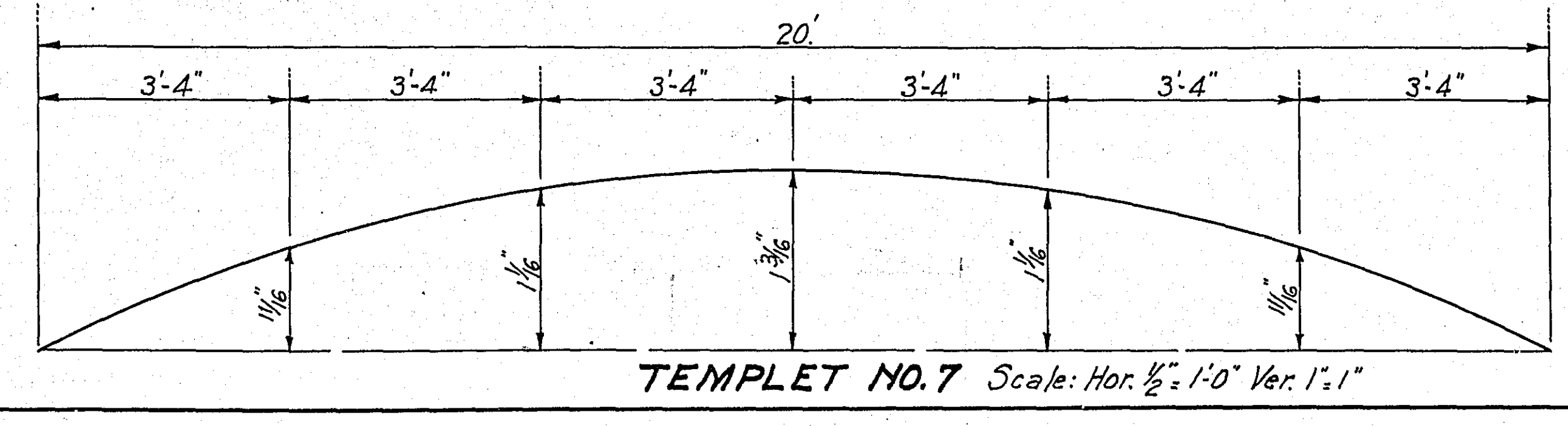
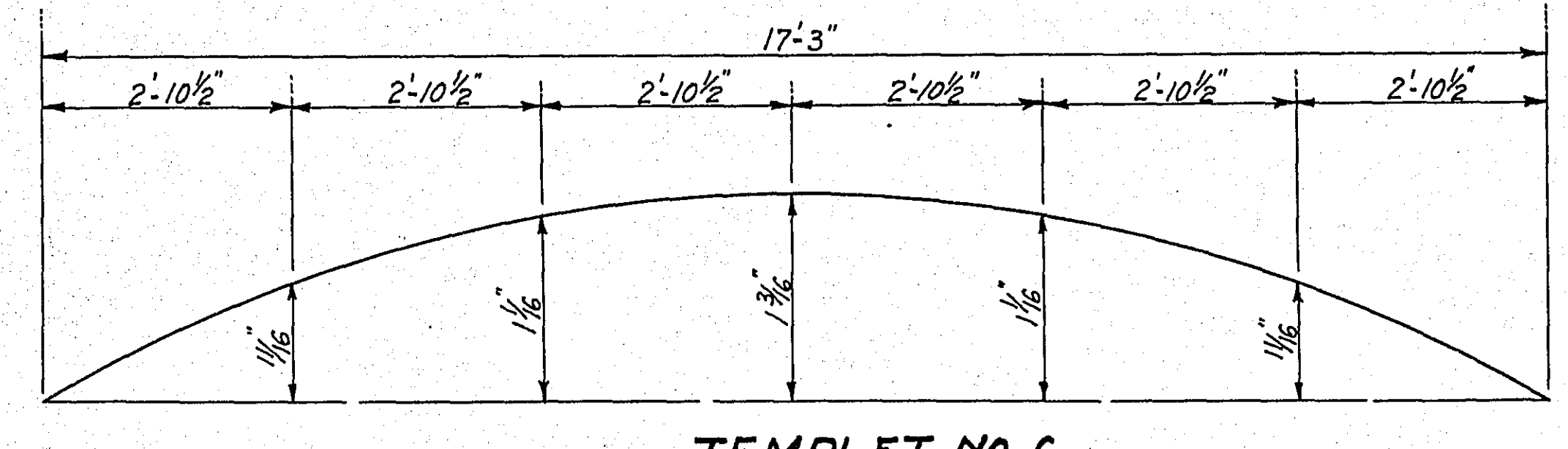
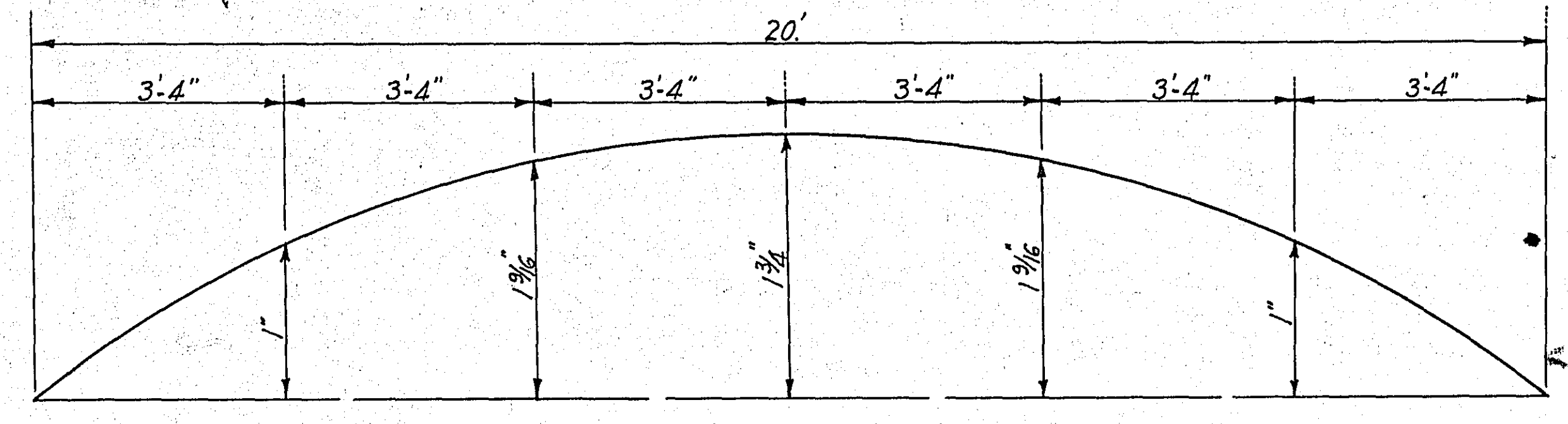
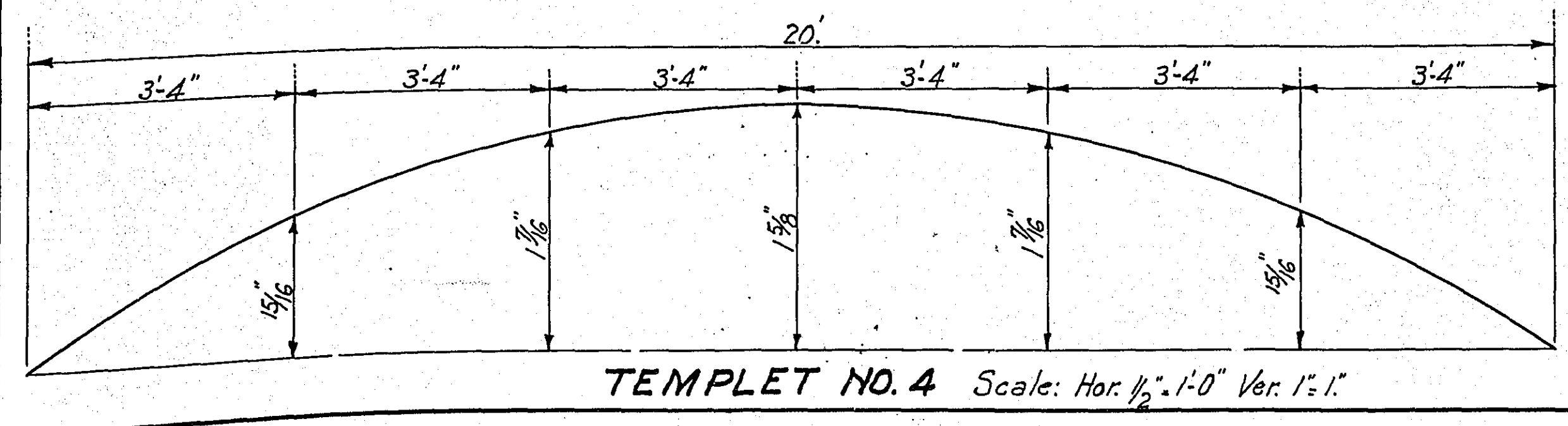
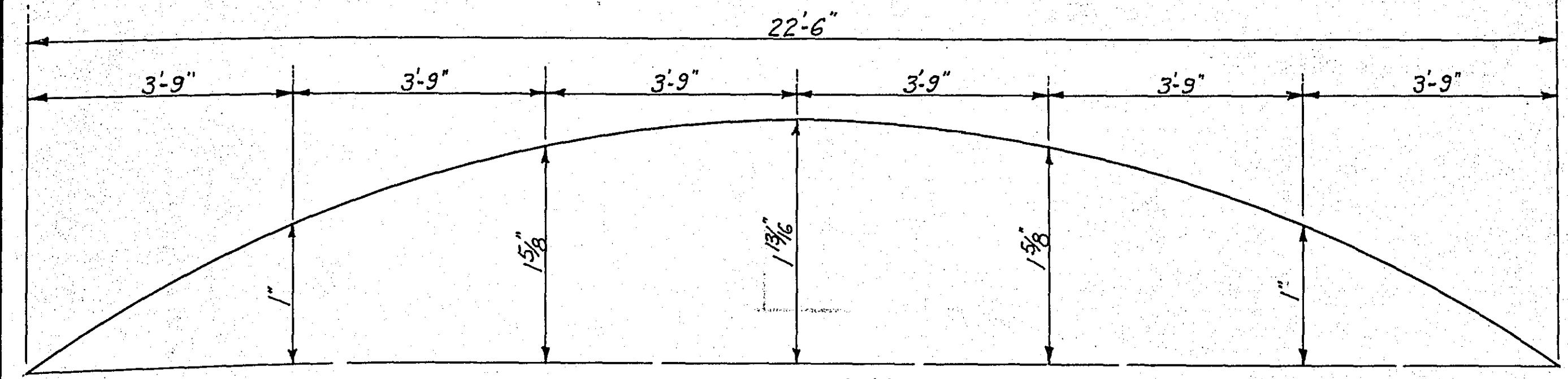
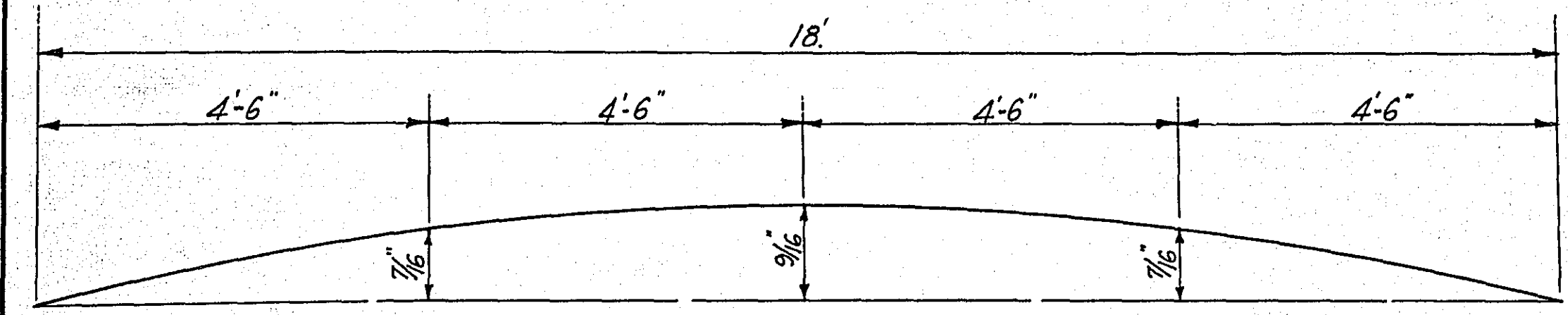
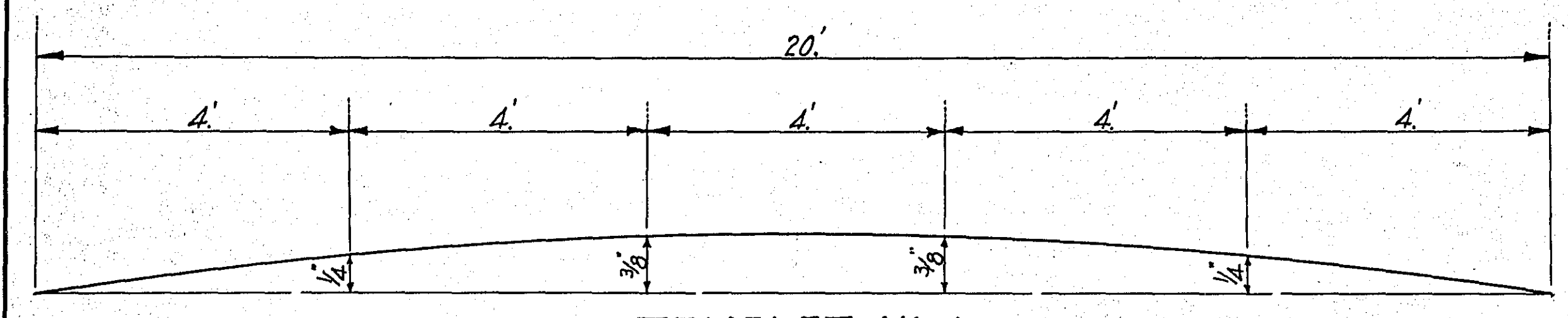
Standard Concrete Curb (Straight)	12	Lin. Ft.
Adjust Catch Basin to Grade	1	Catch Basin
Excavation-Earth	153.4	Cu.Yd.
Soil Binder Inplace	13	Cu.Yd.
Water applied to subgrade	3	M.Gal.







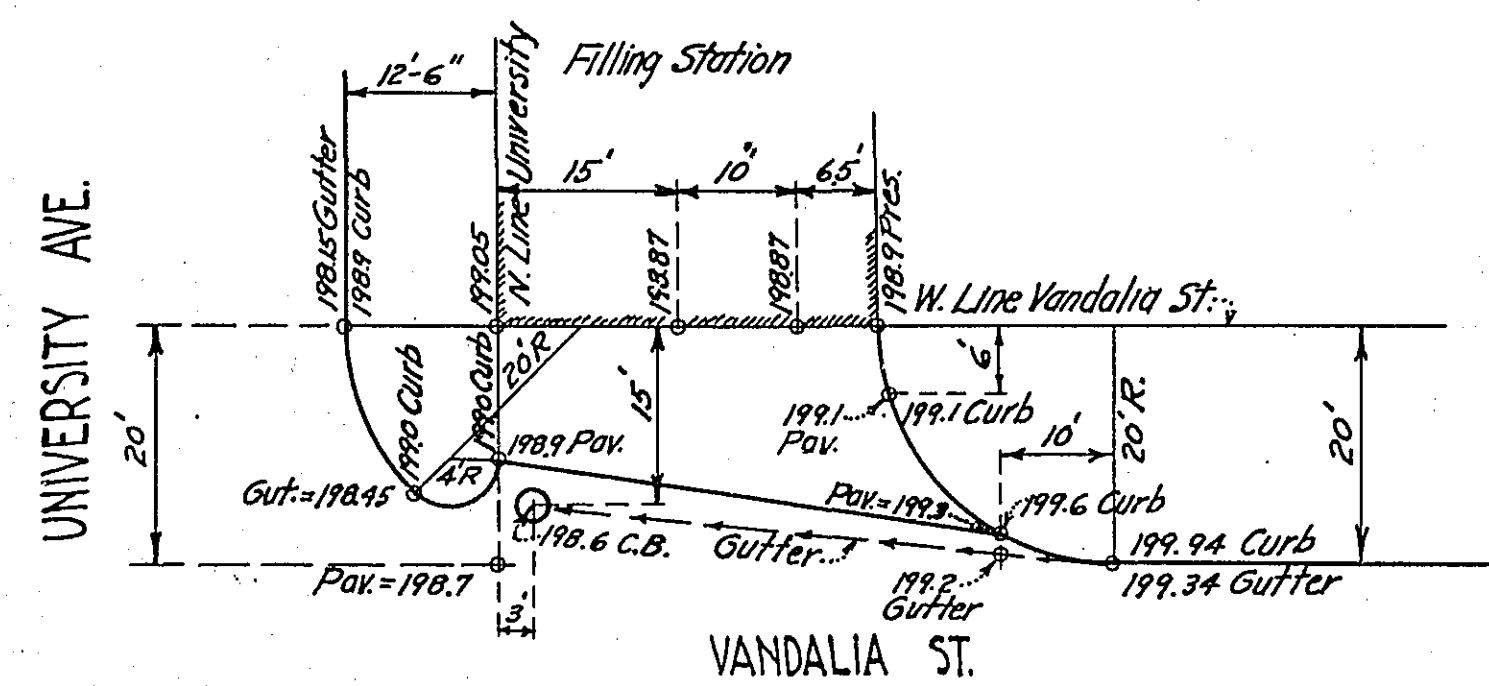
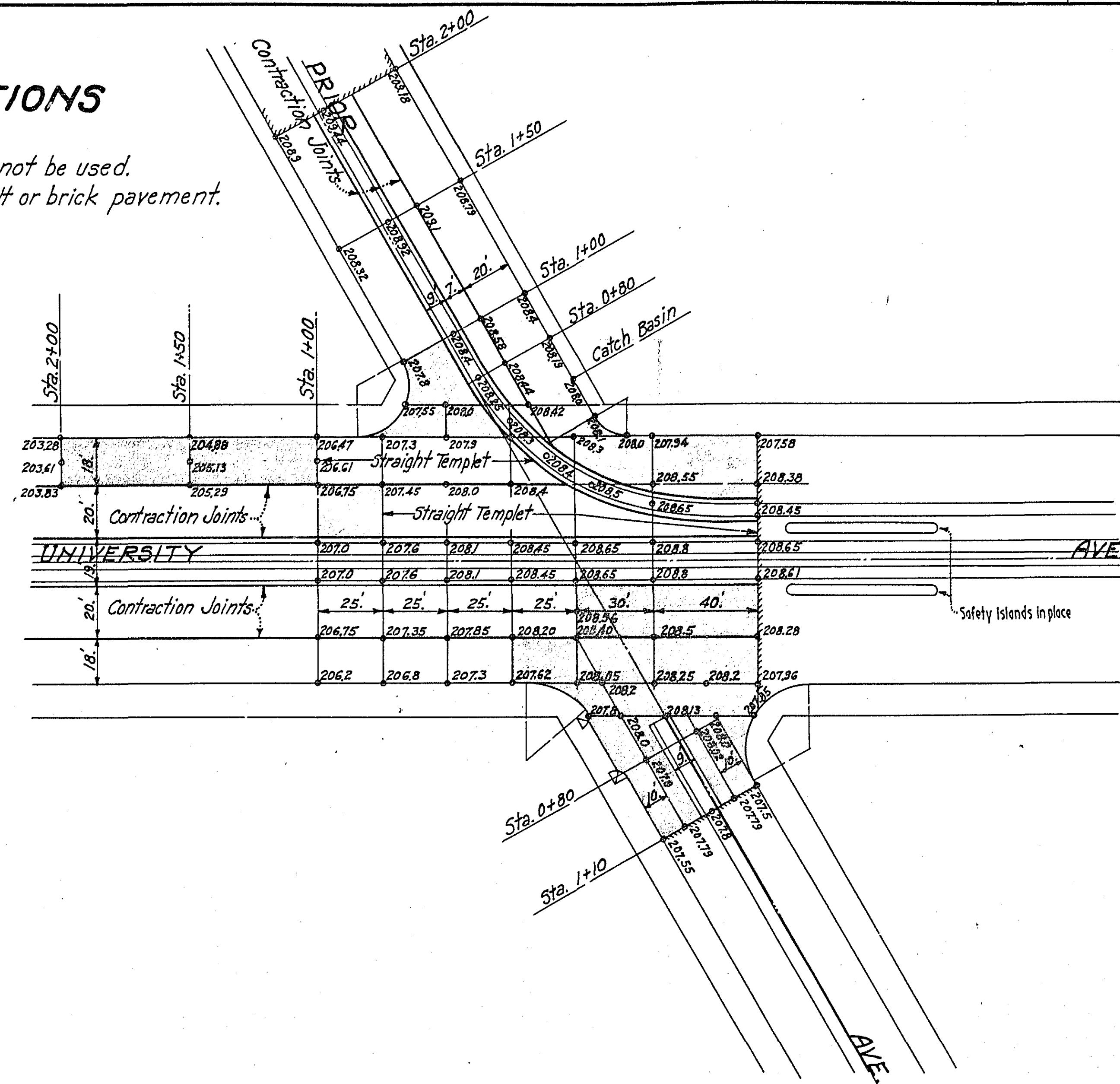
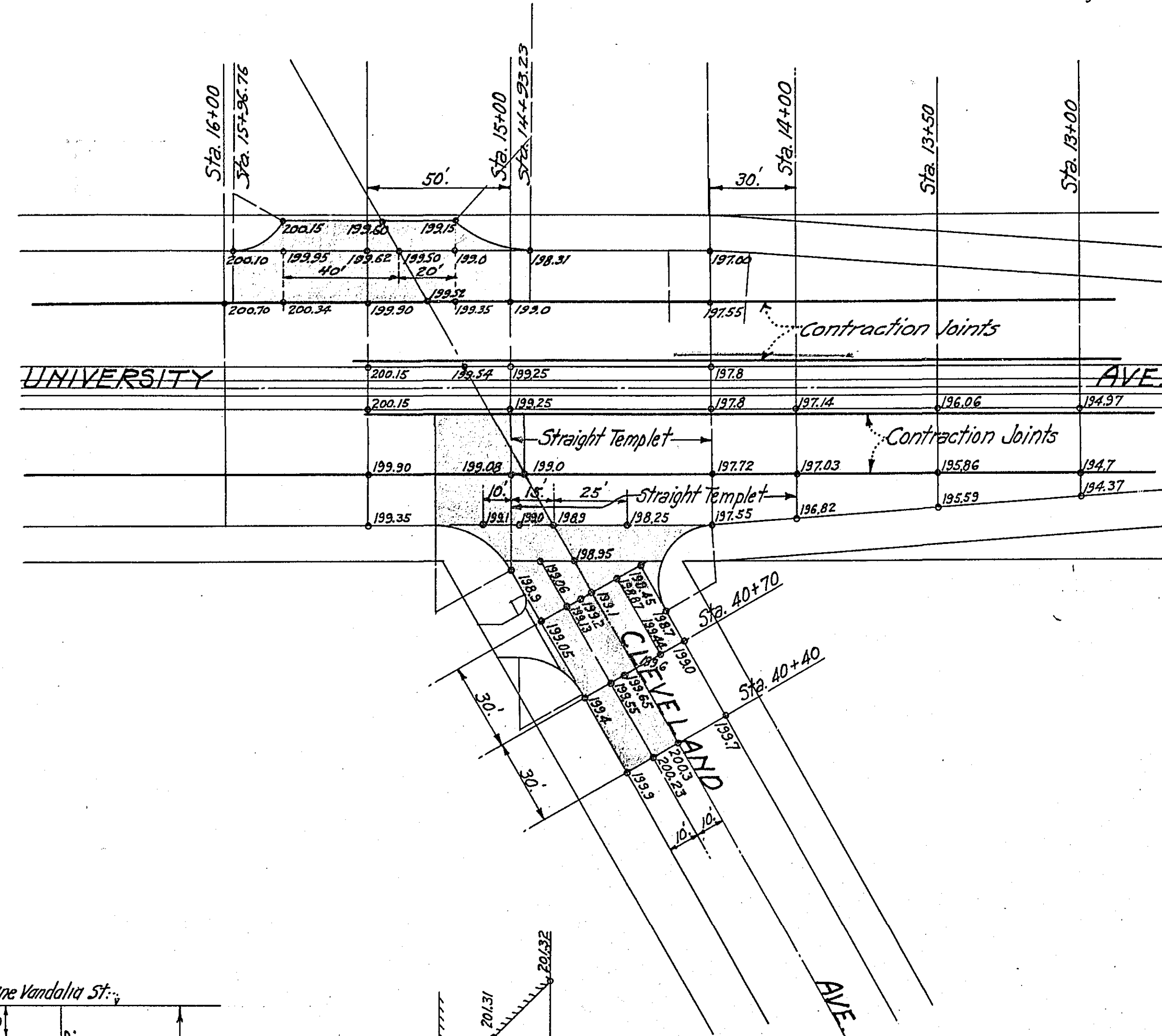
**PLAN SHOWING CROWN TEMPLETS FOR PAVEMENT AND PROFILES OF FINISHED PAVEMENT GRADES AT CONTRACTION JOINTS ON UNIVERSITY AVE.**  
 Scales as shown



# PAVING GRADES AT INTERSECTIONS

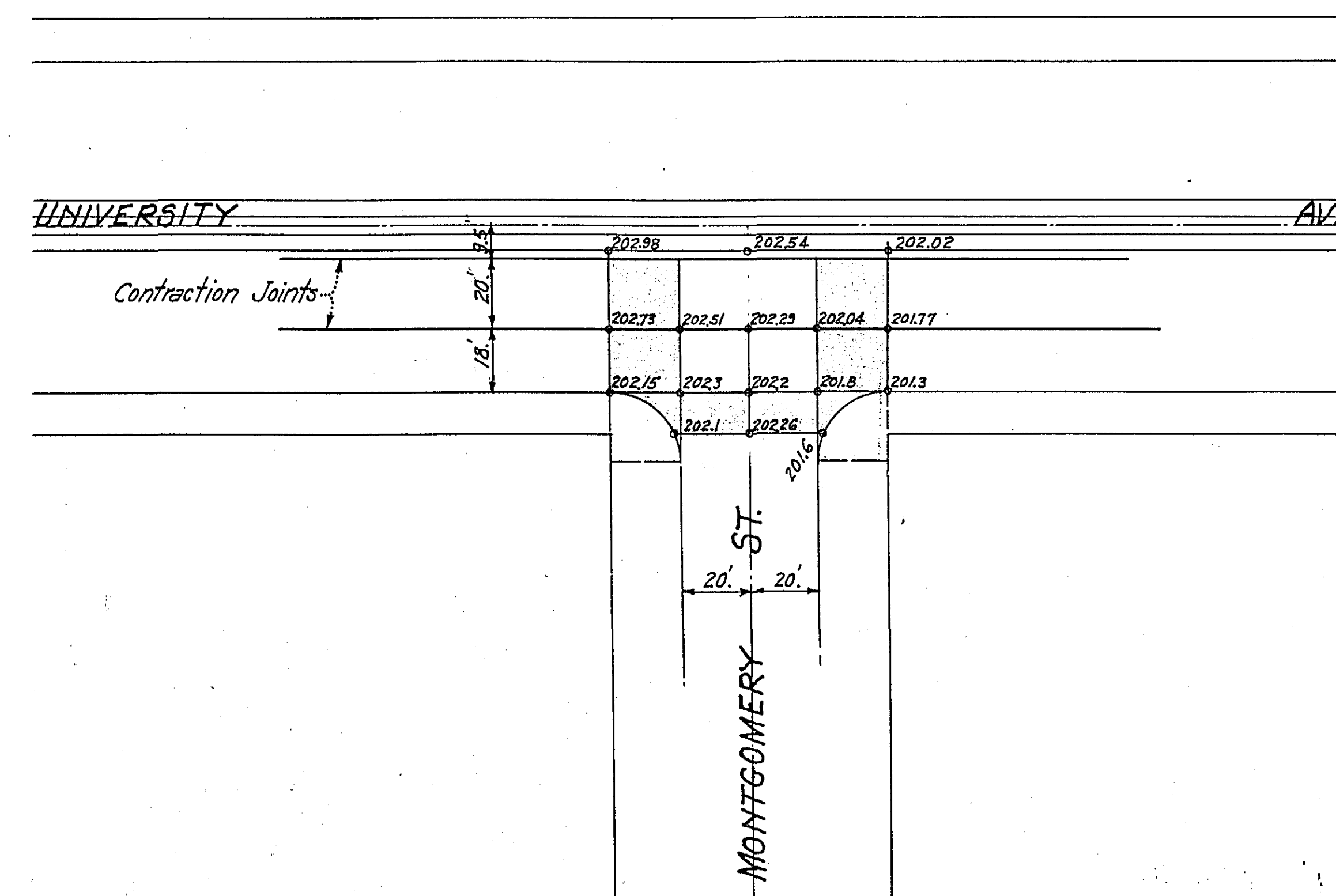
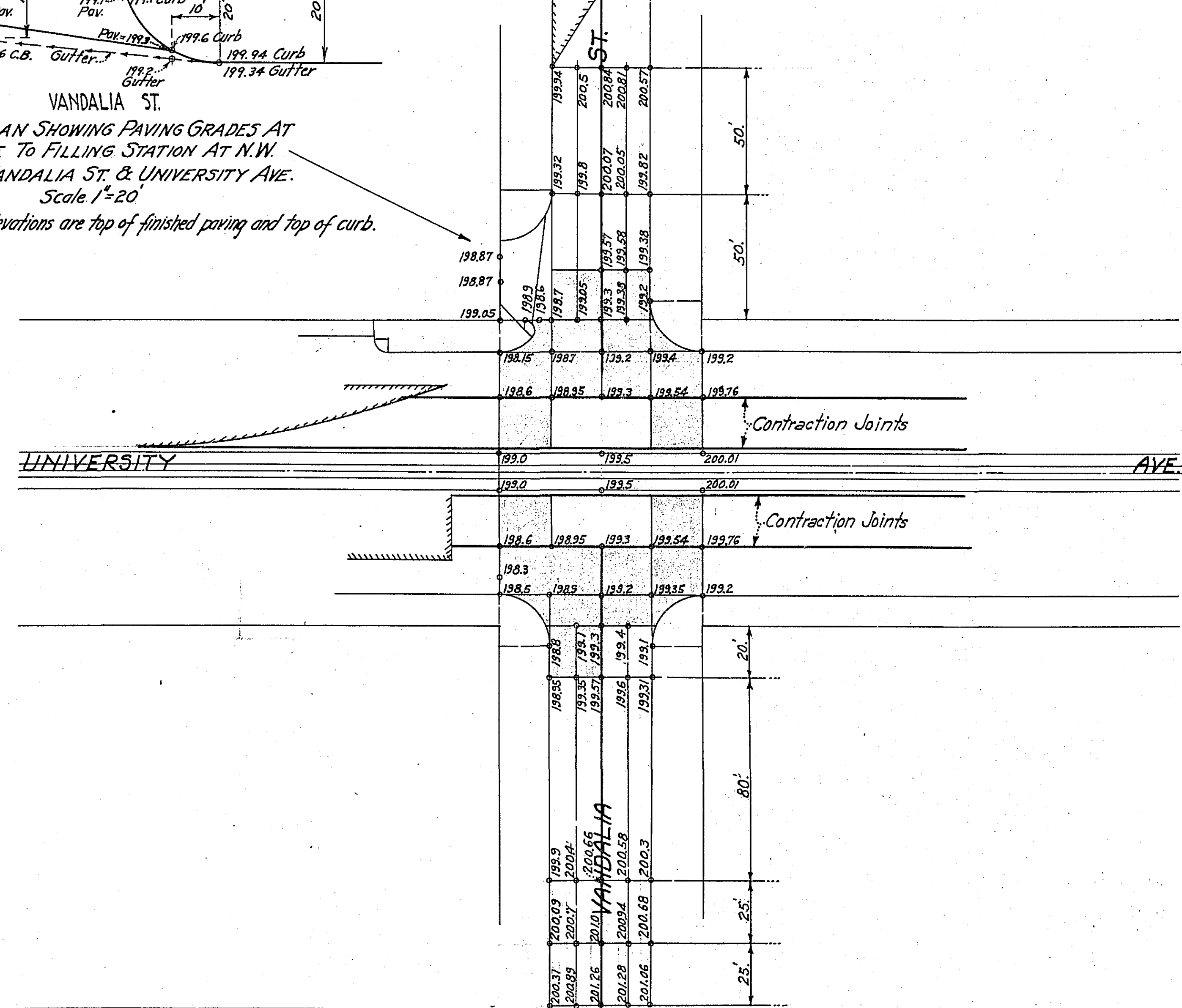
Scale: 1"=40'

Note: Shaded areas indicate places where templates cannot be used.  
Grades shown on this plan are top of finished asphalt or brick pavement.

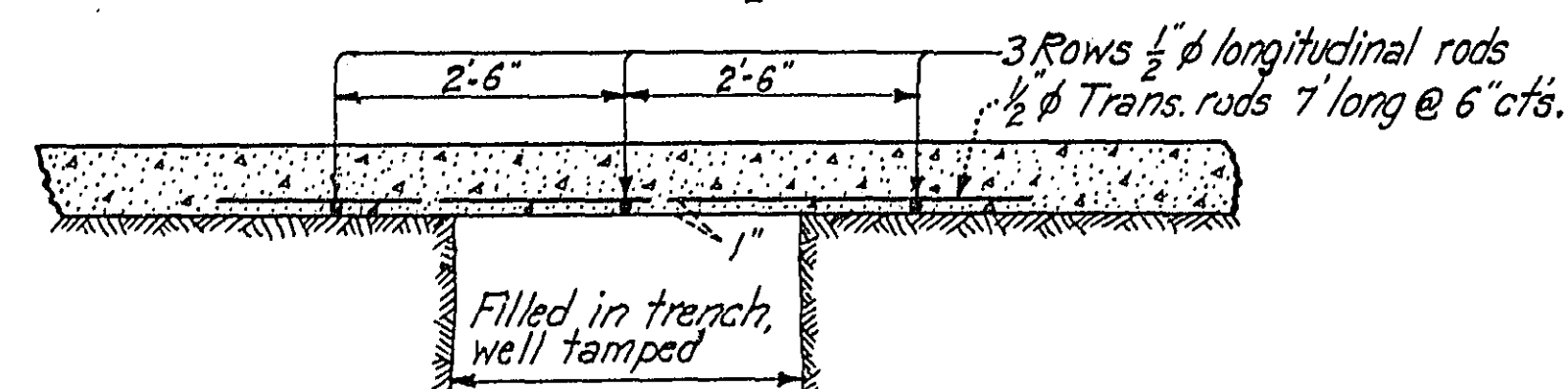


DETAIL PLAN SHOWING PAVING GRADES AT ENTRANCE TO FILLING STATION AT N.W. CORNER VANDALIA ST. & UNIVERSITY AVE.  
Scale 1"=20'

NOTE: All elevations are top of finished paving and top of curb.

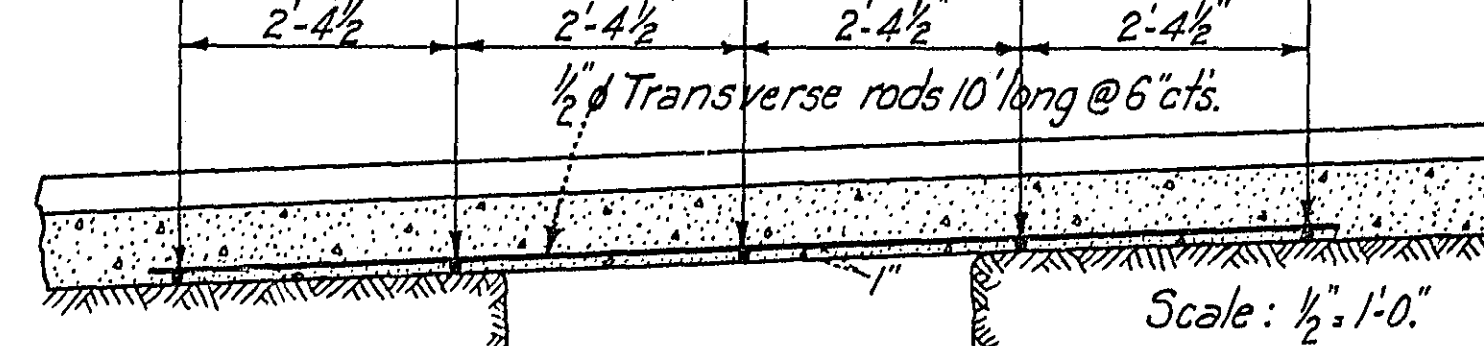


**TYPICAL SECTION SHOWING REINFORCEMENT OVER TRENCHES**  
Scale: 1/2" = 1'-0"



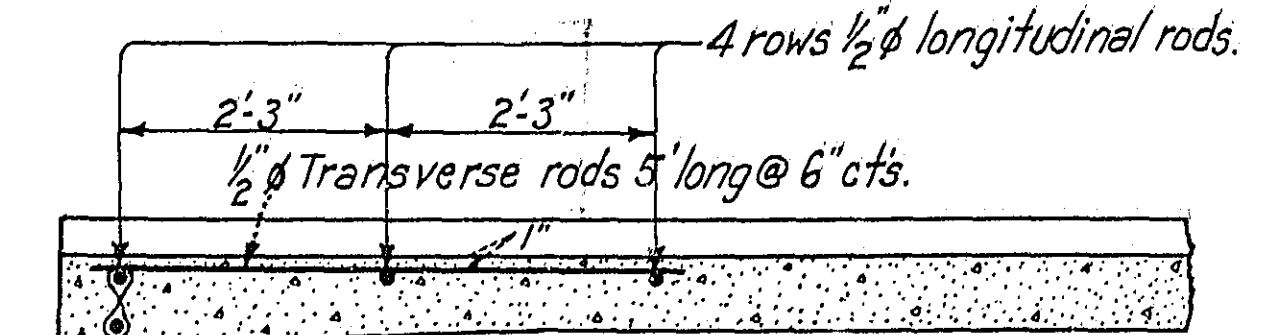
Reinforce base of pavement over trenches thus where shown on this plan by hatched areas. **TYPE A**  
Weight of steel: 11.39 Pounds per lin. ft. (Splices extra).

**TYPICAL SECTION SHOWING REINFORCEMENT OVER TRENCHES - TYPE "B"**  
Scale: 1/2" = 1'-0"

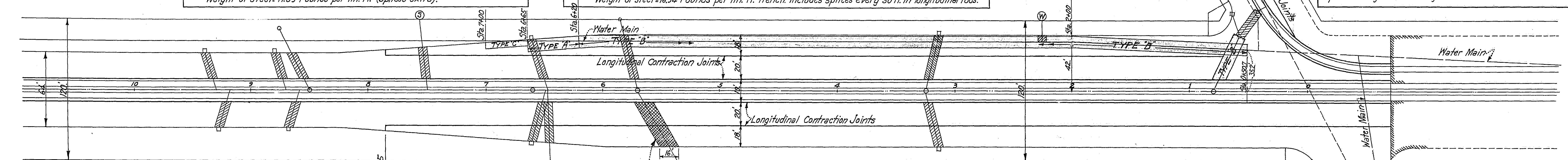


Reinforce base of pavement thus over trenches where shown by shaded areas on this plan. **TYPE B**  
Weight of steel = 16.94 Pounds per lin. ft. trench. Includes splices every 30 ft. in longitudinal rods.

**TYPICAL SECTION SHOWING REINFORCEMENT OVER TRENCHES TYPE - C**  
Scale: 1/2" = 1'-0"

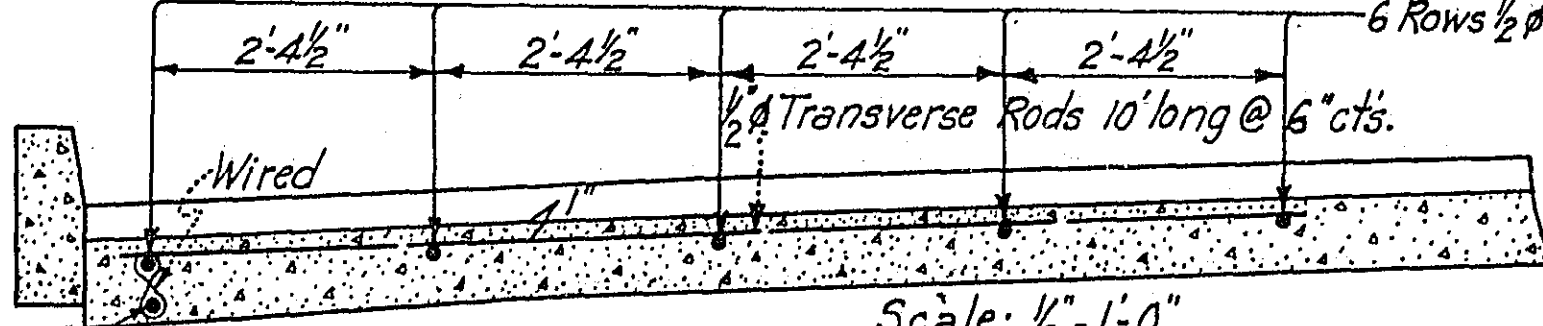


Reinforce base of pavement thus over trenches where shown by shaded areas on this plan. **TYPE C**  
Weight of steel = 9.53 Pounds per lin. ft. of trench. Includes splices every 30 ft. in longitudinal rods.

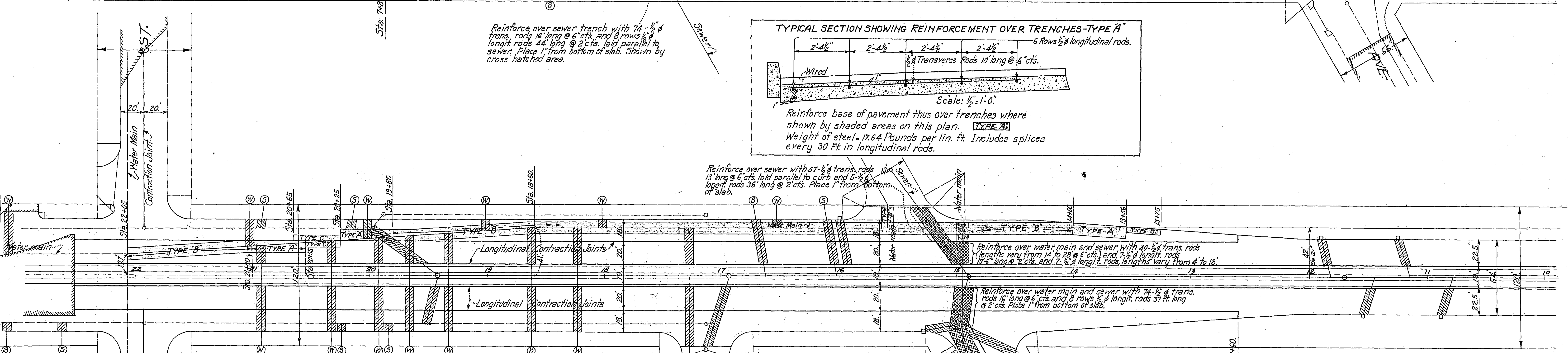


Reinforce over sewer trench with 74-1/2" trans. rods 16" long @ 6" cts. and 8 rows 1/2" longit. rods 44" long @ 2 cts. laid parallel to sewer. Place 1" from bottom of slab. Shown by cross hatched area.

**TYPICAL SECTION SHOWING REINFORCEMENT OVER TRENCHES - TYPE "A"**  
Scale: 1/2" = 1'-0"



Reinforce base of pavement thus over trenches where shown by shaded areas on this plan. **TYPE A**  
Weight of steel = 17.64 Pounds per lin. ft. Includes splices every 30 ft. in longitudinal rods.



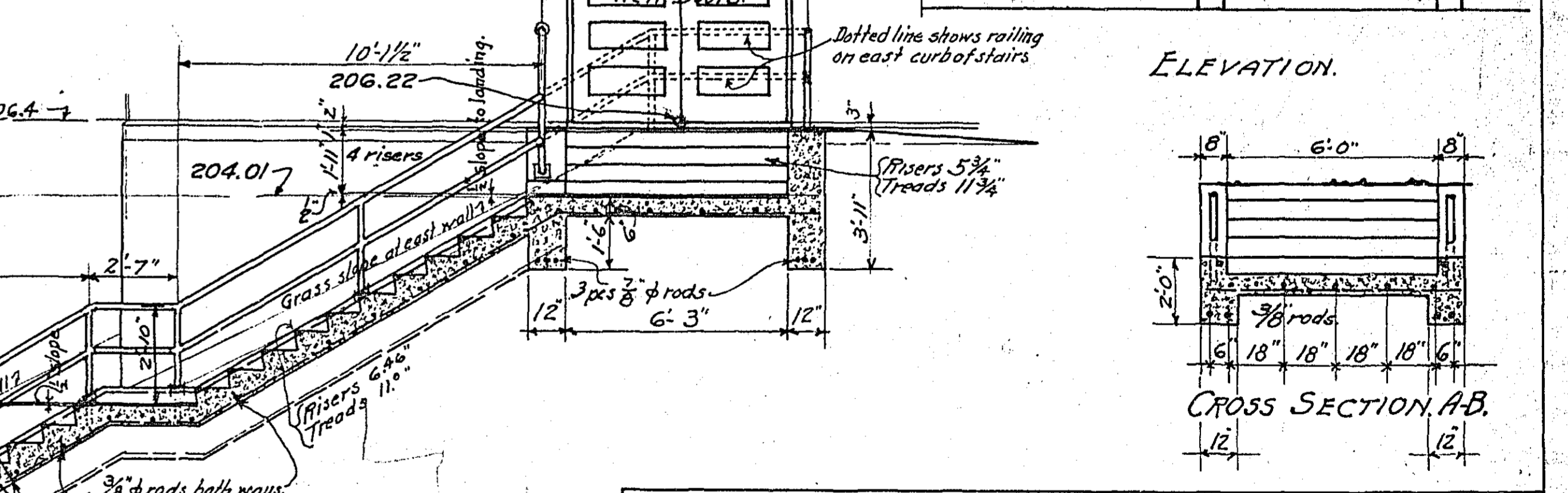
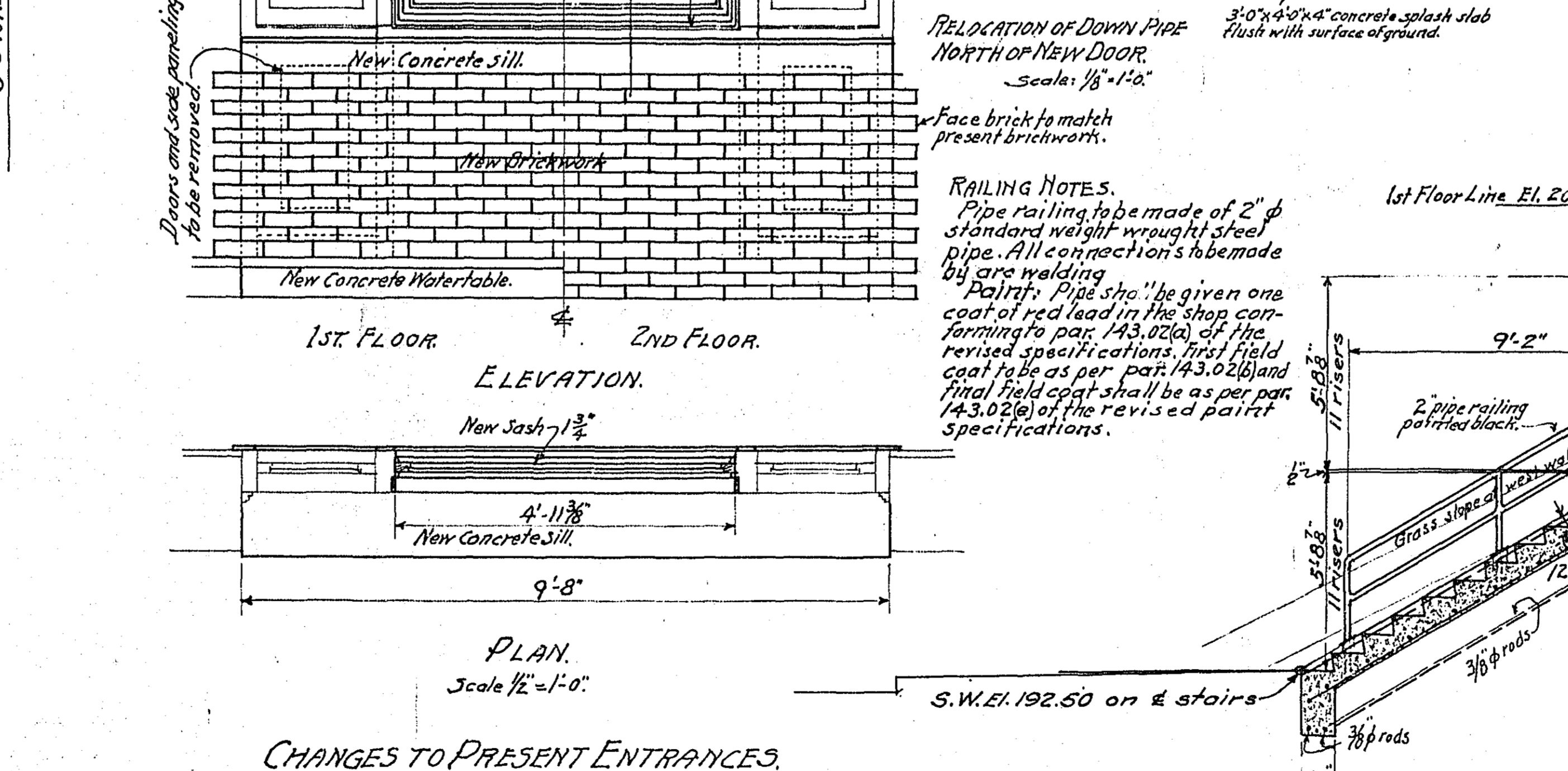
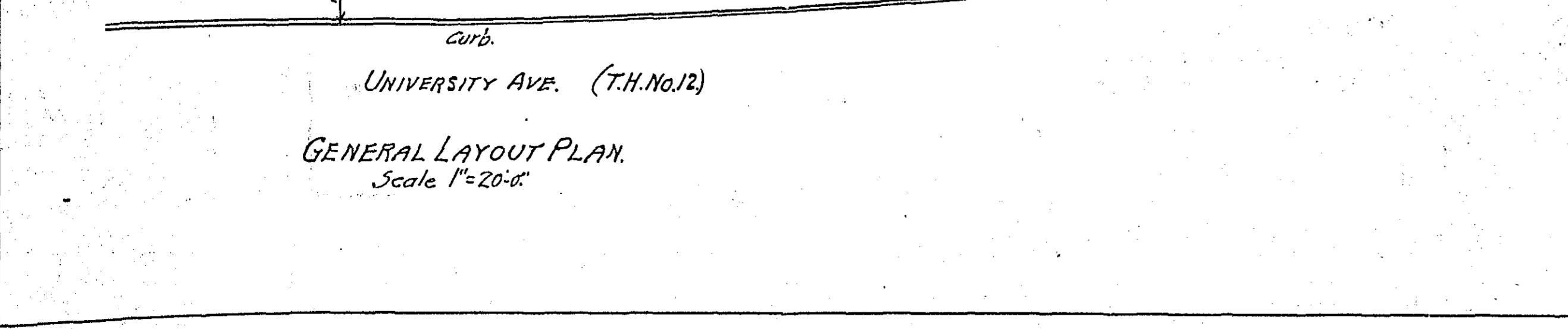
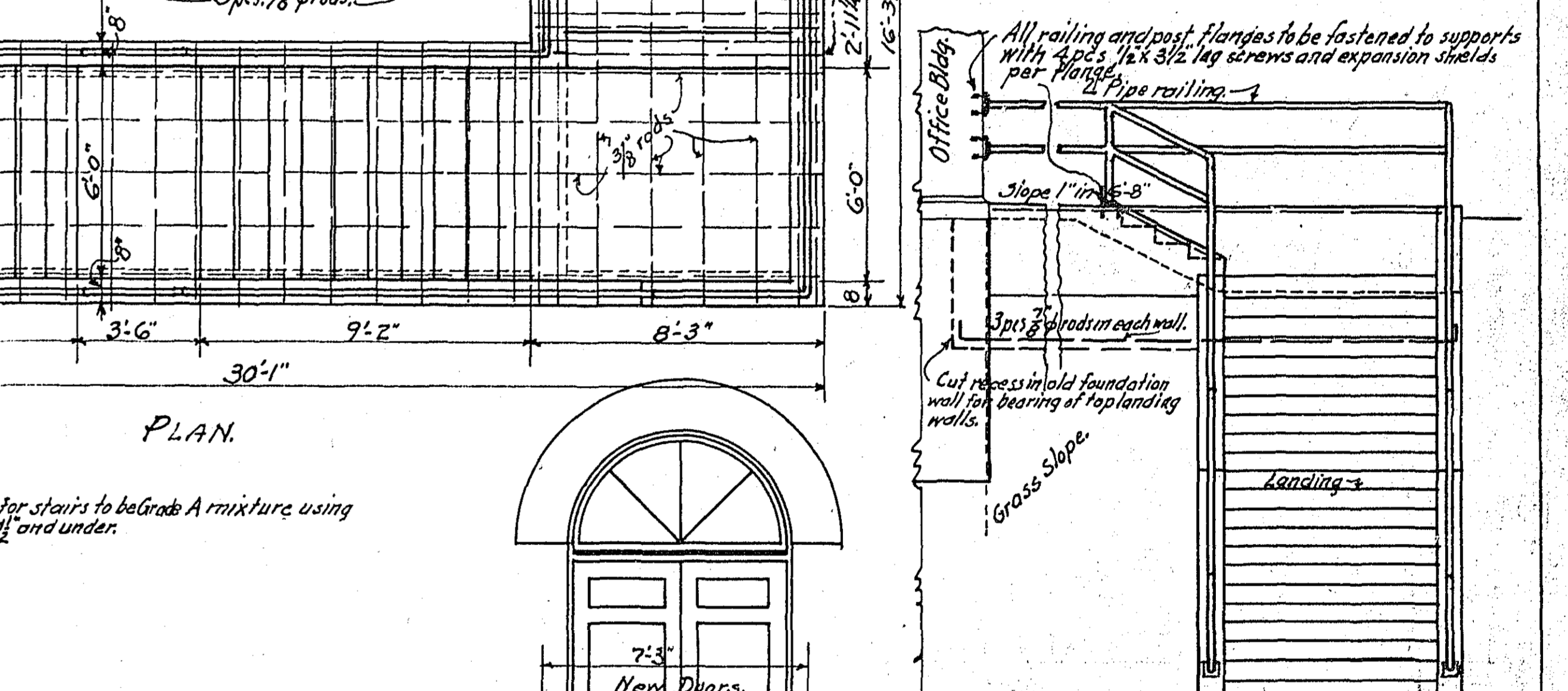
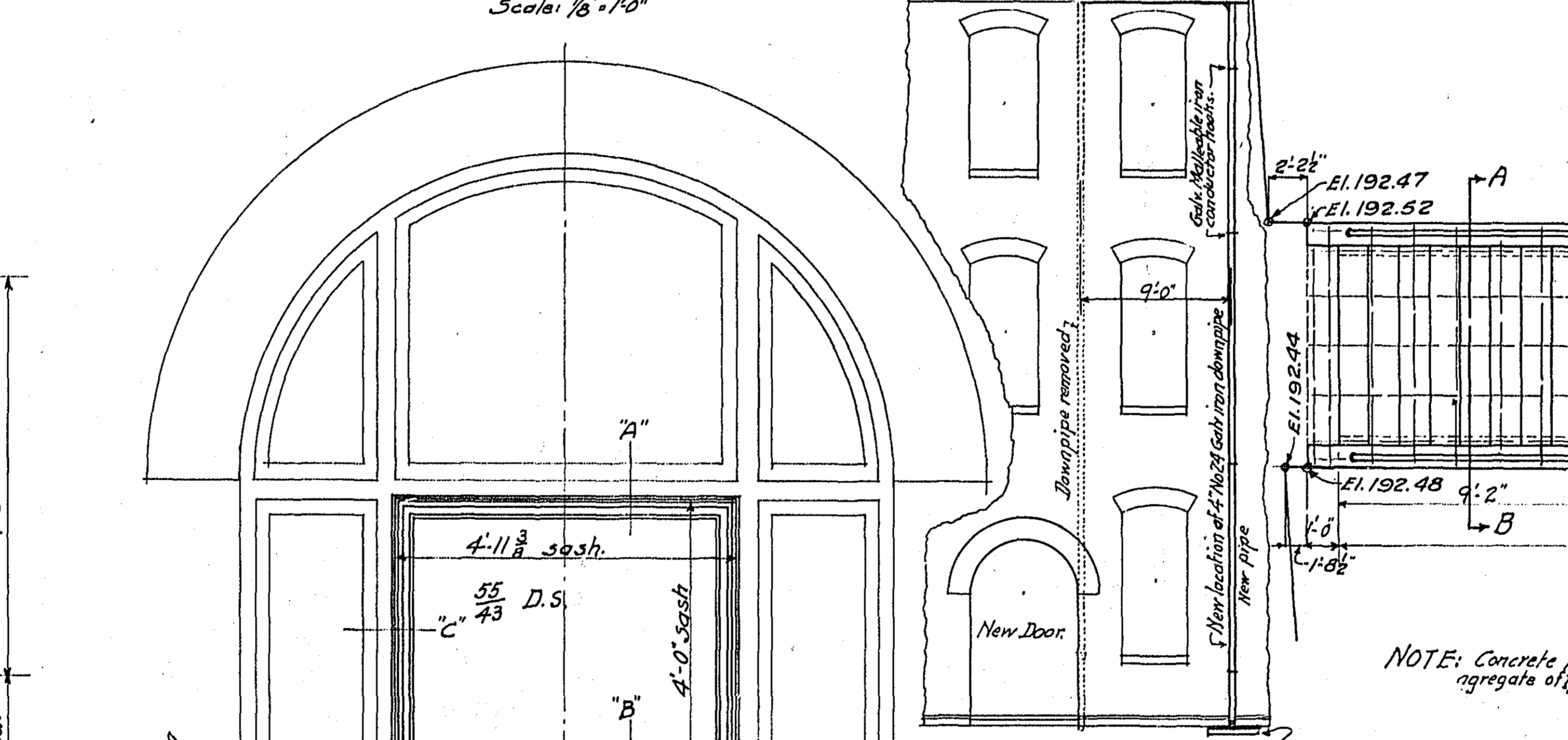
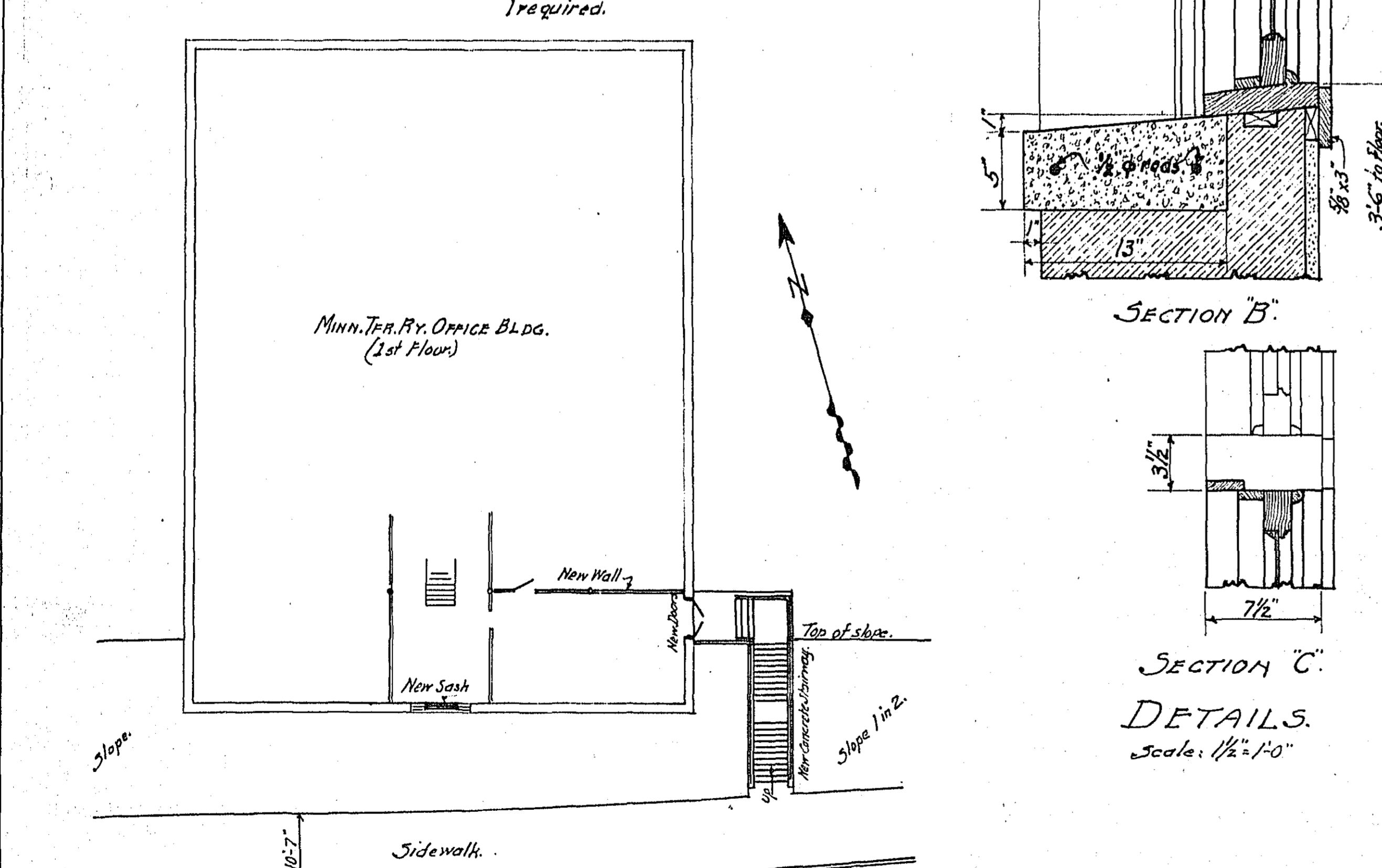
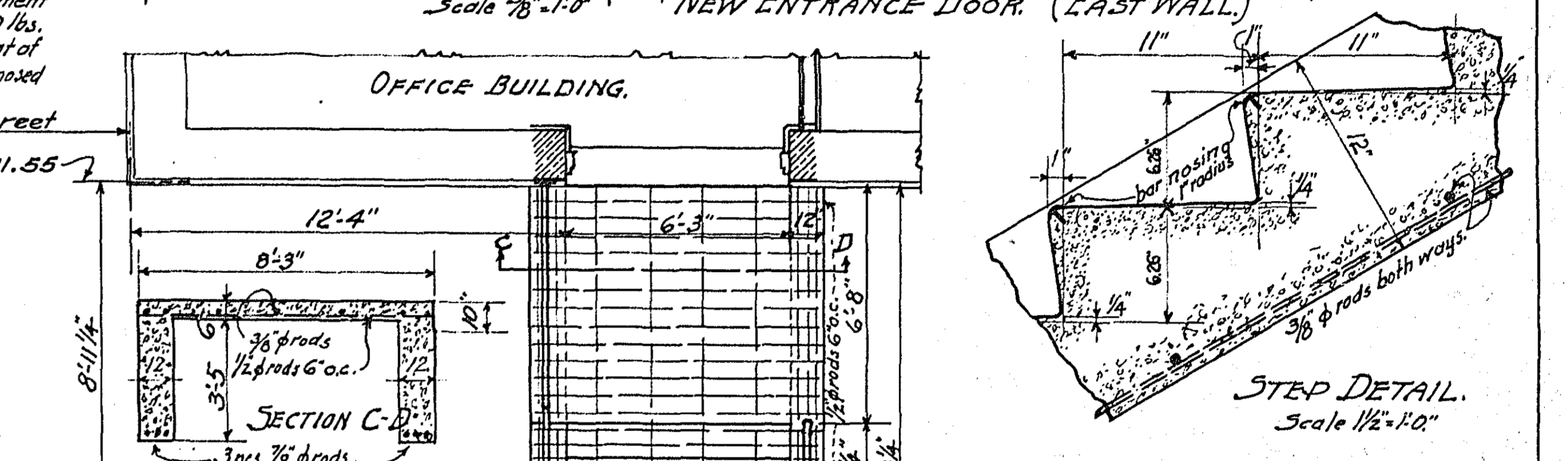
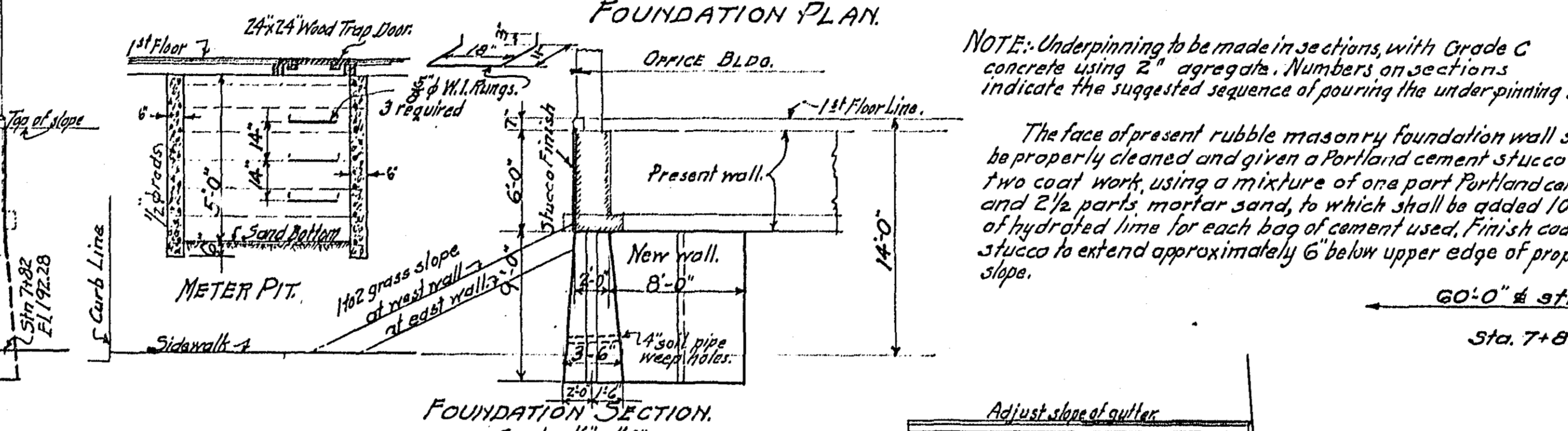
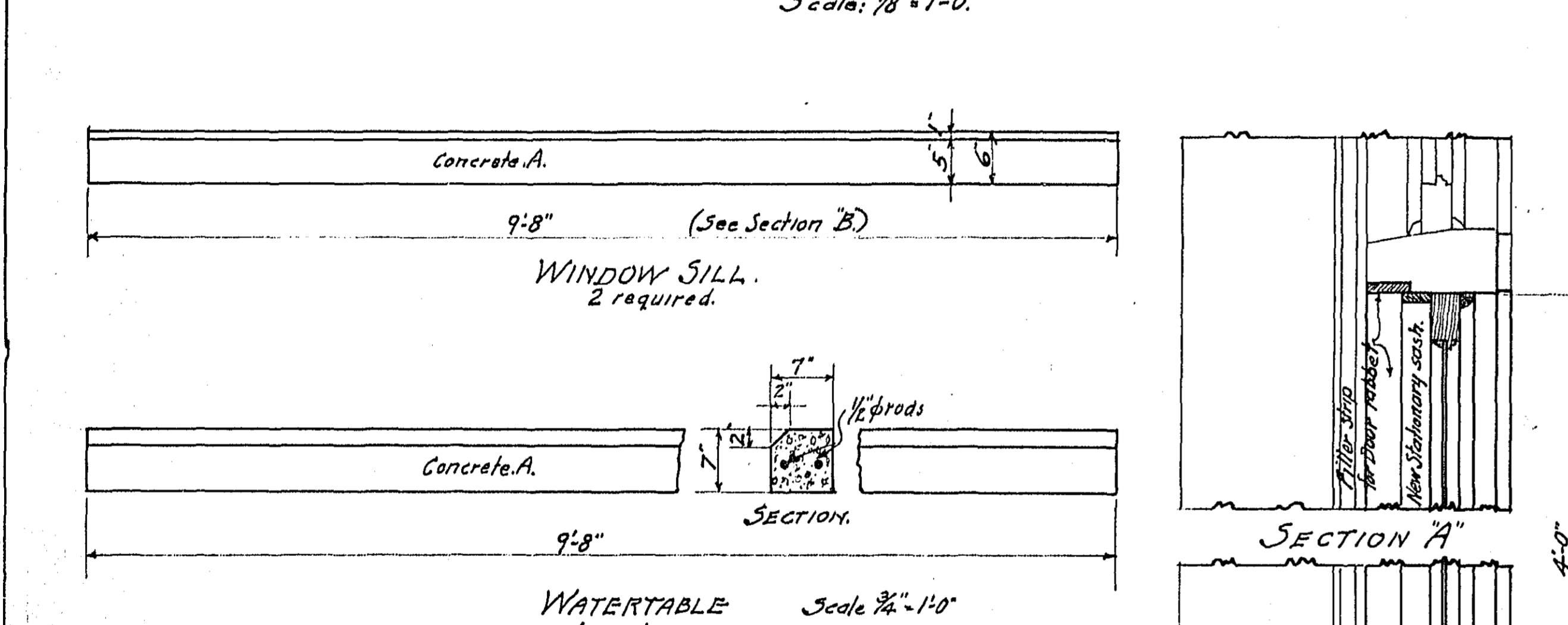
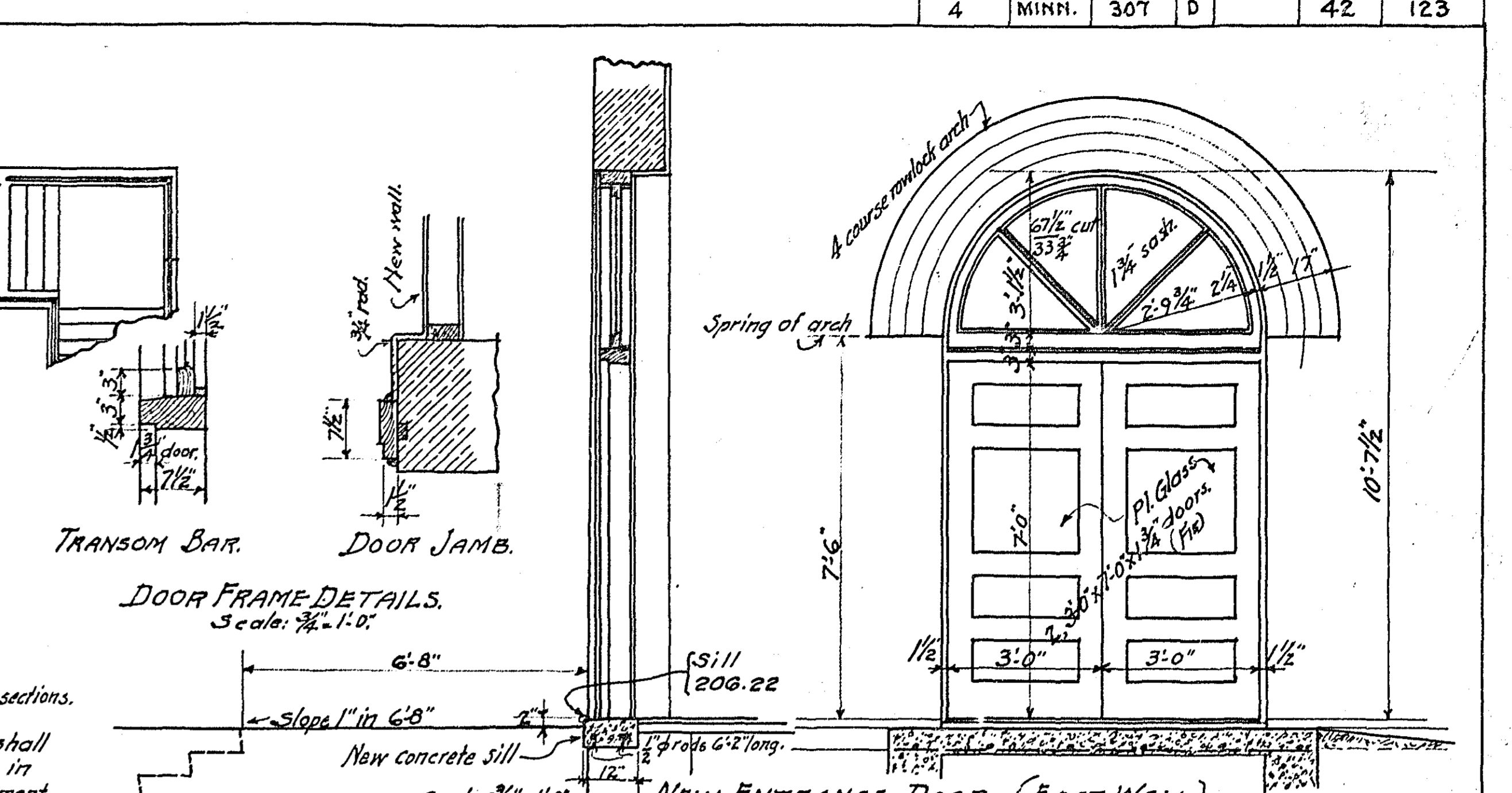
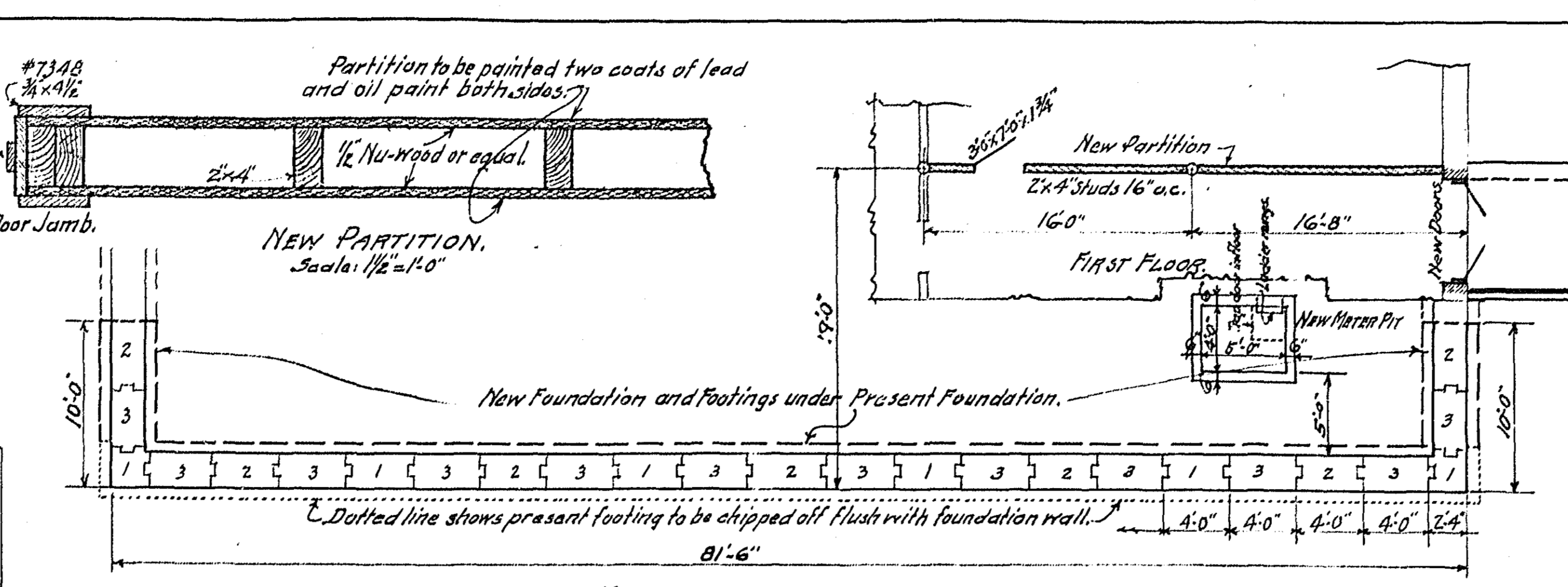
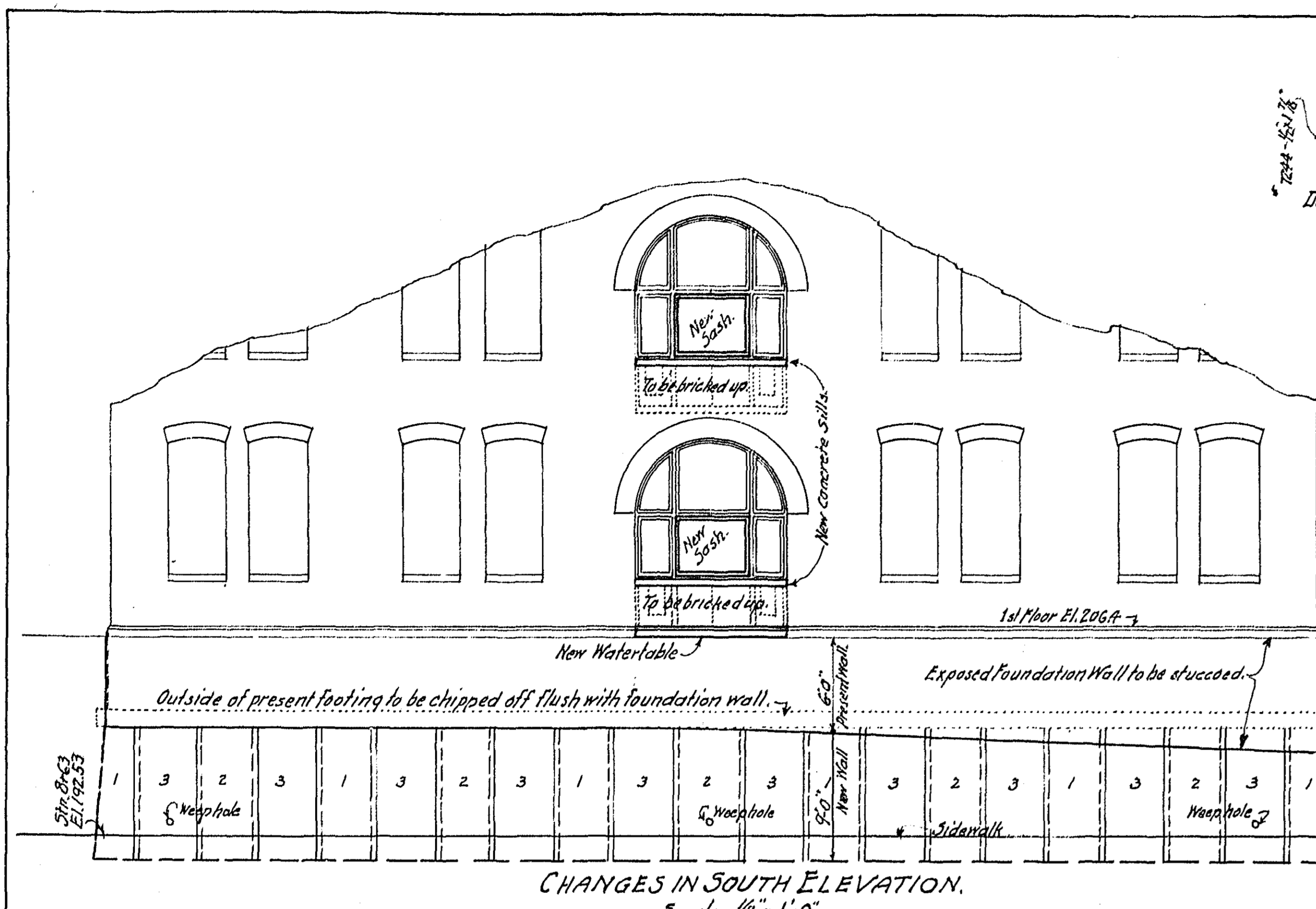
Reinforce over sewer with 57-1/2" trans. rods 13" long @ 6 cts. laid parallel to curb and 5-1/2" longit. rods 36" long @ 2 cts. Place 1" from bottom of slab.

Reinforce over water main and sewer with 40-1/2" trans. rods (lengths vary from 14" to 28" @ 6 cts.) and 7-1/2" longit. rods 18-6" long @ 2 cts. and 7-1/2" longit. rods lengths vary from 4" to 18".

Reinforce over water main and sewer with 74-1/2" trans. rods 16" long @ 6 cts. and 8 rows 1/2" longit. rods 37" long @ 2 cts. Place 1" from bottom of slab.

**REINFORCING PLANS**  
**UNIVERSITY AVE. - FROM PRIOR AVE. TO VANDALIA ST.**

- Reinforce base of pavement over trenches where shown by hatched areas. See typical section on this sheet.
  - Reinforce base of pavement as noted on plan where shown by cross hatched areas.
  - Reinforce base of pavement over trenches where shown by shaded areas. See typical sections on this sheet.
  - Sewer connections shown thus
  - Water connections shown thus
55781. Pounds = Total weight of steel required for reinforcement as shown on this plan. Includes splices on rods over 30' long.



**SCHEDULE OF QUANTITIES FOR TRANSFER OFFICE BUILDING**

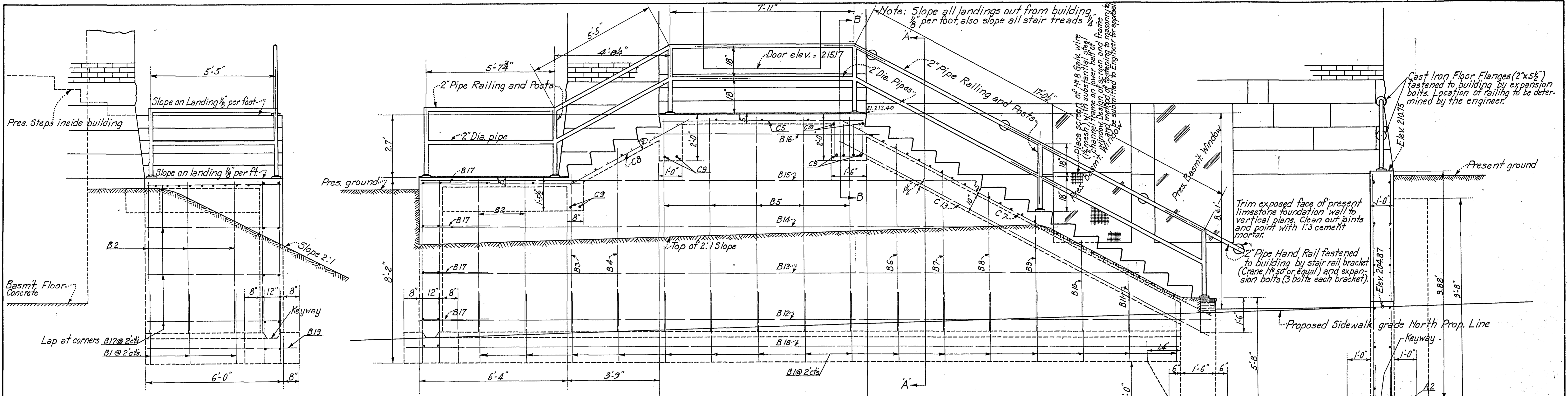
Item No.	1	2	3	4	17	20	18
* Item	Excavation for Structure	Portland Cement	Concrete Grade 4"	Concrete Grade 6"	Reinforcing Steel	Stucco (2 coat)	Remodeling Transfer Office Bldg. Complete
Unit	Cu. yd.	Bbl.	Cu. yd.	Cu. yd.	Lb.	Sq. yd.	Sq. yd.
Quantity	305	135	17.5	90	700	80	Lump sum

\* For measurement and payment of items listed, see corresponding items under sections 10.100 to 10.106 of the special provisions.

MINNESOTA TRANSFER RY.  
ST. PAUL, MINN.  
Scale as noted.  
Office of Chief Engineer, Non Pac. Ry.  
St. Paul, Minn., Oct. 16, 1934.

TRUNK HIGHWAY No. 12.  
STATE OF MINNESOTA.  
DEPARTMENT OF HIGHWAYS.  
**NEW CONCRETE STAIRWAY AND ALTERATIONS TO GENERAL OFFICE BUILDING OF MINNESOTA TRANSFER RAILWAY CO.**  
AT  
ST. PAUL, MINNESOTA.  
APPROVED:  
Bridge Engineer  
Chief Engineer

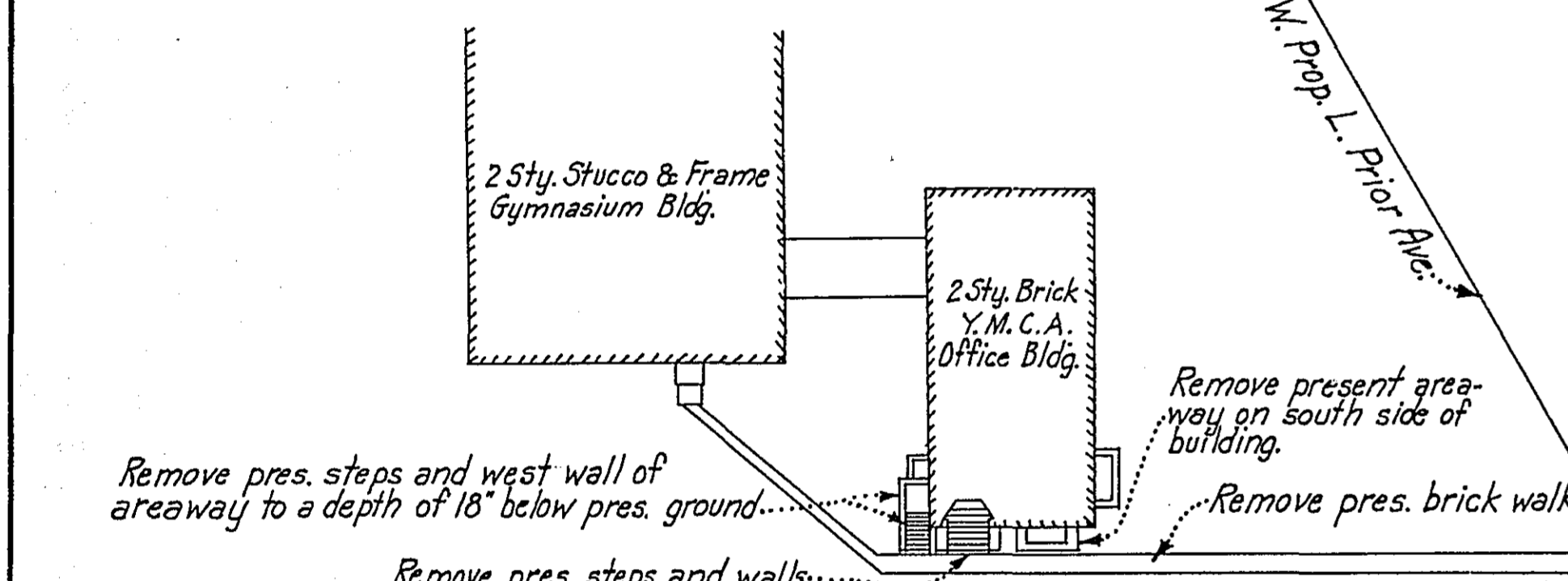




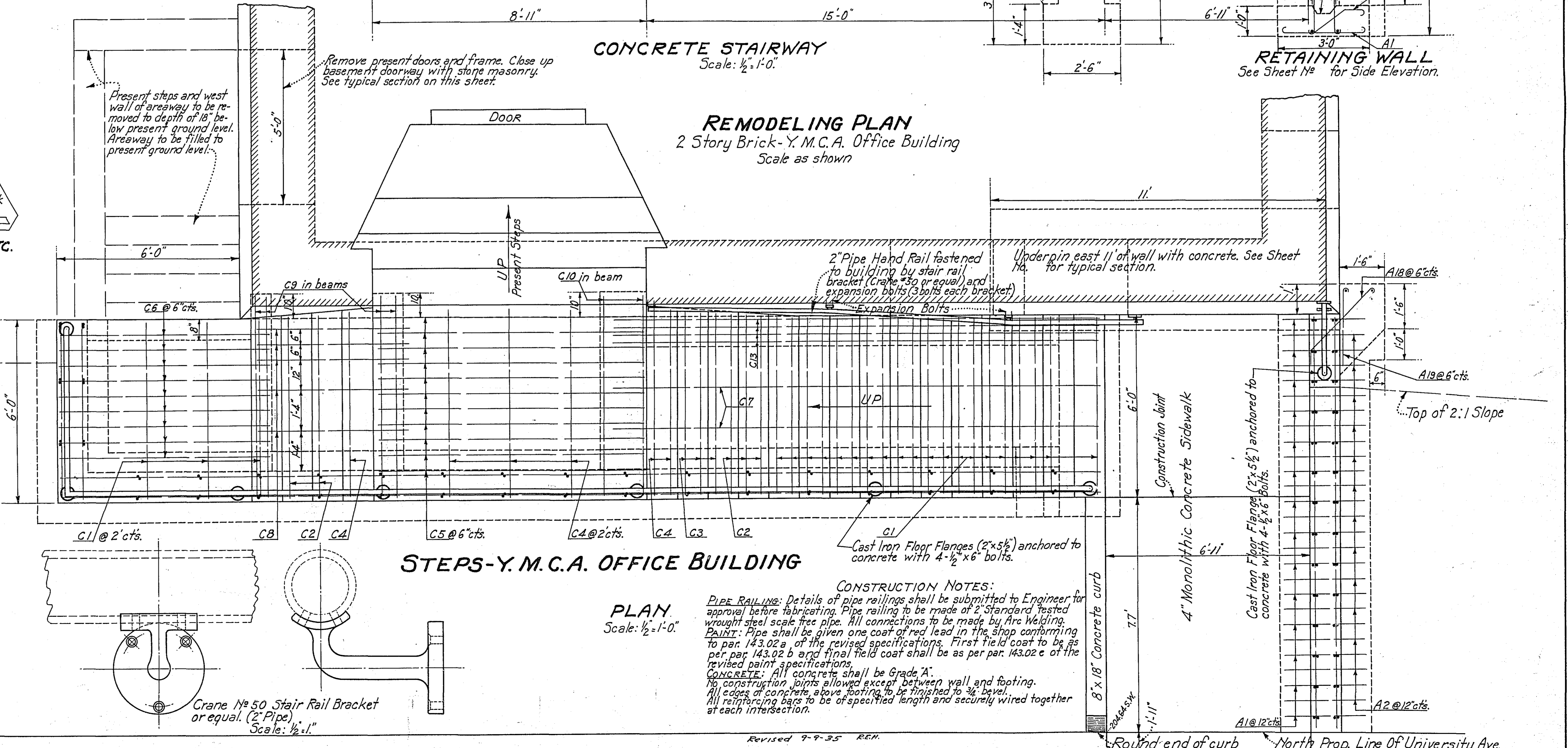
**SIDE ELEVATION**

**CONCRETE STAIRWAY**  
Scale: 1/2" = 1'-0"

**RETAINING WALL**  
See Sheet No. for Side Elevation.



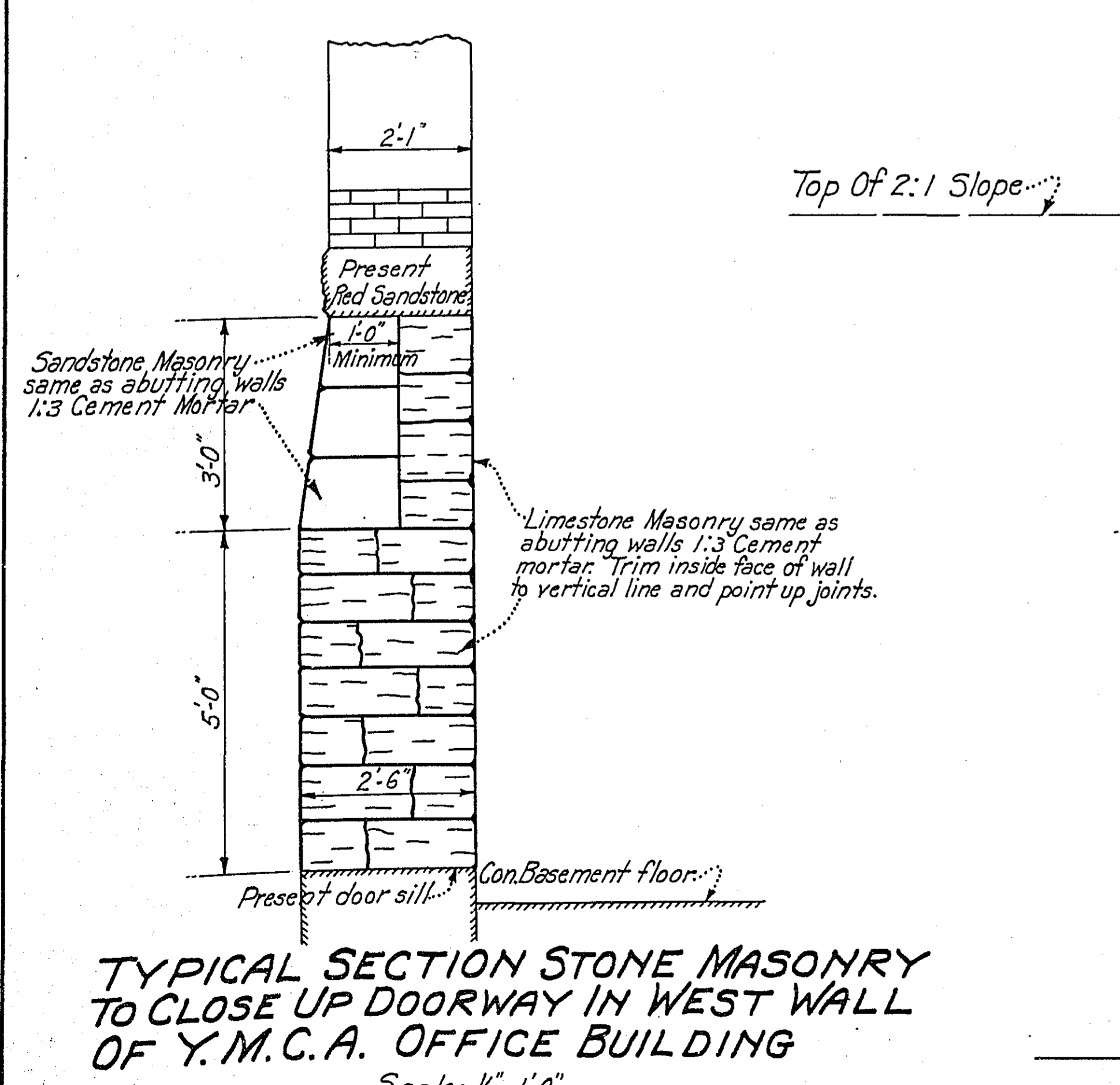
**PLAN SHOWING PRESENT STEPS, AREAWAYS, ETC.**  
Scale: 1" = 40'-0"



**REMODELING PLAN**  
2 Story Brick-Y.M.C.A. Office Building  
Scale as shown

**STEPS-Y.M.C.A. OFFICE BUILDING**

**PLAN**  
Scale: 1/2" = 1'-0"



**TYPICAL SECTION STONE MASONRY TO CLOSE UP DOORWAY IN WEST WALL OF Y.M.C.A. OFFICE BUILDING**  
Scale: 1/2" = 1'-0"

**CONSTRUCTION NOTES:**  
**PIPE RAILING:** Details of pipe railings shall be submitted to Engineer for approval before fabricating. Pipe railing to be made of 2" Standard tested wrought steel scale free pipe. All connections to be made by fire welding.  
**PAINT:** Pipe shall be given one coat of red lead in the shop conforming to par 143.02 a of the revised specifications. First field coat to be as per par 143.02 b and final field coat shall be as per par 143.02 c of the revised painting specifications.  
**CONCRETE:** All concrete shall be Grade "A".  
 No construction joints allowed except between wall and footing. All edges of concrete, above footing to be finished to 1/4" bevel. All reinforcing bars to be of specified length and securely wired together at each intersection.



FED. ROAD DIST. NO.	STATE	N.R.M. NO.	SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	MINN.	307	D		45	123

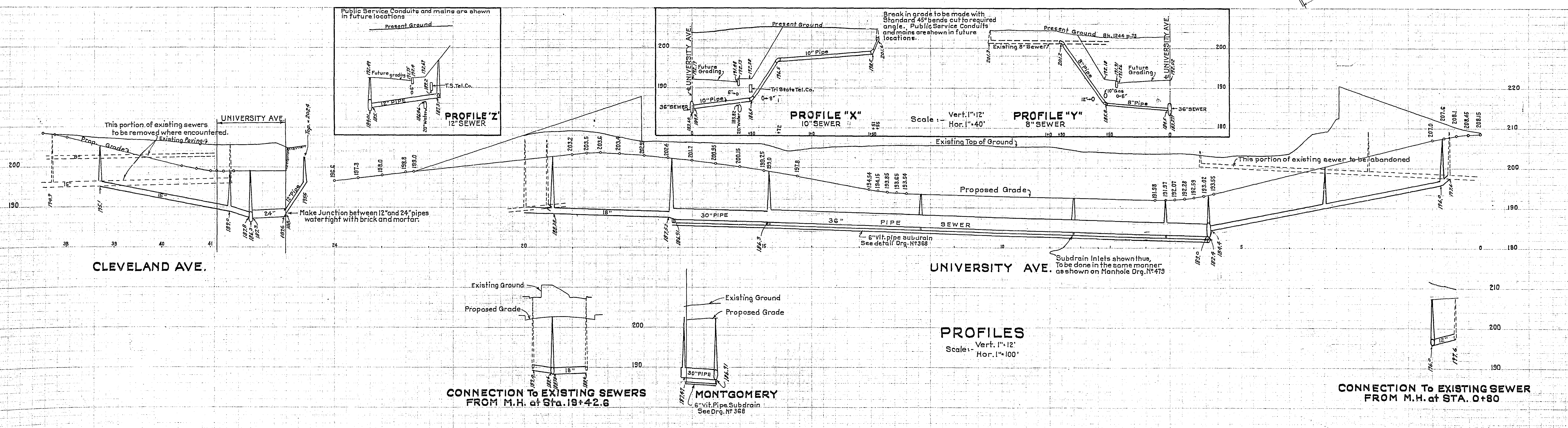
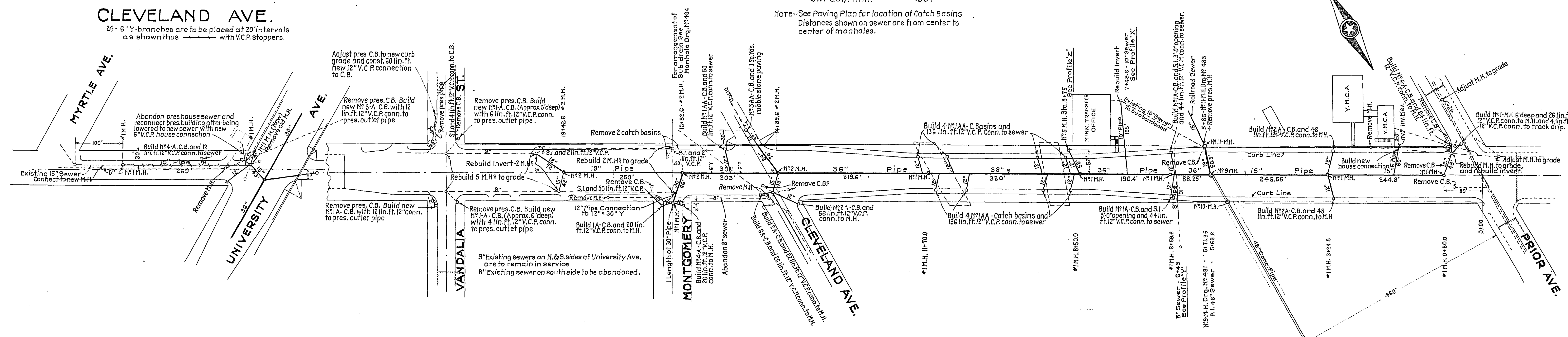
SYMBOL	EXPLANATION
	Proposed Sewers (Smaller than 42")
	Proposed Sewers (42" or larger)
	Proposed Manhole - Notation indicates type of manhole.
	Proposed Catch basins - Notation indicates type of catch basin.
	Proposed Side Inlet
	Proposed 6" Y-branches
	Existing sewers (Smaller than 42")
	Existing sewers (42" or larger)
	Existing manholes.
	Existing catch basins.

Except where shown, 6" Y-branches or openings for future house connections, are to be omitted on the sewers on University Ave. All openings to be placed on the 36" pipe, shall be placed so that the center of the opening shall be on the horizontal axis of the 36" pipe.

# UNIVERSITY AVE. SEWER PLAN

Scale: 1" = 100'  
St. Paul, Minn. 1934

Note: See Paving Plan for location of Catch Basins  
Distances shown on sewer are from center to center of manholes.



94-3

# MINNESOTA TRANSFER SEWER PLAN ON 20 FT. EASEMENT -

Scale: 1"=100'  
Dept. of Public Works. St. Paul, Minn.

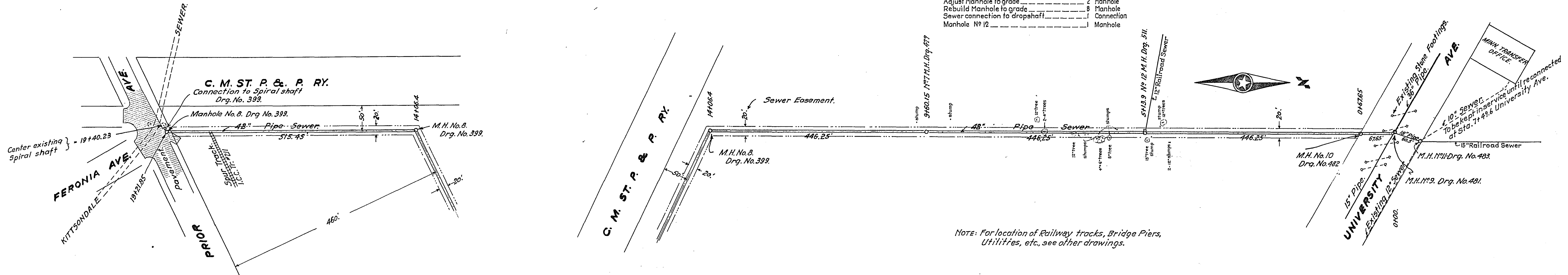
### ESTIMATED SEWER QUANTITIES AND ITEMS

Sewer 48 inch diameter	1931	Lin. ft.
Sewer 36 inch diameter	920	Lin. ft.
Sewer 30 inch diameter	273	Lin. ft.
Sewer 24 inch diameter	74	Lin. ft.
Sewer 18 inch diameter	383	Lin. ft.
Sewer 15 inch diameter	846	Lin. ft.
Sewer 12 inch diameter	140	Lin. ft.
Sewer 10 inch diameter	157	Lin. ft.
Sewer 8 inch diameter	95	Lin. ft.
House Connections 6 inch diameter	100	Lin. ft.
Catch basin connections to sewer or manhole	761	Lin. ft.
Catch basin connections to catch basins	60	Lin. ft.
Side Inlet connections	38	Lin. ft.
Subdrain 6 inch diameter	1248	Lin. ft.
Subdrain 8 inch diameter	1931	Lin. ft.
Manhole No. 1	11	Manhole
Manhole No. 2	3	Manhole
Manhole No. 5	1	Manhole
Manhole No. 7	1	Manhole
Manhole No. 8	2	Manhole
Manhole No. 9	1	Manhole
Manhole No. 10	1	Manhole
Manhole No. 11	1	Manhole
Manhole shaft No. 1	30	Lin. ft.
Manhole shaft No. 2, 7, 8 & 12	64	Lin. ft.
Manhole shaft No. 5	5	Lin. ft.
Adjust Manhole to grade	2	Manhole
Rebuild Manhole to grade	8	Manhole
Sewer connection to dropshaft	1	Connection
Manhole No. 12	1	Manhole

Catch basin No. 1A	6	Catch basin
Catch basin No. 1AA	9	Catch basin
Catch basin No. 2A	4	Catch basin
Catch basin No. 3A	1	Catch basin
Catch basin No. 3AA	1	Catch basin
Catch basin No. 4A	2	Catch basin
Catch basin No. 6A	2	Catch basin
Adjust catch basin to grade	1	Catch basin
Side Inlet	4	Side Inlet
Side Inlet 3' opening	2	Side Inlet
Concrete Encasement seat	1	seat
Clearing	12	tree
Grubbing	26	tree
Remove present Manhole	4	Manhole
Remove present Catch basin	14	catch basin
Removal of present base & Surfacing	9	Sq. Yd.
Take up and relay present brick paving	16	Sq. Yd.
Concrete base	8	Sq. Yd.
3" Brick paving (Mastic sand cushion)	8	Sq. Yd.
Remove present curb	18	Lin. ft.
Standard Concrete curb (Straight)	12	Lin. ft.
Standard Concrete curb (Radius)	6	Lin. ft.
Rebuild invert	4	Invert.

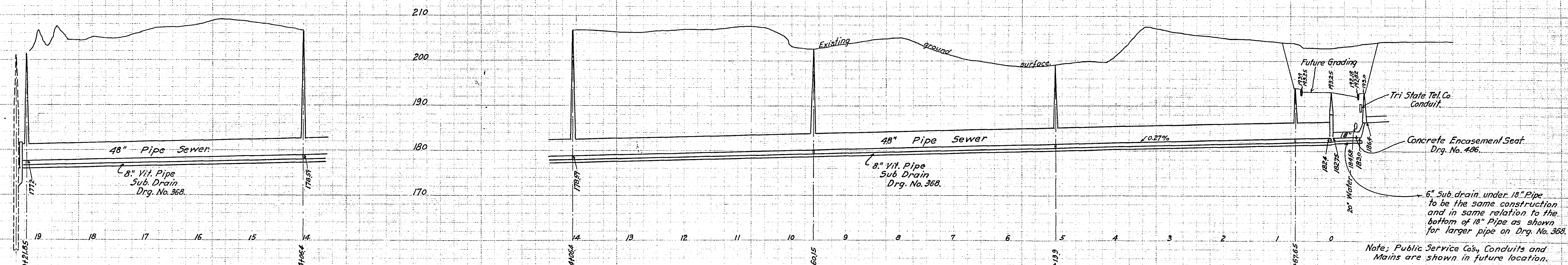
### MINN. TRANSFER RAILWAY SEWER ESTIMATED SEWER QUANTITIES AND ITEMS

Railway Sewer 12 inch diameter	1140	Lin. ft.
Railway Sewer 15 inch diameter	1691	Lin. ft.
Sump Manhole	15	Manhole
Sump Manhole Shaft	54	Lin. ft.



Note: For location of Railway tracks, Bridge Piers, Utilities, etc., see other drawings.

Note: 6" Y-branches are not required on this sewer from Prior Ave. to University Ave.



**PROFILE**  
Scale: Ver. 1"=12'  
Hor. 1"=100'

Note: Public Service Co's Conduits and Mains are shown in future location.

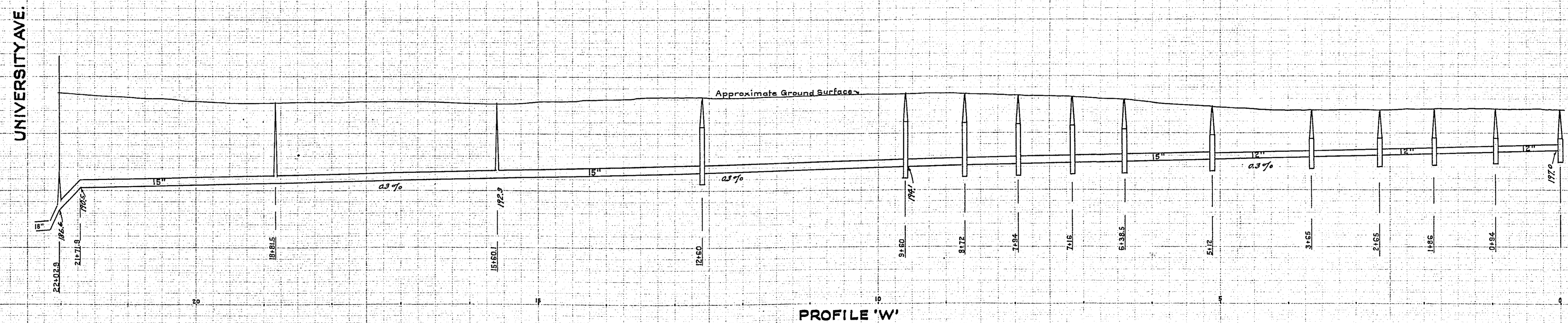
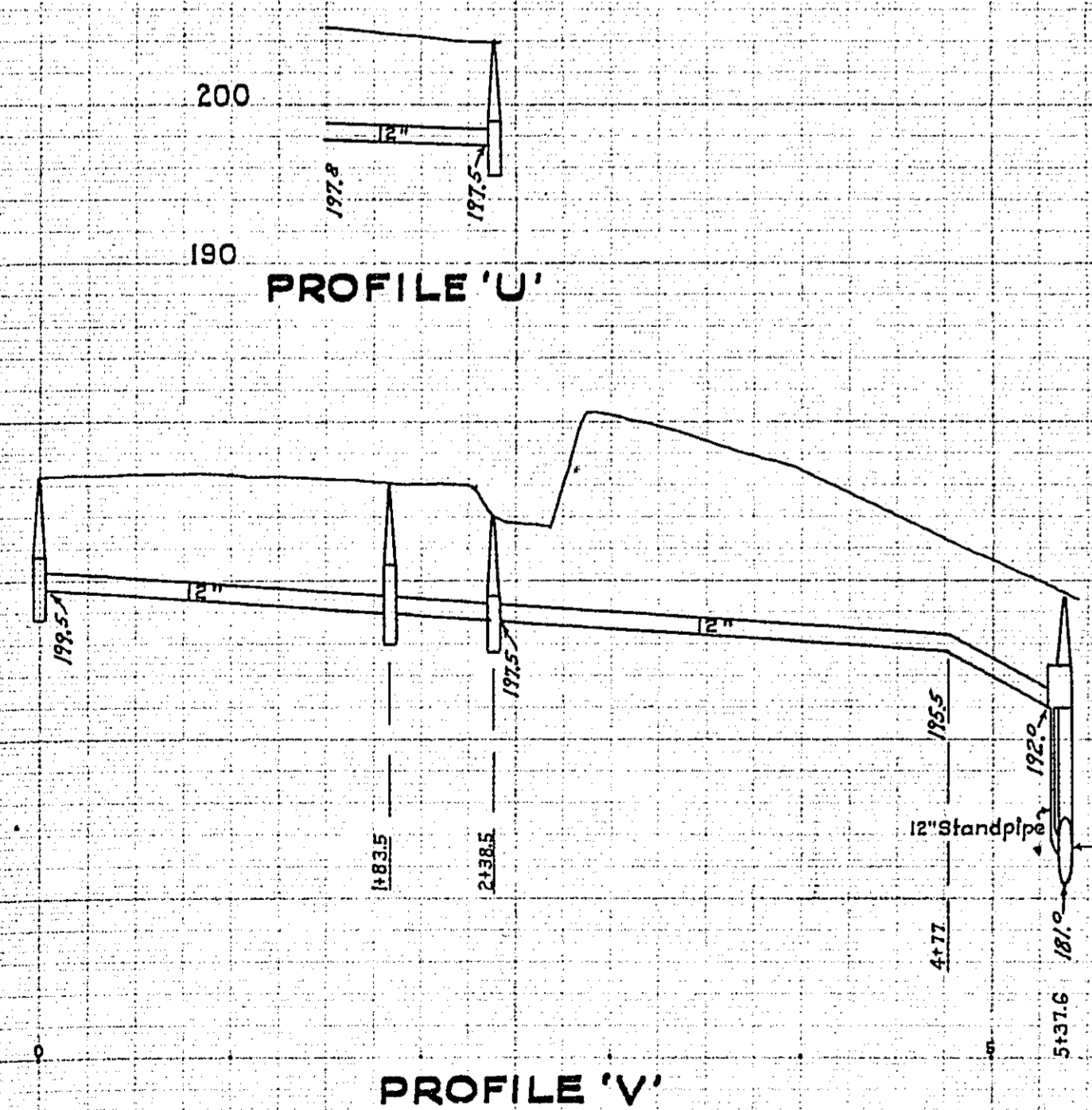
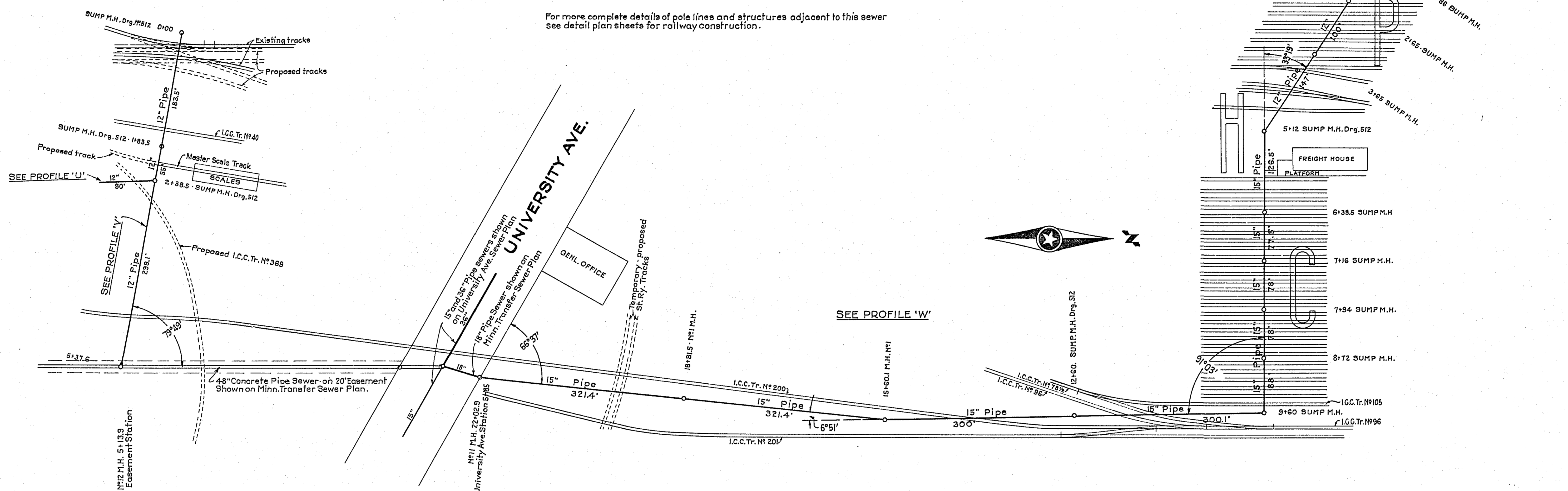
FED. ROAD DIST. NO.	STATE	N.R.M. NO.	SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS.
4	MINN.	307	D		47	123

# MINNESOTA TRANSFER RAILWAY SEWER

Scale: Vert. 1"=12'  
Hor. 1"=100'

Dept. of Public Works. St. Paul, Minn.

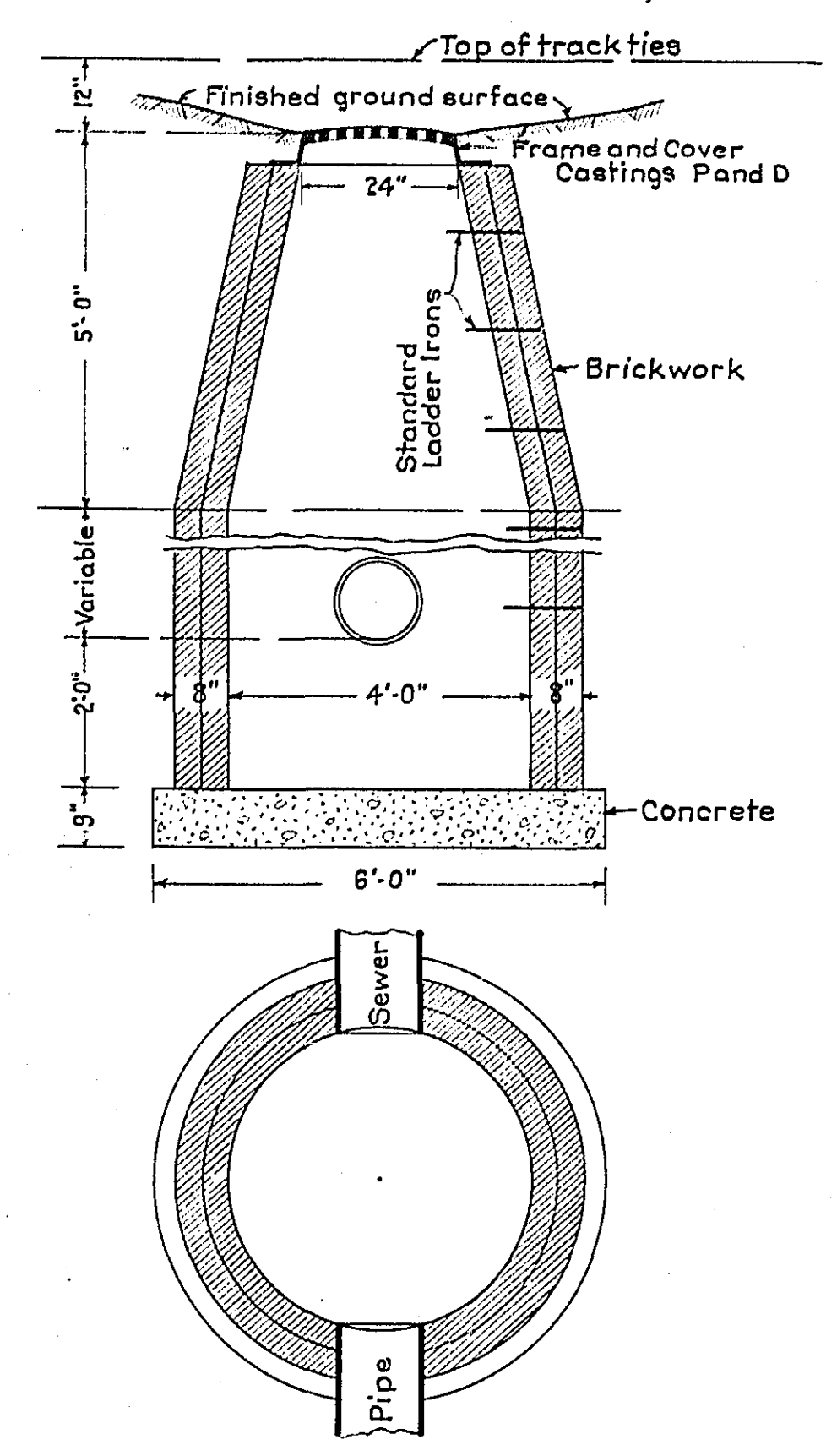
For more complete details of pole lines and structures adjacent to this sewer see detail plan sheets for railway construction.



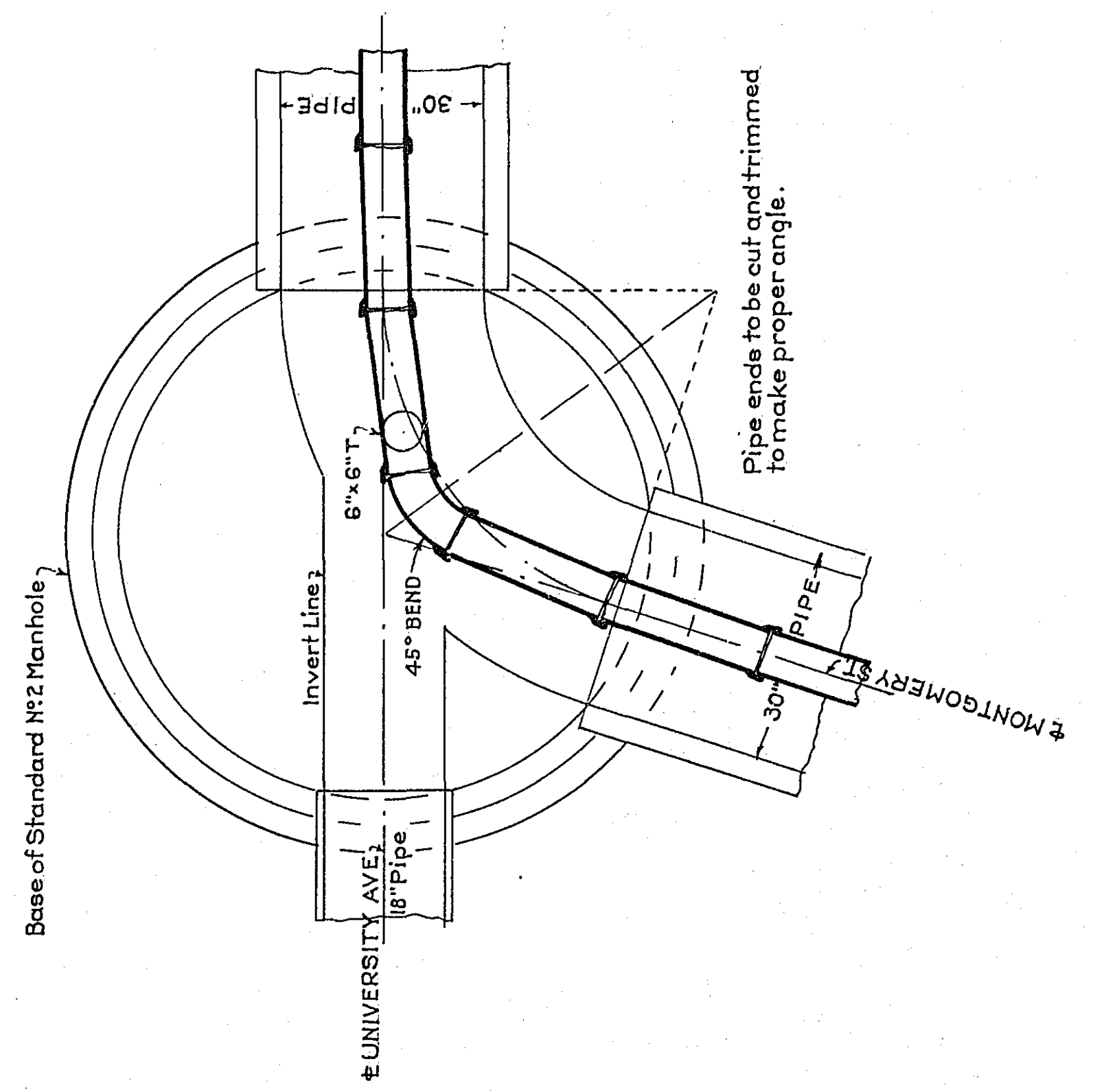




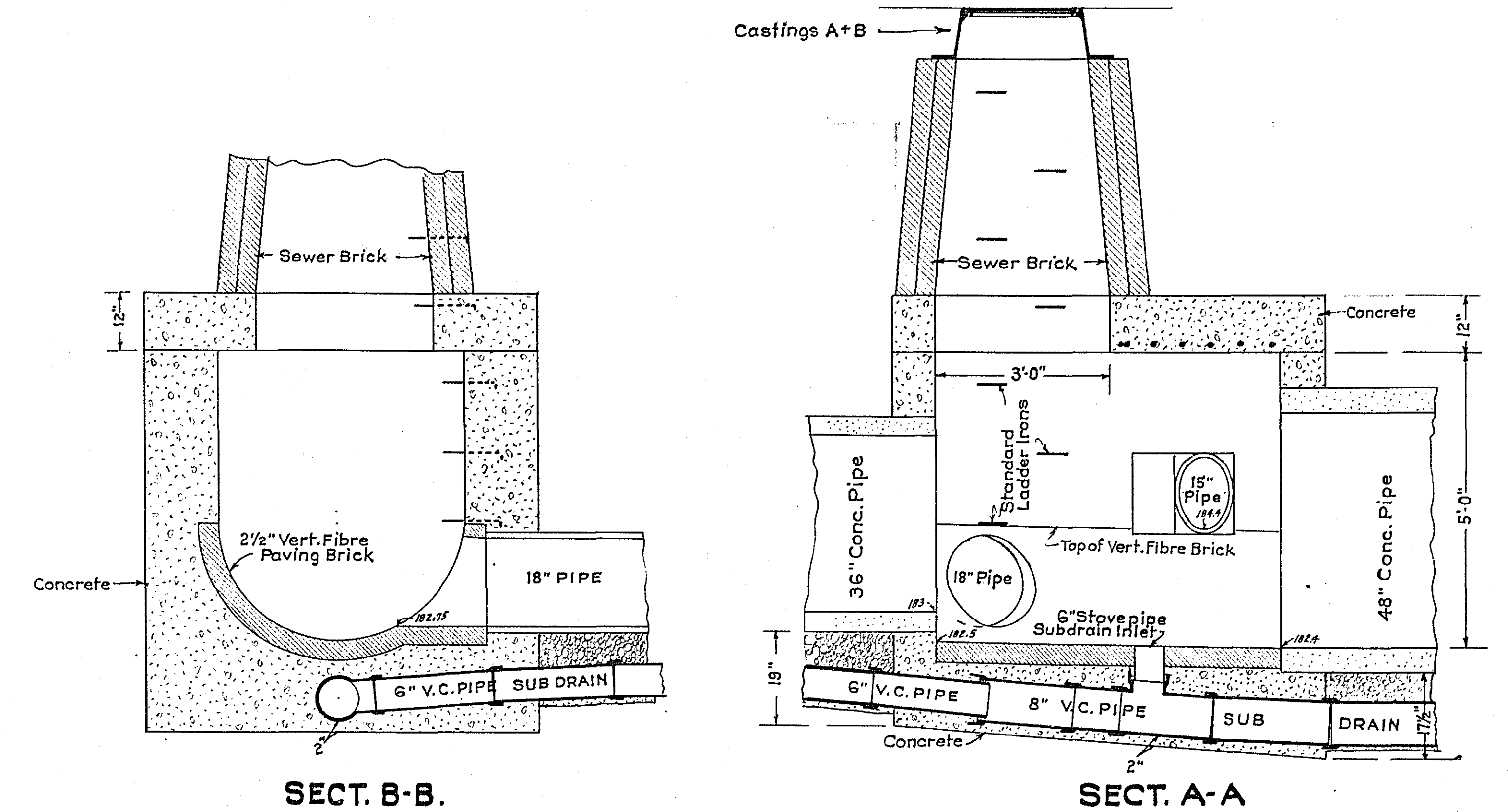
**SUMP MANHOLE**  
 Dept. of Public Works, St. Paul, Minn.  
 Scale: 3/8" = 1'-0"  
**DRG. NO 512**



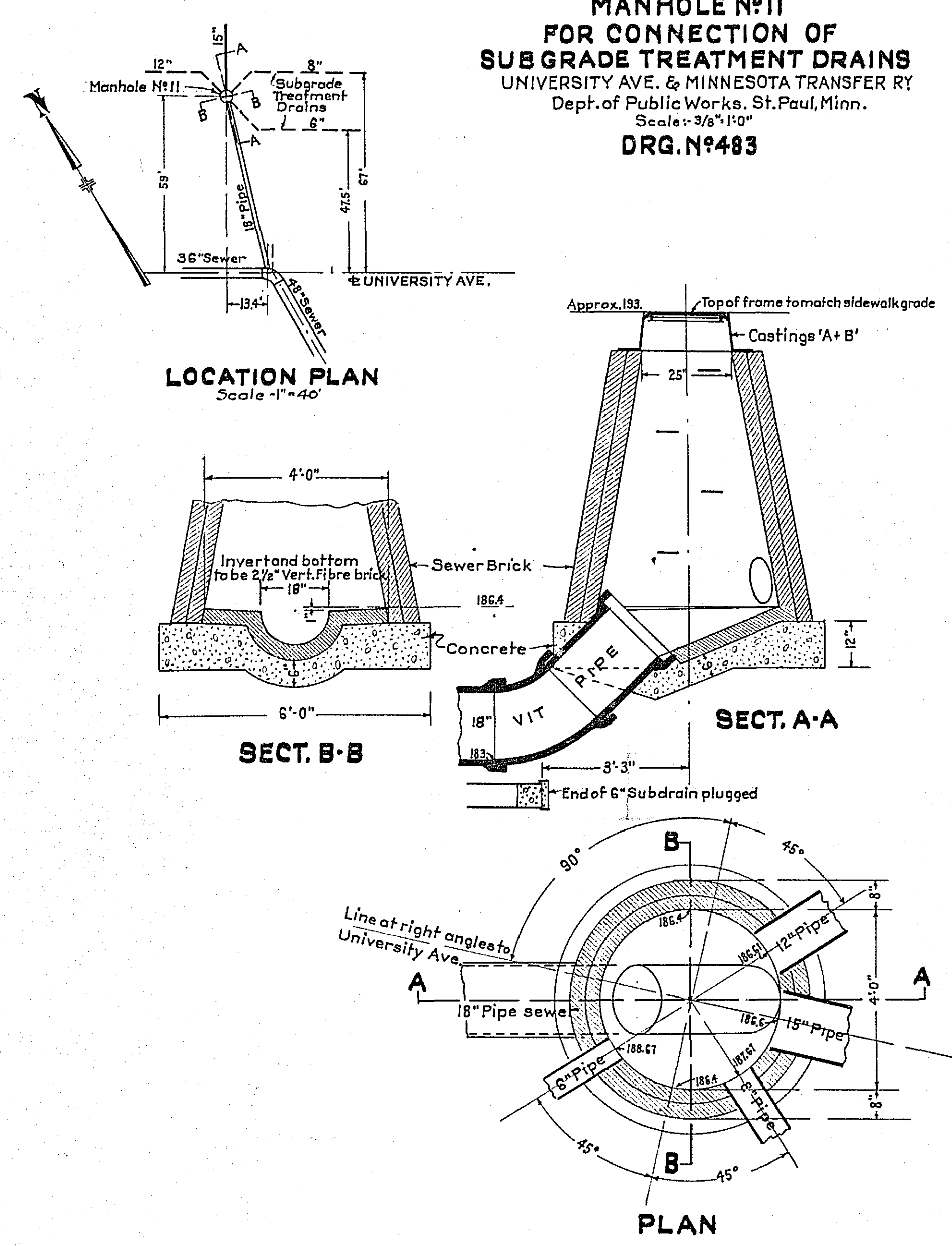
**MANHOLE UNIVERSITY AVE. & MONTGOMERY ST.**  
 Showing general arrangement of 6" vit. Pipe Subdrain at bottom. Fittings required and work to be done to make proper curve.  
 Scale: 1/2" = 1'-0"  
 Dept. of Public Works, St. Paul, Minn.  
**DRG. NO 484**



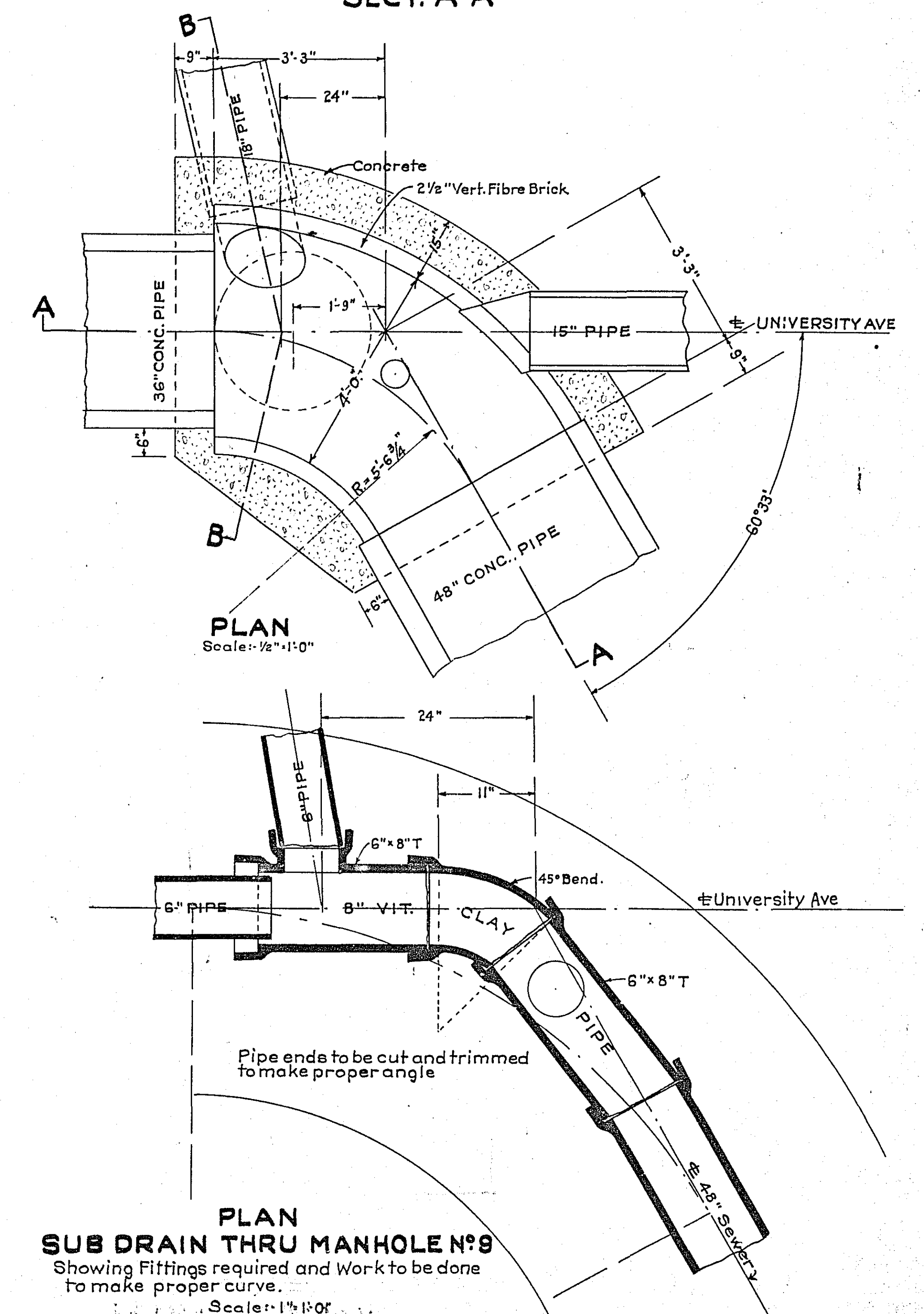
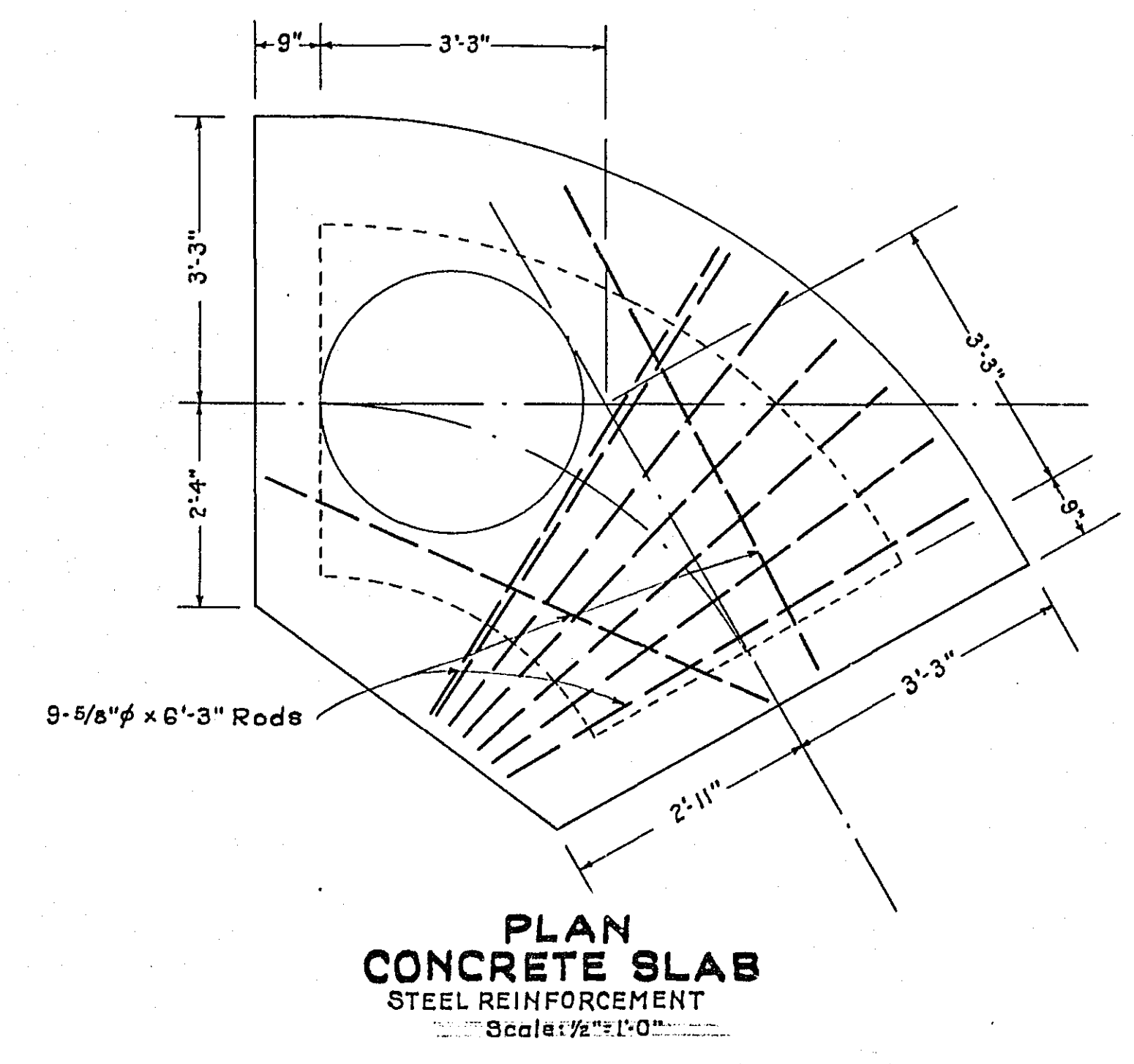
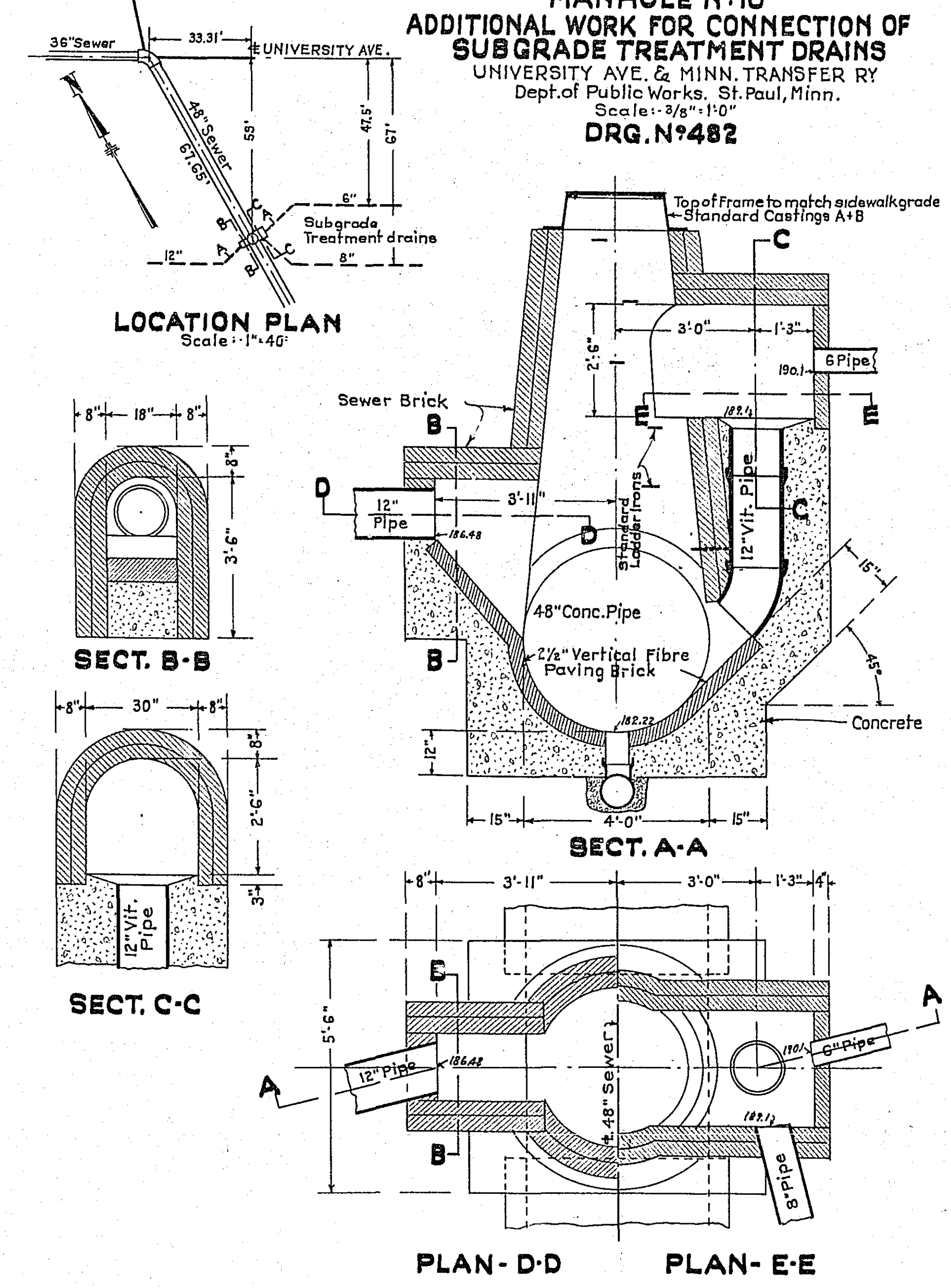
**MANHOLE NO 9 UNIVERSITY AVE. AND MINNESOTA TRANSFER RY.**  
 Scale: 1/2" = 1'-0"  
 Dept. of Public Works, St. Paul, Minn.  
**DRG. NO 481**



**MANHOLE NO 11 FOR CONNECTION OF SUBGRADE TREATMENT DRAINS**  
 UNIVERSITY AVE. & MINNESOTA TRANSFER RY  
 Dept. of Public Works, St. Paul, Minn.  
 Scale: 3/8" = 1'-0"  
**DRG. NO 483**



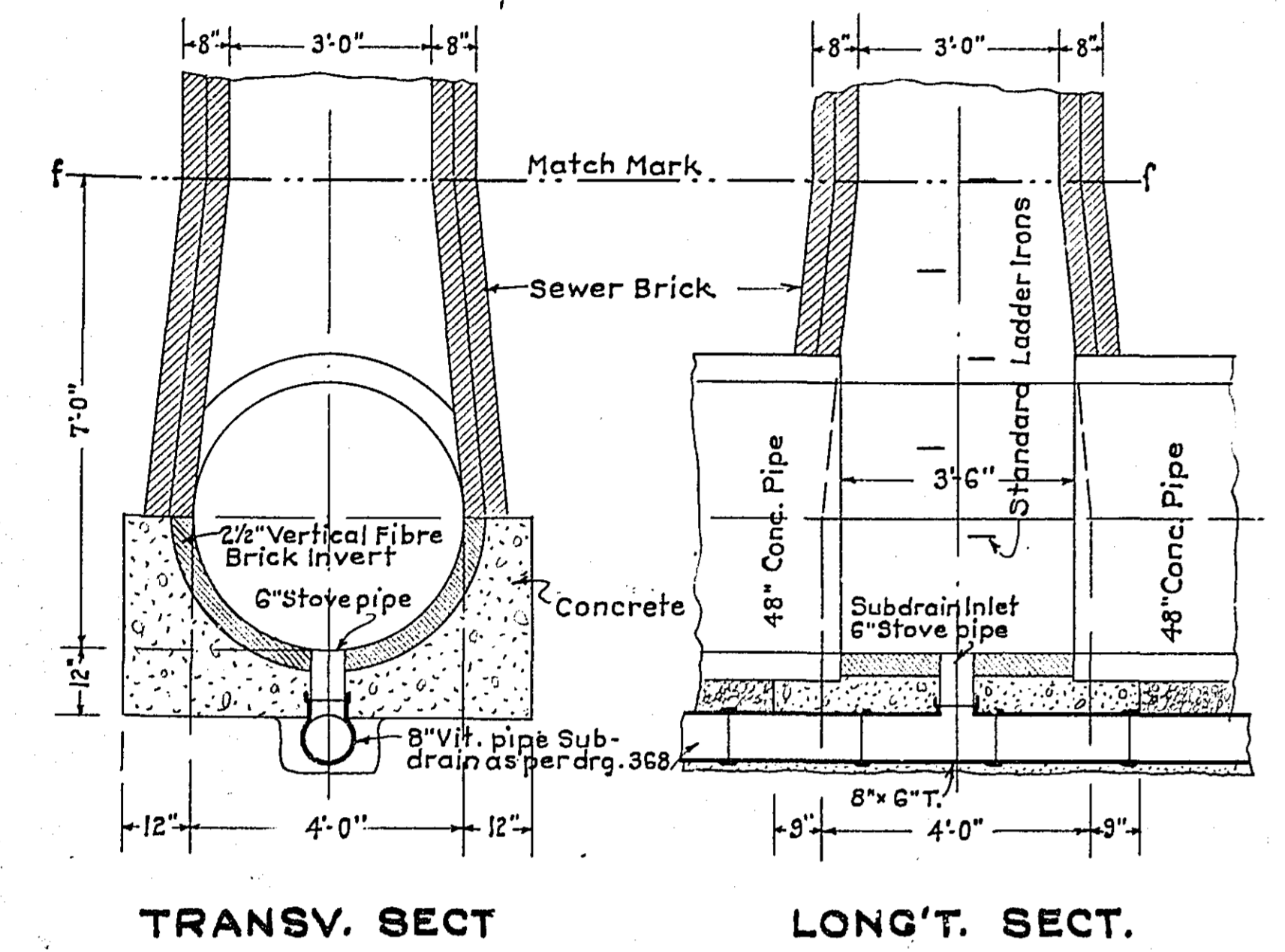
**MANHOLE NO 10 ADDITIONAL WORK FOR CONNECTION OF SUBGRADE TREATMENT DRAINS**  
 UNIVERSITY AVE. & MINN. TRANSFER RY  
 Dept. of Public Works, St. Paul, Minn.  
 Scale: 3/8" = 1'-0"  
**DRG. NO 482**



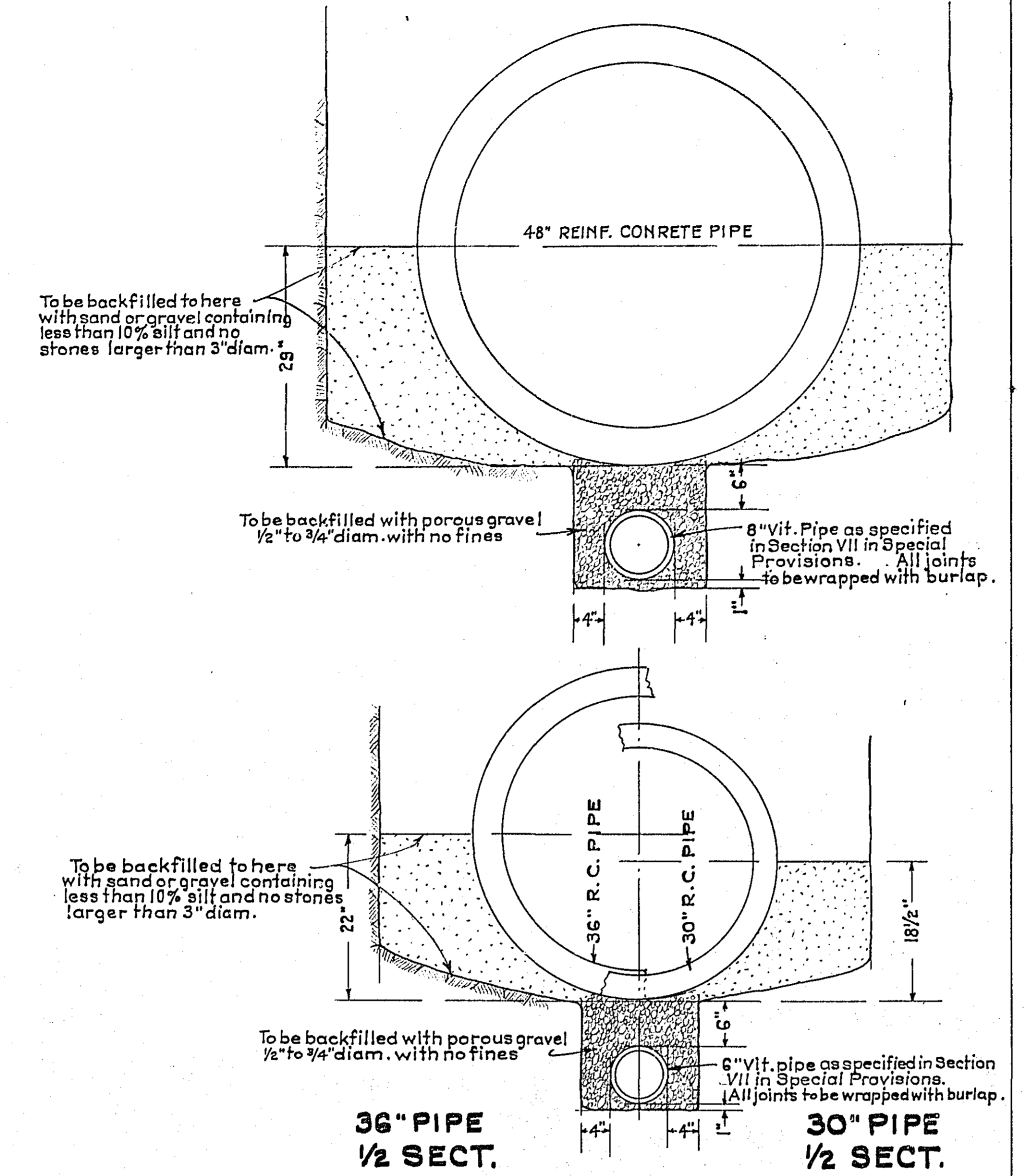


**MANHOLE N° 7  
WITH SUB DRAIN INLET**  
Dept. of Public Works, St. Paul, Minn.  
Scale: 3/8" = 1'-0"  
**DRG. N° 479**

Note: All that portion of Manhole above match mark 'f-f' to be same as shown for deep manhole shaft - Drg. 485

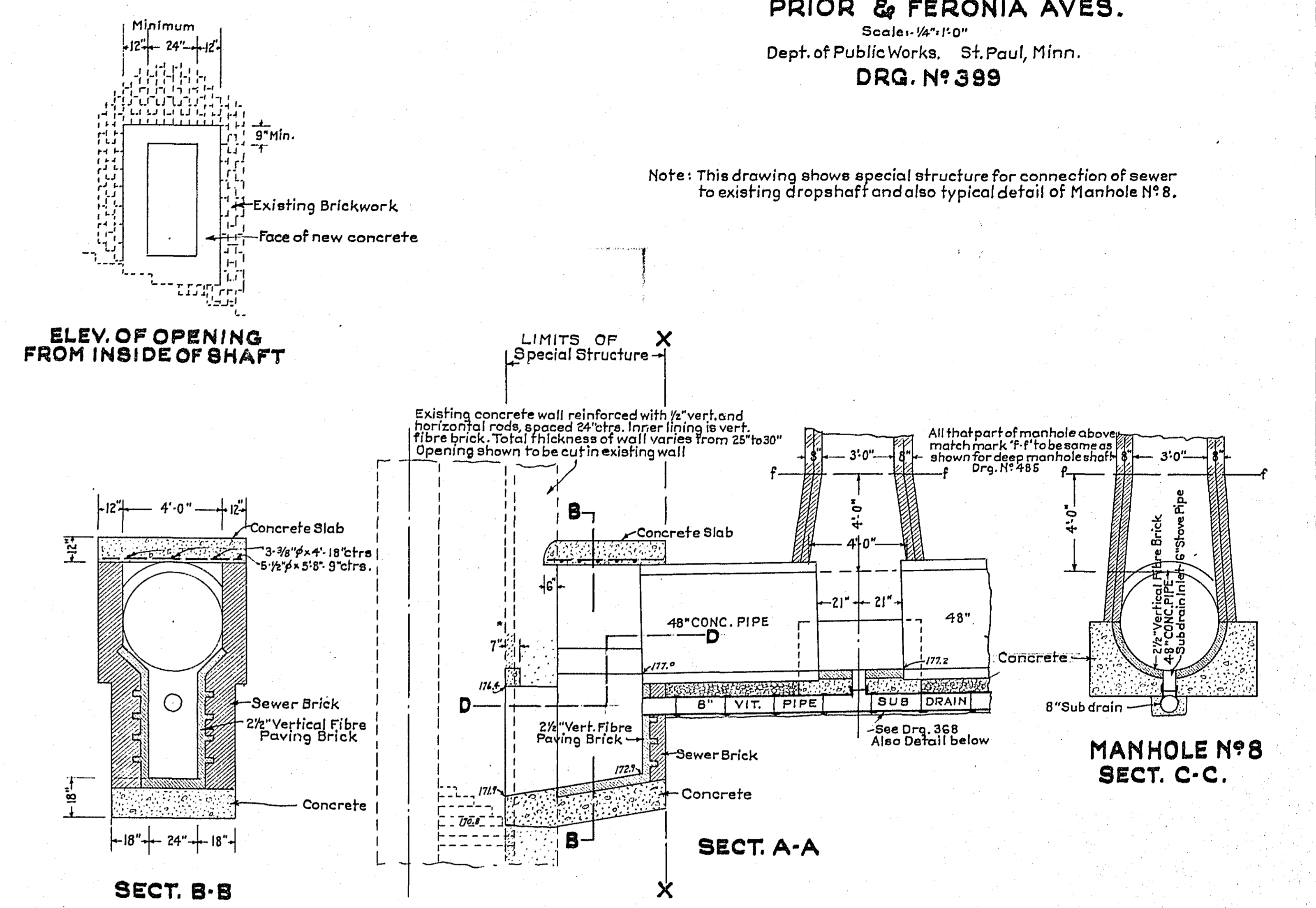


**SUB DRAIN FOR  
30", 36" + 48" REINF. CONCRETE PIPE SEWERS**  
Scale: 3/4" = 1'-0"  
Dept. of Public Works, St. Paul, Minn.  
**DRG. N° 368**

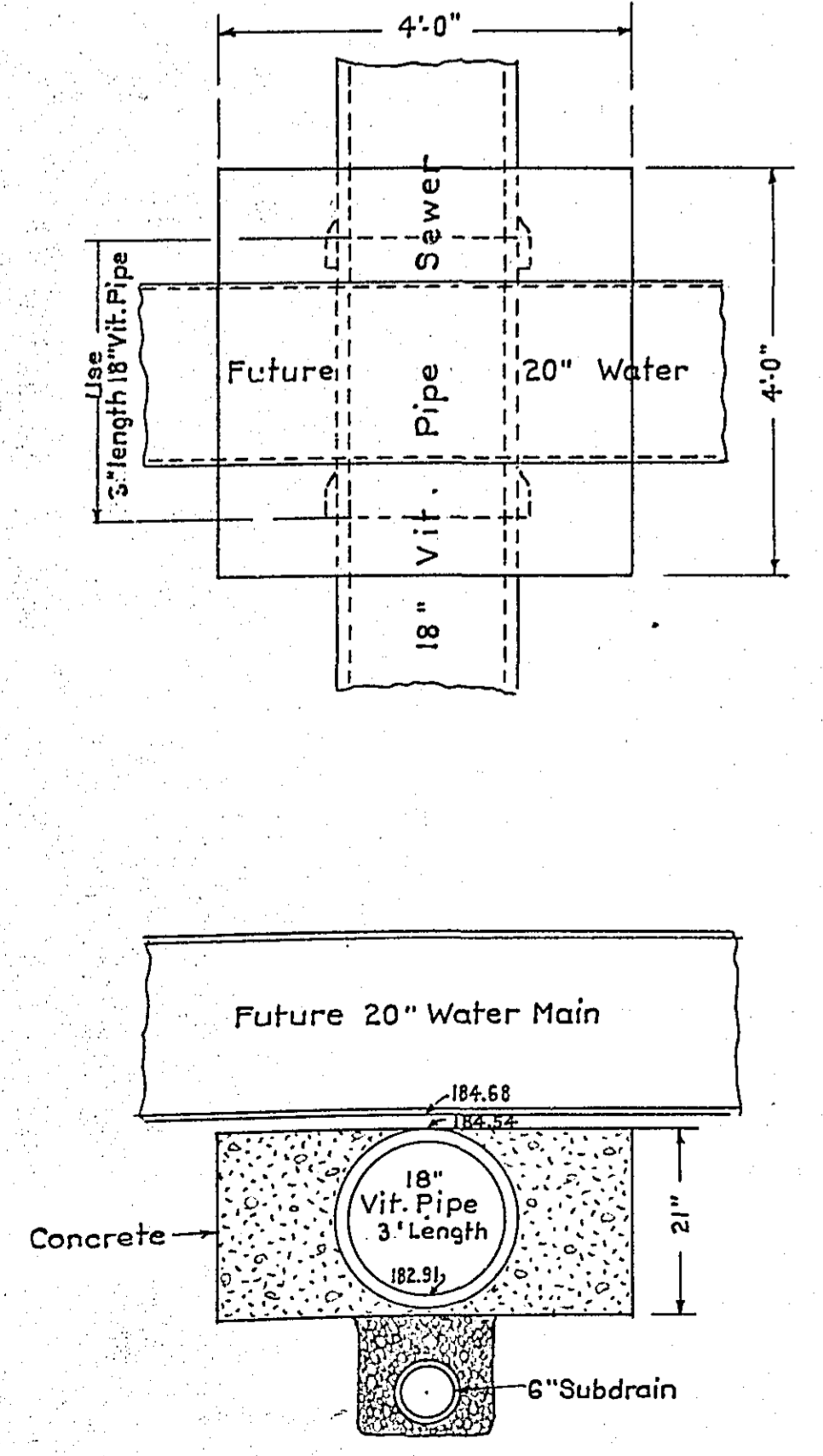


**MANHOLE N° 8  
AND  
PLAN FOR CONNECTION OF NEW 48" SEWER  
PRIOR & FERONIA AVES.**  
Scale: 1/4" = 1'-0"  
Dept. of Public Works, St. Paul, Minn.  
**DRG. N° 399**

Note: This drawing shows special structure for connection of sewer to existing dropshaft and also typical detail of Manhole N° 8.

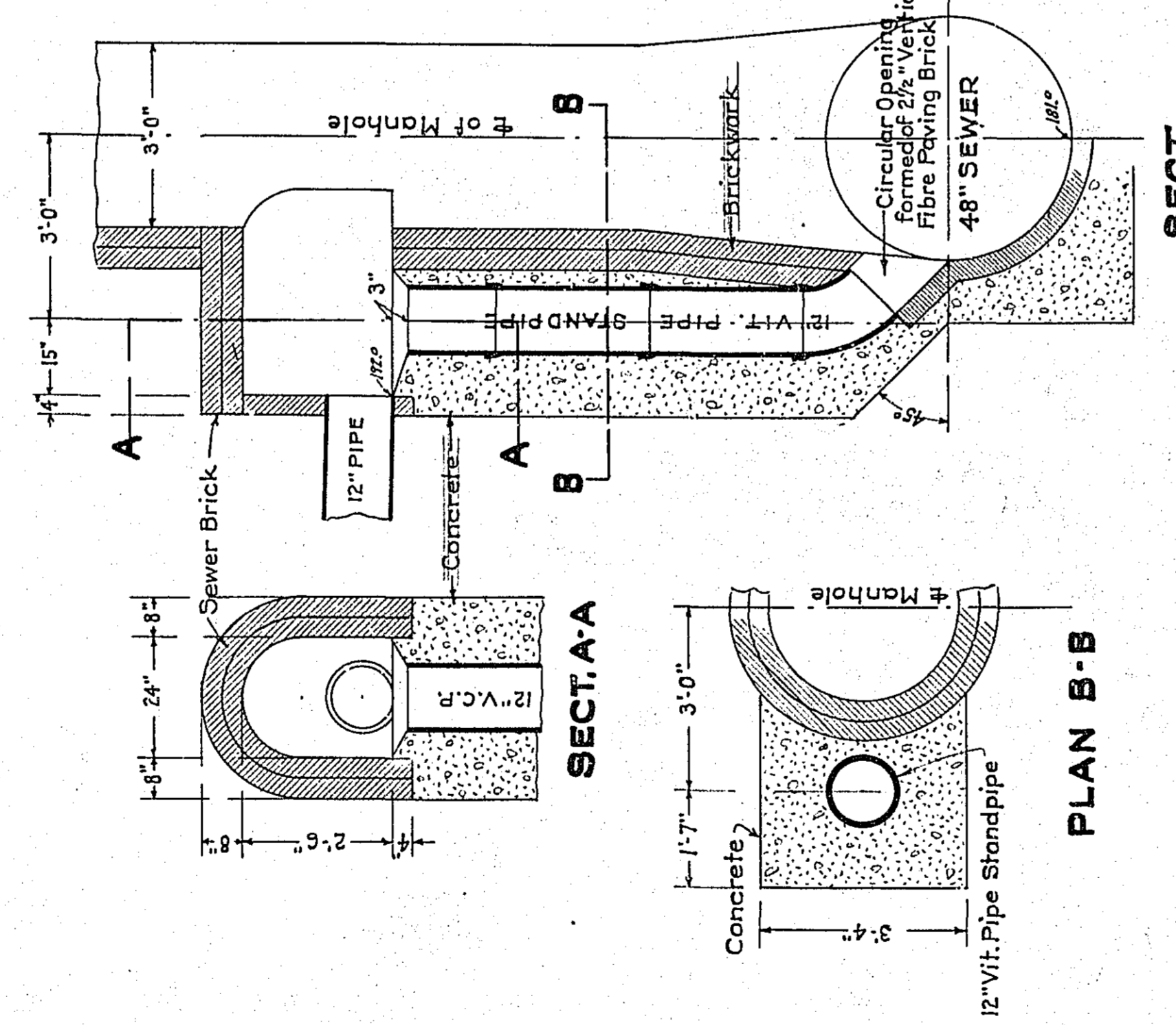


**CONCRETE ENCASEMENT  
FOR 18" PIPE SEWER and  
SEAT  
FOR FUTURE 20" WATER MAIN**  
Dept. of Public Works, St. Paul, Minn.  
Scale: 1/2" = 1'-0"  
**DRG. N° 486**

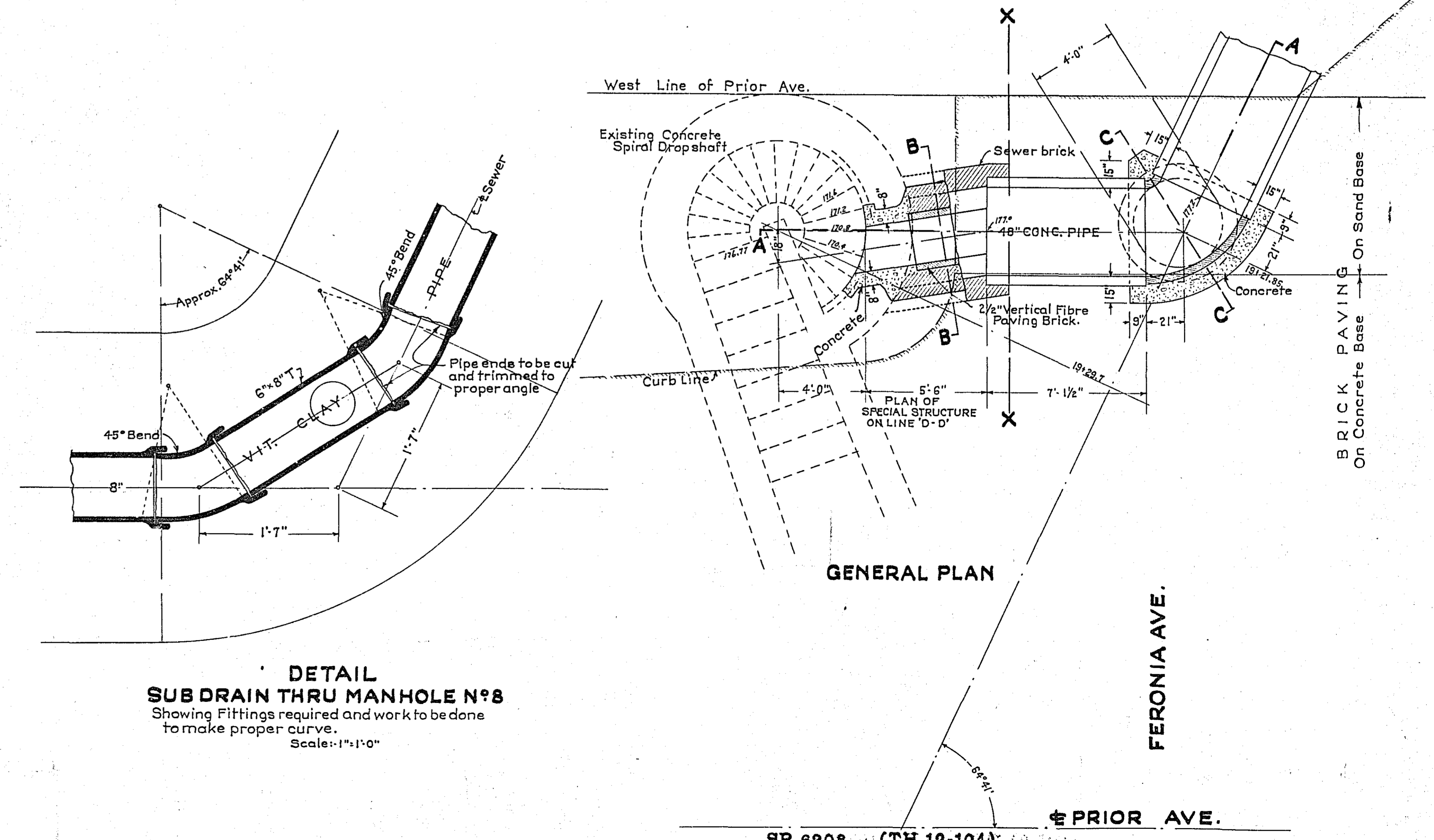


**MANHOLE N° 12**  
Scale: 3/8" = 1'-0"  
Dept. of Public Works, St. Paul, Minn.  
**DRG. N° 511**

Note: A complete manhole N° 12 is to be the same as a manhole N° 7, Drg. N° 479, except as modified by the addition of standpipe and structural work shown on this drawing



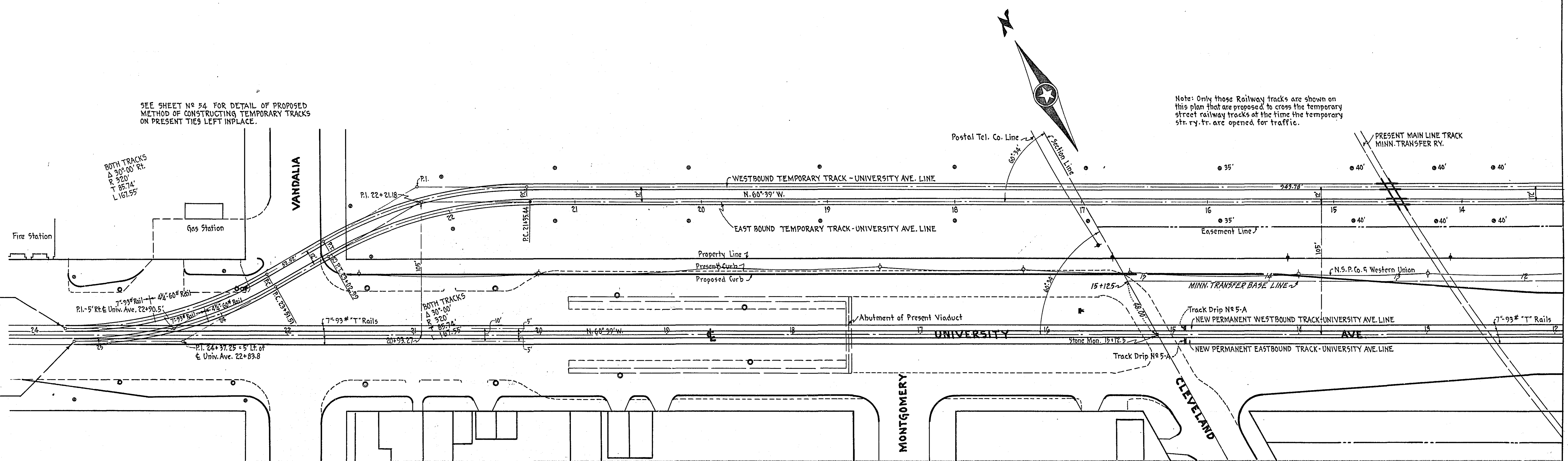
**SECT. TRANS. WITH 48" SEWER**





SEE SHEET NO 54 FOR DETAIL OF PROPOSED METHOD OF CONSTRUCTING TEMPORARY TRACKS ON PRESENT TIES LEFT IN PLACE.

Note: Only those Railway tracks are shown on this plan that are proposed to cross the temporary street railway tracks at the time the temporary str. ry. tr. are opened for traffic.



UNIVERSITY AVE. LINE (WESTBOUND TRACK)  
END TRACK REMOVAL  
END TEMPORARY TRACK  
END NEW PERMANENT TRACK  
UNIVERSITY AVE. STA. 23+76.2

UNIVERSITY AVE. LINE (EASTBOUND TRACK)  
END TRACK REMOVAL  
END TEMPORARY TRACK  
END NEW PERMANENT TRACK  
UNIVERSITY AVE. STA. 23+69.5 + TEMPORARY TRACK STA. 25+19.06

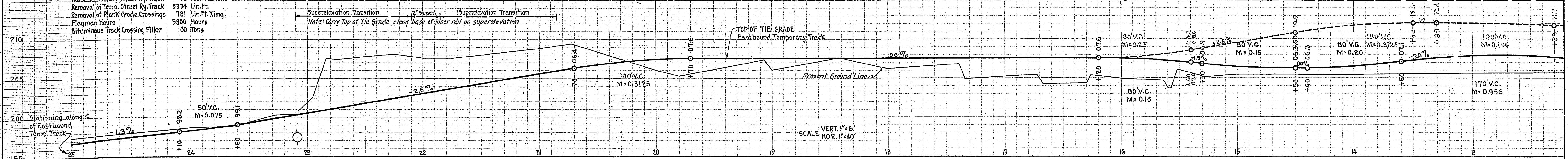
**ESTIMATE QUANTITIES TEMPORARY STREET RAILWAY (University Ave. Line)**

Excavation	3403	(Cu. Yd.)
Lay Temporary Street Ry. Track	5334	Lin. Ft.
Line Surface Temp. Street Ry. Track	5334	Lin. Ft.
Furnish & Install Rail Braces	470	Rail Braces
Furnish & Install Tie Rods (Temp. Str. Ry. Tr.)	351	Tie Rods
Furnish & Install Track Crossings	8	Track Crossings
Install Track Guard Rail	235	Lin. Ft.
Furnish & Install Plank Grade Crossing	781	Lin. Ft. Xing.
Raise Temporary Street Ry. Track	58	Foot-Steps
Removal of Temp. Street Ry. Track	5334	Lin. Ft.
Removal of Plank Grade Crossings	781	Lin. Ft. Xing.
Flagman Hours	5800	Hours
Bituminous Track Crossing Filler	60	Tons

B.M. Elev. 201.41  
Hyd. N.W. Corner  
University & Vandalia St.

TEMPORARY STREET RAILWAY TRACKS - UNIVERSITY AVE. LINE

B.M. Elev. 209.04  
Hyd. N.W. Corner  
Cleveland & University Ave.



**ESTIMATE QUANTITIES - PERMANENT STREET RY. TRACK (UNIVERSITY AVE. LINE) (Except Temporary Tracks)**

Removal of Present Street Railway Track 1992	Lin. Ft.
Removal of Present Trolley Poles	14 Trolley Poles
Lay Permanent Street Railway Track	4908 Lin. Ft.
Gravel Track Surfacing Material Fine Graded	467 Tons
Line Surface Permanent Street Ry. Track	4908 Lin. Ft.
Install Tie Rods	491 Tie Rods
Furnish & Install Track Drips No. 5-A Complete	6 Track Drips
Special Excavation (Subgrade)	125 Cu. Yd.
Subgrade Excavation Backfill	150 Cu. Yd.
Furnish & Install Plank Grade Crossing	200 Lin. Ft. Xing.
Removal of Plank Grade Crossing	200 Lin. Ft. Xing.

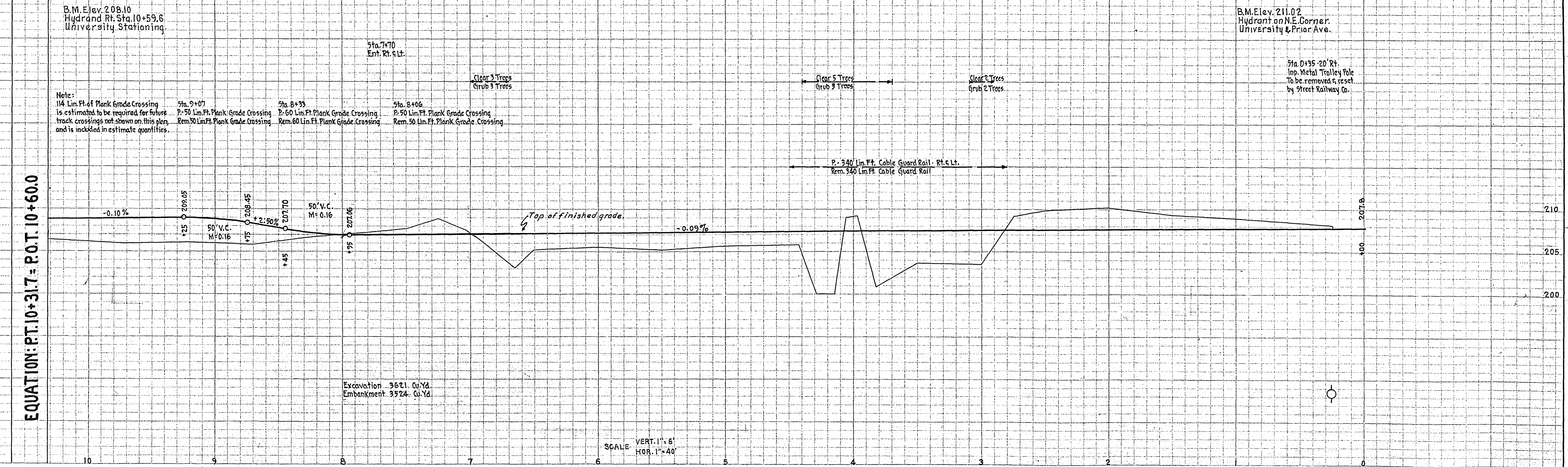
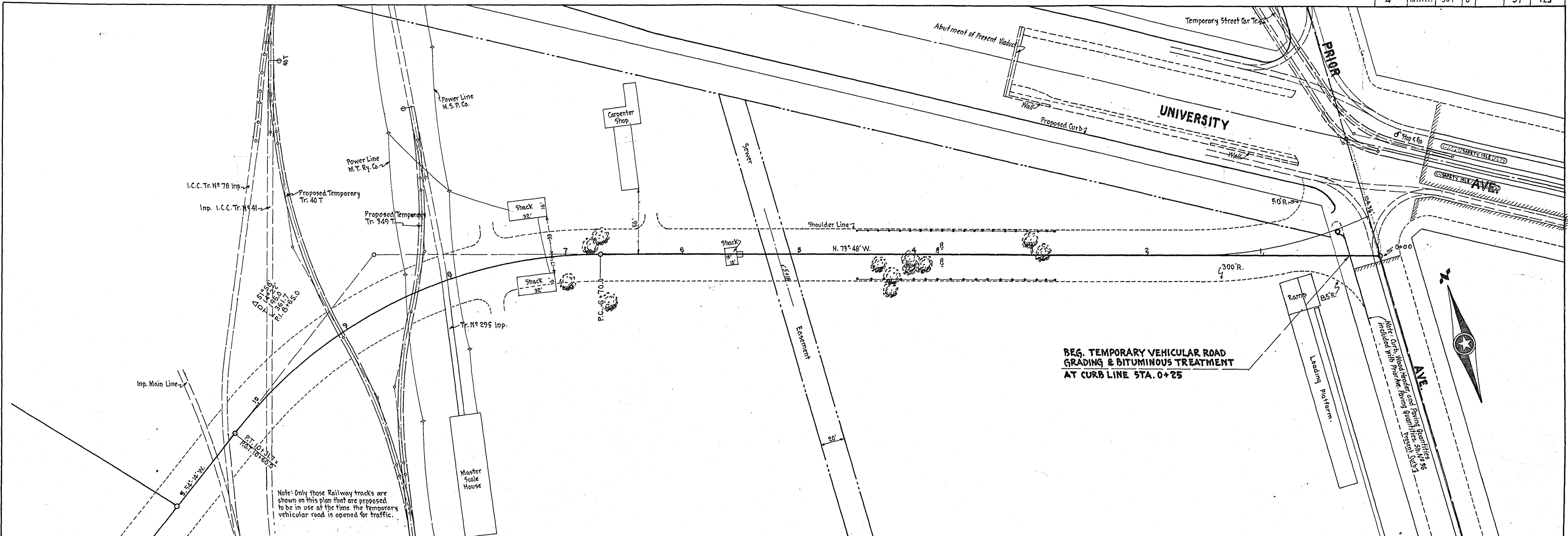
Estimated Plank Grade Crossing required for traffic to cross tracks before track paving is placed at Univ. & Vandalia St. Intersection.  
P- 100 Lin. Ft. Plank Grade Crossing  
Rem- 100 Lin. Ft. Plank Grade Crossing

PERMANENT STREET RAILWAY TRACKS  
(Note: For Grades & Profile, and grading & paving quantities, refer to paving plans.)

EXCEPTION TO STREET RAILWAY TRACK & TROLLEY POLE REMOVAL  
(Removal of Street Railway Track & Trolley Poles on present Viaduct to be included in Lump Sum Bid for removal of present Viaduct.)  
Sta. 14+89.6 RT-4 Lt.  
P-2 No. 5-A Track Drips

Both Tracks - Present Ties & Conc. Base to be left in place. See Sh. No. 54



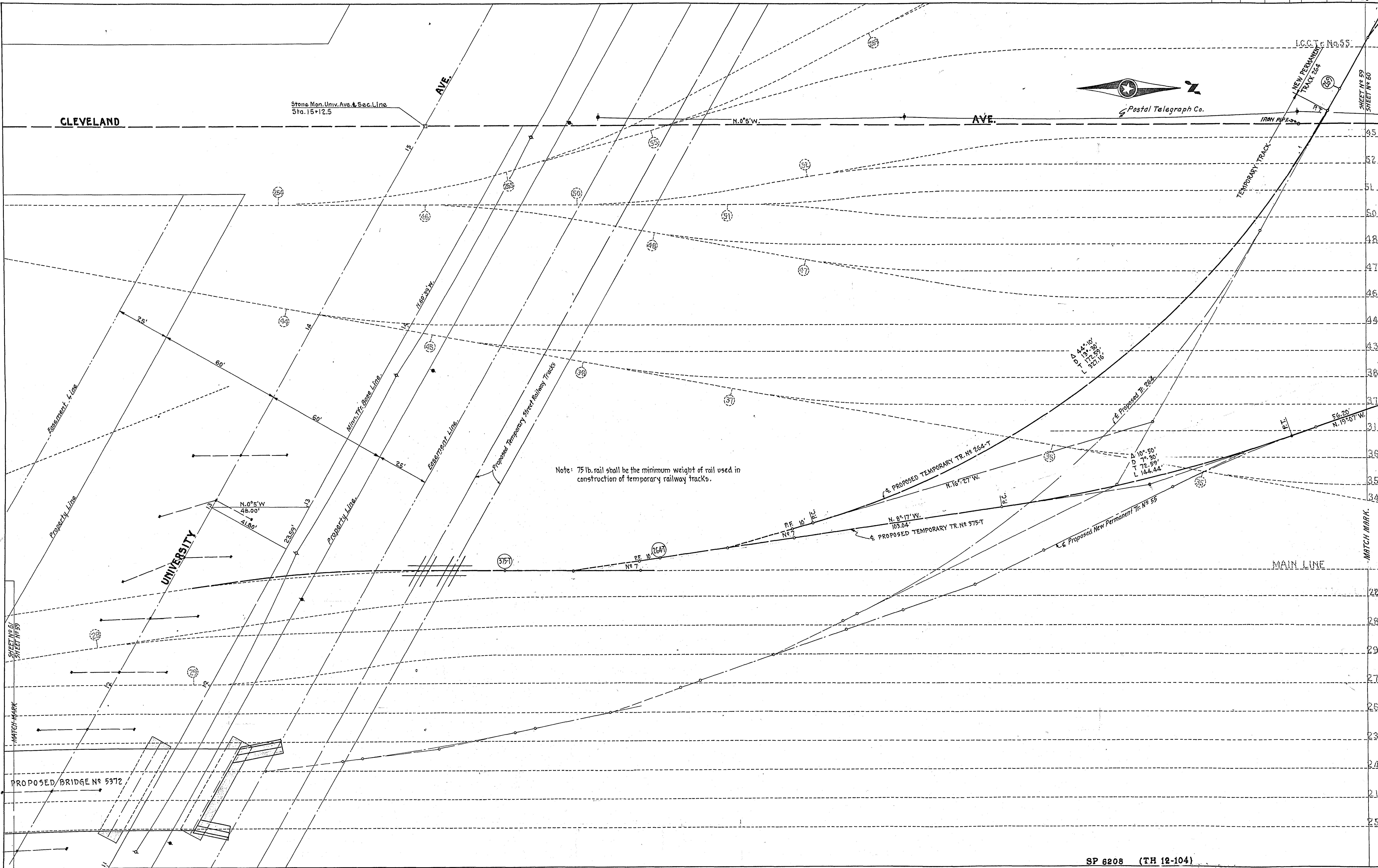


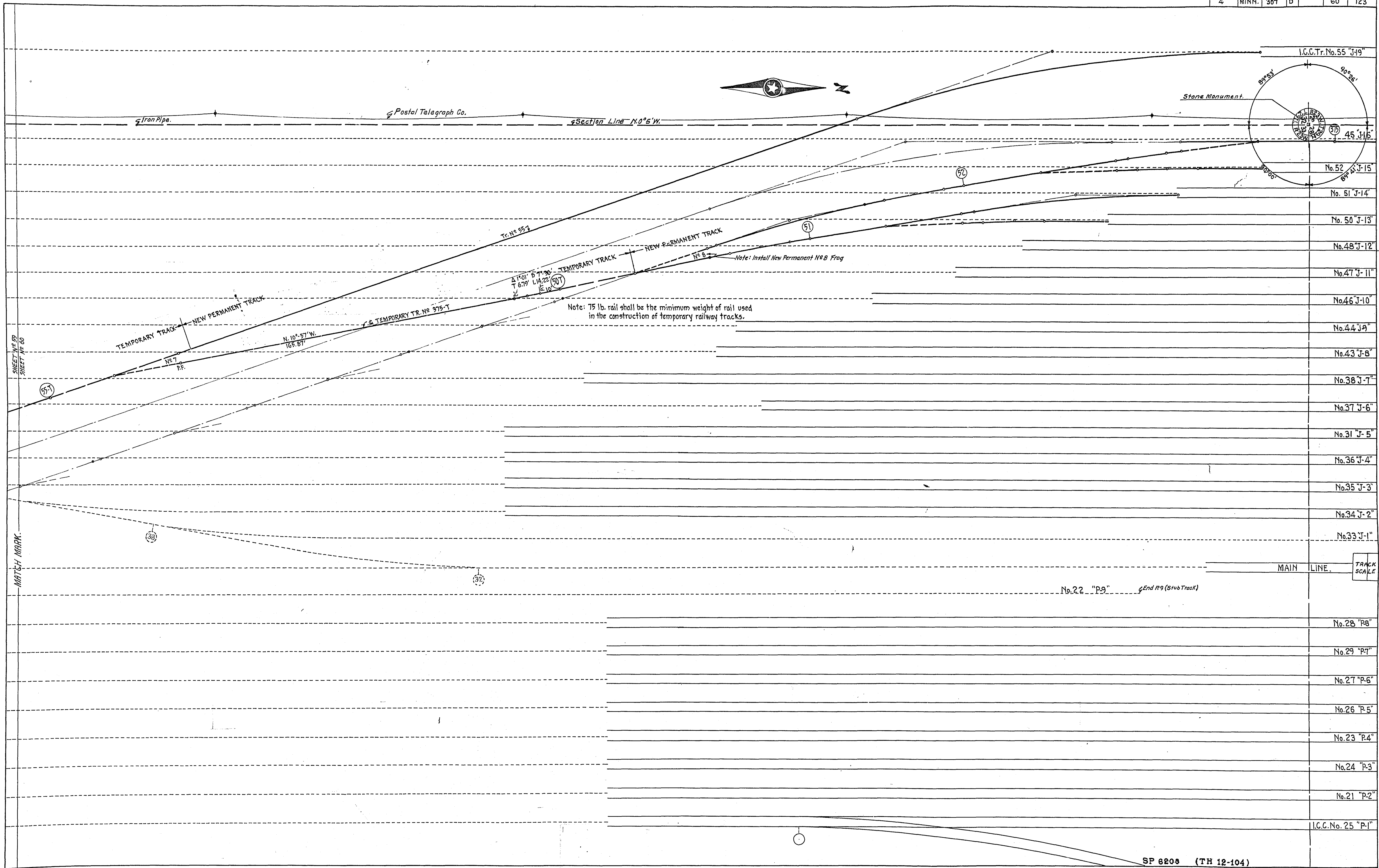
EQUATION: PT. 10+31.7 = P.O. T. 10+60.0

SCALE: VERT. 1" = 6'  
HOR. 1" = 40'

SP 6208 (TH 12-104)





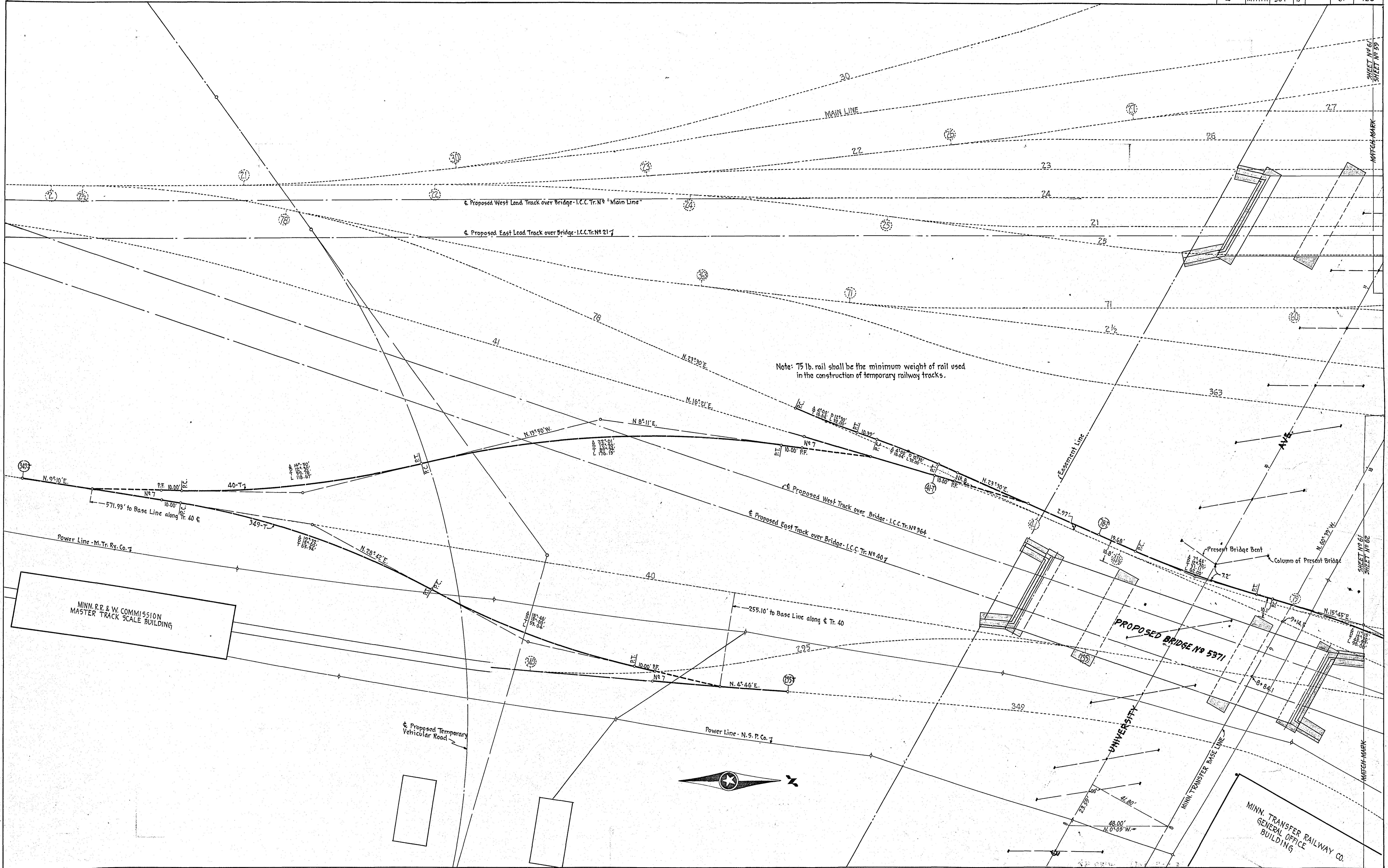


SHEET No 59  
SHEET No 60

MAIN LINE. TRACK SCALE

SP 6208 (TH 12-104)

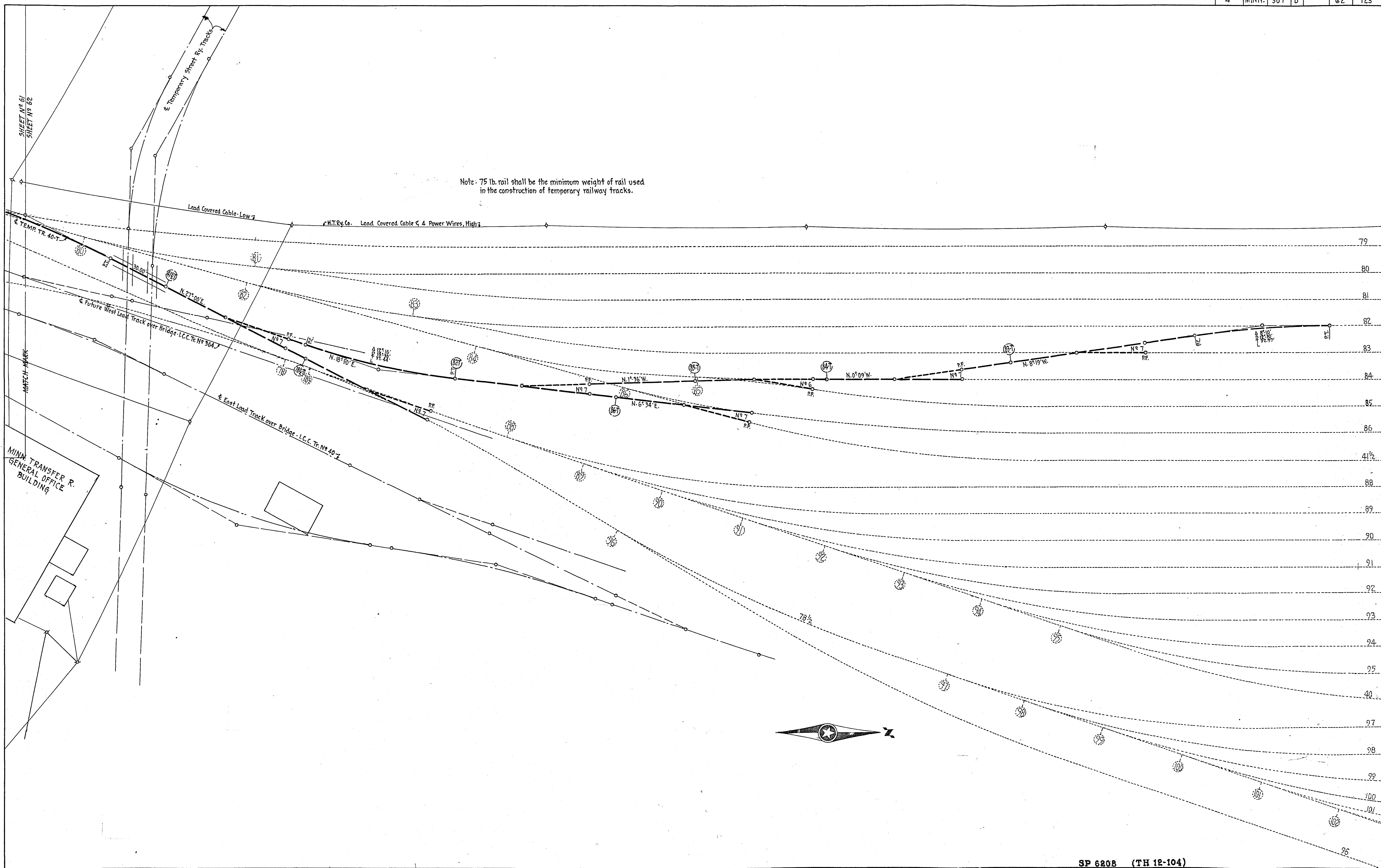




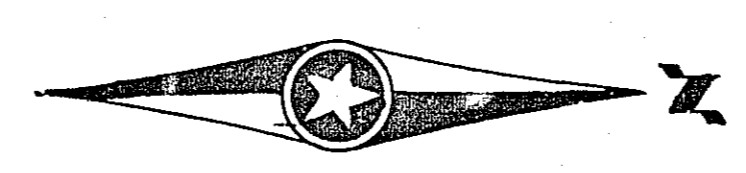
Note: 75 lb. rail shall be the minimum weight of rail used in the construction of temporary railway tracks.

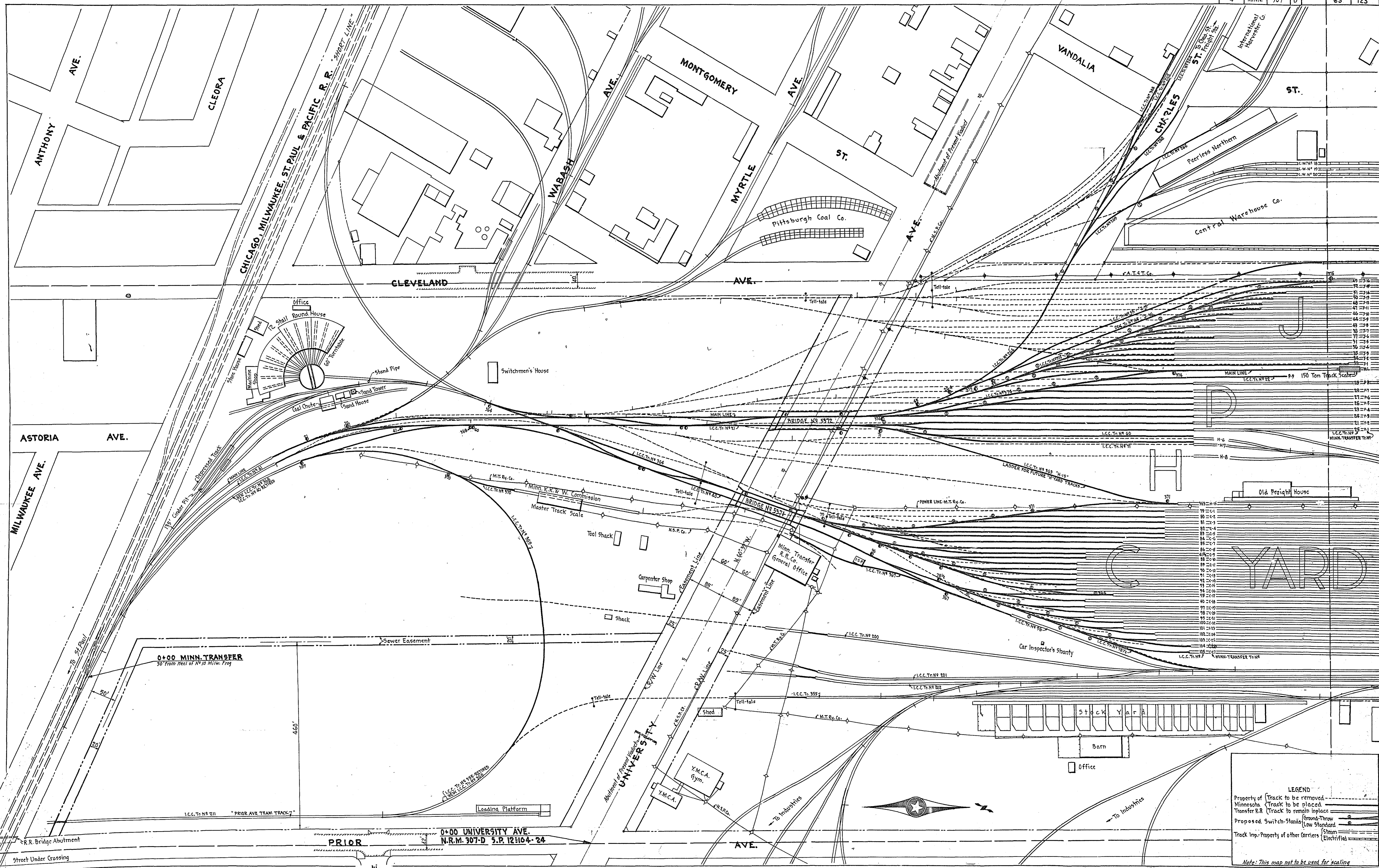
MINN. R.R. & W. COMMISSION  
MASTER TRACK SCALE BUILDING

MINN. TRANSFER RAILWAY CO.  
GENERAL OFFICE  
BUILDING



Note: 75 lb. rail shall be the minimum weight of rail used in the construction of temporary railway tracks.





**LEGEND**

Property of (Track to be removed)

Minneapolis (Track to be placed)

Transfer R.R. (Track to remain in place)

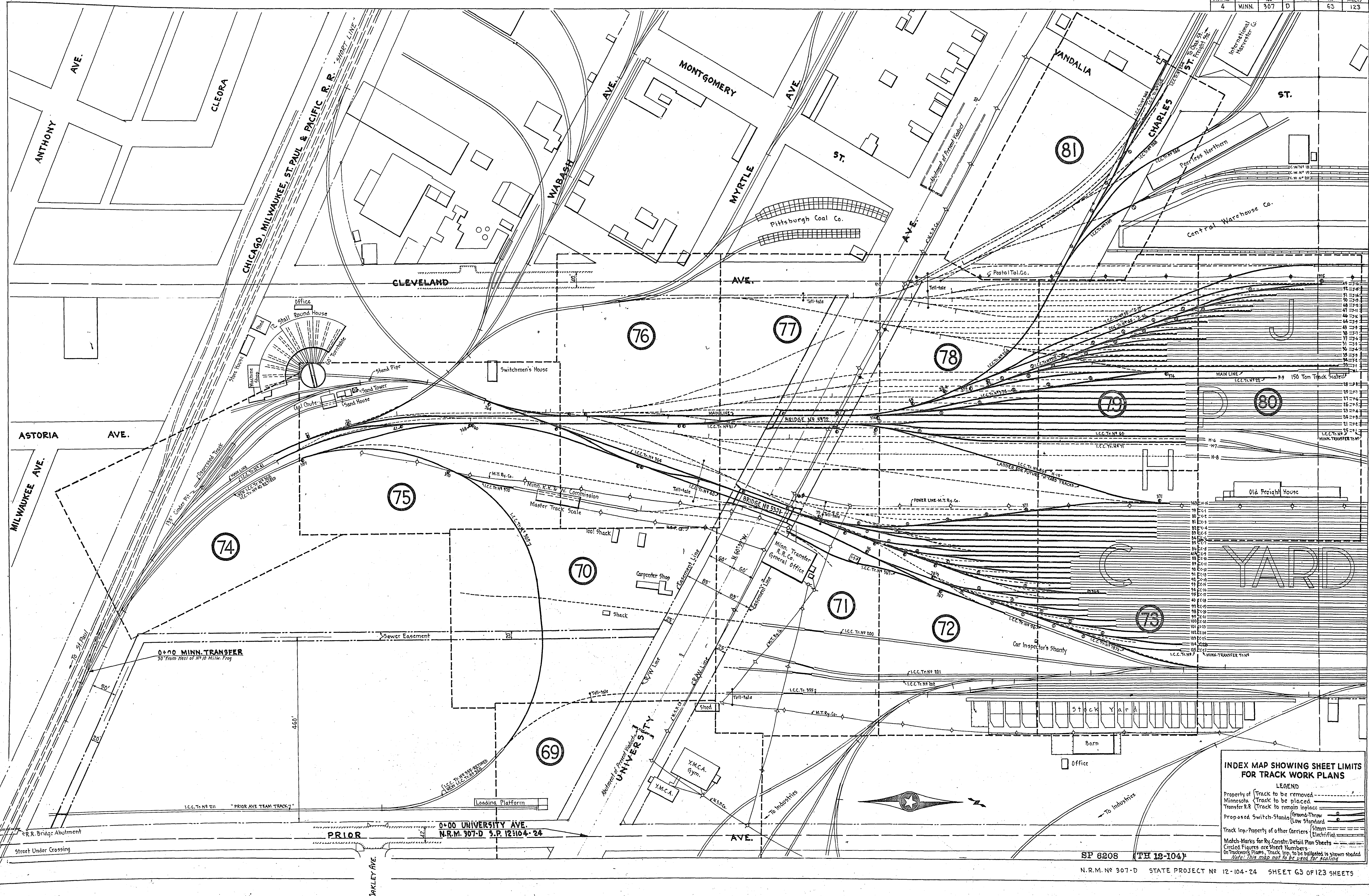
Proposed Switch-Stands (Ground-Throw)

(Low Standard)

Track Imp.-Property of other Carriers (Steam)

(Electrified)

*Note: This map not to be used for scaling*

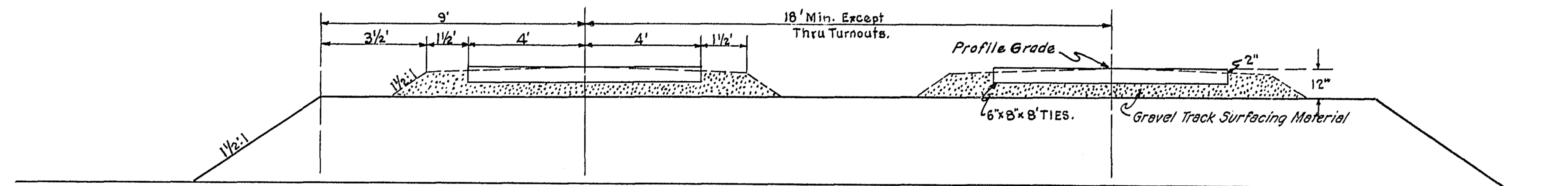


**INDEX MAP SHOWING SHEET LIMITS FOR TRACK WORK PLANS**

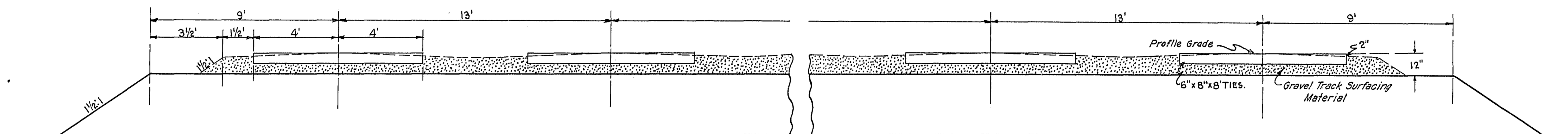
**LEGEND**

- Property of Minnesota (Track to be removed)
- Transfer R.R. (Track to remain in place)
- Proposed Switch-Stands (Low Standard)
- Proposed Switch-Stands (Standard)
- Track Imp. Property of other Carriers (Electrified)
- Match-Marks for Ry. Constr. Detail Plan Sheets
- Circled Figures are Sheet Numbers
- On Trackwork Plans, Track Imp. to be ballasted is shown shaded
- Note: This map not to be used for scaling

**TYPICAL BRIDGE APPROACH SECTION  
SO. OF UNIVERSITY AVE.**

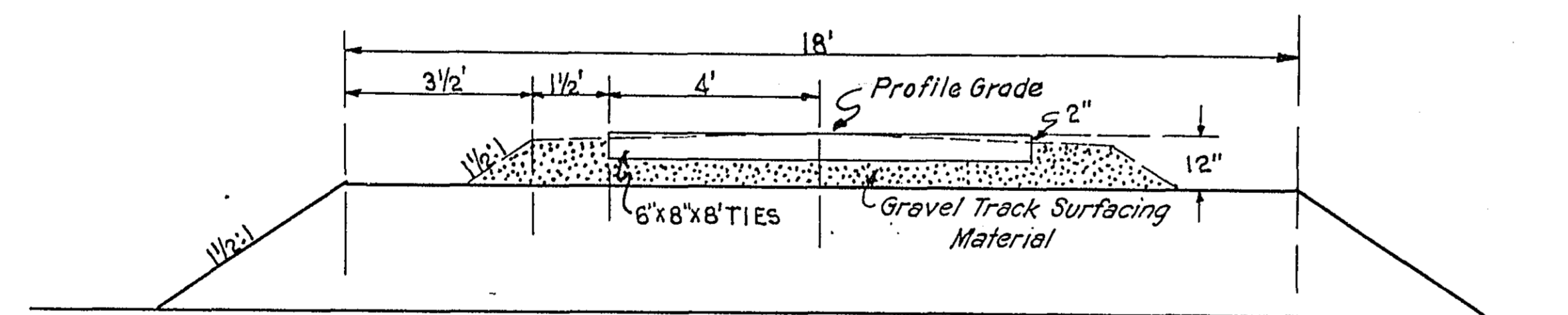


**TYPICAL GRADING SECTION OF YARDS.**

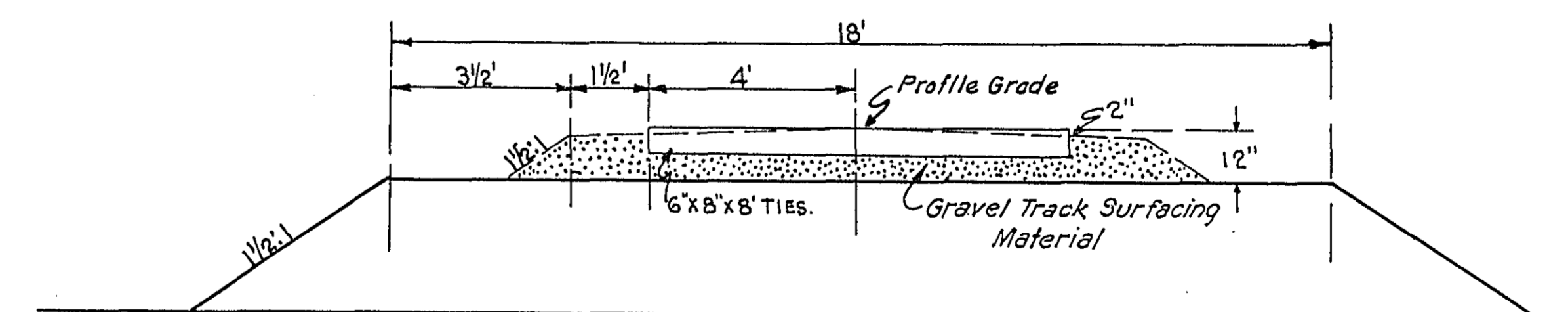


**TYPICAL SECTIONS PRIOR AVE LOOP.**

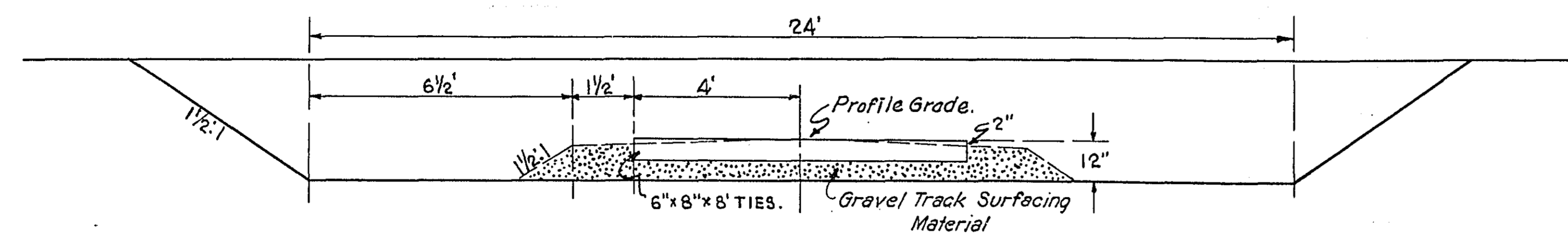
**IN EMBANKMENT.**

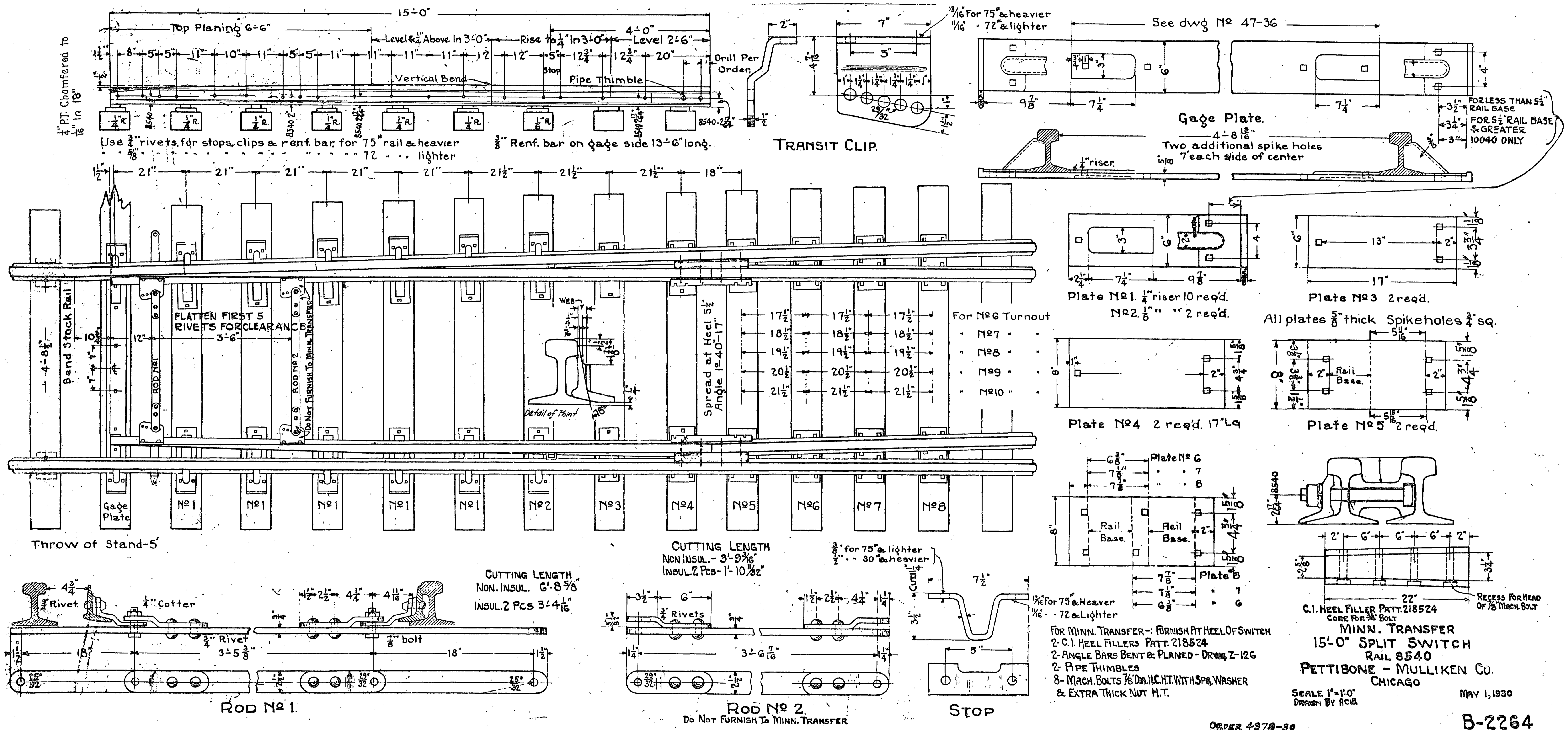


**TYPICAL SECTION CHARLES ST. CONNECTION.**

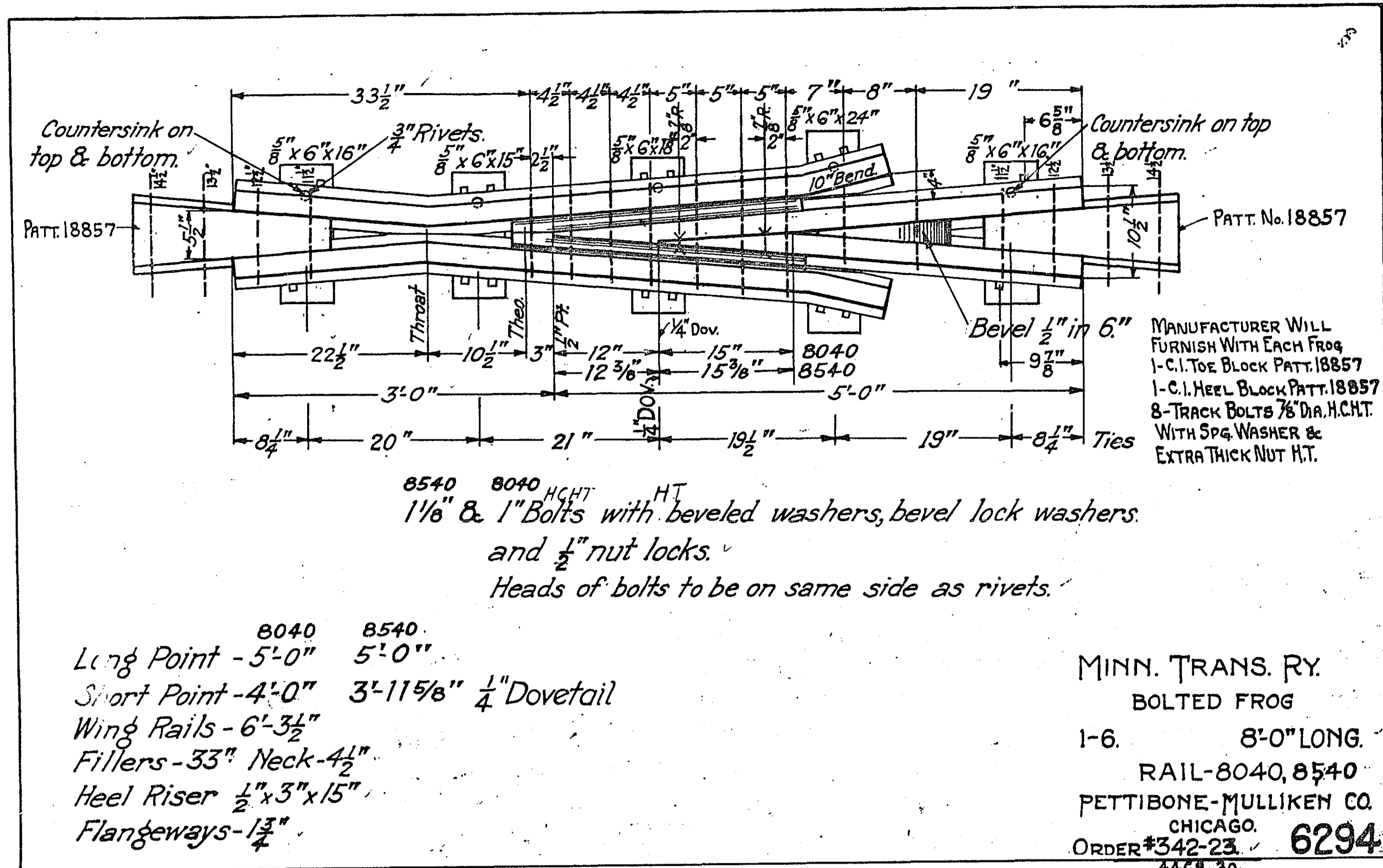


**IN EXCAVATION.**



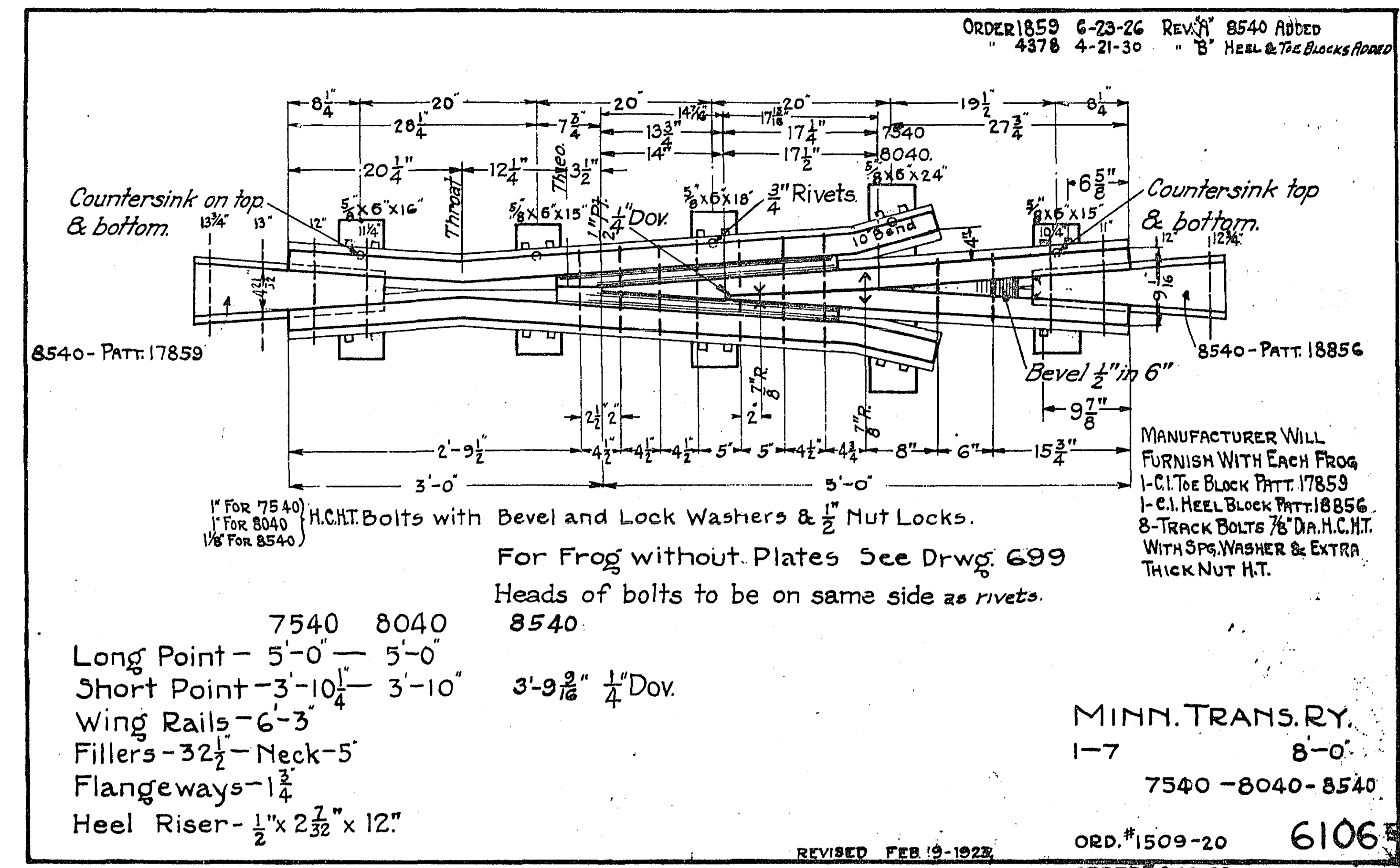


DETAILS OF 15'-0" SPLIT SWITCH



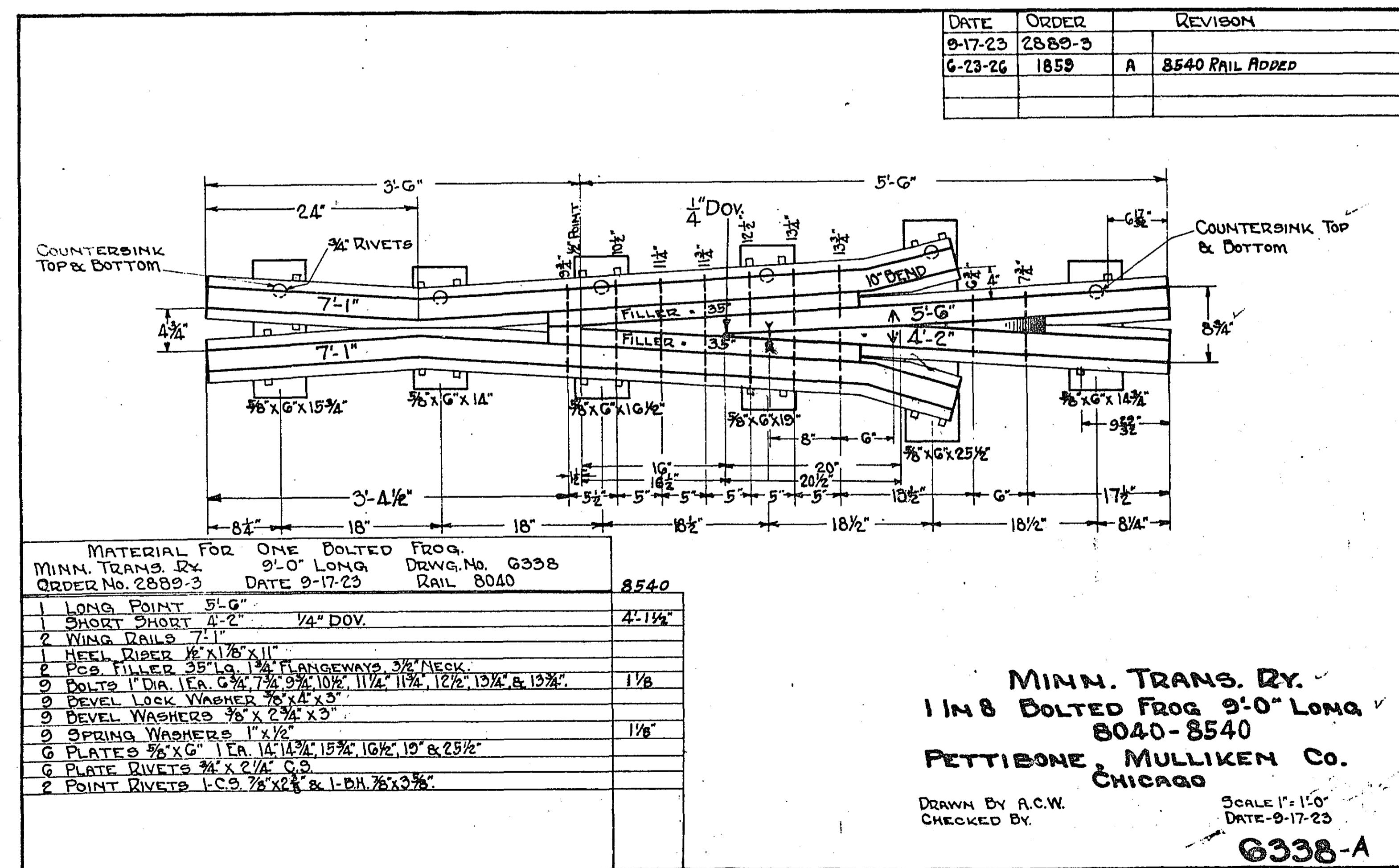
8040 8540  
 Long Point - 5'-0" 5'-0"  
 Short Point - 4'-0" 3'-11 5/8" 1/4" Dovetail  
 Wing Rails - 6'-3 1/2"  
 Fillers - 33" Neck - 4 1/2"  
 Heel Riser - 1/2" x 3" x 15"  
 Flangeways - 1 3/4"

MINN. TRANS. RY.  
 BOLTED FROG  
 1-6. 8'-0" LONG.  
 RAIL-8040, 8540  
 PETTIBONE-MULLIKEN CO.  
 CHICAGO.  
 ORDER #342-23 6294  
 4468-3Q



7540 8040 8540  
 Long Point - 5'-0" 5'-0"  
 Short Point - 3'-10 1/4" 3'-10" 3'-9 3/8" 1/4" Dov.  
 Wing Rails - 6'-3"  
 Fillers - 32 1/2" Neck - 5"  
 Flangeways - 1 3/4"  
 Heel Riser - 1/2" x 2 7/32" x 12"

MINN. TRANS. RY.  
 1-7 8'-0"  
 7540-8040-8540  
 ORD. #1509-20 6106  
 ORDER #342-23

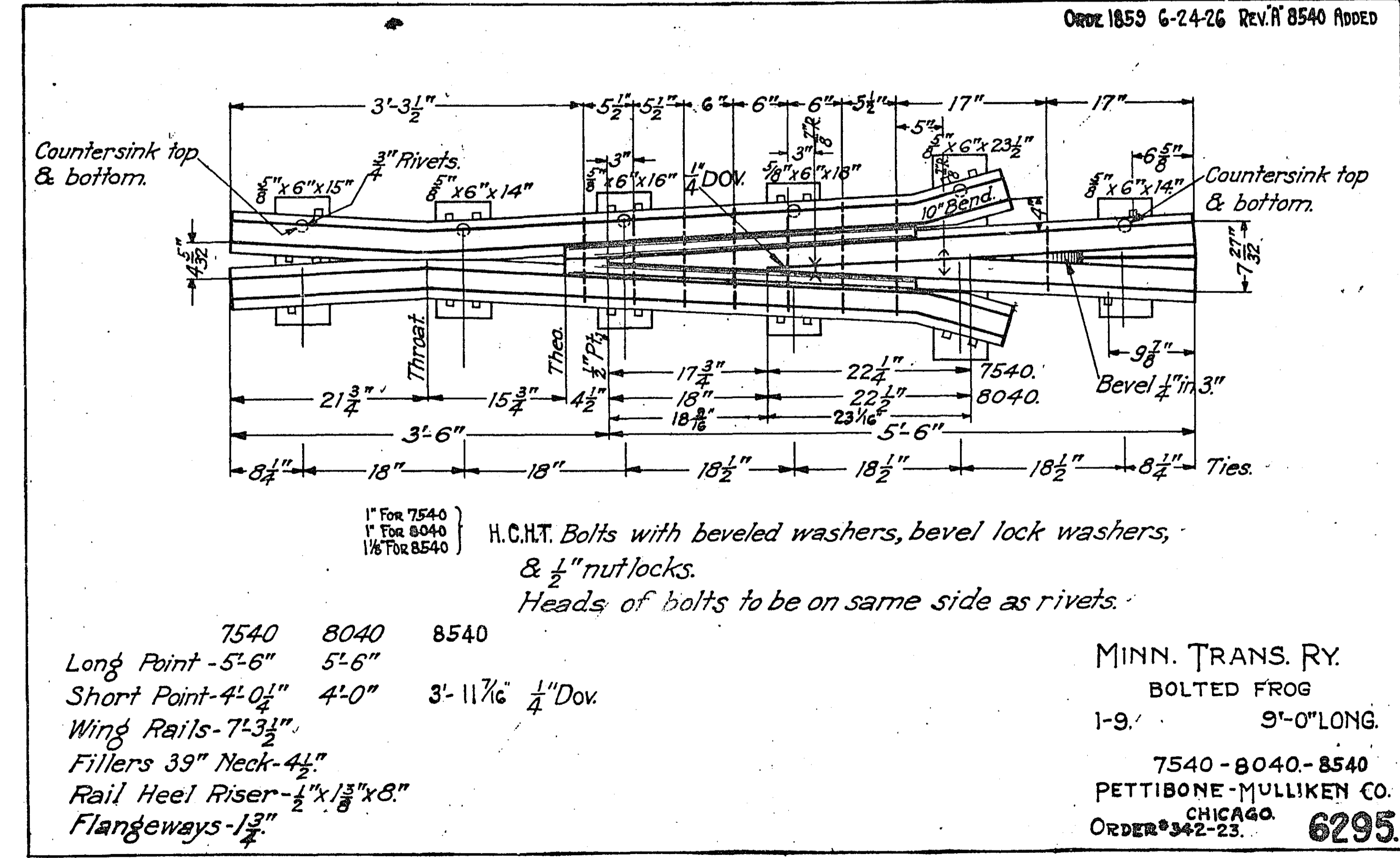


DATE	ORDER	REVISION
9-17-23	2889-3	
6-23-26	1859	A 8540 RAIL ADDED

MATERIAL FOR ONE BOLTED FROG			
MINN. TRANS. RY.	9'-0" LONG	DRWG. NO. 6338	
ORDER NO. 2889-3	DATE 9-17-23	RAIL 8040	8540
1 LONG POINT 5'-6"			4'-11 1/2"
1 SHORT POINT 4'-2"	1/4" DOV.		
2 WING RAILS 7'-1"			
1 HEEL RISER 1/2" x 15" x 11"			
2 FILLERS 35" x 1 1/2" x 1 1/2"			
2 DOV. 1" DIA. 1 1/2" x 1 1/2" x 1 1/2"			
2 BEVEL LOCK WASHER 7/8" x 2 1/2" x 3"			
2 BEVEL WASHER 7/8" x 2 1/2" x 3"			
2 SPRING WASHER 1" x 1 1/2"			
6 PLATE 3/8" x 6" x 1 1/2"			
6 PLATE RIVETS 3/4" x 2 1/4" x 5"			
2 POINT RIVETS 1-C.S. 7/8" x 2 1/2" & 1-B.H. 7/8" x 3 3/8"			

MINN. TRANS. RY.  
 1 IN 8 BOLTED FROG 9'-0" LONG  
 8040-8540  
 PETTIBONE-MULLIKEN CO.  
 CHICAGO  
 DRAWN BY A.C.W.  
 CHECKED BY  
 SCALE 1" = 1'-0"  
 DATE 9-17-23  
 6338-A

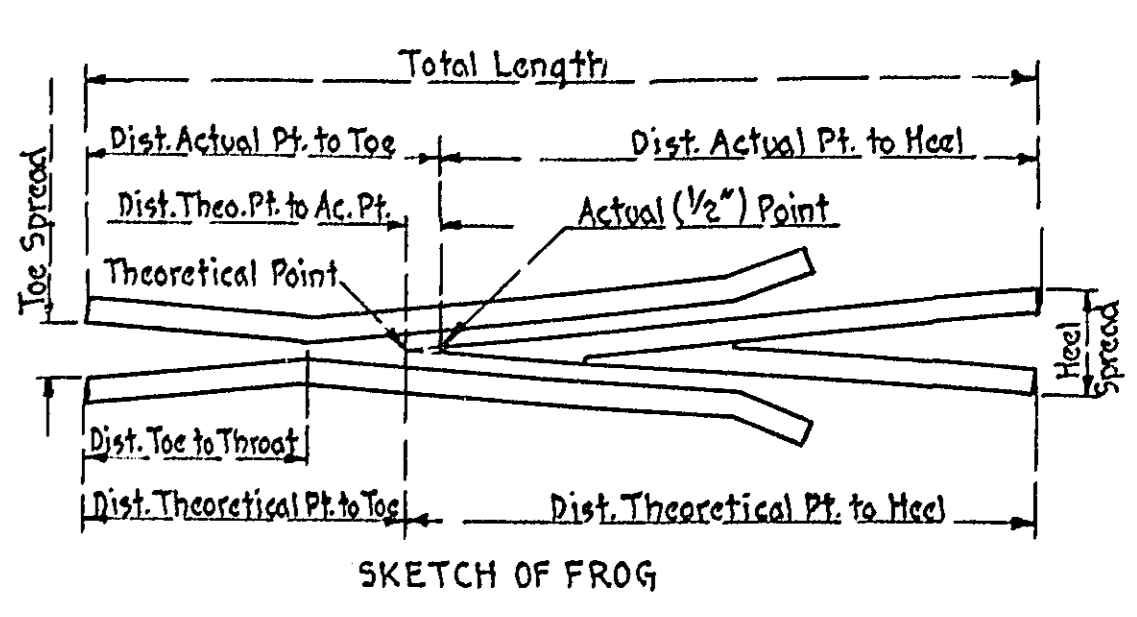
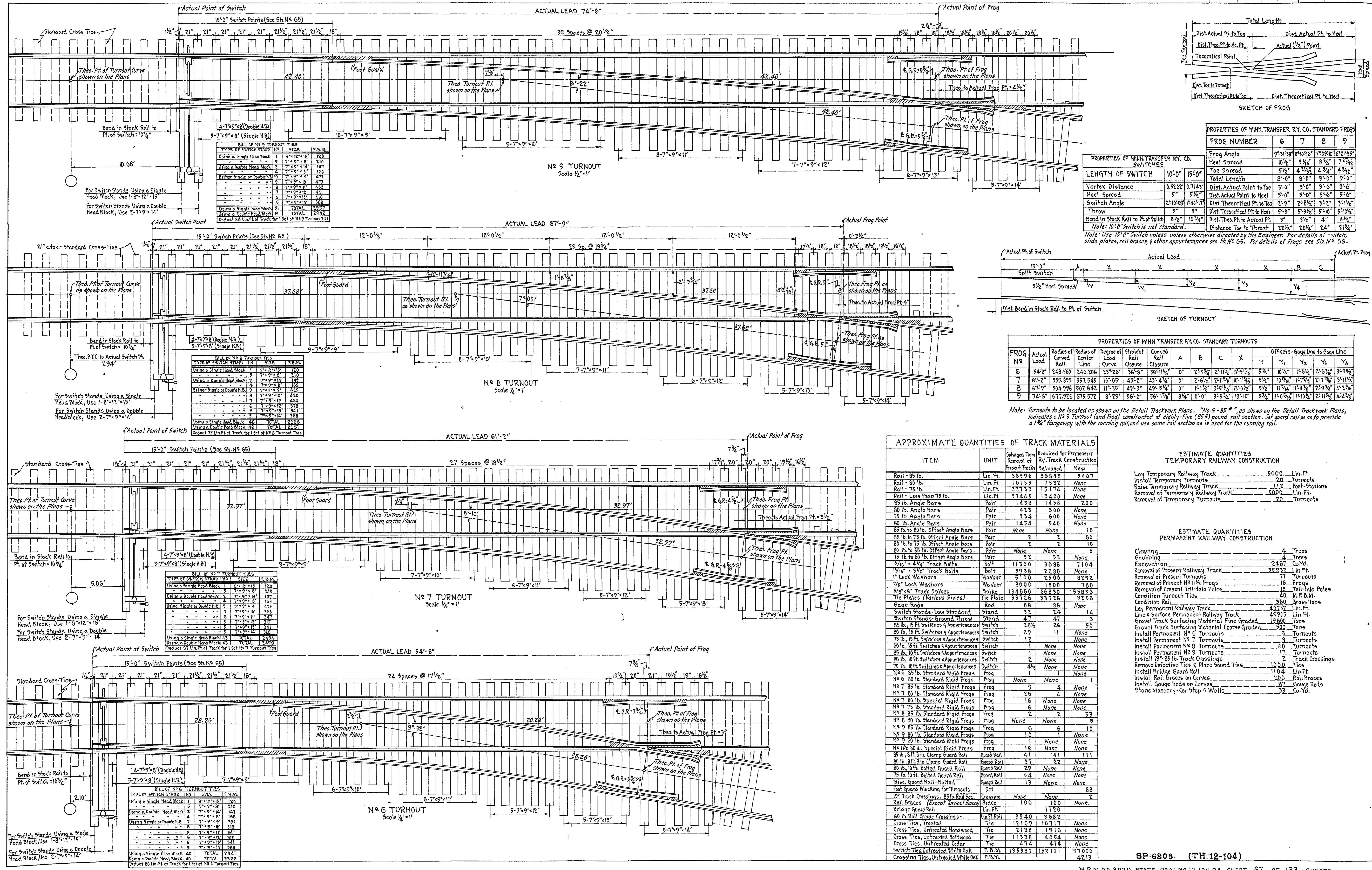


7540 8040 8540  
 Long Point - 5'-6" 5'-6"  
 Short Point - 4'-0 1/4" 4'-0" 3'-11 1/8" 1/4" Dov.  
 Wing Rails - 7'-3 1/2"  
 Fillers 39" Neck - 4 1/2"  
 Rail Heel Riser - 1/2" x 1 5/8" x 8"  
 Flangeways - 1 3/4"

MINN. TRANS. RY.  
 BOLTED FROG  
 1-9. 9'-0" LONG.  
 7540-8040-8540  
 PETTIBONE-MULLIKEN CO.  
 CHICAGO  
 ORDER #342-23 6295

DETAILS OF FROGS

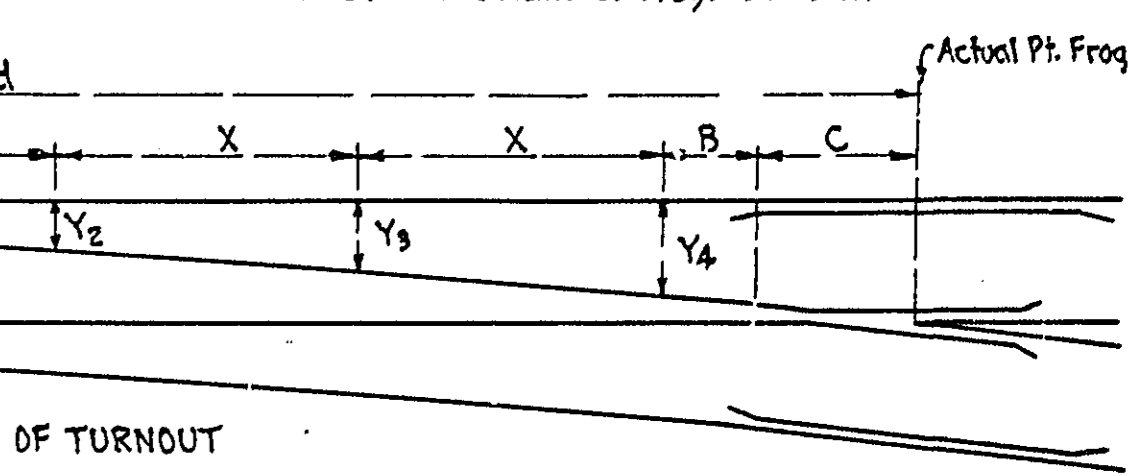
SP 6208 (TH 12-104)



PROPERTIES OF MINN. TRANSFER RY. CO. STANDARD FROGS

FROG NUMBER	6	7	8	9
Frog Angle	9°31'58"	8°10'16"	7°02'10"	6°21'35"
Heel Spread	10 1/2"	9 1/8"	8 1/2"	7 7/8"
Toe Spread	5 1/2"	4 3/8"	4 1/4"	4 1/8"
Total Length	8'-0"	8'-0"	9'-0"	9'-0"
Vertex Distance	0.5262'	0.7143'	1.0000'	1.3333'
Heel Distance	5'-0"	5'-0"	5'-6"	5'-6"
Switch Angle	2°16'48"	1°46'17"	1°21'00"	1°02'00"
Throw	5"	5"	5'-3"	5'-10"
Bend in Stock Rail to Pt. of Switch	8 1/2"	10 1/4"	12 1/2"	15 1/2"
Dist. Theo. Pt. to Actual Pt.	3"	3 1/2"	4"	4 1/2"
Dist. Theo. Pt. to Heel	22 1/2"	20 1/2"	24"	21 1/2"

Note: Use 15'-0" Switch is not standard. Distance 'Toe to Throw'.



PROPERTIES OF MINN. TRANSFER RY. CO. STANDARD TURNOUTS

FROG NO.	Actual Lead	Radius of Curved Rail	Radius of Center Line	Degree of Lead Closure	Straight Rail Closure	Curved Rail Closure	A	B	C	X	Offsets - Gauge Line to Gauge Line				
							Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>	Y <sub>4</sub>	Y <sub>5</sub>				
6	54'-8"	248.560	246.206	2°3'26"	36'-8"	36'11"	0"	2'-9 1/2"	2'11"	0'-5 1/2"	5 1/2"	Y <sub>1</sub>	1'-0 1/2"	2'-6 3/8"	3'-9 3/8"
7	61'-2"	359.899	357.545	16'-05"	43'-2"	43'-4 1/2"	0"	2'-6 1/2"	2'11 3/4"	10'-11 3/4"	5 1/2"	10 1/8"	1'-7 1/8"	2'-7 1/8"	3'-11 1/2"
8	67'-9"	504.996	502.642	11'-25"	49'-3"	49'-5 1/2"	0"	1'-13 1/8"	3'5 1/2"	12'-0 1/2"	5 1/2"	11 7/8"	1'-8 1/8"	2'-9 3/4"	4'-2 1/8"
9	74'-6"	671.926	675.572	8'-29"	56'-0"	56'-1 7/8"	8 1/4"	0'-0"	3'-5 3/8"	13'-10"	5 3/4"	14'-0 1/2"	1'-10 1/2"	2'-11 1/8"	4'-3 1/8"

Note: Turnouts to be located as shown on the Detail Trackwork Plans. "No. 9 - 85#" as shown on the Detail Trackwork Plans, indicates a No. 9 Turnout (and Frog) constructed of eighty-five (85) pound rail section. Set guard rail as is for a provision a 1 1/4" flangeway with the running rail, and use same rail section as is used for the running rail.

APPROXIMATE QUANTITIES OF TRACK MATERIALS

ITEM	UNIT	Salvaged From Removal of Present Tracks	Required for Permanent Ry. Track Construction
Rail - 85 lb.	Lin. Ft.	36 996	36 845
Rail - 80 lb.	Lin. Ft.	10 155	7 532
Rail - 75 lb.	Lin. Ft.	22 133	15 174
Rail - Less than 75 lb.	Lin. Ft.	3 744.5	3 400
85 lb. Angle Bars	Pair	1 458	1 458
80 lb. Angle Bars	Pair	4 23	3 00
75 lb. Angle Bars	Pair	9 34	6 00
60 lb. Angle Bars	Pair	1 454	5 40
85 lb. to 80 lb. Offset Angle Bars	Pair	None	None
85 lb. to 75 lb. Offset Angle Bars	Pair	2	2
80 lb. to 75 lb. Offset Angle Bars	Pair	None	2
80 lb. to 60 lb. Offset Angle Bars	Pair	None	2
75 lb. to 60 lb. Offset Angle Bars	Pair	52	52
1/16" x 3/4" Track Bolts	Bolt	11 300	3 688
1/16" x 3/4" Track Bolts	Bolt	59 36	2 280
1" Lock Washers	Washer	5 100	2 500
7/8" Lock Washers	Washer	30 00	1 500
3/8" x 6" Track Spikes	Spike	13 460	66 830
Tie Plates (Various Sizes)	Tie Plate	33 726	33 726
Gage Rods	Rod	86	86
Switch Stands - Low Standard	Stand	32	24
Switch Stands - Ground Throw	Stand	47	47
85 lb. 15 Ft. Switches & Apparatuses	Switch	28 1/2	26
80 lb. 15 Ft. Switches & Apparatuses	Switch	29	11
75 lb. 15 Ft. Switches & Apparatuses	Switch	12	1
60 lb. 15 Ft. Switches & Apparatuses	Switch	1	None
85 lb. 10 Ft. Switches & Apparatuses	Switch	1	None
80 lb. 10 Ft. Switches & Apparatuses	Switch	2	None
75 lb. 10 Ft. Switches & Apparatuses	Switch	4 1/2	None
No. 6 85 lb. Standard Rigid Frogs	Frog	None	None
No. 6 80 lb. Standard Rigid Frogs	Frog	None	None
No. 7 85 lb. Standard Rigid Frogs	Frog	9	4
No. 7 80 lb. Standard Rigid Frogs	Frog	25	4
No. 7 80 lb. Special Rigid Frogs	Frog	16	None
No. 7 75 lb. Standard Rigid Frogs	Frog	6	None
No. 8 85 lb. Standard Rigid Frogs	Frog	2	2
No. 8 80 lb. Standard Rigid Frogs	Frog	None	None
No. 9 85 lb. Standard Rigid Frogs	Frog	6	6
No. 9 80 lb. Standard Rigid Frogs	Frog	10	None
No. 9 60 lb. Standard Rigid Frogs	Frog	1	None
No. 11 80 lb. Special Rigid Frogs	Frog	10	None
85 lb. 8 Ft. 3 in. Clamp Guard Rail	Guard Rail	41	41
80 lb. 8 Ft. 3 in. Clamp Guard Rail	Guard Rail	37	22
80 lb. 10 Ft. Bolted Guard Rail	Guard Rail	29	None
75 lb. 10 Ft. Bolted Guard Rail	Guard Rail	64	None
Misc. Guard Rail Bolted	Guard Rail	13	None
Foot Guard Blocking for Turnouts	Set	None	88
10" Track Crossings - 85 lb. Rail Sec.	Crossing	None	None
Rail Braces (Except Turnout Braces)	Brace	100	100
Bridge Guard Rail	Lin. Ft.	None	1 120
60 lb. Rail Grade Crossings	Lin. Ft. Rail	33 40	9 682
Cross-Ties, Treated	Tie	12 109	10 171
Cross-Ties, Untreated Hardwood	Tie	2 138	1 916
Cross-Ties, Untreated Softwood	Tie	11 338	4 054
Cross-Ties, Untreated Cedar	Tie	474	474
Switch-Ties, Untreated White Oak	F. B. M.	195 387	152 101
Crossing Ties, Untreated White Oak	F. B. M.	None	2

ESTIMATE QUANTITIES TEMPORARY RAILWAY CONSTRUCTION

Lay Temporary Railway Track	5000	Lin. Ft.
Install Temporary Turnouts	20	Turnouts
Raise Temporary Railway Track	112	Foot-Station
Removal of Temporary Railway Track	5000	Lin. Ft.
Removal of Temporary Turnouts	20	Turnouts

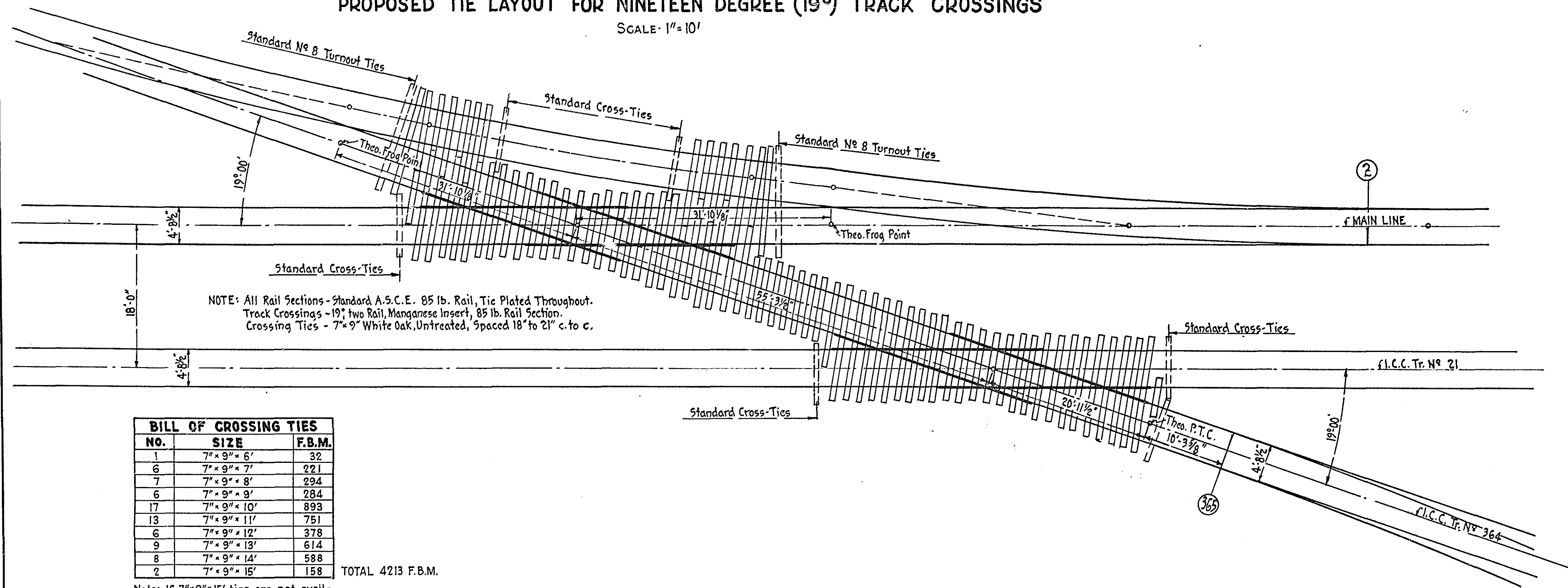
ESTIMATE QUANTITIES PERMANENT RAILWAY CONSTRUCTION

Clearing	4	Trees
Grubbing	4	Trees
Excavation	2487	Cu. Yd.
Removal of Present Railway Track	55832	Lin. Ft.
Removal of Present Turnouts	17	Turnouts
Removal of Present No. 11 1/2 Frogs	16	Frogs
Removal of Present Tilt-Rail Poles	15	Tilt-Rail Poles
Condition Turnout Ties	40	M. F. B. M.
Condition Rail	360	Gross Tons
Lay Permanent Railway Track	40752	Lin. Ft.
Line & Surface Permanent Railway Track	49262	Lin. Ft.
Gravel Track Surfacing Material - Fine Graded	12 800	Tons
Gravel Track Surfacing Material - Coarse Graded	500	Tons
Install Permanent No. 6 Turnouts	3	Turnouts
Install Permanent No. 7 Turnouts	8	Turnouts
Install Permanent No. 8 Turnouts	6	Turnouts
Install Permanent No. 9 Turnouts	17	Turnouts
Install 19" 85 lb. Track Crossings	2	Track Crossings
Remove Defective Ties & Place Sound Ties	1000	Ties
Install Bridge Guard Rail	1104	Lin. Ft.
Install Rail Braces on Curves	200	Rail Braces
Install Gauge Rods on Curves	87	Gauge Rods
Stone Masonry - Car Stop & Walls	32	Cu. Yd.



**PROPOSED TIE LAYOUT FOR NINETEEN DEGREE (19°) TRACK CROSSINGS**

SCALE: 1" = 10'

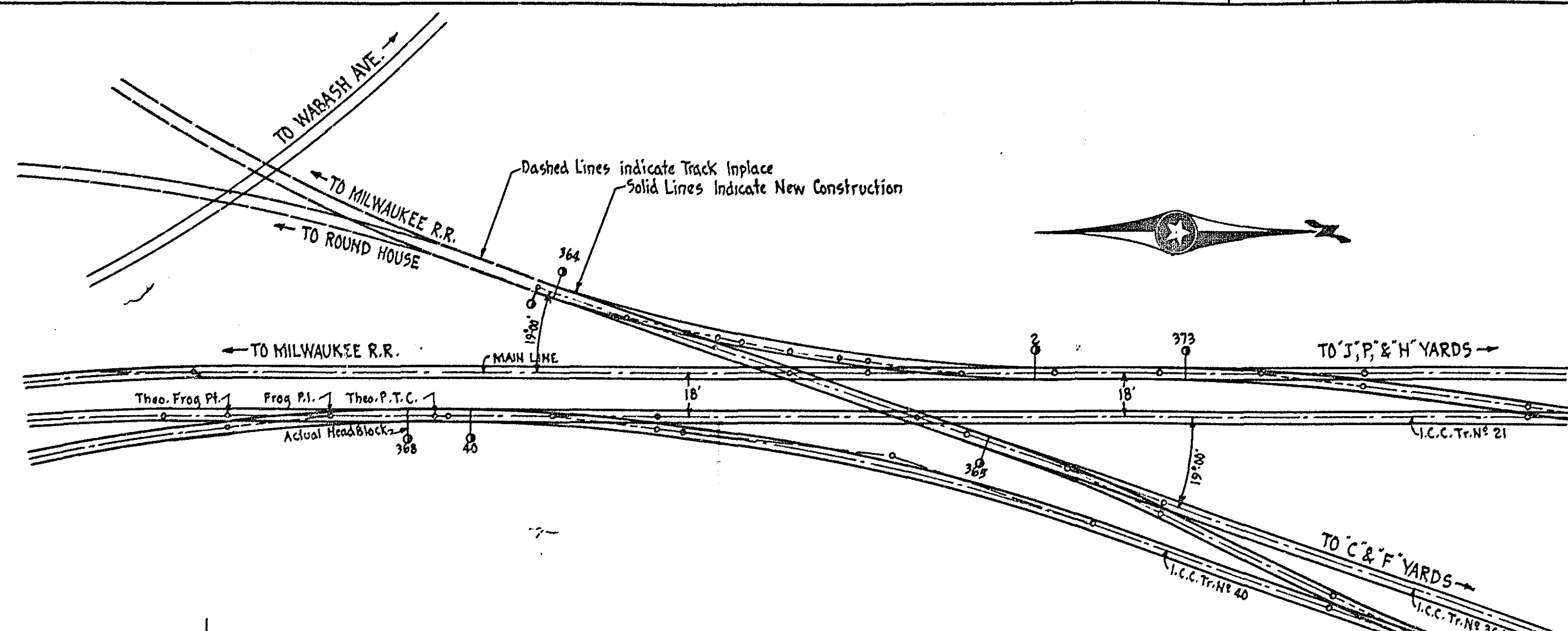


**BILL OF CROSSING TIES**

No.	SIZE	F.B.M.
1	7" x 9" x 6'	32
6	7" x 9" x 7'	221
7	7" x 9" x 8'	224
6	7" x 9" x 9'	284
17	7" x 9" x 10'	893
13	7" x 9" x 11'	761
6	7" x 9" x 12'	378
9	7" x 9" x 13'	614
8	7" x 9" x 14'	588
2	7" x 9" x 15'	158

TOTAL 4213 F.B.M.

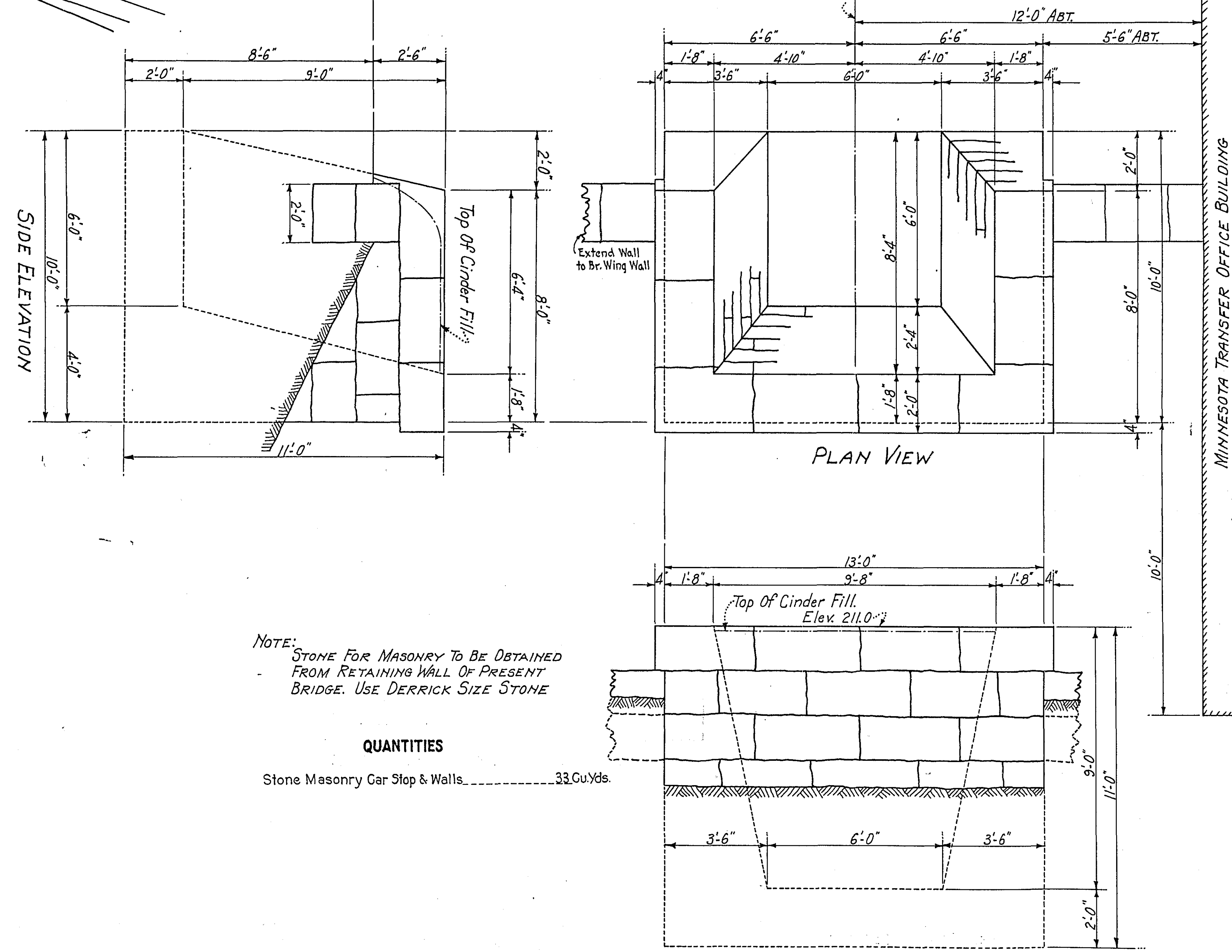
Note: If 7" x 9" x 15' ties are not available at the time crossing is placed use 8" x 12" x 15' headblock ties.



**CROSSING LOCATION SKETCH**  
Scale 1" = 50'

**DETAILS OF STONE MASONRY CAR STOP AND WALLS AT SIDE OF OFFICE BLD'G. MINNESOTA TRANSFER RY.**

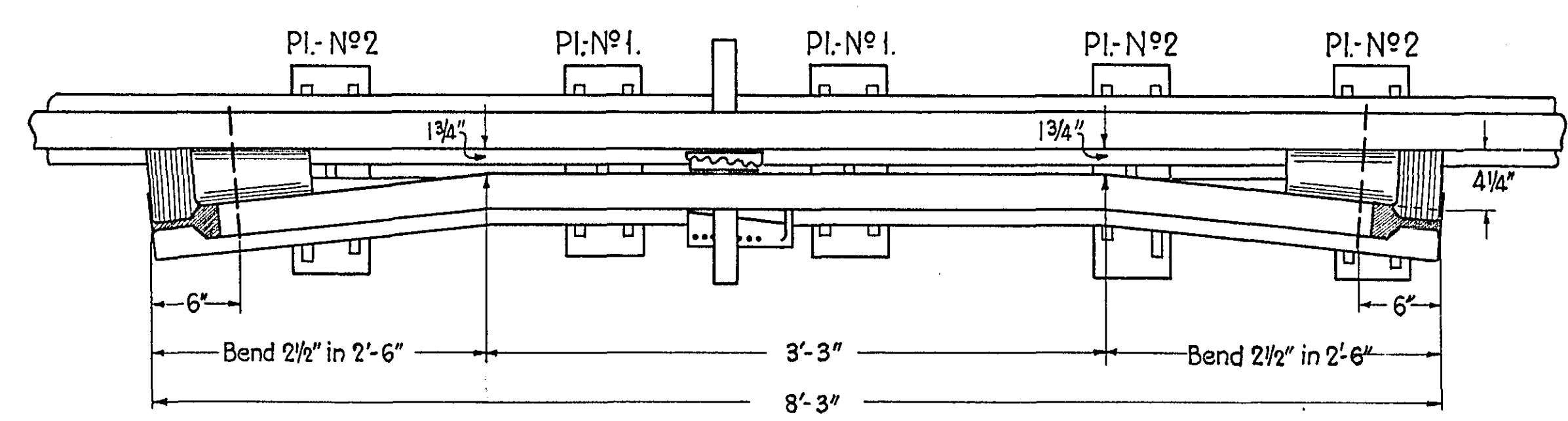
Scale: 3/8" = 1'-0"  
For location see sheet No 71



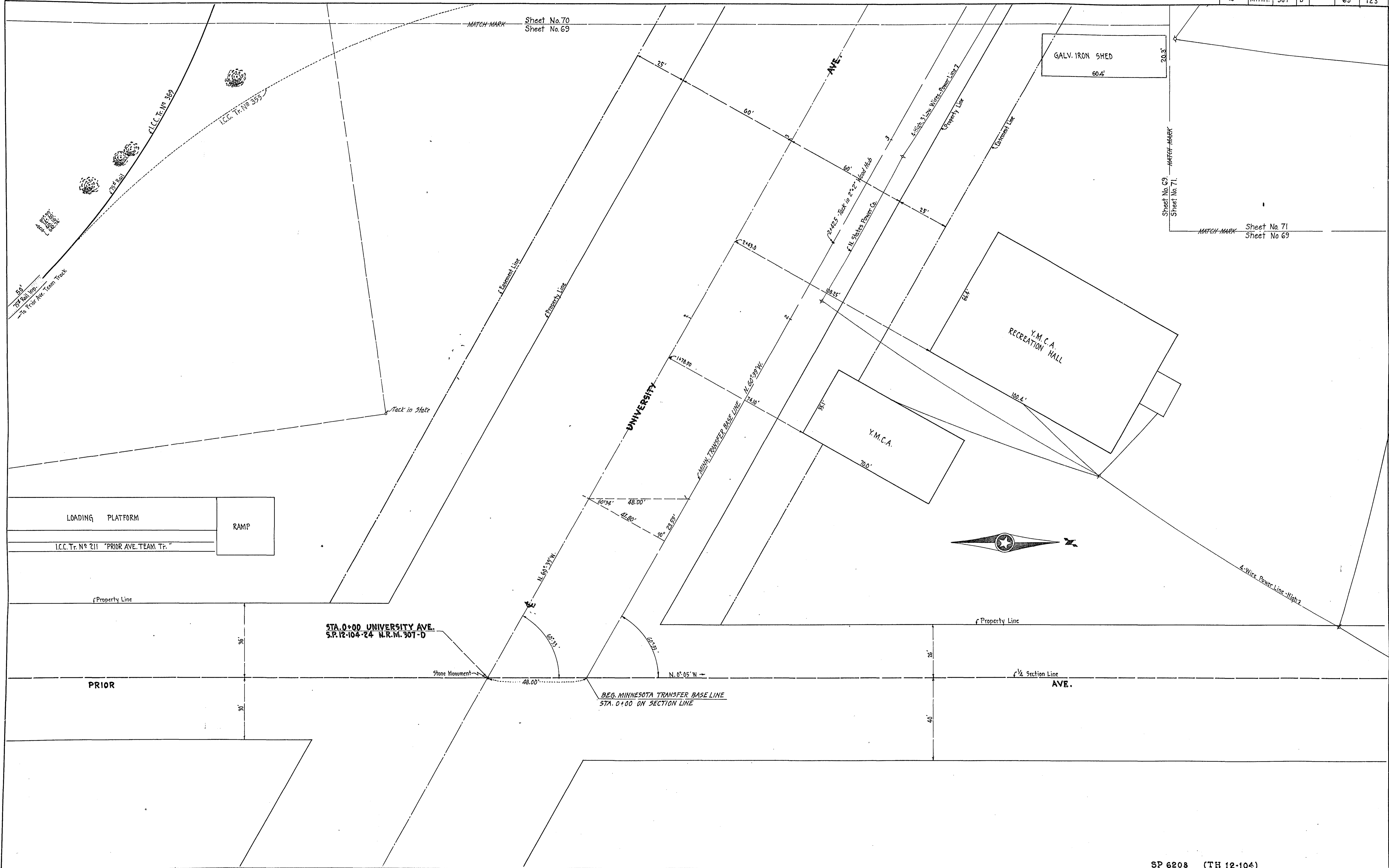
NOTE: STONE FOR MASONRY TO BE OBTAINED FROM RETAINING WALL OF PRESENT BRIDGE. USE DERRICK SIZE STONE

**QUANTITIES**

Stone Masonry Car Stop & Walls.....33 Cu.Yds.



**DETAIL OF STANDARD 8'-3" CLAMP GUARD RAIL**



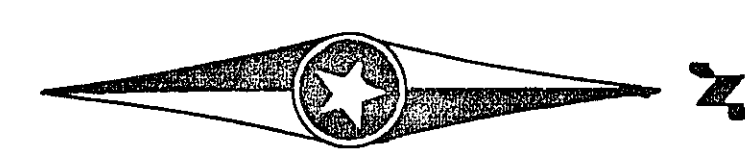
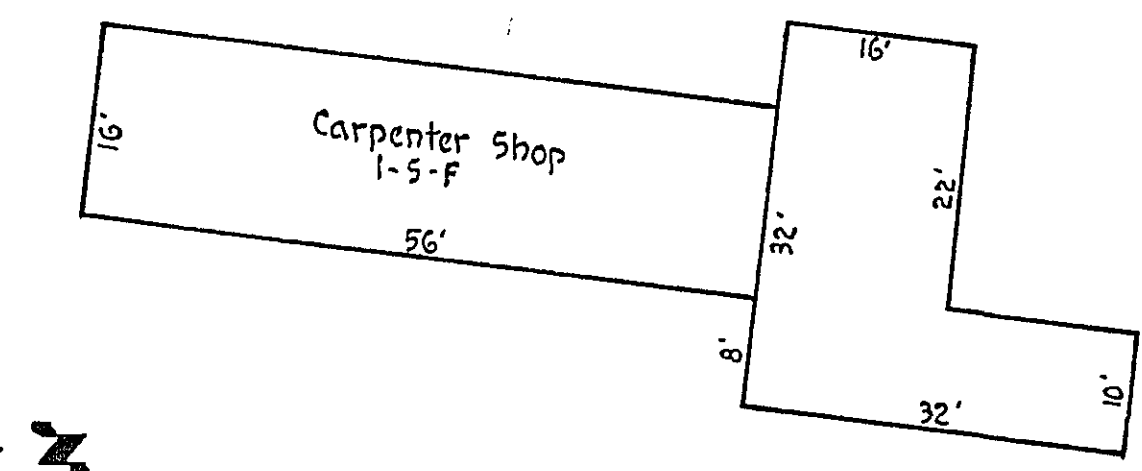
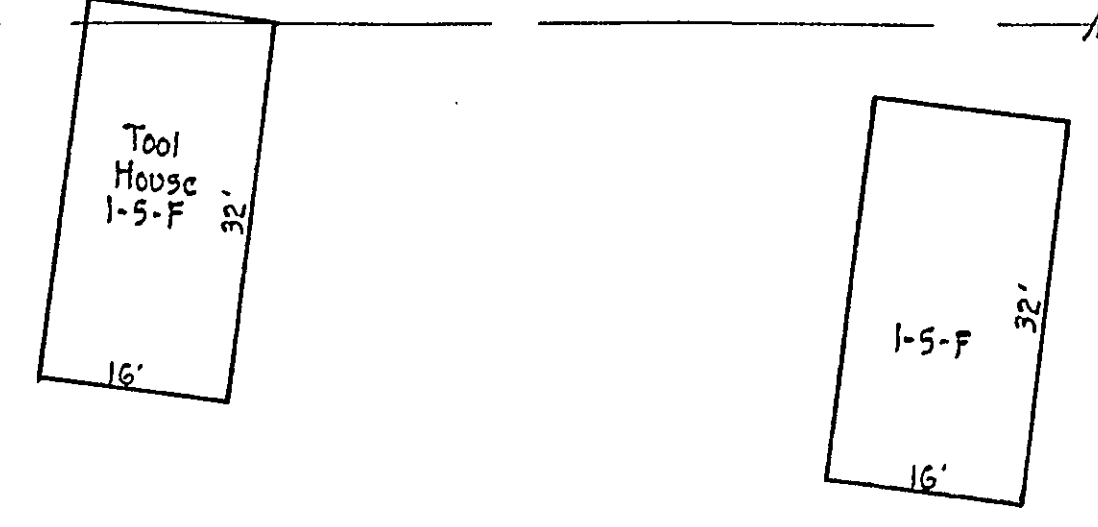
MATCH MARK  
Sheet No. 70  
Sheet No. 69

MATCH MARK  
Sheet No. 71  
Sheet No. 71

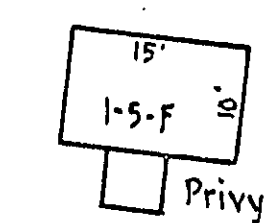
MATCH MARK  
Sheet No. 71  
Sheet No. 69

MATCH MARK Sheet No.75  
Sheet No.70

MATCH MARK Sheet No.76  
Sheet No.70



MINN. TRANSFER R.R. STORAGE YARD  
L.C.C. Tr. No. 200  
FOR SALVAGED LUMBER, TIMBERS, BRIDGE SUPPLIES



SEWER EASEMENT

460' 5/8" Line of FLOOR AVE.

L.C.C. Tr. No. 369

Bridge Tell-tale

MATCH MARK Sheet No.70  
Sheet No.69

L.C.C. Tr. No. 355

UNIVERSITY

AVE.

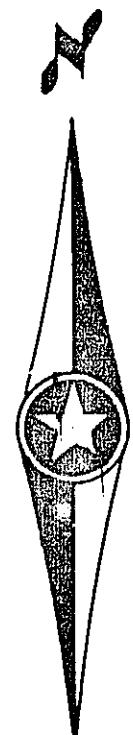
Sheet No.70  
Sheet No.71

MATCH MARK

Stub Tracks

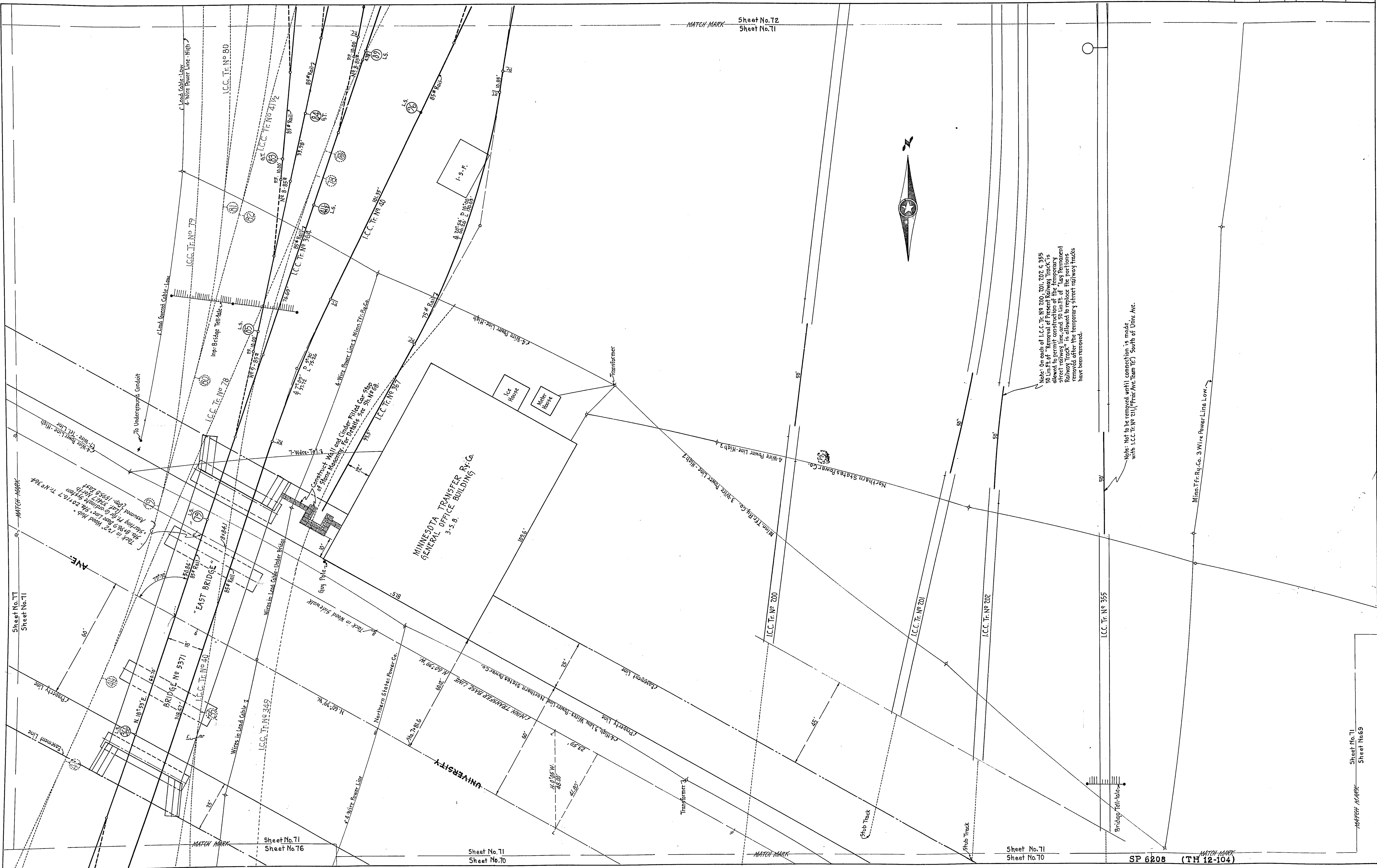
SP 6208 (TH 12-104)

MATCH MARK Sheet No. 72  
Sheet No. 71



Note: On each of I.C.C. Tr. No. 200, 201, 202 & 355 50 Lin. Ft. of "Removal of Present Railway Track" is shown. The temporary connection between the present and proposed "Removal of Present Railway Track" is allowed to replace the portions removed after the temporary street railway tracks have been removed.

Note: Not to be removed until connection is made with I.C.C. Tr. No. 201 (Prior Ave. "Team Tr.") South of Univ. Ave.



Sheet No. 71  
Sheet No. 71

Sheet No. 71  
Sheet No. 76

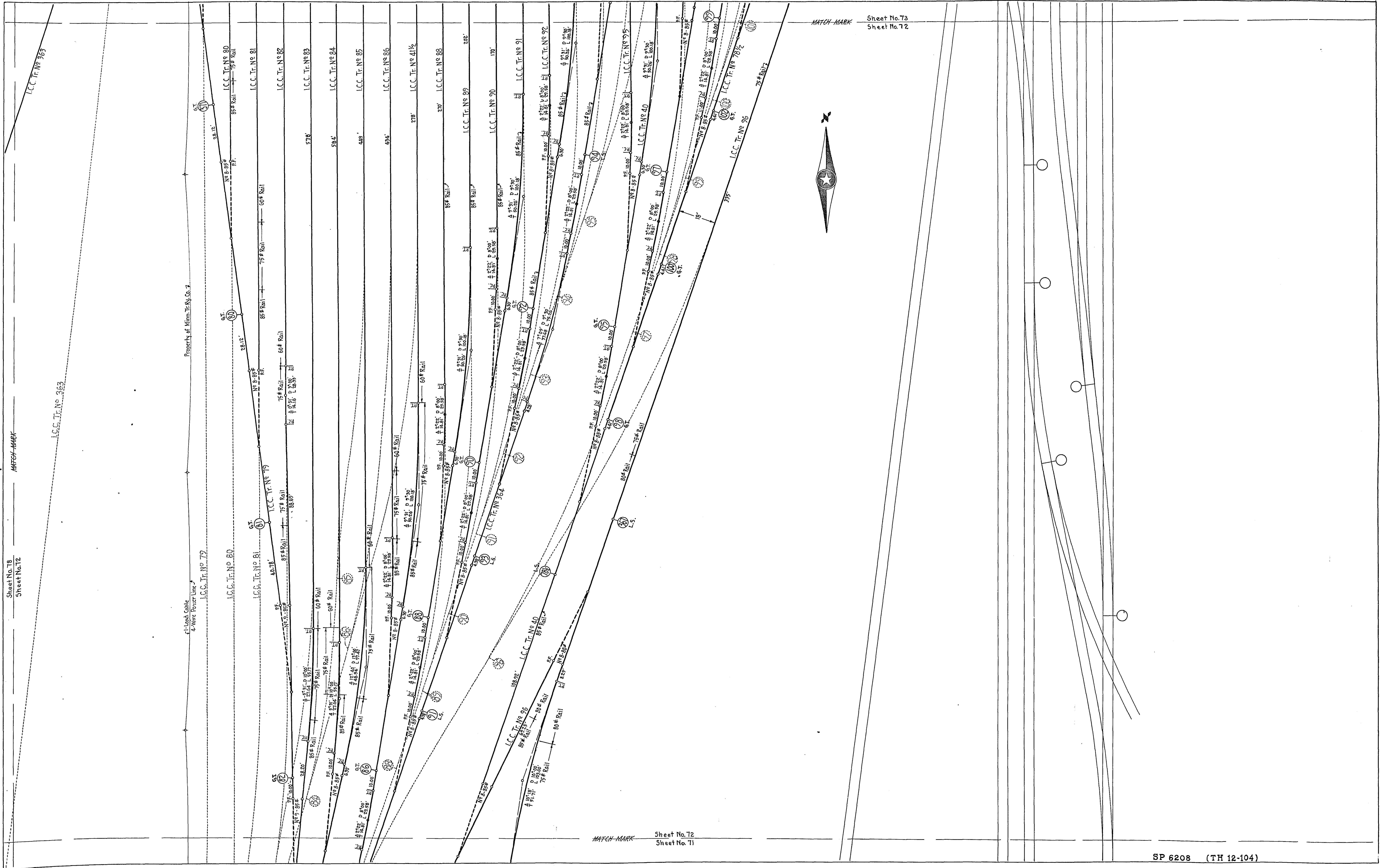
Sheet No. 71  
Sheet No. 70

Sheet No. 71  
Sheet No. 70

Sheet No. 71  
Sheet No. 69

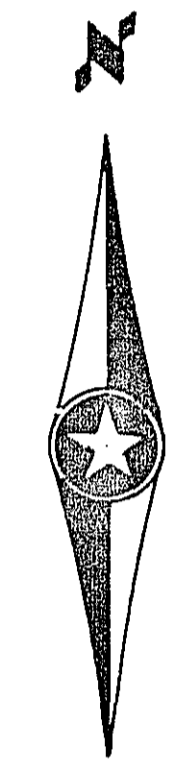
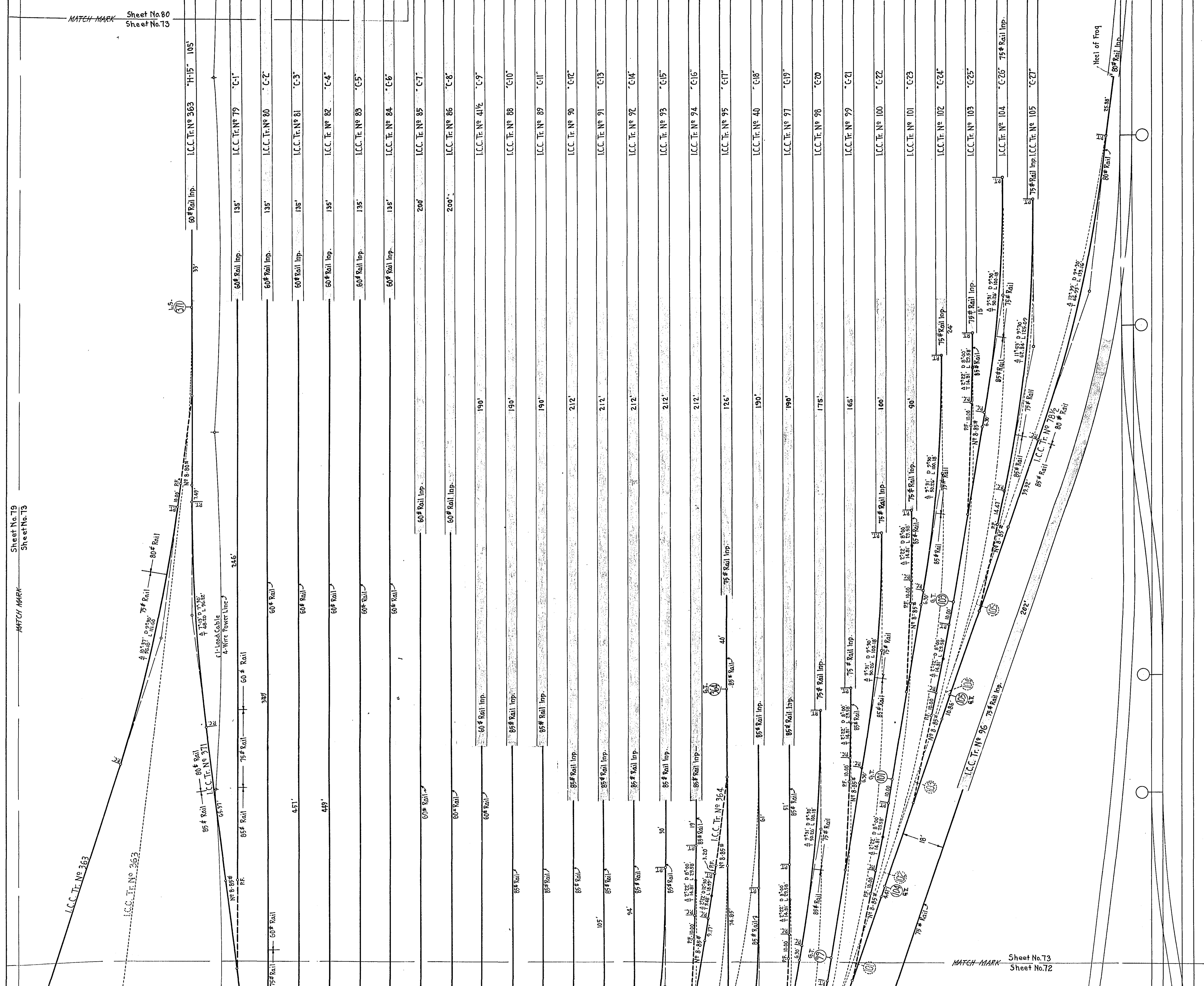
SP 6208 (TH 12-104)

FED. ROAD DIST. NO.	STATE	NAME NO.	SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	MINN.	307	D		72	123



SP 6208 (TH 12-104)

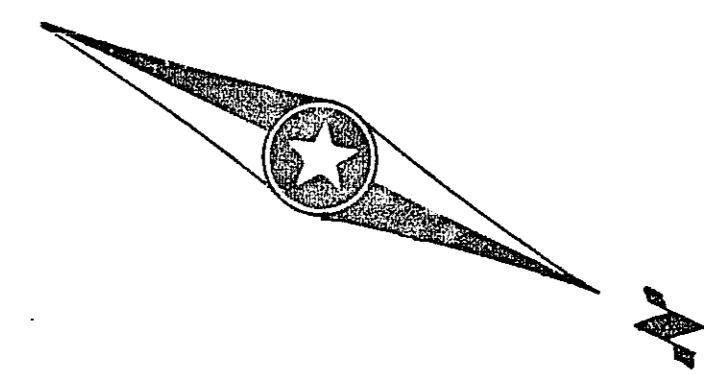
MATCH MARK  
Sheet No. 79  
Sheet No. 73



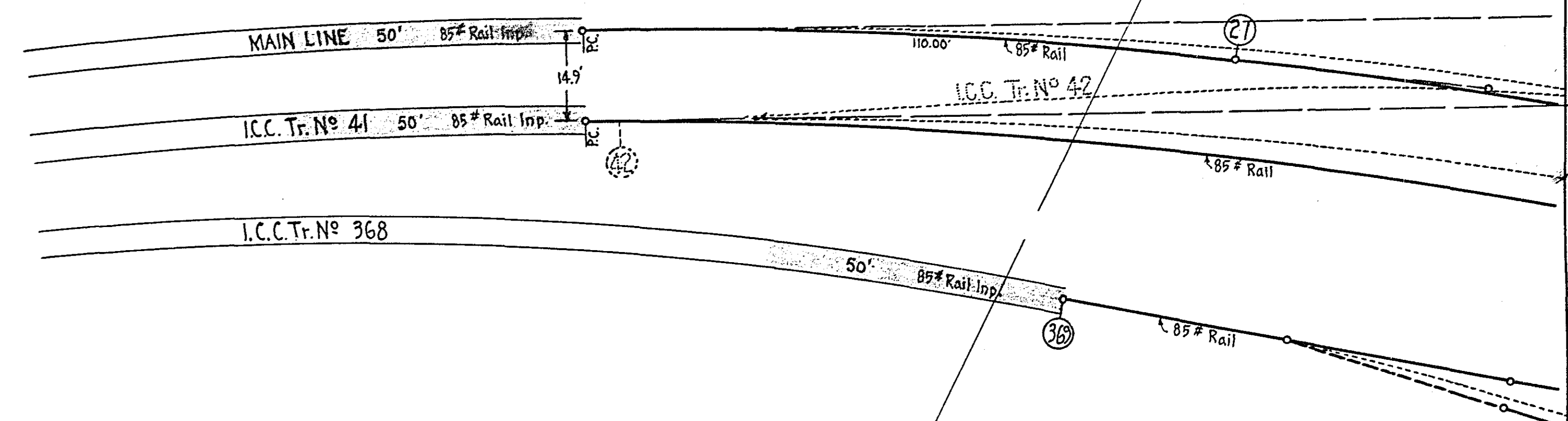
MATCH MARK  
Sheet No. 73  
Sheet No. 72

SP 6208 (TH 12-104)

FED. ROAD DIST. NO.	STATE	N.R.M. NO.	SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS.
4	MINN	307	D		74	123



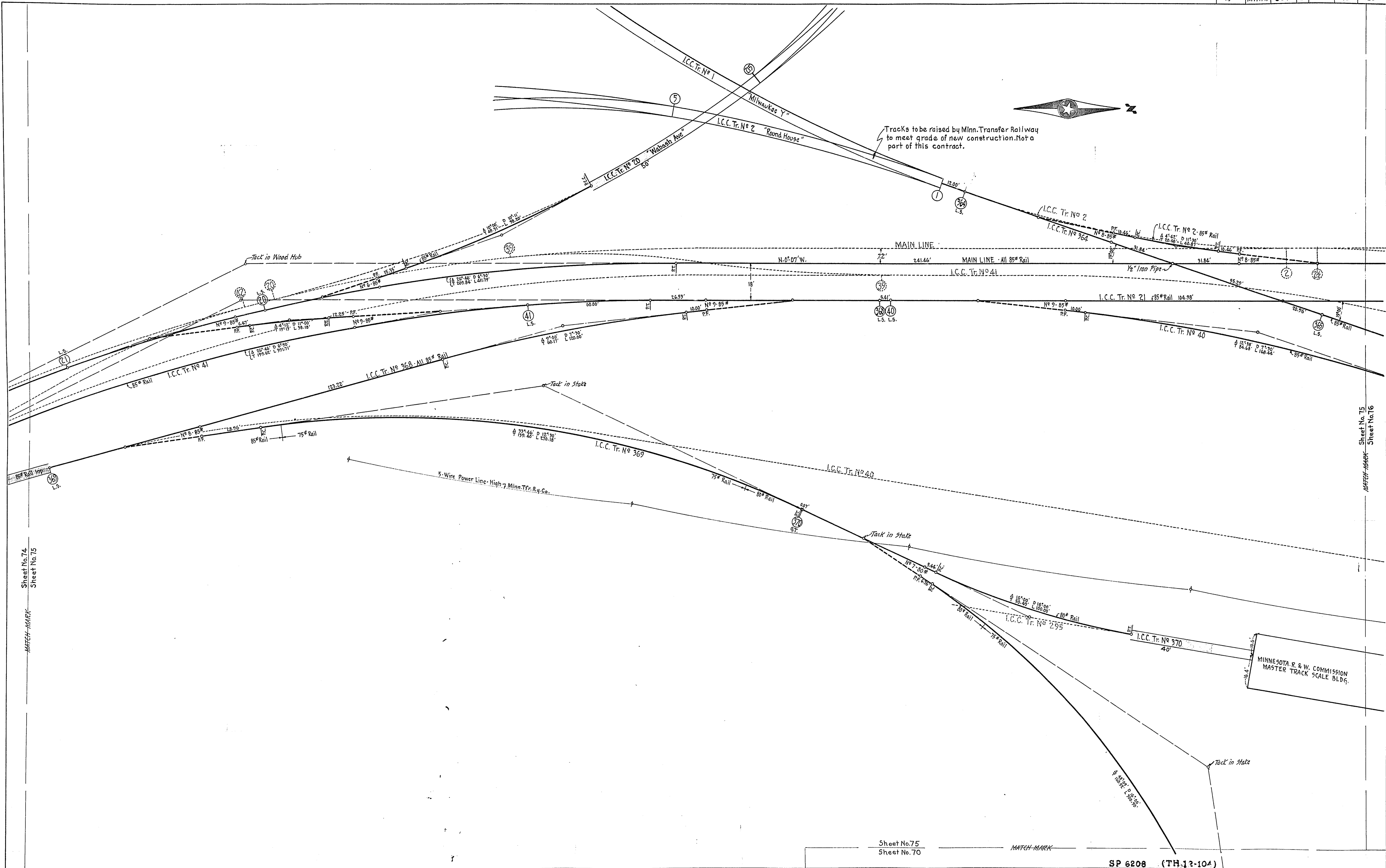
→ TO MILWAUKEE R. R.



Sheet No. 74  
Sheet No. 75

Sheet No. 75  
Sheet No. 74

SP 6208 (TH 12-104)



MATCH-MARK  
Sheet No. 74  
Sheet No. 75

MATCH-MARK  
Sheet No. 75  
Sheet No. 76

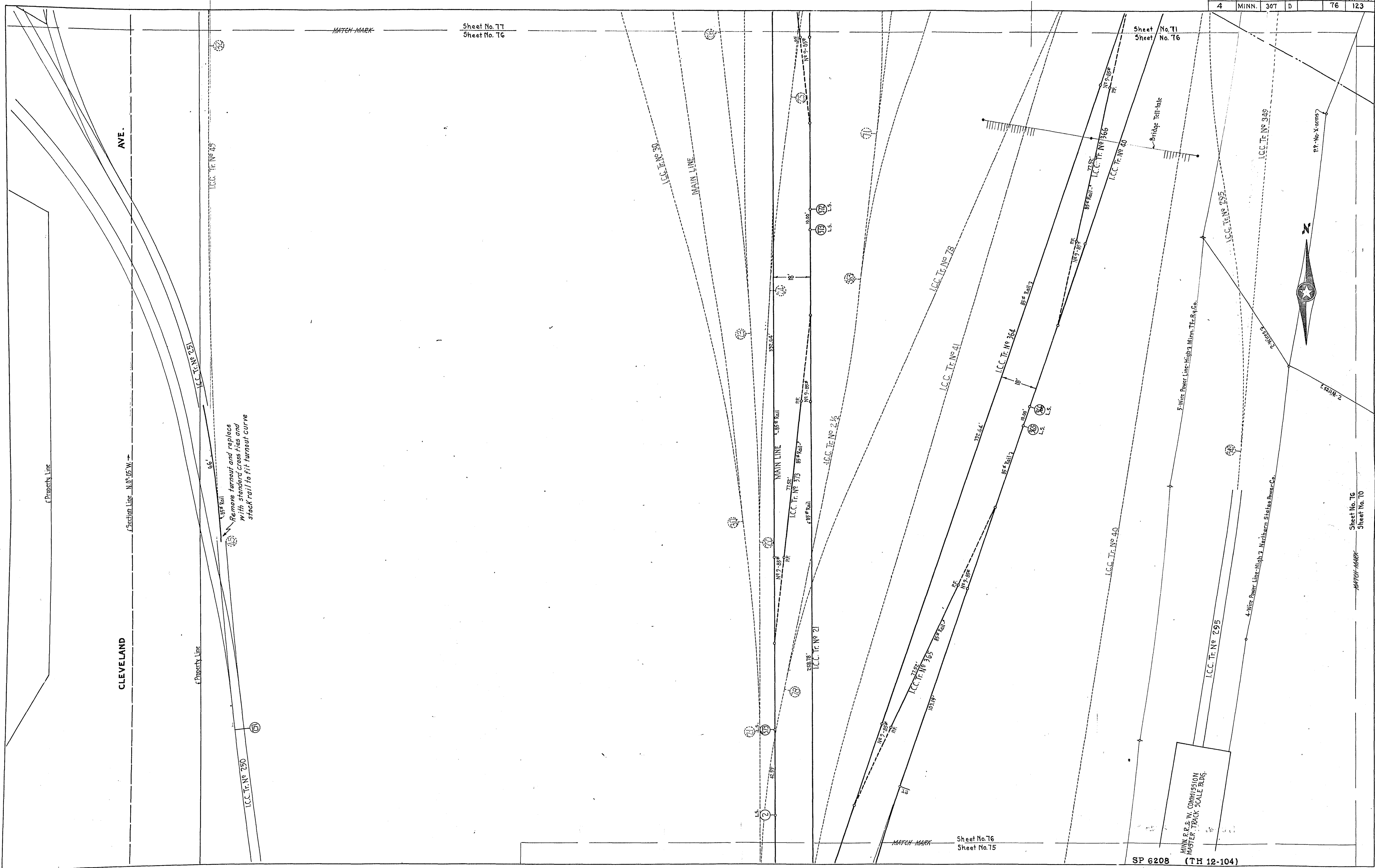
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Sheet No. 70

MATCH-MARK

SP 6208 (TH. 12-104)

MINNESOTA R. & W. COMMISSION  
MASTER TRACK SCALE BLDG.





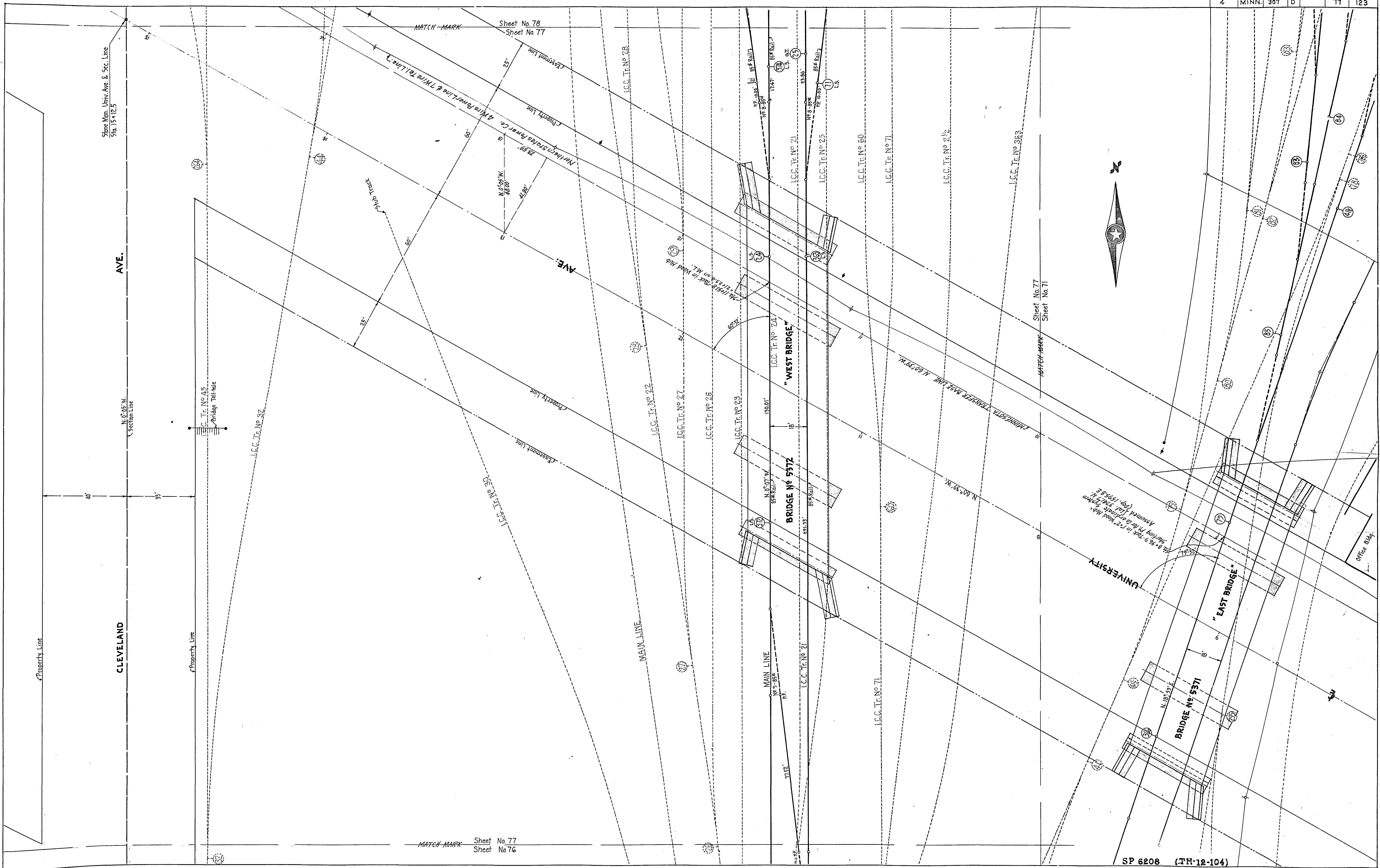
Sheet No. 77  
Sheet No. 76

Sheet No. 71  
Sheet No. 76

Sheet No. 76  
Sheet No. 75

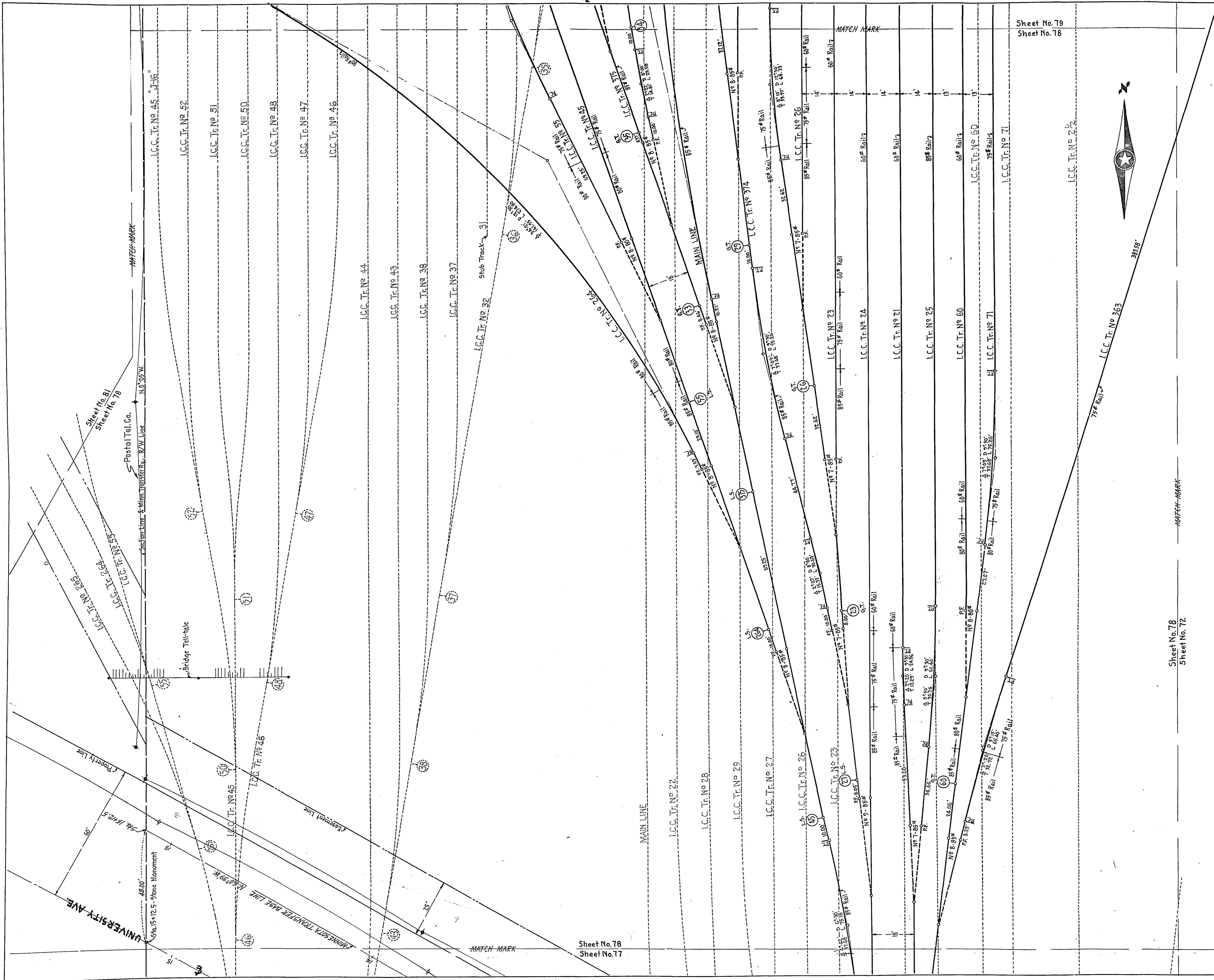
Sheet No. 76  
Sheet No. 70

SP 6208 (TH 12-104)



MATCH-MARK Sheet No. 77  
Sheet No. 76

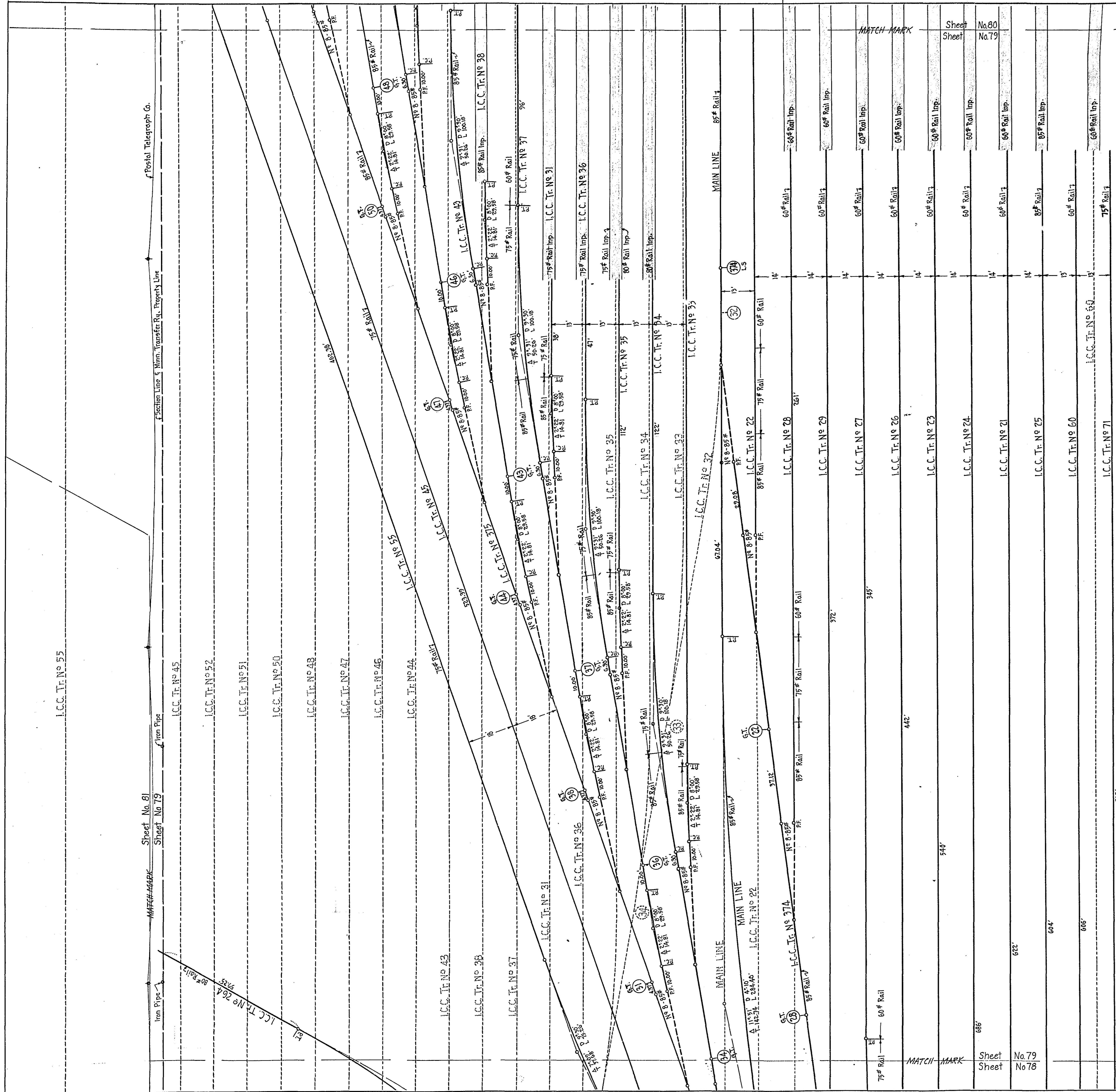
SP 6208 (TH-12-104)



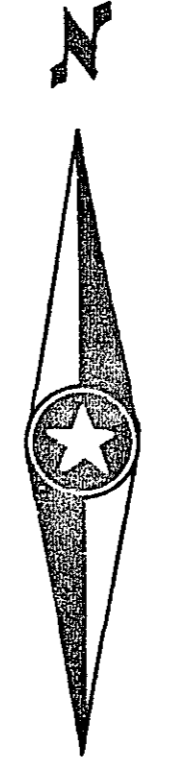
Sheet No. 79  
Sheet No. 78

Sheet No. 78  
Sheet No. 72

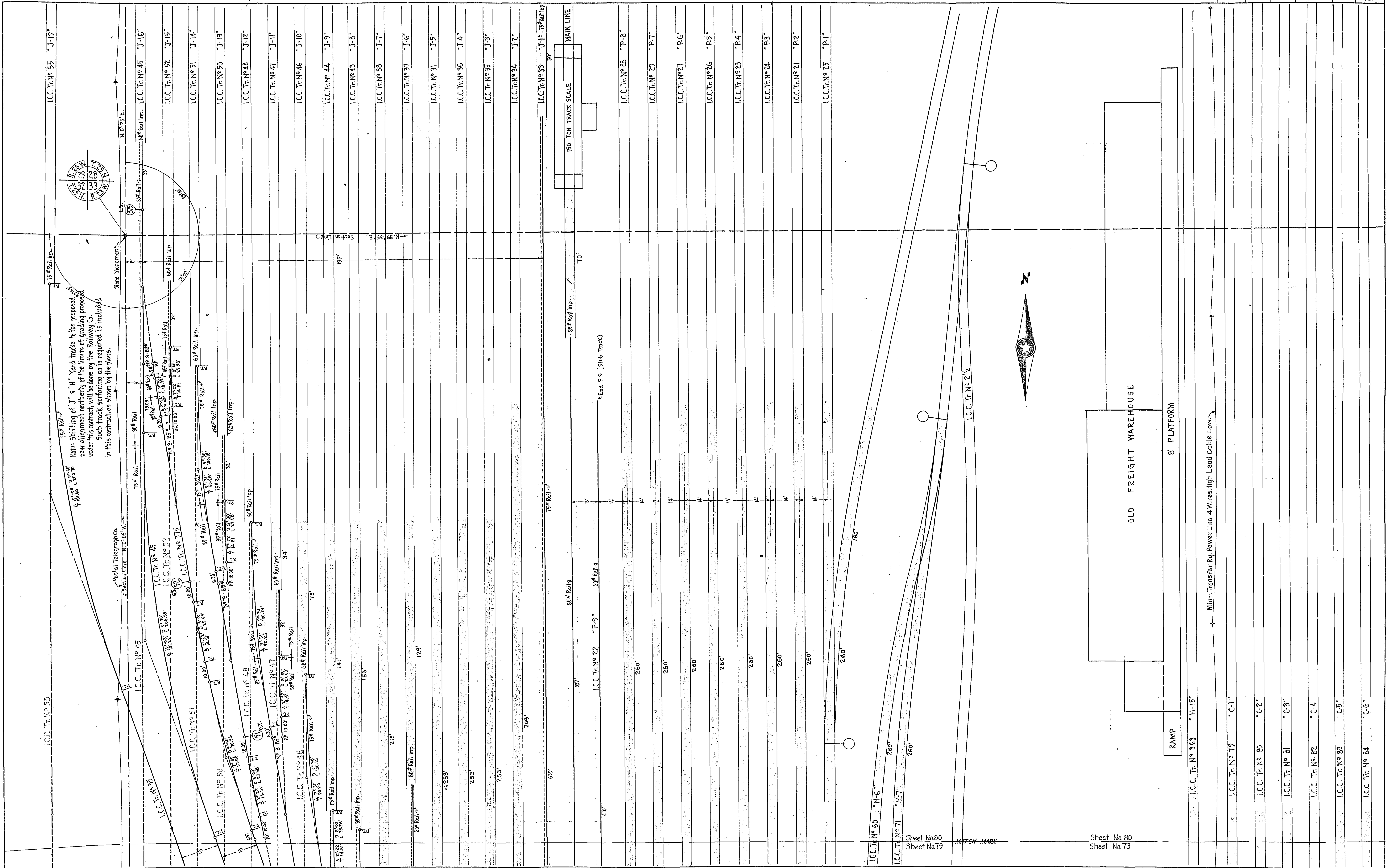
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Sheet No. 77

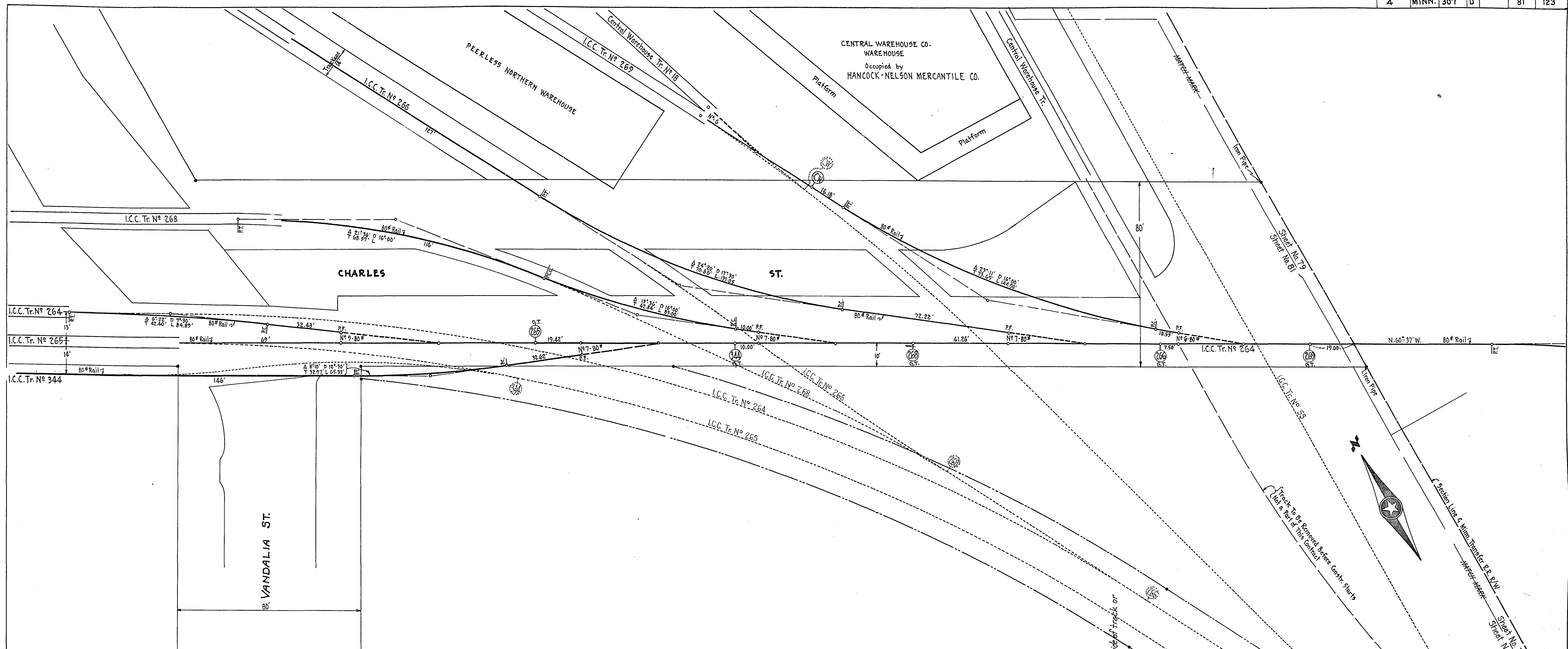


Note: Shifting of 'H' Yard tracks to the proposed new alignment north of the limits of grading proposed under this contract, will be done by the Railway Co. Track surfacing to the grade specified for these tracks is included in this contract.



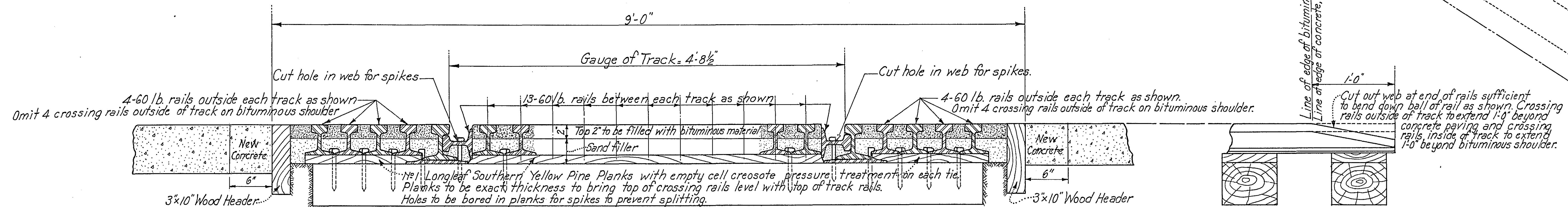
Sheet No. 79  
Sheet No. 78





**TYPICAL SECTION OF TRACK CROSSING CHARLES ST.**

Scale: 1 1/2" = 1'-0"



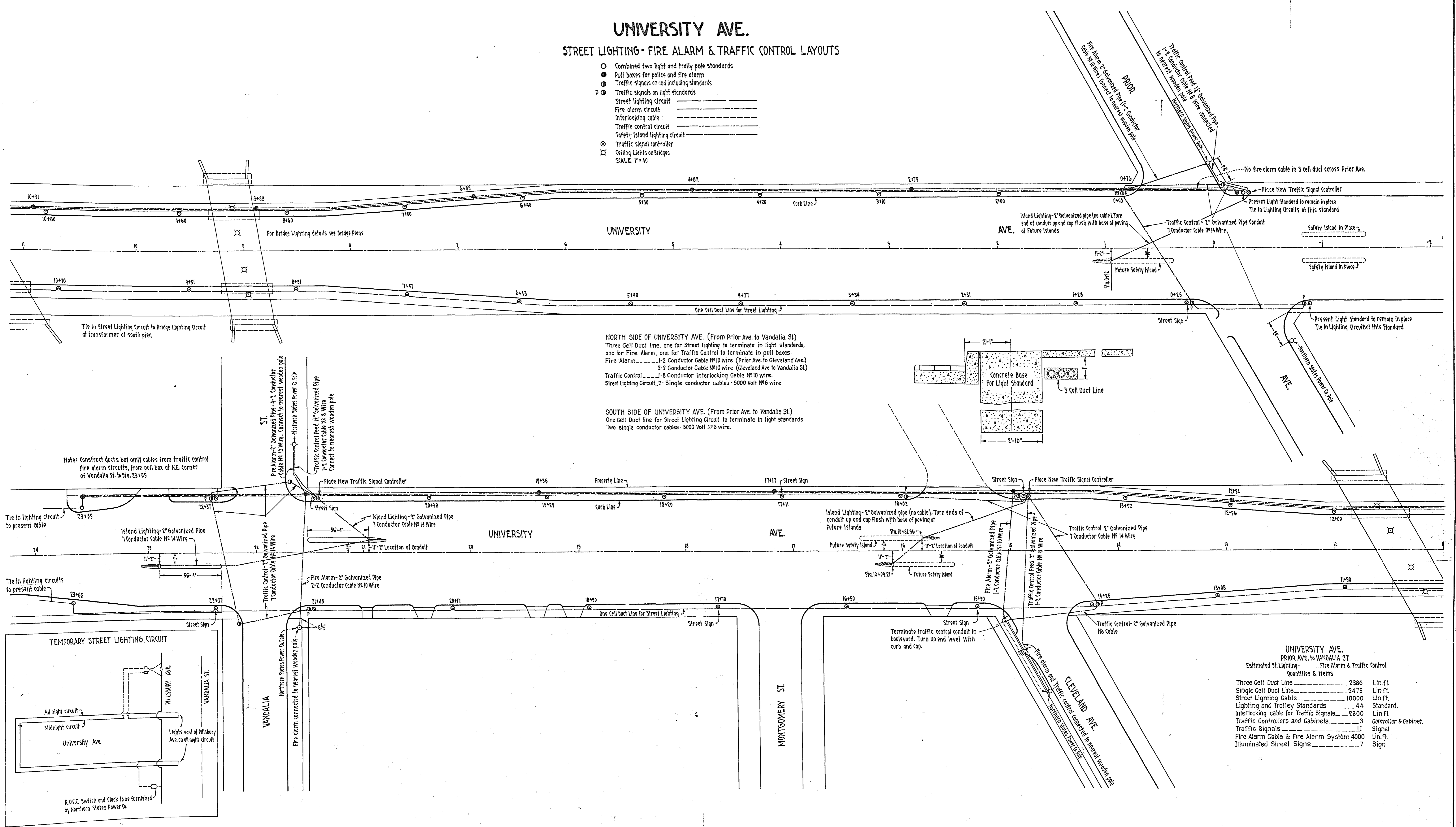
**SIDE ELEVATION AT END OF TRACK CROSSING**

NOTE: The rails to be used for the construction of the crossings shall be rails salvaged from the removal of the present tracks and track crossings of the Railway Co. as directed by the engineer. Spike down all rails on every third tie and notch out base of rails for spikes. Fill in spaces between rails with bituminous material as specified for bituminous track crossing filler in special provisions.

## UNIVERSITY AVE.

### STREET LIGHTING - FIRE ALARM & TRAFFIC CONTROL LAYOUTS

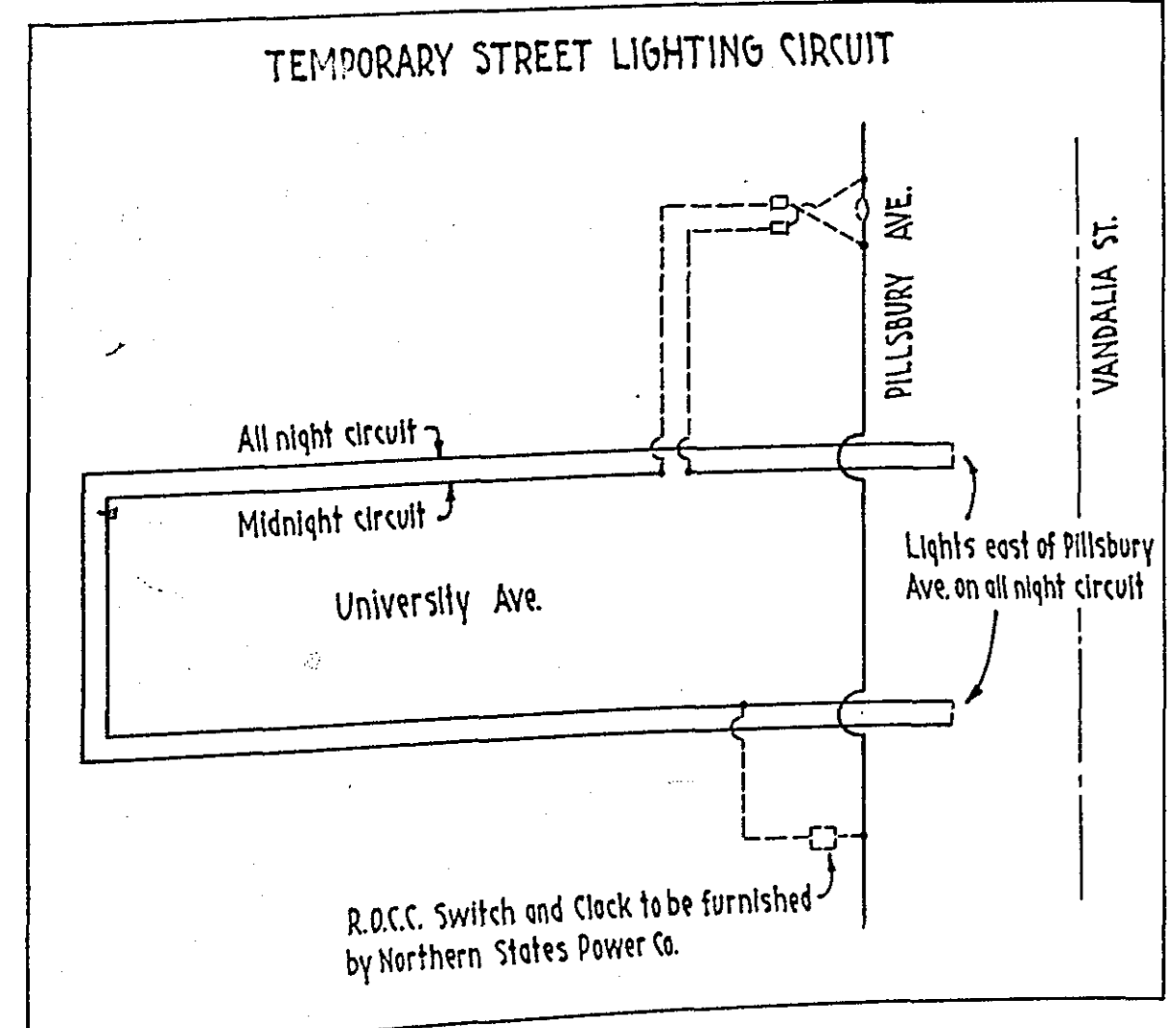
- Combined two light and trolley pole standards
  - Pull boxes for police and fire alarm
  - Traffic signals on and including standards
  - Traffic signals on light standards
  - Street Lighting circuit \_\_\_\_\_
  - Fire alarm circuit \_\_\_\_\_
  - Interlocking cable \_\_\_\_\_
  - Traffic control circuit \_\_\_\_\_
  - Safety Island Lighting circuit \_\_\_\_\_
  - ⊗ Traffic signal controller
  - ⊗ Ceiling Lights on bridges
- SCALE 1" = 40'



**NORTH SIDE OF UNIVERSITY AVE. (From Prior Ave. to Vandalia St.)**  
 Three Cell Duct Line, one for Street Lighting to terminate in light standards, one for Fire Alarm, one for Traffic Control to terminate in pull boxes.  
 Fire Alarm - 1-2 Conductor Cable No. 10 Wire (Prior Ave. to Cleveland Ave.)  
 Traffic Control - 2-2 Conductor Cable No. 10 Wire (Cleveland Ave. to Vandalia St.)  
 Street Lighting Circuit - 2- Single conductor cables - 5000 Volt No. 6 wire

**SOUTH SIDE OF UNIVERSITY AVE. (From Prior Ave. to Vandalia St.)**  
 One Cell Duct Line for Street Lighting to terminate in light standards.  
 Two single conductor cables - 5000 Volt No. 6 wire.

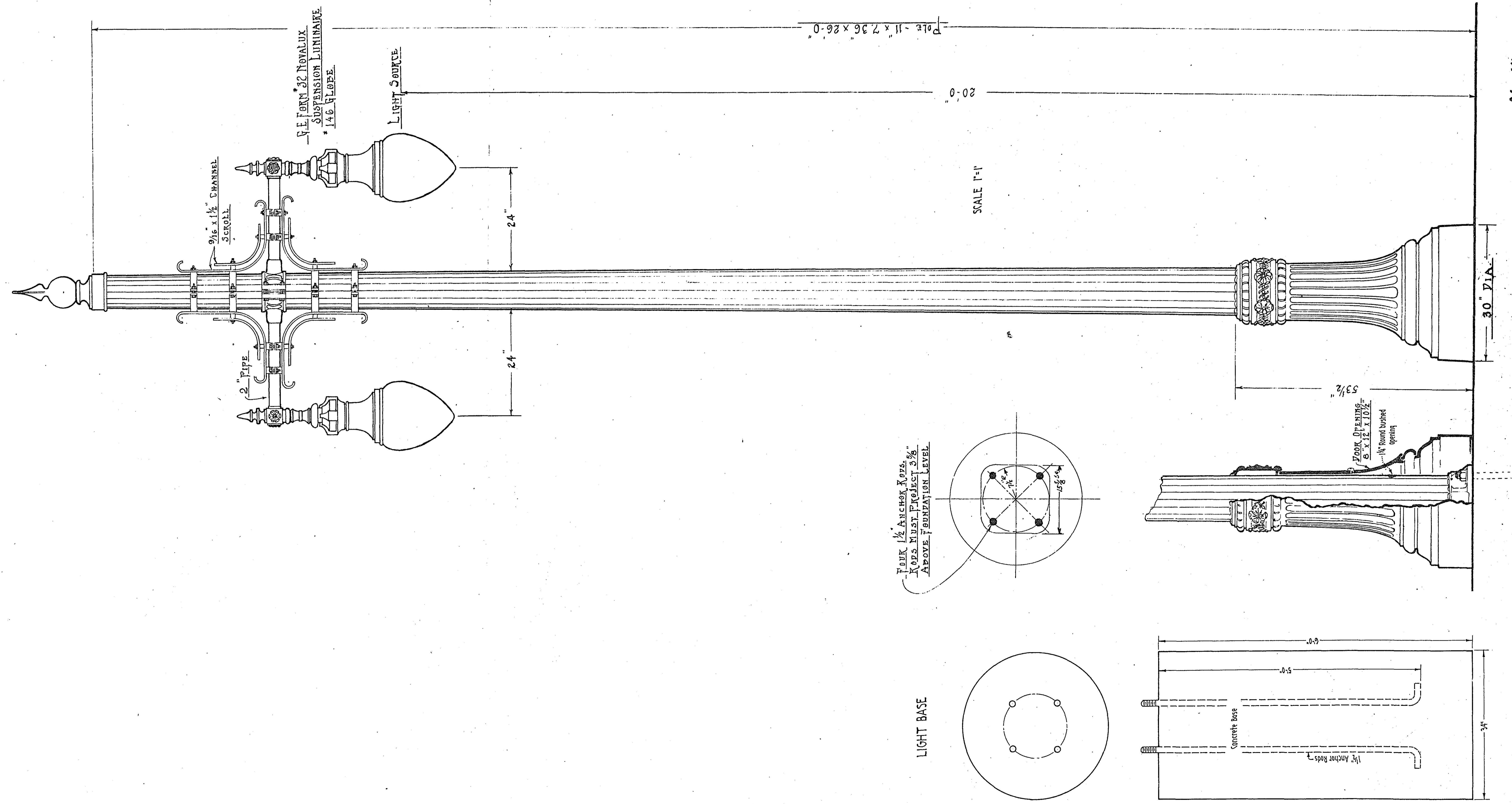
Note: Construct ducts but omit cables from traffic control fire alarm circuits, from pull box at N.E. corner of Vandalia St. to Sta. 23+59



**UNIVERSITY AVE.**  
 PRIOR AVE. to VANDALIA ST.  
 Estimated St. Lighting - Fire Alarm & Traffic Control Quantities & Items

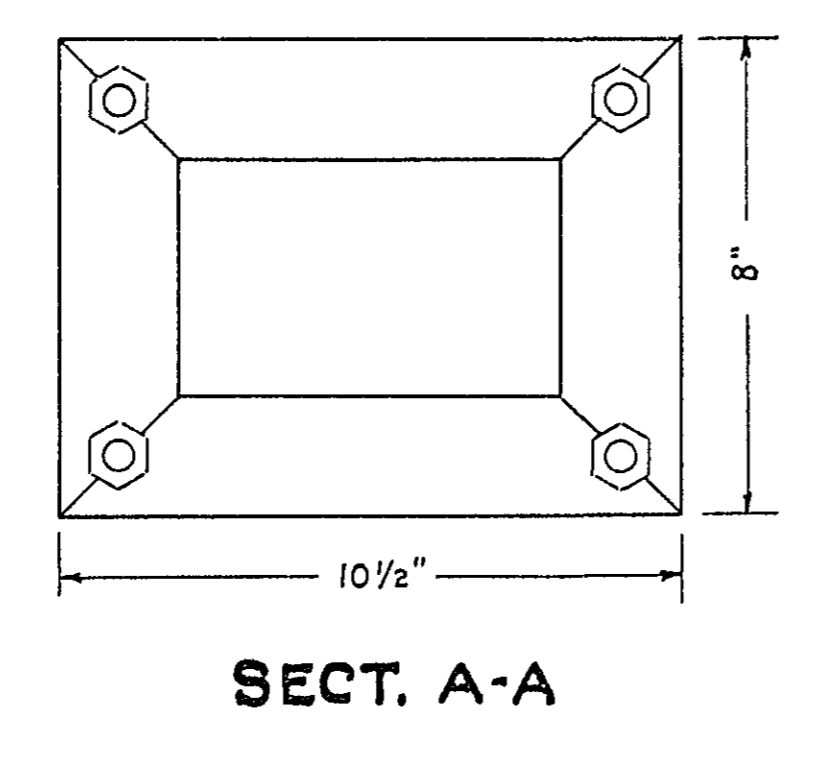
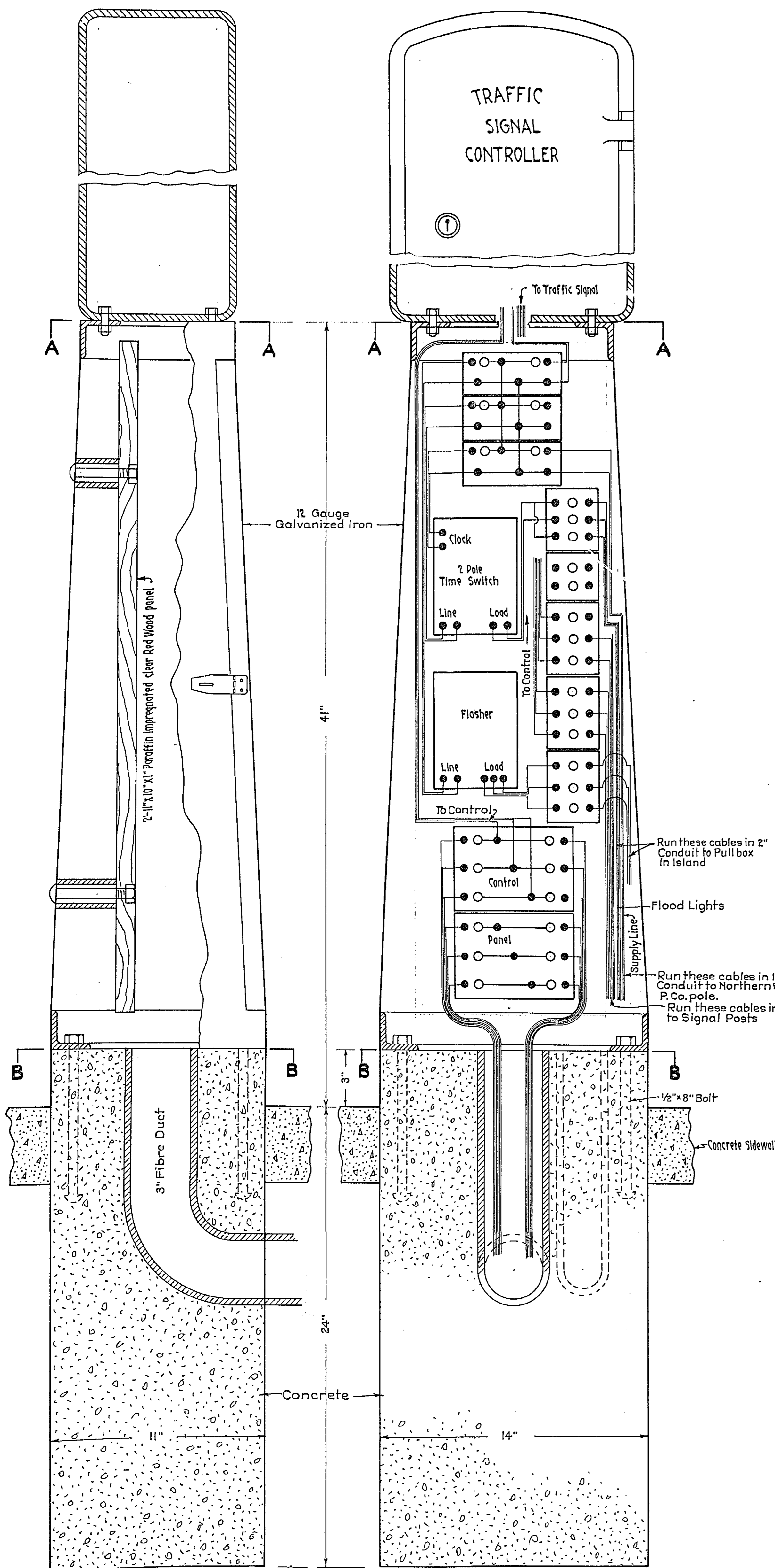
Three Cell Duct Line	2386	Lin. ft.
Single Cell Duct Line	2475	Lin. ft.
Street Lighting Cable	10000	Lin. ft.
Lighting and Trolley Standards	44	Standard.
Interlocking cable for Traffic Signals	7300	Lin. ft.
Traffic Controllers and Cabinets	3	Controller & Cabinet.
Traffic Signals	11	Signal
Fire Alarm Cable & Fire Alarm System	4000	Lin. ft.
Illuminated Street Signs	7	Sign

# LIGHTING AND TROLLEY STANDARD

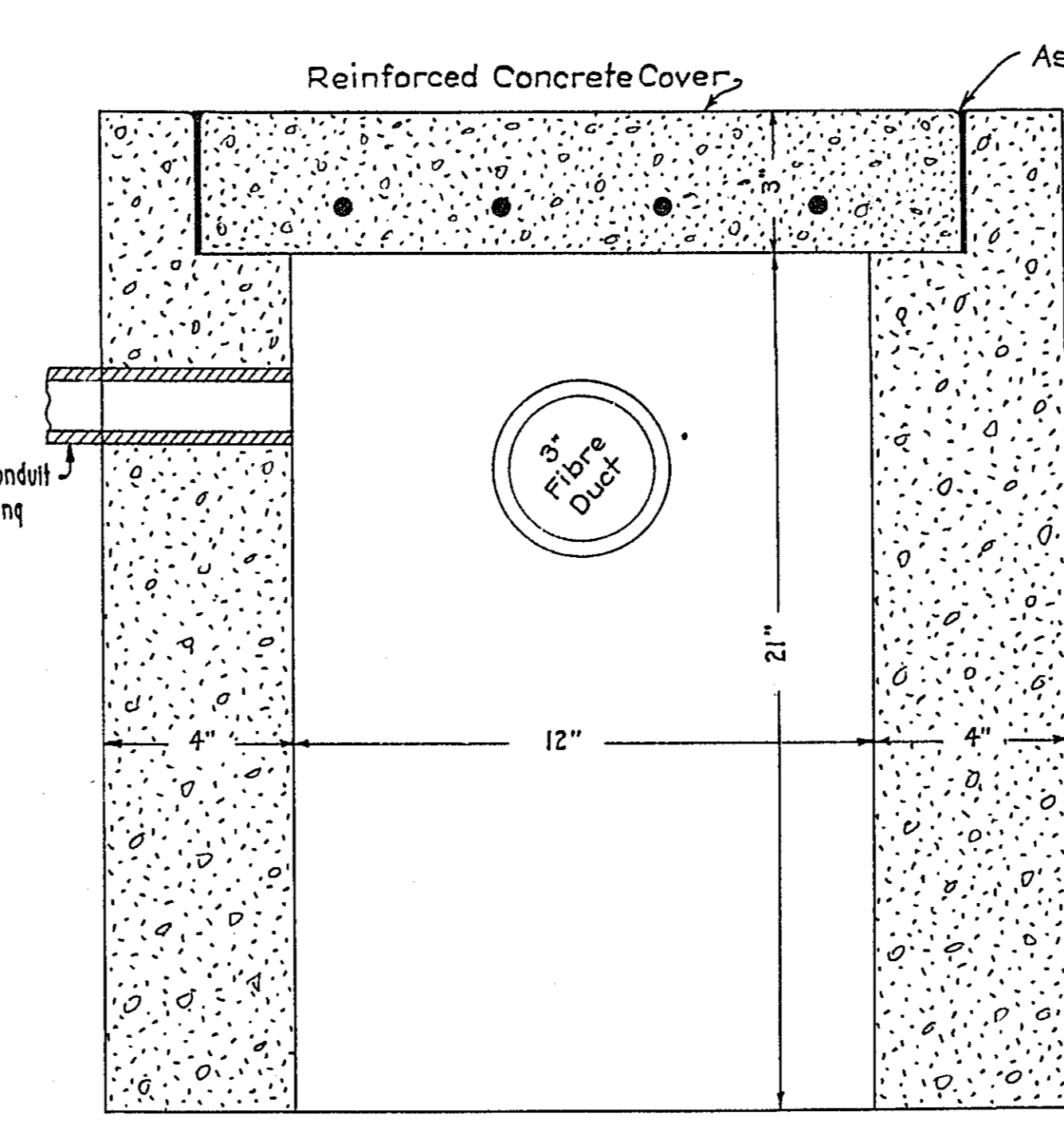
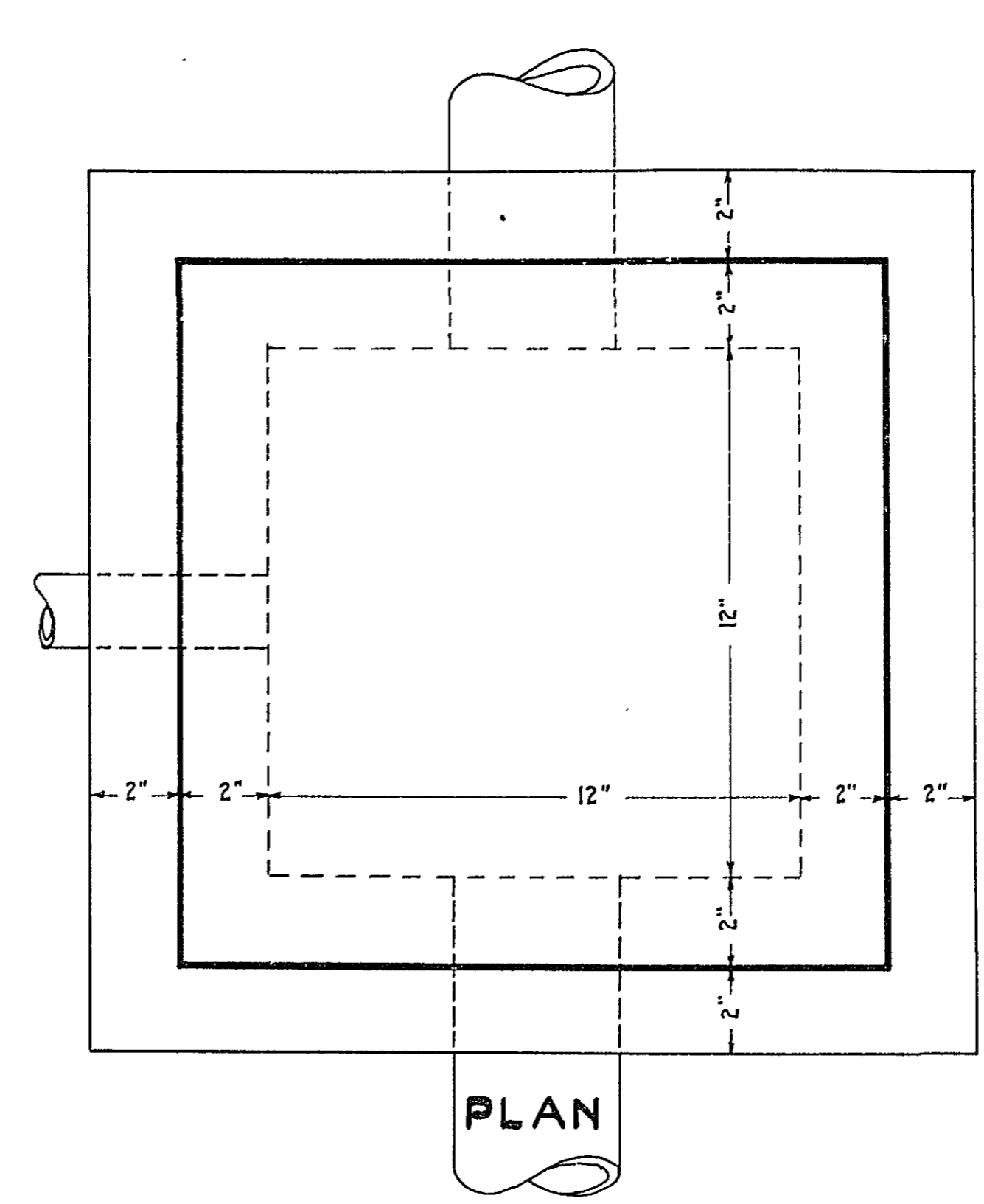


No. 14

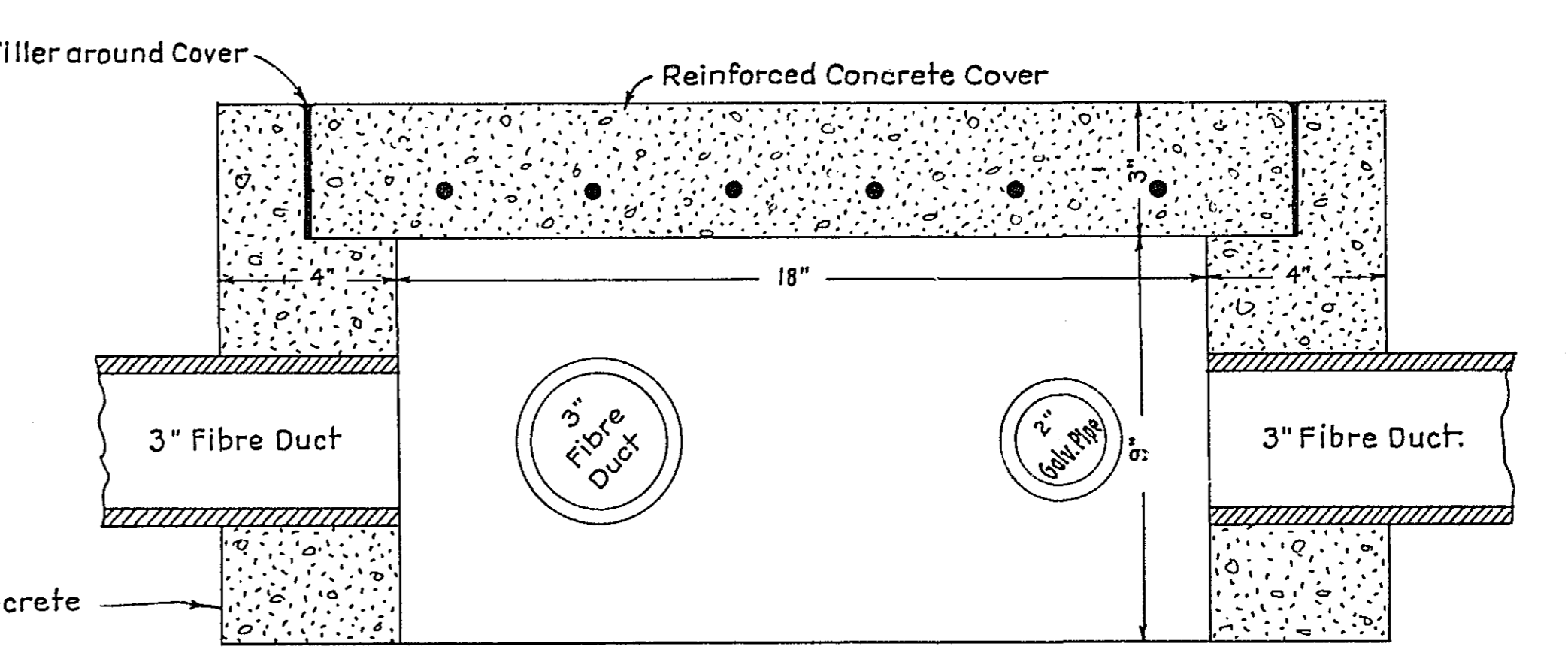
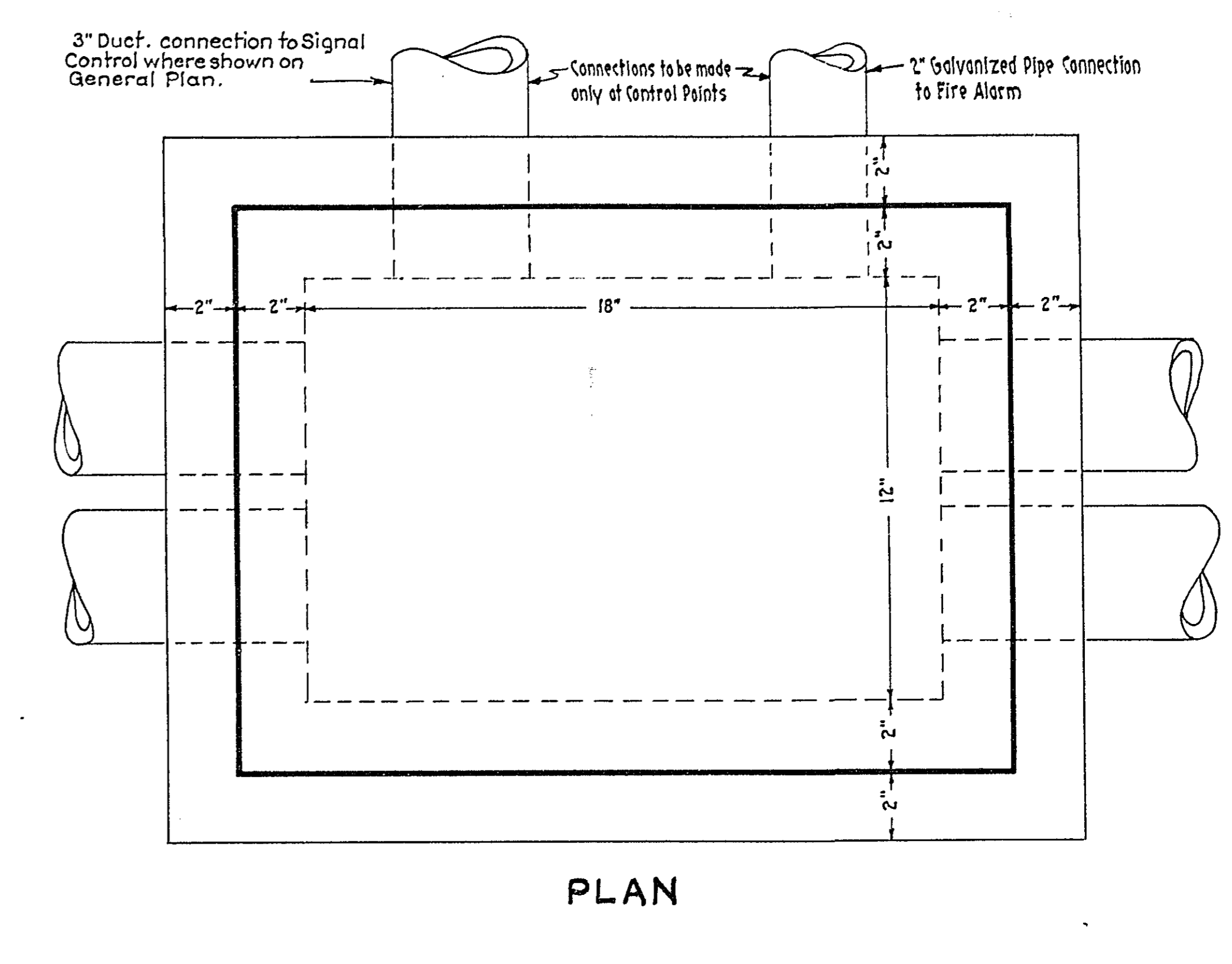
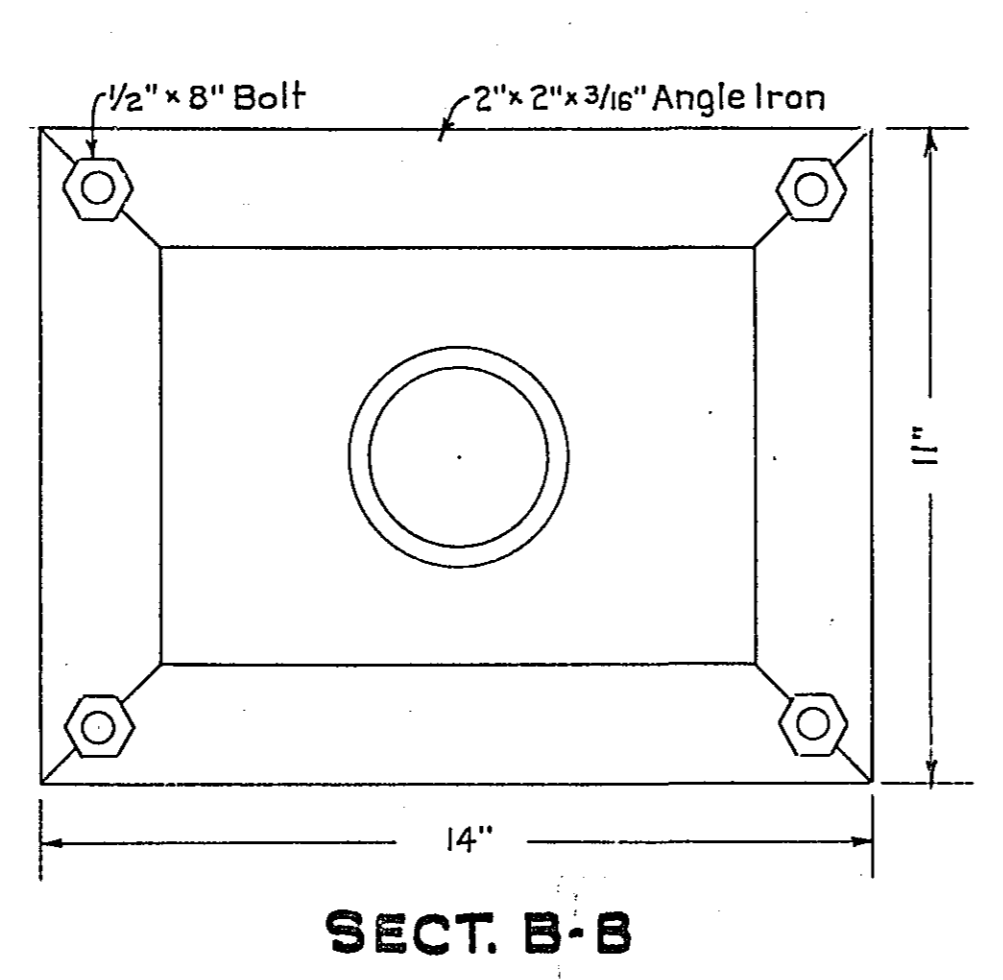




SCALE 1"-4"



TRANSFORMER PIT



TWIN DUCT PULL BOX FOR FIRE ALARM & TRAFFIC CONTROL

BILL OF MATERIALS			
<b>THREE CELL DUCT LINE</b>	2386 LIN. FT.	<b>TRAFFIC CONTROLLERS &amp; CABINETS</b>	3 CONT. & CAB.
3" Fibre Duct	7158 Lin. Ft.	E. K. 40 Westinghouse Controllers	3 Controller
3" Fibre Duct 90° "Ls"	22 "Ls"	Combined Pedestals & Cabinets	3 Ped. & Cab.
Cement Mortar	34 Cu. Yd.	Redwood Panels Inp.	3 Panel
<b>SINGLE CELL DUCT LINE</b>	2475 LIN. FT.	2-Pole Time Switches	3 Switch
3" Fibre Duct	2475 Lin. Ft.	2-Way Flasher	3 Flasher
3" Fibre Duct "Ls"	22 "Ls"	3-Pole D.B. Fuse Blocks	6 Fuse Block
Cement Mortar	16 Cu. Yd.	3-Pole Main line Fuse Blocks	12 Fuse Block
<b>STREET LIGHTING CABLE</b>	10000 LIN. FT.	2-Pole Main line Fuse Blocks	3 Fuse Block
5000 volt-N#6 Lead covered cable	10000 Lin. Ft.	2-Pole D.B. Fuse Blocks	9 Fuse Block
<b>INTERLOCKING CABLE FOR TRAFFIC SIGNALS</b>	2300 LIN. FT.	Edison Plug Fuses	87 Fuse
600 volt-8 conductor N#10 cable	2300 Lin. Ft.	3" Fibre 90° "Ls"	3 "Ls"
<b>STREET SIGNS</b>	7 SIGN.	8" x 1/2" Galvanized Machine Bolts	12 Bolt
Illuminated Street Signs	7 Sign	Concrete	1/2 Cu. Yd.
<b>LIGHTING &amp; TROLLEY STANDARDS</b>	44 STANDARD	12" x 14" x 6" Cabinets	3 Cabinet
Concrete Foundations	44 Foundation	1" F Condulets with covers	3 Condulet
Standards complete with anchor bolts, shims, fixtures, refractors, and glassware	44 Standard	2" Galvanized "Ls"	34 "Ls"
Transformers	88 Transformer	2" Iron Pipe	1700 Lin. Ft.
N#6-600 volt RC-DB wire	5300 Lin. Ft.	1/4" Iron Pipe	140 Lin. Ft.
Paint	22 Gallon	1" Conduit	80 Lin. Ft.
Okonite Tape	44 Lbs.	2 Conductor N#8-600 volt cable	350 Lin. Ft.
Friction Tape	5 Lbs.	N#8-600 volt wire	200 Lin. Ft.
Insulating Varnish	1 Gallon	30 Amp. Entrance Switches	3 Switch
400 Candlepower Lamps	88 Lamp	1/4" Galvanized "Ls"	6 "Ls"
		2" Caps	5 Cap
		2" Bushings	36 Bushing
		1/4" Bushings	3 Bushing
		1/4" Locknuts	3 Locknut.
		<b>TRAFFIC SIGNALS</b>	11 SIGNAL
		2 Way-3 Light Traffic Signals (complete)	11 Signal
		Traffic Signal Standards	3 Standard
		Bracket sets for mounting on lighting Standards	8 Set
		2-Pole D.B. Fuse Blocks	8 Fuse Block
		3-Pole D.B. Fuse Blocks	8 Fuse Block
		2-Pole Main line Fuse Blocks	3 Fuse Block
		3-Pole Main line Fuse Blocks	3 Fuse Block
		7 Conductor N#14 cable	1000 Lin. Ft.
		N#14-600 Volt wire	800 Lin. Ft.
		Concrete (Grade "A")	1/2 Cu. Yd.
		Edison Plug Fuses	55 Fuse
		Traffic Signal Bulbs 60W-120V.	66 Bulb
		<b>FIRE ALARM CABLE &amp; FIRE ALARM SYSTEM</b>	4000 LIN. FT.
		8" x 10" x 4" Outdoor galv. Cabinets	4 Cabinet
		2" Pipe	480 Lin. Ft.
		2" "Ls"	4 "Ls"
		2 Conductor N#10-600 volt cable	4000 Lin. Ft.
		1" Galvanized Conduit	70 Lin. Ft.
		1/4" Galvanized Conduit	25 Lin. Ft.
		1/4" Galv. "F" Condulet with cover	1 Condulet
		1" Galv. "F" Condulet with cover	3 Condulet
		1/4" Locknut	1 Locknut.
		1/4" Bushing	1 Bushing
		2" Locknuts	4 Locknut
		2" Bushings	4 Bushing
		N#10-600 volt wire	500 Lin. Ft.
		Edison Plug Fuses	16 Fuse
		2-Pole Main line Fuse Blocks	8 Fuse Block

# SAFETY ISLAND

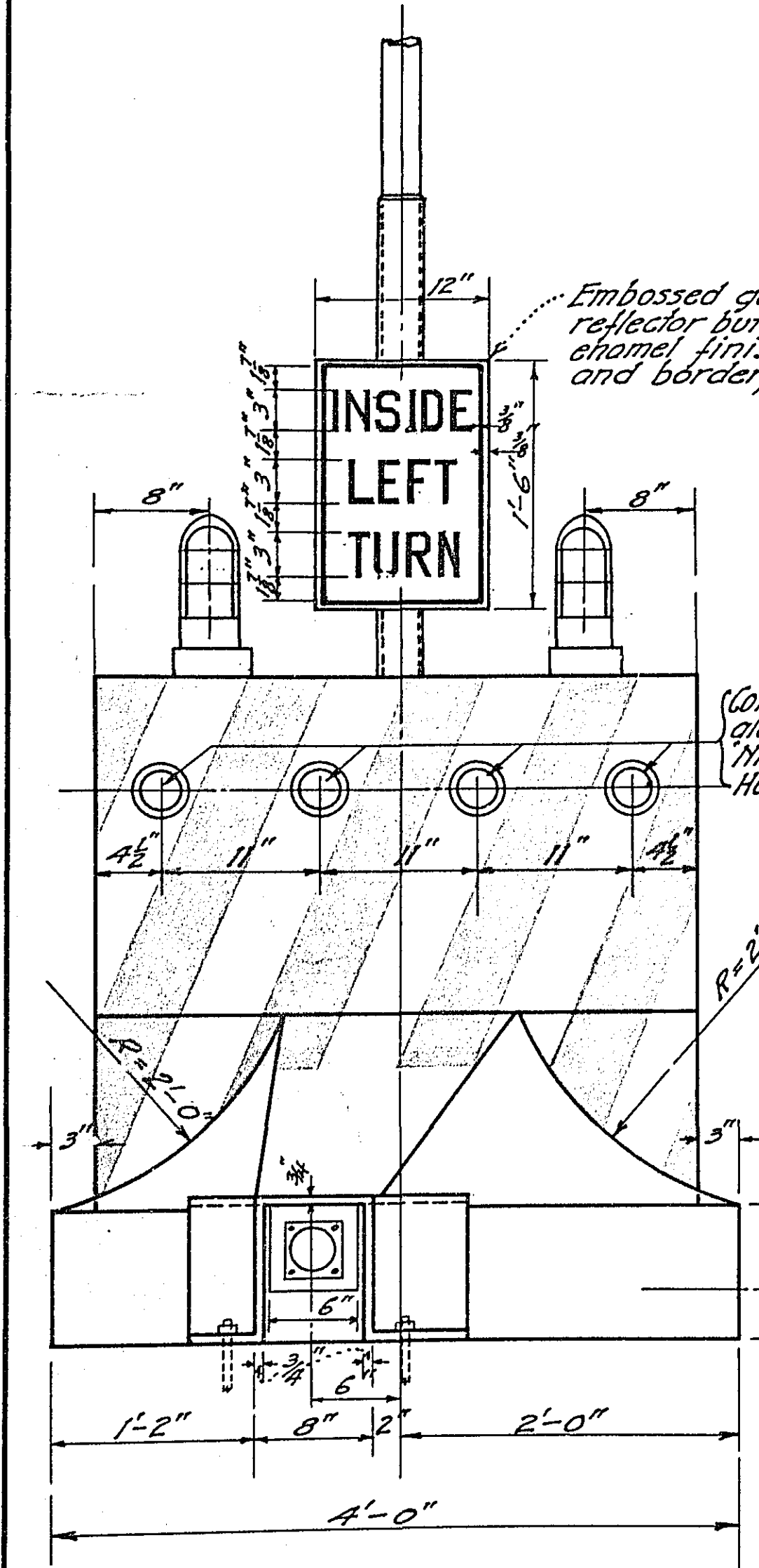
## UNIVERSITY AVE. AND VANDALIA ST.

Scale: 1" = 1'-0"

All concrete to be Grade A  
 All edges of concrete to be finished to a  $\frac{3}{8}$ " bevel.  
 All exposed surfaces of concrete to be given wood float finish, except where forms are used, surfaces shall be given rubbed down finish.  
 Concrete bumper block and four feet of prow to be painted one coat with alternate black and white diagonal stripes, each 5 wide.  
 All electrical equipment including light standard, conduit and wiring, lights, reflectors, signs, and etc. within the area covered by the island, and the cable from the island to the controller, is a part of the safety island. Island to be wired as specified.  
 The pipe light standard, cast iron base and cast iron guard at end of island shall be painted same as specified for Ornamental Light Standards.  
 All conduits shall be galvanized iron pipe.  
 Concrete bumper block shall be separated from rest of island by contraction joints.  
 The safety island including the loading platform shall be constructed directly on top of the concrete base of pavement, but the base of the pavement shall not be a part of the island.

- ### BILL OF MATERIAL FOR ONE SAFETY ISLAND.
- 1- Safety Light Standard complete, consisting of the following items:
    - (a) 1-4" Galvanized steel pipe, 4'-2 $\frac{1}{2}$ " long.
    - (b) 2-3 $\frac{1}{2}$ " " " lengths 0-2' long welded to inside of 4" pipe.
    - (c) 1-Steel cap welded to end of 4" pipe.
    - (d) 1-3" Galvanized steel pipe, 10'-2" long.
    - (e) 1-2 $\frac{1}{2}$ " " " , 24'-2 $\frac{1}{2}$ " long.
    - (f) 1- Cast iron base.
    - (g) 1- Traffic sign.
    - (h) 1- Angle reflector and 300 watt lamp.
  - 2- Vapor proof fixtures with 75 watt lamps.
  - 4- Red reflector signals.
  - 1- 6"x6"x6" Water tight and weather proof unit with 100 watt lamp.
  - 1- Cast iron guard with 6 bolts.
  - 1- 6"x8"x12" Steel pull box.
  - 1- 4"x6" Steel frame and cover.
  - 2 $\frac{1}{2}$ " Cu. Yds. Concrete.
  - 3 $\frac{1}{2}$ " Conduit 3'-4" long. 1 Conduit 16'-8" long.
  - 134 Lin. Ft. 7-conductor cable- No. 14 wire. 46 Lin. Ft. 2 conductor- No. 14 cotton covered wire.
  - Point

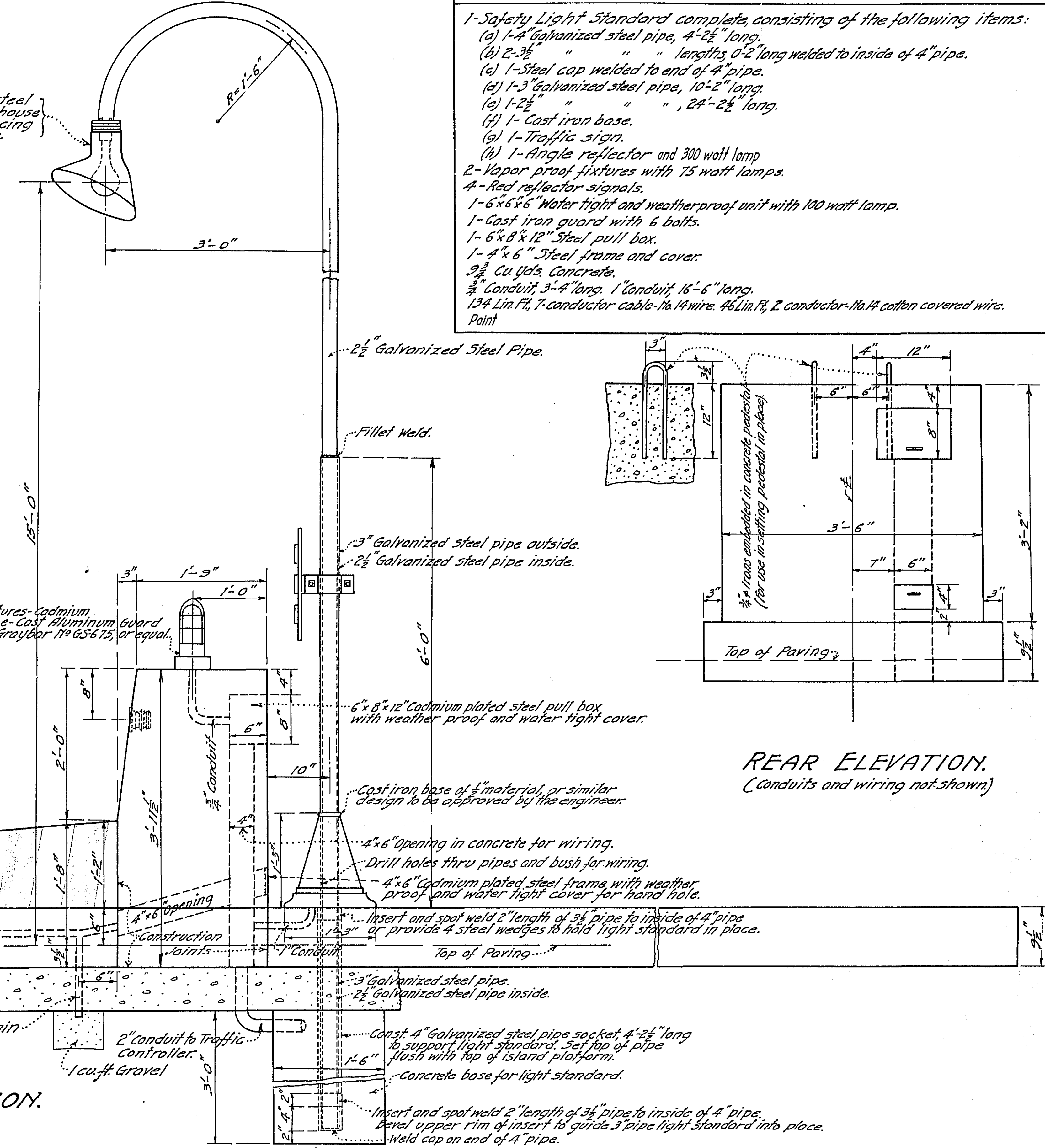
Symmetrical Angle Reflector with steel hood for 300-500 Watt Lamp Westinghouse Style No. 28255 or equal, Provide reducing nipple  $\frac{1}{4}$ " to  $\frac{3}{8}$ " and 300 watt Lamp.



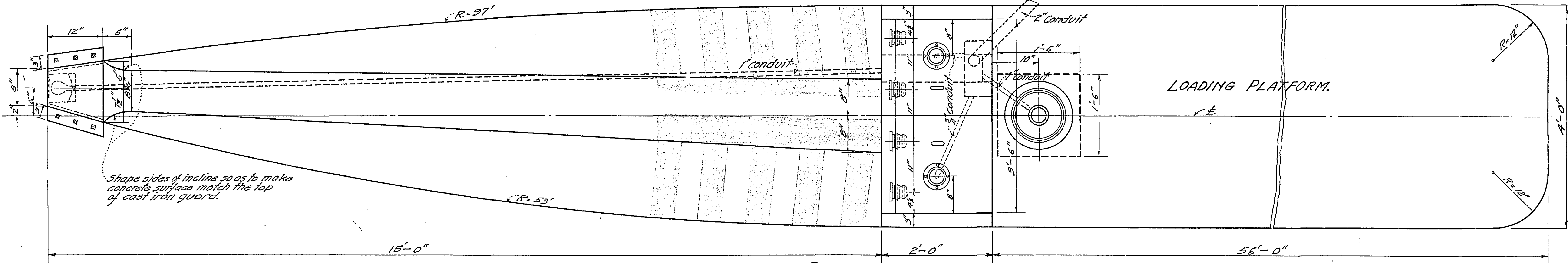
FRONT ELEVATION.

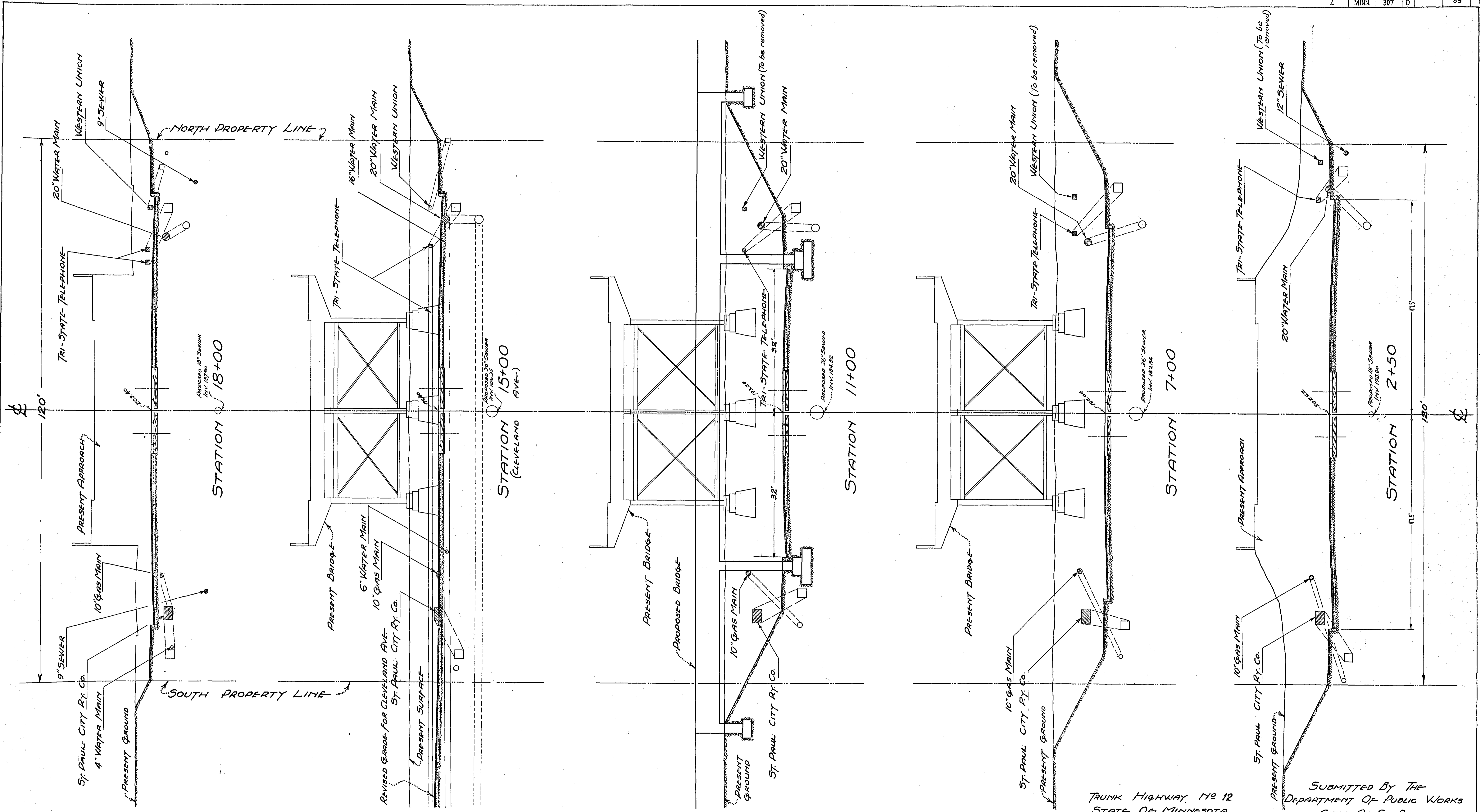
Water tight and weather proof unit with 3" red lens screwed on from the front. Body and castings to be cast iron (Cadmium plated) or bronze. Front flange that holds the lens may be square or round. To be furnished with 100 watt lamp and chromium plated reflector.

Cast iron guard of  $\frac{3}{4}$ " material, anchored to concrete base with 3 bolts on each side,  $\frac{1}{2}$ " x 8" long cadmium plated. Material to be the same as specified for manhole rings or equal. Patterns to be delivered to State Highway Department.



REAR ELEVATION.  
(Conduits and wiring not shown)





TRUNK HIGHWAY NO 12  
 STATE OF MINNESOTA  
 DEPARTMENT OF HIGHWAYS  
 X-SECTS SHOWING LOCATION  
 OF PRESENT UTILITIES  
 AT PROPOSED UNDERPASS ON  
 UNIVERSITY AVE. THRU MINNESOTA  
 TRANSFER RY. CO. YARDS

SUBMITTED BY THE  
 DEPARTMENT OF PUBLIC WORKS  
 CITY OF ST. PAUL  
 SCALE 1"=10'

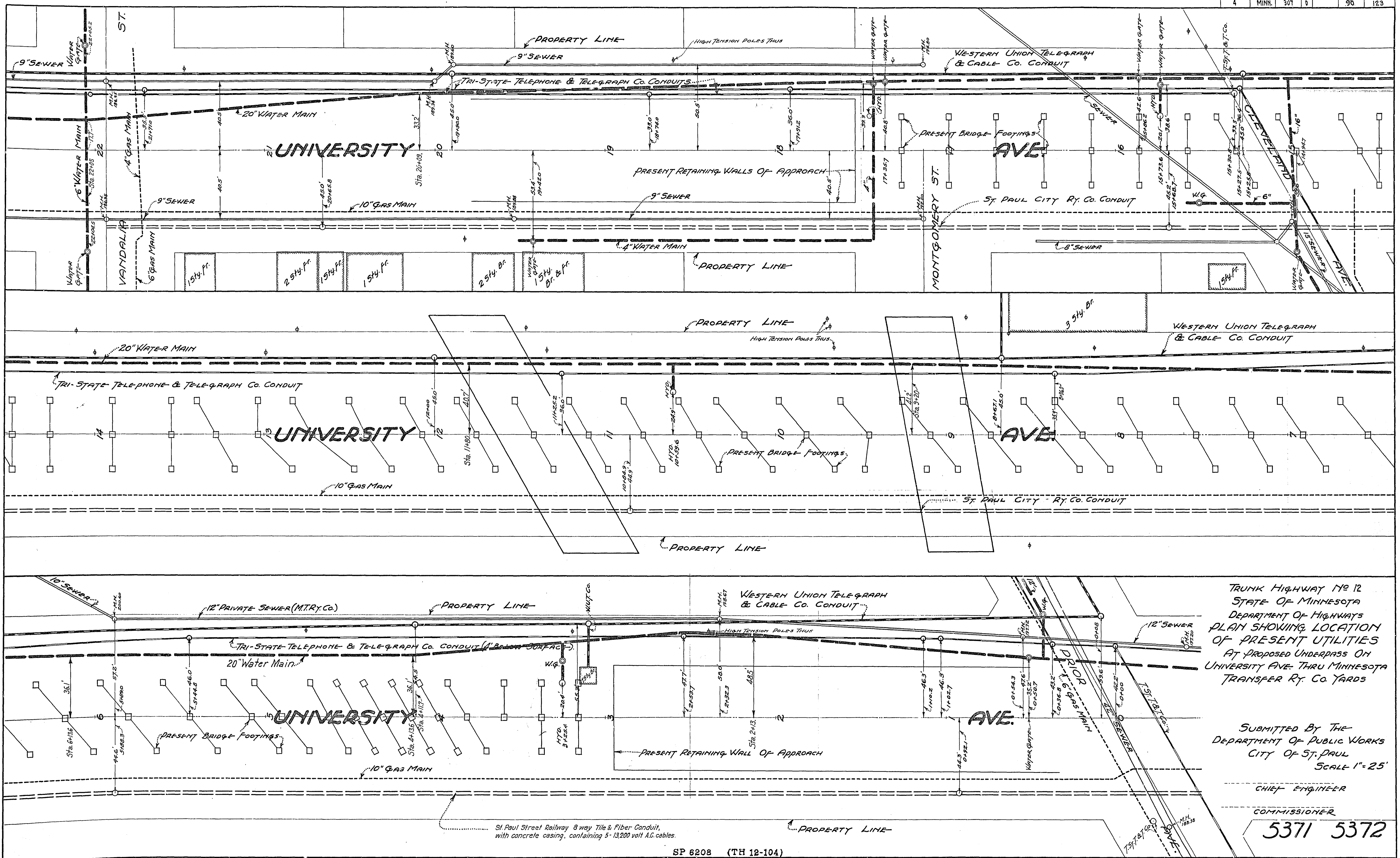
CHIEF ENGINEER  
 COMMISSIONER

5371 5372

SP 6208 (TH 12-104)

PROJECT NO 12-104-24 N.R.M. NO 307-D

Sheet No 89 of 123 Sheets



TRUNK HIGHWAY No 12  
 STATE OF MINNESOTA  
 DEPARTMENT OF HIGHWAYS  
 PLAN SHOWING LOCATION  
 OF PRESENT UTILITIES  
 AT PROPOSED UNDERPASS ON  
 UNIVERSITY AVE. THRU MINNESOTA  
 TRANSFER RY. CO. YARDS

SUBMITTED BY THE  
 DEPARTMENT OF PUBLIC WORKS  
 CITY OF ST. PAUL  
 SCALE 1" = 25'

CHIEF ENGINEER

COMMISSIONER

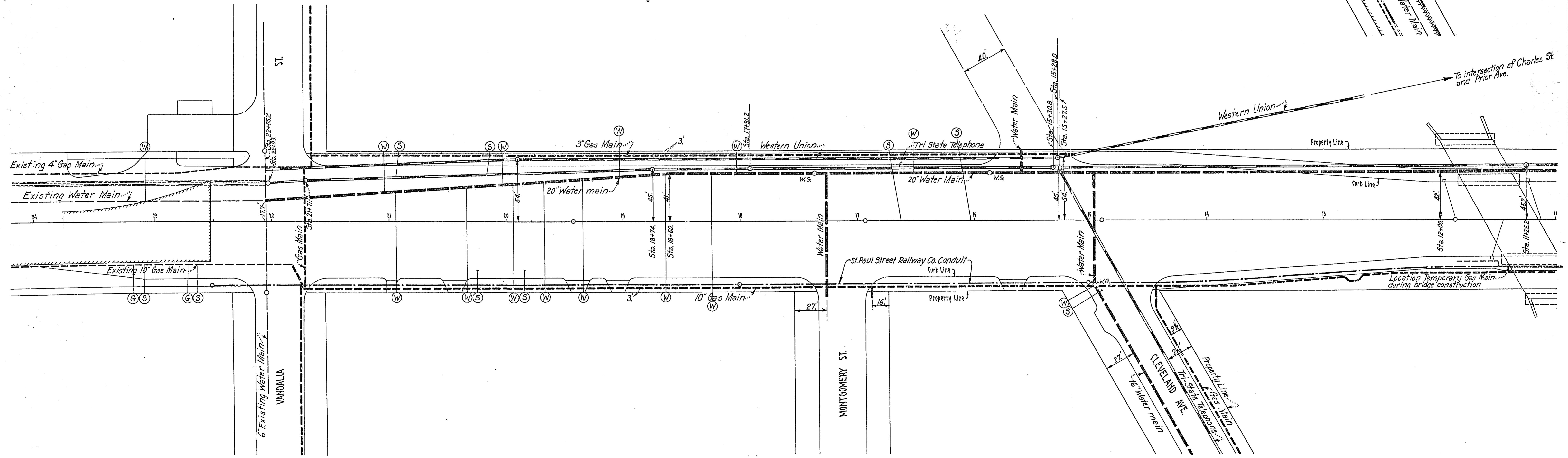
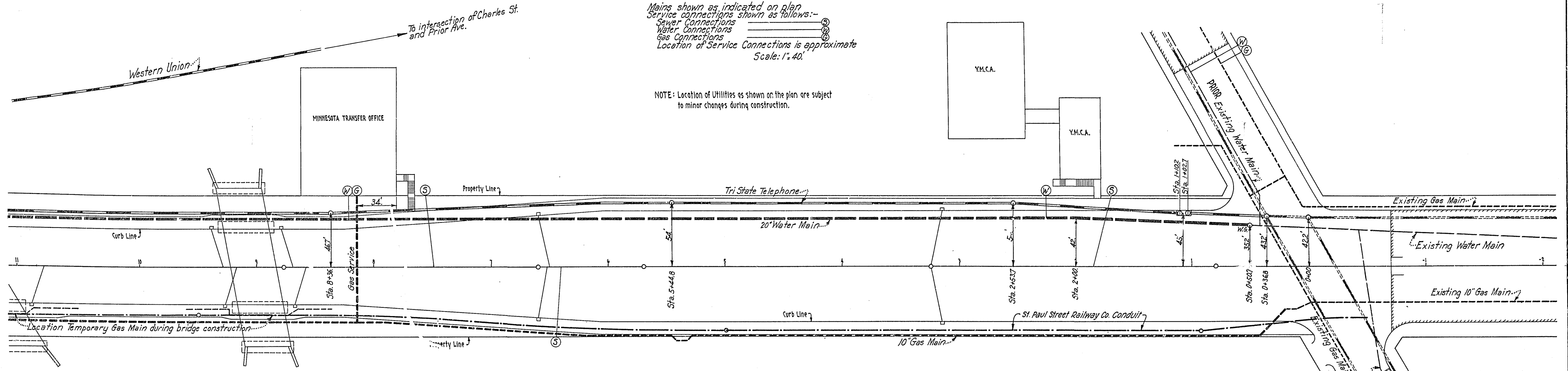
5371 5372

St. Paul Street Railway 8 way Tile & Fiber Conduit,  
 with concrete casing, containing 5-13,200 volt A.C. cables.

### PLAN SHOWING NEW LOCATION OF UTILITIES

Mains shown as indicated on plan  
 Service connections shown as follows:-  
 Sewer Connections  
 Water Connections  
 Gas Connections  
 Location of Service Connections is approximate  
 Scale: 1" = 40'

NOTE: Location of Utilities as shown on the plan are subject to minor changes during construction.



94-3