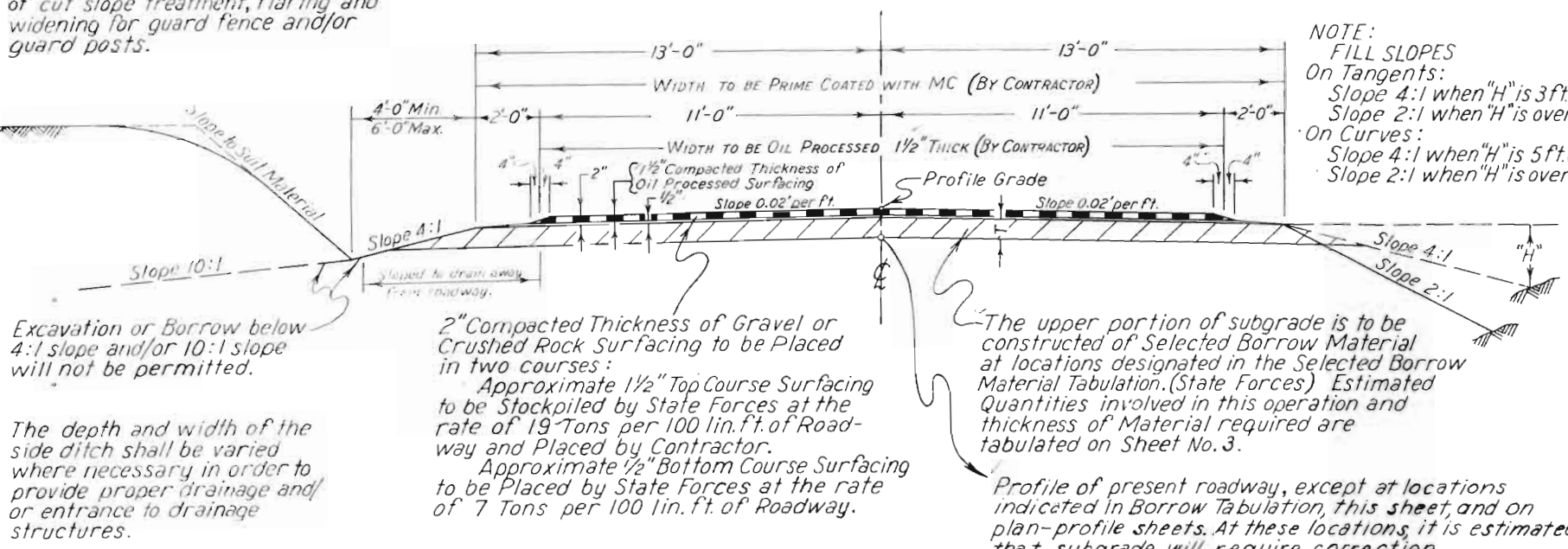


TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES

NOTE:
See Standard M-2-DM for details of cut slope treatment, flaring and widening for guard fence and/or guard posts.



NOTE:
FILL SLOPES
On Tangents:
Slope 4:1 when "H" is 3 ft. or less.
Slope 2:1 when "H" is over 3 ft.
On Curves:
Slope 4:1 when "H" is 5 ft. or less.
Slope 2:1 when "H" is over 5 ft.

SUMMARY OF APPROXIMATE QUANTITIES

ITEM NO.	ITEM	UNIT	WORK BY STATE FORCES	CONTRACT WORK	PROJECT TOTALS
13c	Unclassified Excavation	Cu. Yd.	73,000		73,000
17b	Rolling with Flat Wheeled Roller	Hour	380	110	490
17c	Rolling with Rubber Tired Roller	Hour		80	80
17e	Furnishing Flat Wheeled Roller	Lump Sum			
17f	Furnishing Rubber Tired Roller	Lump Sum			
17g	Wetting	M. Gal.	950		950
18a	Station Yard Overhaul	Sta. Yd.	793,000		793,000
18b	Yard Mile Overhaul	Yd. Mi.	130,000		130,000
18c	Ton Mile Overhaul	Ton/Mi.	7,700	13,400	21,100
26c	Gravel or Crushed Rock Surfacing (Grading C)	Ton	5,000		5,000
26e	Stockpile Surfacing	Ton	9,100		9,100
26y	Placing Stockpiled Surfacing	Ton		8,700	8,700
30j	Asphaltic Road Material MC-3	Gal.		95,200	95,200
30x	Asphaltic Road Material MC	Gal.		55,200	55,200
31a	Road Mix Oil Processing	Sq. Yd.		119,700	119,700
81a	Project Markers	Each	2		2
FORCE ACCOUNT					
	Reflectorized RR Crossbuck Warning Signs, Sta. 464+20				
	(Work by A.T. & S.F. R.R. Co. Forces)	Lump Sum			
WORK BY STATE FORCES					
	Reflectorized RR Advance Warning Signs, Sta. 464+20	Each	2		2

GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department adopted January 1, 1948.

All quantities on preliminary plans are to be considered approximate only.

All roadway excavation required to construct this Project is to be obtained and used as indicated on the plans. Quantities involved beyond the limits of the ditches shown on the Typical Cross Section, either noted as "Borrow" on the Plans or as "Embankments" in the List of Structures, are to be classified and paid for as "Unclassified Excavation". These quantities are to be staked as part of the original excavation at locations indicated on the Plans. Any slope stakes beyond the limits of the Typical Section as shown, are subject to change by the Engineer to fit conditions actually met in construction.

All poles encroaching on construction are to be moved by the owners.

Except as otherwise noted on the plans, payment for overhaul will be based on measurement along the centerline of the project.

All curves are to be superelevated and widened as provided by the Standard Superelevation sheet included with the plans, except as otherwise noted on plans.

Curves on this project over 6 degrees shall be provided with the superelevation shown on the Standard Superelevation sheet for a 6 degree curve.

The Detour for this project lies along the present traveled road. At all places on the project where the new work lies along the present traveled road, the Contractor shall, at his own expense, prosecute construction in such manner that traffic may readily pass over the road. Also, the Contractor shall maintain in safe condition and at his own expense, all temporary approaches to and crossings of intersecting roads.

At Bridge Approaches, the Oil Processing shall be widened to meet the curbed width of the bridge and shall take place gradually over a distance of 300 ft., each way from the Bridge ends.

Asphaltic Road Material MC is to be used for prime coat over a 26 ft. width of roadway previous to placing of Oil Processed Material. Grade of MC oil to be determined by the Engineer.

Asphaltic Road Material MC-3 is to be used for processing oil mat on this project.

The General Notes on Standard M-2-DM, sheet 6, are amended to provide for a two (2) inch thickness of "Gravel or Crushed Rock Surfacing" for side approach roads on this project.

All side approach roads shall be prime coated to the Right of Way line, and shall not be oil processed.

The Department estimates that stockpiles will be located at Surfacing Pit No. 1 - 1 mile north of Sta. 204+ and at Pit No. 2 - 1.3 miles North of End of Project.

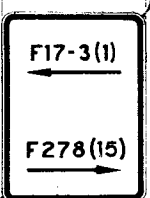
It is estimated that rolling of the Oil Processed Material with a Flat Wheeled Roller will be necessary after compaction of mat with Rubber Tired Rollers in order to produce a smooth, firm surface.

BORROW NOT AVAILABLE ON RIGHT OF WAY

MATERIAL TO BE PLACED	SOURCE	QUANTITY				OVERHAUL			
		AVAIL-ABLE	CU. YDS.		STA. YDS.		YD. MI.		
			PIT NO. 1	PIT NO. 3	PIT NO. 1	PIT NO. 3	PIT NO. 1	PIT NO. 3	
49+00-51+00 Bk	Pit No. 1		51		561		190		
54+00-56+00 Ah	In NW 1/4 Sec. 1		663		7,293		2,239		
115+00-118+00	T 24 S R 56 W		46		506		114		
224+00-226+00	1 Mi. N. Sta. 204		34		374		34		
277+00-287+00	Class A-1-a (o)		1,150		12,650		2,500		
292+00-301+00			882		9,702		2,160		
330+00-345+00	Pit No. 3			1,848		20,328		4,433	
357+00-377+00	In E 1/2 Sec. 6			2,768		30,448		5,106	
388+00-415+00	T 24 S R 56 W			1,577		17,347		1,878	
415+00-436+00	1 1/2 Mi. N.			707		7,777		528	
454+00-456+00	Sta. 454+			25		275		5	
	Class A-1-a (o)								
Sub-Totals			2,826	6,925	31,086	76,175	7,237	11,950	
Totals				9,751		107,261		19,187	

PROJECT MARKER POST
ITEM N° 818

Metal Sign conforming to
Sec 141A A.S.H.O. Manual on
Uniform Traffic Control
Devices
White Background
Black Letters & Symbols



NOTES FOR PROJECT MARKER POSTS

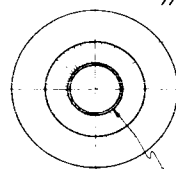
All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted January 1st 1945.

Numbers and arrows shall show the proper numbers and directions of the projects each way from where the post is placed. Post to be set with sign facing the road at the end of the project, two feet inside the ROW line or at a point amply protected from traffic in such a position that the sign will indicate properly the projects to which it refers.

NOTES FOR ROW MARKER POSTS

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted January 1st 1945.
Plates shall be made of Class "A" Concrete.
The upper 12 inches of marker posts shall be rubbed free of form marks, and the top surface of the post must be constructed to drain thoroughly.
All exposed surfaces of the bronze tablet are to be ground to a smooth surface.
All letters are to be depressed a minimum of $\frac{1}{16}$ inch.
Information on the bronze tablet indicated by pin lines is to be stamped in the field by the engineering party after post is placed.
 $\frac{3}{16}$ inch letters and figures to be used.
Project designations on tablets shall be properly shown. Thus: F.A.P.N. for Federal Aid Projects; S.P.N. for State Projects; P.W.A. N° for P.W.A. Projects, etc.

RIGHT OF WAY MARKER POST
ITEM N° 816

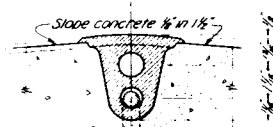


BRONZE TABLET

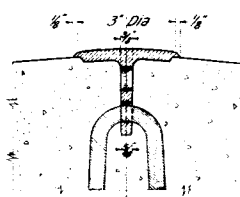
Ground Line

3'-6"

$\frac{1}{8}$ " Wood 6'-0" long
Minimum edge distance 2"



SECTION B-B



SECTION A-A

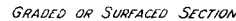
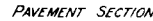
DETAIL OF BRONZE TABLET
FOR RIGHT OF WAY MARKER POST

REVISIONS
Rev. 5-28-40, A.Z. 1930 Specs.
Rev. 1-2-46, C.S.D. Item 816
STANDARD M-7-B
Rev. 8 Jan. 46, P.S.B. 1/2" x 1/2" x 1/2" x 1/2"
Rev. June 10 '46, W.E.M. Bronze Tablet
Rev. Mar. 21-3-47, W.E.M. - Project Marker Post
Rev. Nov. 20-1947, J.P.K. - Metal Project Marker
Rev. Dec. 13-1948, J.P.K. - Concrete Base for Metal Project Marker

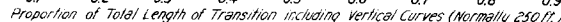
FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
3	COLO.	50012(1) 7	7

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
MARKER POSTS

Designed by REL
Made by FFS
Checked by REL
Approved by J. H. Marshall
Date: January 1st 1948



Distance from BT (Feet)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Max. 1.0
Degree of Curvature	RATE OF SUPERELEVATION (IN FEET) PER FOOT WIDTH OF ROADWAY									
2° and Under	0.00044	0.00175	0.00394	0.00700	0.01050	0.01400	0.01706	0.01925	0.02095	0.02190
3°	0.00066	0.00263	0.00591	0.01050	0.01575	0.02100	0.02539	0.02888	0.03084	0.03180
4°	0.00086	0.00350	0.00788	0.01400	0.02200	0.02800	0.03413	0.03850	0.0413	0.04290
5°	0.00109	0.00436	0.00984	0.01750	0.02625	0.03350	0.04066	0.04613	0.05041	0.05250
6°	0.00131	0.00525	0.01181	0.02100	0.03150	0.04200	0.05119	0.05775	0.06169	0.06360
7°	0.00153	0.00613	0.01375	0.02450	0.03675	0.04900	0.05972	0.06736	0.07197	0.07350
8°	0.00175	0.00700	0.01575	0.02800	0.04200	0.05600	0.06825	0.07700	0.08225	0.08400
9°	0.00197	0.00788	0.01772	0.03150	0.04725	0.06300	0.07676	0.08663	0.09253	0.09450
10° and Over	0.00208	0.00833	0.01875	0.03333	0.05000	0.06667	0.08125	0.09166	0.09792	0.10000
OFFSETS FOR WIDENING - W' - (IN FEET)										
Over 10° - Under 12°	0.03	0.12	0.27	0.48	0.75	1.08	1.47	1.92	2.43	3.00
12° - 15°	0.04	0.16	0.36	0.64	1.00	1.44	1.96	2.56	3.24	4.00
15° - 20°	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.20	4.05	5.00
20° and Over	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00



The diagram illustrates a sag vertical curve. A solid line represents the 'Profile Grade', and a dashed line represents the 'PCC (Horizontal Curve)'. The transition between them is a 150-foot tangent. The total length of the transition is 250 feet, with 50 feet on either side of the 150-foot tangent. The curve is flanked by 'Normal' sections, each 100 feet long, with a vertical curve length of 100 feet. The diagram also shows the 'Beginning of Transition - B.T.' and 'End of Transition - E.T.' points, and labels for 'Outside Shoulder' and 'Inside Normal Shoulder or Inside Normal Pavement Edge'.

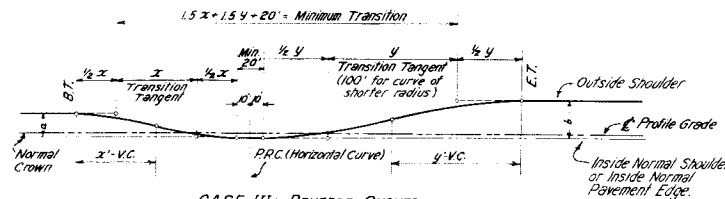
NOTE: CASE 11

CASE 11: COMPOUND CURVE

Superelevation transitions at the outside ends of compound curves shall be constructed in accordance with rules given under CASE 1.

Superelevation transition between the arcs of different radii shall be made as in CASE 1, except that the entire transition shall lie within the limits of the curve of the longer radius.

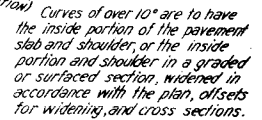
In cases where curves in the same direction have a tangent distance of less than 300 ft. between points of curve, the intervening tangent shall be superelevated an amount equal to that of the curve of greater radius and the transition shall be made as in the case of a true compound curve.



NOTE: CASE III
Transitions between true reverse curves shall be accomplished as shown on the above diagram.
Transition tangents shall be directly proportional to the amount of superelevation of the respective curves.

EXAMPLE: Let a represent the amount of super-elevation on 1st curve;
 b " " " " " 2nd " ;
 x " " " " " transition tangent on 1st " ;
 y " " " " " " 2nd " ;
 then, $a:b = x:y$.

The transition tangent of the curve having the shorter radius shall be set at 100 ft. A normal crowned section 20 ft long, 1 ft on each side of the P.R.C. shall be used. In cases where curves in opposite directions are in such proximity that a standard transition can not be had, the practice outlined for true reversing curves shall be used. The total distance between the P.T. of the first curve and the P.C. of the succeeding curve shall be prorated into the transition distance of the respective curves until a maximum of 150 ft. of transition tangent for each curve is achieved.



**COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
METHODS FOR
SUPERELEVATION &
WIDENING OF CURVES**

Designed by R.E.L. Approved by
Made by P.B.B. *J. Marshall*
Checked by F.F.S. & P.B.B. on January 1st 1948

TYPE T ROAD APPROACH

SIDE DRAINS: To be placed at greatest feasible distance from the roadway shoulder consistent with good practice. A minimum of 20 ft. from shoulder should be adhered to whenever possible.

140 FT. x 40 MPH
80 FT. x 50 MPH
300 FT. x 60 MPH

ROW Line

Deceleration Lane

10' MIN.

20' MIN.

Case II

WIDENING TO ACCOMMODATE GUARD FENCES: At all locations on the project (except as provided above for bridge approaches) where guard fence is to be constructed the shoulders shall be widened 2 ft. to provide additional lateral support for guard fence posts.

SUPERELEVATED SECTIONS

(TO BE USED ONLY WHERE SIGHT DISTANCE AT CREST OF GRADE IS 600 FT. OR LESS)

The maximum grades shown are to be the limiting grades for all road approaches. Modifications of grades will be permitted where adherence to the grades as shown would cause damage to property or create other unsatisfactory conditions. Grades less than the maximum shown are to be used wherever feasible.

Designed by AZ	Approved by <i>[Signature]</i>
Made by CGM	Engineer, Surveys & Plans
Checked by <i>[Signature]</i>	Date: April 20th, 1949

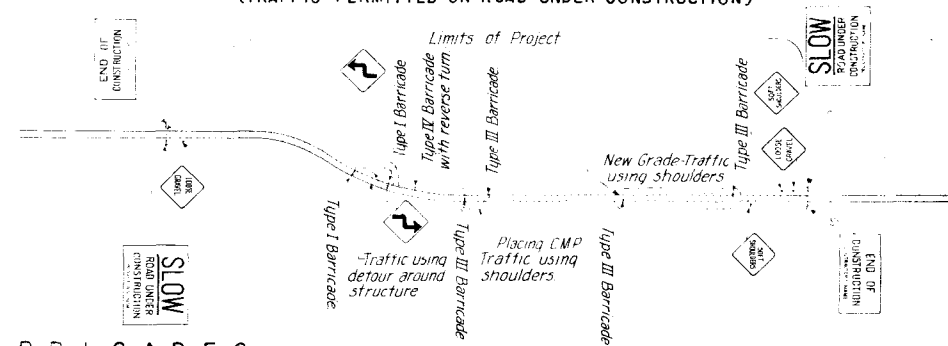
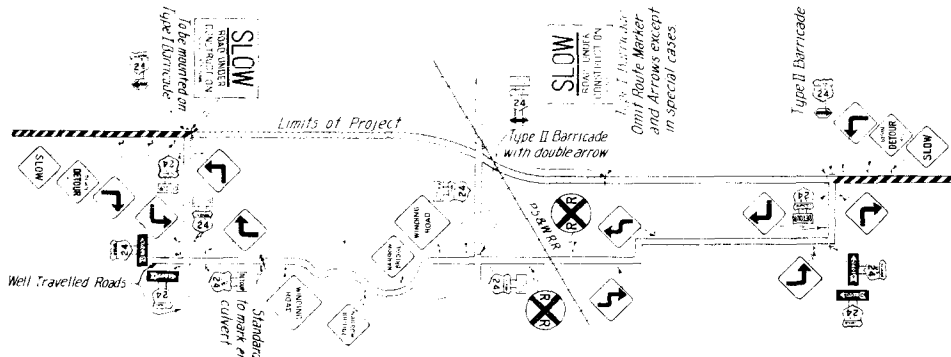
TYPICAL METHOD OF MARKING DETOUR (TRAFFIC PROHIBITED ON ROAD UNDER CONSTRUCTION)

STANDARD M-2-D

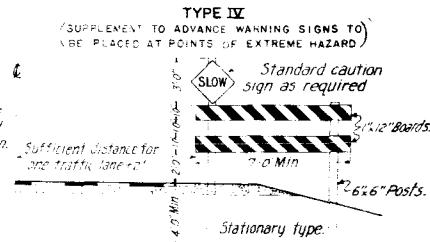
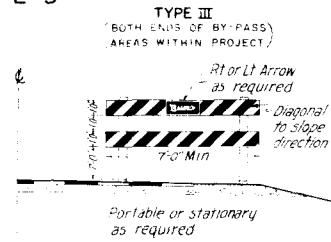
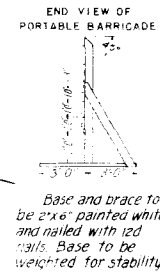
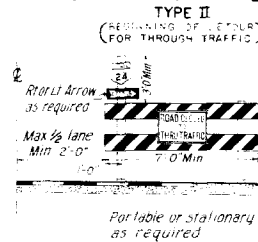
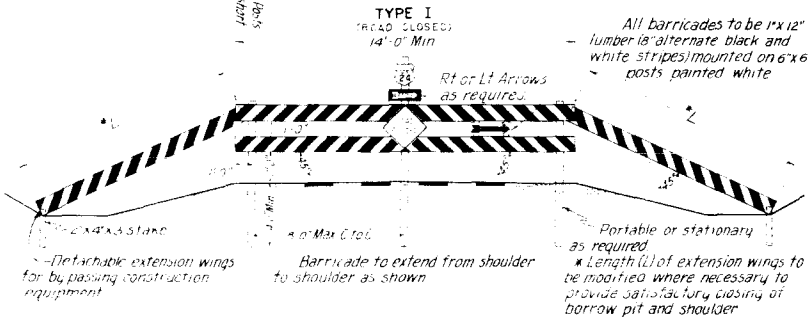
FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
3	COLORADO	7	

Rev. 9-0-06 Slow Signs R&R Rev. 12-13-47 J.P.K.

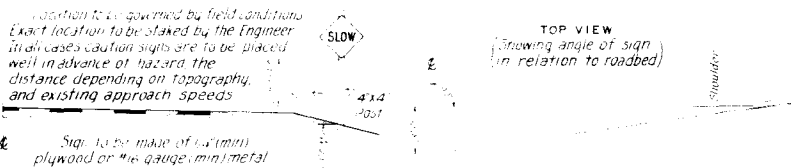
TYPICAL METHOD OF MARKING HIGHWAY (TRAFFIC PERMITTED ON ROAD UNDER CONSTRUCTION)



DETAILS OF BARRICADES



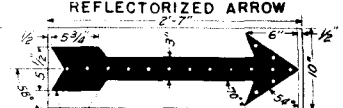
POSITION OF SIGNS RELATIVE TO ROADBED & HAZARDS



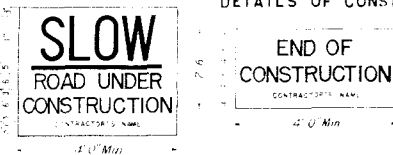
GENERAL NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT APPLICABLE TO THE PROJECT.
- WHERE TRAFFIC IS MAINTAINED THROUGH OR OVER ANY PART OF THE PROJECT THE CONTRACTOR WILL BE REQUIRED TO MARK ALL HAZARDS WITHIN THE LIMITS OF THE PROJECT WITH WELL PAINTED, WELL MAINTAINED BARRICADES AND STANDARD CAUTION SIGNS, WARNING SIGNS, AND DIRECTIONAL TYPE SIGNS. BARRICADES AND SIGNS SHALL BE MOVED, ADDED TO, CHANGED OR REMOVED AS REQUIRED DURING THE PROGRESS OF CONSTRUCTION TO MEET CHANGING CONDITIONS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING AS REQUIRED WITHIN THE LIMITS OF THE PROJECT:
 - ALL BARRICADES
 - APPROVED REFLECTORIZED DIRECTIONAL ARROW FOR EACH TYPE I BARRICADE
 - SLOW - ROAD UNDER CONSTRUCTION (CONTRACTOR'S NAME) SIGNS - MINIMUM 2
 - END OF CONSTRUCTION (CONTRACTOR'S NAME) SIGNS - MINIMUM 2
 - STANDARD CAUTION, WARNING AND DIRECTIONAL TYPE SIGNS AS REQUIRED
 - FLARES OR TORCHES AS FOLLOWS
 - TYPE I BARRICADES - MINIMUM 3 EACH
 - TYPE III OR IV BARRICADES - MINIMUM 1 EACH
 - STANDARD CAUTION OR WARNING SIGNS - MINIMUM 1 EACH
- FLARES OR TORCHES SHALL BE OF AN OIL BURNING TYPE APPROVED BY THE STATE OF COLORADO AND SHALL BE PLACED FROM 3 TO 5 FEET AHEAD OF THE SIGN OR OBJECT TO BE ILLUMINATED. IN ALL CASES FLARES OR TORCHES SHALL BE PLACED A SUFFICIENT DISTANCE AWAY WITHIN THE ABOVE RANGE, TO AVOID DAMAGE TO FACE OF SIGN FROM SMOKE OR FLAME AND SHALL BE KEPT BURNING FROM SUNSET TO SUNRISE.
- ALL LUMBER USED IN BARRICADES AND SIGNS SHALL BE SOUND, DURABLE MATERIAL AND SHALL BE KEPT WELL PAINTED WITH NEAT, UNIFORM LETTERS AND SYMBOLS CONFORMING TO STYLE SHOWN FOR THE VARIOUS SIGNS. UNWEAR OR SMOELED LETTERING WILL NOT BE PERMITTED.
- WHERE TRAFFIC IS PROHIBITED FROM THE PROJECT THE DETOUR WILL BE MARKED BY THE DEPARTMENT, EXCEPT THAT TYPE I BARRICADES, COMPLETE WITH NECESSARY ARROWS AND SIGNS SHALL BE PROVIDED, ERECTED, PAINTED AND MAINTAINED BY THE CONTRACTOR AT BOTH ENDS OF THE PROJECT AND AT ALL INTERSECTING ROADS REQUIRED TO BE LEFT OPEN FOR CROSS TRAFFIC.
- IF AND/OR STATE ROUTE MARKERS DEEMED NECESSARY FOR GUIDANCE OF TRAFFIC OVER THE PROJECT OR FOR USE ON TYPE I BARRICADES WILL BE FURNISHED BY THE DEPARTMENT TO BE INSTALLED BY THE CONTRACTOR.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL SIGNS FURNISHED HIM BY THE DEPARTMENT AND SHALL RETURN SAME UPON COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO REIMBURSE THE DEPARTMENT FOR ANY SIGNS FURNISHED HIM WHICH HAVE BECOME DAMAGED OR LOST DURING HIS OPERATIONS.
- THE TYPICAL METHOD OF MARKING AS SHOWN ILLUSTRATES THE MINIMUM ACCEPTABLE SIGNING PROCEDURE. MODIFICATIONS AND ADDITIONAL REQUIREMENTS WILL BE DETERMINED BY LOCATION, TRAFFIC VOLUME AND OTHER PERTINENT CONDITIONS AFFECTING THE PUBLIC CONVENIENCE AND SAFETY.
- ANY SPECIAL SIGNS DEEMED NECESSARY FOR THE GUIDANCE AND PROTECTION OF TRAFFIC OVER THE PROJECT OR DETOUR WILL BE FURNISHED AND INSTALLED BY THE DEPARTMENT.
- ALL COSTS INCIDENTAL TO THE FOREGOING REQUIREMENTS WILL NOT BE PAID FOR AS A SEPARATE ITEM BUT SHALL BE INCLUDED IN THE ORIGINAL CONTRACT PRICES FOR THE PROJECT.

DETAILS OF REFLECTORIZED ARROW



For use on Type I Barricades at ends of project and/or inside of project where needed.
Reflector buttons shall be Signal Service ALA 31 (white crystal) or suitable equivalent. Minimum thickness of lumber to be 1"



Signs to be of 1" material with at least three cleats in back. Background to be white. "SLOW" and underline to be red and all other lettering to be black. Sign to be set on 2-4x4's posts 4 feet in the ground, except when mounted on face of Type I barricades (opposite side from reflectORIZED arrow) at limits of project. Not required on Type I barricades inside limits of project.

Above sign to be furnished and installed by the Department where required.

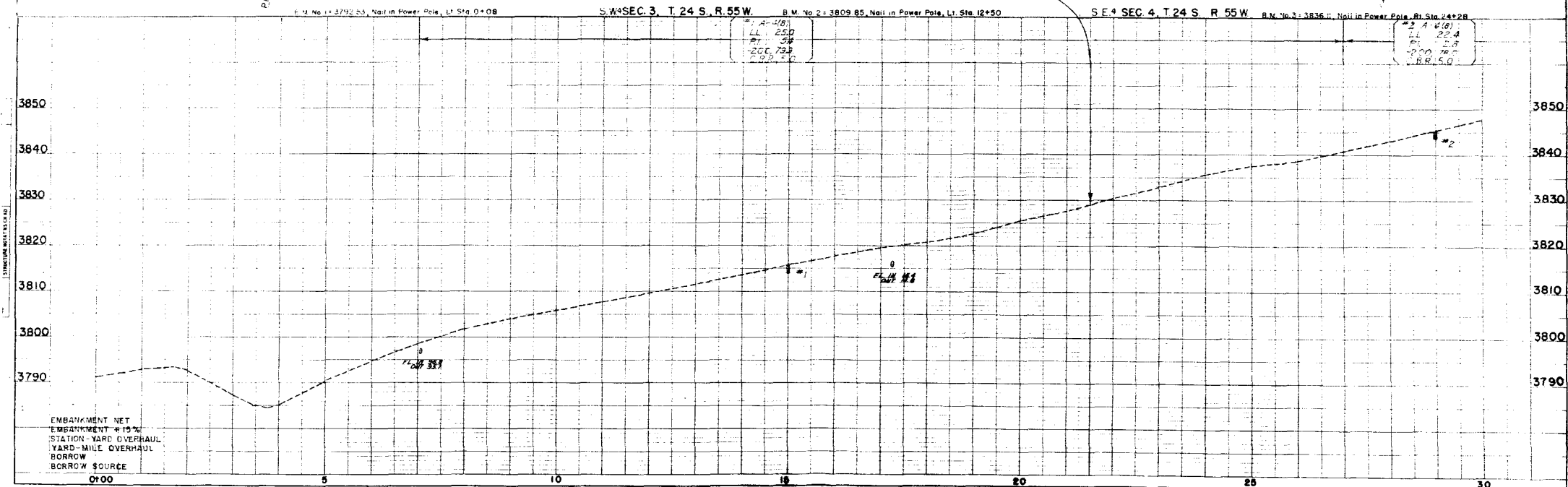
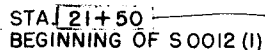
COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
ROADWAY CONSTRUCTION
TRAFFIC SIGNS

Designed by **AND**
Made by **BSC**
Checked by
Approved by **A.E.L.**
Date: January 1st 1948

Alignment and Grades as shown are subject to modification during construction after approval by the Denver Office.

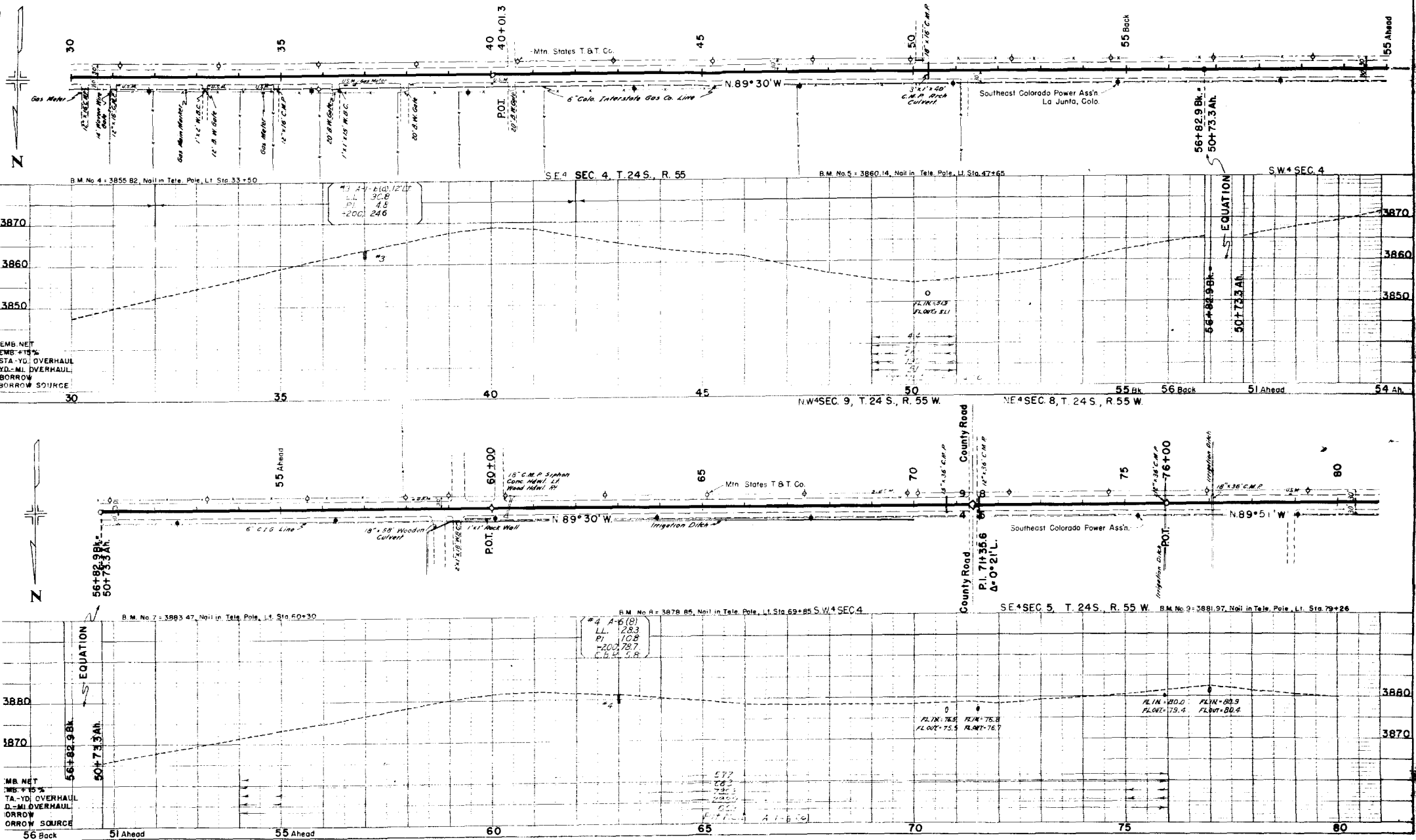
Soil data shown on the plans is obtained from best available testing laboratory information. This information is shown for convenience of the Contractor and the Department does not guarantee the accuracy of these tests. If materials not conforming to the data on plans are encountered during construction the grading plan shown on plans will be modified where necessary to secure dense, stable embankments.

All Road Approach locations, and Approach to Project requirements are shown on Sheet No. 3.

Rev. Beginning Sta. of Project 6-23-49 B.M.K.

N.W 4 SEC. 9

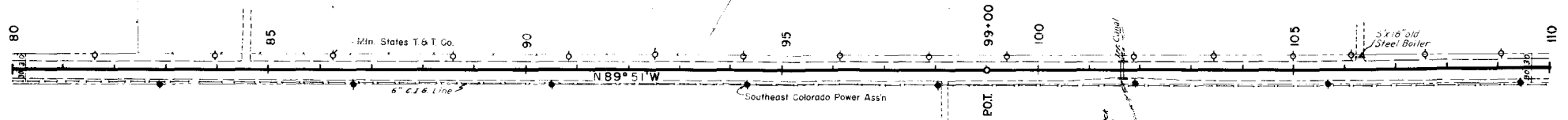
FED. ROAD DIST. NO.	STATE	F.A.S. PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	COLOR.	S0012(1)	9	



NE 1/4 SEC. 8, T. 24 S., R. 55 W.

NW 1/4 SEC. 8

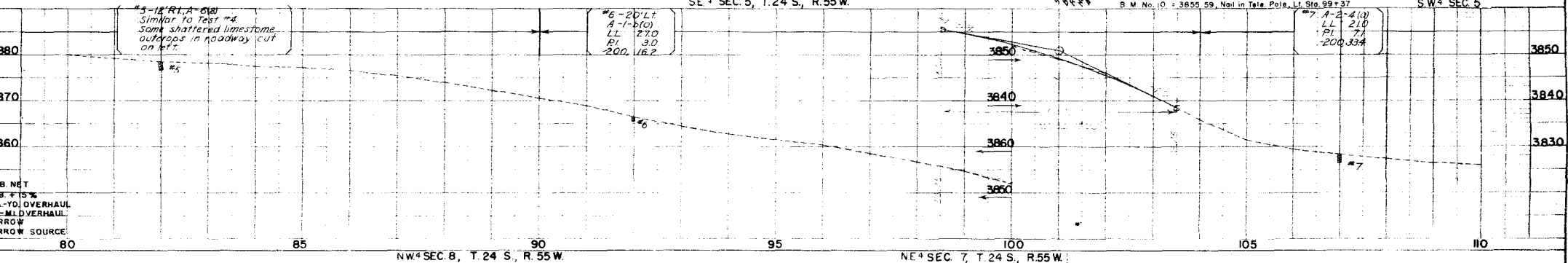
FED. ROAD DIST. NO.	STATE	F.A.S.	SHEET NO.	TOTAL SHEETS
3	COLO.	S 0012 (1)	10	



SE 1/4 SEC. 5, T. 24 S., R. 55 W.

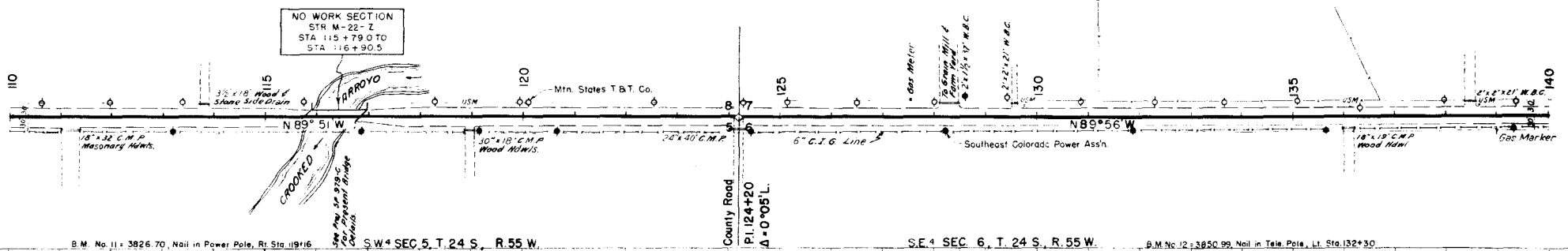
B.M. No. 10: 3855.59, Nail in Tele. Pole, Lt. Sta. 99+37

SW 1/4 SEC. 5



NW 1/4 SEC. 8, T. 24 S., R. 55 W.

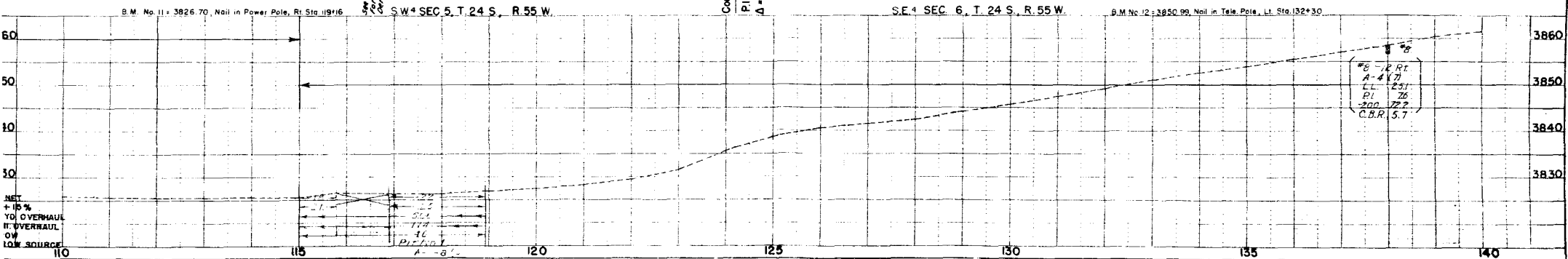
NE 1/4 SEC. 7, T. 24 S., R. 55 W.

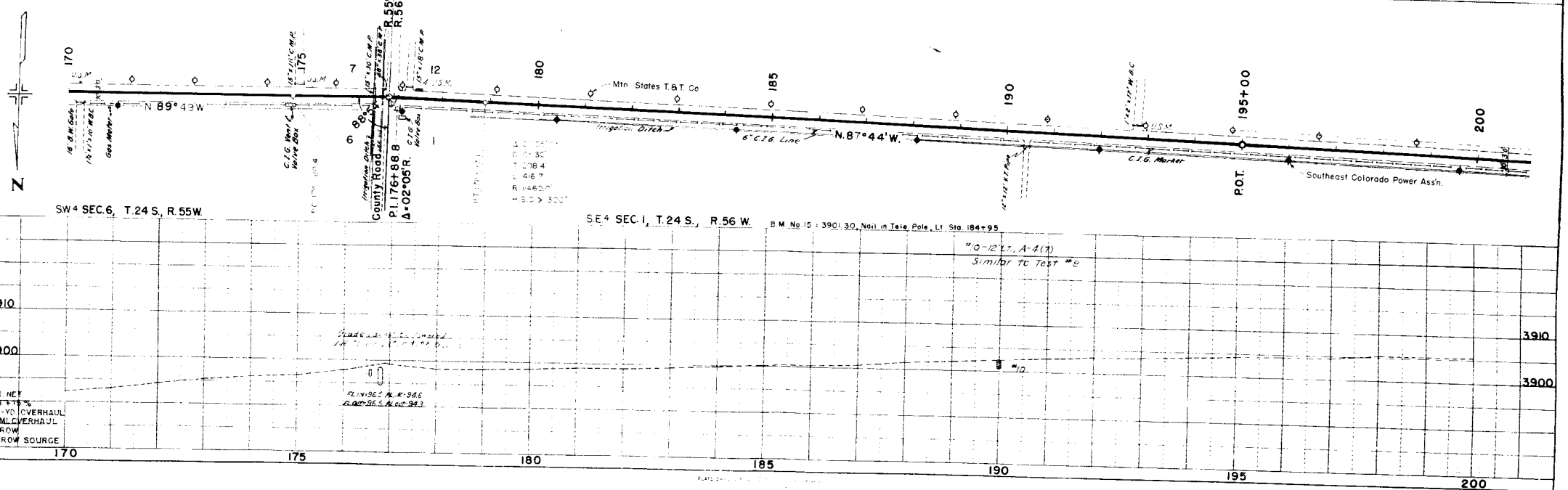
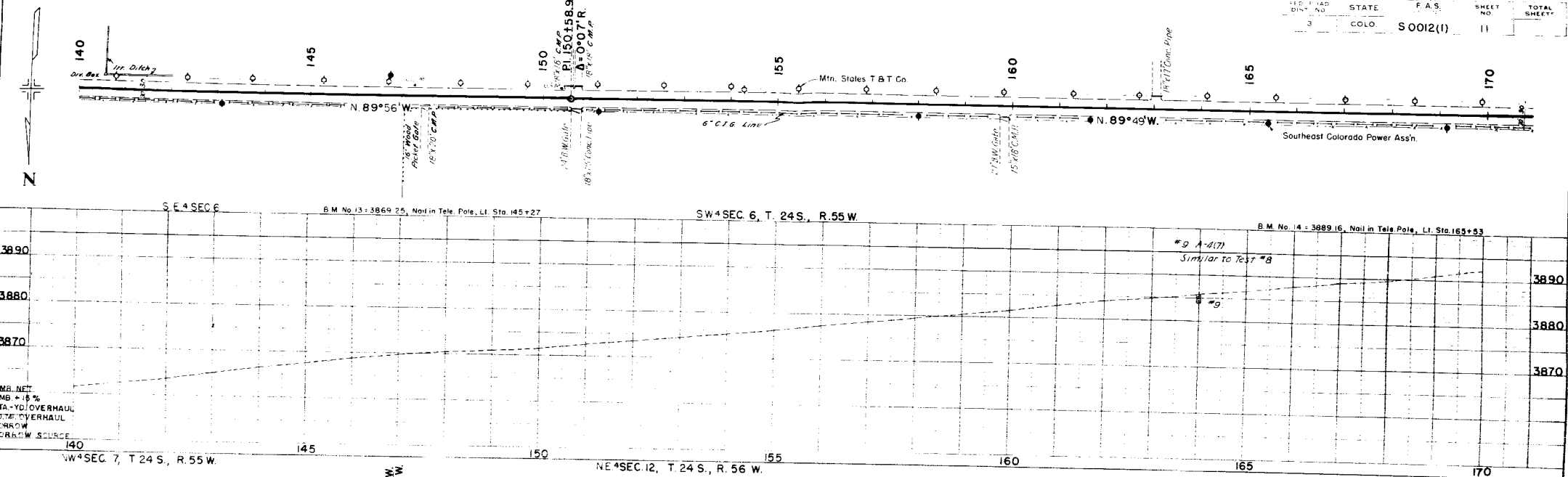


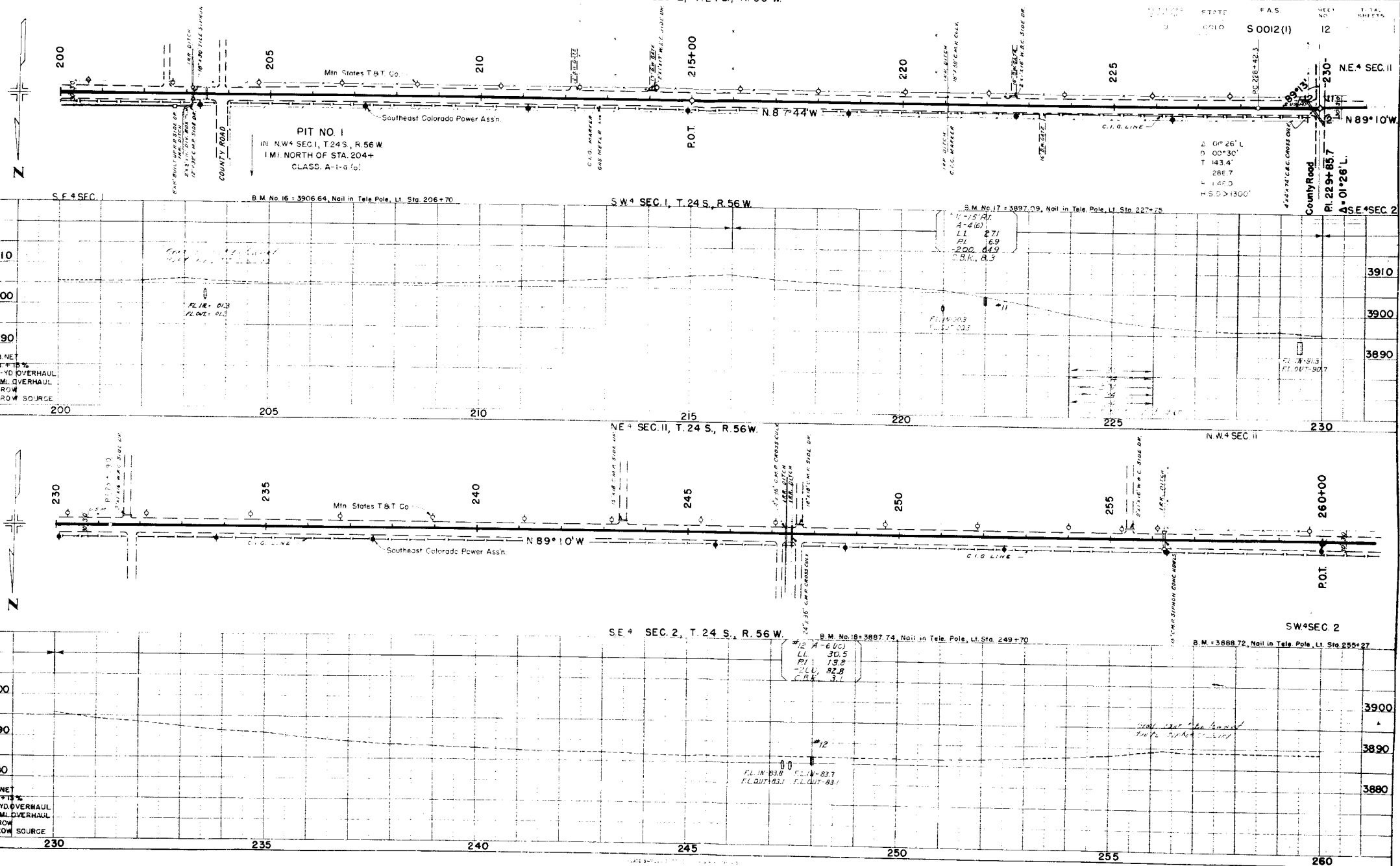
SW 1/4 SEC. 5, T. 24 S., R. 55 W.

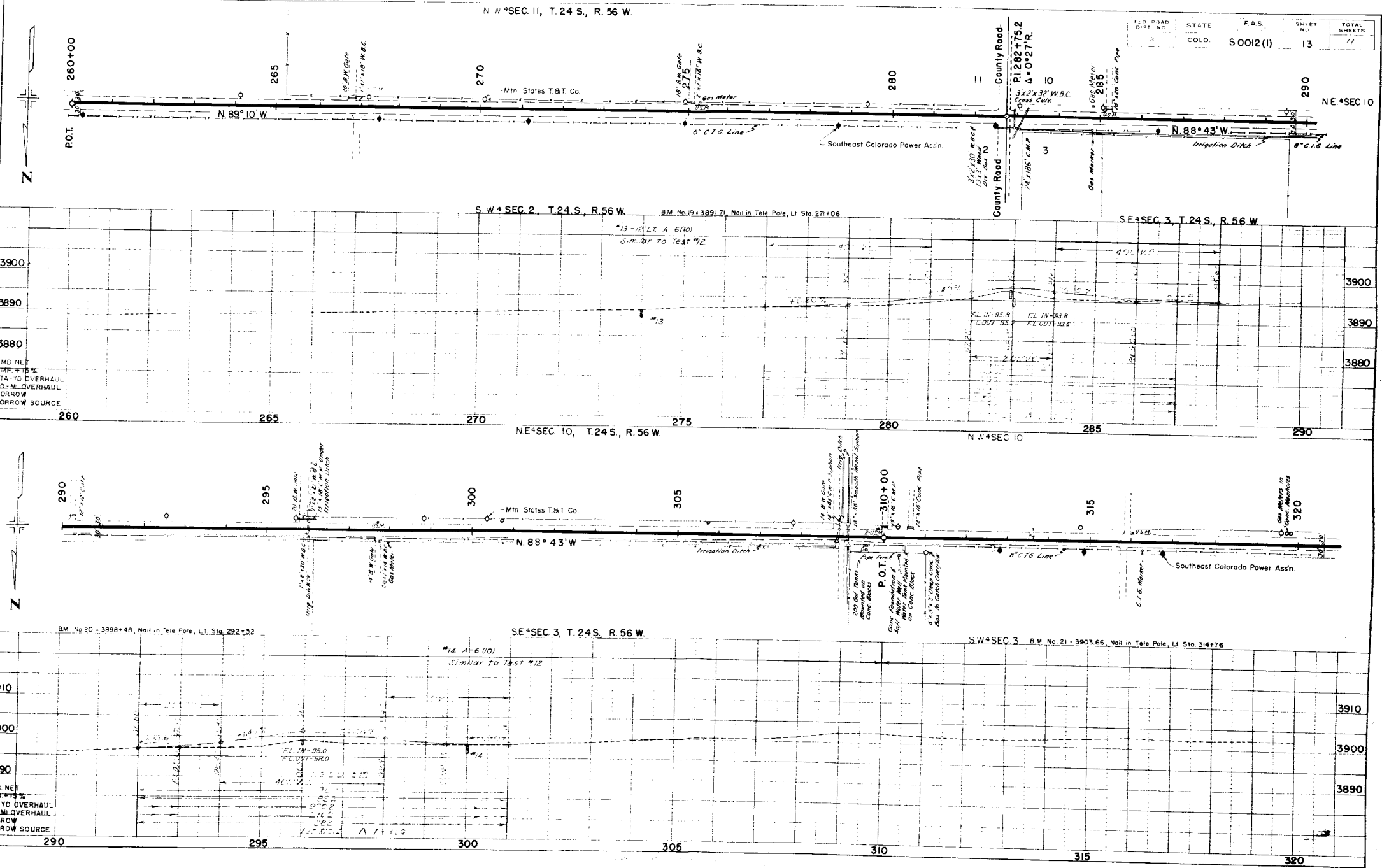
SE 1/4 SEC. 6, T. 24 S., R. 55 W.

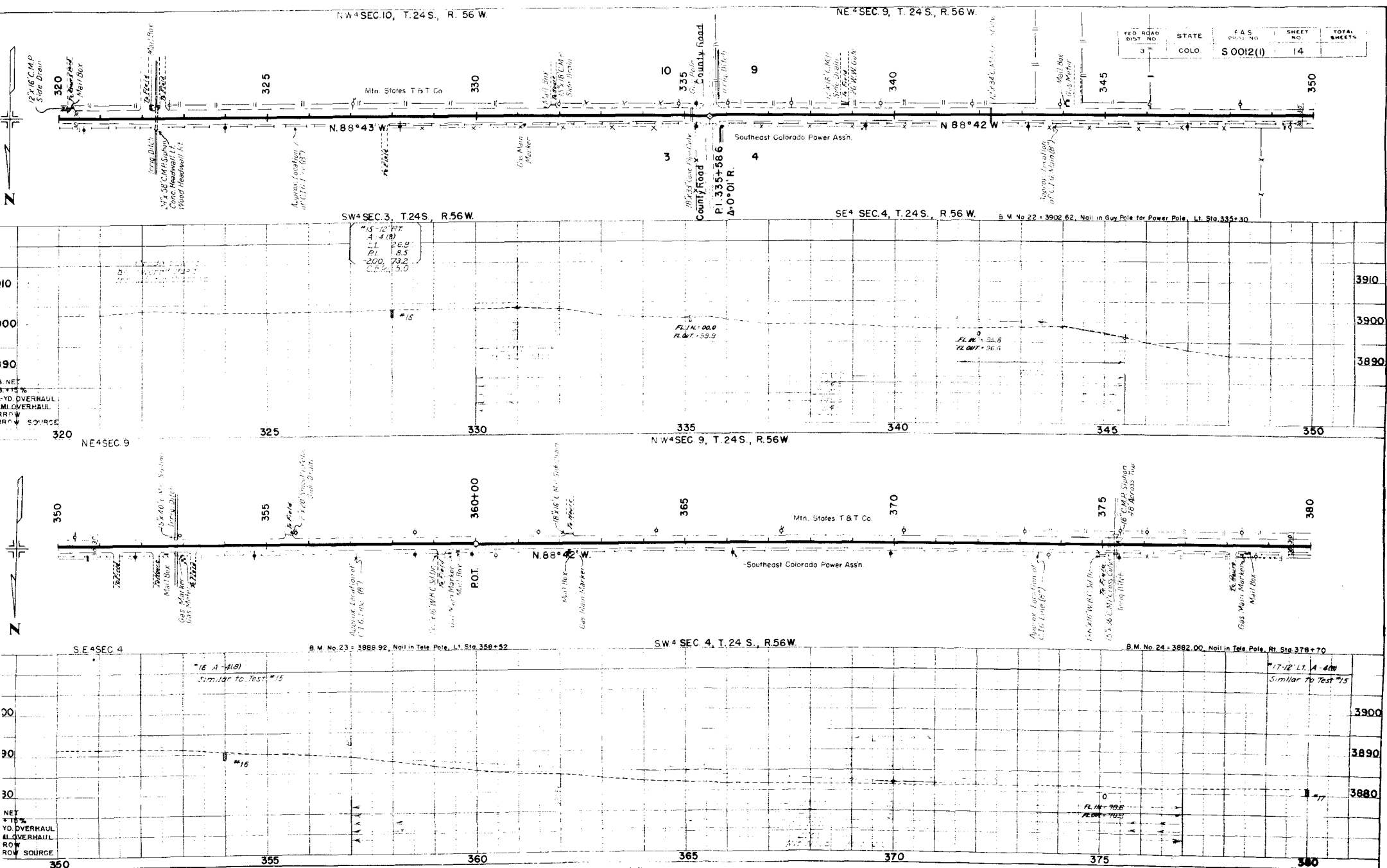
B.M. No. 12: 3850.99, Nail in Tele. Pole, Lt. Sta. 132+30







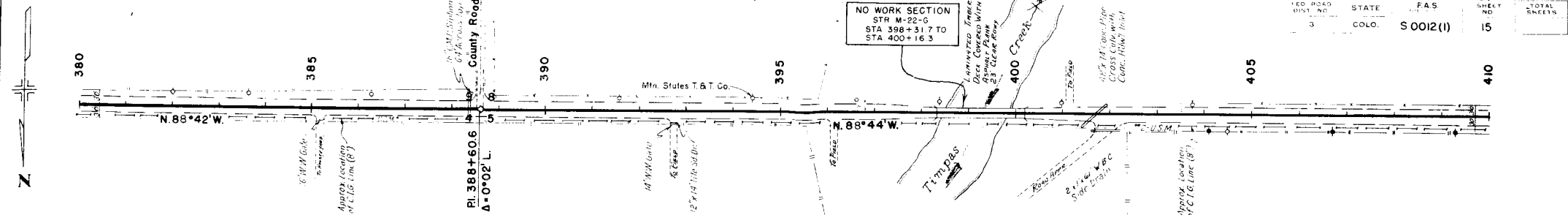




NW 1/4 SEC. 9, T. 24 S., R. 56 W.

NE 1/4 SEC. 8, T. 24 S., R. 56 W.

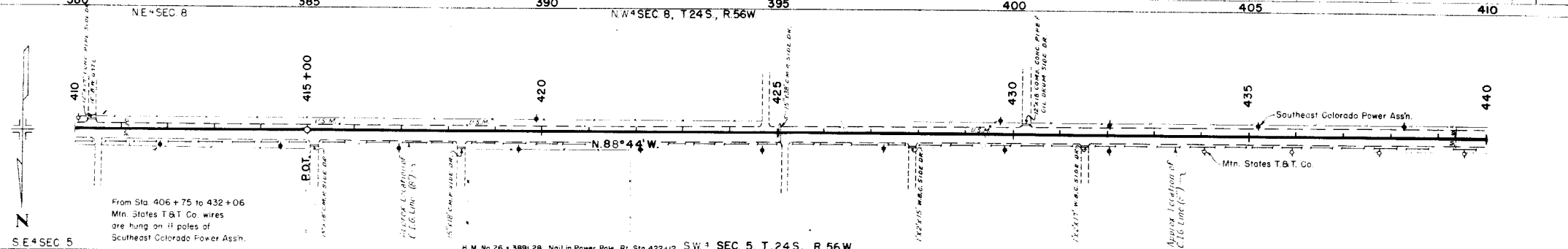
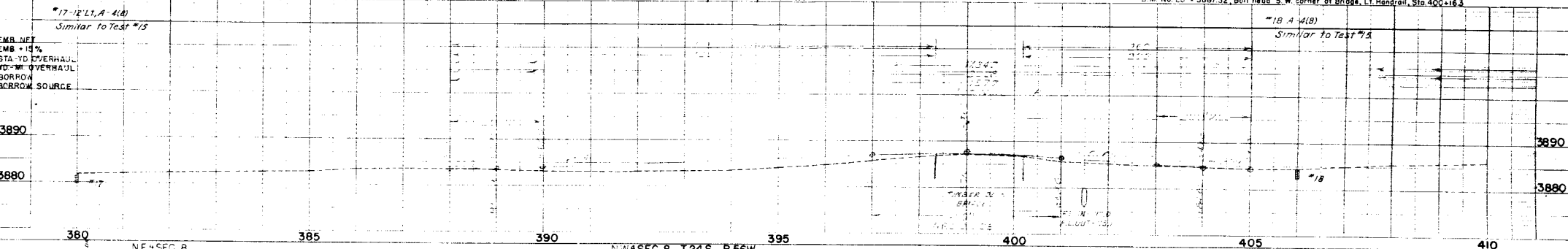
ED. ROAD DIST. NO.	STATE	F.A.S.	SHEET NO.	TOTAL SHEETS
3	COLO.	S 0012 (I)	15	



SW 1/4 SEC. 4, T. 24 S., R. 56 W.

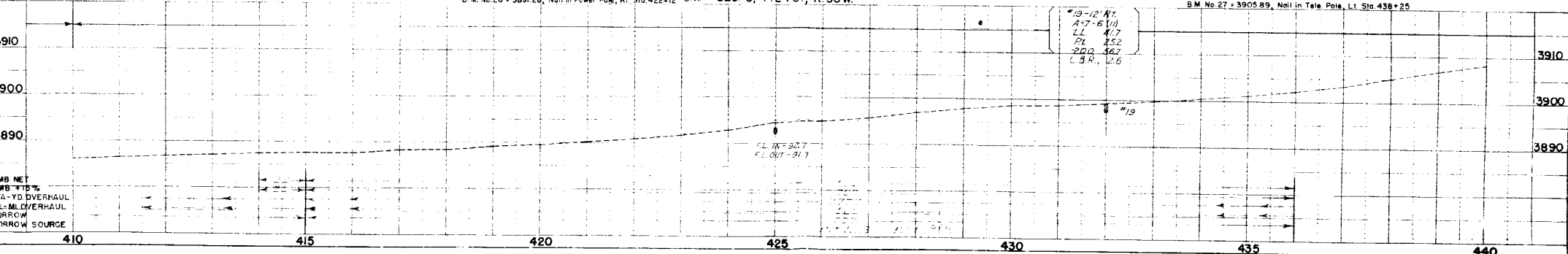
SE 1/4 SEC. 5, T. 24 S., R. 56 W.

B.M. No. 25 = 3887.52, Bolt head S.W. corner of Bridge, L.I. Handrail, Sta. 400+16.3



B.M. No. 26 = 3891.28, Nail in Power Pole, Rt. Sta. 422+42 SW 1/4 SEC. 5, T. 24 S., R. 56 W.

B.M. No. 27 = 3905.89, Nail in Tele. Pole, Lt. Sta. 438+25



REV SUM. OF EARTH. QUANTS & ADDED NOTES AT RR XING 6-23-49 R.E.M

