STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

BALLARD ROAD

CITY OF APPLETON
C.T.H. OO — U.S.H. 41

C.T.H. E

OUTAGAMIE COUNTY

STATE PROJECT NUMBER
6529-2-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6529—2—71	M 1201(10)	1

"As Built Set"

E-12

AS BUILT PLAN
NO.
SUPERVISOR Dennis H. Pauli
RESIDENT Foth & Van Dyke (John Link)
CONTRACTOR Vinton Const. Co.
COMPLETED 10-28-87

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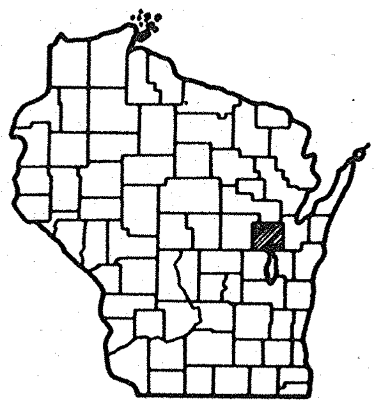
Sheet No.	—	Structure Plans
Sheet No.	9	Computer Earthwork Data
Sheet No.	9.1 - 9.10	Cross Sections

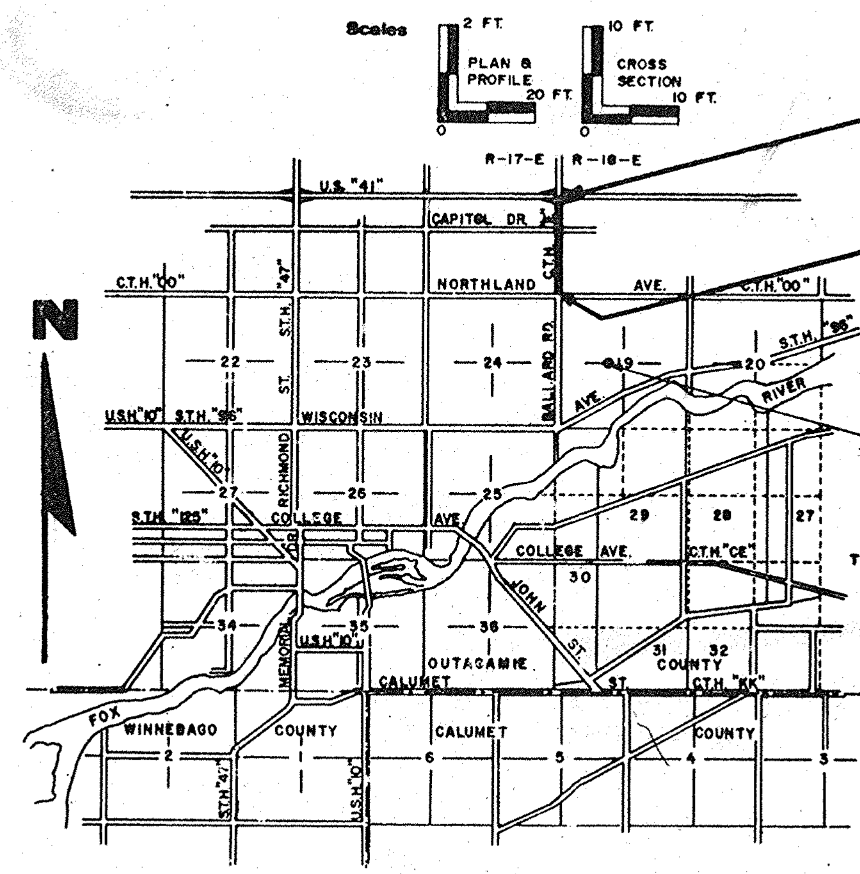
TOTAL SHEETS = 45



Design Designation

A.D.T. 1987	= 8,410
A.D.T. 2007	=12,180
D.H.V. 2007	= 1,157
D.	= 60%
T.	= 6%
V.	= 45 M.P.H.

Scales: PLAN & PROFILE 2 FT. / 20 FT.; CROSS SECTION 10 FT. / 10 FT.



\# SCALED FROM USGS TOPOGRAPHIC MAP, APPLETON, WISCONSIN QUADRANGLE FOR IDENTIFICATION ONLY

Layout
Scale 0 1 2 3 4 5000 FT.

Total Net Length of Centerline = 0.711 Mi. URBAN

Conventional Signs

- County Line
- Township or Range Line
- Section Line
- Corporate or City Limits
- Property line
- Lot Line
- Existing Right of Way Line
- New Right of Way Line
- Base or Survey Line
- Slope Intercept
- Existing Roadway or Private Entrance
- Caution Symbol (Combustible fluids under pressure)
- Railroads
- Fence
- Culverts in Place
- Culverts Required
- Power Pole
- Telephone or Telegraph Pole
- Right of Way Markers
- Marsh
- Wooded Area
- Grade Elevation

APPROVED FOR
COUNTY OF OUTAGAMIE
9-24-86 (Date) [signature] (Commissioner)

PLANS AND GRADES WITHIN THE
CITY OF APPLETON
APPROVED
9/23/86 (Date) R S [signature] DIRECTOR OF PUBLIC WORKS (Signature & Title of Official)

ORIGINAL PLANS PREPARED BY
WISCONSIN PROFESSIONAL ENGINEER — KENNETH J. FRANK E-13354 APPLETON WIS.
9-22-86 (Date) [signature] (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Surveyor ______ District Checker ______
Designer ______ C.O. Checker [initials]
District Supervisor J.E.F. C.O. Coordinator [initials]

Approved:
Date 1/9/87 T R Clark, District Transportation Director
Approved:
Date 4/7/87 for Jerome Smith, State Design Engineer for Highways
Approved:
Date 4/7/87 E. J. Buyskit, Director of Engineering Development

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 5 WISCONSIN DIVISION
Approved:
Date ______ Division Administrator

E-12

E-12

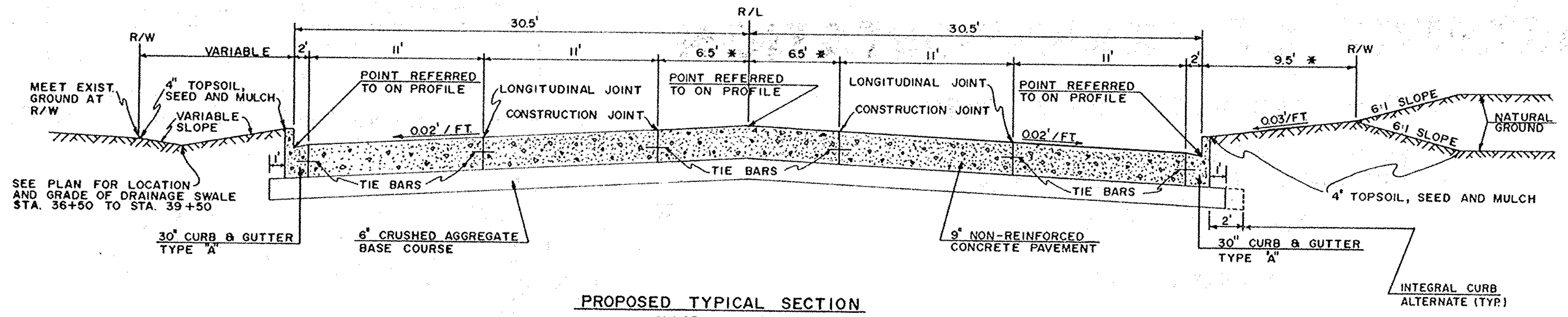
E-12

Cat. No. 2130 — DI10

W/4984-0-0 OUTAGAMIE

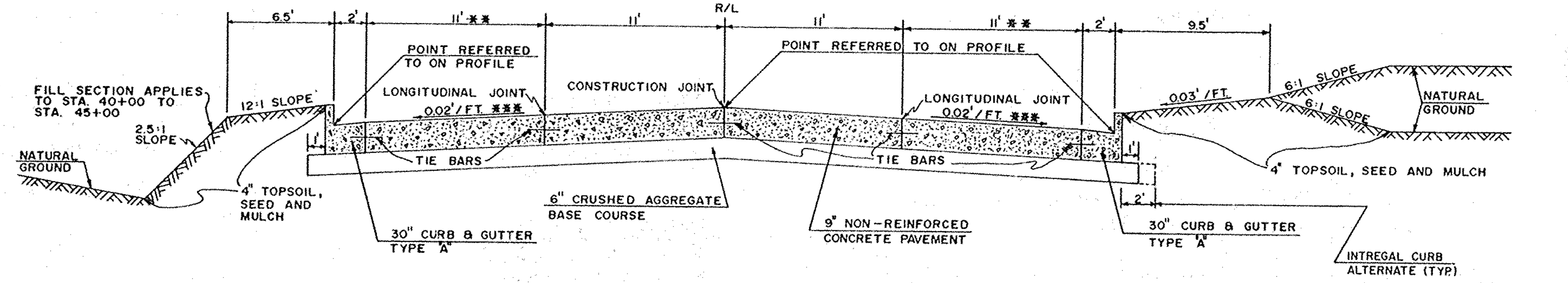
STATE PROJECT NUMBER	SHEET NO.
6529-2-71	2

TYPICAL SECTIONS



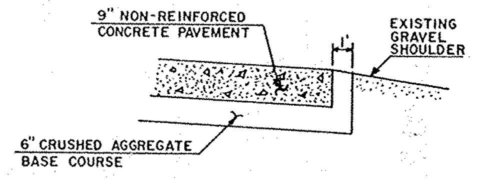
PROPOSED TYPICAL SECTION
11+25 TO 39+50

* WIDTH VARIES FROM: STA. 11+25 TO 12+75
STA. 37+40 TO 39+50

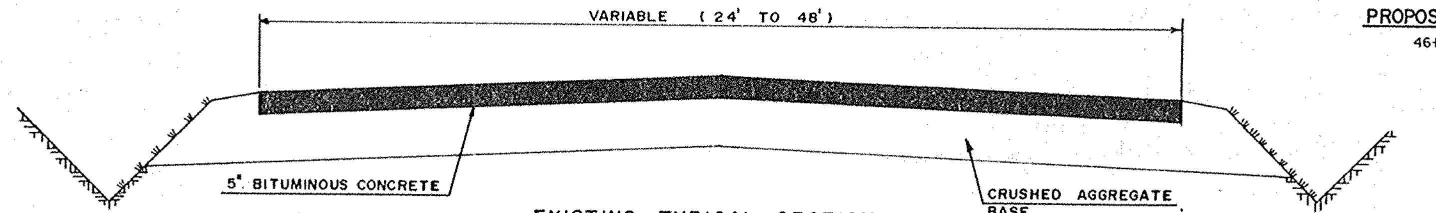


PROPOSED TYPICAL SECTION
10+48 TO 11+25
39+50 TO 47+90.3

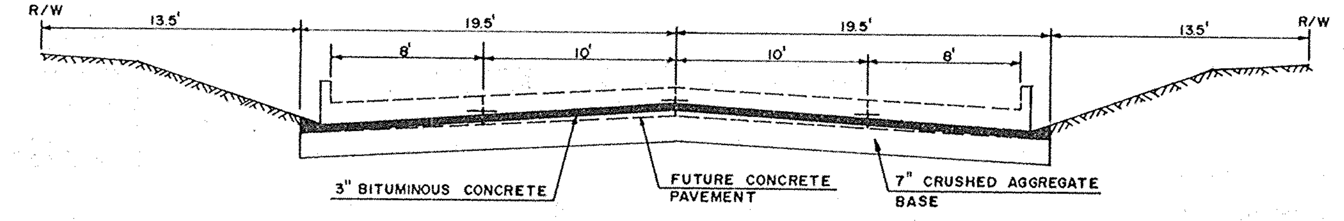
** WIDTH VARIES FROM: STA. 44+50 TO 47+90.3
*** SLOPE VARIES FROM: STA. 44+00 TO 47+90.3



PROPOSED TYPICAL* SECTION
46+00 TO 47+90.3



EXISTING TYPICAL SECTION
BALLARD ROAD



EXISTING TYPICAL SECTION
CAPITOL DRIVE

GENERAL NOTES

TRANSVERSE CONTRACTION JOINTS SHALL BE SPACED EVERY 20 FEET AND SKEWED, EXCEPT JOINTS THROUGH INTERSECTIONS MAY BE PERPENDICULAR TO CENTERLINE.

ALL CURB & GUTTER RADII SHOWN ARE TO FACE OF CURB.

THE REMOVAL OF ASPHALT DRIVEWAYS AND PAVEMENTS WILL BE PAID AS UNCLASSIFIED EXCAVATION.

THE EXACT LOCATION AND WIDTH OF DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

PRIVATE UTILITY COMPANIES SHALL ADJUST OR MOVE ALL PRIVATELY OWNED FACILITIES TO FIT THE NEW CONSTRUCTION

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

WHEN THE QUANTITY OF ITEMS OF BASE OR SURFACE COURSE IS MEASURED FOR PAYMENT BY THE TON THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER.

RIGHTS-OF-ENTRY FOR P.E. CONSTRUCTION HAVE BEEN OBTAINED, WHICH RIGHTS SHALL BE EXTENDED TO THE CONTRACTORS.

SEED SHALL BE MIXTURE NO. 4.

UTILITIES WITHIN PROJECT LIMITS

SECTION CORNERS	FRANK CHARLESWORTH, JR. ZONING ADMINISTRATOR 410 S. WALNUT ST. APPLETON, WISCONSIN 54914	735-5255
STORM SEWERS & SANITARY SEWERS	APPLETON ENGINEERING DEPARTMENT MR. TOM HARP, CITY ENGINEER 200 N. APPLETON STREET APPLETON, WISCONSIN 54911	735-6474
WATER	APPLETON WATER DEPARTMENT MR. DON BAUER, DISTRIBUTION SUPERINTENDENT 125 N. WALNUT STREET APPLETON, WISCONSIN 54911	733-2311
ELECTRIC	WISCONSIN ELECTRIC POWER COMPANY MR. MIKE JAMES 520 N. SECOND STREET MILWALKEE, WISCONSIN 53203	277-2719
GAS	WISCONSIN NATURAL GAS COMPANY MR. J. G. HERB 800 S. LYNNDALE DRIVE APPLETON, WISCONSIN 54915	735-8357
TELEPHONE	WISCONSIN BELL INC. MR. MICHAEL LOOMIS 221 W. WASHINGTON STREET APPLETON, WISCONSIN 54911	
DIGGERS HOTLINE	CABLE LOCATE: 1-800-242-8511 (TOLL FREE)	
CABLE T.V.	CABLEVISION OF THE FOX CITIES 1620 SOUTH LAWE STREET APPLETON WISCONSIN 54911	738-3160

STANDARD DETAIL DRAWINGS

8A5-3a - CATCH BASIN, MANHOLE & INLET COVERS
8B6-3 - MANHOLES - TYPE 1
8C1-4 - INLETS - TYPE 1, 2, & 3
8D1-11 - CONCRETE CURB, C & G, AND PAVEMENT TIES
15C7-1 - PAVEMENT MARKING SYMBOLS
15C8-1 - PAVEMENT MARKING
13C1-7 - CONCRETE PAVEMENT LONGITUDINAL JOINTS AND PAVEMENT TIES
13C3-6 - TRANSVERSE JOINTS IN NON-REINFORCED CONCRETE PAVEMENT
15C1-7 - CONSTRUCTION BARRICADES AND STANDARD SIGNS
16A1-4 - LANDMARK REFERENCE MONUMENTS
9B2-3 - CONDUIT

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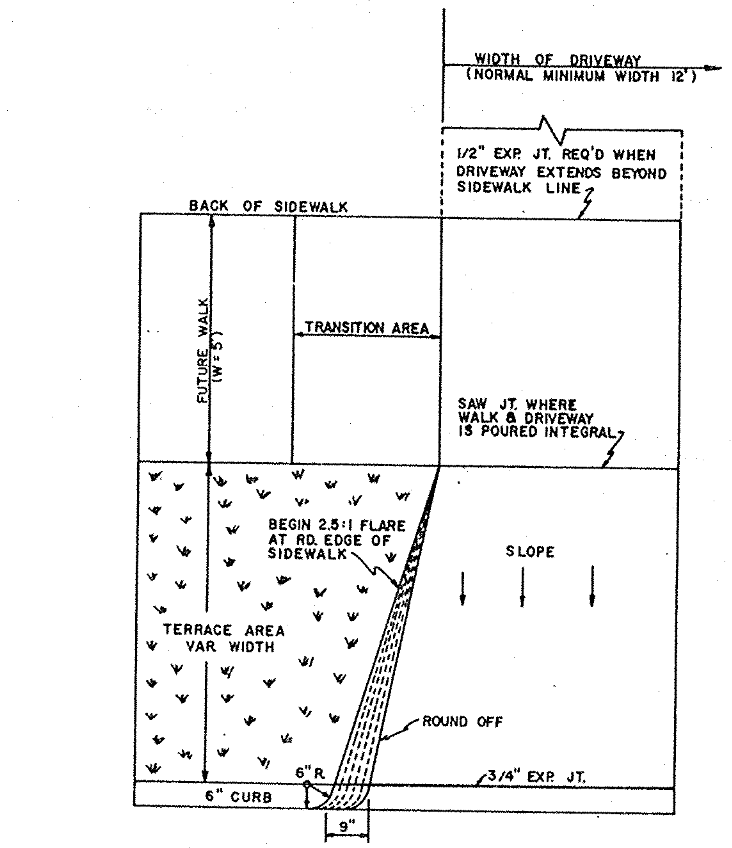
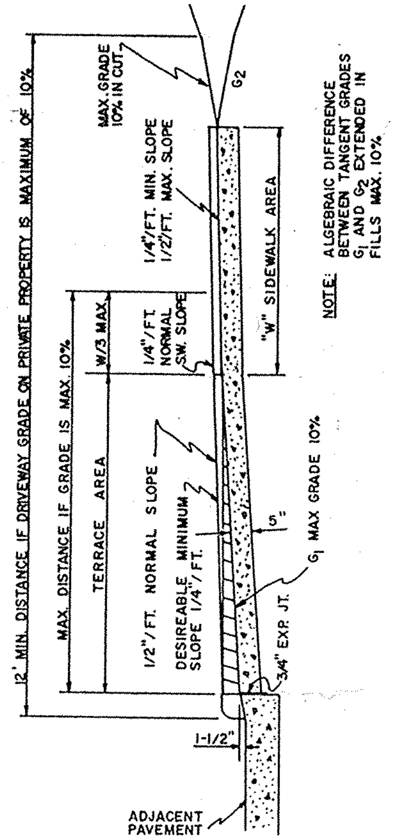
6529-2-71	2.1

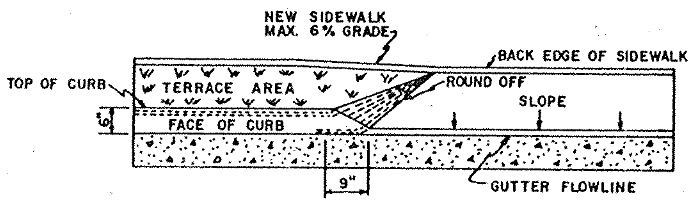
CONSTRUCTION DETAILS



PLAN



PROFILE (PARALLEL TO C/L OF DRIVEWAY)



PROFILE (PARALLEL TO C/L OF ROADWAY)

WHEN TERRACE AREA IS GREATER THAN 4 FEET

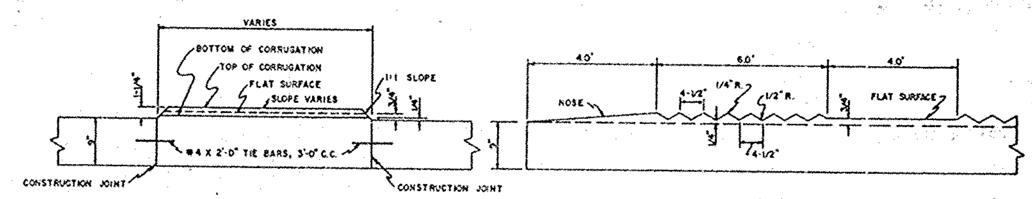
GENERAL NOTES

FOR ALL OTHER CONSTRUCTION DETAILS AND REQUIREMENTS FOR THE WORK DETAILED ON THIS DRAWING SEE SECTIONS 409, 601, & 602 OF THE STANDARD SPECIFICATIONS. CONCRETE USED IN THE CONSTRUCTION OF DRIVEWAYS, AND CURB & GUTTER SHALL BE GRADE "A" IN CONFORMITY WITH THE STANDARD SPECIFICATIONS.

ALL EXPANSION JOINT MATERIAL SHALL BE 1" DEEPER THAN THE CONCRETE SLAB BEING PLACED.

WHERE G_1 EXCEEDS 10% MAX. GRADE, SIDEWALKS ACROSS DRIVEWAYS SHALL BE CONSTRUCTED USING THE FOLLOWING GUIDE IN THE ORDER SHOWN:
(1) CONSTRUCT WITH A MAX. CROSS SLOPE OF 1/2" PER FOOT.
(2) LOWER THE BACK OF SIDEWALK A MAX. OF 0.30' ACROSS THE DRIVEWAY.
(3) CONSTRUCT WITH ROADEDGE ROLLED DOWN AT A MAX. SLOPE OF 10%.

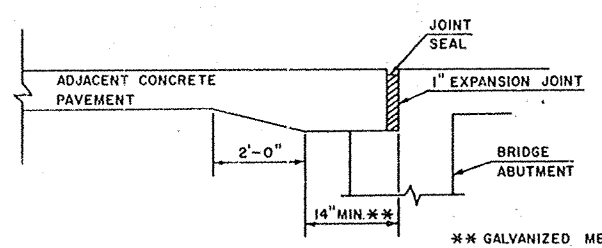
DRIVEWAYS SHALL BE RESTORED AS FOLLOWS:
GRAVEL-6" DEPTH CRUSHED AGGREGATE BASE COURSE.
ASPHALT-3" SINGLE AGGREGATE BITUMINOUS MIX OVER 6" CRUSHED AGGREGATE BASE COURSE.
CONCRETE-5" DEPTH (INCLUDING WALK ACROSS DRIVEWAY).



TRANSVERSE SECTION

LONGITUDINAL SECTION

PROPOSED CONCRETE CORRUGATED MEDIAN

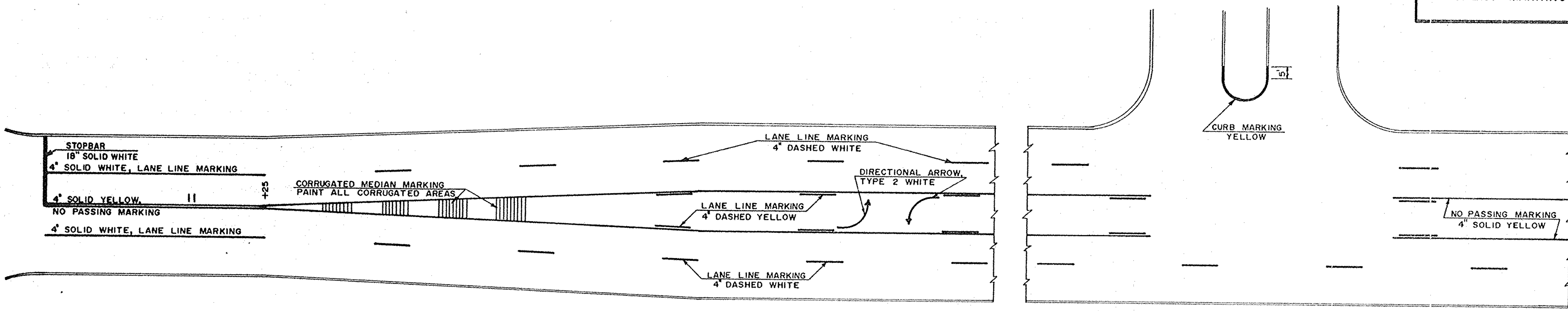


✱✱ GALVANIZED METAL FLASHING (PLACE FULL WIDTH OF PAVEMENT AND SECURE BY NAILING TO BASE.)

PAVEMENT DETAIL AT BRIDGE

STATE PROJECT NUMBER	SHEET NO.
6529—2—71	22

PAVEMENT MARKING DETAILS



PAVEMENT MARKING, STOP LINE, 18"

LOCATION		LIN.FT.
10+40		22
	TOTAL	22

PAVEMENT MARKING ARROWS

LOCATION	EACH	REMARKS
13+00	2	TWO-WAY
14+50	2	TWO-WAY
16+00	2	TWO-WAY
17+50	2	TWO-WAY
19+00	2	TWO-WAY
21+00	2	TWO-WAY
22+50	2	TWO-WAY
24+50	2	TWO-WAY
26+50	2	TWO-WAY
28+50	2	TWO-WAY
30+50	2	TWO-WAY
32+50	2	TWO-WAY
34+50	2	TWO-WAY
36+75	1	LEFT TURN ONLY
37+50	1	LEFT TURN ONLY
TOTAL	28	

PAVEMENT MARKING

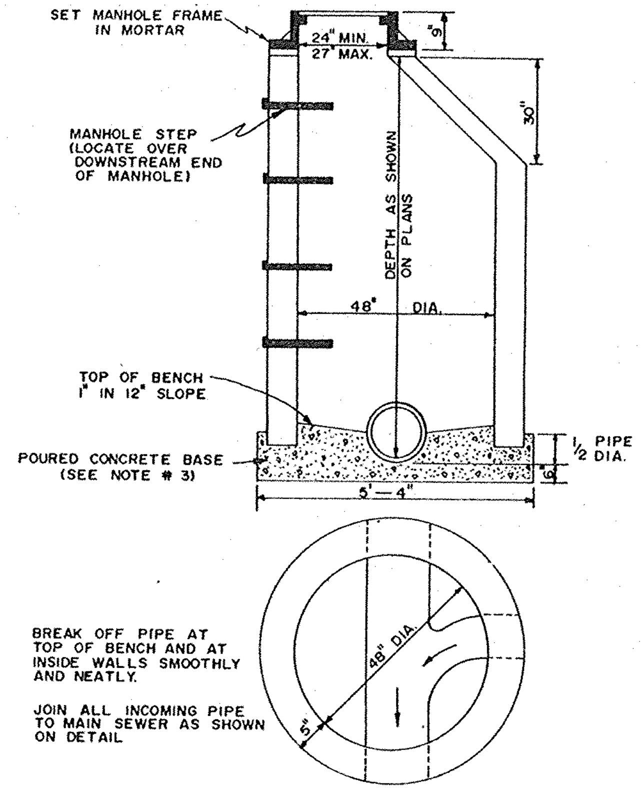
LOCATION	LIN.FT.	REMARKS
10+40 to 11+25, Lane Lines, Lt. & Rt.	170	4" SOLID WHITE
10+40 to 19+43, Median	1,806	4" SOLID YELLOW
11+25 to 19+25, Lane lines, Lt. & Rt.	400	4" DASHED WHITE
12+30 to 19+43, Median	375	4" DASHED YELLOW
20+27 to 35+64, Median	3,074	4" SOLID YELLOW
20+39 to 35+52, Median	775	4" DASHED YELLOW
20+27 to 35+64, Lane Line, 18' Lt.	388	4" DASHED WHITE
19+25 to 35+64, Lane Line, 18' Rt.	412	4" DASHED WHITE
36+27 to 47+90, Lane Lines	600	4" DASHED WHITE
36+40 to 38+03, Median	100	4" DASHED YELLOW
36+40 to 45+85, Median	1,890	4" SOLID YELLOW
45+85 to 47+90, Centerline	50	4" DASHED YELLOW
TOTAL	10,040	

PAVEMENT MARKING, MEDIAN

LOCATION	SQ.FT.
11+45 to 12+15, Corr. Median	203
Northfield Blvd. Median Curb	25
38+50 to 39+20, Corr. Median	1[illegible]7
TOTAL	385

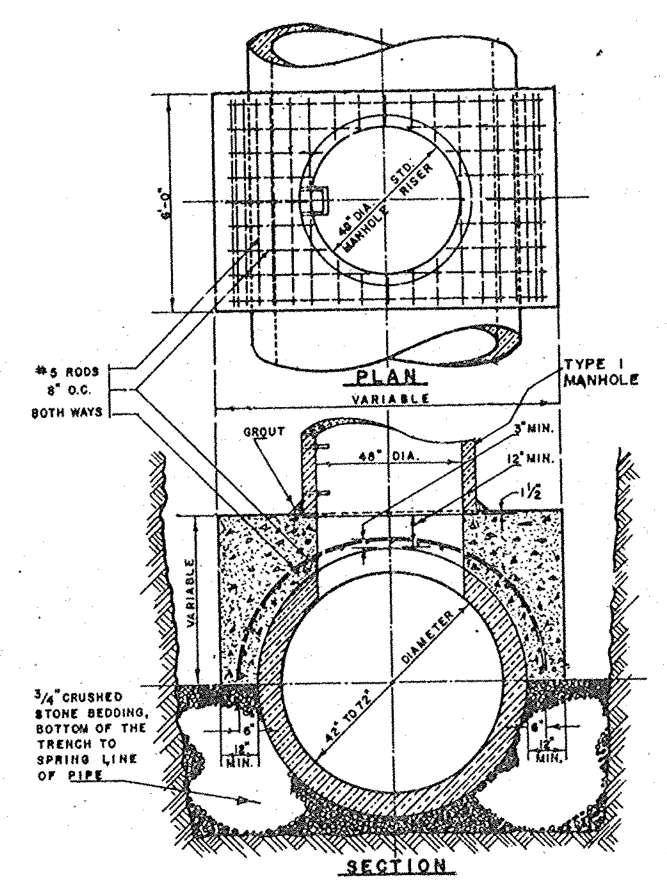
STATE PROJECT NUMBER	SHEET NO.
6529 —2— 71	2.3

CONSTRUCTION DETAILS & ALIGNMENT PLAN



MANHOLE—TYPE I

SEE STANDARD DETAIL DRAWINGS FOR ADDITIONAL INFORMATION



MANHOLE—SADDLE TYPE

GENERAL NOTES
SEWER CONSTRUCTION

(1) MANHOLES AND INLETS SHALL HAVE PRECAST CONCRETE GRADE RINGS (4" MIN., 8" MAX.). GRADE RINGS SHALL NOT PROTRUDE BEYOND THE OUTSIDE WALL OF THE STRUCTURE.

(2) CONCRETE PIPE SHALL HAVE RUBBER GASKET JOINTS.

(3) ALL INLETS AND MANHOLES SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND C-443 EXCEPT CONCRETE BASES SHALL BE POURED-IN-PLACE AT THE JOB SITE.

(4) MANHOLE CASTING WILL BE FURNISHED BY THE CITY AND INSTALLED BY THE CONTRACTOR.

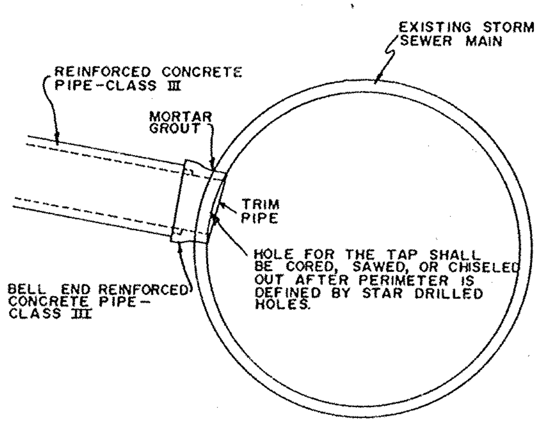
(5) ALL INLET COVERS SHALL BE SPECIAL INLET GRATE NO. 1 TYPE "H" COVERS AS SHOWN ON S.D.D.

(6) STATION AND LOCATION LT. OR RT. IS TO SURVEY T/L.

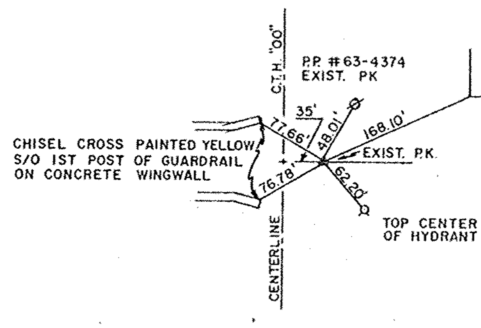
(7) LOCATION LT. OR RT. TO INLETS AND MANHOLES IS TO THE APPROXIMATE CENTER OF THE STRUCTURE.

(8) DEPTH IS FROM THE TOP OF THE PRECAST STRUCTURE TO THE INVERT OF THE DISCHARGE PIPE.

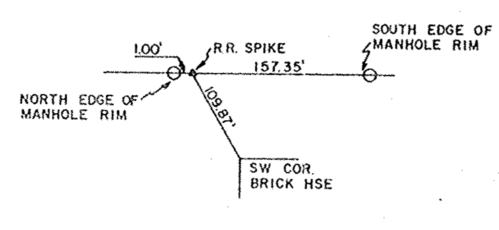
(9) THE GRATE OR COVER ELEVATION SHOWN FOR INLETS IS TO FLOWLINE OF LOWEST PART OF THE CASTING. GRATE ELEVATIONS FOR INLETS AND MANHOLES ARE SET 1/2" AND 1/4" BELOW FINISHED CONCRETE PAVEMENT, RESPECTIVELY.



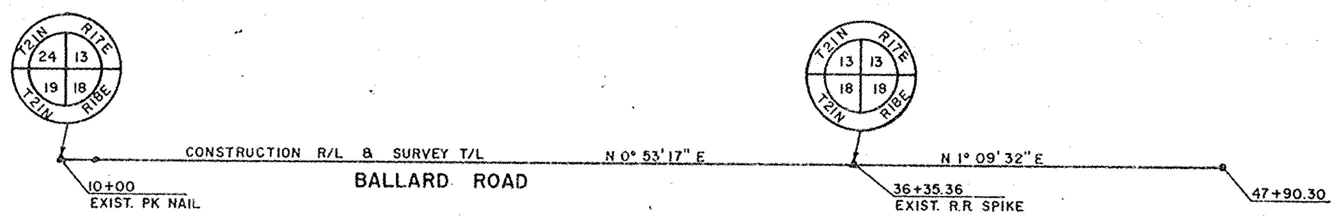
DETAIL—STORM SEWER TAP



TIES TO SECTION CORNER
STATION 10+00



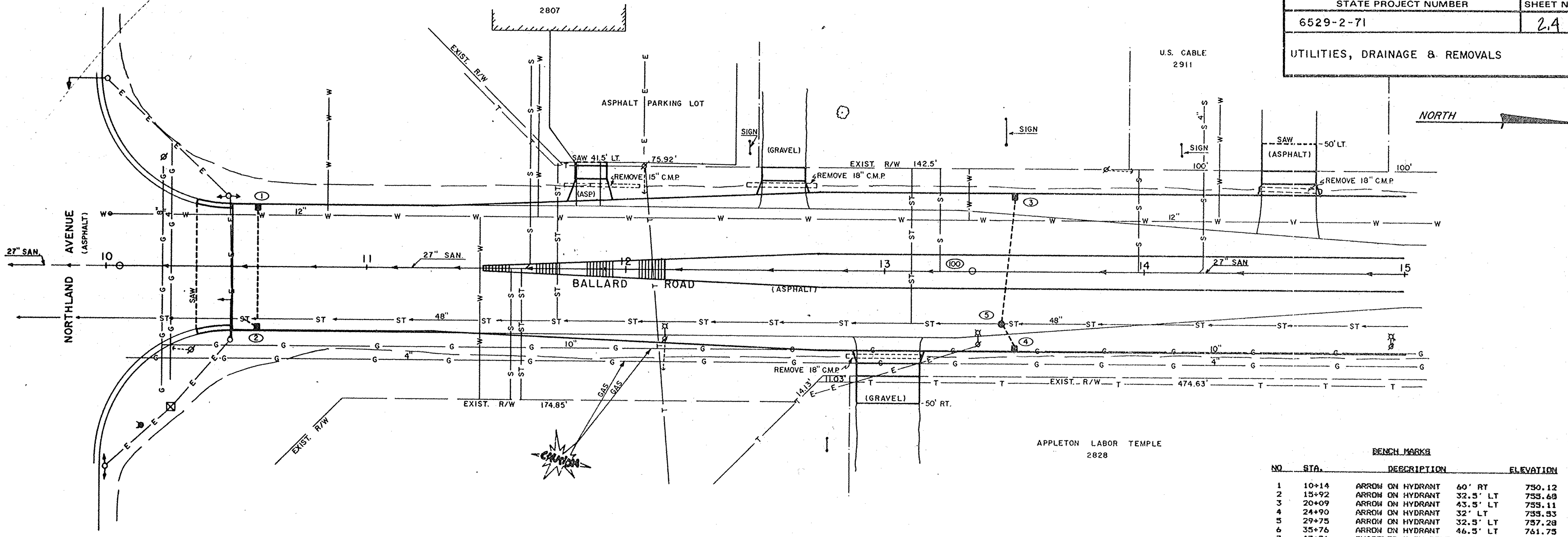
TIES TO 1/4 CORNER
STATION 36+35.36



ALIGNMENT DIAGRAM

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	24

UTILITIES, DRAINAGE & REMOVALS



BENCH MARKS

NO	STA.	DESCRIPTION	ELEVATION
1	10+14	ARROW ON HYDRANT 60' RT	750.12
2	15+92	ARROW ON HYDRANT 32.5' LT	753.68
3	20+09	ARROW ON HYDRANT 43.5' LT	755.11
4	24+90	ARROW ON HYDRANT 32' LT	755.53
5	29+75	ARROW ON HYDRANT 32.5' LT	757.28
6	35+76	ARROW ON HYDRANT 46.5' LT	761.75
7	47+91	CHISELED X ON BOLT 15.5' RT	775.34

EXISTING STRUCTURES

CODE	LOCATION	TYPE	ELEVATION EXIST.	ELEVATION PROP.	ADJUST	REMARKS
100	13+33.8, 0.5' LT.	SAN M.H.	781.98	781.11		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)

CLASS III STORM SEWERS

LOCATION FROM	LOCATION TO	SIZE (IN.)	LENGTH (FT.) CTR/CTR	LENGTH (FT.) MEAS.	SLOPE %	INVERT ELEV. M.H./INLET	INVERT ELEV. DISCH.	REMARKS
1.	EXIST 48" RCP	12	46	44	2.00	744.91	743.39	TAP EXIST. 48" R.C.P.
2.	EXIST 48" RCP	12	7	5	8.00	744.91	744.43	TAP EXIST. 48" R.C.P.
3.	5.	12	21	17	4.00	746.81	745.97	
4.	5.	12	11	7	17.00	747.83	745.96	

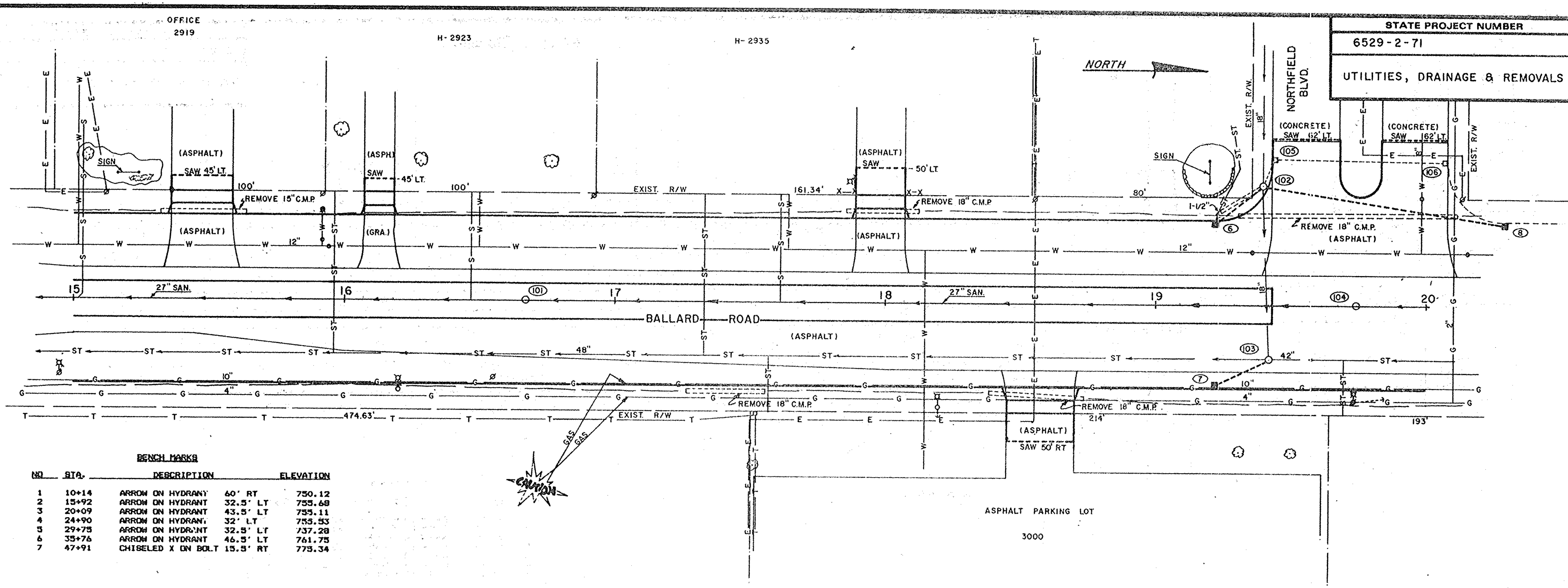
PROPOSED STRUCTURES

CODE	LOCATION	STRUCTURE	TYPE	GRATE ELEV.	DEPTH (FT.)	REMARKS
1.	10+58, 23'LT	INLET	3H	748.61	3.00	
2.	10+58, 23'RT	INLET	3H	748.61	3.00	
3.	13+50, 29.5'LT.	INLET	3H	750.51	3.00	
4.	13+50, 29.5'RT.	INLET	3H	750.51	1.98	
5.	13+45, 20'RT	STO. M.H.	1	750.80	9.21	BUILD SADDLE MANHOLE, INSTALL CITY FURNISHED CASTING

Cat. No. 2130 – 0142

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	25

UTILITIES, DRAINAGE & REMOVALS



BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	737.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34

CLASS III STORM SEWERS

LOCATION FROM	LOCATION TO	SIZE (IN)	LENGTH (FT) CTR/CTR	LENGTH (FT) MEAS.	SLOPE %	INVERT ELEV. M.H./INLET	INVERT ELEV. DISCH.	REMARKS
6	102	12	30	26	4.60	748.38	747.00	REMOVE EXISTING 12" R.C.P. AND CONCRETE APRON.
7	103	12	23	19	7.60	749.21	747.46	
8	102	12	88	84	1.00	748.80	747.92	

EXISTING STRUCTURES

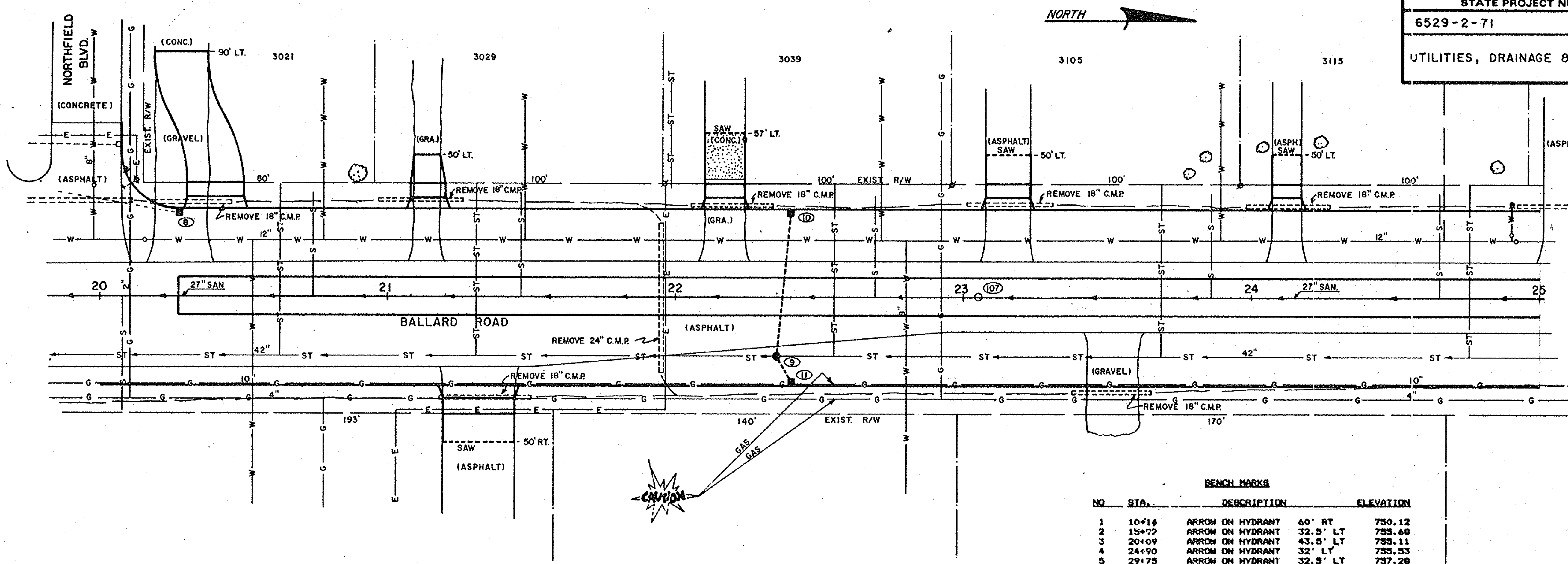
CODE	LOCATION	TYPE	ELEVATION EXIST.	ELEVATION PROP.	ADJUST	REMARKS
101	16+67, 0.7'LT	SAN. M.H.	753.88	754.28		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)
102	19+39, 44' LT	STO. M.H.	753.44	753.10	X	
103	19+42, 20' RT	STO. M.H.	755.38	752.49	X	
104	19+75, 0.6'LT	SAN. M.H.	754.30	753.02		INSTALL CITY FURNISHED CASTING (NON-PARTICIPATING)
105	19+[illegible]3, 54'LT	INLET	752.80	752.78	X	

PROPOSED STRUCTURES

CODE	LOCATION	STRUCTURE	TYPE	GRATE ELEV.	DEPTH (FT.)	REMARKS
6	19+21.5, 29.5'LT	INLET	3H	752.08	3.00	EXTEND 1-1/2" PLASTIC DRAIN PIPE & CONNECT TO INLET.
7	19+21.5, 29.5'RT	INLET	3H	752.08	2.17	

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	2.6

UTILITIES, DRAINAGE & REMOVAL



BENCH MARKS

NO	STA.	DESCRIPTION	ELEVATION
1	10+14	ARROW ON HYDRANT 60' RT	750.12
2	15+72	ARROW ON HYDRANT 32.5' LT	755.68
3	20+09	ARROW ON HYDRANT 43.5' LT	755.11
4	24+90	ARROW ON HYDRANT 32' LT	755.53
5	29+75	ARROW ON HYDRANT 32.5' LT	757.28
6	35+76	ARROW ON HYDRANT 46.5' LT	761.75
7	47+91	CHISELED X ON BOLT 15.5' RT	775.34

CLASS III STORM SEWERS

LOCATION FROM	LOCATION TO	SIZE (IN)	LENGTH (FT) CTR/CTR	LENGTH (FT) MEAS.	SLOPE %	INVERT ELEV. MH/INLET	INVERT ELEV. DISCH.	REMARKS
10	9	12	50	46	2.00	749.84	748.84	
11	9	12	11	7	13.80	750.26	748.74	

EXISTING STRUCTURES

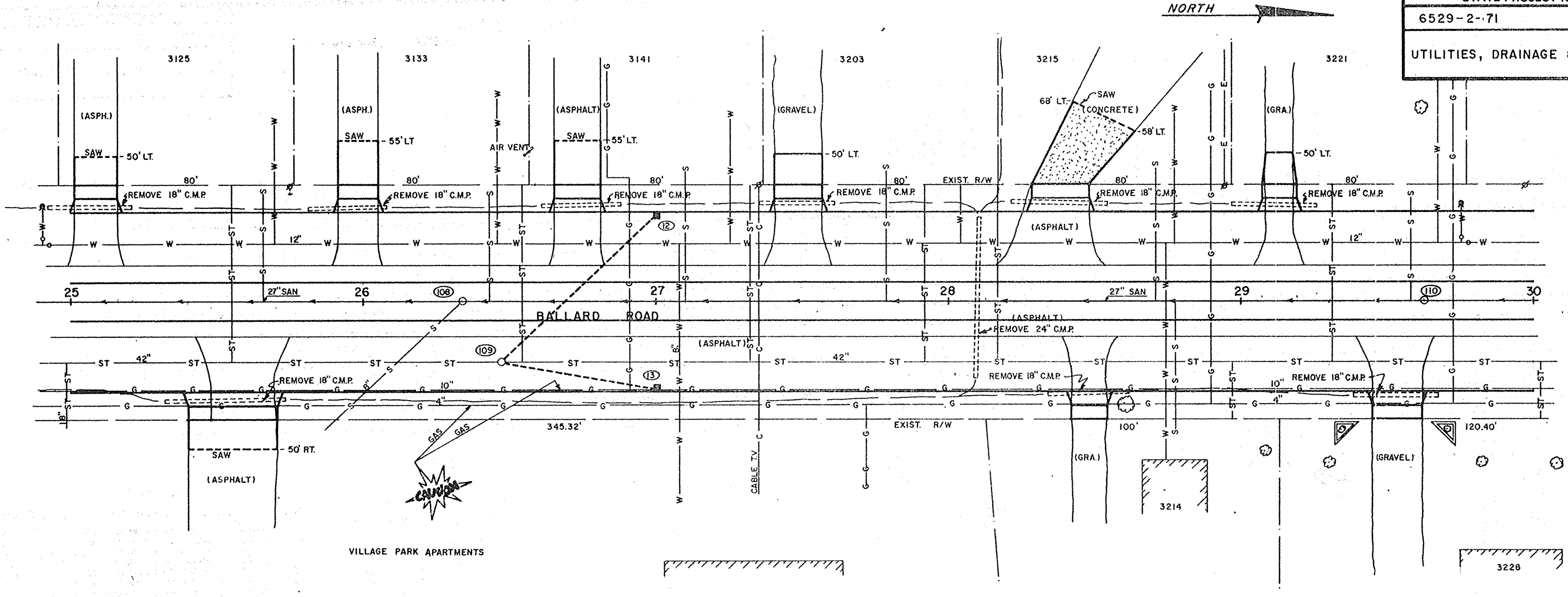
CODE	LOCATION	TYPE	ELEVATION EXIST	ELEVATION PROP.	ADJUST	REMARKS
106	20+07, 53'LT	INLET	752.80	752.88	X	
107	23+05, 0.5'LT	SAN M.H.	755.68	754.76		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)

PROPOSED STRUCTURES

CODE	LOCATION	STRUCTURE	TYPE	GRATE ELEV.	DEPTH (FT.)	REMARKS
8	20+25.5, 29.5'LT	INLET	3H	752.50	3.00	
9	22+35, 20' RT	STO. MH	1	753.80	10.46	BUILD S[illegible]E MAN[illegible], INSTALL CITY FURNISHED CASTING
10	22+40, 29.5'LT	INLET	3H	753.54	3.00	
11	22+40, 29.5'RT	INLET	3H	753.54	2.58	

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	27

UTILITIES, DRAINAGE & REMOVAL



BENCH MARKS

NO	STA.	DESCRIPTION	ELEVATION
1	10+14	ARROW ON HYDRANT 60' RT	750.12
2	15+92	ARROW ON HYDRANT 32.5' LT	755.68
3	20+09	ARROW ON HYDRANT 43.5' LT	755.11
4	24+90	ARROW ON HYDRANT 32' LT	755.53
5	29+75	ARROW ON HYDRANT 32.5' LT	757.28
6	35+76	ARROW ON HYDRANT 46.5' LT	761.75
7	47+91	CHISELED X ON BOLT 15.5' RT	775.34

CLASS III STORM SEWERS

LOCATION FROM	TO	SIZE	LENGTH (FT) CTR/CTR	MEAS.	SLOPE %	INVERT ELEV. MH/INLET	DISCH	REMARKS
12	109	12	72	68	2.00	750.30	748.86	
13	109	12	54	50	4.50	751.10	748.67	

EXISTING STRUCTURES

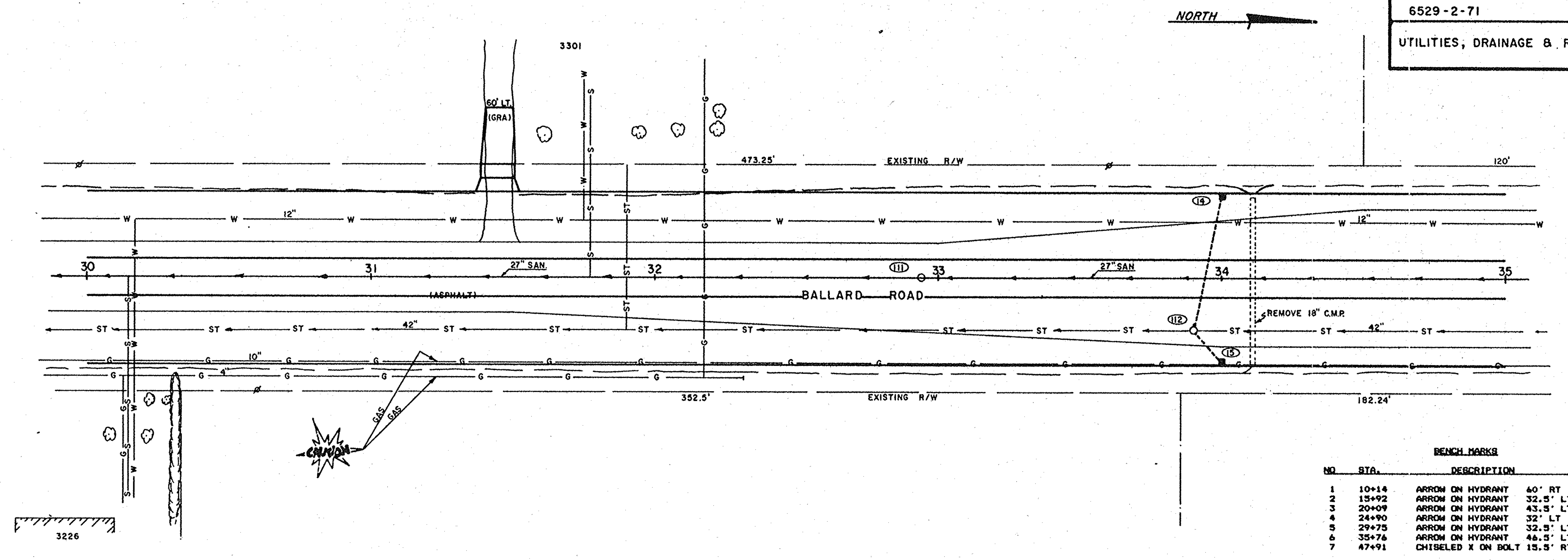
CODE	LOCATION	TYPE	ELEVATION EXIST.	PROP.	ADJUST	REMARKS
108	26+34, C/L	SAN MH	756.54	754.98		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)
109	26+48, 20.5'RT	STO MH	755.43	754.52	X	
110	29+63, C/L	SAN MH	757.49	757.27		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)

PROPOSED STRUCTURES

CODE	LOCATION	STRUCTURE	TYPE	GRATE ELEV.	DEPTH (FT.)	REMARKS
12	27+00, 29.5'LT	INLET	3H	754.00	3.00	
13	27+00, 29.5'RT	INLET	3H	754.00	2.20	

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	2.8

UTILITIES, DRAINAGE & REMOVALS



BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34

CLASS III STORM SEWERS

LOCATION		SIZE	LENGTH (FT)		SLOPE	INVERT ELEV.		REMARKS
FROM	TO	(IN)	CTR/CTR	MEAS.	%	MH/INLET	DISCH	
14	112	12	48	44	5.00	750.80	748.40	
15	112	12	16	12	15.00	750.80	748.40	

EXISTING STRUCTURES

CODE	LOCATION	TYPE	ELEVATION		ADJUST	REMARKS
			EXIST.	PROP.		
111	32+94, C/L	SAN. M.H.	756.84	755.07		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)
112	33+90, 10.5'RT	STO. M.H.	756.27	754.89	X	

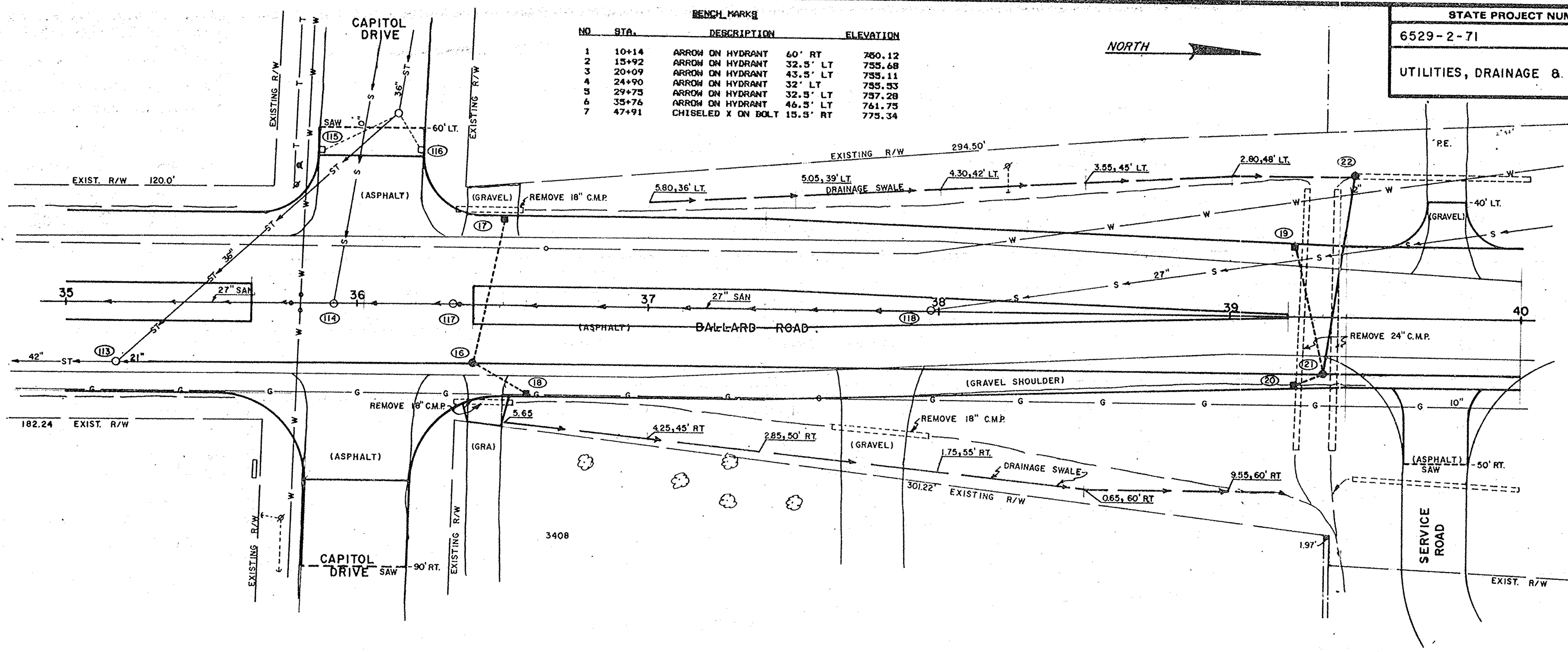
PROPOSED STRUCTURES

CODE	LOCATION	STRUCTURE	TYPE	GRATE ELEV.	DEPTH (FT)	REMARKS
14	34+00, 29.5'LT	INLET	3H	754.50	3.00	
15	34+00, 29.5'LT	INLET	3H	754.50	3.00	

Cat. No. 2130 - 0142

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	29

UTILITIES, DRAINAGE & REMOVALS



BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	780.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34

CLASS III STORM SEWERS

LOCATION FROM	TO	SIZE (IN)	LENGTH CTR/CTR	MEAS.	SLOPE %	INVERT ELEV MH/INLET	DISCH.	REMARKS
17	16	12	51	47	2.00	751.60	750.58	
18	16	12	20	16	5.00	752.33	751.33	
19	21	12	45	41	2.00	752.91	752.03	
20	21	12	11	7	8.00	752.91	752.01	
16	113	21	123	112	0.51	746.35	745.78*	CONNECT TO 21" RCP STUB. *ELEVATION AT END OF 21" RCP.
21	16	21	292	287	0.45	747.65	746.35	
22	21	21	69	64	0.35	748.04	747.83	
23	21	12	258	253	2.70	756.88	749.91	

EXISTING STRUCTURES

CODE	LOCATION	TYPE	ELEVATION EXIST.	PROP.	ADJUST	REMARKS
113	35+17, 20.5'RT	STO. M.H.	756.55	755.42	X	
114	35+92, 0.8'RT	SAN. M.H.	756.75	756.19		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)
115	35+84, 54'LT	INLET	754.66	754.88	X	
116	36+20, 53'LT	INLET	754.68	754.88	X	
117	36+33, 0.2'RT	SAN. M.H.	756.75	756.09		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)
118	37+94, 1.0'LT	SAN. M.H.	756.70	756.60		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)

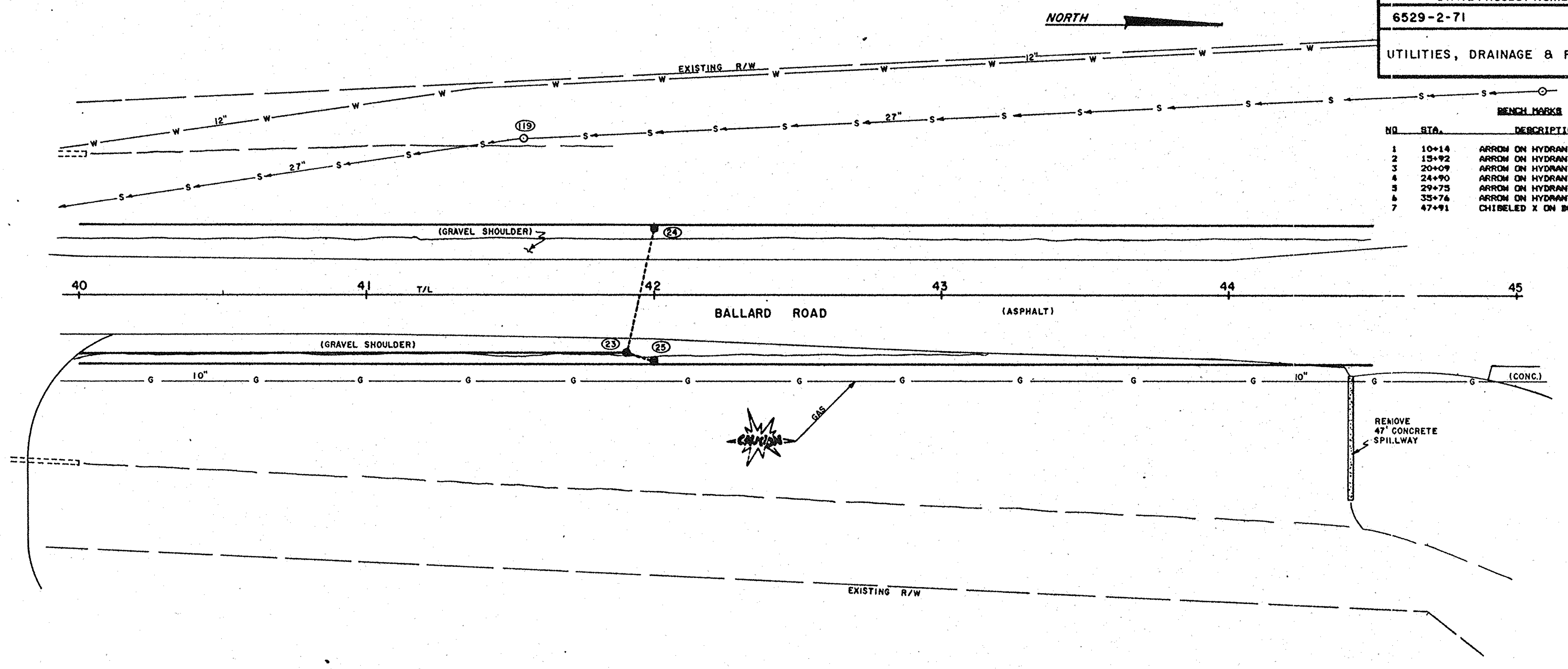
PROPOSED STRUCTURES

CODE	LOCATION	STRUCTURE	TYPE	GRATE ELEV.	DEPTH (FT.)	REMARKS
16	36+40, 20'RT	STO. M.H.	1	755.66	8.11	INSTALL CITY FURNISHED CASTING
17	36+50, 29.8'LT	INLET	3H	755.30	3.00	
18	36+58, 29.5'RT	INLET	3H	755.33	2.30	
19	39+22, 24'LT	INLET	3H	756.61	3.00	
20	39+22, 24'RT	INLET	3H	756.61	3.00	
21	39+32, 20'RT	STO. M.H.	1	756.91	8.05	INSTALL CITY FURNISHED CASTING
22	39+42, 48'LT	STO. M.H.	1	751.65	3.00	CONNECT EXISTING C.M.P. TO M.H. USE PRECAST CONCRETE FLAT SLAB TOP INSTALL CITY FURNISHED CASTING. PLACE 5' RING OF SOD AROUND CASTING.

Cat. No. 2130 - 0142

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	2.10

UTILITIES, DRAINAGE & REMOVALS



BENCH MARKS

NO	STA.	DESCRIPTION	ELEVATION
1	10+14	ARROW ON HYDRANT 60' RT	750.12
2	15+92	ARROW ON HYDRANT 32.5' LT	755.68
3	20+09	ARROW ON HYDRANT 43.5' LT	755.11
4	24+90	ARROW ON HYDRANT 32' LT	755.53
5	29+75	ARROW ON HYDRANT 32.5' LT	757.28
6	35+76	ARROW ON HYDRANT 46.5' LT	761.75
7	47+91	CHISELED X ON BOLT 15.5' RT	775.34

CLASS III STORM SEWERS

LOCATION FROM	LOCATION TO	SIZE (IN)	LENGTH (FT) CTR.CTR	LENGTH (FT) MEAS.	SLOPE %	INVERT ELEV. MH/INLET	INVERT ELEV. DISCH.	REMARKS
24	23	12	44	40	4.00	759.63	757.87	
25	23	12	10	6	20.00	759.63	757.63	

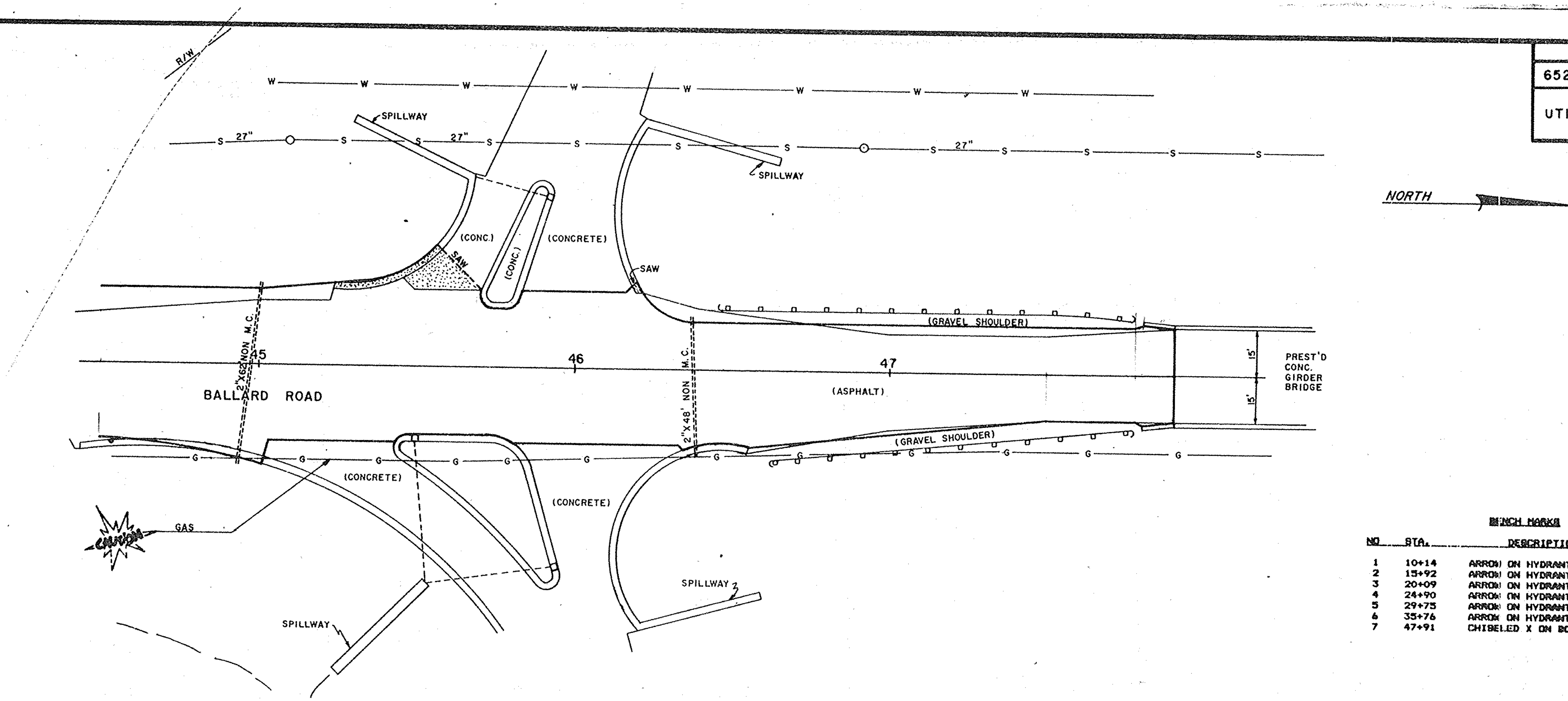
EXISTING STRUCTURES

CODE	LOCATION	TYPE	ELEVATION EXIST.	ELEVATION PROP.	ADJUST	REMARKS
119	41+47, 82'LT	SAN. M.H.	750.93	752.70		INSTALL CITY FURNISHED CASTING. (NON-PARTICIPATING)

PROPOSED STRUCTURES

CODE	LOCATION	STRUCTURE	TYPE	GRATE ELEV.	DEPTH (FT.)	REMARKS
23	41+90, 20'RT	STO. M.H.	1	763.18	5.55	INSTALL CITY FURNISHED CASTING.
24	42+00, 23'LT	INLET	3H	763.33	3.70	
25	42+00, 23'RT	INLET	3H	763.33	3.70	

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	2.11
UTILITIES, DRAINAGE & REMOVALS	



BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34

ESTIMATE OF QUANTITIES

DATE 04/13/87

PROJECT ID: 6529-02-71
OUTAGAMIE COUNTY
BALLARD ROAD, CITY OF APPLETON
/C.T.H. OO - U.S.H. 41/
C.T.H. E

ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6529-02-71 QUANTITY
20401	REMOVING PAVEMENT	S.Y.	130.00	130.00
20405	REMOVING CURB AND GUTTER	L.F.	120.00	120.00
20503	UNCLASSIFIED EXCAVATION	C.Y.	14,500.00	14,500.00
21303	FINISHING ROADWAY, PROJECT 6529-02-71	L.S.	1.00	1.00
30404	CRUSHED AGGREGATE BASE COURSE	TON	8,500.00	8,500.00
30707	CONCRETE BASE COURSE, 7-INCH	S.Y.	78.00	78.00
40909	CONCRETE PAVEMENT, 9-INCH	S.Y.	22,422.00	22,422.00
40931	CONCRETE DRIVEWAY	S.Y.	535.00	535.00
60123	CONCRETE CURB AND GUTTER, 30-INCH, TYPE A	L.F.	7,010.00	7,010.00
60825	REINFORCED CONCRETE PIPE, CLASS III, STORM SEWER, 12-INCH	L.F.	839.00	839.00
60828	REINFORCED CONCRETE PIPE, CLASS III, STORM SEWER, 21-INCH	L.F.	463.00	463.00
61110	MANHOLES, TYPE 1	EACH	4.00	4.00
61122	INLETS, TYPE 3	EACH	19.00	19.00
61167	INLET COVERS, TYPE H	EACH	19.00	19.00
61182	ADJUSTING MANHOLE COVERS	EACH	5.00	5.00
61183	ADJUSTING INLET COVERS	EACH	4.00	4.00
61334	NONMETALLIC CONDUIT, 2-INCH	L.F.	110.00	110.00
61911	MOBILIZATION, PROJECT 6529-02-71	L.S.	1.00	1.00
62001	CONCRETE CORRUGATED MEDIAN	S.F.	630.00	630.00
62101	LANDMARK REFERENCE MONUMENTS	EACH	4.00	4.00
62301	CALCIUM CHLORIDE SURFACE TREATMENT	TON	1.00	1.00
62401	WATER	MGAL	70.00	70.00
62501	TOPSOIL	S.Y.	14,500.00	14,500.00
62702	MULCHING	S.Y.	14,500.00	14,500.00
62905	FERTILIZER, TYPE B	CWT.	10.00	10.00
63002	SEEDING	LB.	260.00	260.00

SHEET 3

DATE 04/13/87

ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6529-02-71 QUANTITY
63101	SODDING	S.Y.	10.00	10.00
64202	FIELD OFFICE, TYPE B	L.S.	1.00	1.00
64210	FIELD LABORATORY	L.S.	1.00	1.00
64302	TRAFFIC CONTROL, PROJECT 6529-02-71	L.S.	1.00	1.00
64401	PAVEMENT MARKING, HOT PAINT	L.F.	10,040.00	10,040.00
64422	PAVEMENT MARKING, STOP LINE, HOT PAINT, 18-INCH	L.F.	22.00	22.00
64463	PAVEMENT MARKING, ARROWS, HOT PAINT, SINGLE	EACH	28.00	28.00
90001	PAVEMENT MARKING, MEDIAN, HOT PAINT	S.F.	385.00	385.00
90002	INSTALL CITY FURNISHED MANHOLE COVERS	EACH	17.00	17.00
90003	MANHOLE, SADDLE TYPE	EACH	2.00	2.00
90379	SINGLE AGGREGATE BITUMINOUS MIX	TON	117.00	117.00
90448	PAVEMENT TIES	EACH	105.00	105.00
90882	SAWING EXISTING PAVEMENT	L.F.	466.00	466.00
90999	ON THE JOB TRAINING	HRS.	250.00	250.00

SHEET 3.1

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	3A

MISCELLANEOUS QUANTITIES

REMOVING PAVEMENT

LOCATION	SQ.YDS.
Northfield Blvd.	8
D.W., 22+16, Lt.	24
D.W., 28+38, Lt.	64
Spillway 44+42	10
Ramp, 45+50, Lt.	24
TOTAL	~~130~~ 131.1

REMOVING CURB & GUTTER

LOCATION	LIN. FT.
10+35 to 10+48, Lt. & Rt.	26
44+42 to 45+03, Rt.	61
45+22 to 45+52, Lt.	30
46+25, Lt.	3
TOTAL	~~120~~ 136

CRUSHED AGGREGATE BASE COURSE

LOCATION	TONS
10+35 to 19+23	2,026
Northfield Blvd.	70
19+23 to 35+51	3,859
Capitol Dr.	61
35+51 to 47+90.3	2,416
DRIVEWAYS: 13+01, Rt.	9
20+42, Lt.	37
21+14, Lt.	4
27+49, Lt.	6
29+13, Lt.	4
31+45, Lt.	8
TOTAL	8,500

EARTHWORK

LOCATION STA.	UNCL. EXC. C.Y.	FILL C.Y.	WASTE C.Y.
BALLARD RD			
10+35 – 47+90	14,500	5773	7284 *

SHRINKAGE = 25 %

* HAUL IN APPROXIMATELY 1000 C.Y. TO CAPITOL DRIVE, STA. 12+94 TO STA. 32+29

CONCRETE BASE COURSE

LOCATION	SQ.YDS.
10+35 to 10+48	78
TOTAL	~~78~~ 72.6
TOTAL	

CONCRETE DRIVEWAYS

LOCATION	SQ.YDS.
11+86, Lt.	21
12+60, Lt.	21
13+01, Rt.	26
14+55, Lt.	21
15+48, Lt.	24
16+12, Lt.	13
17+98, Lt.	19
18+57, Rt.	28
20+42, Lt.	21
21+14, Lt.	13
21+31, Rt.	26
22+16, Lt.	39
23+15, Lt.	17
24+12, Lt.	13
25+08, Lt.	16
25+55, Rt.	31
25+98, Lt.	15
26+73, Lt.	17
27+48, Lt.	17
28+38, Lt.	83
28+48, Rt.	13
29+13, Lt.	13
29+53, Rt.	18
31+45, Lt.	12
TOTAL	~~535~~ 562.1

CONCRETE CURB & GUTTER, TYPE "A"

LOCATION	LIN.FT.
10+35 to 19+23	1,776
Northfield Blvd.	242
20+27 to 35+51	3,048
Capitol Drive	178
36+47 to 46+00 (U.S."41")	1,766
TOTAL	~~7,010~~ 7009.8

CONCRETE PAVEMENT, 9-INCH

LOCATION	SQ.YDS.
10+48 to 19+23	5,316
Northfield Blvd.	230
19+23 to 35+64	10,364
Capitol Drive	265
33+64 to 47+90.3	6,247
TOTAL	22,422 ✓

CONCRETE CORRUGATED MEDIAN

LOCATION	SQ.FT.
11+45 to 12+15	315
38+50 to 39+20	315
TOTAL	~~630~~ 647.6

TOPSOIL AND MULCHING

LOCATION	SQ.YD.
10+35 to 15+00	1,510
15+00 to 20+00	1,395
20+00 to 25+00	1,555
25+00 to 30+00	1,490
30+00 to 35+00	1,370
35+00 to 40+00	3,100
40+00 to 45+60	4,080
TOTAL	~~14,500~~ 12,355

PAVEMENT TIES

LOCATION	EACH
C & G, 10+35, Lt & Rt	4
Northfield Blvd.	18
C & G, 45+00, Rt.	2
45+55 TO 46+55, Lt. & Rt.	81
TOTAL	~~105~~ 87

SINGLE AGGREGATE BITUMINOUS MIX

LOCATION	TON
10+35 to 10+48	7
Capitol Drive	50
Driveways	60
TOTAL	~~117~~ 97.6

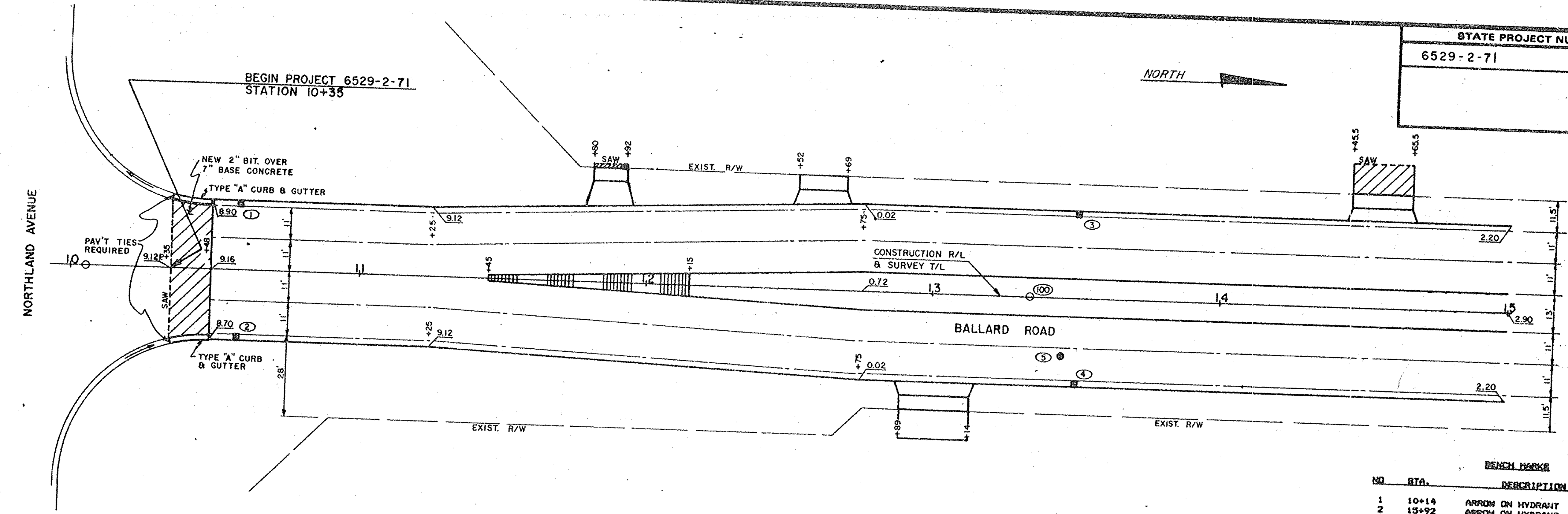
LANDMARK REFERENCE MONUMENT

LOCATION	EACH
W 1/4 COR. SECTION 18	~~4~~ 0 - DELETED

SAWCUTTING

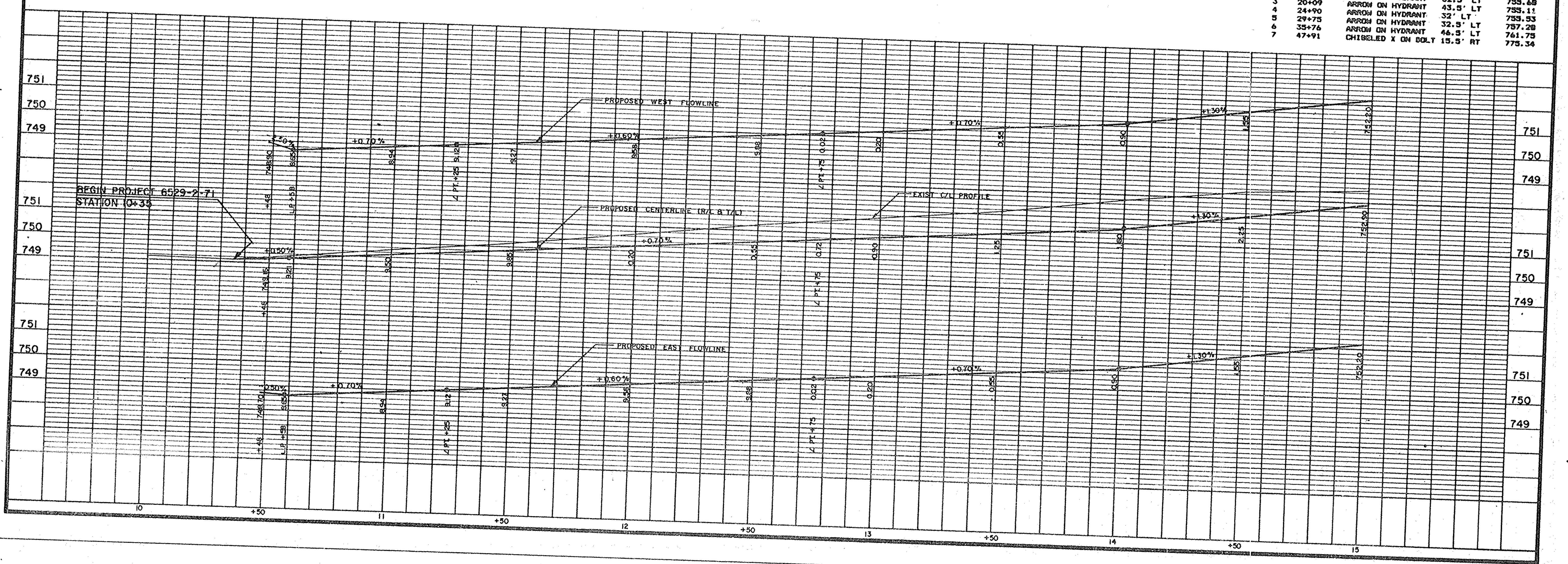
LOCATION	LIN.FT.
10+35	55
11+86, DW, Lt.	12
14+55, DW, Lt.	20
15+48, DW, Lt.	23
16+12, DW, Lt.	12
17+98, DW, Lt.	18
18+57, DW, Rt.	25
Northfield Blvd.	50
21+31, DW, Rt.	25
22+17, DW, Lt.	14
23+15, DW, Lt.	16
24+12, DW, Lt.	12
25+08, DW, Lt.	15
25+55, DW, Rt.	30
25+98, DW, Lt.	15
26+73, DW, Lt.	16
28+38, DW, Lt.	25
39+71, DW, Rt.	22
45+00, C & G, Rt.	3
45+55, Jt, Lt.	20
46+25, C & G, Lt.	2
CAPITOL DR. LT.	36
TOTAL	~~488~~ 445.6

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	5



BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.20
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34

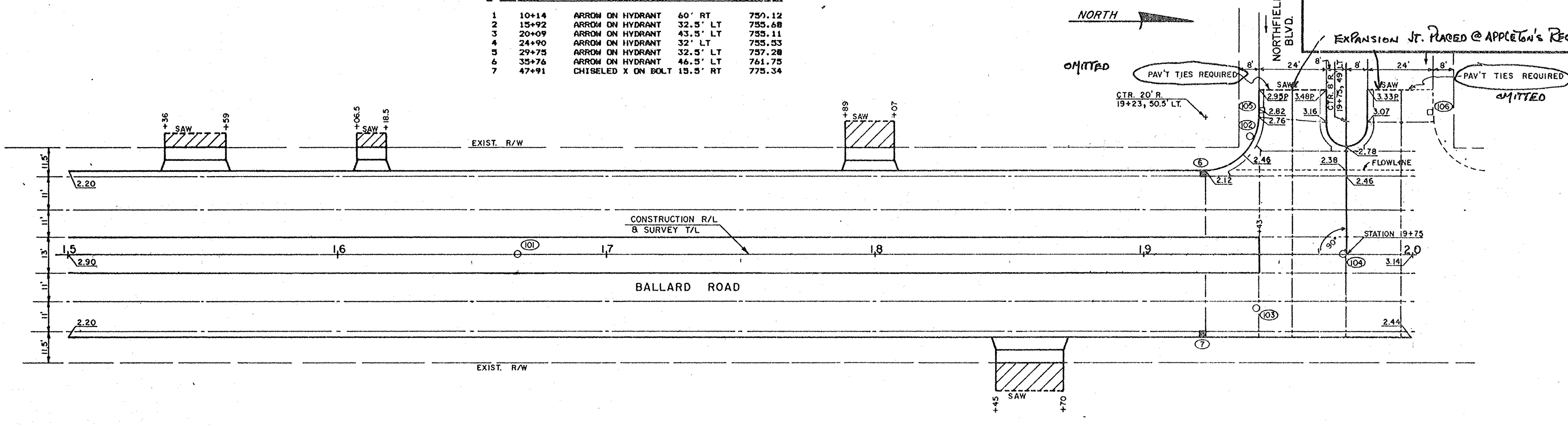


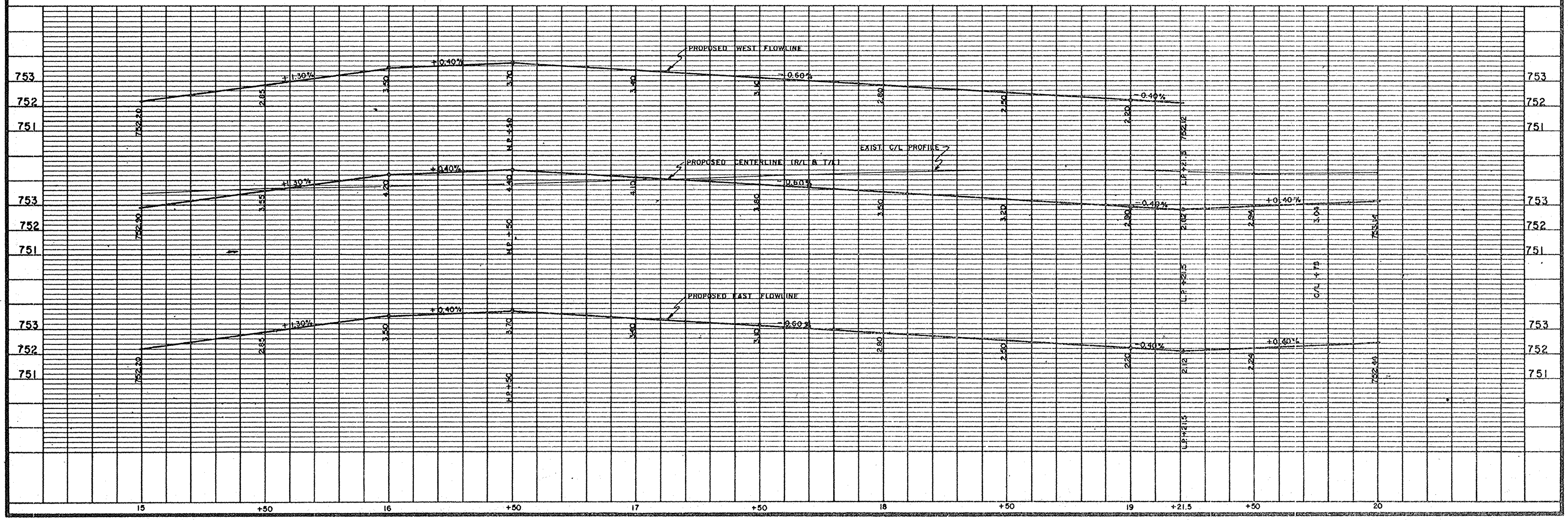
Cat. No. 2130 - ПI4П

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	5.1

BENCH MARKS

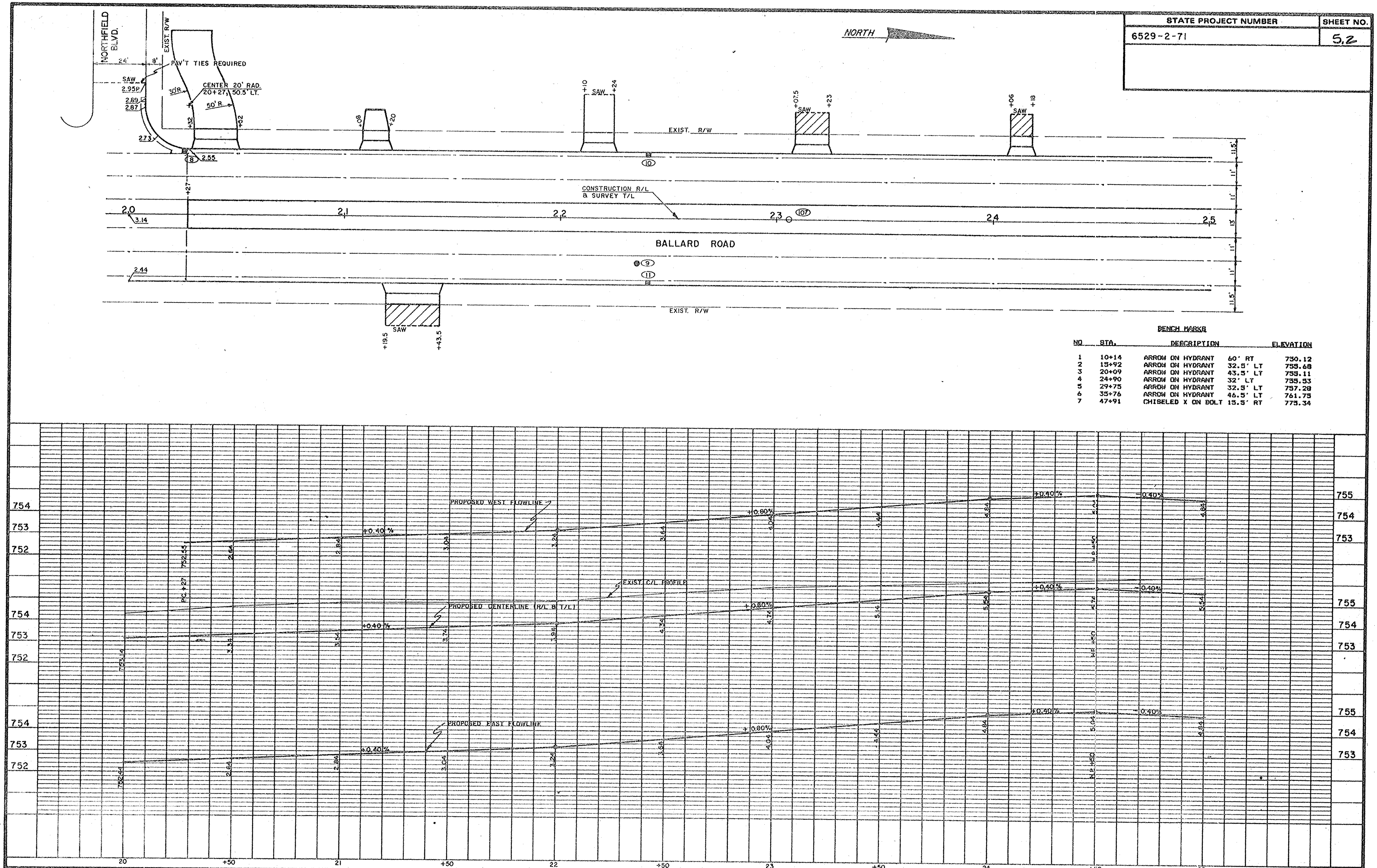
NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34





Cat. No. 2130 – 0140

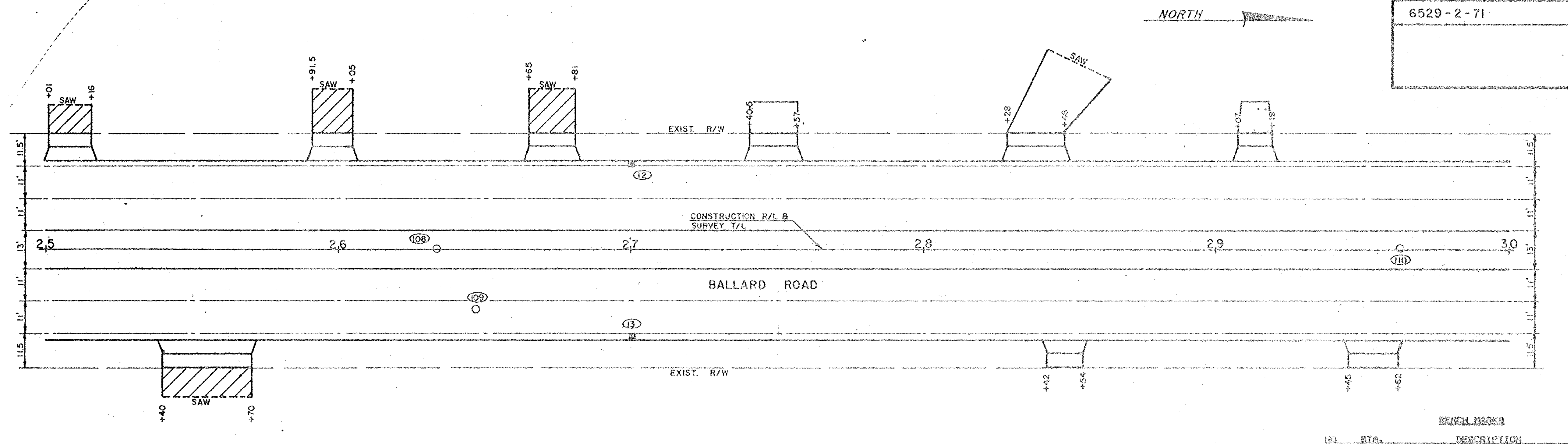
STATE PROJECT NUMBER	SHEET NO.
6529-2-71	52



BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	730.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	53



BENCH MARKS

NO.	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
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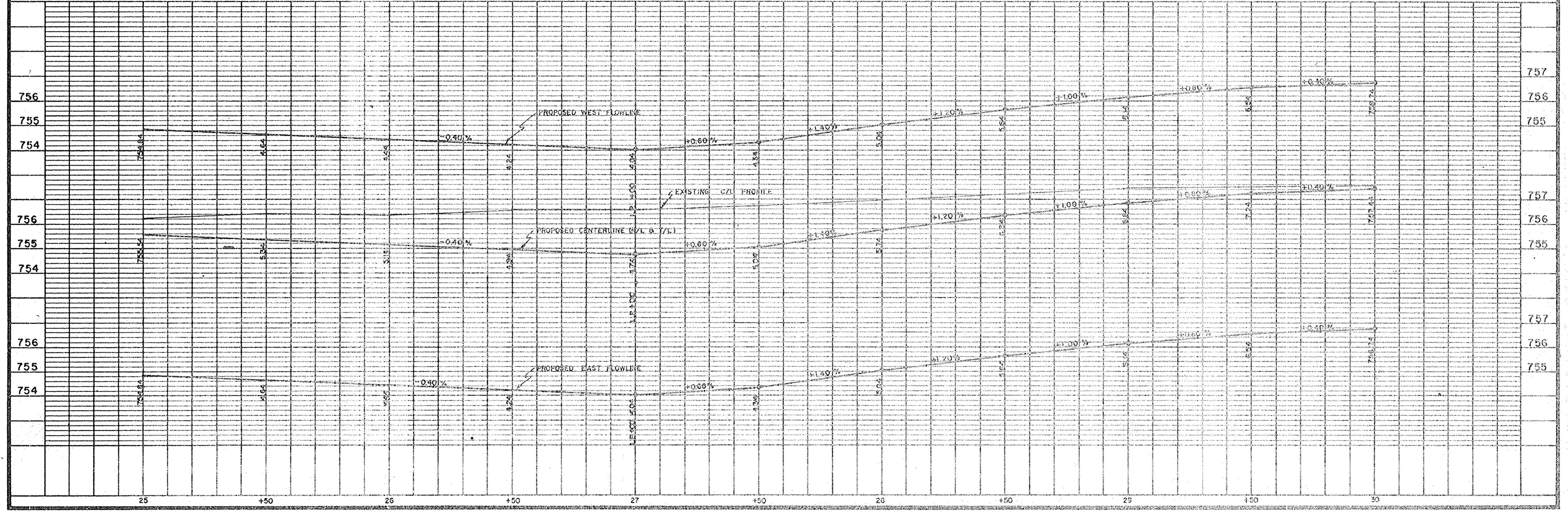
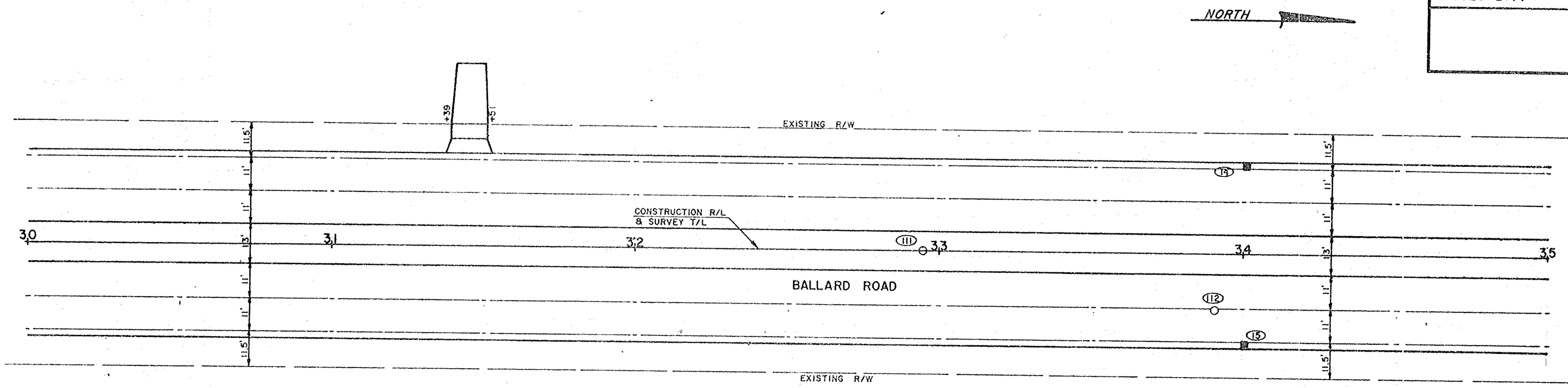
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	33+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	773.34



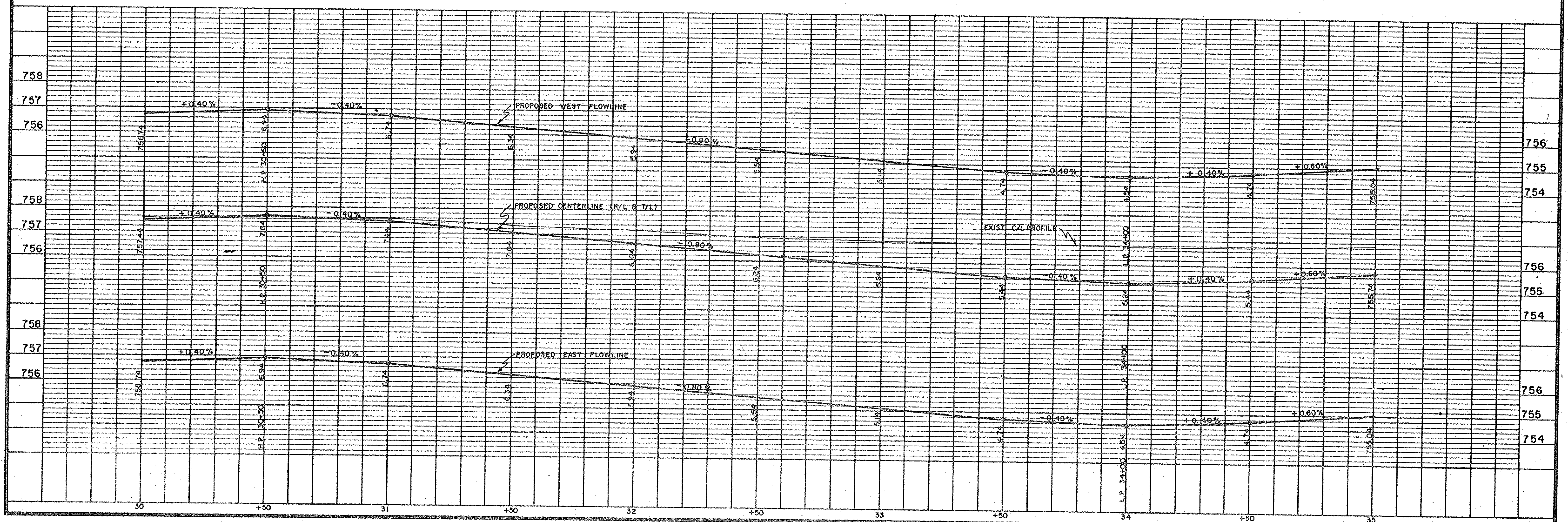
Cat. No. 2100 - 0140

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	5.4



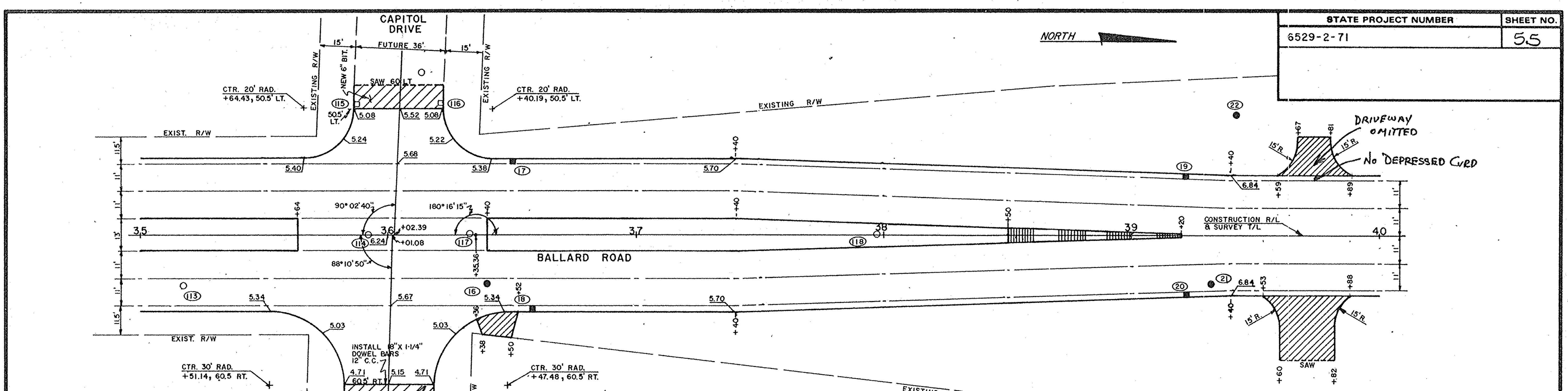
BENCH MARKS

NO	STA.	DESCRIPTION	ELEVATION
1	10+14	ARROW ON HYDRANT 60' RT	750.12
2	15+92	ARROW ON HYDRANT 32.5' LT	755.68
3	20+09	ARROW ON HYDRANT 43.5' LT	755.11
4	24+90	ARROW ON HYDRANT 32' LT	755.53
5	29+75	ARROW ON HYDRANT 32.5' LT	757.28
6	35+76	ARROW ON HYDRANT 46.5' LT	761.75
7	47+91	CHISELED X ON BOLT 15.5' RT	775.34



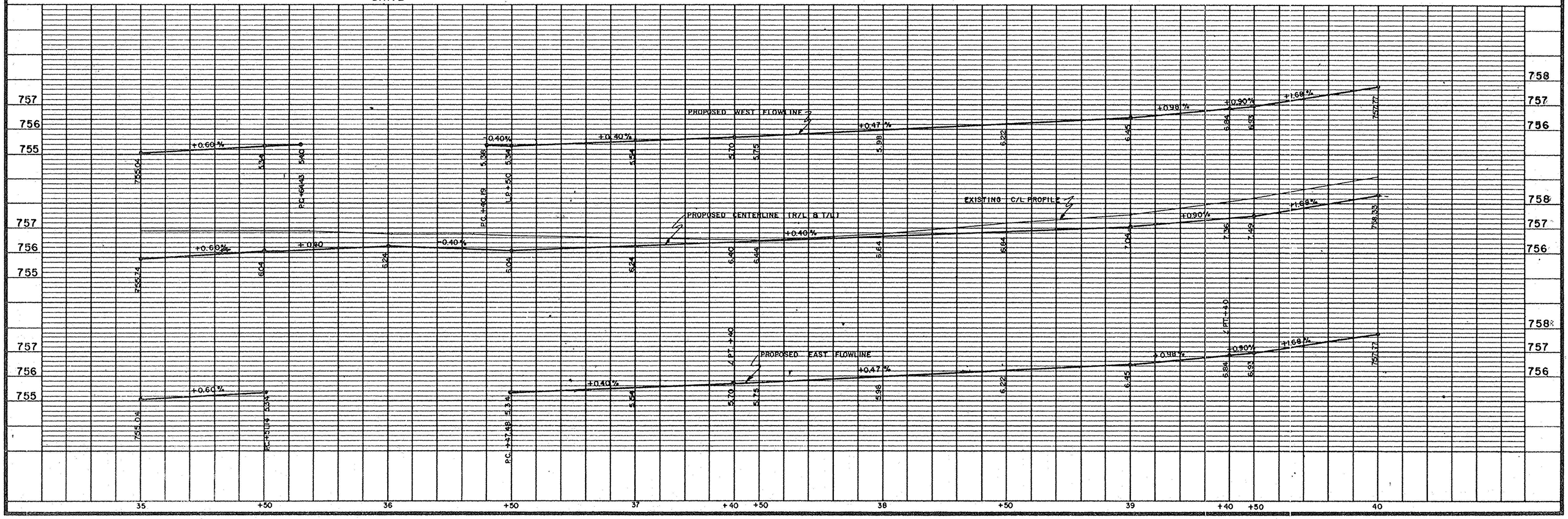
Cat. No. 2130 – 0140

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	55

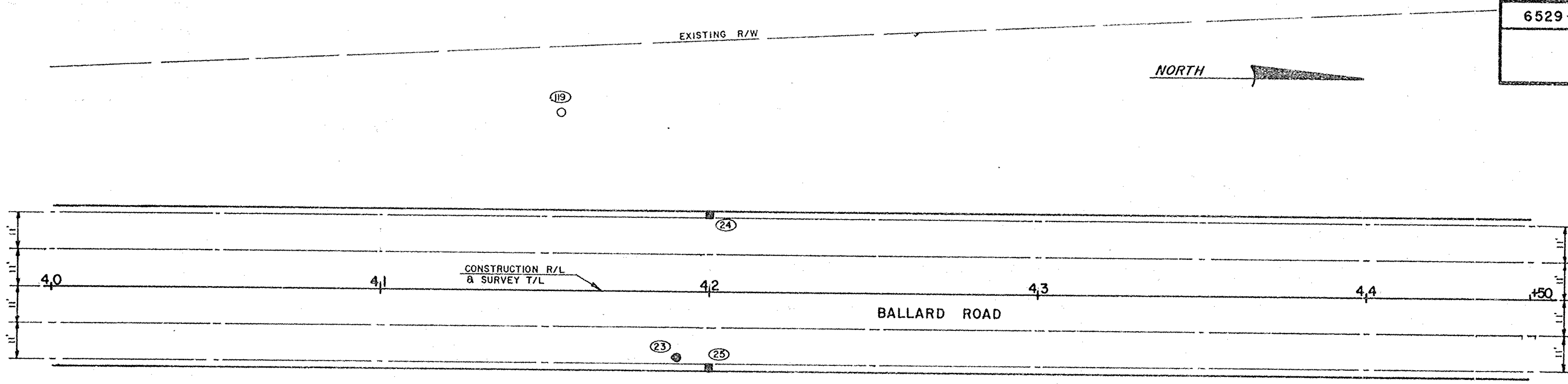


BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34

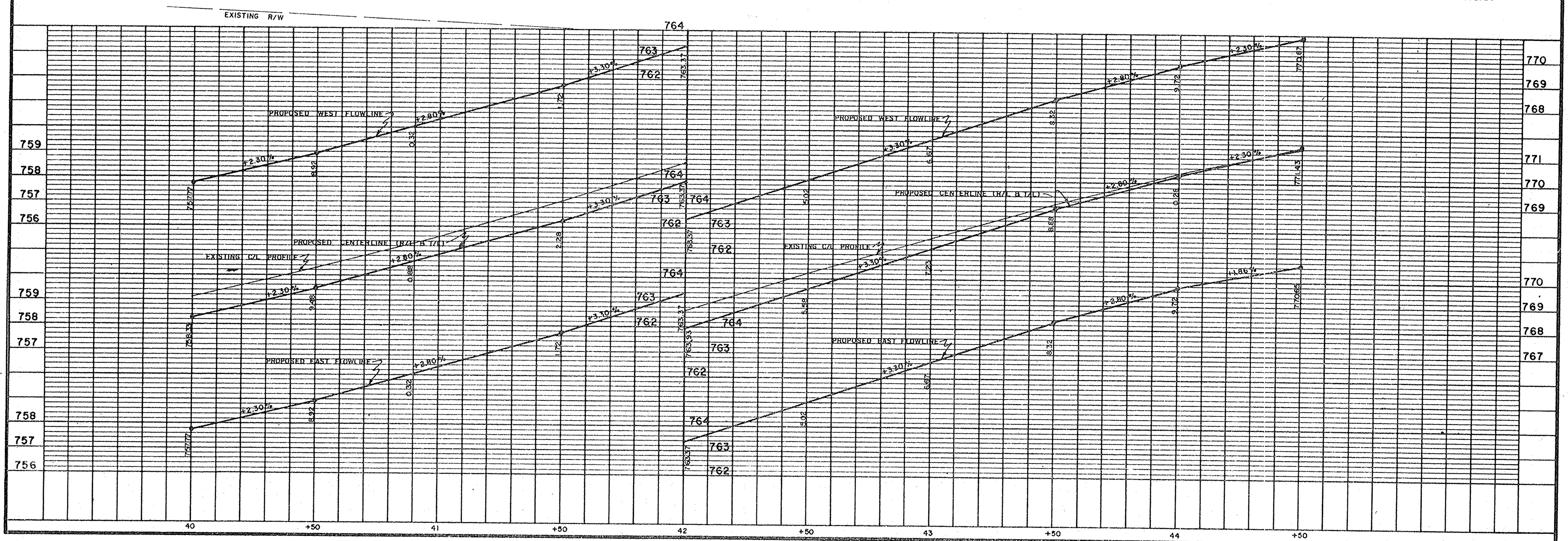


STATE PROJECT NUMBER	SHEET NO.
6529 - 2 - 71	5.6



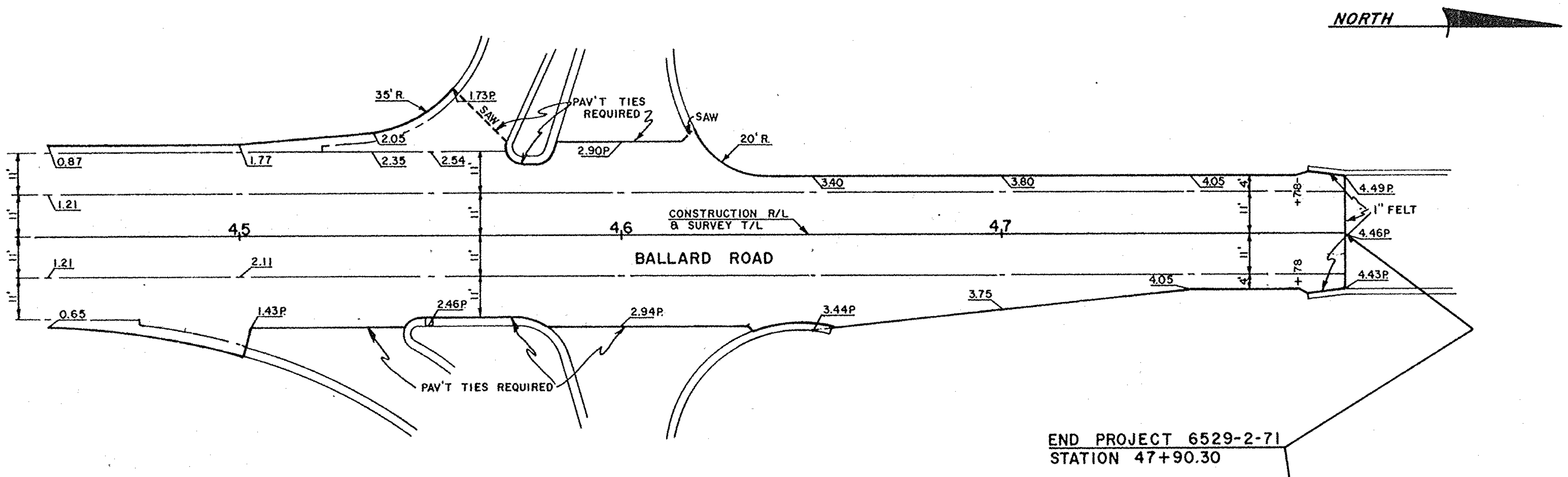
BENCH MARKS

NO	STA.	DESCRIPTION		ELEVATION
1	10+14	ARROW ON HYDRANT	60' RT	750.12
2	15+92	ARROW ON HYDRANT	32.5' LT	755.68
3	20+09	ARROW ON HYDRANT	43.5' LT	755.11
4	24+90	ARROW ON HYDRANT	32' LT	755.53
5	29+75	ARROW ON HYDRANT	32.5' LT	757.28
6	35+76	ARROW ON HYDRANT	46.5' LT	761.75
7	47+91	CHISELED X ON BOLT	15.5' RT	775.34



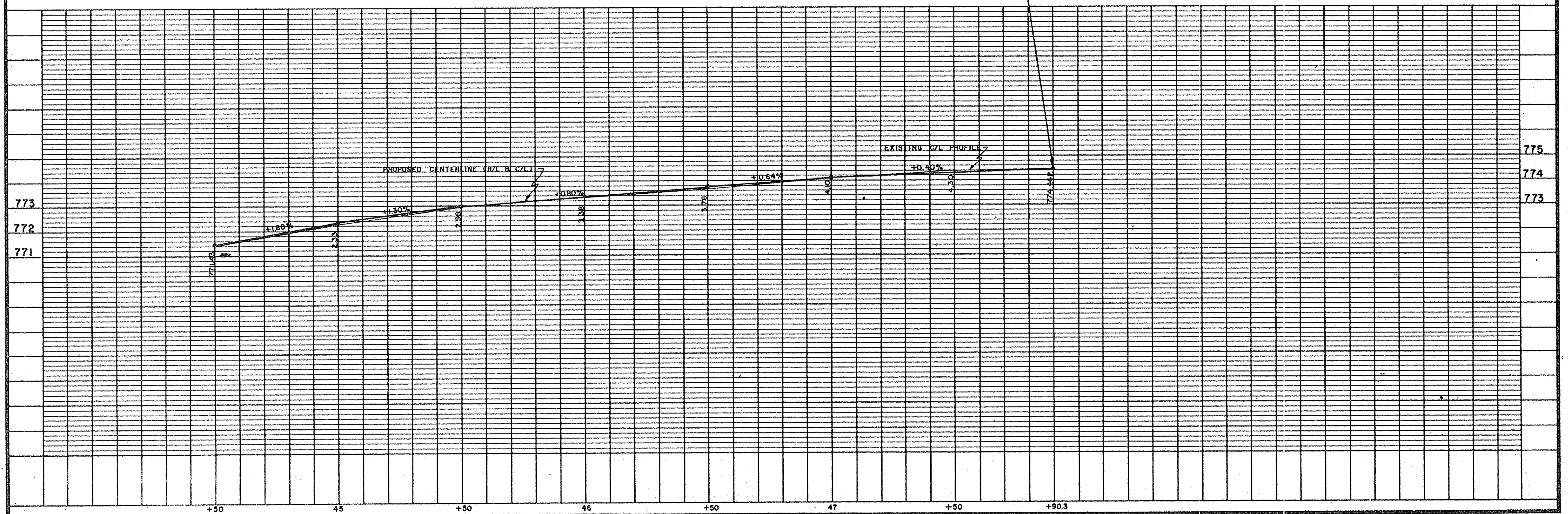
Cat. No. 2130 - D140

STATE PROJECT NUMBER	SHEET NO.
6529-2-71	57

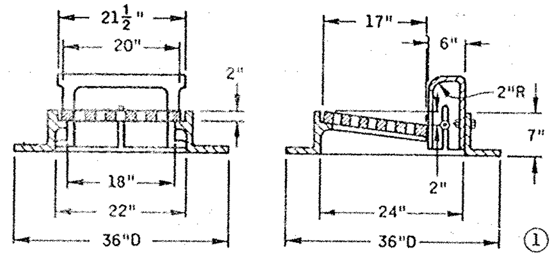


BENCH MARKS

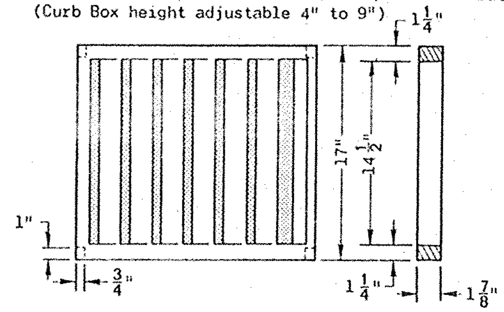
NO	STA.	DESCRIPTION	ELEVATION
1	10+14	ARROW ON HYDRANT 60' RT	750.12
2	15+92	ARROW ON HYDRANT 32.5' LT	755.68
3	20+09	ARROW ON HYDRANT 43.5' LT	755.11
4	24+90	ARROW ON HYDRANT 32' LT	755.53
5	29+75	ARROW ON HYDRANT 32.5' LT	757.28
6	35+76	ARROW ON HYDRANT 46.5' LT	761.75
7	47+91	CHISELED X ON BOLT 15.5' RT	775.3[illegible]



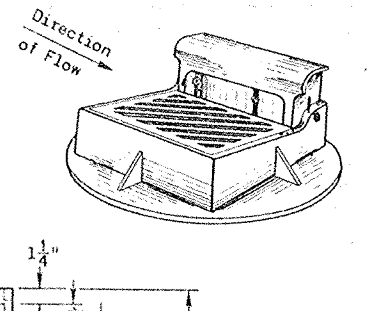
Cat. No. 2130 – 0140



Details of Curb Box, Frame and Diagonally Slotted Grate ①
(Curb Box height adjustable 4" to 9")

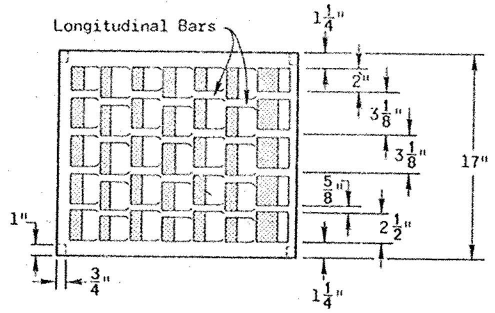


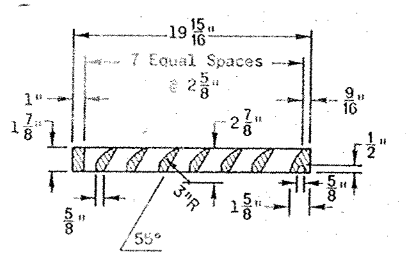
1" Diagonal Bars
with $1\frac{1}{2}$" Openings



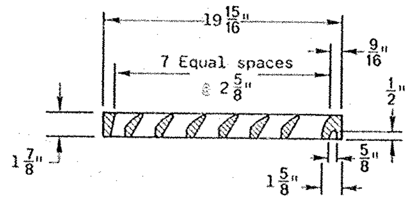
TYPE "A"

(Approximate Weight 405 lbs.)
Frame Weight 250 lbs.
Grate Weight 85 lbs.
Box Weight 70 lbs.



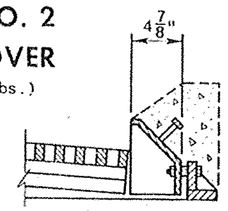


SPECIAL GRATE NO. 1
FOR TYPE "A" COVER
(Approximate Weight 70 lbs.)



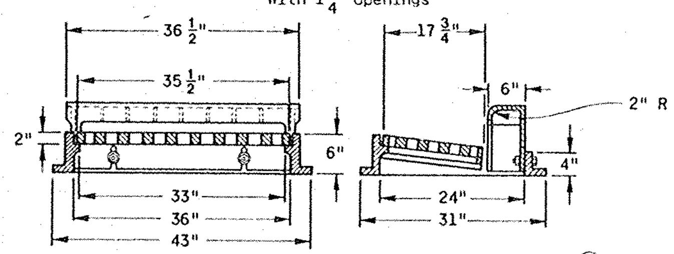
SPECIAL GRATE NO. 2
FOR TYPE "A" COVER
(Approximate Weight 84 lbs.)

① TYPES "A" AND "H" COVERS SHALL BE FURNISHED WITH DIAGONALLY SLOTTED GRATES UNLESS OTHERWISE SPECIFIED IN THE CONTRACT



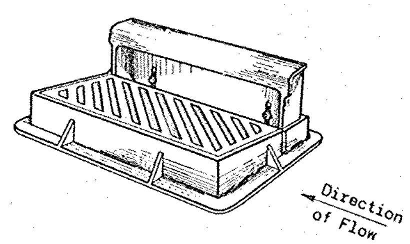
MOUNTABLE CURB BOX
FOR TYPES "A" & "H" COVERS

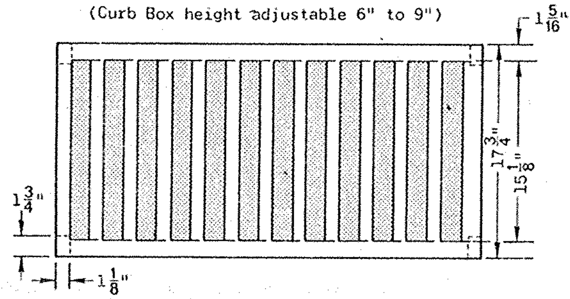
$1\frac{3}{8}$" Diagonal Bars
with $1\frac{1}{4}$" Openings

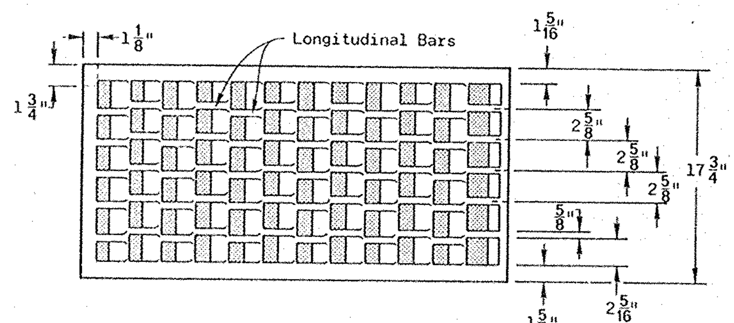


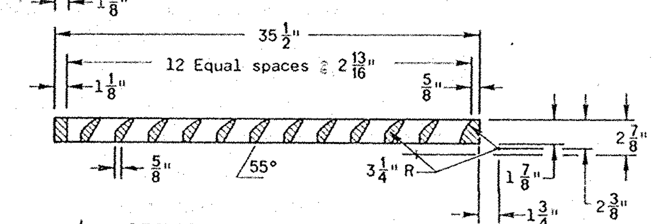
Details of Curb Box, Frame and Diagonally Slotted Grate ①
(Curb Box height adjustable 6" to 9")

TYPE "H"
(Approximate Weight 510 lbs.)
Frame Weight 220 lbs.
Grate Weight 175 lbs.
Box Weight 115 lbs.

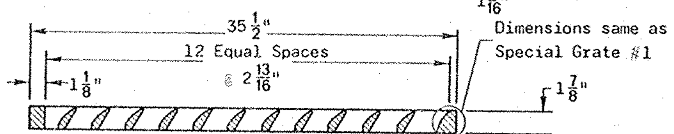




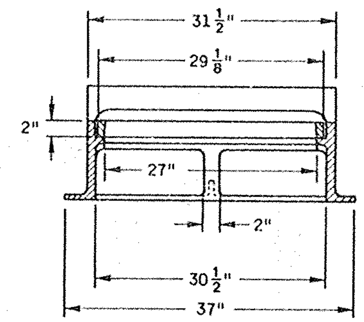


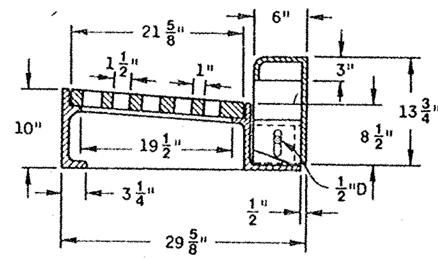


SPECIAL GRATE NO. 1
FOR TYPE "H" COVER
(Approximate Weight 140 lbs.)

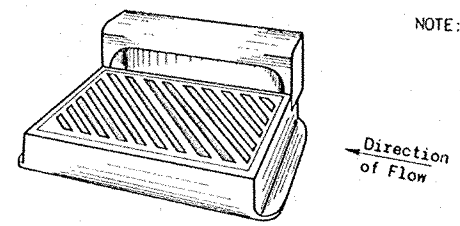


SPECIAL GRATE NO. 2
FOR TYPE "H" COVER
(Approximate Weight 165 lbs.)



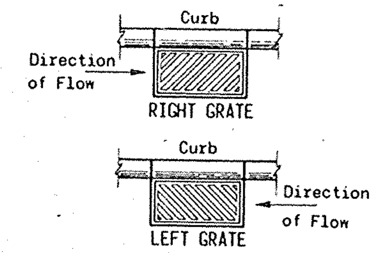


NOTE: Curb Box height adjustable 6" to 9"



TYPE "WM"
(Approximate Weight 670 lbs.)
Frame Weight 350 lbs.
Grate Weight 185 lbs.
Box Weight 135 lbs.

Diagonal Slots shall be oriented to the direction of flow. RIGHT and LEFT grates or grates that are manufactured to be reversible and can be used as either RIGHT or LEFT grates shall be furnished depending on direction of flow (See sketch below)



GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

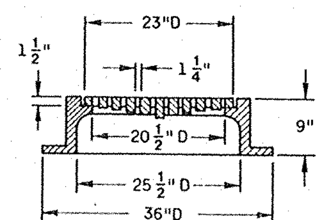
Detail drawings for proposed alternate designs for Catch Basin, Manhole and Inlet Covers shall be submitted to the Engineer for approval providing that such alternate designs make provision for equivalent capacity and strength.

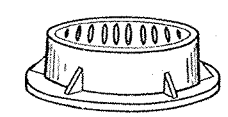
All Catch Basin, Manhole and Inlet Covers which are placed in vehicular traffic areas shall be "Non-Rocking" type.

Adjustment of the cover to grade may be accomplished by the use of mortar and brick, or by precast concrete grade rings. Precast concrete grade rings shall conform to the specifications for Precast Reinforced Concrete Manhole Sections, AASHTO Designation M199, except that when such units are wet cast, they shall be made with air-entraining portland cement. Maximum adjustment shall be 8 inches.

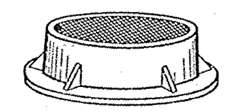
The actual weight of covers may vary within 5 percent, plus or minus, of the approximate weight.

CAUTION: DO NOT USE GRATES WITH LONGITUDINAL SLOTS WHERE BICYCLE TRAFFIC IS PERMITTED.





TYPE "C"
Slotted Grate



TYPE "J"
Solid Cover

TYPE "C" - TYPE "J"

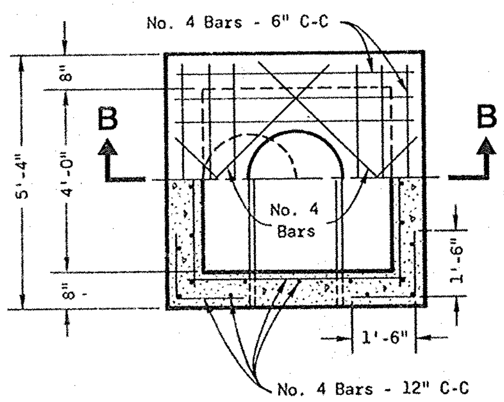
Frame Weight	250 lbs.
Slotted Grate Weight	125 lbs.
Solid Cover Weight	150 lbs.

CATCH BASIN
MANHOLE AND
INLET COVERS

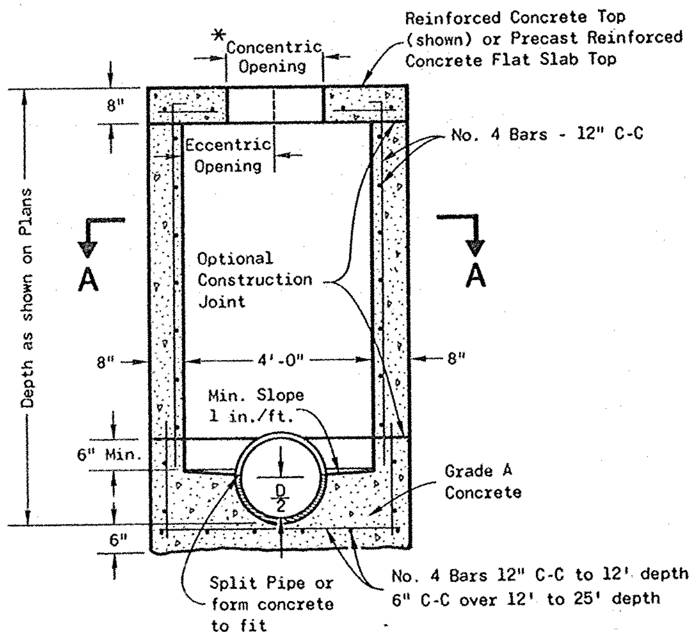
State of Wisconsin
Department of Transportation
Division of Highways

APPROVED
11-23-77
DATE
SUPERVISING DEVELOPMENT ENGINEER
APPROVED
11-25-77
DATE
CHIEF OF FACILITIES DEVELOPMENT
FHWA

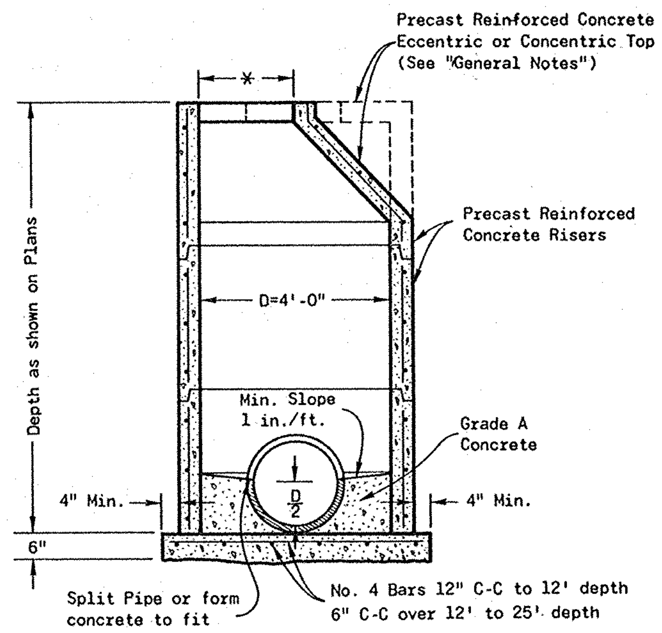
S.D.D. 8 A5-3a



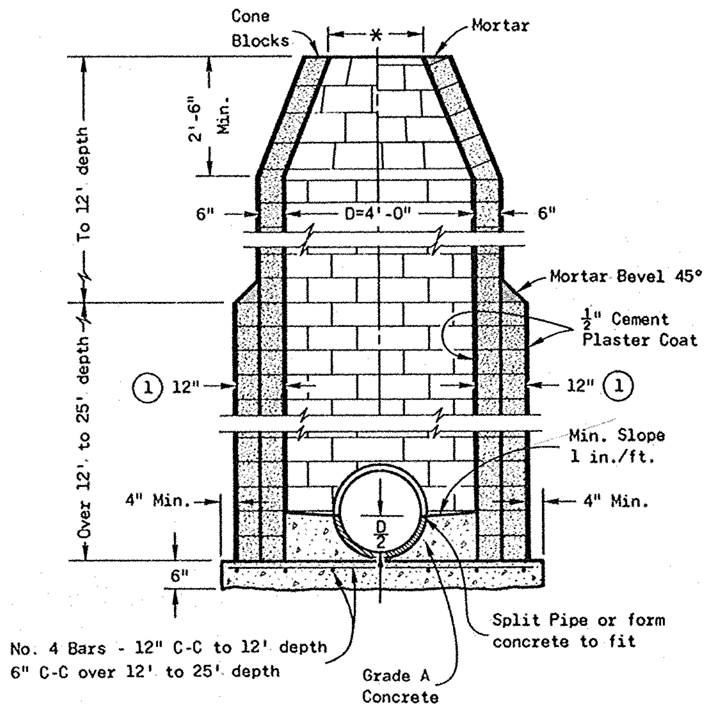
HALF SECTION A–A



SECTION B–B
REINFORCED CONCRETE



PRECAST REINFORCED CONCRETE



CONCRETE BLOCK

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Detailed drawings for proposed alternate designs for underground drainage structures shall be submitted to the Engineer for approval providing that such alternate designs make provision for equivalent capacity and strength.

All drainage structures are designated on the plans as "Manholes 1-C", "Catch Basins 1-B", "Inlets 3-H", etc. The first digit designates the masonry portion of the structure, and the following letter designates the type of cover to be used to comprise the complete unit.

Precast Reinforced Bases shall be placed on a bed of material at least 6 inches in depth, which meets the requirements for Granular Backfill. This bedding shall be compacted and provide uniform support for the entire area of the base.

Precast Reinforced Concrete Cone Tops (Eccentric or Concentric) may be used on concrete block structures. The Cone Tops shall be installed on a bed of mortar.

Eccentric Cone Tops may be used on all structures, and Concentric Cone Tops shall be used only on structures 5 feet or less in depth, unless otherwise directed by the Engineer.

Steps meeting the following requirements shall be installed in all structures over 5 feet in depth: 16 inch C-C maximum spacing; project a minimum clear distance of 4 inches from the wall at the point of embedment; minimum length of 10 inches; minimum wall embedment of 3 inches; and be capable of supporting a concentrated load of 300 lbs. Ferrous metal steps not painted or treated to resist corrosion shall have a minimum cross sectional dimension of 1 inch.

Solid Aluminum steps shall have a minimum cross sectional dimension of 0.75 inch. Aluminum surfaces to be embedded in concrete shall be given one coat of suitable quality paint, such as zinc chromate primer conforming to Federal Specification TT-P-645 or equivalent. Steps of approved Polyproplene plastic coated reinforcement bar will be acceptable.

All bar steel reinforcement shall be embedded 2 inches clear unless otherwise shown or noted.

Precast Reinforced Concrete Risers may be placed with tongue up or down.

All Precast Inlet Units shall conform to the pertinent requirements of AASHTO Designation M 199.

* Use 2'-0" diameter opening with Type "C", "L" and "J" covers, or 3'-0" diameter with Type "K" and "M" covers.

(1) 2 courses 6" block.

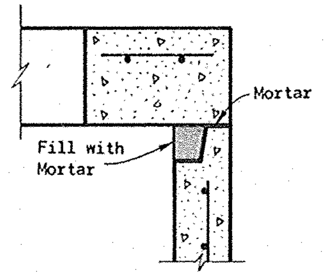
MANHOLES TYPE 1

MANHOLES TYPE 1

State of Wisconsin
Department of Transportation

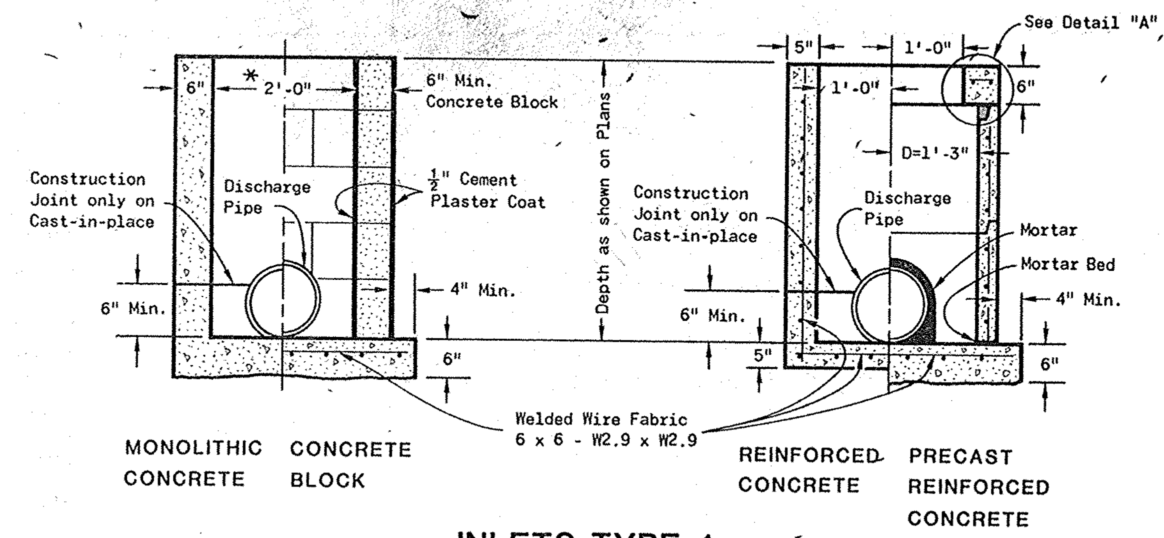
APPROVED
4-13-82
DATE
CHIEF DESIGN ENGINEER
FHWA

S.D.D. 8 B 6-3



DETAIL "A"

*Selection of square or circular design will be based on the pipe sizes and the Inlet Cover being utilized.



INLETS TYPE 1

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Detailed drawings for proposed alternate designs for underground drainage structures shall be submitted to the Engineer for approval providing that such alternate designs make provision for equivalent capacity and strength.

All Precast Inlet units shall conform to the pertinent requirements of AASHTO Designation M 199.

All drainage structures are designated on the plans as "Manholes 1-C", "Catch Basins 1-B", "Inlets 3-H", etc. The first digit designates the masonry portion of the structure, and the following letter designates the type of cover to be used to comprise the complete unit.

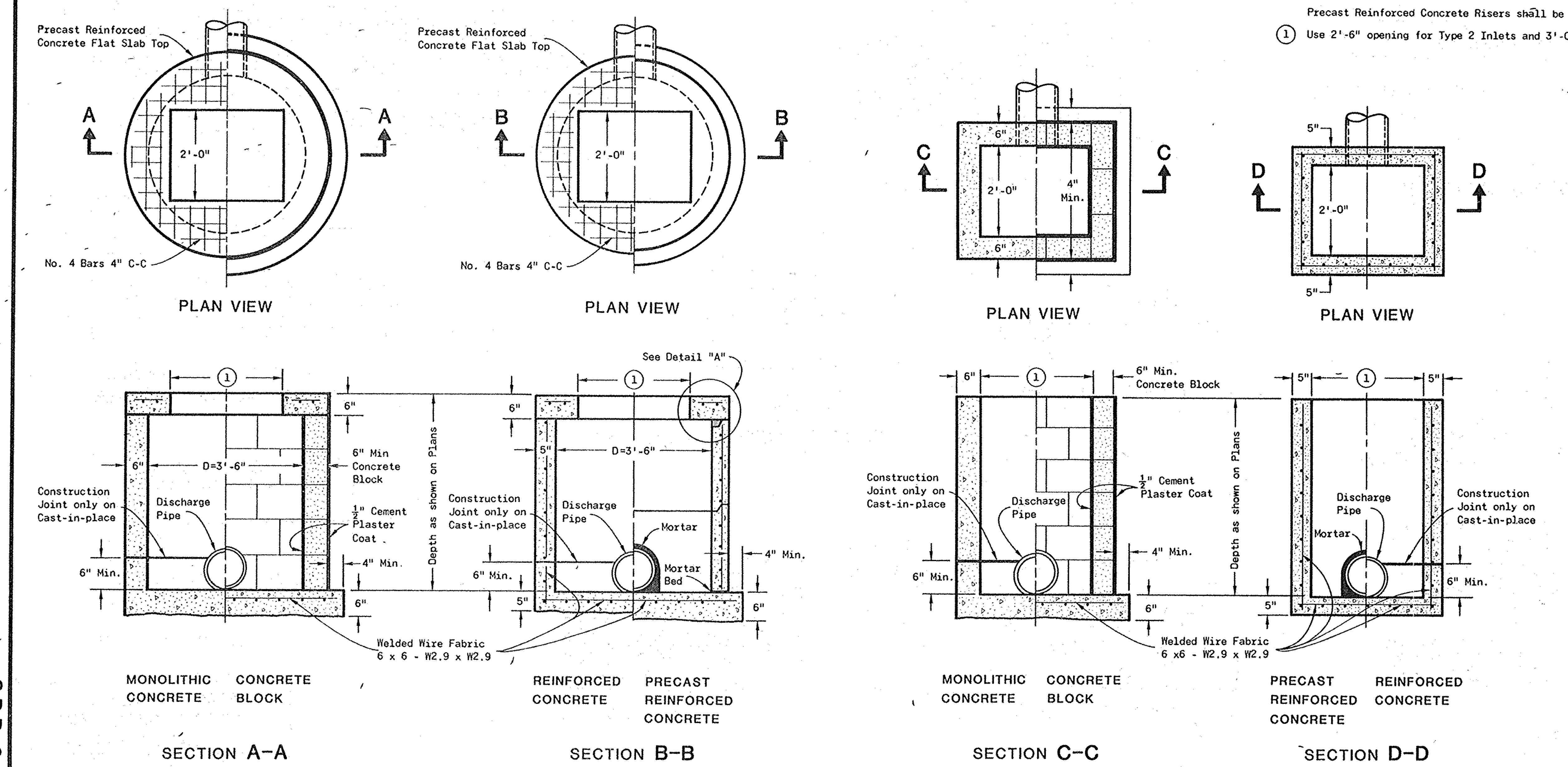
Precast Reinforced Bases shall be placed on a bed of material at least 6 inches in depth, which meets the requirements for Granular Backfill. This bedding shall be compacted and provide uniform support for the entire area of the base.

Precast Reinforced Concrete Flat Slab Tops may be used on the structures. The Tops shall be installed on a bed of mortar.

All Bar Steel reinforcement shall be embedded 2 inches clear unless otherwise shown or noted.

Precast Reinforced Concrete Risers shall be placed with tongue down.

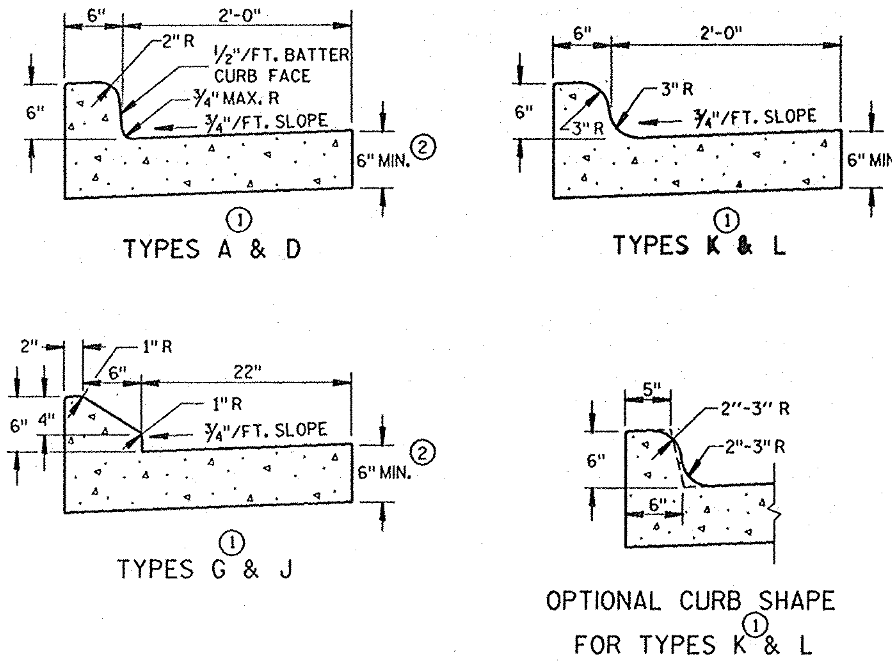
(1) Use 2'-6" opening for Type 2 Inlets and 3'-0" opening for Type 3 Inlets.



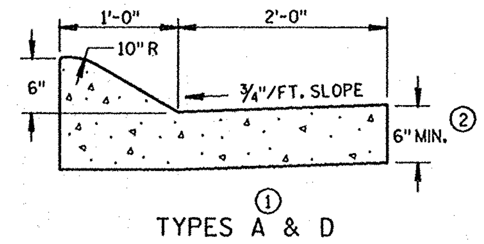
INLETS TYPE 2 & 3

INLETS TYPE 1, 2 & 3
State of Wisconsin Department of Transportation
APPROVED 4-13-82 DATE — CHIEF DESIGN ENGINEER FHWA

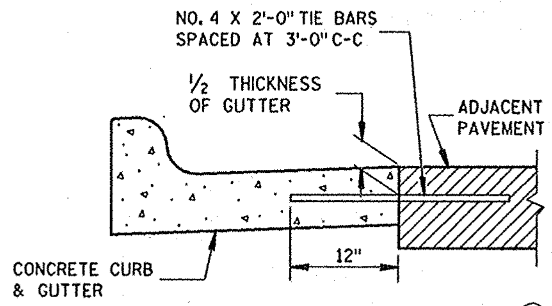
S.D.D. 8 C 1-4



CONCRETE CURB & GUTTER 30"



CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SEALANT IS NOT REQUIRED IN THE JOINTS OF CONCRETE CURB OR CONCRETE CURB & GUTTER EXCEPT AS REQUIRED FOR INTEGRAL GUTTER.

PAVEMENT TIES ARE REQUIRED, WHEN INCLUDED IN THE CONTRACT, WHERE CONCRETE CURB, CONCRETE CURB AND GUTTER OR CONCRETE PAVEMENT IS PLACED ADJACENT TO EXISTING CONCRETE.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. TIE BARS AND A LONGITUDINAL CONSTRUCTION JOINT ARE NOT REQUIRED WITH THIS ALTERNATE.

PAVEMENT JOINTS SHALL BE EXTENDED THROUGH INTEGRAL CURB & GUTTER. JOINTS IN INTEGRAL GUTTER SHALL HAVE THE SAME DIMENSIONS AS THE JOINTS IN THE ADJACENT PAVEMENT. JOINTS IN INTEGRAL CURB SHALL BE ⅛" WIDE.

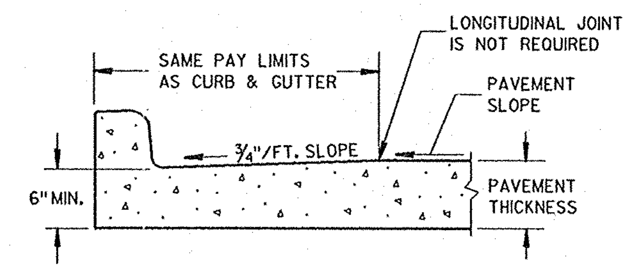
JOINTS IN INTEGRAL CURB & GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME SEALANT SPECIFIED FOR THE PAVEMENT JOINT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB & GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE TWO FEET BEHIND THE BACK OF CURBS.

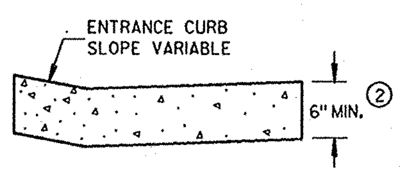
① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G AND K.

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

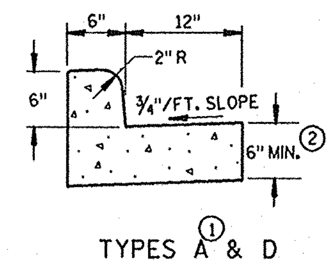
③ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATIONS WILL BE SHOWN ELSEWHERE IN THE PLAN.



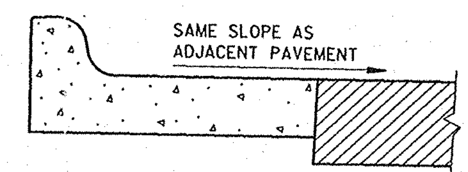
PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



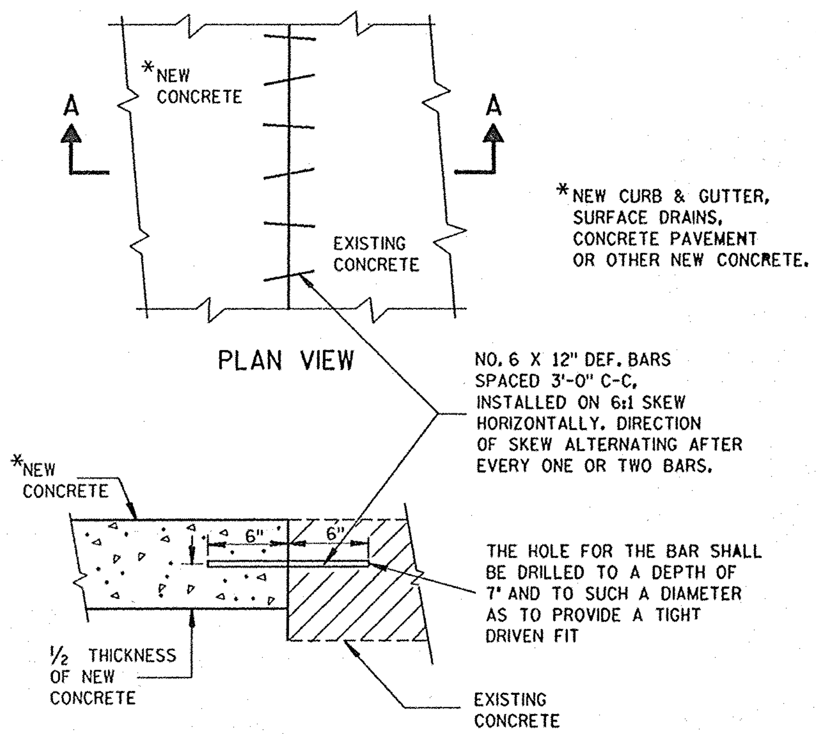
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



CONCRETE CURB & GUTTER 18"



REVERSE SLOPE GUTTER ③
(TYPICAL FOR ALL CURB & GUTTER TYPES)

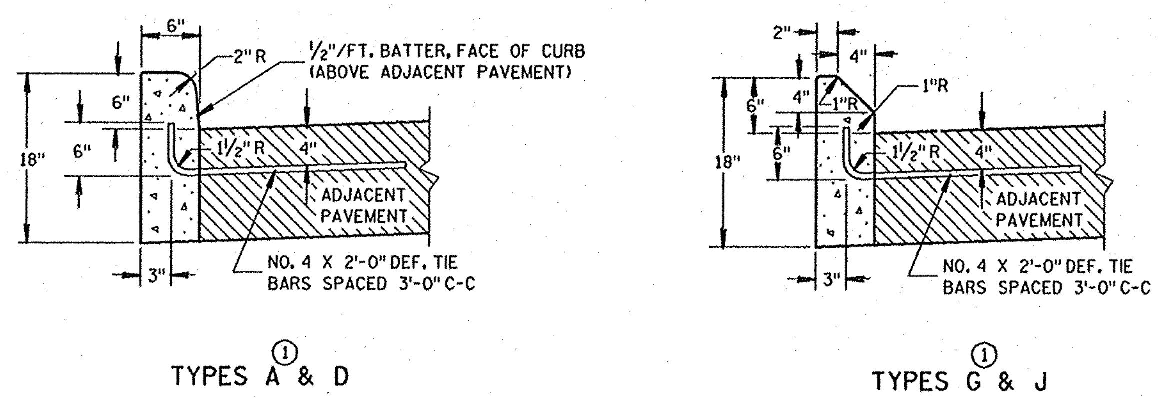


*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

NO. 6 X 12" DEF. BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.

THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT

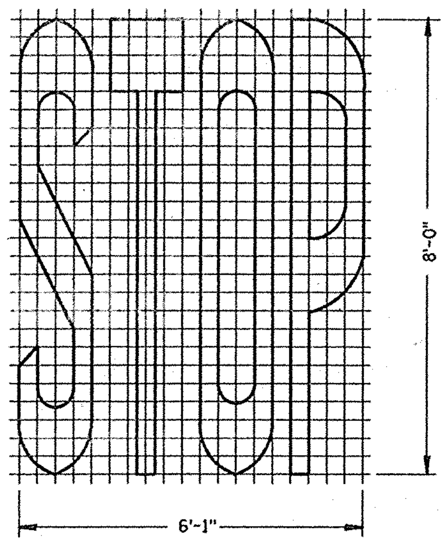
SECTION A-A
PAVEMENT TIES

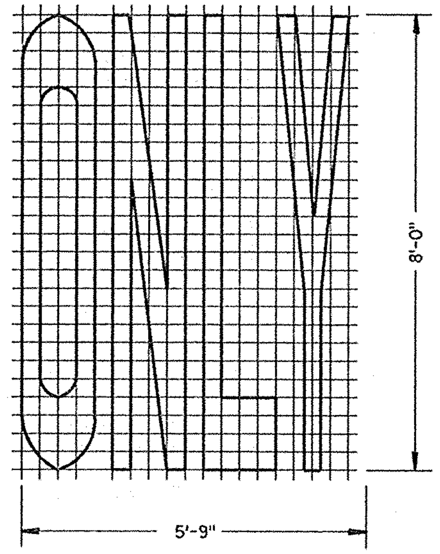


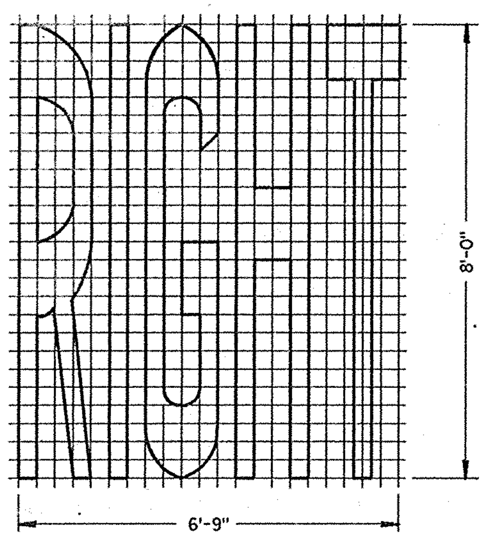
CONCRETE CURB

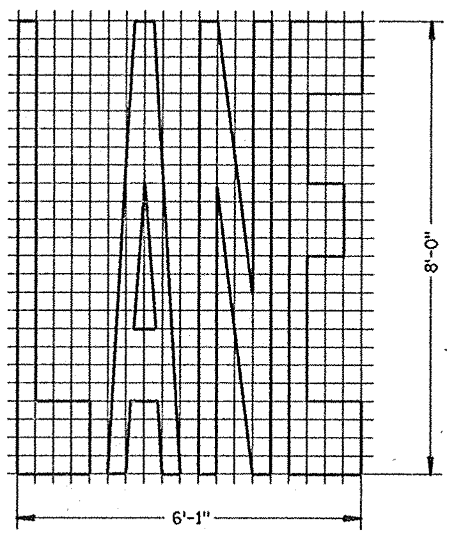
CONCRETE CURB, CONCRETE CURB & GUTTER AND PAVEMENT TIES
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 10-23-86 DATE — STATE DESIGN ENGINEER FOR HWYS FHWA

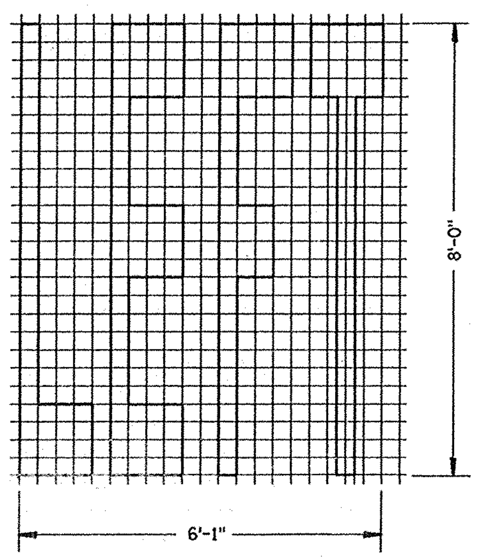
S.D.D. 8 D 1-11

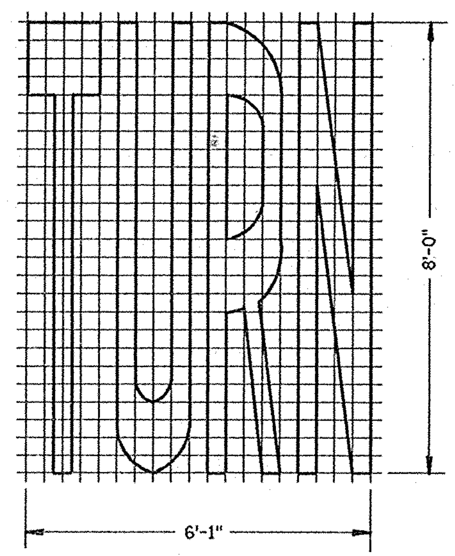


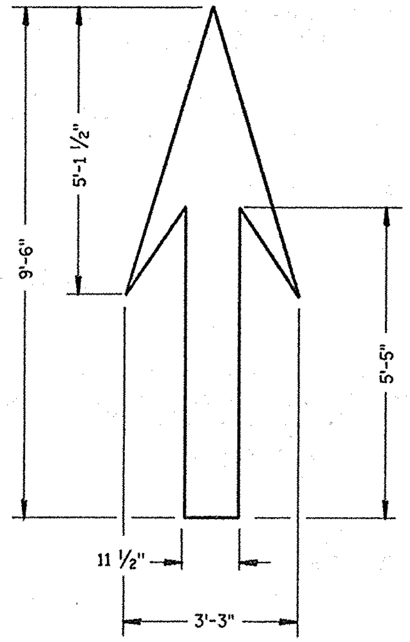




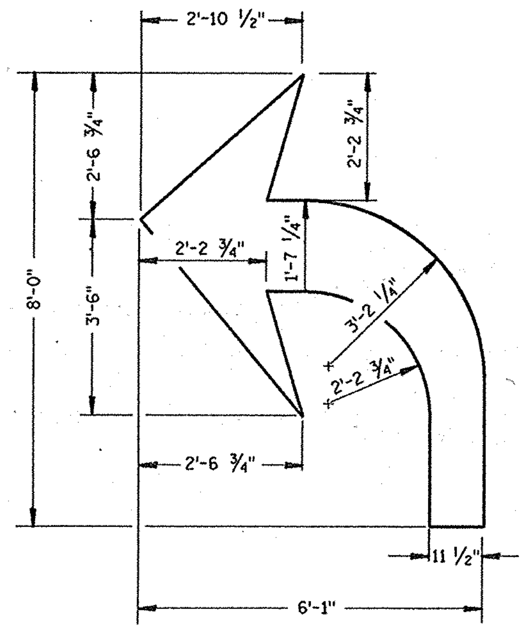




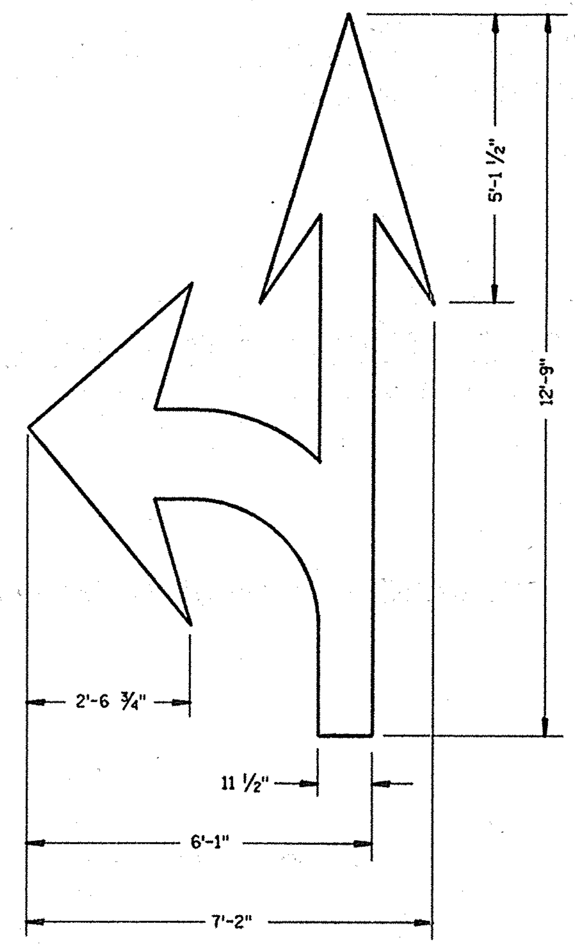




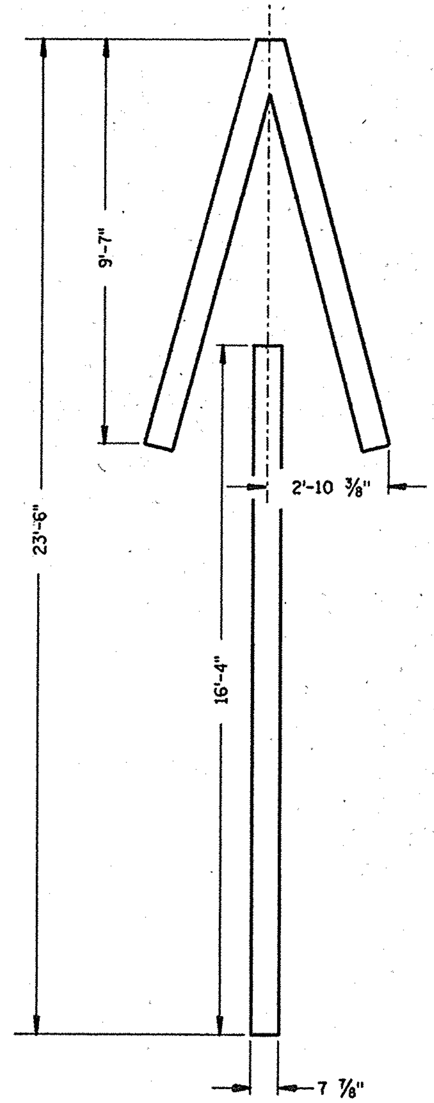
TYPE 1



TYPE 2



TYPE 3



TYPE 4

GENERAL NOTES

DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

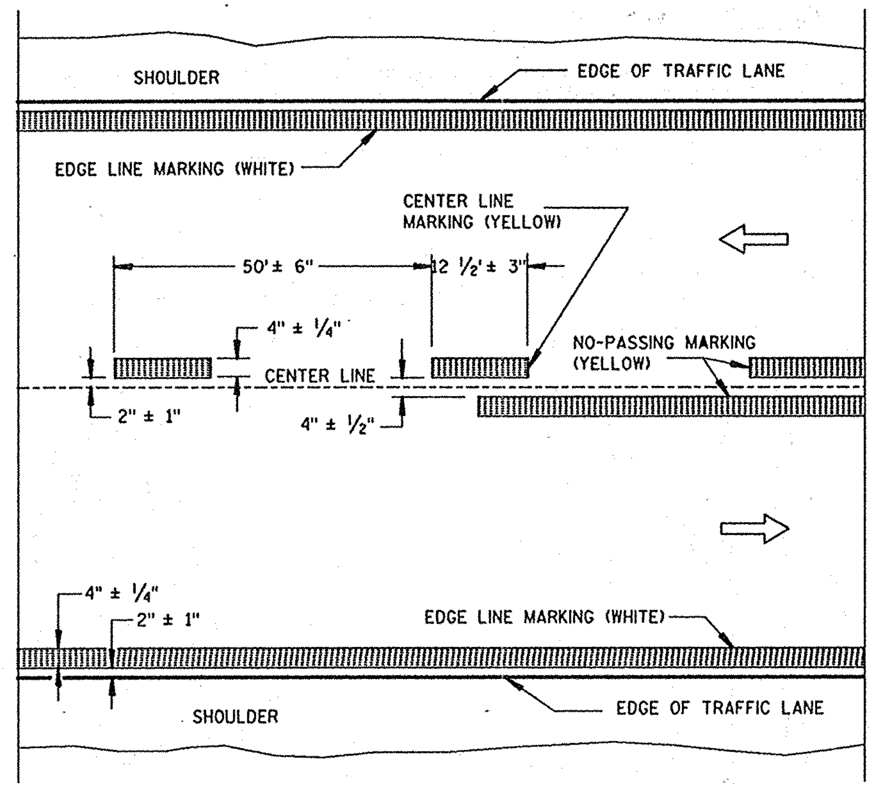
ALL LETTERS AND ARROWS SHALL BE WHITE AND REFLECTORIZED.

PAVEMENT MARKING SYMBOLS

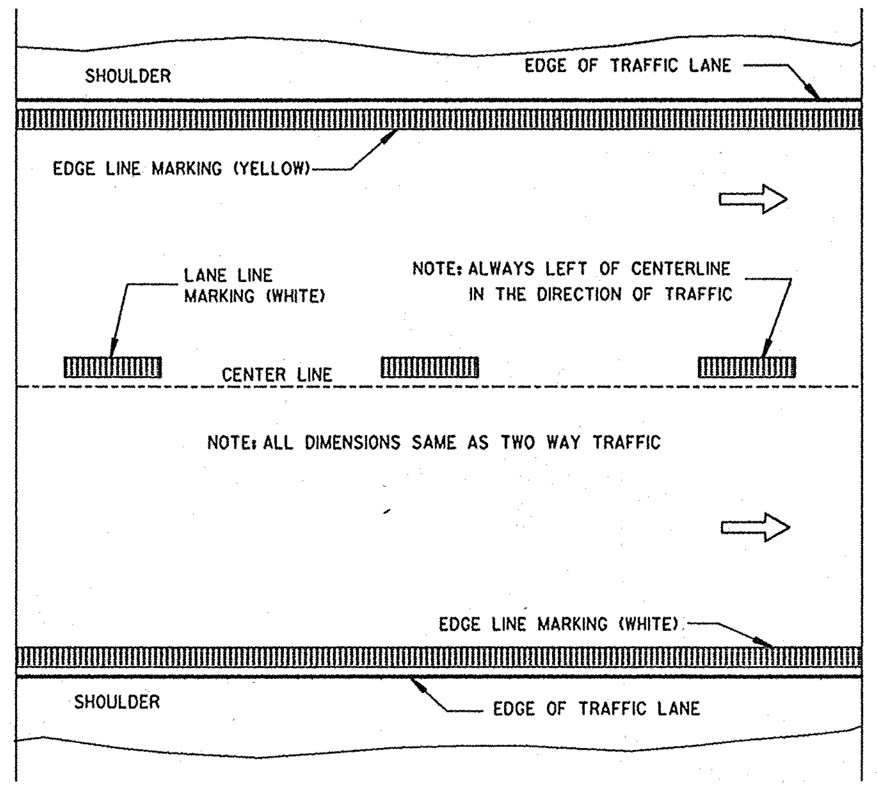
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-23-86
DATE
STATE TRAFFIC ENGINEER FOR HWYS
FHWA

S.D.D. 15 C 7-1

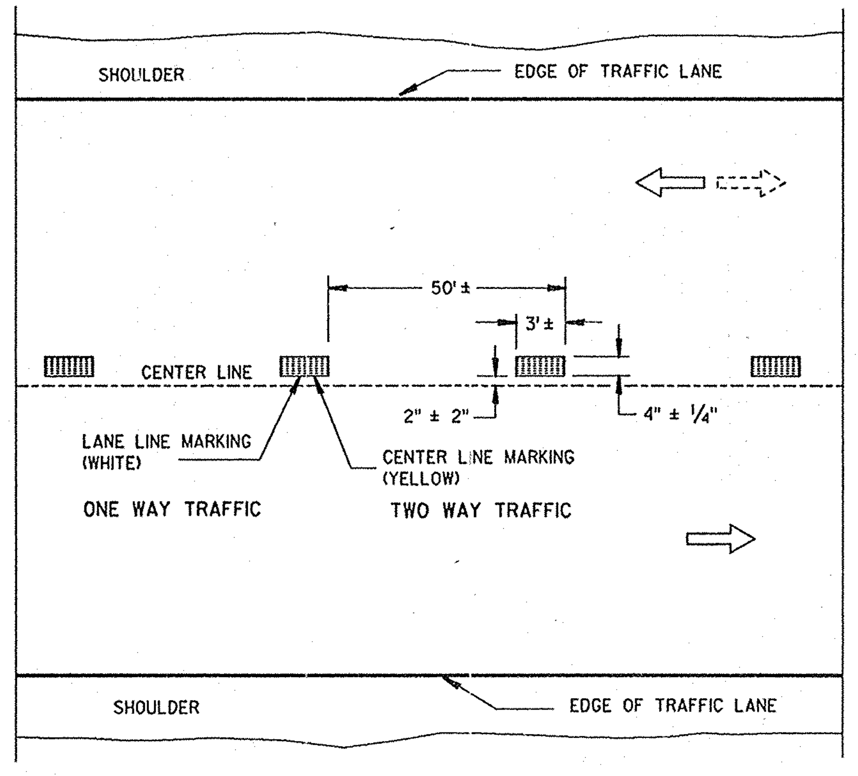


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TEMPORARY PAVEMENT MARKING

GENERAL NOTES

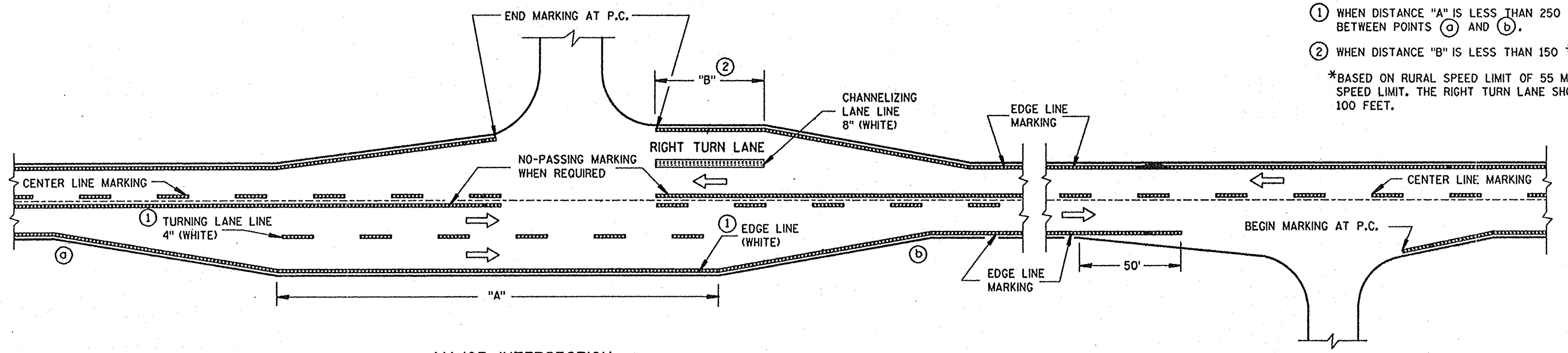
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

(1) WHEN DISTANCE "A" IS LESS THAN 250 * FEET, OMIT TURNING LANE MARKING AND EDGE LINE BETWEEN POINTS (a) AND (b).

(2) WHEN DISTANCE "B" IS LESS THAN 150 * FEET, OMIT CHANNELIZING LANE LINE.

*BASED ON RURAL SPEED LIMIT OF 55 MPH. REDUCE VALUES IN PROPORTION TO POSTED SPEED LIMIT. THE RIGHT TURN LANE SHOULD HAVE A DESIRABLE MINIMUM LENGTH OF 100 FEET.



MAJOR INTERSECTION

MINOR INTERSECTION

TYPICAL PAVEMENT MARKING FOR RURAL INTERSECTIONS

PAVEMENT MARKING

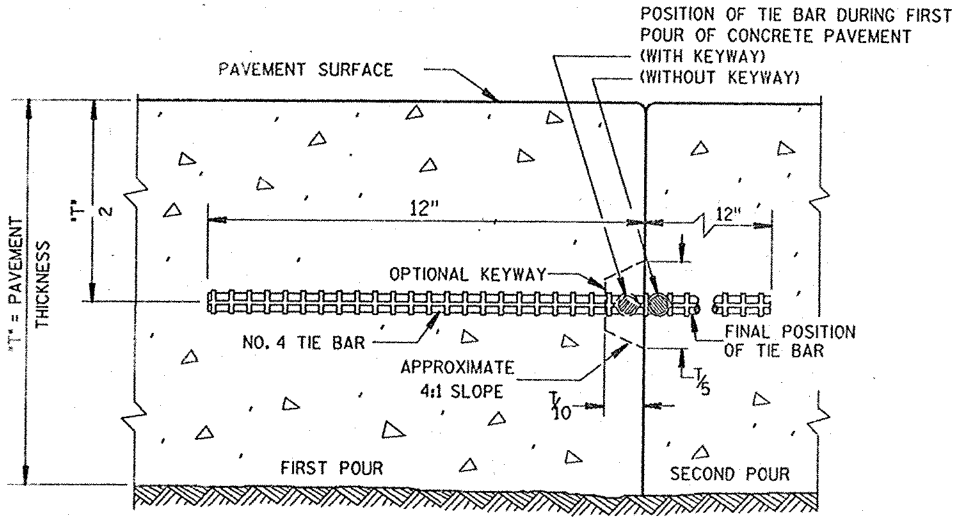
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-23-86
DATE

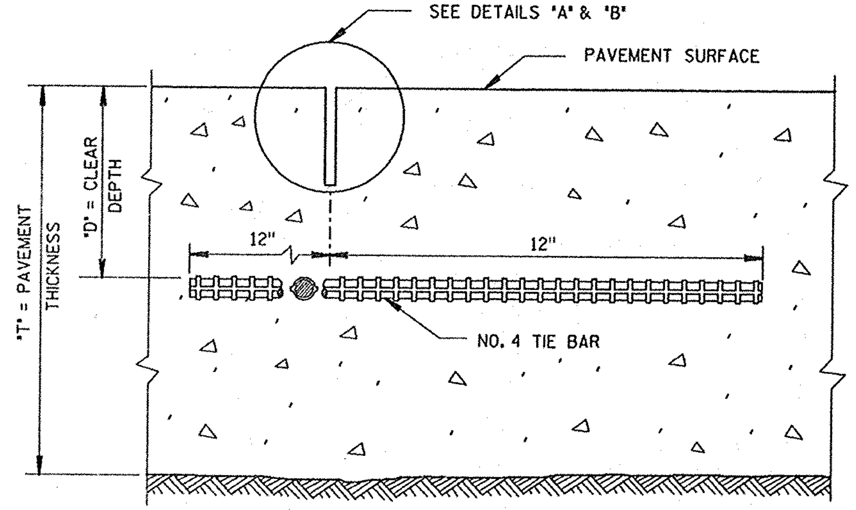
STATE TRAFFIC ENGINEER FOR HWYS

FHWA

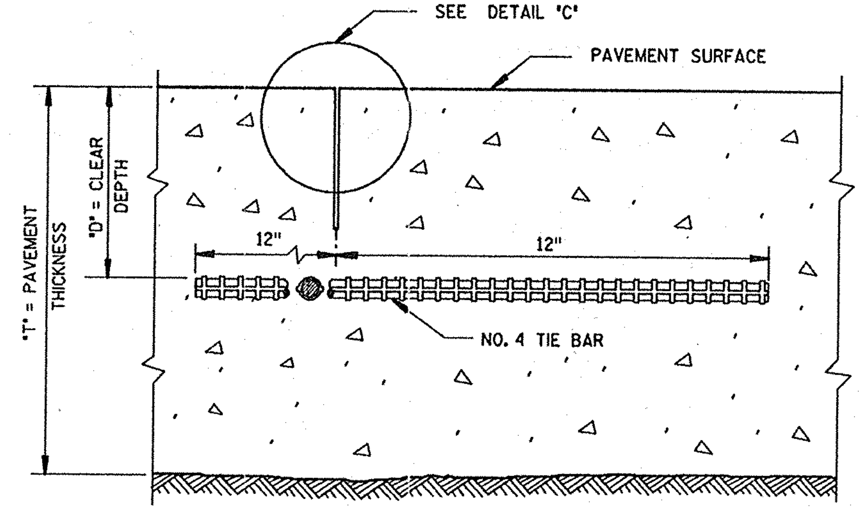
S.D.D. 15 C 8-1



CONSTRUCTION JOINT



SAWED JOINT



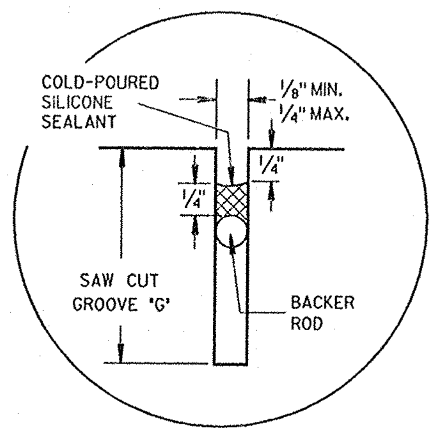
RIBBON JOINT

GENERAL NOTES

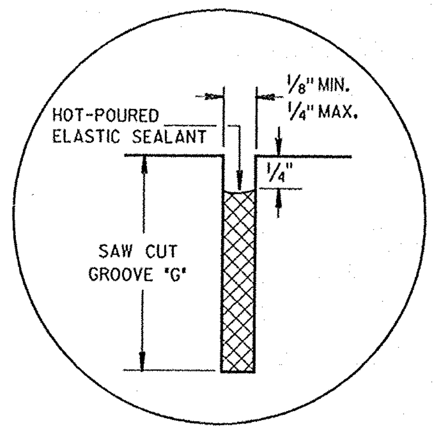
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAILS 'A', 'B' AND 'C' ARE EQUAL ALTERNATES UNLESS OTHERWISE SPECIFIED ELSEWHERE IN THE CONTRACT.

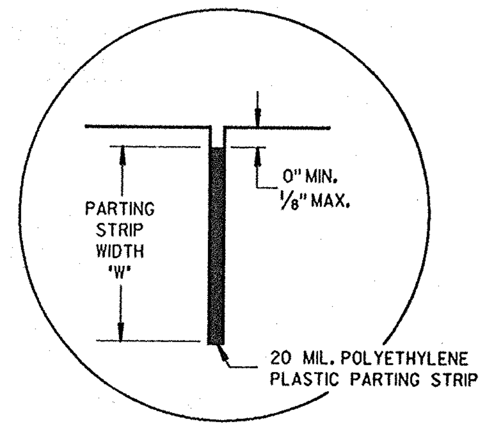
TIE BARS AND PAVEMENT TIES SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



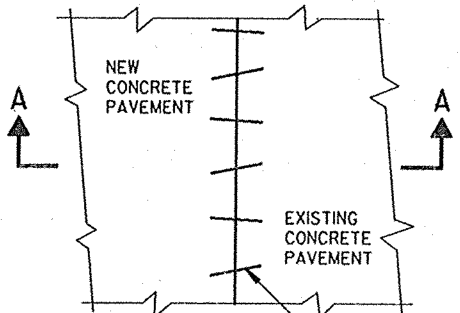
DETAIL "A"



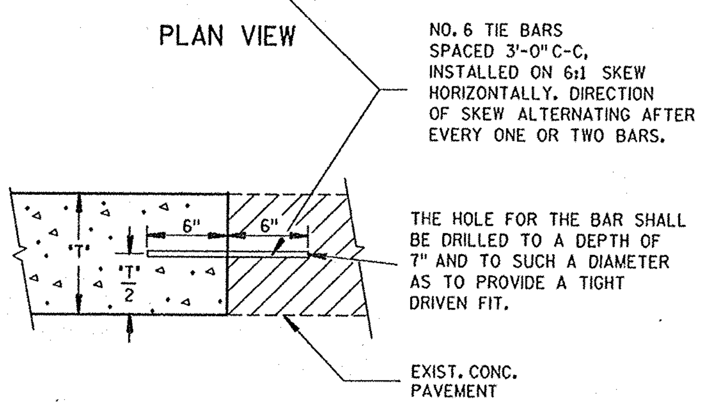
DETAIL "B"



DETAIL "C"

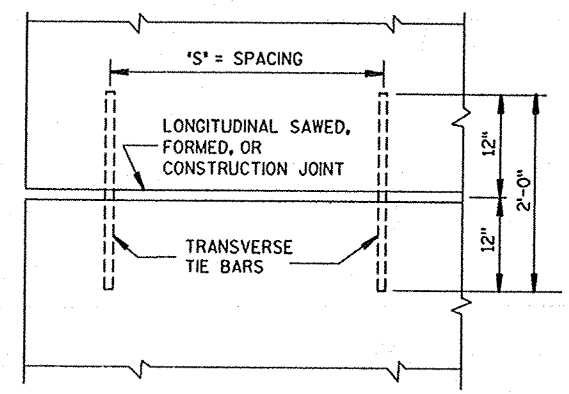


PLAN VIEW



SECTION A-A
PAVEMENT TIES

PAVEMENT THICKNESS "T"	CLEAR DEPTH "D"	SAW CUT GROOVE "G"	MAXIMUM TIE BAR SPACING "S"	PARTING STRIP WIDTH "W"
6"	3"±1/2"	1 1/2"	30"	2"
7"	3 1/4"±1"	1 3/4"	30"	2 1/4"
8"	3 3/4"±1"	2"	30"	2 1/2"
9"	4 1/4"±1"	2 1/4"	30"	3"
10"	4 3/4"±1"	2 1/2"	30"	3 1/4"
11"	5 1/4"±1"	2 3/4"	24"	3 3/4"
12"	5 3/4"±1"	3"	24"	4"



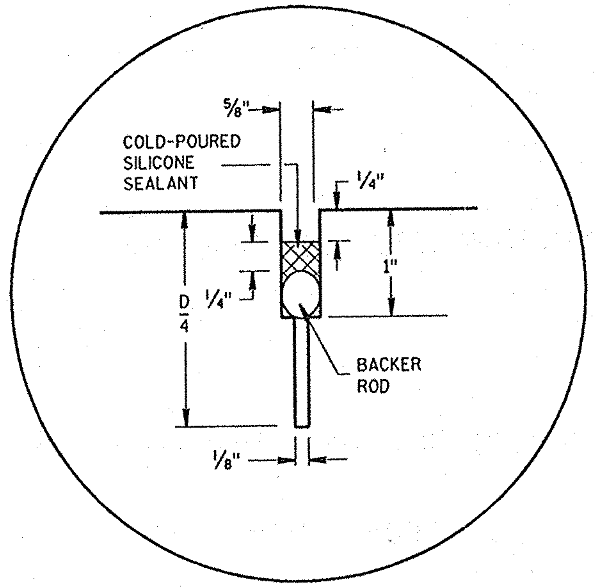
PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT
LONGITUDINAL JOINTS
AND PAVEMENT TIES

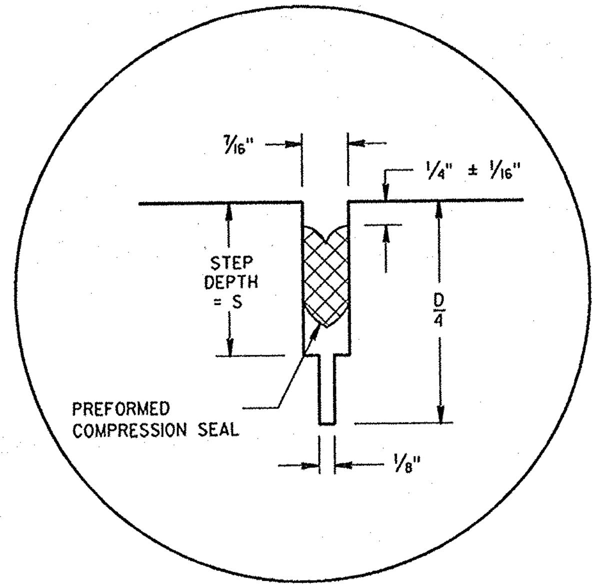
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3-7-86
DATE
STATE DESIGN ENGINEER FOR HWYS
FHWA

S.D.D. 13 C 1-7



DETAIL "A"
COLD-POURED SILICONE TYPE
JOINT SEALER



DETAIL "B"
PREFORMED ELASTOMERIC
COMPRESSION JOINT SEAL

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

CONTRACTION JOINTS

CONTRACTION JOINTS SHALL BE LOCATED AT A UNIFORM SPACING OF 20'(±1') AND SHALL BE SKEWED RHF. EXCEPTIONS SUCH AS CONTRACTION JOINTS THROUGH INTERSECTIONS, SHALL BE AS DIRECTED BY THE ENGINEER.

THE FIRST SAWCUT SHALL BE TO THE DEPTH OF D/4 AND THE WIDTH OF 1/8 INCH.

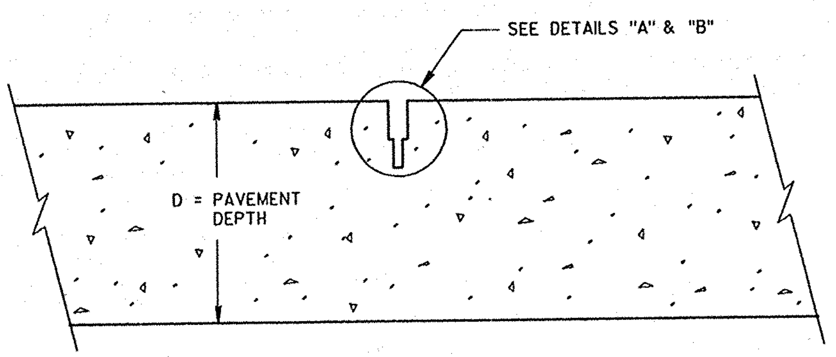
DETAILS "A" AND "B" ARE EQUAL ALTERNATES.

CONSTRUCTION JOINTS

CONSTRUCTION JOINTS SHALL BE LOCATED A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND MAY BE CONSTRUCTED EITHER PARALLEL TO CONTRACTION JOINTS OR AT 90° TO THE CENTERLINE.

TIE BARS MAY BE INSERTED THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN POURED.

TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

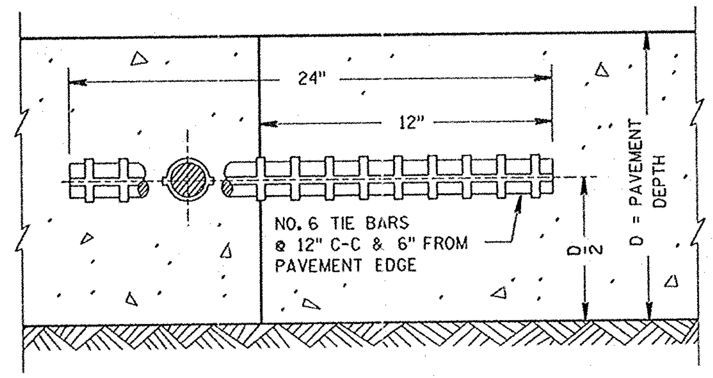


CONTRACTION JOINT

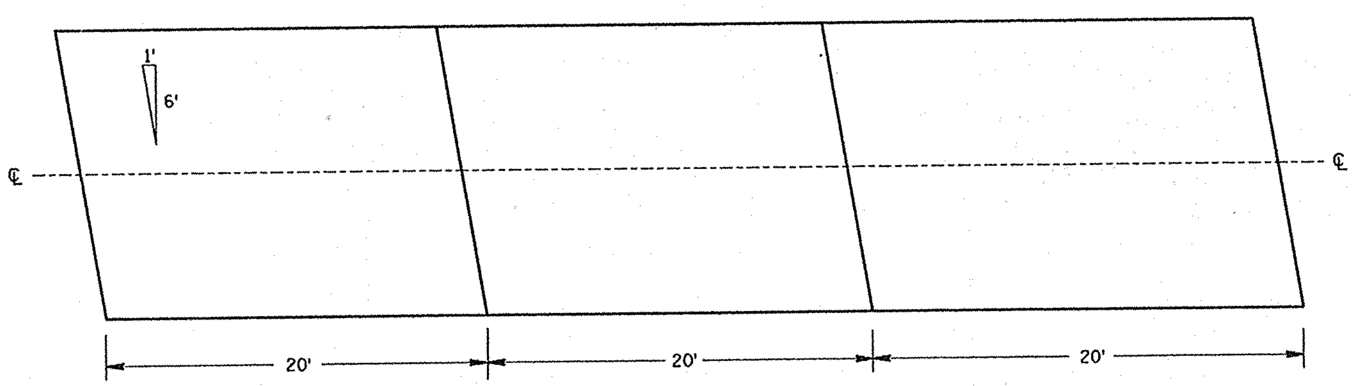
SEAL DIMENSIONS (UNCOMPRESSED)		STEP DEPTH
WIDTH ①	HEIGHT ②	S (MIN.)
13/16"	15/16"	1 7/16"

① TOLERANCE PLUS 1/16 INCH AND MINUS ZERO INCH.

② SEALS WITH GREATER HEIGHTS MAY BE USED. STEP DEPTH SHALL THEN BE INCREASED AN EQUAL AMOUNT.



CONSTRUCTION JOINT



CONTRACTION JOINT LOCATIONS

TRANSVERSE JOINTS IN
NON-REINFORCED CONCRETE PAVEMENT
(20' SKEWED TRANSVERSE JOINTS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

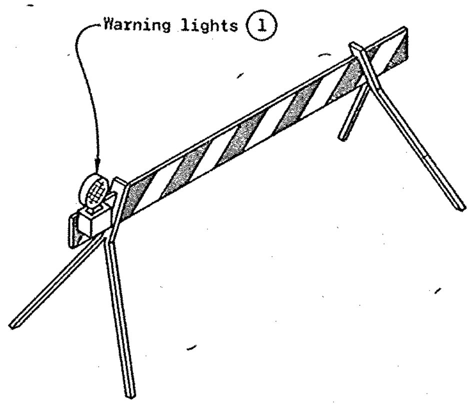
APPROVED
5-28-86
DATE
STATE DESIGN ENGINEER FOR HWYS
FHWA

S.D.D. 13 C 3-6

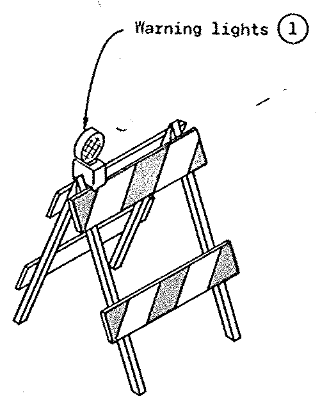
TABLE OF BARRICADE CHARACTERISTICS

BARRICADE TYPE	I	II	III
Height	3' Minimum		5' Minimum
*Rail Width	8" Minimum to 12" Maximum		
Rail Length	2' Minimum		4' Minimum
**Stripe Width	6" at 45° Angle		
Stripe Colors	Reflectorized Orange & White		

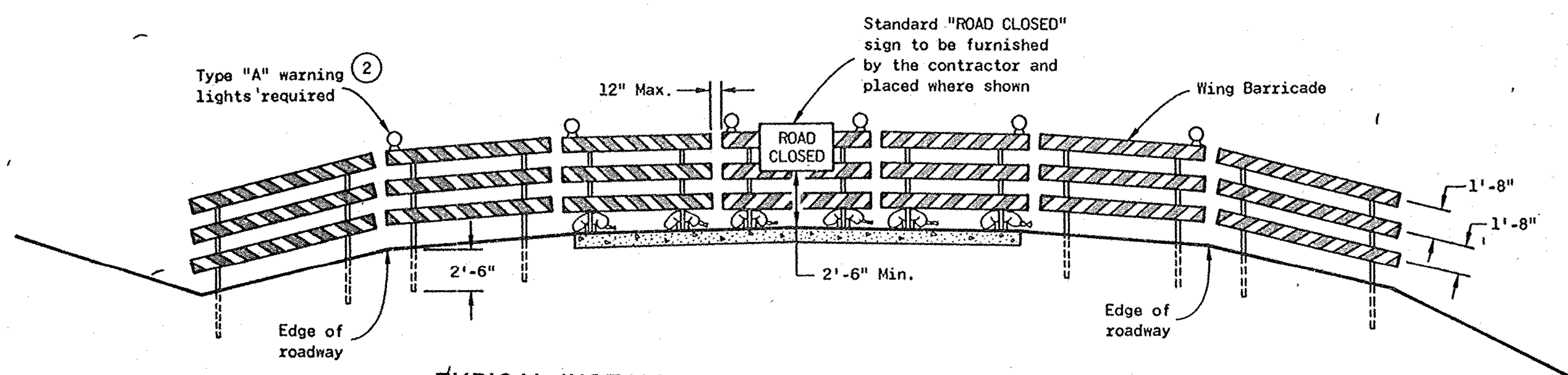
*Nominal dimensions when barricade is constructed of lumber.
**Shall be 4" for rail lengths less than 3'.



TYPICAL TYPE I BARRICADE



TYPICAL TYPE II BARRICADE



TYPICAL INSTALLATION SHOWING TYPE III BARRICADE

CONSTRUCTION BARRICADES

R11-2
48" x 30"
Black Lettering on Reflective White Background
Letter Series "D"
Letter height 8"

W20-3
48" x 48"
Black Lettering on Reflective Orange Background
Letter Series "D"
Letter height 7"

STANDARD SIGNS - TYPE II

GENERAL NOTES

The contractor shall furnish, erect and maintain barricades and signs. Details regarding location, spacing, dimensions, fabrication, material, sign lettering, lighting devices and color of barricades and signs shall conform to this drawing, the Manual On Uniform Traffic Control Devices, the Standard Specifications, Special Provisions and/or plans.

Type III Barricades and Signs shall be erected at the termini of projects and at other road or street locations where it is necessary to control or eliminate public access to the construction area.

Type I and II Barricades shall be used on projects when traffic is to be maintained through the construction area.

The actual field location of barricade installations and advance signs shall be as directed by the Engineer.

Each barricade shall have the name and telephone number of a person responsible for 24 hour emergency service printed in letters at least ¾ inch in height on the barricade rails. Prior to May 1, 1983, such information may be shown on either front or back faces of the barricade rails. After May 1, 1983, all printed information or identification markings shall be shown only on the back side of barricade rails.

Type I Barricades may include other unstriped horizontal panels necessary to provide stability.

On high speed expressways or in other situations where barricades may be susceptible to overturning in the wind, sandbags should be used for ballasting. Sandbags may be placed on lower parts of the frame or stays to provide the required ballast but shall not be placed on top of any striped rail.

(1) Unless otherwise provided elsewhere in the contract, warning lights are required on all barricades which will be located near traffic operations during periods of inclement weather or hours of darkness. Barricades used to shield isolated hazards shall be equipped with Type "A" (low intensity - flashing) lights unless Type "B" (high intensity)- flashing) lights are specified elsewhere in the contract documents. Barricades used for channelization or delineation of the travel path shall be equipped with Type "C" (steady burn) lights except for the initial barricade(s) in sequence, which shall be equipped with Type "A" or "B" lights as previously noted.

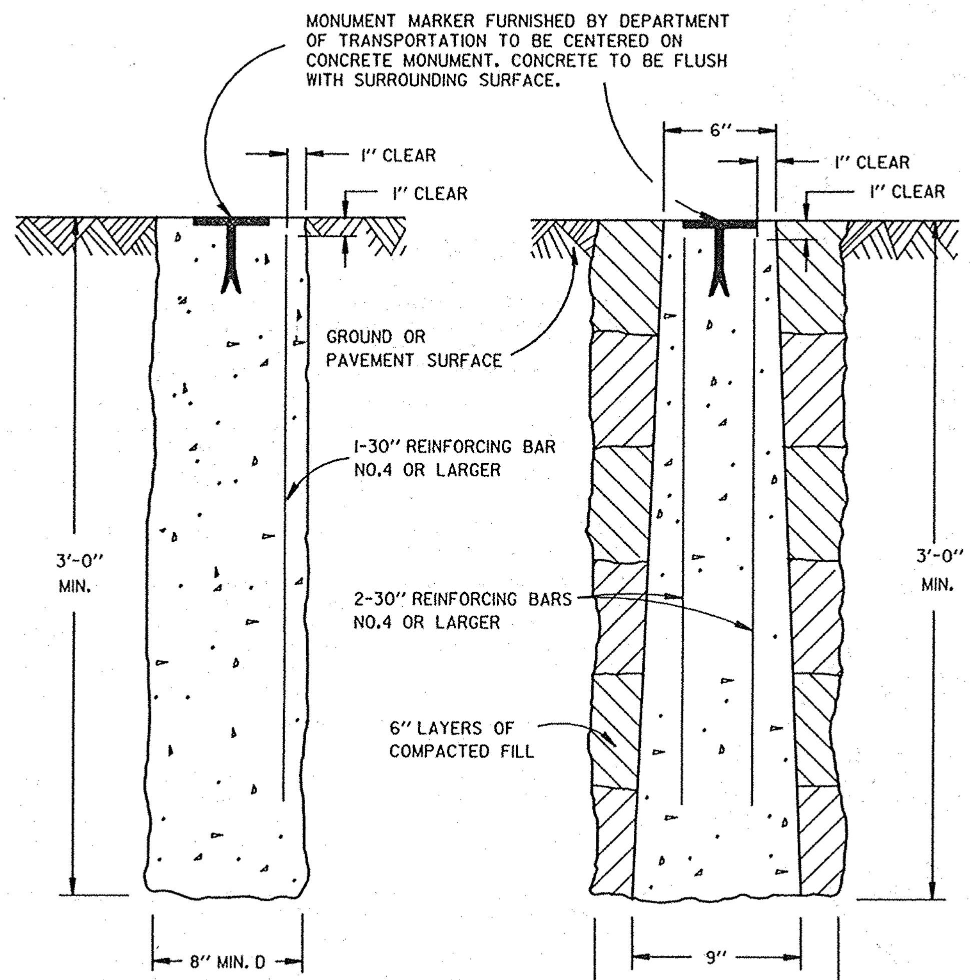
(2) Two warning lights shall be provided on the center barricade and at least one warning light shall be provided on each of the other barricades within the roadway limits. Spacing of the warning lights shall be uniform to the edge of roadway as shown.

CONSTRUCTION BARRICADES & STANDARD SIGNS

State of Wisconsin
Department of Transportation

APPROVED
9-14-81
DATE
D. J. Strand
CHIEF DESIGN ENGINEER
FHWA

S.D.D. 15 C 1-7

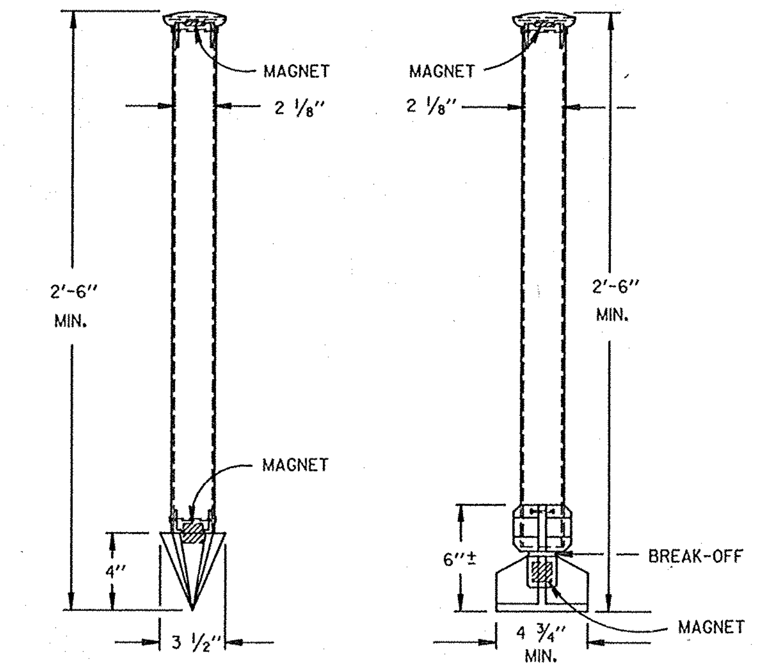


CAST-IN-PLACE

PRECAST

CONCRETE MONUMENTS

TYPE A



TYPE C

DRIVE-IN MONUMENT

TYPE D

BREAK-OFF MONUMENT

ALUMINUM MONUMENTS

(INCLUDES MARKER)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE INSTALLED METAL MONUMENT MUST BE EASILY DETECTED WITH A DIP NEEDLE. INERT PERMANENT MAGNETS SHALL BE ATTACHED NEAR THE TOP AND BOTTOM OF THOSE MONUMENTS CONSTRUCTED OF A METAL ALLOY WHICH IS NOT ATTRACTIVE TO A DIP NEEDLE.

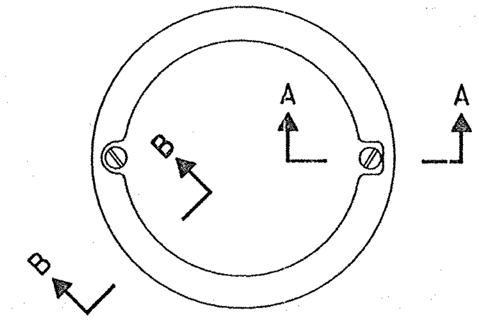
TYPE A AND TYPE D MONUMENTS ARE EQUAL ALTERNATES UNLESS OTHERWISE SPECIFIED.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

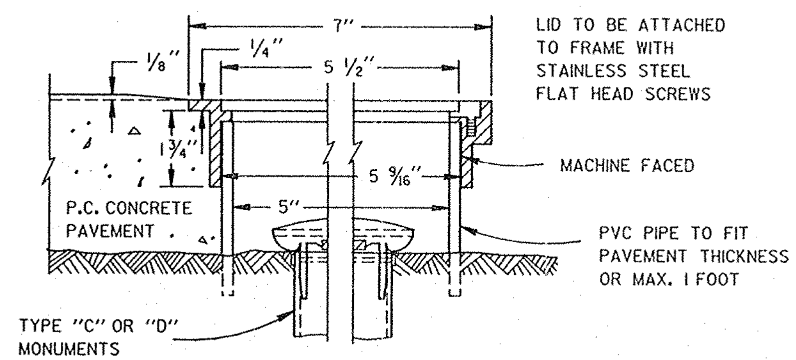
MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.



TOP VIEW

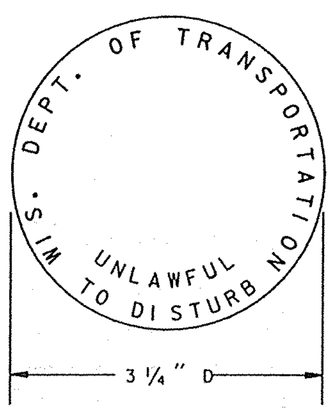


SECTION B-B SECTION A-A

ALUMINUM MONUMENT COVER

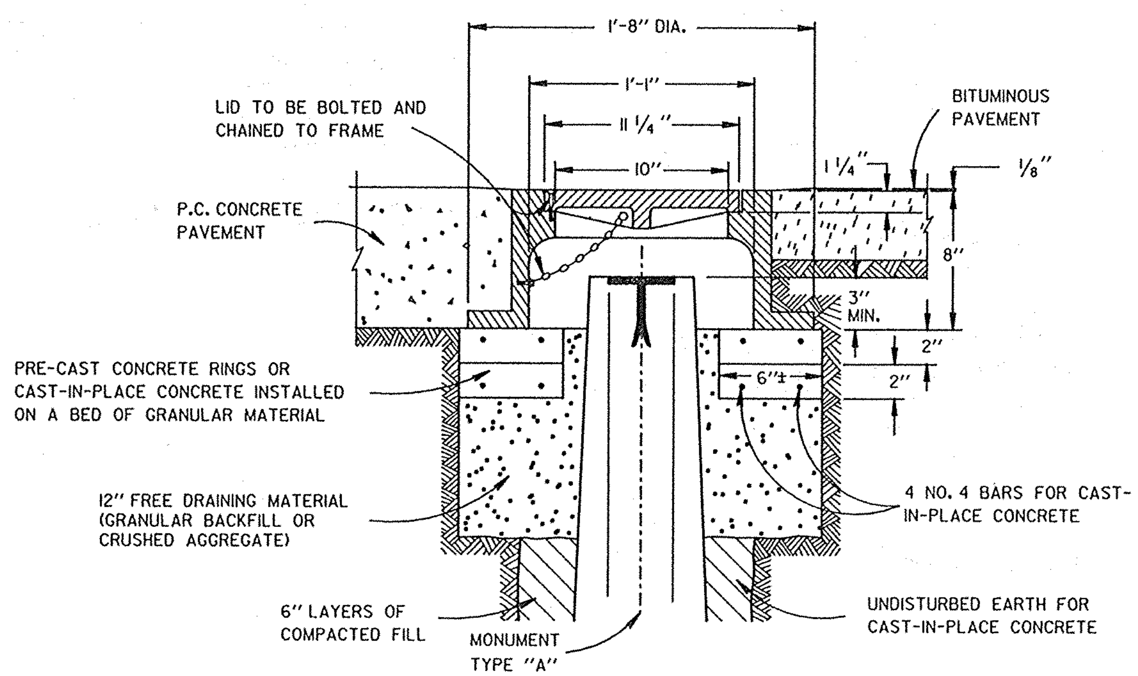
(APPROXIMATE WEIGHT 2 LBS)

(FOR CONCRETE PAVEMENT ONLY)



MONUMENT MARKER LOGO

FOR TYPES "A", "C" & "D"



CAST IRON MONUMENT COVER

(APPROXIMATE WEIGHT - 95 LBS.)

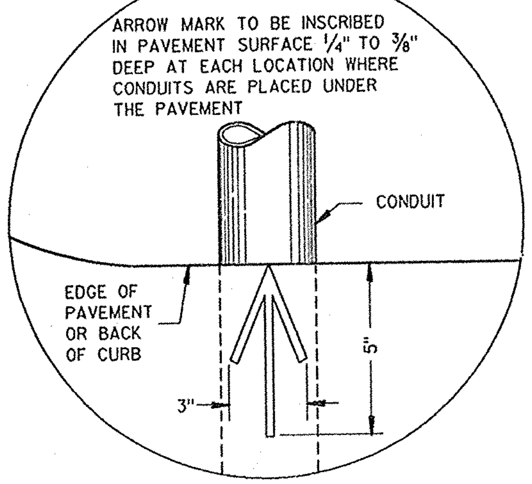
LANDMARK REFERENCE MONUMENTS AND COVERS

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

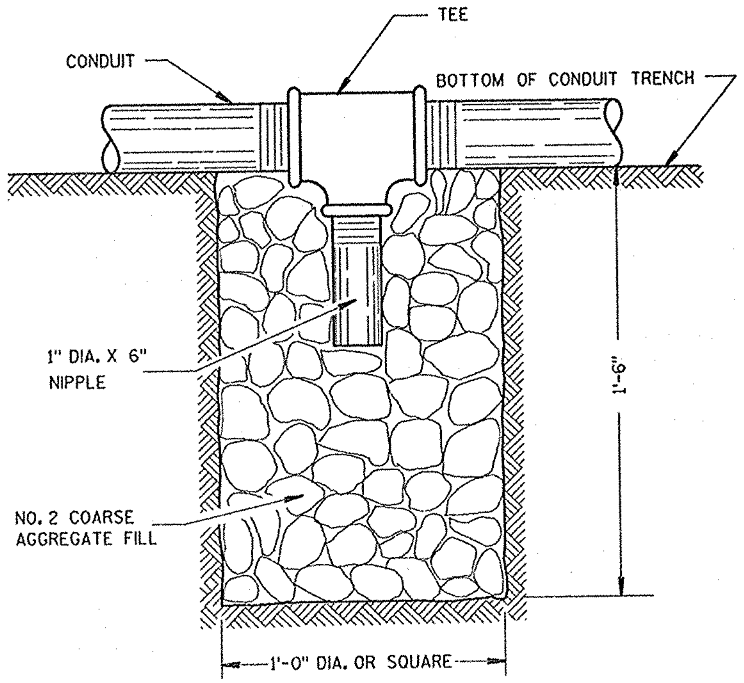
APPROVED 6-18-84 DATE — D. Strand CHIEF DESIGN ENGINEER

FHWA

S.D.D. 16 A 1-4



PLAN VIEW
ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR CONDUIT

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

THE CONDUIT SHALL NOT BE BACKFILLED PRIOR TO INSPECTION.

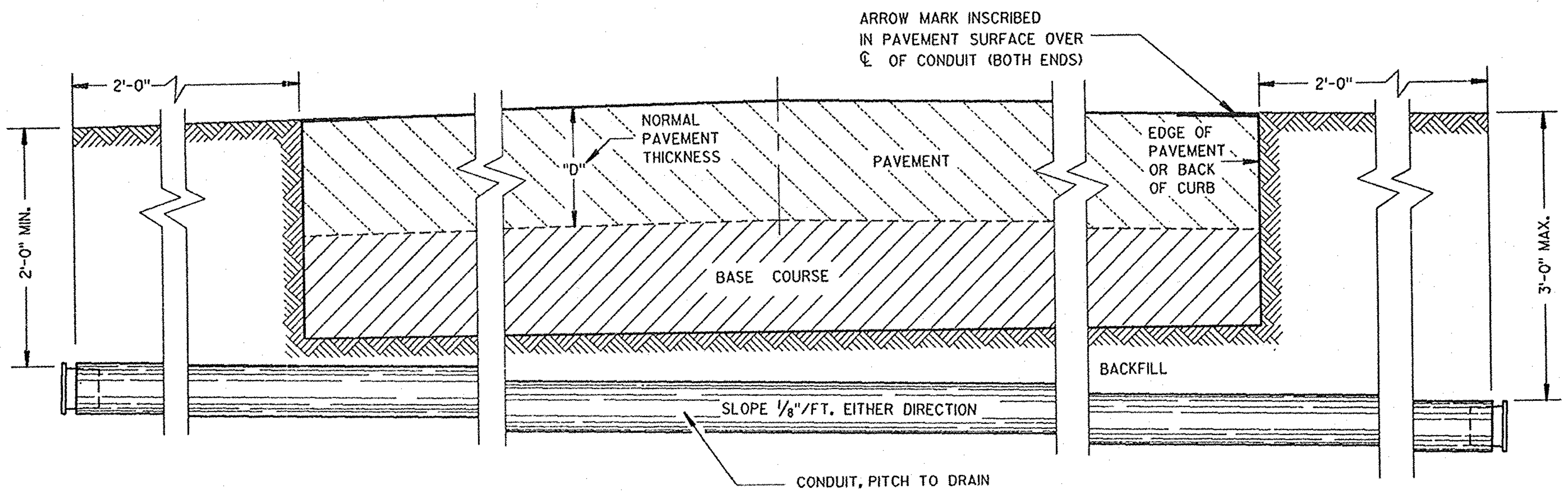
ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT SHALL BE BUSHED PRIOR TO INSTALLATION.

CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED AS PART OF THE CONTRACT SHALL BE CAPPED.

CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL BE CAPPED OR PLUGGED. PRIOR TO BACKFILLING, THE CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN REINSTALLED TO ASSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

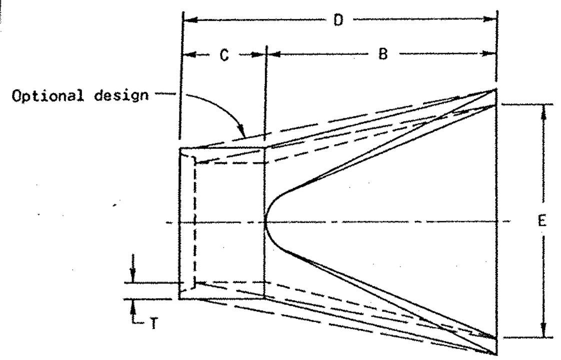
ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT.



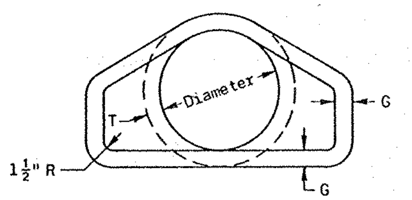
SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 7-7-86 DATE — STATE TRAFFIC ENGINEER FOR HWYS FHWA

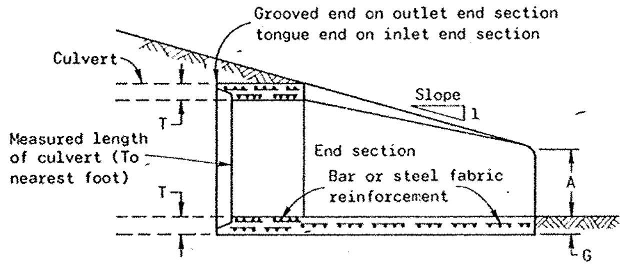
S.D.D. 9 B 2-3



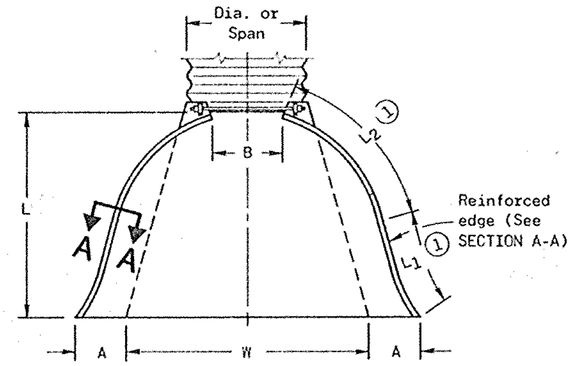
PLAN



END VIEW



LONGITUDINAL SECTION



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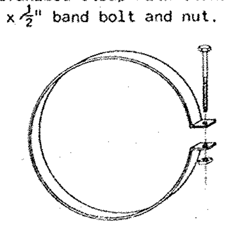
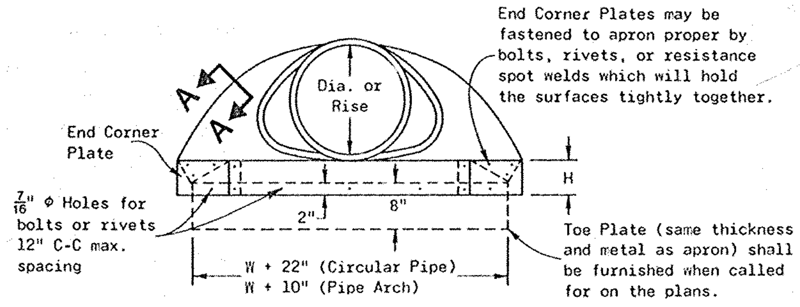
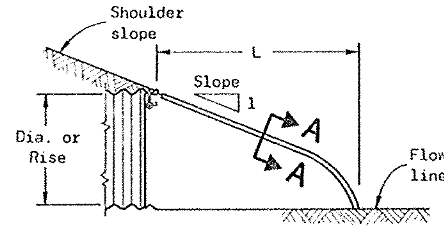


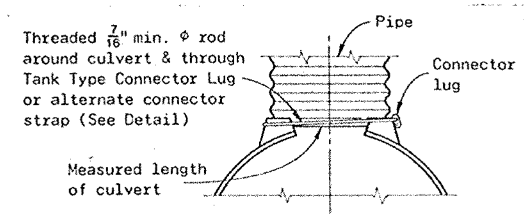
Alternate for Type 1 Connection
END SECTION CONNECTOR STRAP



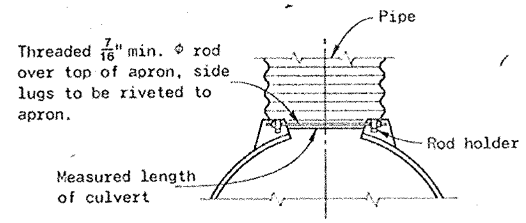
END VIEW



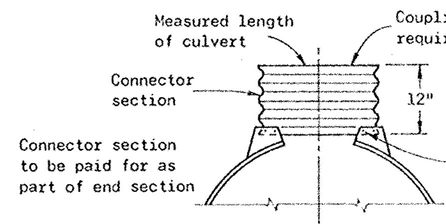
SIDE ELEVATION



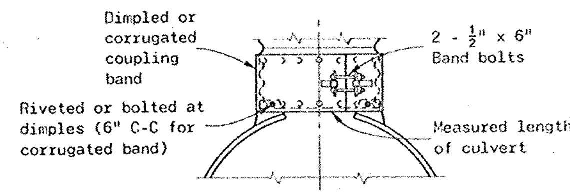
TYPE 1
For 12" thru 24" only (Circular pipe)



TYPE 2
For 30" & 36" only (Circular pipe)
For 17"x13" thru 57"x38" only (Pipe arch)

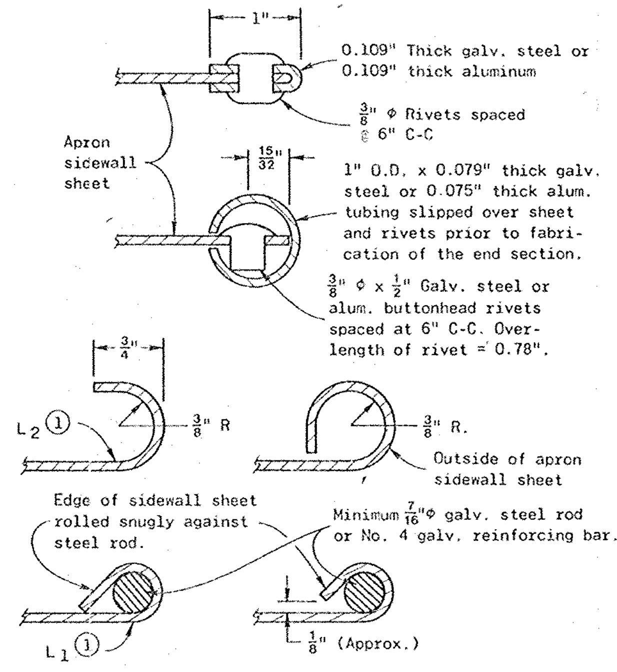


TYPE 3
For 42" thru 84" only (Circular pipe)
For 64"x43" & 71"x47" (Pipe arch)



TYPE 5
Alternate for:
All sizes corrugated circular pipe & pipe arches

NOTE: Dimpled band fits over outside of endwall, and corrugated band fits inside endwall. Dimpled band may be used with helically corrugated pipe.



SECTION A-A

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Variations of the dimensions and designs shown hereon will be permitted providing equivalent capacity and structural integrity are attained, and prior approval of the Engineer is obtained.

Concrete culvert endwalls may not be used with galvanized steel or aluminum culvert pipe or vice versa.

Galvanized steel or aluminum endwalls shall normally be installed on culvert pipe of the same metal. The use of galvanized steel endwalls on aluminum pipes is permitted, provided the two metals at the joint interface are kept separated by a suitable insulating material approximately $\frac{1}{16}$" thick or greater. Such material would be an asphalt impregnated fabric, a sheet plastic, a rubber gasket or other non-degradable material of substantial strength.

When two or more pipe arches with apron endwalls are to be laid adjacent to each other, they shall be separated by the following amount:

PIPES: Total width of apron endwall less the diameter of pipe plus 6 inches.

PIPE ARCHES: Total width of apron endwall less the span dimension of the pipe arch plus 6 inches.

(1) A combination of steel rod rolled into edge sidewall (L_1), and 180° roll on edge of sidewall (L_2), is permitted for metal apron endwalls up to 60" diameter for circular pipe, and 77" x 52" for pipe arches.

PIPE DIA. (In.)	APPROX. WEIGHT PER SECTION	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	530	2	4	24	$48\frac{7}{8}$	$72\frac{7}{8}$	24	2	3 to 1
15	740	$2\frac{1}{4}$	6	27	46	73	30	$2\frac{1}{4}$	
18	990	$2\frac{1}{2}$	9	27	46	73	36	$2\frac{1}{2}$	
21	1,280	$2\frac{3}{4}$	9	36	$37\frac{1}{2}$	$73\frac{1}{2}$	42	$2\frac{3}{4}$	
24	1,520	3	$9\frac{1}{2}$	$43\frac{1}{2}$	30	$73\frac{1}{2}$	48	3	
27	1,930	$3\frac{1}{4}$	$10\frac{1}{2}$	$49\frac{1}{2}$	24	$73\frac{1}{2}$	54	$3\frac{1}{4}$	
30	2,190	$3\frac{1}{2}$	12	54	$19\frac{3}{4}$	$73\frac{3}{4}$	60	$3\frac{1}{2}$	
36	4,100	4	15	63	$34\frac{3}{4}$	$97\frac{3}{4}$	72	4	
42	5,380	$4\frac{1}{2}$	21	63	35	98	78	$4\frac{1}{2}$	
48	6,550	5	24	72	26	98	84	5	3 to 1
54	8,040	$5\frac{1}{2}$	27	65	* $33\frac{1}{4}$ - 35 **	* $98\frac{1}{4}$ - 100 **	90	5	$2\frac{2}{5}$ to 1
60	8,730	6	* 30 - 35 **	60	39	99	96	5	2 to 1
66	10,630	$6\frac{1}{2}$	* 24 - 30 **	* 72 - 78 **	* 21 - 27 **		102	$5\frac{1}{2}$	
72	12,520	7	* 24 - 36 **	78	21		108	6	
78	14,430	$7\frac{1}{2}$	* 24 - 36 **	78	21	99	114	$6\frac{1}{2}$	2 to 1
84	18,160	8	36	$90\frac{1}{2}$	21	$111\frac{1}{2}$	120	$6\frac{1}{2}$	$1\frac{1}{2}$ to 1

* Minimum ** Maximum

REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (In.)	MIN. THICKNESS (Inches) STEEL	ALUM.	DIMENSIONS (Inches) A ±1"	B MAX.	H ±1"	L ±1½"	L_1 (1)	L_2 (1)	W ±2"	APPROX. SLOPE
12	0.064	0.060	6	6	6	21	12	$17\frac{1}{2}$	24	$2\frac{1}{2}$ to 1
15			7	8		26	14	$21\frac{3}{4}$	30	
18			8	10		31	15	$28\frac{1}{4}$	36	
21		0.060	9	12		36	18	$29\frac{5}{8}$	42	
24	0.064	0.075	10	13	6	41	18	$37\frac{1}{4}$	48	
30	0.079	0.075	12	16	8	51	18	$52\frac{1}{4}$	60	
36	0.079	0.105	14	19	9	60	24	$59\frac{3}{4}$	72	
42	0.109	0.105	16	22	11	69	24	$76\frac{5}{8}$	84	$2\frac{1}{2}$ to 1
48		0.135	18	27	12	78	24	81	90	$2\frac{1}{4}$ to 1
54		0.135		30		84	30	$85\frac{1}{2}$	102	2 to 1
60		0.164		33		87	–	–	114	$1\frac{3}{4}$ to 1
66				36		87	–	–	120	$1\frac{1}{2}$ to 1
72				39		87	–	–	126	$1\frac{1}{3}$ to 1
78				42		87	–	–	132	$1\frac{1}{4}$ to 1
84	0.109	0.164	18	45	12	87	–	–	138	$1\frac{1}{4}$ to 1

NOTE: All splices to be lap riveted or bolted.

METAL APRON ENDWALLS
FOR CIRCULAR PIPE

PIPE-ARCH DIMENSIONS (Inches) SPAN	RISE	MIN. THICK. (Inches) STEEL	ALUM.	DIMENSIONS (Inches) A ±1"	B MAX.	H ±1"	L ±1½"	L_1 (1)	L_2 (1)	W ±2"	APPROX. SLOPE
17	13	0.064	0.060	7	9	6	19	14	16	30	$2\frac{1}{2}$ to 1
21	15		0.060	7	10		23	14	$19\frac{3}{8}$	36	
24	18		0.060	8	12		28	18	$21\frac{3}{4}$	42	
28	20	0.064	0.075	9	14		32	18	$27\frac{1}{2}$	48	
35	24	0.079	0.075	10	16	6	39	18	$37\frac{5}{8}$	60	
42	29	0.079	0.105	12	18	8	46	24	$45\frac{3}{8}$	75	
49	33	0.109	0.105	13	21	9	53		$54\frac{3}{4}$	85	
57	38		0.135	18	26	12	63		68	90	$2\frac{1}{2}$ to 1
64	43		0.135		30		70	24	$72\frac{3}{4}$	102	$2\frac{1}{4}$ to 1
71	47		0.164		33		77	30	$82\frac{1}{4}$	114	$2\frac{1}{4}$ to 1
77	52		0.164		36		77	–	–	126	2 to 1
83	57	0.109	0.164	18	39	12	77	–	–	138	2 to 1

NOTE: All splices to be lap riveted or bolted.

METAL APRON ENDWALLS
FOR PIPE ARCHES

CONNECTION DETAILS

CIRCULAR PIPE

For circumferentially corrugated pipe use Endwall Connection Details 1, 2, 3 or 5 as applicable.

For helically corrugated pipe use Endwall Connection Details 1, 2 or 5.

For helically corrugated pipes with two circumferential corrugations at each end use Endwall Connection Details 1, 2 or 3.

PIPE ARCH

Use Endwall Connection Details 2, 3 or 5 as applicable.

APRON ENDWALLS FOR
CULVERT PIPE AND PIPE ARCHES

State of Wisconsin
Department of Transportation

APPROVED
2-15-82
DATE
CHIEF DESIGN ENGINEER
FHWA

BALLARD ROAD
6529-2 1

STATION	UNCL. EXC. CU. YD.	FILL CU. YD.
10+35		
	33	4
10+48		
	28	3
10+58		
	130	28
11+00		
	160	53
11+50		
	180	33
12+00		
	223	14
12+50		
	125	3
12+75		
	132	1
13+00		
	259	11
13+50		
	245	15
14+00		
	247	10
14+50		
	221	7
15+00		
	170	9
15+50		
	120	11
16+00		
	85	14
16+50		
	100	14
17+00		
	148	14
17+50		
	222	13
18+00		
	273	12
18+50		
	279	16
19+00		
	123	10
19+21.50		
	336	28
19+75		
	311	26
20+27		
	120	15
20+50		
	222	73
21+00		

BALLARD JAD
6529-2-71

STATION	UNCL. EXC CU. YD.	FILL CU. YD.
21+00		
	240	59
21+50		
	222	73
22+00		
	203	66
22+50		
	185	57
23+00		
	177	39
23+50		
	155	36
24+00		
	132	42
24+50		
	151	30
25+00		
	211	16
25+50		
	267	15
26+00		
	276	27
26+50		
	290	26
27+00		
	324	22
27+50		
	269	49
28+00		
	220	41
28+50		
	197	21
29+00		
	166	22
29+50		
	159	12
30+00		
	127	18
30+50		
	117	26
31+00		
	164	28
31+50		
	206	29
32+00		
	196	41
32+50		
	199	58
33+00		

BALLARD RD
6529-2-71

STATION	UNCL. EXC CU.YD.	FILL CU.YD.
33+00		
	244	71
33+50		
	291	100
34+00		
	296	124
34+50		
	268	108
35+00		
	249	87
35+51.14		
	289	40
36+01.08		
	279	11
36+50		
	213	24
37+00		
	144	33
37+40		
	31	13
37+50		
	151	83
38+00		
	148	113
38+50		
	144	166
39+00		
	134	106
39+40		
	37	8
39+50		
	182	25
40+00		
	180	99
40+50		
	175	188
41+00		
	176	192
41+50		
	175	195
42+00		
	163	250
42+50		
	149	312
43+00		
	130	352
43+50		
	114	612
44+00		

BALLARD ROAD
6529-2-71

STATION	UNCL. EXC CU. YD.	FILL CU. YD.
44+00		
	116	586
44+50		
	113	371
45+00		
	112	214
45+50		
	114	0
46+00		
	97	0
46+50		
	88	0
47+00		
	90	0
47+50		
	63	0
47+90.3		

STATE PROJECT NUMBER	SHEET NUMBER
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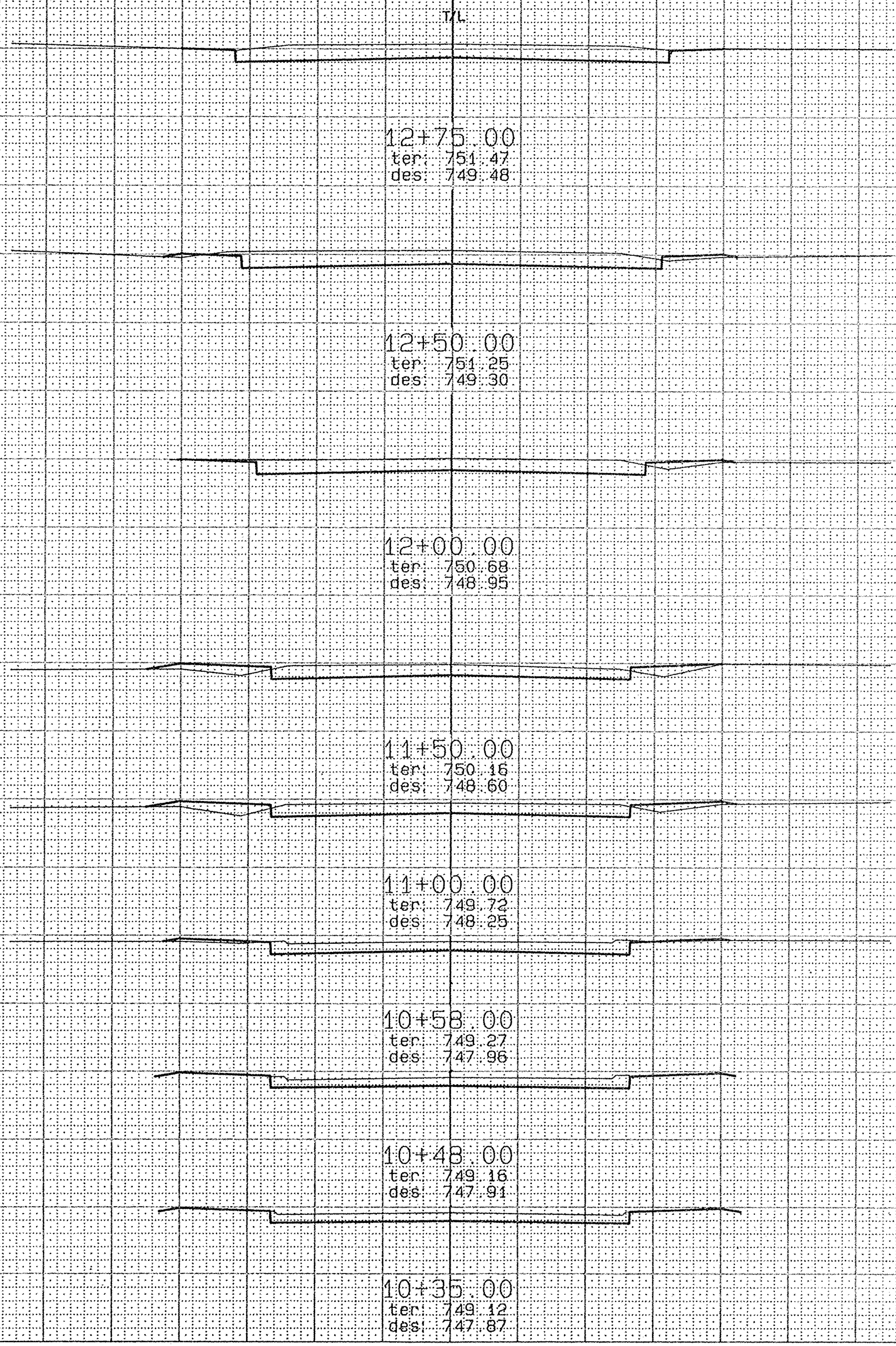
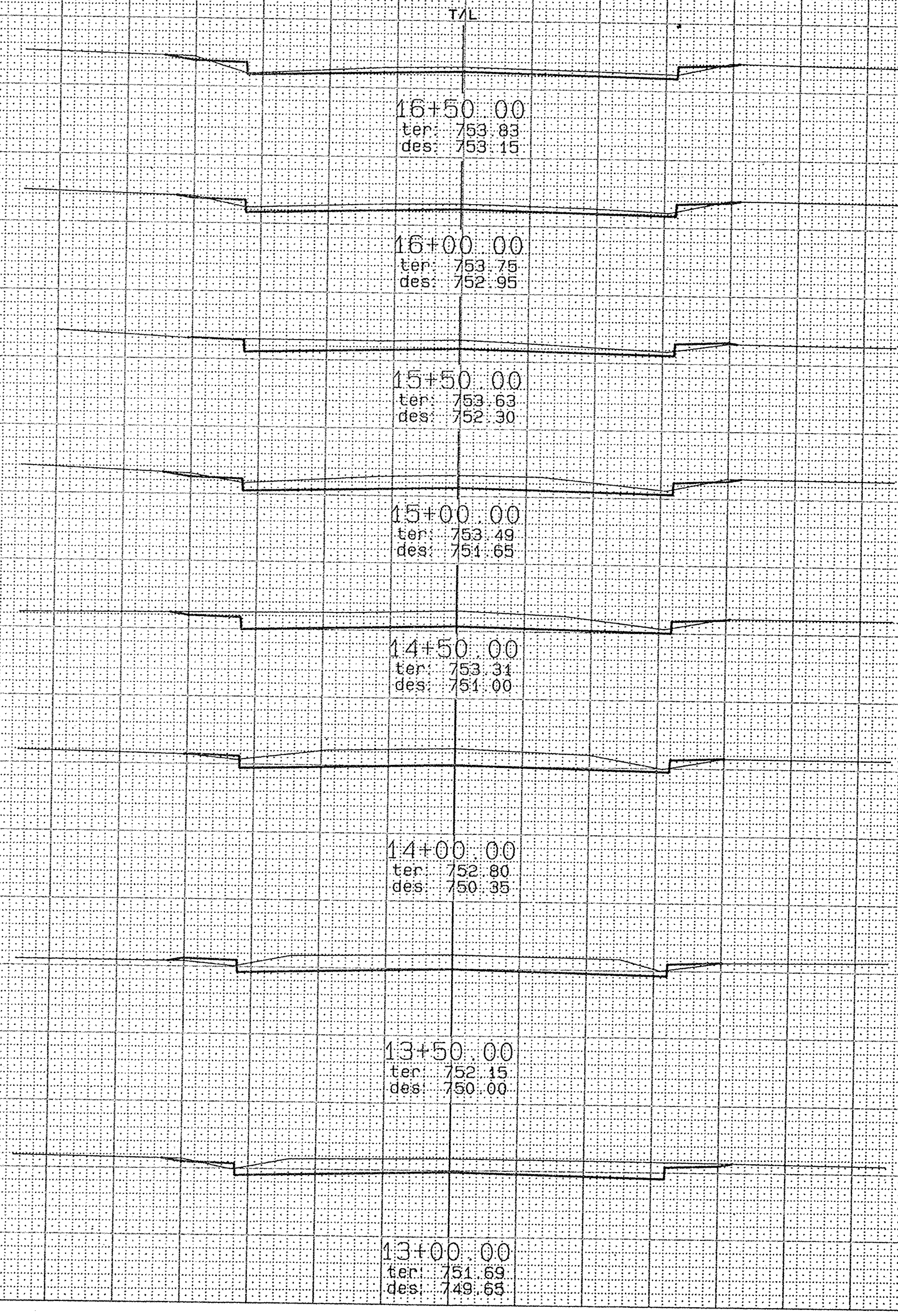


SCALE: 1" = 10' HOR.
1" = 10' VER.

STATION	DISTANCE	YARDAGE EXCAVATION				FILL
SHEET TOTAL						

Catalog No. 2130-C121

STATE PROJECT NUMBER	SHEET NUMBER
6529-2-71	9.2



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1" = 10' VER.

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
SHEET TOTAL			

Catalog No. 2130-C121

STATE PROJECT NUMBER	SHEET NUMBER
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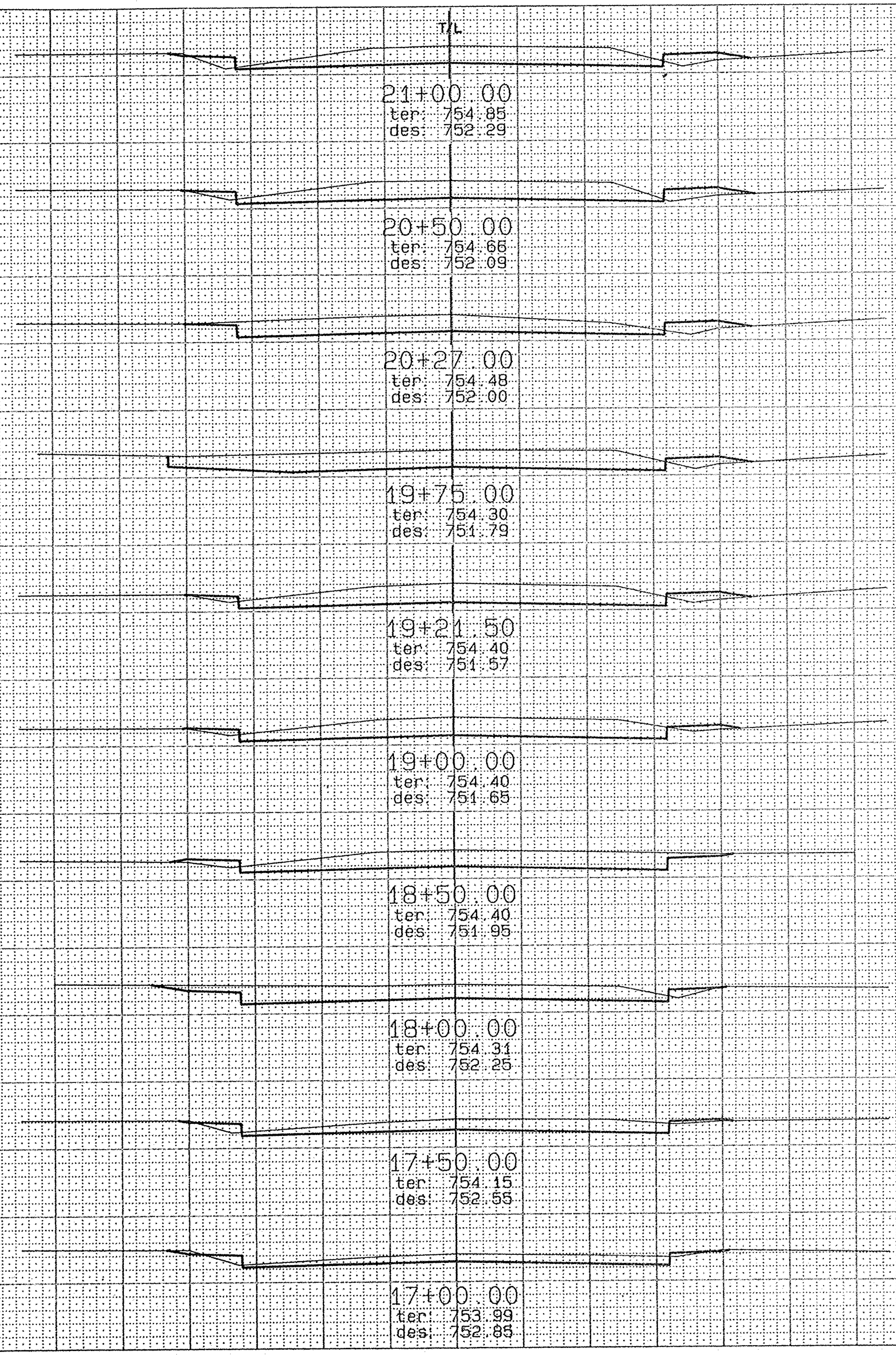

SCALE: 1" = 10' HOR.
1" = 10' VER.

STATION	DISTANCE	YARDAGE EXCAVATION				FILL
SHEET TOTAL						

Catalog No. 2130-C121

TELEDYNE POST

STATE PROJECT NUMBER	SHEET NUMBER
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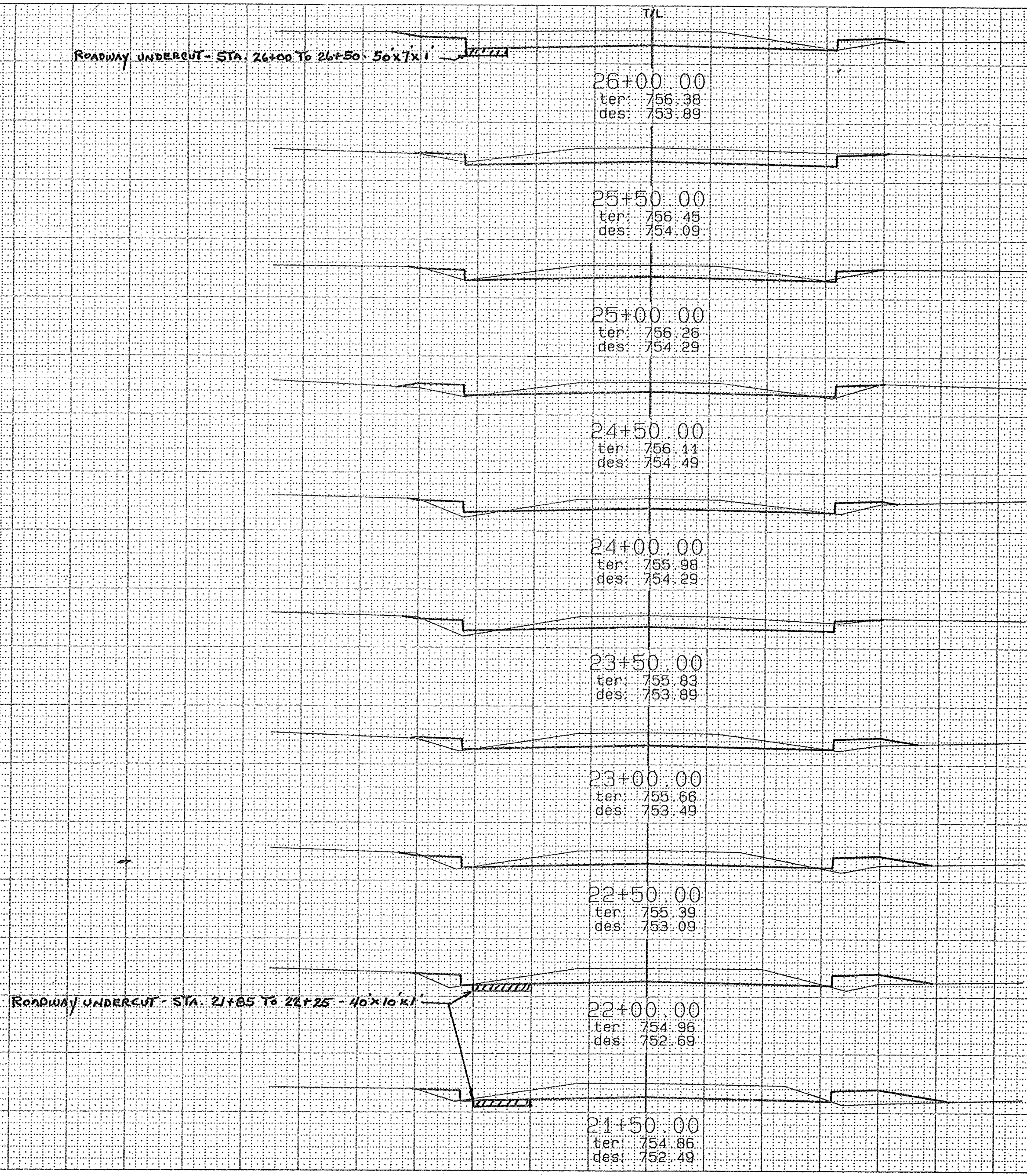

SCALE: 1" = 10' HOR.
1" = 10' VER.

STATION	DISTANCE	YARDAGE EXCAVATION				FILL
SHEET TOTAL						

Catalog No. 2130-C121

STATE PROJECT NUMBER	SHEET NUMBER
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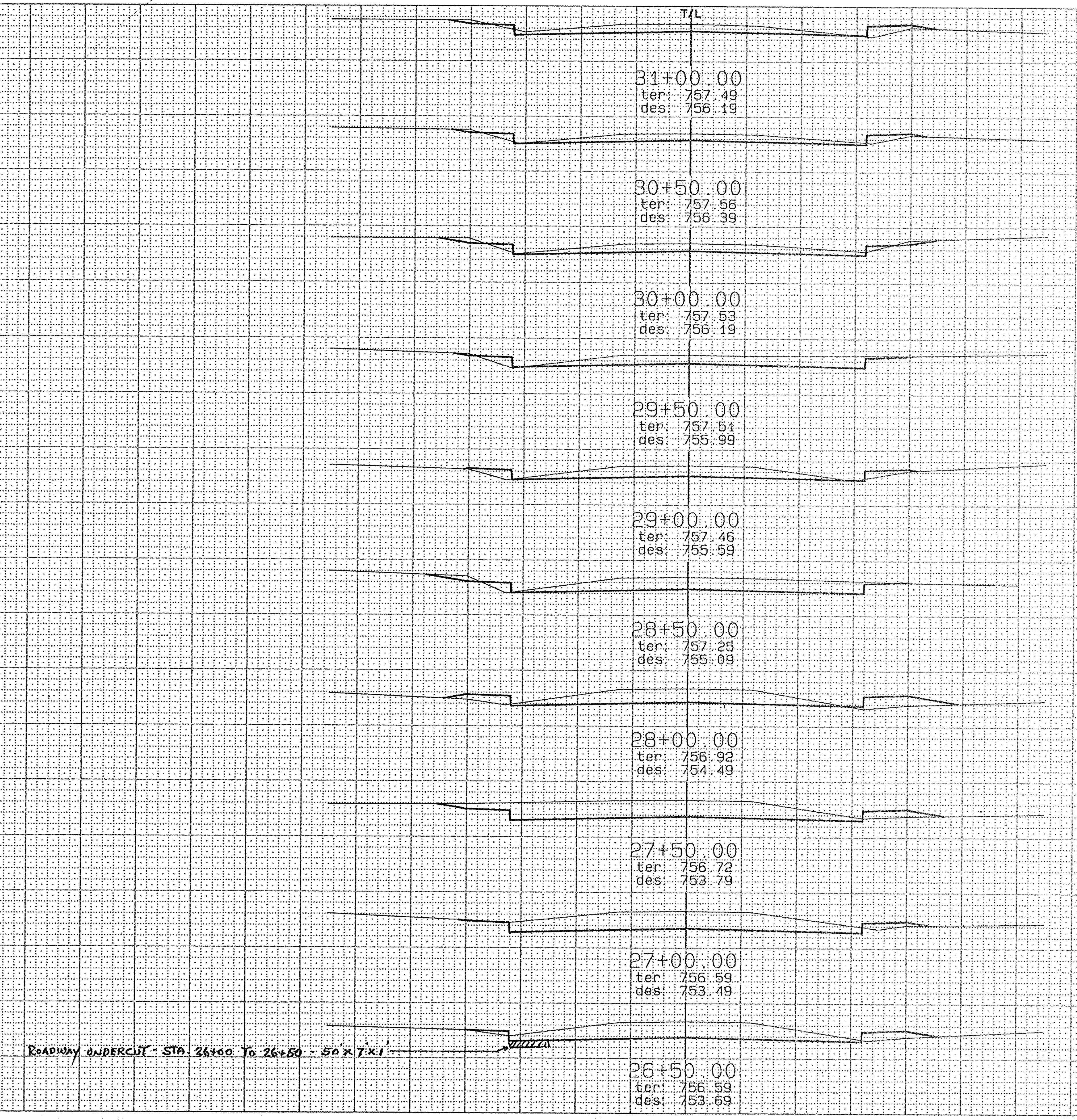

SCALE: 1" = 10' HOR
1" = 10' VER

STATION	DISTANCE	YARDAGE EXCAVATION				FILL
SHEET TOTAL						

Catalog No. 2130-C121

STATE PROJECT NUMBER	SHEET NUMBER
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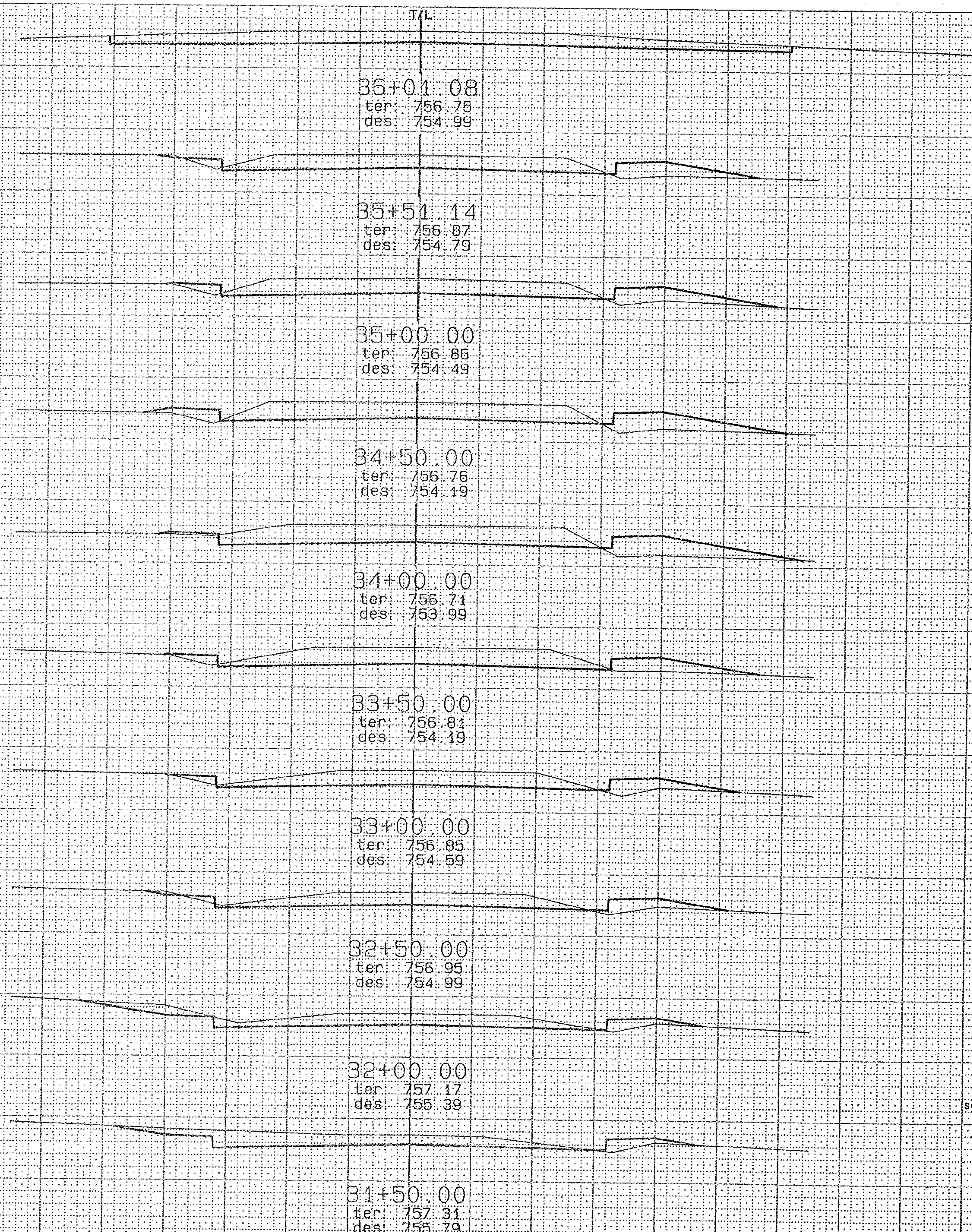
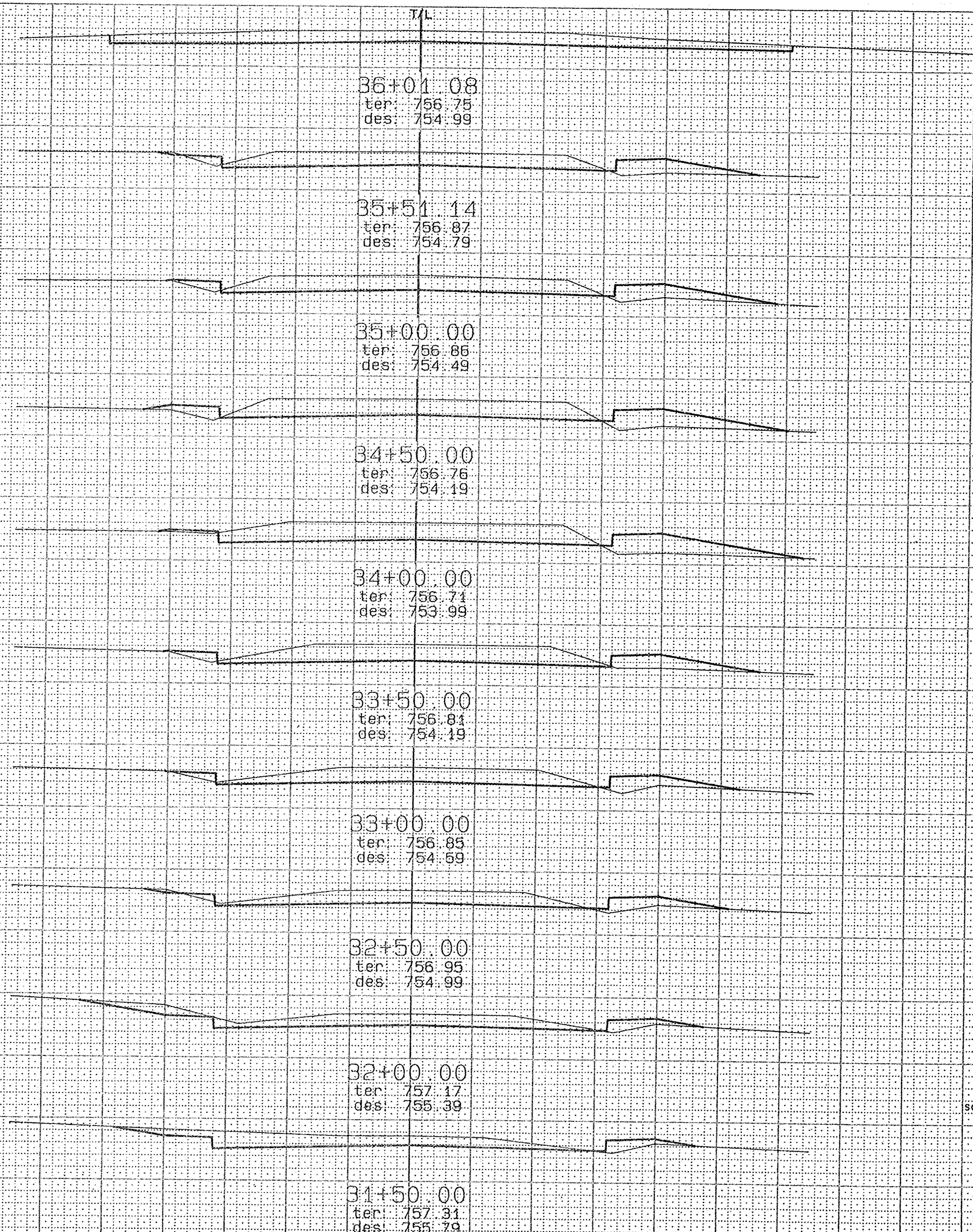


SCALE: 1" = 10' HOR.
1" = 10' VER.

STATION	DISTANCE	YARDAGE: EXCAVATION	YARDAGE: FILL
SHEET TOTAL			

Catalog No. 2130-C121



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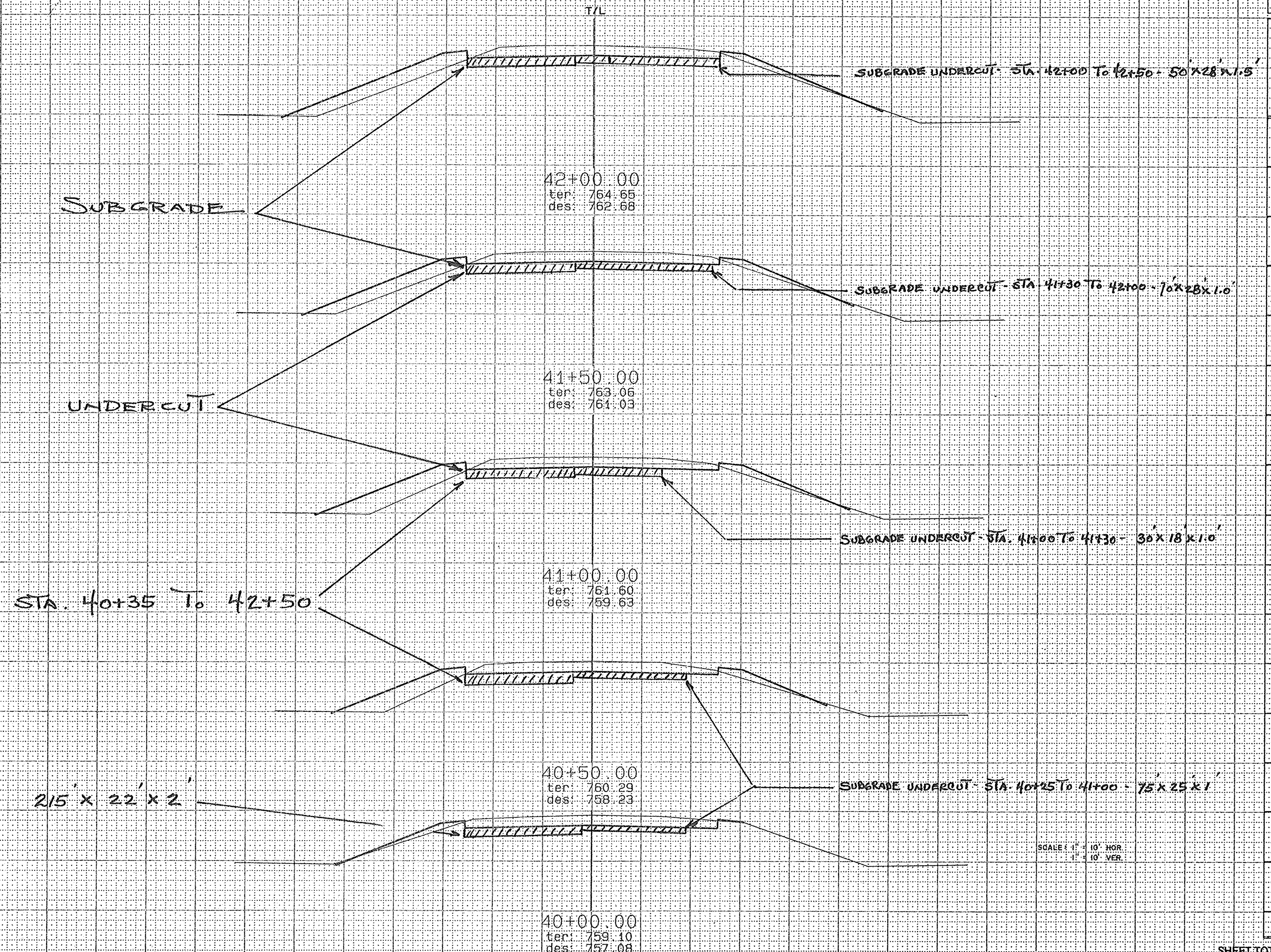
STATE PROJECT NUMBER	SHEET NUMBER
6529-2-71	9.6

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
SHEET TOTAL			

STATE PROJECT NUMBER	SHEET NUMBER
6529-2-71	98



STATION	DISTANCE	YARDAGE EXCAVATION			FILL
SHEET TOTAL					

Catalog No. 2130-C121

STATE PROJECT NUMBER	SHEET NUMBER
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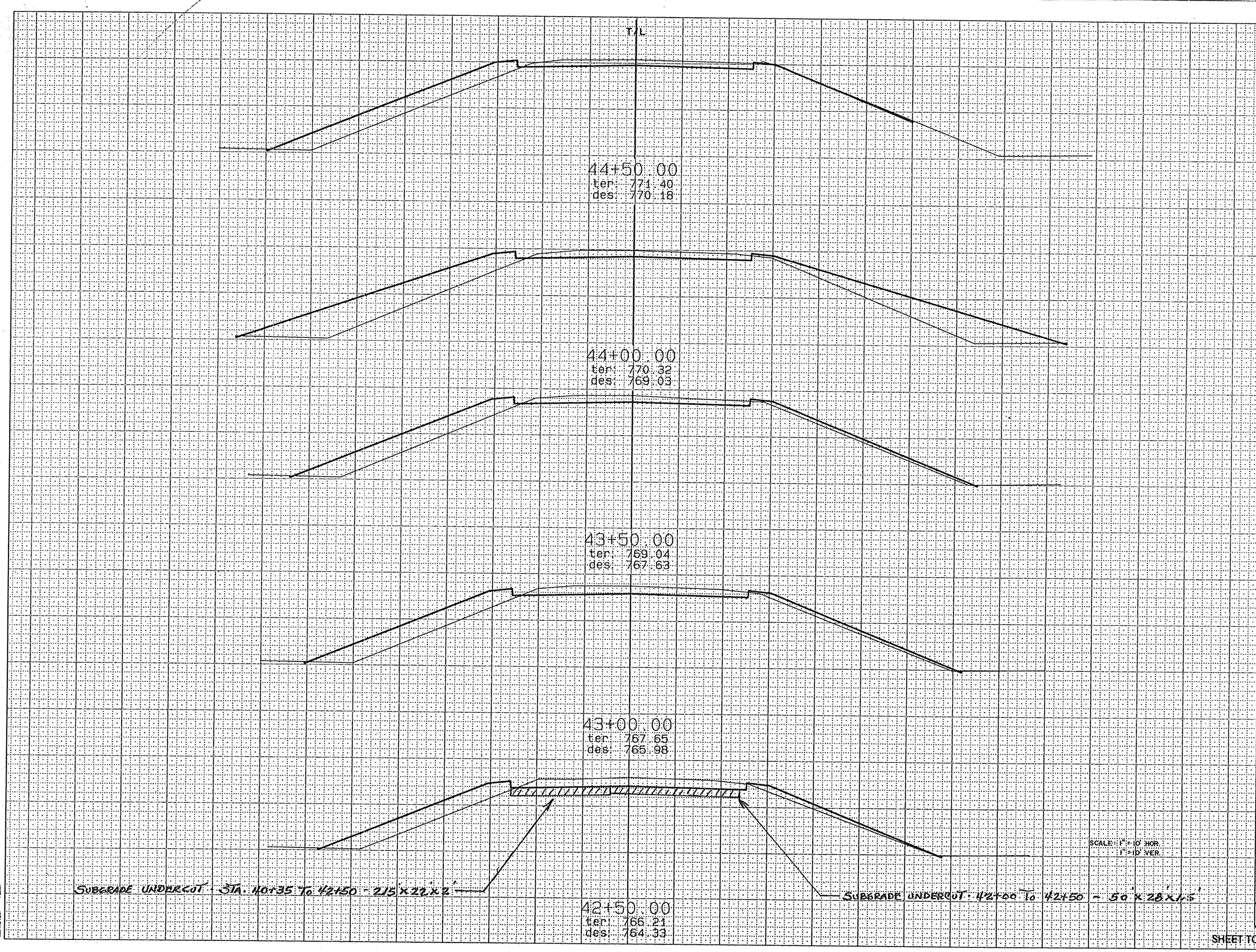
STATION	DISTANCE	YARDAGE EXCAVATION	FILL
SHEET TOTAL			



Catalog No. 2130-C121

STATE PROJECT NUMBER	SHEET NUMBER
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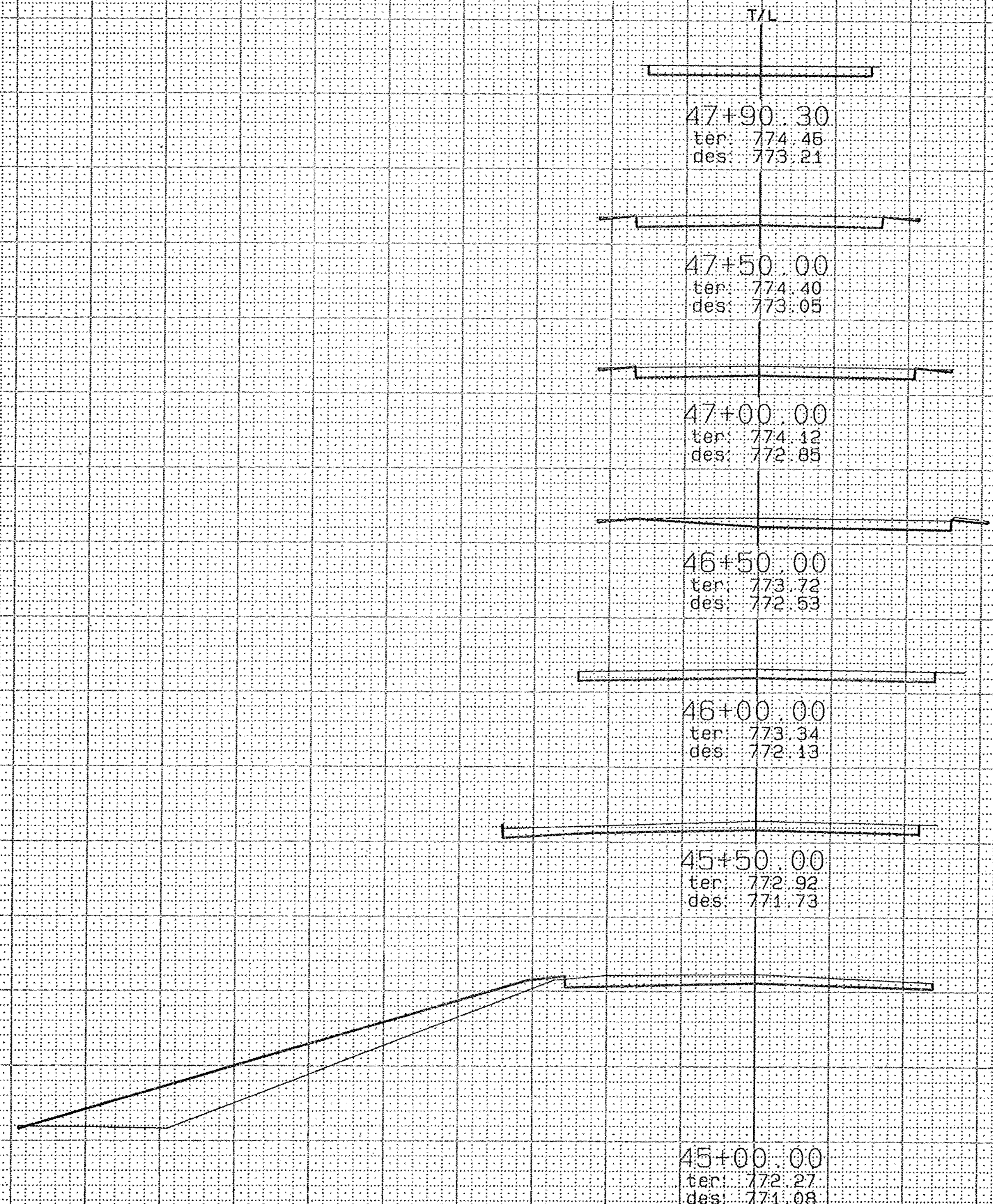
STATION	DISTANCE	YARDAGE EXCAVATION	FILL



SCALE: 1" = 10' HOR.
1" = 10' VER.

SHEET TOTAL

Catalog No. 2130-C121