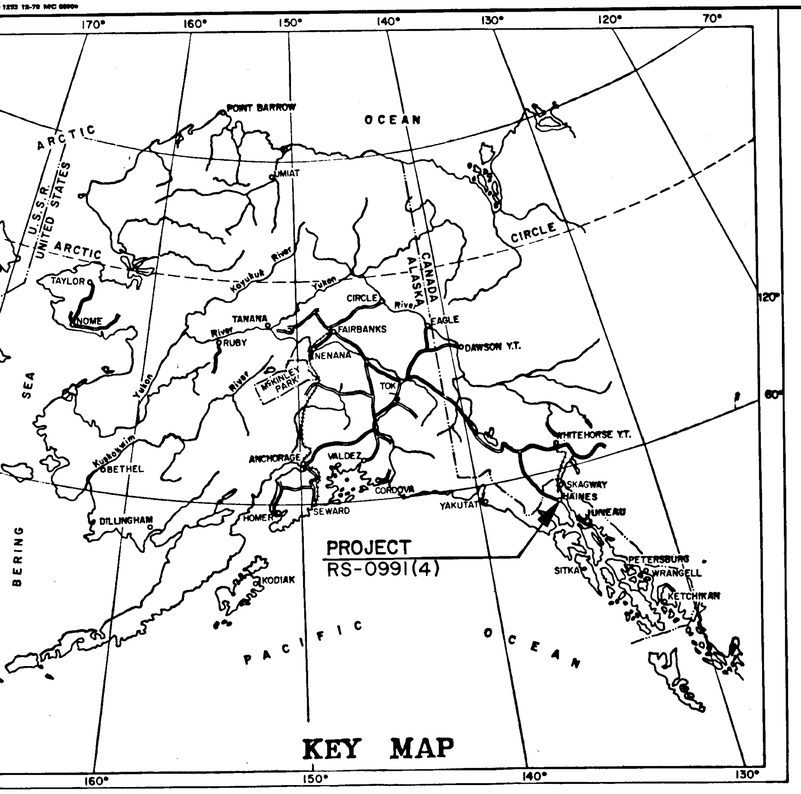
STATE	PROJECT	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991(4)	1	11

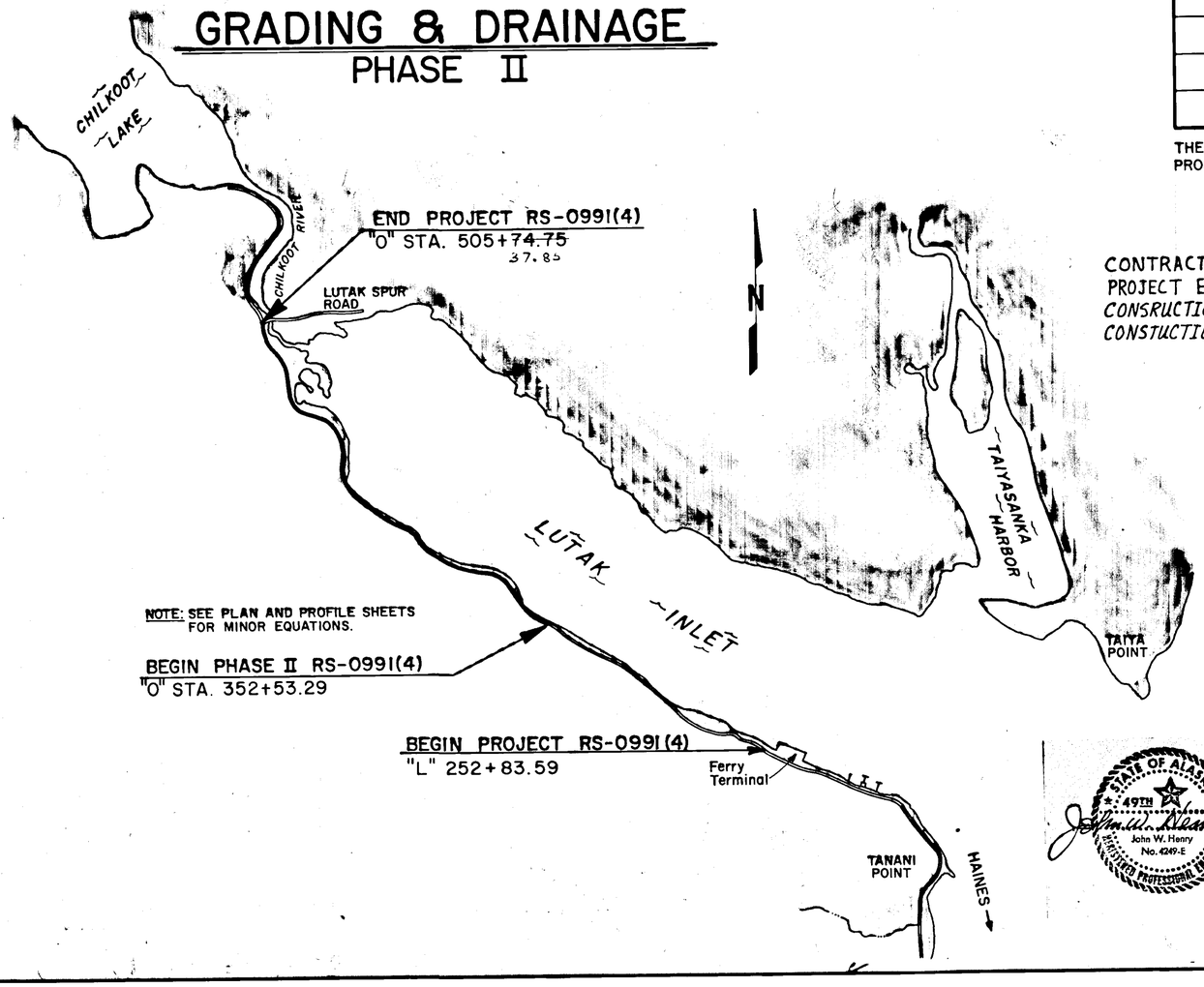
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

PLAN AND PROFILE
PROPOSED HIGHWAY PROJECT

RS-0991 (4) / 69886
LUTAK ROAD - HAINES
FROM THE FERRY TERMINAL
TO
LUTAK SPUR ROAD
GRADING & DRAINAGE
PHASE II



KEY MAP



PHASE II
DESIGN DESIGNATION

ADT (1987)	=	186
ADT (2007)	=	305
DHV (15%)	=	48
D	=	45-55
T	=	3.5%
T.I.	=	5.5
V	=	35 MPH

PHASE II
PROJECT SUMMARY

"0" STA. 352+53.29 TO "0" STA. 505+74.75

WIDTH OF SUBGRADE = 26'

LENGTH OF GRADING = ~~15,230.61'~~ = 2.885 MILES
15,205.36 = 2.880

LENGTH OF PROJECT = 15,230.61' = 2.885 MILES
15,205.36 = 2.880

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTION
3	ESTIMATE OF QUANTITIES
4	SUMMARY TABLES
5-11	PLAN AND PROFILE SHEETS
11	SLIPOUT DETAIL

THE FOLLOWING STANDARD DRAWINGS APPLY TO THIS PROJECT; A-1, C-01.02, C-02.00, C-03.01, D-01.01, D-04.10, I-40.00, M-16.00, S-00.00, S-05.00, S-20.00, S-30.01, D-07.00, D-30.01

AS-BUILT PLANS

CONTRACTOR - NORTHERN TIMBER CORPORATION
PROJECT ENGINEER - GREG BROWNING
CONSRUCTION BEGIN - AUGUST 1989
CONSTUCTION ENDS - MAY 1990

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND
PUBLIC FACILITIES

APPROVED BY: _____ DATE: 9-21-88
Southeast Region
Design Chief

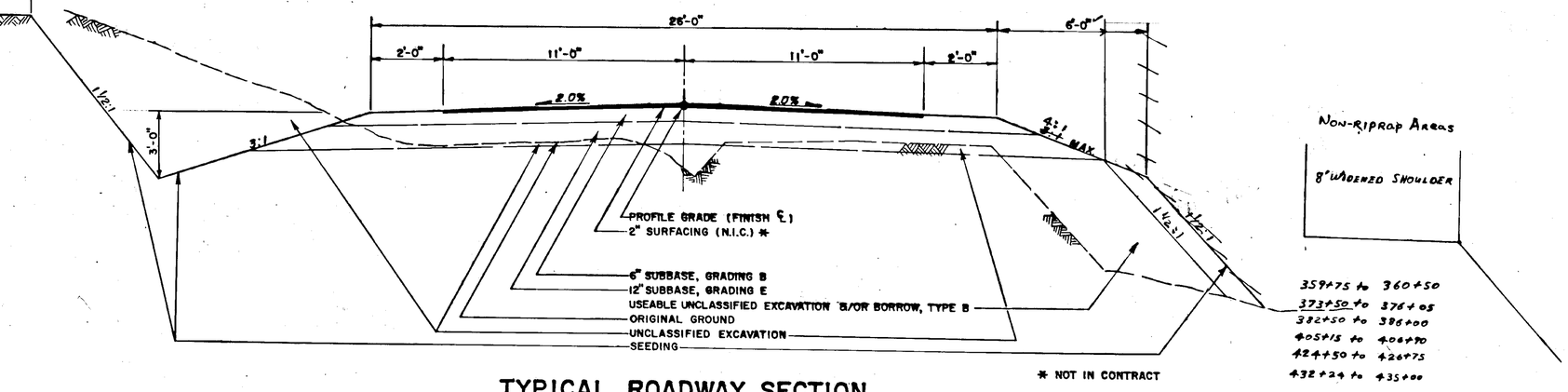
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND
PUBLIC FACILITIES

APPROVED BY: _____ DATE: 9-21-88
DIRECTOR
Southeast Region
Design and Construction

STATE OF ALASKA
49TH
John W. Henry
No. 6249-E
REGISTERED PROFESSIONAL ENGINEER

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991(4)	1988	2	11

CONVERSION FACTORS C.Y. TO TONS	
SUBBASE, GRADING B	2.09 TONS/C.Y.
SUBBASE, GRADING E	2.09 TONS/C.Y.
BORROW, TYPE B	2.13 TONS/C.Y.



* NOT IN CONTRACT

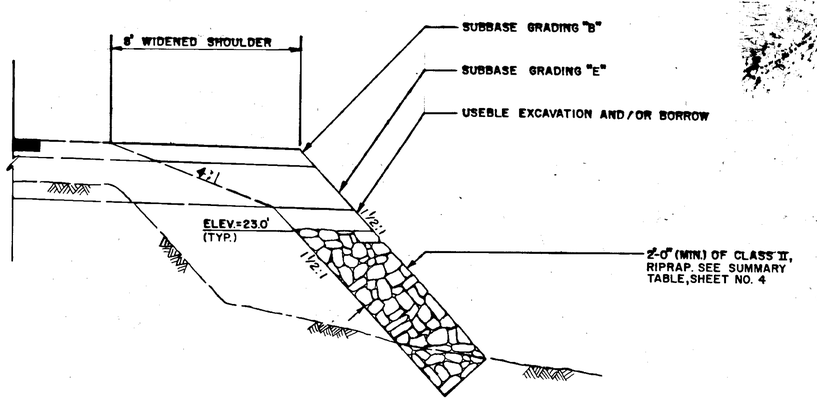
TYPICAL ROADWAY SECTION
NO SCALE

"O" STA. 352+53.29 TO "L" STA. 506+00.00

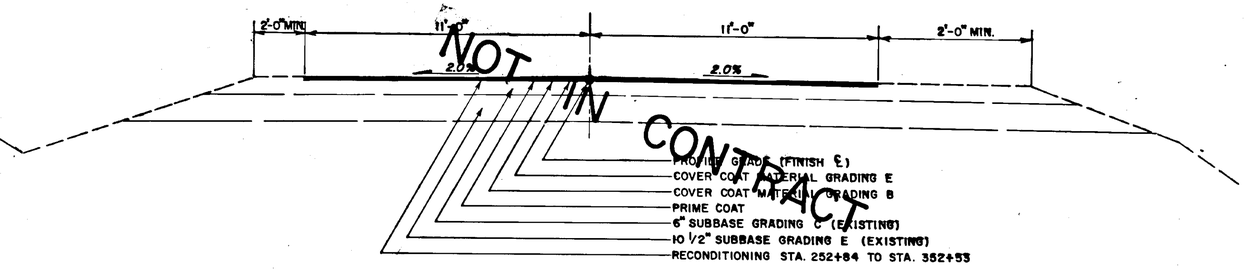
Non-Riprap Areas

8' WIDENED SHOULDER

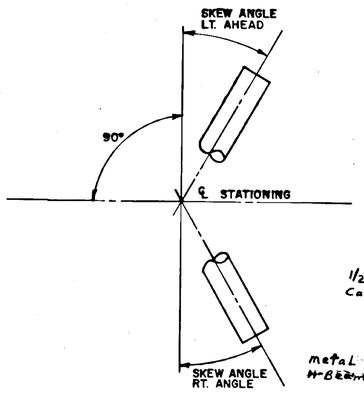
359+75 to 360+50
373+50 to 376+05
382+50 to 386+00
405+15 to 406+90
424+50 to 426+75
432+24 to 435+00



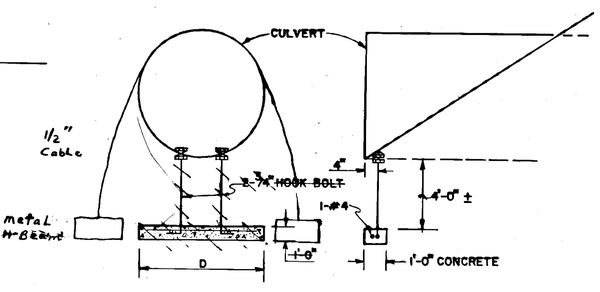
TYPICAL RIPRAP PLACEMENT DETAIL
NO SCALE



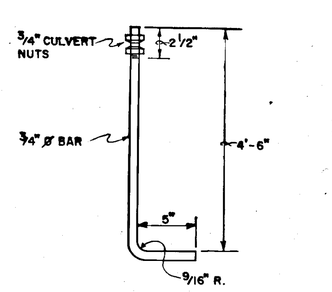
"AsBuilt" STA. 252+84 TO "L" STA. 506+00



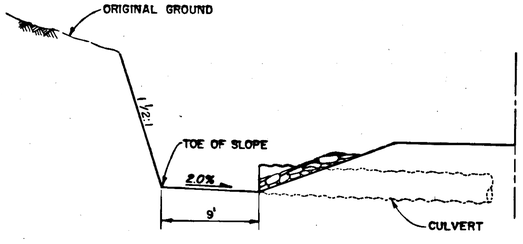
CULVERT SKEW ANGLE
NO SCALE



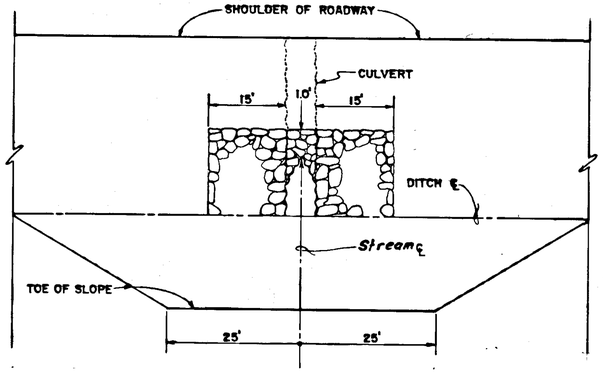
CULVERT DEADMAN DETAIL
NO SCALE



HOOK BOLT DETAIL
NO SCALE

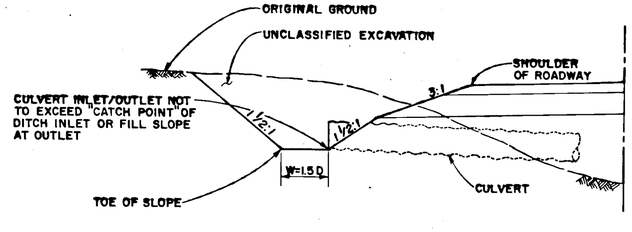


TYPICAL SECTION

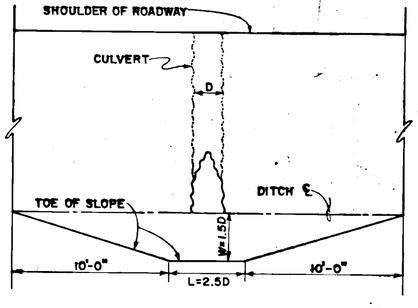


PLAN VIEW

SPECIAL INLET
NO SCALE



TYPICAL SECTION



PLAN VIEW

CULVERT INLET DETAIL
NO SCALE

STATE OF ALASKA
49TH
John W. Henry
No. 4249-E
REGISTERED PROFESSIONAL ENGINEER

ESTIMATE OF QUANTITIES

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	3	11

ITEM NO.	ITEM	UNIT	SHEET NUMBERS 5	6	7	8	9	10	11	PHASE I			TOTAL
109 (2)	DBE & WBE Adjustments	Cont. Sum											All Req'd.
201 (3A)	Clearing & Grubbing	Acre	0.97	0.88	1.33	1.24	1.39	1.46	0.27				~~7.54~~ 12.42
202 (4)	Removal of Culvert Pipe	Linear Foot	170	268	288	227	140	110	0	170			~~1,373~~ 1413
203 (3)	Unclassified Excavation	Cubic Yard	3,921	5,771	4,389	3,368	2,514	4,724	1,646				~~26,333~~ 24895
203 (6B)	Borrow	Ton	3,572	1,964	11,474	7,016	0	0	0				~~24,026~~ 20418
304 (1B)	Subbase, Grading B	Ton	2,366	2,759	3,022	3,434	2,911	2,715	851				18,~~858~~
304 (1E)	Subbase, Grading E	Ton	5,192	6,061	6,642	7,476	6,548	6,094	1,951				~~39,934~~ 40035
510 (1)	Slipout Repair	Lump Sum								All Req'd.			All Req'd.
~~602 (1)~~ 603(10-84)	~~Structural Plate Pipe~~ Corrugated Aluminum Pipe Diameter 84", Gauge ~~10~~ 12	Linear Foot		16'									~~16'~~ 36'
~~602 (2)~~ (10-103 X71)	~~Structural Plate Pipe~~ Corrugated Aluminum Pipe Span 103", Rise 71", Gauge 10	Linear Foot					74'						74'
603 (9-18)	18" Corrugated Aluminum Pipe	Linear Foot					60	66	32				~~158'~~ 372'
603 (9-24)	24" Corrugated Aluminum Pipe	Linear Foot	154	300	152	252	92	234	0				~~1,184'~~ 1245'
603 (9-30)	30" Corrugated Aluminum Pipe	Linear Foot	116	48	210	56	54	0	0				~~484'~~ 471'
603 (9-36)	36" Corrugated Aluminum Pipe	Linear Foot	0	0	54	98	0	50	0				~~202'~~ 254'
603 (9-48)	48" Corrugated Aluminum Pipe	Linear Foot	0	50	56	58	0	0	0	170			~~334'~~ 376'
603 (9-60)	60" Corrugated Aluminum Pipe	Linear Foot								70			70'
606 (4)	Removal & Reconstruction of Guardrail	Linear Foot								450'			450'
606 (8)	Guardrail Relocation	Linear Foot											300'
611 (1)	Riprap, Class II	Cubic Yard	719	765	939	1,209	32	110	0				~~3,774~~ 5774
614 (1)	Survey Monuments	Each	0	0	2	0	0	1	1				~~4~~ 0
614 (2)	Monument Cases	Each	0	0	2	0	0	1	1				~~4~~ 0
615 (1)	Standard Sign	Square Foot	0	0.75	0	0.75	0	0.75	7.5				9.75
618 (1)	Seeding	Acre	0.06	0.69	0.81	0.75	0.70	0.76	0.20				~~3.97~~ 10.94
639 (1)	Residence Driveways	Each	0	0	0	0	2	3	1				~~6~~ ~~13~~ 15
640 (1)	Mobilization & Demobilization	Lump Sum											All Req'd.
641 (1)	Temporary Erosion & Pollution Control	Hour											All Req'd.
642 (1)	Construction Surveying	Lump Sum											All Req'd.
642 (2)	Three Person Survey Party	Hour											~~10~~ 11
643 (2)	Traffic Maintenance	Lump Sum											All Req'd.
643 (4)	Construction Sign	Each/Day											~~1,440~~ 1563
643 (5)	Type II Barricade	Each/Day											~~2,880~~ 1143
643 (7)	Traffic Cone	Each/Day											~~9,000~~ 0
643 (15)	Flagging	Man Hours											~~1,600~~ 1631
643 (18)	Watering	M. Gal.											~~20~~ 0

GENERAL NOTES

1. Grades & alignment shown on these plans are subject to minor revisions.
2. Culvert lengths & locations are approximate only & are subject to minor field revisions.
3. The clearing limits shall be a neat orderly line 15' beyond the slope limits of both cut & fill sections or to the right-of-way line, whichever is the lesser of the two.
4. Property corners/land monuments disturbed and/or destroyed by clearing and/or other construction operations shall be re-established by an Alaska Registered Land Surveyor to third order survey accuracy. A plat reflecting any such work shall be recorded within the first judicial district, Haines recording office, with a copy to the engineer.
5. Materials may be available from private land owners along the project route. If the contractor opts to use privately owned material sites, he or she should make all necessary arrangements for clearing, grubbing, stripping, royalty fees, & restoration with the respective owner(s).
6. The "L" centerline shown on the plan & profile sheets has been staked in survey work performed by State of Alaska, Department of Transportation & Public Facilities forces in 1978 & 1979. Restaking of that portion of the "L" centerline needed for construction will be required by the contractor. The "O" centerline shown on the plan & profile sheets denotes office designed route centerline. Staking of this centerline will be required by the contractor.
7. Seeding, pay item no. 618 (1), will be required on all fill slopes constructed with material other than rock, cut slopes other than rock & on all exposed surfaces of waste areas.
8. Superelevation transition length shall be 125' unless noted otherwise. Superelevation shall rotate on the inside shoulder.
9. One lane of traffic shall be maintained at all times. Detours around the work area shall be in accordance with the standard drawing C-03.01, two lane roadway - single lane closure, typical lane closure - short duration.
10. In order to reduce water quality impacts and impacts to migrating fish, fills within tidal areas will be placed at lower tidal stages, when the work area is dewatered.
11. The location of work required for Item 510 (1). slipout repair is approximate Sta. "As-built" 319+00 to Sta. "As-built" 320+25 3200 feet southeast of the B.O.P.

STATE OF ALASKA
JOHN W. HENRY
No. 4249-E
REGISTERED PROFESSIONAL ENGINEER
John W. Henry

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	4	11

CULVERT SUMMARY

STATION	18" CORRUGATED ALUMINUM PIPE L.F.	24" CORRUGATED ALUMINUM PIPE L.F.	30" CORRUGATED ALUMINUM PIPE L.F.	36" CORRUGATED ALUMINUM PIPE L.F.	48" CORRUGATED ALUMINUM PIPE L.F.	60" CORRUGATED ALUMINUM PIPE L.F.	84" CORRUGATED ALUMINUM PIPE L.F.	103"x71" STRUCTURAL PLATE PIPE -ARCH-	SEE DRAINAGE NOTES	CULVERT REMOVAL & DISPOSAL
"0" 353+89			58'							24"x 40'
"0" 356+37		50' 52'								18"x 32'
"0" 358+77										18"x 37'
"0" 360+~~76~~04			58'							24"x 29'
"0" 360+43									1, 2	
~~"0" 362+26~~ 364+00		50' 52'								
"0" 363+55										18"x 32'
"0" 369+~~37~~50		50'								
"L" 374+~~35~~00							36' ~~16'~~		1, 3, 5	
~~"0" 378+33~~ 377+65		55' ~~58'~~								
"0" 377+00										18"x 40'
"0" 381+~~44~~28		65' ~~80'~~								12"x 40'
"0" 384+~~72~~60					68' ~~50'~~				1, 2, 3, 5	36"x 29'
"0" ~~385+27~~			0 ~~48'~~							30"x 30'
"0" 386+~~96~~90		54'								24"x 35'
"0" 388+82										18"x 29'
~~"0" 389+50~~ 390+15		60' ~~58'~~								
"0" 390+62										18"x 31'
"0" ~~393+48~~ 392+00		54' ~~50'~~								18"x 34'
"0" 397+40										
"0" 397+80			54' ~~48'~~							24"x 28'
"0" 399+36									1, 2	
"0" 399+64			61' ~~48'~~							24"x 40'
"0" ~~401+00~~ 400+90			75' ~~66'~~							18"x 36'
"0" 402+60										
"0" 402+70		54' ~~58'~~								18"x 32'
"0" 405+~~80~~60				54'						30"x 28'
"0" 409+00										18"x 34'
"0" 409+~~97~~00		52' ~~48'~~								
"0" 410+~~57~~67			53' ~~48'~~						1, 2	
"0" 412+25										24"x 40'
"0" 418+00 Lt	30'									
"0" 413+~~90~~80					70' ~~56'~~				3, 5	36"x 50'
"0" 419+00		52' ~~46'~~								
"0" 422+63		56' ~~54'~~								18"x 40'
"0" 425+50					60' ~~58'~~				1, 3, 5	36"x 40'
"0" 427+05										18"x 40'
"0" 427+85		50' ~~46'~~								
"0" ~~430+31~~ 429+70				52'					1, 2	
"0" ~~433+07~~ 432+90				46'					1, 2	
"0" ~~434+40~~ 435+50		54' ~~52'~~								18"x 31'
"0" 438+02		50'								18"x 45'
"0" 442+~~67~~75			56'							18"x 31'
"0" 444+50		48' ~~50'~~								
"0" 449+~~92~~65		46' ~~48'~~								
"0" 455+59 Lt.	30'								4	
"0" 460+61								74'	3, 6	72"x 100'
"0" 465+~~80~~71	30'								4	
"0" 469+~~06~~46			56' ~~54'~~							18"x 40'
"0" 472+00		66' ~~44'~~								
"0" 476+~~34~~00		69' ~~52'~~								
"0" 476+96										18"x 35'
"0" 474+65 Lt.	30'									
~~"0" 478+86~~	0' ~~30'~~								4	
"0" ~~480+50~~ 478+90		53' ~~46'~~								
"0" 482+88		60' ~~44'~~								24"x 31'
"0" ~~487+00~~ 485+65	36' ~~30'~~								4	
~~"0" 488+86~~		0 ~~44'~~								
"0" 496+~~65~~90				50'						30"x 44'
"0" ~~497+90~~ 499+10		50' ~~48'~~								
"0" 501+10 Lt.	32' ~~91'~~								4	
"0" 473+60 Lt.	42'									
"0" 486+10 Rt.	30'									
"0" 487+65 Lt.	18'									
"0" 496+25 Lt.	41'									
"Asbuilt" 271+70						70'			3, 5, 7	
" " 320+~~96~~90					108' ~~100'~~				3, 5, 7	~~30"x 100'~~
" " 346+~~70~~80					70'				3, 5, 7	~~36"x 70'~~
"0" 505+37		47'								

MONUMENT SUMMARY

STATION	LOCATION	POINT	* MON.
"0" 403+94.90	CL	PT.	1
"0" 409+52.80	CL	PC.	1
"0" 497+58.31	CL	P.T.	1
"0" 503+00.56	CL	P.C.	1

* Monument case to be furnished at each location.

RIPRAP, CLASS II SUMMARY

FROM	TO	OFFSET	LENGTH	REMARKS
352 + 53	359 + ~~24~~15	Rt.	671'	750'
360 + ~~+25~~0	364 + ~~43~~	Rt.	331'	450'
376 + ~~25~~05	382 + 50	Rt.	625'	645'
386 + ~~50~~25	391 + 44~~50~~	Rt.	494'	525'
400 + ~~37~~45	405 + ~~27~~15	Rt.	~~490'~~	470'
~~407+27~~	~~412+91~~	Rt.	~~564'~~	658'
~~420+07~~	424 + ~~09~~50	Rt.	~~402'~~	550'
~~427+10~~	~~432+12~~	Rt.	~~502'~~	
426+75	432+24			549'
435 + ~~35~~00	~~446+43~~	Rt.	~~1108'~~	1050'
~~474+20~~	~~476+59~~	Rt.	~~239'~~	
473+80	477+00	Rt		320'
497+10	499+00	Rt	190'	Shoulder not widened this area
351+50	352+34	Lt	84'	

GUARDRAIL REMOVAL & RECONSTRUCTION SUMMARY

STATION TO STATION	LENGTH	REMARKS
"Asblt" 322+00 to "Asblt" 326+50	450'	As directed by Engineer

NOTE: Guardrail relocation is located Southeast of the B.O.P. along Lutak Road.

DRIVEWAY NOTES

1. Driveway locations are approximate only and are subject to minor field revisions.
2. Driveway entrances shall be constructed with the same materials that are used to surface the typical roadway section.

RESIDENTIAL DRIVEWAYS

STATION	OFFSET	△ RT.	△ LT.	TYPE	WIDTH	CULVERT
"L" 455+59	Lt.			Residential	14'	18" x 30'
"L" 465+~~80~~71	Lt.			Residential	14'	18" x 30'
"0" ~~478+86~~ 479+50	Lt.			Residential	14'	18" x 30'
"0" 487+00~~65~~	Rt.			Residential	20'	18" x 36'
"0" 496+18	Rt.			Residential	16'	None
"0" 501+10	Lt.			Residential	16'	18" x 3~~2~~'91'
"L" 379+25	Lt			Residential	14'	None
"0" 418+00	Lt			Residential	14'	18" x 30'

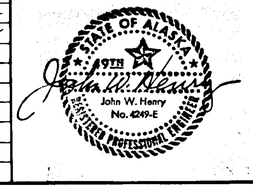
Sta	Offset	Type	Width	Culvert
462+10	Lt	Residential	14'	None
465+20	Rt	Residential	14'	None
473+80	Lt	Residential	20'	18"x42'
474+65	Lt	Residential	14'	18"x30'
486+10	Rt	Residential	14'	18"x30'
487+65	Lt	Walkway	10'	18"X18'
496+25	Lt	Residential	20'	18"x41'

GENERAL SIGN NOTES:

1. Sign locations are approximate only & are subject to revision.
2. All sign posts shall be telescoping performated galvanized steel, the 2" size shall be used above ground & the 2 1/4" shall be used below ground.
3. Sign post length includes the one foot telescope inside the base. Lengths are for estimate only. Actual lengths may vary.

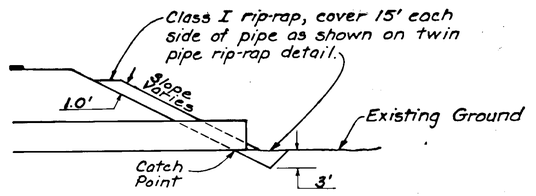
STANDARD SIGN SUMMARY

STATION	OFFSET FROM ℄	CODE NO.	LEGEND	AREA SQ. FT.	POST SIZE	POST LENGTH	EMBED.
"L" 374 +94	25' Rt.	M10-2	7	0.75	2"	13'	30"
"0" 427 + 74	28' Rt.	M10-2	8	0.75	2"	16'	30"
"0" 481 +47	25' Rt	M10-2	9	0.75	2"	11'	30"
"0" 504+20	25 Lt.	R2-1	SPEED LIMIT 35 M.P.H.	7.5	2"	12'	42"

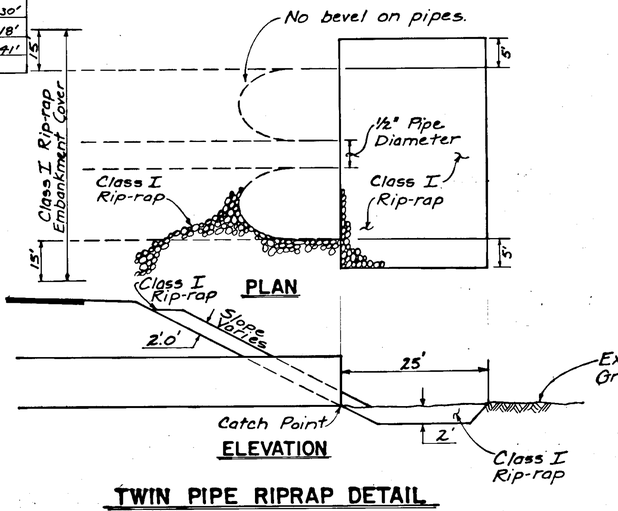


DRAINAGE NOTES

1. Where "clean inlet" is called out, the creek shall be cleared for a minimum distance of 50' upstream from the roadway centerline and a width of 10' either side of the meander line or as directed by the engineer.
2. Where "Special Inlet" is called out, construct a special culvert inlet as shown in the detail on sheet 2.
3. Where "riprap" is called out, a riprap type head wall shall be provided and installed as end protection. (See sheet 2 for detail).
4. Where "Driveway" is called out, the culvert shall be placed in the ditch line beneath the driveway (typ.).
5. All pipes 48" and larger shall be installed with a deadman at both ends as detailed on sheet 2.
6. Installation of the 103"x 71" ~~S.P.P.A.~~ @ Sta. 460+61 shall include a Type I headwall at the inlet end and deadman at the outlet.
7. The pipes located at Sta. "As-built" 271+00, 320+96 and 346+70 are located southeast of the B.O.P. along Lutak Road.



SINGLE PIPE RIPRAP DETAIL
NO SCALE



TWIN PIPE RIPRAP DETAIL
NO SCALE

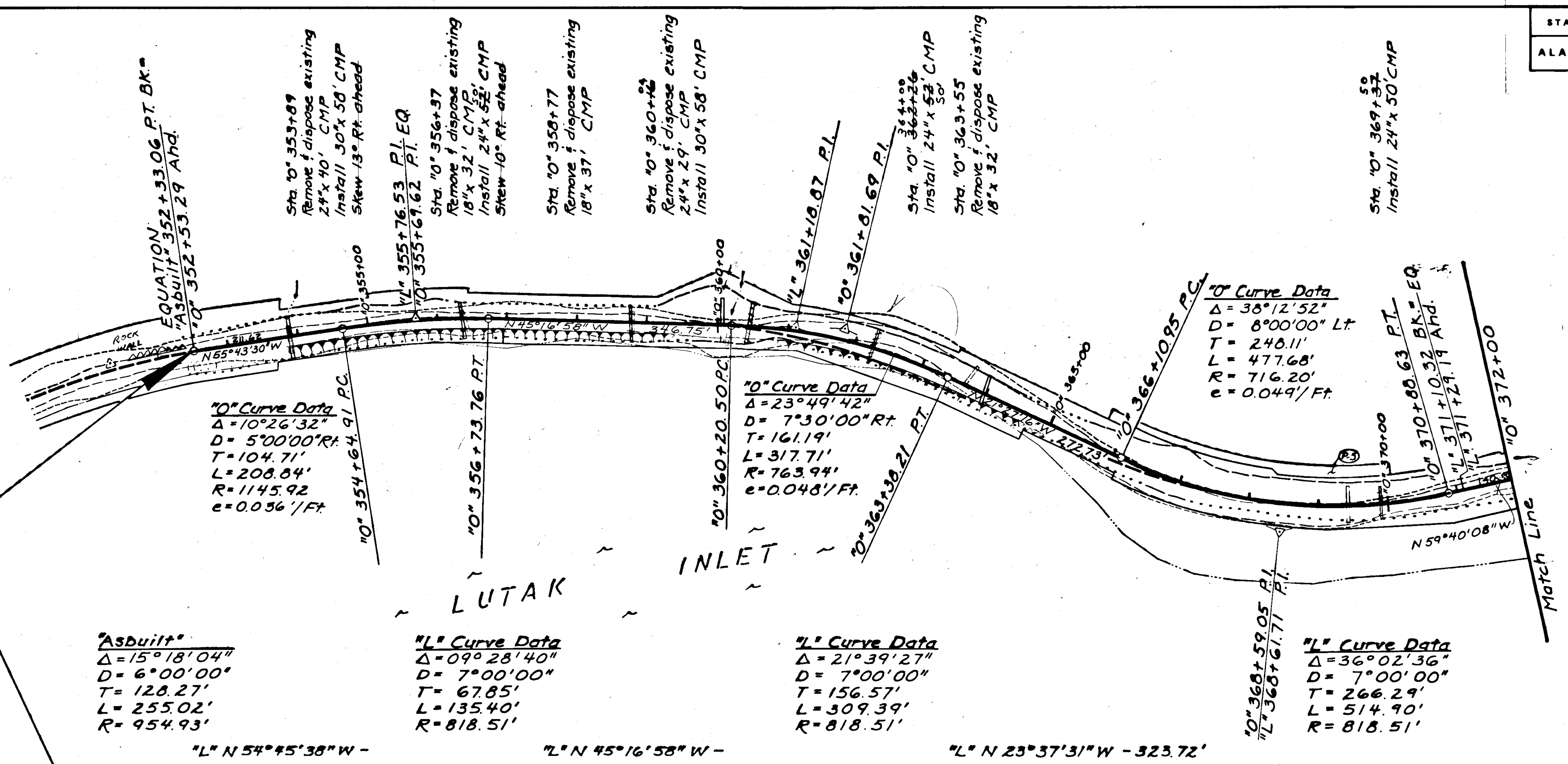
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	5	11

HORIZONTAL CONTROL

THE BASIS OF BEARING WAS DETERMINED FROM THE LINE OF SIGHT BETWEEN U.S.G.S. (1943) MONUMENTS "ZIS" TO "LUT" WITH A BEARING OF S. 44°23'11" E. THE SURVEY COURSE FROM "LUT" TO THE B.O.P. WAS MEASURED AS S. 46°36'29" W. ~ 4,972.9777'.

ADDITIONAL SYMBOLS

- MEAN HIGH WATER
- EXISTING SLOPE LIMITS
- PROPOSED LIMIT OF FILL SLOPE
- PROPOSED LIMIT OF CUT SLOPE
- EXISTING ROADWAY



BEGIN PROJECT
"O" STA. 352+53.29
EQUATION "Asbuilt" 352+33.06 P.T. BK.= "O" 352+53.29 Ahd.
Sta. "O" 353+89 Remove & dispose existing 24"x 40' CMP Install 30"x 58' CMP Skew 13° Rt. ahead
"L" 355+76.53 P.I. EQ "O" 355+69.62 P.I.
Sta. "O" 356+37 Remove & dispose existing 18"x 32' CMP Install 24"x 52' CMP Skew 10° Rt. ahead
Sta. "O" 358+77 Remove & dispose existing 18"x 37' CMP
Sta. "O" 360+22 Remove & dispose existing 24"x 29' CMP Install 30"x 58' CMP
"L" 361+10.87 P.I.
"O" 361+81.69 P.I.
Sta. "O" 362+26 Install 24"x 53' CMP
Sta. "O" 363+55 Remove & dispose existing 18"x 32' CMP
Sta. "O" 369+50 Install 24"x 50' CMP
"O" Curve Data Δ=10°26'32" D= 5°00'00" Rt. T=104.71' L=208.84' R=1145.92 e=0.036'/Ft.
"O" 354+64.91 P.C.
"O" 356+73.76 P.T.
"O" 360+20.50 P.C.
"O" Curve Data Δ=23°49'42" D= 7°30'00" Rt. T=161.19' L=317.71' R=763.94' e=0.048'/Ft.
"O" 363+38.21 P.T.
"O" 366+10.95 P.C.
"O" Curve Data Δ=38°12'52" D= 8°00'00" Lt. T= 248.11' L= 477.68' R= 716.20' e= 0.049'/Ft.
"O" 370+88.63 P.T.
"L" 371+10.32 BK.= "O" 371+29.19 Ahd. EQ.
"O" 372+00
Match Line
N 55°43'30" W
N 45°16'58" W
N 59°40'08" W
LUTAK INLET
"Asbuilt" Δ=15°18'04" D= 6°00'00" T= 128.27' L= 255.02' R= 954.93'
"L" Curve Data Δ=09°28'40" D= 7°00'00" T= 67.85' L= 135.40' R= 818.51'
"L" Curve Data Δ=21°39'27" D= 7°00'00" T= 156.57' L= 309.39' R= 818.51'
"O" 368+59.05 P.I. "L" 368+61.71 P.I.
"L" Curve Data Δ=36°02'36" D= 7°00'00" T= 266.29' L= 514.90' R= 818.51'
"L" N 54°45'38" W -
"L" N 45°16'58" W -
"L" N 23°37'31" W - 323.72'

VERTICAL CONTROL

THE BASIS OF VERTICAL CONTROL FOR THIS PROJECT WAS U.S.C. & G.S. TIDAL BENCH MARK 5 (1943), HAINES, CHILKOOT INLET, LYNN CANAL, AS DESCRIBED IN COAST & GEODETIC SURVEY PUBLICATION 163 (5/16/61). THE ELEVATION OF RECORD FOR THIS MONUMENT IS 27.60', WHILE THE ELEVATION BASE EMPLOYED BY DOT/PF SURVEY TEAMS WAS 27.500'. BENCH LEVELS WERE CARRIED FORWARD BY THREE-WIRE METHODS.

Embankment = 5,206 CY
Excavation = 3,921 CY (Includes 392 CY Waste)
Borrow = 3,572 Ton

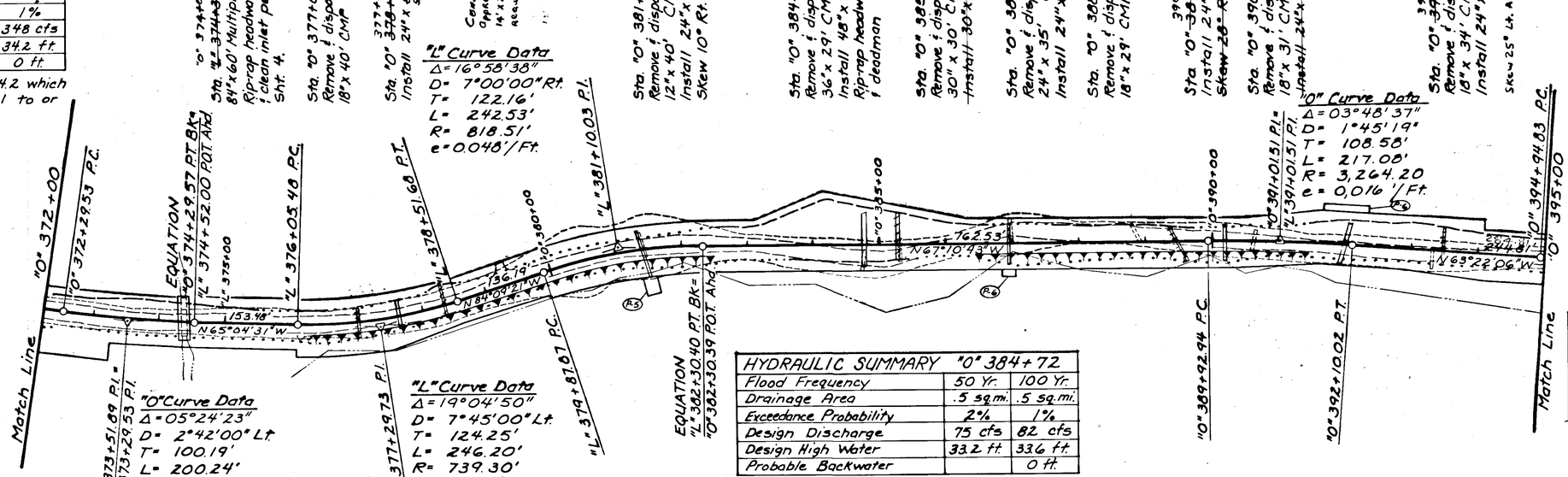
Borrow = Embankment - Useable Unclassified Excavation x Grading Factor

50
40
30
20
10
Profile Grade
+0.5429%
-0.7368%
+2.15%
-0.5%
+2.1846%
Elev.=30.4 300' V.C.
Elev.=23.4 300' V.C.
Elev.=32.0 400' V.C.
Elev.=30.5 200' V.C.
MATCH EXISTING
353+50 V.P.I.
363+00 V.P.I.
367+00 V.P.I.
370+00 V.P.I.
EQ "L" 371+10.32 Bk. "L" 371+29.19 Ahd.
350+00
355+00
360+00
365+00
370+00
STATE OF ALASKA 49TH John W. Henry No. 4249-E REGISTERED PROFESSIONAL ENGINEER

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991(4)	1988	6	11

HYDRAULIC SUMMARY "0" 374+35		
Flood Frequency	50 Yr.	100 Yr.
Drainage Area	2.10 sq.mi.	2.10 sq.mi.
Exceedance Probability	2%	1%
Design Discharge	316 cfs	348 cfs
Design High Water	33.5 ft.	34.2 ft.
Probable Backwater		0 ft.

Capacity = 350 cfs at elevation 34.2 which has an exceedance probability equal to or less than 1% (Q100).



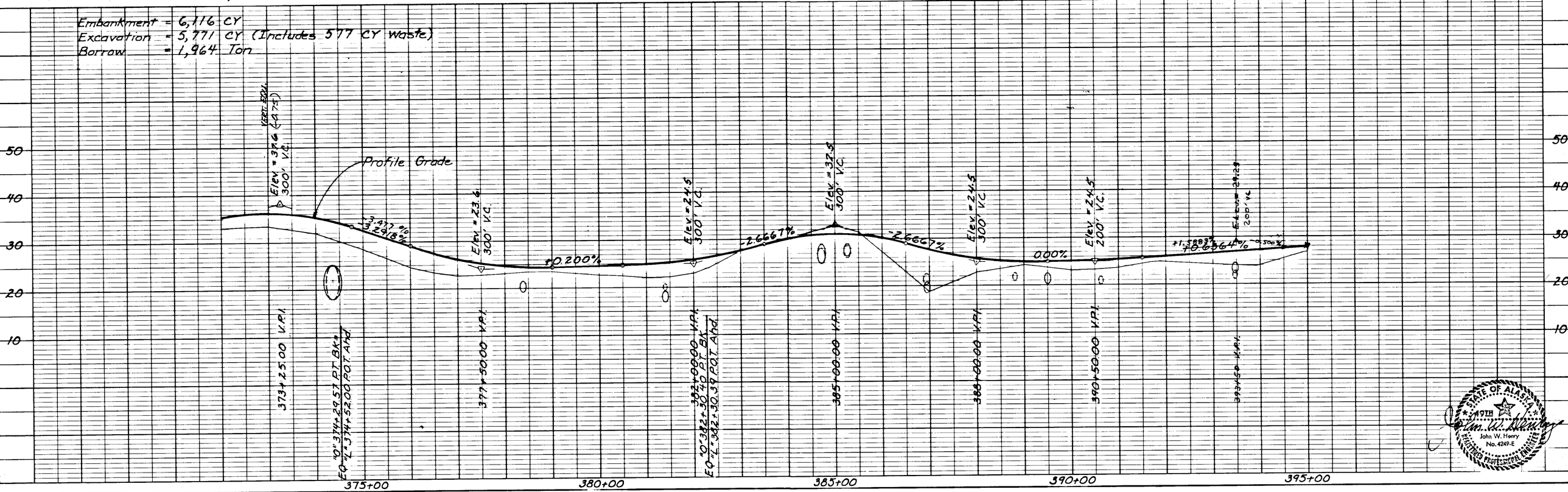
HYDRAULIC SUMMARY "0" 384+72		
Flood Frequency	50 Yr.	100 Yr.
Drainage Area	.5 sq.mi.	.5 sq.mi.
Exceedance Probability	2%	1%
Design Discharge	75 cfs	82 cfs
Design High Water	33.2 ft.	33.6 ft.
Probable Backwater		0 ft.

Capacity = 99 cfs at elevation 34.6 which has an exceedance probability equal to or less than .5% (Q200).

Superelevation Transition Note:	
Sta. "L" 375+22.11	Begin Transition
Sta. "L" 376+47.11	Begin Full Super
Sta. "L" 378+10.06	End Full Super
Sta. "L" 379+19.78	.01% Crown
Sta. "L" 379+35.06	End Transition, R. Lane
Sta. "L" 379+04.50	Begin Transition, L. Lane
Sta. "L" 380+29.50	Begin Full Super
Sta. "L" 381+89.14	End Full Super
Sta. "0" 383+14.14	End Transition

LUTAK INLET

Embankment = 6,116 CY
Excavation = 5,771 CY (Includes 577 CY waste)
Borrow = 1,964 Ton



Superelevation Transition Note:	
Sta. "0" 397 + 74.11	Begin Transition
Sta. "0" 398 + 95.72	Begin Full Super
Sta. "0" 400 + 15.94	End Full Super
Sta. "0" 401 + 40.94	End Transition, R Lane
Sta. "0" 401 + 24.65	.01% Crown
Sta. "0" 401 + 08.35	Begin Transition, L Lane
Sta. "0" 402 + 33.35	Begin Full Super
Sta. "0" 403 + 53.28	End Full Super
Sta. "0" 404 + 78.28	End Transition
Sta. "0" 408 + 69.43	Begin Transition
Sta. "0" 409 + 94.43	Begin Full Super
Sta. "0" 411 + 66.47	End Full Super
Sta. "0" 412 + 91.47	End Transition, L Lane

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	7	11

Superelevation Transition Cont.:	
Sta. "0" 412 + 78.23	.01% Crown
Sta. "0" 412 + 64.99	Begin Transition, R Lane
Sta. "0" 413 + 89.99	Begin Full Super
Sta. "0" 417 + 41.50	End Full Super
Sta. "0" 418 + 66.50	End Transition

Sta. "0" 397+80 Install 30"x 50' CMP 54°

Sta. "0" 397+80 Remove & dispose existing 24"x 28' CMP

Sta. "0" 399+36 Install 30"x 48' CMP & Construct special culvert Inlet "Ahead"

Sta. "0" 399+64 Remove & dispose existing 24"x 40' CMP

Sta. "0" 401+00 Remove & dispose existing 18"x 36' CMP Skew 25° Lt. ahead

Sta. "0" 401+00 Remove & dispose existing 18"x 36' CMP Skew 15° Rt. ahead

Install centerline survey Monuments Sta. "0" 403+94.00 P.T. & Sta. "0" 409+52.80 P.C. This contract.

Sta. "0" 402+70 Remove & dispose existing 18"x 32' CMP Install 24"x 56' CMP 54°

Sta. "0" 405+00 Remove & dispose existing 18"x 34' CMP

Sta. "0" 405+00 Remove & dispose existing 30"x 28' CMP Install 36"x 52' CMP Skew 25° Lt. ahead

Sta. "0" 409+00 Remove & dispose existing 24"x 40' CMP

Sta. "0" 409+67 Install 24"x 40' CMP & construct special Culvert Inlet "Ahead"

Sta. "0" 410+57 Install 30"x 48' CMP 53°

Sta. "0" 412+25 Remove & dispose existing 24"x 40' CMP

Sta. "0" 413+80 Remove & dispose existing 36"x 50' CMP 30° Install 48"x 56' CMP Skew 15° Lt. ahead Riprap headwall Protection & deadman

Sta. "0" 414+35 to Sta. "0" 415+00 ± Lt. Construct 4:1 Backslope 1 1/2:1

Sta "0" 418+00 Construct a Remote approach with 66 18"x 30' C.M.P.

Sta. "0" 419+00 Install 24"x 46' CMP 52°

"0" 395+00

"L" 396+07.40 P.I.

"0" 395+95.45 P.I.

"0" Curve Data
Δ = 12°07'19"
D = 6°02'45" Rt.
T = 100.63'
L = 200.50'
R = 947.69'
c = 0.044'/Ft.

"0" 396+95.33 P.T.

"0" Curve Data
Δ = 18°49'20"
D = 9°15'00" Lt.
T = 102.67'
L = 203.48'
R = 619.414'
e = 0.054'/Ft.

158.76' N5°19'41"W

"0" 398+54.09 P.C.

"L" 399+54.33 P.I.

"0" 399+56.75 P.I.

"0" 400+00

"0" 400+51.57 P.T.

"L" 401+40.47 P.I.

"0" 401+91.72 P.C.

N 70°04'07"W 134.15'

"0" 401+41.72 P.C.

"0" 402+94.56 P.I.

"0" 403+94.00 P.T.

"L" 404+39.57 P.I.

"0" 405+00

"0" 406+46.36 P.O.T.

"0" 408+11.20 P.O.T.

N 48°33'39" W - 357.90'

"0" 409+52.80 P.C.

"0" 410+00

"0" 410+82.60 P.I.

"L" 411+95.03 P.I.

"0" Curve Data
Δ = 21°50'28"
D = 10°45'00" Rt.
T = 102.83'
L = 203.17'
R = 532.98'
c = 0.055'/Ft.

"0" Curve Data
Δ = 25°31'44"
D = 10°00'00" Rt.
T = 129.80'
L = 255.29'
R = 572.96'
e = 0.054'/Ft.

"0" 412+08.09 P.T.

N 22°41'55" W 140.28'

"0" 413+48.36 P.C.

"L" 414+30.48 P.I.

"0" 415+00

"0" 415+70.66 P.I.

"0" 417+83.12 P.T.

N 69°26'06" W 301.25'

"0" 420+00

Match Line

Match Line

"0" Curve Data
Δ = 46°44'11"
D = 10°45'00" Lt.
T = 230.29'
L = 434.76'
R = 532.98'
e = 0.055'/Ft.

~ LUTAK INLET ~

"L" Curve Data
Δ = 14°08'50"
D = 8°30'00"
T = 83.64'
L = 166.44'
R = 674.07'
"L" N 49°13'16"W - 194.30'

"L" Curve Data
Δ = 29°22'03"
D = 21°30'00"
T = 69.83'
L = 136.59'
R = 266.49'
"L" N 78°35'19"W - 112.73'

"L" Curve Data
Δ = 23°34'50"
D = 18°30'00"
T = 64.65'
L = 127.46'
R = 309.71'
"L" N 55°00'29"W - 124.49'

"L" Curve Data
Δ = 12°19'30"
D = 11°30'00"
T = 53.80'
L = 107.18'
R = 498.22'
"L" N 42°40'59"W - 153.61'

No Curve

"L" N 53°08'14"W - 164.64'

No Curve

"L" Curve Data
Δ = 39°31'06"
D = 20°30'00"
T = 100.40'
L = 192.77'
R = 279.49'
"L" N 47°00'47"W - 283.43'

"L" N 07°29'41"W - 30.30'

"L" Curve Data
Δ = 53°48'54"
D = 13°40'00"
T = 212.76'
L = 393.77'
R = 419.24'
"L" N 61°18'35"W - 1,448.50'

Embankment = 9,337 CY
Excavation = 4,389 CY (Includes 439 CY Waste)
Borrow = 11,474 Ton

Profile Grade

-0.50%
+0.6564%
Elev. = 28.0
200' V.C.

-0.50%

Elev. = 27.0
200' V.C.

+2.00%

Elev. = 31.0
200' V.C.

+1.00%

Elev. = 28.0
300' V.C.

+1.7143%

Elev. = 34.0
300' V.C.

-3.666%

Elev. = 23.0
300' V.C.

+1.9091%

Elev. = 35.5
300' V.C.

-1.333%

Elev. = 23.5
300' V.C.

+0.6667%

396+00.00 V.P.I.

398+00.00 V.P.I.

400+00.00 V.P.I.

403+00.00 V.P.I.

406+50.00 V.P.I.

409+50.00 V.P.I.

415+00.00 V.P.I.

418+00.00 V.P.I.

395+00 400+00 405+00 410+00 415+00 420+00

HYDRAULIC SUMMARY "0" 413+90		
Flood Frequency	50 Yr.	100 Yr.
Drainage Area	.45 sq.mi.	.45 sq.mi.
Exceedance Probability	2%	1%
Design Discharge	67 cfs	74 cfs
Design High Water	32.3 ft.	32.6 ft.
Probable Backwater		0 ft.

Capacity = 90 cfs at elevation 33.0 which has an exceedance probability equal to or less than .2% (Q500).

STATE OF ALASKA 49TH
John W. Henry
No. 4249-E
REGISTERED PROFESSIONAL ENGINEER

KEUFFEL & ESSER A KRATOS Company PLATE 1, PLAN-PROFILE

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	8	11

Sta. "0" 422+63
Remove & dispose existing
18"x 40' CMP
Install 24"x 54' CMP

Sta. "0" 425+50
Remove & dispose existing
36"x 40' CMP
Install 48"x 58' CMP
Rip-rap headwall
protection & clean inlet
per note (1) Sheet 4.
Provide special ditch
at outlet & install deadman

Sta. "0" 427+05
Remove & dispose existing
18"x 40' CMP

Sta. "0" 427+85
Install 24"x 46' CMP
50'

Sta. "0" 429+70
Sta. "0" 430+34
Install 36"x 52' CMP
55'

Sta. "0" 432+90
Sta. "0" 433+07
Install 36"x 46' CMP
& construct "special"
Culvert inlet "Back"

Sta. "0" 435+50
Sta. "0" 434+48
Remove & dispose existing
18"x 31' CMP
Install 24"x 52' CMP
54'

Sta. "0" 438+02
Remove & dispose existing
18"x 45' CMP
Install 24"x 50' CMP

Sta. "0" 442+67
Remove & dispose existing
18"x 31' CMP
Install 30"x 56' CMP

Sta. "0" 444+50
Install 24"x 50' CMP
48'

"0" Curve Data
Δ = 12°08'25"
D = 6°03'00" Rt.
T = 100.71'
L = 200.67'
R = 947.04'
e = 0.044'/Ft.

"0" Curve Data
Δ = 08°31'35"
D = 4°15'00" Lt.
T = 100.50'
L = 200.62'
R = 1,348.14'
e = 0.037'/Ft.

"0" Curve Data
Δ = 16°57'24"
D = 8°26'00" Rt.
T = 101.27'
L = 201.07'
R = 679.40'
e = 0.051'/Ft.

"0" Curve Data
Δ = 56° 42' 08"
D = 8° 00' 00" Rt.
T = 386.46'
L = 708.78'
R = 716.20'
e = 0.050'/Ft.

"L" Curve Data
Δ = 22°39'25"
D = 39°15'00"
T = 29.25'
L = 57.73'
R = 145.98'

"L" Curve Data
Δ = 10°12'42"
D = 12°40'00"
T = 40.42'
L = 80.62'
R = 452.34'

"L" Curve Data
Δ = 60°29'16"
D = 6°30'00"
T = 513.93'
L = 930.58'
R = 881.47'

"0" 420+00
"0" 421+91.08 P.I.
"0" 422+91.03 P.T.
"0" 420+90.37 P.C.
Match Line
"0" 425+00
"0" 430+00
"0" 430+23.05 P.C.
"0" 431+24.33 P.I.
"0" 432+24.12 P.T.
"L" 431+89.24 P.I.
"0" 433+41.62 P.C.
"L" 435+16.17 P.I.
"0" 435+42.12 P.I.
"0" 436+42.25 P.T.
"0" 438+97.46 P.C.
"0" 440+00
"0" 442+83.92 P.I.
"L" 443+81.14 P.I.
"0" 445+00
"0" 446+06.24 P.T.
"0" 447+00
Match Line

N 57°14'11" W 232.02'
N 40°20'17" W 217.50'
N 48°51'52" W 255.21'

"L" N 61°18'35" W - 1,448.50'
"L" N 38°39'10" W - 258.03'
"L" N 48° 51' 52" W - 310.80'

LUTAK INLET

HYDRAULIC SUMMARY "0" 425+50		
Flood Frequency	50 Yr.	100 Yr.
Drainage Area	.45 sq.mi.	.45 sq.mi.
Exceedance Probability	2%	1%
Design Discharge	67 cfs	74 cfs
Design High Water	29.7 ft.	30 ft.
Probable Backwater		0 ft.

Capacity = 95 cfs at elevation 31.2 which has an exceedance probability equal to or less than .2% (Q500).

Embankment = 7,842 CY
Excavation = 3,368 CY (Includes 337 CY Waste)
Borrow = 7,016 Ton
Note: 1,517 CY Useable Unclassified Excavation from Sheet 10

Profile Grade
+0.6667%
+2.4000%
-2.3333%
+1.8333%
-2.500%
+0.8750%
-1.000%
0.0000%
+0.75%
Elev. = 26.5' 200' V.C.
Elev. = 32.5' 300' V.C.
Elev. = 25.5' 300' V.C.
Elev. = 34.0' 300' V.C.
Elev. = 24.0' 300' V.C.
Elev. = 27.5' 300' V.C.
Elev. = 24.5' 300' V.C.
Elev. = 24.5' 200' V.C.
422+50.00 V.P.I.
425+00.00 V.P.I.
428+00.00 V.P.I.
431+00.00 V.P.I.
435+00.00 V.P.I.
439+00.00 V.P.I.
442+00.00 V.P.I.
446+00.00 V.P.I.

Note:
Maintain ½ diameter
distance between pipes

420+00 425+00 430+00 435+00 440+00 445+00

STATE OF ALASKA
49TH
John W. Henry
No. 4249-E
REGISTERED PROFESSIONAL ENGINEER

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	9	11

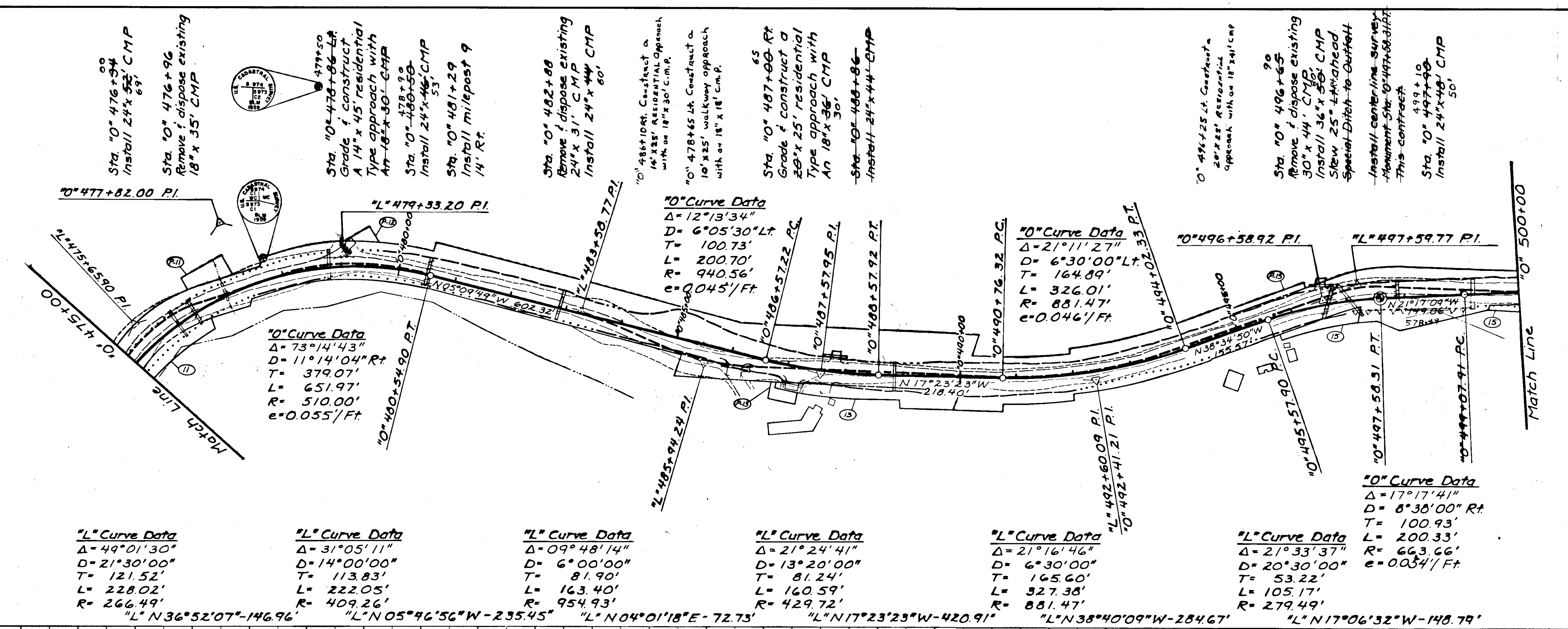
Match Line
"O" 447+00
"L" 447+97.78 BK= "L" 448+57.76 Ahd EQ.
"O" 448+84.20 P.C.
Sta. "O" 449+63 Install 24"x46' CMP
"O" 450+00
"O" 450+84.29 P.T. BK= "L" 451+77.97 P.O.T. Ahd EQ
N 02°50'16"E 277.96'
"O" Curve Data
Δ= 04°53'08"
D= 2°26'30" Lt.
T= 100.11'
L= 200.09'
R= 2,346.59'
e= 0.025'/Ft.
"L" 450+78.12 P.I.
"O" 449+84.30 P.I.
N 02°57'08"E 364.48'
Sta. "L" 455+59.00 Lt. Grade & construct a 14'x25' residential type Approach with a 18"x30' CMP
"L" 455+42.45 P.C.
"L" 455+00
"L" Curve Data
Δ= 40°35'40"
D= 7°45'00" Lt.
T= 273.44'
L= 523.80'
R= 739.30'
e= 0.049'/Ft.
Sta. "L" 460+61 Remove & dispose existing 72"x100' & 45' multiplate CMP. Install 103"x71"x74' S.P.P.A. with Type I Headwall and rip-rap End protection.
"L" 460+00
"L" 460+66.24 P.T.
"L" 458+15.88 P.I.
"O" 462+00
Match Line
N 37°38'32"W 230.09'
"L" 462+10 Lt. Construct a 14'x25' Residential Approach. No pipe required.
"L" 465+20 Rt. Construct a 14'x25' Residential Approach. No pipe required.
Sta. "L" 465+71 Lt. Grade & construct a 14'x25' residential type Approach with a 18"x30' CMP
"L" 465+90.24 P.T. BK= "O" 465+90.24 P.O.T. Ahd EQ
"O" 462+00
"L" 462+96.36 P.C.
"L" 465+00
"L" 464+45.96 P.I.
"L" Curve Data
Δ= 26°26'59"
D= 9°00'00" Lt.
T= 149.61'
L= 293.88'
R= 636.62'
e= 0.054'/Ft.
N 64°05'31"W 265.61'
Sta. "O" 469+46 Remove & dispose existing 18"x40' CMP. Install 30"x52' CMP Skew 25° rt. ahead
"O" 468+55.85 P.C.
"O" 470+00
"O" 470+60.38 P.T.
"O" 469+58.65 P.I.
Sta. "O" 472+00 Install 24"x44' CMP
"O" Curve Data
Δ= 14°19'01"
D= 7°00'00" Lt.
T= 102.80'
L= 204.53'
R= 818.51'
e= 0.048'/Ft.
Sta "O" 473+60 Lt. Construct a 20'x25' Residential Approach with 18"x42' CMP
Sta "O" 474+65 Lt. Construct a 14'x25' Residential Approach with an 18"x30' C.M.P.
"O" 474+02.93
N 78°24'32"W 342.55'
"L" 471+07.14 P.I.
"O" 475+00
Match Line
"L" Curve Data
Δ= 08°40'16"
D= 6°30'00"
T= 66.83'
L= 133.40'
R= 881.47'
"L" Curve Data
Δ= 40°35'40"
D= 7°45'00"
T= 273.44'
L= 523.80'
R= 739.30'
"L" Curve Data
Δ= 21°48'07"
D= 10°00'00"
T= 110.34'
L= 218.02'
R= 372.96'
"L" N 11°37'24"E - 153.50'
"L" N 02°57'08"E - 397.74'
"L" N 64°05'31"W - 406.54'
"L" N 85°53'37"W - 229.56'
Embankment = 4,475 CY
Excavation = 2,514 CY Includes 251 CY Waste
Borrow = 0
Note: 1,167 CY Excess Useable Excavation from Sheet 11; 1,044 CY From Sheet 10
+0.75%
Elev = 26.0 200' V.C.
-0.75%
Elev = 24.5 200' V.C.
+0.8888%
Elev = 29.0 300' V.C.
Profile Grade
-0.3214%
Elev = 24.5 300' V.C.
0.000%
448+00.00 V.P.I.
450+00.00 V.P.I.
EQ "O" 450+84.29 BK= "L" 451+77.97 Ahd.
456+00.00 V.P.I.
EQ "L" 465+90.24 BK= "O" 465+90.24 Ahd
470+00.00 V.P.I.
50
40
30
20
10
450+00
460+00
465+00
470+00
475+00
STATE OF ALASKA 49TH John W. Henry No. 4249-E REGISTERED PROFESSIONAL ENGINEER

HYDRAULIC SUMMARY	"O" 460+61	
Flood Frequency	50 Yr.	100 Yr.
Drainage Area	3.7 sq.mi.	3.7 sq.mi.
Exceedance Probability	2%	1%
Design Discharge	278 cfs	306 cfs
Design High Water	24.6 ft.	25.3 ft.
Probable Backwater		0 ft

Capacity = 381 cfs at elevation 27.1 which has an exceedance probability equal to or less than .2% (Q500).

KEUFFEL & ESSER PLATE 1, PLAN-PROFILE

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	10	11



Sta. "O" 476+34 Install 24"x 52' CMP
Sta. "O" 476+96 Remove & dispose existing 18"x 35' CMP
Sta. "O" 478+86 Lt. Grade & construct A 14"x 45' residential Type approach with An 18"x 30' CMP
Sta. "O" 480+50 Install 24"x 46' CMP
Sta. "O" 481+29 Install milepost 9 14' Rt.
Sta. "O" 482+88 Remove & dispose existing 24"x 31' CMP Install 24"x 44' CMP
"O" 486+10 Rt. Construct a 14'x25' residential approach with an 18"x 30' C.M.P.
"O" 478+65 Lt. Construct a 10'x25' walkway approach with an 18"x 18' C.M.P.
Sta. "O" 487+00 Rt. Grade & construct a 20'x 25' residential Type approach with An 18"x 36' CMP
Sta. "O" 488+86 Install 24"x 44' CMP
"O" 491+25 Lt. Construct a 20'x 25' residential approach with an 18"x 41' CMP
Sta. "O" 496+65 Remove & dispose existing 30"x 44' CMP Install 36"x 50' CMP Skew 25° Lt. ahead Special Ditch to Outfall
Install centerline survey Monument Sta. "O" 497+58.31 P.T. This contract.
Sta. "O" 497+40 Install 24"x 48' CMP
"O" 477+82.00 P.I.
"L" 479+33.20 P.I.
"L" 475+65.90 P.I.
"O" 475+00
Match Line
"O" Curve Data
Δ= 73°14'43"
D= 11°14'04" Rt.
T= 379.07'
L= 651.97'
R= 510.00'
e=0.055'/Ft.
"O" 480+54.90 P.T.
N05°09'49"W 602.32'
"L" 483+50.77 P.I.
"O" Curve Data
Δ= 12°13'34"
D= 6°05'30" Lt.
T= 100.73'
L= 200.70'
R= 940.56'
e=0.045'/Ft.
"O" 486+57.22 P.C.
"O" 487+57.95 P.I.
"O" 488+57.92 P.T.
"L" 485+94.24 P.I.
N17°23'23"W 218.40'
"O" 490+76.32 P.C.
"O" Curve Data
Δ= 21°11'27"
D= 6°30'00" Lt.
T= 164.89'
L= 326.01'
R= 881.47'
e=0.046'/Ft.
"O" 494+02.33 P.T.
"L" 492+60.09 P.I.
"O" 492+41.21 P.I.
N38°34'50"W 155.57'
"O" 496+58.92 P.I.
"L" 497+59.77 P.I.
"O" 495+57.90 P.C.
N21°17'09"W 149.06'
"O" 497+58.31 P.T.
"O" 499+07.41 P.C.
"O" 500+00
Match Line
"O" Curve Data
Δ= 17°17'41"
D= 8°38'00" Rt.
T= 100.93'
L= 200.33'
R= 663.66'
e= 0.034'/Ft.
"L" Curve Data
Δ= 49°01'30"
D= 21°30'00"
T= 121.52'
L= 228.02'
R= 266.49'
"L" Curve Data
Δ= 31°05'11"
D= 14°00'00"
T= 113.83'
L= 222.05'
R= 409.26'
"L" Curve Data
Δ= 09°48'14"
D= 6°00'00"
T= 81.90'
L= 163.40'
R= 954.93'
"L" Curve Data
Δ= 21°24'41"
D= 13°20'00"
T= 81.24'
L= 160.59'
R= 429.72'
"L" Curve Data
Δ= 21°16'46"
D= 6°30'00"
T= 165.60'
L= 327.38'
R= 881.47'
"L" Curve Data
Δ= 21°33'37"
D= 20°30'00"
T= 53.22'
L= 105.17'
R= 279.49'
"L" N36°52'07"-146.96'
"L" N05°46'56"W-235.45'
"L" N04°01'18"E-72.73'
"L" N17°23'23"W-420.91'
"L" N38°40'09"W-284.67'
"L" N17°06'32"W-148.79'

Superelevation	Transition Note:
Sta. "O" 489+92.95	Begin Transition
Sta. "O" 491+17.95	Begin Full Super
Sta. "O" 493+60.71	End Full Super
Sta. "O" 494+85.71	End Transition, R Lane
Sta. "O" 494+74.53	Begin Transition, L Lane
Sta. "O" 495+99.53	Begin Full Super
Sta. "O" 497+16.69	End Full Super
Sta. "O" 498+41.69	End Transition

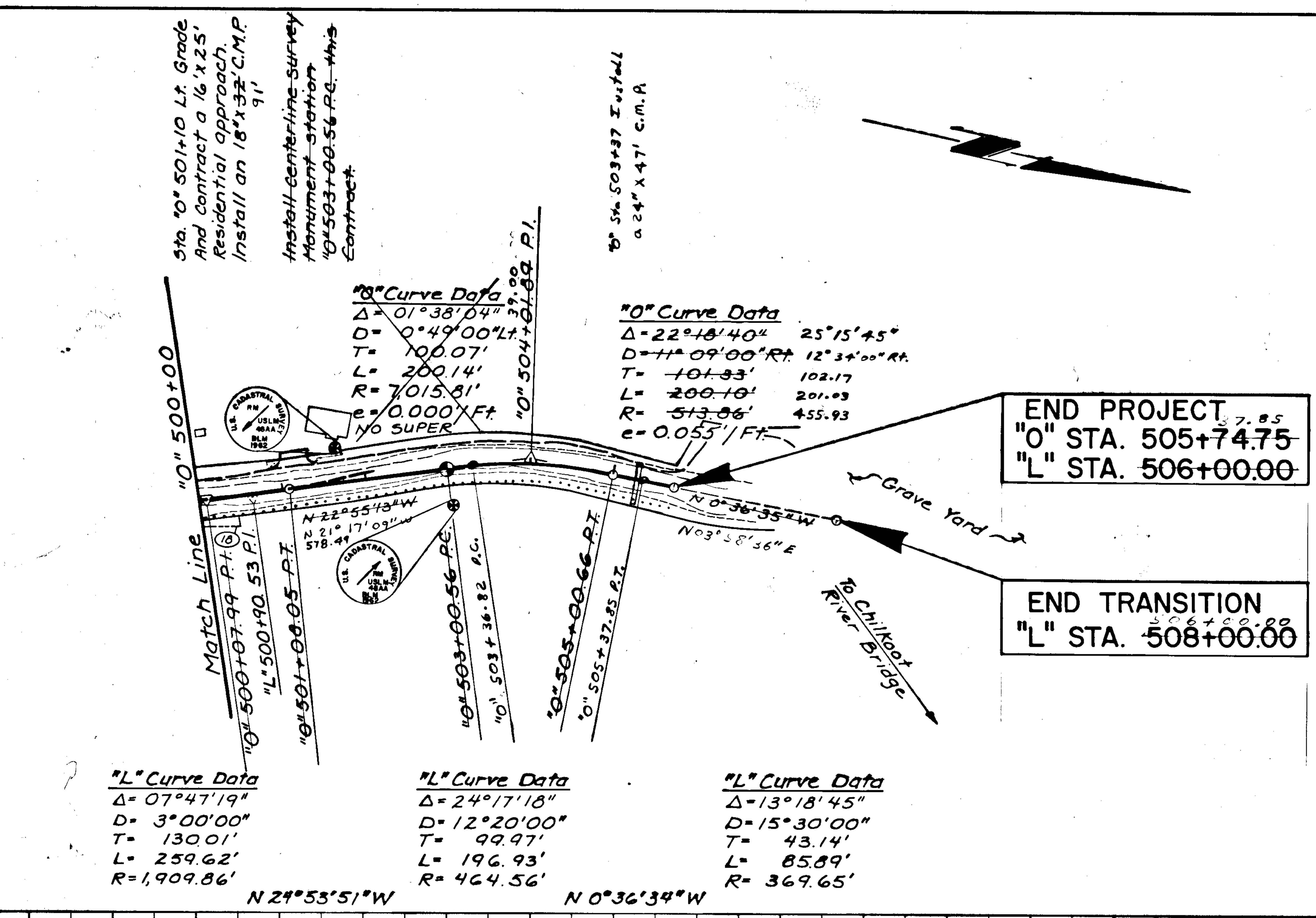
Embankment = 1,690 CY
Excavation = 4,724 CY Includes 472 CY Waste
Borrow = 0
Note: 1,044 CY Excess Useable Excavation to Sheet 9; 1,517 CY to Sheet 8

Profile Grade
0.000%
+1.400%
-1.250%
+0.30%
+1.6667
-2.000%
+0.500%
Elev.=24.5 300' V.C.
Elev.=31.5 200' V.C.
Elev.=29.0 200' V.C.
Elev.=34.0 300' V.C.
Elev.=24.0 300' V.C.
Elev.=25.5 300' V.C.
482+00.00 V.P.I.
487+00.00 V.P.I.
489+00.00 V.P.I.
492+00.00 V.P.I.
497+00.00 V.P.I.
500+00.00 V.P.I.
50
40
30
20
10
475+00
480+00
485+00
490+00
495+00
500+00

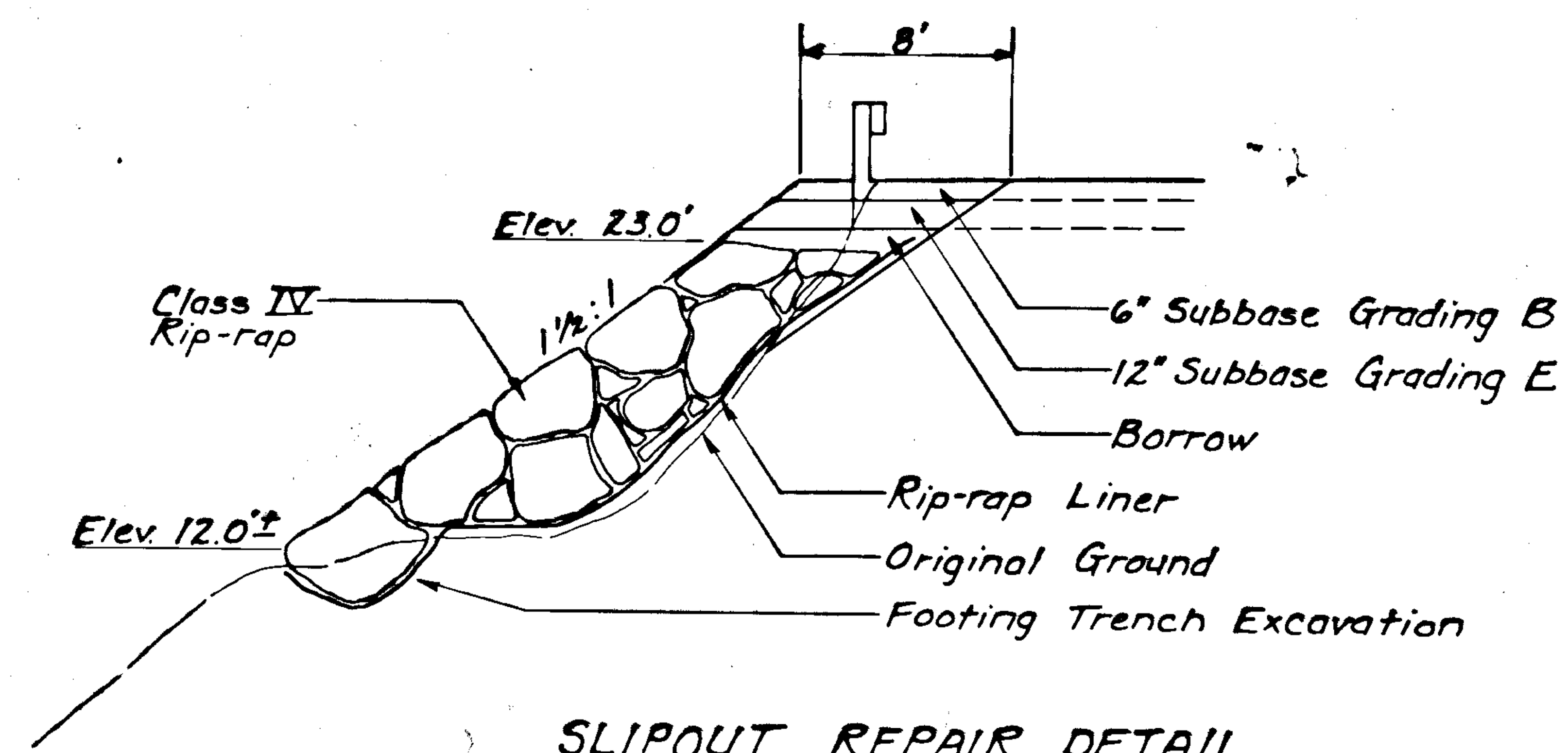
STATE OF ALASKA 49TH John W. Henry No. 4249-E REGISTERED PROFESSIONAL ENGINEER

KEUFFEL & ESSER PLATE 1, PLAN-PROFILE

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	RS-0991 (4)	1988	11	11



Sta. "O" 501+10 Lt. Grade And contract a 16'x25' Residential approach. Install an 18"x32' C.M.P. 91'
Install centerline survey Monument station "O" 503+00.56 P.C. this Contract.
"O" Sta. 503+37 Install a 24"x47' C.M.P.
"O" Curve Data
Δ= 01°38'04"
D= 0°49'00" Lt.
T= 100.07'
L= 200.14'
R= 7,015.81'
e= 0.000'/Ft.
NO SUPER
"O" Curve Data
Δ= 22°18'40" 25°15'45"
D= 11°09'00" Rt. 12°34'00" Rt.
T= 101.33' 102.17
L= 200.10' 201.03
R= 513.86' 455.93
e= 0.055'/Ft.
END PROJECT
"O" STA. 505+74.75 57.85
"L" STA. 506+00.00
END TRANSITION
"L" STA. 508+00.00 506+60.00
"O" 500+00
Match Line
"O" 500+07.99 P.I.
"L" 500+90.53 P.I.
"O" 501+08.05 P.T.
"O" 503+00.56 P.C.
"O" 503+36.82 P.C.
"O" 504+39.00 P.I.
"O" 505+00.66 P.T.
"O" 505+37.85 P.T.
N 22°55'48" W
N 21°17'09" W 578.49
N 0°36'35" W
N 03°58'56" E
Grave Yard
To Chilkoot River Bridge
"L" Curve Data
Δ= 07°47'19"
D= 3°00'00"
T= 130.01'
L= 259.62'
R= 1,909.86'
"L" Curve Data
Δ= 24°17'18"
D= 12°20'00"
T= 99.97'
L= 196.93'
R= 464.56'
"L" Curve Data
Δ= 13°18'45"
D= 15°30'00"
T= 43.14'
L= 85.89'
R= 369.65'
N 24°53'51" W
N 0°36'34" W



SLIPOUT REPAIR DETAIL

"As-built" 319+00 to "As-built" 320+25

ESTIMATED QUANTITIES

125' Guard Rail Removal and Replacement
500 CY Type IV Rip-rap
280 SY Rip-rap Liner

Embankment = 314 CY
Excavation = 1,646 CY (Includes 165 CY Waste)
Borrow = 0
Note: 1,167 CY Excess Useable Excavation to Sheet 9
Profile Grade
Match Existing Grade
Elev. = 25.5 300' V.C.
Elev. = 29.5 200' V.C.
+1.3333%
+0.106%
500+00.00 V.P.I.
503+00.00 V.P.I.
500+00
505+00
STATE OF ALASKA
49TH
John W. Henry
No. 4249-E
REGISTERED PROFESSIONAL ENGINEER