MaineDOT

Highway Program

Brad Foley, Program Manager
Scott Bickford & Heath Cowan, Assistant Program Managers
Phone: 624-3480 Fax: 624-3481

Memorandum

To: Brian Keezer
From: Karen Gross
Date: 3/20/2012
Subject: Kittery, WIN 12752.00
Pavement Core Data

Attached is the pavement core summary sheet, pavement core photo's, project plan sheets showing pavement core locations, and as-built plan typical sections for the intersection improvement project on Route 1 in Kittery.

All types of pavement materials were encountered in this short section of Route 1. A concrete pavement with an HMA surface layer over it was encountered in the northbound lane of Route 1 to the north of Walker Street. All other locations have a stone macadam base with 4 ½" to 7 ¼" of various HMA mixes over it. Macadam cores were difficult to collect because they are so open-graded that the water needed for cutting immediately washed through it. Water is needed to keep the core bit cool while coring.

As-built plans from 1926 show how the original pavement was constructed and 1952 plans show modifications to Route 1 to construct the Walker Street intersection. There have been several resurfacing projects since 1952, but the information I could find only stated resurfacing for the scope so it is unknown if this section of roadway has had milling and overlays.

The 1926 plans show that the pavement was originally constructed with two 9-foot concrete slabs separated by a 9-foot macadam section. The 1952 as-built plans indicate that the roadway was widened between Government Street and Love Lane. The pavement on the southbound lane was constructed with 12" of gravel, 3" of a crushed stone penetrated base, and a 3" asphalt surface layer. The concrete pavement was left in place in the northbound lane and covered with a gravel shim, 5" of a crushed stone penetrated base, and a 3" asphalt surface layer. We found on the Route 1 project that was constructed a in 2009 (PIN 11584.00) that the macadam center section as shown on the 1926 plans was actually another 9-foot concrete slab. I think the 1952 as-built plans illustrate this.

Based on the core data, I would assume that the 1952 as-built plans are accurate for the macadam and concrete pavement locations. The 1952 typical sections call the macadam a penetrated crushed stone base. Materials specifications information from 1953 indicates that this material would be a Bituminous Macadam Surface Course. Where the drillers actually were able to collect a sample, it will look like a large stone mix containing a lot of voids in the photo's. I also assume that the thickness of this material is as shown on the 1952 as-built's, plus or minus 1". If you will be milling this project, I do not recommend milling into this material.

Let me know if I can provide you with any additional information.

State of Maine - Department of Transportation

Pavement Core Summary Sheet

Town(s): Kittery Work Number: 12752.00

Station (Feet)	Offset (Feet)	Pavement Depth (Inches)	Macadam (Inches)	Concrete (Inches)	PC-Number	Comments / Date 3/6/2012
47+00	23.0 Lt.	5.0	4.0		1	all cores where saved
47+00	9.0 Lt.	5.0	3.0		2	
47+00	15.0 Rt.	7.0		6.5	3	all McAdam cores lost
46+03	19.0 Lt.	5.0	2.5		4	water while drilling,total
46+03	10.0 Rt.	4.0		7.0	5	depth of Macadam unknown,
46+03	23.0 Rt.	7.25			6	except PC-1, 4.0" total Macadam
44+00	17.0 Lt.	7.0	2.0		7	
44+00	6.0 Lt.	5.0	2.0		8	
44+00	30.0 Rt.	7.5	1.0		9	
43+50	CL	4.5			10	
42+51	CL	4.5			11	
42+00	22.0 Lt.	5.0	1.0		12	
42+00	7.0 Rt.	7.0			13	hit Macadam
42+00	30.0 Rt.	7.0			14	hit Macadam

*****Macadam could not be collected due to losing drilling water in the macadam resulting in overheating of the core bit**


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
12752.00 KITTERY
PC-1 23 LT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
12752.00 KITTERY
PC-2 9 LT


12752.00 KITTERY
PC-3 15 RT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
12752.00 KITTERY
PC-4 19 LT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
OIL
JOINTS
P. R. APP'D.
12752.00 KITTERY
PC-5 10 RT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
OIL
12752.00 KITTERY
PC-6 23 RT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
OIL
12752.00 KITTERY
PC-7 17 LT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
12752.00 KITTERY
PC-8 6 LT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
OIL
12752.00 KITTERY
PC-9 30 RT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
12752.00 KITTERY
PC-10 CL

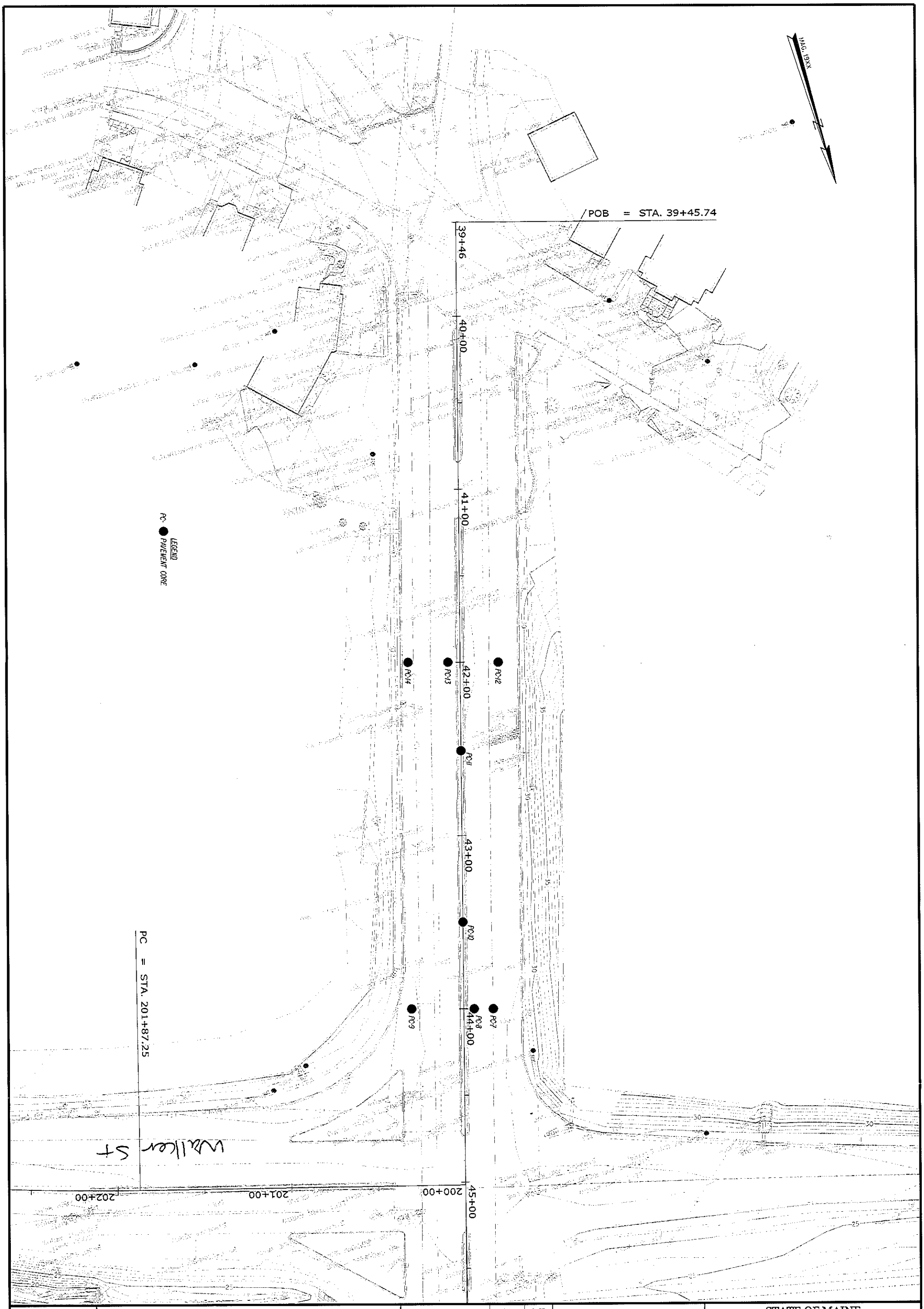

INCHES
1
1066D
2
Lufkin
3
RUGGED
4
RED
END
5
ENGINEERS
12752.00 KITTERY
PC-11 CL


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
12752.00 KITTERY
PC-12 22 LT


INCHES
1066D
Lufkin
RUGGED
RED
END
ENGINEERS
OIL
12752.00 KITTERY
PC-13 7 RT


INCHES
1066D
Lufkin
RUGGED
RED END
ENGINEERS
OIL
JOINTS
P. R. APP'D
12752.00 KITTERY
PC-14 30 RT

Filename: ...\geotech\msta\001_Geoplan1.dgn Division: HIGHWAY Username: karen.gross Date:3/20/2012



PROJ. MANAGER		BY	DATE
DESIGN-DETAILED	K.GROSS	T.WHITE	MAR 2012
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SHEET NUMBER 1 OF 10

KITTERY
INTERSECTION ROUTES 1/103

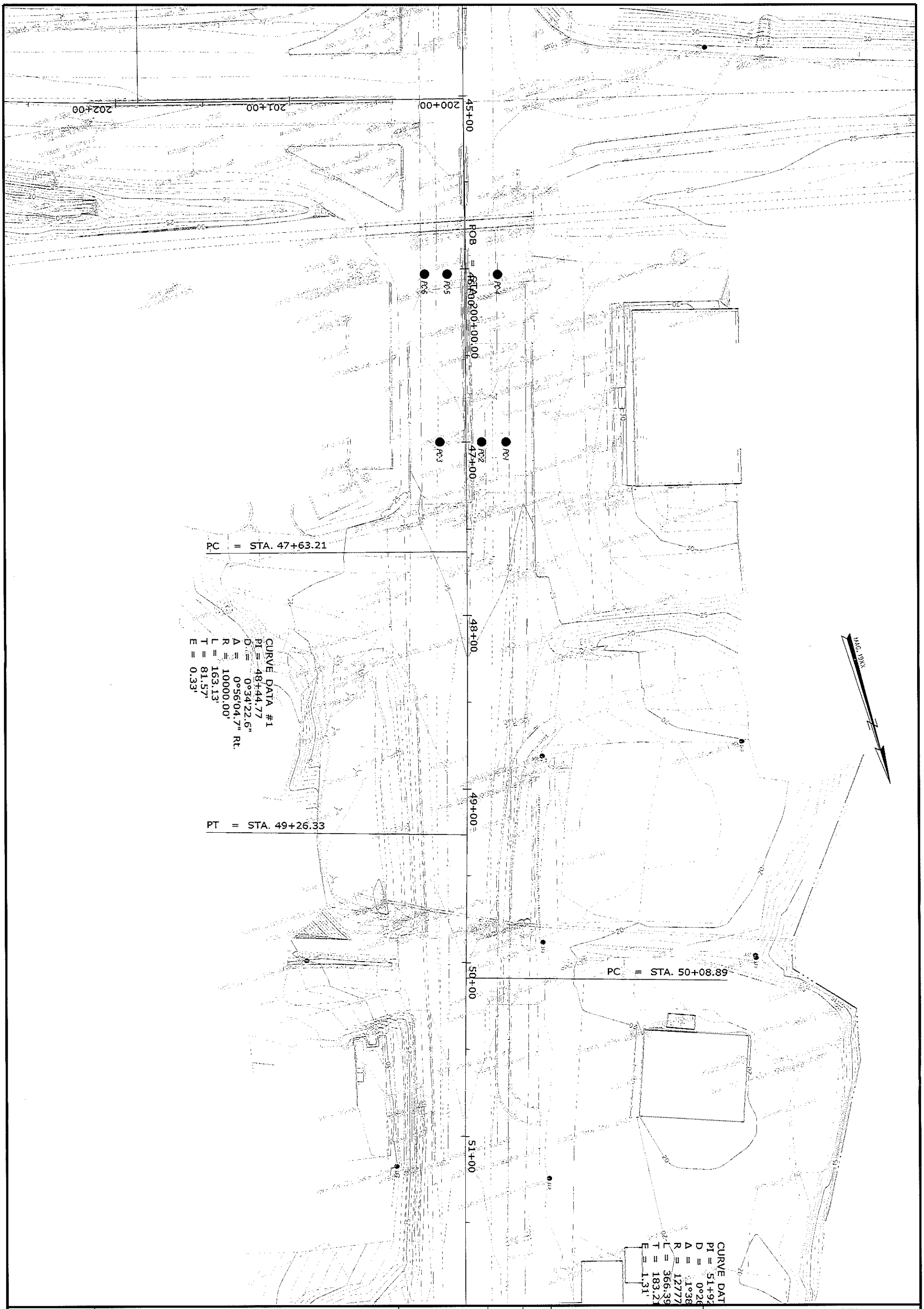
GEOPLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1275(200)X

PIN
12752.00

HIGHWAY PLANS



SHEET NUMBER 2 OF 10

KITTERY
INTERSECTION ROUTES 1/103

GEOPLANS

		BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	K.GROSS	T.WHITE	MAR 2012
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

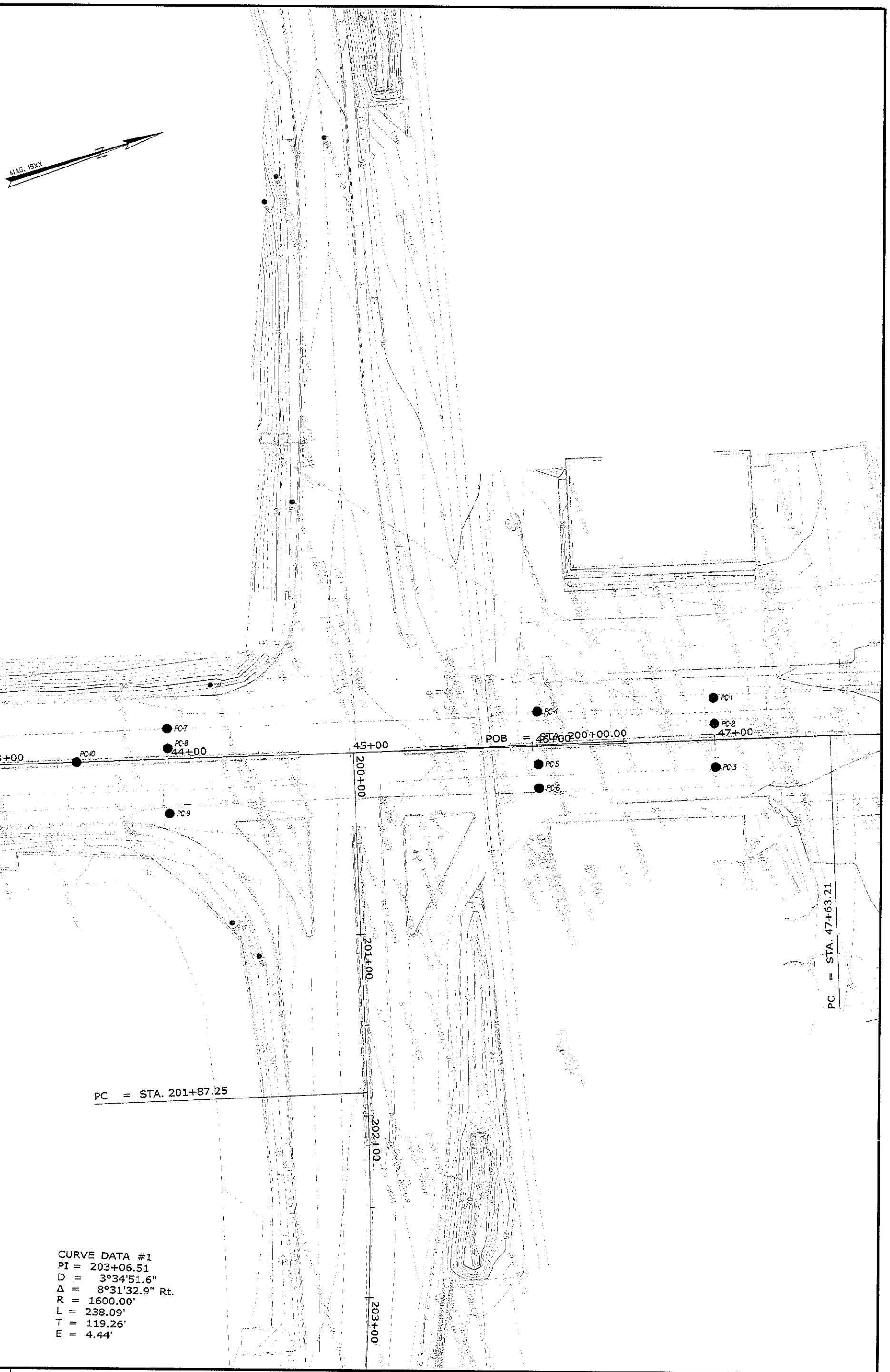
DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1275(200)X

PIN
12752.00

HIGHWAY PLANS



CURVE DATA #1
PI = 203+06.51
D = 3°34'51.6"
Δ = 8°31'32.9" Rt.
R = 1600.00'
L = 238.09'
T = 119.26'
E = 4.44'

SHEET NUMBER 9 OF 10

KITTERY
INTERSECTION ROUTES 1/103

GEOPLANS

		BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	K.GROSS	T.WHITE	MAR 2012
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1275(200)X

PIN
12752.00

HIGHWAY PLANS

Kittery
WIN 12752.00

3/20/2012

Station	Left	Left	Center	Right	Right
47+00					
46+03					
44+00					
43+50					
42+51					
42+00					

Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
9	Maine	83-A		1	12

KITTERY

1926

STATE OF MAINE
STATE HIGHWAY COMMISSION

PLAN AND PROFILE
STATE HIGHWAY "A"
KITTERY
YORK COUNTY
FEDERAL AID PROJECT NO. 83-A

TOTAL LENGTH 1.127 MILES

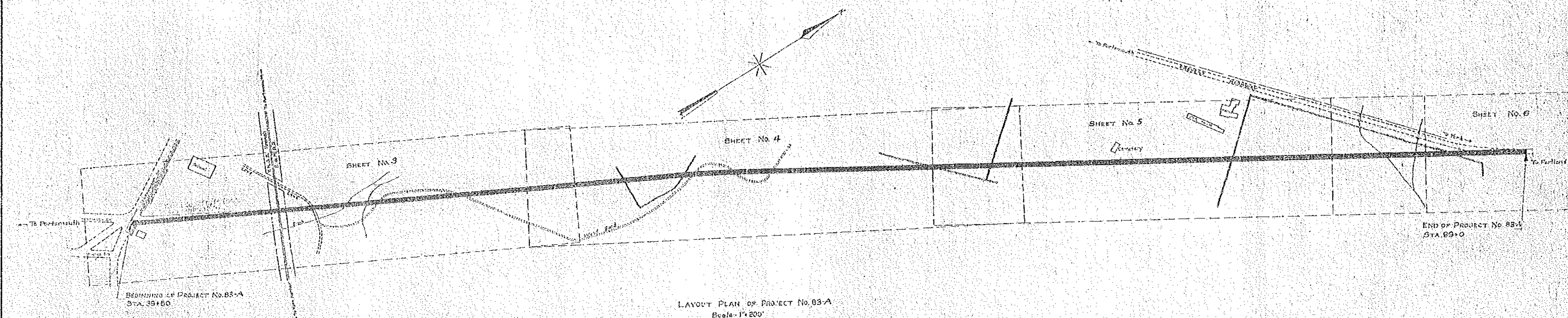
SCALES
- PLAN: 1 IN. = 40 FT.
- PROFILE: HOR. 1 IN. = 40 FT.; VER. 1 IN. = 4 FT.
- CROSS SECTIONS: 1 IN. = 5 FT.

CONVENTIONAL SIGNS

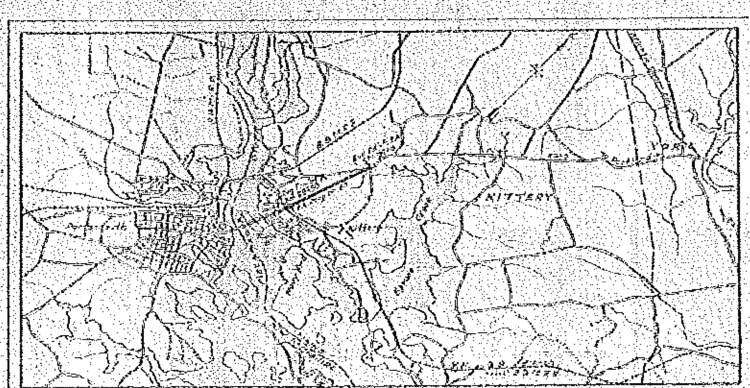
State or National Line
County Line
Town Line
Unfenced Property
Fence
Right of Way Line
Traveled Way
Railroad
Retaining Wall
Survey Line
Culvert
Drop Inlet
Trolley Pole
Power Pole
Tel. Pole
Marsh
Trees
Stone Wall

INDEX OF SHEETS

* These sheets [illegible]



Layout Plan of Project No. 83-A
Scale - 1" = 200'



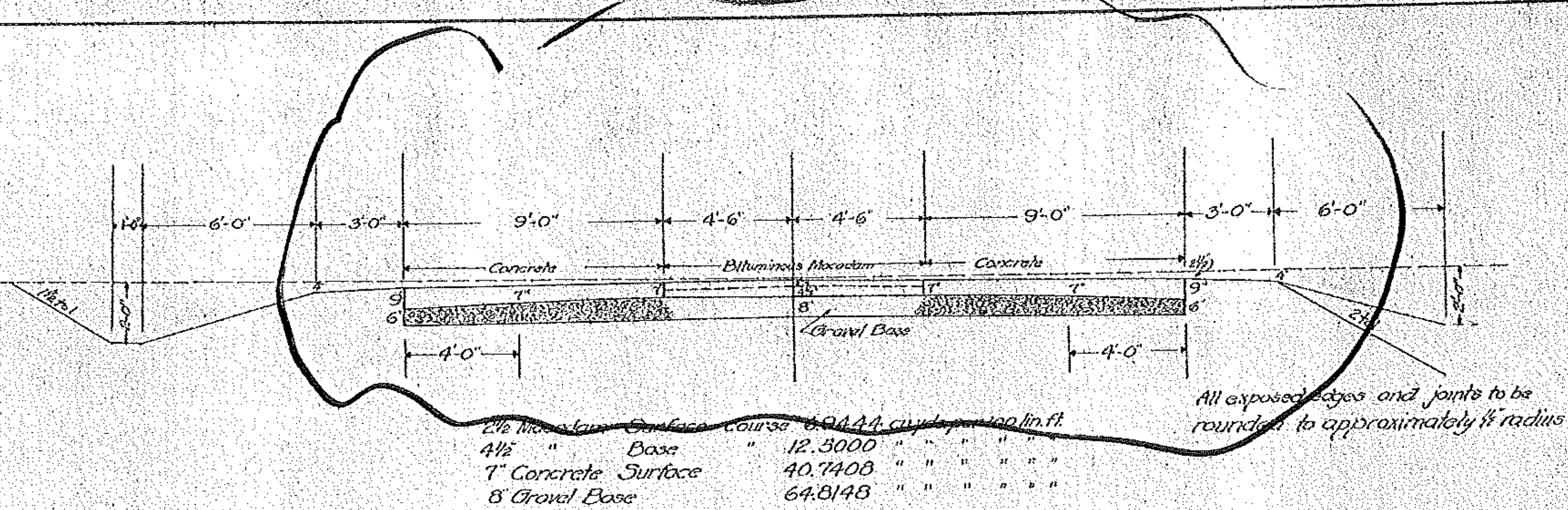
A Part of Rockingham County, N.H. and York County, Maine.
Scale 1" = 1 Mile.

Approved:
Maine State Highway Commission
Charles H. Innes
Chairman
William J. Lanigan
Paul D. Sargent
Chief Engineer

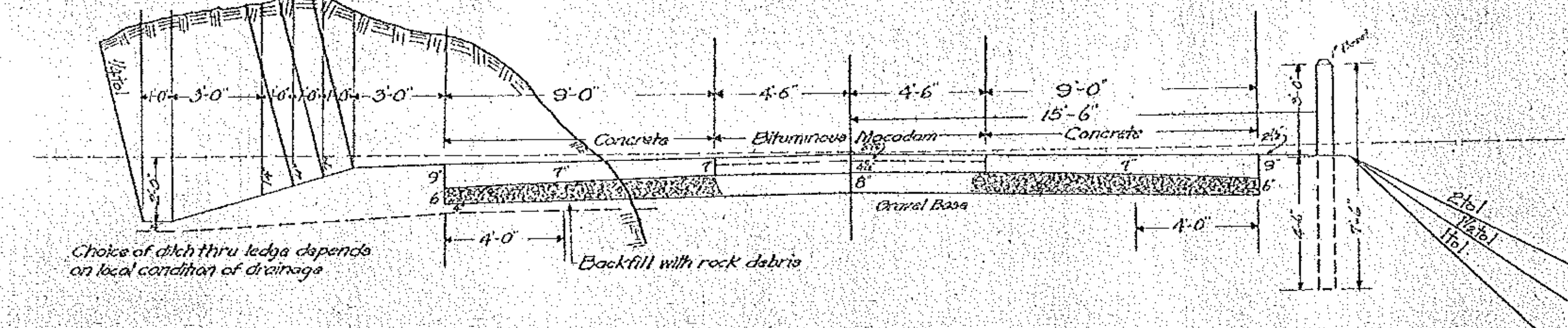
Approved
U.S. Bureau of Public Roads
[redacted]
District Engineer
[redacted]
Chief Engineer
[redacted]
Director

AA11

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	VT.	83A1	2	12



STANDARD SECTION

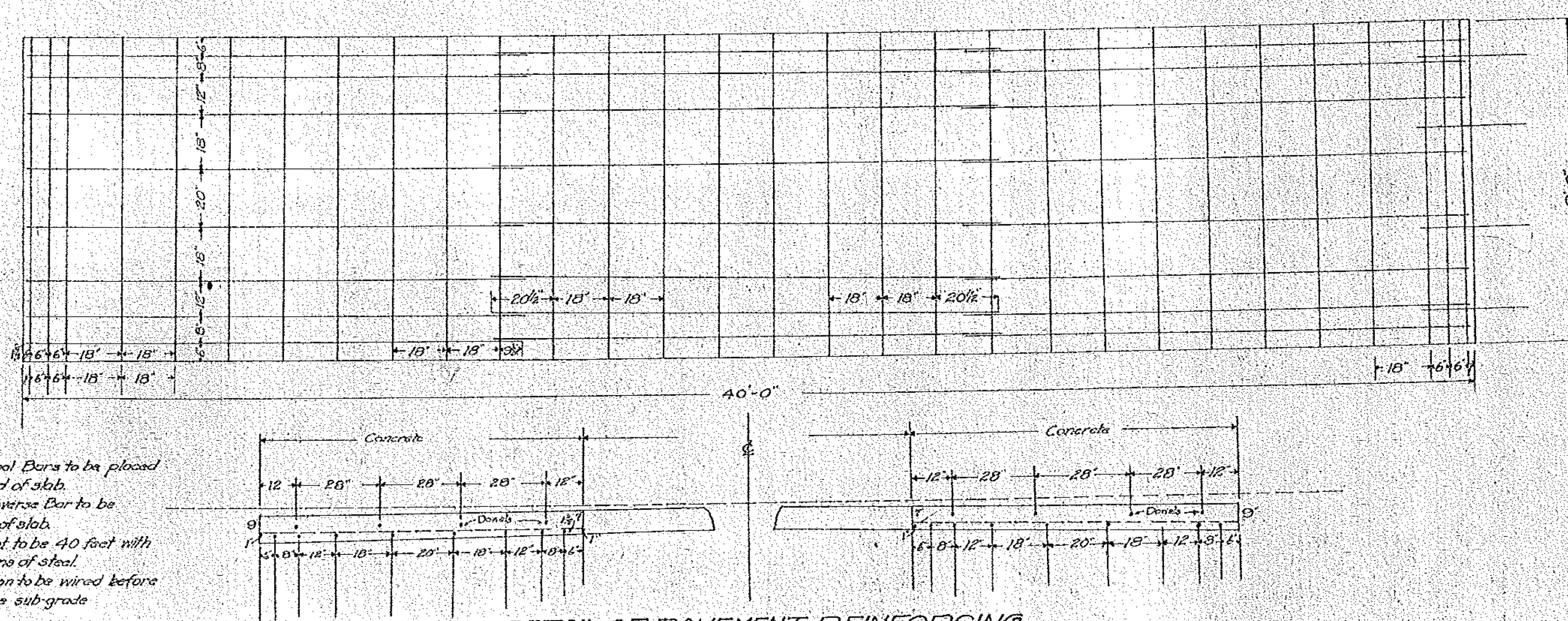


LEDGE — GUARD RAIL

QUANTITIES		
EARTH EXCAVATION	11,500	Cu.Yds.
ROCK EXCAVATION	1,100	" "
BORROW	2000	" "
GRAVEL BASE	3,860	" "
CLASS "B" CONCRETE	50	" "
12" C.M.P.	60	FT.
16" CAST IRON PIPE	142	"
18" " " "	124	"
24" " " "	76	"
DROP INLETS	2	
~~CRUSHED STONE COURSE~~	~~144~~	cu.yds.
BIT. MAC. SURFACE COURSE	413	
BIT. MATERIAL	13400	Gals.
CONCRETE PAVEMENT	2424	Cu.Yds.
STEEL REINFORCEMENT	118400	lbs.
WIRE GUARD RAIL	2136	lin.ft.
CLASS "A" CONC.	25	Cu.Yds.

CULVERTS	
39+70 LEFT	12"X24' C.M.P.
39+70 RIGHT	12"X36' "
40+50	16"X48' C.I.P.
45+60	16"X36' "
46+05	16"X48' "
49+0	18"X32' "
54+0	18"X40' "
61+0	24"X69' "
66+0	3'X2'X62' Concrete
73+0	3'X2'X42' "
94+0	18"X28' C.I.P.

GUARD RAIL		
40+00 – 41+20	L.	120 FT.
40+00 – 41+84	R	184 "
45+90 – 46+50	R	128 "
[illegible]	L	157.7
[illegible]	R	136.2
[illegible]	L	236.7
[illegible]	L	262.0
[illegible]	R	218.3
[illegible]	L	342.5
[illegible]	R	245.0
[illegible]	R	558.0
[illegible]	L	[illegible]



Longitudinal bars 13'-11" long
Lapped 12"

All bars ½" ϕ plain steel 0.668 lbs. per linear foot

Dowels ¾" ϕ plain steel 1.502 lbs per linear foot

Total weight per square yds. including dowels 9.65 pounds

Transverse Bars 8'-10" long

Longitudinal Bars to be 1½" from bottom of slab.

Note:–
Dowels to be ¾" ϕ plain steel 36" long one half wrapped with heavy paper extending 1" beyond end of rod.

Note:–
Longitudinal Bars to be placed 1½" from end of slab.
First Transverse Bar to be 3" from end of slab.
Slab lenght to be 40 feet with three sections of steel.
Each section to be wired before placing on the sub-grade

DETAIL OF PAVEMENT REINFORCING

P. R. A. DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	MAINE	UI-01-1(7)	1	11

KITTERY

1952

STATE OF MAINE
STATE HIGHWAY COMMISSION

PLAN AND PROFILE
STATE HIGHWAY "A"
KITTERY
YORK COUNTY
FEDERAL AID PROJECT NO. AUI-01-1(7)

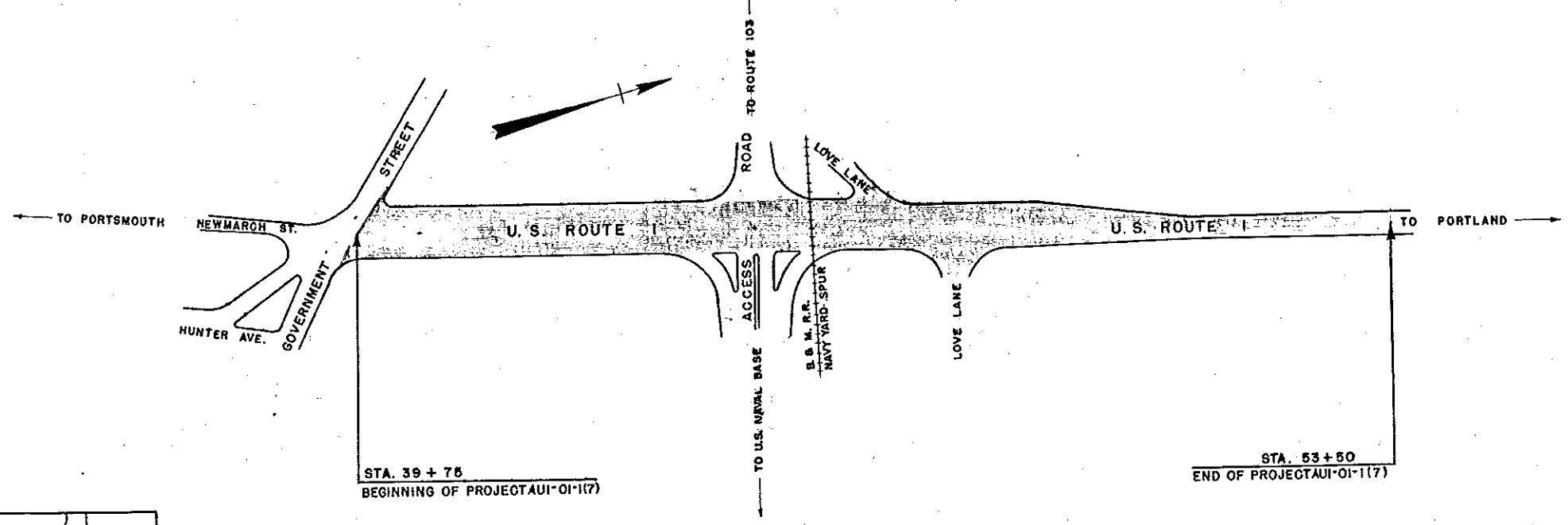
TOTAL LENGTH 0.260 MILES

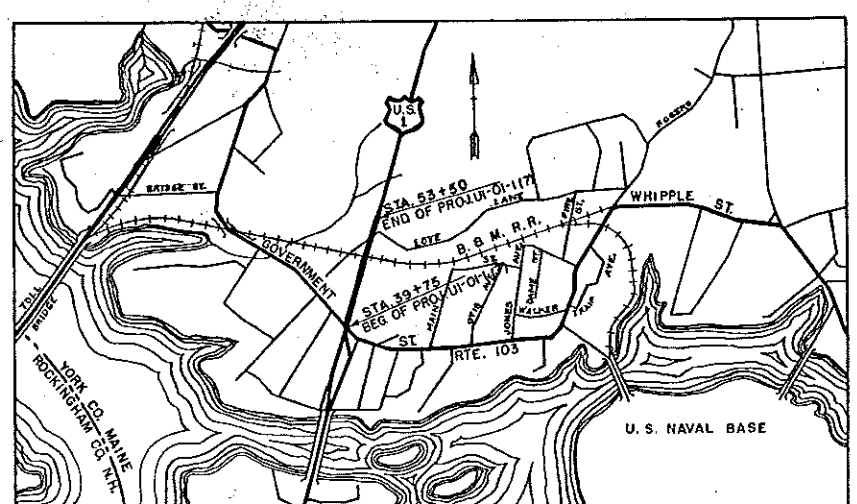
SCALES
- PLAN — 1 IN. = 30 FT.
- PROFILE — HOR. 1 IN. = 50 FT.; VER. 1 IN. = 5 FT.
- CROSS SECTIONS — 1 IN. = 5 FT.

CONVENTIONAL SIGNS

STATE OR NATIONAL LINE		SURVEY LINE	
COUNTY LINE		CULVERT	
TOWN LINE		DROP INLET	
UNFENCED PROPERTY		TROLLEY POLE	
FENCE		POWER POLE	
RIGHT OF WAY LINE		TEL. POLE	
TRAVELED WAY		MARSH	
RAILROAD		TREES	
RETAINING WALL		STONE WALL	

INDEX OF SHEETS





SCALE IN FEET
0 100 200 300 400

ALL WORK CONTEMPLATED UNDER THIS CONTRACT TO BE GOVERNED BY AND IN CONFORMITY WITH THE SPECIFICATIONS APPROVED MAY 24, 1945, EXCEPT AS

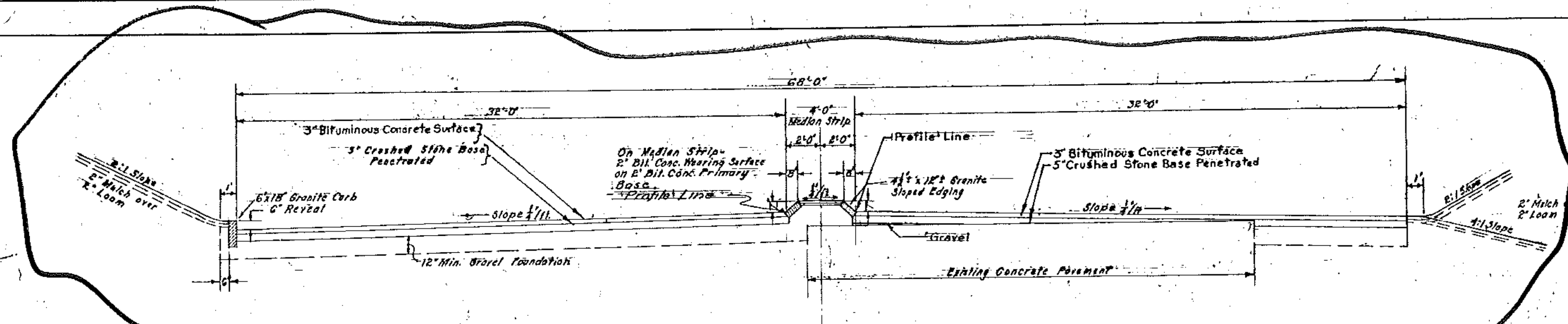
APPROVED:
MAINE STATE HIGHWAY COMMISSION
CHAIRMAN
CHIEF ENGINEER

THOMAS WORCESTER INC.
CONSULTING ENG.
84 STATE ST. BOSTON, MASS.

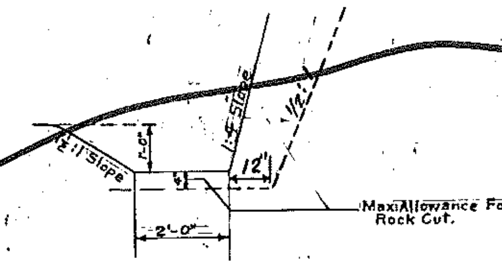
RECOMMENDED FOR APPROVAL DATE
DISTRICT ENGINEER
BUREAU OF PUBLIC ROADS ADMINISTRATION
DEPT. OF COMMERCE

APPROVED DATE
DIVISION ENGINEER
BUREAU OF PUBLIC ROADS ADMINISTRATION
DEPT. OF COMMERCE

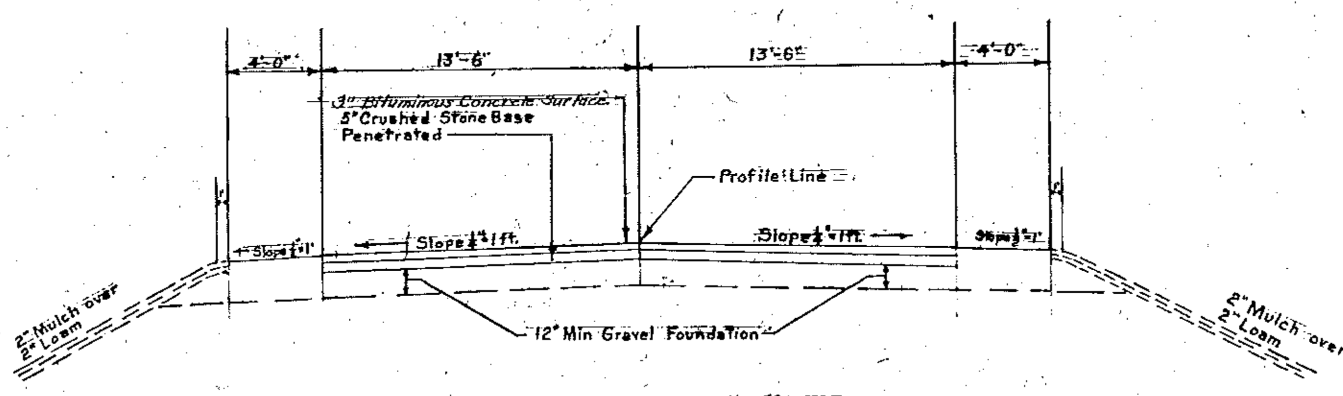
P.R.A. DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	MAINE	UI-OI-I(7)	2	11



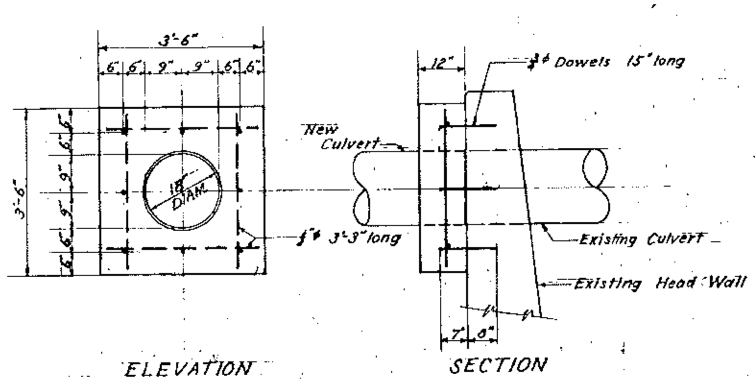
STA. 40+0 to STA. 48+79.88
Sta. 48+79.88 to Sta. 50+79.88 Roadway Widths Vary
Scale ¼" = 1'-0"



DITCH IN ROCK CUT
Scale ½" = 1'-0"



STA. 50+79.88 To STA. 52+50
Sta. 52+0 to Sta. 53+50
Gravel Foundation & C.S.B. Will Vary
Scale ¼" = 1'-0"



ELEVATION　　SECTION

CULVERT CONNECTION
Scale ½" = 1'-0"

STATION TO STATION	PIPE V.C. C.E.	PIPE A.C. C.M.P.	PIPE SIZE	CATCH BASIN	MAN-HOLE	CULV. CONN.	RIP RAP (C.Y.)	PAVED W.W.	DITCH (L.FT.)
U.S. ROUTE 1									
39+80 32 R TO 40+50 13 L	79		10	1					
40+18 32 L TO 40+50 13 L	33		10	1					
40+21 69 L TO 40+50 13 L	59		10						
40+50 13 L					1				
48+50 42 R TO 48+28 46R		37	18						
48+28 46 R TO 49+26 50R							1/2		98
49+26 50 R TO 49+45 30R		30	18			1	1/2		
49+26 50 R TO 53+00 33R									310
49+86 11 L TO 50+10 36L		36	18						
50+10 36 L						1	1/2		

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
12A	EARTH EXCAVATION	4000	CU. YDS.
12B	ROCK EXCAVATION	30	CU. YDS.
12E	TREES REMOVED	10	EACH
13A	EXCAVATION FOR STRUCTURES	110	CU. YDS.
13B	ROCK EXCAVATION FOR STRUCTURES	10	CU. YDS.
17A	COMMON BORROW	2280	CU. YDS.
22	SCARIFYING AND RESHAPING	450	SQ. YDS.
24A	GRAVEL BASE COURSE	2855	CU. YDS.
26A	CRUSHED STONE BASE COURSE (PENETRATED)	1765	TONS
26B	ASPHALT CEMENT	13170	GAL.
37A	BITUMINOUS CONCRETE SURFACE COURSE	1590	TONS
37B	TACK COAT	125	GAL.
42A	CLASS A CONCRETE	8	CU. YDS.
43	STEEL REINFORCEMENT FOR CONCRETE STRUCTURES	125	LB.
47N	REMOVE AND RELAY 12 INCH CORRUGATED METAL CULVERT	70	LIN. FT.
48E	18 INCH A.C.C.M. PIPE	110	LIN. FT.
51C	10 INCH V.C. PIPE	180	LIN. FT.
52C	CATCH BASINS, TYPE A	1	EACH
52E	CATCH BASINS, TYPE C	1	EACH
52F	MANHOLES	1	EACH
52G	TRAPS	2	EACH
54	HAND LAID RIPRAP	3	TON
61A	GRANITE CURB (6" X 18")	425	LIN. FT.
61B	CIRCULAR GRANITE CURB (6" X 18")	22	LIN. FT.
61C	SLOPED GRANITE EDGING (4½"±X 12"±)	1100	LIN. FT.
65B	WIRE CABLE GUARD RAIL, TYPE B	200	LIN. FT.
65C	ANCHORAGES	4	EACH
65D	GUARD POSTS	4	EACH
67B	LOAM BORROW	180	CU. YDS.
70	RIGHT OF WAY MONUMENTS	4	EACH
71	SPRINKLING	10	1000 GAL. UNITS
73	TRAFFIC OFFICERS	400	MAN HOURS
75	GRAVEL OVERHAUL	2855	YD. MILE
76	CALCIUM CHLORIDE	1	TON
77	MULCHING	25	M.S.F.
78A	SEEDING, PARK MIXTURE	1	M.S.F.
78B	SEEDING, ROADSIDE MIXTURE	24	M.S.F.
94	REMOVE AND RESET CHAIN LINK FENCE	515	LIN. FT.
114	GEORGE WASHINGTON MEMORIAL	1	LUMP SUM
113	REMOVE AND RESET SCHOOL SWINGS	3	EACH
115	CULVERT CONNECTIONS	2	EACH
69	PROJECT MARKERS	2	EACH

DRAWN BY:
CHECKED BY:

STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

STATE HIGHWAY "A"
KITTERY
YORK COUNTY
TYPICAL SECTIONS & QUANTITIES

SCALE: AS NOTED