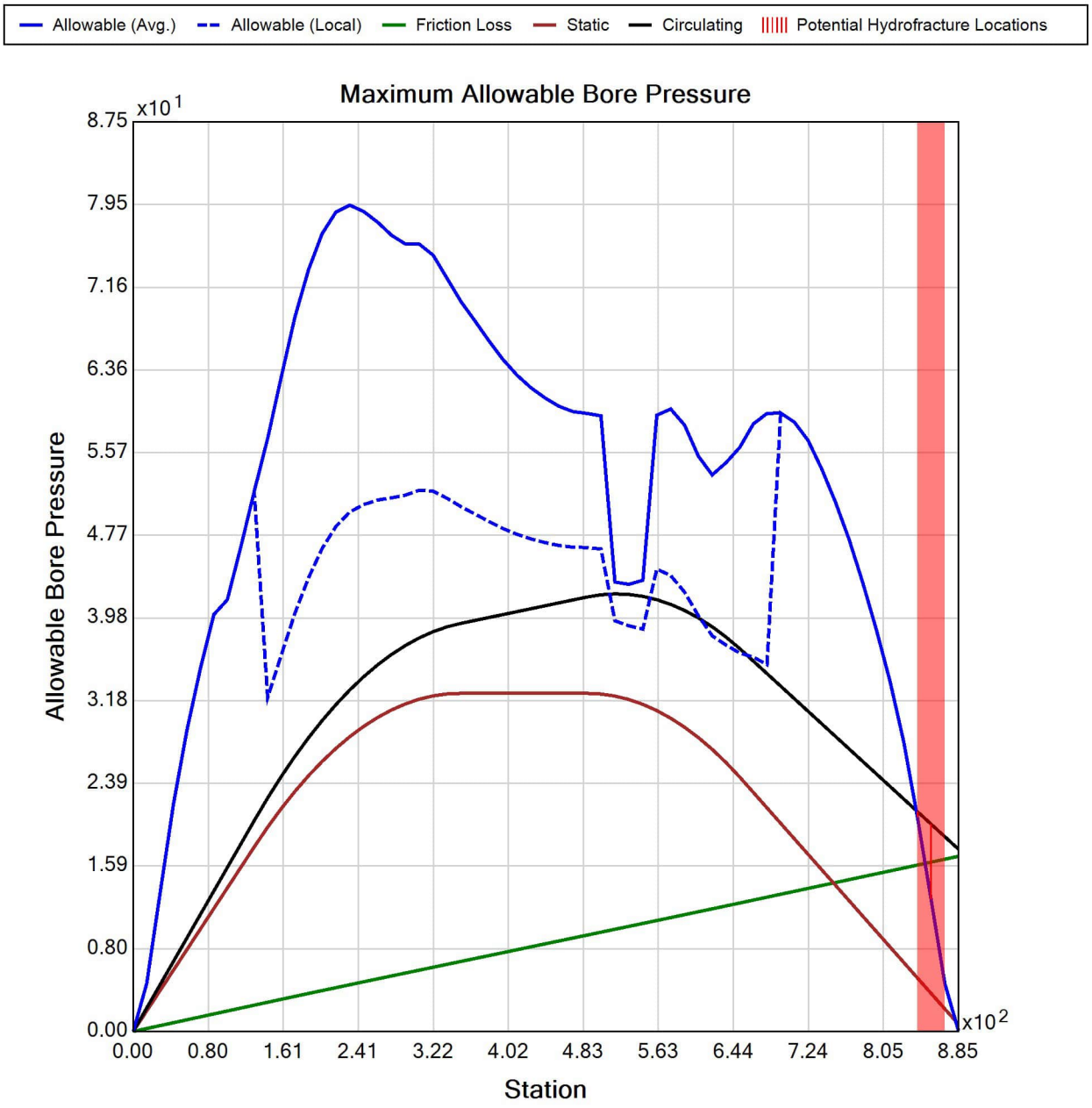

Generated Output

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Input Summary

Start Coordinate	(0.00, 0.00, 291.00) ft
End Coordinate	(884.00, 0.00, 289.76) ft
Project Length	884.00 ft
Pipe Type	HDPE
OD Classification	IPS
Pipe OD	2.375 in
Pipe DR	9.0
Pipe Thickness	0.26 in
Rod Length	15.00 ft
Rod Diameter	3.5 in
Drill Rig Location	(0.00, 0.00, 0.00) ft

Load Verifier Input Summary:

Pipe Application: Electrical Cable

Pipe Type: HDPE

Classification: IPS

Pipe OD: 2" (2.375")

Pipe DR: 9

Pipe Length: 899.99 ft

Internal Pressure: 0 psi

Borehole Diameter: 0.531000018119812 ft

Silo Width: 0.531000018119812 ft

Surface Surcharge: 0 psi

Short Term Modulus: 57500 psi

Long Term Modulus: 28200 psi

Short Term Poisson Ratio: 0.35

Long Term Poisson Ratio: 0.45

Pipe Unit Weight: 0.03430 lb/in3

Allowable Tensile Stress (Short Term): 1200 psi

Allowable Tensile Stress (Long Term): 1100 psi

Allowable Compressive Stress (Short Term): 1150 psi

Allowable Compressive Stress (Long Term): 1150 psi

Surface-pipe friction coefficient at entrance: 0.5

Surface-pipe friction coefficient in borehole: 0.3

Pipe-soil friction angle: 30

Slurry Unit Weight: 0.05419 lb/in3

Hydrokinetic Pressure: 10 psi

Ballast Unit Weight: 0.03613 lb/in3

In-service Load Summary:

Pressure [psi]	Deformed	Collapsed
Earth Pressure	1.9	23.2
Water Pressure	14.4	12.8
Surface Surcharge	0.0	0.0
Internal Pressure	0.0	0.0
Net Pressure	16.2	36.0
Deflection		
Earth Load Deflection	0.516	6.782
Buoyant Deflection	0.029	0.029
Reissner Effect	0	0
Net Deflection	0.545	6.811
Compressive Stress [psi]		
Compressive Wall Stress	73.1	162.2

Installation Load Summary:

Forces/Stresses	@Maximum Force	Absolute Maximum
Pullback Force [lb]	940.8	940.8
Pullback Stress [psi]	537.6	537.6
Pullback Strain	9.349E-3	9.349E-3
Bending Stress [psi]	0.0	7.1
Bending Strain	0	1.237E-4
Tensile Stress [psi]	537.6	542.9
Tensile Strain	9.349E-3	9.565E-3

Net External Pressure = 34.2 [psi]

Buoyant Deflection = 0.0

Hydrokinetic Force = 137.3 lb

In-service Analysis

	Calculated	Allowable	Factor of Safety	Check
Deflection [%]	0.545	7.5	13.8	OK
Unconstrained Collapse [psi]	44.0	131.5	3.0	OK
Compressive Wall Stress [psi]	73.1	1150.0	15.7	OK

Installation Analysis

	Calculated	Allowable	Factor of Safety	Check
Deflection [%]	0.014	7.5	524.3	OK
Unconstrained Collapse [psi]	54.3	225.9	4.2	OK
Tensile Stress [psi]	542.9	1200.0	2.2	OK

Generated Output

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Project Summary

General:	HDD #2
	Ref: South Bay, Whitehall, NY Washington cty
	J2105
	Start Date: 04-08-2022
	End Date: 04-08-2022
Project Owner:	TDI
Project Contractor:	Kiewit
Project Consultant:	CHA-BCE
Designer:	MDB
	BCE
	Amherst, Massachusetts
Description:	South Route 12" DR7

Input Summary

Start Coordinate	(0.00, 0.00, 122.00) ft
End Coordinate	(2969.00, 0.00, 119.00) ft
Project Length	2969.00 ft
Pipe Type	HDPE
OD Classification	IPS
Pipe OD	12.750 in
Pipe DR	7.0
Pipe Thickness	1.82 in
Rod Length	15.00 ft
Rod Diameter	3.5 in
Drill Rig Location	(0.00, 0.00, 0.00) ft

Soil Summary

Number of Layers: 4

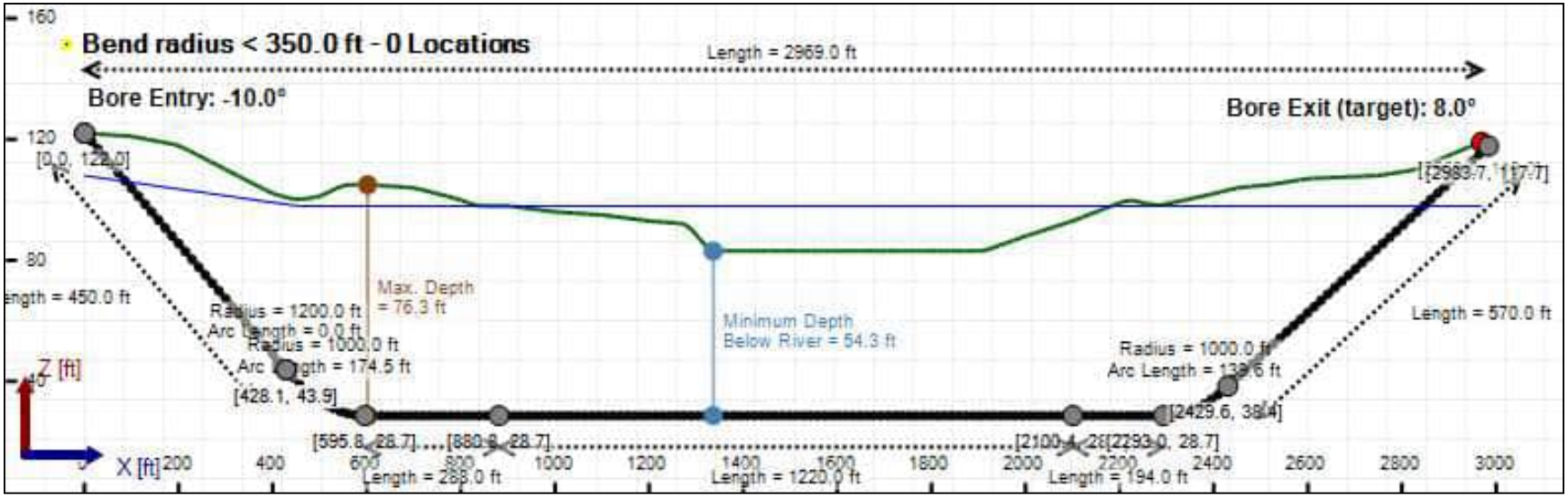
Soil Layer #1 USCS, Silt (M), ML
From Assistant
Unit Weight: 80.0000 (dry), 100.0000 (sat) [lb/ft3]
Phi: 28.00, S.M.: 50.00, Coh: 0.00 [psi]

Soil Layer #2 USCS, Clay (C), CL
From Assistant
Unit Weight: 70.0000 (dry), 100.0000 (sat) [lb/ft3]
Phi: 0.00, S.M.: 145.00, Coh: 3.10 [psi]

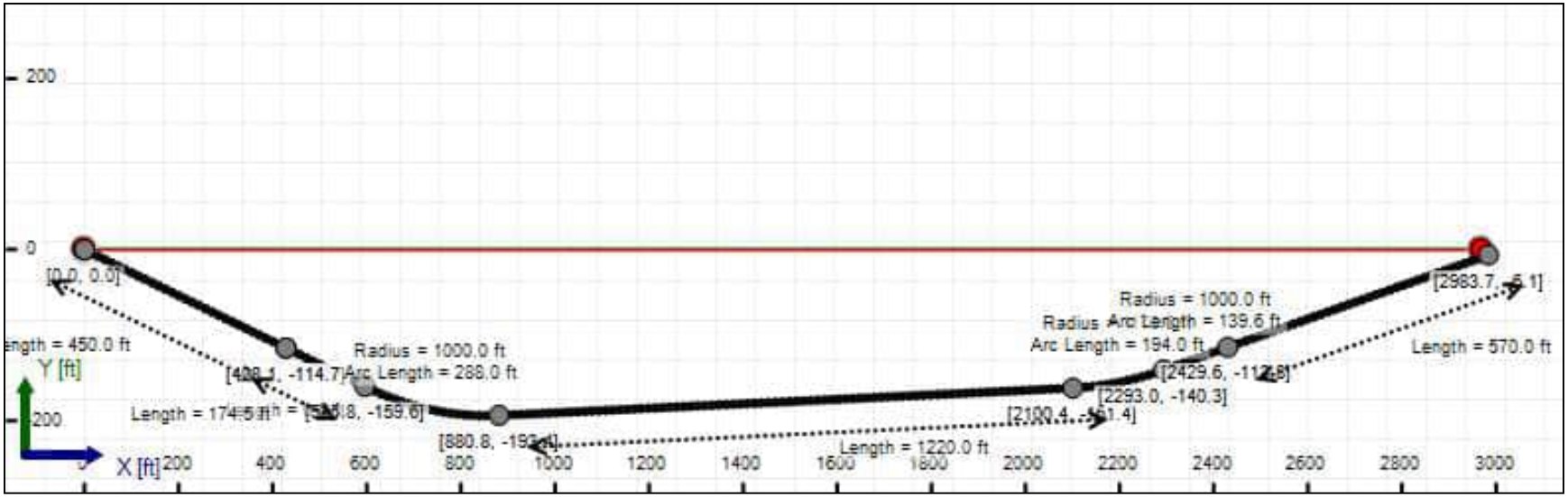
Soil Layer #3 USCS, Clay (C), CL
From Assistant
Unit Weight: 80.0000 (dry), 110.0000 (sat) [lb/ft3]
Phi: 0.00, S.M.: 145.00, Coh: 5.50 [psi]

Soil Layer #4 USCS, Clay (C), CL
From Assistant
Unit Weight: 70.0000 (dry), 100.0000 (sat) [lb/ft3]
Phi: 0.00, S.M.: 145.00, Coh: 3.10 [psi]

Bore Cross-Section View



Bore Plan View



Load Verifier Input Summary:

Pipe Application: Electrical Cable

Pipe Type: HDPE

Classification: IPS

Pipe OD: 12" (12.75")

Pipe DR: 7

Pipe Length: 3044.99 ft

Internal Pressure: 0 psi

Borehole Diameter: 1.59400002161662 ft

Silo Width: 1.59400002161662 ft

Surface Surcharge: 0 psi

Short Term Modulus: 57500 psi

Long Term Modulus: 28200 psi

Short Term Poisson Ratio: 0.35

Long Term Poisson Ratio: 0.45

Pipe Unit Weight: 59.30500 lb/ft3

Allowable Tensile Stress (Short Term): 1200 psi

Allowable Tensile Stress (Long Term): 1100 psi

Allowable Compressive Stress (Short Term): 1150 psi

Allowable Compressive Stress (Long Term): 1150 psi

Surface-pipe friction coefficient at entrance: 0.5

Surface-pipe friction coefficient in borehole: 0.3

Pipe-soil friction angle: 30

Slurry Unit Weight: 80.00000 lb/ft3

Hydrokinetic Pressure: 10 psi

Ballast Unit Weight: 62.42746 lb/ft3

In-service Load Summary:

Pressure [psi]	Deformed	Collapsed
Earth Pressure	26.8	26.8
Water Pressure	30.1	30.1
Surface Surcharge	0.0	0.0
Internal Pressure	0.0	0.0
Net Pressure	56.8	56.8
Deflection		
Earth Load Deflection	3.078	3.078
Buoyant Deflection	0.063	0.063
Reissner Effect	0	0
Net Deflection	3.141	3.141
Compressive Stress [psi]		
Compressive Wall Stress	199.0	199.0

Installation Load Summary:

Forces/Stresses	@Maximum Force	Absolute Maximum
Pullback Force [lb]	42654.3	42654.3
Pullback Stress [psi]	682.1	682.1
Pullback Strain	1.186E-2	1.186E-2
Bending Stress [psi]	0.0	30.5
Bending Strain	0	5.313E-4
Tensile Stress [psi]	682.1	704.4
Tensile Strain	1.186E-2	1.270E-2

Net External Pressure = 10.4 [psi]

Buoyant Deflection = 0.0

Hydrokinetic Force = 798.4 lb

In-service Analysis

	Calculated	Allowable	Factor of Safety	Check
Deflection [%]	3.141	7.5	2.4	OK
Unconstrained Collapse [psi]	56.8	247.1	4.3	OK
Compressive Wall Stress [psi]	199.0	1150.0	5.8	OK

Installation Analysis

	Calculated	Allowable	Factor of Safety	Check
Deflection [%]	0.031	7.5	242.9	OK
Unconstrained Collapse [psi]	21.4	497.4	23.3	OK
Tensile Stress [psi]	704.4	1200.0	1.7	OK

Maximum Allowable Bore Pressure Summary

Ream Number	Initial Diameter	Final Diameter	Estimated Maximum Pressure (Avg.)	Estimated Maximum Pressure (Local)
Pilot Bore	0.00 in	9.50 in	80.347 psi	80.347 psi
1	9.50 in	14.00 in	80.329 psi	80.329 psi
2	14.00 in	16.13 in	80.318 psi	80.318 psi

Note: The maximum bore pressures presented in this table are the maximum values along the length of the bore and not the maximum allowable at any point. The estimated maximum pressures should be compared to the estimated circulating pressures along the bore to determine potential locations of inadvertant returns.

Estimated Circulating Pressure Summary

Active	Shear Rate [rpm]	Shear Stress [Fann Degrees]
No	600	37
No	300	32
No	200	29
Yes	100	25
Yes	6	17
No	3	15

Flow Rate (Q): 50.00 US (liquid) gallon/min

Drill Fluid Density: 68.700 lb/ft3

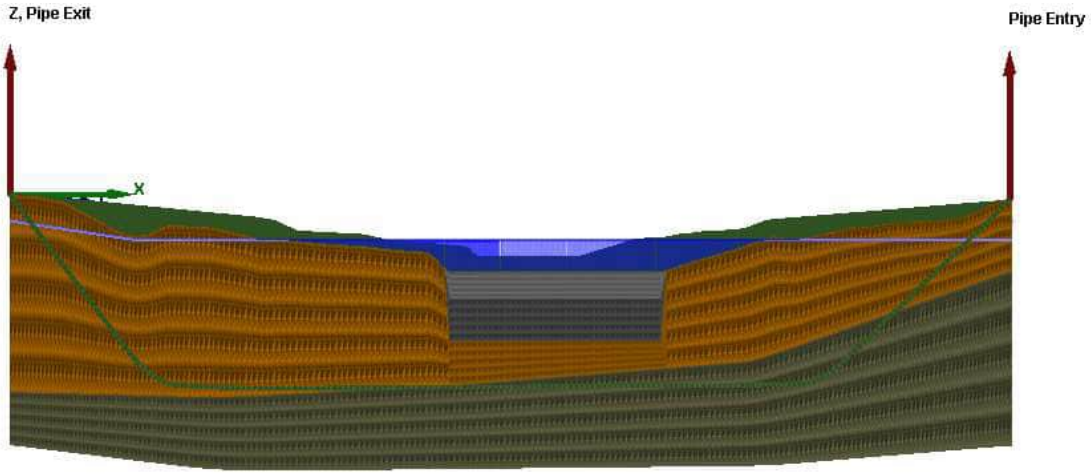
Rheological model: Power-Law

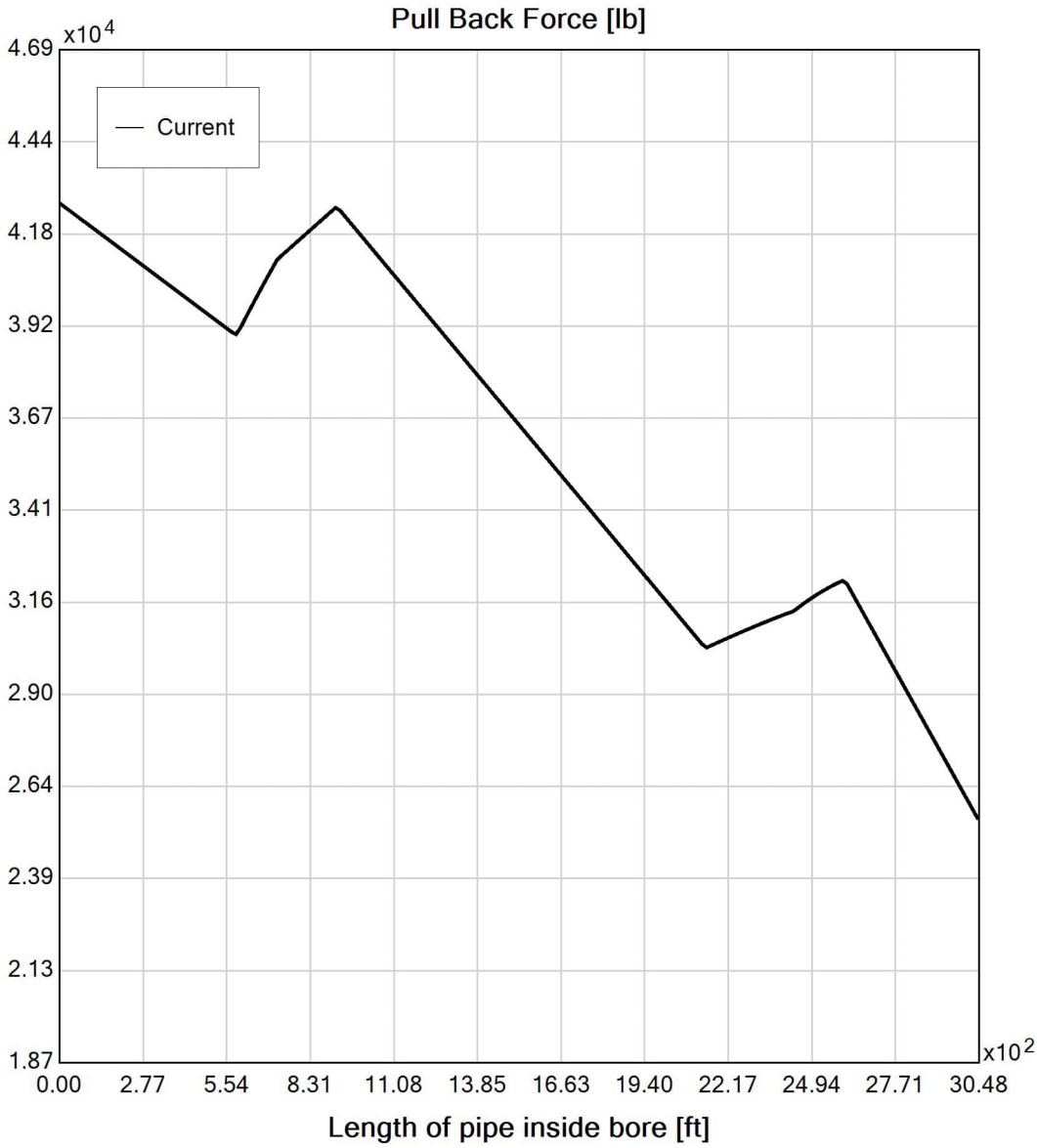
Fluid Consistency Index (K): 63.17

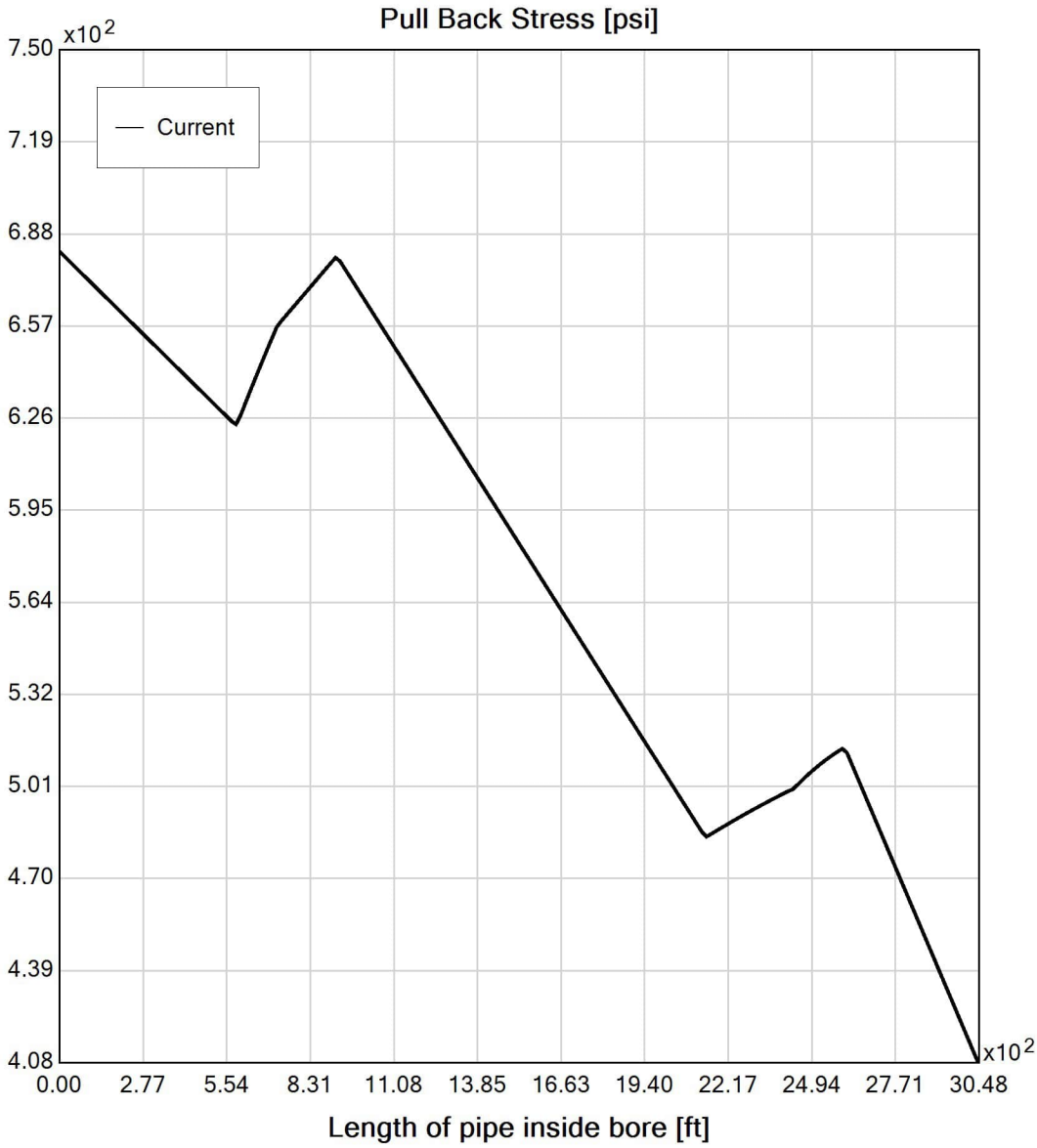
Power Law Exponent (n): 0.14

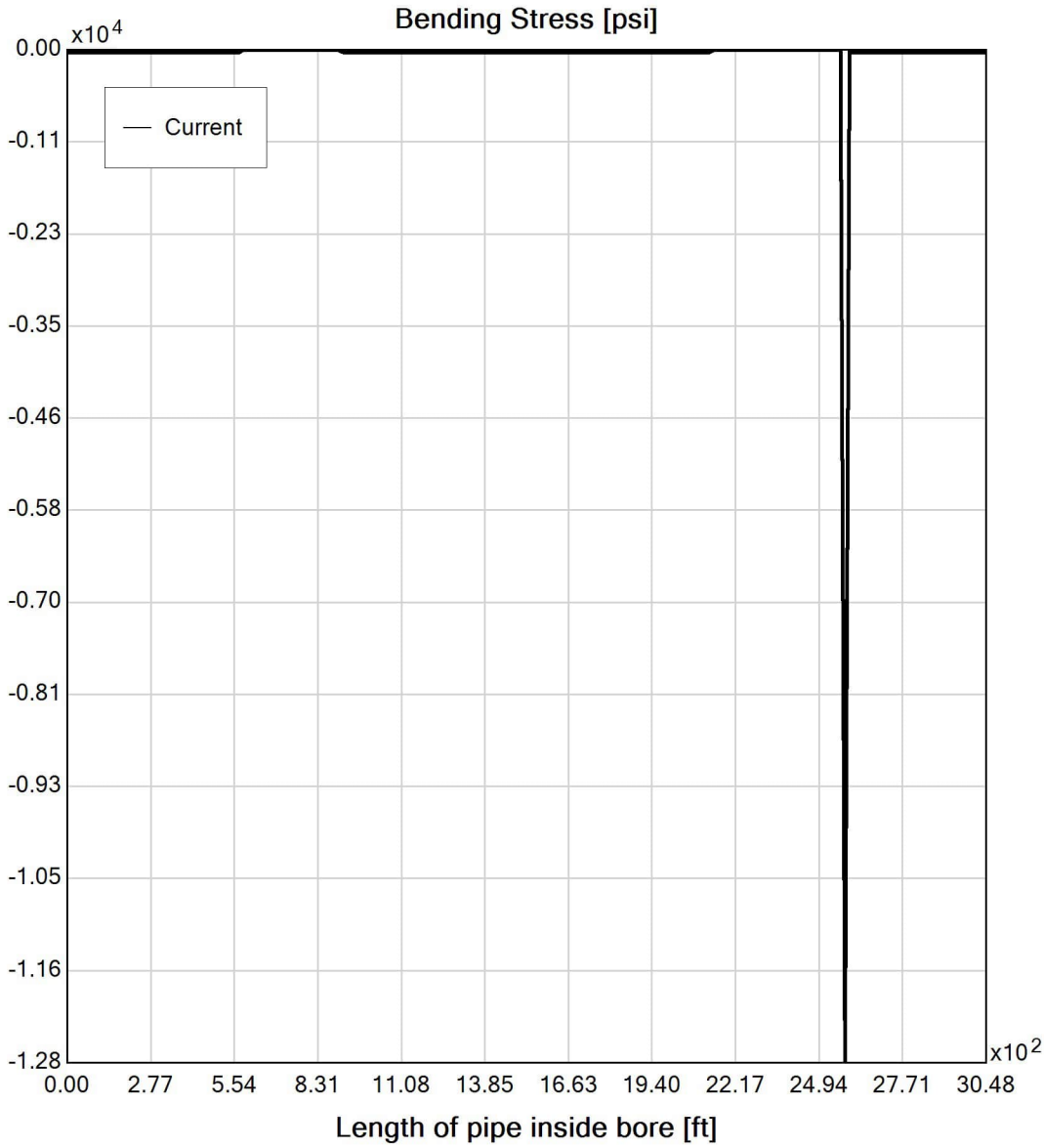
Effective Viscosity (cP): 1294.5

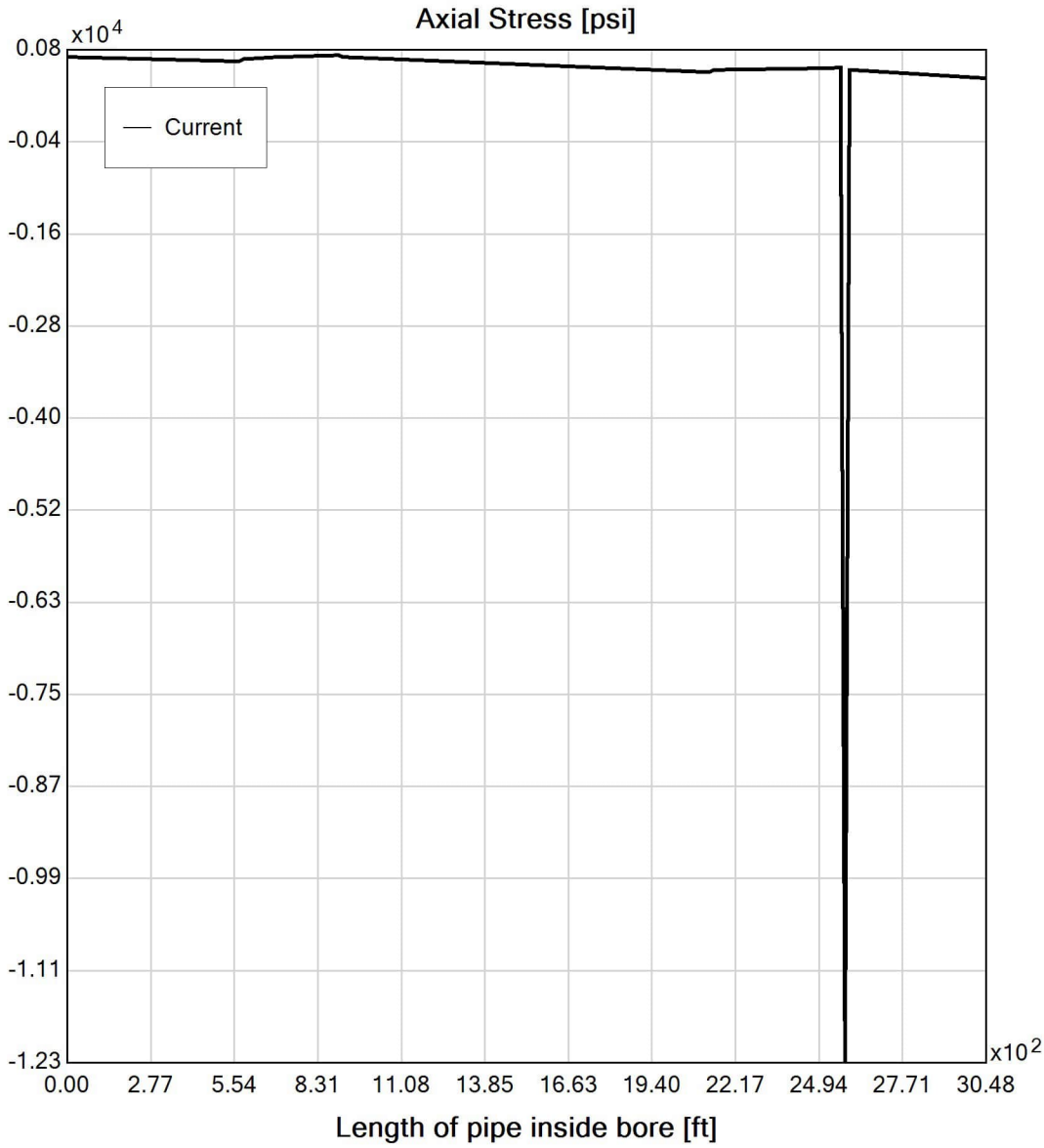
Virtual Site

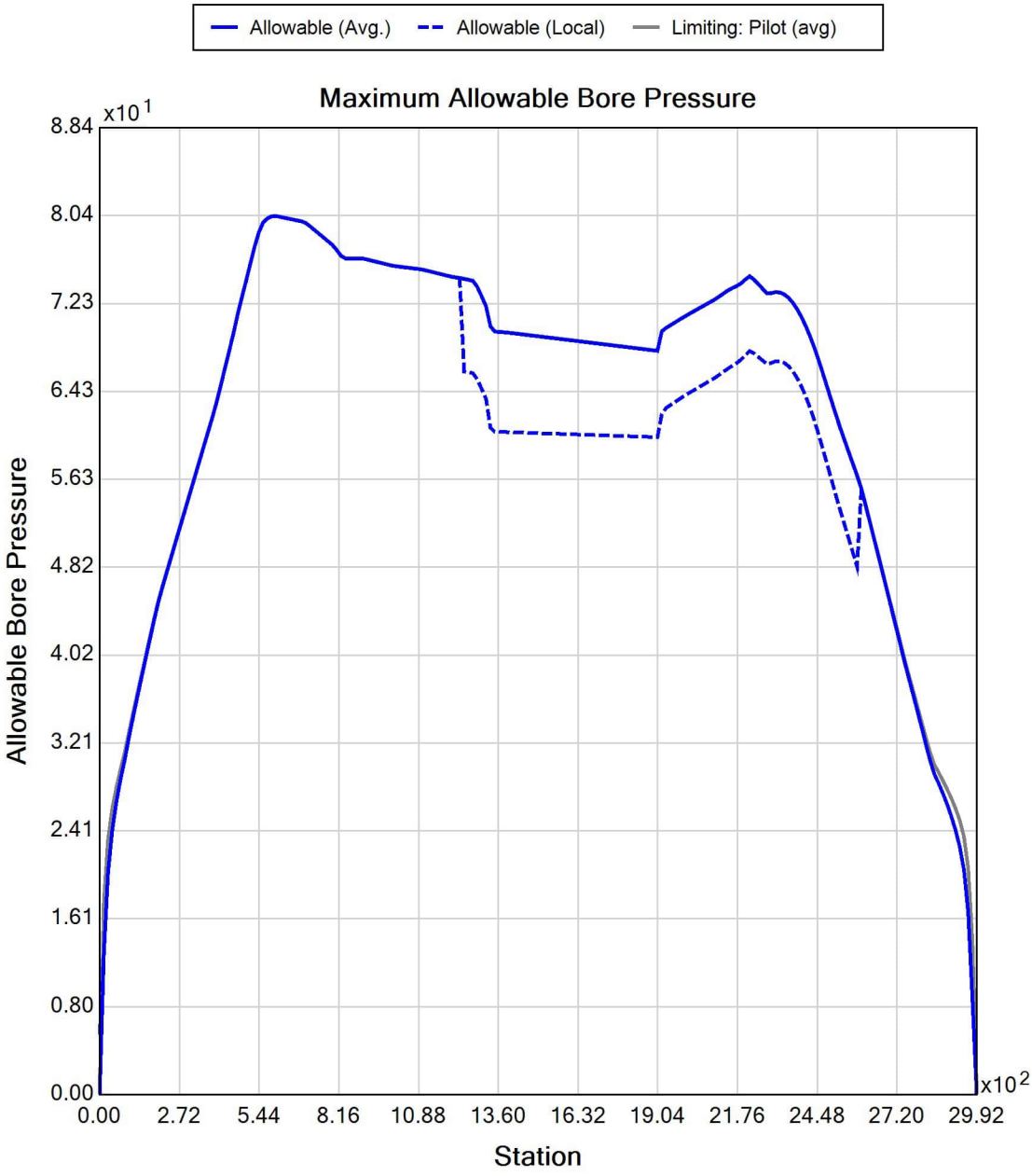


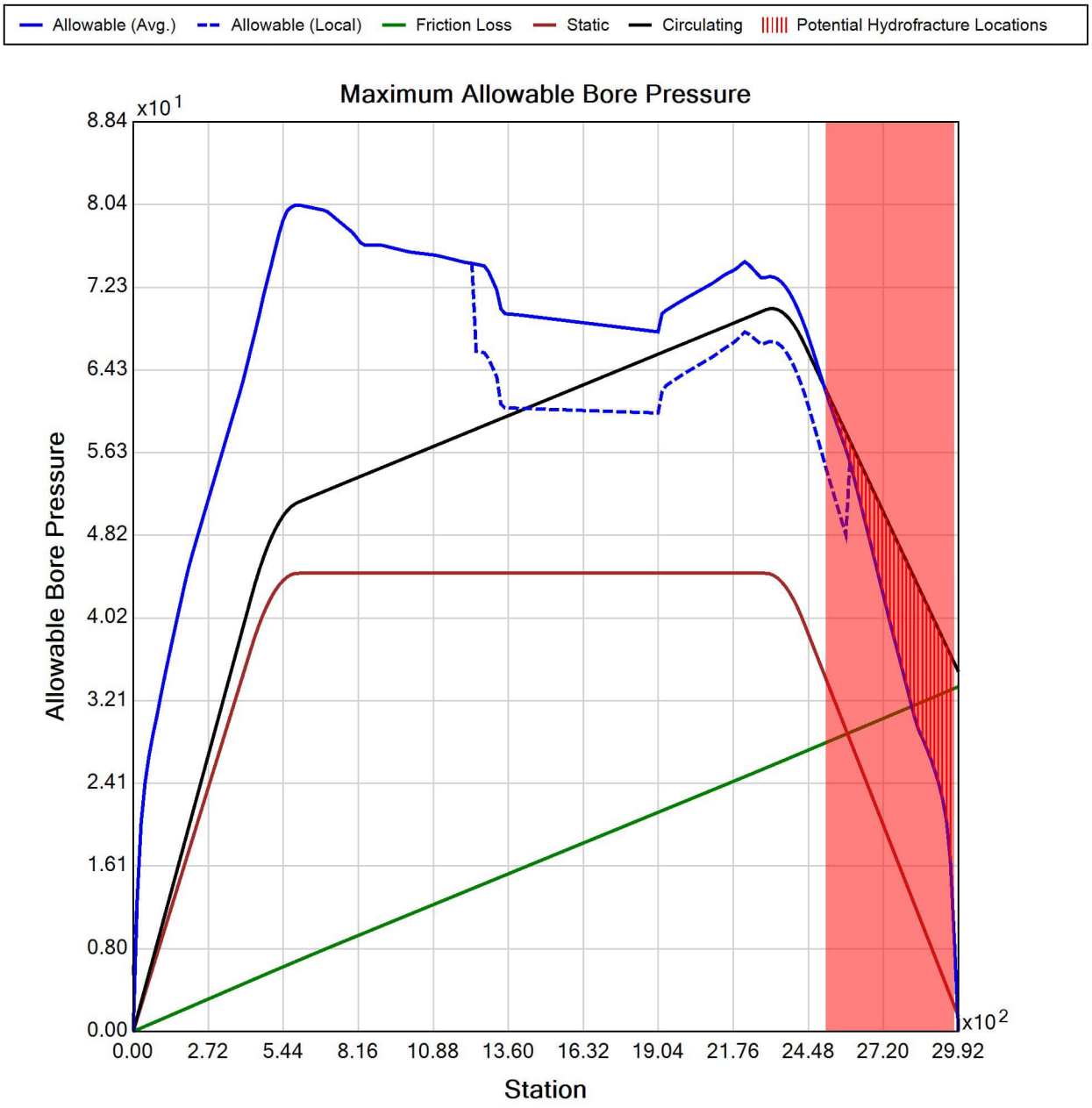












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Input Summary

Start Coordinate	(0.00, 0.00, 122.00) ft
End Coordinate	(2969.00, 0.00, 119.00) ft
Project Length	2969.00 ft
Pipe Type	HDPE
OD Classification	IPS
Pipe OD	3.500 in
Pipe DR	7.0
Pipe Thickness	0.50 in
Rod Length	15.00 ft
Rod Diameter	3.5 in
Drill Rig Location	(0.00, 0.00, 0.00) ft

Load Verifier Input Summary:

Pipe Application: Electrical Cable

Pipe Type: HDPE

Classification: IPS

Pipe OD: 3" (3.5")

Pipe DR: 7

Pipe Length: 3044.99 ft

Internal Pressure: 0 psi

Borehole Diameter: 0.625 ft

Silo Width: 0.625 ft

Surface Surcharge: 0 psi

Short Term Modulus: 57500 psi

Long Term Modulus: 28200 psi

Short Term Poisson Ratio: 0.35

Long Term Poisson Ratio: 0.45

Pipe Unit Weight: 59.30500 lb/ft3

Allowable Tensile Stress (Short Term): 1200 psi

Allowable Tensile Stress (Long Term): 1100 psi

Allowable Compressive Stress (Short Term): 1150 psi

Allowable Compressive Stress (Long Term): 1150 psi

Surface-pipe friction coefficient at entrance: 0.5

Surface-pipe friction coefficient in borehole: 0.3

Pipe-soil friction angle: 30

Slurry Unit Weight: 93.64118 lb/ft3

Hydrokinetic Pressure: 10 psi

Ballast Unit Weight: 62.42746 lb/ft3

In-service Load Summary:

Pressure [psi]	Deformed	Collapsed
Earth Pressure	26.8	26.8
Water Pressure	30.1	30.1
Surface Surcharge	0.0	0.0
Internal Pressure	0.0	0.0
Net Pressure	56.8	56.8
Deflection		
Earth Load Deflection	3.078	3.078
Buoyant Deflection	0.020	0.020
Reissner Effect	0	0
Net Deflection	3.098	3.098
Compressive Stress [psi]		
Compressive Wall Stress	199.0	199.0

Installation Load Summary:

Forces/Stresses	@Maximum Force	Absolute Maximum
Pullback Force [lb]	3675.7	3675.7
Pullback Stress [psi]	780.0	780.0
Pullback Strain	1.357E-2	1.357E-2
Bending Stress [psi]	0.0	8.4
Bending Strain	0	1.458E-4
Tensile Stress [psi]	780.0	784.5
Tensile Strain	1.357E-2	1.377E-2

Net External Pressure = 30.2 [psi]

Buoyant Deflection = 0.0

Hydrokinetic Force = 172.8 lb

In-service Analysis

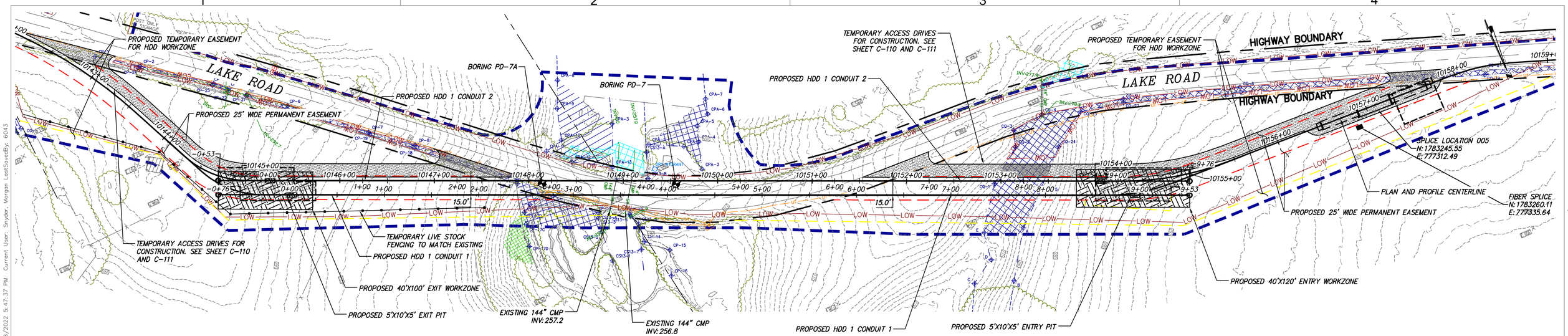
	Calculated	Allowable	Factor of Safety	Check
Deflection [%]	3.098	7.5	2.4	OK
Unconstrained Collapse [psi]	60.7	248.1	4.1	OK
Compressive Wall Stress [psi]	199.0	1150.0	5.8	OK

Installation Analysis

	Calculated	Allowable	Factor of Safety	Check
Deflection [%]	0.010	7.5	756.1	OK
Unconstrained Collapse [psi]	30.2	483.4	16.0	OK
Tensile Stress [psi]	784.5	1200.0	1.5	OK

Appendix E

HDD Design Drawings



0 50 100
Scale in feet

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

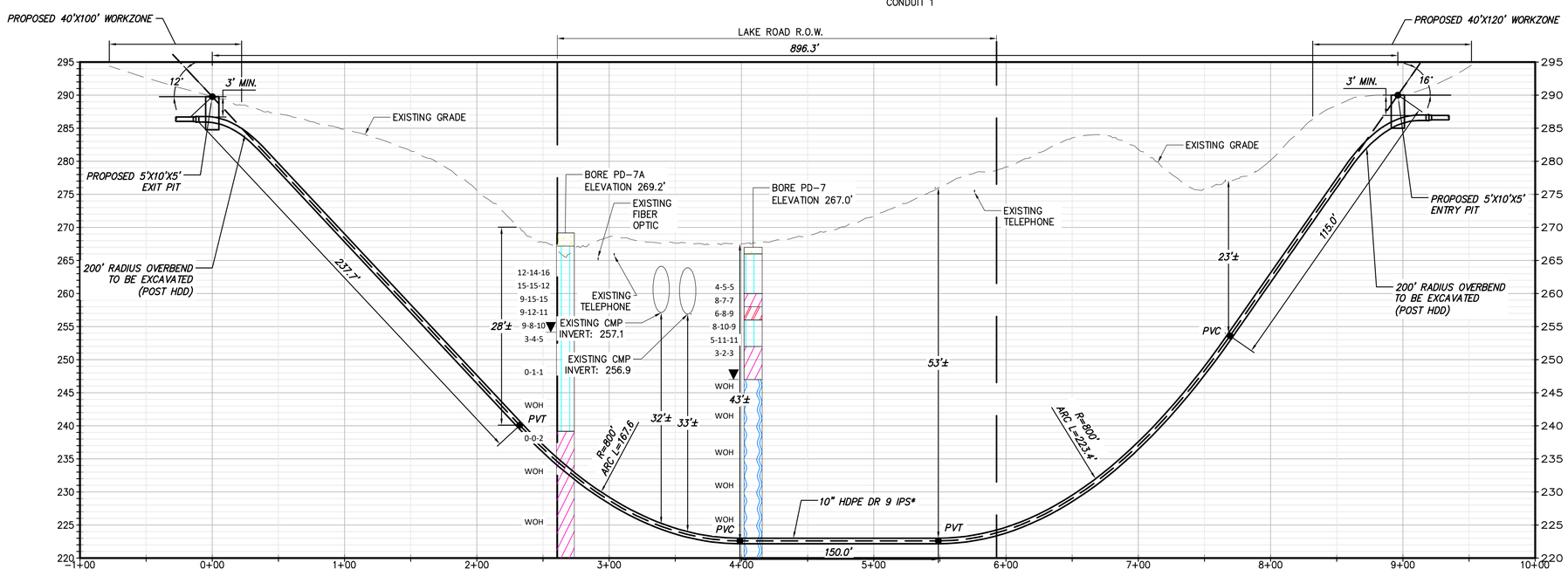
Recovery %/RQD % = 95%/90%

11000 = UCS

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
CH	Fat CLAY
CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
Fill	Fill
GC	CLAYEY GRAVEL
GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

PROPOSED HDD 1 PLAN VIEW

CONDUIT 1



0 50 100
Scale in feet

PROPOSED HDD 1 PROFILE

CONDUIT 1

*HDD 1 CONSIST OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 10" DIAMETER CASINGS.

A THIRD 2" CASING WILL BE BUNDLED WITH ONE OF THE 10" CASINGS FOR A TELECOMMUNICATIONS LINE.

CHPE Champlain Hudson Power Express

Kiewit

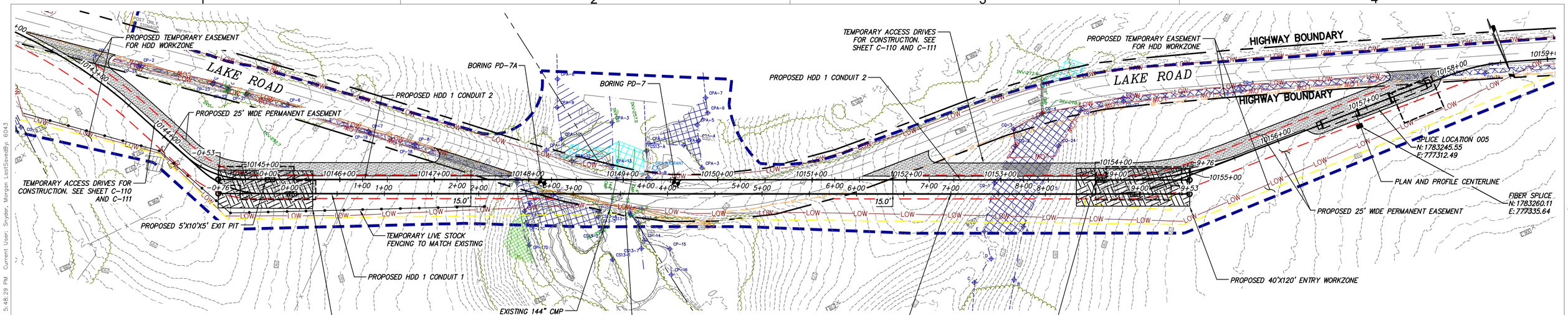
CHA
III Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/21/2022	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 1 (PACKAGE 1A) PUTNAM TO DRESDEN
HDD 1 PLAN AND PROFILE - CONDUIT 1
MILL BROOK CULVERTS CROSSING, CONDUIT 1
WHITEHALL, WASHINGTON COUNTY, NY

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-301**

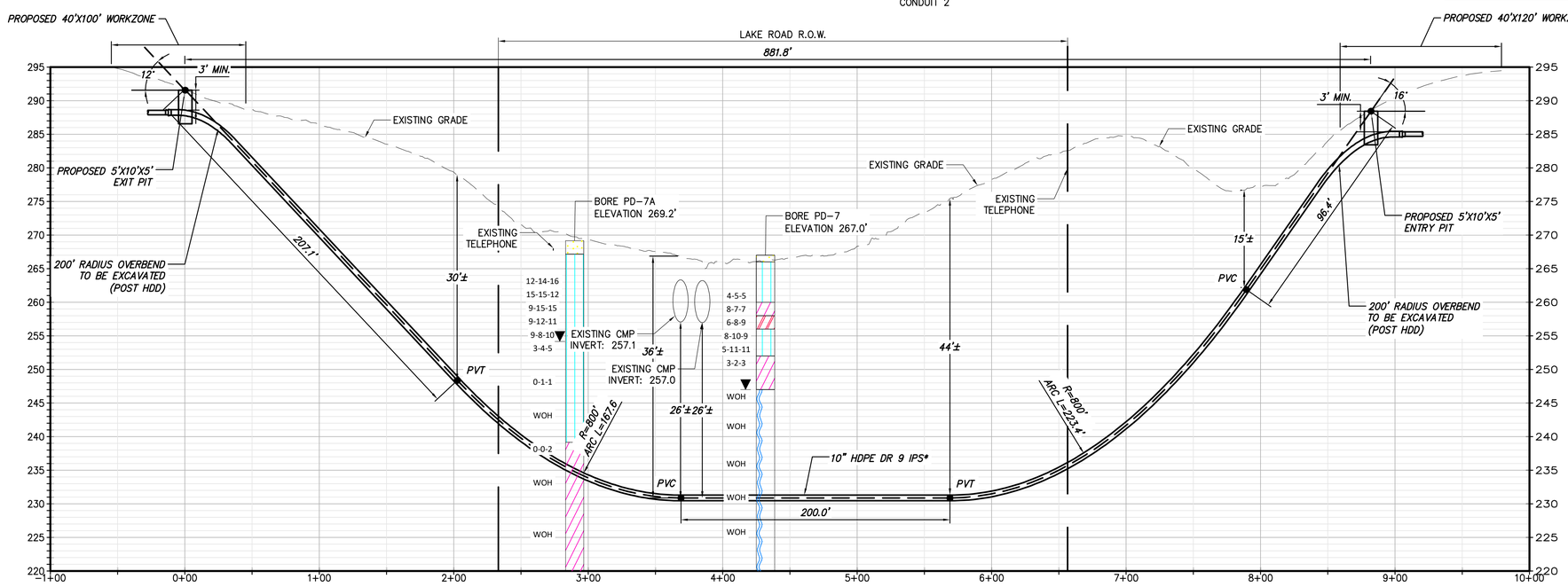
DRAWN BY: TAR | DESIGNED BY: TAR | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 09/21/2022 | SH.NO. XXX OF XXX



Scale in feet

PROPOSED HDD 1 PLAN VIEW

CONDUIT 2



Scale in feet

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BORING LOG STRIP LEGEND

B101

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Recovery %/RQD % =95%/90%

11000 =UCS

Legend

	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
	CH	Fat CLAY
	CH-MH	SILTY Fat CLAY
	CL	Lean CLAY
	CL-ML	SILTY CLAY
	CONCRETE	Concrete
	Fill	Fill
	GC	CLAYEY GRAVEL
	GC-GM	SILTY CLAYEY GRAVEL
	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
	GP-GM	Poorly Graded GRAVEL with SILT
	GW	Well Graded GRAVEL
	GW-GC	Well Graded GRAVEL with CLAY
	GW-GM	Well Graded GRAVEL with SILT
	Limestone	Limestone
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling

CHPE Champlain Hudson Power Express

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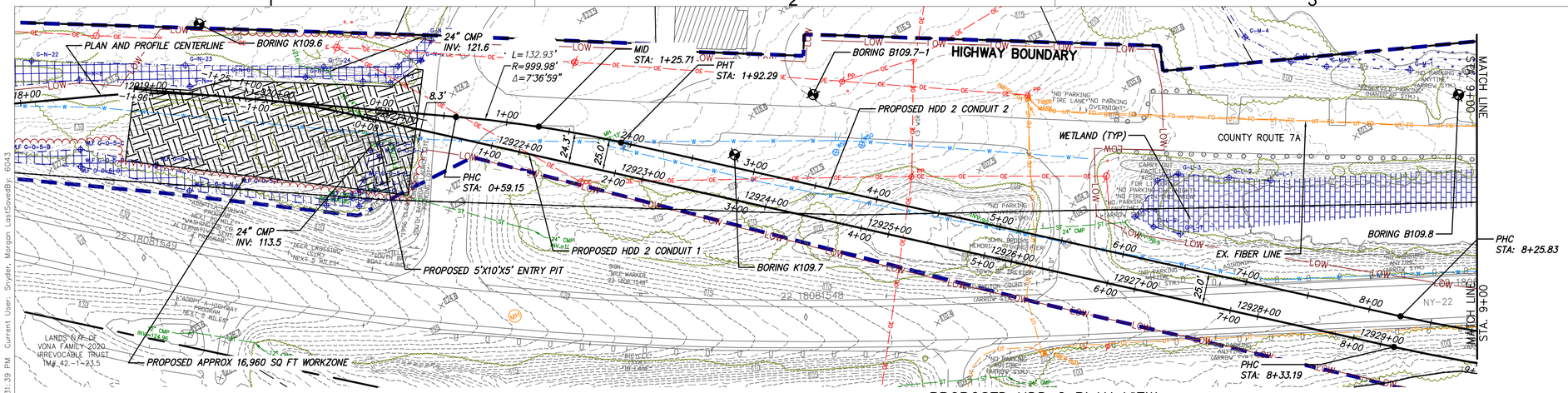
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/21/2022	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 1 (PACKAGE 1A) PUTNAM TO DRESDEN
HDD 1 PLAN AND PROFILE - CONDUIT 2
MILL BROOK CULVERTS CROSSING, CONDUIT 2
WHITEHALL, WASHINGTON COUNTY, NY

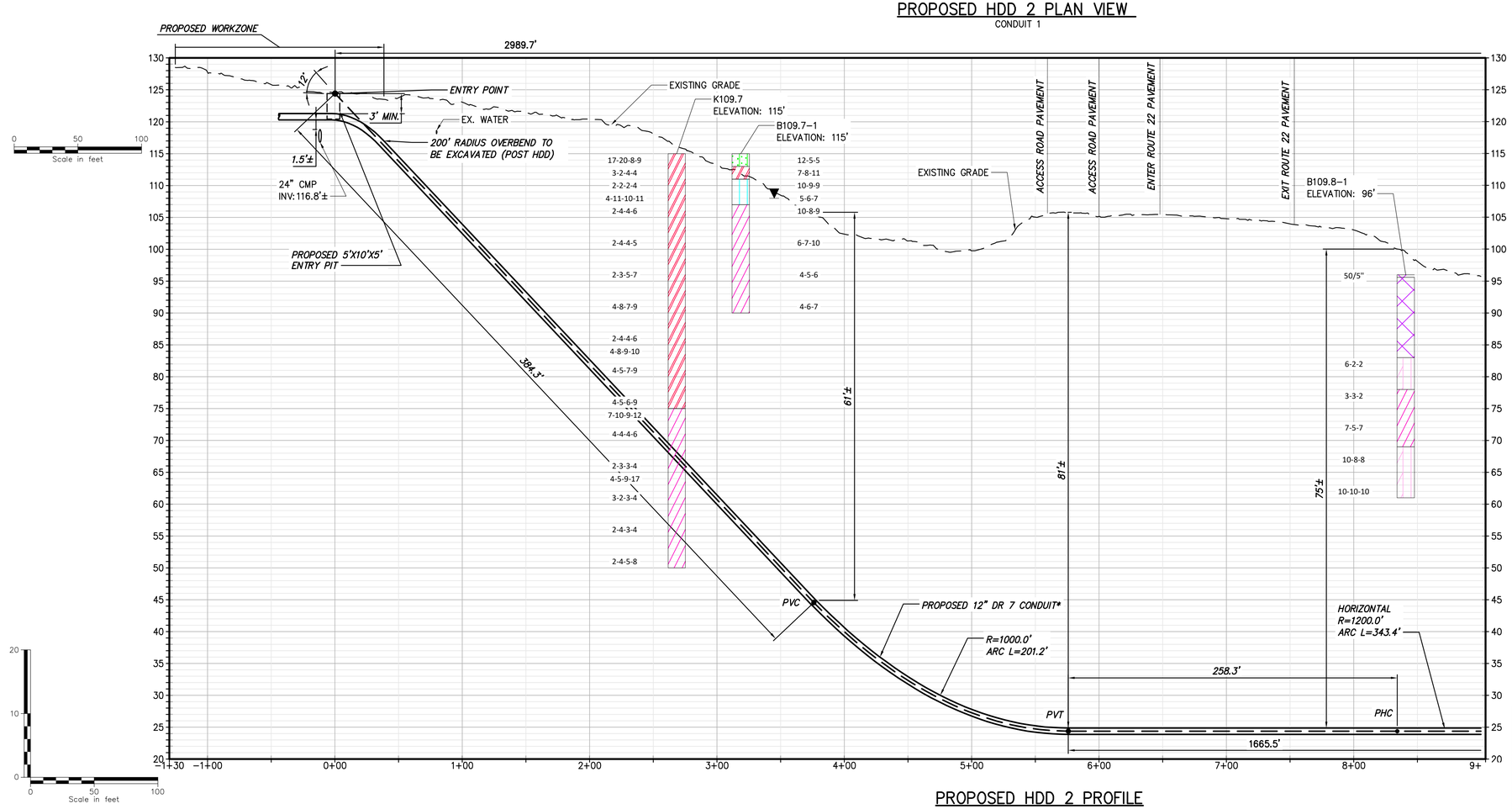
DRAWN BY: TAR | DESIGNED BY: TAR | APPROVED BY: JEO

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-301A
SCALE	AS NOTED
DATE	09/21/2022
REV. NO.	X
SH.NO.	XXX OF XXX



PROPOSED HDD 2 PLAN VIEW

CONDUIT 1



PROPOSED HDD 2 PROFILE

CONDUIT 1

* HDD2 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 12" HDPE DR 7 IPS CASINGS

A THIRD 3" DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 12" HDPE DR 7 IPS FOR A TELECOMMUNICATIONS LINE.

NOTE:

1) HDD SUBCONTRACTOR TO FIELD VERIFY THE WATER PIPE AND HYDRANT WATER PIPE LOCATION TO CHECK FOR INTERFERENCE.
2) RECOMMEND INTERSECTING BORE METHOD BE USED TO REDUCE DRILLING FLUID PRESSURES AT THE EAST END OF THE HDD ALIGNMENT.
3) IT IS EXPECTED THAT BALLASTING OR USE OF ROLLERS WILL BE REQUIRED.
4) BORES AND BORE HATCHING IN PROFILE IS NOT CLEARLY LEGIBLE DUE TO THE CLOSE PROXIMITY OF THE MULTIPLE BORES AT 50 SCALE. USERS MUST CONSULT THE ACTUAL BORE LOGS AND REPORTS FOR CLARIFICATION AND OR INTERPRETATION.

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" =10-10-10

Recovery %/RQD % =95%/90%

11000 =UCS

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
	CH	Fat CLAY
	CH-MH	SILTY Fat CLAY
	CL	Lean CLAY
	CL-ML	SILTY CLAY
	CONCRETE	Concrete
	Fill	Fill
	GC	CLAYEY GRAVEL
	GC-GM	SILTY CLAYEY GRAVEL
	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
	GP-GM	Poorly Graded GRAVEL with SILT
	GW	Well Graded GRAVEL
	GW-GC	Well Graded GRAVEL with CLAY
	GW-GM	Well Graded GRAVEL with SILT
	Limestone	Limestone
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling

CHPE Champlain Hudson Power Express

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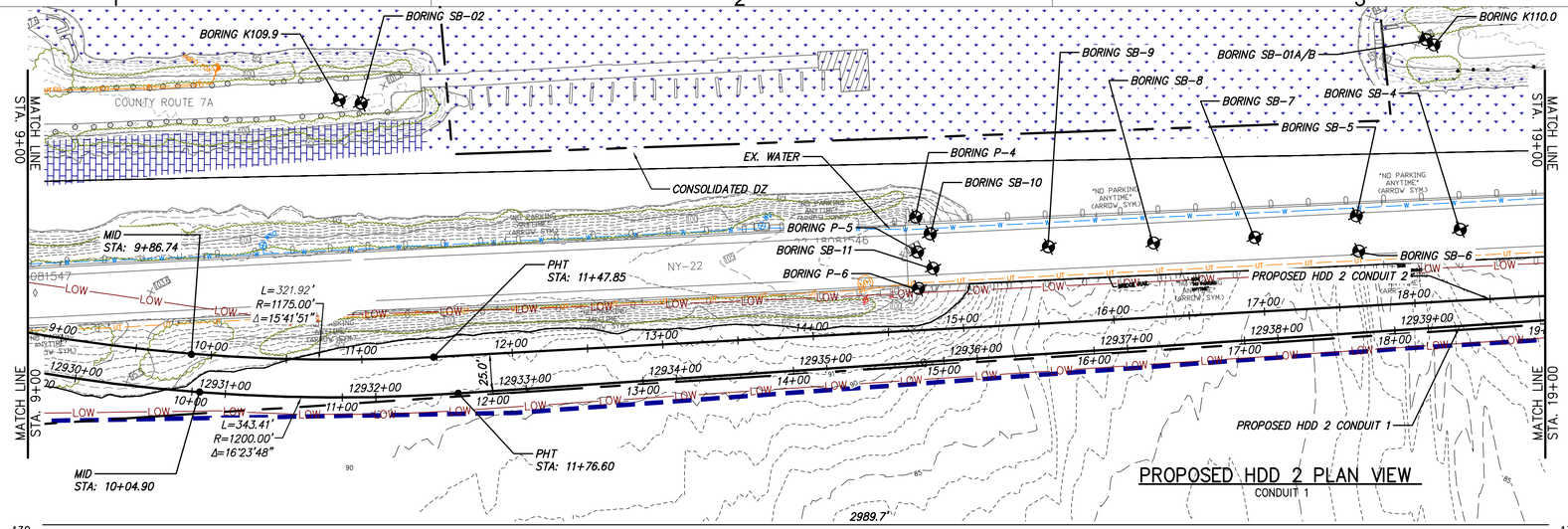
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/21/2022	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL
PROPOSED HDD PLAN AND PROFILE - HDD 2
SOUTH BAY CROSSING, CONDUIT 1
WHITEHALL, WASHINGTON COUNTY, NY

DRAWN BY: MCS DESIGNED BY: MB APPROVED BY: JEO

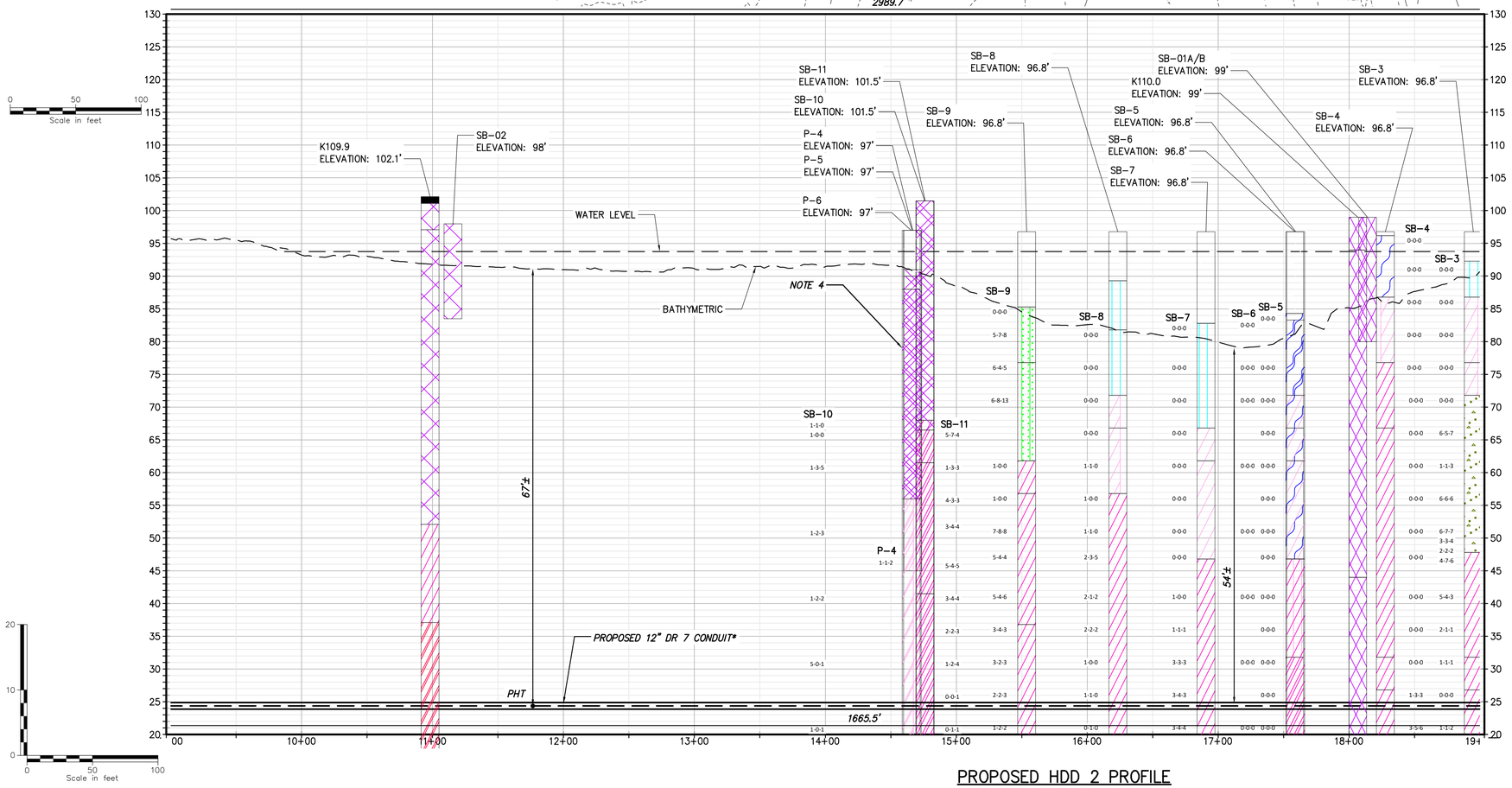
SCALE AS NOTED REV. NO. X

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-301
DATE 09/21/2022
SH.NO. XXX OF XXX



PROPOSED HDD 2 PLAN VIEW

CONDUIT 1



PROPOSED HDD 2 PROFILE

CONDUIT 1

* HDD2 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 12" HDPE DR 7 IPS CASINGS

A THIRD 3" DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 12" HDPE DR 7 IPS FOR A TELECOMMUNICATIONS LINE.

NOTE:

1) HDD SUBCONTRACTOR TO FIELD VERIFY THE WATER PIPE AND HYDRANT WATER PIPE LOCATION TO CHECK FOR INTERFERENCE.
2) RECOMMEND INTERSECTING BORE METHOD BE USED TO REDUCE DRILLING FLUID PRESSURES AT THE EAST END OF THE HDD ALIGNMENT.
3) IT IS EXPECTED THAT BALLASTING OR USE OF ROLLERS WILL BE REQUIRED.
4) BORES AND BORE HATCHING IN PROFILE IS NOT CLEARLY LEGIBLE DUE TO THE CLOSE PROXIMITY OF THE MULTIPLE BORES AT 50 SCALE. USERS MUST CONSULT THE ACTUAL BORE LOGS AND REPORTS FOR CLARIFICATION AND OR INTERPRETATION.

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" =10-10-10

Recovery %/RQD % =95%/90%

11000 =UCS

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
CH	Fat CLAY
CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
Fill	Fill
GC	CLAYEY GRAVEL
GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
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SP-SC	Poorly Graded SAND with CLAY
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Topsoil	Topsoil
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USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

CHPE Champlain Hudson Power Express

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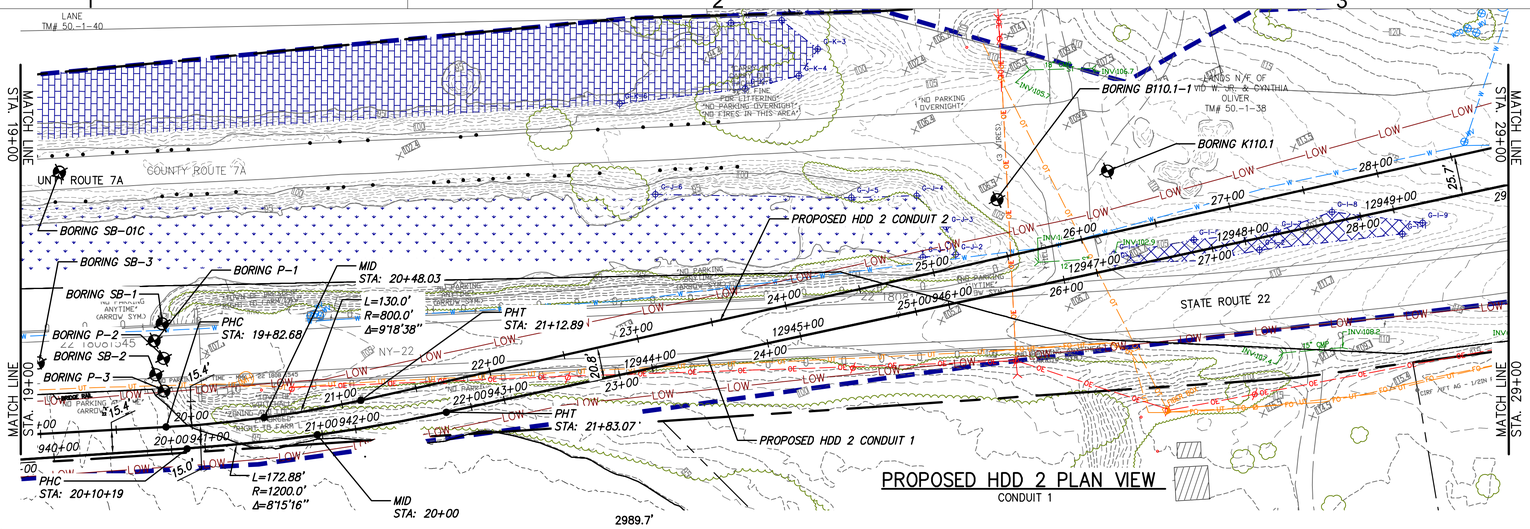
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/21/2022	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL
PROPOSED HDD PLAN AND PROFILE - HDD 2
SOUTH BAY CROSSING, CONDUIT 1
WHITEHALL, WASHINGTON COUNTY, NY

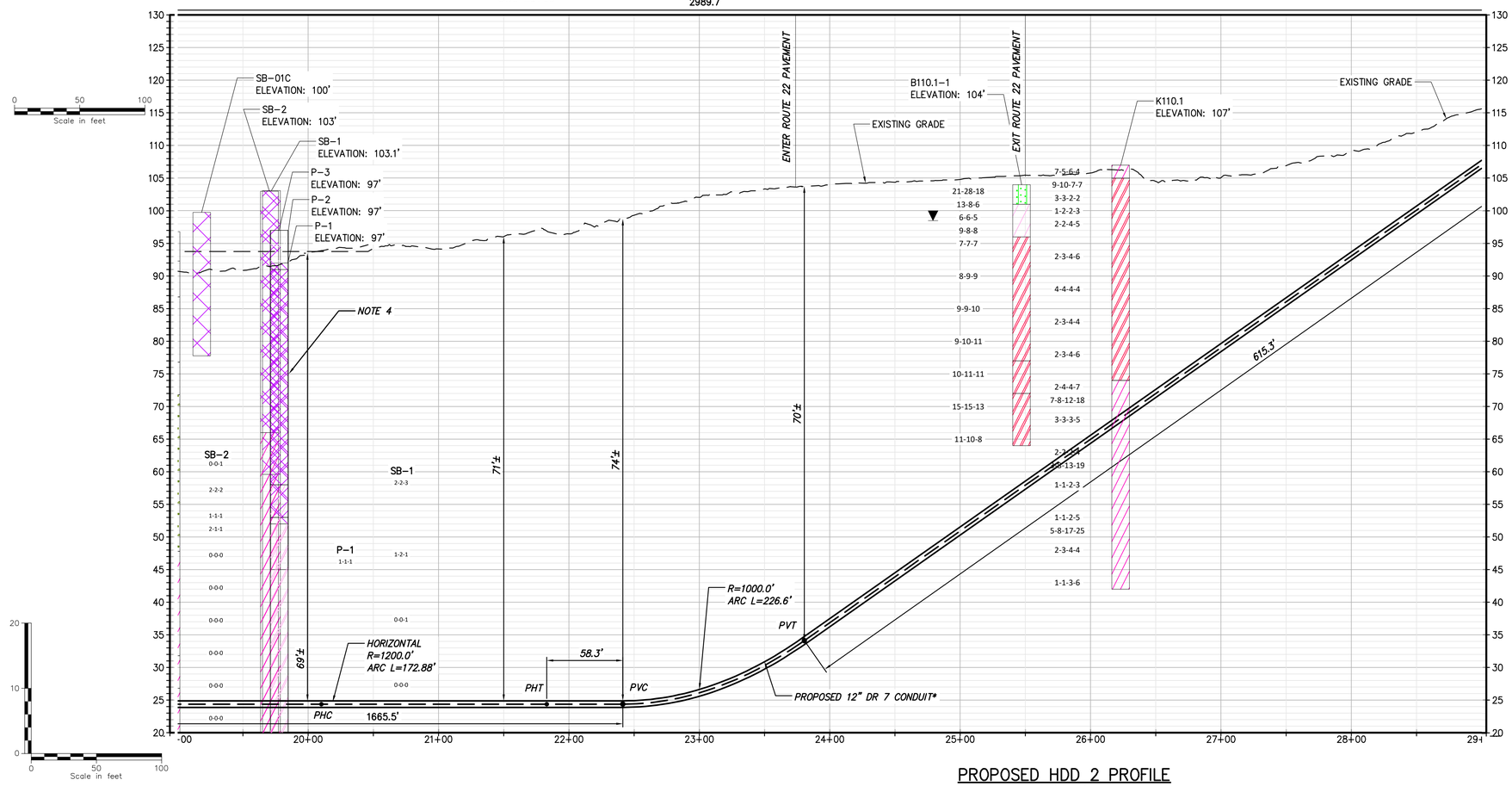
KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-301.1**

DRAWN BY: MCS DESIGNED BY: MB APPROVED BY: JEO
SCALE AS NOTED DATE 09/21/2022
REV. NO. X SH.NO. XXX OF XXX



PROPOSED HDD 2 PLAN VIEW

CONDUIT 1



PROPOSED HDD 2 PROFILE

CONDUIT 1

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A THIRD 3" DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 12" HDPE DR 7 IPS FOR A TELECOMMUNICATIONS LINE.

NOTE:

1) HDD SUBCONTRACTOR TO FIELD VERIFY THE WATER PIPE AND HYDRANT WATER PIPE LOCATION TO CHECK FOR INTERFERENCE.
2) RECOMMEND INTERSECTING BORE METHOD BE USED TO REDUCE DRILLING FLUID PRESSURES AT THE EAST END OF THE HDD ALIGNMENT.
3) IT IS EXPECTED THAT BALLASTING OR USE OF ROLLERS WILL BE REQUIRED.
4) BORES AND BORE HATCHING IN PROFILE IS NOT CLEARLY LEGIBLE DUE TO THE CLOSE PROXIMITY OF THE MULTIPLE BORES AT 50 SCALE. USERS MUST CONSULT THE ACTUAL BORE LOGS AND REPORTS FOR CLARIFICATION AND OR INTERPRETATION.

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" =10-10-10

Recovery %/RQD % =95%/90%

11000 =UCS

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
	CH	Fat CLAY
	CH-MH	SILTY Fat CLAY
	CL	Lean CLAY
	CL-ML	SILTY CLAY
	CONCRETE	Concrete
	Fill	Fill
	GC	CLAYEY GRAVEL
	GC-GM	SILTY CLAYEY GRAVEL
	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
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	GW-GC	Well Graded GRAVEL with CLAY
	GW-GM	Well Graded GRAVEL with SILT
	Limestone	Limestone
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling

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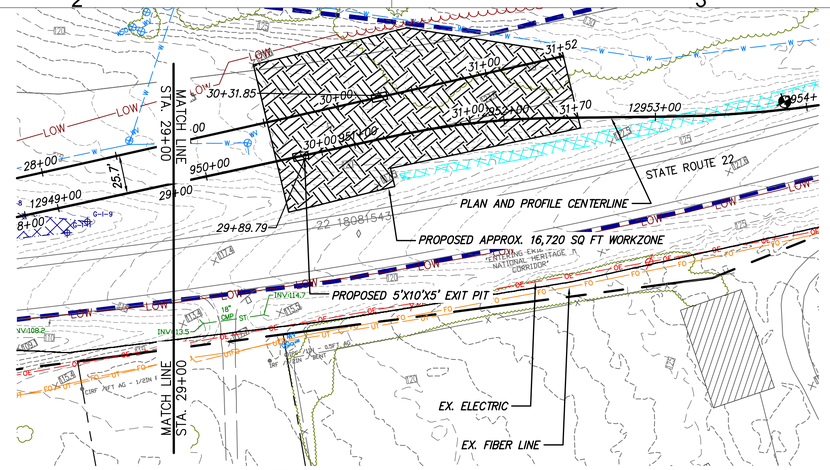
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/21/2022	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL
PROPOSED HDD PLAN AND PROFILE - HDD 2
SOUTH BAY CROSSING, CONDUIT 1
WHITEHALL, WASHINGTON COUNTY, NY

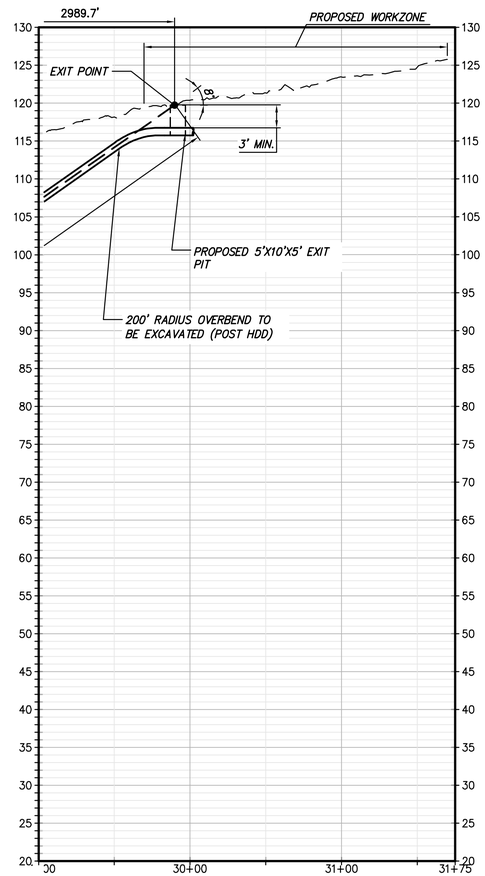
KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-301.2**

DRAWN BY: MCS | DESIGNED BY: MB | APPROVED BY: JEO | SCALE AS NOTED | DATE 09/21/2022 | REV. NO. X | SH.NO. XXX OF XXX



PROPOSED HDD 2 PLAN VIEW

CONDUIT 1



PROPOSED HDD 2 PROFILE

CONDUIT 1

* HDD2 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 12" HDPE DR 7 IPS CASINGS

A THIRD 3" DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 12" HDPE DR 7 IPS FOR A TELECOMMUNICATIONS LINE.

NOTE:

1) HDD SUBCONTRACTOR TO FIELD VERIFY THE WATER PIPE AND HYDRANT WATER PIPE LOCATION TO CHECK FOR INTERFERENCE.
2) RECOMMEND INTERSECTING BORE METHOD BE USED TO REDUCE DRILLING FLUID PRESSURES AT THE EAST END OF THE HDD ALIGNMENT.
3) IT IS EXPECTED THAT BALLASTING OR USE OF ROLLERS WILL BE REQUIRED.
4) BORES AND BORE HATCHING IN PROFILE IS NOT CLEARLY LEGIBLE DUE TO THE CLOSE PROXIMITY OF THE MULTIPLE BORES AT 50 SCALE. USERS MUST CONSULT THE ACTUAL BORE LOGS AND REPORTS FOR CLARIFICATION AND OR INTERPRETATION.

0 50 100
Scale in feet

0 50 100
Scale in feet

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" =10-10-10

Recovery %/RQD % =95%/90%

11000 =UCS

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
CH	Fat CLAY
CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
Fill	Fill
GC	CLAYEY GRAVEL
GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
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Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
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USGS 705	Schist
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USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

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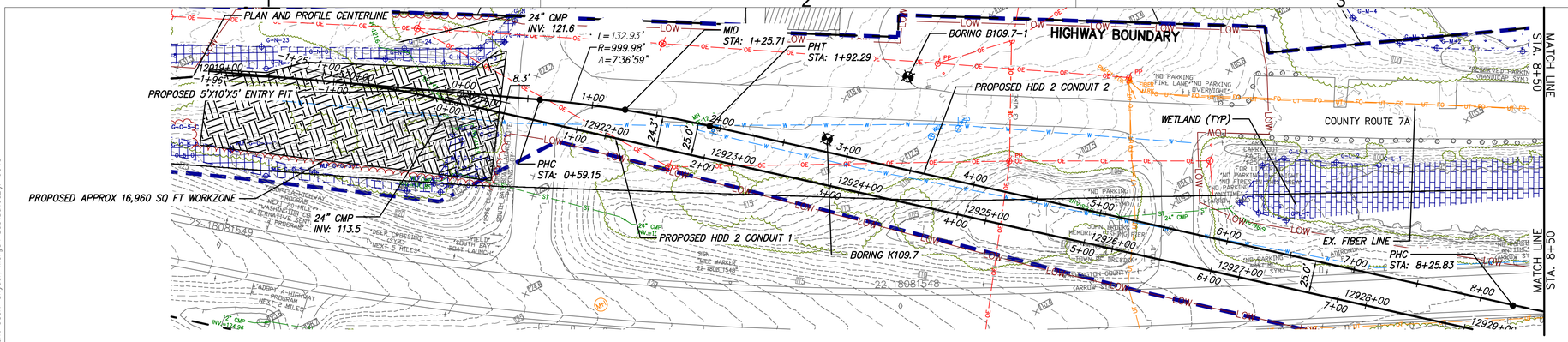
0	09/21/2022	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL
PROPOSED HDD PLAN AND PROFILE - HDD 2
SOUTH BAY CROSSING, CONDUIT 1
WHITEHALL, WASHINGTON COUNTY, NY

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-301.3**

DRAWN BY: MCS | DESIGNED BY: MB | APPROVED BY: JEO | SCALE AS NOTED | DATE 09/21/2022 | REV. NO. X | SH.NO. XXX OF XXX



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NOTE:

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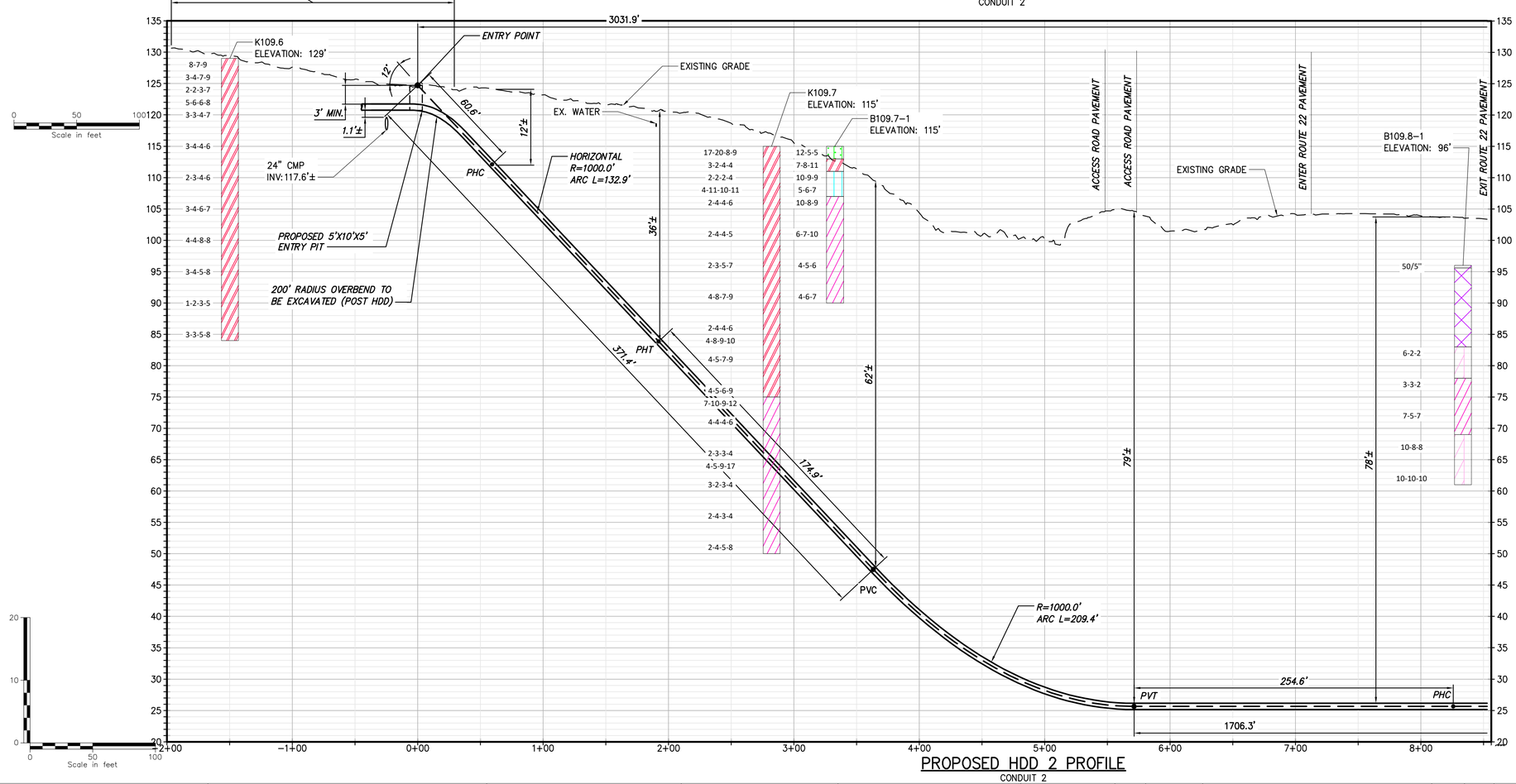
PROPOSED HDD 2 PLAN VIEW

CONDUIT 2



PROPOSED HDD 2 PROFILE

CONDUIT 2

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" =10-10-10

Recovery %/RQD % =95%/90%

11000 =UCS

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
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SC-SM	SILT, CLAYEY SAND
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Weathered Rock	Undefined
Water Table	Water Table during drilling
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL

PROPOSED HDD PLAN AND PROFILE - HDD 2

SOUTH BAY CROSSING, CONDUIT 2

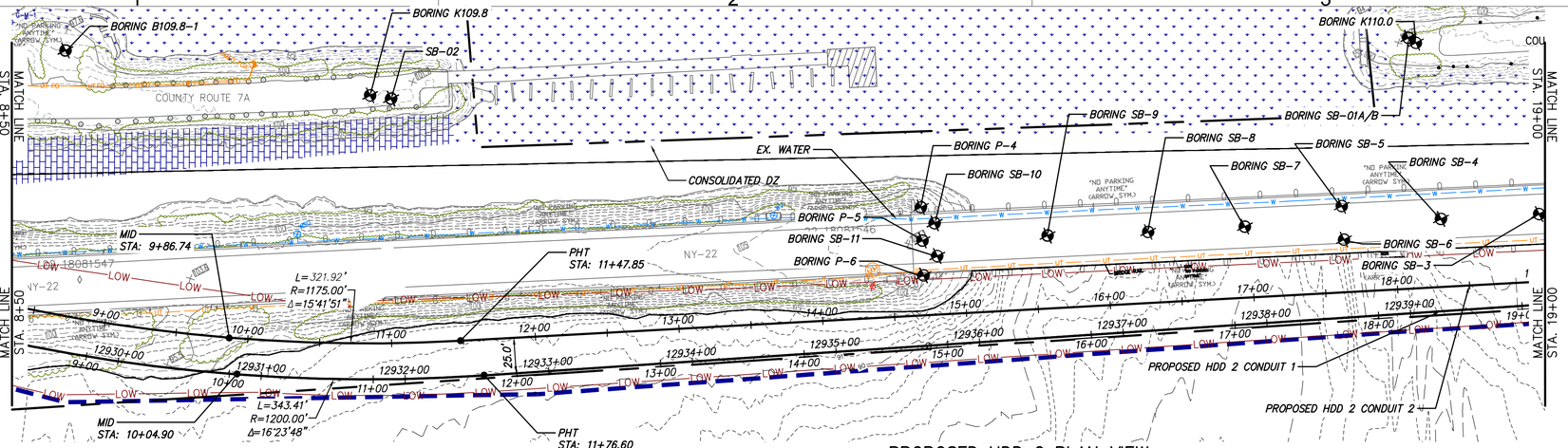
WHITEHALL, WASHINGTON COUNTY, NY

KIEWIT PROJECT NO. 21162

CHA PROJECT NO. 068076

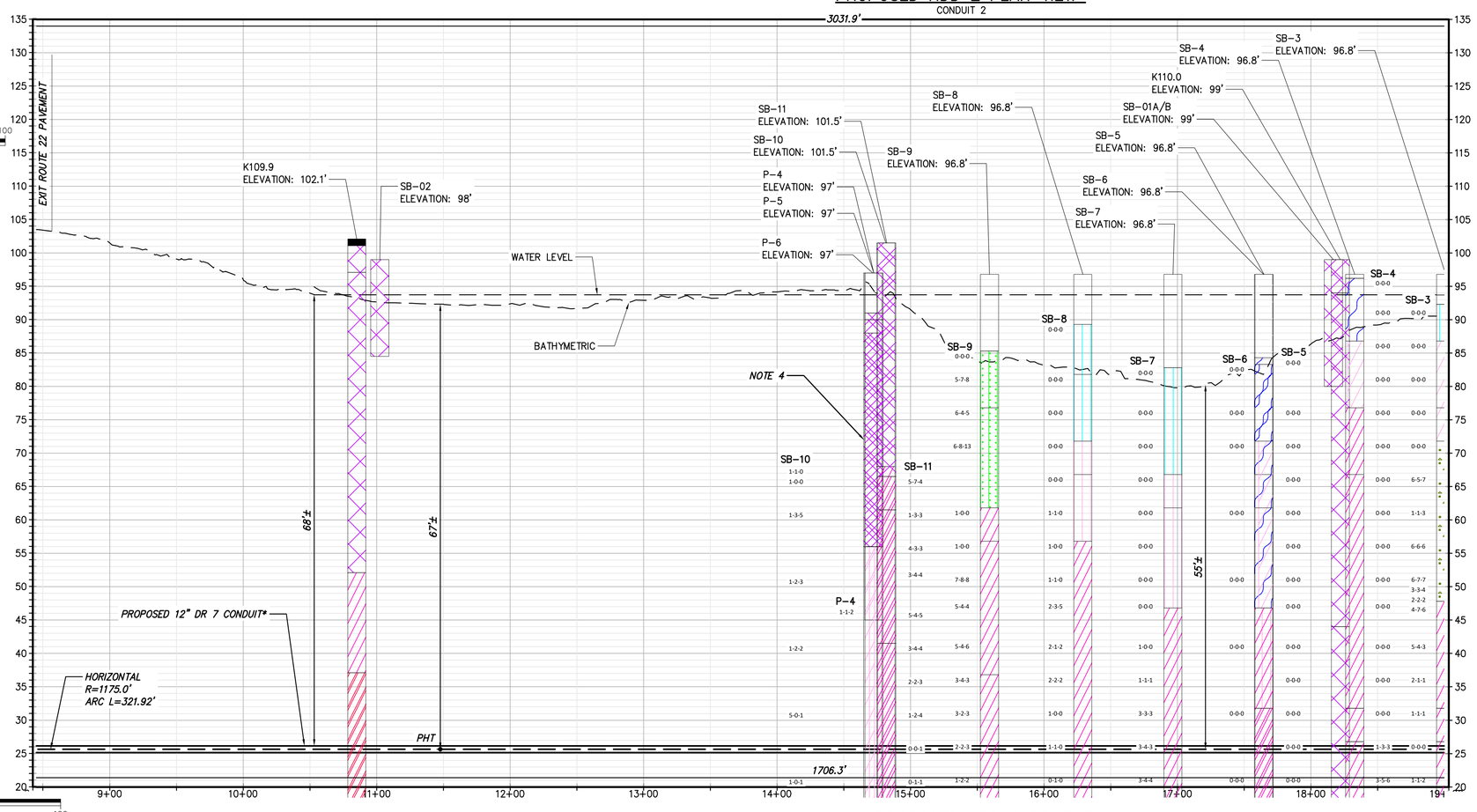
DRAWING NO. **C-301A**

DRAWN BY: MCS | DESIGNED BY: MB | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 09/21/2022 | SH.NO. XXX OF XXX



PROPOSED HDD 2 PLAN VIEW

CONDUIT 2



PROPOSED HDD 2 PROFILE

CONDUIT 2

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A THIRD 3" DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 12" HDPE DR 7 IPS FOR A TELECOMMUNICATIONS LINE.

NOTE:

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2) RECOMMEND INTERSECTING BORE METHOD BE USED TO REDUCE DRILLING FLUID PRESSURES AT THE EAST END OF THE HDD ALIGNMENT.
3) IT IS EXPECTED THAT BALLASTING OR USE OF ROLLERS WILL BE REQUIRED.
4) BORES AND BORE HATCHING IN PROFILE IS NOT CLEARLY LEGIBLE DUE TO THE CLOSE PROXIMITY OF THE MULTIPLE BORES AT 50 SCALE. USERS MUST CONSULT THE ACTUAL BORE LOGS AND REPORTS FOR CLARIFICATION AND OR INTERPRETATION.

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" =10-10-10

Recovery %/RQD % =95%/90%

11000 =UCS

Legend

ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
CH	Fat CLAY
CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-ML	SILTY CLAY
CONCRETE	Concrete
Fill	Fill
GC	CLAYEY GRAVEL
GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

CHPE Champlain Hudson Power Express

Kiewit

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Albany, NY 12205-0269
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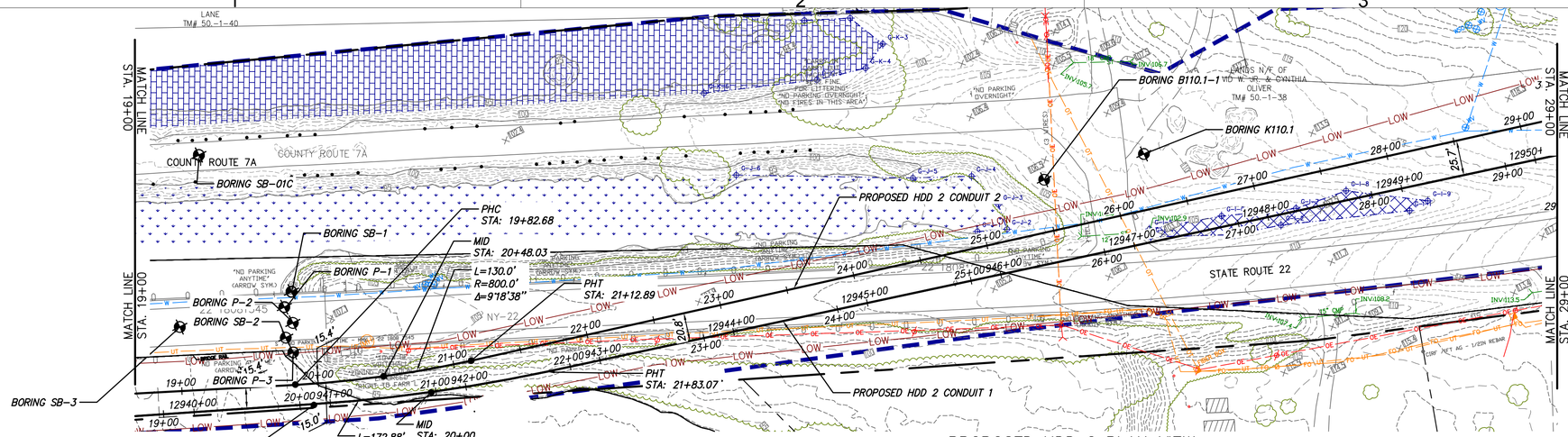
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/21/2022	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL
PROPOSED HDD PLAN AND PROFILE - HDD 2
SOUTH BAY CROSSING, CONDUIT 2
WHITEHALL, WASHINGTON COUNTY, NY

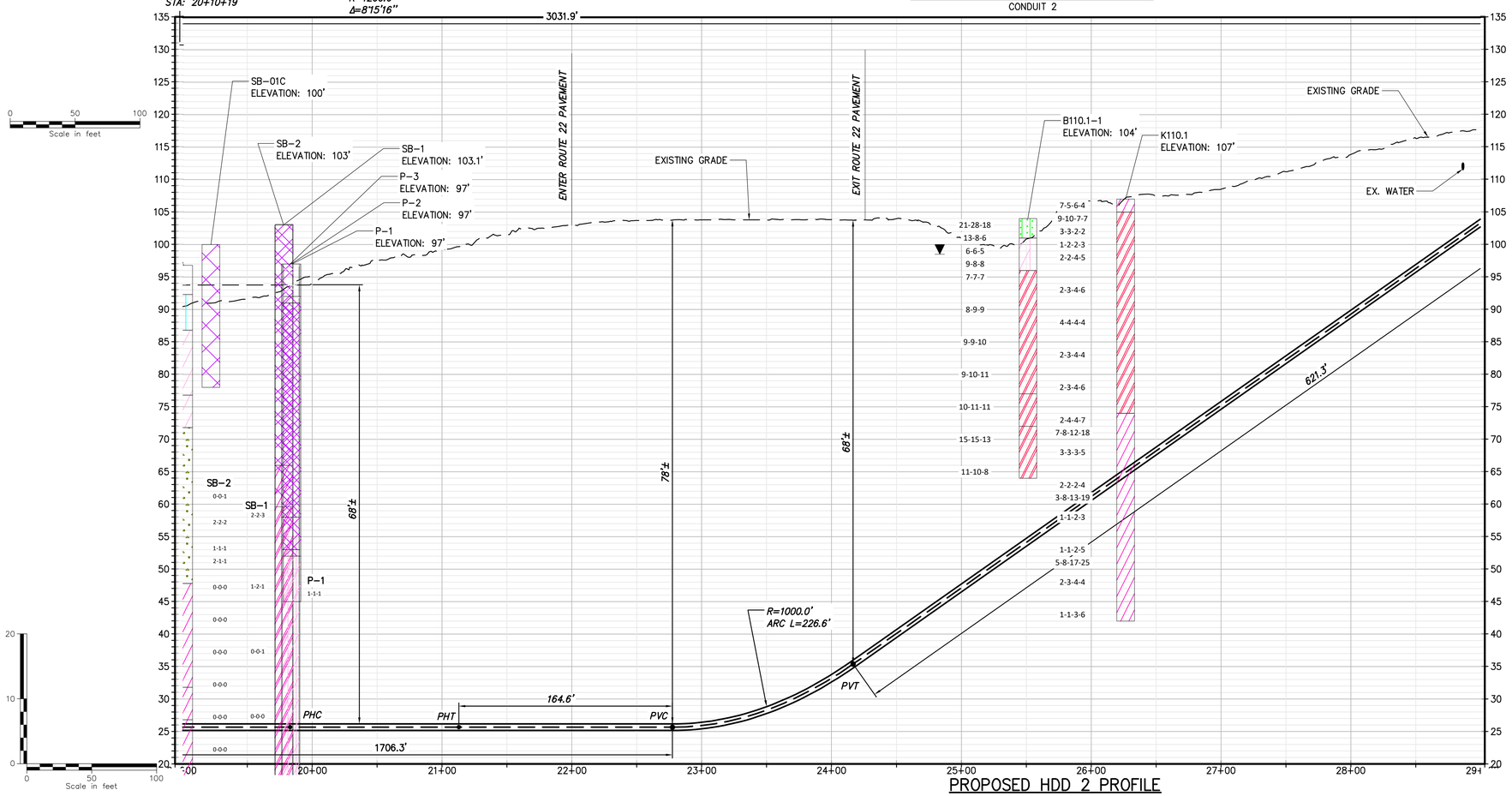
KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-301A.1

DRAWN BY: MCS DESIGNED BY: MB APPROVED BY: JEO SCALE AS NOTED DATE 09/21/2022 REV. NO. X SH.NO. XXX OF XXX



PROPOSED HDD 2 PLAN VIEW

CONDUIT 2



PROPOSED HDD 2 PROFILE

CONDUIT 2

* HDD2 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 12" HDPE DR 7 IPS CASINGS

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Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
	CH	Fat CLAY
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	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
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	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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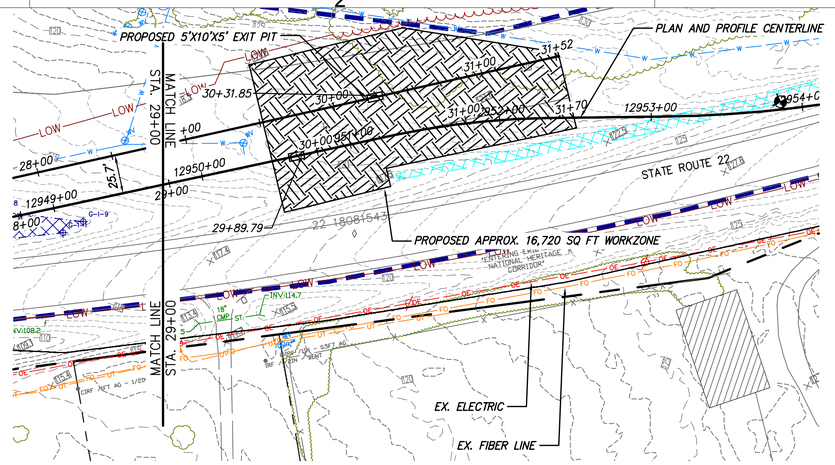
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL
PROPOSED HDD PLAN AND PROFILE - HDD 2
SOUTH BAY CROSSING, CONDUIT 2
WHITEHALL, WASHINGTON COUNTY, NY

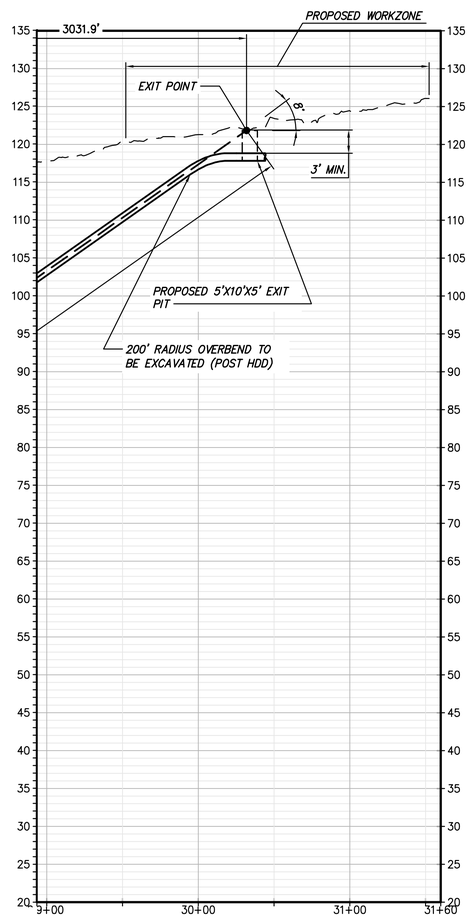
KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-301A.2**

DRAWN BY: MCS | DESIGNED BY: MB | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 09/21/2022 | SH.NO. XXX OF XXX



PROPOSED HDD 2 PLAN VIEW

CONDUIT 2



PROPOSED HDD 2 PROFILE

CONDUIT 2

0 50 100
Scale in feet

0 50 100
Scale in feet

20
10
0

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USGS 708	Gneiss
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 2 - ROUTE 22: DRESDEN - WHITEHALL
PROPOSED HDD PLAN AND PROFILE - HDD 2
SOUTH BAY CROSSING, CONDUIT 2
WHITEHALL, WASHINGTON COUNTY, NY

DRAWN BY: MCS DESIGNED BY: MB APPROVED BY: JEO

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-301A.3

SCALE AS NOTED DATE 09/21/2022
REV. NO. X SH.NO. XXX OF XXX

Appendix F

HDD 2 South Bay Historic Resources

Gmail

Marco Boscardin <marco@boscardinconsulting.com>

FW: [--EXTERNAL--]: RE: Champlain-Hudson Power Express

2 messages

Einstein, Chris <CEinstein@chacompanies.com> Thu, Dec 9, 2021 at 11:48 AM
To: Marco Boscardin <marco@boscardinconsulting.com>
Cc: "Marruso, Antonio" <AMarruso@chacompanies.com>, "O'Donnell, Jeffrey" <JODonnell@chacompanies.com>

Marco,

See below and attached regarding historic wrecks in South Bay. This is preliminary info. Hartgen will hopefully get the sonar info and may have to refine the coordinates.

Chris

Christopher Einstein, PWS

Principal Scientist

CHA

Office: (518) 453-4505

ceinstein@chacompanies.com

www.chacompanies.com

Responsibly Improving the World We Live In

From: Matthew Kirk <mkirk@hartgen.com>
Sent: Thursday, December 9, 2021 11:45 AM
To: Einstein, Chris <CEinstein@chacompanies.com>
Cc: Justin DiVirgilio <jDivirgilio@hartgen.com>; Marruso, Antonio <AMarruso@chacompanies.com>
Subject: [--EXTERNAL--]: RE: Champlain-Hudson Power Express

Hi Chris,

There are three reported wrecks near the bridge, these were from a survey conducted by the LCMM, they only sent us data for portions of the lake during our initial IA report. So I don't think we have the actual sonar data. But I can check. Take the coordinates with a grain of salt until we review the sonar data. The SHPO reviewer who used to deal with underwater resources is not there anymore. So let me check to see what guidance they may have now. My guess is it would be best to thread the needle and try not to go under any of them. I'm not sure you would need a large buffer; 20 feet maybe.

1. LCMM 17, Wreck KKKK standard canal boat, depth 10 feet, Easting:-73.4294; Northing: 43.572833
    a. Wreck KKKKK is part of the South Bay Canal Boat Graveyard, consisting of at least seven canal boats abandoned there in the early twentieth century. Although not dive verified, the sonar image shows a likely intact canal boat very close to the site of Wrecks HHHHH, JJJJJ, and IIIII, other standard canal boats. Site dimensions are unknown. This site is in shallow water, with a featureless mud plain lake bottom and heavy weed growth. Visibility at this site is near zero or less.
    b. Wreck KKKKK was located during the 2003 Lake Survey and at that time was captured with sonar imagery. The site has not been dive verified and no artifacts have been recovered.
2. LCMM 11, Wreck EEEEE, NYSM11641, Easting: -73.430567, Northing: 43.57305
    a. Wreck EEEEE is part of the South Bay Canal Boat Graveyard, consisting of at least seven canal boats abandoned there in the early twentieth century. Although not dive verified, the sonar image shows an intact canal boat with six deck beams visible. Site dimensions are unknown. This site is in shallow water, with a featureless mud plain lake bottom and heavy weed growth. Visibility at this site is near zero or less.
    b. Wreck EEEEE was located during the 2003 Lake Survey and at that time was captured with sonar imagery. The sonar image clearly shows six deck beams. The site has not been dive verified and no artifacts have been recovered.
3. LCMM13, Wreck GGGGG, NYSM11643, Easting: -73.430567, Northing: 43.57305
    a. Wreck GGGGG is part of the South Bay Canal Boat Graveyard, consisting of at least seven canal boats abandoned there in the early twentieth century. Although not dive verified, the sonar image shows a potentially partially broken-up canal boat very close to the site of Wreck FFFFF, another standard canal boat. Site dimensions are unknown. This site is in shallow water, with a featureless mud plain lake bottom and heavy weed growth. Visibility at this site is near zero or less.
    b. Wreck GGGGG was located during the 2003 Lake Survey and at that time was captured with sonar imagery. The site has not been dive verified and no artifacts have been recovered.

4.

Best,

Matt

Matthew Kirk, MA RPA
Principal Investigator / Vice President
Hartgen Archeological Associates, Inc.
1744 Washington Avenue Ext. | Rensselaer, NY 12144
office: 518.283.0534 | mobile: 518.330.5940
mkirk@hartgen.com

From: Einstein, Chris <CEinstein@chacompanies.com>
Sent: Wednesday, December 8, 2021 5:16 PM
To: Matthew Kirk <mkirk@hartgen.com>
Cc: Justin DiVirgilio <jDivirgilio@hartgen.com>; Marruso, Antonio <AMarruso@chacompanies.com>
Subject: Champlain-Hudson Power Express

Matt,

Came across an issue today with the Phase 1 design up near Whitehall along Route 22. As you can see from the attached plans, the alignment will cross South Bay and it is intended that the crossing will be directionally drilled. Apparently there is an historic wreck (must just be some remnants because this area is so shallow). It would be best to avoid it (no drill directly under it) so looking to see if you can find the coordinates for this wreck and the associated polygon (limits of wreck) that we can use to design the crossing. Also looking for guidance on what SHPO is likely to require in terms of buffer to avoid impacts. If this is something you can look into soon, that would be very helpful. Thanks so much.

Chris

Christopher Einstein, PWS

Principal Scientist

CHA

Office: (518) 453-4505

ceinstein@chacompanies.com

www.chacompanies.com

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LCMM Rte 22 underwater sites.pdf
80K

Marco Boscardin <marco@boscardinconsulting.com> Fri, Dec 17, 2021 at 3:25 PM
To: Adriane Boscardin <adriane@boscardinconsulting.com>

Marco D. Boscardin, Ph.D., P.E., D.GE, F.ASCE
Consulting Engineer
Registered Professional Engineer in IL, MA, NY, CT, VT, NH, PA, NJ, VA
53 Rolling Ridge Road
Amherst, MA 01002-1420

413-237-4852 Mobile (Preferred)
413-549-3804 Office
413-825-0467 Fax
marco@boscardinconsulting.com
www.boscardinconsulting.com

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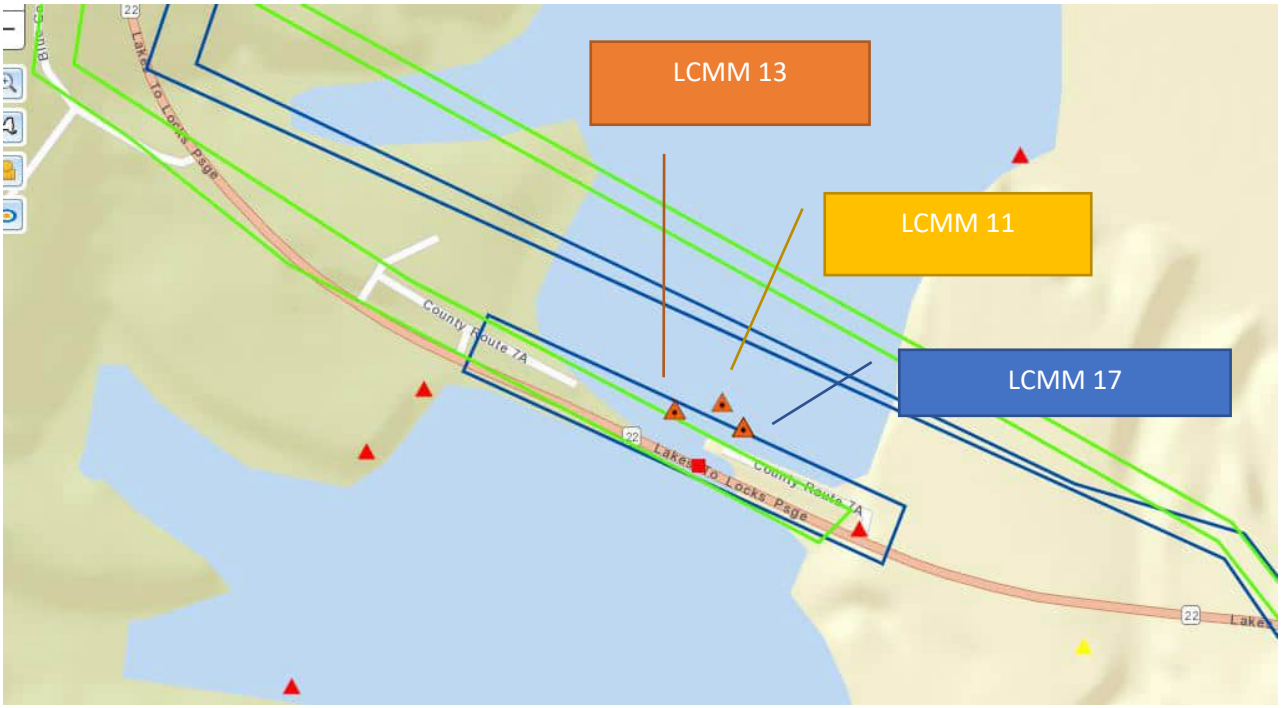
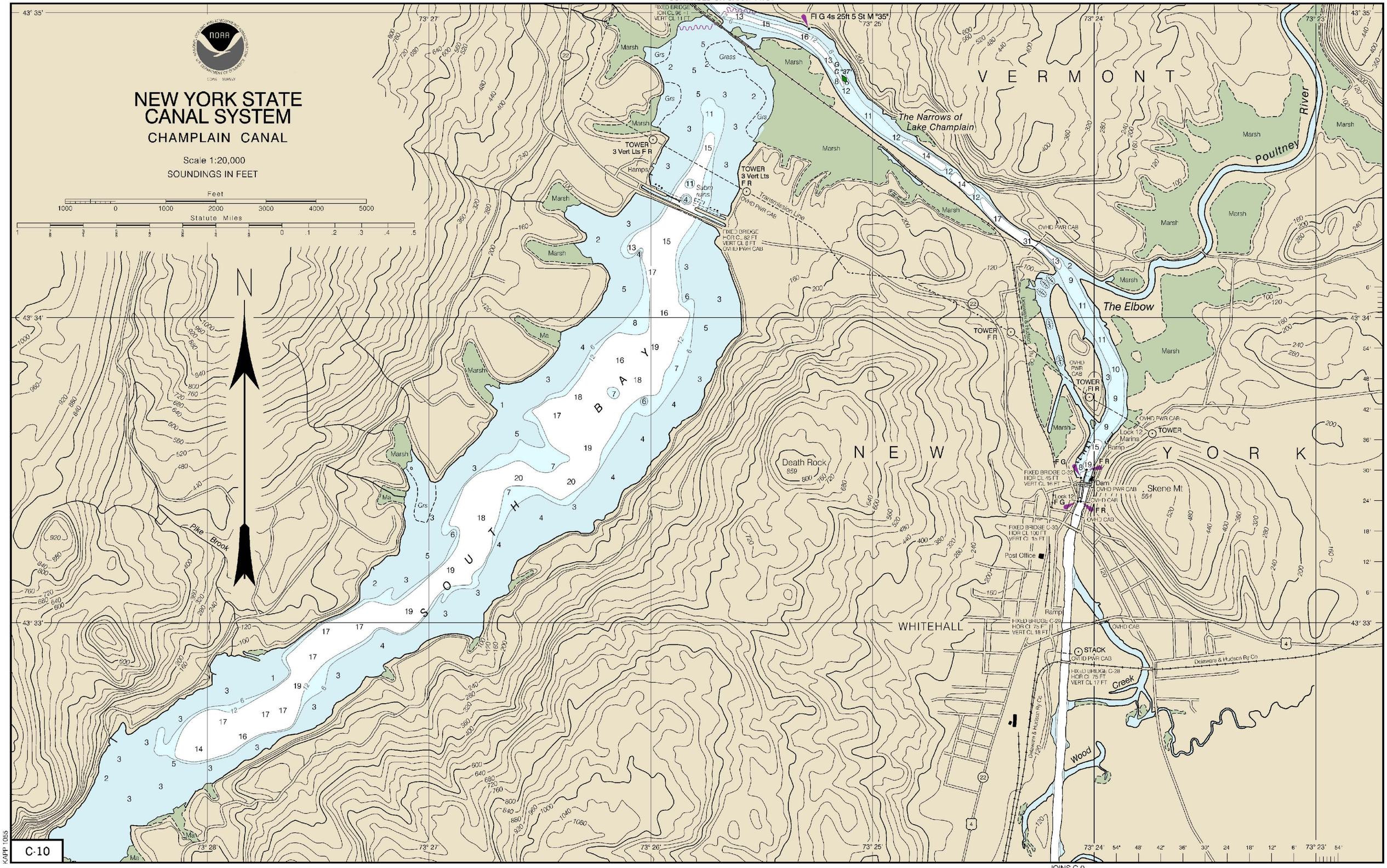
LCMM Rte 22 underwater sites.pdf
80K


LCMM 13
LCMM 11
LCMM 17
County Route 7A
Lakes To Locks Page
22

CONTINUED ON CHART 14784



14786

To ensure that this chart was printed at the proper scale, the line below should measure six inches (152 millimeters).
If the line does not measure six inches (152 millimeters), this copy is not certified safe for navigation.

Use ENC charts for the most up to date information. References to other charts may no longer be applicable.

15th Ed., Nov. 2018. Last Correction: 4/12/2021. Cleared through:
LNM: 4121 (10/12/2021), NM: 4321 (10/23/2021), CHS: 0921 (9/24/2021)

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SOUTH BAY SURVEY

In May 2003, the Lake Champlain Maritime Museum completed a side scan sonar survey of the South Bay, located to the west of Whitehall, New York. This was the first sonar survey of South Bay since the Champlain Maritime Society (CMS) carried out a similar, yet less extensive, survey in 1982, which located the wrecks of several canal boats and one steamer.

South Bay is a narrow, shallow, pinched-off part of Lake Champlain, lying to the west of the lake proper (Figure 6-38). It is abutted by the Village of Whitehall and the New York State Barge Canal (formerly the Champlain Canal). It has a maximum depth of 20ft (6.1m) at low lake level, a length of 4½mi (7.2km) and a maximum width of 1½mi (2.4km). It flows into Lake Champlain at its north end through a narrow outlet spanned by a drawbridge on the former Delaware & Hudson Railroad (now Amtrak). South Bay has a northeast to southwest orientation and lies between Bald Mountain on the west in the Town of Dresden, Warren County, New York, and West Mountain on the east in the Town of Whitehall, Washington County, New York. A small part of the Bay and its headwaters at the south end are located in the Town of Fort Ann, Washington County, New York.

During the French and Indian Wars and the American Revolution, South Bay provided a route for scouting parties traveling between Lake George and Lake Champlain. Although it required crossing the mountains between these two lakes, it bypassed the more exposed Lake George Route to Ticonderoga and provided another, possibly shorter, route to Skenesborough, present day Whitehall. In the nineteenth and early twentieth centuries, South Bay supported some commercial activity, primarily associated with the lumber and graphite industries. The Bay now serves fishing and other recreational boating uses.

It was primarily the commercial activity that drew researchers to South Bay in 1982 an again in 2003. Based on the historical record and the results of the 1982 CMS survey, it was known that there were shipwrecks in the Bay, but the number found was initially a surprise. Most of the wrecks were located north of the Route 22 highway bridge crossing at the north end of the Bay between Whitehall and Dresden. The 1982 survey reported three or four barge wrecks in this area, but he 2003 survey located at least seven with the possibility of parts of four or five others. The site was a confusing collection of wrecks and old bridge remnants that will require extensive diver verification and documentation to sort out. It is likely that other wrecks, possibly buried under the old bridges, exist in this area.

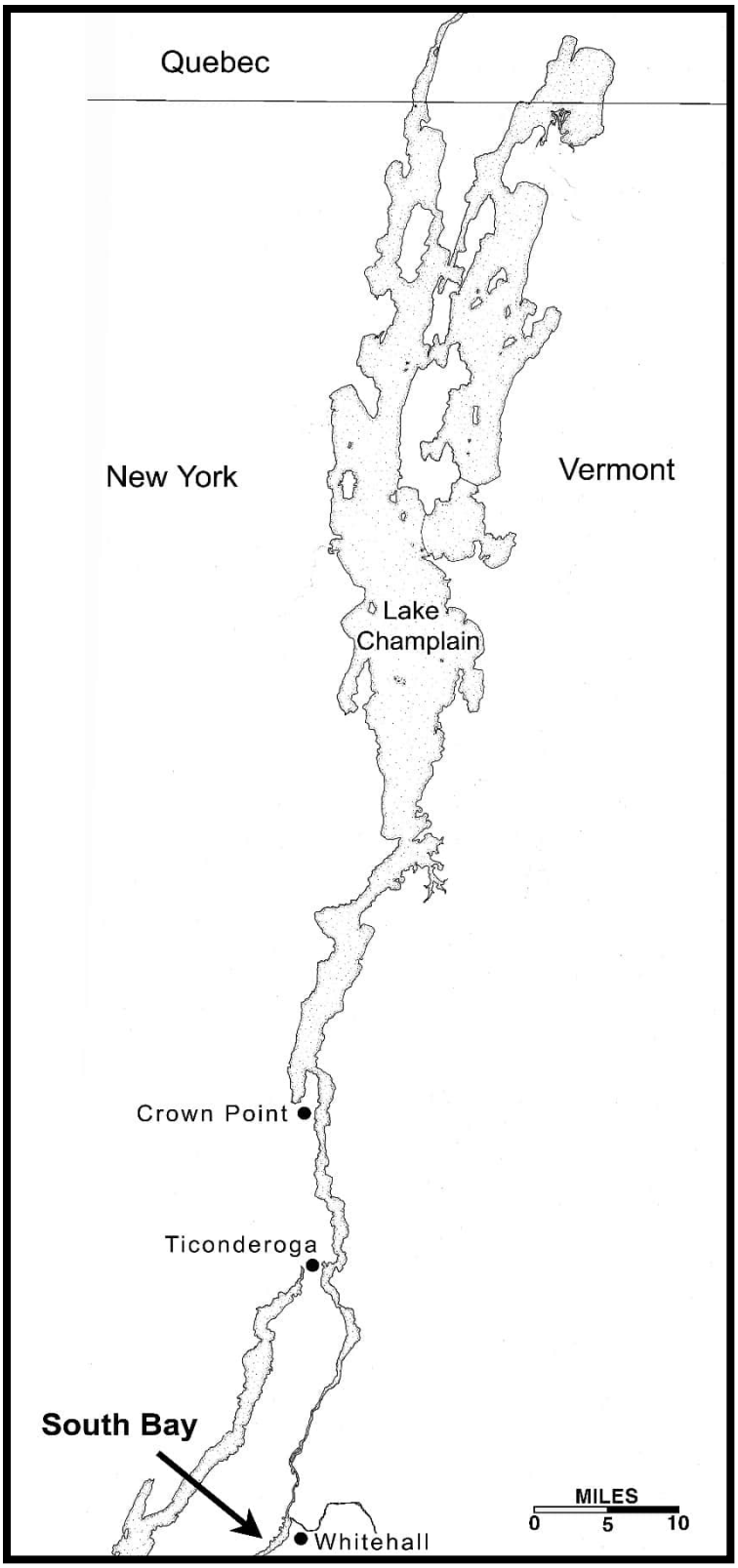


Figure 6-1. Map of Lake Champlain showing the location of South Bay.

South Bay Bridges

Two bridges, a railroad bridge at the outlet of South Bay and a highway bridge located about a half-mile to the south, currently cross South Bay. The former Delaware and Hudson (Canal Company) Railroad Bridge, located at the Bay outlet consist of two approach fills, a short half-through plate girder span and an 84ft (25.6m) iron or steel center pivot draw bridge with two 29ft (8.8m) clear openings. The draw has been made inoperable and may be the original circa 1875 structure. The plate girder span, based on old photos, has replaced an iron truss bridge. Due to the low clearance of the bridge only small boats can pass under the draw when entering or leaving South Bay (Figure 6-39).

Figure 6-2. Photo of the original railroad drawbridge crossing South Bay looking northerly (by A. Peter Barrannco).

The current NY Route 22 highway bridge, which was constructed in 1973, is the fourth such bridge at this crossing since 1856. Due to deep, soft, unconsolidated sediments at its location, this 1/3mi (.54km) crossing has consistently been a challenge to bridge builders. The following is a short history of these bridges:

The First Bridge (1856-1860)

The exact location of this short lived structure is unknown, but it was likely near the present day bridge. The contract to build the South Bay Bridge is reported on in the

following article:

> "*Anniversary Sketched This Date in Whitehall by C. E. Holden, October 22, 1856, Contract to Build South Bay Bridge:*
>
> 'Contract made this 22nd day of October 1856, between A. G. Meiklejohn of Putnam, W. G. Wolcott of Whitehall and David Barrett of Dresden, commissioners, for constructing a bridge across South Bay by Act of Legislature of New York passed April 15th, 1856, parties of the first part and Alwyn Martin, party of the second part, from a point of the Whitehall side near the brick house on the Bunce Farm to a point near Benjamin's house on the Dresden side.
>
> The bridge to be built on three rows of piles forming a foundation 16ft wide, the piles to be 14 inches in diameter at the butt and driven down to hard bottom, 12ft apart from center to center. Across the piles a pine cap to be places 21ft long and 10 inches thick, the tops of the piles to be securely fastened to the cap. Upon the caps are to be placed six tiers of sleepers of pine 5x10 and covered with 2 1-2 inch hemlock flooring 16ft wide, with substantial railing 4ft high braced from cap to posts. Bridge to be provided with a good substantial draw for passage of canal boats and other craft. Each end of the bridge out to a depth of 2ft of water to be filled with earth and stone to make the roadway.'

The contract provides that the bridge must be completed by June 1st, and the price is $7000. However there were allowances for extras which brought the final cost to about $8000. The bridge was destroyed by floating ice in the spring of 1860."[i]

This first bridge did not survive long and the ferry crossing resumed its operations. It is reported that the South Bay ferry, which ran from Dresden to Whitehall, was operated by Thomas D. Wilson from around 1880 to 1913. It was originally a sail ferry, but later had an engine.

The Second Bridge (1913-1930)

After many years of trying by the citizens of Whitehall and Dresden, the New York State Legislature approved construction of the second South Bay Bridge under Chapter 518 of the Laws of 1912. The bridge was designed by the NY Department of Highways in 1912 and constructed by the Oswego Bridge Co., of Oswego, NY for $44,431.20 in 1913.

The bridge design drawings which were approved August 14, 1912 called for a 928ft (282.9m) long by 16ft (4.9m) wide open pile trestle with stone fill approaches, 323ft (98.5m) long on the east (Whitehall) side and 659ft (200.9m) long on the Dresden side. It incorporated a 50ft (15.2m) long steel truss bridge on concrete abutment with pile foundation, and a 33ft (10.1m) ling single leaf bascule bridge to accommodate vessels. A hand-operated wheel opened and closed the bascule leaf with its counter weight (Figure 6-40).[ii]

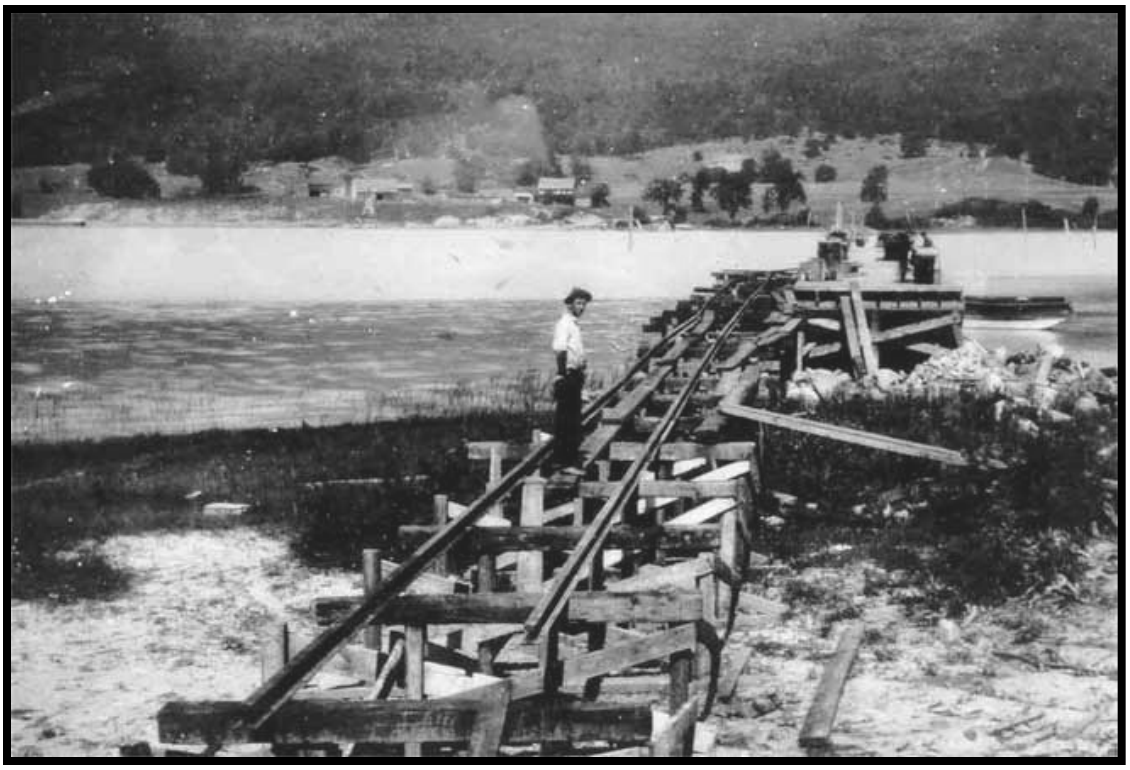


Figure 6-3. Image of the 1913 bridge under construction, looking west (courtesy of the Historic Society of Whitehall).

In spite of the work having been completed on time, it had been necessary to sink canal boats along the bottom to support the piles.[iii] On of the canal boast was the *Frederick S. Dale*, O/N 37519, built at West Haven, VT in 1888. A note on her enrollment papers says: "Out of Commission and sold to Sup't [Nelson] Fagan to fill new bridge at South Bay near Whitehall N.Y. now under said highway. Sold in Aug. 1913."

Almost immediately there were problems with the bridge due to the soft sediments it rested upon. In November of 1914 a delegation from Whitehall met with the Highway Department to see if the bridge could be strengthened- the figure of $25,000 was talked about.[iv] It is reported that "In 1917-1918 a contract was signed with the State Superintendent of Prisons for convict labor on a new span. Boatbuilder William Ryan agreed to sell the state old barges at $30 each to provide a foundation for a bridge." [v] It is not know what, if anything, came of this plan.

The bridge continued to deteriorate and was in such poor condition by the 1920s due to movement and settlement that a new bridge was necessary (Figure 6-41). Agnes Peterson, Dresden Town Historian, recalls while in high school, the school bus had to let off the students to walk across the bridge while the bus traveled across it empty because it was in such poor condition.[vi]

Figure 6-4. Photo showing the west end of the 1913 bridge looking south (courtesy of the Historical Society of Whitehall).

The Third Bridge (1930-1973)

The third bridge was constructed about 75ft (22.9m) south of the second (1913) bridge. During its construction, all but a short section of the rock fill approach at the east end of the 1913 bridge appears to have been removed. It is not known, however, how much of the 1913 structure, including canal boats buried under the fill, actually remains today.

The design for the 1930 bridge called for a rock fill causeway across most of the bay with a fixed and moveable (drawbridge) span in the center. The original estimate for the work to be done was $353,800, including extras. The contractor, Donahue Construction Co., began work on June 14, 1929 and immediately ran into major problems. The following excerpts are taken from an article entitled "South Bay History", printed in the *Whitehall Times* in June of 1971:

> "Rock fill dumped into the bay during the day, was still well above the water level when night fell; but by the following morning, the fill had all disappeared beneath the surface";
>
> By December 28, 1929: "The east side of the…bridge has tilted toward the east to such an extent that the end of the iron span of the bridge is about the three feet from it. To support the iron span and to keep it from developing into the bay, wooden props have been placed under it, but this is not expected to hold it up"

> "The stone fill in trying to reach a solid bottom, has given the most trouble and besides dropping out of sight at times, wrecked the old (second) bridge which is still closed to traffic…for nearly four weeks."
>
> "Sixty thousand cubic yards of stone were estimated for the entire width of the bay; more than that amount has been used and it will be necessary to make another blast [to produce more rock fill]."
>
> "…the pier tipped over and now plan to continue the stone fill out to the tipped pier and over it, and on top of this build a new pier."
>
> In February 1930, "Practically all of a 110-foot steel span…has slipped into the waters… as a result of the sinking of the stone fill which served to support this structure..."
>
> "…there is danger of the old bridge being forced out of position."
>
> "…the fill under the end of the bridge began dropping into the bay, because of the soft bottom…and with it went the bridge."

The troubles continued and "Ultimately, the idea of a stone fill all the way across the bay had to be abandoned and the present half and half creation (part piling and part stone fill) was installed." Prior to implementing this half and half design, additional problems had to be addressed. An article in the August 7, 1930 edition of the *Ticonderoga Sentinel* indicated that:

> Three wooden bents [piles] of the new South Bay bridge, north of Whitehall, have sunk from site in the bay. In the construction of the bridge, not much trouble has been experienced in the last several months, because from the west end of the iron span a wooden trestle about 300 feet has been built. It was intended to resume the stone fill from the end of the trestle to the west shore, and it was started with the result that when the stone fill was dropped into the bay it forced three of the bents up into the air.
>
> These three bents had to be sawed into tow to save the remainder of the new wooden structure. When this is completed the fill will be continued towards the east end [of] the iron bridge.…
>
> The estimated cost of the structure was about $321,000 and it is said that when the bridge is complete it will cost nearly $1,000,000.[vii]

The bridge was finally completed and opened to traffic in 1930. By the 1960s a new bridge was needed because of continuing problems with the 1930 bridge and in 1971 two Bailey bridges were constructed on top of one of the sections to strengthen the span until a new bridge could be built. These proved to be a danger to traffic and construction of a new bridge was approved in 1972. Most of the central part of the 1930 bridge was removed during construction this fourth bridge; however the rock fill approaches and pile

bents remain (Figure 6-42).

Figure 6-5. Photo taken circa 1972 of the removal of the 1932 bridge, looking northwest toward Dresden shore (courtesy of the Historical Society of Whitehall).

The Fourth Bridge (1973-Present)

The fourth bridge was constructed approximately 90ft (27.4m) south of the third bridge. The contract for this bridge was awarded to Thomason and Perry, Inc. of Troy NY for $2,083,000. Construction began in November 1972 and was completed in 1973. The new bridge was a unique structure, the only one of its kind in the state of New York. At 580ft (176.8m) long and 40ft (12.2m) wide, the new bridge has a steel plate deck and was design to be very light. This is because engineers determined the depth of lake sediments at the area of the bridges to be in excess of 600ft (182.9m) deep. The piles for the 1973 bridge were driven 140ft (42.7m) below the lake bottom, and pressure from the silt surrounding the piles was believed to be enough to hold them in place. The 1973 bridge also had no draw, and the clearance is 11ft (3.4m) at mean water level.[viii]

Finally, after 117 years, a bridge that solved the extremely adverse foundation conditions of this site was successfully constructed across South Bay. Apparently the foundation conditions of the railroad bridge site at the outlet of South Bay were more favorable since that structure has existed for 130 years.

Wreck A5: Canal Boat (NYSM 11637)

Wreck A5 is a standard canal boat in Lake Champlain's South Bay. The site was reported

to the LCMM by Richard Bennett, a public lands surveyor/examiner for the New York Office of General Service, in 1998. Mr. Bennett discovered the shallow water wreck while fishing, and contacted LCMM Executive Director Arthur Cohn to report the find. In May 1999, LCMM researchers undertook a preliminary investigation of the site.

Dive observations revealed the site to be an 1873 class standard canal boat. Because of the site's shallow depth, ice has removed the sides and deck, leaving only the bottom of the hull. The canal boat is edge-fastened, with an overall length of 97ft 2in (29.6m) and a beam of 20ft (6.1m). The vessel's extant structural features included transverse bottom planking, the keelson (6in by 6in [15cm by 15cm]), eight stringers (4in by 5in [10cm by 12.7cm]), chine logs (5½in by 4in [14cm by 10cm]), a breast hook and bow framing.

Researchers also noted several artifacts on the site including some coal in the bow area, a leather pump, a broken dish and some fittings. The LCMM recovered a number of iron rods from the site for use in a zebra mussel-monitoring project. The rods were lying on the bottom, presumably from the no longer extant sides.

The location of this wreck, and possibly that of one or two others in South Bay, suggest that it may have been abandoned for use as a dock. There is no information that links this wreck, or the others, to a particular vessel, however, it is noted that the enrollment papers of the canal boat *Mary A. Stafford* (O/N 51133) report that: "Name changed to May & Annie [,] abandoned in 1909 and made into a dock in South Bay near Whitehall."

The *Mary A. Stafford* was built at Fort Ann in 1881, with dimensions of 95.7ft by 17.6ft by 8.7ft (29.1m by 5.3m by 2.65m) and had a tonnage of 122.26 GT and 116.02 NT. In 1906 she was owned by the [New York and] Lake Champlain Transportation Co. (The "Line"), her homeport was Plattsburgh, her hailing port, Whitehall and her master, C.F. Reed.

Statement of Significance

Wreck A5 lacks sufficient site integrity to be eligible for inclusion in the NYSRHP or the NRHP. The boat consists of only the bottom of the hull, and appears to be a derelict vessel. It is unlikely to contain a significant artifact assemblage relating to the life of its former operators.

Wreck C5: Canal Boat (NYSM 11639)

Wreck C5, also in South Bay, was initially located in 1982 by the Champlain Maritime Society; its original designation was VT-LC84-13. The site was rediscovered during the 2003 Lake Survey. In the 1982 dive verification the site was identified as a canal boat carrying a load of graphite. The sonar image of the canal boat indicates that it is largely intact (Figure 6-43).

The South Bay Graphite industry flourished briefly between 1900 and 1924 but the principal deposits and mining operations were located near Hague on the west shore of Lake George between c. 1890 and 1921. These mines and milling operations came into the ownership of the Joseph Dixon Crucible Company of Jersey City, NJ who used the refined graphite to make its "Ticonderoga" brand pencils, lubricants and crucible.[ix] Graphite was first discovered in the Ticonderoga area about 1815 and by 1833, a process

had been developed to refine the material for use in pencils. By 1863, the American Graphite Co. of Jersey City, NJ had purchased several mining operations in the area and under the direction of mining engineer William Hooper, Ticonderoga became the center of the graphite industry. In 1873 the Joseph Dixon Crucible Co. bought out the American Graphite Co. and continued to manufacture its products at the Ticonderoga mill. The South Bay mining operations also came under the control of Joseph Dixon. In 1921 and 1924, the graphite operations at Hague and South Bay respectively were closed due to the availability of cheaper foreign ores, however the Ticonderoga pencil operation continued as a subsidiary of Joseph Dixon until the 1980s.[x]

There were four, possibly five, graphite mines located on the west side of South Bay between 1903 and 1924: The Adirondack Graphite Mining and Milling Co. (c.1903); Silverleaf (never opened); Tintsman Mine and Mill (c. 1904-1916); Hooper Mine and Mill (1916-1924); Champlain Graphite Mill (c. 1912).

Little is known of the Champlain Graphite Mill and the Silverleaf Mine. Although little is know of the workings of the Adirondack Graphite Mining Milling, which began in 1903, it is known that the company was foreclosed and sold at auction in 1906: “The graphite works of the Adirondack Mining and Milling Co. at South Bay near Whitehall is to be sold at auction on a mortgage foreclosure. It is expected that a new company will be organized and the work resumed. The works were bonded for $60,000.”[xi] It is unknown if the mine ever did reopened.

The Hooper Mine and Mill was the largest graphite mine in the area. It had been started by George H. and Frank C. Hooper in 1916 and ran until 1924. It was located about a mile and a half west of South Bay, at an elevation of approximately 1000ft (305m). All of the graphite from this mine was shipped by road. The Tintsman Mine and Mill was located near the lakeshore within 100yd (91.4m) of South Bay. Opened in 1904, it was a very active operation. The mine was shut down in 1916 due to contamination of the graphite product with sand and sabotage was rumored.

Based on the known information on the graphite industry in South Bay, it is likely that wreck C5 was loaded at the Tintsman Mine between 1904 and 1916. The Tintsman Mine shipped graphite from its mine to Whitehall across South Bay regularly. The mine had a dock and loading facility, whereas the other known mines in the area either did not have docks for lake shipping or there is not a record of such facilities.

Statement of Significance

Based on the apparent intact nature of the site from the 2003 sonar records and the reported presence of cargo, Wreck C5 is likely eligible for inclusion in the NYSRHP and the NRHP under Criterion D: Information Potential.

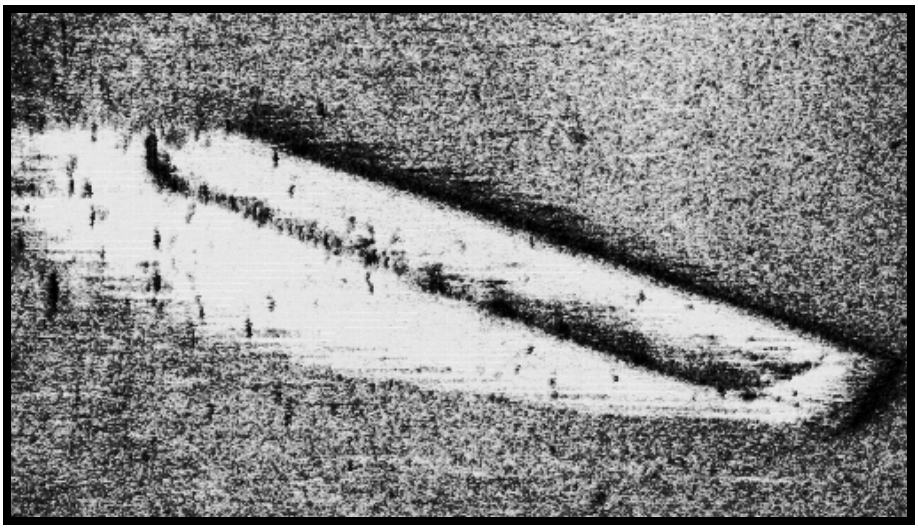


Figure 6-6. Sonar image of Wreck C5 (LCMM Collection).

Wreck D5: Steamboat *Reindeer* (NYSM 11640)
Wreck D5 is believed to be the hull of the steamboat *Reindeer*. The vessel was originally located in 1982 during a side scan sonar survey by the Champlain Maritime Society; its remains were not located during the 2003 Lake Survey likely due to its shallow water location.

The steamboat *Reindeer* was built by master carpenter Jermiah Faulks in 1882 at Alburgh, Vermont for the Grand Isle Steamboat Company. This 168ft (51.2m) steam-powered vessel ran between Burlington and Alburgh, Vermont and remained the only steamboat on Lake Champlain that maintained independence from the Champlain Transportation Company for its entire career (Figure 6-44). It was also the largest vessel to navigate to the falls on Otter Creek at Vergennes, Vermont, under the direction of Master Captain Ell B. Rockwell.

Reindeer sank at the Central Vermont wharf in Burlington in 1902 (Figure 6-45). It was then raised and taken to Whitehall, NY for dismantling, with its 800-horsepower engine cut up for scrap iron and the hull abandoned in South Bay (Figure 6-46). The pilothouse was removed and used as a gazebo in Castleton, Vermont, and was eventually donated to the Lake Champlain Maritime Museum in Vergennes, Vermont, where it is on public display.

Statement of Significance
It is not possible with the current data to accurately assess this site's integrity and historic significance.

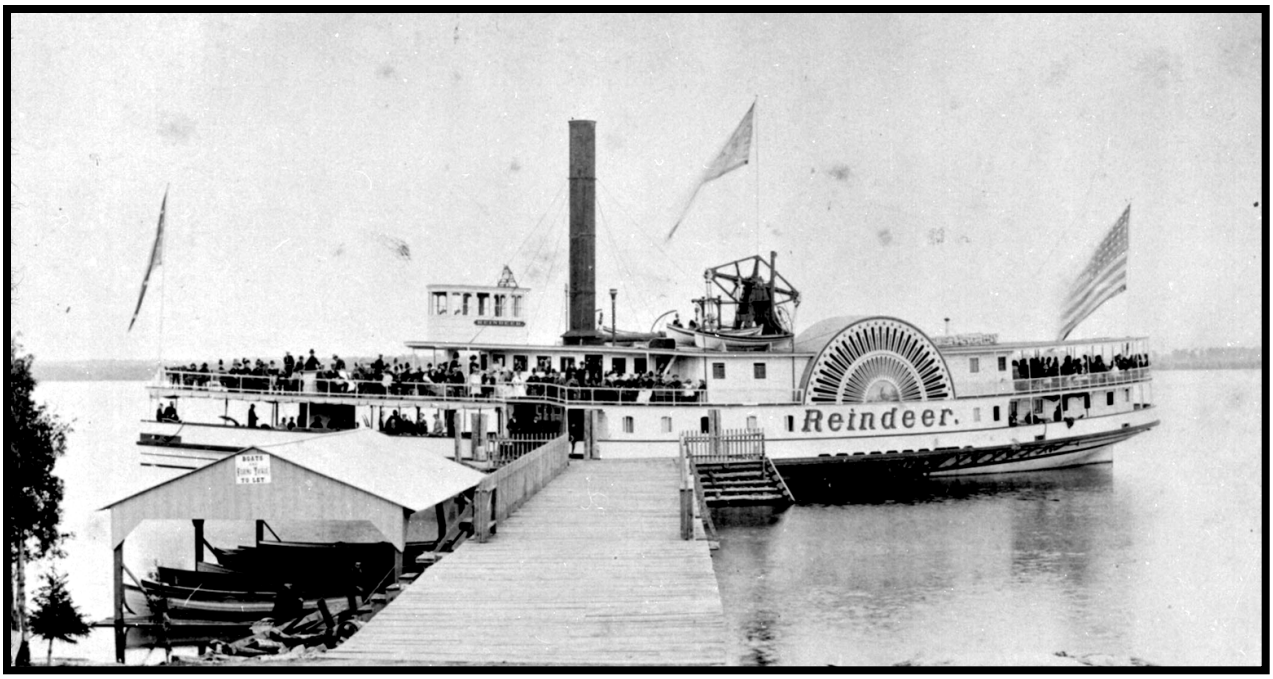


Figure 6-7. Steamboat *Reindeer* while in operation (LCMM Collection).

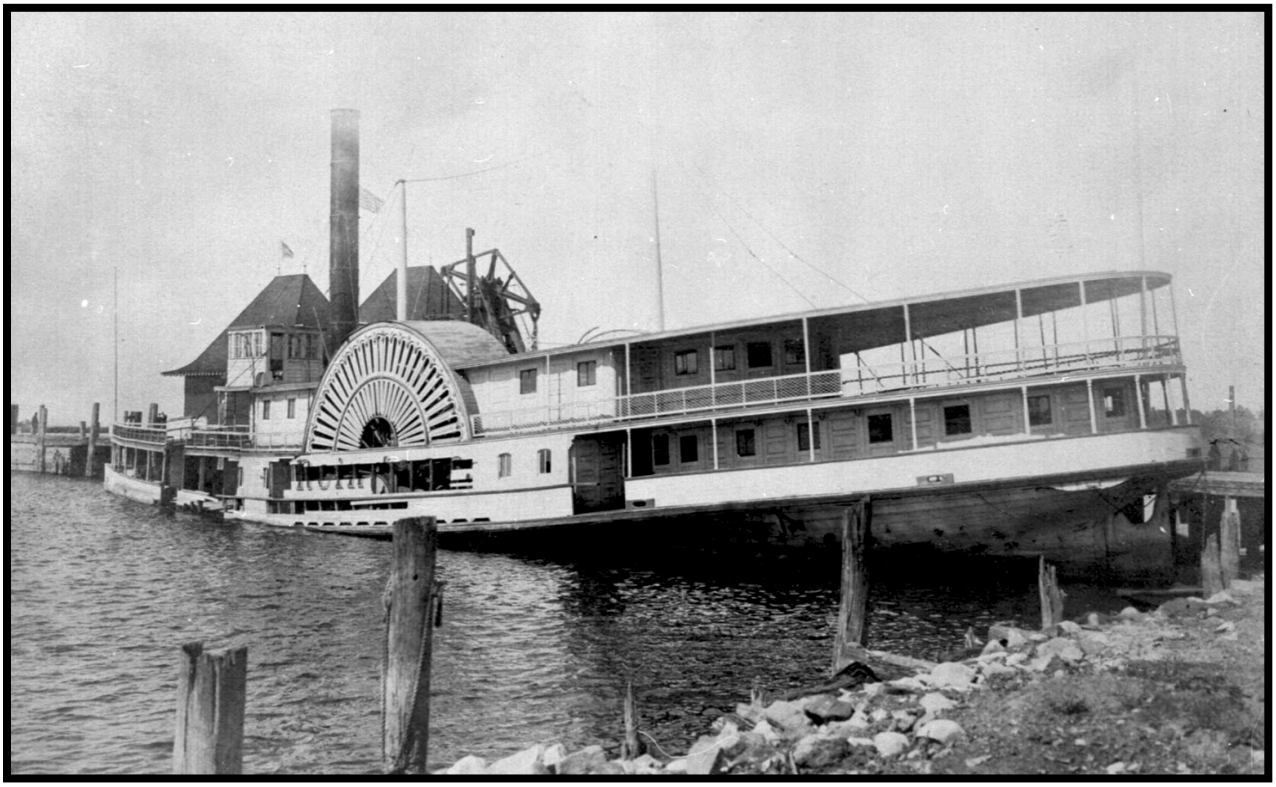


Figure 6-8. Steamboat *Reindeer* abandoned on the Burlington, Vermont waterfront, circa 1902 (LCMM Collection).

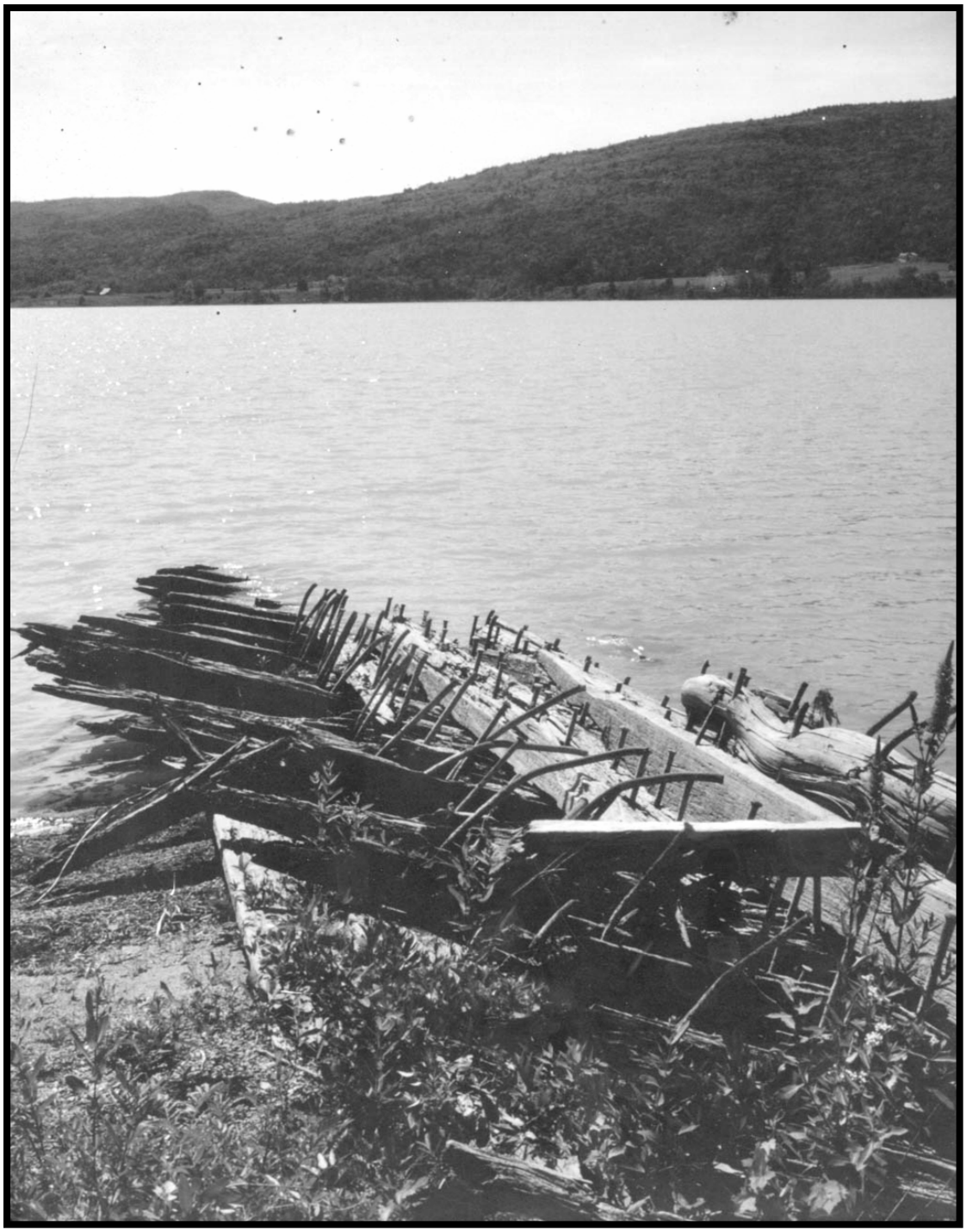


Figure 6-9. Remains of steamboat *Reindeer's* hull in South Bay in the 1980s (LCMM Collection).

South Bay Canal Boat Graveyard Historic District

The South Bay Canal Boat Graveyard consists of at least seven canal boats abandoned there in the early decades of the twentieth century. Researchers have been aware of this complex of canal boats since the early 1980s, however, no significant in-water documentation of these sites has yet been undertaken. The vessels lie near the current Route 22 Bridge across South Bay (see page 3). The 1973 bridge is the fourth bridge to occupy this site. The remnants of these bridge building episodes can still be seen from the surface and were clearly visible on the sonar records.

The bridge construction episodes, when combined with the side scan sonar data, give a date range for the canal boats in this area. The boats lie just north of the remnants of the 1913 bridge, indicating that they were abandoned after its construction. Moreover, the absence of vessels next to the 1930 bridge suggests that the canal boats were abandoned prior to its completion, although this evidence is not conclusive. The abandonment of canal boats in the 1913 to 1930 time period is consistent with the end of the canal boat era and the subsequent abandonment of numerous canal boats in Lake Champlain. This date range and the sonar records indicate that these vessels are all 1873-class canal boats, which are typically 97ft (29.5m) long and 17½ft (5.3m) wide.

The seven canal boats located during the 2003 Lake Survey are likely only a portion of the collection of canal boat hulls in this part of South Bay. The sonar records showed other acoustic anomalies which could not be conclusively identified. Early twentieth century photographs show numerous canal boat hulls rotting along the shoreline in this area; the remains of some of these vessels may still be extant, however, their shallow water locations allowed them to go undetected during the Lake Survey. Extensive dive verification of sonar anomalies in this area will be necessary to conclusively identify all of the cultural resources present in the South Bay Canal Boat Graveyard.

Wreck E5: Canal Boat (NYSM 11641)

Wreck E5 was located during the 2003 Lake Survey; it has yet to be dive verified (Figure 6-47, Figure 6-48 and Figure 6-49). Wreck E5 appears to be an intact canal boat with six deck beams clearly visible in the sonar image.

Wreck F5: Canal Boat (NYSM 11642)

Wreck F5 was located during the 2003 Lake Survey; it has yet to be dive verified (Figure 6-49). Wreck F5 appears to be an intact canal boat. The vessel lies next to canal boat Wreck G5.

Wreck G5: Canal Boat (NYSM 11643)

Wreck G5 was located during the 2003 Lake Survey; it has yet to be dive verified (Figure 6-49). The condition of the vessel is not clear from the sonar image; however, it may be partially broken-up. The vessel lies next to another canal boat, Wreck F5.

Wreck H5: Canal Boat (NYSM 11644)
Wreck H5 was located during the 2003 Lake Survey; it has yet to be dive verified (Figure 6-48). Based on the sonar image the vessel may be partially broken-up. The wreck lies next to three other canal boats, Wrecks I5, J5 and K5.

Wreck I5: Canal Boat (NYSM 11645)
Wreck I5 was located during the 2003 Lake Survey; it has yet to be dive verified (Figure 6-48). Based on the sonar image the vessel appears to be intact. The wreck lies next to three other canal boats, Wrecks H5, J5 and K5.

Wreck J5: Canal Boat (NYSM 11646)
Wreck J5 was located during the 2003 Lake Survey; it has yet to be dive verified (Figure 6-48). Based on the sonar image it may be partially broken-up. The wreck lies next to three other canal boats, Wrecks H5, I5 and K5.

Wreck K5: Canal Boat (NYSM 11647)
Wreck K5 was located during the 2003 Lake Survey; it has yet to be dive verified (Figure 6-49). Based on the sonar image the vessel appears to be intact. The wreck lies next to three other canal boats, Wrecks H5, I5 and J5.

Statement of Significance
The South Bay Canal Boat Graveyard contains a significant collection of submerged cultural resources with the potential to yield important information about the construction of late nineteenth/early twentieth century Champlain canal boats. Each of the vessels would likely be eligible for the NYSRHP and the NRHP when evaluated individually; however, it is more appropriate to consider them as an historical archaeological district. The South Boat Canal Boat Graveyard Historic District is eligible for the NRHP under Criterion D: Information Potential and Criterion A: Event(s) and Broad Patterns of Events.

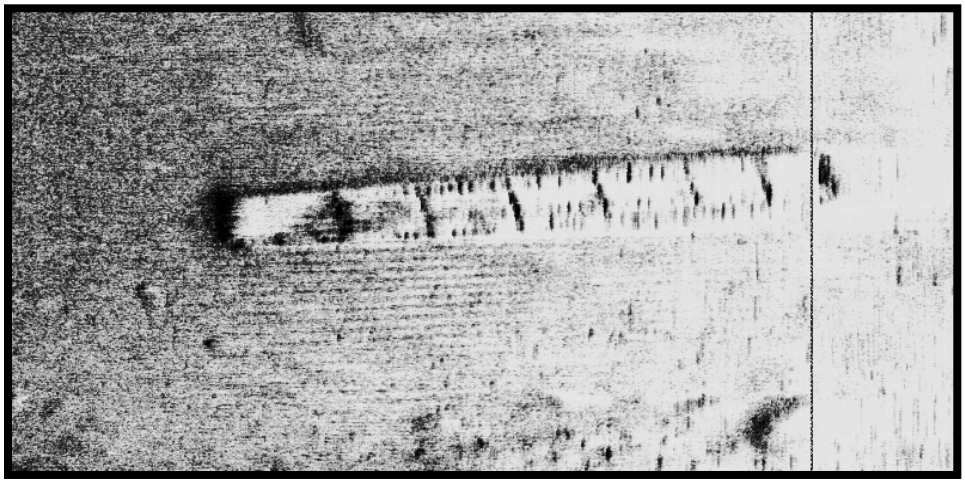


Figure 6-10. Sonar image of Wreck E5 (LCMM Collection).

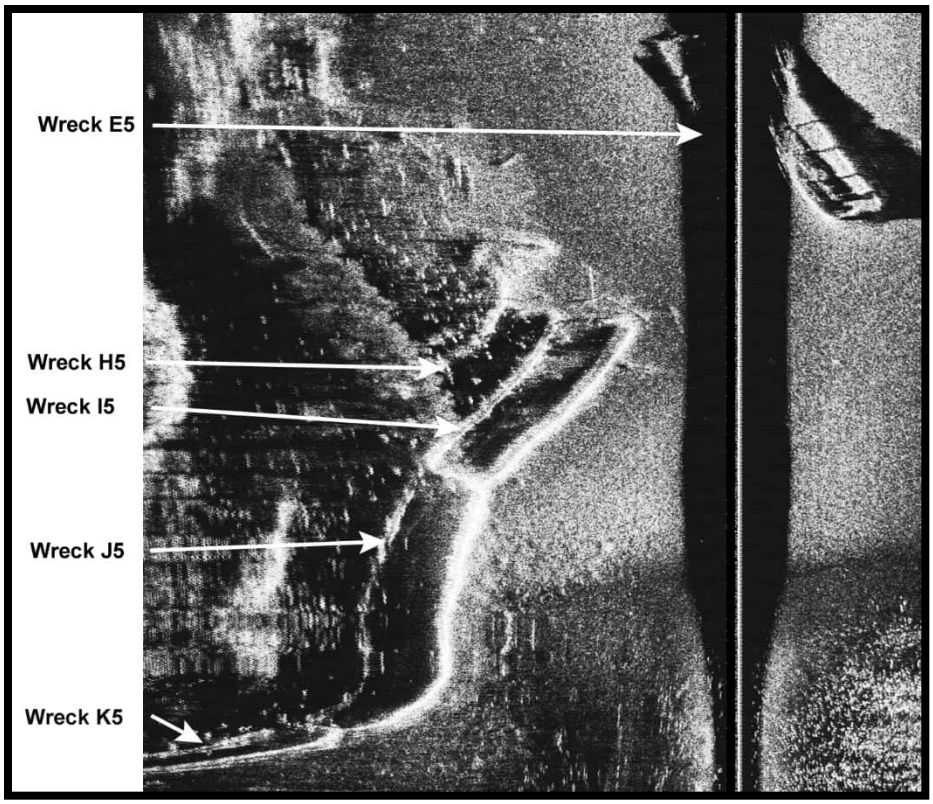


Figure 6-11. Sonar image of Wrecks E5, H5, I5, J5 and K5 (LCMM Collection).

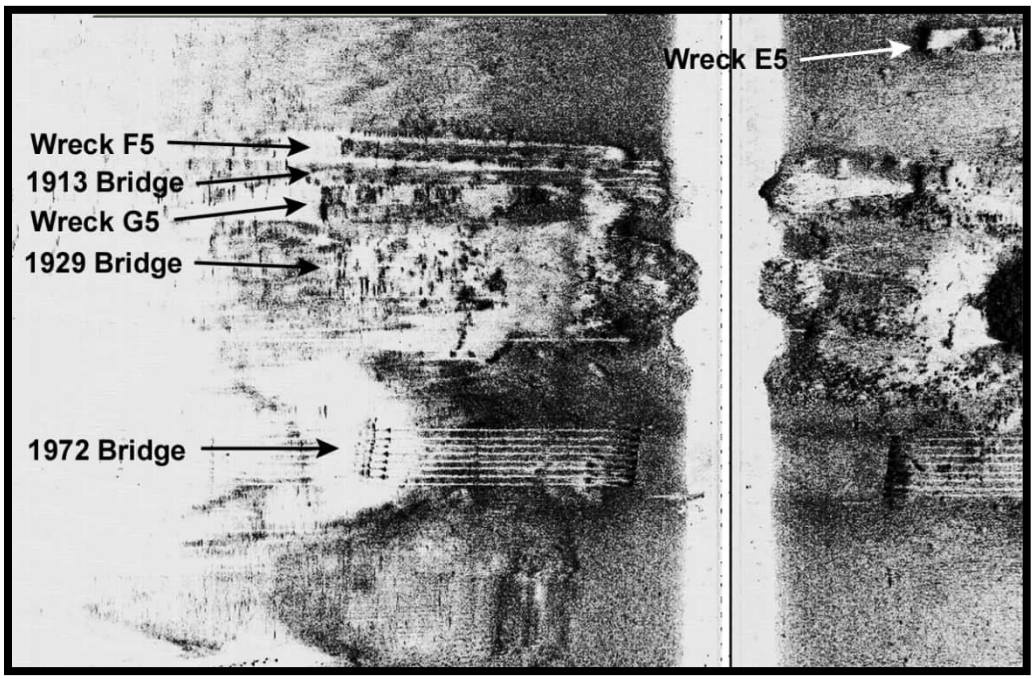


Figure 6-12. Sonar image of Wrecks E5, F5, and G5 and the 1913, 1930 and 1973 highway bridges (LCMM Collection).

[i] Paper and year not given, Referenced newspaper clipping from the Historical Society of Whitehall.

[ii] New York Department of Highways, plans dated July 12, 1912. Courtesy of the Historical Society of Whitehall.

[iii] *Whitehall Times* 3 June 1971. Courtesy of Agnes Peterson, Dresden Town Historian.

[iv] *Whitehall Times* 12 November 1914.

[v] *Whitehall Times,* 8 February 1971.

[vi] Letter written from Agnes Peterson to Peter Barranco, 24 July 2003.

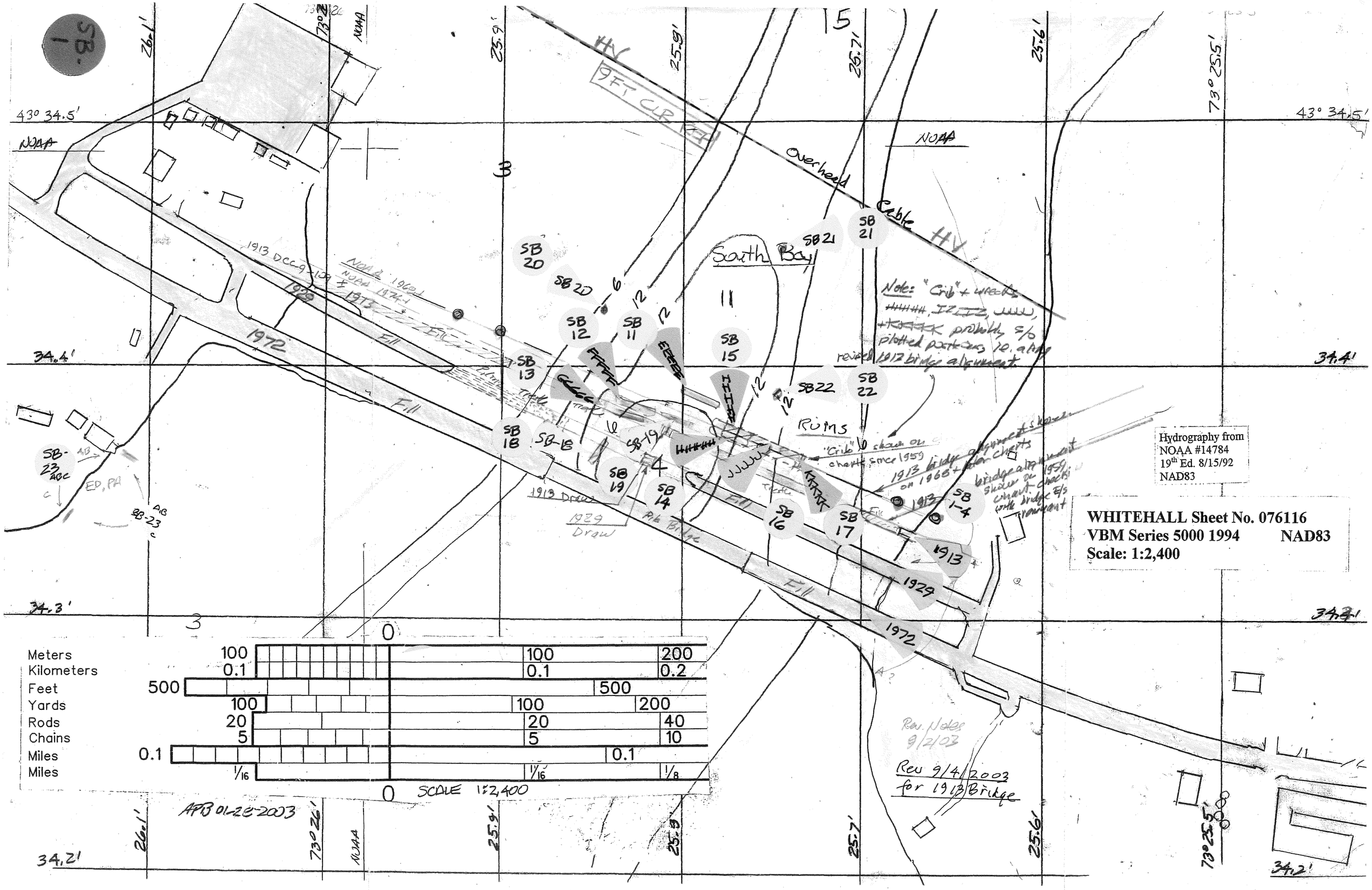
[vii] *Ticonderoga Sentinel,* 7 August 1930 1:3.

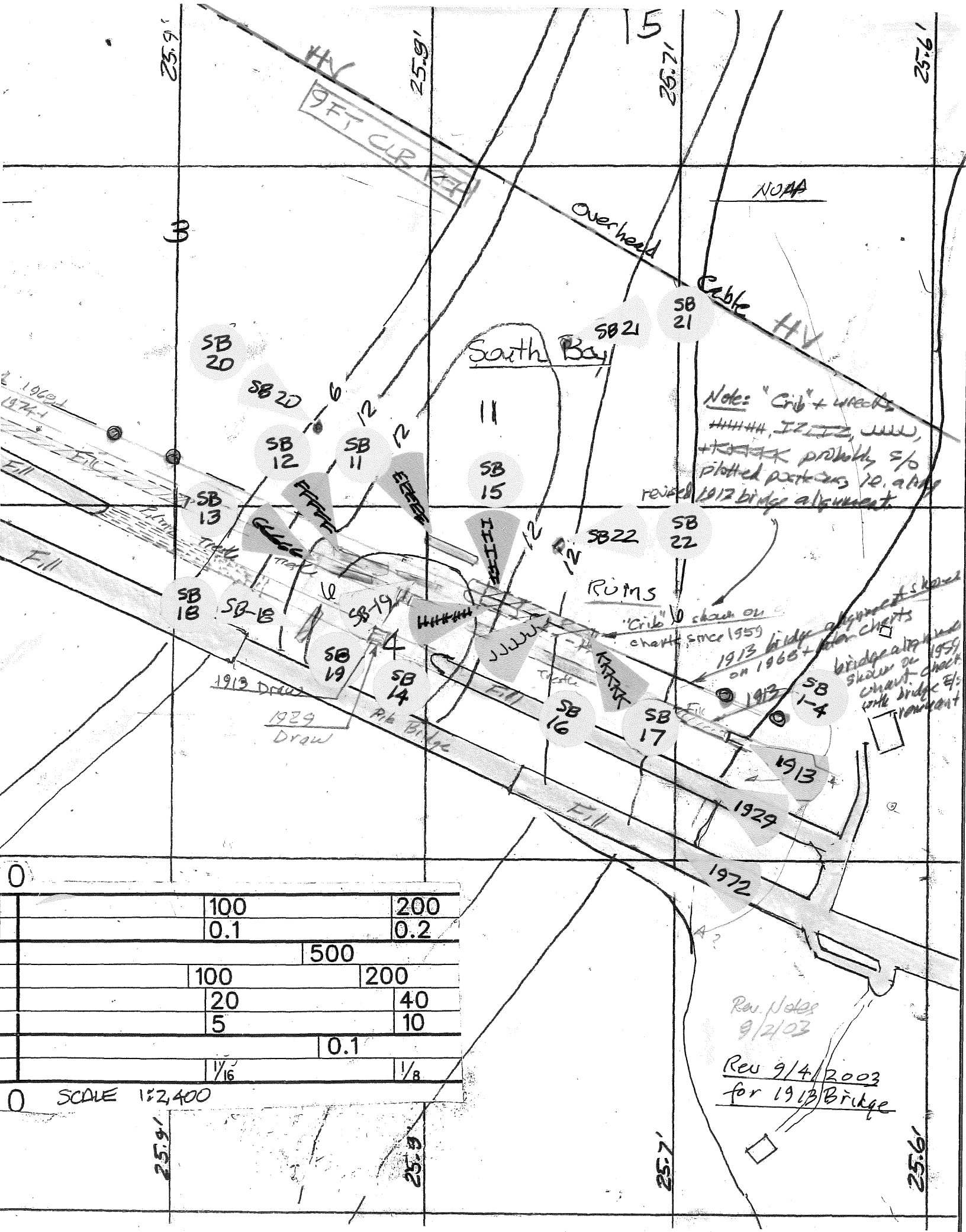
[viii] *The Whitehall Times,* 8 February 1973 and 27 December 1973.

[ix] *The Glens Falls Post Star,* 30 March 1976:HSW and 2 August 1992:WCHS.

[x] ibid.

[xi] *The Plattsburgh Republican* 21 July 1906: 1:6.


43° 34.5'
73° 25.5'
34.4'
34.3'
34.2'
26.1'
25.9'
25.7'
25.6'
NOAA
9 FT CLR
Overhead Cable
HV
South Bay
Ruins
1913 DCC-9-109 ± 1913
1929
1972
Fill
1913 Draw
1929 Draw
Rd Bridge
SB 20
SB 12
SB 11
SB 13
SB 18
SB 19
SB 14
SB 15
SB 16
SB 17
SB 21
SB 22
SB 1-4
SB-23
ED, PA
Note: "Crib" + wrecks
plotted positions rel. above
1913 bridge alignment
"Crib" shown on charts since 1959
1913 bridge alignment on 1966+ charts
bridge alignment shown on 1959 chart checks with bridge E/s removed
Hydrography from
NOAA #14784
19th Ed. 8/15/92
NAD83
WHITEHALL Sheet No. 076116
VBM Series 5000 1994 NAD83
Scale: 1:2,400
Meters
Kilometers
Feet
Yards
Rods
Chains
Miles
Miles
SCALE 1:2,400
APB 01-28-2003
Rev. Notes 9/2/03
Rev 9/4/2003 for 1913 Bridge


15
25.9'
25.9'
25.7'
25.6'
HV
9 Ft Clr
NOAA
Overhead Cable HV
3
South Bay
SB 20
SB 20
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SB 21
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SB 11
SB 15
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SB 22
SB 22
SB 18
SB 18
SB 19
SB 19
SB 14
SB 16
SB 17
SB 1-4
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12
12
11
12
12
16
4
Note: "Crib" + wrecks ++++++, IZ IZ, JJJJ, +K+K+K probably s/o plotted portions 10. a.m.y revised 1912 bridge alignment.
Ruins
"Crib" 10 shown on chart since 1959
1913 bridge alignment shown on 1965+ chart
bridge alignment shown on 1959 chart. check with bridge E/: monument
1913 Draw
1929 Draw
Pile Bridge
Fill
Trestle
1913
1929
1972
Rev. Notes 9/2/03
Rev 9/4/2003 for 1913 Bridge
0
100
200
0.1
0.2
500
100
200
20
40
5
10
0.1
1/16
1/8
0
SCALE 1:2,400

Longitude	Latitude_Y	LCMM_Lette	Type	LCSS_Year	Notes
-73.42975	43.57315	E5	canal boat	2003	sonar image also includes SB-19; E5 also appears in sonar contact 1135
-73.430567	43.57305	F5	canal boat	2003	multiple wrecks in this sonar image incl. F5(SB-12), G5(SB-13), E5(SB-11), SB-19, SB-18, 1972 bridge
-73.430567	43.57305	G5	canal boat	2003	in same sonar contact as F5(SB-12)
-73.4294	43.572833	H5	canal boat	2003	in same sonar contact as E5(SB-11), H5(SB-14), I5(SB-15), J5(SB-16), K5(SB-17)
-73.4294	43.572833	I5	canal boat	2003	in same sonar contact as E5(SB-11), H5(SB-14), J5(SB-16), K5(SB-17)
-73.4294	43.572833	J5	canal boat	2003	in same sonar contact as E5(SB-11), H5(SB-14), I5(SB-15), K5(SB-17)
-73.4294	43.572833	K5	canal boat	2003	in same sonar contact as E5(SB-11), H5(SB-14), I5(SB-15), J5(SB-16)
-73.430733	43.5737	0	unknown	2003	linear object; unknown
-73.429117	43.574133	0	unknown	2003	linear object; unknown
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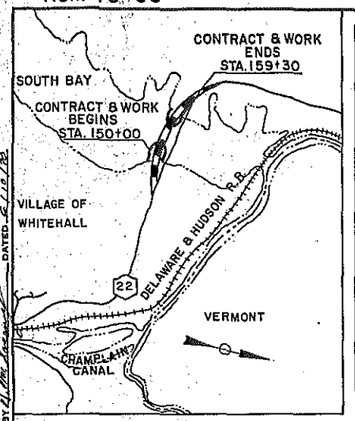
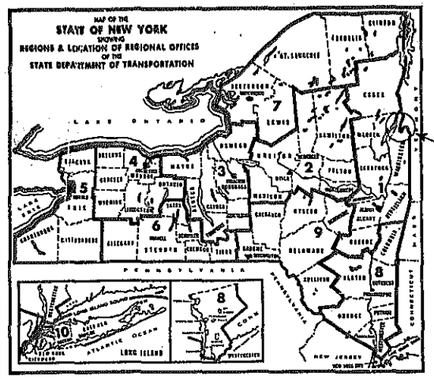
RCM 70-96





1/2 0 1

SCALE IN MILES

APPROXIMATE LOCATION:

THIS CONTRACT BEGINS 1.6± MILE WEST OF THE VILLAGE OF WHITEHALL ALONG ROUTE 22 ON THE EAST SIDE AND ENDS ON THE WEST SIDE OF THE CAUSEWAY ACROSS SOUTH BAY.

ALL CONSTRUCTION IS IN WASHINGTON COUNTY.

INSURANCE COVERAGE

THE CONTRACTOR SHALL PROVIDE INSURANCE COVERAGE FOR A DISTANCE OF 100' FEET BEYOND THE ACTUAL CONSTRUCTION DESIGNATED "CONTRACT BEGINS" AND/OR "CONTRACT ENDS" AND 100' BEYOND THE "LIMIT OF WORK" OF ALL INTERSECTING HIGHWAYS.

MAINTENANCE AND PROTECTION OF TRAFFIC

Approved signs and flagmen shall be used as directed by the Engineer.
The cost of maintaining traffic on existing highway at entrances to Embankment sites shall be included in the bid price of the various items in the Contract.

Table of Quantities			
1M	Mobilization	L.S.	Nec.
1W	Furnishing Water Equipment	L.S.	Nec.
1WAD	Applying Water	MGD	13
2BR1	Embankment in Place (Rock)	C.Y.	1900
2ECBG1	Selected Fill	C.Y.	1300
2TX	Maintaining Existing Settlement Platforms	Ea.	7
2TY	Timber Settlement and Movement Stakes	Ea.	14

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DESIGN AND CONSTRUCTION DIVISION

PLANS FOR RECONSTRUCTING A PORTION OF THE

SOUTH BAY BRIDGE, STATE HIGHWAY No. 9113

Between Station 150+00 and Station 159+30, a length of 0.18 mile of which 0.14 mile is in the Town of Whitehall and 0.04 mile is in the Town of Dresden

2 SHEETS

CONTRACT No. RCM 70-96

WASHINGTON COUNTY

RECORD PLANS

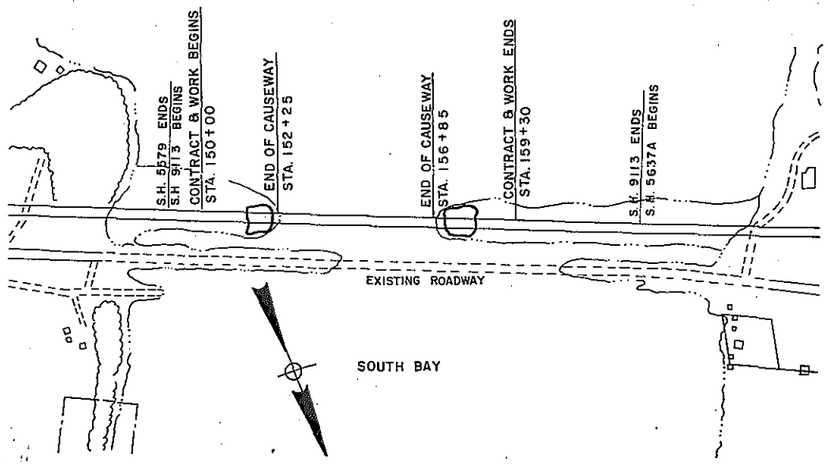
FED. RD. REG. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.		1R1	2
SOUTH BAY BRIDGE			S.H. 9113	
SOILS FOUNDATION TEST				
WASHINGTON COUNTY				

TYPE OF CONSTRUCTION
Soils Embankment Test

STANDARD STRUCTURE SHEETS
66-43DR1, 67-13D

All work contemplated under this contract to be covered by and in conformity with the specifications adopted January 2, 1962 as amended by Addenda No. 1 thru No. 49, except as modified on these plans and in the Itemized Proposal.

CONTRACT NO. RCM 70-96
CONTRACTORS NAME Reale Const Co Inc
DATE OF CONTRACT Aug 27, 1970
AWARD DATE Sept 25, 1970
COMPLETION DATE Nov 4, 1970
FINAL ACCEPTANCE Nov 25, 1970
RESIDENT ENGINEER F.J. Fuller
ENGINEER IN CHARGE P.J. Charland
SIGNATURE Peter J. Charland
CONTRACT COST $2,626.82
FISCAL SHARE COSTS



LOCATION PLAN
SCALE: 1" = 200'

Capital Project Identification No. 1119.01.301

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

Approved 6-29, 1970
PAUL D. SMITH — Asst. Deputy Chief Engineer

Approved June 26, 1970
E. V. HOURIGAN — Deputy Chief Engineer (Structures)

Approved JUNE 29, 1970
MALCOLM D. GRAHAM — Deputy Chief Engineer (Design)

Approved 6-29, 1970
B. A. LEFEVE — Chief Engineer

NO REVISIONS

APPROVED BY R. H. Edwards — REGIONAL DESIGN ENGINEER — 6/19/70 DATE

APPROVED BY R. Mahlenbrey — REGIONAL CONSTRUCTION ENGINEER — 6/9/70 DATE

APPROVED BY F. W. Jordan — ASSISTANT REGIONAL DIRECTOR — 6-10-70 DATE

Prepared pursuant to the Highway Law and recommended by Frank J. Fuller — REGIONAL DIRECTOR — June 18, 1970

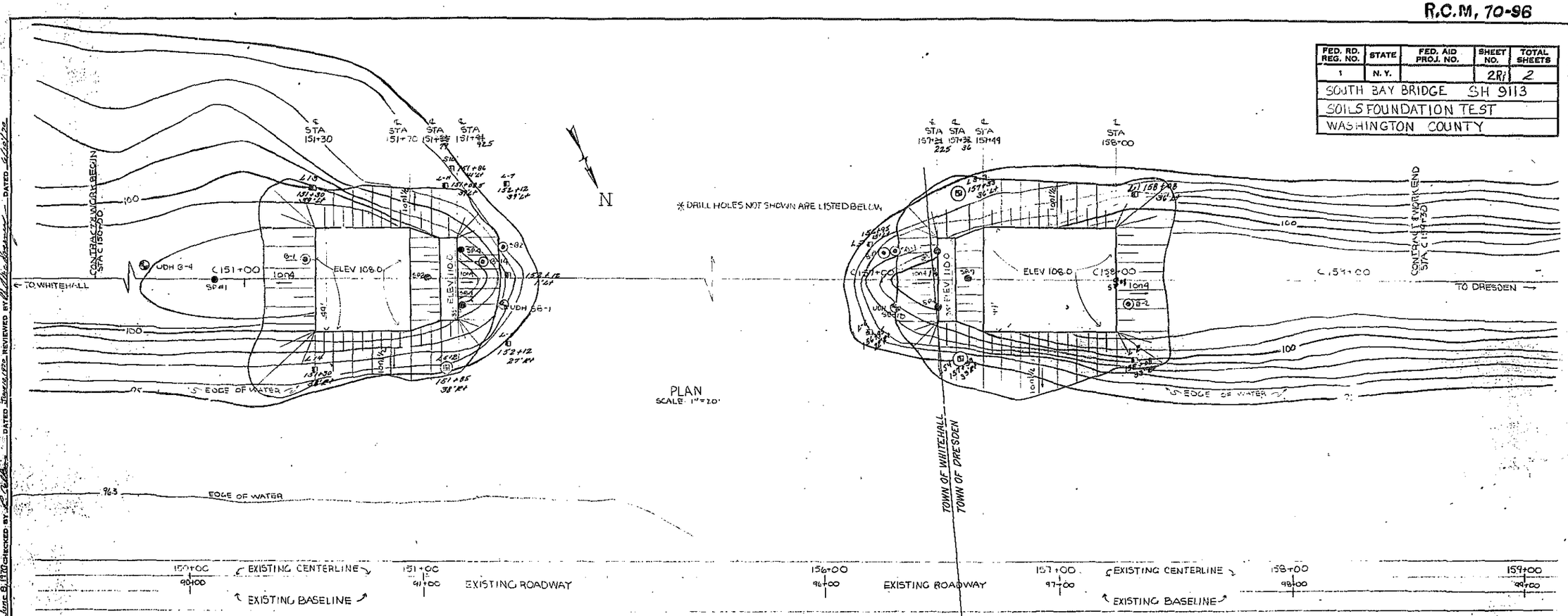
DESIGNED BY R. A. Clavin DATED June 2, 1970 CHECKED BY R. A. Clavin DATED June 2, 1970 TRACED BY [illegible] DATED [illegible] REVIEWED BY [illegible] DATED [illegible] IN CHARGE OF [illegible]

RCM 70-96

R.C.M. 70-96

FED. RD. REG. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.		2R	2

SOUTH BAY BRIDGE SH 9113
SOILS FOUNDATION TEST
WASHINGTON COUNTY



DRILL HOLE LOCATIONS

STATION	NUMBER	SIDE - DIST
C 152+89	SB-3	℄
C 153+17	B-15	L 5'
C 153+55	SB-4	℄
C 154+05	B-17	L 9'
C 154+25	SB-5	R 13'
C 154+25	UDH B-6	L 19'
C 154+43	SB-7	℄
C 155+01	UDH B-16	℄
C 155+53	SB-8	℄
C 156+01	B-18	L 6'
C 156+27	SB-9	℄

LEGEND

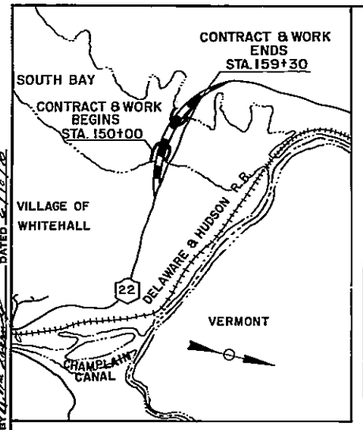
- DRILL HOLE
- NONDISTURBED SAMPLE DRILL HOLE
- EXISTING SETTLEMENT PLATFORM
- TIMBER LATERAL MOVEMENT STAKE
- TIMBER LATERAL MOVEMENT-SETTLEMENT STAKE
- TIMBER SETTLEMENT STAKE

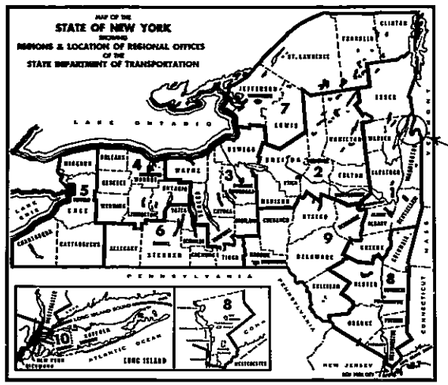
REVISIONS

20' SCALE PLAN ℄ STA 150+00 TO ℄ STA 159+30

DESIGNED BY D. Chesser DATED June 8, 1970 CHECKED BY
REVIEWED BY
DATED
IN CHARGE OF

RCM 70-96





1/2 0 1

SCALE IN MILES

APPROACH LOCATION

THE APPROACH LOCATION IS 1.4 ± MILE WEST OF THE VILLAGE OF WHITEHALL ALL ALONG ROUTE 22 ON THE EAST SIDE AND ENDS ON THE WEST SIDE OF THE CAUSEWAY ACROSS SOUTH BAY.

ALL CONSTRUCTION IS IN WASHINGTON COUNTY.

INSURANCE COVERAGE

THE CONTRACTOR SHALL PROVIDE INSURANCE COVERAGE FOR A DISTANCE OF 100' FEET BEYOND THE ACTUAL CONSTRUCTION DESIGNATED "CONTRACT BEGINS" AND/OR "CONTRACT ENDS" AND 100' BEYOND THE "LIMIT OF WORK" OF ALL INTERSECTING HIGHWAYS.

MAINTENANCE AND PROTECTION OF TRAFFIC

Approved signs and flagmen shall be used as directed by the Engineer.
The cost of maintaining traffic on existing highway at entrances to Embankment sites shall be included in the bid price of the various items in the Contract.

Table of Quantities			
1M	Mobilization	L.S.	Nec.
1W	Furnishing Water Equipment	L.S.	Nec.
1WAD	Applying Water	M.G.	13
2BR1	Embankment in Place (Rock)	C.Y.	1900
2ECBG1	Selected Fill	C.Y.	1300
2TX	Maintaining Existing Settlement Platforms	Ea.	7
2TY	Timber Settlement and Movement Stakes	Ea.	14

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DESIGN AND CONSTRUCTION DIVISION

PLANS FOR RECONSTRUCTING A PORTION OF THE

SOUTH BAY BRIDGE, STATE HIGHWAY No. 9113

Between Station 150+00 and Station 159+30, a length of 0.18 mile of which 0.14 mile is in the Town of Whitehall and 0.04 mile is in the Town of Dresden

2 SHEETS

CONTRACT No. RCM 70-96

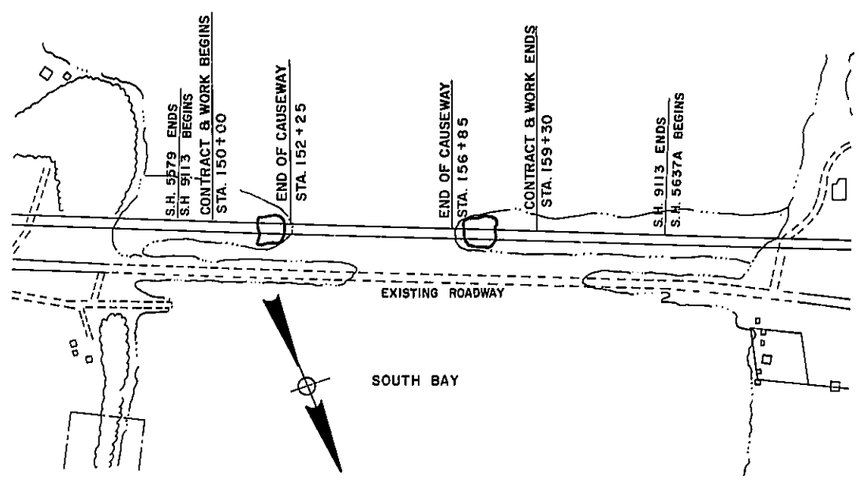
WASHINGTON COUNTY

FED. RD. REG. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	N. Y.		1	2
SOUTH BAY BRIDGE			S.H. 9113	
SOILS FOUNDATION TEST				
WASHINGTON COUNTY				

TYPE OF CONSTRUCTION
Soils Embankment Test

STANDARD STRUCTURE SHEETS
66-43DR1, 67-13D

All work contemplated under this contract to be covered by and in conformity with the specifications adopted January 2, 1962 as amended by Addenda No. 1 thru No. 49 , except as modified on these plans and in the Itemized Proposal.



LOCATION PLAN
SCALE: 1" = 200'

Capital Project Identification No. 1119.01.301

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

Approved 6-29, 1970
PAUL D. SMITH — Asst. Deputy Chief Engineer

Approved June 26, 1970
E. V. HOURIGAN — Deputy Chief Engineer (Structures)

Approved JUNE 29, 1970
MALCOLM D. GRAHAM — Deputy Chief Engineer (Design)

Approved 6-29, 1970
B. A. LEFEVE — Chief Engineer

APPROVED BY G. H. Edwards — REGIONAL DESIGN ENGINEER — 6/30/70 DATE

APPROVED BY R. Wakinbey A.A. — REGIONAL CONSTRUCTION ENGINEER — 6/9/70 DATE

APPROVED BY F. W. Jordan — ASSISTANT REGIONAL DIRECTOR — 6-10-70 DATE

Prepared pursuant to the Highway Law and recommended by: Thomas J. Fuller — REGIONAL DIRECTOR
June 10 1970

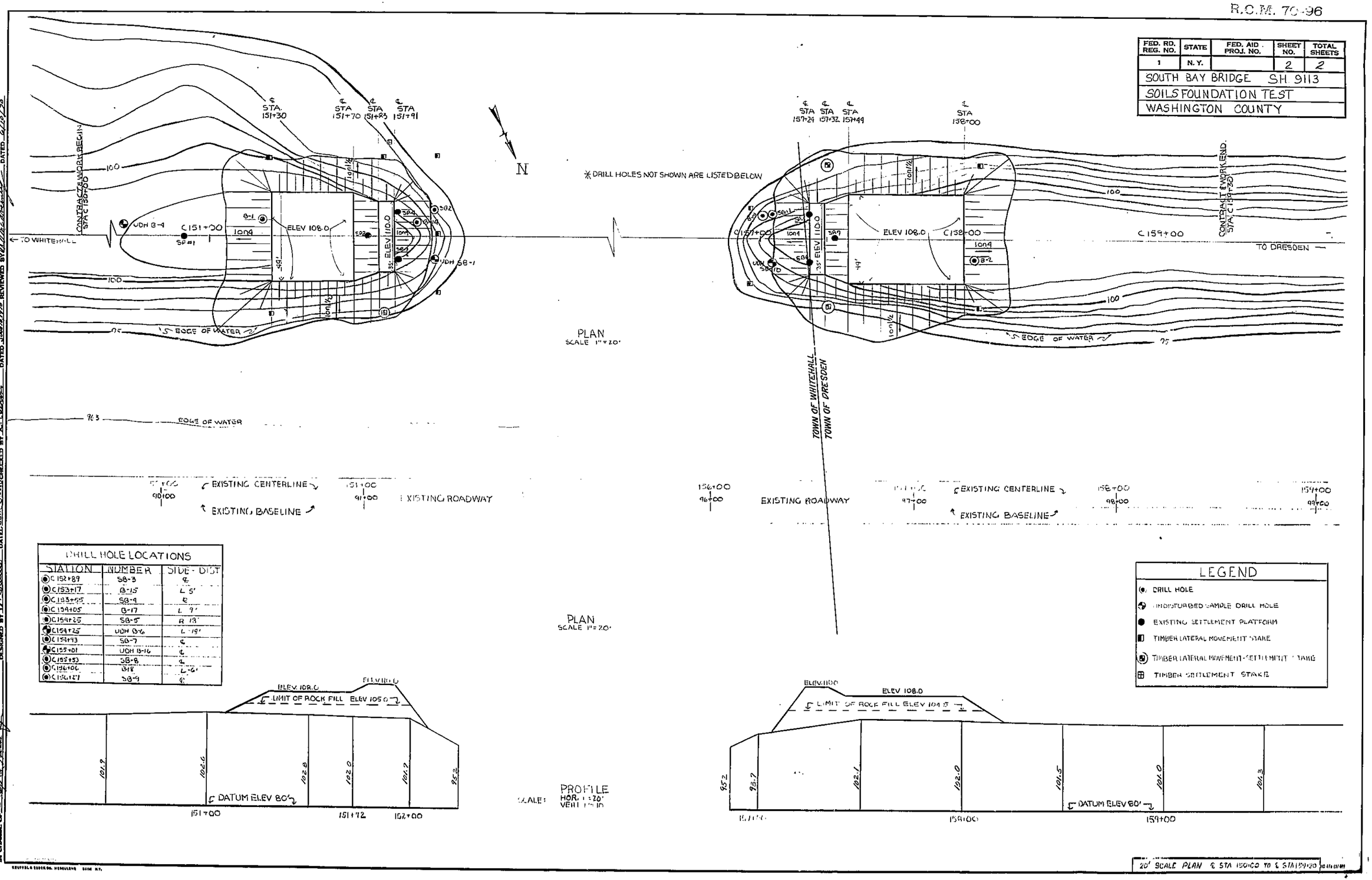
IN CHARGE OF Gerald O. Fuller Jr. — DESIGNED BY W. Schwier — DATED June 1970 — CHECKED BY R. Fuller — DATED 5-18-70 — REVIEWED BY W. Schwier — DATED 5-18-70 — TRACED BY D. Ramsey — DATED 5-18-70

RCM 70-96

R.O.M. 70-96

FED. RD. REG. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.		2	2

SOUTH BAY BRIDGE SH. 9113
SOILS FOUNDATION TEST
WASHINGTON COUNTY



DRILL HOLE LOCATIONS		
STATION	NUMBER	SIDE - DIST
C 152+89	SB-3	℄
C 153+17	B-15	L 5'
C 153+55	SB-4	℄
C 154+05	B-17	L 9'
C 154+25	SB-5	R 13'
C 154+25	UDH B-16	L 19'
C 154+93	SB-7	℄
C 155+01	UDH B-16	℄
C 155+53	SB-8	℄
C 156+06	B-18	L 16'
C 156+27	SB-9	℄

LEGEND

- DRILL HOLE
- UNDISTURBED SAMPLE DRILL HOLE
- EXISTING SETTLEMENT PLATFORM
- TIMBER LATERAL MOVEMENT STAKE
- TIMBER LATERAL MOVEMENT-SETTLEMENT STAKE
- TIMBER SETTLEMENT STAKE

20' SCALE PLAN & STA 150+00 TO & STA 159+20

DESIGNED BY A. Chaves DATED June 8, 1970 CHECKED BY R. Collins DATED June 8, 1970 REVIEWED BY W. Mullaney DATED 6/10/70

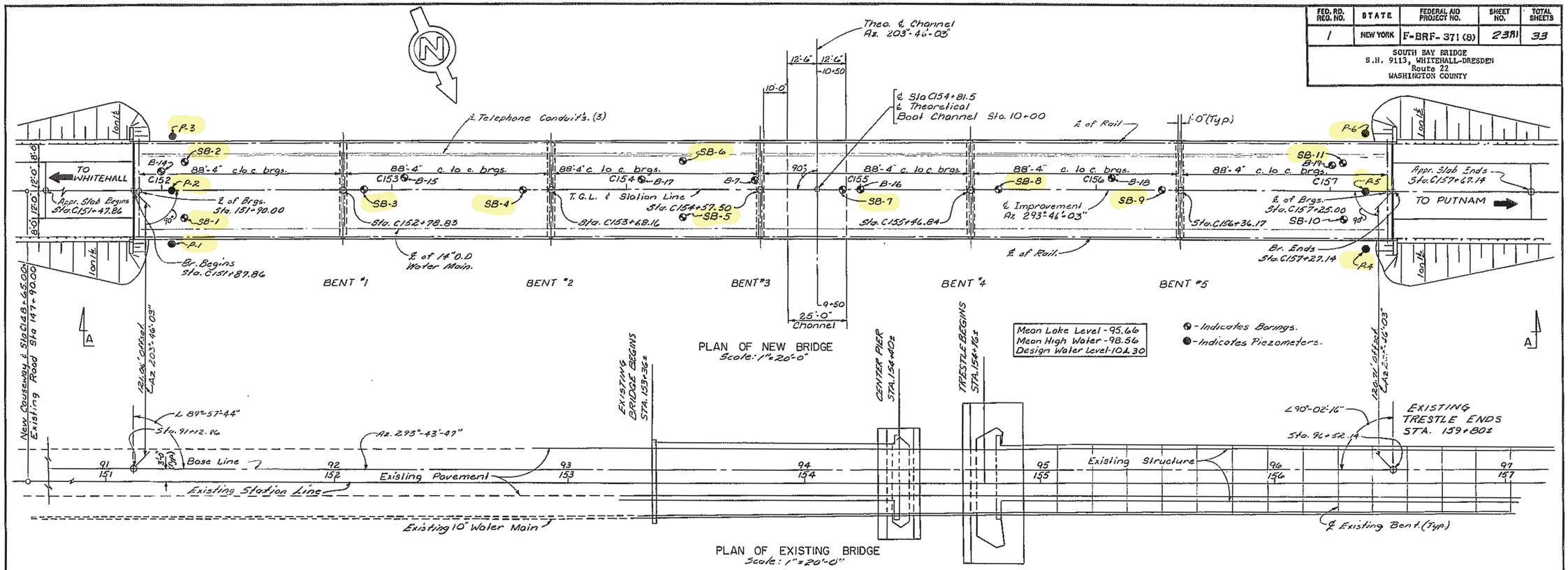
IN CHARGE OF Guy O'Neill

KRUTTSCHNITT & SOBER CO. HENDERSON SHM. N.Y.

F.A.R.C. 72-1

FED. RD. REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	NEW YORK	F-BRF-371 (8)	23A1	33

SOUTH BAY BRIDGE
S.H. 9113, WHITEHALL-DRESDEN
Route 22
WASHINGTON COUNTY



PROJECT ENGINEER [signature] 11-27-71
IN CHARGE OF Neil Kreb
DESIGNED BY Wm. J. Wuebbe
DESIGN CHECKED BY Neil Kreb
DETAILED BY Paul C. Kazmer
DETAIL CHECKED BY Wm. J. Wuebbe

REVISIONS

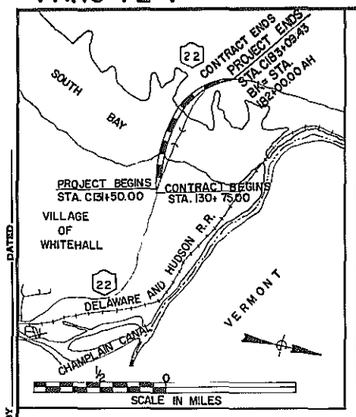
SOUTH BAY BRIDGE
S.H. 9113, WHITEHALL-DRESDEN
Route 22
WASHINGTON COUNTY

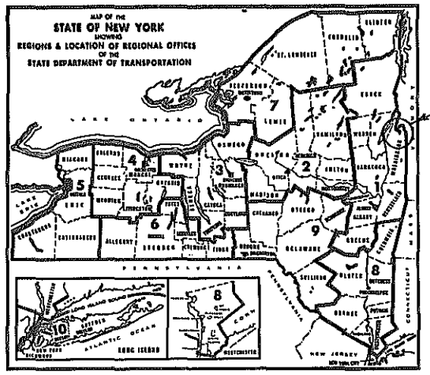
PLAN AND ELEVATION

DRAWING NO. 2 OF 12

FARC 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	1R	33
S.H. 5578 WHITEHALL-DRESDEN CENTER PART 1				
S.H. 9113 SOUTH BAY BRIDGE				
S.H. 5637A WHITEHALL-DRESDEN CENTER PART 2				
WASHINGTON COUNTY				





SITE OF WORK

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
DESIGN AND CONSTRUCTION DIVISION

PLANS FOR RECONSTRUCTING WITH FEDERAL AID, A PORTION OF THE

WHITEHALL - DRESDEN CENTER, PART 1, S.H. No. 5578

Between Station C 130+75 and Station C 148+60, a length of 0.33 mile in the Village of Whitehall

AND THE

SOUTH BAY BRIDGE, S.H. No. 9113

Between Station C 148+60 and Station C 163+00, a length of 0.27 mile of which 0.16 mile is in the Town of Whitehall and 0.11 mile is in the Town of Dresden

AND A PORTION OF THE

WHITEHALL - DRESDEN CENTER, PART 2, S.H. No. 5637 A

Between Station C 163+00 and Station C 183+09.40, a length of 0.38 mile in the Town of Dresden

A TOTAL LENGTH OF 0.98 MILE

33 SHEETS — F.A. PROJECT No. F-BRF-371 (8) — CONTRACT No. FARC 72-1

WASHINGTON COUNTY

TYPE OF CONSTRUCTION

Asphalt Concrete	0.97 Mile
Miscellaneous Work	0.01 Mile

Including

Bridge, S.H. 9113 over South Bay, 6 Span, Orthotropic, 539' Total Length

STANDARD SHEETS

67-1, 62-6, 68-7ES, 67-9HB, 63-10, 71-14A, 71-14B, 71-15, 67-19, 68-19A, 72-43A, 72-43B, 70-43C, 65-52B, 58-60

All work contemplated under this contract to be covered by and in conformity with the specifications adopted January 2, 1962 as amended by Addenda No. 1 thru No. 51, except as modified on these plans and in the Itemized Proposal.

NOTE

Wherever on these plans or in the Proposal the "Old Items" listed below appear, the "New Items" shall apply.

Old Item	New Item
2VJD	2VJE
11H6	11H65B
320H	32DI
51MF	51F
51MZ	51Z
78BZ	78E
800	801

APPROXIMATE LOCATION:

THIS CONTRACT BEGINS APPROXIMATELY 0.3 MILES EAST OF THE SOUTH BAY OF LAKE CHAMPLAIN IN THE VILLAGE OF WHITEHALL AND PROCEEDS WESTERLY SOUTH OF RTE. 22 FOR 0.98± MILES ENDING AT A POINT 0.04± MILES WEST OF COUNTY ROAD 7 IN THE TOWN OF DRESDEN. ALL CONSTRUCTION IS IN WASHINGTON COUNTY.

MAINTENANCE AND PROTECTION OF TRAFFIC

NO DETOURING OF TRAFFIC FROM THIS ROUTE IS CONTEMPLATED. MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE COMPLIED WITH THROUGHOUT THE LENGTH AND DURATION OF THIS CONTRACT UNDER PROVISIONS OF ITEM 76 (REQUIREMENT C).

DESIGN TRAFFIC DATA

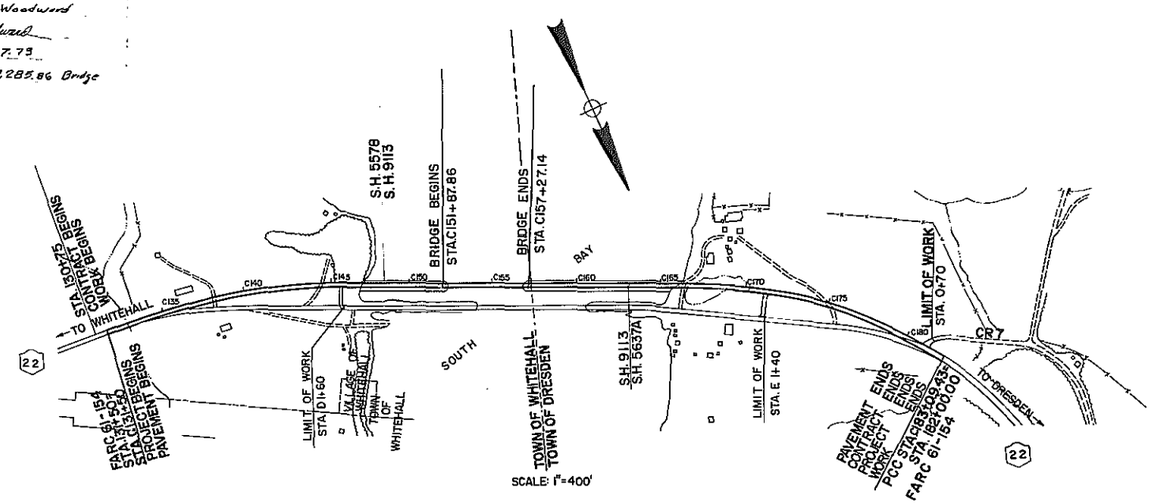
DESIGN CLASS	R5M
ESTIMATED TRAFFIC	1992
D.H.	282
A.A.D.T.	3189

SPECIAL NOTE - INSURANCE COVERAGE

THE CONTRACTOR SHALL PROVIDE INSURANCE COVERAGE FOR A DISTANCE OF 100' BEYOND THE ACTUAL CONSTRUCTION DESIGNATED "CONTRACT BEGINS" AND/OR "CONTRACT ENDS" AND 100' BEYOND THE "LIMIT OF WORK" OF ALL INTERSECTING HIGHWAYS.

FARC 72-1
Thomason & Perry Inc.
June 29, 1972
August 8, 1972
July 10, 1974
Nov. 20, 1974
Charles G. Carlson
R.F. Woodward
$2,002,937.73
$1,439,285.86 Bridge

RECORD PLANS



NOTE: INDEX ON SHEET NO. 2

Capital Project Identification Nos. 1119.00.321 1119.00.322

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

Approved May 1972
JACK STERNBACH — Deputy Chief Engineer (Construction)

Approved MAY 22 1972
R. N. KAMP — Deputy Chief Engineer (Structures)

Approved MAY 22 1972
MALCOLM D. GRAHAM — Deputy Chief Engineer (Facilities Design)

Approved May 23 1972
GEORGE W. McALPIN — Chief Engineer

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ENGINEER — DATE

APPROVED BY R K Edwards — REGIONAL DESIGN ENGINEER — 10/21/71 DATE

APPROVED BY R R Stewart — ACTING REGIONAL CONSTRUCTION ENGINEER — 10/21/71 DATE

APPROVED BY Van Beaver — REGIONAL HIGHWAY MAINTENANCE ENGINEER — 10/21/71 DATE

Prepared pursuant to the Highway Law, and recommended by Frank J. Fuller — REGIONAL DIRECTOR
Date Oct 21st 1971
HC47b (9/70)

DESIGNED BY R.J. Kaufer DATED 10/21/71 REVIEWED BY DATED
CHECKED BY R.J. Kaufer DATED 10/21/71
IN CHARGE OF Leo R. Collins

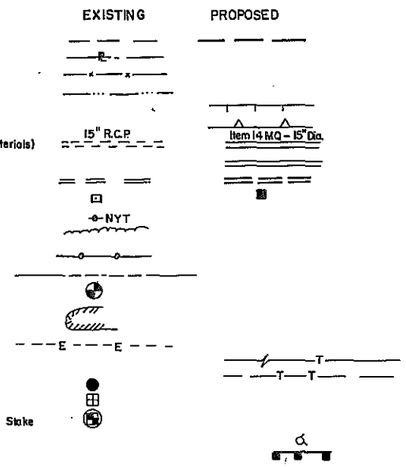
FARC 72-1

F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	2	33

S.H. 5578 WHITEHALL – DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL – DRESDEN CENTER PART 2
WASHINGTON COUNTY

LEGEND



INDEX

NOTE:–
SEE SHEET 22 FOR BRIDGE PORTION OF INDEX.

IN CHARGE OF R. H. Cutler DESIGNED BY R. J. Klein DATED 10/21/71 CHECKED BY R. J. Klein DATED 10/21/71 REVIEWED BY DATED

INDEX & LEGEND

HC 47b (9/70)

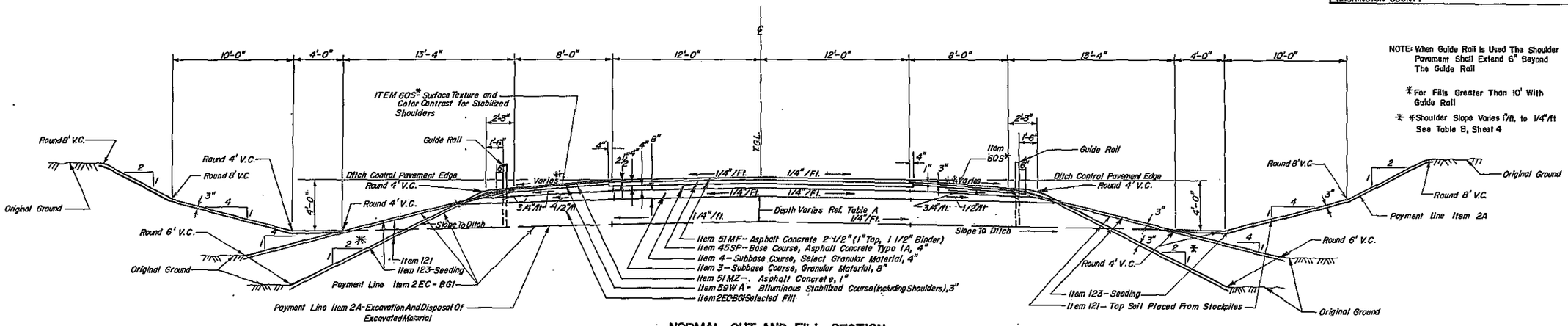
FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	3	33

SH 5578 WHITEHALL-DRESDEN CENTER PART 1
SH 9113 SOUTH BAY BRIDGE
SH 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY

NOTE: When Guide Rail is Used The Shoulder Pavement Shall Extend 6" Beyond The Guide Rail

* For Fills Greater Than 10' With Guide Rail

** Shoulder Slope Varies 1"/ft. to 1/4"/ft See Table B, Sheet 4

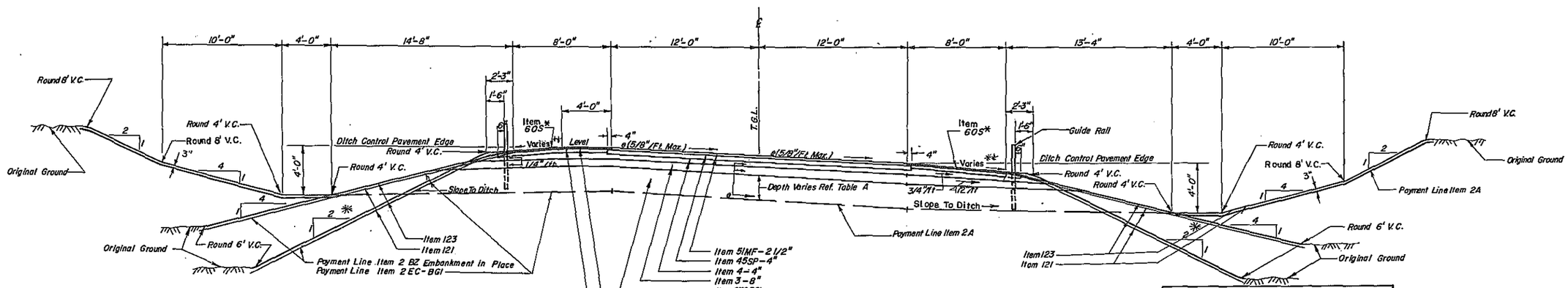


NORMAL CUT AND FILL SECTION

Sta. C 131+50 — Sta. C 132+27.19
Sta. C 147+79.31 — Sta. C 151+42.86
Sta. C 157+67.14 — Sta. C 165+24.17
NO SCALE

*NOTE: LIMIT OF ITEM 605-3' from edge of pavement when placed over Item 51Z, Asphalt Concrete.

NOTE: Items 121 & 123 will be Deleted In Areas Where Item 78BZ Medium Stone Filling is Placed. See Sheet No. 14 for These Locations.



SUPERELEVATED SECTION

Sta. C 132+27.19 — Sta. C 147+79.31
Sta. C 165+24.17 - Sta. C 178+00

NO SCALE

TABLE A

STATION LIMITS	DEPTH OF ITEM 2ECBGI
C131+50 — C137+58	24"
C137+58 — C147+78.10	Min. 24" or to Exist. Ground
C147+78.10 — C151+24	To Existing Ground
C151+24 — C151+87.86	0"
C157+27.14 — C158+04	0"
C158+04 — C165+13.57	To Existing Ground
C165+13.57 — C178+00	24"

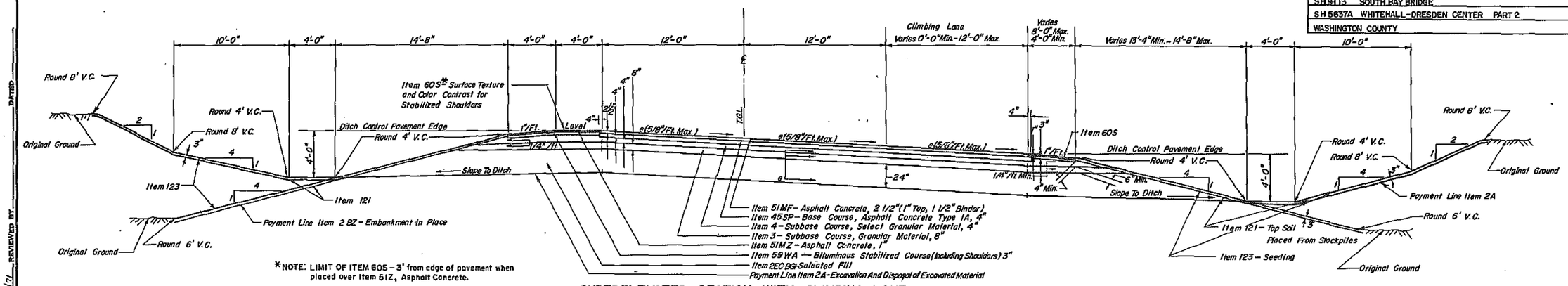
TYPICAL SECTION

HC 47b (9/70)

IN CHARGE OF R. V. Ostrin DESIGNED BY C. A. Ricci DATED 10/2/71 CHECKED BY Dw. Kuehn DATED 10/2/71 REVISED BY DATED

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	4	33

SH 5578 WHITEHALL-DRESDEN CENTER PART 1
SH 9113 SOUTH BAY BRIDGE
SH 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY



*NOTE: LIMIT OF ITEM 60S - 3' from edge of pavement when placed over Item 51Z, Asphalt Concrete.

SUPERELEVATED SECTION WITH CLIMBING LANE
SUPERELEVATED ABOUT THEORETICAL GRADE CURVE TO RIGHT

STATION C178+00 - STATION C 183+09.43

SHOULDER CROSS-SLOPE DATA

STATION LIMITS	SIDE	SHOULDER CROSS SLOPE
C131+50 - C150+46	LT.	1 IN./FT.
C150+46 - C151+46	LT.	TRANSITION: 1 IN./FT. TO ¼ IN./FT.
C131+50 - 145+90	RT.	1 IN./FT.
C145+90 - C146+40	RT.	TRANSITION: 1 IN./FT. TO ½ IN./FT.
C146+40 - C150+96	RT.	½ IN./FT.
C150+46 - C151+46	RT.	TRANSITION: ½ IN./FT. TO ¼ IN./FT.
C157+69 - C158+69	LT.	TRANSITION: ¼ IN./FT. TO 1 IN./FT.
C158+69 - C178+00	LT.	1 IN./FT.
C157+69 - C158+19	RT.	TRANSITION: ¼ IN./FT. TO ½ IN./FT.
C158+19 - C166+00	RT.	½ IN./FT.
C166+00 - C166+50	RT.	TRANSITION: ½ IN./FT. TO 1 IN./FT.
C166+50 - C178+00	RT.	1 IN./FT.

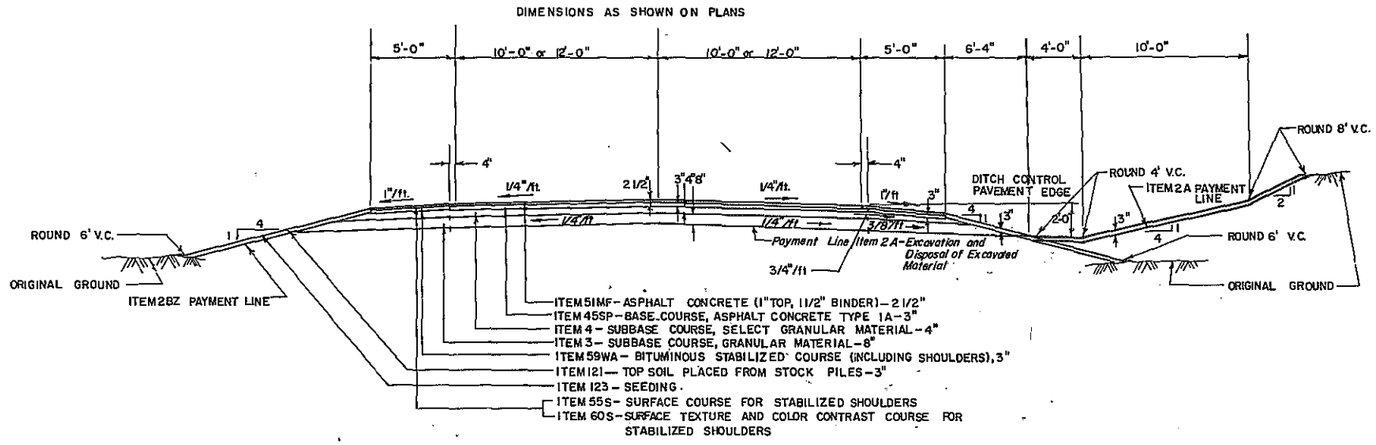
TYPICAL SECTION

IN CHARGE OF R. D. Allen
DESIGNED BY R. D. Allen DATED 10/21/71
CHECKED BY R. W. Kuehn DATED 10/21/71
REVIEWED BY
DATED

HC 47b (9/70)

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	5	33

SH5578 WHITEHALL – DRESDEN CENTER PART 1
SH9113 SOUTH BAY BRIDGE
SH5637A WHITEHALL – DRESDEN CENTER PART 2
WASHINGTON COUNTY



NORMAL SECTION

INTERSECTING ROAD "D" STA. D 0+12 - STA. D1+60
INTERSECTING ROAD "E" STA. E 0+12 - STA. E 1+40
COUNTY ROAD 7 STA. 0+12 - STA. 0+70

NO SCALE

DESIGNED BY R. R. Clausi DATED 10/2/71 CHECKED BY Ralph Kuehn DATED 10/2/71 REVIEWED BY _____ DATED _____

IN CHARGE OF Ro. V. Collins

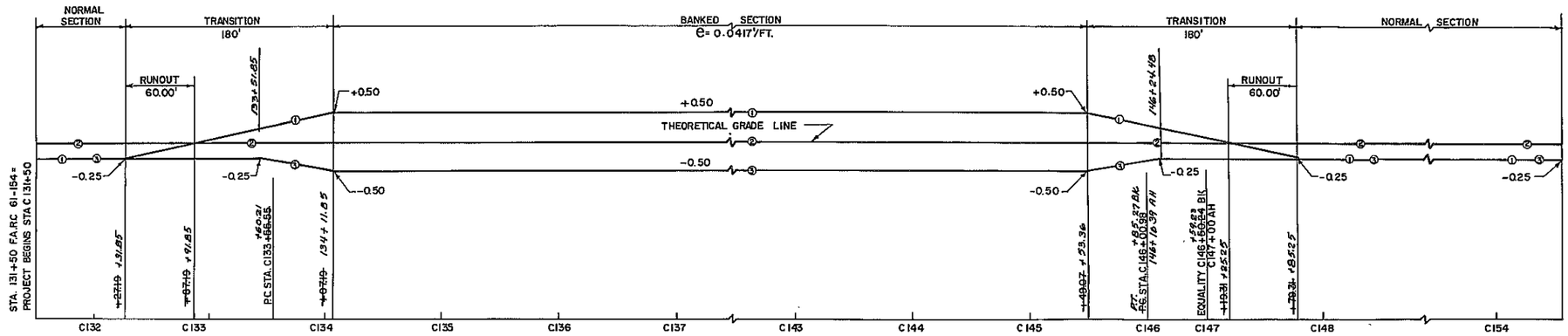
TYPICAL SECTION

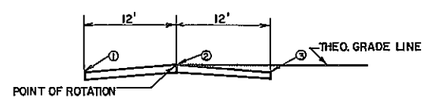
HC 47b (9/70)

F.A.R.C. 72-1

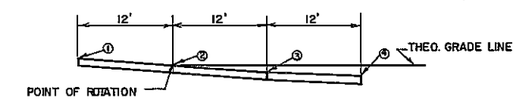
FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	6R1	33

S.H. 5578 WHITEHALL – DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL – DRESDEN CENTER PART 2
WASHINGTON COUNTY

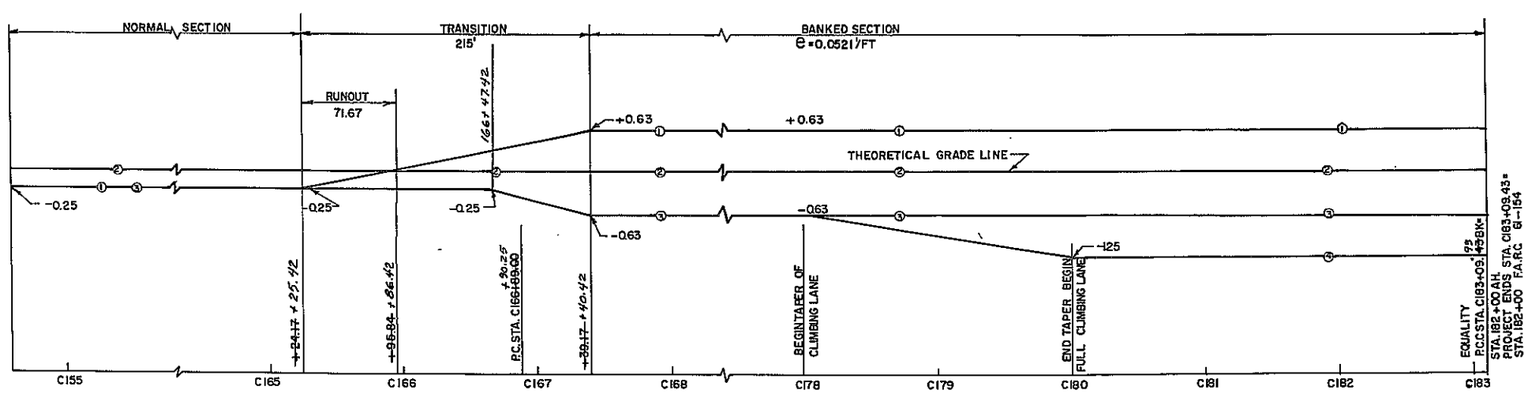




NORMAL SECTION



FULL SUPERELEVATION WITH CLIMBING LANE



REVISIONS

SUPERELEVATION CHART

HC47b (9/70)

IN CHARGE OF R. J. Ostler CHECKED BY R. W. Kuehn DATED 10/21/71 REVIEWED BY DATED
DESIGNED BY W. R. Schwarz DATED 10/21/71

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	7A1	33

S.H. 5578 WHITEHALL – DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL – DRESDEN CENTER PART 2
WASHINGTON COUNTY

ITEM NO.	DESCRIPTION	UNIT	TOTAL COMBINED NEAT	TOTAL COMBINED PROPOSAL	FINAL QUANTITY
1M	MOBILIZATION	L.S.	NEC.	NEC.	NEC
1W	FURNISHING WATER EQUIPMENT	L.S.	NEC.	NEC.	NEC
1WAD	APPLYING WATER	P.D.D.	44	50	32
2A	EXCAVATION AND DISPOSAL OF EXCAVATED MATERIAL	C.Y.	14,391	14,440	5,056
2BZ	EMBANKMENT IN PLACE	C.Y.	41,222	41,300	37,931
2EC-BG1	SELECTED FILL	C.Y.	12,647	12,700	16,523
2EF-B	SELECTED GRANULAR FILL	C.Y.	564	600	1,148
2VJ-E	SELECTED FILL (BRIDGE FOUNDATIONS)	C.Y.	553	560	557
3	SUBBASE COURSE - GRANULAR MATERIAL	C.Y.	5,539	5,600	4,765
4	SUBBASE COURSE - SELECT GRANULAR MATERIAL	C.Y.	3,201	3,250	2,982
5B	STRUCTURE EXCAVATION	C.Y.	508	510	557
5T	TRENCH & CULVERT EXCAVATION	C.Y.	1,164	1,200	1,799
6	LABORATORY BUILDING	EA.	1	1	1
6BA	CONCRETE CYLINDER CURING BOX	EA.	1	1	1
6E	ENGINEER'S OFFICE (TYPE C)	MONTH	22	22	19
7	TRIMMING ROAD SECTION	L.F.	4,976	5,000	4,944
8	PREPARING FINE GRADE	S.Y.	21,809	21,820	18,655
11H-6SB	PERFORATED CORRUGATED METAL PIPE UNDERDRAIN - 6" DIA.	L.F.	117	120	120
14ESM-12	END SECTION - OPTIONAL, 12" DIA.	EA.	12	12	8
14ESM-24	END SECTION - OPTIONAL, 24" DIA.	EA.	4	4	6
14MQ-12	CULVERT PIPE - OPTIONAL, 12" DIA.	L.F.	214	220	174
14MQ-24	CULVERT PIPE - OPTIONAL, 24" DIA.	L.F.	214	220	296
16	FURNISHING & APPLYING CALCIUM CHLORIDE	TON	44	50	2
18	CLASS A CONCRETE FOR STRUCTURES	C.Y.	99	100	95
20	CLASS B CONCRETE FOR STRUCTURES	C.Y.	318.9	320	308
28	BAR REINFORCEMENT FOR STRUCTURES	LBS.	39,985	40,100	39,759
29	STRUCTURAL STEEL	LBS.	1,539,965	1,550,000	1,499,362
32DI	CABLE GUIDE RAILING (BEAM POSTS)	L.F.	400	410	405
32DDD	ANCHORAGE UNIT FOR CABLE GUIDE RAIL	EA.	2	2	2
32R	RESETTING GUIDE RAILING	L.F.	125	130	67
33AF	BOX BEAM GUIDE RAIL	L.F.	2,939	3,000	2,691
33AFY	BOX BEAM GUIDE RAILING (SHOP CURVED)	L.F.	576	600	288
33AFDR	BOX BEAM GUIDE RAILING END ASSEMBLY	EACH	8	8	4
37S4W	STEEL BRIDGE RAILING (4 RAIL)	L.F.	1,088	1,100	1,094
45SP	BASE COURSE ASPHALT CONCRETE TYPE 1A	TON	2,878	2,900	1,964
51F	ASPHALT CONC., 2 CRSE., TYPE 1A TOP (HIGH FRICTION) & BINDER	TON	1,850	1,870	2,084
51Z	ASPHALT CONCRETE (TOP COURSE)	TON	763	780	726
51MDX	ASPHALT CONCRETE DRIVEWAYS & SIDEWALKS	TON	8.2	9	13
51WD	ASPHALT CONCRETE REINFORCED SHEET	TON	230	230	210
55S	SURFACE COURSE FOR STABILIZED SHOULDERS	S.Y.	344	360	—
59WA	BITUMINOUS STABILIZED COURSE (INCLUDING SHLDRS)	C.Y.	705	710	613
60S	SURFACE TEXTURE AND COLOR CONTRAST COURSE FOR STABILIZED SHOULDERS	S.Y.	1,931	1,940	5,368

ITEM NO.	DESCRIPTION	UNIT	TOTAL COMBINED NEAT	TOTAL COMBINED PROPOSAL	FINAL QUANTITY
61	BITUMINOUS MATERIAL	GAL.	17	17	34
69MAX	BITUMINOUS MATERIAL A RAPID CURING CUTBACK	GAL.	772	780	1,291
70M	BITUMINOUS MATERIAL A EMULSION	GAL.	15,515	15,520	9,732
76	MAINTENANCE AND PROTECTION OF TRAFFIC (REQ.C)	L.S.	NEC.	NEC.	NEC.
78E	STONE FILLING, MEDIUM	C.Y.	1,294	1,300	1,302
81A	REMOVING EXISTING SUPERSTRUCTURE	L.S.	NEC.	NEC.	NEC
83TXS	TEMPORARY SHEET PILING	S.F.	5,405	5,410	—
85DA	AUGERING FOR PILES	EA.	32	32	32
85Y	PRESTRESSED CONCRETE PILES	L.F.	10,000	10,000	10,000
85YS	PRESTRESSED CONCRETE PILES SPLICES	EACH	27	27	—
87R	PILE DEMOLITION	EACH	245	245	118
87WB	FURNISHING EQUIPMENT FOR DRIVING PILES, WATER BORNE	L.S.	NEC.	NEC.	NEC
88PS	LOAD TEST FOR PILES	EACH	1	1	1
90Y	CLEANING EXISTING PAVEMENT (PER SQUARE YARD)	S.Y.	6,021	6,100	4,211
102CR	MANHOLE	L.F.	13.5	14	10
104	RIGHT-OF-WAY MARKER	EACH	20	22	—
113HB	HIGHWAY BARRICADE (SWF TYPE POSTS)	L.F.	58	60	64
121	TOPSOIL PLACED FROM STOCKPILES	C.Y.	2,698	2,700	—
123	SEEDING	ACRE	8.9	9	7
205-14	FURNISH & INSTALL MECH. JOINT, CEMENT LINED DUCTILE IRON PIPE THICKNESS CLASS 2 - 14" DIA.	L.F.	2,300	2,300	2,300
208-14	FURNISH & INSTALL BUTTERFLY VALVE 14" DIA.	EACH	4	4	4
209	RE-ESTABLISH HOUSE SERVICE CONNECTIONS - WATER	EACH	7	7	3
210	FURNISH & INSTALL HYDRANT ASSEMBLY COMPLETE	EACH	2	2	2
212	FURNISH & INSTALL CORPORATION STOP AND SERVICE BOX	EACH	2	2	—
237A	EPOXY GROUT PAD	GAL.	79	80	164
363I	EPOXY COATING FOR CONCRETE	S.F.	2,519	2,520	1,982
411T	FURNISH & INSTALL TELEPHONE CONDUITS ON STRUCTURES	L.F.	1,706	1,710	1,710
655WD	EPOXY PROTECTIVE COATING	S.Y.	2,654	2,660	2,644
710	BRIDGE PIER REMOVAL	L.S.	NEC.	NEC.	NEC
801	SAND BACKFILL	C.Y.	173	180	157
900	TEMPORARY WORK POLLUTION CONTROL	L.S.	IF NEC.	IF NEC.	—
901	TRAINING SPECIAL PROVISION	T.M.H.	7,000	7,000	3,136
*30C	FRAMES & GRATES - CASTINGS	S.F.	12	12	11
*88PT	PILE LOAD TEST BY IMPACT DRIVING METHOD	L.S.	NEC.	NEC.	NEC
*600SP	STEEL WATER PIPE	L.F.	550	550	548
*680TF	TRANSFLEX EXPANSION JOINT	L.F.	294	300	294
*701S	PTFE - FABRIC BEARING PADS	EACH	72	72	72
*750	AIR ACTUATED PIEZOMETER	EACH	2	2	2

NOTE: SEE SHEET NO. 22 FOR BRIDGE ESTIMATE OF QUANTITIES.

* OUT OF ORDER

REVISIONS

ESTIMATE OF QUANTITIES

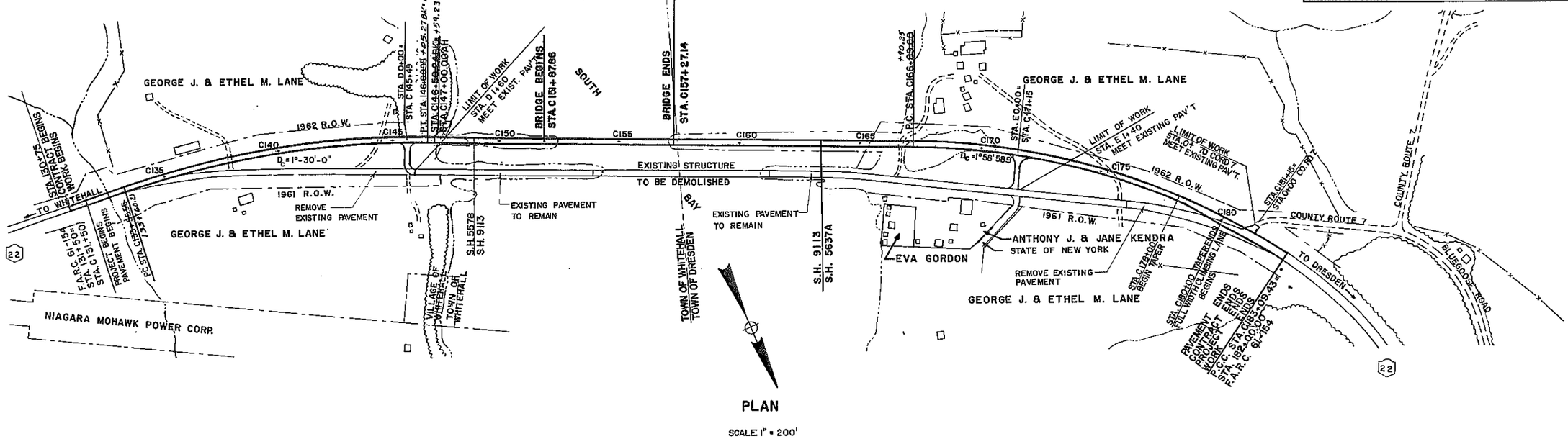
HC 47b (9/70)

IN CHARGE OF R. V. Calkins DESIGNED BY C. B. Clauss DATED 10/21/71 CHECKED BY P. W. Kuhn DATED 10/21/71 REVIEWED BY DATED

F.A.R.C. 72-1

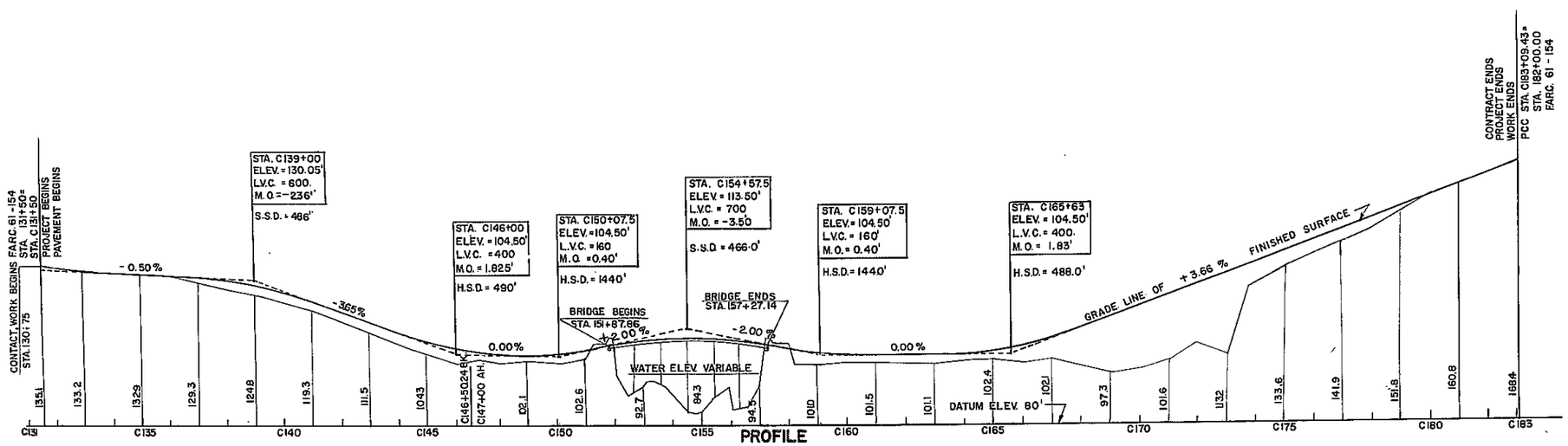
FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	681	33

S.H. 5578 WHITEHALL - DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL - DRESDEN CENTER PART 2
WASHINGTON COUNTY



PLAN

SCALE: 1" = 200'



PROFILE

SCALE: HORIZ. 1" = 200' VERT. 1" = 20'

REVISIONS

200' PLAN & PROFILE

HC 47b (9/70)

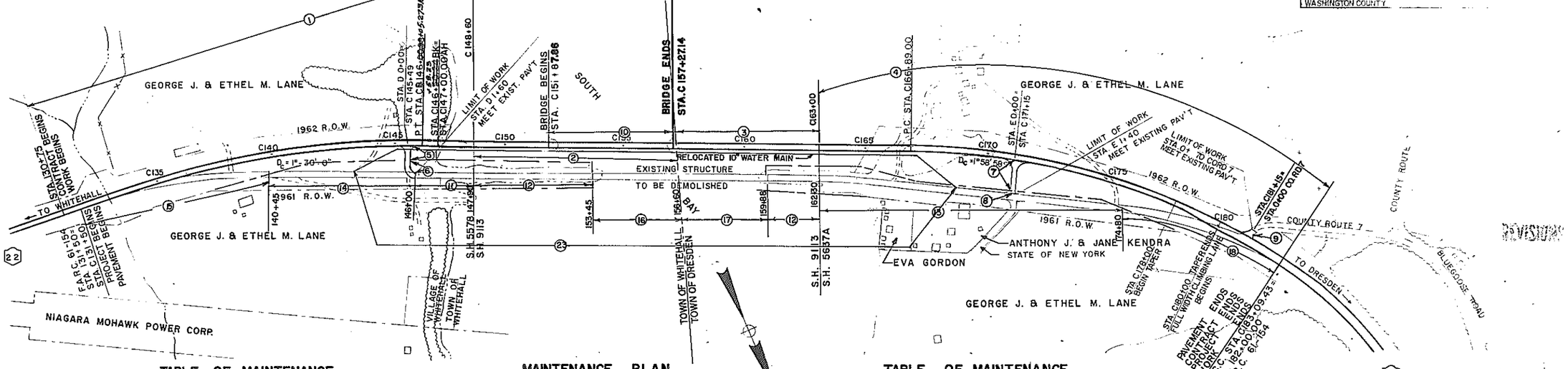
DESIGNED BY C. R. Calvin DATED 10/6/70 CHECKED BY Pw Kuch DATED 10/21/71 REVIEWED BY DATED

IN CHARGE OF C. R. Calvin

F.A.R.C. 72-1

FED ROAD REG. NO	STATE	FEDERAL AID PROJECT NO	SHEET NO	OF SHEETS
1	N Y	F-BRF-371 (8)	9A1	33

S.H. 5578 WHITEHALL - DRESDEN CENTER - PART
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL - DRESDEN CENTER - PART
WASHINGTON COUNTY



MAINTENANCE PLAN

TABLE OF MAINTENANCE

PART NO.	HIGHWAY	LIMITS	FEATURES TO BE MAINTAINED	C L MILES	LANE MILES	AGENCY	AUTHORITY FOR MAINT. JURISDICTION
			STATE HIGHWAYS				
1	S.H. 5578 (IN THE VILLAGE OF WHITEHALL)	C 131+50- C 148+60	PAVEMENT, SHLDRS, DRAINAGE, SYSTEM, LANDSCAPING	0.31	0.62	STATE	SECT. 12, HIGHWAY LAW
2	S.H. 9113 (IN THE TOWN OF WHITEHALL)	C 148+60- C 157+37	PAVEMENT, SHLDRS, DRAINAGE, SYSTEM, LANDSCAPING	0.06	0.12	STATE	SECT. 12, HIGHWAY LAW
3	S.H. 9113 (IN THE TOWN OF DRESDEN)	C 157+37- C 163+00	PAVEMENT, SHLDRS, DRAINAGE SYSTEM, LANDSCAPING	0.11	0.22	STATE	SECT. 12, HIGHWAY LAW
4	S.H. 5637A (IN THE TOWN OF DRESDEN)	C 163+00- C 189+09	PAVEMENT, SHLDRS, DRAINAGE SYSTEM, LANDSCAPING	0.38	0.84	STATE	SECT. 12, HIGHWAY LAW
			INTERSECTIONS AND CROSSROADS				
5	RELOCATED OLD S.H. 5578	D 0+12- D 0+85	PAVEMENT, SHLDRS, DRAINAGE SYSTEM, LANDSCAPING	0.01	0.02	STATE	SECT. 10, SUBDIV. 25, HIGHWAY LAW
6	RELOCATED OLD S.H. 5578	D 0+85- D 1+60	PAVEMENT, SHLDRS, DRAINAGE SYSTEM, LANDSCAPING	0.01	0.02	WASH. COUNTY	SECT. 10, SUBDIV. 25, HIGHWAY LAW
7	RELOCATED OLD S.H. 5637A	E 0+12- E 1+32	PAVEMENT, SHLDRS, DRAINAGE SYSTEM, LANDSCAPING	0.02	0.04	STATE	SECT. 10, SUBDIV. 25, HIGHWAY LAW
8	RELOCATED OLD S.H. 5637A	E 1+32- E 1+40	PAVEMENT, SHLDRS, DRAINAGE SYSTEM, LANDSCAPING			WASH. COUNTY	SECT. 10, SUBDIV. 25, HIGHWAY LAW
9	COUNTY ROAD 7	0+12- 0+70	PAVEMENT, SHLDRS, DRAINAGE SYSTEM, LANDSCAPING	0.01	0.02	STATE	SECT. 10, SUBDIV. 25, HIGHWAY LAW
			STRUCTURES				
10	S.H. 9113 BRIDGE OVER SOUTH BAY	C 151+87.86- C 157+27.14	ENTIRE STRUCTURE	0.10	0.20	STATE	SECT. 230, HIGHWAY LAW
			ROADS DISCONTINUED				
11	OLD S.H. 5578	146+00- 147+90	DISCONTINUE TO PUBLIC AGENCY FORMERLY HAVING JURISDICTION THEREOVER	0.04	0.08	WASH. COUNTY	SECT. 62, HIGHWAY LAW & RESOLUTION DATED 9/20/71
12	OLD S.H. 9113	147+90- 153+45 159+88- 162+30	DISCONTINUE TO PUBLIC AGENCY FORMERLY HAVING JURISDICTION THEREOVER	0.15	0.30	WASH. COUNTY	SECT. 62, HIGHWAY LAW & RESOLUTION DATED 9/20/71
13	OLD S.H. 5637A	162+30- 174+80	DISCONTINUE TO PUBLIC AGENCY FORMERLY HAVING JURISDICTION THEREOVER	0.24	0.48	WASH. COUNTY	SECT. 62, HIGHWAY LAW & RESOLUTION DATED 9/20/71

TABLE OF MAINTENANCE

PART NO.	HIGHWAY	LIMITS	FEATURES TO BE MAINTAINED	C L MILES	LANE MILES	AGENCY	AUTHORITY FOR MAINT. JURISDICTION
			ROADS DISCONTINUED (CONT'D.)				
14	OLD S.H. 5578	140+45- 146+00	DISCONTINUE & REMOVE, RIGHT OF WAY TO REVER TO COUNTY	0.15	0.30	WASH. COUNTY	SECT. 62, HIGHWAY LAW & RESOLUTION DATED 9/20/71
			ROADS DESTROYED BY CONSTRUCTION				
15	OLD S.H. 5578	131+50- 153+45	DESTROYED BY CONSTRUCTION			STATE	SECT.62, HIGHWAY LAW
16	EXISTING STRUCTURE (IN THE TOWN OF WHITEHALL)	156+60	DESTROYED BY CONSTRUCTION	0.06	0.12	STATE	SECT.62, HIGHWAY LAW
17	EXISTING STRUCTURE (IN THE TOWN OF DRESDEN)	156+60 159+88	DESTROYED BY CONSTRUCTION	0.06	0.12	STATE	SECT. 62, HIGHWAY LAW
18	OLD S.H. 5637A	174+80- 182+00	DESTROYED BY CONSTRUCTION	0.13	0.26	STATE	SECT. 62, HIGHWAY LAW
			SNOW REMOVAL				
19	S.H. 5578	AS INDICATED ABOVE	SNOW REMOVAL ON PTS. 1 & 5	0.31	0.62	STATE	SECT. 12, HIGHWAY LAW
20	S.H. 9113	AS INDICATED ABOVE	SNOW REMOVAL ON PTS. 2, 3 & 10	0.27	0.54	STATE	SECT. 12, HIGHWAY LAW
21	S.H. 5637A	AS INDICATED ABOVE	SNOW REMOVAL ON PTS. 4, 7 & 9	0.39	0.86	STATE	SECT. 12, HIGHWAY LAW
22	RELOCATED OLD S.H.5578 S.H.5637A; OLD S.H.5578, S.H.9113 & OLD S.H.5637A	AS INDICATED ABOVE	SNOW REMOVAL ON PTS. 6,11,12, 13, & 8			WASH. COUNTY	SECT. 12, HIGHWAY LAW
			WATERMAINS				
23	RELOCATION OF EXISTING 10" WATERMAIN	C 143+00, 195'± RT. -C168+30, 150' RT.	ENTIRE WATERMAIN AND APPURTENANCES			VILL.OF WHITEHALL	SECT. 10, SUBDIV. 27, HIGHWAY LAW AND RESOLUTION DATED

SPECIAL NOTES: - THE MAINTENANCE TABLE INDICATES THE DIVISION OF RESPONSIBILITY FOR MAINTENANCE FOR THIS CONTRACT ON COMPLETION. IT IN NO WAY RELIEVES THE CONTRACTOR OF HIS RESPONSIBILITY AS COVERED BY ITEM 76, MAINTENANCE AND PROTECTION OF TRAFFIC.

ALL EXISTING SANITARY SEWERS AND OTHER SEWERS NOT DEEMED TO BE PART OF THE PROJECT BY THE COMMISSIONER; WATERMAINS; HYDRANTS; AND OTHER MUNICIPALLY OR PRIVATELY OWNED FACILITIES WITHIN THE LIMITS OF THE HIGHWAY RIGHT-OF-WAY WHICH REMAIN IN SERVICE UNCHANGED; AND ALL SUCH FACILITIES RELOCATED OR PROTECTED AS PART OF WORK PERFORMED UNDER THE PROJECT WHETHER CROSSING, LOCATED WITHIN OR ADJACENT TO THE RIGHT-OF-WAY SHALL BE MAINTAINED, AS THE CASE MAY BE, BY THE MUNICIPALITY OR BY THE AGENCY OR UNIT HAVING CONTROL AND JURISDICTION THEREOF AT NO COST OR EXPENSE TO THE STATE.

THE PORTION OF DRIVEWAYS OR PRIVATE ROADS, CONSTRUCTED OR ADJUSTED UNDER THIS PROJECT BETWEEN THE EDGE OF PAVEMENT OUTSIDE EDGE OF ROAD SHOULDERS SHALL BE MAINTAINED BY THE STATE, COUNTY, LOCAL UNIT OF GOVERNMENT OR AGENCY, RESPONSIBLE FOR THE ADJOINING RD. THE REMAINING PORTION OF THE ADJUSTED DRIVEWAY OR PRIVATE RD. SHALL BE MAINTAINED BY THE OWNER(S) UNDER SECTION 54(A) OF THE HIGHWAY LAW.

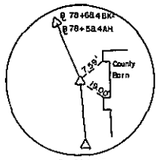
TABLE & PLAN OF MAINTENANCE UPON COMP. OF CONTRACT

DESIGNED BY R. R. Collins DATED 10/21/71 REVIEWED BY DATED
CHECKED BY Paul Kuhn DATED 10/21/71
IN CHARGE OF R. R. Collins

F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	10 R1	33

S.H. 5578 WHITEHALL-DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY



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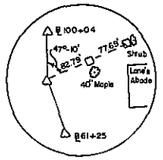

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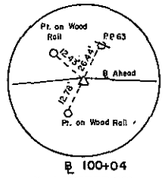

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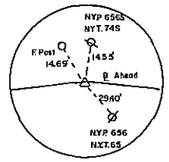

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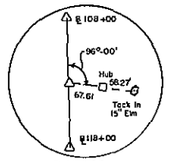

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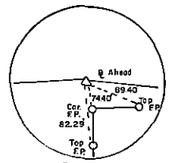

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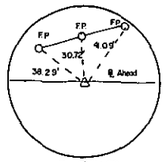

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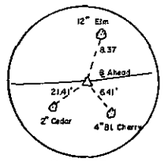

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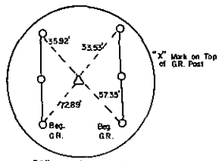

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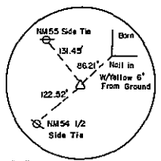

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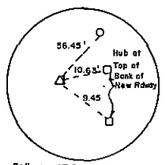

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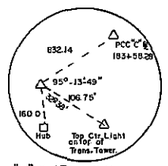
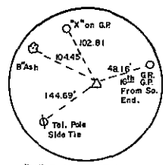
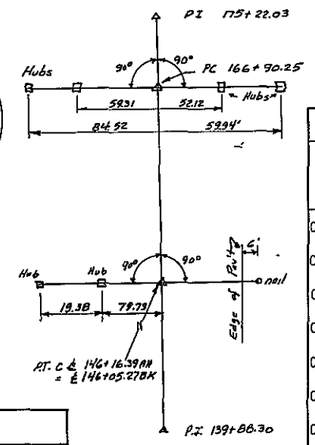
E 740,498.306



"C"℄ 175+21.11
N 1,303,815.933
E 737,296.371



"C"℄ 183+53.25
N 1,304,505.001
E 736,829.851



BASE LINE DATA

STATION	AZIMUTH	DISTANCE FEET	COORDINATES NORTH	COORDINATES EAST
C128+11.42			1,302,301.950	741,666.110
	275-05-09	392.83		
C132+04.25			1,302,336.774	741,274.827
	275-05-09	784.05 ~~779.53~~		
C139+~~83.84~~ +38.30			~~1,302,405.884~~	~~740,498.306~~
	293-46-03	628.09 ~~629~~		
C146+~~12.13~~ +16.39				
BK = AH			~~1,302,659.103~~	~~739,923.297~~
C146+00.98				
	293-46-03	53.96 ~~49.26~~		
C146+~~50.24~~ +59.23				
BK = AH				
C147+00.00			~~1,302,678.954~~	~~739,878.220~~
	293-46-03	2822.03 ~~2821.11~~		
C175+~~21.11~~ +22.03			~~1,303,815.933~~	~~737,296.371~~
	325-54-03	832.14		
C183+53.25			1,304,505.001	736,829.851
~~61+25~~			~~1,302,223.54~~	~~742,382.62~~
	~~278-06-21~~	~~1743.40~~		
~~78+68.4BK = 78+58.4AH~~			~~1,302,469.363~~	~~740,656.638~~
	~~293-43-47~~	~~2145.60~~		
~~100+04~~			~~1,303,332.801~~	~~738,692.440~~
	~~296-05-13~~	~~796.00~~		
~~108+00~~			~~1,303,682.830~~	~~737,977.530~~
	~~298-44-50~~	~~308.00~~		
~~111+00~~			~~1,303,827.114~~	~~737,714.505~~
	~~314-39-32~~	~~700.00~~		
~~118+00~~			~~1,304,319.133~~	~~737,216.592~~
	~~327-41-43~~	~~200.00~~		
~~120+00~~			~~1,304,488.176~~	~~737,109.708~~
	~~327-42-05~~	~~190.00~~		
~~121+90~~			~~1,304,648.779~~	~~737,008.185~~

TABLE OF EQUALITIES

℄ STATION	℄ STATION	COORDINATES NORTH	COORDINATES EAST
C131+50	C131+50		
P.C. C133+~~55.5~~ +60.21	C133+~~55.5~~ +60.21	1,302,350.186	741,124.127
C146+~~50.24~~ +59.23 =	C146+~~50.24~~ +59.23 =		
C147+00.00	C147+00.00	1,302,678.954	739,878.220
P.T. C146+~~00.98~~ +105.27	C146+~~12.13~~ +16.39 = C146+~~00.98~~ +105.27	1,302,659.103	739,923.297
P.C.C. 166+88.97	166+88.97	1,303,480.559	738,057.937
P.C.C. C183+09.40	C183+53.25	1,304,505.001	736,829.851

BENCH MARK DATA

B.M. NO.	ELEV.	STATION	OFFSET	DESCRIPTION
5E	181.87	125+25	80' RT.	S.W. COR. GAS PUMP FOUNDATION
9B	102.~~81~~ 92	C 145+50	100' LT.	BOLT IN 16" ELM
11X	105.85	C 168+00	75' LT.	BOLT IN 24" ELM
11B	156.62	C 180+45	75' LT.	BOLT IN POLE NM 67½
5F	141.19	C 129+30	55' Lt.	Bolt in Pole NM 55
5G	132.97	C 138+00	50' Lt	Bolt in Pole NM 59

REVISIONS

BASE LINE & BENCH MARK DATA

IN CHARGE OF R. N. Collins DESIGNED BY W. R. Robinson DATED 12/21/70 CHECKED BY R. W. Kirchner DATED 12/21/71 REVIEWED BY DATED

F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	11A1	33

SH 5578 WHITEHALL-DRESDEN CENTER PART 1
SH 9113 SOUTH BAY BRIDGE
SH 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY

BOX BEAM GUIDE RAIL

STATION TO STATION	SIDE	ITEM 33AF ACTUAL LF	ADJUSTMENT FACTOR	ITEM 33AF L.F	ITEM 33AFY LF	ITEM 33AFDR EACH
C130+80 - C134+50	LT.	226	1.0	226	144	2
~~C140+55 - C151+88~~	LT.	~~105~~ 511	1.0	~~105~~ 511	72	1
~~C149+56 - C151+88~~	LT.	55*	1.2	66	-	-
C157+27 - ~~C162+44~~	LT.	55*	1.2	66	-	-
C157+27 - ~~C162+44~~	LT.	~~398~~ 845	1.0	~~398~~ 845	72	1
~~C132+16 - C134+50~~	~~RT.~~	~~96~~	~~1.0~~	~~96~~	~~144~~	~~2~~
~~C145+80 - C151+88~~	~~RT.~~	~~536*~~	~~1.2~~	~~643~~	~~72~~	~~1~~
~~C157+27 - C169+22~~	~~RT.~~	~~1123*~~	~~1.2~~	~~1347~~	~~72~~	~~1~~
*INCLUDES 5' CONNECTION TO BRIDGE		TOTALS		~~2939~~	~~576~~	~~8~~
145+80 - 151+33	Rt	501	1.0	501	72	1
151+33 - 151+88	Rt	55*	1.2	66		
157+82 - 165+00	Rt	718	1.0	718	72	
157+27 - 157+82	Rt	55*	1.2	66		

CABLE GUIDE RAIL

STATION TO STATION	SIDE	ITEM 32 DH LF	ITEM 32DDO EACH
C167+00-C171+00	LT.	~~400~~ 410	2
	TOTAL	~~400~~ 410	2

RESETTING GUIDE RAIL

STATION TO STATION	SIDE	ITEM 32R L.F
~~C181+85-C183+09.43~~	~~RT.~~	~~125~~
	~~TOTAL~~	~~125~~

TABLE OF LENGTHS

DESCRIPTION	STATION TO STATION	DESCRIPTION	L.F.	MILES
CONTRACT BEGINS	130+75 - C131+50	PROJECT BEGINS	75	0.01
PROJECT BEGINS	C131+50 - C146+50.24=	EQUALITY	1500.24	0.28
EQUALITY	C147+00 - C148+60	VILLAGE LINE OF WHITEHALL S.H. 5578 ENDS	160	0.03
TOWN LINE OF WHITEHALL S.H. 9113 BEGINS	C148+60 - C151+87.86	BRIDGE BEGINS	327.86	0.06
BRIDGE BEGINS	C151+87.86-C157+27.14	BRIDGE ENDS	539.28	0.10
BRIDGE ENDS	C157+27.14-C157+35	TOWN LINE OF WHITEHALL	7.86	0.00
TOWN LINE OF DRESDEN S.H. 5736A BEGINS	C157+35 - C163+00	S.H. 9113 ENDS	565	0.11
	C163+00 - C183+09.46	PROJECT & CONTRACT END	2009.46	0.38
INTERSECTING ROAD D (M, STA. C145+49)	D 0+12 - D 1+60	LIMIT OF WORK	148	0.03
INTERSECTING ROAD E (M, STA. C171+15)	E 0+12 - E 1+40	LIMIT OF WORK	128	0.02
COUNTY ROAD 7 (M, STA. C181+15)	0+12 - 0+70	LIMIT OF WORK	58	0.01

NO REVISED

S.H. 5578 PROJECT LENGTH 1660.24 L.F. = 0.31 MILES (VILLAGE OF WHITEHALL)
S.H. 9113 PROJECT LENGTH 1440.00 L.F. = 0.27 MILES (TOWNS OF WHITEHALL & DRESDEN)
S.H. 5637A PROJECT LENGTH 2009.46 L.F. = 0.38 MILES (TOWN OF DRESDEN)
CONTRACT LENGTH 5184.70 L.F. = 0.98 MILES (WASHINGTON COUNTY)

UTILITY DISPOSITION TABLE

TABULATION OF UTILITIES

STA. TO STA	SIDE	OWNER	DESCRIPTION	DISPOSITION	STATUS OF AGREEMENT
C130+75 C183+09.43	L & R	NIAGARA MOHAWK POWER CORP.	OVERHEAD POWER LINES	NOT AFFECTED	
C130+75 C144+85	L	NEW YORK TELEPHONE	OVERHEAD TELEPHONE LINES	NOT AFFECTED	
C144+85 C163+20	L & R	NEW YORK TELEPHONE	OVERHEAD TELEPHONE LINES	TO BE RELOCATED BY OWNER (4" CONDUITS IN SOUTH BAY BRIDGE)	OWNER AGREED TO RELOCATE
C163+20 C183+09.43	L & R	NEW YORK TELEPHONE	OVERHEAD TELEPHONE LINES	NOT AFFECTED	
C130+75 C142+15	R	VILLAGE OF WHITEHALL	UNDERGROUND WATER MAIN		
C142+15 C169+91	R	VILLAGE OF WHITEHALL	UNDERGROUND WATER MAIN	TO BE RELOCATED ON TO PROPOSED STRUCTURE IN CONTRACT	
C169+91 C183+09.40	R	VILLAGE OF WHITEHALL	UNDERGROUND WATER MAIN		

EARTHWORK SUMMARY

	ITEM 710 BRIDGE PIER REMOVAL L.S.	ITEM 2A EXCAV. & DISPOSAL OF EXCAV. MAT'L CUYD.	ITEM 2BZ EMBANKMENT IN PLACE CU. YD.	ITEM 2ECBGI SELECTED BORROW CU. YD.	ITEM 2EFB SELECTED GRANULAR FILL CU. YD.		ITEM 2VJE SELECTED FILL (BRIDGE FOUNDATION) CU. YD.	ITE5B STRUCTURAL EXCAV. CU.YD.	ITEM 5T TRENCH & CULVERT EXCAV. CU.YD.
EXCAVATION FROM EARTHWORK SUMMARY SHEET		~~14,391~~	~~41,222~~	~~12,647~~					
EXCAVATION FROM DRAINAGE SHEET		5,056	37,931	16,523					101
EXCAVATION FROM WATER MAIN SHEET					~~564~~		~~553~~	~~508~~	~~1063~~
QUANTITIES FROM BRIDGE SUMMARY SHEET	NEC.				834		557	685	1,799
TOTAL COMBINED NEAT									

REVISIONS

MISC. TABLES

IN CHARGE OF B. R. Colucci DESIGNED B. R. Colucci DATED 10/21/71 CHECKED BY Paul Kaufman DATED 10/21/71 REVIEWED BY DATED

F.A.R.C. 72-1

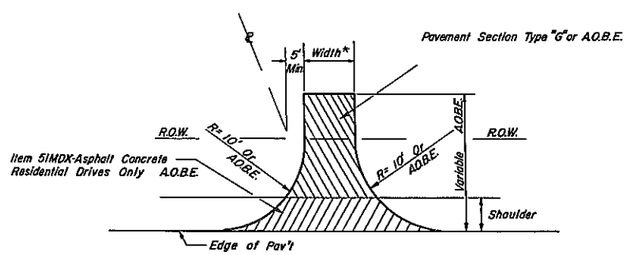
FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	12B1	33

S.H. 5578 WHITEHALL-DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY

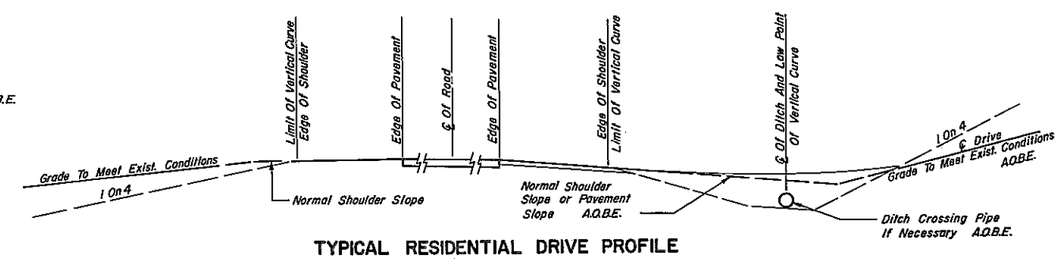
TABLE OF DRIVEWAYS & CULVERTS

℄ STATION	SIDE	TYPE	WIDTH L.F.	CULVERTS SIZE (IN)	CULVERTS LENGTH(LF)	CULVERT OFFSETS STATION	CULVERT OFFSETS OFFSET	CULVERT OFFSETS STATION	CULVERT OFFSETS OFFSET
~~C 134+65~~	~~RT.~~	~~G~~	~~12~~	---	---	---	---	---	---
C 135~~+34~~+29	LT.	G	12	---	---	---	---	---	---
~~C 137+00~~	~~RT.~~	~~G~~	~~12~~	~~12"~~	~~24'~~	C 136+85±	34'RT.	C 137+15±	35'RT.
C 137~~+38~~+32	LT.	G	12	12"	30'	C 137+23±	37'LT.	C 137+53±	37'LT.
C 137~~+58~~+59	RT.	G	12	12"	40 ~~28'~~	C 137+44±	36'RT.	C 137+72±	35'RT.
C 143+50	LT.	G	12	12'	38 ~~34'~~	C 143+36±	40'LT.	C 143+70±	40'LT.
INT. RD. D	RT.			12"	48 ~~54'~~	C 145+24±	31'RT.	C 145+82±	40'RT.
~~C 166+70~~ 167+10	LT.	G	12	24"	82 ~~72'~~	C 166+34±	53'LT.	C167+86±	50'LT.
INT. RD. E	RT.			24"	132 ~~142'~~	C 170+43±	64'RT.	C171+88±	80'RT.
~~C 174+90~~ 173+30	LT.	G	12	12"	48 ~~44'~~	C 174+67±	37'LT.	C175+11±	34'LT.
~~D 1+15~~	~~RT.~~	~~G~~	~~12"~~	--	--	---	---	---	---
~~C 1+40~~	~~RT~~	~~G~~	~~24~~	--	--	---	---	---	---
INT. RD. 166+25	RT			24"	82'				

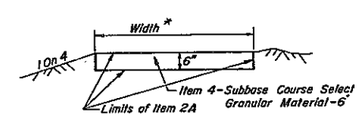
DRIVEWAY CULVERT NOTES: The Above List Of Driveways Is Intended For Estimate Purposes Only. The Exact Number, Location And Width Of Placement Will Be Determined By The Engineer. All Driveway Pipe To Be Item 14MQ, Optional Culvert Pipe, With Item 14ESM, Optional End Section, At Each End Unless Otherwise Noted On Plans Or Ordered By The Engineer.



TYPICAL DRIVEWAY PLAN
NO SCALE



TYPICAL RESIDENTIAL DRIVE PROFILE
NOT TO SCALE



TYPICAL SECTION
TYPE "G" DRIVEWAY
NO SCALE

REVISIONS

NOTE: All Drives Shall Conform To "Policy And Standards For Entrances To State Highways" As Adopted July 1, 1960.
* As Shown On Table Or A.O.B.E.

DRIVEWAY DETAILS

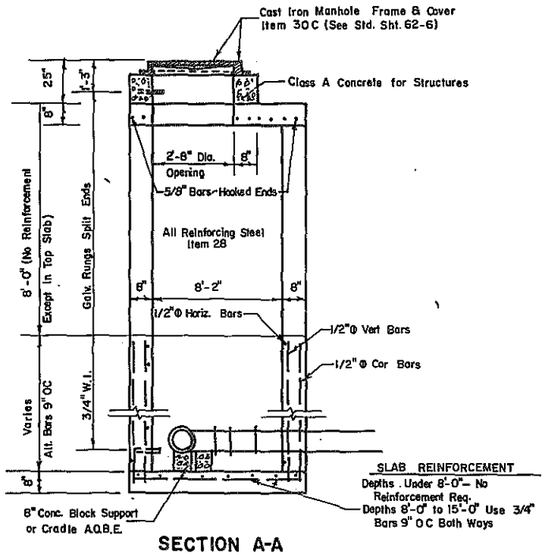
HC47b (9/70)

IN CHARGE OF Ro. J. Palm DESIGNED BY R. R. Chanin DATED 10/21/70 CHECKED BY Paul Kaufman DATED 10/21/71 REVIEWED BY DATED

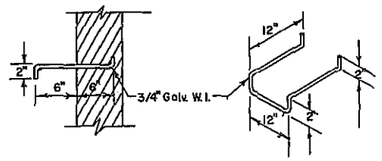
F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	13	33

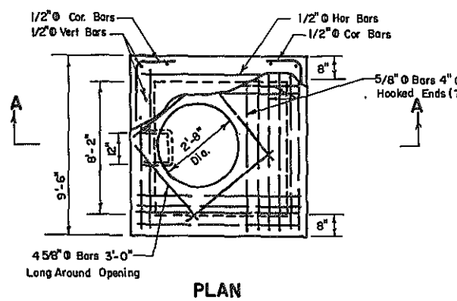
S.H. 5578 WHITEHALL-DRESDEN CENTER PART I
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY



SECTION A-A

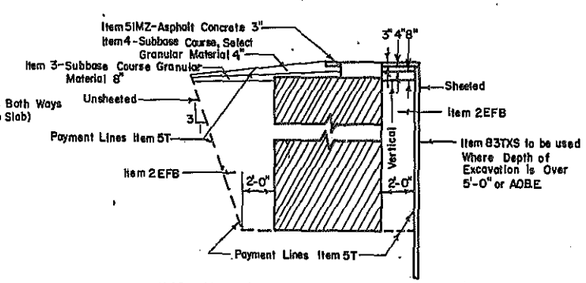


STANDARD MANHOLE STEPS



PLAN
MANHOLE

LOCATIONS — ITEM 102CR
C142+15 177' RT.
C169+91 148' RT.



EXCAVATION AND BACKFILL DETAIL

WATER MAIN LOCATION TABLE

PIPE STA	℄ STA	OFFSET	INVERT	FINISHED GRADE	COVER OVER PIPE	REMARKS
10+00	C142+15	177'RT	119.5 (APPROX.)	125.0 (APPROX.)	4.2	CONNECTION TO EXISTING PIPE
12+30	C144+00	37'RT	103.5	107.0	2.2	BOTTOM OF DITCH
12+50	C144+12	21.75'RT	103.5	110.1	5.3	45° BEND IN SHOULDER
13+68	C145+31	21.75'RT	103.0	106.6	2.3	INTERSECTION "D" LINE
14+03	C145+66	21.75'RT	102.6	106.0	2.2	INTERSECTION "D" LINE
14+77	C146+40	21.75'RT	103.5	105.0	0.2	
15+77	C147+91	21.75'RT	102.5	104.0	0.2	
16+77	C148+91	21.75'RT	102.3	103.8	0.2	LOW POINT
17+77	C149+91	21.75'RT	102.6	104.1	0.2	
18+77	C150+89	21.75'RT	104.0	105.5	0.2	
19+55	C151+67	21.75'RT	104.9	107.1	0.9	22½° BEND OUTSIDE GUIDE RAIL
19+70	C151+81	16.50'RT	105.0	107.5	1.2	22½° BEND INSIDE GUIDE RAIL
19+77 (BRIDGE)	C151+88	16.50'RT	105.0	107.6	1.3	BRIDGE ABUTMENT
25+20	C157+27	16.50'RT	105.0	107.6	1.3	BRIDGE ABUTMENT
25+27	C157+34	16.50'RT	105.0	107.5	1.2	22½° BEND INSIDE GUIDE RAIL
25+42	C157+48	21.75'RT	104.9	107.1	0.9	22½° BEND OUTSIDE GUIDE RAIL
26+12	C158+19	21.75'RT	104.1	105.6	0.2	
26+80	C158+84	21.75'RT	103.0	104.5	0.2	
27+80	C159+84	21.75'RT	102.3	103.8	0.2	LOW POINT - 0% GRADE
30+80	C162+84	21.75'RT	102.3	103.8	0.2	LOW POINT - 0% GRADE
31+80	C163+83	21.75'RT	102.4	103.9	0.2	
32+80	C164+83	21.75'RT	103.0	104.5	0.2	
33+80	C165+83	21.75'RT	104.6	106.1	0.2	
34+80	C166+82	21.75'RT	105.6	108.1	1.2	
36+00	C168+02	21.75'RT	106.9	112.4	4.2	
36+60	C168+62	21.75'RT	109.1	114.6	4.2	45° BEND IN SHOULDER
37+05	C168+93	56'RT	103.7	107.2	2.2	BOTTOM OF DITCH - 11¼° BEND
38+40	C169+91	148'RT.	116.0 (APPROX.)	121.0 (APPROX.)	3.7	CONNECTION TO EXISTING PIPE

NOTE: THE USUAL COVER REQUIREMENT OVER A WATERMAIN HAS BEEN DISPENSED WITH IN THIS CONTRACT IN ORDER TO MAINTAIN THE PIPE ELEVATION ABOVE A MINIMUM OF 102.0 FEET. THIS HAS BEEN DONE TO MINIMIZE THE SUBMERGENCE OF THE PIPE DURING SPRING FLOODING, ETC.

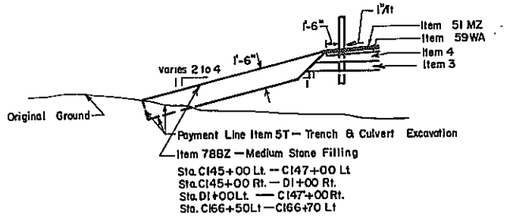
IN CHARGE OF — DESIGNED BY — DATED — CHECKED BY — DATED — REVIEWED BY — DATED

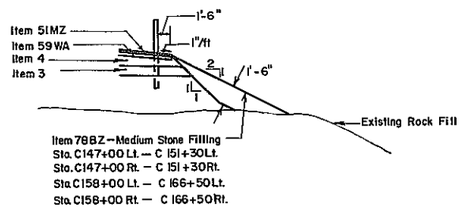
MANHOLE DETAIL & WATER MAIN LOCATION TABLE

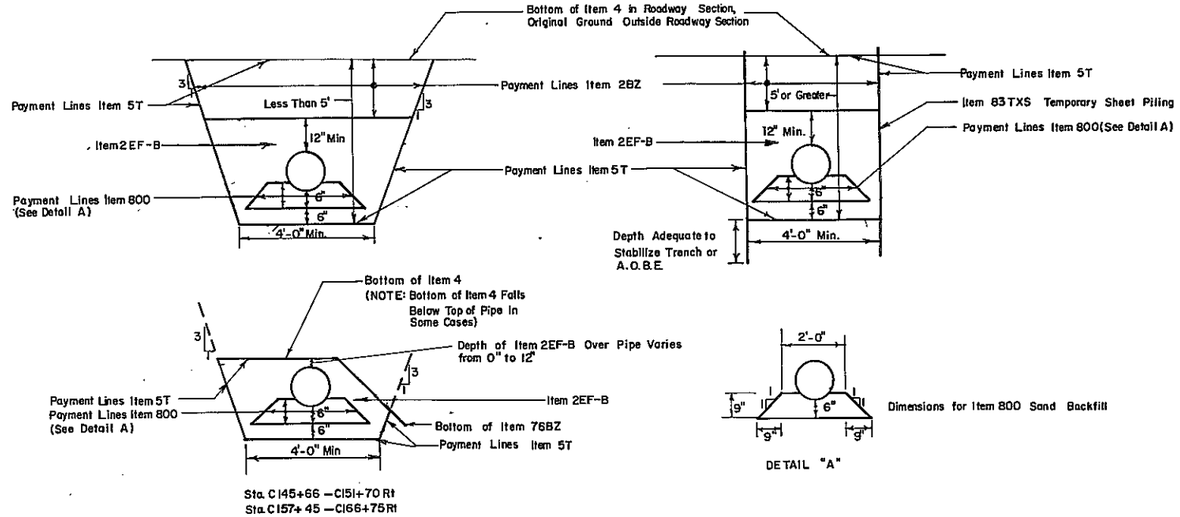
F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	14A1	33

S.H. 5578 WHITEHALL - DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL - DRESDEN CENTER PART 2
WASHINGTON COUNTY

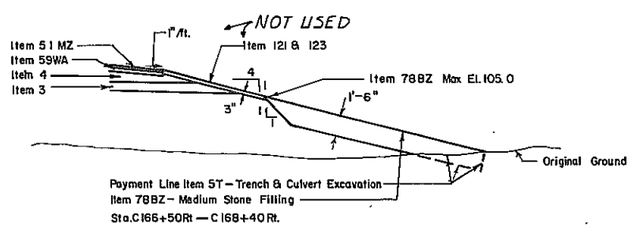






EXCAVATION & BACKFILL DETAILS FOR DUCTILE CAST IRON WATER MAIN WORK

NO SCALE



MEDIUM STONE FILLING DETAIL

NO SCALE

REVISIONS

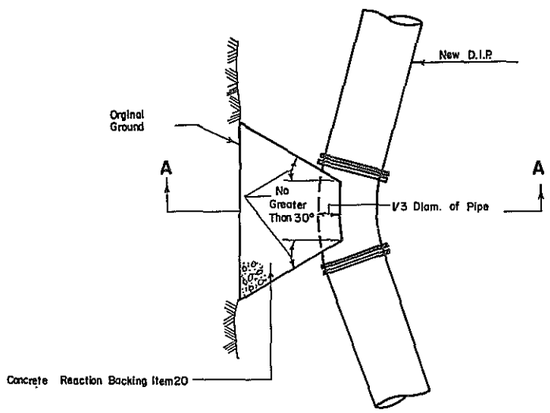
MISC. DETAILS

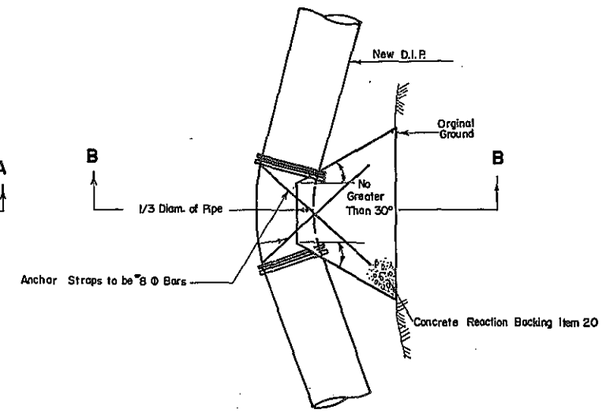
KC 47b (9/70)

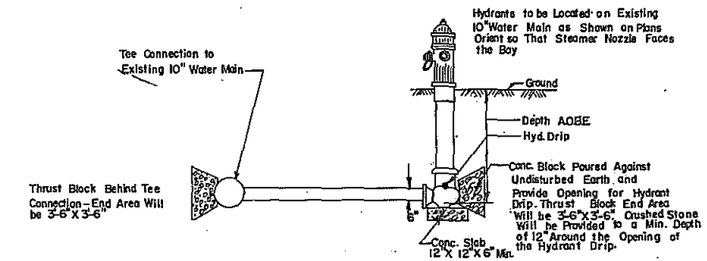
IN CHARGE OF Roy W. Collins — CHECKED BY Dick Kusler — DATED 10/21/71 — REVIEWED BY — DATED — DESIGNED BY A. P. Plescia — DATED 10/21/71

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	15	33

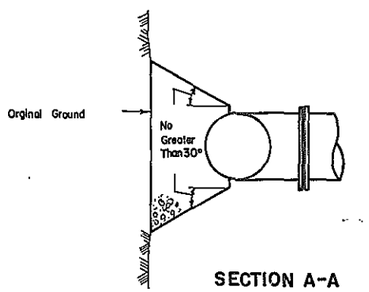
SH.5578 WHITEHALL - DRESDEN CENTER PART1
SH.9113 SOUTH BAY BRIDGE
SH.5637A WHITEHALL - DRESDEN CENTER PART 2
WASHINGTON COUNTY





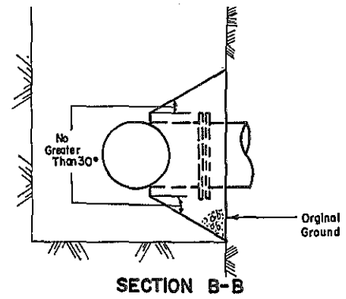


DETAIL OF HYDRANT INSTALLATION



SECTION A-A

THRUST BLOCK DETAIL
NO SCALE



SECTION B-B

THRUST BLOCK DETAIL
NO SCALE

THRUST BLOCK DATA

C STATION	OFFSET	BEND ANGLE	SOIL CONTACT AREA	VOL. OF CONC.
C 144+12	21.75' R	45	6'-0" X 6'-0"	2.90 C.Y.
C 151+67	21.75' R	22½	2'-6" X 2'-6"	0.17 C.Y.
C 151+81	16.50' R	22½	2'-6" X 2'-6"	0.17 C.Y.
C 157+34	16.50' R	22½	2'-6" X 2'-6"	0.17 C.Y.
C 157+48	21.75' R	22½	2'-6" X 2'-6"	0.17 C.Y.
C 168+62	21.75' R	45	6'-0" X 6'-0"	2.90 C.Y.
C 168+93	56' R	11¼	2'-0" X 2'-0"	0.39 C.Y.

NOTE 1 - TOP SIZE (IN CONTACT WITH BEND) WILL BE 1'-3" X 1'-3" IN ALL CASES.

NOTE 2 - THRUST BLOCK FOR HYDRANTS AND TEE CONNECTIONS WILL BE AS SHOWN IN DETAIL OF HYDRANT INSTALLATION ABOVE.

NOTE 3 - THRUST BLOCKS FOR PLUGS OR CAPS WILL HAVE END AREAS OF 3'-0" BY 3'-0".

IN CHARGE OF — DESIGNED BY — DATED — CHECKED BY — DATED — REVIEWED BY — DATED

THRUST BLOCK DETAIL

F.A.R.C. 72-1

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	16	33

S.H. 5578 WHITEHALL-DRESDEN CENTER, PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL-DRESDEN CENTER, PART 2
WASHINGTON COUNTY

SCHEDULE A

LOCATION AND QUANTITY OF PAYMENT ITEMS

STATION TO STATION	SIDE	ITEM	QUANTITY & UNIT	REMARKS
C131+50-C151+88	L&R	121	1256 C.Y.	SLOPES AND DISTURBED AREAS
C157+27-C183+10	L&R		1389	SEE TYPICAL SECTIONS AND 50'
D 0+20-D 1+50	L&R		41	SCALE PLANS
E 0+20-E 1+40	L&R		12	
TOTAL			2698 C.Y.	
C131+50-C151+88	L&R	123	3.85 ACRES	ALL DISTURBED AREAS INCLUDING
C157+27-C183+10	L&R		4.05	WHERE EXISTING PAVEMENT IS
D 0+20-D 1+50	L&R		0.13	REMOVED
E 0+20-E 1+40	L&R			
138+40-146+00	L&R		0.90	
174+80-176+50	L&R			
TOTAL			8.93 ACRES	

SCHEDULE B

DETAIL SPECIFICATIONS TO ACCOMPANY 1962 PUBLIC WORKS SPECIFICATIONS

ITEM NO.	PAR NO.	DESCRIPTION
121		TOPSOIL PLACED FROM STOCKPILES
	1	AREAS - SEE SCHEDULE "A".
	3C	DEPTH - 3 INCHES OR A.O.B.E. AVAILABLE TOPSOIL SHALL BE USED A.O.B.E. WITH THE FOLLOWING PRIORITIES: 1. CAUSEWAY, 2. FILL SLOPES 3. CUT SLOPES
	3D	ALL TOPSOIL CLASSIFIED AS "UNSUITABLE MATERIAL" SHALL BE STOCKPILED ON STATE R.O.W. FOR FUTURE USE AS DESIGNATED BY THE E.I.C.
123		SEEDING
	1	AREAS - SEE SCHEDULE "A"
	2	SEEDS - SEE SCHEDULE "D" AND M58 SEEDS
		LIME - M52 AGRICULTURAL LIME.GROUND LIMESTONE HAVING A MINIMUM OF 75% CALCIUM AND MAGNESIUM CARBONATES SHALL BE ACCEPTABLE
		FERTILIZER - M54 TYPE 3 SHALL BE A 10-6-4 FORMULATION IN WHICH 25% OF THE NITROGEN SHALL BE DERIVED FROM THE NATURAL ORGANIC SOURCES SUCH AS DRIED BLOOD, TANKAGE, FISHMEAL, COTTON SEED MEAL, POMACE OR SIMILAR APPROVED SOURCES OTHER THAN SYNTHETIC UREA AND 25% FROM THE SYNTHETIC ORGANIC SOURCES SUCH AS SYNTHETIC UREA.
		MULCH - M56 HAY OR M57 STRAW
		MULCH ANCHORAGE - M5 ITEM 70B
	3A	SEEDING DATES - ANY SEASON OF THE YEAR AS APPROVED BY THE REGIONAL DIRECTOR
	3C	LIME - 1 TON PER ACRE
		FERTILIZER - 1000# PER ACRE IN MIN. OF 400 GAL/ OF WATER
		SEEDING - 85# PURE LIVE SEED PER ACRE
	3D	MULCH - 3 TONS PER ACRE PLACED AFTER SEEDING
		MULCH ANCHORAGE - 130 GALLONS PER ACRE PLACED WITHIN 5 DAYS AFTER SEEDING (MULCH ANCHORAGE SHALL NOT BE USED IN FRONT OF HOMES). NO SEEDING WILL BE PERMITTED AFTER NOVEMBER 15 IF ASPHALT EMULSION IS NOT AVAILABLE TO TACK THE MULCH.

SCHEDULE C

DETAIL SPECIFICATIONS FOR PLANTS

ITEM & SUB ITEM	QUAN	GENUS & SPECIES	ABBR.	COMMON NAME	SIZE	ROOTS	BALL DIA. ROOT SPRD.	PIT. DIA.	SOURCE	CROWN	SPACING

KEY TO ABBREVIATIONS

B&B - BALLED AND BURLAPPED	F.G. - FIELD GROWN
B&P - BALLED AND PLATFORMED	M.C.D. - MINIMUM CROWN DIAMETER
B.R. - BARE ROOT	N.G. - NURSERY GROWN
C - COLLECTED	

SCHEDULE D

DETAIL SPECIFICATIONS FOR SEEDS

A- MIN% GERMINATION C- POUNDS PURE LIVE SEED PER ACRE
B- MIN% GERMINATION AND HARD SEED

NAME	VARIETY	A	B	C
CREEPING RED FESCUE (FESTUCA RUBRA)	COMMERCIAL	80		25
CANADA BLUE GRASS (POA COMPRESSA)	COMMERCIAL	75		10
PERENNIAL RYEGRASS (LOLIUM PERENNE)	COMMERCIAL	85		25
TALL FESCUE (FESTUCA ELATIOR	KENTUCKY 31 VAR.)	85		15
BIRDSFOOT TREFOIL (LOTUS CORNICULATUS)	EMPIRE	40	80	5
WILD WHITE CLOVER (TRIFOLIUM REPENS	KENT WILD VAR.)	60	85	5
	TOTAL PLS/ACRE			85

SUMMARY

ITEM	TOTAL QUANTITY PROPOSAL	NAME OF ITEM
121	2700 C.Y.	TOPSOIL PLACED FROM STOCKPILES
123	9 ACRES	SEEDING

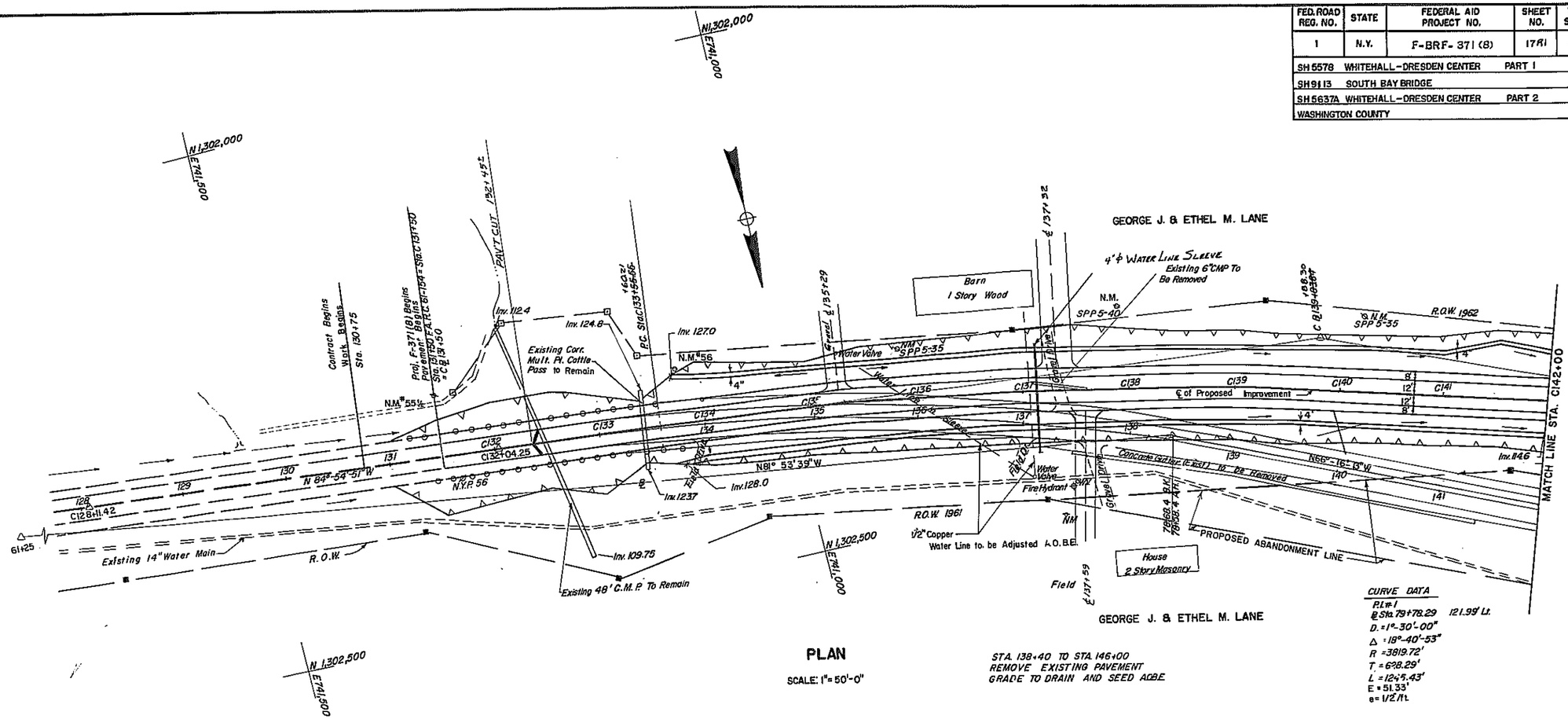
MADE BY E. Mae Preston TRACED BY CHECKED BY 10/20/71 E. Mae Preston

ROADSIDE DEVELOPMENT SHEET

F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	17A1	33

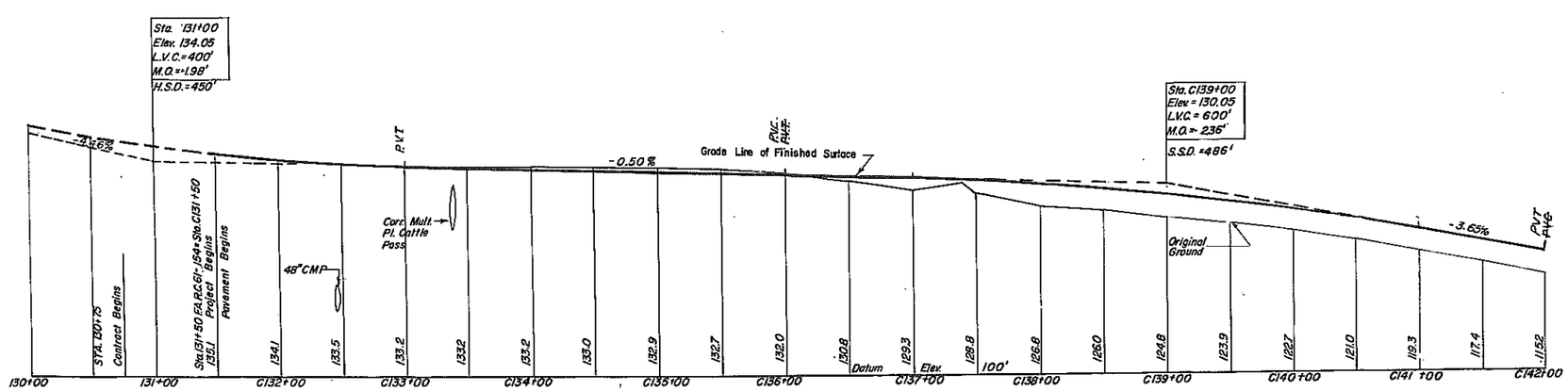
SH 5578 WHITEHALL-DRESDEN CENTER PART 1
SH 9113 SOUTH BAY BRIDGE
SH 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY



PLAN

SCALE: 1" = 50'-0"

STA. 138+40 TO STA. 146+00
REMOVE EXISTING PAVEMENT
GRADE TO DRAIN AND SEED ACBE



PROFILE

SCALE: HORIZ. 1" = 50'-0"
VERT. 1" = 10'-0"

REVISIONS

50' PLAN & PROFILE
STA. C131+50 TO STA. C142+00

HC47b (9/70)

DESIGNED BY R. R. Chance DATED 10/21/71 CHECKED BY Paul Kuehn DATED 10/21/71 REVIEWED BY DATED
IN CHARGE OF Ray H. Cable

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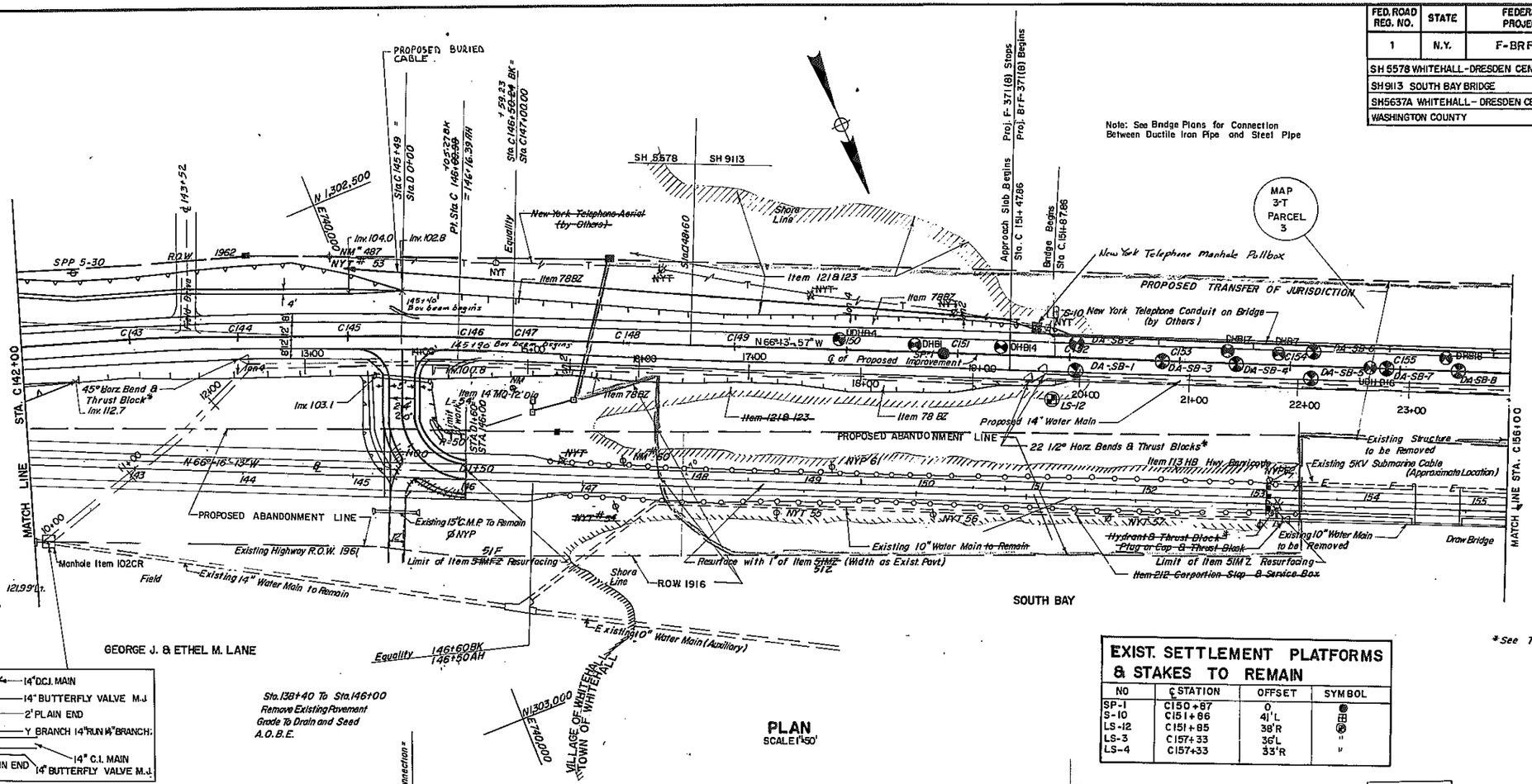
F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	16R'	33

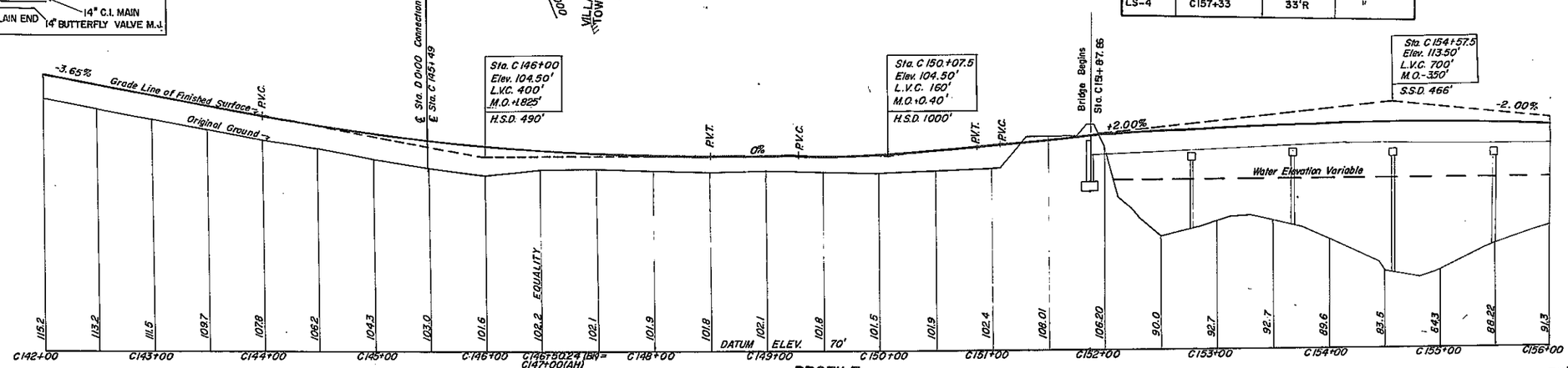
SH 5578 WHITEHALL-DRESDEN CENTER PART 1
SH 9113 SOUTH BAY BRIDGE
SH 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY



EXIST. SETTLEMENT PLATFORMS & STAKES TO REMAIN

NO	℄ STATION	OFFSET	SYMBOL
SP-1	C150+87	0'	●
S-10	C151+66	41' L	⊞
LS-12	C151+85	38' R	⊗
LS-3	C157+33	36' L	"
LS-4	C157+33	33' R	"

PLAN
SCALE 1" = 50'



PROFILE
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'

50' PLAN & PROFILE
STA. C142+00 TO STA. C156+00

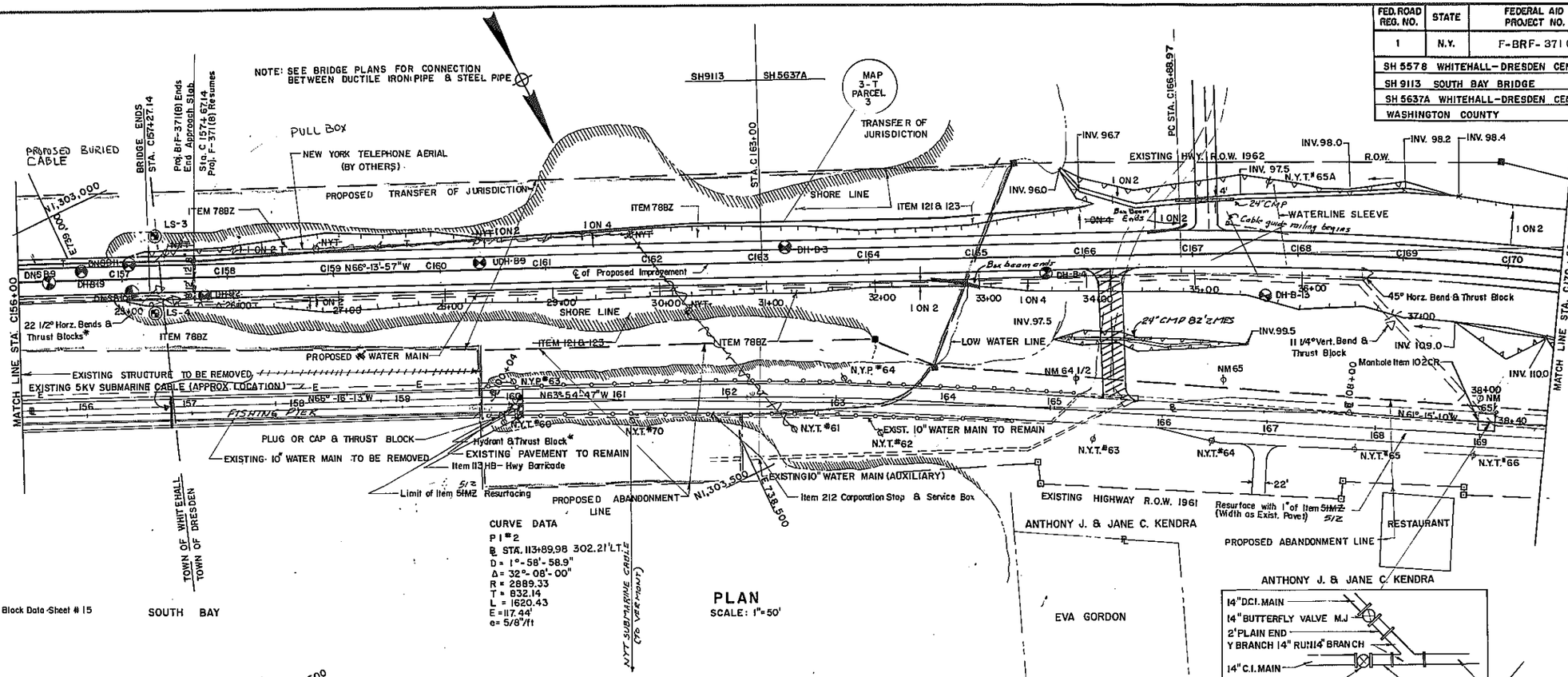
C47b (9/70)

DESIGNED BY R. R. Palmer DATED 12/21/70 CHECKED BY Paul Kirkham DATED 10/21/71 REVIEWED BY ____ DATED ____
IN CHARGE OF Ray R. Ritter

F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371(8)	19 R1	33

SH 5578 WHITEHALL-DRESDEN CENTER PART 1
SH 9113 SOUTH BAY BRIDGE
SH 5637A WHITEHALL-DRESDEN CENTER PART 2
WASHINGTON COUNTY



* See Thrust Block Data Sheet # 15

REVISIONS

50' PLAN & PROFILE
STA. C156+00 – STA. C170+50

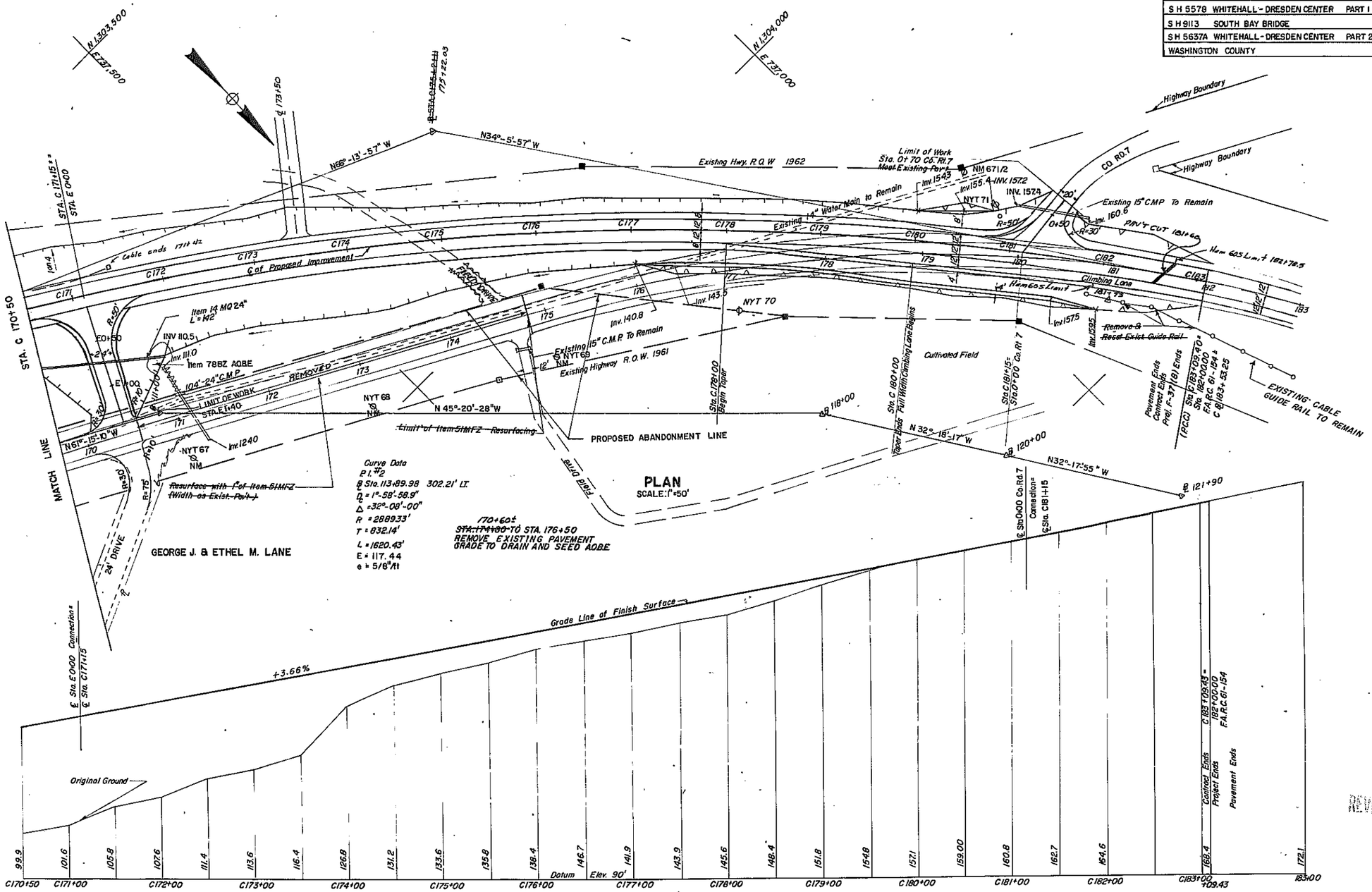
HC 47b (9/70)

IN CHARGE OF _____ DESIGNED BY _____ DATED _____ CHECKED BY _____ DATED _____ REVIEWED BY _____ DATED _____

F.A.R.C. 72-1

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	20 R1	33

S H 5578 WHITEHALL - DRESDEN CENTER PART 1
S H 9113 SOUTH BAY BRIDGE
S H 5637A WHITEHALL - DRESDEN CENTER PART 2
WASHINGTON COUNTY



50' PLAN & PROFILE
STA. C170+50 TO STA. C183+09.43

REVISED

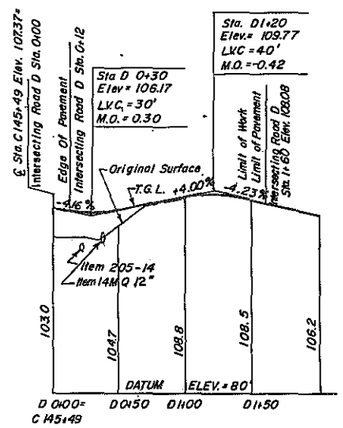
HC 47b (9/70)

DESIGNED BY A. R. Palmer DATED 6/21/71 CHECKED BY P.W. Kinsler DATED 10/21/71 REVIEWED BY ____ DATED ____
IN CHARGE OF Roy N. Collins

F.A.R.C. 72-1

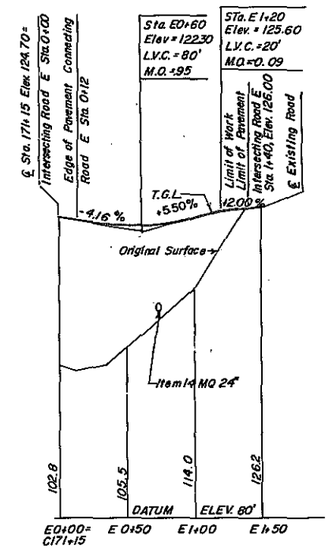
FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	F-BRF-371 (8)	21	33

S.H. 5578 WHITEHALL – DRESDEN CENTER PART 1
S.H. 9113 SOUTH BAY BRIDGE
S.H. 5637A WHITEHALL – DRESDEN CENTER PART 2
WASHINGTON COUNTY



℄ PROFILE INTERSECTING ROAD "D"

Scale: Horiz: 1" = 50'
Vert: 1" = 10'



℄ PROFILE INTERSECTING ROAD "E"

Scale: Horiz: 1" = 50'
Vert.: 1" = 10'

℄ PROFILE INTERSECTING ROADS

HC 47b (9/70)

DESIGNED BY R. R. Allen DATED 10/21/71 CHECKED BY Phil. Kuhn DATED 10/21/71 REVIEWED BY _____ DATED _____
RESPONSIBLE OF R. R. Allen

GENERAL NOTES

Design Specifications A.A.S.H.O. 1969 modified and current American Welding Society modified. The stresses assumed for design purposes conform to 1969 A.A.S.H.O. Specifications with the 28 day concrete stress (f'c) = 3,000 p.s.i. minimum and the 28 day prestressed concrete stress (f'c) = 5,000 p.s.i. minimum.

Material and Construction Specifications: Specifications of N.Y.S. Department of Public Works dated January 2, 1962 with current additions and modifications.

The Contractor's attention is directed to the Special Notes for this structure which appear in the proposal. Particular attention should be given to the foundation note which briefly outlines the anticipated subsurface conditions at the site of the structure and which specifies certain requirements relative to construction.

Reinforcing bars shall be lapped a minimum of 24 diameters.

The cost of all joint material will be included in the price bid for the various items of the contract.

Concrete Items and Cement:

DESCRIPTION	ITEM NO.	TYPE OF CEMENT
Abutments and Piers	20	2
Abutment Pedestals	18	2
Piles	85Y	5

All concrete shall have entrained air in accordance with the specifications.

SUPERSTRUCTURE NOTES

Existing Superstructure is to be removed under Item 81A. (Hwy. Est.)

All anchor bolts shall be galvanized in accordance with the requirements of Material Specification M19.

At no time in the future shall the total thickness of wearing surface on the deck plate be greater than three inches (3").

SUBSTRUCTURE NOTES

All embankments of Selected Fill (Bridge Foundation), Item 2VJ-E, shall be compacted to a minimum dry density of 100% of Maximum as defined under "h. Embankments" of the General Excavation Specification.

The Contractor shall place and compact all fill for bridges between the final toes of slope in accordance with the plans and specifications in a manner satisfactory to the Deputy Chief Engineer (Structures).

For design purposes the foundation pressure does not exceed 1½ tons per square foot at abutments.

For design purposes the pile load does not exceed 35 tons per pile.

The following is a table of pile estimated and ordered lengths.

PIER 1 - 115'
PIER 2 - 140'
PIER 3 - 140'
PIER 4 - 115'
PIER 5 - 115'

The existing substructure below pile cap beam shall be removed to an elevation of 84.00 or one foot (1') below lake bed, whichever is higher. This work shall be paid for under Item 87R (Pile Demolition) and is included in the Highway Estimate. At the Contractor's option, in lieu of the above, the piles may be extracted.

The Existing North and South Abutments shall remain unaltered except that all projecting metal shall be burned-off flush with the concrete. Other projecting elements, which in the opinion of the Engineer are a hazard, shall be removed as directed by the Engineer.

The two Existing Concrete Piers shall be removed to the elevation of their supporting timber piles or to the elevation of the adjacent lake bed, whichever is higher. Removal shall be paid for under Item 2. If removed to the elevation of the top of their supporting piles, proceed to remove the piles as directed under Item 87R.

Bituminous Material, Item 61, shall be applied to the backs of all abutments and wingwalls above top of footings, where fill is in contact with the walls.

Epoxy Protective Coating for Concrete shall be applied to all exposed pedestal surfaces, areas between pedestals, and, on abutments, exposed vertical surfaces of backwall and wingwalls facing the superstructure.

Pile load tests shall be conducted on piers 2, 3 and 4. Load test, Item 88PS, shall be conducted on the pile indicated on pier 3. Load tests, Item 88PT, shall be conducted on the piles indicated on piers 2, 3 and 4.

SUBSTRUCTURE NOTES (CON'T)

A) No sheeting shall be used in excavating for abutments. Slopes shall be laid back on a 1 vertical on 1 horizontal gradient starting from a point 3 feet outside the edge of footing at the bottom of footing elevation up to the surface of the existing fill. No additional excavation will be allowed or paid for. The excavated material will be replaced by compacted Item 2VJ-E after abutment construction.

B) Construction procedure shall be as follows:

1. Remove surcharge from abutment areas of approach embankments to the lateral limits noted in A) above.
2. A load test will be conducted as set forth in the special specifications at Pier No. 3.
3. While the load test is being progressed, pre-augering may proceed at Piers 1 and 5.
4. After a successful load test has been completed, the remaining piles may be installed to our final ordered lengths as determined from the load tests except for Piers 1 and 5.
5. The Engineer will take piezometer readings at the end of each days work and report this information to the Soil Mechanics Bureau the following morning.
6. After completion of all pile driving on Piers 1 and 5, and a waiting period to be determined by the Deputy Chief Engineer (Structures) based on dissipation of pore pressures as revealed by piezometer readings, the construction of the respective abutments may be started. The waiting period shall not exceed two weeks.
7. Abutments shall be backfilled immediately upon removal of backwall forms. Forms shall be removed as soon as concrete strength and curing procedure allow.
8. After completion of an abutment including backfilling a waiting period as determined by the Engineer based upon the recorded settlement readings, not to exceed two months, shall be observed prior to placing the approach slab.

Initial ordered lengths as follows shall be procured by the Contractor in advance of pile load test results:
80-90 foot long tip sections.
32-50 foot long add-on sections.
48-25 foot long add-on sections.
The 25 foot long add-on sections are to be located at Pier No. 1, 4, 5. If additional add-on sections are required as determined from pile load test results, it is anticipated that 25 foot long sections will be used. Any extra 25 foot long sections produced by the Contractor prior to receipt of the Engineer's order list shall be at his own risk.

Plans for the Existing Bridge, that are available, may be inspected at the Regional Office, Wolf Rd. Albany, N.Y.

		ITEM 18	ITEM 20	ITEM 28
ABUTMENT	HEADER	4		270
	FOOTING		57	3,312
	BACKWALL		61	2,930
	PEDESTAL	24		1,428
PIER	CAP & PED.		192	15,940

ESTIMATE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	BRIDGE SHARE NEAT	BRIDGE SHARE PROPOSAL	UTILITY SHARE NEAT	UTILITY SHARE PROPOSAL	MUNICIPAL SHARE NEAT	MUNICIPAL SHARE PROPOSAL	FINAL
* 750	AIR ACTUATED PIEZOMETER	EACH	2	2					
2VJ-E	SELECTED GRANULAR FILL	C.Y.	553	560					
5B	STRUCTURE EXCAVATION	C.Y.	508	510					
11H-65B	PERFORATED CORRUGATED METAL PIPE UNDERDRAIN - 6" Diameter	L.F.	117	120					
18	CLASS A CONCRETE FOR STRUCTURES	C.Y.	99	100					
20	CLASS B CONCRETE FOR STRUCTURES	C.Y.	309	310					
28	BAR REINFORCEMENT FOR STRUCT.	LB.	38,062	38,100					
29	STRUCTURAL STEEL	LB.	1,539,965	1,550,000					
37S(4)W	STEEL BRIDGE RAILING-4 Rail	L.F.	1,088	1,100					
51WD	ASPHALT CONC. REINF. SHEET	TON	230	230					
61	BITUMINOUS MATERIAL	GAL.	17	17					
85DA	AUGERING FOR PILES	EACH	32	32					
85Y	PRESTRESSED CONCRETE PILES	L.F.	10,000	10,000					
85YS	PRESTRESSED CONC. PILE SPLICES	EACH	27	27					
87WB	FURNISHING EQUIPMENT FOR DRIVING PILES, WATER BORNE	L.S.	NEC.	NEC.					
88PS	LOAD TEST FOR PILES	EACH	1	1					
88PT	PILE LOAD TEST BY IMP. DRIVING METHOD	L.S.	NEC.	NEC.					
237A	EPOXY GROUT PAD	GAL.	79	80					
363I	EPOXY PROT COATING FOR CONCRETE	S.F.	2,519	2,520					
411T	FURNISH & INSTALL TELEPHONE CONDUITS ON STRUCTURE	L.F.			1,706	1,710			
600SP	STEEL WATER PIPE, 14" DIAM.	L.F.	550	550			119	120	
655WD	EPOXY PROTECTIVE COATING	S.Y.	2,654	2,660					
680TF	TRANSFLEX EXPANSION JOINT	L.F.	294	300					
701S	PTFE FABRIC BEARING PADS	Ea.	72	72					
* 81A	REMOVING EXIST. SUPERSTRUCTURE	L.S.	NEC.	NEC.					
* 87R	PILE DEMOLITION	Ea.	245	245					
* 710	BRIDGE PIER REMOVAL	L.S.	NEC.	NEC.					

*OUT OF ORDER

INDEX OF DRAWINGS - SOUTH BAY BRIDGE

PROJECT ENGINEER [illegible]
IN CHARGE OF [illegible]
DESIGNED BY
DESIGN CHECKED BY
DETAILED BY [illegible]
DETAIL CHECKED BY

PIN. 1119.00

SOUTH BAY BRIDGE
S.H. 9113, WHITEHALL-DRESDEN
ROUTE 22
WASHINGTON COUNTY

GENERAL NOTES, SUBSTRUCTURE NOTES, ESTIMATE OF QUANTITIES AND INDEX

DRAWING NO. 1 OF 12