

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



HARRINGTON
WASHINGTON COUNTY
JOHNSON BRIDGE
OVER
FLAT BAY RIVER
U.S. ROUTE 1A
FEDERAL AID PROJECT NO. STP-2169(300)
PROJECT LENGTH 0.03 mi
BRIDGE NO. 3275

SPECIFICATIONS

Design: Load and Resistance Factor Design per
AASHTO LRFD Bridge Design Specifications,
Eighth Edition, 2017.

DESIGN LOADING

Live Load HL - 93 Modified for Strength I

TRAFFIC DATA

Current (2018) AADT 2,970
Future (2038) AADT 3,270
DHV - % of AADT 11%
Design Hour Volume 360
% Heavy Trucks (AADT) 12%
% Heavy Trucks (DHV) 11%
Directional Distribution (DHV) 54%
18 kip Equivalent P 2.0 169
18 kip Equivalent P 2.5 161
Design Speed (mph) 55

HYDROLOGIC DATA

Drainage Area 2.90 SQ. MI.
Design Discharge (Q50) 302.4 CFS
Check Discharge (Q100) 354.0 CFS
Headwater Elevation (Q1.1) -2.48 FT
Headwater Elevation (Q25) -0.27 FT
Headwater Elevation (Q50) 0.06 FT
Headwater Elevation (Q100) 0.45 FT
Discharge Velocity (Q1.1) 1.30 FPS
Discharge Velocity (Q25) 3.05 FPS
Discharge Velocity (Q50) 3.25 FPS
Discharge Velocity (Q100) 3.48 FPS
Mean Lower Low Water (MLLW) -7.54 FT
Mean Low Water (MLW) -7.14 FT
Mean Tide Level (MTL) -0.29 FT
Mean High Water (MHW) 6.56 FT
Mean Higher High Water (MHHW) 7.01 FT

MATERIALS

Concrete:
Precast Elements Class "P"
All Other Class "A"
Reinforcing Steel: ASTM A955, Grade 60 (Stainless Steel)
Welded Wire Reinforcement ASTM A1022 (Stainless Steel)

BASIC DESIGN STRESSES

Concrete (Class "A") f'c = 4,000 psi
Precast Concrete (Class "P") f'c = 5,000 psi
Reinforcing Steel f'y = 60,000 psi

LIST OF DRAWINGS

Title Sheet	1
Estimated Quantities & General Construction Notes	2
General Plan	3
Profile	4
Boring Location Plan	5
Interpretive Subsurface Profile	6
Boring Logs 1 of 2	7
Boring Logs 2 of 2	8
Typical Roadway Sections	9
Cross Sections	10-15
Precast Concrete Box Details	16-17
Detour - Route 1/1A	18
Detour - Local Access	19

UTILITIES

Emera Maine
Charter Communications
Consolidated Communications
Maine Fiber Company

MAINTENANCE OF TRAFFIC

Close bridge to traffic for 35 calendar
days maximum. Detour traffic to Route 1.

PROJECT LOCATION	In Harrington on Route 1A 0.2 Miles East of the Intersection of Grace Lane and Route 1A Latitude 44°35'56.15" N Longitude 67°49'22.65" W
PROGRAM AREA	Highway Bridges - Traditional
OUTLINE OF WORK	Replace Existing Aluminum Pipe Arch with a Precast Concrete Box Culvert. Rebuild 160' of Roadway.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
	<i>[Signature]</i>	3/26/19
	COMMISSIONER	CHIEF ENGINEER
	<i>[Signature]</i>	<i>[Signature]</i>

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	PROFESSIONAL ENGINEER
<i>[Signature]</i>	D/2202 2/2/19
	DATE

PROJECT INFORMATION	BRIDGE
PROGRAM	MICHAEL WIGHT
PROJECT MANAGER	ADAM STOCKIN
DESIGNER	WSP
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

STP-2169(300)	HARRINGTON JOHNSON BRIDGE	TITLE SHEET
---------------	------------------------------	-------------

SHEET NUMBER
1
OF 19



Date:11/6/2018

Username:

Division:

F:\ehame\cadd\00_1111\eldgn

WIN 021693.00

[illegible]

GENERAL CONSTRUCTION NOTES

- During construction, the road will be closed to traffic for a time period specified in the Special Provisions.*
- 2. For easements, construction limits and right of way lines, refer to Right of Way Map.*
- 3. The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.*
- 4. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.*
- 5. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident*
- 6. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for removing existing pavement, grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.*
- 7. Place Heavy Riprap from the toe of slope to Elevation 8.00 and Plain Riprap from elevation 8.00 to the edge of the Pavement.*
- 8. Riprap adjacent to the box culvert shall be placed so as not to damage the culvert. Any damage to the box culvert during construction shall be repaired or replaced as determined by the Resident at the Contractor's expense.*
- 9. All embankment material, except as otherwise noted, shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.*
- 10. Stones which cannot be rolled or compacted into the surface of the shoulder shall be removed by hand raking. Payment for hand raking will be considered incidental to Pay Item 304.10, Aggregate Subbase Course - Gravel.*
- 11. Place loam 2 inches deep on all new or reconstructed sideslopes or as directed by the Resident.*
- 12. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Item No. 619.14, Erosion Control Mix.*
- 13. Place a 24-in. wide strip of Extended-use Erosion Control Blanket on the sideslopes along the backside of the guardrail.*
- 14. Extended-use Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be Incidental to Contract items.*
- 15. Protective Coating for Concrete Surfaces shall be applied to the following areas:*
 - Concrete headwalls, including to one foot inside the box;*
 - Exposed tops of vertical walls and to one foot below the ground on the back side;*
 - All exposed faces of vertical walls and horizontal slabs inside the box, for the*
 - entire length of the structure.*
- 16. Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/contractors/>*
- 17. The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.*
- 18. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.*

19. *The project geotechnical report titled: Geotechnical Design Report, Johnson Bridge #3275 over Flat Bay River, Route 1A Culvert Replacement, Harrington, Maine, WIN 21693.00, may be accessed at the MaineDOT website.*
20. *Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidder's or Contractor's interpretations of, or conclusions drawn from, the geotechnical information. The boring logs contained in the plan set present factual and interpretive subsurface information collected at discrete locations. Data provided may not be representative of the subsurface conditions between the boring locations.*
21. *Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:*
 - a. *If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.*
 - b. *If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.*
 - c. *If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.*
22. *The Contractor shall maintain the excavation so that the box culvert is constructed in-the-dry. The excavation will be completed beneath the groundwater table. Water should be controlled by pumping from sumps.*
23. *All Pins, and Right-of-Way Markers shall be Reset by a Professional Land Surveyor, registered in the State of Maine. This work will not be paid for directly, but considered incidental to related contract items.*

2 OF 19	SHEET NUMBER				JOHNSON BRIDGE FLAT BAY RIVER HARRINGTON WASHINGTON COUNTY				PROJ. MANAGER		M. NIGHT	BY	DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
									DESIGN-DETAILED		AGP	WEG	07/19		
									CHECKED-REVIEWED		TWP	TWP	07/19	SIGNATURE	
									DESIGN2-DETAILED2						
									DESIGN3-DETAILED3						
									REVISIONS 1					P.E. NUMBER	
									REVISIONS 2						
									REVISIONS 3						
									REVISIONS 4					DATE	
									FIELD CHANGES						
				ESTIMATED QUANTITIES											
				AND GENERAL CONSTRUCTION NOTES											

BRIDGE PLANS	
Bridge No 3275	WIN
	21693.00

Date:2/28/2019

Username:

Division:

Filename: ... \cadd\003_BDPlan.dgn

POR #1
MAP 4, LOT 79
WARREN W. DORR IV

CURVE DATA #1
PI = 47+20.85
D = 1°30'00.0" Lt.
Δ = 18°03'24.0" Lt.
R = 3819.72'
L = 1203.78'
T = 606.92'
E = 47.92'

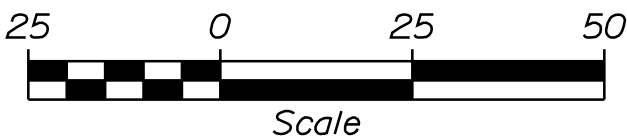
POR #5
MAP 4, LOT 78
JOHN KENNEDY III

POR #4
MAP 4, LOT 61
BRETT E. DEVLIN
MICHAEL J. DEVLIN

POR #6
MAP 4, LOT 62
JOSEPH PATTISON
BARBARA PATTISON

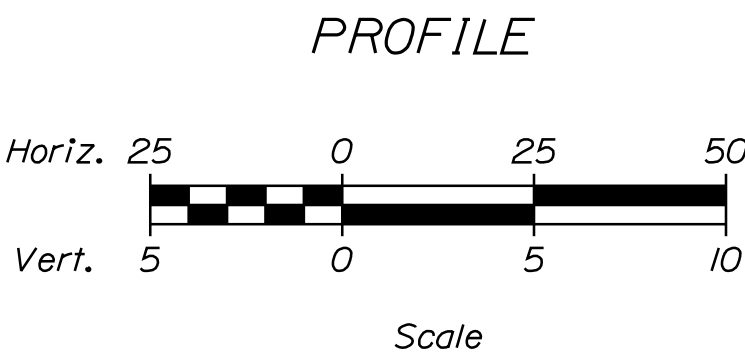
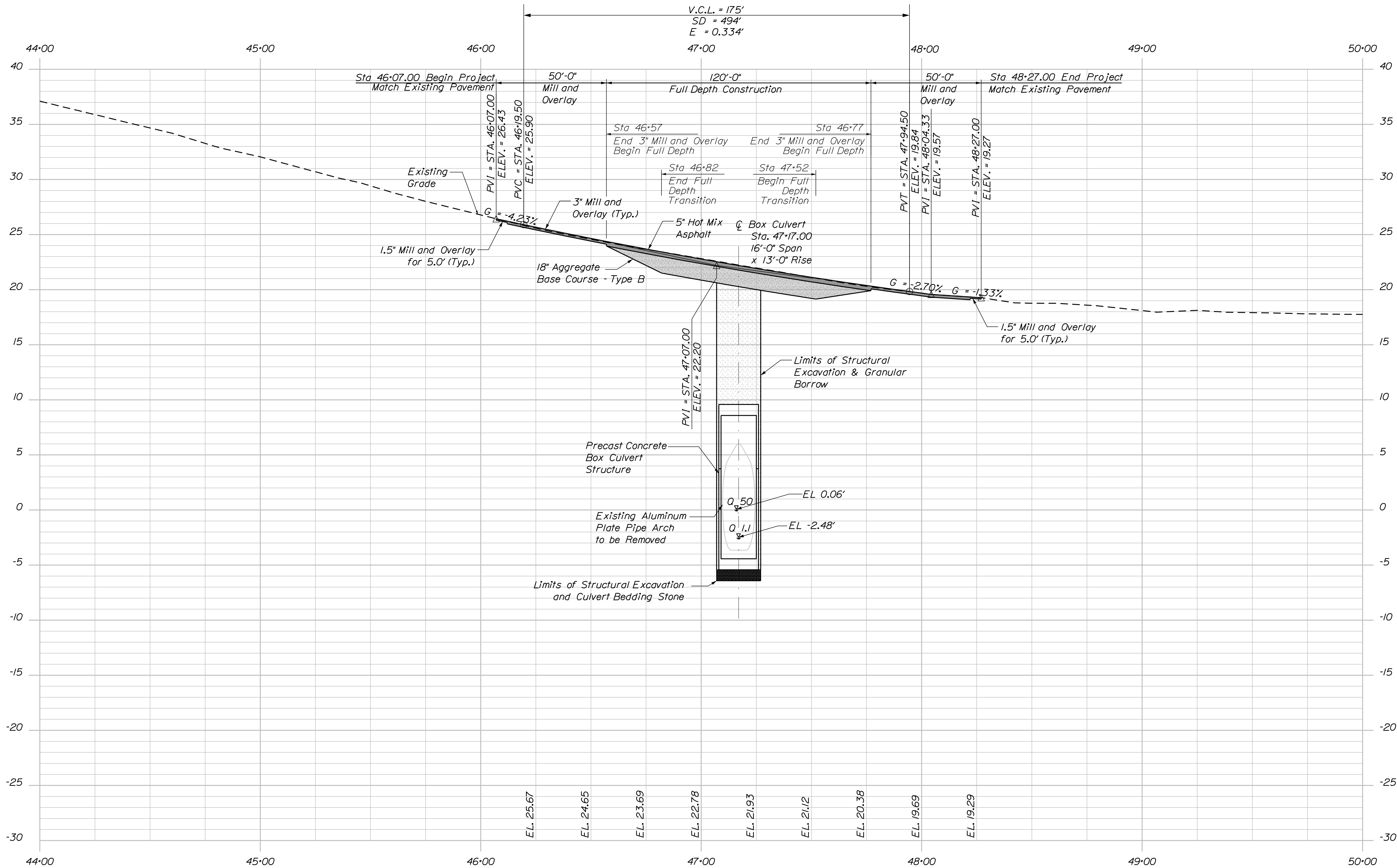
NOTES

1. Proposed Route 1A matches Existing Route 1A



PROJ. MANAGER	M. WIGHT	BY	DATE
CHECKED-DETAILED	K.H.	K.H.	07/9
DESIGNED-REVIEWED	RAB	RAB	07/9
DESIGNED-DETAILED			
DESIGNED-1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

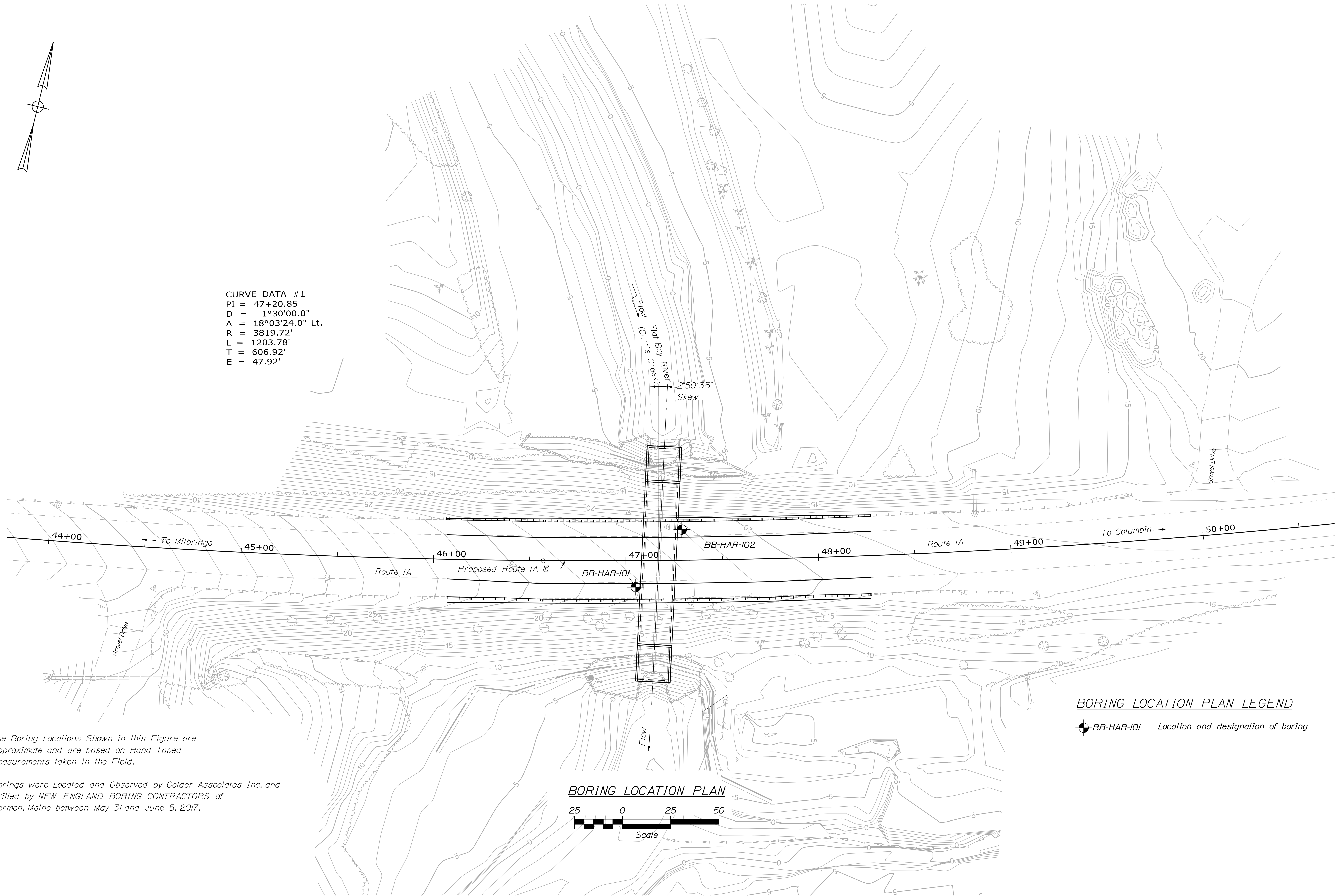
JOHNSON BRIDGE FLAT BAY RIVER HARRINGTON WASHINGTON COUNTY	GENERAL PLAN
--	--------------



STATE OF MAINE DEPARTMENT OF TRANSPORTATION STP-02169(300)	SIGNATURE		DATE
	P.E. NUMBER		DATE
	BRIDGE No. 3275		BRIDGE PLANS

JOHNSON BRIDGE FLAT BAY RIVER HARRINGTON WASHINGTON COUNTY PROFILE	DESIGN-DETAILED	BY	DATE
	CHECKED-REVIEWED	K/H	07/19
	DESIGN-DETAILED	RAB	07/19
	REVISIONS 1		
	REVISIONS 2		
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SHEET NUMBER
4
OF 19



NOTES

1. *The Boring Locations Shown in this Figure are Approximate and are based on Hand Taped Measurements taken in the Field.*
2. *Borings were Located and Observed by Golder Associates Inc. and Drilled by NEW ENGLAND BORING CONTRACTORS of Hermon, Maine between May 31 and June 5, 2017.*

BORING LOCATION PLAN LEGEND

 BB-HAR-101 *Location and designation of boring*

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-02169(300)

BRIDGE No. 3275	WIN
021693.00	BRIDGE PLANS

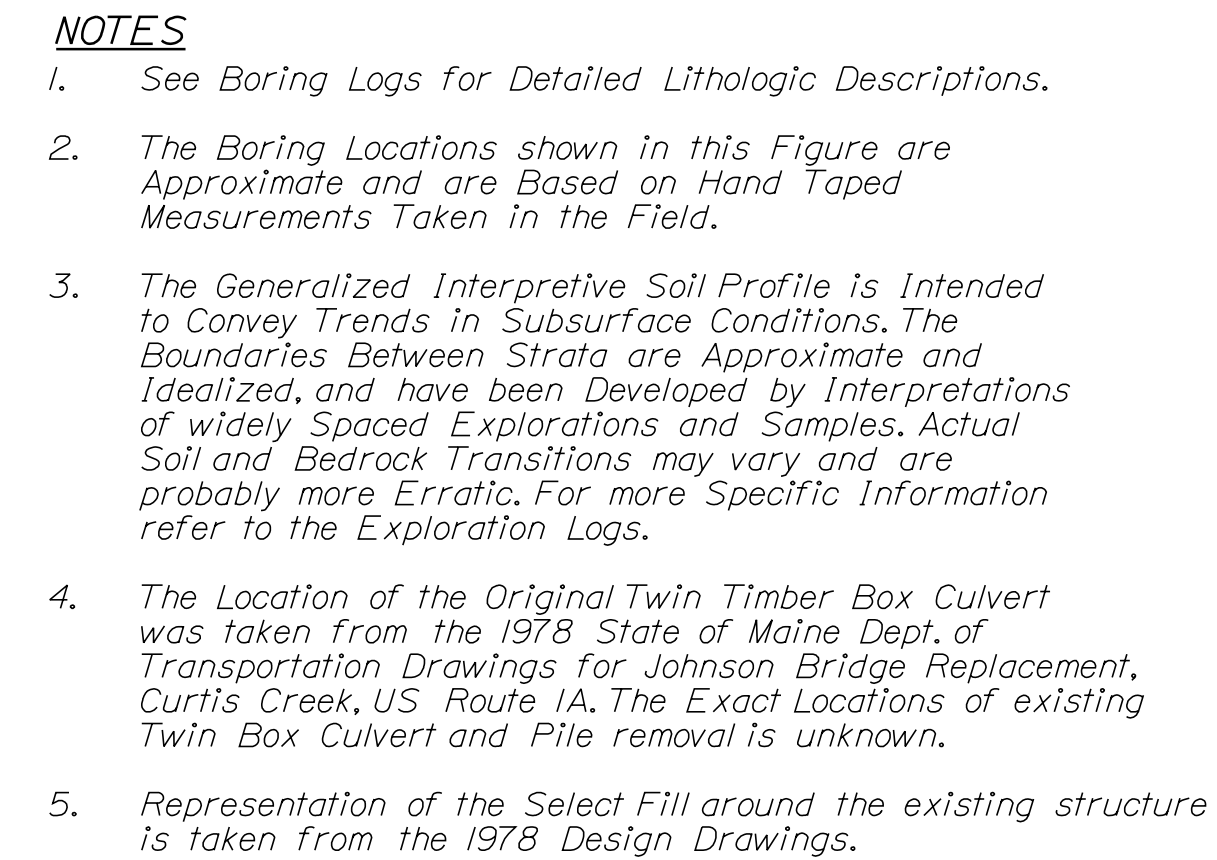
PROJ. MANAGER	M. WIGHT	BY	DATE
DESIGN-DETAILED	TWP	WEG	01/19
CHECKED-REVIEWED	AMS	AMS	01/19
DESIGN2-DETAILED2			SIGNATURE
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			P.E. NUMBER
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			DATE

JOHNSON BRIDGE FLAT BAY RIVER
HARRINGTON WASHINGTON COUNTY
BORING LOCATION PLAN

SHEET NUMBER

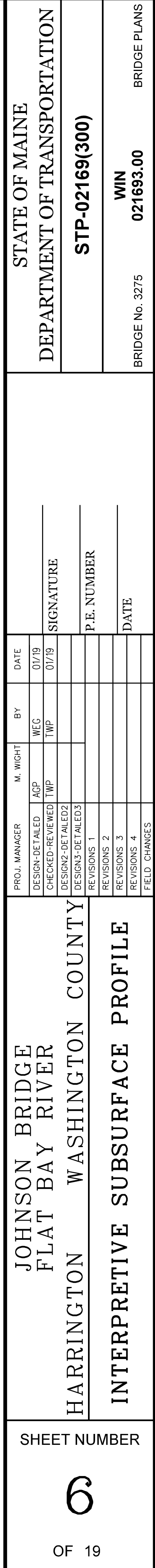
5

OF 19



The diagram illustrates a vertical borehole log with the following components and labels:

- Boring No. _____**: A label at the top right, with a line pointing to the log.
- Offset, if shown**: A label below the boring number, with a line pointing to the log.
- Pavement/Concrete Thickness if applicable**: A label pointing to a small rectangular block at the top of the log.
- Energy-Corrected SPT N60 Value (blows/foot)**: A label pointing to the number **6** on the log.
- WOH Indicates weight of hammer**: A label pointing to the text **WOH** on the log.
- Split Spoon Refusal (>50 blows for 1" penetration)**: A label pointing to the text **R** on the log.
- RQD= Rock Quality Designation for Rock Core Sample**: A label pointing to a hatched rectangular block on the log.
- BOE Bottom of Exploration**: A label at the bottom of the log, with a line pointing to the bottom of the hatched block.
- _____ ?**: A label on the left side, with a line pointing to the log.



Maine Department of Transportation				Project: Harrington Culvert Replacement		Boring No.: BB-HAR-101					
Soil/Rock Exploration Log US CUSTOMARY UNITS				Location: Harrington, Maine		WIN: 21693-10					
Driller: New England Boring Contractors				Elevation (ft.): 23.0 (See Remarks)		Auger ID/OD: 4"					
Operator: Tom Schaefer				Datum:		Sampler: Standard Split Spoon					
Logged By: TRM				Rig Type: Mobile B53		Hammer Wt./Fall: 140 lbs./30"					
Date Start/Finish: 7:15 AM 06/02/2017				Drilling Method: SSA & D+W		Core Barrel:					
Boring Location: Southwest Side Approach				Casing ID/OD: 4"		Water Level: " : See Remarks					
Hammer Efficiency Factor: 0.6				Hammer Type: Automatic ☐ Hydraulic ☐		Rope & Cathod ☒					
Definition: D = Split Spoon Sample NS = Unconsolidated Split Spoon Sample Attempt U = Thin Wall Tube Sample NI = Unsuccessful Thin Wall Tube Sample Attempt V = Thick Vane Shear Test; PP = Pocket Penetration MV = Unsuccessful Thick Vane Shear Test Attempt				R = Rock Core Sample SSA = Solid Stem Auger HSA = Hollow Stem Auger RC = Roller Cone WCH = Weight of 140 lb. Hammer WCHS = Weight of Rods or Casing WOP = Weight of One Person		S _u = Peak/Remolded F ₆₀ Vane Undrained Shear Strength (psi) S _u (1 ps) = Lab Vane Undrained Shear Strength (pcf) S _p = Undrained Compressive Strength (psi) N ₆₀ = Standard SPT Blowable Hammer Efficiency Factor = R ₆₀ S ₆₀ /Annual Calibration Value N ₆₀ = SPT Normalized Corrected for Hammer Efficiency N ₆₀ = Hammer Efficiency Factor(R ₆₀ /N ₆₀ Corrected)					
				T _u = Pocket Torque Vane Shear Strength (psi) WC = Water Content, percent LL = Liquid Limit P _L = Plastic Limit FI = Plasticity Index C = Grain Size Analysis C = Consolidation Test							
Sample Information											
Depth (ft.)	Sample No.	Pen (ft./in.)	Sample Depth (ft.)	Blows (ft/in.) Shear Strength or RQD (%)	Normalized	N ₆₀	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
50	R2	70/58	51.70 - 57.53	RQD = 31%						surfaces are planar to undulating to curved and rough with calcium-carbonate coatings (DEVONIAN GRANITE). Recovery: 97% R1 Core Times: (min:sec) 47.7 - 48.7: (4:22) 48.7 - 49.7: (2:59) 49.7 - 50.7: (3:42) 50.7 - 51.7: (4:20) Run 2: Pk, medium to coarse grained BOTITE-GRANITE, strong (R4), moderately weathered (W3), moderately dipping to steep fractures (45 to 60 degrees) from vertical, closely spaced (1" to 7"), some day infilling (1 mm), discontinuity surfaces are planar to undulating to curved and rough. Weathered zones at 52.7 and 55.8', both about 2" thick [DEVONIAN GRANITE]. Recovery: 83% R2 Core Times: (min:sec) 51.7 - 52.7: (1:48) 52.7 - 53.7: (2:59) 53.7 - 54.7: (2:40) 54.7 - 55.7: (2:46) 55.7 - 56.7: (2:27) 56.7 - 57.5: (2:33)	
55											
60											
65											
70											
75											
Bottom of Exploration at 57.5 feet below ground surface.											
Remarks: 1. Elevation approximate. Taken from base map data provided by WSP. 2. Water level is influenced by tidal fluctuations. Water levels: 10.3' bgs @ 13:10 06/02/2017; 10.8' bgs at 9:45 06/05/2017; 20.7' bgs at 16:30 06/05/2017 3. NEB switched from rope and cathod to an auto hammer to drive SPT samples at 40 ft bgs. 4. An auto hammer with a hammer efficiency factor of 0.837 was used from a depth of 40 ft bgs to the end of the boring.											
Boundaries between approximate boundaries between soil type transitions may be gradual.											
* Water level readings have been made at 15 min and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.											
Boring No.:										BB-HAR-101	

SHEET NUMBER	JOHNSON BRIDGE FLAT BAY RIVER WASHINGTON COUNTY	PROJ. MANAGER	M. WIGHT	BY	DATE
		DESIGN-DETAILED	AGP	WCC.	07/19
		CHECKED-REVISED	TWP	TWP	07/19
		DESIGN2-DETAILED2			SIGNATURE
		DESIGN3-DETAILED3			P.E. NUMBER
		REVISIONS 1			
BORING LOGS 1 OF 2	REVISIONS 2				
	REVISIONS 3				
	REVISIONS 4			DATE	
	FIELD CHANGES				
STATE OF MAINE DEPARTMENT OF TRANSPORTATION					
STP-02169(300)					
WIN 21693.00					BRIDGE No 3275 BRIDGE PLANS

Date:2/27/2019

Username:

Division:

Filename: ... \codd\008_BoringLog.qgd

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Harrington Culvert Replacement

Location: Harrington, Maine

Boring No.: BB-HAR-102

WIN: 21693.00

Driller: New England Boring Contractors

Elevation (ft.): 21 (See Remarks)

Auger ID/OD: 4"

Operator:

Datum:

Sampler: Standard Split Spoon

Logged By: TRM

Rig Type: Mobile B53

Hammer Wt./Fall: 140 lbs./30"

Date Start/Finish: 7:15 AM 05/31/2017

Drilling Method: SSA & D+W

Core Barrel:

Boring Location: Northeast Side Approach

Casing ID/OD: 4"

Water Level: "": See Remarks

Hammer Efficiency Factor: 0.6

Hammer Type: Automatic Hydraulic Rope & Cathode

Dwelltime: 0 = Split Spoon Sample

MD = Unsuccessful Split Spoon Sample Attempt

U = Thin Wall Tube Sample

MU = Unsuccessful Thin Wall Tube Sample Attempt

V = Field Vane Shear Test

MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample

SSA = Split Stem Auger

HSA = Hollow Stem Auger

RC = Roller Cone

WCN = Weight of 140 lb. Hammer

WOC = Weight of Rod or Casing

WOLP = Weight of One Person

S_u = Peak/Retained Field Vane Undrained Shear Strength (psf)

S_u(1 day) = Lab Vane Undrained Shear Strength (psf)

q_u = Unconfined Compressive Strength (psf)

N_{uncorr} = Raw Field SPT Number

N_u = Hammer Efficiency Factor = Rig Specific Annual Calibration Value

N_u = SPT Uncorrected Corrected for Hammer Efficiency

N_u = Hammer Efficiency Factor/100/Un-corrected

T_v = Pocket Torque Shear Strength (psf)

WC = Water Content, percent

LL = Liquid Limit

PL = Plastic Limit

PI = Plasticity Index

G = Grain Size Analysis

C = Consolidation Test

Sample Information

Sample No.

Pen./Rec. (ft.)

Sample Depth (ft.)

Elapsed (6 in.) Shear Strength (psf) or RQD (%)

Uncorrected

N_u

Coring Above

Elevation (ft.)

Graphic Log

Visual Description and Remarks

Laboratory Testing Results/ AASHTO and Unified Class.

10

24/6

1.00 - 3.00

11/22/18/16

40

40

20.3

1D (1.00-3.00'): Brown, dry, dense, fine to medium SAND, little gravel, trace silt (COMMON BORROW).

20

24/21.6

3.00 - 5.00

14/12/10/7

22

22

2D (3.00'-5.00'): Light brown, dry, medium dense, fine to coarse SAND, little gravel, trace silt, Bottom 0.2' was asphalt and shoe plug was brown silty clay (COMMON BORROW).

30

24/10.8

10.00 - 12.00

9/9/10/16

19

19

3D (10.00'-12.00'): Dark brown to gray with orange staining, dry, very stiff, silty CLAY, trace gravel, trace sand, moderately plastic; gravelly seam about 1" thick (COMMON BORROW).

#14682 A-4 (0) CL WC: 18.6 %

40

24/7.2

15.00 - 17.00

9/7/6/15

13

13

4D (15.00'-17.00'): Light brown, damp, medium dense, fine to coarse SAND, little gravel, little silt, trace gravel (FILL) - POSSIBLE 703.19 MATERIAL FOR UNDERWATER BACKFILL.

#14683 A-4 (0) SW-SM WC: 8.8 %

50

24/3.6

20.00 - 22.00

10/6/9/(26/3")

15

15

5D (20.00'-22.00'): Dark brown, damp, medium dense, fine to coarse SAND, some fine gravel, trace silt (FILL) - POSSIBLE 703.19 MATERIAL FOR UNDERWATER BACKFILL.

60

24/21.6

25.00 - 27.00

5/3/5/7

8

8

6D (25.00'-27.00'): Gray, dry, medium stiff, silty CLAY, little brown/orange staining, moderate plasticity. Wood chunks from 25.3' to 25.8', grain is horizontal, possibly downed tree (PRESUMPSCOT).

#14686 A-4 (0) CL WC: 28.9 %

70

24/13.2

27.00 - 29.00

3/4/4/6

8

8

7D (27.00'-29.00'): Gray, damp, medium stiff, silty CLAY, little black staining, moderate plasticity (PRESUMPSCOT).

80

24/7.2

29.00 - 31.00

2/4/4/5

8

8

8D (29.00'-31.00'): Gray with black staining, moist, medium stiff, silty CLAY (PRESUMPSCOT).

90

24/24

31.00 - 33.00

WOH3/3/4

6

6

9D (31.00'-33.00'): Gray with black staining, moist, medium stiff, silty CLAY (PRESUMPSCOT).

100

24/24

33.00 - 35.00

1/WOH2/4 Sun 1686/1729psf

Note 2

10D (33.00'-35.00'): Gray with black staining, damp, medium stiff, silty CLAY, moderately plastic (PRESUMPSCOT).

110

24/14.4

35.00 - 37.00

3/8/7/8

15

15

11D (35.00'-37.00'): No recovery with 2" spoon, followed with 3" spoon. 2" spoon sample: Gray, moist, medium dense, silty fine SAND, trace clay, 1.5" piece of rounded gravel (PRESUMPSCOT).

120

24/8.4

40.00 - 42.00

9/20/13/10

33

33

12D (40.00'-42.00'): Gray, moist, dense, fine to coarse SAND, some gravel, little silt, little clay (PRESUMPSCOT).

130

24/8.4

45.00 - 47.00

15/23/38/(53/10)

61

61

13D (45.00'-47.00'): Gray, moist, very dense, fine to coarse SAND, some gravel, trace silt, trace clay, weathered pink granite fragments for bottom 0.3' (PRESUMPSCOT).

140

24/20

47.50 - 49.50

RQD = 25%

14D (47.50'-49.50'): Trace fine gravel in stained wash/cuttings 25' to 47'. Top of Rock at 47.5' bgs. Run 1: Pink to light gray, medium to coarse grained BIOTITE-GRANITE, medium strong (R3), moderately weathered (W3), fractures are moderately dipping to

150

36/33

49.50 - 52.50

RQD = 50%

15D (49.50'-52.50'): Recovery: 83% R1 Core Times: (min:sec) 47.5' - 48.5': (1:50) 48.5' - 49.5': (2:11) Run 2: Pink to light gray, medium to coarse grained BIOTITE-GRANITE, strong (R4), slightly weathered (W2), low angle to vertical fractures (30 to 90 degrees), moderately close spacing (3" to 9"), minor clay infilling (<1mm), fracture surfaces are planar to undulating to stepped and rough (DEVONIAN GRANITE). Recovery: 92% R2 Core Times: (min:sec) 49.5' - 50.5': (2:27) 50.5' - 51.5': (1:50) 51.5' - 52.5': (1:29) Run 3: Pink to light gray, medium to coarse grained BIOTITE-GRANITE, strong (R4), slightly weathered (W2), fractures are low angle to moderately dipping (20 to 45 degrees), with close to moderately close spacing (2" to 14"), minor clay infilling (<1mm), fracture surfaces are planar to undulating and rough (DEVONIAN GRANITE). Recovery: 74% R3 Core Times: (min:sec) 52.5' - 54.0': (2:50) 54.0' - 55.0': (2:17) 55.0' - 56.0': (1:05) Stopped coring because of water problems, must be good permeability above discontinuities.

1. Elevation approximate. Taken from base map data provided by WSP.

2. Sample remedied by vane, N-value not valid.

3. Water level is influenced by tidal fluctuations. Water Levels: 6.9' bgs @ 15:00 05/31/2017; 13.9' bgs @ 10:30 06/01/2017; 19.6' bgs in casing at @ 13:20 06/01/2017; 20.8' bgs when casing removed @ 13:50 06/01/2017.

4. Boring collapse to 21' bgs when casing removed.

Stabilization lines represent approximate boundaries between soil types; transitions may be gradual.

Page 2 of 2

Boring No.: BB-HAR-102

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Harrington Culvert Replacement

Location: Harrington, Maine

Boring No.: BB-HAR-102

WIN: 21693.00

Driller: New England Boring Contractors

Elevation (ft.): 21 (See Remarks)

Auger ID/OD: 4"

Operator:

Datum:

Sampler: Standard Split Spoon

Logged By: TRM

Rig Type: Mobile B53

Hammer Wt./Fall: 140 lbs./30"

Date Start/Finish: 7:15 AM 05/31/2017

Drilling Method: SSA & D+W

Core Barrel:

Boring Location: Northeast Side Approach

Casing ID/OD: 4"

Water Level: "": See Remarks

Hammer Efficiency Factor: 0.6

Hammer Type: Automatic Hydraulic Rope & Cathode

Dwelltime: 0 = Split Spoon Sample

MD = Unsuccessful Split Spoon Sample Attempt

U = Thin Wall Tube Sample

MU = Unsuccessful Thin Wall Tube Sample Attempt

V = Field Vane Shear Test

MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample

SSA = Split Stem Auger

HSA = Hollow Stem Auger

RC = Roller Cone

WCN = Weight of 140 lb. Hammer

WOC = Weight of Rod or Casing

WOLP = Weight of One Person

S_u = Peak/Retained Field Vane Undrained Shear Strength (psf)

S_u(1 day) = Lab Vane Undrained Shear Strength (psf)

q_u = Unconfined Compressive Strength (psf)

N_{uncorr} = Raw Field SPT Number

N_u = Hammer Efficiency Factor = Rig Specific Annual Calibration Value

N_u = SPT Uncorrected Corrected for Hammer Efficiency

N_u = Hammer Efficiency Factor/100/Un-corrected

T_v = Pocket Torque Shear Strength (psf)

WC = Water Content, percent

LL = Liquid Limit

PL = Plastic Limit

PI = Plasticity Index

G = Grain Size Analysis

C = Consolidation Test

Sample Information

Sample No.

Pen./Rec. (ft.)

Sample Depth (ft.)

Elapsed (6 in.) Shear Strength (psf) or RQD (%)

Uncorrected

N_u

Coring Above

Elevation (ft.)

Graphic Log

Visual Description and Remarks

Laboratory Testing Results/ AASHTO and Unified Class.

50

vertical (45 to 90 degrees), very close to closely spaced (1" to 6"), minor clay infilling (<1mm), fracture surfaces are planar and rough (DEVONIAN GRANITE).

55

Recovery: 83% R1 Core Times: (min:sec) 47.5' - 48.5': (1:50) 48.5' - 49.5': (2:11) Run 2: Pink to light gray, medium to coarse grained BIOTITE-GRANITE, strong (R4), slightly weathered (W2), low angle to vertical fractures (30 to 90 degrees), moderately close spacing (3" to 9"), minor clay infilling (<1mm), fracture surfaces are planar to undulating to stepped and rough (DEVONIAN GRANITE). Recovery: 92% R2 Core Times: (min:sec) 49.5' - 50.5': (2:27) 50.5' - 51.5': (1:50) 51.5' - 52.5': (1:29) Run 3: Pink to light gray, medium to coarse grained BIOTITE-GRANITE, strong (R4), slightly weathered (W2), fractures are low angle to moderately dipping (20 to 45 degrees), with close to moderately close spacing (2" to 14"), minor clay infilling (<1mm), fracture surfaces are planar to undulating and rough (DEVONIAN GRANITE). Recovery: 74% R3 Core Times: (min:sec) 52.5' - 54.0': (2:50) 54.0' - 55.0': (2:17) 55.0' - 56.0': (1:05) Stopped coring because of water problems, must be good permeability above discontinuities.

60

Bottom of Exploration at 56.0 feet below ground surface.

65

70

75

1. Elevation approximate. Taken from base map data provided by WSP.

2. Sample remedied by vane, N-value not valid.

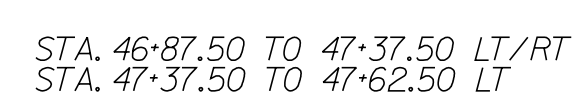
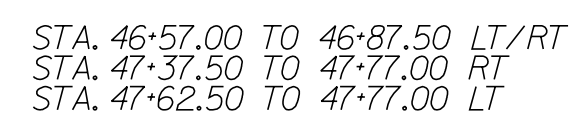
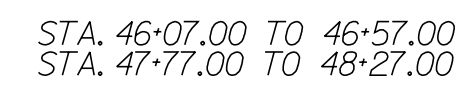
3. Water level is influenced by tidal fluctuations. Water Levels: 6.9' bgs @ 15:00 05/31/2017; 13.9' bgs @ 10:30 06/01/2017; 19.6' bgs in casing at @ 13:20 06/01/2017; 20.8' bgs when casing removed @ 13:50 06/01/2017.

4. Boring collapse to 21' bgs when casing removed.

Stabilization lines represent approximate boundaries between soil types; transitions may be gradual.

Page 2 of 2

Boring No.: BB-HAR-102

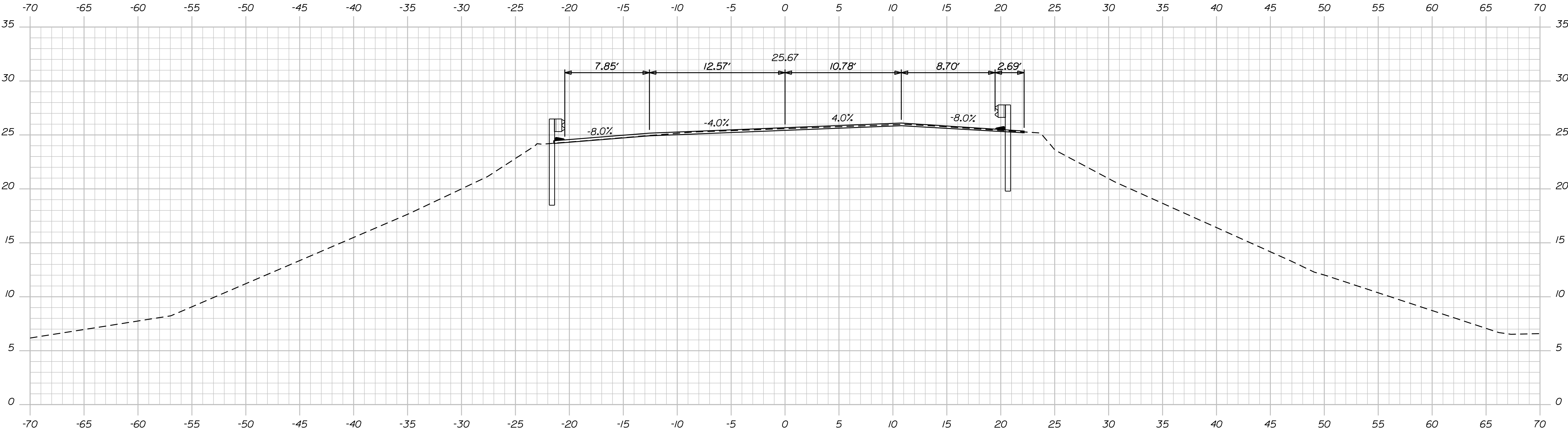


Date:2/27/2019

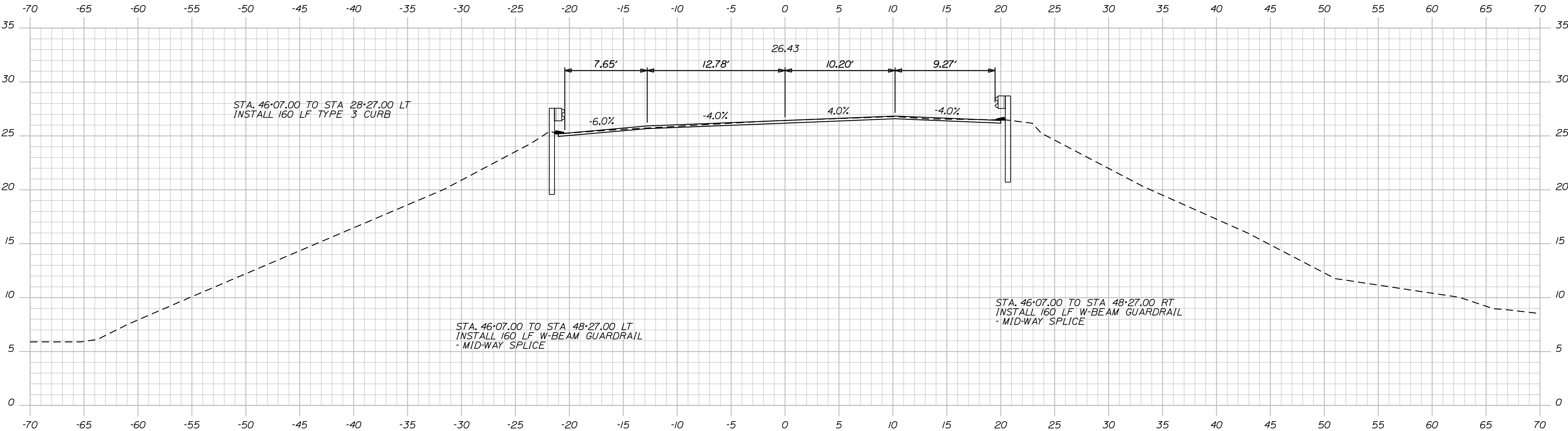
Username:

Division:

Filename: ... \cadd\010_Cross Sections.dgn



46+25.00



46+07.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
STP-02169(300)
WIN
21693.00
BRIDGE NO 3275
BRIDGE PLANS

PROJ. MANAGER	BY	DATE
DESIGN-DETAILED	K/H	07/9
CHECKED-REVIEWED	RAB	07/9
DESIGN-DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		
SIGNATURE		
P.E. NUMBER		
DATE		

JOHNSON BRIDGE
FLAT BAY RIVER
HARRINGTON WASHINGTON COUNTY
CROSS SECTIONS

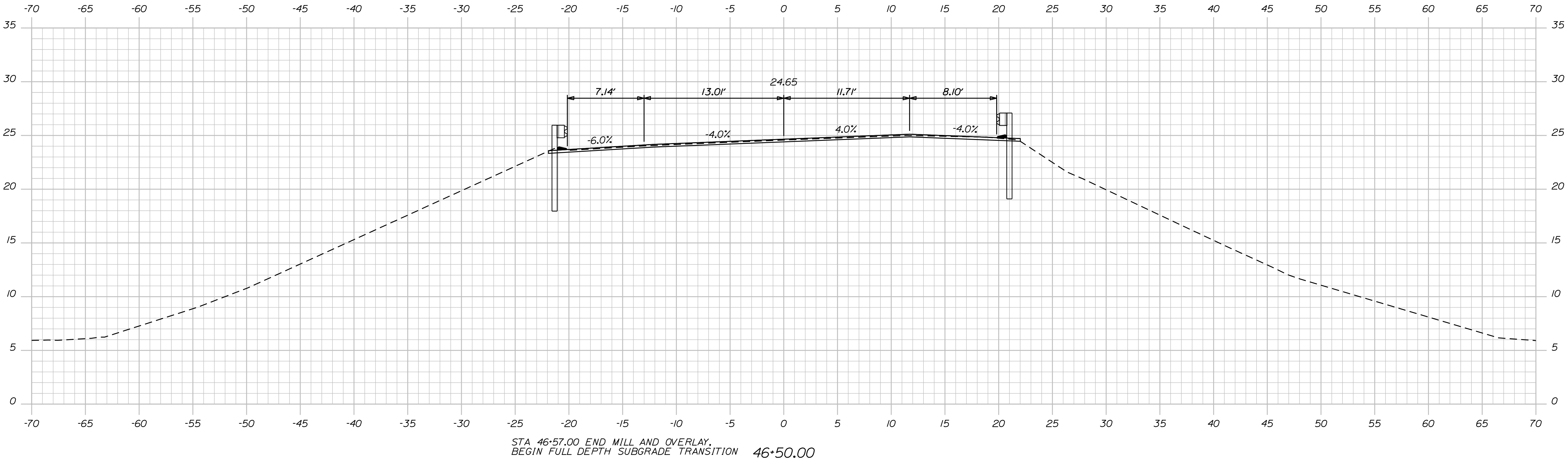
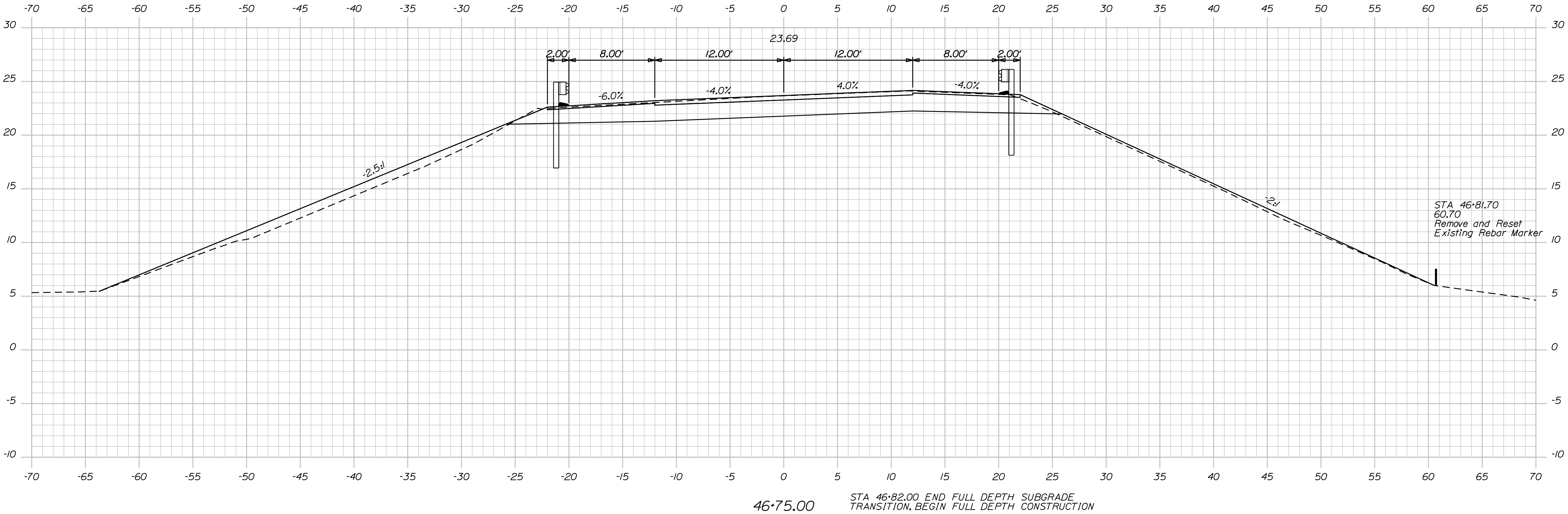
SHEET NUMBER
10
OF 19

Date:2/27/2019

Username:

Division:

Filename: ... \cadd\011_Cross Sections.dgn



PROJ. MANAGER	BY	DATE
DESIGNED-DETAILED K/H	K/H	07/9
CHECKED-REVIEWED RAB	RAB	07/9
DESIGNED-DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

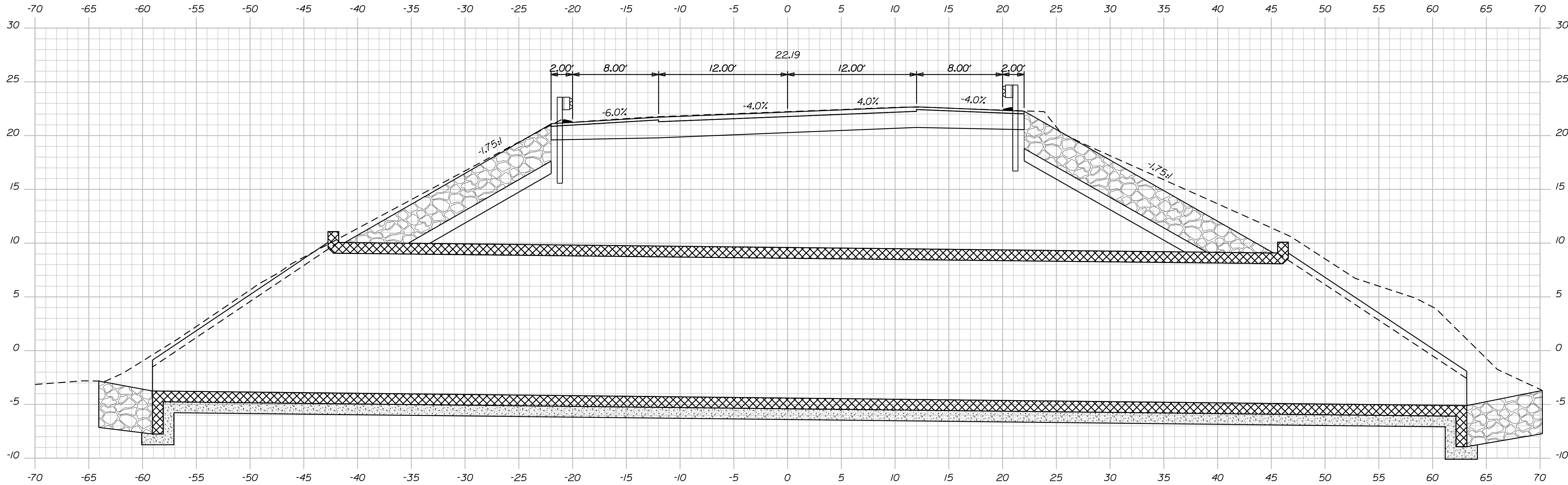
SIGNATURE	P.E. NUMBER	DATE

Date:2/27/2019

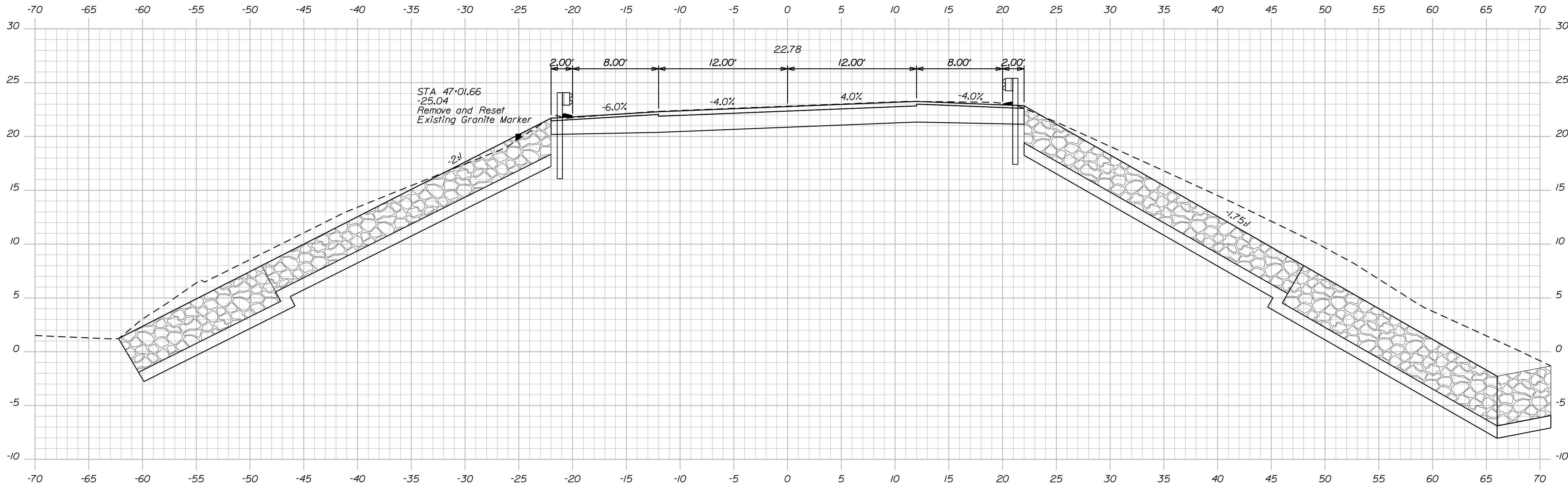
Username:

Division:

Filename: ... \cadd\012_Cross Sections.dgn



47+17.00



47+00.00

PROJ. MANAGER	BY	DATE
DESIGN-DETAILED	K/H	07/9
CHECKED-REVIEWED	RAB	07/9
DESIGN-DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

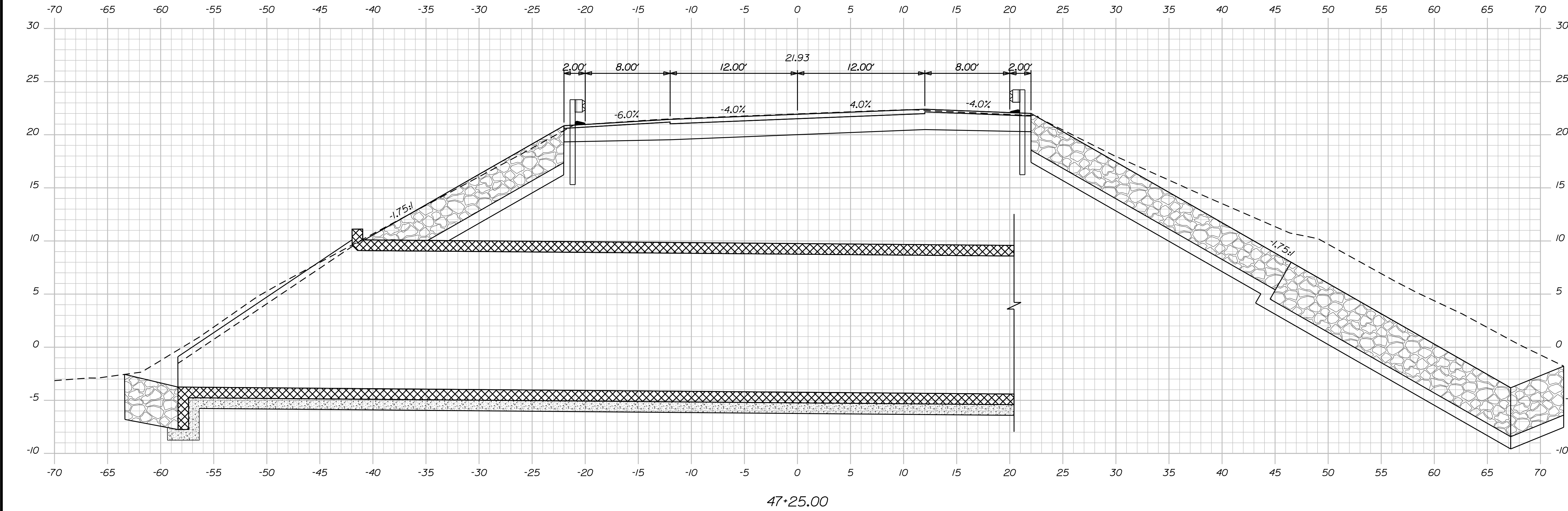
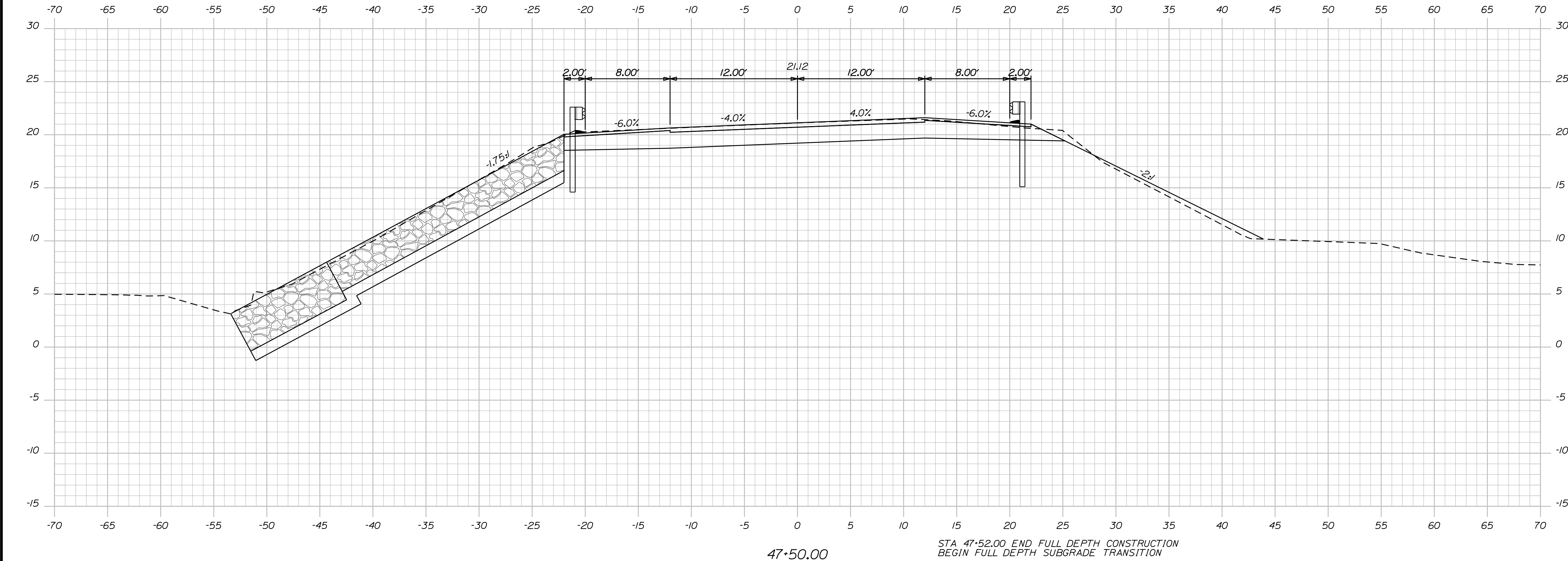
DATE

Date:2/27/2019

Username:

Division:

Filename: ... \codd\013_Cross Sections.dgn



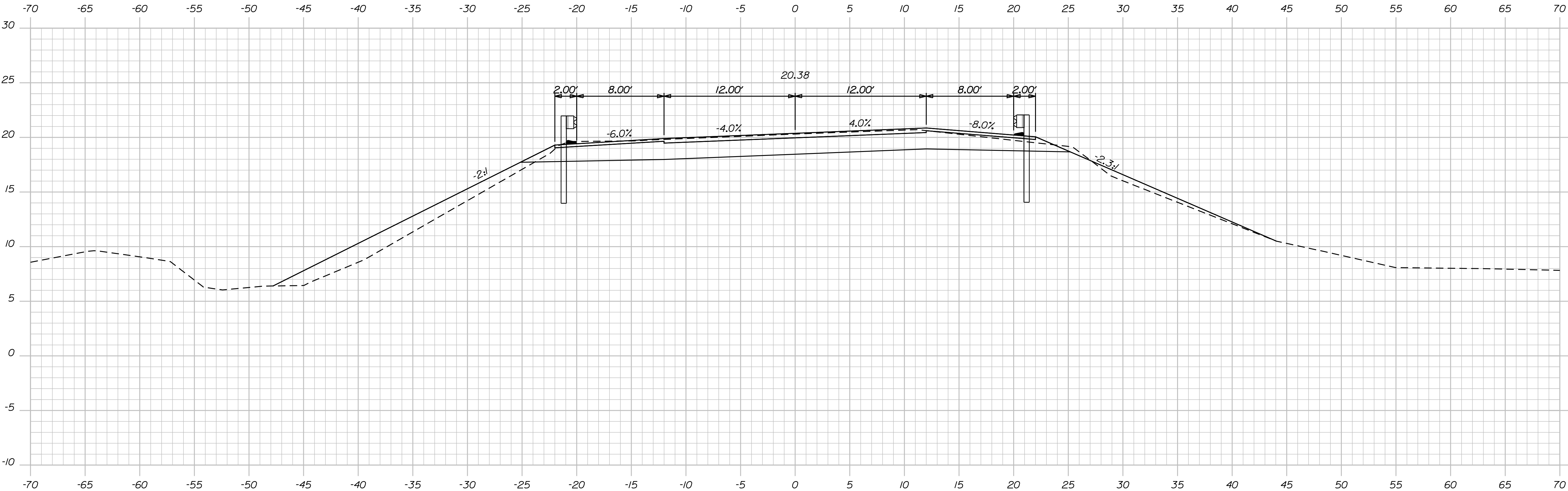
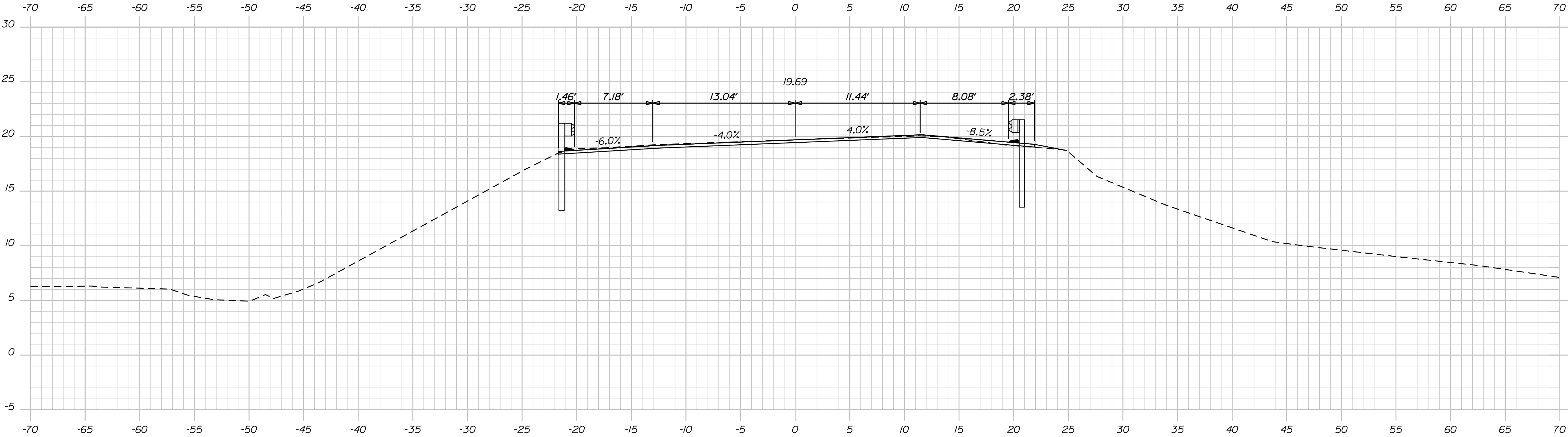
PROJ. MANAGER	BY	DATE
DESIGN-DETAILED	KIH	07/9
CHECKED-REVIEWED	RAB	07/9
DESIGN-DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

Date:2/27/2019

Username:

Division:

Filename: ... \cadd\014_Cross Sections.dgn



STA 47+77.00 END FULL DEPTH SUBGRADE TRANSITION,
 BEGIN MILL AND OVERLAY

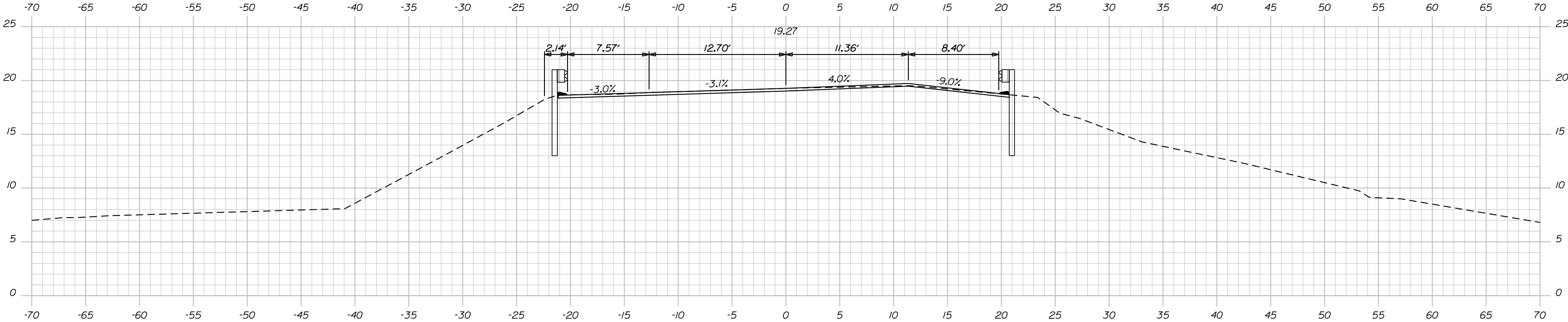
PROJ. MANAGER	BY	DATE
DESIGN-DETAILED	KIH	07/9
CHECKED-REVIEWED	RAB	07/9
DESIGN-DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

Date:2/27/2019

Username:

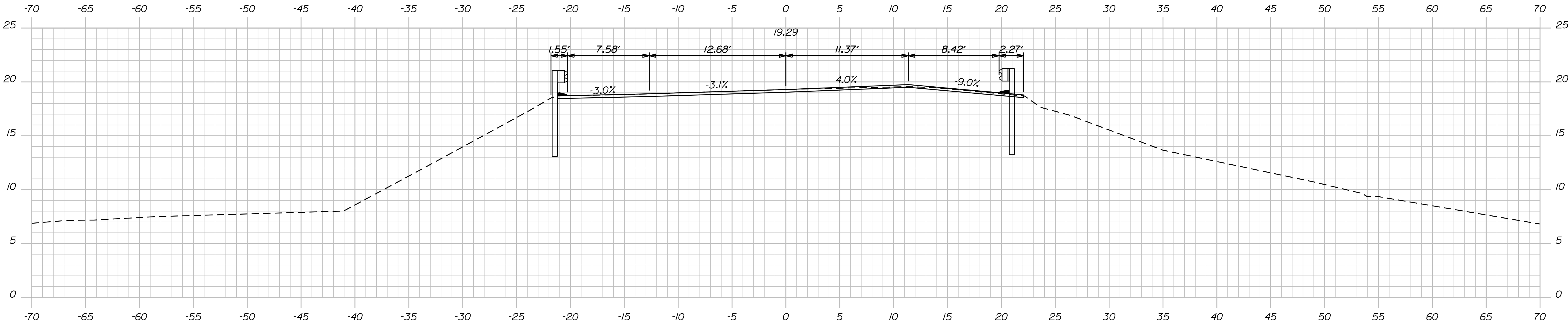
Division:

Filename: ... \cadd\015_Cross Sections.dgn



48+27.00

STA 48+27.00 END MILL AND OVERLAY,
MATCH EXISTING, END PROJECT



48+25.00

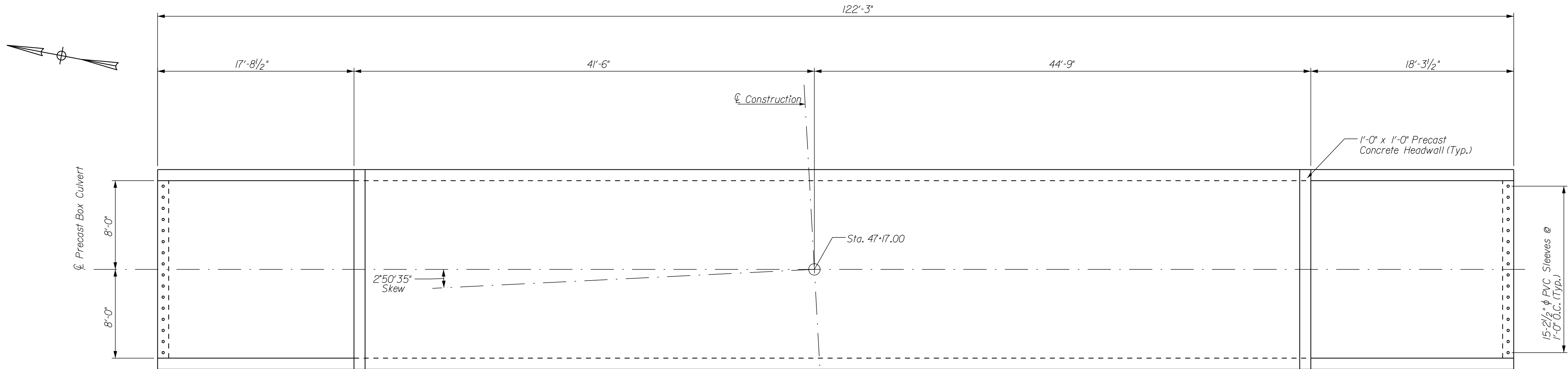
STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
STP-02169(300)	
BRIDGE NO 3275	WIN
21693.00	
BRIDGE PLANS	

SIGNATURE	
P.E. NUMBER	
DATE	

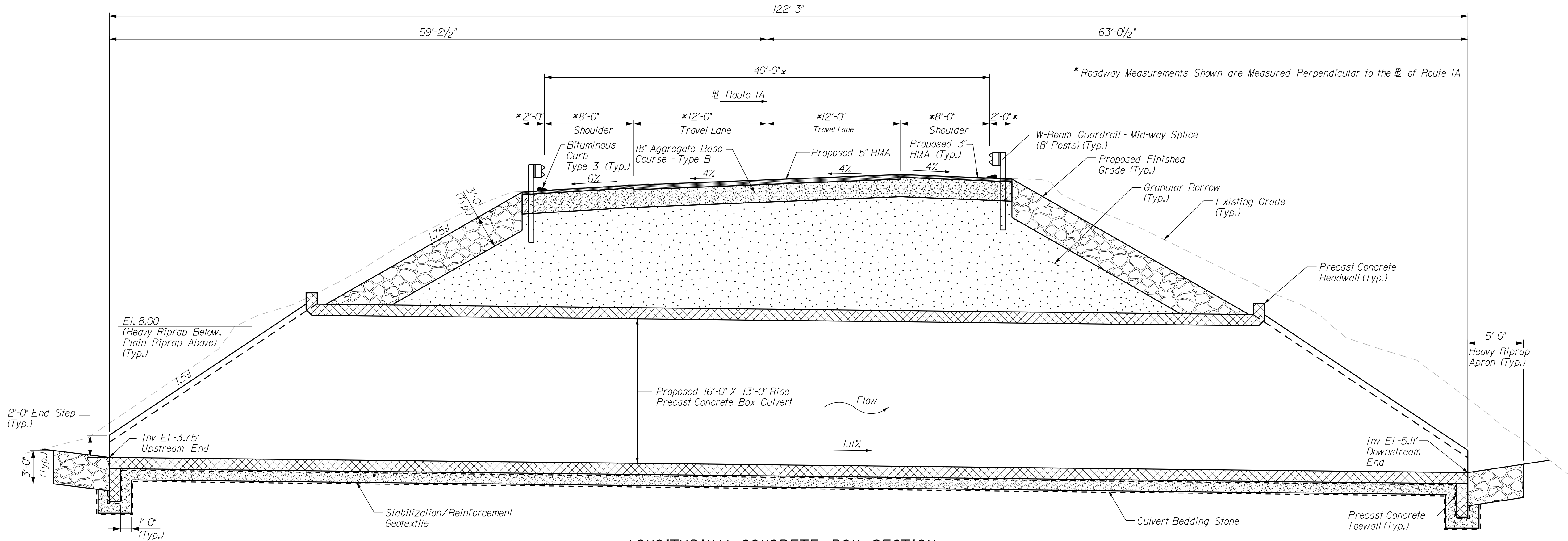
PROJ. MANAGER	BY	DATE
DESIGN-DETAILED	K/H	07/9
CHECKED-REVIEWED	RAB	07/9
DESIGN-DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

JOHNSON BRIDGE	
FLAT BAY RIVER	
HARRINGTON	WASHINGTON COUNTY
CROSS SECTIONS	

SHEET NUMBER
15
OF 19

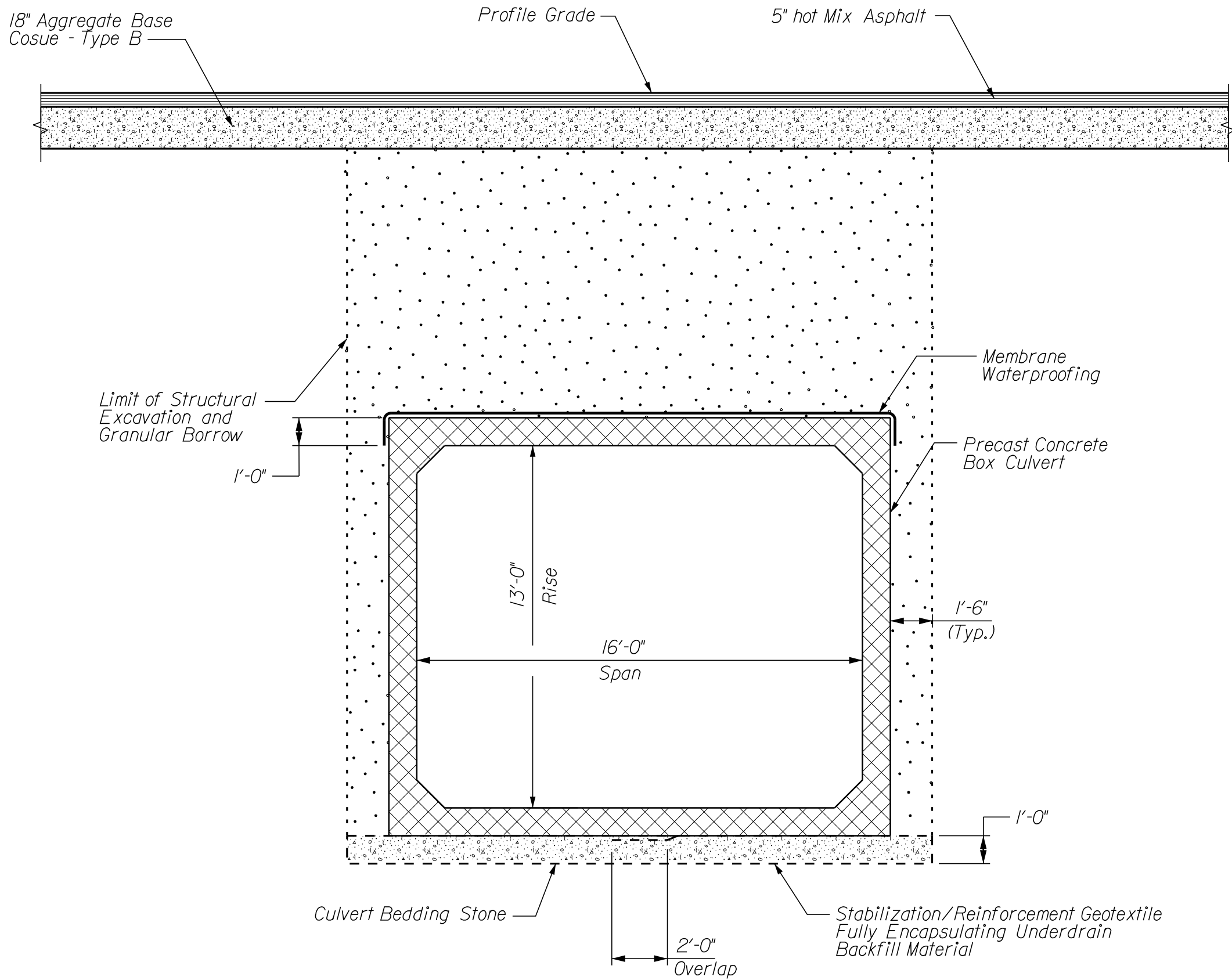


CONCRETE BOX PLAN

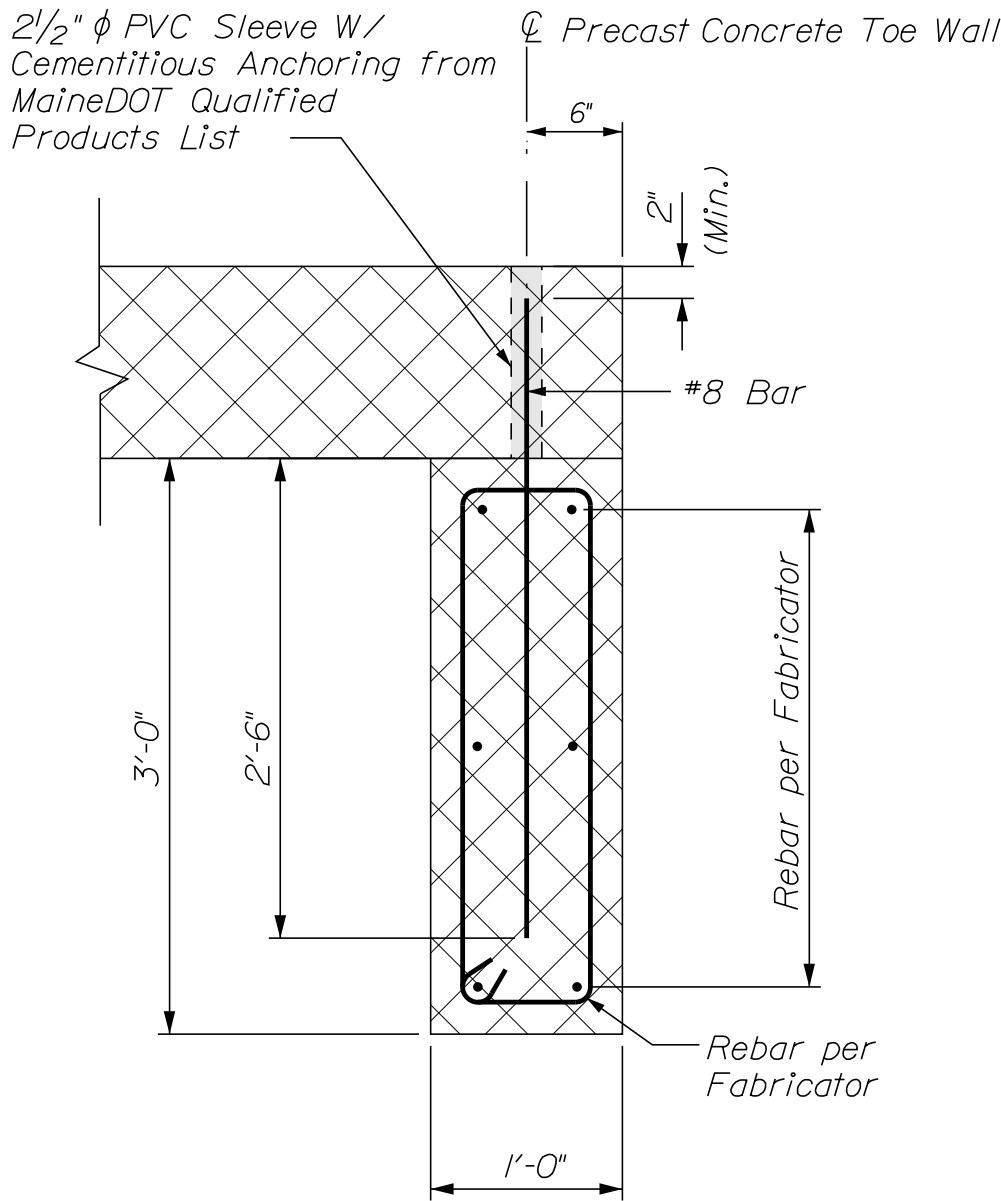


LONGITUDINAL CONCRETE BOX SECTION
Section Along C.L. of Concrete at Sta. 47+17.00 Skewed 2°50'35" Ahead to the left.

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-02169(300)		WIN		021693.00		BRIDGE No. 3275		BRIDGE PLANS	
PROJ. MANAGER		DESIGN-DETAILED		M. WIGHT		BY		DATE		SIGNATURE		P.E. NUMBER	
CHECKED-REVIEWED		ACP		WFC		TWP		07/19		07/19		DATE	
DESIGNS DETAILLED		TWP		TWP		TWP		TWP		TWP		TWP	
REVISIONS 1		REVISIONS 2		REVISIONS 3		REVISIONS 4		FIELD CHANGES		FIELD CHANGES		FIELD CHANGES	
JOHNSON BRIDGE		FLAT BAY RIVER		WASHINGTON COUNTY		HARRINGTON		PRECAST CONCRETE BOX DETAILS (1 OF 2)		SHEET NUMBER		16	
												OF 19	



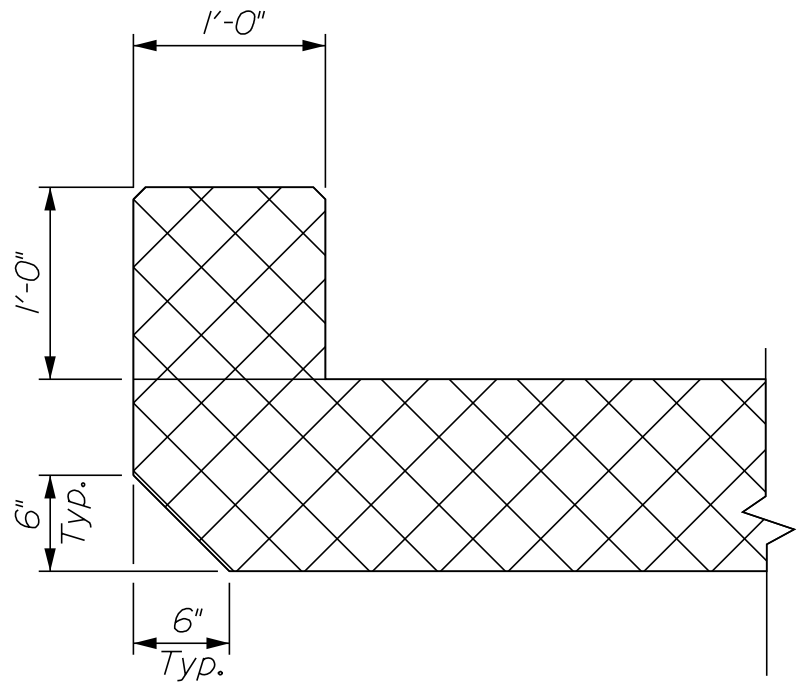
TYPICAL BOX CULVERT SECTION
Scale: 1/4" = 1'-0"



PRECAST CONCRETE TOE WALL DETAIL

PRECAST CONCRETE BOX NOTES

1. Install Standard Membrane Waterproofing over the top and to 12 inches down the Exterior sides of the Precast Units.
2. Concrete for Headwall and Toewalls, whether Precast or Cast-in-Place will be paid for under Item No. 534.71, Precast Concrete Box Culvert.



PRECAST CONCRETE HEADWALL DETAIL

JOHNSON BRIDGE FLAT BAY RIVER HARRINGTON WASHINGTON COUNTY	STATE OF MAINE DEPARTMENT OF TRANSPORTATION			
	STP-02169(300)			
	BRIDGE No. 3275WIN021693.00BRIDGE PLANS			
PRECAST CONCRETE BOX DETAILS (2 OF 2)	PROJ. MANAGER	M. WIGHT	BY	DATE
	DESIGN-DETAILED	ACP	WFC	01/19
	CHECKED-REVIEWED	TWP	TWP	01/19
	DESIGN-DETAILED			
	REVISIONS 1			
	REVISIONS 2			
SHEET NUMBER	REVISIONS 3			
	REVISIONS 4			
	FIELD CHANGES			
17				
OF 19				

