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LIST OF STANDARDS

B-5	06/01/94
B-71	03/10/95
E-100	08/08/95
E-101	08/08/95
E-102	08/08/95
E-107	08/08/95
E-107a	08/08/95
E-121	08/08/95
E-141	09/20/95
E-143	09/20/95
E-141	08/18/95
E-143	09/20/95
E-150	08/08/95
E-160	08/18/95
G-1	06/01/94
G-1d	06/01/94
SB-R6-82	01/06/95
T-1	06/01/94
T-2	06/01/94

STATE OF VERMONT AGENCY OF TRANSPORTATION

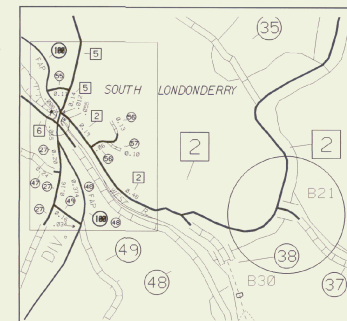


PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF LONDONDERRY COUNTY OF WINDHAM

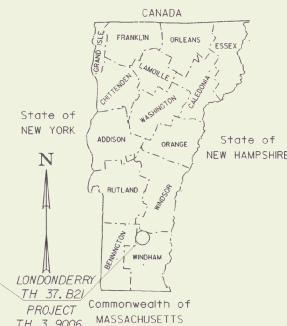
ROUTE NO : TH 37 CLASS 3 BRIDGE NO : 21

PROJECT LOCATION : BEGINNING AT THE INTERSECTION OF TH 2 AND TH 37 AND PROCEEDING
EASTERLY ALONG TH 37 FOR 0.10 MILE.
PROJECT DESCRIPTION : CONSTRUCT NEW STRUCTURE ALONG WITH RELATED ROADWAY APPROACH
AND CHANNEL WORK.

LENGTH OF STRUCTURE : 27.00 FEET.
LENGTH OF PARTICIPATION ROADWAY : 249.00 FEET.
LENGTH OF NON-PARTICIPATION ROADWAY : 0.00 FEET.
LENGTH OF PROJECT : 276.00 FEET.



LOCATION MAP



RECORD PLANS

CONTRACTOR: Miller Construction - Windsor VT
RESIDENT ENGINEER: M. MacKINTOSH
CONSTRUCTION BEGAN: JULY 8, 1997
CONSTRUCTION COMPLETE: JUNE 8, 1998

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY
THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY [Signature] RESIDENT ENGINEER
DATE Nov. 29, 2000

NOTE: Any further information concerning final quantities, amounts or other details
relative to this project may be found on microfilm in Central Files.

CONVENTIONAL SIGNS

COUNTY LINE	---
TOWN LINE	---
LIMITS OF ACCESS	---
POINT OF ACCESS	X
FENCE LINE	---
STONE WALL	---
TRAVELED WAY	---
GUARD RAIL	---
RAILROAD	---
SURVEY LINE	---
CULVERT	---
POWER POLE	---
TELEPHONE POLE	---
TREES	---
CONTROL OF ACCESS	---
PROPERTY LINE	---
R.O.W. TAKING LINE	---
SLOPE RIGHTS	---
TOP OF CUT	---
TOE OF SLOPE	---

DATUM
VERTICAL U.S. ARMY CORP OF
ENGINEERS
HORIZONTAL N/A



SCALE 1" = 60'-0"

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING
CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY
ADMINISTRATION OR THE DIRECTOR OF CONSTRUCTION
AND MAINTENANCE.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE
FEDERAL HIGHWAY ADMINISTRATION ON MARCH 5, 1991
FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT
REVISIONS AND SUCH REVISED SPECIFICATIONS AND
SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE
PLANS.

REVISED	DATE 11/31/97
REVISED	DATE 1/28/98
APPROVED <u>[Signature]</u> DATE <u>10/29/00</u> DIRECTOR OF ENGINEERING	
PROJECT LONDONDERRY PROJECT NO. TH 3 9006	
SHEET 1 OF 33 SHEETS	

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20.	WINGWALL REINFORCING DETAILS
21.	REINFORCING STEEL SCHEDULE
21A.	TRAFFIC SIGN SUMMARY SHEET
22-26.	REVISED T.H. 37 CROSS SECTIONS
27-33.	T.H. 2 CROSS SECTIONS

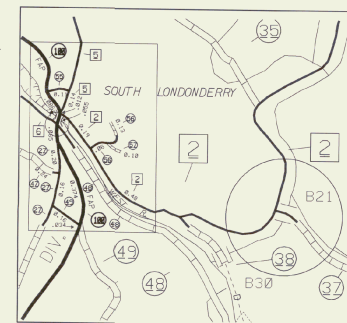
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E-141	08/18/95
E-143	09/20/95
E-150	08/08/95
E-160	08/18/95
G-1	06/01/94
G-1d	06/01/94
SB-R6-82	01/06/95
T-1	06/01/94
T-2	06/01/94

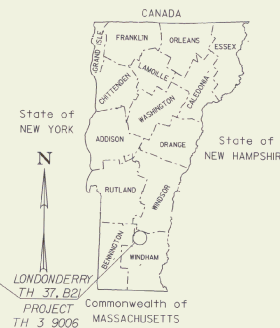
STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF LONDONDERRY COUNTY OF WINDHAM



LOCATION MAP



ROUTE NO : TH 37 CLASS 3 BRIDGE NO : 21

PROJECT LOCATION : BEGINNING AT THE INTERSECTION OF TH 2 AND TH 37 AND PROCEEDING
EASTERLY ALONG TH 37 FOR 0.0 MILE.

PROJECT DESCRIPTION : CONSTRUCT NEW STRUCTURE ALONG WITH RELATED ROADWAY APPROACH
AND CHANNEL WORK.

LENGTH OF STRUCTURE : -----27.00 FEET.
LENGTH OF PARTICIPATION ROADWAY : -----249.00 FEET.
LENGTH OF NON-PARTICIPATION ROADWAY : -----0.00 FEET.
LENGTH OF PROJECT : -----276.00 FEET.

RECORD PLANS

CONTRACTOR: MILLER CONSTRUCTION, WINDSOR, VT

RESIDENT ENGINEER: M. MACKINTOSH

CONSTRUCTION BEGAN: JULY 9, 1997

CONSTRUCTION COMPLETED: JUNE 6, 1998

RECORD PLANS BY: CONSTRUCTION FINALS

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY
THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED
HEREIN.

BY: *[Signature]*, RESIDENT ENGINEER

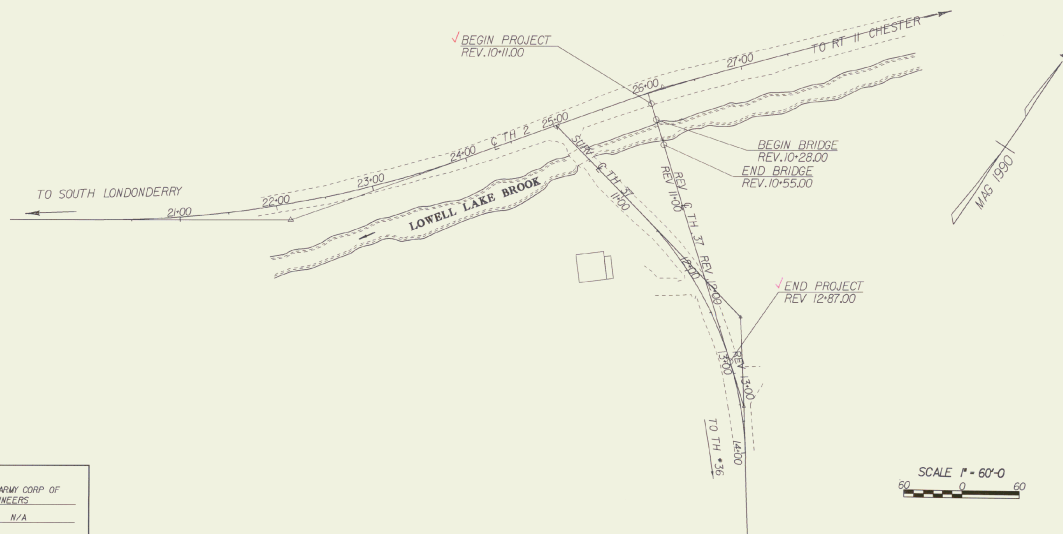
DATE: Nov. 29, 2000

NOTE: ANY FURTHER INFORMATION CONCERNING FINAL QUANTITIES,
AMOUNTS OR OTHER DETAILS RELATIVE TO THIS PROJECT MAY BE
FOUND ON MICROFILM IN CENTRAL FILES.

CONVENTIONAL SIGNS

COUNTY LINE	---
TOWN LINE	---
LIMITS OF ACCESS	---
POINT OF ACCESS	X
FENCE LINE	---
STONE WALL	---
TRAVELED WAY	---
GUARD RAIL	---
RAILROAD	---
SURVEY LINE	---
CULVERT	---
POWER POLE	---
TELEPHONE POLE	---
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PROPERTY LINE	---
R.O.W. TAKING LINE	---
SLOPE RIGHTS	---
TOP OF CUT	---
TOE OF SLOPE	---

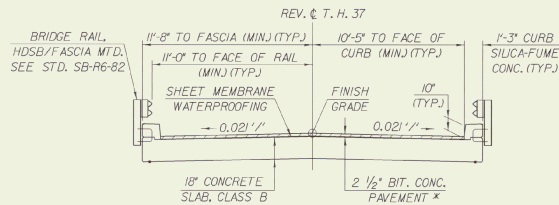
DATUM
VERTICAL U.S. ARMY CORP. OF
ENGINEERS
HORIZONTAL N/A



SCALE 1" = 60'-0"

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING
CHARGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY
ADMINISTRATION OR THE DIRECTOR OF CONSTRUCTION
AND MAINTENANCE.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE
FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990
FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT
REVISIONS AND SUCH REVISED SPECIFICATIONS AND
SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE
PLANS.

REVISED	DATE 1/31/97
REVISED	DATE 1/28/97
APPROVED _____ DATE _____	
DIRECTOR OF ENGINEERING	
PROJECT LONDONDERRY	
PROJECT NO. TH 3 9006	
SHEET 1 OF 33 SHEETS	

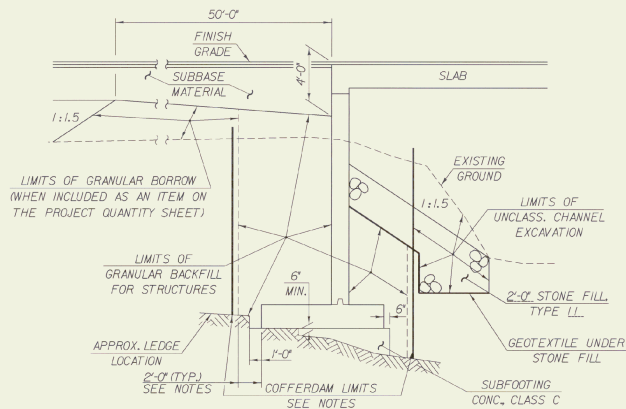


TYPICAL BRIDGE SECTION
SCALE: 1/4" = 1'-0"

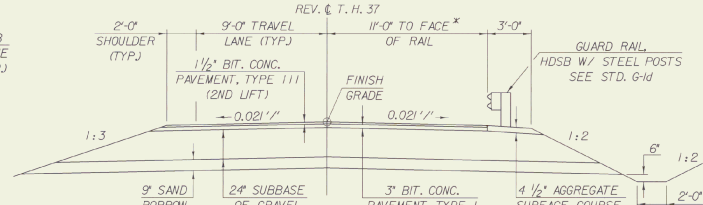
* 1ST LIFT: 1 1/4" TYPE IV
2ND LIFT: 1 1/4" TYPE III

NOTES

- COFFERDAM LIMITS TO BE DETERMINED BY THE CONTRACTOR.
- FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS OF COFFERDAM HAVE BEEN ASSUMED TO BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING.
- IF A COFFERDAM IS CONSTRUCTED WHICH IS MORE THAN THE INDICATED MINIMUM DISTANCE OUTSIDE THE FOOTING LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE MINIMUM COFFERDAM LIMITS SHOWN WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

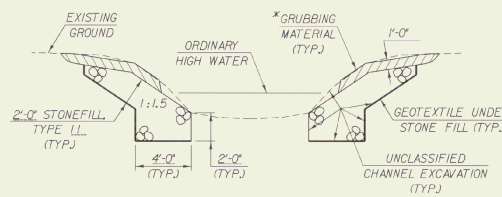


TYPICAL ABUTMENT SECTION
(NOT TO SCALE)



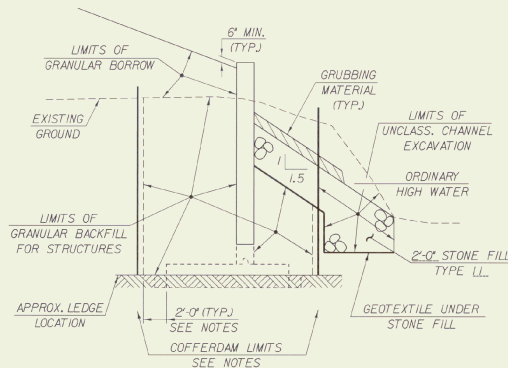
TYPICAL ROADWAY SECTION
SCALE: 1/4" = 1'-0"

* USE THIS DIMENSION FOR INSTALLING GUARD RAIL ALONG T.H. 2 (RT.)



TYPICAL CHANNEL SECTION
(NOT TO SCALE)

* GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



TYPICAL WINGWALL SECTION
(NOT TO SCALE)

EXISTING STRUCTURE

- STRUCTURE TYPE: STEEL BEAM CONCRETE AND TIMBER DECK OVERALL LENGTH: 20 FEET INVENTORY RATING: 8 FEET
- SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS: 6 FEET
- CLEAR SPAN LENGTH(S) NORMAL TO STREAM: 136.50 FT. VERTICAL CLEARANCE ABOVE STREAMBED: 9 FEET
- WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): 136.50 FEET WATER SURFACE ELEVATION @ 0.25: 130.65 FEET
- WATER SURFACE ELEVATION @ 0.25: 130.65 FEET WATER SURFACE ELEVATION @ 0.25: 130.65 FEET
- WATER SURFACE ELEVATION AT FLOOD OF RECORD: UNKNOWN YEAR: UNKNOWN ESTIMATED DISCHARGE: 120 CFS
- DOES ALL WATER PASS THROUGH EXISTING STRUCTURE? NO IF NOT, AT WHAT FREQUENCY AND ELEVATION DOES RELIEF OCCUR? 100 & 130.65 FT
- ADDITIONAL WATERWAY AREA PROVIDED BY RELIEF: 0.00 FEET
- TYPE OF SUBSTRUCTURE FOUNDATION MATERIAL: CONCRETE
- DISPOSITION OF STRUCTURE: REPLACE WITH NEW BRIDGE AT NEW LOCATION ABOUT 100 FEET NORTH OF EXISTING STRUCTURE

NEW STRUCTURE

- STRUCTURE TYPE: CONCRETE SLAB OVERALL LENGTH: 27 FEET
- SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS: 20 FEET
- VERTICAL CLEARANCE ABOVE STREAMBED OR ROAD UNDER: 9 FEET
- CLEAR SPAN LENGTH(S) NORMAL TO STREAM: 23 FEET
- WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): 134.50 FEET
- ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES?

HYDRAULIC DATA:					
1. Q 2.33:	400 CFS	WATER ELEVATION:	108.61 FEET	VELOCITY:	5.8 FPS
Q 1.0:	850 CFS	WATER ELEVATION:	108.61 FEET	VELOCITY:	7.2 FPS
Q 25:	1000 CFS	WATER ELEVATION:	108.61 FEET	VELOCITY:	7.8 FPS
Q 50:	1400 CFS	WATER ELEVATION:	108.61 FEET	VELOCITY:	8.2 FPS
Q 100:	1750 CFS	WATER ELEVATION:	108.61 FEET	VELOCITY:	8.6 FPS
2. DRAINAGE AREA		86.52 MI		CHARACTER OF TERRAIN	
				ROLLING HILLS MOSTLY FORESTED	

- DRAINAGE AREA: 96.50 AC. CHARACTER OF TERRAIN: ROLLING HILLS, MOSTLY FORESTED
- ARE THERE OBJECTIONS TO A PIER IN THE STREAM? N/A
- DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? YES IS ORDINARY RISE RAPID? YES
- NATURE OF NATURAL STREAMBED: COBBLES WITH SOME SMALL Boulders
- ESTIMATED SCOUR DEPTH: CONTROL & F.A.M.T. COMMENT ON: DRIFT SLIGHT ICE SLIGHT
- WILL ALL WATER PASS THROUGH NEW STRUCTURE? NO IF NOT, WHAT FREQUENCY AND ELEVATION WILL RELIEF OCCUR? 100 & 130.65
- ADDITIONAL WATERWAY AREA PROVIDED BY RELIEF: UNLIMITED
- VERTICAL CLEARANCE ABOVE OSH: 0.5 FEET
- ALLOWABLE WATER SURFACE ELEVATION: 130.65 FEET LIMITED BY: BOTTOM OF SLAB
- IS DESIGN STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO IF YES, DESCRIBE: 130.65 FEET
- ORDINARY LOW WATER: 10.0 CFS DEPTH: 0.5 FEET ORDINARY HIGH WATER: 0.5 CFS DEPTH: 20 FEET
- AVERAGE DAILY FLOW: 20 CFS STREAMBANK OR CHANNEL PROTECTION REQUIRED: STONE FINISHING WAS REQUIRED
- DISTANCE TO EXISTING UPSTREAM STRUCTURE: 1000 FEET SPAN: 6 FEET WATERWAY AREA OF FULL OPENING: 134.50 FT. 0
- DISTANCE TO EXISTING DOWNSTREAM STRUCTURE: 1600 FEET SPAN: 23 FEET WATERWAY AREA OF FULL OPENING: 134.50 FT. 0

ALLOWABLE STRESSES:				
1. DESIGN LIVE LOAD RASHTO:	HS 20			
2. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL:		ON LEDGE:	10 KSF	
3. ALLOWABLE LOAD FOR PILING:	N/A	TYPE:	ESTIMATED LENGTH:	
4. ALLOWABLE STRESS FOR STRUCTURAL STEEL RASHTO:	24 KSI	TENSION:		
5. ALLOWABLE STRESS FOR REINFORCING STEEL GRADE 60 TENSION:	24 KSI	COMPRESSION:	20 KSI	
6. ALLOWABLE STRESS FOR CONCRETE CLASS B:	4000 PSI			
CLASS C:	5000 PSI			
SILICA-FUME:	5000 PSI			

- TRAFFIC MAINTENANCE: YES IF YES, ON EXISTING STRUCTURE ONE WAY OR ON TEMPORARY BRIDGE: NO
- TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY: TRAFFIC CONTROL SIGNALS REQUIRED: MINIMUM CLEAR SPAN: MINIMUM CLEAR HEIGHT: ARE SIDEWALKS REQUIRED? IF SO, ON WHAT SIDE?

ADDITIONAL DESIGN CONSIDERATIONS

ROADWAY MATERIAL TOLERANCES

ITEM	TOLERANCE (IN.)
TOP COURSE	± 1/4"
BASE COURSE	± 1/2"
SUBBASE	± 1/2"
SAND BORROW	± 1/2"
GRANULAR BORROW	± 1/2"

LOAD FACTOR LOAD RATING (TONS)									
LOADING LEVELS	TRUCK								
	H	HS	352	6 AXLE	3A STR	4A STR	5A SEM	6A SEM	7A SEM
INVENTORY	29	50							
A = 2.17	44	75	90	51	53	90			
POSTED									
OPERATING									
A = 1.30	84	101	91						
RF = $\frac{W_{HL}}{W_{TL}} = 1.3 \frac{W_{HL}}{W_{TL}}$ A x W _{TL}									
PRELIMINARY INFORMATION									
YEAR ADT DHV ADTT % T % D 1996 170 25 30 20 71 2016 220 30 40 24 71					Designed By: G. COLGROVE Checked By: Date: 3/26 T. SCHWELZENBACH PROJECT: LONDONDERRY TH3 - 9006 I.C. Current as of 1/1/2006 Bridge Sheet No.: 2 of 33				

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STATE OF VERMONT
AGENCY OF TRANSPORTATION
STRUCTURES DIVISION

[illegible]

BRIDGE QUANTITY SHEET

GWC 1/28/97

GWC 1/31/97

**ARCHIVED
ON CADD**

\\vaot_cadd\files\ingcabinets\89\093\construction\000041.dgn 20-JUL-2000 15:08

TH 37 REV 10:57 TO 11:44 RT.
TH 37 REV 10:57 TO 11:38 LT.
ML TH 2 STA 24:56 TO 25:82 RT.
ML TH 2 STA 26:17 TO 27:12 RT.

TH 37 REV 10-27 TO 10-57 RT
TH 37 REV 10-27 TO 10-57 LT.

STOP SIGN @ ~ SL TH 37 STA 10+23 LT.
 TH L37 SIGN @ ~ SL TH 37 STA 10+13 RT.
 BRIDGE POSTED ... SIGN @ ~ SL TH 37 STA 10+29 RT.
 BRIDGE POSTED ... SIGN @ ~ SL TH 37 STA 10+52 LT.

STOP SIGN @ TH 37 REV 10-21, 28' LT.
*TH L37" SIGN @ TH 37 REV 10-21, 35' RT.

STOP AHEAD SIGN @ TH 37 REV. 12-90, 17' LT.
LEGAL LOAD LIMIT SIGN @ TH 37 REV. 10-61, 17' RT.

30' STOP LINE @ TH 37 REV. 10+17' LT.

TH 37 REV 11:32 RT.
TH 37 REV 11:25 LT.
ML TH 2 STA 24:68 RT.
ML TH 2 STA 27:00 RT.

TH 37 REV 12.06 $\Delta = 48^{\circ}-14'-23''$

TH 37 REV 11-96 RT.

U.S. ARMY CORP.
OF ENGINEERS
BM • 150 19
25+47 35' LT
EL. 1036.42

⊗ REMOVAL OF INDIVIDUAL TREES AND STUMPS
TO BE INCLUDED WITH ITEM 2011, "CLEARING
AND GRUBBING" FOR THIS PROJECT.

BEGIN R.O.W. PROJECT
REV. 10+24.75 66' LT

NOTE

THIS SHEET IS FOR R.O.W. LIMIT
DETAILS ONLY. REFER TO THE
REMAINING PLAN SHEETS FOR
ALL OTHER CONTRACT DETAILS.

* SET THESE SIGNS AND POSTS ASIDE FOR REINSTALLATION.

THE CONTRACTOR IS NOT PERMITTED TO DISTURB THE AREA NORTHEAST OF THIS CONSTRUCTION OPERATIONS LIMIT. THIS LIMIT IS DEFINED AS BEING 10 FEET NORTHEAST OF THE CUT OR FILL LINE AS SHOWN.

EXISTING BRIDGE INFORMATION
STEEL BEAM CONCRETE DECK
SPAN LENGTH = 16'
DECK WIDTH = 19'

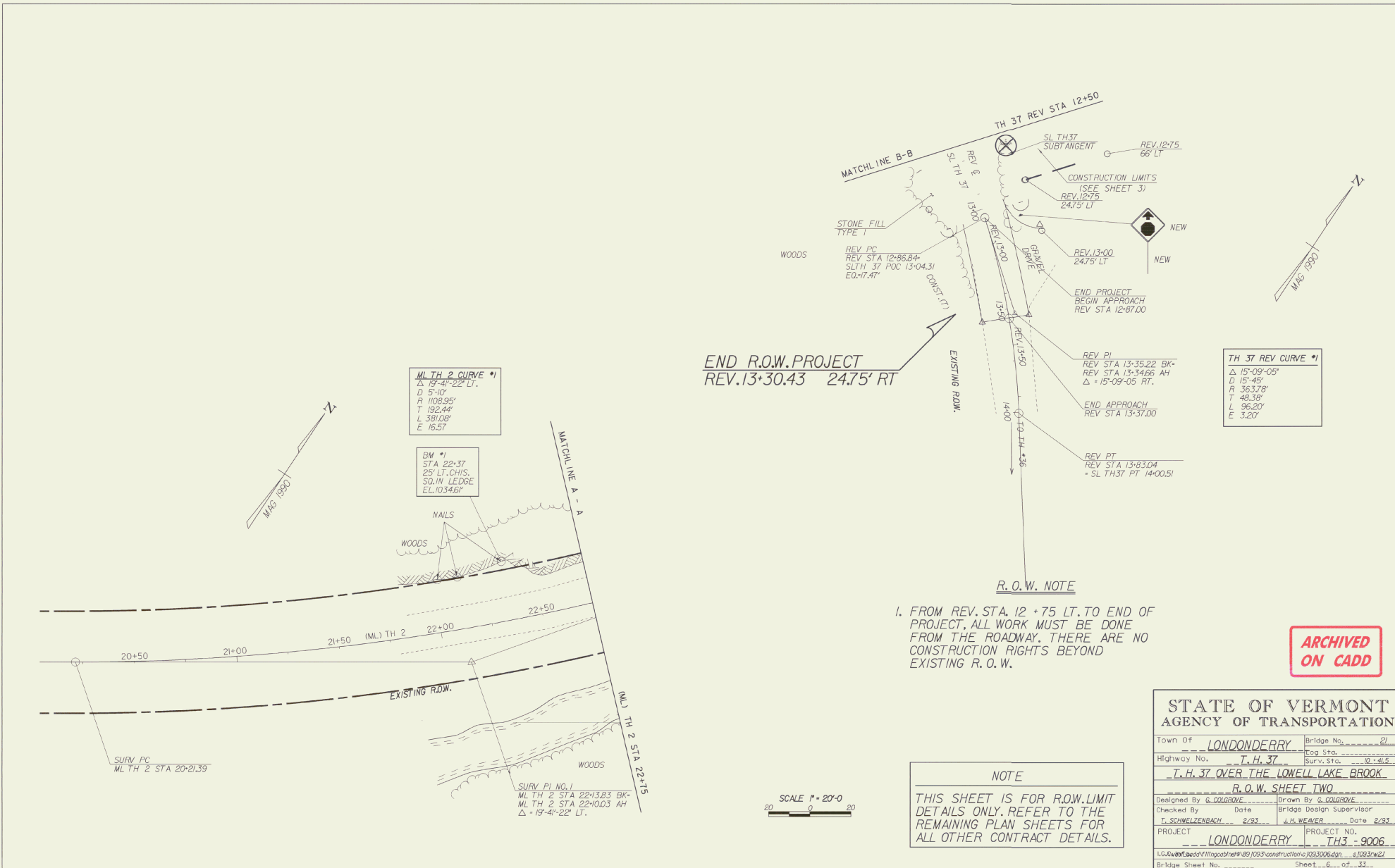
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	<u>LONDONDERRY</u>	Bridge No.	<u>21</u>
Highway No.	<u>T. H. 37</u>	Top Sta.	
		Surv. Sta.	<u>12+41.5</u>
<u>T. H. 37 OVER THE LOWELL LAKE BROOK</u>			

<u>R. O. W. SHEET ONE</u>	
Designed By <u>G. COLGROVE</u>	Drawn By <u>G. COLGROVE</u>
Checked By _____ Date _____	Bridge Design Supervisor
<u>T. SCHMEIZENBACH</u> <u>2/93</u>	<u>J.H. WEAVER</u> Date <u>2/93</u>
PROJECT <u>LONDONDERRY</u>	PROJECT NO. <u>TH3 - 9006</u>
I.G. <u>Cvent</u> <u>add'l</u> <u>in</u> <u>the</u> <u>plan</u> <u>for</u> <u>the</u> <u>bridge</u> <u>at</u> <u>the</u> <u>intersection</u> <u>of</u> <u>US</u> <u>93</u> <u>and</u> <u>US</u> <u>108</u> <u>in</u> <u>the</u> <u>city</u> <u>of</u> <u>Derry</u> <u>NH</u>	
Bridge Sheet No.	Sheet # <u>5</u> of <u>33</u>

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GUARD RAIL - HEAVY DUTY STEEL BEAM

- ✓ TH 37 REV 10:57 TO 11:44 RT.
- ✓ TH 37 REV 10:57 TO 11:38 LT.
- ✓ ML TH 2 STA 24:56 TO 25:82 RT.
- ✓ ML TH 2 STA 26:17 TO 27:12 RT.

BRIDGE RAILING - HEAVY DUTY STEEL BEAM/FASCIA MOUNTED

- TH 37 REV 10:27 TO 10:57 RT. ✓
- TH 37 REV 10:27 TO 10:57 LT. ✓

REMOVE SIGNS

- *STOP* SIGN @ ~ SL TH 37 STA 10:23 LT. ✓
- *TH L37* SIGN @ ~ SL TH 37 STA 10:13 RT. ✓
- *BRIDGE POSTED ...* SIGN @ ~ SL TH 37 STA 10:29 RT. ✓
- *BRIDGE POSTED ...* SIGN @ ~ SL TH 37 STA 10:52 LT. ✓

ERECT SALVAGED SIGNS

- *STOP* SIGN @ TH 37 REV 10:21:28 LT. ✓
- *TH L37* SIGN @ TH 37 REV 10:21:35 RT. ✓

INSTALL SIGNS

- ✓ *STOP AHEAD* SIGN @ TH 37 REV 12:90, 17' LT.
- ✓ *LEGAL LOAD LIMIT* SIGN @ TH 37 REV 10:61, 17' RT.
- STOP @ TH 37 REV 10:21:28

PAINT LINE MARKERS

- ✓ 30" STOP LINE @ TH 37 REV 10:17' LT.

ANCHOR FOR STEEL BEAM RAIL

- TH 37 REV 11:32 RT. ✓
- TH 37 REV 11:25 LT. ✓
- ML TH 2 STA 24:68 RT. ✓
- ML TH 2 STA 27:00 RT. ✓

CULVERT

- TH 37 REV 12:06 Δ: 48'-14'-23"
- 11:56 LT - 12:16 RT 24" X 60" CPEP

CONSTRUCT DRIVE

- TH 37 REV 11:96 RT. ✓

4" WHITE LINE

- 10:11 - 13:37 RT
- 10:11 - 13:37 LT

24" STOP BAR 10:17 @

SF TYPE I

- 10:50 - 13:00 LT
- 10:50 - 11:50 RT

4" YELLOW LINE

- 10:11 - 13:37 LT

ML TH 2 STA 26:00 =
TH 37 REV 10:00
Δ TANGENT TO CURVE = 92° 16' 53.52"

BEGIN APPROACH
ML TH 2 STA 27:61.76

SURV. PI NO. 2
ML TH 2 STA 26:16.42 BK
ML TH 2 STA 26:16.35 AH
Δ = 4'-33' RT.

10' DEAD HEMLOCK

STONE WALL

92° 16' 53.52"

26+50

26+00

25+50

25+00

24+50

24+00

23+50

23+00

22+50

22+00

21+50

21+00

20+50

20+00

19+50

19+00

18+50

18+00

17+50

17+00

16+50

16+00

15+50

15+00

14+50

14+00

13+50

13+00

12+50

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7+50

7+00

6+50

6+00

5+50

5+00

4+50

4+00

3+50

3+00

2+50

2+00

1+50

1+00

0+50

0+00

-1+50

-1+00

-2+50

-2+00

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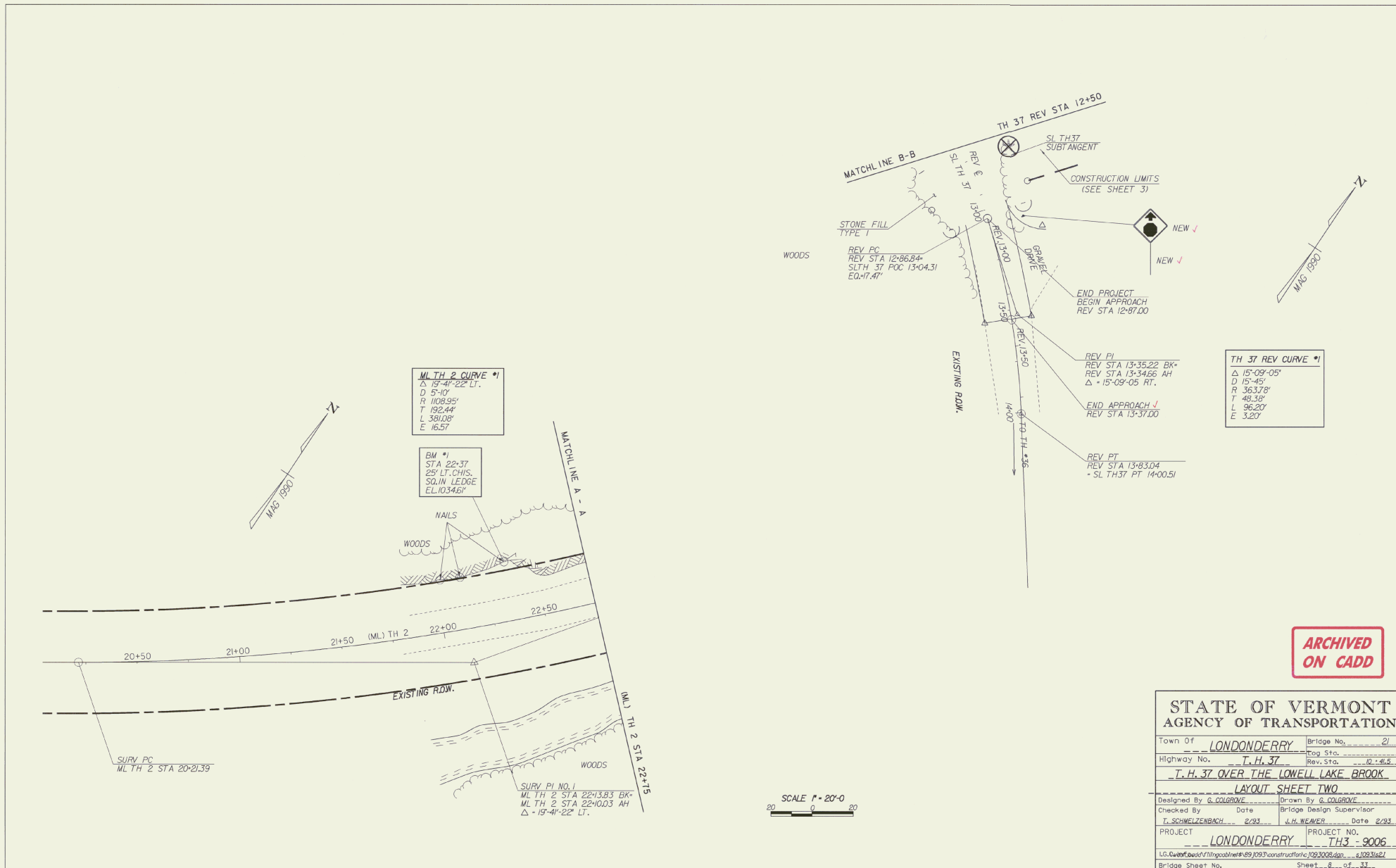
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GENERAL NOTES

General Items

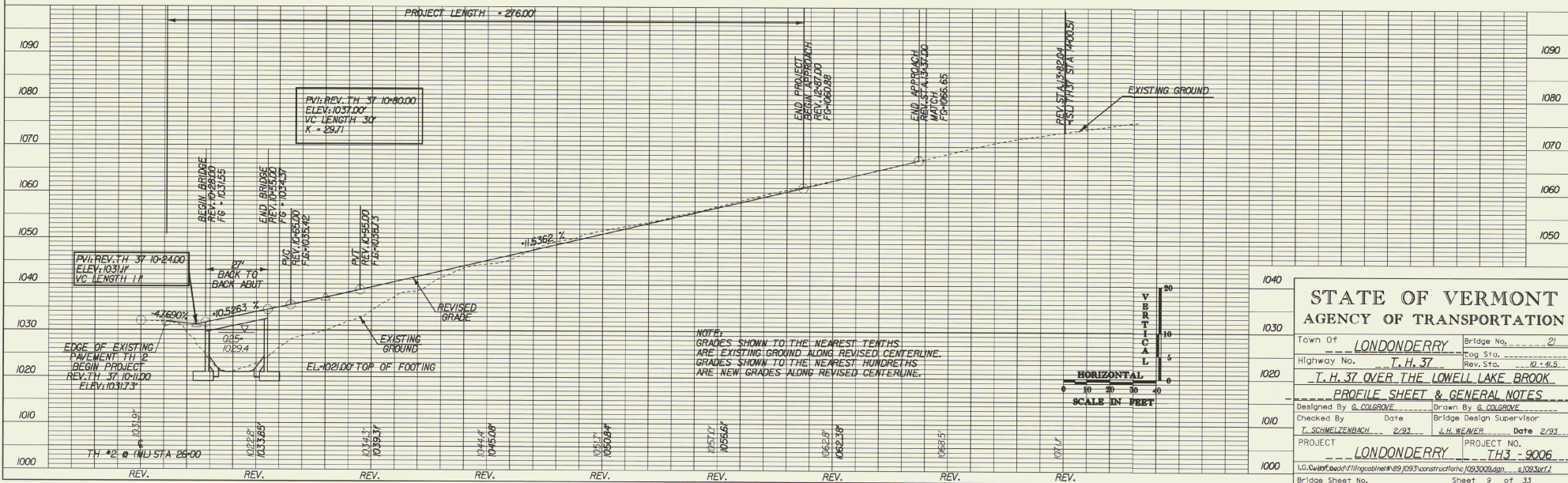
1. All materials and construction shall conform to the State of Vermont, "Agency of Transportation Standard Specifications for Construction," dated 1990, and its latest revision. Subsequent notes will refer to sections of this publication. The materials and construction shall also conform to the "AASHTO Standard Specifications for Highway Bridges," dated 1992, and its latest revision.
2. All work must conform to the United States Army Corp. of Engineers permit issued February 2, 1996.

In Stream and Erosion Control Items

3. The Contractor may work in the stream from June 1 to October 1. The Contractor must have written approval from the Vermont Agency of Natural Resources to work in the stream from October 2 to May 31.
4. The Agency prohibits the Contractor from using the wetlands east of REV TH 37 for staging.
5. The Contractor will maintain the State Water Quality Standards at all times. The Contractor's erosion control and/or water management plan shall be subjected to a review by the Stream Alteration Engineer. The Contractor must also obtain the 1272 Order before receiving the notice to proceed from the Agency's Construction Division.
6. The Contractor shall prevent siltation or pollution into the Lowell Lake Brook according to the Agency's Specifications section 105 or as directed by the Engineer. The Contractor must take special precautions in this matter so as to provide protection for the endangered species, Eastern pearl shell mussels, that exist in close proximity down stream.
7. All in stream channel work will take place in a dry channel. See stream alteration permit for further information. Cofferdams have been selected as the appropriate bid item for this work.
8. The Contractor shall prevent erosion behind the wingwalls with item 613.10 "Stone Fill Type I" as shown on the plans or as directed by the Engineer.

SEE SHEET 10 FOR
MORE GENERAL NOTES

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GENERAL NOTES (CONTINUED)

Earthworks Items

9. The Contractor shall not disturb any ledge encountered during excavation for Stone Fill Type II.
11. The Contractor shall place "Stone Fill Type II" in front of the abutments before placing the bridge deck concrete.
12. The Contractor may backfill the abutment up to two feet below the bridge seat before placing the bridge deck concrete. The Contractor may backfill the abutments and place subbase material to grade once the bridge deck concrete has cured to the required strength.
13. The Contractor shall fertilize, seed and mulch all cut and fill slopes and other disturbed areas according to section 651, "Turf establishment." This work shall also be according to the seeding formula found on sheet 14, or as directed by the Engineer.
14. The cofferdam at abutment one on the revised alignment, shall include necessary provisions for slope stability. This cofferdam shall safely support an uninterrupted traffic load on TH 2 and be designed accordingly.

Existing Bridge and Roadway Removal Items

15. The H-pile curbs and guard rails belong to District 2. The Contractor shall stock pile these on the site for later removal by the District upon completion of the project. Removal of the railing will be paid under item 525.10, "Removal of Existing Railing."
16. The structural steel on this project is painted with a material that may contain lead. The structural steel is the property of the Town. The Contractor shall take special precautions to keep the steel in its present condition until they have transferred it to the town's possession. The Contractor shall stock pile these beams on the site for later removal by the Town upon completion of the project. Payment for this work shall be subsidiary to item 529.15, "Removal of Structure."
17. The item 529.15 "Removal of Structure" shall include removal of the entire superstructure (except bridge pavement,) over burden and all portions of existing substructures not removed under item 204.40 "Cofferdam" or item 203.27 "Unclassified Channel Excavation." The only exception is the abutment approximately at SL TH 37 Station 10+33. The existing abutment at this location shall be cleared of all fractured portions and left in place as indicated on the layout plan sheet and the cross sections. The abutment approximately at SL TH 37 Station 10+55 shall be removed to the new ground level shown in the plans. Any portion below the new ground level will remain in place.
18. The Contractor shall remove all existing pavement from the existing TH 37 roadway. This work is to be according to the Specification section 203 and paid for by item 203.28 "excavation of surfaces and pavements."

Traffic and Signing Items

19. The Contractor shall install and maintain construction signs and barricades on the project as per standards. Item 635.10 "Mobilization" shall include installing and maintaining the construction signs and barricades.
20. The Contractor shall maintain all traffic on the existing roadway and bridge, indicated as "SL TH 37" on the plan layout sheet. This will be included with item 527.10 "Maintenance of Traffic for Bridge projects." The Contractor must transfer traffic to the new roadway and bridge safely. The layout plan sheet indicates the new roadway as "REV TH 37."
21. The Contractor must maintain all traffic on TH 2 without interruption using item 630.15 "Flaggers" and item 621.90 "Temporary Traffic Barrier." If the project requires that one-lane traffic be necessary the Contractor is responsible for providing flaggers and all appropriate signing.
22. If one-lane traffic is necessary on TH 2, the Agency will only allow this work during day light hours. During Night time hours the Contractor must restore two-lane traffic to original capacity on TH 2. The item 621.90 "Temporary Traffic Barrier" is included for the Contractors use in separating traffic on TH 2 and from the excavation of Abutment one.
23. If the sign is in good condition according to the Engineer, the Contractor will remove and reset the "STOP" sign, as shown on the plans. Despite it's condition, the "TH L37" sign will be relocated, as shown on the plans. The Contractor will use item 676.50 "Removing Signs" and item 676.60 "Erecting Salvaged Signs" for each of the respective duties. The Contractor will remove and return all other signs to the Town upon completing the project. This work will be paid for by item 676.50. If the "STOP" sign is to be replaced, the Contractor shall include the new sign in item 675.20 "Traffic Signs, Type A" and item 675.30 "Flanged Channel Sign Post."

Design Criteria and Material Specification

24. The plans show all the dimensions on plans as horizontal or vertical. The Contractor shall assume these dimensions at 68 degrees Fahrenheit unless otherwise noted.
25. The Agency has designed this project for the HS-25 live loading with no allowance for future paving.

Concrete Items

26. Drilling and grouting shall be according to section 507. This item shall be paid for under the item 507.16 "Drilling and Grouting Dowels."
27. Only the curbs on this project will use Silica Fume concrete. The rest of the concrete in the structure will be Class B. The subfootings will be concrete Class C.
28. The Contractor is to form, place, cure, finish and load concrete according to the Specifications section 501.
29. All exposed edges of concrete shall be chamfered 1" by 1".
30. The Contractor shall construct joints and score marks in concrete as indicated on the plans or as directed by the Engineer. The key in concrete construction joints shall be monolithic and continuous for the full length of the joint.
31. The Steel Fabricator shall detail and fabricate all reinforcing steel using procedures and tolerances according to applicable publications of the "Concrete Reinforcing Institute."
32. Minimum cover for reinforcing steel shall be two inches along backfaces of walls against earth, one and a half inch at bottom of bridge deck, and three inches else where.
33. The tolerance for spacing reinforcing steel shall be plus or minus one inch. The tolerances for concrete cover of reinforcing steel shall be plus or minus one quarter of an inch.
34. Reinforcing steel in the bridge deck shall be epoxy coated. Flame cutting of epoxy coated reinforcing steel is unacceptable. The Contractor shall treat the cut ends of epoxy coated reinforcing steel with material and procedures approved by the coating manufacturer.
35. A three day (72 hours) waiting period shall be between adjacent concrete placements at all vertical construction joints (unless otherwise noted.)
36. For bridge deck concrete placements, the maximum time limit for any placement done in one day shall be eight hours. A minimum delay of 96 hours shall be between the completion of one day's concrete placement and the beginning of other adjacent concrete placements. All individual placements shall start from the low end of the bridge.
37. The Contractor shall apply water repellent to all exposed concrete surfaces, both substructure and superstructure, except the underside of the deck between drip notches.
38. The Contractor shall excavate the ledge to provide a level surface as shown in these plans or as directed by the Engineer. The cost of all this excavation shall be paid for under item 204.40, "Cofferdam." All overbreakage shall be replaced with "Concrete Class B." A maximum of 6" average concrete depth shall be paid for, while any additional concrete shall be at the Contractor's expense.
39. The Resident Engineer shall contact the Structures Division Office if major portions of ledge differs in elevation by 1'-0" or more as shown in these plans. The Structures Division will then further evaluate the substructure design details for any need of modifications.

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STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of <u>LONDONDERRY</u>		Bridge No. <u>21</u>	
Highway No. <u>T. H. 37</u>		Log Sta. <u></u>	
<u>T. H. 37 OVER THE LOWELL LAKE BROOK</u>		BarvSSNo. <u>00-4650</u>	
GENERAL NOTES (CONTINUED)			
Designed By <u>G. COLGROVE</u>		Drawn By <u>G. BOW</u>	
Checked By <u>T. SCHMELZENBACH</u>		Date <u>2/96</u>	
PROJECT <u>LONDONDERRY</u>		PROJECT NO. <u>TH3 - 9006</u>	
Bridge Sheet No. <u></u>		Sheet <u>02</u> of <u>33</u>	

AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

R.O.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

▼	Water Elevation
▼	Standard Penetration Boring
Q	Auger Boring
Q	Rod Sounding
Q	Sample
N	Standard Penetration Test
	Blow Count Per Foot For:
	2 1/2" D. Sampler
	1 3/4" I.D. Sampler
	Hammer Weight of 140 Lbs.
	Hardfall Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
BC	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/2"
BX	Core Size 1 3/4"
NX	Core Size 2 1/8"
DL	Double End Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
W	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Sl	Silt
Cl	Clay
CP	Hardpan
L	Ledge
NLTd	No Ledge To Depth
CNPF	Can Not Penetrate Further
TB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
2Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
	Less Than
	Greater Than
R	Refusal (N > 100)

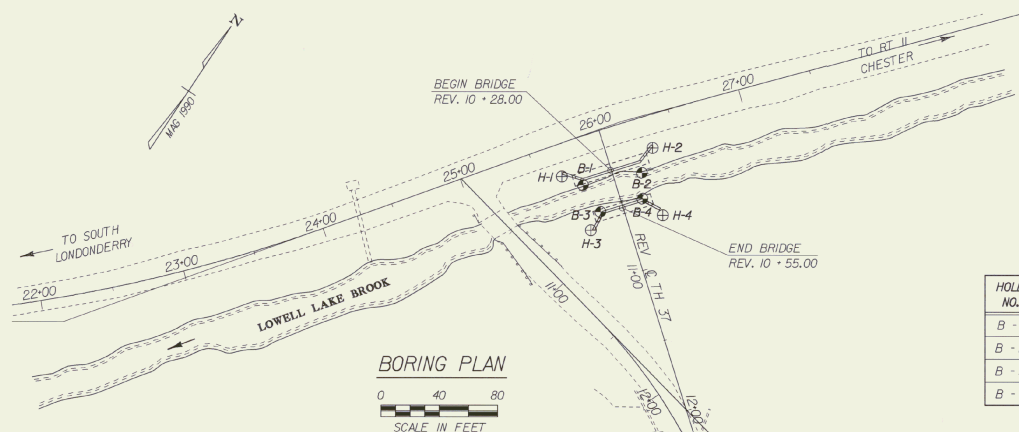
COLOR	
pnk	Pink
pu	Purple
rd	Red
tn	Tan
wh	White
yel	Yellow
mitc	Multicolored

ELEV.	DEPTH	BLOCKS ON CASTING	PENETRATION NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
ELEV. 1023.55						
TOP OF P.T.O. SUBT. NO. 1 ELEV. = 1021.0'						Top of bedrock @ 2.5'
						Run 1B MNC 2.5 - 7.5 Rec. 4.5
						Run 2B MNC 7.5 - 12.0 Rec. 2.0
	10					See Geologist's Report
						Hole stopped @ 12.0' in Bedrock.
						Geologist's Reports
	20					Core consists of medium grained biotite gneiss. The rock is hard, slightly weathered on fracture planes and competent
						RUN RECDY. #90 1 90% 12X 2 44%

ELEV.	DEPTH	BLK. ON CARD NO.	STATION PENETRATION NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
ELEV. 1022.84						
TOP OF FTG. ABUT. NO. 1 ELEV. = 1021.0'						
						BOULDERS
						Top of Bed-rock @ 5.5'
						Run 1 BX/MDC 5.5 - 10.5 Rec. 4.8
10						Run 2 BX/MDC 10.5-15.5 Rec. 5.0
						See Geologist's Report
						Hole stopped @ 15.5' in Bed-rock.
						Geologist's Report
20						Core consists of medium grained biotite gneiss. The rock is hard, slightly weathered on fracture planes and competent.
						RUN RECOV. ROD
						1 96Z 77Z
						2 100Z 80Z
30						

ELEV. 1022.77	DEPTH DOWN ELEV. (AS IND.)	STANDARD 15 CM SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
TOP OF FTG. ABUT. NO. 2					BOULDERS
ELEV. = 1021.0'					Top of Bedrock @ 4.0'
					Run 1# HXMC 4.0 - 9.0 Rec. 3.0
					Run 2# HXMC 9.0 - 14.0 Rec. 4.7
10					See Geologist's Report
					Hoie topped @ 14.0' in Bedrock.
20					Geologist's Report
					Core consists of medium grained biotite granite. The rock is hard, un- weathered and completely except for the seam from 7' - 9'.
30					RUN RECON. ROD 1 60% 20% 2 94% 50%

	DEPTH DOWN IN FEET	STANDARD CORRECTION ON SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
ELEV. 1002.74					
TOP OF FTG. ABUT. NO. 2 ELEV. +100.0'					
10					GRAVEL AND BOULDERS Top of Bedrock @ 6.0' Soft Rock 6.0 - 9.0' Run 1: EXMC 9.0 - 14.0' Rec. 4.7 Run 2: EXMC 14.0-19.0' Rec. 5.0 See Geologist's Report
20					Hole stopped @ 19.0' In Bedrock. Geologist's Report Core consists of medium grained biotite gneiss. The rock is hard un- weathered and competent
30					RUN RECD. ROD 1 54% 50% 2 100% 90%



HOLE NO.	REV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B - 1	10 + 32	2' RT.	1023.55	1021.05
B - 2	10 + 36	20' LT.	1022.84	1017.34
B - 3	10 + 53	15' RT.	1022.77	1018.77
B - 4	10 + 53	15' LT.	1023.74	1017.74

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock $< 3'$ and $> 0.075"$ (#10 sieve).

SAND - Particles of rock $< 0.075"$ (#10 sieve) and $> 0.0025"$ (#200 sieve).

SILT - Soil $< 0.0025"$ (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing 7-10% organic material).

MOISTURE CONTENT - Weight of water held by weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

1. The subsurface explorations shown herein were made between 7-20-33 and 7-28-33, by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual conditions of the subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may not be accurate for the prevailing rainfall, methods of exploration and other factors.

4. Engineering Judgement was exercised in preparing the subsurface information presented herein. Analysis and Interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Interpretation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for additional investigation. Independent Interpretation, Independent analysis or Judgement by the Contractor,

5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.

6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

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Town Of	<u>LONDONDERRY</u>	Bridge No.	<u>21</u>
Highway No.	<u>T. H. 37</u>	Cog Sta.	<u>0 + 00</u>
<u>T. H. 37 OVER THE LOWELL LAKE BROOK</u>		Surf. Sta.	<u>0 + 41</u>
<u>BORING INFORMATION SHEET ONE</u>			
Designed By	G. COLANGELO	Drawn By	G. RAY
Checked By	G. COLANGELO	Date	4/8/96
	9/93	Bridge Design Supervisor	J.H. WEAVER
PROJECT	<u>LONDONDERRY</u>	PROJECT NO.	<u>TH3 - 9006</u>
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Bridge Sheet No.	<u>Sheet 11</u>	of 13	

BORING NO. H-1			
DEPTH	SLUGS ON CASTING	DESCRIPTION OF SAMPLE	LABORATORY CLASSIFICATION OF SOIL
ELEV. 1028.56		MOISTURE	COLOR
			BOULDERS
TOP OF FTG. ARBIT. NO. 1 ELEV. = 1021.0'			Top of Bedrock @ 7.0'
10			Run 18BXND 7.0 - 12.0 Rec. 5.0
			Run 218BXND 12.0-17.0 Rec. 5.0
			See Geologist's Report
20			Rate stopped @ 17.0' in Bedrock
			Geologist's Report II
			Core consists of a medium grained, biotite gneiss the rock is hard unweathered except for fracture surfaces, and competent.
30			Fractures in top 2 feet of Run #1 are slightly weathered.
			RUN RECDY. 900 1 1002 653 2 1002 872

BORING NO. H-2					
	DEPTH	BLOCKS ON CASTING	PENETRATION SAMPLE	MOISTURE	COLOR LABORATORY CLASSIFICATION OF SOIL
ELEV. 1029.94					
TOP OF FTG. ABUT. NO. 1 ELEV. = 1021.0'	10				Boulders Top of Bed-rock @ 9.0' BSMC 9.0' - 14.0' Rec. 4.7' See Geologist's Report
	20				Hole stopped @ 14.0' In bedrock. Geologist's Report: Core consists of medium grained bluish greens. The rock is hard, slightly weathered on fracture planes and competent.
				RUN	REC'D. ROD
				1	94X 57C

[illegible]

BORING NO. <u>H-4</u>					
DEPTH	STANDARD PENETRATION TEST C.S.I. LOG	TEST SAMPLE NUMBER	MOISTURE	COLOR	LABORATORY CLASSIFICATION OF SOIL
ELEV. 1028.30					Top of Bedrock @ 2.5'
					BMDC 2.5 - 7.5 Sec. 4.0 See Geologist's Report
					Hole stopped @ 7.5' in Bedrock.
					Geologist's Report It
					Core consists of a medium grained biotite gneiss. The rock is hard and unweathered except on fracture planes and competent.
					Top foot of core shows slight to moderate weathering on fracture planes.
					RUN RECDV. RQD 1 80Z 535

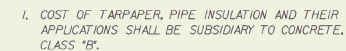
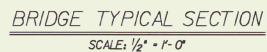
BORING CHART

HOLE NO.	REV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB.
H - 1	10 + 22	33' RT.	1028.56	1021.56
H - 2	10 + 22	32' LT.	1029.94	1020.94
H - 3	10 + 63	25' RT.	1029.94	1025.44
H - 4	10 + 68	25' LT.	1028.30	1025.80

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of LONDONDERRY Bridge No. 21
Highway No. T. H. 37 T.O. Sta. _____
Rev. Sta. 0 + 6.5
T. H. 37 OVER THE LOWELL LAKE BROOK
BORING INFORMATION SHEET TWO
Designed by G. COLANGE Drawn by G. ROE
Checked by _____ Date _____ Bridge Engineer Supervisor
G. COLANGE 9/23 L.H. WEAVER Date 9/23
PROJECT LONDONDERRY PROJECT NO. TH3 - 9006
LC: 60462 60462 11/19/2006 09 033 construction 10/23/2002 4 4393362
Boring Sheet No. _____ Sheet 2 of 3



% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREeping RED FESCUE	98	85
37.5	22.5	TALL FESCUE	90	95
5.0	3.0	RED FESCUE	95	90
15.0	9.0	BIROFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.015 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

Town Of LONDONDERRY Bridge No. 21
Highway No. T.H. 37 Cdn Sta. _____
T.H. 37 OVER THE LOWELL LAKE BROOK
Rebar/Stn. 0+45.00

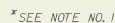
BRIDGE SLAB DETAILS

Designed By G. COLOMBE Drawn By R. ROY
Checked By Date Bridge Design Supervisor
T. SCHMELZLEBERG 2/26 J.E. WEBER Date 2/26

PROJECT LONDONDERRY PROJECT NO.
TH-3 - 9006

I.C. Client: http://municipal.mcgill.ca/891093/construction/109304.htm # 10930401
Bridge Sheet No. _____ Sheet 14 of 33

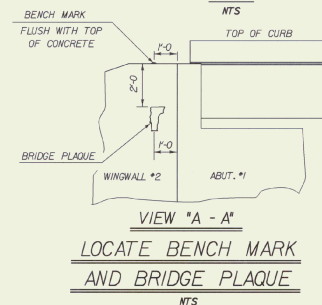
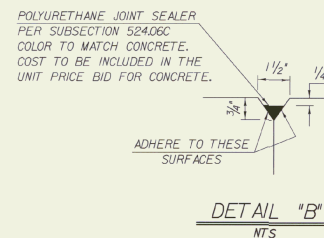
**ARCHIVED
ON CADD**



SCALE: 1" = 1'-0"



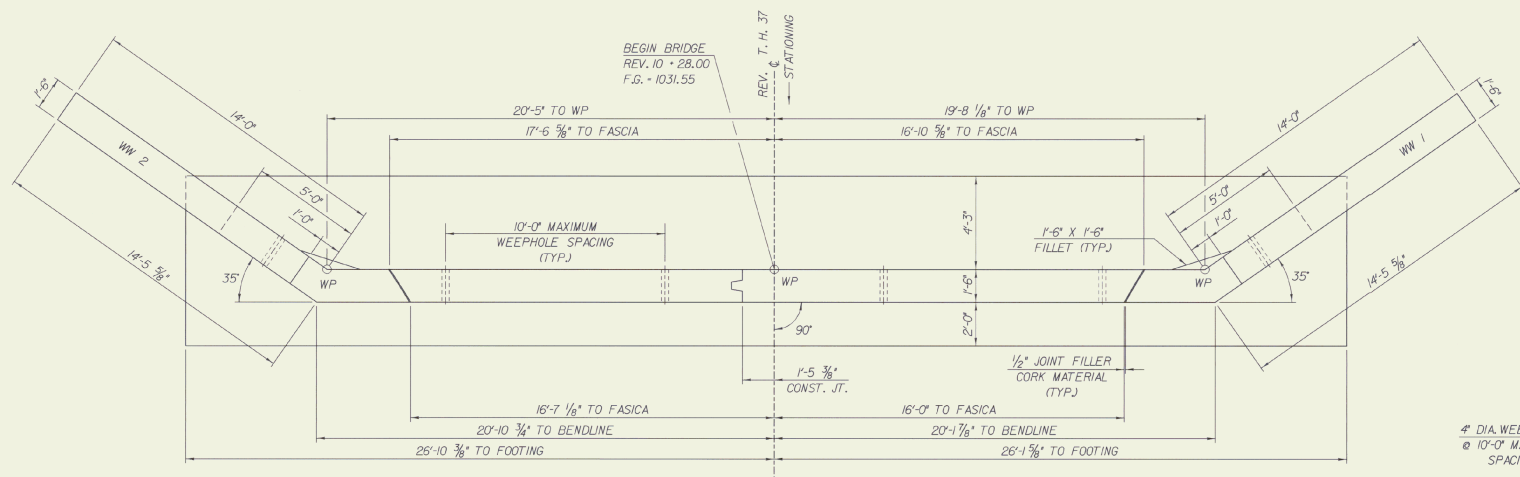
1. INDICATES AREA ALONG DECK AND UP FACE OF CURB FOR PLACEMENT OF 2 COATS OF POLYURETHANE MEMBRANE.
2. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SHEET MEMBRANE WATERPROOFING.
3. SHEET MEMBRANE WATERPROOFING SHALL EXTEND TO FACE OF CURB AS SHOWN AT LEFT.
4. BLAST CLEAN 3'-0" FROM FACE OF CURB AND 3' UP CURB FACE PRIOR TO PLACING MEMBRANE.
5. CONSTRUCTION JOINTS THROUGH CONCRETE CURBS SHALL BE SPACED A MAXIMUM OF 15'-0" CENTER TO CENTER AND SHALL BE 1'-6" MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
6. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION JOINTS. CURB REINFORCING STIRRUP BARS SHALL BE TURNED AS REQUIRED TO FIT FLARED ENDS.



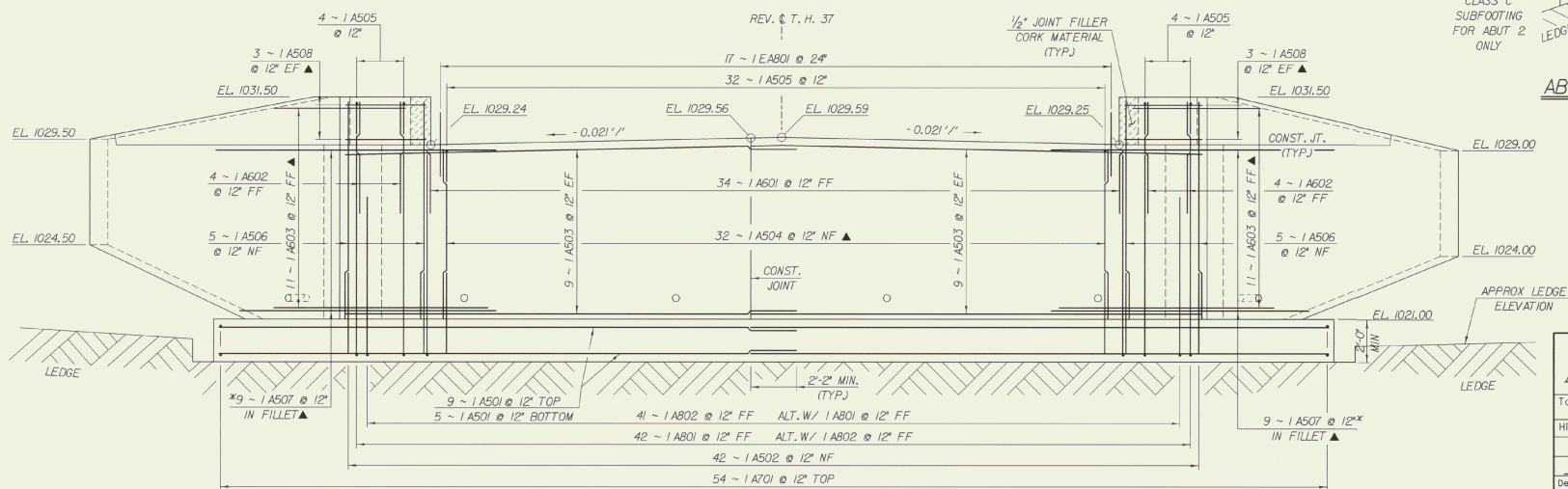
THE BENCH MARK AND BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
Town Of <u>LONDONDERRY</u>	Bridge No. <u>21</u>
Highway No. <u>T.H. 37</u>	Crd Sta. _____ BervSta. <u>0+650</u>
<u>T.H. 37 OVER THE LOWELL LAKE BROOK</u>	
<u>CURB AND BRIDGE RAIL DETAILS</u>	
Designed by <u>S. OGDEN</u>	Drawn By <u>B. ROE</u>
Checked By Date <u>T. SCHMEZLENACH</u> <u>2/36</u>	Bridge Design Supervisor Date <u>J.H. WEAVER</u> <u>2/36</u>
PROJECT <u>LONDONDERRY</u>	PROJECT NO. <u>TH3 - 9006</u>
I.C. Used under #110msbomr69-1993 construction 10/30/03/dan <u>10/30/03/bj</u>	
Bridge Sheet No.	Sheet <u>6 of 33</u>

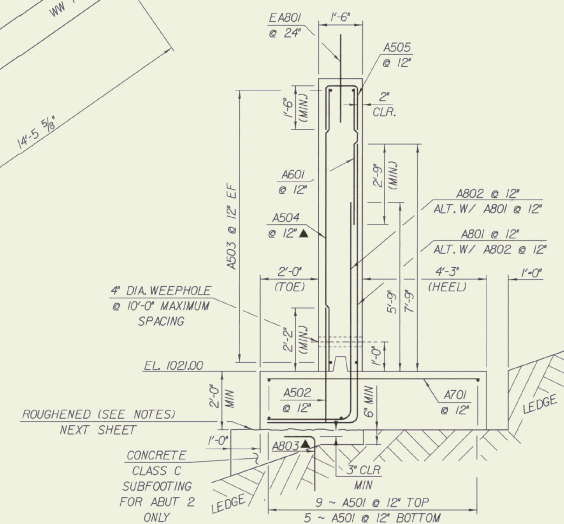
**ARCHIVED
ON CADD**



ABUTMENT NO. 1 PLAN

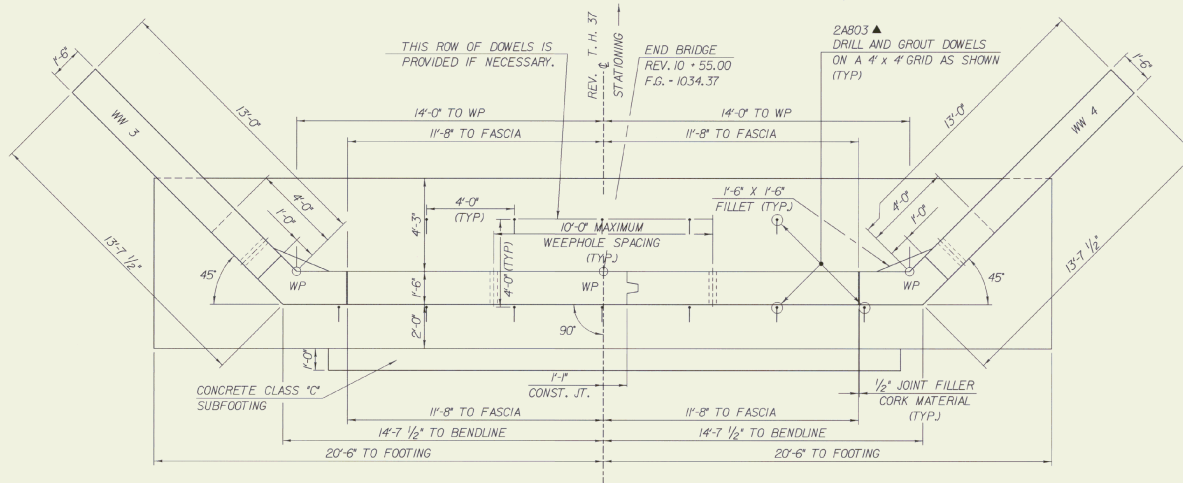


ABUTMENT NO. 1 ELEVATION

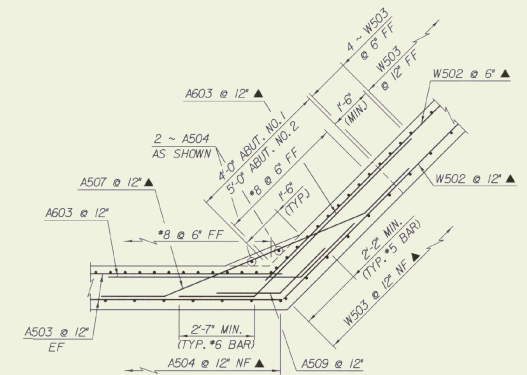


NOTE:

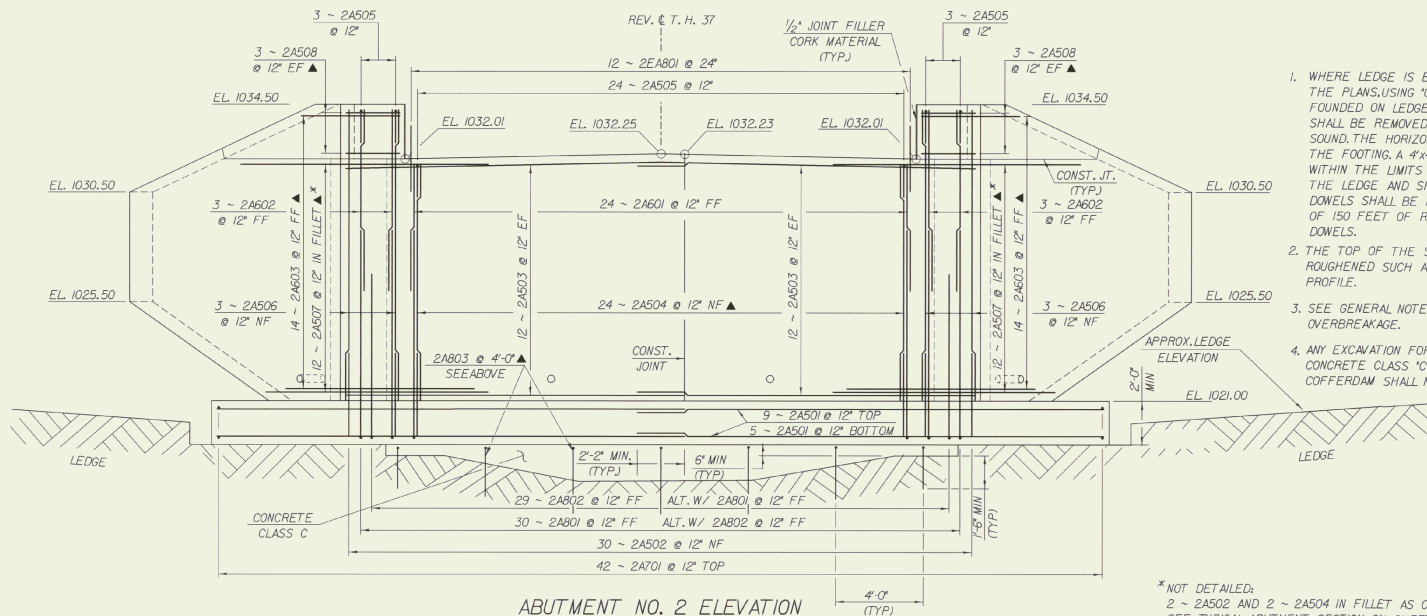
STATE OF VERMONT AGENCY OF TRANSPORTATION



ABUTMENT NO. 2 PLAN
SCALE: 3/8" = 1'-0"



TYPICAL WINGWALL CORNER REINFORCING DETAIL
BELOW BRIDGE SEAT
SCALE: 1/2" = 1'-0"
(FOR DETAIL ABOVE BRIDGE SEAT - CUT TO FIT)



ABUTMENT NO. 2 ELEVATION
SCALE: 3/8" = 1'-0"

1. WHERE LEDGE IS BELOW THE FOOTING ELEVATION, A SUBFOOTING SHALL BE PLACED, AS SHOWN ON THE PLANS, USING "CONCRETE CLASS 'C' UP TO THE FOOTING ELEVATION. THE SUBFOOTING SHALL BE FOUNDED ON LEDGE WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND OTHER DEBRIS. THE LEDGE SHALL BE REMOVED AS REQUIRED TO INSURE THAT THE SURFACE BENEATH THE SUBFOOTING IS SOUND. THE HORIZONTAL LIMITS OF THE SUBFOOTING SHALL BE ONE FOOT OUTSIDE THE LIMITS OF THE FOOTING. A 4"x4" GRID PATTERN OF #8 DOWELS SHALL BE DRILLED AND GROUTED INTO THE LEDGE WITHIN THE LIMITS OF THE FOOTING. THE DOWELS SHALL HAVE A MINIMUM OF 1'-6" EMBEDMENT INTO THE LEDGE AND SHALL EXTEND INTO THE SUBFOOTING. DRILLING AND GROUTING DOWELS SHALL BE PAID USING THE ITEM "DRILLING AND GROUTING DOWEL" AN ESTIMATED QUANTITY OF 150 FEET OF REINFORCING STEEL HAS BEEN INCLUDED IN THE REINFORCING SCHEDULE FOR THE DOWELS.
2. THE TOP OF THE SUBFOOTING SHALL BE INTENTIONALLY ROUGHENED SUCH AS WITH A GARDEN RAKE TO 1/4" +/- IN PROFILE.
3. SEE GENERAL NOTE 38 FOR MORE INFORMATION ON OVERBREAKAGE.
4. ANY EXCAVATION FOR THE PLACEMENT OF THE CONCRETE CLASS "C" SUBFOOTING IN THE COFFERDAM SHALL NOT BE CONSIDERED EXTRA WORK.

NOTE:

NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE
▲ - CUT TO FIT IN FIELD
3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

Town Of LONDONDERRY Bridge No. 21
Highway No. T.H. 37 Log Sta. 10 + 4.50
T.H. 37 OVER THE LOWELL LAKE BROOK
Served Sta. 10 + 4.50
ABUTMENT NO. 2 DETAILS
Designed By G. COLEMAN Drawn By G. COLEMAN
Checked By T. SCHMELZENBACH Date 2/96 Bridge Design Supervisor J.H. WEAVER Date 2/96
PROJECT LONDONDERRY PROJECT NO. TH3 - 9006
I.C. 1034.37 1034.37 1034.37 1034.37 1034.37 1034.37
Bridge Sheet No. 1 Sheet 1 of 33

**ARCHIVED
ON CADD**

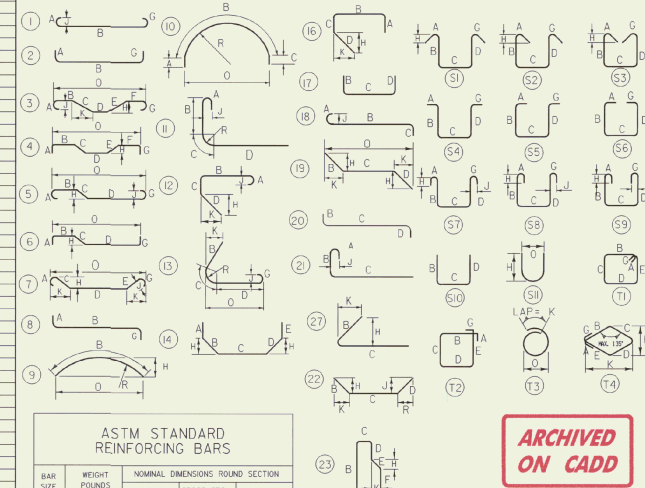
*NOT DETAILED:
2 ~ 2A502 AND 2 ~ 2A504 IN FILLET AS CONFIGURED IN N.F.
SEE TYPICAL ABUTMENT SECTION ON SHEET 17 AND WINGWALL
CORNER REINFORCING DETAILS THIS SHEET.

**ARCHIVED
ON CADD**

NO.	PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	NO.	PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
SLAB																		ABUTMENT NO. 2																	
57	5	17-9	ES503	STR														28	5	21-4	2A501	STR													
10	5	27-3	ES501	10			18-9	8-6										36-8	26-11	2A502	STR														
9	5	27-5	ES502	10			19-11	7-6										36-8	27-0	2A503	STR														
56	5	8-1	ES504	56		1-0	1-0	4-1	1-0									6	5	13-3	2A506	STR													
56	5	6-4	ES505	55		0-10	2-0	0-8	2-0			1-0						12	5	2-6	2A508	STR													
31	8	27-5	ES801	1		0-11	26-6							0-8				30	5	4-1	2A505	17			1-6	1-1	1-6								
3	8	6-11	ES802	1		0-11	6-0							0-8				24	5	12-7	2A507	22			2-2	8-3	2-2			0-10	0-10	2-0	2-0		
2	8	6-11	ES803	1		0-11	6-0							0-8				28	5	4-4	2A509	19			2-2	2-2				1-6		1-6			
2	8	7-8	ES804	1		0-11	6-9							0-8				25	6	6-4	2A601	STR													
3	8	8-11	ES805	1		0-11	8-0							0-8				6	6	8-3	2A602	STR													
2	8	10-2	ES806	1		0-11	9-3							0-8				80	6	9-4	2A603	19													
2	8	11-5	ES807	1		0-11	10-6							0-8				44	7	7-3	2A701	STR													
2	8	12-11	ES808	1		0-11	12-0							0-8				30	8	12-7	2A801	17			9-6	3-1									
2	8	14-8	ES809	1		0-11	13-9							0-8				30	8	10-6	2A802	17			7-6	3-0									
2	8	16-11	ES810	1		0-11	16-0							0-8				12	8	3-0	2A803	17			0-9	3-0									
1	8	17-11	ES811	1		0-11	17-0							0-8				12	8	3-0	2EA801	STR													
10	9	27-3	ES901	10			18-9	8-6										36-8	26-11	2A901	STR														
10	9	27-5	ES902	10			19-11	7-6										36-8	27-0	2A902	STR														
ABUTMENT NO. 1																		WINGWALL NO. 3																	
28	5	27-4	IA501	STR														5	5	3-11	3W501	STR													
46	5	3-11	IA502	STR														40	5	13-3	3W502	STR													
36	5	21-5	IA503	STR														25	5	13-3	3W503	STR													
37	5	8-4	IA504	STR														3	5	9-10	3W505	STR													
10	5	10-3	IA506	STR														2	5	12-3	3W506	STR													
12	5	3-7	IA508	STR														19	5	4-1	3W504	17			1-6	1-1	1-6								
40	5	4-1	IA505	17			1-6	1-1	1-6					0-8	0-8	2-1	2-1	5	6	8-3	3W601	STR													
18	5	14-1	IA507	22			2-2	9-9	2-2					1-3				5	6	8-3	3W601	STR													
22	5	4-4	IA509	19			2-2	2-2										5	8	19-0	3W801	17			9-6	6-6									
34	6	3-8	IA601	STR														5	8	17-0	3W802	17			7-6	6-6									
9	6	5-3	IA602	STR																															
64	6	10-7	IA603	19			2-7	8-0						1-6		2-2																			
56	7	7-3	IA701	STR																															
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42	8	10-6	IA802	17			7-6	3-0																											
17	8	3-0	IEA801	STR																															
WINGWALL NO. 1																		WINGWALL NO. 4																	
6	5	3-11	1W501	STR														5	5	3-11	4W501	STR													
32	5	14-1	1W502	STR														40	5	13-3	4W502	STR													
26	5	10-3	1W503	STR														25	5	13-3	4W503	STR													
3	5	9-3	1W505	STR														2	5	9-10	4W505	STR													
2	5	13-0	1W506	STR														2	5	12-3	4W506	STR													
20	5	4-1	1W504	17			1-6	1-1	1-6									19	5	4-1	4W504	17			1-6	1-1	1-6								
6	6	5-3	1W601	STR														6	6	8-3	4W601	STR													
8	15-6	2W801	17				9-6	6-0										5	8	19-0	4W801	17			9-6	6-6									
8	13-6	2W802	17				7-6	6-0										4	8	17-0	4W802	17			7-6	6-6									
WINGWALL NO. 2																																			
6	5	3-11	2W501	STR																															
32	5	14-1	2W502	STR																															
26	5	10-3	2W503	STR																															
2	5	9-3	2W505	STR																															
2	5	12-10	2W506	STR																															
20	5	4-1	2W504	17			1-6	1-1	1-6																										
7	6	5-3	2W601	STR																															
6	8	15-6	2W801	17			9-6	6-0																											
5	8	13-6	2W802	17			7-6	6-0																											

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO.18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", ASTM M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



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ASTM STANDARD REINFORCING BARS			
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES
#3	.376	.375	.11
#4	.668	.500	.20
#5	1.043	.625	.31
#6	1.502	.750	.44
#7	2.044	.875	.60
#8	2.670	1.000	.79
#9	3.400	1.128	1.00
#10	4.303	1.270	1.27
#11	5.313	1.410	1.56
#14	7.65	1.693	2.25
#18	13.60	2.257	4.00

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town of LONDONDERRY Bridge No. 21
 Highway No. T.H. 37 Log Sta. 0+4

TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS	NEW AND SALVAGED SIGNS				EXIST. POSTS		NO. OF POSTS	NEW SIGN POSTS										REMARKS	SIGN DETAIL						
			"A"	"B"	SALV. SIGN	SALV. T.J.S.	RET.	SALV.		FLANGED CHANNEL LB./FT.			TUBULAR ALUMINUM		TUBULAR STEEL				W-SHAPE STEEL		FTG. SIZE		SIGN FRAME	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER		
										1/2	2.0	3.0	3.0"Ø	4.0"Ø	FOUND- ATION	3"Ø	3.5"Ø	4.0"Ø	5.0"Ø		POST SIZE	WEIGHT				24"	30"
SL TH 37 STA 10+23 LT																										Remove	
SL TH 37 STA 10+13 RT																										Remove	
SL TH 37 STA 10+29 RT STA 10+52 LT.	 + 																									Remove Both Signs	
TH 37 REV 10+61,17 RT		24' x 30' 		5 					/			15' X 45° 														E-141	
TH 37 REV 12+90,17 LT		30' x 30' 30' x 30'		6.25 9					/			15' X 45° 														E-150	
TH 37 REV 10+21,28 LT		30' x 30'		6.25		+			/			15' X 45°														Reset NEW SIGN & POST	
TH 37 REV 10+21,35 RT						/																				Reset	
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE ".			SF.	SF.	EA.	SF.				LBS.	LBS.	LBS.	LBS.	LBS.	EA.	LBS.	LBS.	LBS.	LBS.			LBS.	EA.	EA.			
			14		-2-					108 135																	
					1						108 135																
TOTALS			17.5																								

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DRAWN BY G.Colgrove DATE 1/26/97
SQUAD LEADER J.W. Soper
DESIGN FILE NO. 2str3/891093/s1093s.dgn
IPARM FILE s1093sgn1 DATE Jan.28,1997
PLOT FILE 1093sgn1 PLOTTED Jan.28,1997
PROJ. NAME Londonderry
PROJ. NO. TH 3-9006
SHEET 21A OF 33 SHEETS

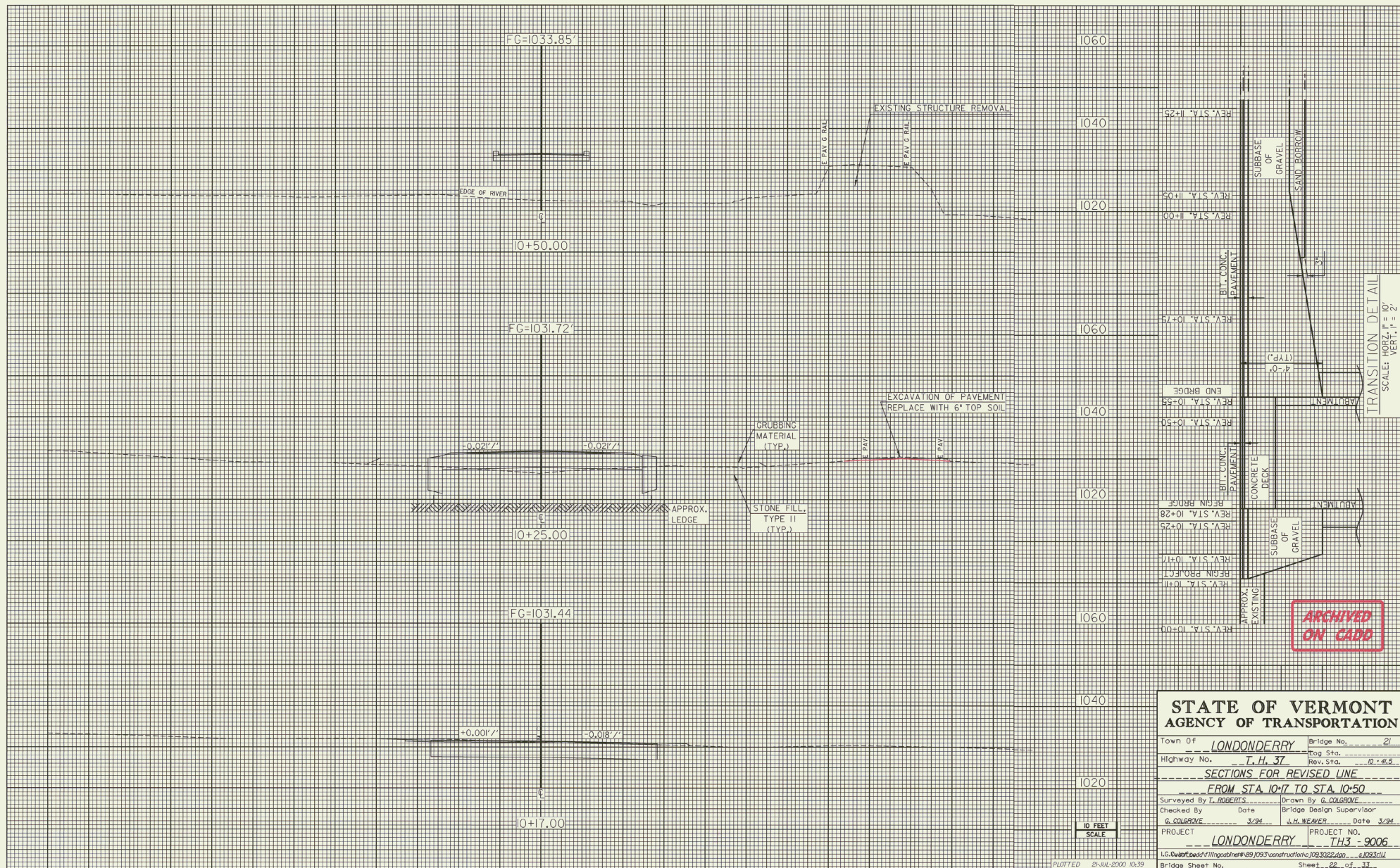
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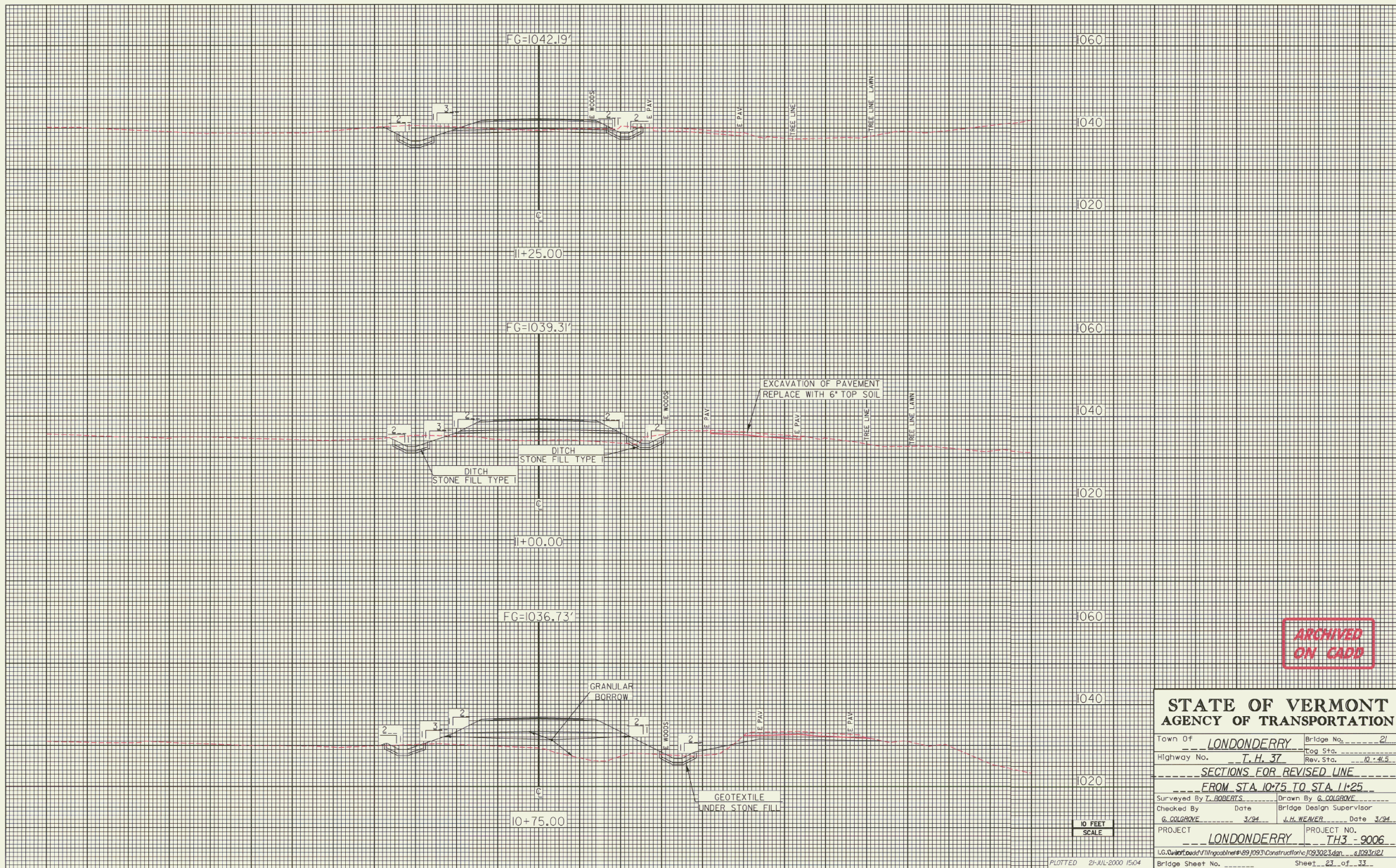
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ON CADD

REVISED

GWC 1/31/97

DRAWN BY G.Colgrove DATE 1/28/97
 SQUAD LEADER J.W. Soper
 DESIGN FILE NO. /str-3/89/1093/s/1093s.dgn
 PARM s/1093s.dgn DATE Jan. 28, 1997
 FILE s/1093s.dgn PLOTTED
 PROJ. NAME Londonderry
 PROJ. NO. TH 3-9006
 SHEET 21A OF 33 SHEETS





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ON CAD

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of LONDONDERRY Bridge No. 21
Highway No. T.H. 37 Log Sta. 10+41.5
Rev. Sta. 10+41.5

SECTION FOR REVISED LINE
FROM STA 10+75 TO STA 11+25

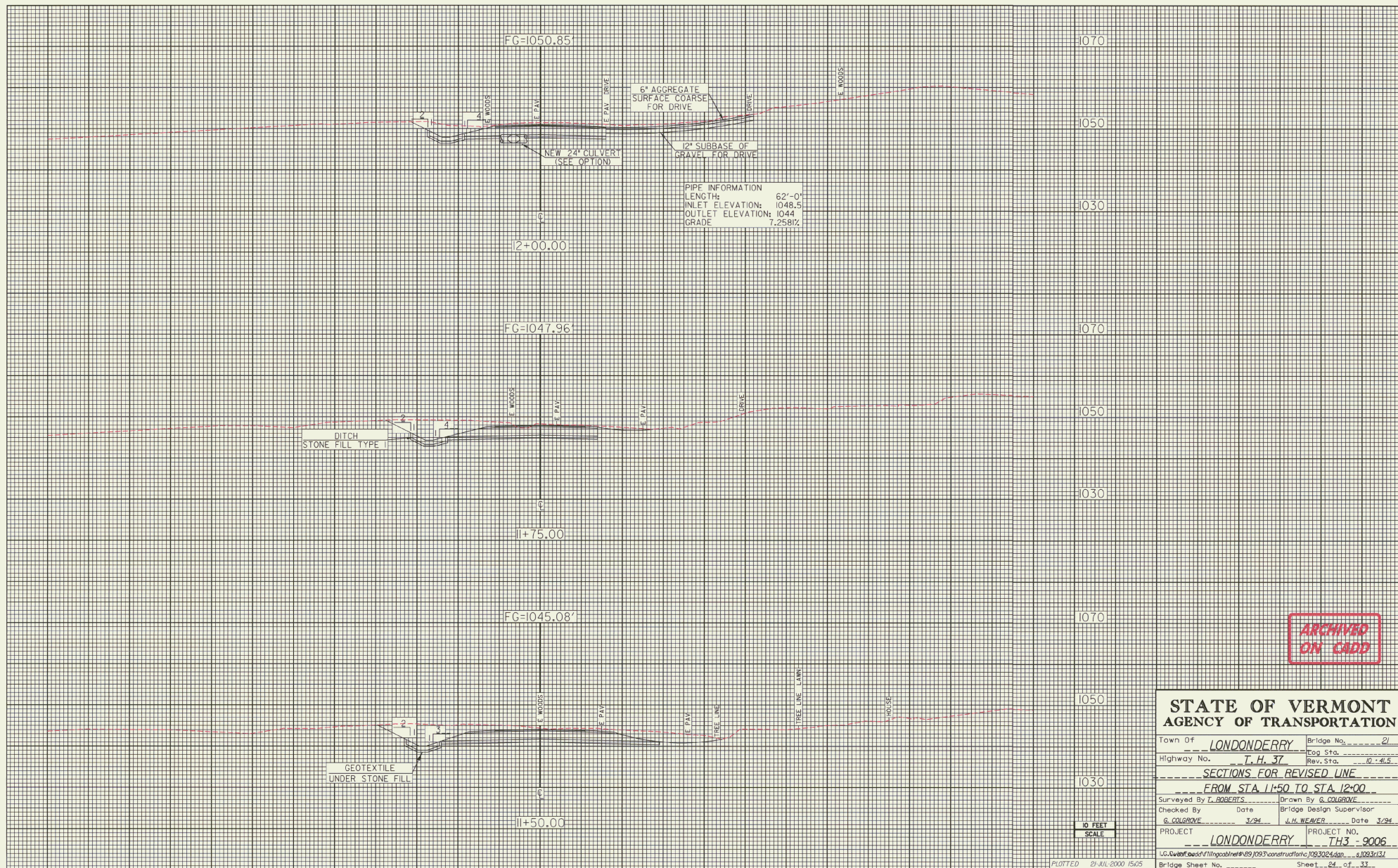
Surveyed By L. ROBERTS Drawn By G. COLGROVE
Checked By G. COLGROVE Date 3/94 Bridge Design Supervisor J.H. KEENER Date 3/94

PROJECT LONDONDERRY PROJECT NO. TH3 - 9006
U.S. Department of Transportation #89 (29) Construction #19302-1.dwg 4/93/3/2/

Bridge Sheet No. 23 of 33

10 FEET
SCALE

PLOTTED 21-JUL-2000 15:04



STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of LONDONDERRY Bridge No. 21
Highway No. T. H. 37 Log Sta. 10+4.5
Rev. Sta. 10+4.5

SECTIONS FOR REVISED LINE

FROM STA. 11+50 TO STA. 12+00

Surveyed By L. ROBERTS Drawn By G. COLBRONE

Checked By G. COLBRONE Date 3/94 Bridge Design Supervisor J. H. WEAVER Date 3/94

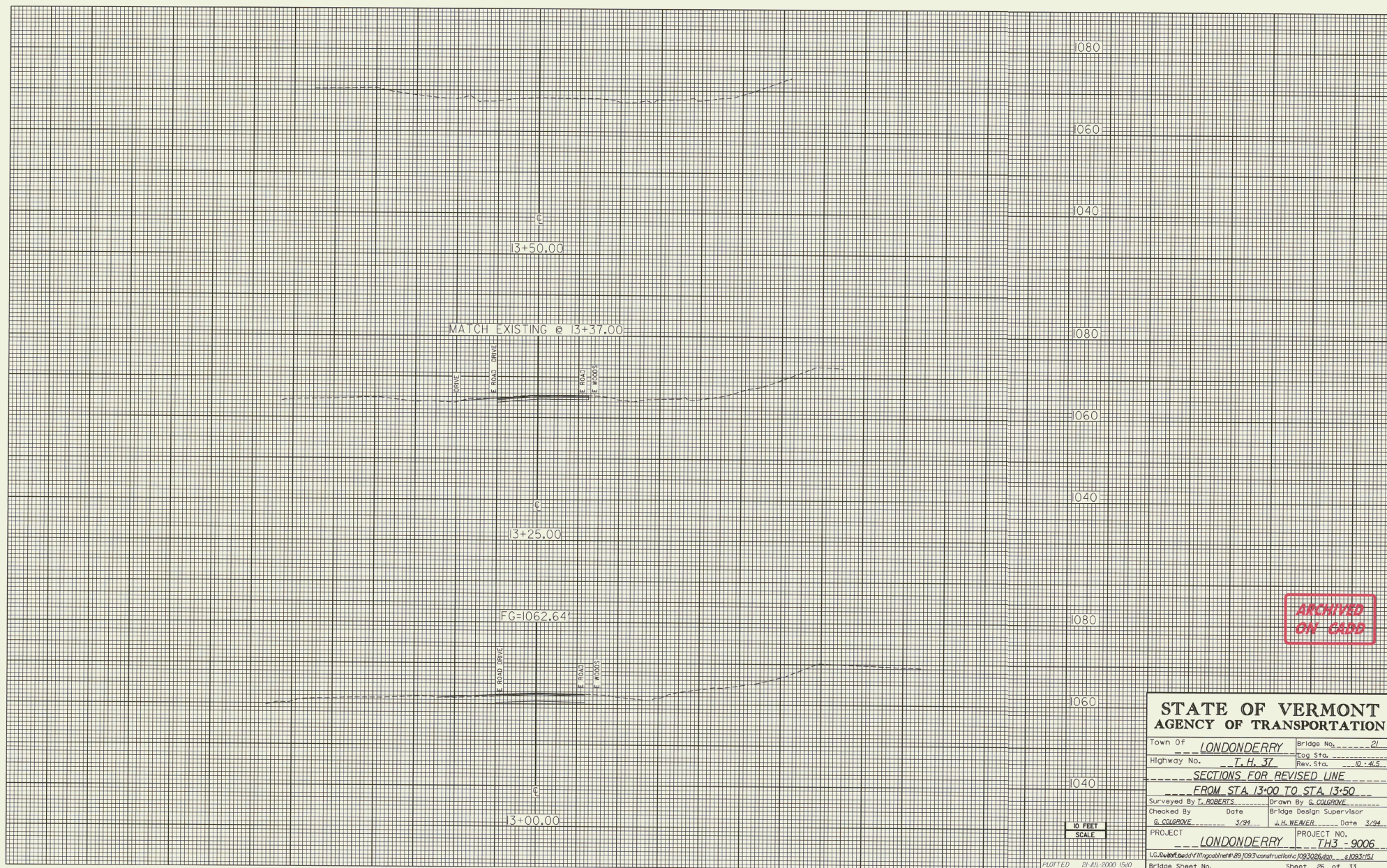
PROJECT LONDONDERRY PROJECT NO. TH3 - 9006

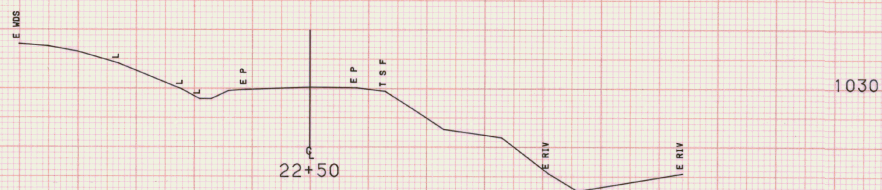
Bridge Sheet No. 24 of 33

PLOTTED 21-JUL-2000 15:05



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FROM STA.	22+50	TO STA.	23+25
PROJECT NAME	LONDONDERRY M1		
NO.	THS-9006		
SURVEYED BY	T. ROBERTS	PLOTTED	09/24/90
SHEET	47	OF	31
		SHEETS	03/90 0313

SCALE 1" = 10 FEET

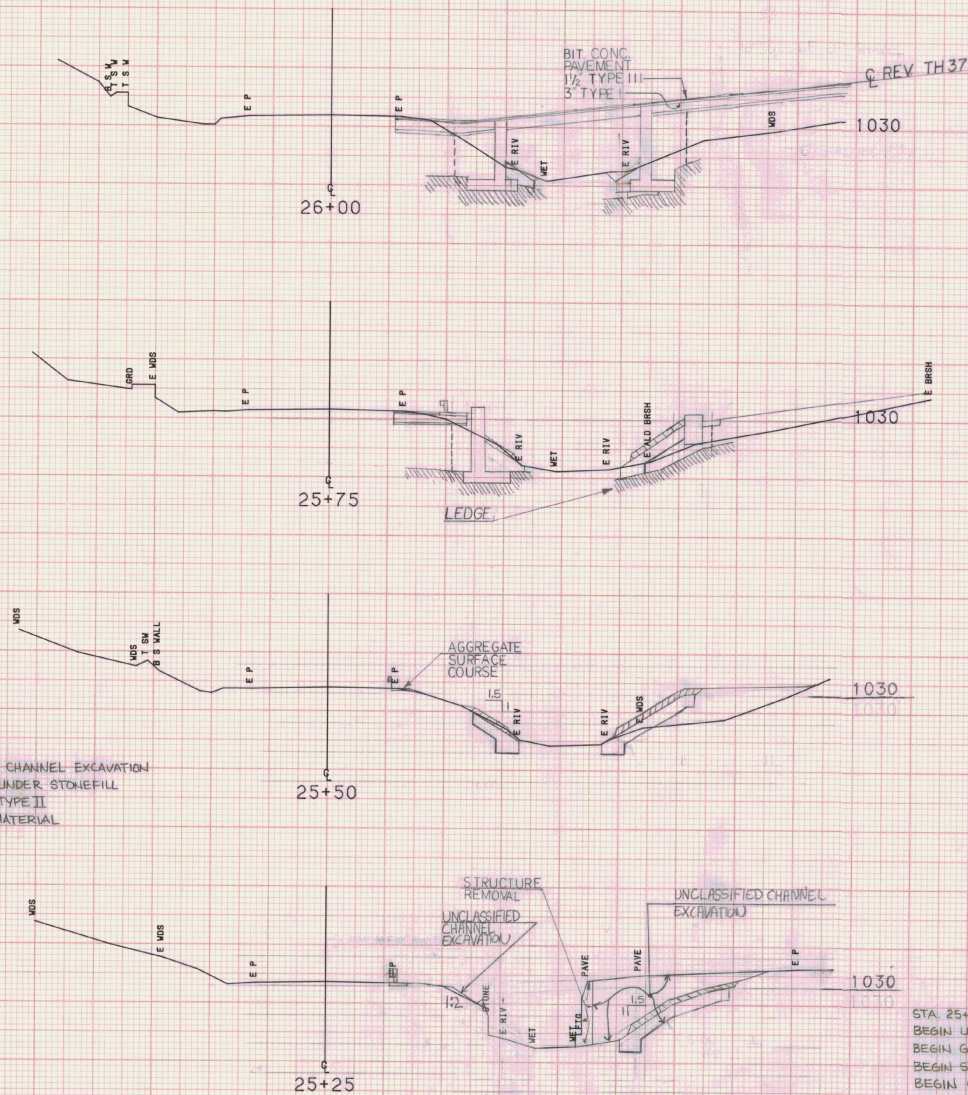




FROM STA.	24+25	TO STA.	25+00
PROJECT NAME	LONDONDERRY M1		
NO.	TH3-9006		
SURVEYED BY	T. ROBERTS		
SHEET 22	OF 32	SHEETS	03/90 0313

SCALE 1" = 10 FEET

STA 25+43 LT.
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN GEOTEXTILE UNDER STONEFILL
 BEGIN STONE FILL, TYPE II
 BEGIN GRUBBING MATERIAL



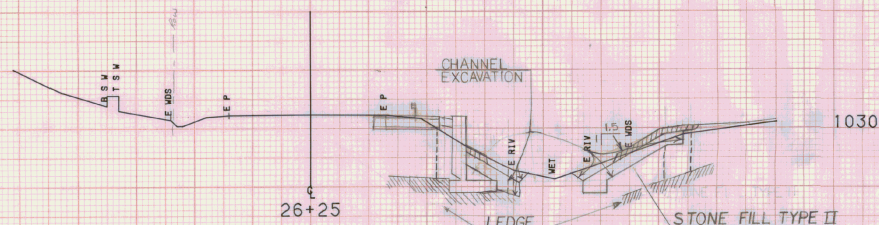
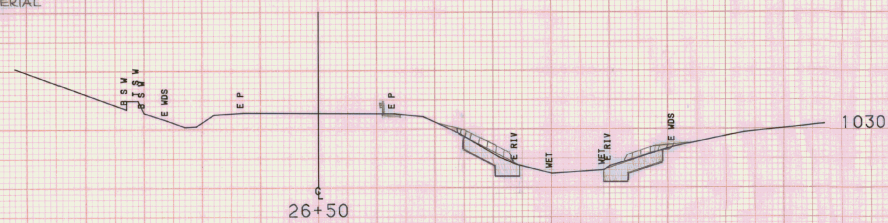
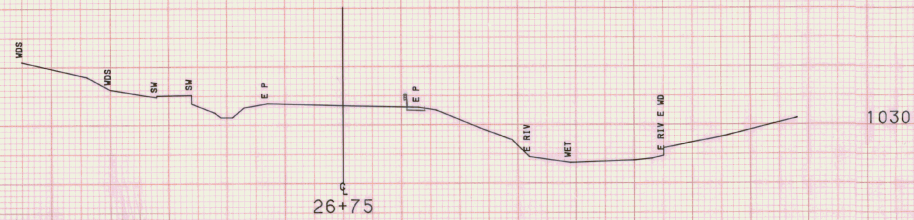
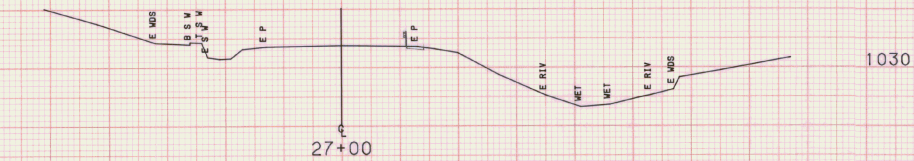
STA 25+00 RT
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN GEOTEXTILE UNDER STONEFILL
 BEGIN STONE FILL, TYPE II
 BEGIN GRUBBING MATERIAL

FROM STA.	25+25	TO STA.	26+00
PROJECT NAME	LONDONDERRY M1		
NO.	THS-9006	PLOTTED	09/24/90
SURVEYED BY	T. ROBERTS	03/90	0313
SHEET	30	OF 35	SHEETS

SCALE 10 FEET

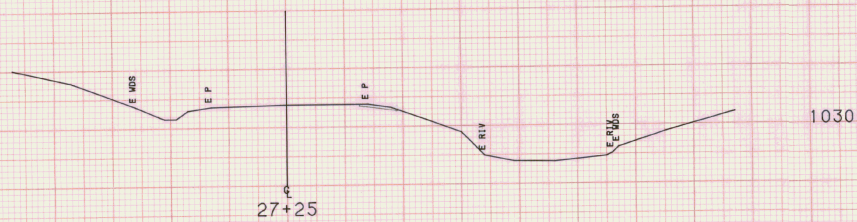
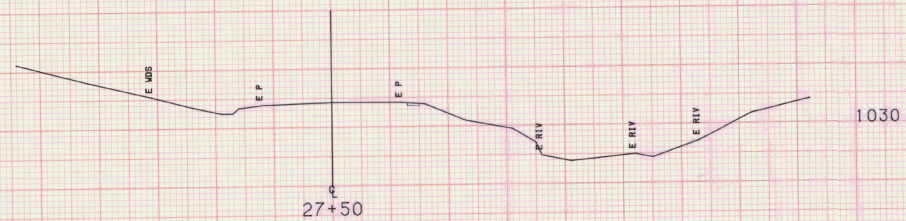
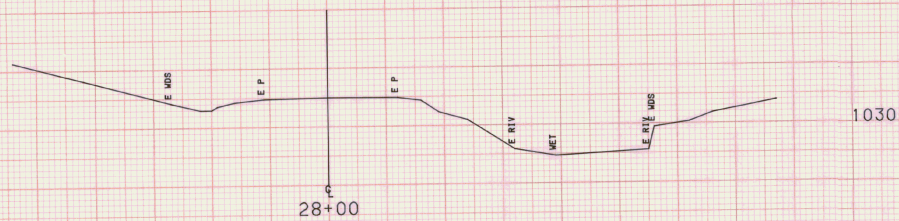
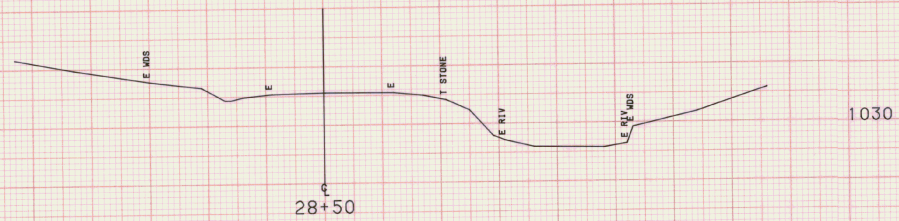
STA. 26+56 LT.
 END UNCLASSIFIED CHANNEL EXCAVATION
 END GEOTEXTILE UNDER STONE FILL
 END STONE FILL, TYPE II
 END GRUBBING MATERIAL

STA. 26+54 RT.
 END UNCLASSIFIED CHANNEL EXCAVATION
 END GEOTEXTILE UNDER STONE FILL
 END STONE FILL, TYPE II
 END GRUBBING MATERIAL

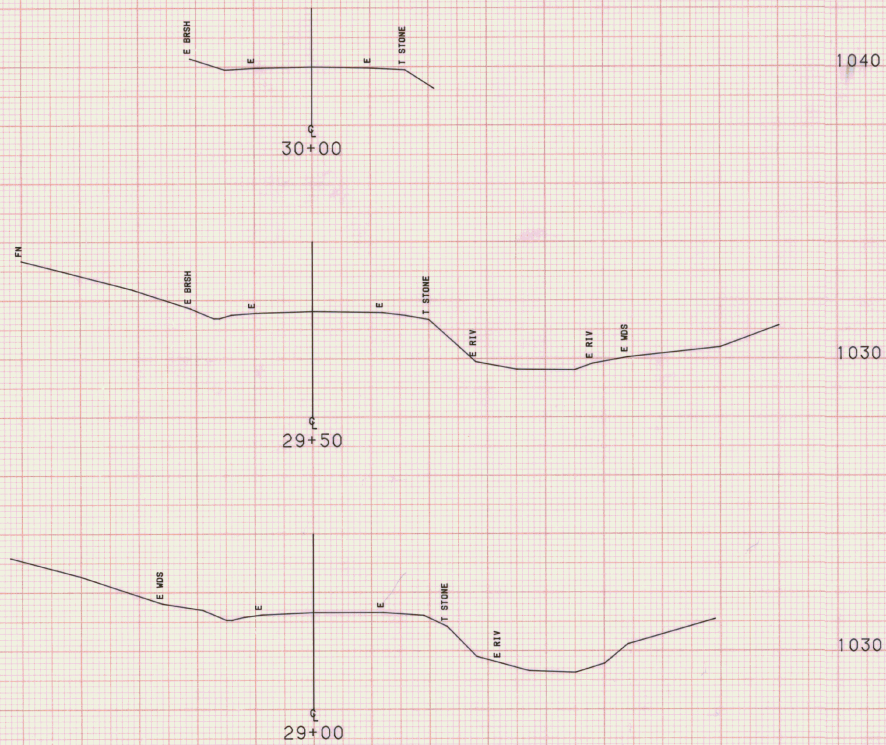


FROM STA.	26+25	TO STA.	27+00
PROJECT NAME	LONDONDERRY M1		
NO.	TH3-9006		
SURVEYED BY	T. ROBERTS	PLOTTED	09/24/90
SHEET	31	OF	33 SHEETS

SCALE 1" = 10 FEET



FROM STA. 27+25 TO STA. 28+50
 PROJECT NAME LONDONDERRY HI
 NO. TH3-9006
 SURVEYED BY L. ROBERTS
 SHEET 36 OF 35 SHEETS
 PLOTTED 09/24/90
 03/90 0313
 SCALE 1" = 10 FEET



FROM STA.	29+00	TO STA.	30+00
PROJECT NAME	LONDONDERRY HI		
NO.	TH3-9006		
SURVEYED BY	T. ROBERTS	PLOTTED	09/24/90
SHEET	33	OF	33 SHEETS

SCALE 1" = 10 FEET