State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
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Agency of Transportation

January 16, 2014

Renaud Bros. Construction
283 Fort Bridgeman Rd #2
Vernon, VT 05354

Project Name: **Marlboro BRF 010-1(43)**
Structure Identification: **Bridge #48 on VT RTE 9 over Whetstone Brook**

The Temporary Bridge and detour plans received in this office on January 14, 2014 have been reviewed. Please address the comments below and resubmit the plans.

Utility Pole:

Verify location of utility pole at Station 394+10, 32' LT. The pole appears to be shown about 5 feet closer to the ROW than on the contract plans. Clarify if the intent is to relocate this pole closer to the ROW. If it will be relocated other than shown on the contract plans, show guy wire location and indicate station and offset for new pole location. The temporary guardrail appears to be very close to this pole. Verify adequate deflection distance will be provided.

Detour Alignment:

Should use a wider approach cross section and increased the radii of curves #2, #3, and #4. Using AutoTrack we cannot get a semi with 53' trailer to pass at 10 MPH without crossing the centerline (see attached truck movements). Recommendations:

1. Use a minimum of 300' radius for curves #2 and #3 and 200' radius for curve #4.
2. Use a 3-12-12-3 cross section for the typical roadway detour transitioning to 0-12-12-0 at temporary bridge. The additional shoulder off the bridge is needed to prevent trucks from crossing the centerline.
3. As an alternative to the above options, move PI's for curves #1 and #4 out (away from temp bridge) to provide a more gradual transition.
4. Verify alignment is shown at centerline of temporary bridge. It appears to be shown at centerline of wood deck portion.

Temporary Bridge Calculations:

1. It appears that only one existing girder will be used for the temporary bridge. Once the remaining portion of the existing bridge is cut away, how will this girder stand on its own? Is there a connection design for the concrete to wood deck?
2. Need analysis of existing girder(s) that will be used as part of temporary bridge including any necessary shoring.
3. Recommend using a 2 way temporary bridge (phased construction) completing it after removing the existing fascia beam. No need to rely or analyze existing bridge. Could alternate traffic to complete temporary bridge.
4. Need calculations for deck.
5. Need calculations for substructure.

6. Need deflection calculations. It seems that there will be some differential deflection between portion of existing deck (51'-2" span) and wood deck portion (76' span) of the temporary bridge.

Temporary Bridge Plans:

1. General:
    a. Plans need to have PE stamp per 528.04 and 105.03(3).
2. Plan and Profile Sheets:
    a. Include intended design speed.
    b. Show location of guardrail end terminals.
    c. Show limits of earth disturbance.
    d. Will drive culvert for Baldwin property be removed and replaced?
3. Temporary Bridge Details Sheet:
    a. Need additional details/dimensions on bridge deck section including overall width and rail-to-rail width of temporary bridge, location of existing girder(s) used in temporary bridge, location of existing deck cut line, and location of Jersey Barrier, etc.
    b. Need detail for shoring for existing portion of bridge deck used in temporary.
    c. Need detail for connection between wood deck portion of temporary bridge and portion of existing bridge.
    d. Guardrail in typical detour section does not show a buffer. Provide details for all temporary traffic barrier (including bridge rail) from FHWA's Roadside Hardware Policy and Guidance per 528.04(c)/621.07. All temporary traffic barrier and corresponding connections shall meet TL-3 criteria in accordance with 528.04(c)/621.07.
    e. Indicate how the deck will be fastened to the girders.
    f. Clarify the following: bridge cross section shows PT 2x8x20' laminated deck with 3" pavement where abutment section shows 8x8 PT deck with 2x8 PT running boards.
4. Cross Sections:
    a. Sections 1+50 through 2+50 are missing. Page 5 of 9 was duplicated in submittal, missing page 4 of 9?
    b. Show existing girder(s) that will be used for temporary bridge on sections.
    c. Show portion of existing bridge deck that will be retained for temporary bridge on sections.
    d. Show roadway cross slope.

Sincerely,

Kristin M. Higgins

Kristin M. Higgins, P.E.
Structures Project Manager

Attachments
cc: [X] Resident Engineer; Ron Lemaire
[X] Contractor: Renaud Bros. Inc

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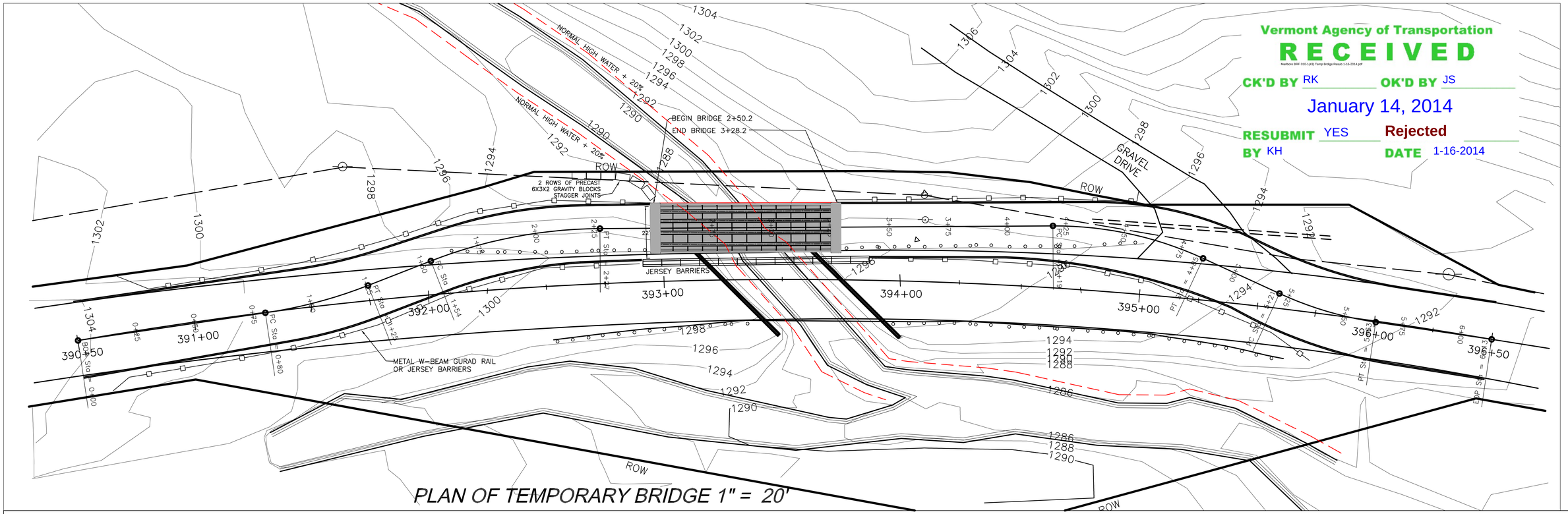
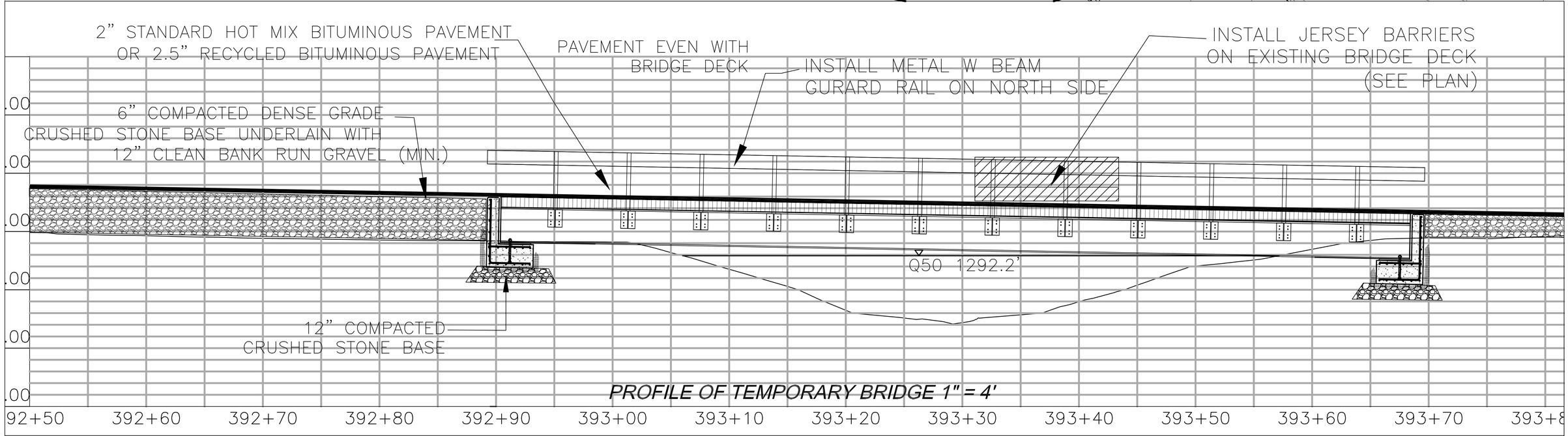
January 14, 2014
RESUBMIT YES Rejected
BY KH DATE 1-16-2014

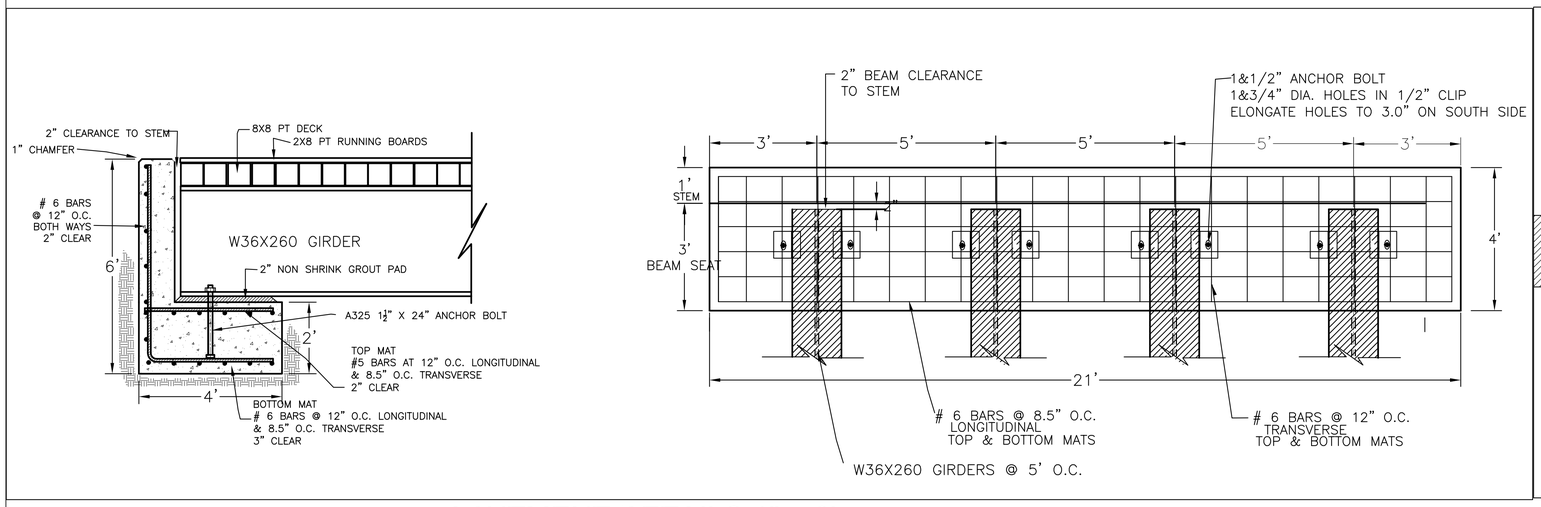


PLAN OF TEMPORARY BRIDGE 1" = 20'

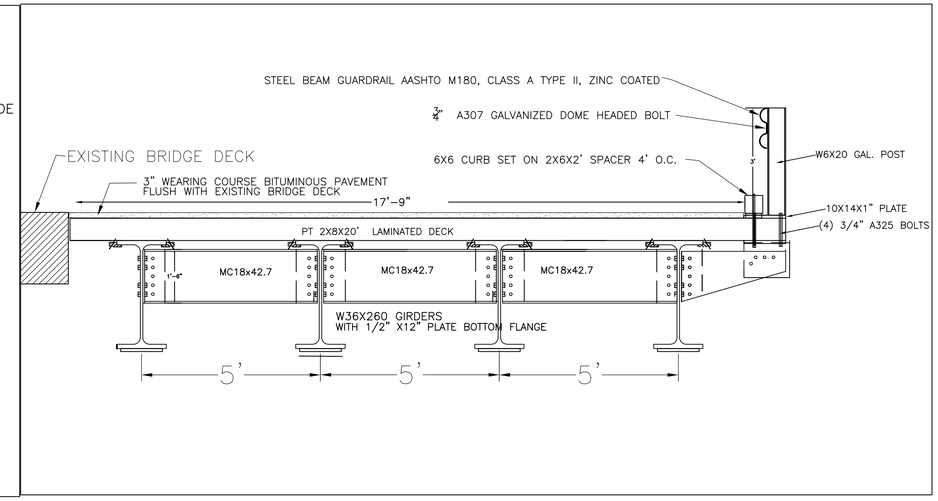


PROFILE OF TEMPORARY BRIDGE 1" = 4'

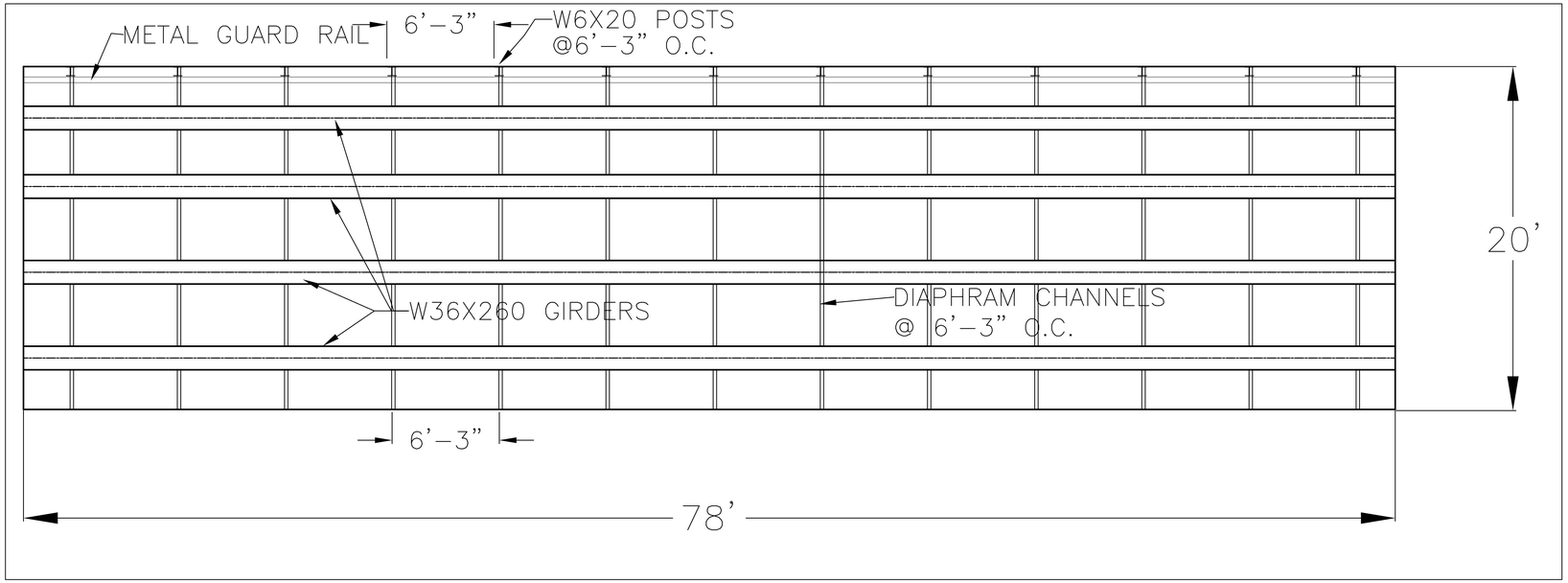
PLAN AND PROFILE OF TEMPORARY BRIDGE, ABUTMENTS & BYPASS ROAD	BRF 010-1(43) ROUTE 9 MARLBORO, VT	DATE: 1-06-2014	BELL ENGINEERING CIVIL & ENVIRONMENTAL 17 ECHO COVE WAY-SPOFFORD, NH 03462 (603) 363-9966	SHEET 1 OF 9



ABUTMENT DETAILS 1" = 2'



CROSS SECTION OF BRIDGE DECK 1" = 2'



PLAN VIEW OF BRIDGE DECK 1"=4'

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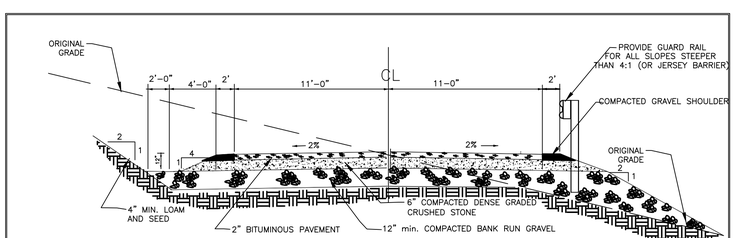

TYPICAL DETOUR ROAD SECTION

(NOT TO SCALE)

DETAILS: TEMPORARY BRIDGE

BRF 010-1(43)
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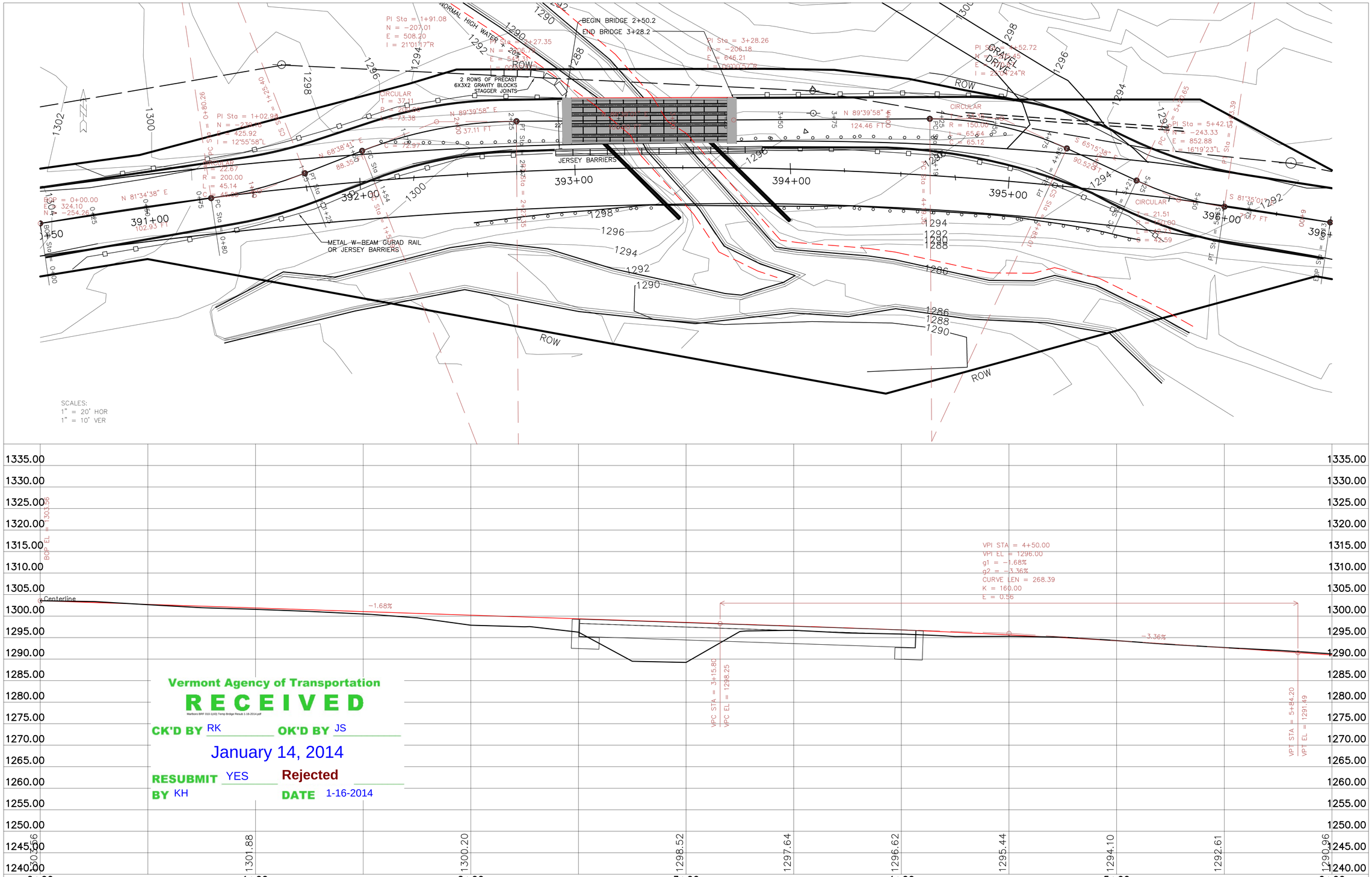

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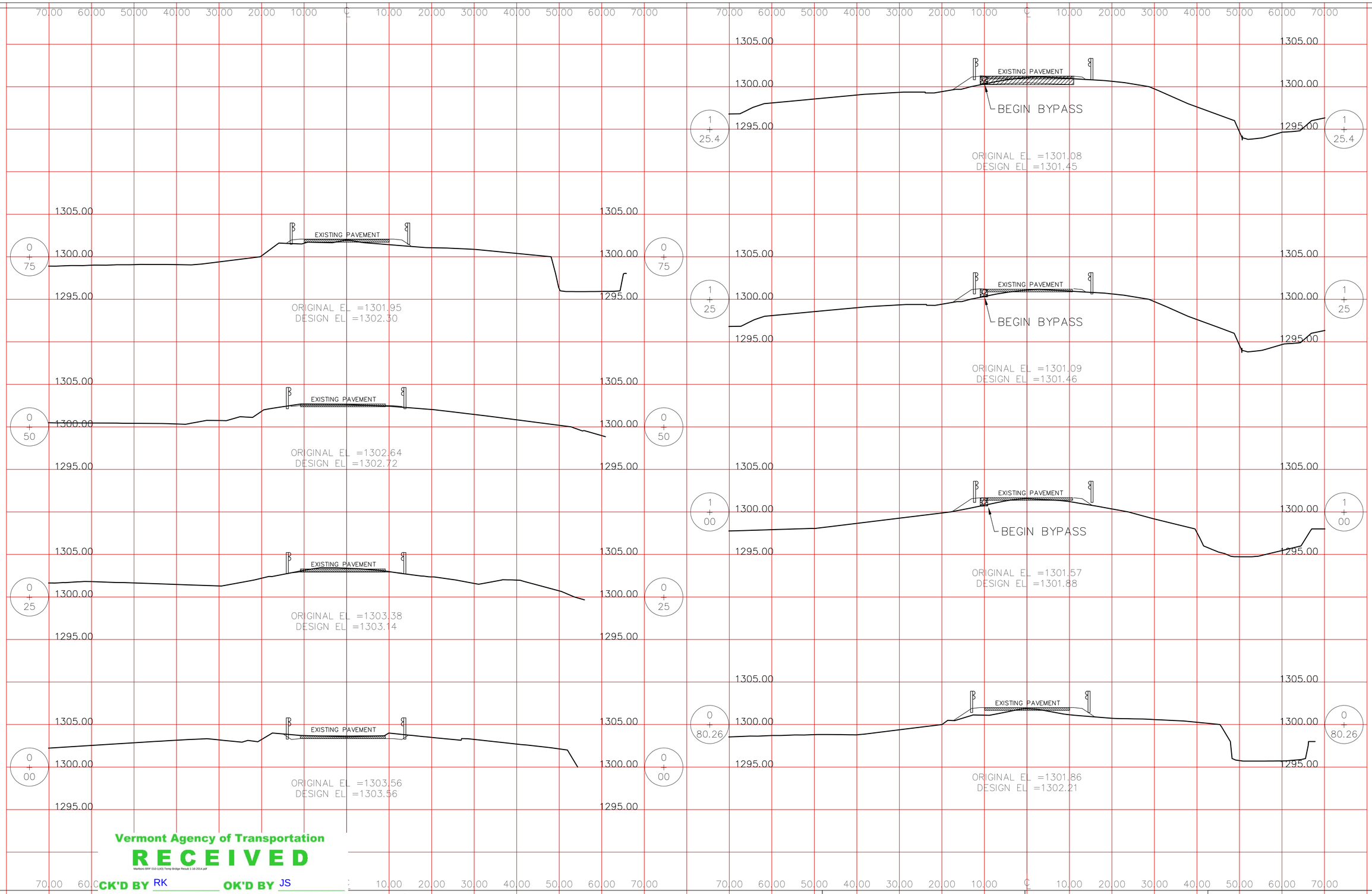
PLAN AND PROFILE BY PASS ROAD	BRF 010-1(43) ROUTE 9 MARLBORO, VT	DATE: 1-08-2014	BELL ENGINEERING CIVIL & ENVIRONMENTAL 17 ECHO COVE WAY-SPOFFORD, NH 03462 (603) 363-9966

SHEET 3 OF 9



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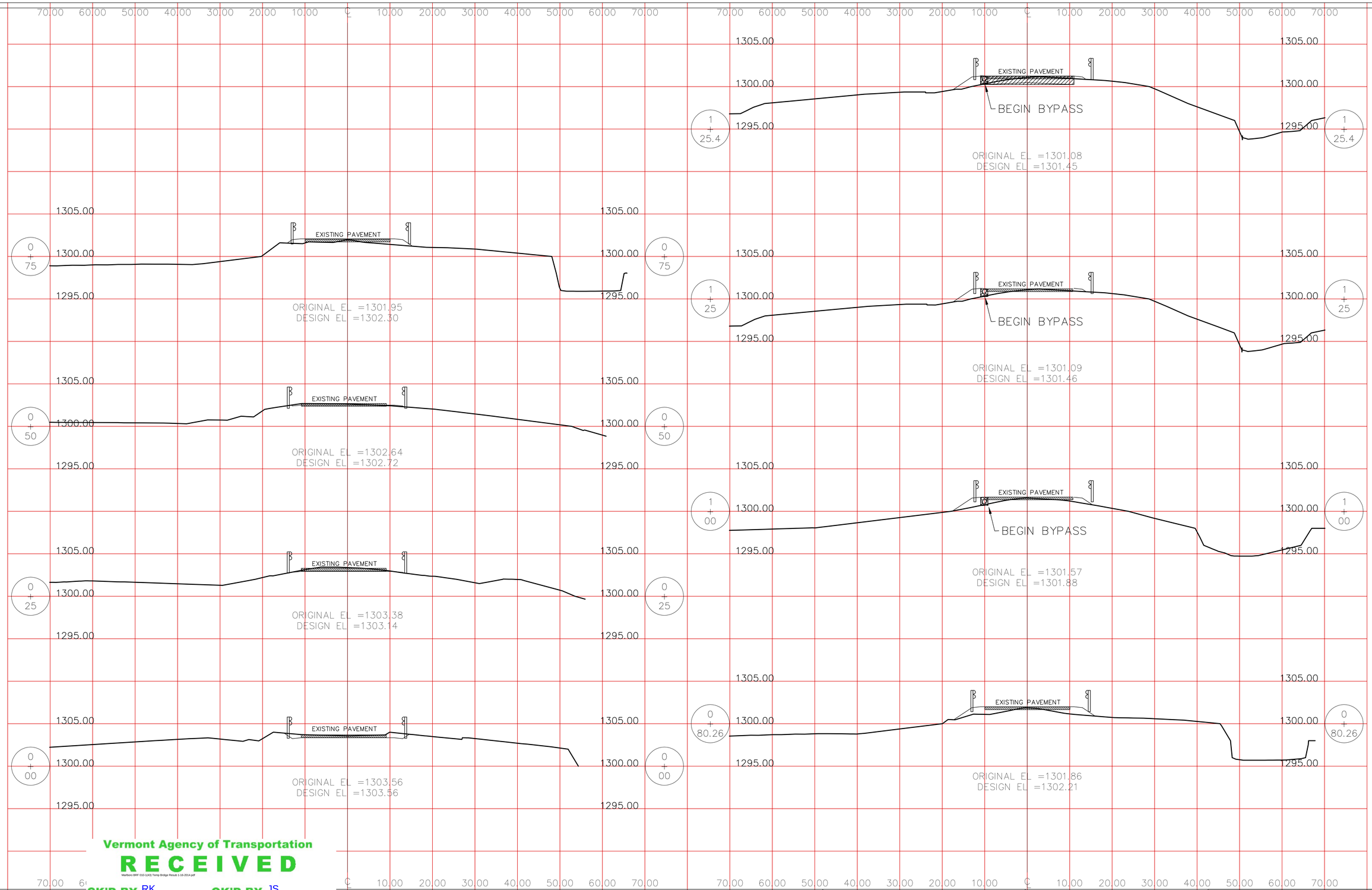

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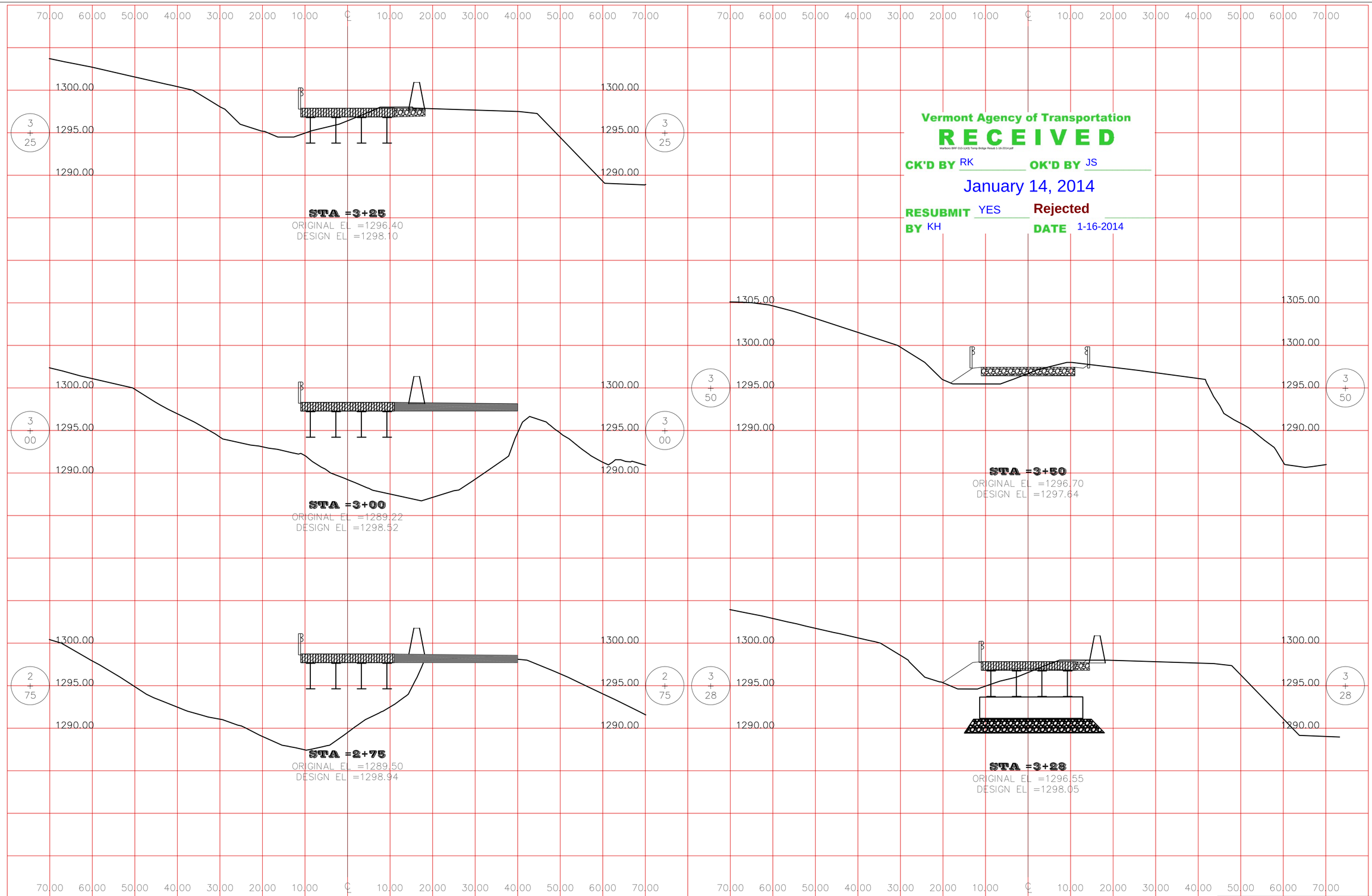

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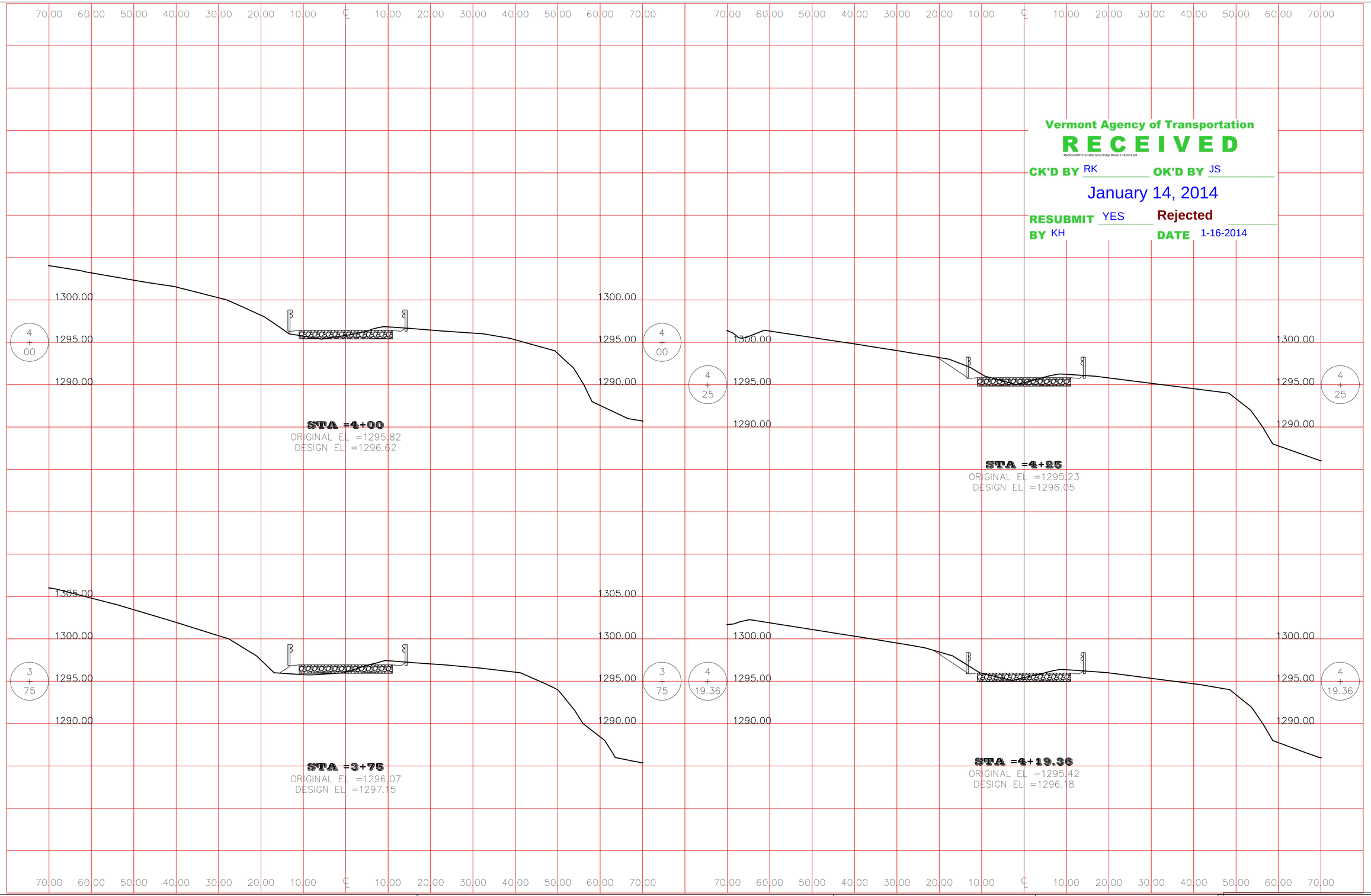

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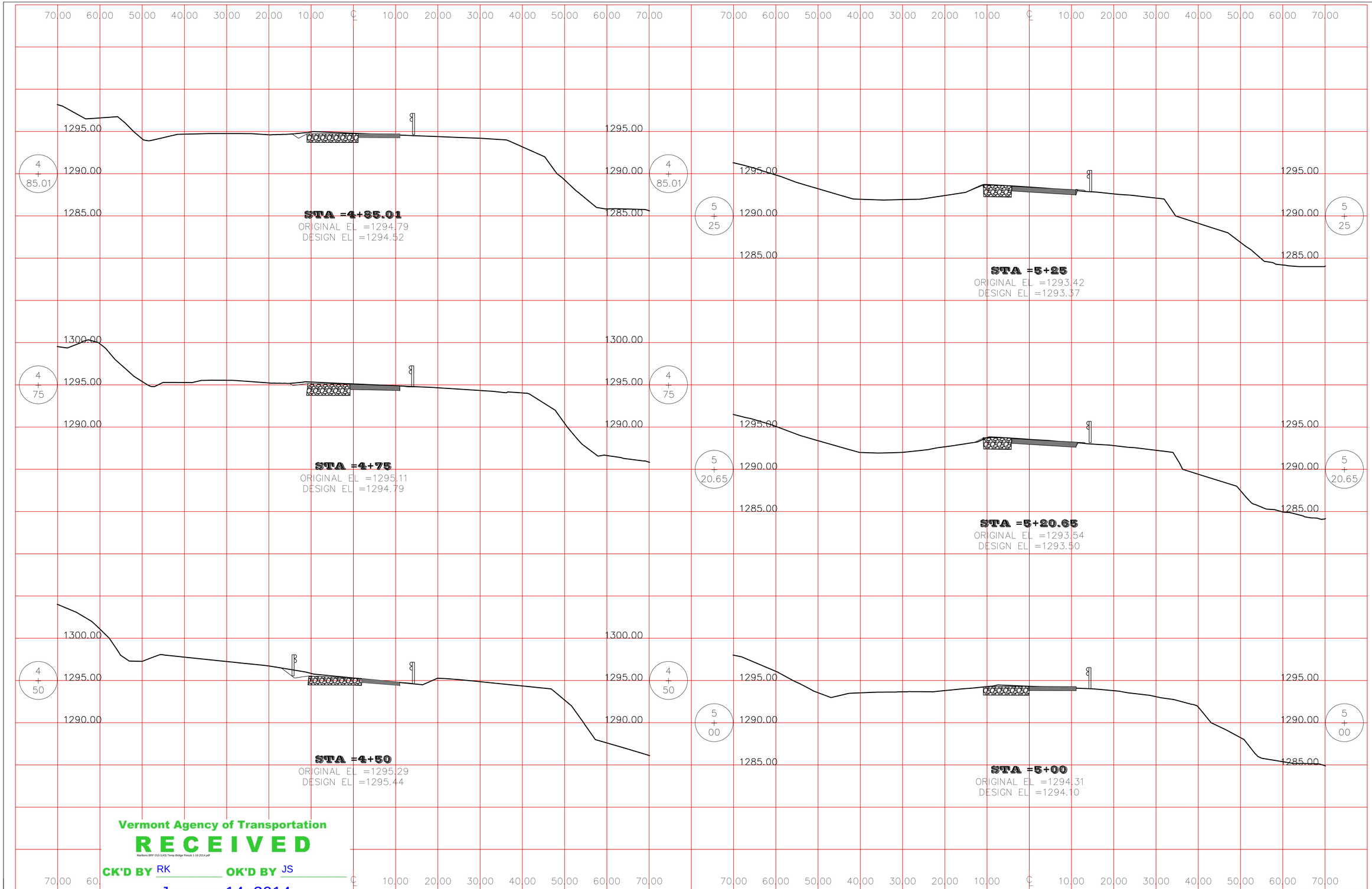

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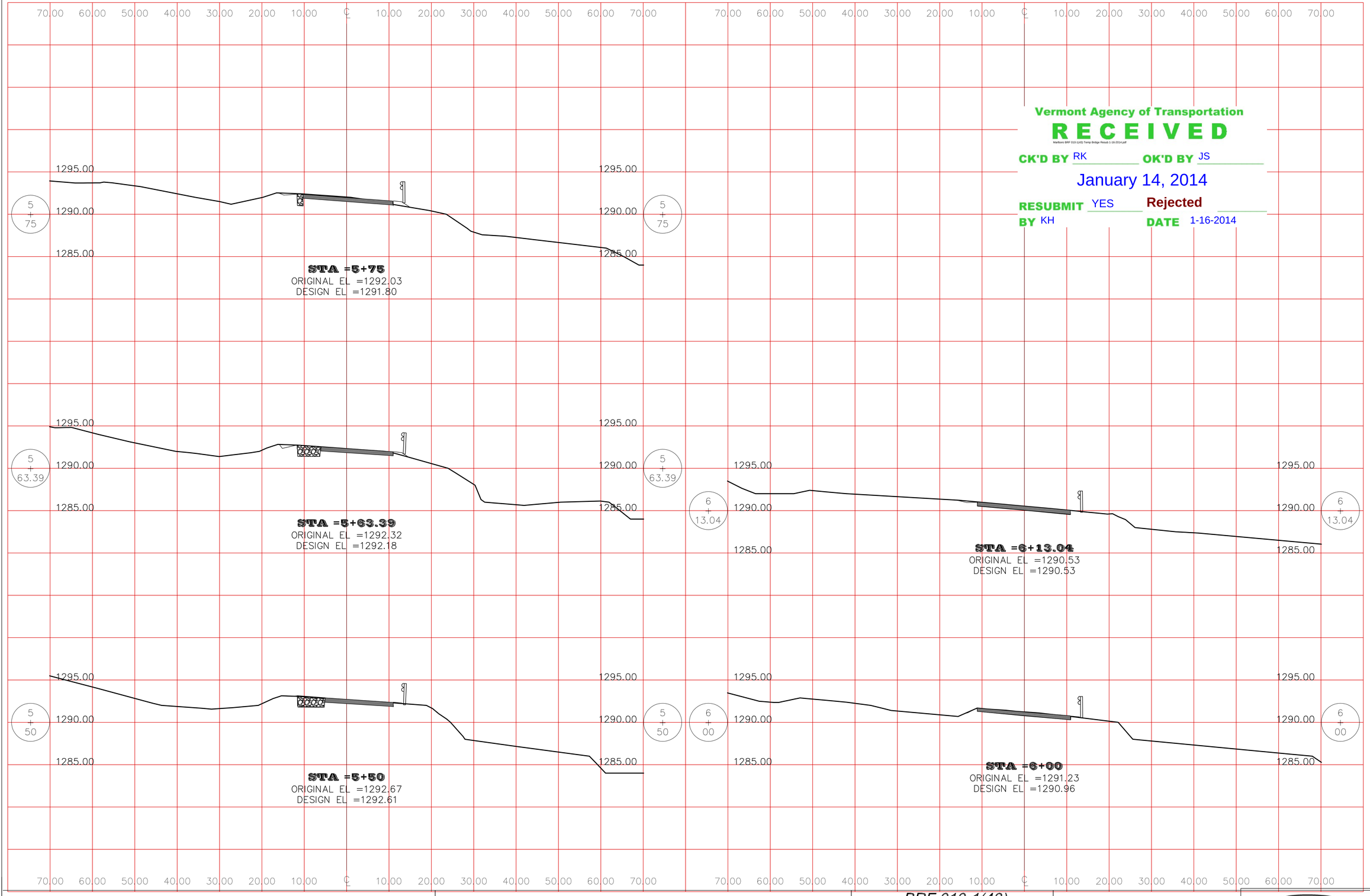

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