Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

December 15, 2017 Ver 2.2

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

http://edocs.deq.nc.gov/WaterResources/0/doc/603610/Page1.aspx

A. Processing Information

County (or Counties) where the project is located:*

Rockingham

Is this project a public transportation project?* (?)

(•) Yes ( ) No

Is this a NCDOT Project?*

(•) Yes ( ) No

(NCDOT only) T.I.P. or state project number:

B-5352 (Replacement of Bridge No. 131 on US 220 NB over Norfolk Southern Railroad)

WBS #

46066.1.1

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

- [x] Section 404 Permit (wetlands, streams and waters, Clean Water Act)
- [ ] Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

- [x] Nationwide Permit (NWP)
- [ ] Regional General Permit (RGP)

Nationwide Permit (NWP) Number: **23 - Categorical Exclusions**

NWP Number Other:

List all NW numbers you are applying for not on the drop down list.

1c. Type(s) of approval sought from the DWR:*

check all that apply

- [x] 401 Water Quality Certification - Regular
- [ ] 401 Water Quality Certification - Express
- [ ] Non-404 Jurisdictional General Permit
- [ ] Riparian Buffer Authorization

1d. Is this notification solely for the record because written approval is not required? *

For the record only for DWR 401 Certification: ○ Yes ◉ No

For the record only for Corps Permit: ○ Yes ◉ No

1e. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program.

◉ Yes ○ No

Acceptance Letter Attachment

Click the upload button or drag and drop files here to attach document

B-5352 - STR - RO 03.pdf 63.52KB

FILE TYPE MUST BE PDF

1f. Is the project located in any of NC's twenty coastal counties? *

○ Yes ◉ No

1h. Is the project located in a designated trout watershed? *

○ Yes ◉ No

Link to trout information: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx

B. Applicant Information

1a. Who is the Primary Contact? *

NCDOT

1b. Primary Contact Email: *

jsmason@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6136

1d. Who is applying for the permit?

☑ Owner ☐ Applicant (other than owner) ☐ Agent/Consultant

(Check all that apply)

2. Owner Information

2a. Name(s) on recorded deed:

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address

Street Address

Address Line 2

City State / Province / Region

Postal / Zip Code Country

2e. Telephone Number:

(xxx)xxx-xxxx

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

pharris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *

B-5352 (Replacement of Bridge No. 131 on US 220 NB over Norfolk Southern Railroad)

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Mayodan

1d. Driving directions *

If it is a new project and can not easily be found in a GPS mapping system. Please provide directions.

From Raleigh, take I-40W to Exit 212B (I-73N). Continue on I-73N to US-220N. Follow US 220N to bridge over railroad, just north of Mayodan.

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

36.441624

ex: 34.208504

Longitude: *

-79.930376

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

UT of Mayo River near Stoneville

3b. Water Resources Classification of nearest receiving water: *

WS-IV

Surface Water Lookup

3c. What river basin(s) is your project located in? *

Roanoke

River Basin Lookup

4. Project Description

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

US 220 is classified as a Rural Freeway (Future Interstate) in the Statewide Functional Classification System and is a National Highway System route. US 220 is slated to become the I-73/I-74 corridor. Land use within the project vicinity includes Forested Land, Agricultural Land, Low-Density Residential, and Commercial.

4b. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4c. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4d. List the total estimated acreage of all existing wetlands on the property:

0

4e. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

77

4f. Explain the purpose of the proposed project: *

To replace a structurally deficient and functionally obsolete bridge.

4g. Describe the overall project in detail, including indirect imapacts and the type of equipment to be used: *

The purpose of this project is to replace the existing three-span, 121-foot steel girder bridge on the northbound lanes of US-220 with a three-span, 162-foot pre-stressed concrete girder bridge on the existing alignment. An on-site detour will occur, where northbound traffic will cross over the median and be diverted to the interior southbound US-220 lane over the bridge adjacent to Bridge No. 131, then cross back over to the northbound lanes north of the construction site.

4h. Please upload project drawings for the proposed project.

Click the upload button or drag and drop files here to attach document

B-5352 Roadway_11x17_FINAL.pdf	3.61MB
B-5352_Permit Drawings_20170912.pdf	2.49MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

(•) Yes ( ) No ( ) Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

( ) Preliminary ( ) Approved ( ) Unknown (•) N/A

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): **Dwayne Huneycutt**

Agency/Consultant Company: **Baker Engineering**

Other:

5d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

Site Visit 4/10/12 by Thomas Brown (No JD issued)

5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

File type must be PDF

6. Project History

6a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? *

○ Yes ◉ No ○ Unknown

7. Future Project Plans

7a. Is this a phased project? *

○ Yes ◉ No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

☐ Wetlands ☑ Streams-tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Site # - Reason for impact *	3b.Impact type *	3c. Type of impact *	3d. Stream name *	3e. Stream Type *	3f. Type of Jurisdiction *	3g. Stream width *	3h. Impact length *
1. 1 @ 36" Steel, 1 @ 18" RCP Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Fill	SA (UT of UT of Mayo River near Stoneville)	Intermittent Perennial (PER) or intermittent (INT)	Both	8 Average (feet)	77 (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

77

3i. Total temporary stream impacts:

0

3i. Total stream and tributary impacts:

77

3j. Comments:

E. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project: *

Project does not include bridge spanning over water body. However, rip rap is placed on the bridge sloping abutments to act as slope stabilization and prevent erosion. Runoff from the bridge is captured on the low side of the bridge in shoulder berm gutter and traffic bearing 2GI's (Grated Inlets). Grated Inlets attached to 15-inch Corrugated Steel Pipes will direct stormwater away from the road; the pipe outfalls will have rip rap pads to dissipate the stormwater.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques: *

NCDOT Best Management Practices for Construction and Maintenance Activities and Best Management Practices for the Protection of Surface Waters will be employed.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

(•) Yes ( ) No

2c. If yes, mitigation is required by (check all that apply):

[ ] DWR [x] Corps

2d. If yes, which mitigation option(s) will be used for this project?

[ ] Mitigation bank [x] Payment to in-lieu fee program [ ] Permittee Responsible Mitigation

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.

[x] Yes

4b. Stream mitigation requested:

(linear feet)

77 linear ft @ 2:1 ; 154 linear ft

4c. If using stream mitigation, what is the stream temperature:

warm

4d. Buffer mitigation requested (DWR only):

(square feet)

0

4e. Riparian wetland mitigation requested:

(acres)

0

4f. Non-riparian wetland mitigation requested:

(acres)

0

4g. Coastal (tidal) wetland mitigation requested:

(acres)

0

4h. Comments

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

1. Diffuse Flow Plan

1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

(•) Yes ( ) No

1b. All buffer impacts and high ground impacts require diffuse flow or other form of stormwater treatment. If the project is subject to a state implemented riparian buffer protection program, include a plan that fully documents how diffuse flow will be maintained.

All Stormwater Control Measures (SCM)s must be designed in accordance with the NC Stormwater Design Manual. Associated supplement forms and other documentation shall be provided.

What type of SCM are you providing?

- [ ] Level Spreader
- [ ] Vegetated Conveyance (lower SHWT)
- [ ] Wetland Swale (higher SHWT)
- [ ] Other SCM that removes minimum 30% nitrogen

(check all that apply)

For a list of options to meet the diffuse flow requirements, click here.

Diffus Flow Documentation

Click the upload button or drag and drop files here to attach document

File type must be PDF

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

(•) Yes ( ) No

G. Supplementary Information

1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? *

(•) Yes ( ) No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? *

(•) Yes ( ) No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) *

(•) Yes ( ) No

NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? *

○ Yes ◉ No

2b. Is this an after-the-fact permit application? *

○ Yes ◉ No

3. Cumulative Impacts (DWR Requirement)

3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? *

○ Yes ◉ No

3b. If you answered "no," provide a short narrative description.

Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.

4. Sewage Disposal (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

○ Yes ○ No ◉ N/A

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

◉ Yes ○ No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

◉ Yes ○ No

5c. If yes, indicate the USFWS Field Office you have contacted.

Raleigh

5d. Is another Federal agency involved? *

○ Yes ◉ No ○ Unknown

5e. Is this a DOT project located within Division's 1-8? *

◉ Yes ○ No

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

NCNHP Data Explorer, USFWS Website, NCDOT Surveys (No habitat for Roanoke logperch or James spinymussel and No Effect for both; Habitat for smooth coneflower, last surveyed 8/17/2015, No Effect. Surveys will be re-done prior to construction; No habitat for bald eagle; NCDOT Programmatic B.O. for NLEB).

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

○ Yes ◉ No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMFS County Index

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: http://gis.ncdcr.gov/hpoweb/

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? *

○ Yes ◉ No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? *

NEPA Documentation

7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: https://msc.fema.gov/portal/search

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

○ Yes ◉ No

8c. What source(s) did you use to make the floodplain determination? *

FEMA Maps

Miscellaneous

Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

File must be PDF

Signature

*

☑ By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a “transaction” subject to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Colin Mellor

Signature

Colin Mellor

Date:

current_date

Environmental Quality

ROY COOPER
Governor

December 20, 2017

Mr. Philip S. Harris, III, P.E., CPM
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

B-5352, Replace Bridge 131 on US 220 (Northbound Lane) over Norfolk Southern Railroad, Rockingham County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on December 4, 2017, the impacts are located in CU 03010103 of the Roanoke River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Roanoke 03010103 CP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	77.0	0	0	0	0	0

*Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

The impacts and associated mitigation needs were under projected by the NCDOT in the 2017 impact data. DMS will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
Credit Management Supervisor

cc: Mr. David Bailey, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: B-5352

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element:	46066.1.1	TIP No.:	B-5352	County(ies):	Rockingham	Page	1	of	1

General Project Information

WBS Element:	46066.1.1	**TIP Number:**	B-5352	**Project Type:**	Bridge Replacement
NCDOT Contact:	Bill Elam, PE	**Contractor / Designer:**	Kimley-Horn & Associates	**Date:**	9/1/2017
Address:	NCDOT Hydraulics Unit 1020 Birch Ridge Drive Raleigh, NC 27610	**Address:**	200 South Tryon Street Suite 200 Charlotte, NC 28202		
Phone:	919-707-6718	**Phone:**	704-319-5683		
Email:	belam@ncdot.gov	**Email:**	jason.lawing@kimley-horn.com		
City/Town:	Stoneville	**County(ies):**	Rockingham		
River Basin(s):	Roanoke	**CAMA County?**	No		
Wetlands within Project Limits?	No				

Project Description

Project Length (lin. miles or feet):	0.286 Miles	**Surrounding Land Use:**	Rural, Industrial

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	3.03 ac.	2.78 ac.
Typical Cross Section Description:	2 @ 12' wide lanes with 6' wide inside shoulder and 12' wide outside shoulder (on bridge).	2 @ 12' wide lanes with 2' wide inside shoulder & 2' wide outside shoulder (on bridge).
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 30100 Year: 2040	Existing: 19336 Year: 2018

General Project Narrative: (Description of Minimization of Water Quality Impacts)

Replacement of Bridge No. 131 on NB US 221 Bypass over Norfolk Southern Railroad in Rockingham County. The existing bridge, overall length (OAL) = 121' and width = 29', will be replaced with a bridge having an OAL = 162' and width of 42' (face of rail to face of rail). The new bridge is wider than the existing bridge to provide the required shoulders necessary for roadway and drainage. The bridge and approaches are being widened to provide the minimum lanes and shoulders for safe travel. To replace the bridge, a detour will be constructed across the median to shift traffic to SB US 221 Bypass Bridge. This detour will be removed and area allowed to re-vegetate once the NB bridge has been replaced. Roadside ditches that were affected due to the detour and mainline fill slopes will be replaced in kind.

Rip rap is placed on the bridge sloping abutments to act as slope stabilization and prevent erosion. Runoff from the bridge is captured on the low side of the bridge in shoulder berm gutter and traffic bearing 2GI's.

Project does not include bridge spanning over water body. There is an existing 3 barrel box culvert near the beginning of the project that carries Mountain Run Creek under the roadway. However, no improvements will be made to the existing box culvert and no stream impacts are anticipated to Mountain Run Creek.

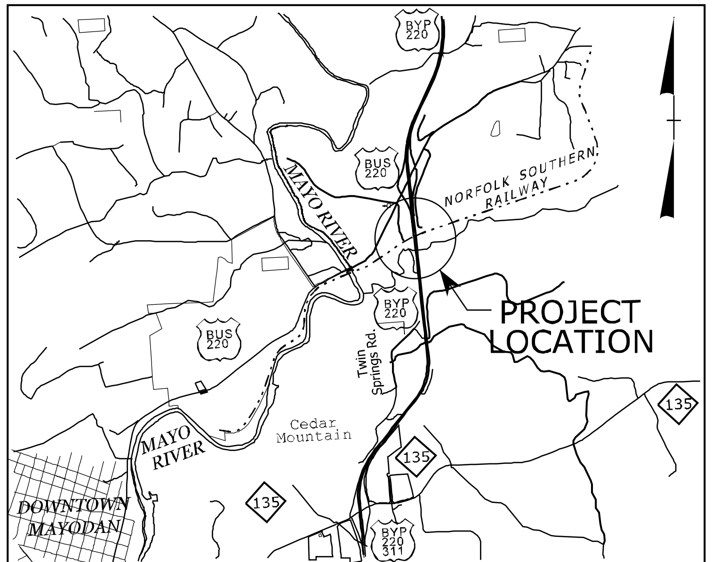
The only jurisdictional impacts on the project that are anticipated are to an unnamed tributary to Mountain Run Creek in the southwest quadrant of the bridge replacement. The jurisdictional stream begins at the outfall of an existing 24" pipe flowing from a stormdrain system on the railroad ROW.

Waterbody Information

Surface Water Body (1):	Unnamed Tributary to Mountain Run Creek	**NCDWR Stream Index No.:**	22-30-9
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)
		Supplemental Classification:	None
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	No	Comments: N/A	
NRTR Stream ID:	N/A	**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	**Dissipator Pads Provided in Buffer?**	N/A
(If yes, provide justification in the General Project Narrative)		(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)

TIP PROJECT: B-5352

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 for Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 131 ON US 220 NBL OVER NORFOLK SOUTHERN RAILROAD

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

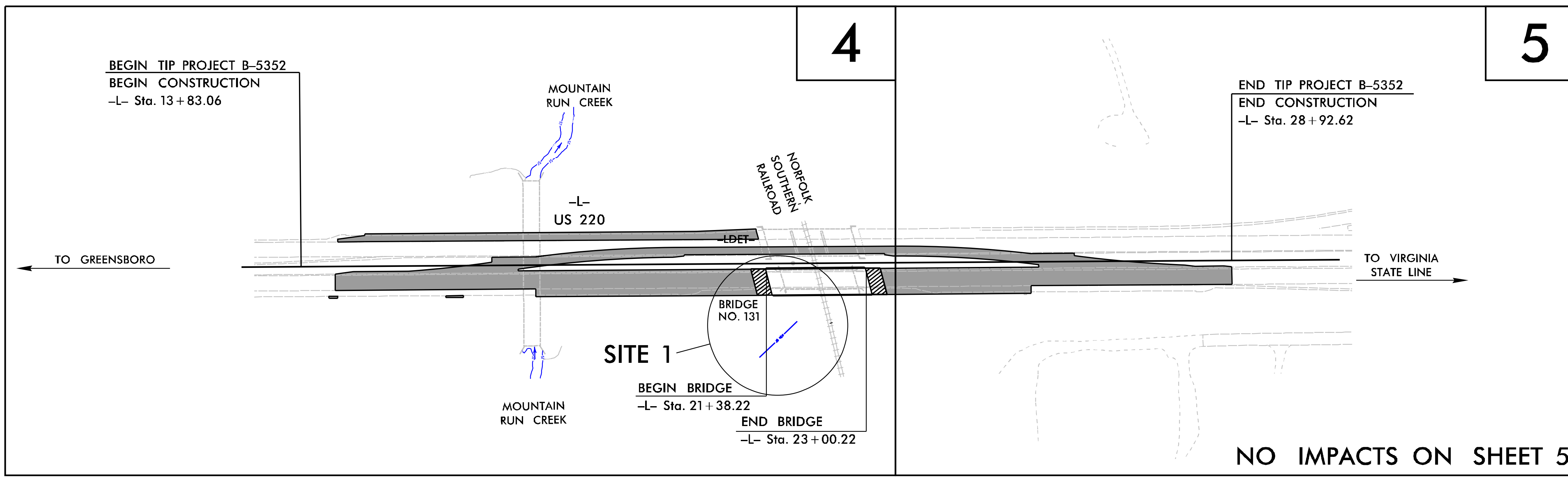
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5352	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46066.1.1	BRNHS-0220(67)	P.E.
46066.2.1	BRNHS-0220(67)	RIGHT-OF-WAY
46066.2.1	BRNHS-0220(67)	UTILITIES

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 1 OF 8

NC GRID
NAD 83/NSRS 2007



THIS PROJECT IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 19336 VPD
ADT 2040 = 30100 VPD
DHV = 11%
D = 55%
T = 23%*
V = 65 MPH
V_{DET} = 55 MPH
* TTST = 14% DUAL = 9%
FUNC CLASS = RURAL FREEWAY (FUTURE INTERSTATE) "STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5352 = 0.255 MILES
LENGTH STRUCTURES TIP PROJECT B-5352 = 0.031 MILES
TOTAL LENGTH TIP PROJECT B-5352 = 0.286 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 18, 2016

LETTING DATE:
NOVEMBER 20, 2018

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

CATHERINE A. MURRELL, P.E.
PROJECT DESIGN ENGINEER

THAD F. DUNCAN, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

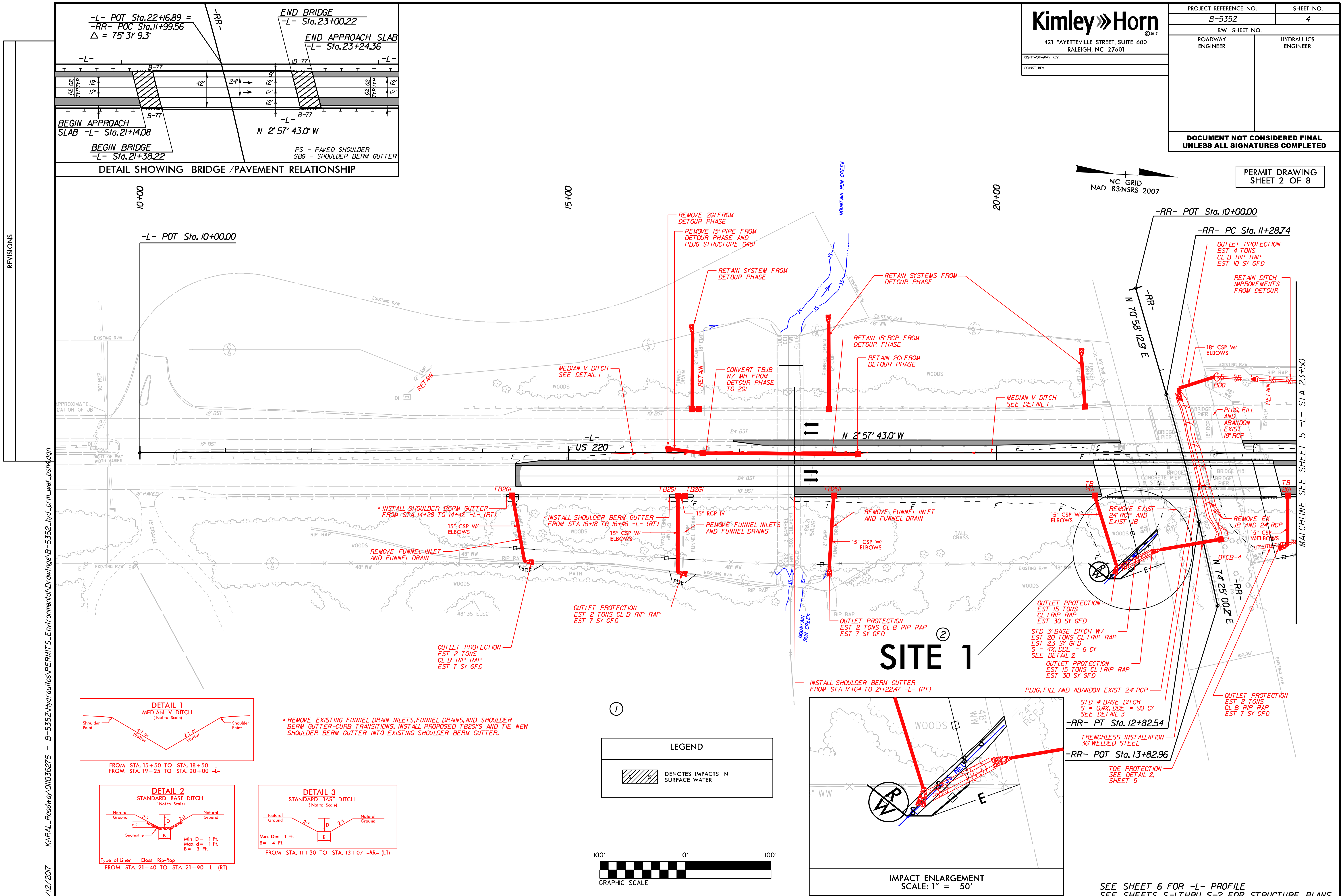
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

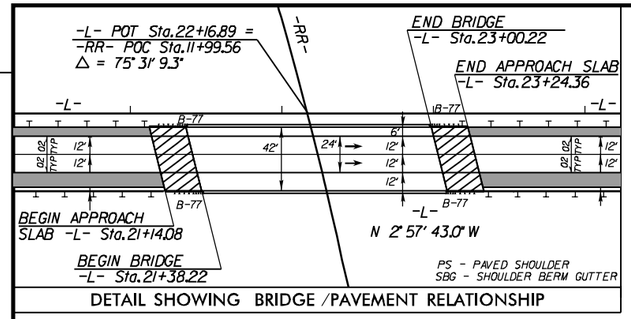
SIGNATURE: P.E.

CONTRACT:

9/12/2017 K:\RAL_Roadway\011036275 - B-5352\Hydraulics\PERMITS_Environmental\Drawings\B-5352_hyd_prm_wet_tsh.dgn



Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
PROJECT REFERENCE NO.
SHEET NO.
B-5352
4
R/W SHEET NO.
ROADWAY ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 2 OF 8
NC GRID NAD 83/NSRS 2007
REVISIONS
-L- POT Sta.22+16.89 = -RR- POC Sta.11+99.56
Δ = 75° 31' 9.3"
END BRIDGE -L- Sta.23+00.22
END APPROACH SLAB -L- Sta.23+24.36
BEGIN APPROACH SLAB -L- Sta.21+14.08
BEGIN BRIDGE -L- Sta.21+38.22
N 2° 57' 43.0" W
PS - PAVED SHOULDER
SBG - SHOULDER BERM GUTTER
DETAIL SHOWING BRIDGE /PAVEMENT RELATIONSHIP
10+00
15+00
20+00
-L- POT Sta. 10+00.00
-RR- POT Sta. 10+00.00
-RR- PC Sta. 11+28.74
-L- US 220
MOUNTAIN RUN CREEK
REMOVE 2GI FROM DETOUR PHASE
REMOVE 15" PIPE FROM DETOUR PHASE AND PLUG STRUCTURE 0451
RETAIN SYSTEM FROM DETOUR PHASE
RETAIN SYSTEMS FROM DETOUR PHASE
RETAIN 15" RCP FROM DETOUR PHASE
RETAIN 2GI FROM DETOUR PHASE
CONVERT TBJB W/ MH FROM DETOUR PHASE TO 2GI
MEDIAN V DITCH SEE DETAIL 1
OUTLET PROTECTION EST 4 TONS CL B RIP RAP EST 10 SY GFD
RETAIN DITCH IMPROVEMENTS FROM DETOUR
18" CSP W/ ELBOWS
PLUG, FILL AND ABANDON EXIST 18" RCP
* INSTALL SHOULDER BERM GUTTER FROM STA 14+28 TO 14+42 -L- (RT)
* INSTALL SHOULDER BERM GUTTER FROM STA 16+18 TO 16+46 -L- (RT)
15" CSP W/ ELBOWS
REMOVE FUNNEL INLET AND FUNNEL DRAIN
REMOVE FUNNEL INLETS AND FUNNEL DRAINS
15" RCP-IV
REMOVE EXIST 24" RCP AND EXIST JB
REMOVE EX JB AND 24" RCP
15" CSP W/ELBOWS
OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD
OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD
OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD
OUTLET PROTECTION EST 15 TONS CL I RIP RAP EST 30 SY GFD
STD 3' BASE DITCH W/ EST 20 TONS CL I RIP RAP EST 23 SY GFD S = 4%, DDE = 6 CY SEE DETAIL 2
OUTLET PROTECTION EST 15 TONS CL I RIP RAP EST 30 SY GFD
PLUG, FILL AND ABANDON EXIST 24" RCP
STD 4' BASE DITCH S = 0.4%, DDE = 90 CY SEE DETAIL 3
-RR- PT Sta. 12+82.54
TRENCHLESS INSTALLATION 36" WELDED STEEL
-RR- POT Sta. 13+82.96
TOE PROTECTION SEE DETAIL 2, SHEET 5
OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD
INSTALL SHOULDER BERM GUTTER FROM STA 17+64 TO 21+22.47 -L- (RT)
N 70° 58' 12.9" E
N 74° 25' 00.2" E
MATCHLINE -L- STA 23+50 SEE SHEET 5
SITE 1
DETAIL 1 MEDIAN V DITCH (Not to Scale)
FROM STA. 15+50 TO STA. 18+50 -L-
FROM STA. 19+25 TO STA. 20+00 -L-
DETAIL 2 STANDARD BASE DITCH (Not to Scale)
Type of Liner - Class I Rip-Rap
FROM STA. 21+40 TO STA. 21+90 -L- (RT)
DETAIL 3 STANDARD BASE DITCH (Not to Scale)
FROM STA. 11+30 TO STA. 13+07 -RR- (LT)
* REMOVE EXISTING FUNNEL DRAIN INLETS, FUNNEL DRAINS, AND SHOULDER BERM GUTTER-CURB TRANSITIONS. INSTALL PROPOSED TB2GI'S AND TIE NEW SHOULDER BERM GUTTER INTO EXISTING SHOULDER BERM GUTTER.
LEGEND
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
IMPACT ENLARGEMENT SCALE: 1" = 50'
SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS
K:\RAL_Roadway\011036275 - B-5352\Hydraulics\PERMITS_Environmental\Drawings\B-5352_hyd_prm_wet_psh4.dgn
9/12/2017



DETAIL SHOWING BRIDGE /PAVEMENT RELATIONSHIP

REVISIONS

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	4
R/W SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 3 OF 8

NC GRID
NAD 83/NSRS 2007

10+00 15+00 20+00

-L- POT Sta. 10+00.00

-RR- POT Sta. 10+00.00

-RR- PC Sta. 11+28.74

-RR- N 70° 58' 12.9" E

-L- STA 23+50

MATCHLINE SEE SHEET 5

-RR- N 74° 25' 00.2" E

-L- US 220

N 2° 57' 43.0" W

MOUNTAIN RUN CREEK

REMOVE 2GI FROM DETOUR PHASE

REMOVE 15" PIPE FROM DETOUR PHASE AND PLUG STRUCTURE 045I

RETAIN SYSTEM FROM DETOUR PHASE

RETAIN SYSTEMS FROM DETOUR PHASE

RETAIN 15" RCP FROM DETOUR PHASE

RETAIN 2GI FROM DETOUR PHASE

MEDIAN V DITCH SEE DETAIL 1

CONVERT TB3JB W/ MH FROM DETOUR PHASE TO 2GI

MEDIAN V DITCH SEE DETAIL 1

OUTLET PROTECTION EST 4 TONS CL B RIP RAP EST 10 SY GFD

RETAIN DITCH IMPROVEMENTS FROM DETOUR

18" CSP W/ ELBOWS

PLUG, FILL AND ABANDON EXIST 18" RCP

TB2GI

* INSTALL SHOULDER BERM GUTTER FROM STA 14+28 TO 14+42 -L- (RT)

15" CSP W/ ELBOWS

REMOVE FUNNEL INLET AND FUNNEL DRAIN

PDE

OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD

* INSTALL SHOULDER BERM GUTTER FROM STA 16+18 TO 16+46 -L- (RT)

15" CSP W/ ELBOWS

15" RCP-IV

REMOVE FUNNEL INLETS AND FUNNEL DRAINS

OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD

REMOVE FUNNEL INLET AND FUNNEL DRAIN

15" CSP W/ ELBOWS

OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD

INSTALL SHOULDER BERM GUTTER FROM STA 17+64 TO 21+22.47 -L- (RT)

15" CSP W/ ELBOWS

REMOVE EXIST 24" RCP AND EXIST JB

REMOVE EX. JB AND 24" RCP

15" CSP W/ ELBOWS

OUTLET PROTECTION EST 15 TONS CL I RIP RAP EST 30 SY GFD

STD 3' BASE DITCH W/ EST 20 TONS CL I RIP RAP EST 23 SY GFD S = 4% DDE = 6 CY SEE DETAIL 2

OUTLET PROTECTION EST 15 TONS CL I RIP RAP EST 30 SY GFD

PLUG, FILL AND ABANDON EXIST 24" RCP

STD 4' BASE DITCH S = 0.4% DDE = 90 CY SEE DETAIL 3

-RR- PT Sta. 12+82.54

TRENCHLESS INSTALLATION 36" WELDED STEEL

-RR- POT Sta. 13+82.96

TOE PROTECTION SEE DETAIL 2, SHEET 5

OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD

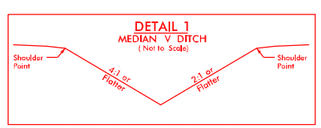
OTCB-4

SITE 1

① ②

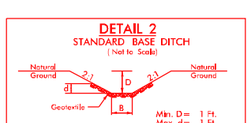
* REMOVE EXISTING FUNNEL DRAIN INLETS, FUNNEL DRAINS, AND SHOULDER BERM GUTTER-CURB TRANSITIONS. INSTALL PROPOSED TB2GI'S AND TIE NEW SHOULDER BERM GUTTER INTO EXISTING SHOULDER BERM GUTTER.

DETAIL 1
MEDIAN V DITCH
(Not to Scale)



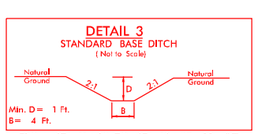
FROM STA. 15+50 TO STA. 18+50 -L-
FROM STA. 19+25 TO STA. 20+00 -L-

DETAIL 2
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class I Rip-Rap
FROM STA. 21+40 TO STA. 21+90 -L- (RT)

DETAIL 3
STANDARD BASE DITCH
(Not to Scale)

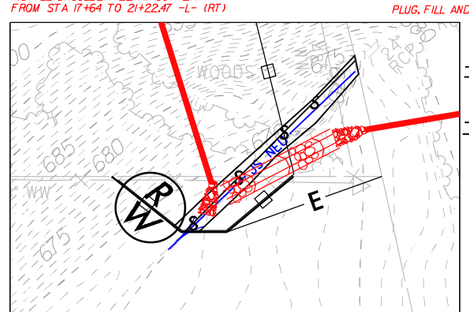


FROM STA. 11+30 TO STA. 13+07 -RR- (LT)

LEGEND

DENOTES IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE



IMPACT ENLARGEMENT
SCALE: 1" = 50'

SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

REVISIONS

9/12/2017 K:\RAL_Roadway\DOT036275 - B-5352\Hydraulics\PERMITS_Environmental\Drawings\B-5352_hyd_prm_wet_psht5.dgn

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RIGHT-OF-WAY REV.

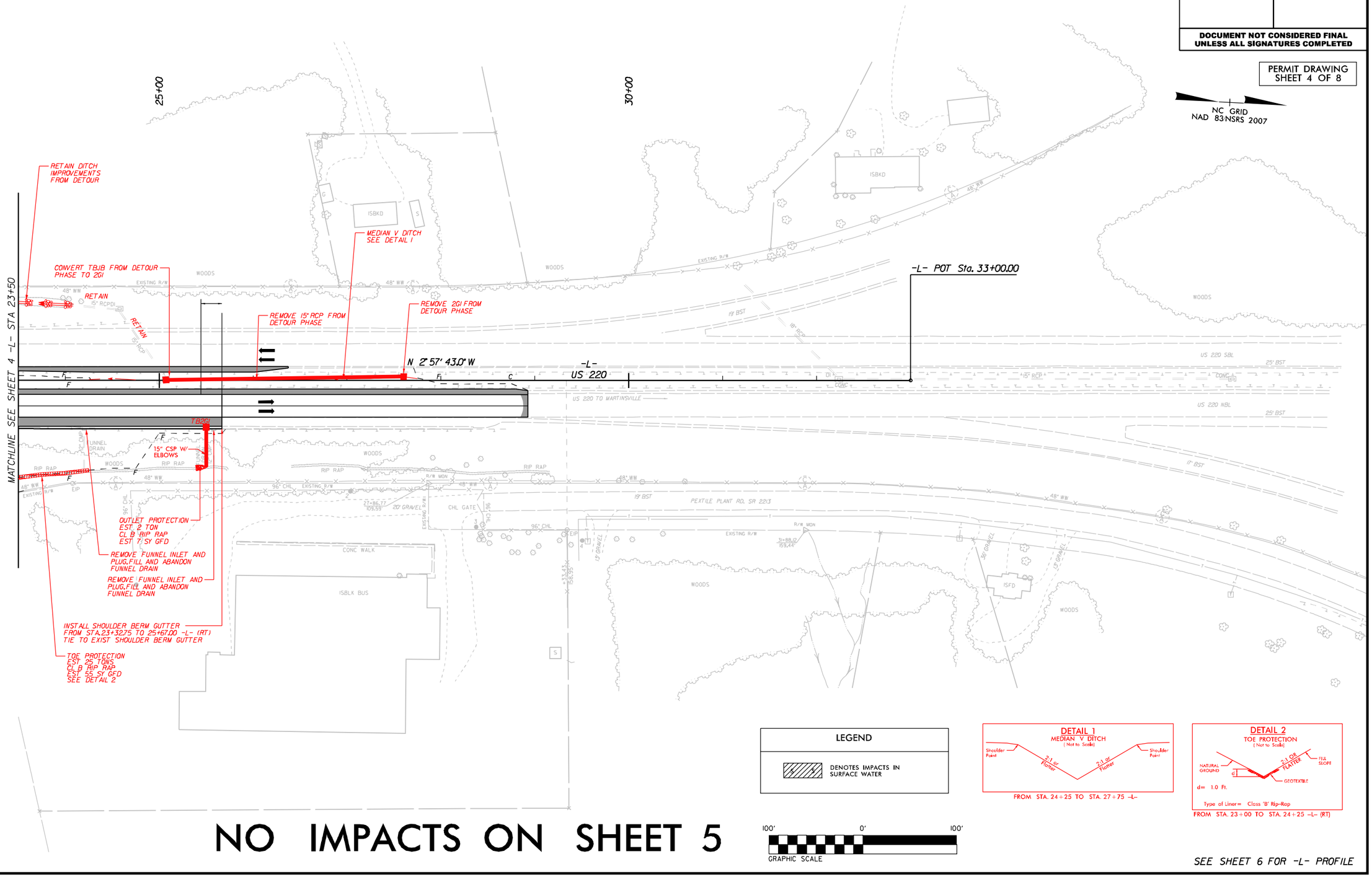
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	5
R/W SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 4 OF 8

NC GRID
NAD 83/NSRS 2007



LEGEND

DENOTES IMPACTS IN SURFACE WATER

DETAIL 1
MEDIAN V DITCH
(Not to Scale)

FROM STA. 24+25 TO STA. 27+75 -L-

DETAIL 2
TOE PROTECTION
(Not to Scale)

d= 1.0 Ft.
Type of Liner= Class 'B' Rip-Rap
FROM STA. 23+00 TO STA. 24+25 -L- (RT)

NO IMPACTS ON SHEET 5

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 6 FOR -L- PROFILE

REVISIONS

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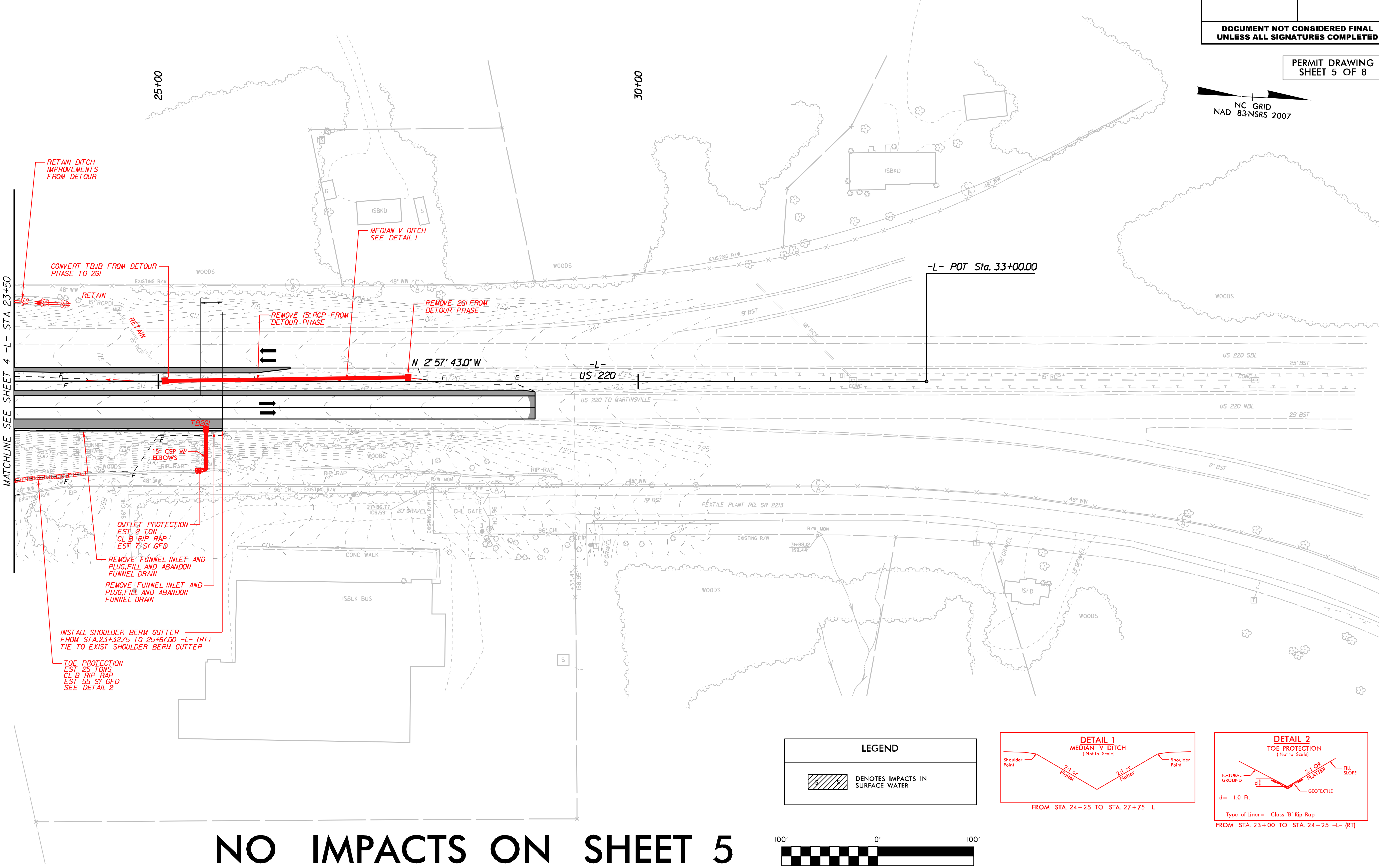
RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	5
R/W SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 5 OF 8



NO IMPACTS ON SHEET 5

SEE SHEET 6 FOR -L- PROFILE

BMI
ELEV = 700.28'
N 980382 E 1726301
-L- STA. 16+61.14 2.95' LEFT
CHISELED SQUARE ON A YARD INLET GRATE IN THE MEDIAN OF 220 SOUTH OF THE RAILROAD

BM2
ELEV = 709.40'
N 980866 E 1726272
-L- STA 21+45.89 6.97' LEFT
CHISELED SQUARE ON SE WW OF SBL BRIDGE

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 6 OF 8

REVISIONS

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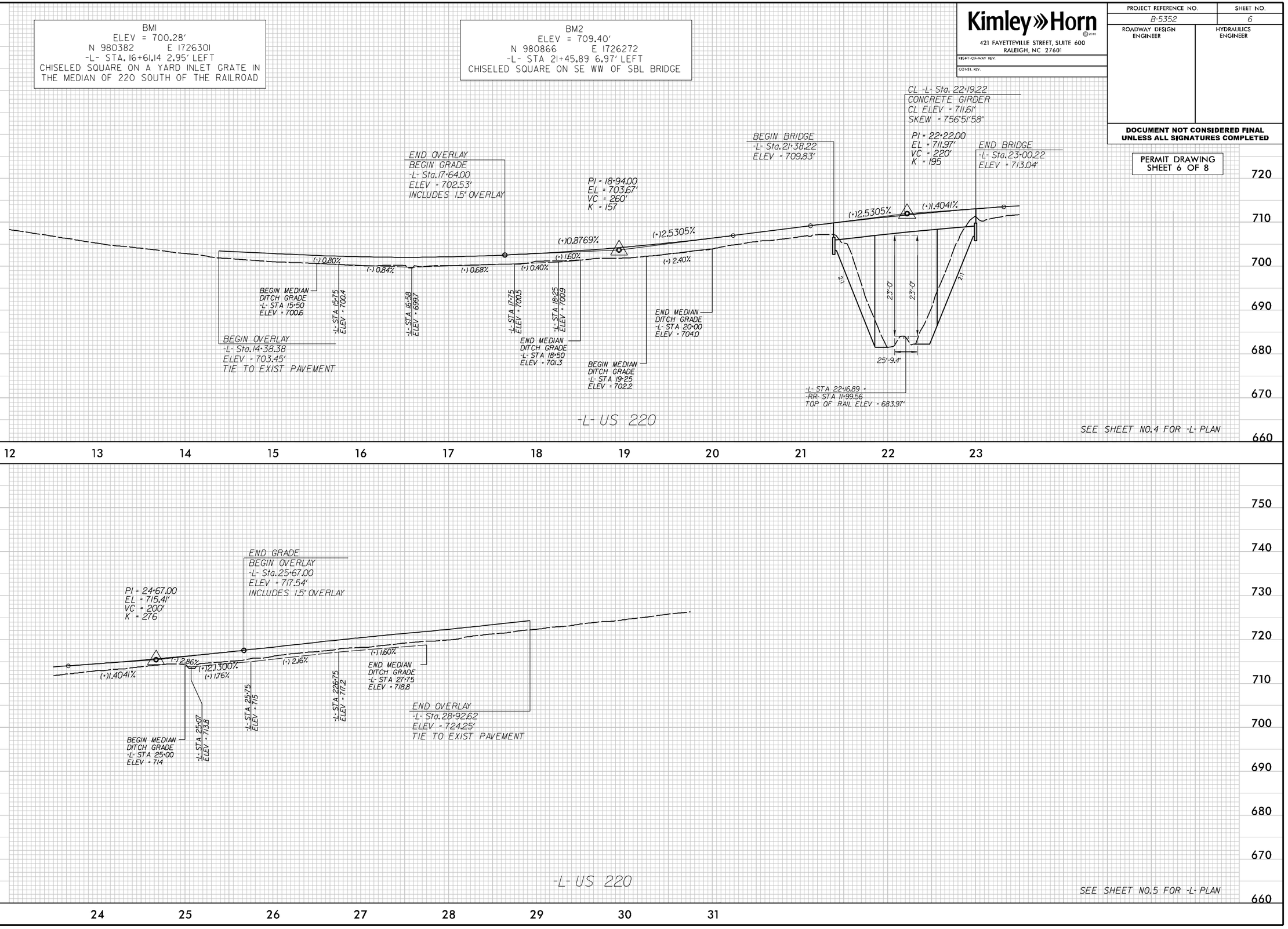
9/1/2017



BMI
ELEV = 700.28'
N 980382 E 1726301
-L- STA. 16+61.14 2.95' LEFT
CHISELED SQUARE ON A YARD INLET GRATE IN THE MEDIAN OF 220 SOUTH OF THE RAILROAD

BM2
ELEV = 709.40'
N 980866 E 1726272
-L- STA 21+45.89 6.97' LEFT
CHISELED SQUARE ON SE WW OF SBL BRIDGE

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RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 7 OF 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

BEGIN GRADE
-LDET- Sta.12+11.95 =
-L- Sta. 16+49.84 (2.54' RT)
ELEV = 701.60'

PI = 12+60.00
EL = 701.34'
VC = 90'
K = 59
DS = 35 MPH

(-)0.541%

(+)0.981%

END GRADE
-LDET- Sta.13+43.58 =
-L- Sta. 17+80.27 (15.13' LT)
ELEV = 702.16'
TIE TO EXISTING PAVEMENT

PI = 21+78.00
EL = 718.04'
VC = 100'
K = 224

(+)11.890%

(+)12.337%

(+)9.375%

END DITCH CLEAN-OUT
DITCH GRADE LT
-LDET- STA 19+71
ELEV = 704.7'

BEGIN GRADE
-LDET- Sta.21+18.23 =
-L- Sta. 25+53.99 (14.75' LT)
ELEV = 716.91'
TIE TO EXISTING PAVEMENT

BEGIN DITCH CLEAN-OUT
DITCH GRADE LT
-LDET- STA 18+18
ELEV = 689.8'

END GRADE
-LDET- Sta.22+41.75 =
-L- Sta. 26+76.37 (1.96' RT)
ELEV = 719.53'

-LDET- US 220

SEE SHEET NOS.2B-1 AND 2B-2 FOR -LDET- PLAN

740 730 720 710 700 690 680 670

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

(-) 7.30%

BEGIN DITCH GRADE LT
-RR- STA 11+30
ELEV = 681.94'

(-) 0.40%

(-) 7.30%

END DITCH GRADE LT
-RR- STA 13+07
ELEV = 678.46'

PI =11+40.000
EI = 681.21

PI =12+80.000
EI = 680.65

-RR- NORFOLK SOUTHERN RAILROAD

SEE SHEET NO.4 FOR -RR- PLAN

710 700 690 680 670 660 650 640

10 11 12 13 14

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9/1/2017

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	21+31.81 to 21+87.38 -L-	1 @ 36" Steel, 1 @ 18" RCP						0.01		77		
TOTALS*:								0.01		77	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/31/2017
ROCKINGHAM COUNTY
B-5352
WBS ELEMENT 46066.1.1
SHEET 8 OF 8

Revised 2016 09 09

TIP PROJECT: B-5352

CONTRACT:

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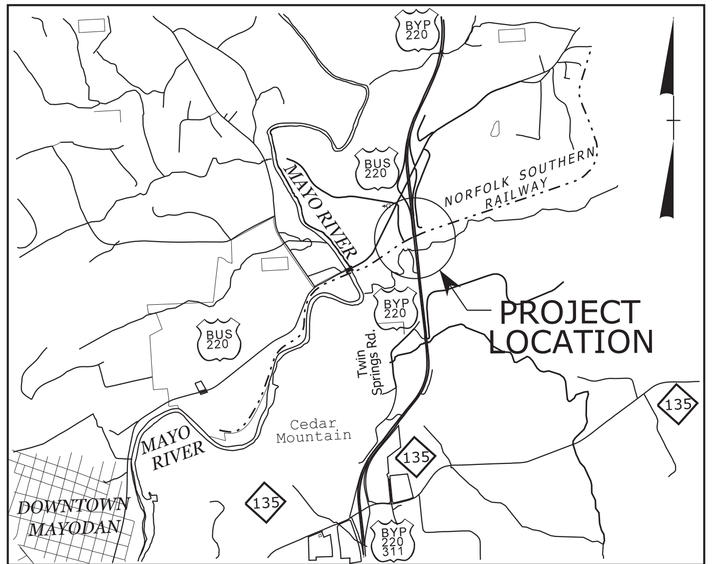
9/7/2017

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 for Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5352	1	

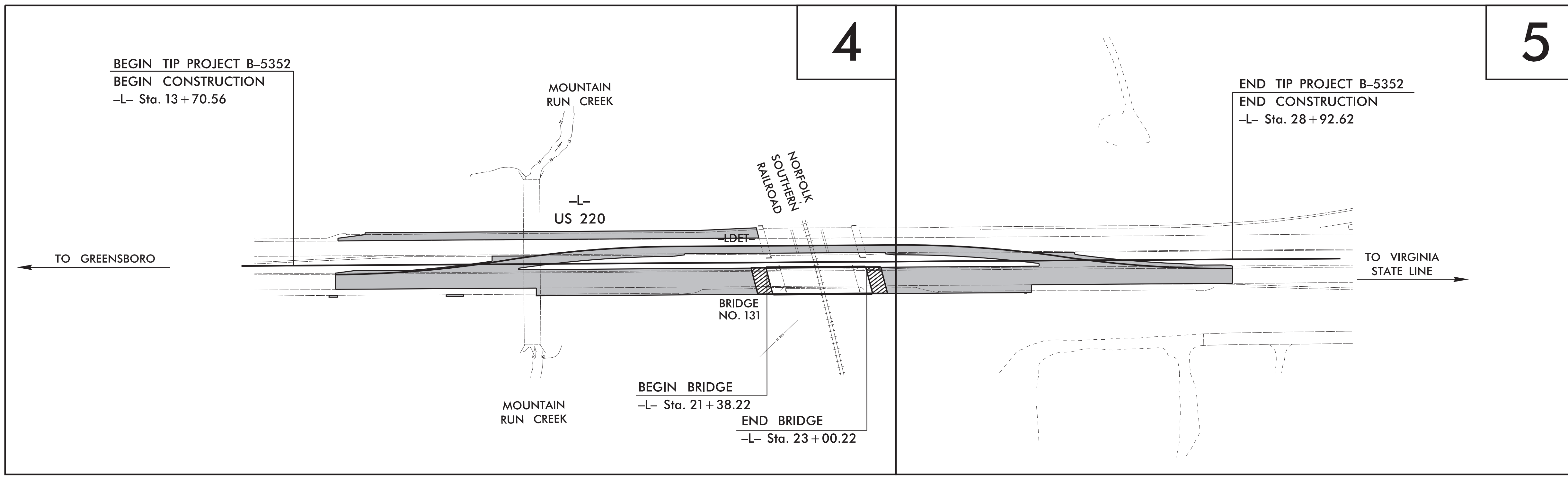
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46066.1.1	BRNHS-0220(67)	P.E.
46066.2.1	BRNHS-0220(67)	RIGHT-OF-WAY
46066.2.1	BRNHS-0220(67)	UTILITIES
46066.3.1	BRNHS-0220(67)	CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCATION: BRIDGE NO. 131 ON US 220 NBL OVER NORFOLK SOUTHERN RAILROAD

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

NC GRID
NAD 83/NSRS 2007



THIS PROJECT IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 19336 VPD
ADT 2040 = 30100 VPD
DHV = 11%
D = 55%
T = 23%*
V = 65 MPH
V_{DET} = 55 MPH
* TTST=14% DUAL=9%
FUNC CLASS= RURAL FREEWAY (FUTURE INTERSTATE) "STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5352 = 0.257 MILES
LENGTH STRUCTURES TIP PROJECT B-5352 = 0.031 MILES
TOTAL LENGTH TIP PROJECT B-5352 = 0.288 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley-Horn

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *NOVEMBER 18, 2016*

LETTING DATE: *NOVEMBER 20, 2018*

JEFFREY W. MOORE, P.E. — PROJECT ENGINEER

CATHERINE M. KENNEDY, P.E. — PROJECT DESIGN ENGINEER

JACQUELYN BOWLES — NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5352	IB

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

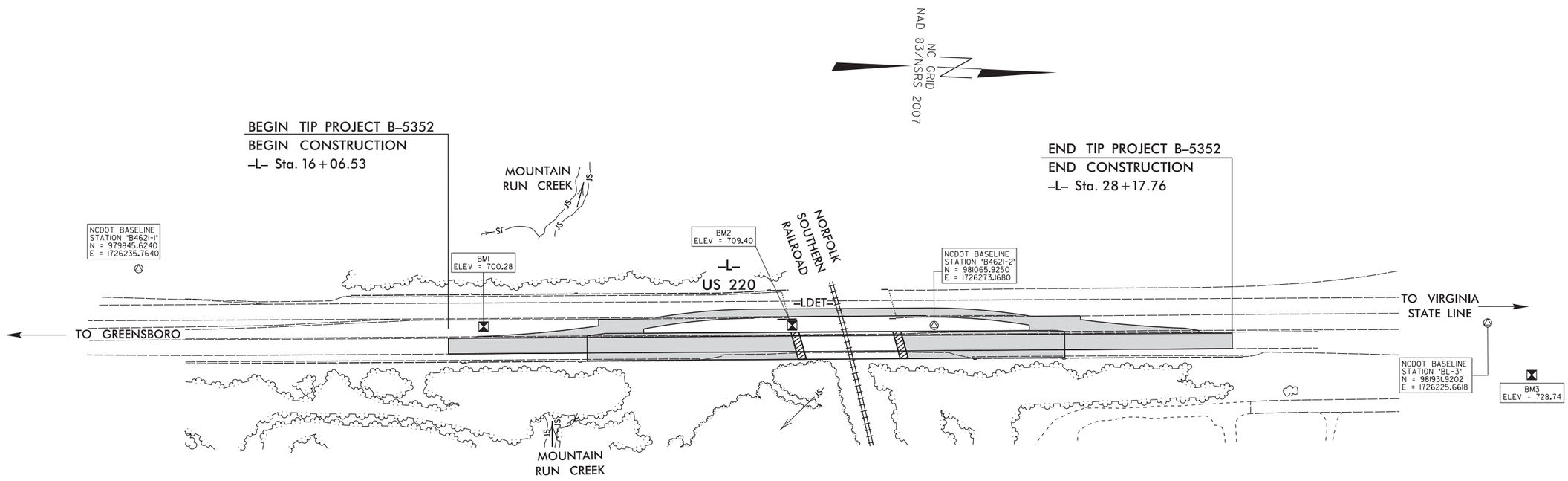
K:\RAL_Roadway\0I036275 - B-5352\Roadway\Proj\B-5352_rdy_Ishdgn

9/6/2017

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
B–5352	1C–1
Location and Surveys	

B–5352 SURVEY CONTROL SHEET



L

TYPE	STATION	NORTH	EAST
POT	10+00.00	979721.9901	1726338.0274
POT	33+00.00	982018.9175	1726219.1803

-L- NEW PRELIMINARY PERMANENT DRAINAGE EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	21+30.00	128.69	980857.1303	1726408.1554
L	21+30.00	147.00	980858.0764	1726426.4410
L	21+43.00	147.00	980871.0590	1726425.7692
L	21+62.00	128.66	980889.0862	1726406.4761

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4621-1	979845.6240	1726235.7640	710.44	11+28.75	95.74 LT
2	B4621-2	981065.9250	1726273.1680	711.94	23+45.49	4.67 RT
3	BL-3	981931.9202	1726225.6618	730.39	32+12.78	1.98 RT

NOTES

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/*

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   b5352_ls_control.txt

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4621-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 981065.9250(ft) EASTING: 1726273.1680(ft) ELEVATION: 711.94'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000596193
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4621-2" TO -L- STATION 16+06.53 IS S 02°35'59" E 738.97'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

BM1 ELEVATION - 700.28
N 980382 E 1726301
L STATION 16+61.00 3 LEFT
CHISELED SQUARE ON A YARD INLET GRATE IN MEDIAN OF 220 SOUTH OF THE RAILROAD

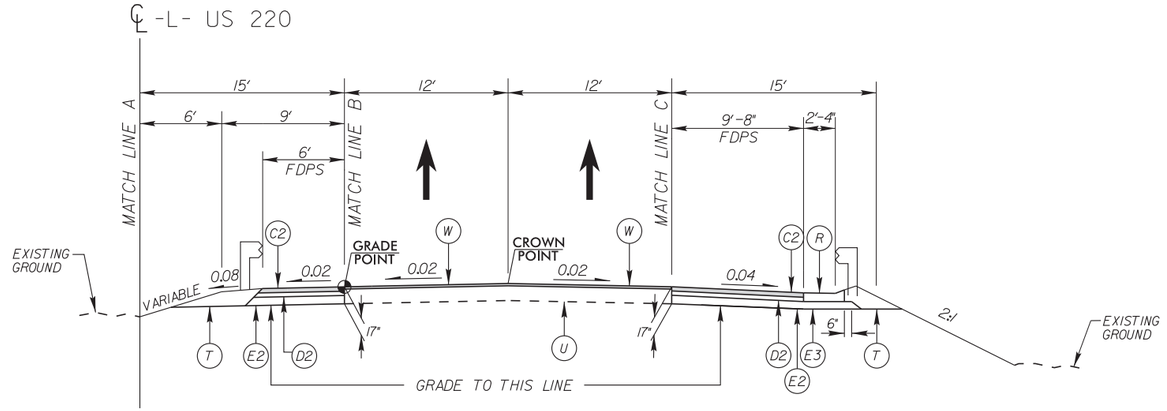
BM2 ELEVATION - 709.40
N 980866 E 1726272
L STATION 21+46.00 7 LEFT
CHISELED SQUARE ON SE WW OF SBL BRIDGE

BM3 ELEVATION - 728.74
N 981985 E 1726304
L STATION 32+62.00 83 RIGHT
CHISELED SQUARE ON BASE OF BUS 220 STONEVILLE SIGN

NOTE: DRAWING NOT TO SCALE

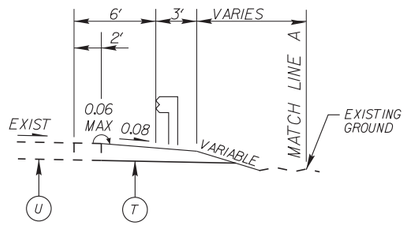
$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$FILENAME$$$$

REVISIONS



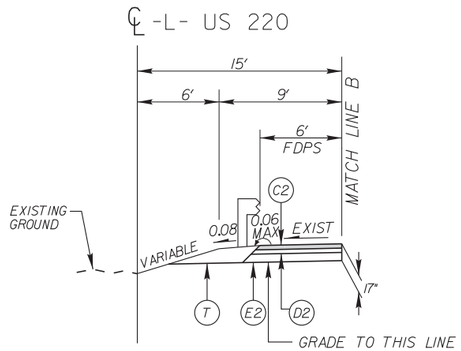
TYPICAL SECTION NO. 1

-L- STA 14+38.38 TO STA 21+38.22 (BEGIN BRIDGE)
-L- STA 23+00.22 (END BRIDGE) TO STA 28+92.62



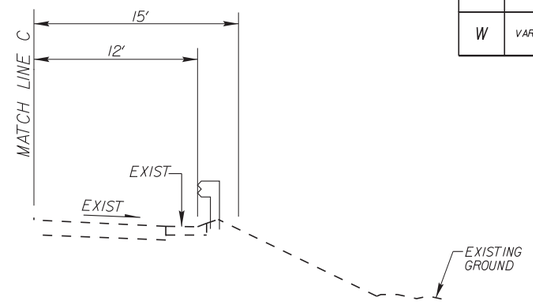
TYPICAL SECTION NO. 1A

-L- STA 15+51.07 TO STA 16+92.70 - SBL MEDIAN
-L- STA 26+37.53 TO STA 27+71.52 - SBL MEDIAN



TYPICAL SECTION NO. 1B

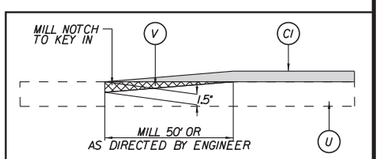
-L- STA 14+38.38 TO STA 17+64.00 (RT) - NBL MEDIAN
-L- STA 16+92.70 TO STA 21+43.92 (LT) - SBL MEDIAN
-L- STA 22+86.81 TO STA 26+37.53 (LT) - SBL MEDIAN



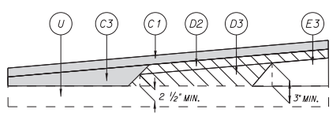
TYPICAL SECTION NO. 1C

-L- STA 14+38.38 TO STA 17+64.00 (RT)

NOTES:
1) OVERLAY FROM -L- STA 14+38.38 TO STA 17+64.00 AND FROM -L- STA 25+67.00 TO STA 28+92.62 (1.5" S9.5C)
2) MILL NOTCH TO KEY-IN S9.5C FROM -L- STA 14+38.38 TO STA 14+88.38 AND -L- STA 28+42.62 TO STA 28+92.62
3) TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2 -LDET- STA 10+00.00 TO STA 12+11.95
4) TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING -LDET- STA 13+43.58 TO STA 15+68.55
5) TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING -LDET- STA 18+94.01 TO STA 21+18.23
6) TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING -LDET- STA 22+41.75 TO STA 24+58.52
7) EXCAVATE DETOUR CROSSOVER AS SHOWN ON DITCH DETAILS (SHEETS 4 & 5) AND CROSS SECTIONS
8) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



PROFILE KEY-IN DETAIL



DETAIL SHOWING METHOD OF WEDGING

PAVEMENT DESIGN
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
C2	PROP. APPROX. 3" DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. APPROX. 10" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH
R	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT 0" TO 1.5" (SEE DETAIL BELOW)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL BELOW)

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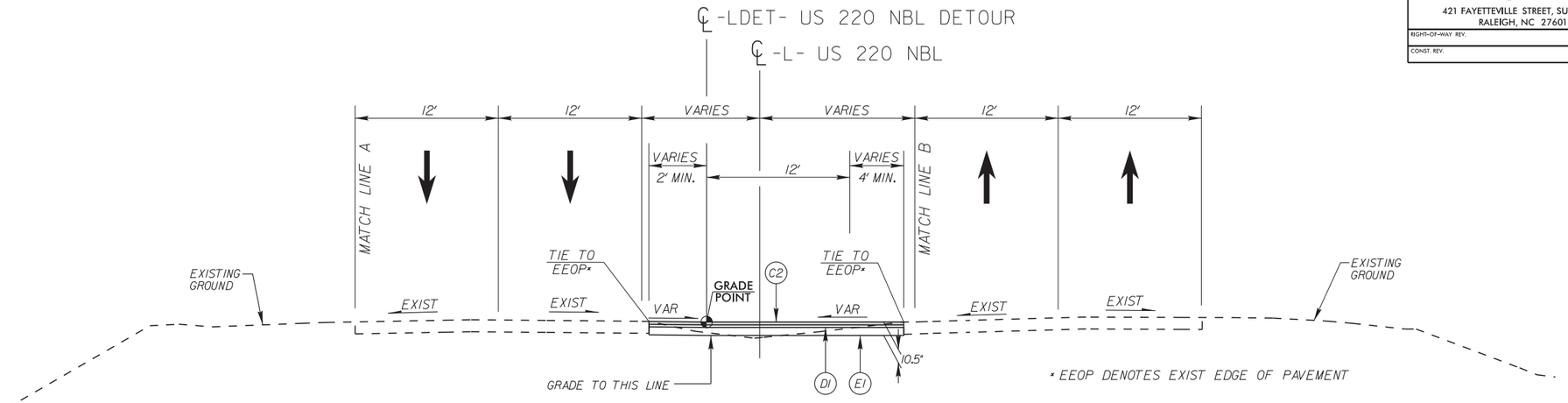
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	2A-1

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

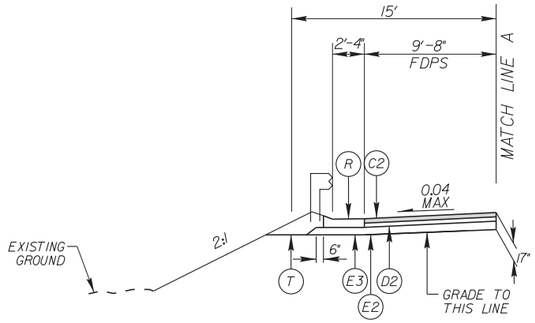
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

K:\RAL_Roadway\0110362?5 - B-5352\Roadway\Pro\NB-5352_rdy_typdgn
9/7/2017



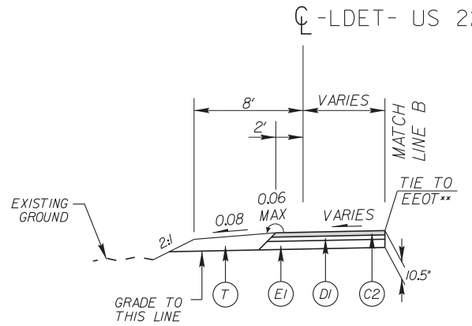
TYPICAL SECTION NO. 2

-LDET- STA 10+04.76 TO STA 16+89.31
-LDET- STA 18+94.01 TO STA 24+11.42



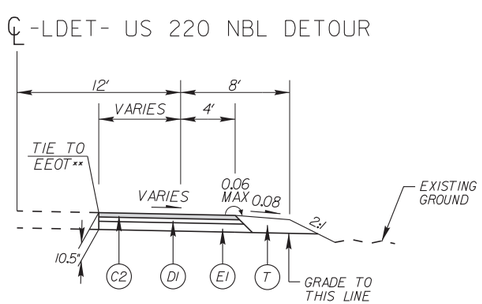
TYPICAL SECTION NO. 2A

-LDET- STA 10+04.76 TO STA 16+89.31 (LT)



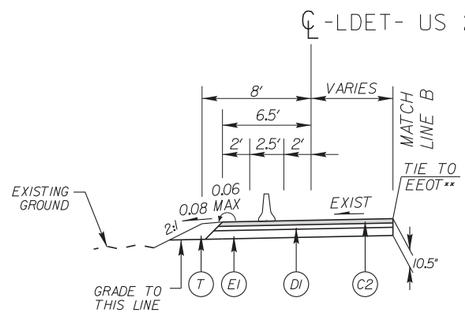
TYPICAL SECTION NO. 2B

-LDET- STA 10+34.24 TO STA 12+11.95



TYPICAL SECTION NO. 2C

-LDET- STA 13+43.58 TO STA 15+68.55
-LDET- STA 18+94.01 TO STA 21+18.23



TYPICAL SECTION NO. 2D

-LDET- STA 22+41.75 TO STA 24+11.42

** EEOT DENOTES EXIST EDGE OF TRAVEL

REVISIONS

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9/17/2017

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT DESIGN
(FINAL PAVEMENT DESIGN)

C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. DEPTH S9.5C
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. DEPTH I19.0C
E1	5" B25.0C
E2	10" B25.0C
E3	VAR. DEPTH B25.0C
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT

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RALEIGH, NC 27601

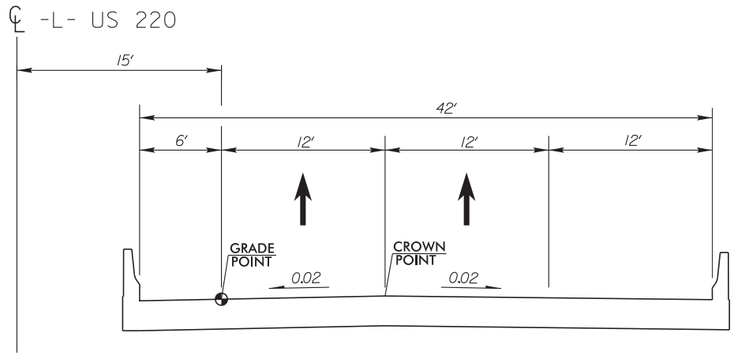
RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	2A-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



BRIDGE TYPICAL SECTION NO. 1

-L- STA 21+38.22 TO STA 23+00.22

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THIS SHEET IS FOR DETOUR CONSTRUCTION ONLY

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	2B-1
R/W SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

NC GRID
NAD 83/NSRS 2007

FUNNEL DRAINS ON SOUTHBOUND LANE OF TRAVEL TO BE REPLACED PRIOR TO IMPLEMENTING DETOUR

-L- POT Sta. 10+00.00

"GPS" B462I-1
-L- Sta. 11+28.75
OFF 95.74' LT

BEGIN CONSTRUCTION
-LDET- PC Sta.10+00.00 =
-L- POT Sta.14+38.38 (15' RT)

BEGIN GRADE
-LDET- Sta.12+11.95=
-L- Sta. 16+49.84 (2.54' RT)

END GRADE
-LDET- Sta.13+43.58 =
-L- Sta.17+80.27 (15.13' LT)

-LDET- PRC Sta. 12+75.22

-LDET- PT Sta. 15+50.45

-LDET- PC Sta. 19+08.08

360' LANE SHIFT

BEGIN FULL DEPTH PAVED SHOULDER -LDET- Sta.10+04.76 (54.52' LT) TIE TO EXIST

END FULL DEPTH PAVED SHOULDER -LDET- 16+89.31 (12.83' LT) TIE TO EXIST APPROACH SLAB

INSTALL TEMPORARY CAT-1

INSTALL TEMPORARY GREU TL-3

INSTALL PORTABLE CONCRETE BARRIER (TRAFFIC CONTROL ITEM)

PROP TEMPORARY LANE SHIFT

INSTALL SHOULDER BERM GUTTER FROM STA 10+50 TO 16+86 -LDET- (LT) AND TIE TO EXISTING

REMOVE EXIST FUNNEL DRAIN & INLET

REMOVE AND REPLACE GUARDRAIL

REMOVE AND RESET 48" CHAIN LINK FENCE

REMOVE AND REPLACE EXISTING PAVED SHOULDER PRIOR TO IMPLEMENTING DETOUR

REMOVE EXIST FUNNEL DRAIN AND INLET

REMOVE EXIST FUNNEL DRAIN-1 & INLET

RETAIN EXISTING BOX CULVERT

RETAIN EXIST STRUCTURE ANCHOR UNIT

RETAIN EXIST FLUME (CLEAN OUT VEGETATION)

CLEAN OUT EXIST DITCH TO DAYLIGHT EXISTING BURIED PIPES. REMOVE EXIST RIP RAP AND REPLACE WITH CL B RIP RAP (FOR MAINTENANCE) EST 75 TONS CL B RIP RAP EST 175 SY GFD EST 45 CY DDE SEE DETAIL 2

OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD

TOE PROTECTION EST 50 SY PSRM SEE DETAIL 1

TOE PROTECTION EST 55 SY PSRM SEE DETAIL 1

GRADE TO DRAIN

TIE TO EXIST GUARDRAIL

REMOVE GUARDRAIL

REMOVE EXIST GUARDRAIL

REMOVE EXISTING 2GI AND REPLACE WITH TBJB W/ MH AND TIE INTO EXISTING 18" CMP

RETAIN EXISTING SYSTEM

TIE TO EXIST STRUCTURE ANCHOR UNIT

BM2
ELEV = 709.40'
N 980866 E 1726272
-L- STATION 21+45.89 6.97' LEFT
CHISELED SQUARE ON SE
WW OF SBL BRIDGE

BM1
ELEV = 700.28'
N 980382 E 1726301
-L- STATION 16+61.4 2.95' LEFT
CHISELED SQUARE ON A YARD INLET GRATE IN
THE MEDIAN OF 220 SOUTH OF THE RAILROAD

(1)
RHONDA GAYE W. CRANE &
MARY MADELINE W. SHARON
DB 1365 PG 629
PB 64 PG 69

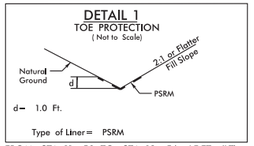
(2)
P.M. McDEVITT
PATTY L. YOUNTS
DB 889 PG 677
PB 30 PG 22

"GPS" B462I-2
-L- Sta. 23+45.49
OFF 4.67' RT

-LDET- (V_{DET} = 55 MPH)

PI Sta 11+37.88	PI Sta 14+13.10
Δ = 8° 45' 38.2" (LT)	Δ = 8° 45' 38.2" (RT)
D = 3° 10' 59.2"	D = 3° 10' 59.2"
L = 275.22'	L = 275.22'
T = 137.88'	T = 137.88'
R = 1,800.00'	R = 1,800.00'
SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS

DETAIL 1
TOE PROTECTION
(Not to Scale)

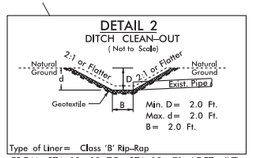


d= 1.0 Ft.

Type of Liner= PSRM

FROM STA. 11+50 TO STA. 12+56 -LDET- (LT)
FROM STA. 12+96 TO STA. 14+25 -LDET- (RT)

DETAIL 2
DITCH CLEAN-OUT
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 18+18 TO STA. 19+71 -LDET- (LT)

SEE SHEET 7 FOR -LDET- PROFILE

MATCHLINE SEE SHEET 2B-2 -L- STA 23+50

9/8/2017 K:\RAL_Roadway\011036275 - B-5352\Roadway\Pro\B-5352_rdy_psh2B-1dgn

THIS SHEET IS FOR DETOUR CONSTRUCTION ONLY

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

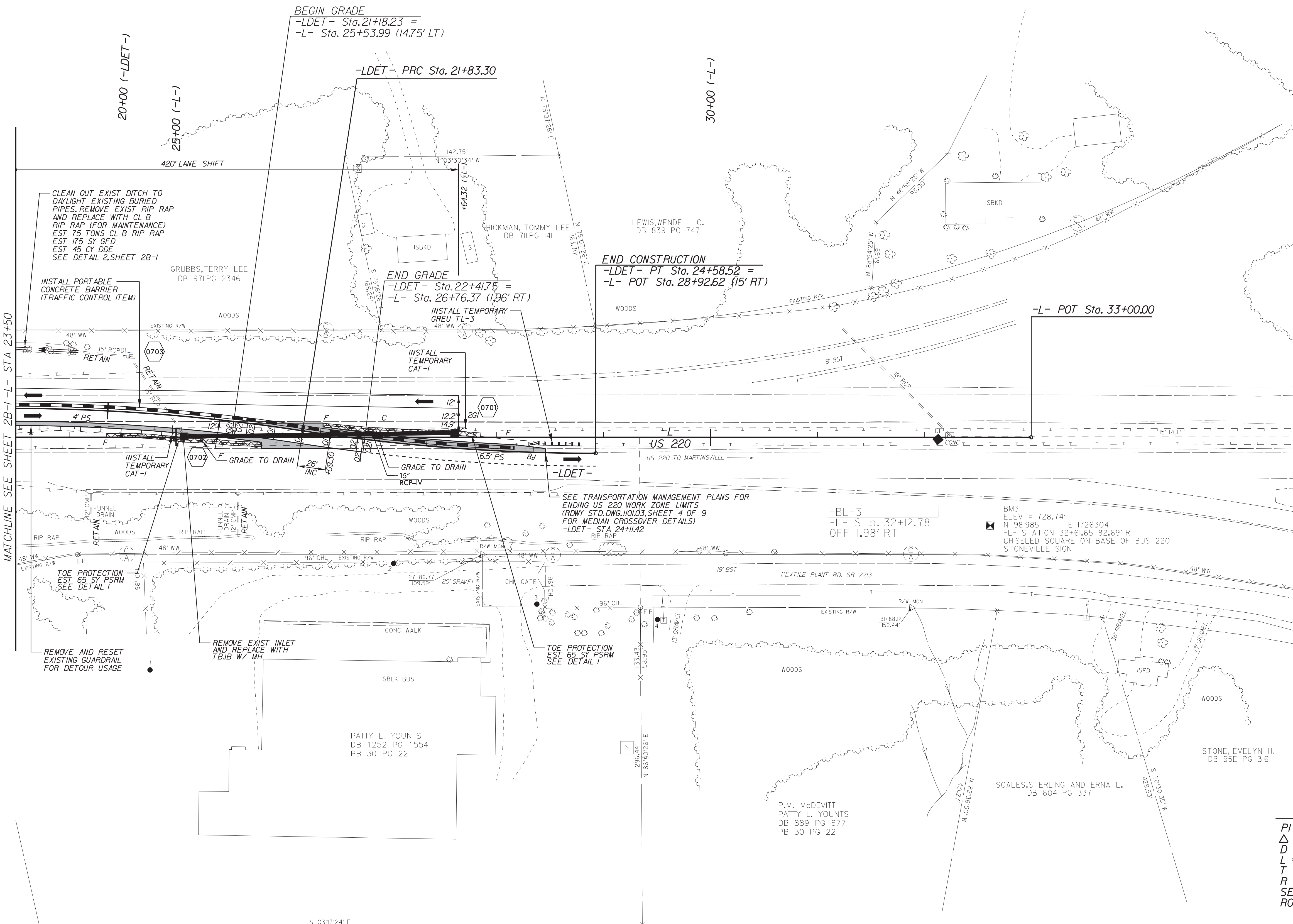
PROJECT REFERENCE NO.	SHEET NO.
B-5352	2B-2

R/W SHEET NO.

ROADWAY ENGINEER	HYDRAULICS ENGINEER

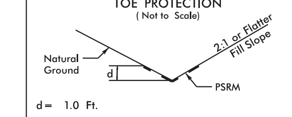
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



BEGIN GRADE
-LDET- Sta. 21+18.23 =
-L- Sta. 25+53.99 (14.75' LT)
-LDET- PRC Sta. 21+83.30
20+00 (-LDET-)
25+00 (-L-)
30+00 (-L-)
420' LANE SHIFT
CLEAN OUT EXIST DITCH TO DAYLIGHT EXISTING BURIED PIPES. REMOVE EXIST RIP RAP AND REPLACE WITH CL B RIP RAP (FOR MAINTENANCE)
EST 75 TONS CL B RIP RAP
EST 175 SY GFD
EST 45 CY DDE
SEE DETAIL 2, SHEET 2B-1
INSTALL PORTABLE CONCRETE BARRIER (TRAFFIC CONTROL ITEM)
GRUBBS, TERRY LEE
DB 971 PG 2346
HICKMAN, TOMMY LEE
DB 711 PG 141
LEWIS, WENDELL C.
DB 839 PG 747
END GRADE
-LDET- Sta. 22+41.75 =
-L- Sta. 26+76.37 (1.96' RT)
INSTALL TEMPORARY GREU TL-3
INSTALL TEMPORARY CAT-I
END CONSTRUCTION
-LDET- PT Sta. 24+58.52 =
-L- POT Sta. 28+92.62 (15' RT)
-L- POT Sta. 33+00.00
NC GRID NAD 83/NSRS 2007
WOODS
EXISTING R/W
48" WW
15" RCPDI RETAIN
0703
0701
0702
US 220 SBL
US 220 NBL
25' BST
19' BST
17' BST
-L- US 220
US 220 TO MARTINSVILLE
-LDET-
4' PS
6.5' PS
12'
12.2'
14.9'
INSTALL TEMPORARY CAT-I
GRADE TO DRAIN
26' INC
15" RCP-IV
SEE TRANSPORTATION MANAGEMENT PLANS FOR ENDING US 220 WORK ZONE LIMITS (RDWY STD. DWG. 1101.03, SHEET 4 OF 9 FOR MEDIAN CROSSOVER DETAILS) -LDET- STA 24+11.42
-BL-3
-L- Sta. 32+12.78
OFF 1.98' RT
BM3
ELEV = 728.74'
N 981985 E 1726304
-L- STATION 32+61.65 82.69' RT
CHISELED SQUARE ON BASE OF BUS 220
STONEVILLE SIGN
MATCHLINE SEE SHEET 2B-1 -L- STA 23+50
FUNNEL DRAIN
RIP RAP
RETAIN
PEXTILE PLANT RD. SR 2213
TOE PROTECTION
EST 65 SY PSRM
SEE DETAIL 1
REMOVE AND RESET EXISTING GUARDRAIL FOR DETOUR USAGE
REMOVE EXIST INLET AND REPLACE WITH TBJB W/ MH
CONC WALK
ISBLK BUS
PATTY L. YOUNTS
DB 1252 PG 1554
PB 30 PG 22
P.M. McDEVITT
PATTY L. YOUNTS
DB 889 PG 677
PB 30 PG 22
SCALES, STERLING AND ERNA L.
DB 604 PG 337
STONE, EVELYN H.
DB 95E PG 316
ISBKD
ISFD
S 03°17'24" E
563.74'

DETAIL 1
TOE PROTECTION
(Not to Scale)



d = 1.0 Ft.
Type of Liner = PSRM
FROM STA. 20+00 TO STA. 21+47 -LDET- (RT)
FROM STA. 22+01 TO STA. 23+50 -LDET- (LT)

-LDET- (V_{DET} = 55 MPH)

PI Sta 20+45.96	PI Sta 23+21.18
Δ = 8° 45' 38.2" (RT)	Δ = 8° 45' 38.2" (LT)
D = 3° 10' 59.2"	D = 3° 10' 59.2"
L = 275.22'	L = 275.22'
T = 137.88'	T = 137.88'
R = 1,800.00'	R = 1,800.00'
SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS

SEE SHEET 7 FOR -LDET- PROFILE

9/8/2017 K:\RAL_Roadway\011036275 - B-5352\Roadway\Proj\B-5352_rdy_psh2B-2.dgn

COMPUTED BY: RSH DATE: 9/5/17
CHECKED BY: JWM DATE: 9/5/17

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5352	3B-1

Kimley»Horn ©2017
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	EXCAVATION		EMBANKMENT	BORROW	WASTE
		TOTAL UNCLASSIFIED	UNDERCUT	EMBANKMENT +%		TOTAL
PHASE I (DETOUR)						
SUMMARY NO. 1						
–LDET– 10+00.00	–LDET– 17+04.46	396		13		383
–LDET– 18+47.27	–LDET– 24+58.52	125		52		73
–LDET– ESTIMATED SHOULDER MATERIAL				313	313	
TOTAL SUMMARY NO. 1						
	SUBTOTAL	521		378	313	456
PHASE II (MAINLINE)						
SUMMARY NO. 2						
–L– 14+38.38	–L– 21+38.22	383		196		187
–L– 23+00.22	–L– 28+92.62	274		691	417	
–L– ESTIMATED SHOULDER MATERIAL				658	658	
TOTAL SUMMARY NO. 3						
	SUBTOTAL	657		1545	1075	187
PHASE III (REMOVE DETOUR)						
SUMMARY NO. 3						
–LDET– 10+00.00	–LDET– 17+04.46	33		7		26
–LDET– 18+47.27	–LDET– 24+58.52	46		8		38
–LDET– SHOULDER REMOVAL		261				261
TOTAL SUMMARY NO. 3						
	SUBTOTAL	340		15		325
SUMMARY TOTAL		1518		1938	1388	968
LOSS DUE TO CLEARING & GRUBBING		–600			600	
EARTH WASTE TO REPLACE BORROW					–456	–456
PROJECT TOTAL		918		1938	1532	512
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					77	
GRAND TOTAL		918		1938	1609	512
SAY		1000			1700	
ESTIMATED SHALLOW UNDERCUT			100 CY			
ESTIMATED DRAINAGE DITCH EXCAVATION			150 CY			
ESTIMATED CLASS IV SUBGRADE STABILIZATION			200 TONS			
ESTIMATED UNDERCUT EXCAVATION			350 CY			
ESTIMATED SELECT GRANULAR MATERIAL			200 CY			
ESTIMATED GEOTEXTILE FOR SOIL STABILIZATION			500 SY			

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

9/8/2017 K:\RAL_Roadway\011036275 – B-5352\Roadway\Proj\B-5352_rdy_sum.dgn

COMPUTED BY: RSH DATE: 9/7/17
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5352	3B-2

Kimley»Horn ©2017
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE TL-3
NG = NON-GATING IMPACT ATTENUATOR TYPE TL-3

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE TL-3			TERMINAL SECTIONS	REMOVE EXISTING GUARDRAIL	REMOVE AND RESET EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	CAT-1	B-77	TEMP CAT-1	TEMP GREU TL-3	EA	G	NG				
-L-	13+70.56	21+33.06	LT	762.50'			21+33.06		12'	15'					1	1							750'		
-L-	14+29.30	21+48.05	RT	718.75'				21+48.05	12'	15'	50'		1'			1							740'		TIE TO EXIST GUARDRAIL
-L-	14+31.33	21+37.58	RT (MED)	706.25'				21+37.58	6'	9'	50'		1'			1							729'		TIE TO EXIST GUARDRAIL
-L-	15+51.08	21+26.08	LT (MED)	575.00'			21+26.08		6'	9'	125'	25'	2'-6"	0'-6"									575'		TIE TO EXIST GUARDRAIL
-L-	22+97.86	28+91.61	RT (MED)	593.75'			22+97.86		6'	9'		50'		1'		1							613'		TIE TO EXIST GUARDRAIL
-L-	23+06.42	27+68.92	LT (MED)	462.50'				23+06.42	6'	9'		125'		2'-6"									463'		TIE TO EXIST GUARDRAIL
-L-	23+08.34	25+64.59	RT	256.25'			23+08.34		12'	15'		25'		0'-6"		1							275'		TIE TO EXIST GUARDRAIL
			SUBTOTAL	4075.00'																					
	LESS ANCHOR DEDUCTIONS																								
	CAT-1	1 @ 6.25'	=	6.25'																					
	B-77	5 @ 18.75'	=	93.75'																					
			TOTAL	3975.00'											1	5							4138'		
			SAY	4000.00'																					
-LDET-	10+00.00	10+06.25	LT	6.25'			10+00.00		6'-9"	9'-9"							1								TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	11+24.98	11+74.98	LT	50.00'				11+24.98	VARIES	VARIES		50'		1'				1							TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	15+40.26	15+90.26	RT	50.00'				15+90.26	VARIES	VARIES		50'		1'				1							TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	18+47.57	20+62.07	RT																					187.50'	
-LDET-	20+62.07	20+68.32	RT	6.25'				20+62.07	4'	8'							1								TEMPORARY GUARDRAIL
-LDET-	23+29.75	23+36.00	LT	6.25'			23+36.00		6'-3"	9'-3"							1								TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	23+95.86	24+45.86	LT	50.00'				24+45.86	VARIES	VARIES		50'		1'				1							TEMPORARY GUARDRAIL; TIE TO EXIST
			SUBTOTAL	168.75'																					
	LESS ANCHOR DEDUCTIONS																								
	TEMP CAT-1	3 @ 6.25'	=	18.75'																					
	TEMP GREU TL-3	3 @ 50.00'	=	150.00'																					
			TOTAL	0													3	3						187.50'	

ADDITIONAL GUARDRAIL POSTS = 5 EA

SUMMARY OF SHOULDER BERM GUTTER

LINE	STATION TO STATION	LOCATION	LENGTH (LF)
-L-	14+28.00 TO 14+42.00	RT	14
-L-	16+18.00 TO 16+46.00	RT	28
-L-	17+64.00 TO 21+22.47	RT	358.47
-L-	23+32.75 TO 25+67.00	RT	234.25
-LDET-	10+50.00 TO 16+86.00	LT	636.00
TOTAL			1270.72
SAY			1275

COMPUTED BY: RSH DATE: 9/5/17
CHECKED BY: JWM DATE: 9/7/17

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5352	3B-3

Kimley»Horn
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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

REMOVAL OF EXISTING ASPHALT PAVEMENT

LINE	STATION TO STATION	LOCATION	SQ. YDS.
–L–	14+25 TO 21+26	LT	762
–L–	14+28 TO 14+42	RT	2
–L–	14+38 TO 21+14	RT (MED)	171
–L–	16+18 TO 16+46	RT	3
–L–	16+93 TO 21+44	LT (MED)	90
–L–	17+64 TO 21+22	RT	384
–L–	21+14 TO 21+68	RT	146
–L–	22+79 TO 23+31	RT	139
–L–	22+98 TO 26+38	LT (MED)	60
–L–	23+24 TO 28+93	RT (MED)	269
–L–	23+30 TO 25+67	RT	210
TEMP PAVEMENT			
–LDET–	10+34 TO 15+69	LT/RT	513
–LDET–	18+94 TO 24+11	LT/RT	567
TOTAL			3,316
SAY			3,400

CHAIN LINK FENCE, 48" FABRIC

$E = \frac{[A-(8B + 16C + 16D)]}{12} + (B + 2C + 2D) - \frac{(B + C + D)}{2}$ $F = (B + C + D)$

STATION	STATION	LT or RT	A	B	C	D	E	F
			FABRIC (LF)	END BRACE	CORNER BRACE	LINE BRACE	LINE POST	TERMINAL POST
14+31.24 –L–	14+61.18 –L–	RT	30	2		1	2	3
16+08.03 –L–	16+47.97 –L–	RT	40	2			3	2
17+90.29 –L–	18+20.28 –L–	RT	30	2		1	2	3
21+09.23 –L–	21+48.46 –L–	RT	148	2	3	5	7	10
23+08.74 –L–	23+55.81 –L–	RT	103	2	1	1	8	4
TOTAL			351	10	4	8	22	22
SAY			360	10	4	8	22	22

DD86314

COMPUTED BY:	VWB	DATE:	9/5/2017
CHECKED BY:	JDL	DATE:	9/5/2017

PROJECT NO.	SHEET NO.
B-5352	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)
L 21+15	51 RT	0401		708.8																				
		0401	0402		706.0	669.0														84				
L 23+40	51 RT	0403		713.2																				
		0403	0404		710.4	686.2														60				
L 14+35	49 RT	0413		702.9																				
		0413	0414		700.1	674.5														80				
L 16+28	49 RT	0415		701.4																				
		0415	0416		698.5	661.8														92				
L 18+10	49 RT	0417		702.5																				
		0417	0418		699.7	663.0														80				
L 16+36	49 RT	0421		701.4																				
		0421	0415		698.6	698.5																		
L 22+54	88 LT	0429		691.3																				
		0429	0430		689.8	682.0															48			
RR 13+07	17 LT	0431		678.5																				
		0431	0432		674.4	673.5																		
L 16+58	0 RT	0451		699.7																				
L 25+50	51 RT	0510		716.7																				
		0510	0511		713.9	699.6														44				
L 25+07	1 RT	0550		713.8																				
L 24+20	74 RT	0512																						
LDET 14+00	22 RT	0601		701.0																				
		0601	0602		698.0	696.6																		
LDET 12+20	1 LT	0602		701.5																				
LDET 11+80	10 LT	0604		700.1																				
		0604	0602		697.3	696.9	0.3																	
LDET 16+67	28 LT	0617		707.5																				
		0617	0618		704.7	681.3														60				
LDET 12+14	55 LT	0619		701.2																				
		0619	0620		698.2	666.2														88				
LDET 13+71	34 LT	0621		702.1																				
		0621	0622		699.3	655.7														100				
LDET 12+22	54 LT	0623		701.1																				
		0623	0619		698.4	698.2																		
LDET 23+25	14 LT	0701		718.1																				
		0701	0702		712.0	709.4																		
LDET 20+73	19 RT	0702		715.4																				
SHEET TOTALS																				688	48			
PROJECT TOTALS																				688	48			

LINE & STATION	FROM	TO	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (UNDER RR)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02
L 21+15	0401																		1			
	0401	0402																				
L 23+40	0403																		1			
	0403	0404																				
L 14+35	0413																		1			
	0413	0414																				
L 16+28	0415																		1			
	0415	0416																				
L 18+10	0417																		1			
	0417	0418																				
L 16+36	0421																		1			
	0421	0415								4												
L 22+54	0429																					
	0429	0430																				
RR 13+07	0431																		1			
	0431	0432													68							
L 16+58	0451																					
L 25+50	0510																		1			
	0510	0511																				
L 25+07	0550																					
L 24+20	0512																					
LDET 14+00	0601																		1			
	0601	0602								180												
LDET 12+20	0602																		1			
LDET 11+80	0604																		1			
	0604	0602								40												
LDET 16+67	0617																		1			
	0617	0618																				
LDET 12+14	0619																		1			
	0619	0620																				
LDET 13+71	0621																		1			
	0621	0622																				
LDET 12+22	0623																		1			
	0623	0619								8												
LDET 23+25	0701																		1	1.1		
	0701	0702								252												
LDET 20+73	0702																		1	1.0		
SHEET TOTALS										484					68				17	2.1		
PROJECT TOTALS										484					68				17	2.1		

LINE & STATION	FROM	TO	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT)FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33
L 21+15	0401											1										
	0401	0402																				
L 23+40	0403											1										
	0403	0404																				
L 14+35	0413											1										
	0413	0414																				
L 16+28	0415											1										
	0415	0416																				
L 18+10	0417											1										
	0417	0418																				
L 16+36	0421											1										
	0421	0415																				
L 22+54	0429																					
	0429	0430																				
RR 13+07	0431							1														
	0431	0432																				
L 16+58	0451													1								
L 25+50	0510											1										
	0510	0511																				
L 25+07	0550													1								
L 24+20	0512																					
LDET 14+00	0601								1					1								
	0601	0602																				
LDET 12+20	0602																					
LDET 11+80	0604								1					1								
	0604	0602																				
LDET 16+67	0617											1										
	0617	0618																				
LDET 12+14	0619											1										
	0619	0620																				
LDET 13+71	0621											1										
	0621	0622																				
LDET 12+22	0623											1										
	0623	0619																				
LDET 23+25	0701								1					1								
	0701	0702																				
LDET 20+73	0702																					
SHEET TOTALS								1	3			11		5								
PROJECT TOTALS								1	3			11		5								

LINE & STATION	FROM	TO	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO G.D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 21+15	0401			1																			
	0401	0402														2							
L 23+40	0403			1																			
	0403	0404														2							
L 14+35	0413			1																			
	0413	0414														2						72	Remove Funnel Drain and Inlet
L 16+28	0415			1																			
	0415	0416														2						163	Remove Funnel Drain and Inlet
L 18+10	0417			1																			
	0417	0418														2						80	Remove Funnel Drain and Inlet
L 16+36	0421			1																			
	0421	0415																					
L 22+54	0429																	1					
	0429	0430															2		10		0.130		
RR 13+07	0431																					26	Remove Existing JB
	0431	0432																	4		0.232	44	Remove Existing JB
L 16+58	0451												1									40	Remove Detour 2GI
L 25+50	0510			1																			
	0510	0511														2			1		0.058		Remove Funnel Inlet
L 25+07	0550												1									252	Remove Detour Pipe, Convert Detour TBJB
L 24+20	0512																		2		0.058		Remove Funnel Inlet
LDET 14+00	0601																						
	0601	0602																					
LDET 12+20	0602		1						1														
LDET 11+80	0604																						
	0604	0602																					
LDET 16+67	0617			1																			
	0617	0618														2						55	Remove Funnel Drain and Inlet
LDET 12+14	0619			1																			
	0619	0620														2						86	Remove Funnel Drain and Inlet
LDET 13+71	0621			1																			
	0621	0622														2						97	Remove Funnel Drain and Inlet
LDET 12+22	0623			1																			
	0623	0619																					
LDET 23+25	0701																						
	0701	0702																					
LDET 20+73	0702		1						1														Remove Existing Inlet
SHEET TOTALS			2	11					2				2			18	2	1	17		0.478	915	
PROJECT TOTALS			2	11					2				2			18	2	1	17		0.478	915	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: RSH DATE: 9/5/17
CHECKED BY: JWM DATE: 9/7/17

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5352	3G-1

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

SUMMARY OF AGGREGATE SUBGRADE / STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY					100	200	500**		
			TOTAL CY/TONS/SY		100	200	500**		

*ASU = Aggregate Subgrade
*AST = Aggregate Stabilization

**Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

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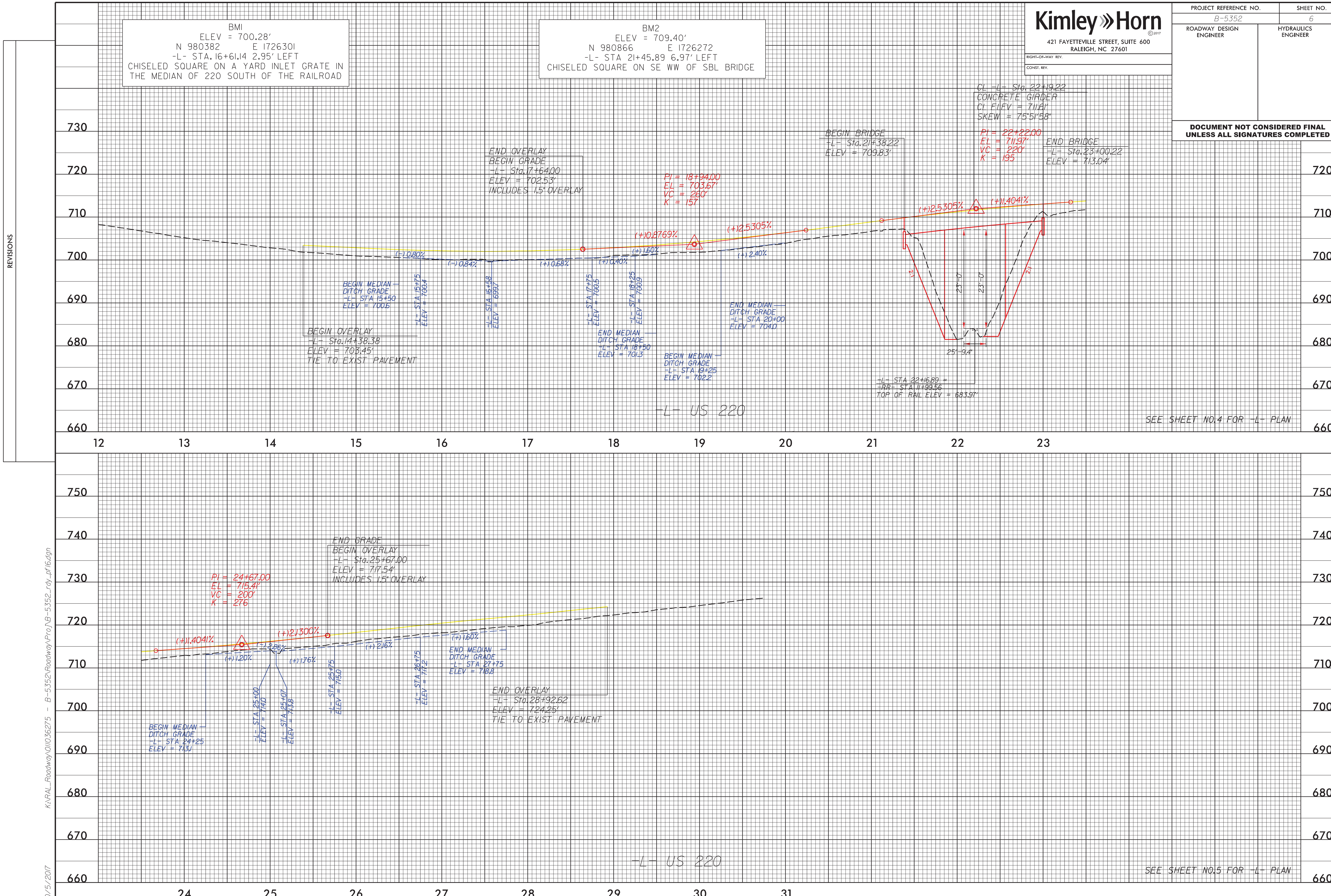
Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.
PROJECT REFERENCE NO.
B-5352
SHEET NO.
6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
REVISIONS
BM1
ELEV = 700.28'
N 980382 E 1726301
-L- STA. 16+61.14 2.95' LEFT
CHISELED SQUARE ON A YARD INLET GRATE IN THE MEDIAN OF 220 SOUTH OF THE RAILROAD
BM2
ELEV = 709.40'
N 980866 E 1726272
-L- STA 21+45.89 6.97' LEFT
CHISELED SQUARE ON SE WW OF SBL BRIDGE
CL -L- Sta. 22+19.22
CONCRETE GIRDER
CL ELEV = 711.81'
SKEW = 75°51'58"
BEGIN BRIDGE
-L- Sta. 21+38.22
ELEV = 709.83'
PI = 22+22.00
EL = 711.97'
VC = 220'
K = 195
END BRIDGE
-L- Sta. 23+00.22
ELEV = 713.04'
END OVERLAY
BEGIN GRADE
-L- Sta. 17+64.00
ELEV = 702.53'
INCLUDES 1.5" OVERLAY
PI = 18+94.00
EL = 703.67'
VC = 260'
K = 157
(+)2.5305%
(+)1.4041%
(+)0.8769%
(+)2.5305%
(-)0.80%
(-)0.84%
(+)0.68%
(+)0.40%
(+)1.60%
(+)2.40%
BEGIN MEDIAN DITCH GRADE
-L- STA 15+50
ELEV = 700.6
-L- STA 15+75
ELEV = 700.4
-L- STA 16+58
ELEV = 699.7
-L- STA 17+75
ELEV = 700.5
-L- STA 18+25
ELEV = 700.9
END MEDIAN DITCH GRADE
-L- STA 18+50
ELEV = 701.3
BEGIN MEDIAN DITCH GRADE
-L- STA 19+25
ELEV = 702.2
END MEDIAN DITCH GRADE
-L- STA 20+00
ELEV = 704.0
BEGIN OVERLAY
-L- Sta. 14+38.38
ELEV = 703.45'
TIE TO EXIST PAVEMENT
2:1
2:1
23'-0"
23'-0"
25'-9.4"
-L- STA 22+16.89 =
-RR- STA 11+99.56
TOP OF RAIL ELEV = 683.97'
-L- US 220
SEE SHEET NO.4 FOR -L- PLAN
730
720
710
700
690
680
670
660
12
13
14
15
16
17
18
19
20
21
22
23
750
740
730
720
710
700
690
680
670
660
END GRADE
BEGIN OVERLAY
-L- Sta. 25+67.00
ELEV = 717.54'
INCLUDES 1.5" OVERLAY
PI = 24+67.00
EL = 715.41'
VC = 200'
K = 276
(+)1.4041%
(+)2.1300%
(+)1.20%
(-)2.86%
(+)1.76%
(+)2.16%
(+)1.60%
BEGIN MEDIAN DITCH GRADE
-L- STA 24+25
ELEV = 713.1
-L- STA 25+00
ELEV = 714.0
-L- STA 25+07
ELEV = 713.8
-L- STA 25+75
ELEV = 715.0
-L- STA 26+75
ELEV = 717.2
END MEDIAN DITCH GRADE
-L- STA 27+75
ELEV = 718.8
END OVERLAY
-L- Sta. 28+92.62
ELEV = 724.25'
TIE TO EXIST PAVEMENT
-L- US 220
SEE SHEET NO.5 FOR -L- PLAN
24
25
26
27
28
29
30
31
K:\RAL_Roadway\011036275 - B-5352\Roadway\Proj\B-5352_rdy_pfl6.dgn
10/5/2017

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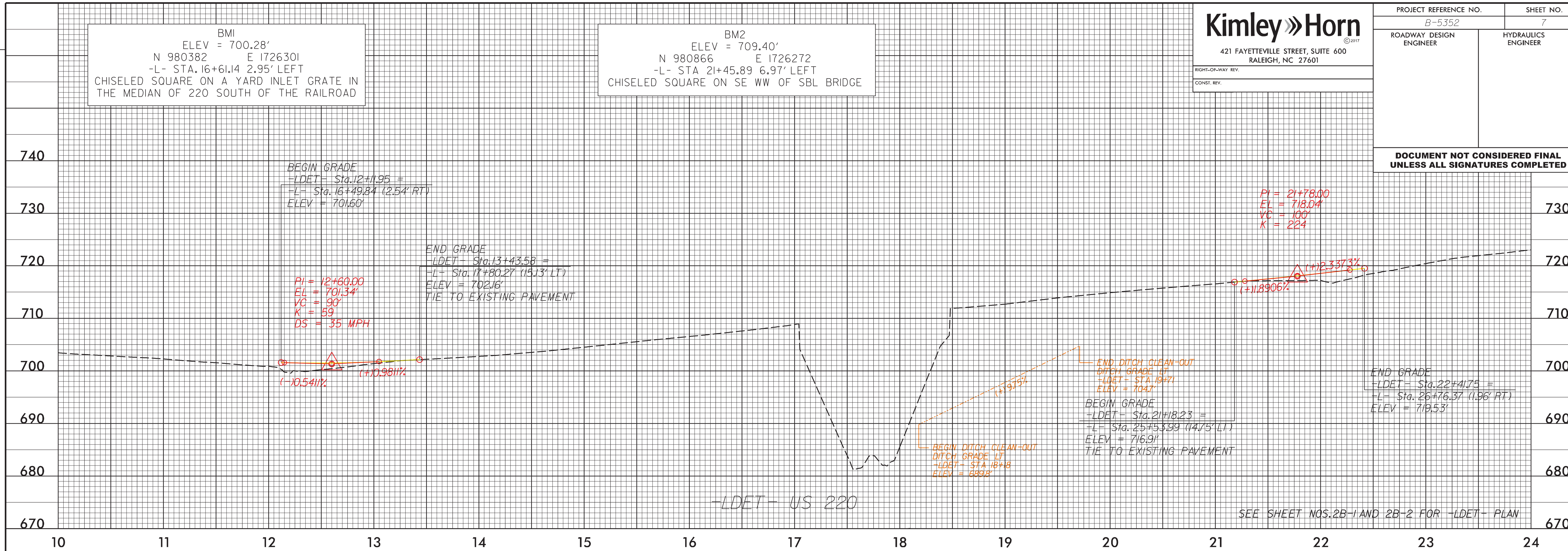
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

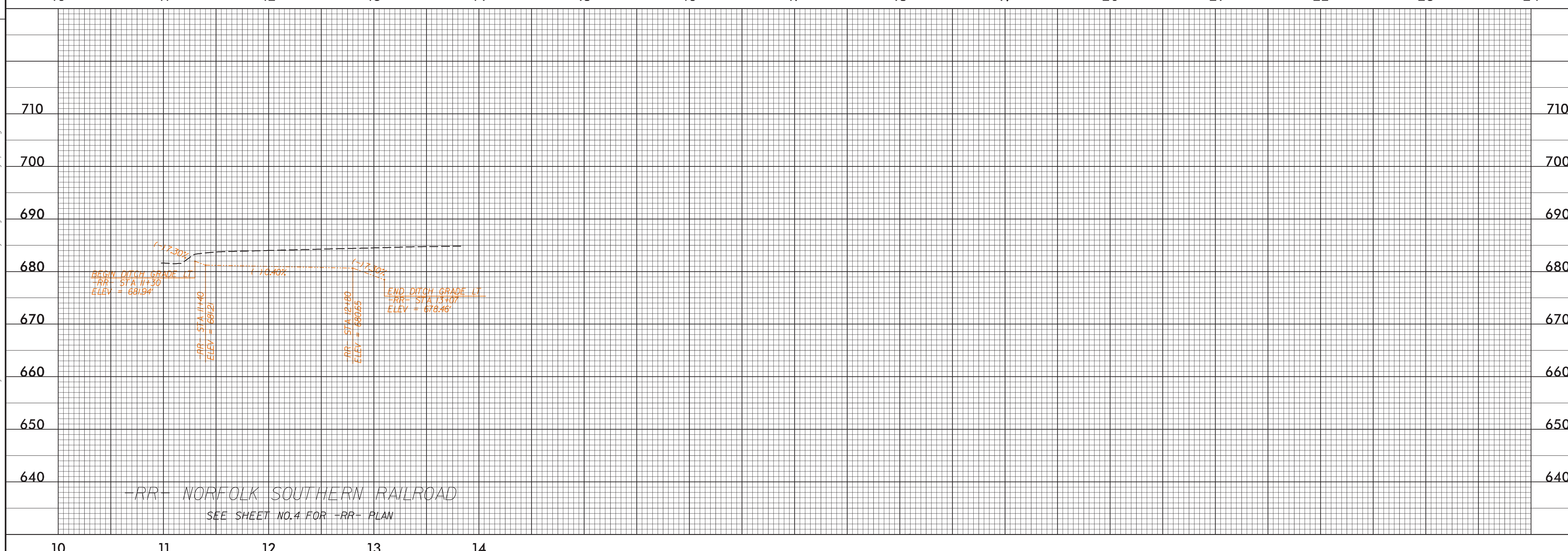
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS





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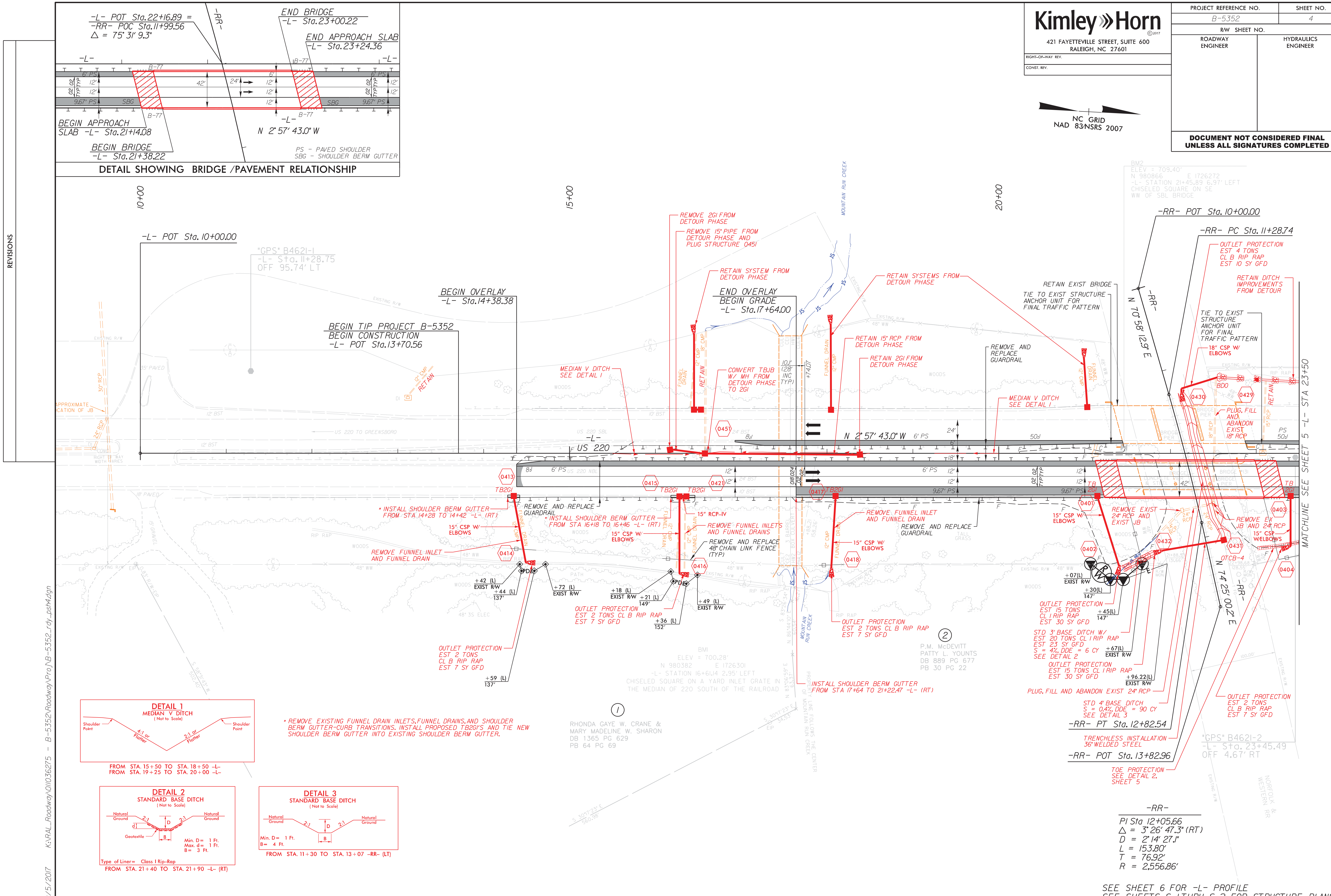
10/5/2017



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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.
PROJECT REFERENCE NO. B-5352
SHEET NO. 4
R/W SHEET NO.
ROADWAY ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
NC GRID NAD 83/NSRS 2007
REVISIONS
-L- POT Sta.22+16.89 = -RR- POC Sta.11+99.56
△ = 75° 31' 9.3"
END BRIDGE -L- Sta.23+00.22
END APPROACH SLAB -L- Sta.23+24.36
BEGIN APPROACH SLAB -L- Sta.21+14.08
BEGIN BRIDGE -L- Sta.21+38.22
N 2° 57' 43.0" W
PS - PAVED SHOULDER
SBG - SHOULDER BERM GUTTER
DETAIL SHOWING BRIDGE /PAVEMENT RELATIONSHIP
10+00
15+00
20+00
-L- POT Sta. 10+00.00
"GPS" B4621-1 -L- Sta. 11+28.75 OFF 95.74' LT
BEGIN OVERLAY -L- Sta.14+38.38
BEGIN TIP PROJECT B-5352
BEGIN CONSTRUCTION -L- POT Sta.13+70.56
END OVERLAY BEGIN GRADE -L- Sta.17+64.00
-L- US 220
MOUNTAIN RUN CREEK
REMOVE 2GI FROM DETOUR PHASE
REMOVE 15" PIPE FROM DETOUR PHASE AND PLUG STRUCTURE 0451
RETAIN SYSTEM FROM DETOUR PHASE
RETAIN SYSTEMS FROM DETOUR PHASE
MEDIAN V DITCH SEE DETAIL 1
CONVERT TBJB W/ MH FROM DETOUR PHASE TO 2GI
RETAIN 15" RCP FROM DETOUR PHASE
RETAIN 2GI FROM DETOUR PHASE
REMOVE AND REPLACE GUARDRAIL
RETAIN EXIST BRIDGE
TIE TO EXIST STRUCTURE ANCHOR UNIT FOR FINAL TRAFFIC PATTERN
BM2 ELEV = 709.40' N 980866 E 1726272 -L- STATION 21+45.89 6.97' LEFT CHISELED SQUARE ON SE WW OF SBL BRIDGE
-RR- POT Sta. 10+00.00
-RR- PC Sta. 11+28.74
N 70° 58' 12.9" E
OUTLET PROTECTION EST 4 TONS CL B RIP RAP EST 10 SY GFD
RETAIN DITCH IMPROVEMENTS FROM DETOUR
18" CSP W/ ELBOWS
PLUG, FILL AND ABANDON EXIST 18" RCP
MATCHLINE SEE SHEET 5 -L- STA 23+50
* INSTALL SHOULDER BERM GUTTER FROM STA 14+28 TO 14+42 -L- (RT)
15" CSP W/ ELBOWS
REMOVE FUNNEL INLET AND FUNNEL DRAIN
* INSTALL SHOULDER BERM GUTTER FROM STA 16+18 TO 16+46 -L- (RT)
15" RCP-IV
REMOVE FUNNEL INLETS AND FUNNEL DRAINS
REMOVE AND REPLACE 48" CHAIN LINK FENCE (TYP)
OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD
OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD
OUTLET PROTECTION EST 2 TONS CL B RIP RAP EST 7 SY GFD
BM1 ELEV = 700.28' N 980382 E 1726301 -L- STATION 16+61.14 2.95' LEFT CHISELED SQUARE ON A YARD INLET GRATE IN THE MEDIAN OF 220 SOUTH OF THE RAILROAD
* INSTALL SHOULDER BERM GUTTER FROM STA 17+64 TO 21+22.47 -L- (RT)
1 RHONDA GAYE W. CRANE & MARY MADELINE W. SHARON DB 1365 PG 629 PB 64 PG 69
2 P.M. McDEVITT PATTY L. YOUNTS DB 889 PG 677 PB 30 PG 22
REMOVE EXIST 24" RCP AND EXIST JB
REMOVE EX JB AND 24" RCP
15" CSP W/ELBOWS
OUTLET PROTECTION EST 15 TONS CL I RIP RAP EST 30 SY GFD
STD 3' BASE DITCH W/ EST 20 TONS CL I RIP RAP EST 23 SY GFD S = 4%, DDE = 6 CY SEE DETAIL 2
OUTLET PROTECTION EST 15 TONS CL I RIP RAP EST 30 SY GFD
PLUG, FILL AND ABANDON EXIST 24" RCP
STD 4' BASE DITCH S = 0.4%, DDE = 90 CY SEE DETAIL 3
-RR- PT Sta. 12+82.54
TRENCHLESS INSTALLATION 36" WELDED STEEL
-RR- POT Sta. 13+82.96
TOE PROTECTION SEE DETAIL 2, SHEET 5
N 74° 25' 00.2" E
"GPS" B4621-2 -L- Sta. 23+45.49 OFF 4.67' RT
NORFOLK & WESTERN RR
-RR- PI Sta 12+05.66 △ = 3° 26' 47.3" (RT) D = 2° 14' 27.1" L = 153.80' T = 76.92' R = 2,556.86'
* REMOVE EXISTING FUNNEL DRAIN INLETS, FUNNEL DRAINS, AND SHOULDER BERM GUTTER-CURB TRANSITIONS. INSTALL PROPOSED TB2GI'S AND TIE NEW SHOULDER BERM GUTTER INTO EXISTING SHOULDER BERM GUTTER.
DETAIL 1 MEDIAN V DITCH (Not to Scale)
Shoulder Point
4:1 or Flatter
2:1 or Flatter
FROM STA. 15+50 TO STA. 18+50 -L-
FROM STA. 19+25 TO STA. 20+00 -L-
DETAIL 2 STANDARD BASE DITCH (Not to Scale)
Natural Ground
Geotextile
Min. D = 1 Ft. Max. d = 1 Ft. B = 3 Ft.
Type of Liner = Class I Rip-Rap
FROM STA. 21+40 TO STA. 21+90 -L- (RT)
DETAIL 3 STANDARD BASE DITCH (Not to Scale)
Min. D = 1 Ft. B = 4 Ft.
FROM STA. 11+30 TO STA. 13+07 -RR- (LT)
SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS
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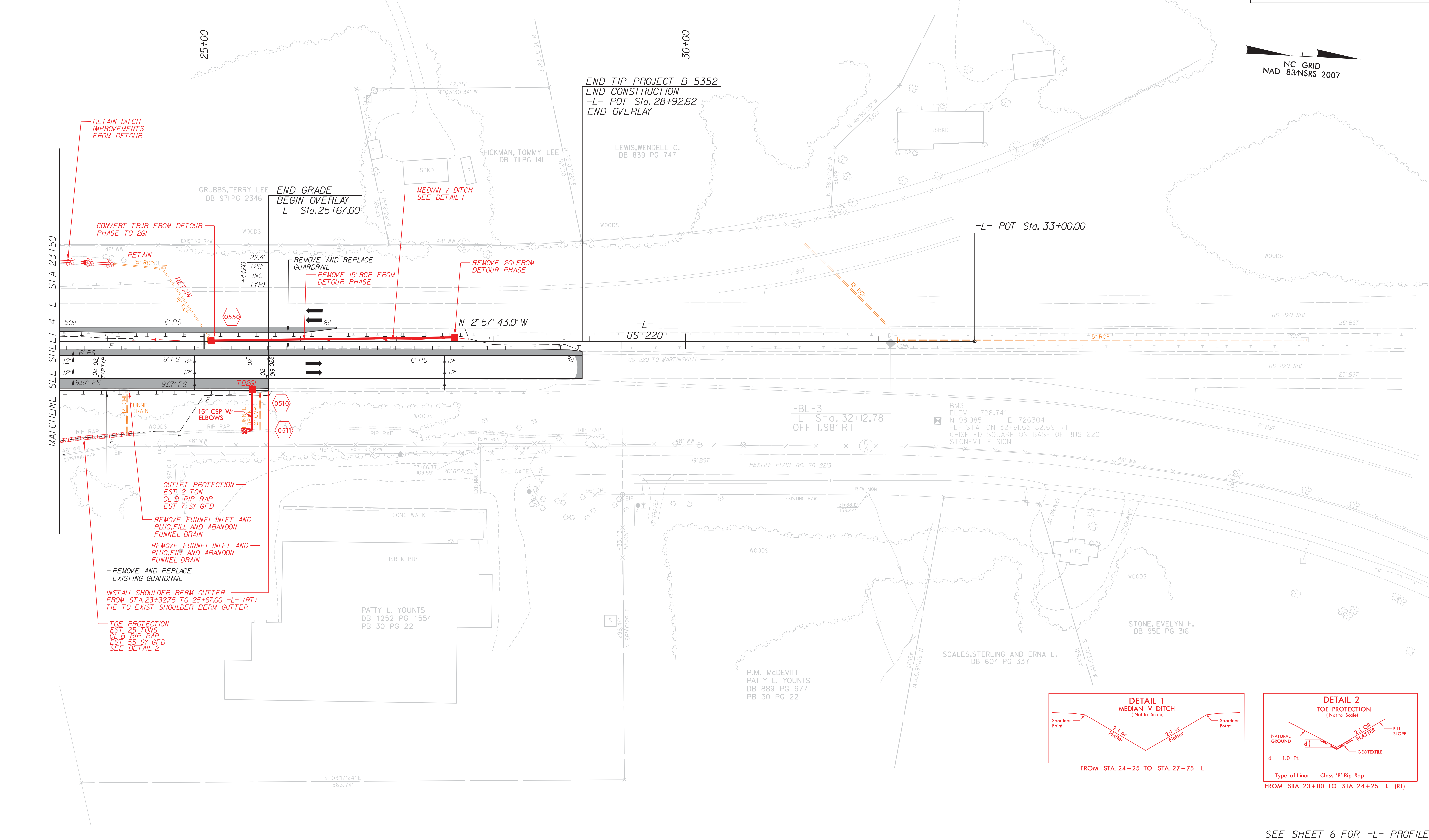
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
B-5352	5
R/W SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



NC GRID
NAD 83/NSRS 2007
25+00
30+00
MATCHLINE SEE SHEET 4 -L- STA 23+50
RETAIN DITCH IMPROVEMENTS FROM DETOUR
CONVERT TBJB FROM DETOUR PHASE TO 2GI
RETAIN 15" RCP
RETAIN 15" RCP
GRUBBS, TERRY LEE DB 971 PG 2346
END GRADE
BEGIN OVERLAY
-L- Sta. 25+67.00
REMOVE AND REPLACE GUARDRAIL
REMOVE 15" RCP FROM DETOUR PHASE
MEDIAN V DITCH SEE DETAIL 1
REMOVE 2GI FROM DETOUR PHASE
HICKMAN, TOMMY LEE DB 711 PG 141
END TIP PROJECT B-5352
END CONSTRUCTION
-L- POT Sta. 28+92.62
END OVERLAY
LEWIS, WENDELL C. DB 839 PG 747
-L- POT Sta. 33+00.00
N 2° 57' 43.0" W
-L-
US 220
US 220 TO MARTINSVILLE
0550
0510
0511
TB2GI
15" CSP W/ ELBOWS
FUNNEL DRAIN
-BL-3
-L- Sta. 32+12.78
OFF 1.98' RT
BM3
ELEV = 728.74'
N 981985 E 1726304
-L- STATION 32+61.65 82.69' RT
CHISELED SQUARE ON BASE OF BUS 220
STONEVILLE SIGN
PEXTILE PLANT RD. SR 2213
OUTLET PROTECTION
EST 2 TON
CL B RIP RAP
EST 7 SY GFD
REMOVE FUNNEL INLET AND PLUG, FILL AND ABANDON FUNNEL DRAIN
REMOVE FUNNEL INLET AND PLUG, FILL AND ABANDON FUNNEL DRAIN
REMOVE AND REPLACE EXISTING GUARDRAIL
INSTALL SHOULDER BERM GUTTER FROM STA. 23+32.75 TO 25+67.00 -L- (RT) TIE TO EXIST SHOULDER BERM GUTTER
TOE PROTECTION
EST 25 TONS
CL B RIP RAP
EST 55 SY GFD
SEE DETAIL 2
PATTY L. YOUNTS DB 1252 PG 1554 PB 30 PG 22
P.M. McDEVITT PATTY L. YOUNTS DB 889 PG 677 PB 30 PG 22
SCALES, STERLING AND ERNA L. DB 604 PG 337
STONE, EVELYN H. DB 95E PG 316
WOODS
DETAIL 1
MEDIAN V DITCH
(Not to Scale)
Shoulder Point
2:1 or Flatter
FROM STA. 24+25 TO STA. 27+75 -L-
DETAIL 2
TOE PROTECTION
(Not to Scale)
NATURAL GROUND
FILL SLOPE
2:1 OR FLATTER
GEOTEXTILE
d = 1.0 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 23+00 TO STA. 24+25 -L- (RT)

SEE SHEET 6 FOR -L- PROFILE

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10/5/2017

PROJ. REFERENCE NO.	SHEET NO.
B-5352	X-0

B-5352 - REPLACEMENT OF BRIDGE NO. 131
CROSS SECTION INDEX

-L- US 220	X-1 THRU X-18
-RR-	X-19 THRU X-22

9/6/2017

PROJ. REFERENCE NO.	SHEET NO.
B-5352	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

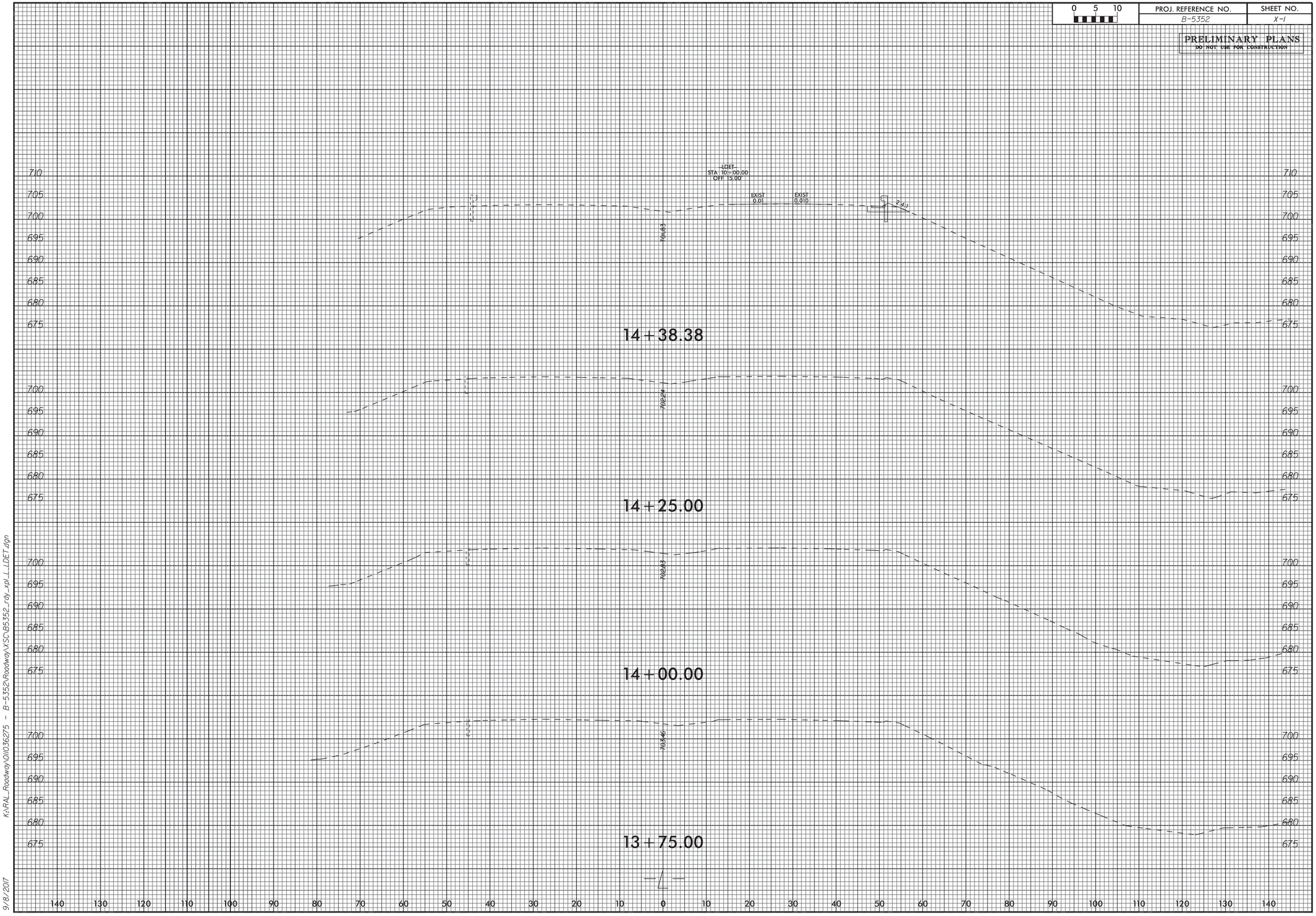
Approximate quantities only. Clearing and grubbing, unclassified excavation, borrow excavation, fine grading, and removal of existing asphalt pavement will be paid for at the lump sum price for "Grading."

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)	L	(cu. yd.)	(cu. yd.)	LDET	(cu. yd.)	(cu. yd.)									
14+38.38	0	0	27+50.00	5	4	18+47.27	0	0									
14+50.00	3	0	27+75.00	5	2	18+50.00	0	0									
14+75.00	6	0	28+00.00	5	0	18+75.00	0	0									
15+00.00	6	0	28+25.00	5	0	19+00.00	4	0									
15+25.00	6	0	28+50.00	5	0	19+25.00	8	0									
15+50.00	6	0	28+75.00	4	0	19+50.00	6	0									
15+75.00	6	1	28+92.62	2	0	19+75.00	6	0									
16+00.00	7	2				20+00.00	6	0									
16+25.00	11	2				20+25.00	7	0									
16+50.00	11	2				20+50.00	7	0									
16+75.00	8	2	10+00.00	0	0	20+75.00	5	3									
17+00.00	12	1	10+25.00	4	0	21+00.00	4	4									
17+25.00	15	1	10+50.00	10	0	21+25.00	5	3									
17+50.00	14	1	10+75.00	14	0	21+50.00	8	3									
17+64.00	10	0	11+00.00	15	0	21+75.00	10	3									
17+75.00	10	0	11+25.00	17	0	22+00.00	10	3									
18+00.00	22	0	11+50.00	16	1	22+25.00	7	4									
18+25.00	22	0	11+75.00	14	2	22+50.00	4	4									
18+50.00	23	0	12+00.00	15	2	22+75.00	4	4									
18+75.00	23	1	12+25.00	17	2	23+00.00	5	5									
19+00.00	21	1	12+50.00	18	2	23+25.00	6	4									
19+25.00	20	2	12+75.00	22	1	23+50.00	5	2									
19+50.00	19	2	13+00.00	22	1	23+75.00	3	1									
19+75.00	18	2	13+25.00	18	0	24+00.00	3	0									
20+00.00	15	2	13+50.00	16	0	24+11.42	1	0									
20+25.00	14	2	13+75.00	15	0	24+25.00	1	0									
20+50.00	13	2	14+00.00	17	0	24+50.00	0	0									
20+75.00	11	3	14+25.00	17	0	24+58.52	0	0									
21+00.00	9	5	14+50.00	16	0												
21+25.00	16	86	14+75.00	15	0												
21+38.22	6	43	15+00.00	15	0												
			15+25.00	14	0												
L	(cu. yd.)	(cu. yd.)	15+50.00	14	0												
			15+75.00	12	0												
23+00.22	0	0	16+00.00	9	0												
23+25.00	5	101	16+25.00	9	0												
23+50.00	11	159	16+50.00	9	0												
23+75.00	14	92	16+75.00	10	0												
24+00.00	16	54	17+00.00	6	0												
24+25.00	18	47	17+04.46	0	0												
24+50.00	21	48															
24+75.00	23	41															
25+00.00	23	20															
25+25.00	21	0															
25+50.00	20	0															
25+67.00	13	0															
25+75.00	5	0															
26+00.00	14	0															
26+25.00	13	0															
26+50.00	10	1															
26+75.00	6	2															
27+00.00	5	2															
27+25.00	5	3															

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-1

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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9/8/2017

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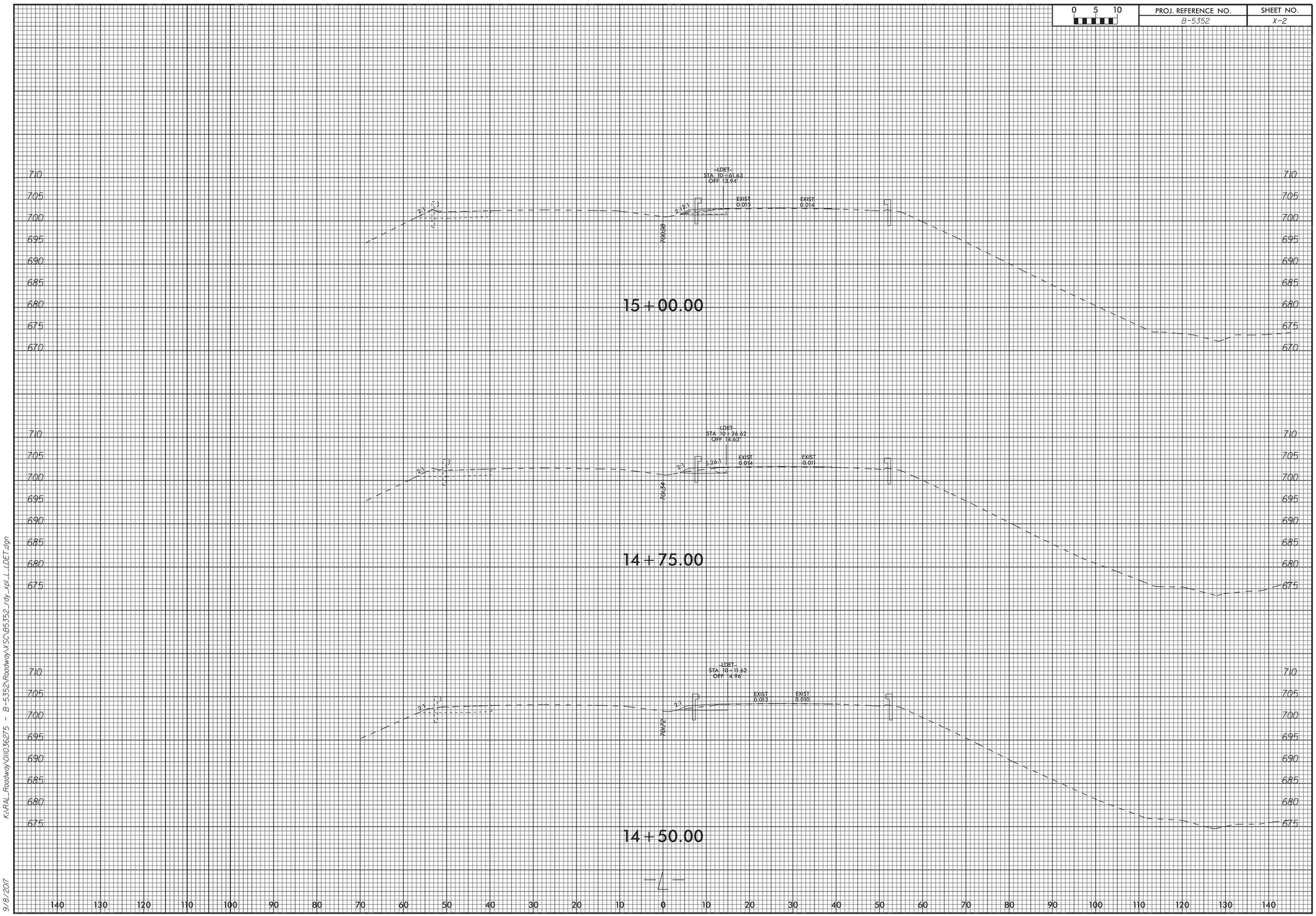
	B-5352	X-2



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9/8/2017

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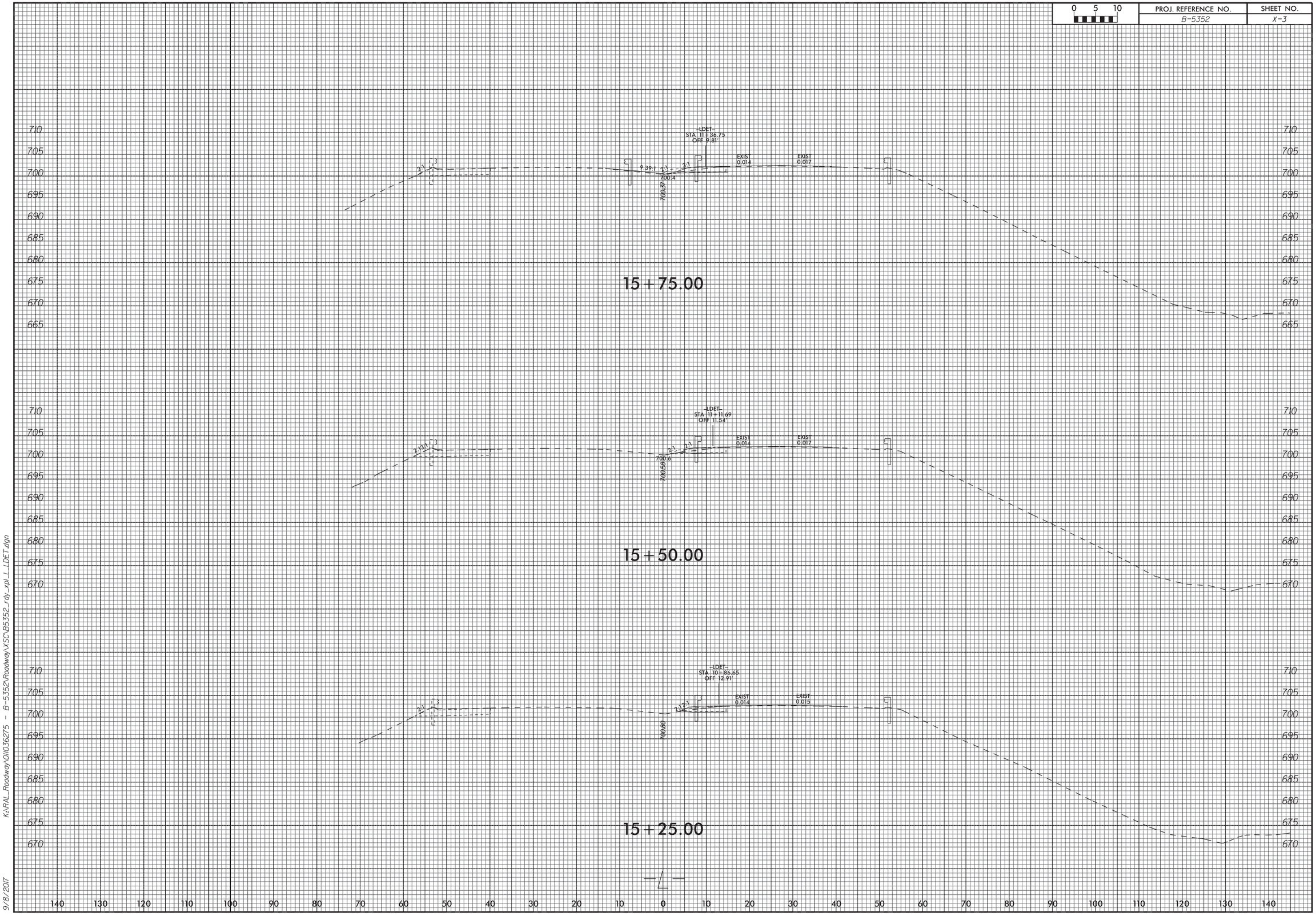
	B-5352	X-3



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9/8/2017

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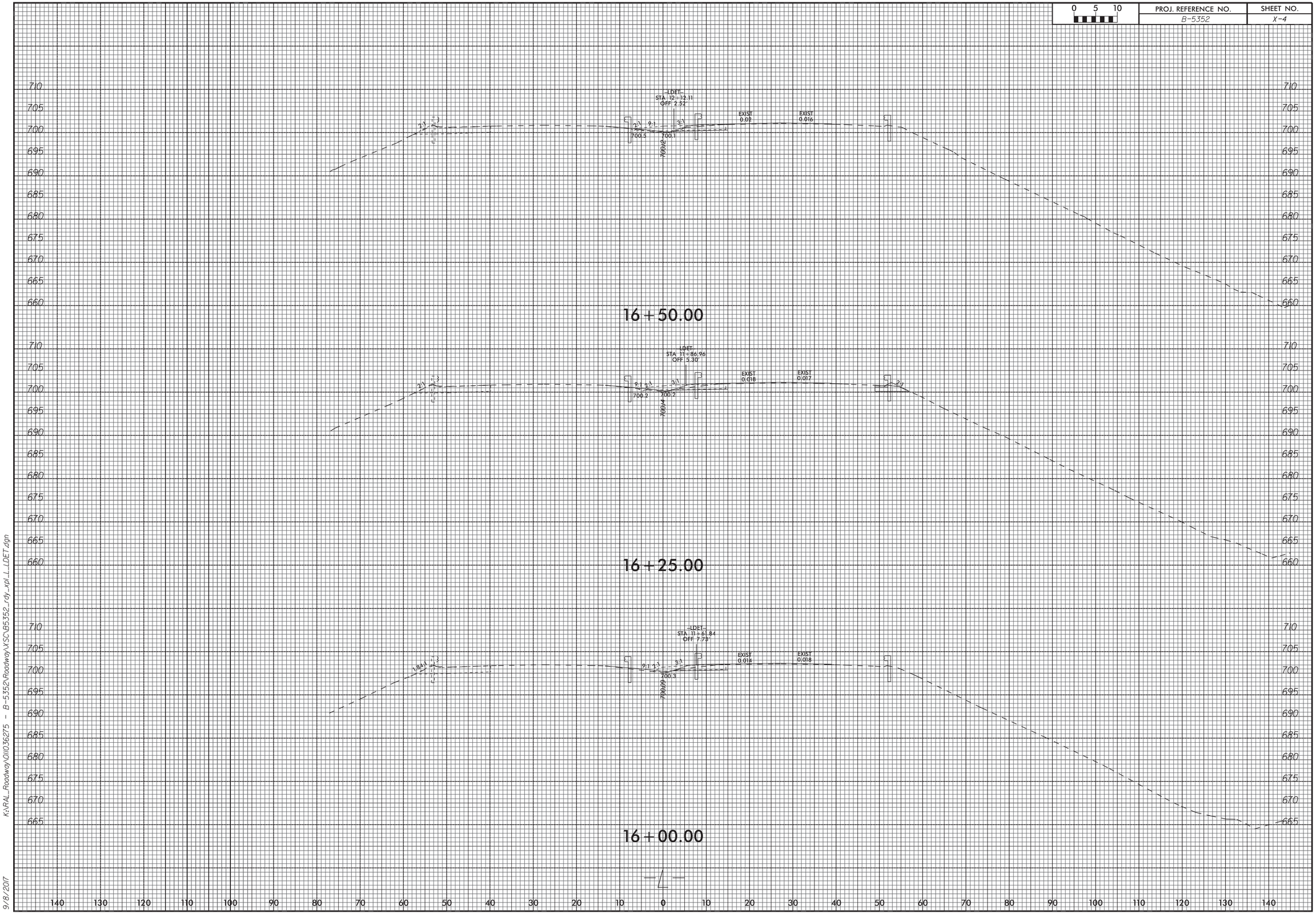
	B-5352	X-4



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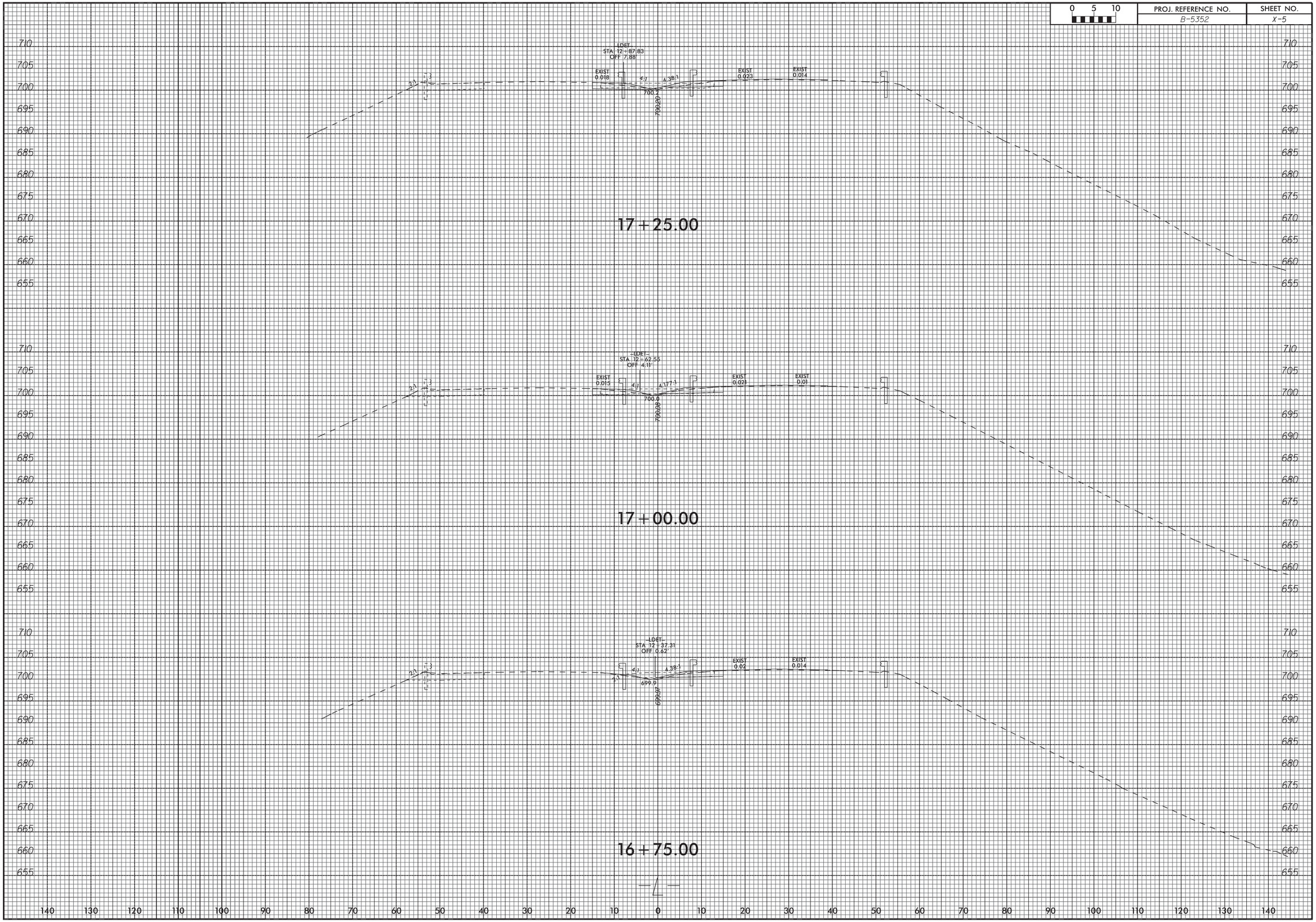
9/8/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-5



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9/8/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
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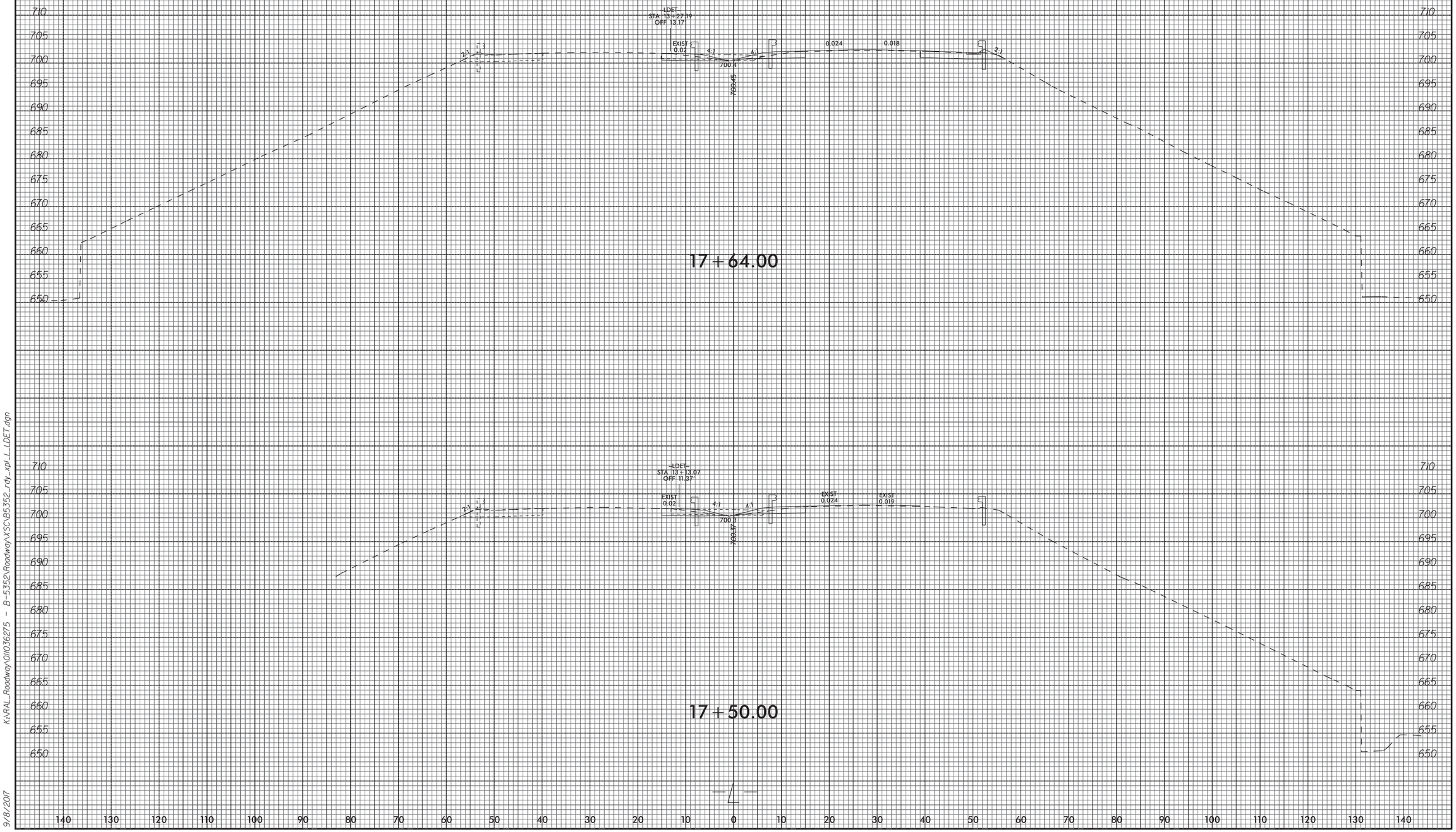

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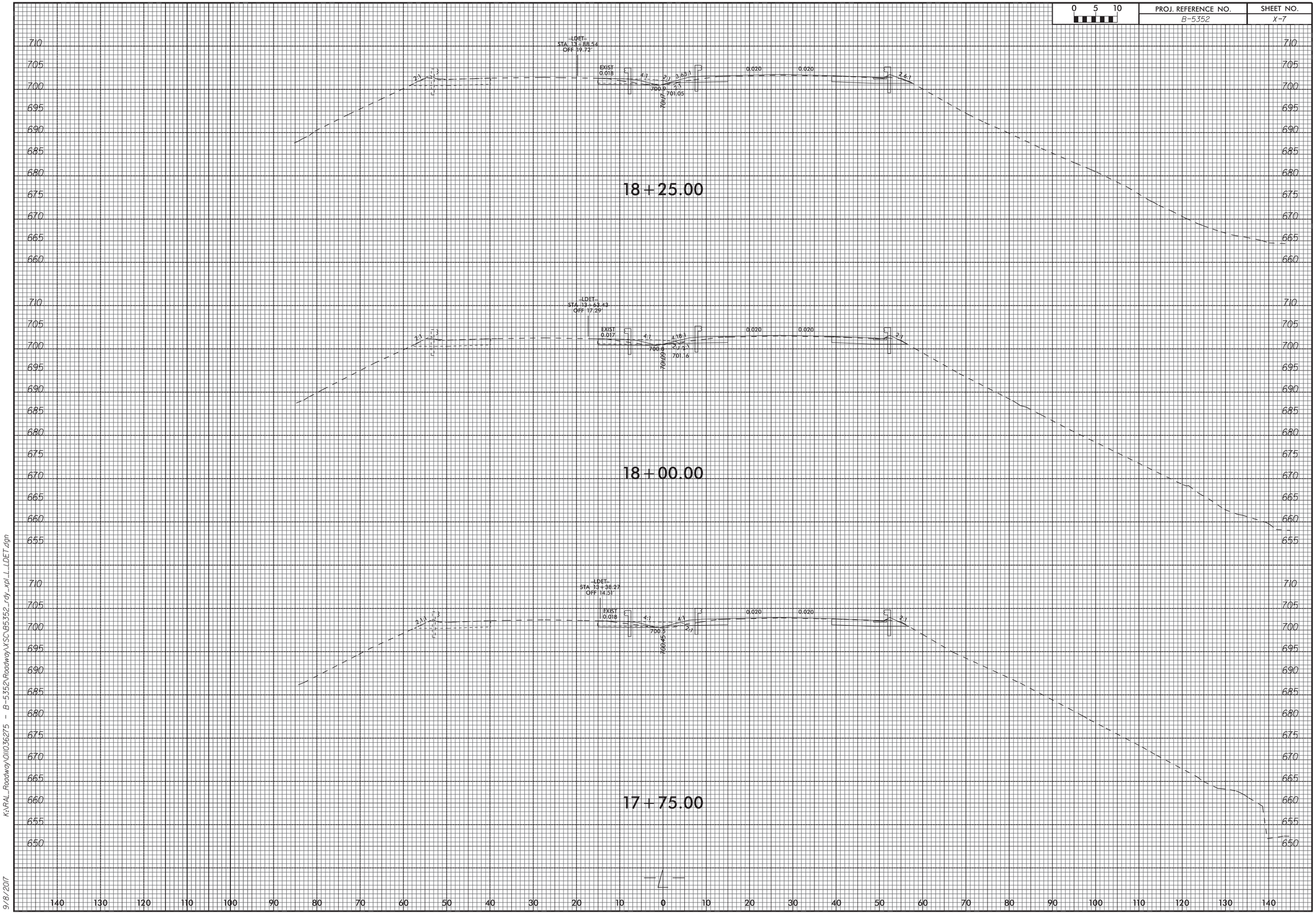
9/8/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-7



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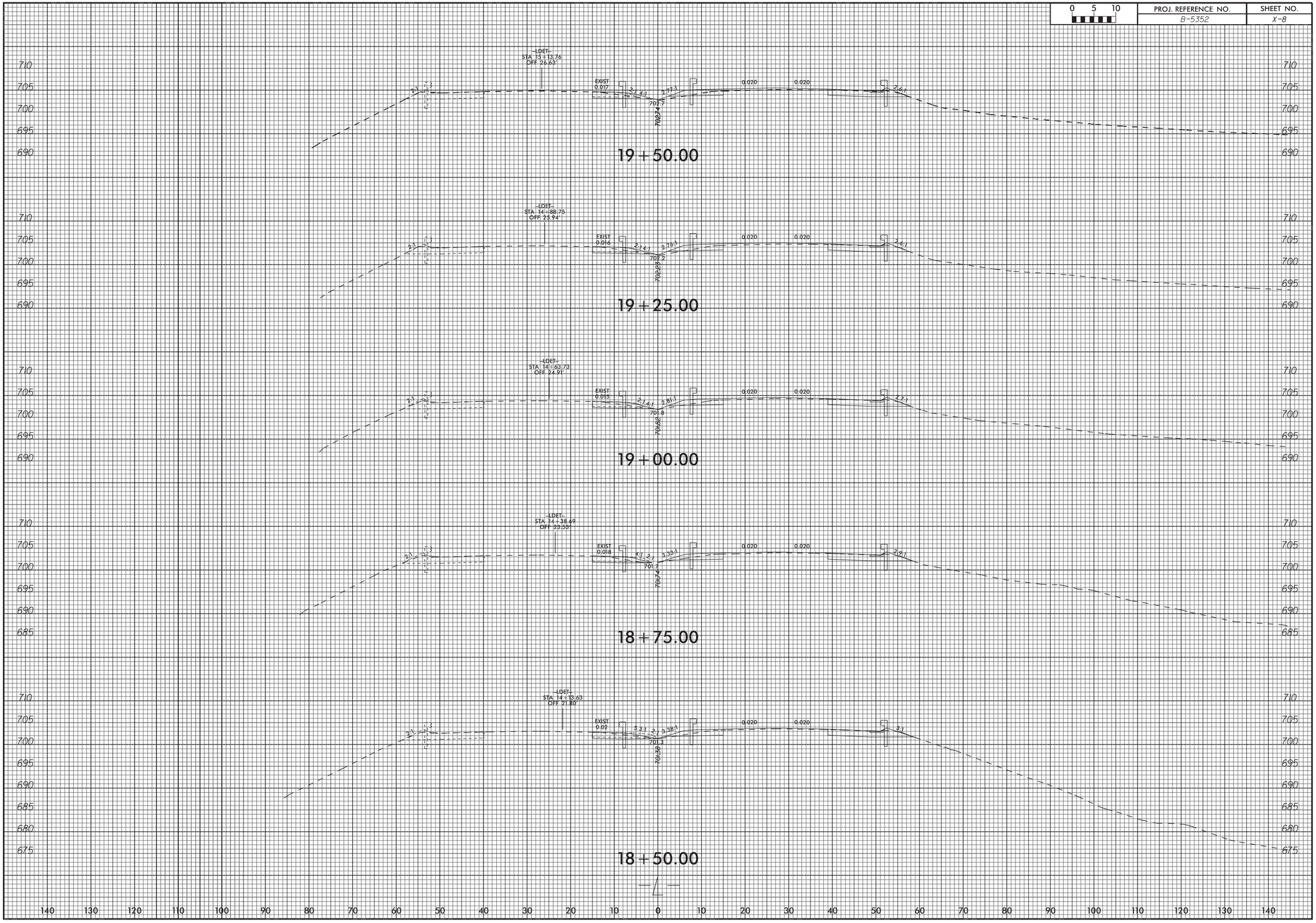
9/8/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-8



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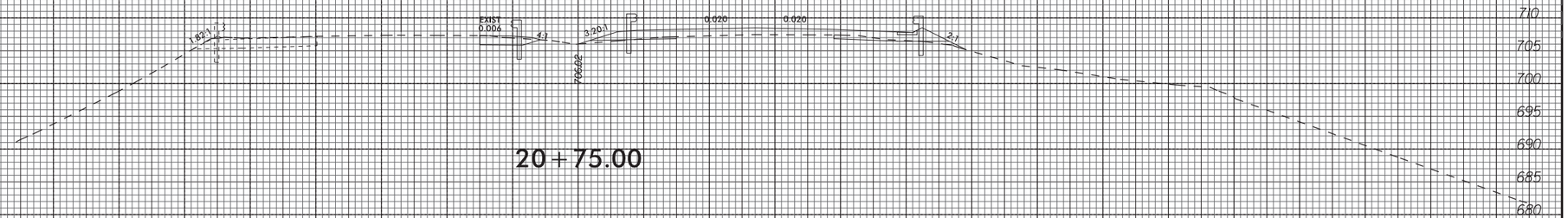
9/8/2017

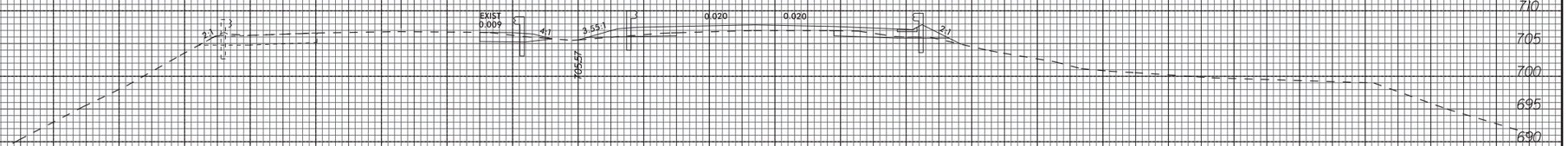
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-9

-LDET-
STA 16+38.76
OFF 27.00'



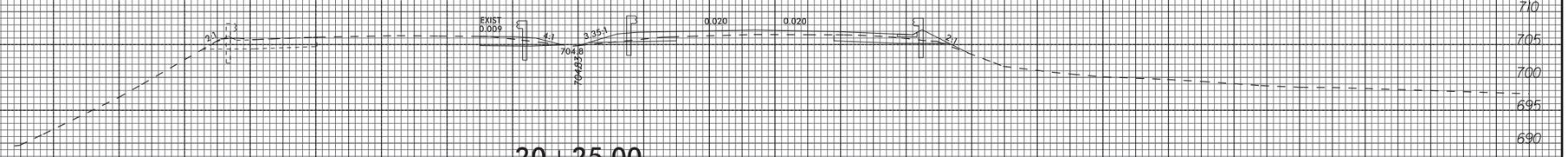
20+75.00

-LDET-
STA 16+13.76
OFF 27.00'



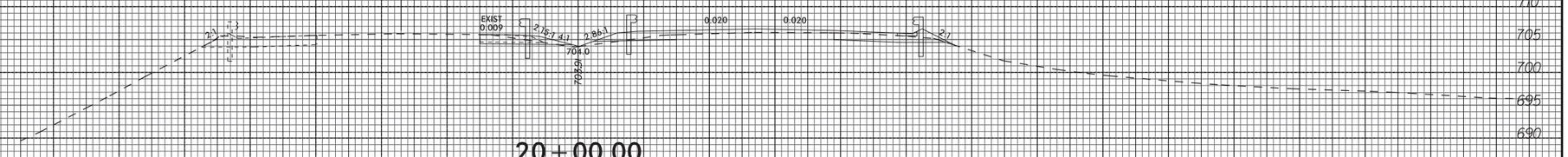
20+50.00

-LDET-
STA 15+88.76
OFF 27.00'



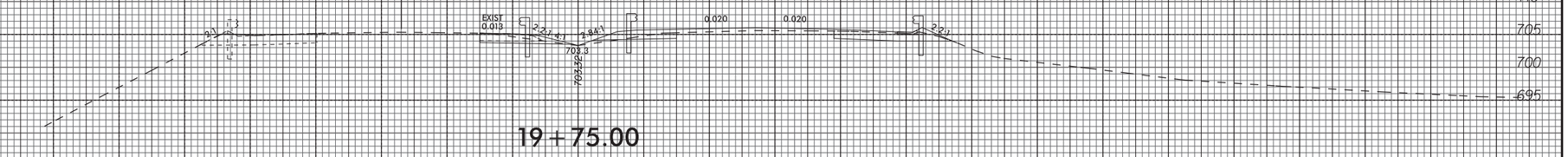
20+25.00

-LDET-
STA 15+63.76
OFF 27.00'



20+00.00

-LDET-
STA 15+38.76
OFF 26.96'



19+75.00

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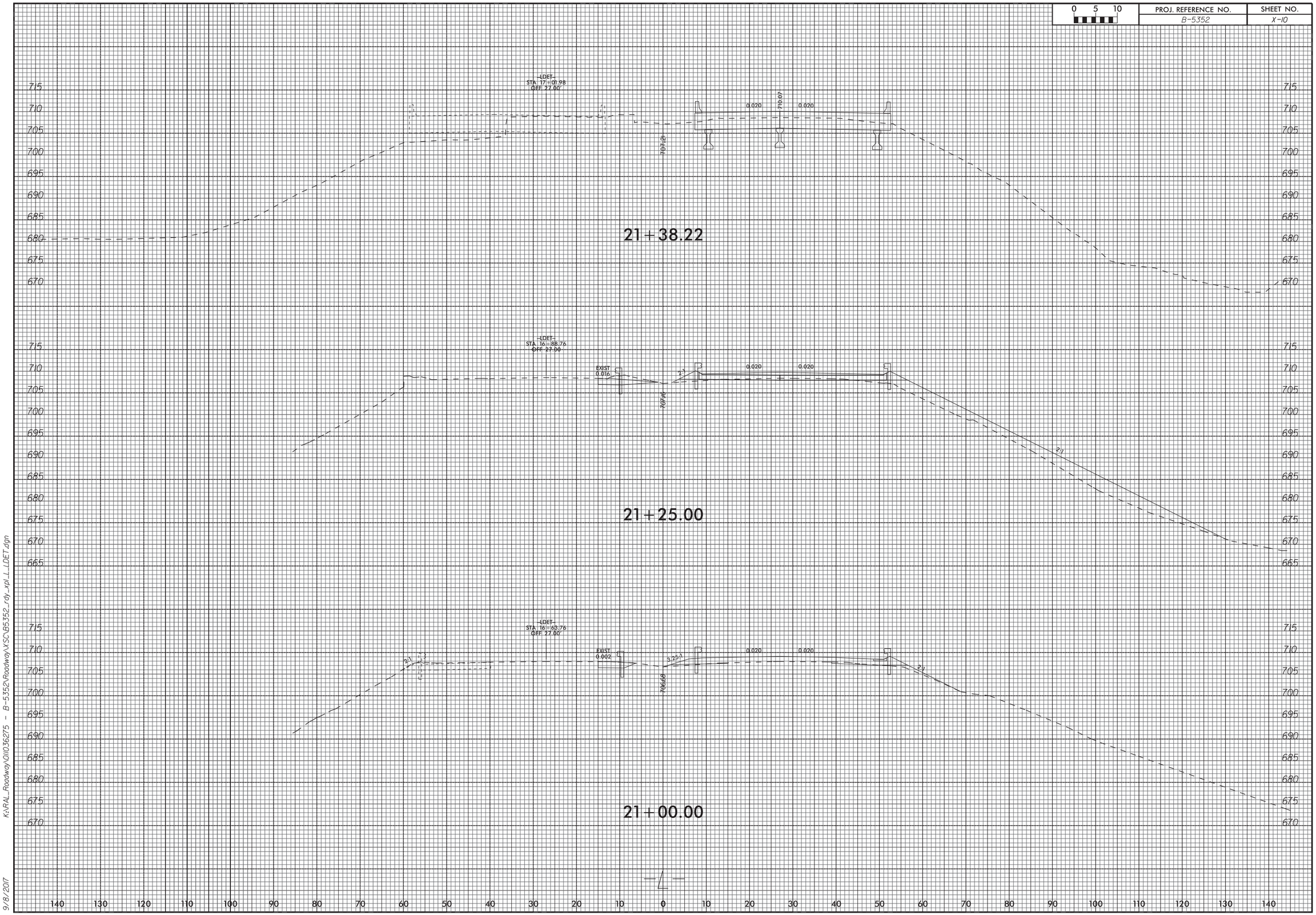
9/8/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-10



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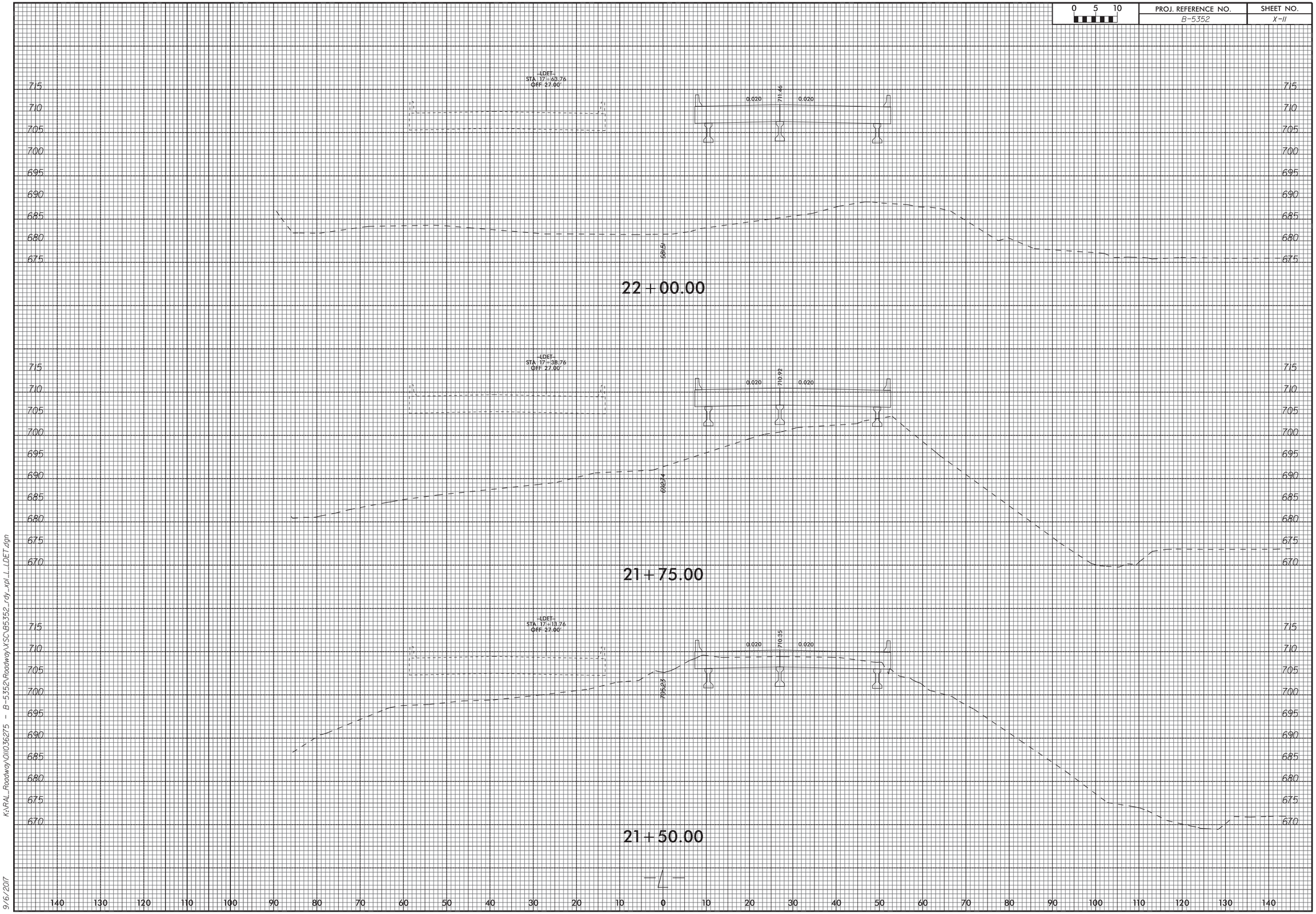
9/8/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-11



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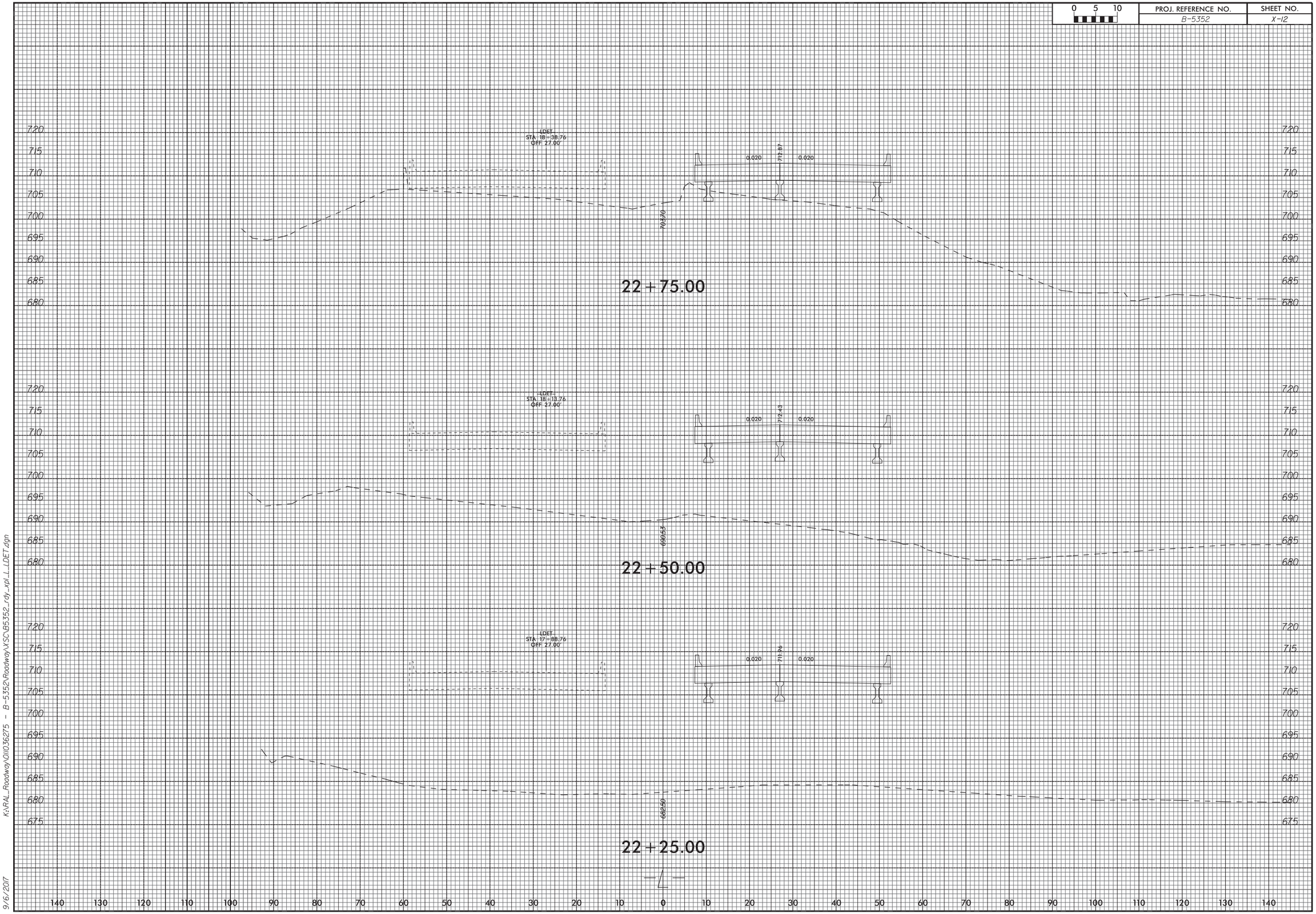
9/6/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-12



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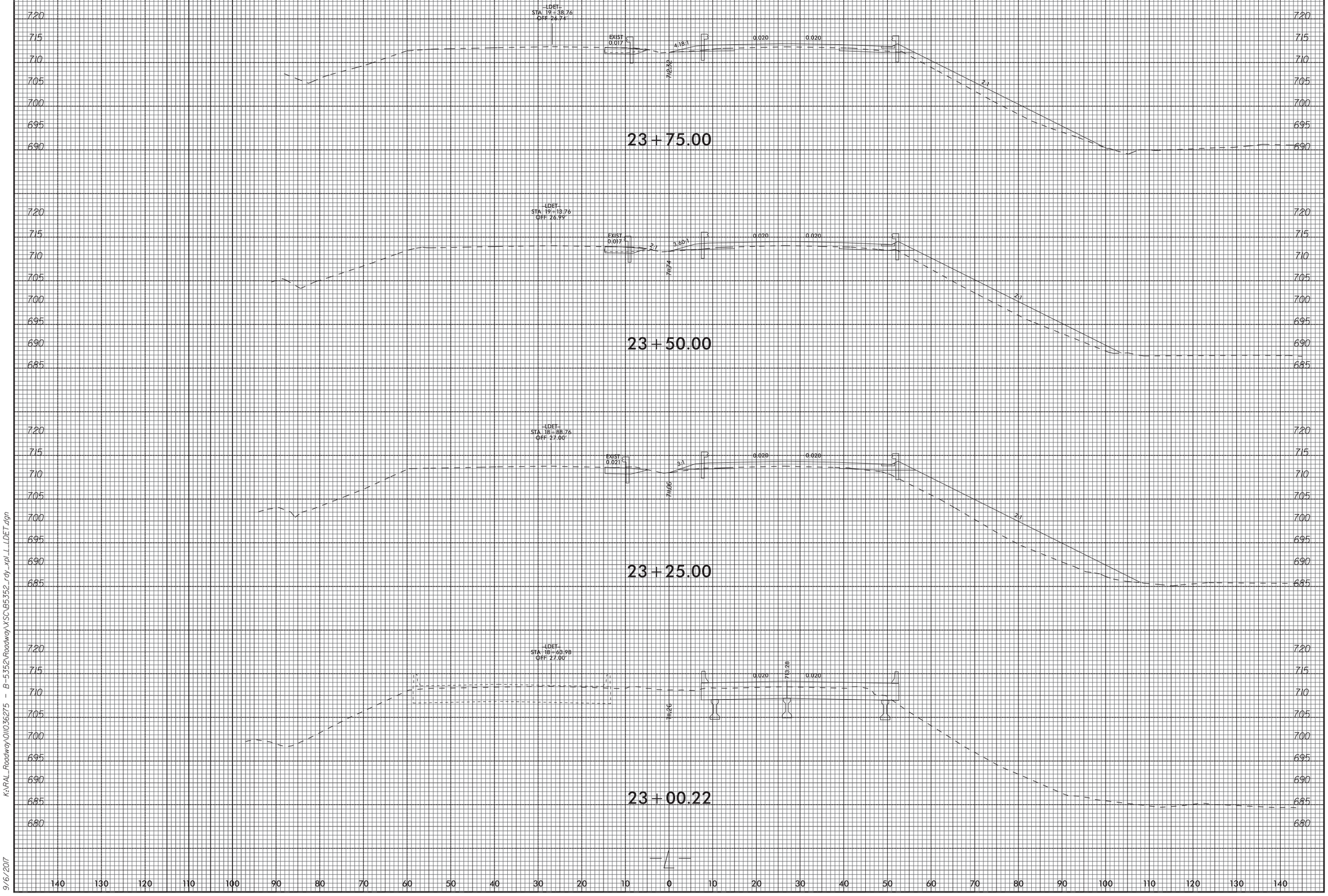
9/6/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-13



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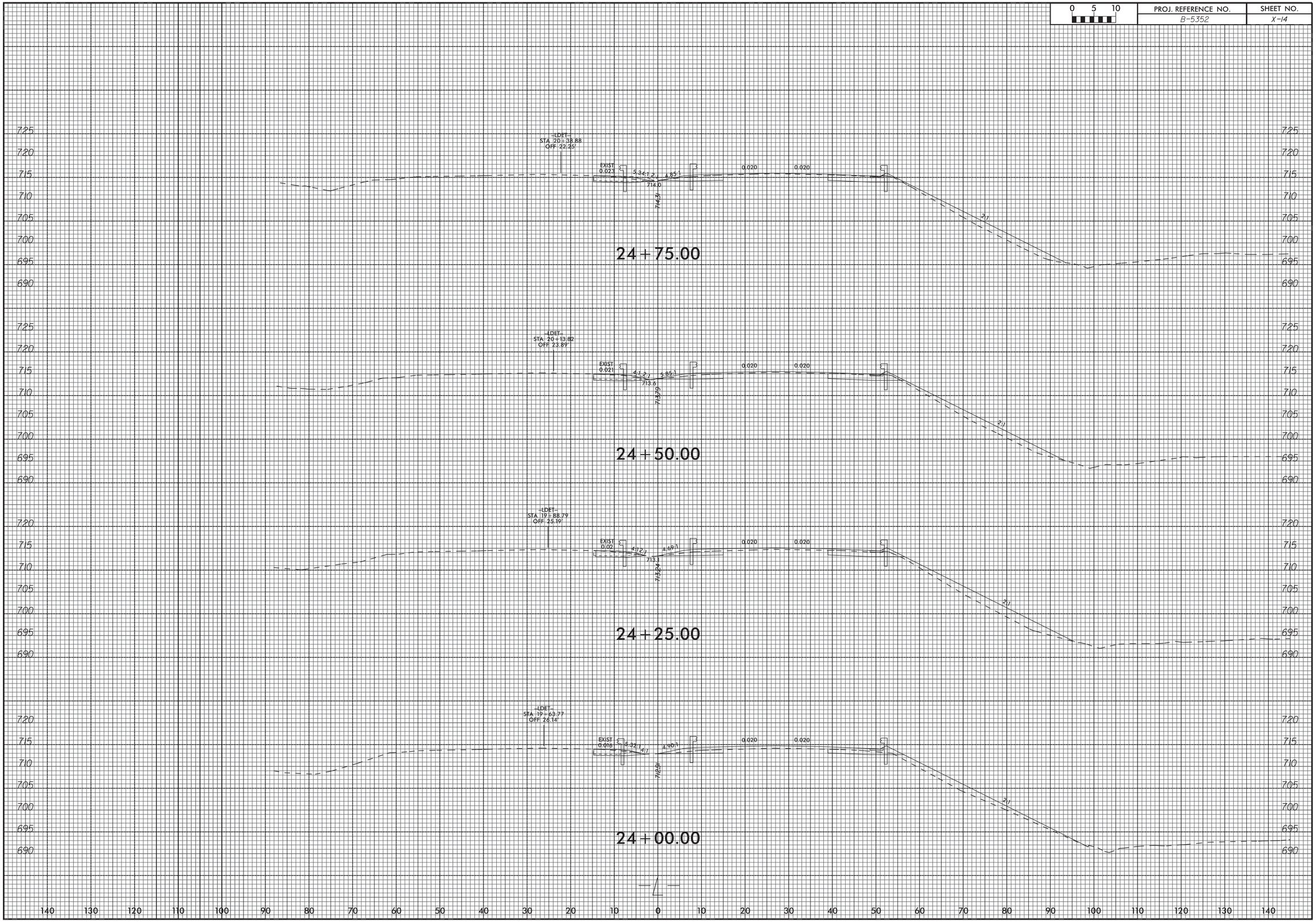
9/6/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-14



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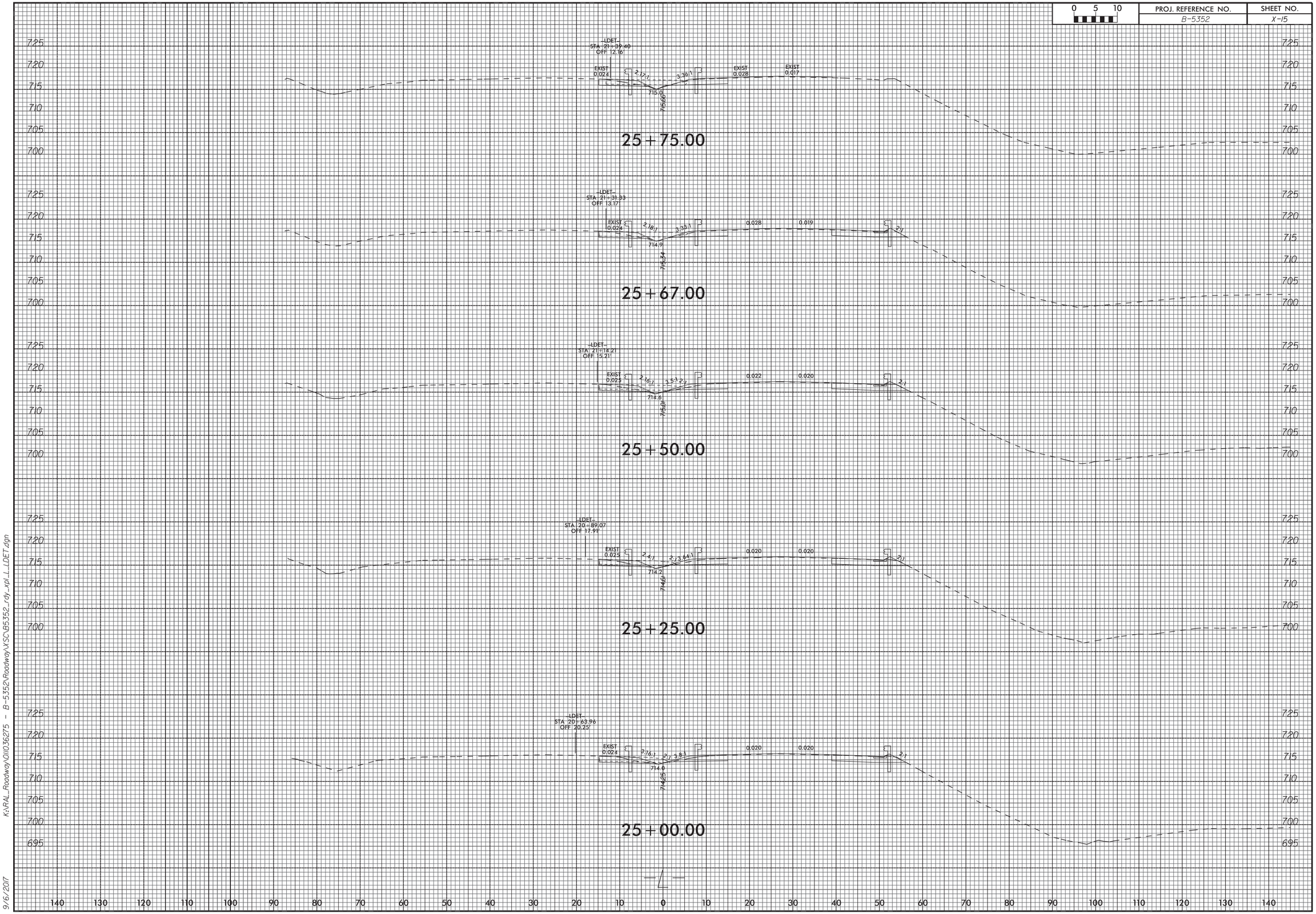
9/6/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-15



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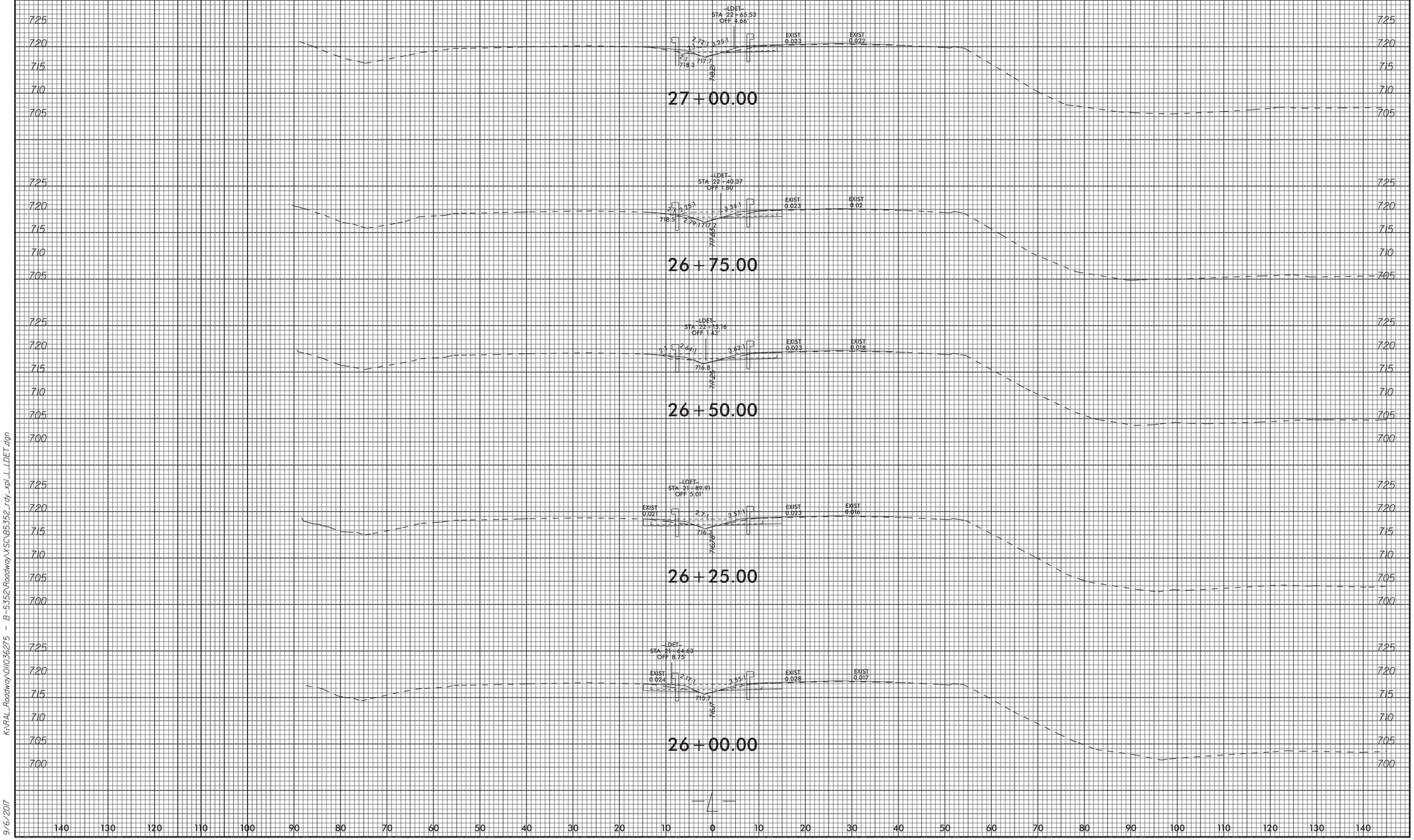
9/6/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-16



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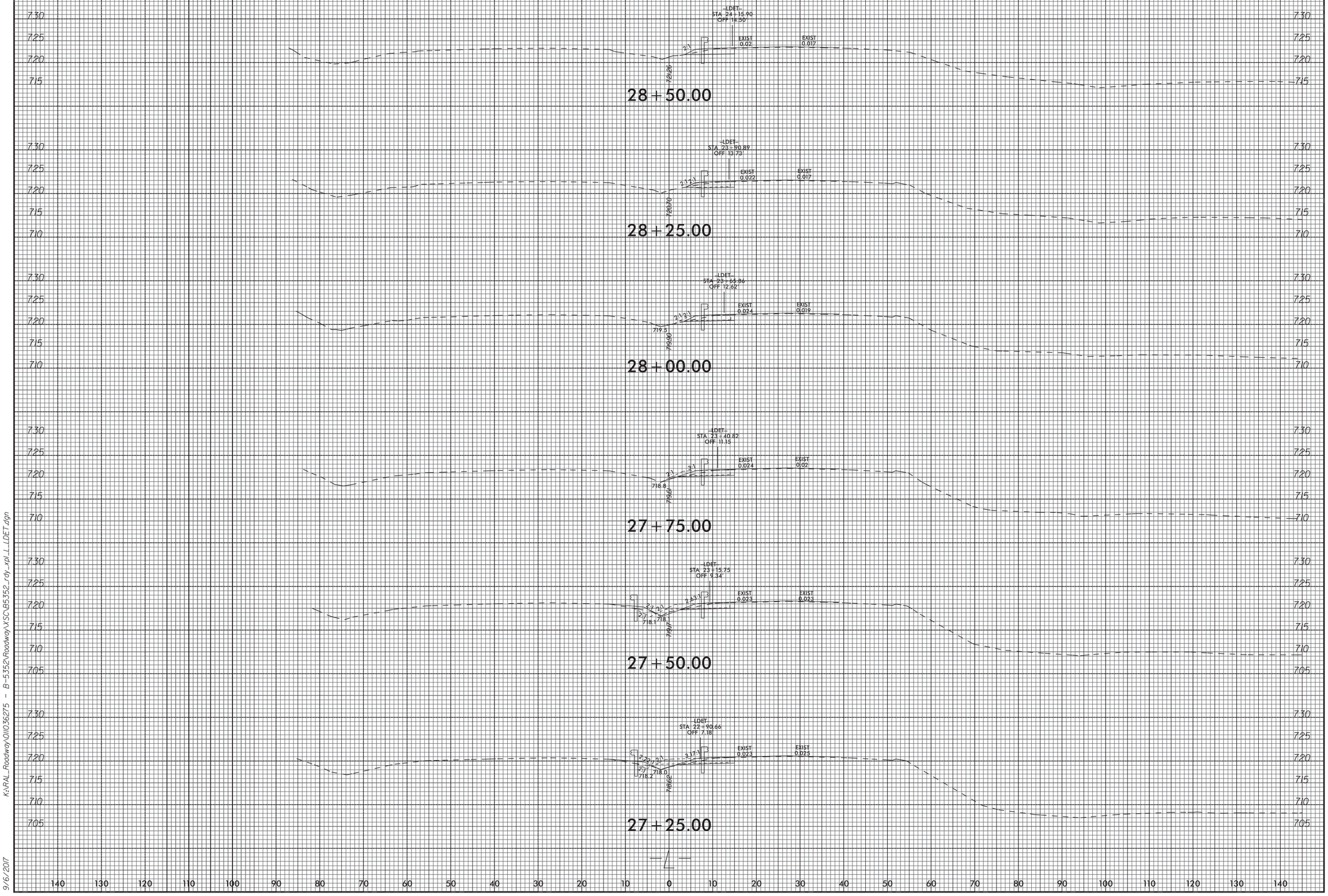
9/6/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-17



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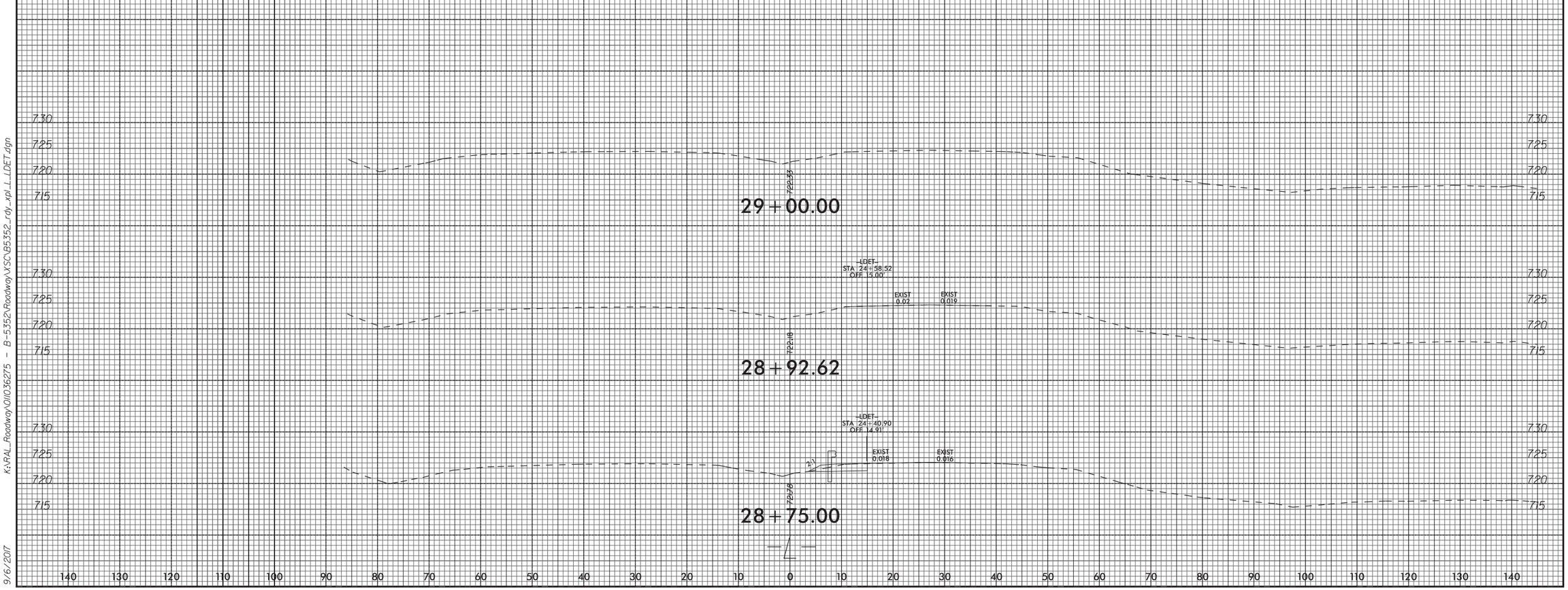
9/6/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-18



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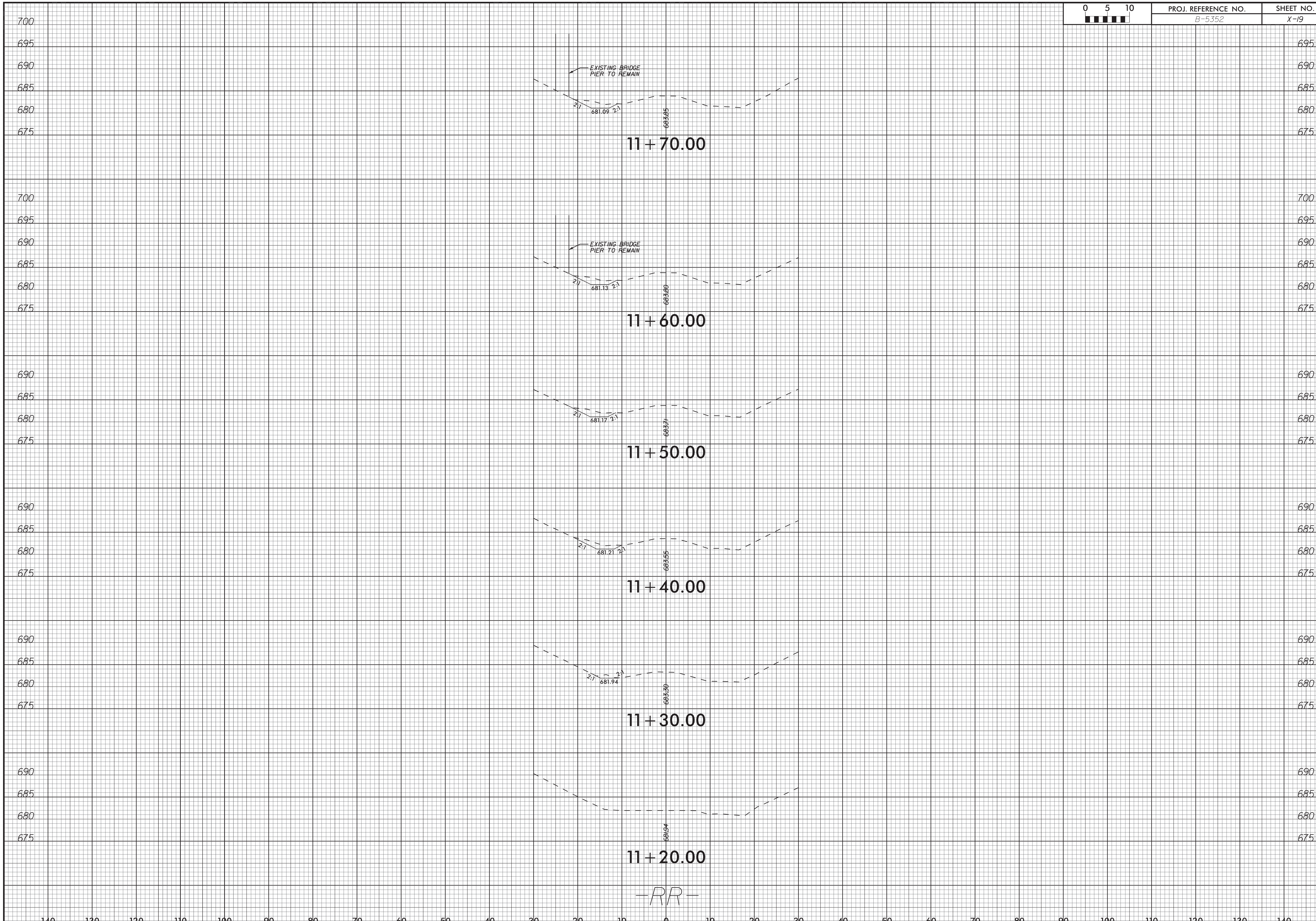
9/6/2017



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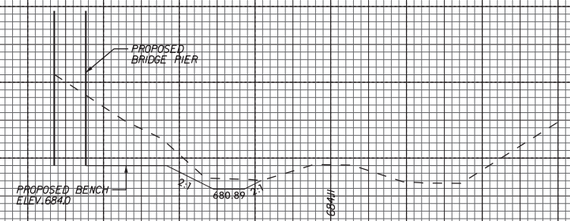
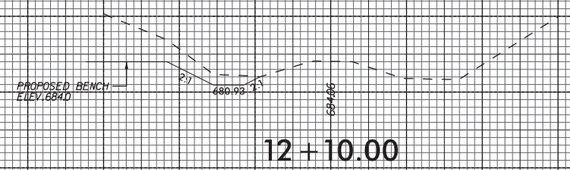
9/7/2017

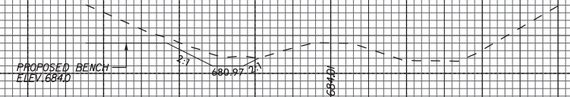
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-20



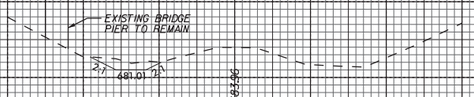
12+20.00



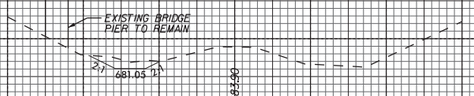
12+10.00



12+00.00



11+90.00



11+80.00

—RR—

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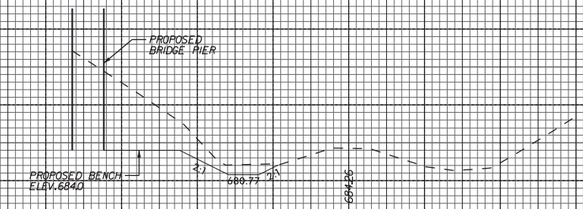
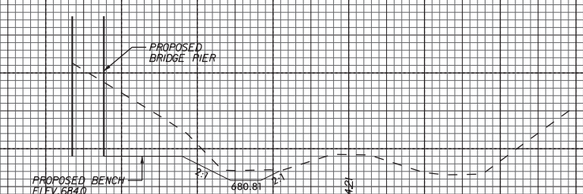
9/7/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-21

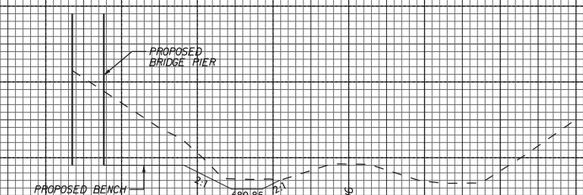
12 + 60.00



12 + 50.00



12 + 40.00



12 + 30.00

—RR—

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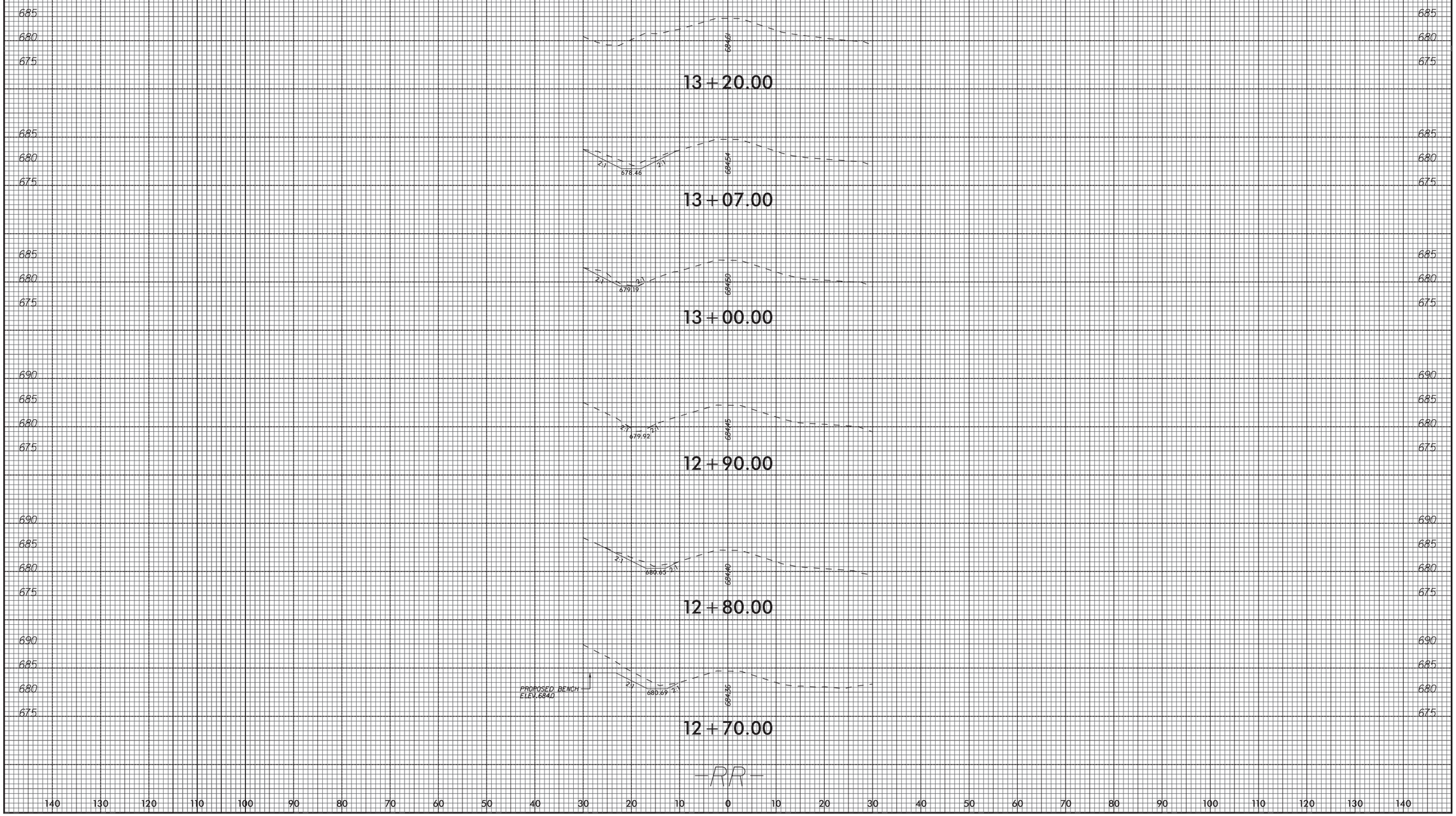
9/7/2017

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5352	X-22



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9/8/2017