



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 4, 2012

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1890
Wilmington, NC 28402-1890

ATTN: Mr. Ronnie Smith
NCDOT Division 8 Coordinator

SUBJECT: **Application for Section 404 Individual Permit and Section 401 Individual Water Quality Certification** for the proposed replacement of Bridge No. 2 on US 15/501 over CSX Transportation in Aberdeen, Moore County, Division 8. Federal Aid Project No. BRSTP – 15(11), State Project No. 8.1560701, WBS Element No. 33222.1.1, T.I.P. Project No. B-3680.

Debit \$570.00 from WBS Element No. 33222.1.1.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 2 on US 15/501 over CSX Transportation in Aberdeen, Moore County. The proposed bridge will be on a new alignment southwest of the existing bridge. The new bridge alignment is a result of the re-configuration of the US 1/ US 15/501 intersection that is also associated with this project. The new intersection will be relocated along US 1 to the southwest of the existing intersection and will result in a new road alignment along US 15/501 between the intersection with US 1 and a terminus approximately 2,360 feet southeast of the intersection with US 1. In addition to the proposed bridge replacement, both a four barrel, 12-foot by 11-foot Reinforced Concrete Box Culvert (RCBC) along Aberdeen Creek and a two barrel, 12-foot by 11-foot RCBC just southeast of the four barrel culvert, will be installed along the new road alignment. A five lane, curb and gutter roadway section is proposed for this project. Due to the intersection re-configuration, the roadway pavement, 5-foot by 5-foot box culvert, and a majority of the roadway fill associated with the existing alignment of US 15/501 between the US 1 intersection and the existing bridge will be removed. Wetland restoration will occur in the area where the roadway fill and pavement are being removed and the stream will be restored where the existing culvert is being removed.

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In addition to this cover letter, the application packet for this project consists of the ENG Form 4345, Wetland and Stream Restoration Plan, North Carolina Ecosystem Enhancement Program (NCEEP) acceptance letter, minutes for the June 18, 2009 and October 29, 2009 National Environmental Policy Act (NEPA)/404 Merger Team Meetings for Concurrence, Concurrence Meeting Information Packet with signed concurrence sheet for Alternative 1A, Stormwater Management Plan, permit drawings, utility permit drawings, and half-size roadway plan sheets.

Project Schedule

This project calls for a review date of May 1, 2012 and a letting date of June 19, 2012. However, these let dates may advance as additional funds become available.

Purpose and Need

NCDOT Bridge Maintenance Unit records indicate that Bridge No. 2 has a sufficiency rating of 47.8 out of a possible 100 for a new structure and is considered functionally obsolete. Replacement of this inadequate structure will result in safer and more efficient traffic operations. In addition to the replacement of the bridge, the intersection between US 1 and US 15/501 will be reconfigured and a five lane, curb and gutter roadway section will be installed along the portion of US 15/501 associated with this project. This new road/lane configuration will provide the required lanes needed to accommodate the high volumes of turning traffic on US 15/501 at its intersections with US 1 and NC 211.

NEPA DOCUMENT STATUS

A Categorical Exclusion (CE) was approved in December 2006 and distributed shortly thereafter. Additionally, a Concurrence Sheet for Alternative 1A was signed on October 29, 2009 and also distributed. This concurrence was necessary because Alternative 1A was not previously included in the CE. These documents have been provided to regulatory review agencies. Additional copies will be provided upon request.

INDEPENDENT UTILITY

The subject project is in compliance with 23 CFR Part 771.111(f), which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project:

- (1) The project connects logical termini and is of sufficient length to address environmental matters on a broad scope
- (2) The project is usable and a reasonable expenditure, even if no additional transportation improvements are made in the area
- (3) The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements

RESOURCE STATUS

Wetland delineations within the B-3680 construction footprint followed the field delineation method outlined in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and supplemented in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (U.S. Army Corps of Engineers [USACE], 2008 [Interim]). Stream identification and classification followed the *Identification Methods for the Origins of Intermittent and Perennial Streams* (North Carolina Division of Water Quality [NCDWQ], 2005).

Within the B-3680 construction footprint, two streams and six wetlands were identified. Jurisdictional areas were initially verified by USACE Regulatory Specialist Richard Spencer on October 24, 2001 (USACE Action ID No. 200101373). Jurisdictional features were re-verified by USACE Regulatory Specialist Kimberly Garvey in an Approved Jurisdictional Determination (JD) on December 9, 2009 (Action ID No. SAW-2001-01373).

IMPACTS TO WATERS OF THE UNITED STATES

The project is located in the Lumber River Basin in Moore County. (U.S. Geological Survey [USGS] Hydrologic Unit [HUC] 03040203). A total of two jurisdictional streams will be impacted by this project. These include Aberdeen Creek (Class C; NCDWQ Index No. 14-2-11-[6]) and a tributary of Aberdeen Creek (UT1). The tributary was originally listed as an unnamed tributary (UT) of Aberdeen Creek in the Natural Resources Technical Report (NRTR) and CE; however, the UT appears to be Devil Gut Branch (Class C; NCDWQ Index No. 14-2-11-7), a named tributary of Aberdeen Creek. In addition to the two streams, six riparian wetlands, Wetlands W1 – W6, will be impacted by the project.

There are no designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters within 1.0 mile of the project area. Additionally, none of the streams located within the project study area support trout or anadromous fish and no Primary Nursery Areas are present within the study area boundaries. One surface water located within 1.0 mile of the project, Aberdeen Creek (Pages Lake [Aberdeen Lake]) (NCDWQ Index No. 14-2-11-[5]), is listed on the 2010 Final 303(d) List of Impaired Waters. This surface water is listed for Water Column Mercury.

Surface Waters

Surface water impacts for B-3680 include 196 linear feet of permanent jurisdictional stream impacts and 187 linear feet of temporary jurisdictional stream impacts to Aberdeen Creek and 39 linear feet of permanent jurisdictional stream impacts to UT1. Jurisdictional stream impacts are summarized below in Table 1.

Table 1. Impacts to Jurisdictional Streams

Site No.	Stream ID ^a	Stream Name	NCDWQ Classification	NCDWQ Index No.	Stream Designation	Impact Type	Impact Length (lin. ft.)
2	Aberdeen Creek	Aberdeen Creek	C	14-2-11-(6)	Perennial	Perm. fill	196
						Temp. fill	187
2a	UT1	Devil Gut Branch	C	14-2-11-7	Perennial	Perm. fill	39
Total Permanent Impacts:							235
Total Temporary Impacts:							187

^a All stream IDs initially used in the NRTR and CE have stayed consistent throughout the life of the project.

Wetlands

There will be a total of 1.99 acres of permanent riparian wetland impacts associated with this project. These impacts will result from 1.65 acres of permanent fill, 0.09 acres of excavation, and 0.25 acres of mechanized clearing. Additionally, 0.07 acres of hand clearing will result from this project. Wetland impacts are summarized below in Table 2.

Table 2. Impacts to Jurisdictional Wetlands

Site	Wetland ID ^a	Impact Type	Impact (ac.)
1	Wetland 2	Permanent Fill	<0.01 ^b
		Mechanized Clearing	0.01
2	Wetlands 2, 3, 5, and 6	Permanent Fill	1.10
		Mechanized Clearing	0.15
		Excavation	0.09
3	Wetland 4	Permanent Fill	0.55
		Mechanized Clearing	0.09
Total Permanent Impacts:			1.99

^a All wetland IDs initially used in the NRTR and CE have stayed consistent throughout the life of the project.

^b Due to rounding, total impacts are 1.99 acres.

Utility Impacts

A total of 0.023 acres of temporary riparian wetland impacts will result from the relocation of utilities associated with this project. Temporary wetland impacts totaling 0.005 acres will result from the cutting of a trench to install a 10-inch water line.

Additional trenching outside of this area of temporary impact will occur due to the water line relocation. However, these impacts will occur in areas already designated for either permanent riparian wetland fill or mechanized clearing and were not included in this total. The remaining 0.018 acres of temporary impacts will result from trenching associated with the placement of a 16-inch gravity sewer line. A total of 0.006 acres of this impact will occur in an area also designated for hand clearing. However, since temporary jurisdictional wetland impacts supersede hand clearing, these impacts were counted towards the temporary utility impacts for the project. Utility Impacts are summarized below in Table 3.

Table 3. Utility Impacts to Jurisdictional Wetlands

Site	Wetland ID	Impact Type	Impact (ac.)
2	Wetland 3	Temporary Fill (10-in. water line)	0.005
2	Wetland 3	Temporary Fill (16-in. gravity sewer line)	0.018
Total:			0.023

All trenched soil will be temporarily sidecast onto areas adjacent to the trenching. This soil will remain sidecast while utility work is being performed. The sidecast soil will be returned to trenched areas upon completion of work. Backfilled areas will be restored to their pre-project grade, elevation, and contours, where necessary.

FEDERALLY PROTECTED SPECIES

Plants and animals with a Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended. As of September 22, 2010 the U.S. Fish and Wildlife Service (USFWS) lists four federally protected species for Moore County: Cape fear shiner (*Notropis mekistocholas*), red-cockaded woodpecker (*Picoides borealis*), American chaffseed (*Schwalbea americana*), and Michaux's sumac (*Rhus michauxii*). Biological conclusions of "No Effect" were stated in the CE for all above-mentioned species and remain valid. No habitat was present for Cape fear shiner, red-cockaded woodpecker, or American chaffseed. Per Gary Jordan (USFWS) at the June 18, 2009 Merger Meeting, no additional surveys for Michaux's sumac are required. A search of the North Carolina Natural Heritage Database (NCNHP; updated November 2011) revealed one known occurrence of American chaffseed within 1.0 mile of the project limits (Element Occurrence [EO] No. 11); however this EO is listed as historical.

CULTURAL RESOURCES

The North Carolina Department of Cultural Resources, State Historic Preservation Office (HPO) conducted a review of the project and, in a letter dated November 5, 2001, stated that no archaeological investigation would be required for this project. However, they recommended that an evaluation of structures over 50 years of age within the project study area be performed. In a Concurrence Form for Properties Not Eligible for The National Register of Historic Places, signed June 2002, it was determined that all potential properties were not eligible for the National Register and that no historic properties will be affected by this project. These documents can be found in the Appendix of the CE.

FEMA COMPLIANCE

There are streams within the project limits that are within Federal Emergency Management Agency (FEMA)-designated flood zones. Coordination between the NCDOT Hydraulics Unit and FEMA will occur prior to Let to ensure that NCDOT is in full compliance with applicable floodplain ordinances.

INDIRECT AND CUMULATIVE EFFECTS

Section 402-2 of NCDOT's Standard Specifications for Roads and Structures is labeled Removal of Existing Structure. This section outlines restrictions and Best Management Practices for Bridge Demolition and Removal (BMP-BDRs), as well as guidelines for calculating maximum potential fill in the creek resulting from demolition. The superstructure and substructure consist of reinforced concrete and steel piles. Since the existing bridge is over the CSX Railroad and not a stream channel, there will be no impacts associated with potential fill into a body of water during demolition and removal.

Construction of the proposed project will impact water resources by the following processes: bridge replacement, box culvert construction, placement of permanent fill in wetlands, excavation in wetlands, and mechanized clearing in wetlands.

Project construction may result in the following additional impacts to surface waters:

- Increased sedimentation and siltation from construction and/or erosion
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal
- Changes in water temperature due to vegetation removal
- Increased nutrient loading during construction via runoff from exposed areas
- Increased concentration of toxic compounds from roadway runoff, construction, and toxic spills, and increased vehicular use

Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and use of BMPs. The contractor will be required to follow contract specifications pertaining to erosion control measures (as outlined in 23 CFR 650, Subpart B and Article 107-13) entitled *Control of*

Erosion, Siltation, and Pollution (NCDOT, Specifications for Roads and Structures). These measures include:

- Use of dikes, berms, silt basins, and other containment measures to control runoff during construction. Regular maintenance and inspection of these structures to insure effectiveness
- Elimination of construction staging areas in floodplains or adjacent to streams and tributaries to help reduce the potential for petroleum contamination or discharges of other hazardous materials into receiving waters
- Rapid re-seeding of disturbed sites to help alleviate sediment loadings and reduce runoff. Partial mitigation of increased runoff from new highway surfaces by providing grassed road shoulders and limited use of ditching
- Careful management and use of herbicides, pesticides, de-icing compounds, or other chemical constituents to minimize potential negative impacts on water quality. Utilize roadside maintenance crews well versed in the use of these chemicals
- Avoidance of direct discharges into streams whenever feasible. Filtering runoff effluent through roadside vegetation in order to remove contaminants and to minimize runoff velocities

WILD AND SCENIC RIVERS

This project will not impact any designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended) or North Carolina Natural and Scenic Rivers.

ESSENTIAL FISH HABITAT

The project will not impact any essential fish habitat afforded protection under the Magnuson – Stevens Act of 1996 (16 U.S.C 1801 *et seq.*).

MITIGATION OPTIONS

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of “no net loss of wetlands” and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. CEQ has defined mitigation of wetland and surface water impacts to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20).

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning phase and minimization measures were incorporated as part of the project design. Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts.

Avoidance and Minimization

Avoidance and minimization has been employed in the project area to the maximum extent practicable. The following measures were implemented for the project:

- NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be enforced
- A rip rap dissipator will be installed at Station No. 17+95 -Y2-
- 2:1 fill slopes will be employed in areas where permanent fill will be placed in wetlands
- A lateral 'V' ditch will be installed from Station No. 11+25 to Station No. 13+87 -L-RT. Rip rap dissipators will be installed along the ditch at pipe outlets. These pipes will convey stormwater and road runoff
- A rip rap dissipator will be installed at a stormwater pipe outlet within Wetland 3 to reduce flow velocity prior to water entering the wetland
- A lateral base ditch will be installed from Station No. 18+90 to Station No. 21+50 -L-LT. This ditch will receive diverted stormwater and road runoff
- The existing road fill, pavement, and culvert will be removed for the purposes of wetland and stream restoration

In addition to the avoidance and minimization measures listed above, Alternative 1A was also chosen for constructability, safety, and cost-related reasons. By constructing a smaller bridge on this alternative, utility conflicts and cost were reduced. Additionally, having a shorter bridge moved the end of the bridge further back from the intersection with US 1, which reduced concerns that vehicles would not be able to stop at the US 1 intersection, especially during inclement weather (since bridges normally ice before roadways). This alternative was also chosen because it would be significantly less expensive than other alternatives due to the shorter bridge.

Compensatory Mitigation

Mitigation requirements for B-3680 are summarized below in Tables 4 and 5. NCDOT proposes mitigation for 235 linear feet of permanent stream impacts and 1.99 acres of permanent riparian wetland impacts. On-site stream and wetland restoration will be performed by NCDOT to compensate for 118 linear feet of permanent stream impacts and 1.67 acres of permanent riparian wetland impacts. The USACE (Ronnie Smith, pers. comm.) has agreed that both the stream and wetland restoration will compensate for impacts to jurisdictional waters at a 1:1 ratio. NCDWQ agreed to this 1:1 compensation ratio in the July 7, 2011 meeting. The remaining compensatory mitigation for 117 linear feet of permanent stream impacts and 0.32 acres of permanent riparian wetland impacts will be provided by NCEEP at a 2:1 ratio. Therefore, NCEEP will provide a total of 234 linear feet of stream mitigation credits and 0.64 acres of wetland mitigation credits.

Table 4. B-3680 Stream Mitigation Summary

	Length (lin. ft.)	Proposed Mitigation Ratio	Proposed Mitigation (lin. ft.)
Total Permanent Jurisdictional Stream Impacts :	235		
On-Site Stream Restoration:	118	1:1	118
Compensatory Mitigation Required From NCEEP:	117	2:1	234

Table 5. B-3680 Wetland Mitigation Summary

	Area (ac.)	Proposed Mitigation Ratio	Proposed Mitigation (ac.)
Total Permanent Jurisdictional Wetland Impacts :	1.99		
On-Site Wetland Restoration:	1.67	1:1	1.67
Compensatory Mitigation Required From NCEEP:	0.32	2:1	0.64

On-Site Wetland and Stream Restoration

Per the NCDOT Wetland and Stream Restoration Plan for B-3680, NCDOT proposes to restore 1.67 acres of riverine wetlands and 118 feet of stream to mitigate for permanent impacts associated with the TIP at a 1:1 ratio. The mitigation area will be constructed in conjunction with TIP B-3680. Construction activities involve pavement and causeway removal, removal of the 5-foot by 5-foot box culvert along UT1, site grading, and site planting. Once the pavement and causeway have been excavated, the areas will be graded to match existing adjacent reference wetland elevation as well as be ripped, disked, and soil amendments added, if necessary. The area to be restored to wetland is adjacent to Wetland 1. Please see the attached Wetland and Stream Restoration Plan for a comprehensive description of the proposed restoration.

NCDOT has identified Chinese privet (*Ligustrum sinense*) within the project limits of B-3680. To minimize the potential spread of this species due to construction-related activities, NCDOT proposes to attempt to suppress the privet within their right-of-way within the project limits. This action is being taken per a request by USACE and NCDWQ.

REGULATORY APPROVALS

Application is hereby made for a Department of the Army Section 404 Individual Permit as required for the above-described activities for the proposed T.I.P. Project No. B-3680. We are also requesting a Section 401 Individual Water Quality Certification from NCDWQ. In compliance with Section 143-215.3D(e) of the NCAC, we will provide \$570.00 to act as payment for processing the Section 401 permit. We are providing five copies of this application to NCDWQ for their review and approval.

A copy of this application and its distribution list will be posted on the NCDOT website at <http://www.ncdot.org/doh/preconstruct/pe/neu/Permit.html>. Thank you for your time and assistance with this project. Please contact Jim Mason at either jmason@ncdot.gov or (919) 707-6136 if you have any questions or need additional information.

Sincerely,



for

Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

Cc:

NCDOT Permit Application Standard Distribution List

17. DIRECTIONS TO THE SITE

Please see attached vicinity map and cover letter.

18. Nature of Activity (Description of project, include all features)

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 2 on US 15/501 over CSX Transportation in Aberdeen, Moore County. The proposed bridge will be on a new alignment southwest of the existing bridge. The new bridge alignment is a result of the re-configuration of the US 1/ US 15/501 intersection that is also associated with this project. The new intersection will be relocated along US 1 to the southwest of the existing intersection and will result in a new road alignment along US 15/501 between the intersection with US 1 and a terminus approximately 2,360 feet southeast of the intersection with US 1. In addition to the proposed bridge replacement, both a four barrel, 12-foot by 11-foot Reinforced Concrete Box Culvert (RCBC) along Aberdeen Creek and a two barrel, 12-foot by 11-foot RCBC just southeast of the four barrel culvert, will be installed along the new road alignment. A five lane, curb and gutter roadway section is proposed for this project.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

NCDOT Bridge Maintenance Unit records indicate that Bridge No. 2 has a sufficiency rating of 47.8 out of a possible 100 for a new structure and is considered functionally obsolete. Replacement of this inadequate structure will result in safer and more efficient traffic operations. In addition to the replacement of the bridge, the intersection between US 1 and US 15/501 will be reconfigured and a five lane, curb and gutter roadway section will be installed along the portion of US 15/501 associated with this project. This new road/lane configuration will provide the required lanes needed to accommodate the high volumes of turning traffic on US 15/501 at its intersections with US 1 and NC 211.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Both permanent and temporary stream impacts and permanent wetland impacts will result from the construction of the proposed project. Impacts will result from the construction and placement of the new bridge and culverts, as well as from fill and mechanized clearing associated with construction of the new section of US 15/501 associated with the intersection re-configuration. Temporary wetland impacts associated with the relocation of utilities will also occur.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
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See attached cover letter

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See attached cover letter
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Avoidance and Minimization: Please see attached permit application cover letter and permit packet.

Compensation: NCDOT proposes mitigation for 235 linear feet of permanent stream impacts and 1.99 acres of permanent riparian wetland impacts. On-site stream and wetland restoration will be performed by NCDOT to compensate for 118 linear feet of permanent stream impacts and 1.67 acres of permanent riparian wetland impacts at a 1:1 ratio. The remaining compensatory mitigation for 117 linear feet of permanent stream impacts and 0.32 acres of permanent riparian wetland impacts will be provided by NCEEP at a 2:1 ratio.

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See permit drawings

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

E. L. Fusk for Gregory J. Thorpe, PhD. Jan 4, 2011
SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

**Wetland and Stream Restoration Plan
Bridge No. 2 over the Aberdeen Creek and CSX Railroad on US 15/501
Moore County, North Carolina**

**TIP B- 3680
Federal Aid Project No.BRSTP-15 (11)
WBS No. 33813.1.1**

July 28, 2011

1.0 BASELINE INFORMATION

The project is located within sub-basin 03-07-50 of the Lumber River Basin (DWQ 2001) and is part of the USGS Hydrologic Unit 03040203 of the South Atlantic Gulf region. The project is located on US 15/501 in southern Moore County just west of Aberdeen. It is within the Sandhills Region of the Coastal Plain physiographic province. The majority of the land use in the vicinity of the project is urban in nature and the surrounding landscape is dominated by a mixture of forested communities and maintained/ disturbed land.

Two jurisdictional streams are located within the project area: Aberdeen Creek and an unnamed tributary (UT) to Aberdeen Creek. This portion of the stream has been assigned Stream Index Number (SIN) 14-02-11- (6) by the NCDWQ (DENR2005a) and is designated a warm water stream (USACE et al. 2003) with a best classification of C.

The two natural plant communities found within the project area are Alluvial Forest and Mesic Mixed Hardwood Forest. There is also a component of disturbed/maintained land.

Approximately 29.2 % of the project study area (5.21 acres) is made up of the Alluvial Forest, 37.2 % (6.65 acres) is made up of Mesic Mixed Hardwood Forest and 33.6 % (6.00 acres) is composed of disturbed/maintained land containing roadsides, industrial areas, dirt roads/ driveways, a railroad bed and other maintained lands.

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for stream and wetland impacts associated with Transportation Improvement Program (TIP) B-3680 through the restoration of 118 linear feet of stream and 1.67 acres of riverine wetland via the removal of existing pavement, causeway and box culvert associated with the current bridge and US 15/501 alignment.

2.0 SITE SELECTION

TIP B-3680 will involve replacing bridge No. 2 over the CSX Railroad as well as performing improvements to the approach roadway of the replacement structure. These improvements will extend approximately 370 feet south from the southwest end of the new structure and approximately 133 feet from the western end of the new structure. Permanent wetland impacts associated with the project are 1.65 acres of riverine wetlands. Permanent stream impacts associated with the project are 235 feet of stream.

The project is located in the Town of Aberdeen on US 15/ 501 north of the intersection of NC 211 in Moore County. The proposed mitigation site occurs within the existing Right-of-Way of US 15/501.

The Categorical Exclusion (CE) for TIP B-3680, dated September 2006, provides further details concerning existing natural resources and roadway conditions.

Bridge No. 2 is located approximately 1000 ft. south of the intersection of US 15/501 and US 1. The roadway of US 15/501 north of the bridge is on a high causeway fill section within the floodplain of Aberdeen Creek. Jurisdictional wetlands occur on both the east and west sides through this section of roadway. A 118 ft. long 5'x5' box culvert is located approximately 300 ft. north of the bridge. The culvert carries an unnamed tributary (UT) to Aberdeen Creek under the roadway from east to west where it comes to a confluence with Aberdeen Creek.

3.0 SITE PROTECTION INSTRUMENT

The mitigation area is located with the NCDOT Right-of-Way. The area is outside of bridge maintenance area and free of utilities. It will be managed to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan.

The site will be placed on the NEU mitigation geo-database. After closeout, the site will be placed in the NCDOT Stewardship Program for long term management and protection.

4.0 OBJECTIVES

The goal of the project is to restore 1.67 acres of riverine forest and 118 feet of an unnamed tributary associated with Aberdeen Creek. The functional restoration of the site will be accomplished through existing pavement, causeway, and box culvert removal and site grading to match the target elevation of the existing adjacent reference wetland system.

5.0 MITIGATION WORK PLAN

The mitigation area will be constructed in conjunction with TIP B-3680. Construction activities involve pavement and causeway removal and the 5'x 5' box culvert removal, utilizing natural stream design on the 118 feet of stream, site grading and site planting. Once the pavement and causeway have been excavated, the areas will be graded to match existing adjacent reference wetland elevation as well as being ripped, disked and soil amendments added if necessary. NCDOT has identified Japanese privet (*Ligustrum japonicum*) within the project limits of B-3680. To minimize the potential spread of this species from construction-related activities, the NCDOT proposes to attempt to suppress the privet within their right-of-way within in the project limits.

The Natural Environment Unit shall be contacted to provide construction assistance to ensure that the mitigation areas are constructed appropriately.

Following the successful completion of site grading, the wetland restoration area will be planted on 8 foot centers with native species typical of the adjacent wetland community (reference site) including American sycamore (*Platanus occidentalis*), water oak (*Quercus nigra*), river birch (*Betula nigra*) and green ash (*Fraxinus pennsylvanica*) depending on seedling availability. After construction of the stream channel, all banks will be matted and live stakes, Black willow (*Salix nigra*) and Silky dogwood (*Cornus amomum*), will be planted on 3 foot centers. Also, native grass seed and mulch will be placed in wetland restoration area on all disturbed areas within the wetland and stream restoration area for stabilization purposes according to guidance and standard procedures of NCDOT's Roadside Environmental Unit. An as-built report will be submitted within 60 days of completion of the project.

6.0 PERFORMANCE STANDARDS

No specific hydrological monitoring is proposed for the stream and wetland restoration area. The target elevation for wetland restoration will be based on the adjacent wetland elevations and verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology in the restored area is similar to the hydrology in the reference area. The restored stream will have visual inspection and photo points to insure channel stability.

NCDOT shall monitor the wetland restoration site by visual observation and photo points for survival and aerial cover of vegetation.

7.0 MONITORING REQUIREMENTS

Upon successful completion of construction, the following monitoring strategy is proposed for the 1.67 acres of wetland and 118 feet of stream restoration within the NCDOT Right-of-Way. NCDOT will perform visual inspection and photo points for 3 years and document monitoring activities on the site in an annual report distributed to the regulatory agencies.

8.0 OTHER INFORMATION

The wetland plant community associated with B-3680, adjacent to Aberdeen Creek and the unnamed tributary to Aberdeen Creek is a Riverine Swamp Forest based on NCWAM field assessment methodology. The overall wetland rating was HIGH. This is the reference wetland that will be used for the project.

9.0 DETERMINATION OF CREDITS

Per the NCDOT plans and 401/404 permit application for B-3680, NCDOT proposes to restore 1.67 acres of riverine wetlands and 118 feet of stream to mitigate for permanent impacts associated with the TIP at a 1:1 ratio. An as-built report will be submitted within 60 days of completion of the project to verify actual constructed acreage. The success of the mitigation area and determination of total credits will be based upon successful completion and closeout of the monitoring period.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed 1.67 acres of restored riverine wetlands as on-site mitigation for the associated riverine impacts of 1.65 acres for B-3680 at a 1:1 ratio. NCDOT also proposes immediate, full release of the proposed 118 feet of restored riverine stream as on-site mitigation for the associated riverine stream impacts of 235 feet for B-3680 at a 1:1 ratio.

10.0 GEOGRAPHIC SERVICE AREA

The proposed Geographic Service Area (GSA) for the mitigation area is composed of the Hydrologic Cataloging Unit (HUC) 03040203. All stream and wetland credit will be used for B-3680.

11.0 MAINTENANCE PLAN

The site will be held by NCDOT and placed on the NEU mitigation geodatabase. Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

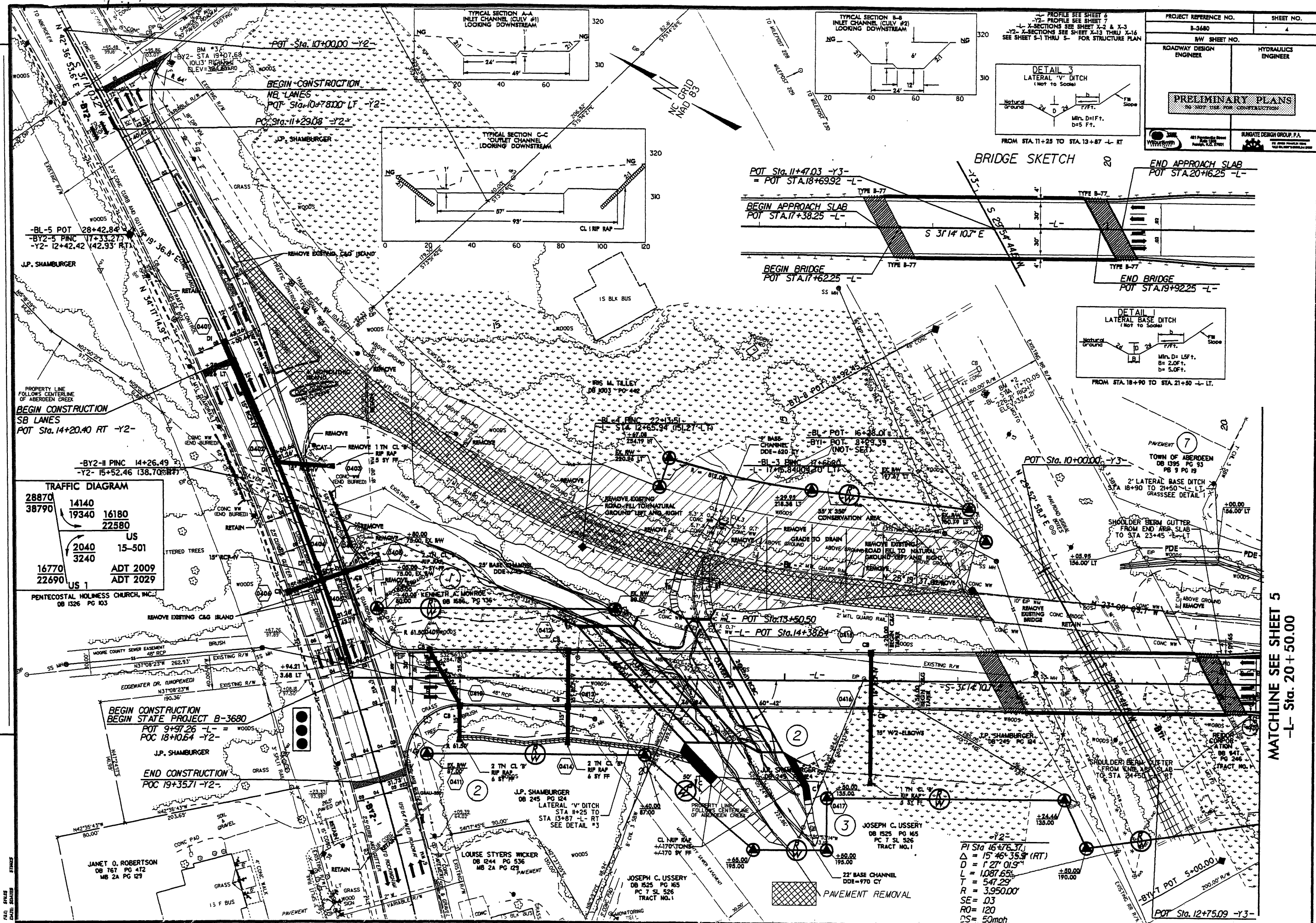
If an appropriate third party recipient is identified in the future, then the transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The site will be managed by the NCDOT according to the mitigation plan. In the event that unforeseen issues arise that affect the management of the site, any remediation will be addressed by NCDOT in coordination with the Interagency Review Team.

13.0 FINANCIAL ASSURANCES

The site will be managed by NCDOT with its own distinct cost center number within the NCDOT budgeting and financial tracking system. Therefore, all accounting for revenues, contract encumbrances, fund transfers, and expenses will be performed and reported independent from other capital budget or operating budget accounting.



MATCHLINE SEE SHEET 5
-L- Sta. 20+50.00



December 20, 2011

Mr. Gregory J. Thorpe, Ph.D.
Manager, Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-3680, Replace Bridge Number 2 on US 15/501 over CSX Railroad, Moore County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on December 19, 2011, the impacts are located in CU 03040203 of the Lumber River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Lumber 03040203 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	117	0.32	0	0	0	0

This mitigation acceptance letter replaces the mitigation acceptance letter issued on December 6, 2011. EEP commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program 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 EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

Michael Ellison
EEP Deputy Director

cc: Mr. Ronnie Smith, USACE – Asheville Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: B-3680 Revised

Restoring... Enhancing... Protecting Our State





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

**REPLACEMENT OF BRIDGE NO. 2 ON US 15/501 OVER CSXT AND ACWR
TRACKS IN MOORE COUNTY
NEPA/404 MERGER TEAM MEETING FOR CONCURRENCE**

Meeting Date: June 18, 2009

**Place/Time: NCDOT Board Room, Highway Building, Raleigh
1:30 pm**

From: Ahmad Al-Sharawneh, NCDOT PDEA

To: Richard Spencer, US Army Corps of Engineers
Kim Garvey, US Army Corps of Engineers
Kathy Matthews, US Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Ron Lucas, Federal Highway Administration
Polly Lespinasse, NC Division of Water Quality
Travis Wilson, NC Wildlife Resources Commission
Marshall Clawson, NCDOT Hydraulic Design Unit
Bill Zerman, NCDOT Hydraulic Design Unit
Rachelle Beauregard, NCDOT Natural Environment Unit
Jason Elliott, NCDOT Natural Environment Unit
Missy Pair, NCDOT-PDEA
Derrick Weaver, NCDOT-PDEA
Doug Taylor, NCDOT Roadway Design Unit
Clayton Walston, NCDOT Roadway Design Unit
Mark Staley, NCDOT Roadside Environmental Unit
Mike Stanley, NCDOT TIP Development Unit
Bo Hemphill, NCDOT Utilities Unit
Tim Johnson, NCDOT Division 8
John Olinger, NCDOT Division 8
Art King, NCDOT Division 8
Neb Bullock, NCDOT Structures
Herman Huang, NCDOT-HEU
Zach McNeil, NCDOT Natural Environment Unit
James Pflaum, NCDOT Natural Environment Unit

PURPOSE OF MEETING: To present to the Merger Team a revision to the preferred alternative (alternative 1 Modified) and to reach concurrence on a selected alternative.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

ITEMS OF DISCUSSION: The following paragraphs summarize the discussion and decisions resulting from this meeting.

The meeting opened with a brief introduction by Ms. Kim Garvey followed by Ahmad Al-Sharawneh, with a description of the project and the purpose of the meeting. Issues discussed were safety, constructability, impact and cost.

- The USACE stated that an Individual Permit (IP) is required based on the wetland impact. Engineering form 4345 should be submitted with the transmittal packet to the USACE. The packet should include all alternatives in the CE document, Alternatives 1, 2, 3, 4 and 1 Modified. All alternatives should be discussed in detail. After reviewing the application, a public notice will be advertised for 30 days. Comments from the public notice will be reviewed and the merger team will reconvene after comments are received to select a preferred.
- It was noted that two previous field meetings with the Merger Team were held at the site on Oct. 9, 2002 and Feb. 19, 2003.
- The US Fish and Wildlife Service stated no protected species survey updates are required at this time.
- Since the wetland jurisdictional determination (JD) has expired, an update is required. No major changes to the preliminary JD are expected, however NEU will visit the site in July to verify the delineation has not changed. The USACE indicated they would not need to verify the preliminary JD prior to the public notice if NEU finds no significant changes.
- On-site mitigation was discussed by NEU, which included rerouting the UT to Aberdeen Creek. Some concerns were raised as to whether the current site is sufficient for mitigation and/or if other sites should be considered. It was noted the existing roadbed would be removed and used for wetland mitigation. Also, the conservation area will be used for mitigation. There also was some discussion about the beaver activity near the bridge; if NCDOT would control beavers, and how that might impact our mitigation.
- It was noted that the design plans shown in the merger packet showed the need for a 4 barrel 12'x10' box culvert (RCBC) to carry Aberdeen Creek and a 2 barrel 12'x10' RCBC to carry the UT to Aberdeen Creek. If the Tilley property is bought for mitigation then a 4 barrel 12'X11' will work. This reduction will save additional money and meets FEMA 100-year flood requirements. However If the property is not purchased the additional barrels are needed to meet FEMA requirement of no impact to insurable structures. Typically NCDOT Hydraulics does not recommend 4 barrel box

culverts, but considering the fact that we already have one several hundred feet upstream and the other issues noted within these minutes, they have in this case.

- It was explained that the current bridge has to be raised to provide an additional 4 feet of clearance over the railroad to meet the current vertical clearance standards. This resulted in more fill and a steeper grade. Also noted was that the fill slopes would be 3:1.
- Further discussion was about the existing bridge and why new location is necessary. It was explained that new location is needed because of the existing curve limits sight distance as motorist approach the intersection and the current intersection complexity. Also, maintenance of traffic would be extremely difficult during construction due to the grade differential between the existing and proposed pavement. This alternative was eliminated due to concerns with intersection safety and constructability issues.
- Constructability also was discussed. A 48" sewer line would be impacted by alternative 1. During the field meeting, the Merger Team recommended spanning the tracks, wetlands, and Aberdeen Creek with one long bridge. During the final design, it was determined that the sewer line would be impacted and would cause a conflict in the construction of the first and end bents. This resulted in the bridge ending within 100' of the intersection, creating inadequate approach stopping distance, approach constructability concerns, and safety concerns.
- Additional discussion concerned storm water on the proposed road as well as how alternative 1 Modified is safer than a bridge during winter weather. Reviewing the proposed typical section, most of the storm water will drain off the road to the side slopes, while some will drain through the storm-drain system near the intersection with US 1, water will not be flowing on the roadway. Typically bridges will ice before the roadway surface. Alternative 1 modified is safer in this case. In addition, it was noted that a bridge within 100 feet of the intersection, with a 6% grade, would result in higher risk to drivers when stopping at the traffic signal during icy conditions.
- Another alternative discussed was having two bridges, one over the railroad and the other spanning Aberdeen Creek. Because of the height of the fill between the two bridges and the type of soil in that area, adequate compaction would be difficult to achieve. The Division noted this has been a problem in the past and this alternative was not considered in the document.
- It was noted that the use of culverts would avoid temporary construction impacts to wetlands. Construction will start from US 1 toward Aberdeen

Creek and the railroad tracks. This will result easier construction, stabilizing the work areas as completed to minimize sedimentation.

- It was noted that the cost should include mitigation, utility impacts and land acquisition. Construction of alternative 1 modified will result in savings of approximately 4 million dollars.

CORRECTIONS & OMISSIONS: This summary is the writer's interpretation of the events, discussions, and transactions that took place during the meeting. If there are any additions and/or corrections, please inform me at aalsharawneh@dot.state.nc.us or in writing within seven (7) days.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

**REPLACEMENT OF BRIDGE NO. 2 ON US 15/501 OVER CSXT AND ACWR
TRACKS IN MOORE COUNTY
NEPA/404 MERGER TEAM MEETING FOR CONCURRENCE**

Meeting Date: October 29, 2009

**Place/Time: NCDOT Division 8, Aberdeen, NC
10 AM**

From: Ahmad Al-Sharawneh, NCDOT PDEA

To: Kim Garvey, US Army Corps of Engineers
Kathy Matthews, US Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Felix Davila, Federal Highway Administration
Polly Lespinasse, NC Division of Water Quality
Travis Wilson, NC Wildlife Resources Commission
Marshall Clawson, NCDOT Hydraulic Design Unit
Jason Elliott, NCDOT Natural Environment Unit
Derrick Weaver, NCDOT-PDEA
Doug Taylor, NCDOT Roadway Design Unit
Alan Ray, NCDOT Roadway Design Unit
Clayton Walston, NCDOT Roadway Design Unit
John Olinger, NCDOT Division 8
Art King, NCDOT Division 8
Zach McNeil, NCDOT Natural Environment Unit
James Pflaum, NCDOT Natural Environment Unit
Luis Pages, NCDOT Division 8 Right of Way
Deanna Riffey, NCDOT Natural Environment Unit

PURPOSE OF MEETING: To present to the Merger Team a revision to the previously preferred alternative (alternative 1) and to reach concurrence on the new recommended alternative 1A. To verify the preliminary wetland jurisdictional areas (JD).

ITEMS OF DISCUSSION: The following paragraphs summarize the discussion and decisions resulting from this meeting.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
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LOCATION:
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1 SOUTH WILMINGTON STREET
RALEIGH NC

- The meeting attendees met between 9:30 am and 10:00 am at the division office, after the arrival of every one, they drove to the subject site. The Tilley property was the start of the discussion; it was clarified by the Hydraulic Unit that the property including the building is in the 100 year flood plain. Right of Way and the division office explained their position in regard to the business relocation, the division noted their preference is not to purchase the Tilley property and they are in favor of the recommended alternative 1A. The team proceeds to visit the areas as requested by the USACE, they followed the proposed alignment to inspect and reconfirm these JD areas.
- The USACE concurs with NCDOT that the wetland jurisdictional determination (JD) areas have not changed.
- It was noted that the fill slopes for the proposed roadway would be 3:1.
- The USACE recommends NCDOT propose 1:1 credit for the removal of the old causeway (with limited monitoring) and 1:1 credit from NC EEP.
- The existing roadway causeway and associated box culvert are going to be removed for general purposes.
- The NCWRC and US Fish and Wildlife Service stated either alternative will be accepted.
- EPA noted storm water from the road surface should be treated before entering the buffer at the southwest of the project near the intersection.
- The team concurs on the recommended alternative (alternative 1A).

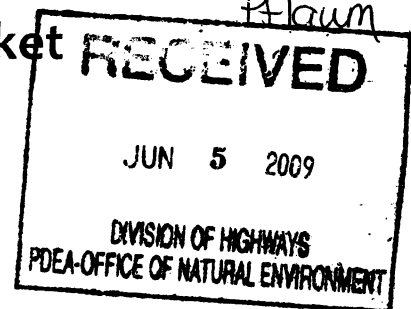
CORRECTIONS & OMISSIONS: This summary is the writer's interpretation of the events, discussions, and transactions that took place during the meeting. If there are any additions and/or corrections, please inform me at aalsharawneh@ncdot.gov or in writing within seven (7) days.

**CONCURRENCE MEETING
INFORMATION PACKET
FOR YOUR REVIEW
PRIOR TO MEETING ON
Thursday, June 18, 2009**

**PROJECT ENGINEER
Ahmad Al-Sharawneh**

TIP #B-3680

Please bring this packet
to the meeting.





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

AGENDA
Eastern Concurrence Meeting
Thursday June 18, 2009
Board Room, Transportation Building
Raleigh, North Carolina

1:30 PM – 3:00 PM, Ahmad Al-Sharawneh, Project Planning Engineer, PDEA Branch
TIP No. B-3680, Replacement of Bridge No. 2 on US 15/501 over CSXT and ACWR
tracks in Moore County, Division 8.

Team Members:

Richard Spencer, USACE
Kim Garvey, USACE
Felix Davila, FHWA
Ahmad Al-Sharawneh, PDEA
Kathy Matthews, USEPA

Gary Jordan, USFWS
Travis Wilson, WRC
Polly Lespinasse, DWQ
Renee Gledhill-Early, SHPO

NCDOT Technical Support Staff and Other Agency Staff:

Tim Johnson, Division 8
John R.G. Olinger, Division 8
Doug Taylor, Roadway Design
Clayton Walston, Roadway Design
Mark Staley, Roadside Environmental
Marshall Clawson, Hydraulics
William Zerman, Hydraulics
Rachelle Beauregard, NEU

James Pflaum, NEU
Ed Lewis, HEU
LeiLani Paugh, NEU
Zach McNeil, NEU
Neb Bullock, Structures
A.K. Paschal, Structures
Derrick Weaver, PDEA
Eric Midkiff, PDEA

- *The purpose of this meeting is to present the team members with new modified alternative (alt. 1 mod.) and to reach concurrence.*

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WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Bridge Group 35 B-3680 Moore County

Purpose of the Meeting:

To present to the Merger Team a revision to the preferred alternative (alternative 1 Modified) and to reach concurrence on a selected alternative. During internal review meeting prior to the letting of the project, some questions were raised concerning constructability, safety, relocation of utilities and higher cost. The internal review committee recommended reevaluating the design to address these issues.

Project Description:

The replacement of Bridge No. 2 on US 15/501 over CSXT and ACWR tracks in Moore County. The project study area is located approximately 1000 feet south of the intersection of US 15/501 and US 1. The length of the proposed bridge is approximately 230 feet.

Alternative 1 Modified (Recommended)

The proposed replacement structure to span the railroad is a five-lane bridge approximately 230 feet long. Also proposed is a 4X12X10, 175 LF RCB culvert to be installed in Aberdeen Creek, and a 2X12X10, 150 LF RCB culvert to be installed below the existing ditch just southeast of the 4 barrel culvert. A five lane section is proposed to provide required lanes needed to accommodate the high volumes of turning traffic on US 15/501 at the intersections with US 1 and NC 211.

Alternative 1 (Previously Preferred):

Includes replacement of the existing 216 foot two-lane bridge with a new five-lane structure located approximately 60 feet west of the existing structure. A five lane section will provide capacity to accommodate the high volume of traffic and turning lanes between US 1 and NC 211. The proposed structure is approximately 780 feet in length and consist of five 12 foot lanes and two four foot shoulders for a total clear roadway width of 68 feet. The proposed structure will cross over both the CSXT and ACWR tracks as well as Aberdeen Creek. Approach work will extend from approximately 160 feet north to approximately 825 feet south of the proposed structure. Approach work includes construction of

new approaches, realignment, and grade adjustment. Traffic will be maintained on the existing structure during construction. The total project length is approximately 1765 feet. The intersection of US 15/501 and US 1 will be improved to a T intersection, which corrects sight distance and merging issues with the existing intersection.

Why Modified Alternative 1?

- Safer because there is no bridge within 100 feet of the intersection of US 15/501. Alternative 1 (previously preferred) was within 100 feet of the bridge and the intersection.
- Safer during inclement weather because elimination of the bridge reduces risk of icing.
- The current design (alt 1 modified) does not show any conflict with the utility system.
- There is constructability issue with the bridge approach with the previous design (alt. 1). Also, there is a conflict with the 48" sewer line in the previous design (alt. 1). This pipe is in conflict with the end bent and with the first bent. This may cause additional cost to the current total cost.
- There are no temporary wetland/stream impacts with alt. 1 modified.
- The current cost for this alternative is \$2,911,074 less than the previously selected including mitigation.
- Additional \$250,000 to \$500,000 will be saved depending on the method used for utility relocation.

Summary of Jurisdictional Areas

JURISDICTIONAL AREAS	Project Study Area	Alt. 1 Modified		Alt. 1	
	Amount Present	Impacts	Pot. Temp. Impacts	Impacts	Pot. Temp. Impacts
Acres					
W1	3.05	0	0	0	0
W2	0.62	0.37	0	0.18	0
W3	0.64	0.61	0	0.08	0
W4	0.56	0.56	0	0.32	0
W5	0.01	0.01	0	0.08	0
W6	0.03	0.03	0	0.08	0
Aberdeen Creek	0.35	0.03	0	0.08	0
UT Aberdeen Creek	0.05	0.03	0	0	0
Total:	5.31	1.58	0	0.5	0
Linear Feet					
Aberdeen Creek	525	194	0	8	0
UT Aberdeen Creek	259	44	0.0	0	0
Total:	784	238	0	0.0	0

Total Cost Estimate Comparison		
	Alt. 1 Modified	Alt. 1
Construction Cost	10,300,000	13,400,000
Mitigation	222,622	33,696
Total Cost	10,522,622	13,433,696

TIP No. B-3680
 Route US 15/501
 From US 1 to 1000' South of NC 211
 Typical Section 5 Lane Curb and Gutter
Updated Quantities

Prepared By: Philip Culpepper
 Requested By: Clayton Walston

ROW

County:

MOORE

CONSTR. COST
\$10,300,000

Updated
 Quantities

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	1.4	Acre	\$ 40,000.00	\$ 56,000.00
			Supplemental Clearing and Grubbing	1	Acre	\$ 4,000.00	\$ 4,000.00
			Unclassified Excavation	50,000	CY	\$ 9.00	\$ 450,000.00
			Undercut Excavation	1,500	CY	\$ 14.00	\$ 21,000.00
			Class IV Subgrade Stabilization	1,000	Tons	\$ 34.00	\$ 34,000.00
			Borrow Excavation	120,900	CY	\$ 9.00	\$ 1,088,100.00
			Drainage Ditch Excavation	200	CY	\$ 6.50	\$ 1,300.00
			Remove Existing Asphalt Pavement	5,660	SY	\$ 3.50	\$ 19,810.00
			Select Granular Material	2,000	CY	\$ 25.00	\$ 50,000.00
			Foundation Cond.Mat, Minor Strs	140	Tons	\$ 30.00	\$ 4,200.00
			15" RC Pipe Culv, Class III	824	LF	\$ 32.00	\$ 26,368.00
			18" RC Pipe Culv, Class III	316	LF	\$ 36.00	\$ 11,376.00
			15" CS Pipe Culv, 0.064" Thick	112	LF	\$ 38.00	\$ 4,256.00
			Fine Grading	10,700	SY	\$ 2.50	\$ 26,750.00
			AsphBinder for Plant Mix PG64-22	275	Tons	\$ 420.00	\$ 115,500.00
			AsphBinder for Plant Mix PG70-22	185	Tons	\$ 500.00	\$ 92,500.00
			Base Course, Type B 25.0 C	3,000	Tons	\$ 44.00	\$ 132,000.00
			Binder Course, Type I 19.0 C	3,100	Tons	\$ 48.00	\$ 148,800.00
			Surface Course, Type S 9.5 C	3,050	Tons	\$ 50.00	\$ 152,500.00
			Asph.Plant Mix, Pav't Repair	20	SY	\$ 200.00	\$ 4,000.00
			Masonry Drainage Structures	15	Each	\$ 1,350.00	\$ 20,250.00
			Frame w/Grate and Hood 840.03 Type E	2	Each	\$ 450.00	\$ 900.00
			Frame w/Grate and Hood 840.03 Type F	8	Each	\$ 450.00	\$ 3,600.00
			Frame w/Grate and Hood 840.03 Type G	4	Each	\$ 450.00	\$ 1,800.00
			Frame w / Two Grates, 840.05	3	Each	\$ 450.00	\$ 1,350.00
			Frame w / Two Grates, 840.20	6	Each	\$ 400.00	\$ 2,400.00
			Frame w / Two Grates, 840.22	2	Each	\$ 525.00	\$ 1,050.00
			Frame w / Two Grates, 840.18 Or 840.27B	2	Each	\$ 500.00	\$ 1,000.00
			Frame w / Two Grates, 840.35	10	Each	\$ 900.00	\$ 9,000.00

ALT 1 MODIFIED
PAGE 2

TIP No.

B-3680

ROW

County:

MOORE

			2'-6" Concrete Curb and Gutter	2,300	LF	\$ 16.00	\$ 36,800.00
			Shoulder Berm Gutter	950	LF	\$ 24.00	\$ 22,800.00
			5" Mono. Islands (Key In)	170	SY	\$ 50.00	\$ 8,500.00
			Steel Beam Guardrail	2,300.0	LF	\$ 15.50	\$ 35,650.00
			Steel Beam Guardrail (Shop Curved)	250.0	LF	\$ 18.00	\$ 4,500.00
			Additional Guardrail Posts	10	Each	\$ 25.00	\$ 250.00
			GRAU, Type 350	2	Each	\$ 1,700.00	\$ 3,400.00
			Guardrail Anchor, Type CAT-1	2	Each	\$ 550.00	\$ 1,100.00
			Guardrail Anchor, Type B-77	4	Each	\$ 1,250.00	\$ 5,000.00
			Remove Existing Guardrail	2,700	LF	\$ 1.25	\$ 3,375.00
			Plain Rip Rap, Class B	10	Ton	\$ 80.00	\$ 800.00
			Filter Fabric for Drainage	35	SY	\$ 5.00	\$ 175.00
			Erosion Control	14.0	Acres	\$ 25,000.00	\$ 350,000.00
			New Traffic Signals	1	Each	\$ 120,000.00	\$ 120,000.00
			Signing (per TMSD)	1	LS	\$ 10,000.00	\$ 10,000.00
			Traffic Control (per TMSD)	1	LS	\$ 155,342.00	\$ 155,342.00
			Thermo and Markers (per TMSD)	1	Miles	\$ 26,780.00	\$ 26,780.00
			Structures				
			Proposed Structure 72' wide X 230' long	16,560	SF	\$ 130.00	\$ 2,152,800.00
			Concrete Approach Slabs 2@25' x 71'	3,550	SF	\$ 30.00	\$ 106,500.00
			Removal of Existing Bridge 32.33' x 215.92'	6,981	SF	\$ 20.00	\$ 139,620.00
			(over RxR)				
			Culverts				
			RCBC 4 @ 12'X10', 175', 14'F, 46.6^	175	LF	\$ 5,630.00	\$ 985,250.00
			RCBC 2 @ 12'X10', 150', 14', 60.7^	150	LF	\$ 3,080.00	\$ 462,000.00
			Culvert Removal (5'X5'x120')	760	SF	\$ 20.00	\$ 15,200.00
			Utility Construction				
			Relocate Existing 10" Water Line	3,000	LF	\$ 92.00	\$ 276,000.00
			(Includes 800' Bore & Jack, per Const. Utility)				
			Relocate Existing 6" Water Line	350	LF	\$ 46.00	\$ 16,100.00
			(Includes Bypass Pumping, per Const. Utility)				
			Relocate Existing 48" Sanitary Sewer Line	550	LF	\$ 462.00	\$ 254,100.00
			Misc. & Mob. (10%, Str. & Utilities)	1	LS	\$ 440,757.00	\$ 440,757.00
			Misc. & Mob. (25%, Rdwy)	1	LS	\$ 817,391.00	\$ 817,391.00

Lgth ____ Mi.

Contract Cost	\$ 8,934,000.00
E. & C. 15%	\$ 1,366,000.00
Construction Cost	\$ 10,300,000.00

TIP No. **B-3680**
Route **US 15/501**
From **Bridge No. 2 over CSX Railroad**
Typical Section **5 Lane Section**

ROW

County

Moore

CONSTR. COST
\$13,400,000

Prepared By: **Philip Culpepper**
Requested By: **Alan Ray**

10/22/2008
10/3/2008

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	1.4	Acre	\$ 40,000.00	\$ 56,000.00
			Supplemental Clearing and Grubbing	1	Acre	\$ 4,000.00	\$ 4,000.00
			Unclassified Excavation	50,200	CY	\$ 9.00	\$ 451,800.00
			Undercut Excavation	1,500	CY	\$ 15.00	\$ 22,500.00
			Class IV Subgrade Stabilization	1,000	Tons	\$ 24.00	\$ 24,000.00
			Borrow Excavation	43,400	CY	\$ 10.00	\$ 434,000.00
			Drainage ditch Excavation	380	CY	\$ 10.00	\$ 3,800.00
			Remove Existing Asphalt Pavement	5,660	SY	\$ 5.00	\$ 28,300.00
			Select Granular Material	2,000	CY	\$ 13.00	\$ 26,000.00
			Foundation Cond.Mat, Minor Strs	140	Tons	\$ 34.00	\$ 4,760.00
			15" RC Pipe Culv, Class III	824	LF	\$ 34.00	\$ 28,016.00
			18" RC Pipe Culv, Class III	316	LF	\$ 38.00	\$ 12,008.00
			15" CS Pipe Culv, 0.064" Thick	112	LF	\$ 48.00	\$ 5,376.00
			Fine Grading	6,220	SY	\$ 2.50	\$ 15,550.00
			AsphBinder for Plant Mix PG64-22	190	Tons	\$ 700.00	\$ 133,000.00
			AsphBinder for Plant Mix PG70-22	140	Tons	\$ 760.00	\$ 106,400.00
			Base Course, Type B 25.0 B	1,940	Tons	\$ 48.00	\$ 93,120.00
			Binder Course, Type I 19.0 B	2,190	Tons	\$ 50.00	\$ 109,500.00
			Surface Course, Type S 9.5 B	2,320	Tons	\$ 54.00	\$ 125,280.00
			Asph.Plant Mix, Pav't Repair	20	Tons	\$ 200.00	\$ 4,000.00
			Masonry Drainage Structures	15	Each	\$ 1,475.00	\$ 22,125.00
			Frame w/Grate and Hood 840.03 Type E	2	Each	\$ 475.00	\$ 950.00
			Frame w/Grate and Hood 840.03 Type F	8	Each	\$ 475.00	\$ 3,800.00
			Frame w/Grate and Hood 840.03 Type G	4	Each	\$ 475.00	\$ 1,900.00
			Frame w / Two Grates, 840.05	3	Each	\$ 450.00	\$ 1,350.00
			Frame w / Two Grates, 840.20	6	Each	\$ 400.00	\$ 2,400.00
			Frame w / Two Grates, 840.22	2	Each	\$ 425.00	\$ 850.00
			Frame w / Two Grates, 840.18 or 840.27B	2	Each	\$ 500.00	\$ 1,000.00
			Frame w / Two Grates, 840.35	10	Each	\$ 900.00	\$ 9,000.00

PAGE 2

TIP No.

B-3680

ROW

County:

Moore

			2'-6" Concrete Curb and Gutter	950	LF	\$ 16.00	\$ 15,200.00
			Shoulder Berm Gutter	921	LF	\$ 16.00	\$ 14,736.00
			5" Mono. Islands (Key In)	170	SY	\$ 54.00	\$ 9,180.00
			Steel Beam Guardrail	1,025.0	LF	\$ 16.00	\$ 16,400.00
			Steel Beam Guardrail (Shop Curved)	250.0	LF	\$ 25.00	\$ 6,250.00
			Additional Guardrail Posts	5	Each	\$ 45.00	\$ 225.00
			GRAU, Type 350	2	Each	\$ 1,675.00	\$ 3,350.00
			Guardrail Anchor, Type CAT-1	2	Each	\$ 510.00	\$ 1,020.00
			Guardrail Anchor, Type B-77	4	Each	\$ 1,200.00	\$ 4,800.00
			Plain Rip Rap, Class B	10	Ton	\$ 100.00	\$ 1,000.00
			Filter Fabric for Drainage	35	SY	\$ 5.00	\$ 175.00
			Erosion Control	11.0	Acres	\$ 25,000.00	\$ 275,000.00
			New Traffic Signals	1	Each	\$ 120,000.00	\$ 120,000.00
			Signing	1	LS	\$ 10,000.00	\$ 10,000.00
			Traffic Control (per WZTC)	1	LS	\$ 151,198.00	\$ 151,198.00
			Thermo and Markers (per WZTC)	1	LS	\$ 19,219.00	\$ 19,219.00
			Structures				
			Proposed Structure 68' wide X 872' long	59,296	SF	\$ 120.00	\$ 7,115,520.00
			Concrete Approach Slabs 2@25' x 71'	3,550	SF	\$ 30.00	\$ 106,500.00
			Removal of Existing Bridge 32.33' x 215.92'	6,981	SF	\$ 18.00	\$ 125,658.00
			Utility Construction				
			Relocate Existing 10" Water Line	3,000	LF	\$ 92.00	\$ 276,000.00
			(Includes 800' Bore & Jack, per Const. Utility)				
			Relocate Existing 6" Water Line	350	LF	\$ 46.00	\$ 16,100.00
			(Includes Bypass Pumping, per Const. Utility)				
			Relocate Existing 48" Sanitary Sewer Line	550	LF	\$ 462.00	\$ 254,100.00
			Misc. & Mob. (10%, Structure & Utilities)	1	LS	\$ 789,388.00	\$ 789,388.00
			Misc. & Mob. (25%, Roadway)	1	LS	\$ 595,196.00	\$ 595,196.00

Lgth 4.47 Mi.

Contract Cost	\$ 11,657,000.00
E. & C. 15%	\$ 1,743,000.00
Construction Cost	\$ 13,400,000.00



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

**Section 404/NEPA Merger Project Team Meeting
Concurrence Meeting
Alternative 1A**

FA Project Number BRSTP-15(11)
State Project Number 8.1569701
WBS Number 33222.1.1
TIP Project Number B-3680

Project Description Replacement of Bridge No. 2 on US 15/501 over CSXT and ACWR tracks in Moore

Alternative 1A (Recommended):

Alternative 1A proposes the replacement of the existing structure with a new bridge to span only the railroad, which would be approximately 230 feet long. Also proposed is a four barrel 12 ft by 10 ft, 175 linear foot Reinforced Concrete Box (RCB) culvert to span Aberdeen Creek, and a two barrel 12 ft by 10 ft, 150 linear foot culvert to be installed below the existing ditch just southeast of the four barrel culvert. A five lane section is proposed to provide required lanes needed to accommodate the high volumes of turning traffic on US 15/501 at the intersections with US 1 and NC 211.

The Project Team has concurred on this date of October 29, 2009 on the new proposed alternative 1A TIP Project No. B-3680.

USACE 

NCDOT 

USEPA 

USFWS 

NCDWQ 

NCWRC 

NCDCCR 

FHWA 

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC



General Project Information

Project No.:	B-3680		Date:	6/8/2011	
City/Town:	Aberdeen		Designer:	Sungate Design Group	
County(ies):	Moore County		Project Manager:	W. Henry Wells, Jr., PE	
River Basin(s):	Lumber		CAMA County?	no	TVA County? no
Primary Receiving Water:	Aberdeen Creek		NCDWQ Stream Index:	14-2-11-(6)	
NCDWQ Surface Water Classification for Primary Receiving Water	Primary:	Class C			
	Supplemental:				
Other Stream Classification:					
303(d) Stream?	no	Type(s) of Impairment:			
State Stormwater Permit Required?	no	If yes, why?			
Could the Project Impact Threatened or Endangered Species?	no				

Description:

Anadromous Fish Present? no

Description:

Buffer Rules in Effect? no

Buffer Rules:

Existing Site

Description of Existing Project Area: Project is located on US 15/501 just east of the intersection with US 1.

Average Daily Traffic (existing): 16200 (2009)

Existing Cross Section: Two lane shoulder section roadway.

Surrounding Land Use: Wetlands, businesses

General Comments:

Project Description

Description of Proposed Project: Replace Bridge #2 over CSX Transportation on US 15/501 and Aberdeen Creek.

Average Daily Traffic (proposed): 22600 (2029)

Proposed Cross-Section: Five lane curb and gutter section roadway.

Interchange Modification: no **Median Type:** paved turn lane

West Terminus: Intersection with US 1

East Terminus: 2360 feet east of intersection with US 1

Project Length (lin. miles/feet): 2360 feet **Added Impervious Area (ac.):** 1.37 acres

General Comments:

Removing existing US 15/501 fill and approximately 1.13 acres of impervious area and grading old road to natural ground.

Environmental Summary

Riparian Buffer and Jurisdictional Stream Impacts and Associated SCMs

[illegible]

General Comments:



Jurisdictional Wetlands

Station	Type of Impact	Minimization of Impact
17+95 -Y2-	Fill in Wetlands	2:1 fill slopes. Riprap dissipator.
10+77 to 18+32 -L-	Fill in Wetlands	2:1 fill slopes.
19+32 to 21+84 -L-	Fill in Wetlands	2:1 fill slopes.
General Comments:		

09/08/99

TIP PROJECT: B-3680

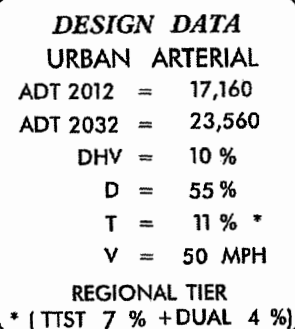
Permit Drawing
Sheet 1 of 2



**TYPE OF WORK: GRADING, PAVING, DRAINAGE,
SIGNAL, STRUCTURE, & CULVERT**



CONTRACT:



Prepared in the Office of:

WILBUR SMITH ASSOCIATES
421 FAYETTEVILLE STREET
RALEIGH, NC 27601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 21, 2007

LETTING DATE:
JUNE 19, 2012

DAVID L. WILVER, PE
PROJECT ENGINEER

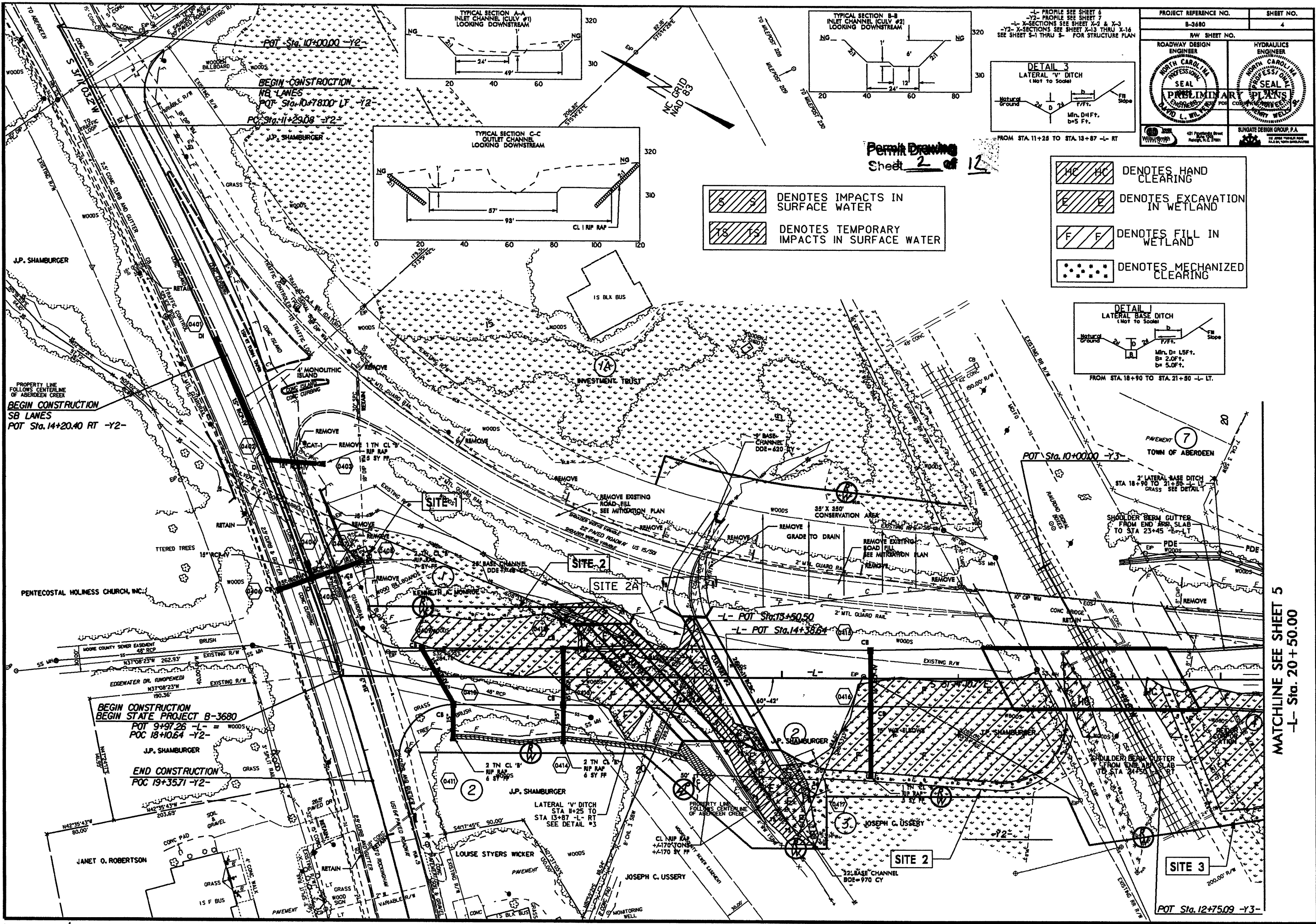
DAVID L. WILVER, PE
PROJECT DESIGN ENGINEER

A circular professional engineer seal for the State of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "ENGINEER" at the bottom. Inside the ring, the word "PROFESSIONAL" is at the top, "SEAL" is in the center, and the number "9334" is below it. The name "HENRY BELLS" is written across the bottom of the seal.

A circular professional engineer seal for David L. Wilver, North Carolina. The seal contains the text: "NORTH CAROLINA", "PROFESSIONAL", "SEAL", "19026", "ENGINEER", and "DAVID L. WILVER".



STATE HIGHWAY DESIGN ENGINEER



PROJECT REFERENCE NO. B-3680		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL	
NORTH CAROLINA PROFESSIONAL SEAL		NORTH CAROLINA PROFESSIONAL SEAL	
P. W. WILKINS		H. W. WILKINS	
431 Peachtree Street, N.E. Atlanta, GA 30308		SUNGATE DESIGN GROUP, P.A.	

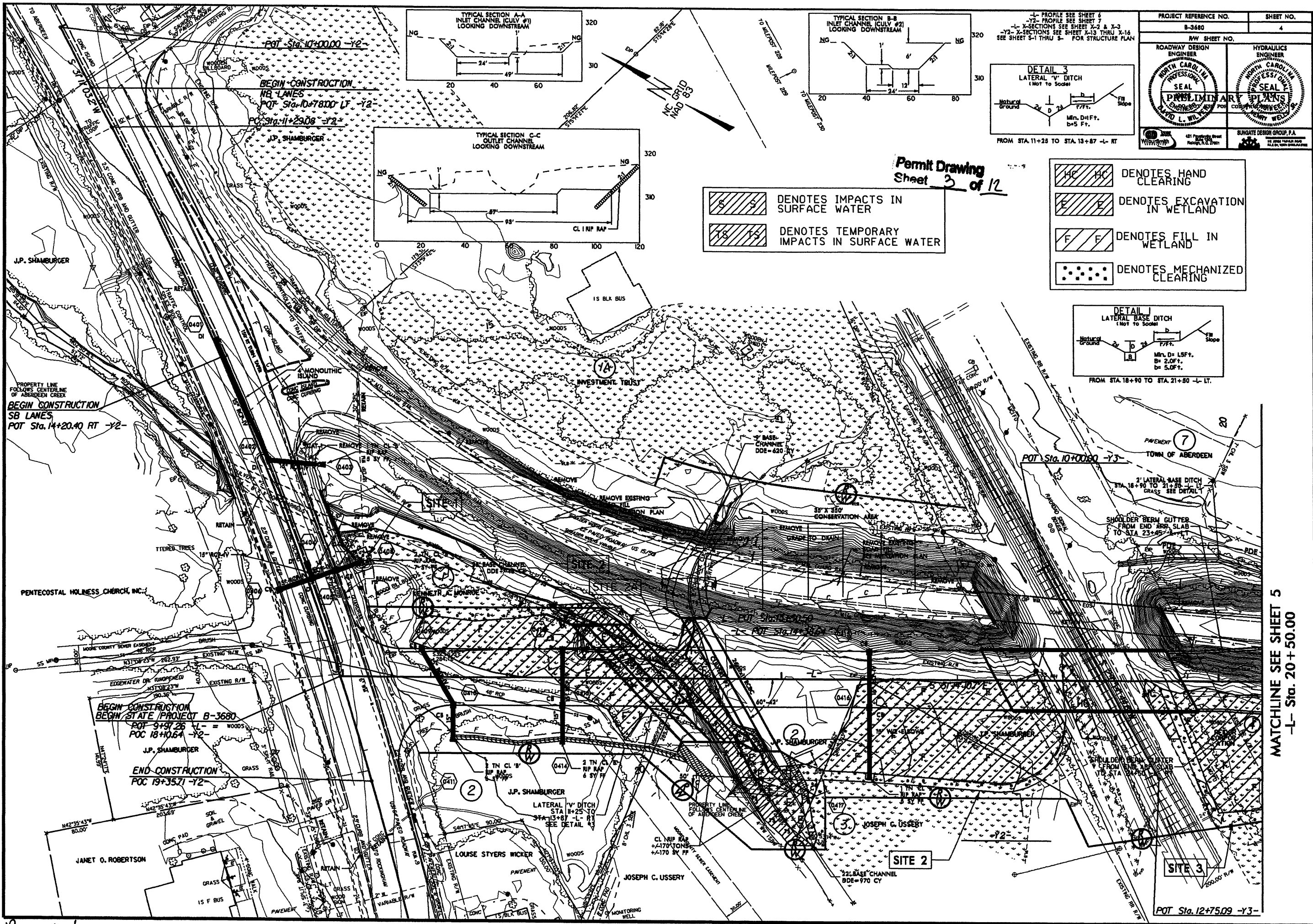
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

	DENOTES HAND CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING

DETAIL 1
LATERAL BASE DITCH
(Not to Scale)

FROM STA. 18+90 TO STA. 21+80 -L- LT.

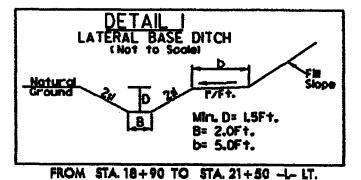
10/17/2011



Permit Drawing
Sheet 3 of 12

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



- DENOTES HAND CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING



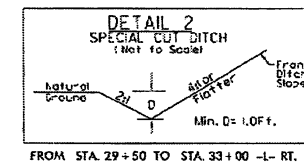
PROJECT REFERENCE NO. B-3680		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL	
NORTH CAROLINA PROFESSIONAL SEAL		NORTH CAROLINA PROFESSIONAL SEAL	
PRELIMINARY PLANS		PRELIMINARY PLANS	
JAYD L. WILSON		JAYD L. WILSON	
SUNGATE DESIGN GROUP, P.A.		SUNGATE DESIGN GROUP, P.A.	



MATCHLINE SEE SHEET 5
-L- Sta. 20+50.00

Revised

PROJECT REFERENCE NO.		SHEET NO.	
B-3680		5	
RWY SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 471 Fitchburg Drive Suite 100 Needham Heights, MA 02461		SUGATE DESIGN GROUP, P.A.  100 South Street Suite 100 Boston, MA 02111	

** NOTE: UNDERGROUND UTILITIES FOR EXTENSION
 WERE PLACED BY MAPPING ONLY **



 DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING

REVISIONS

END CONSTRUCTION
END PROJECT B-3680
-L- POT STA. 33+57.42
TIE TO EXIST

SPECIAL CUT DITCH
STA. 29+50 TO 33+00 -L- RT
SEE DETAIL 2

ST Sta. 29+69.49


CS Sta. 28+79.49

SC Sta. 26.1114

SITE 3

REIDOR CORPORATION

TS 307 PF+PIK



15

7 JSA TEXTILES, INC.

1

ST

23-6849

DETAIL 2

—

1. *Abstract*

2

1

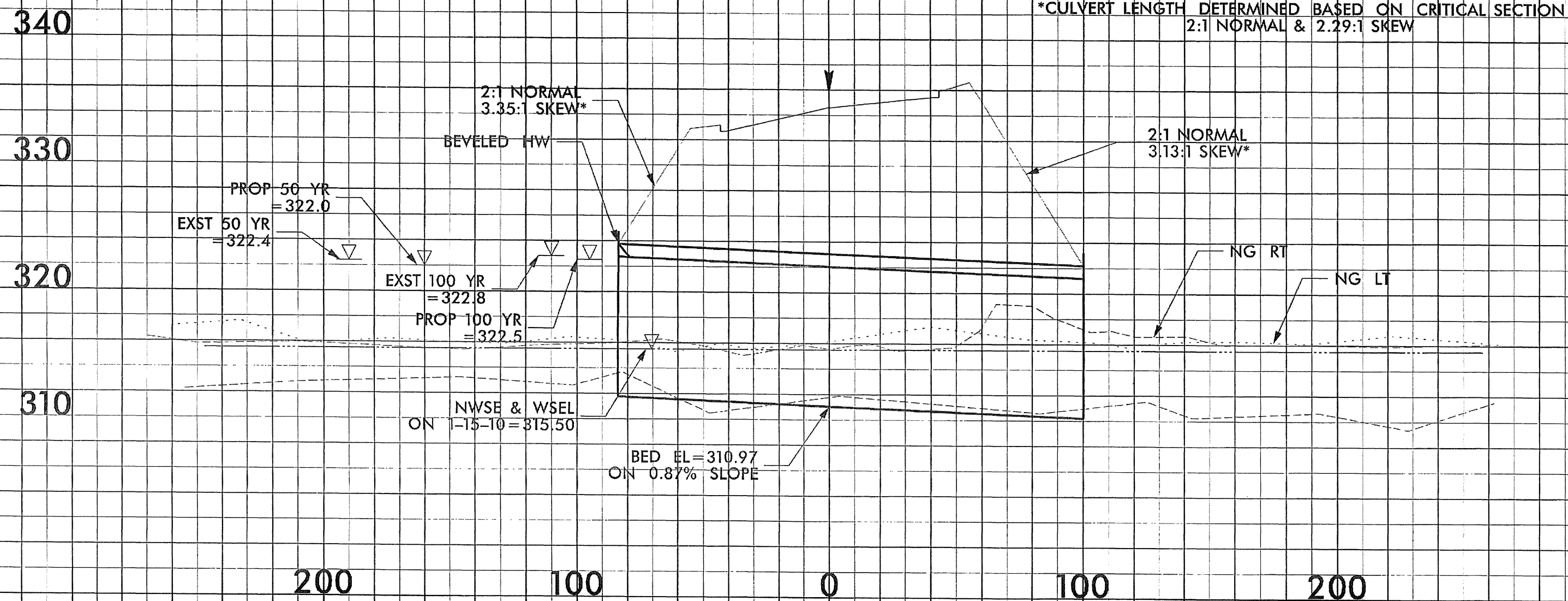
FILE:	SPILES	STIMES
DATE:	SDATES	

A ruler with a scale from 0 to 1 cm. The 0.5 cm mark is clearly indicated by a vertical line and a horizontal tick mark.

SHEET NO.

Permit Drawing
Sheet 7 of 12

*CULVERT LENGTH	DETERMINED	BASED ON CRITICAL SECTION
	2:1 NORMAL &	2.29:1 SKEW

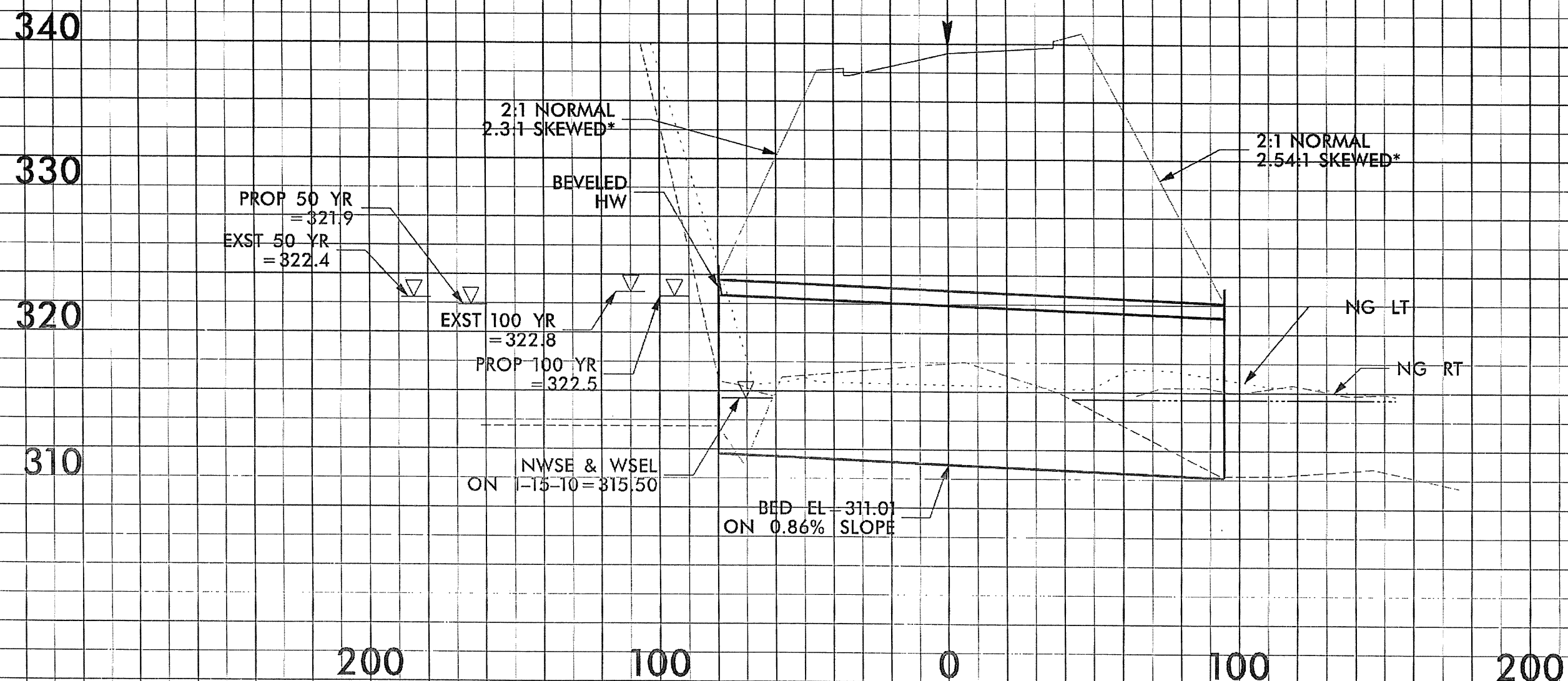


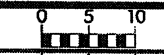
PROJ. REFERENCE NO.

SHEET NO.

Permit Drawing
Sheet 8 of 12

*CULVERT LENGTH DETERMINED BASED ON CRITICAL SECTION									
2:1 NORMAL & 2.29:1 SKEW									

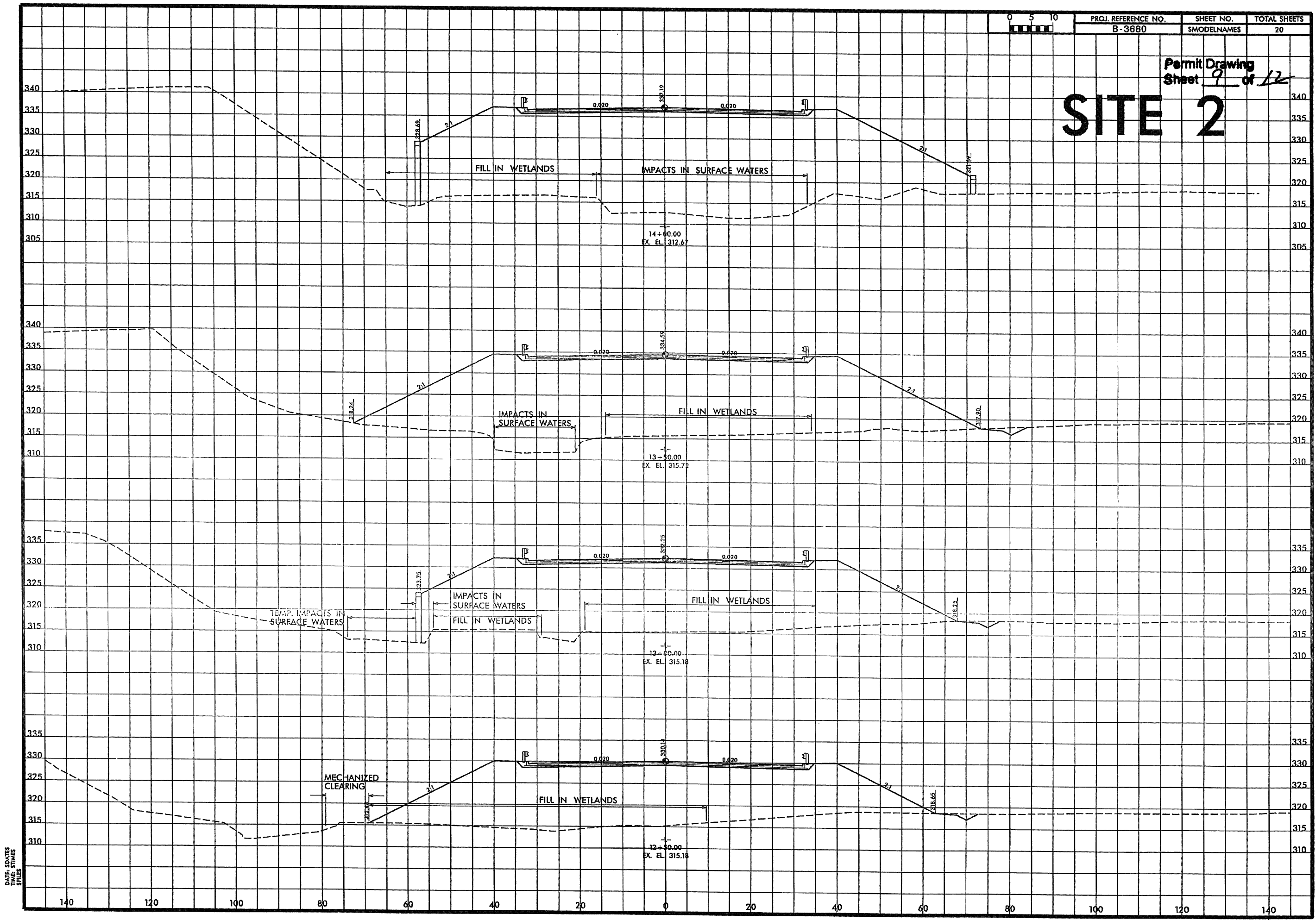




PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-3680	MODEL NAMES	20

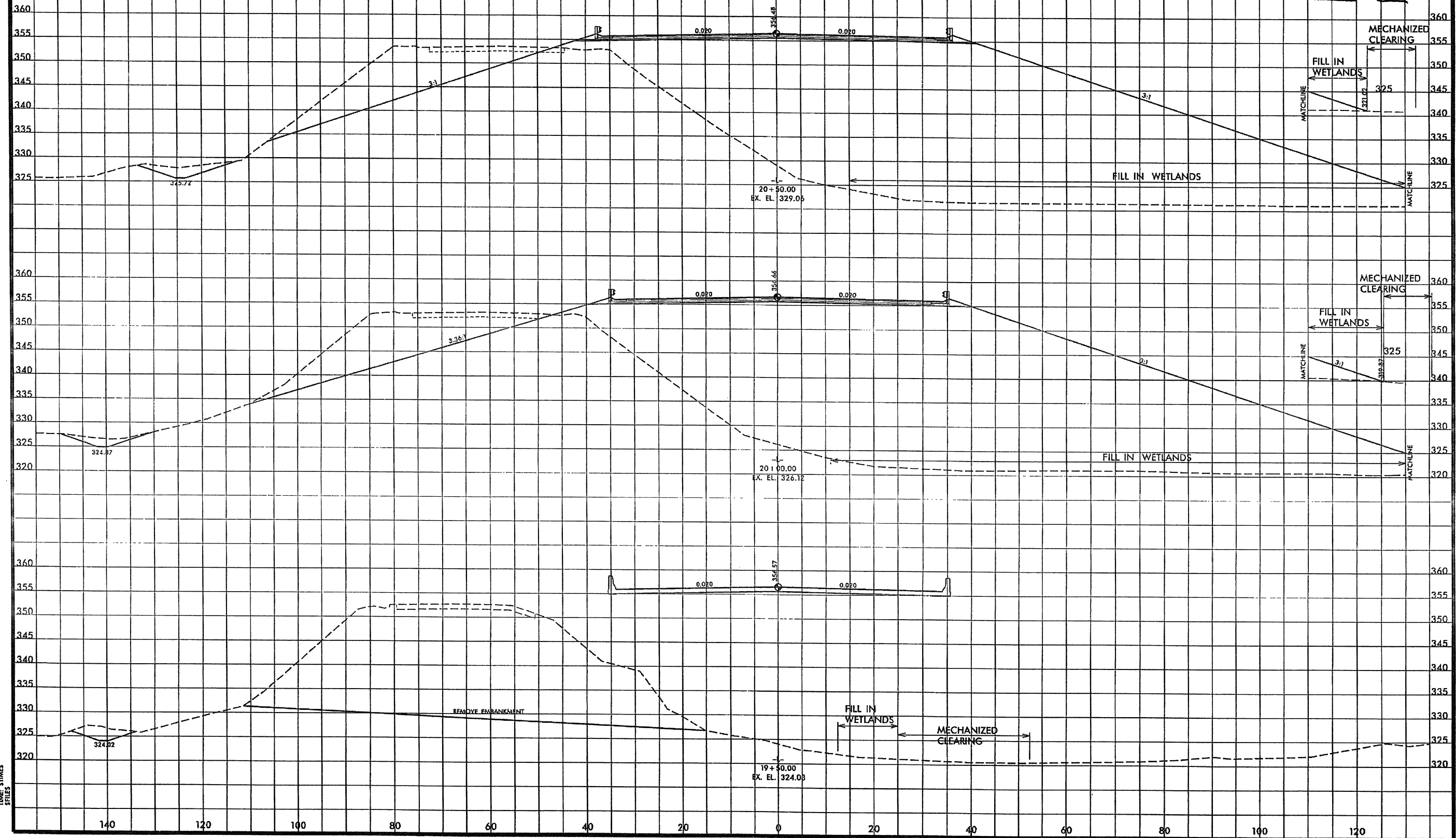
Permit Drawing
Sheet 9 of 12

SITE 2



SITE 3

Permit Drawing
Sheet 10 of 12



DATE: 04/25/2011
TIME: 10:00 AM
FILES: 10-0000

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	KENNETH A. MONROE	309 BERTIE ROAD WEST END, NC 27376
2	J.P. SHAMBURGER	520 FAIRWAY DRIVE SOUTHERN PINES, NC 28387
3	JOSEPH C. USSERY	P.O. BOX 1983 PINEHURST, NC 28374
4	REIDOR CORPORATION	P.O. BOX 443 COATESVILLE, PA 19320

NCDOT

DIVISION OF HIGHWAYS

MOORE COUNTY

PROJECT: 33222.1.1 (B-3680)

**BRIDGE NO. 2 ON US 15/501
OVER CSX TRANSPORTATION**

TIP PROJECT: B-3680

CONTRACT:



DESIGN DATA

URBAN	ARTERIAL
ADT 2012 =	17,160
ADT 2032 =	23,560
DHV =	10 %
D =	55 %
T =	11 % *
V =	50 MPH

REGIONAL TIER

TEST 7 % + DUAL 4

MOORE COUNTY

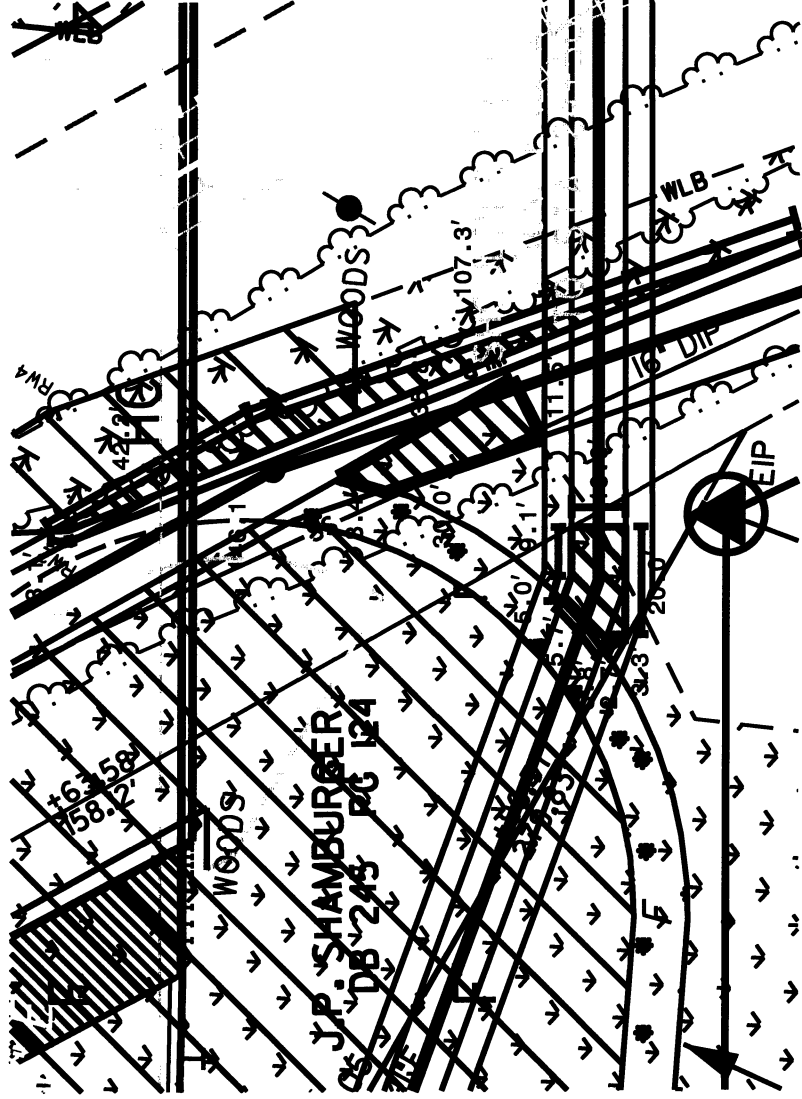
TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNAL STRUCTURE & CULVERT

LC

UTILITY WETLAND AND STREAM IMPACTS

TIP: B-3680
COUNTY: MOORE

SITE 2



TEMPORARY FILL
IN WETLANDS FOR
10" WATER LINE
0.005 AC

TEMPORARY FILL
IN WETLANDS FOR
16" GRAVITY SEWER
0.018 AC

TOTAL TEMPORARY
FILL IN WETLANDS
0.023 AC

NOTE: 0.0057 AC OF TEMPORARY FILL
FOR 16" GRAVITY SEWER
OVERLAP WITH HAND CLEARING

SURFACE WATER IMPACTS

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			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)
2	18+02 to 18+22	10" WATER LINE		0.005								
2	18+23 to 18+76	16" GRAVITY SEWER		0.018								
TOTALS:				0.023								

NOTE: 0.0057 AC OF TEMPORARY FILL FOR 16" GRAVITY SEWER OVERLAP WITH HAND CLEARING AT SITE 2.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY

WBS - 33222.1.1 (B-3680)

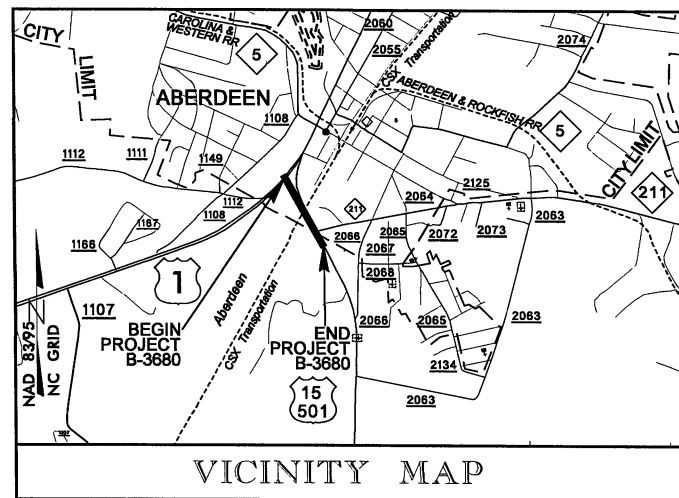
ATN Revised 3/31/05

SHEET

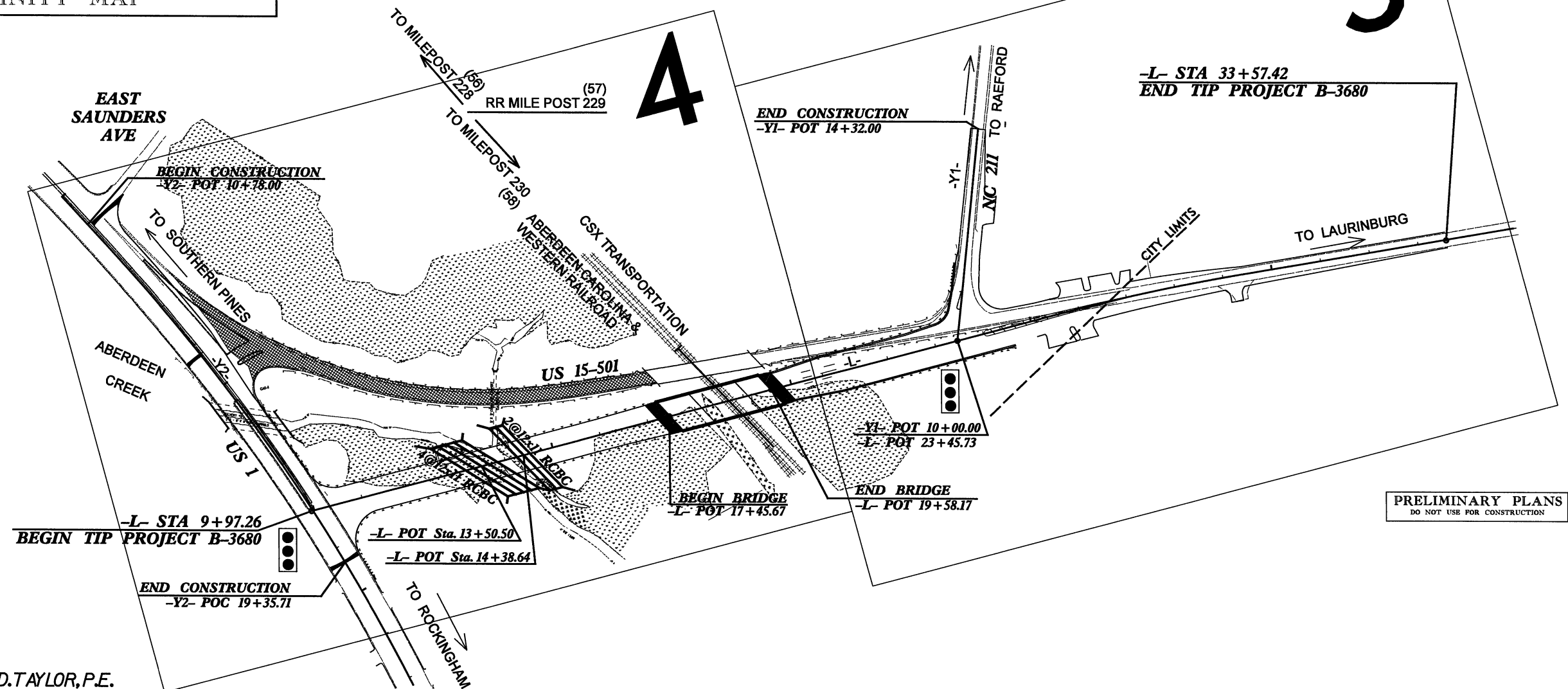
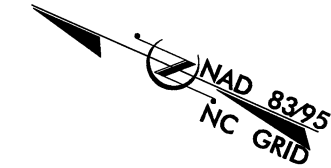
11/28/2011

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS**MOORE COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3680	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33222.1.1	BRSTP-15(11)	P.E.	
33222.2.1	BRSTP-15(11)	ROW & UTIL.	
33222.3.1	BRSTP-15(25)	CONSTRUCTION	

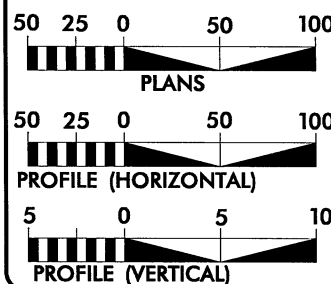


LOCATION: BRIDGE NO.2 OVER CSX TRANSPORTATION ON US 15/501

TYPE OF WORK: GRADING, PAVING, DRAINAGE,
SIGNAL, STRUCTURE, & CULVERTPRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NCDOT CONTACT: B.D.TAYLOR, P.E.

GRAPHIC SCALES



DESIGN DATA

URBAN ARTERIAL

ADT 2012 = 17,160

ADT 2032 = 23,560

DHV = 10 %

D = 55 %

T = 11 % *

V = 50 MPH

REGIONAL TIER

* (TTST 7 % + DUAL 4 %)

PROJECT LENGTH

LENGTH OF ROADWAY = 0.403 MILES

LENGTH OF STRUCTURE = 0.044 MILES

TOTAL LENGTH OF PROJECT = 0.447 MILES

Prepared In the Office of:

WILBUR SMITH ASSOCIATES

421 FAYETTEVILLE STREET
RALEIGH, NC 27601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

NOVEMBER 21, 2007

LETTING DATE:

JUNE 19, 2012

DAVID L. WILVER, PE

PROJECT ENGINEER

DAVID L. WILVER, PE

PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER



SIGNATURE:

ROADWAY DESIGN ENGINEER



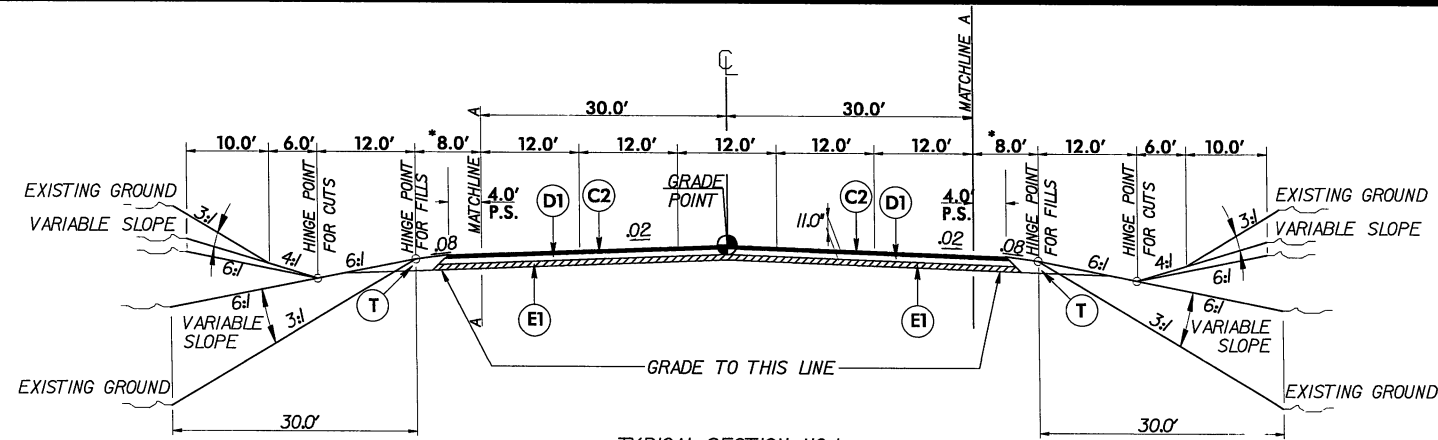
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

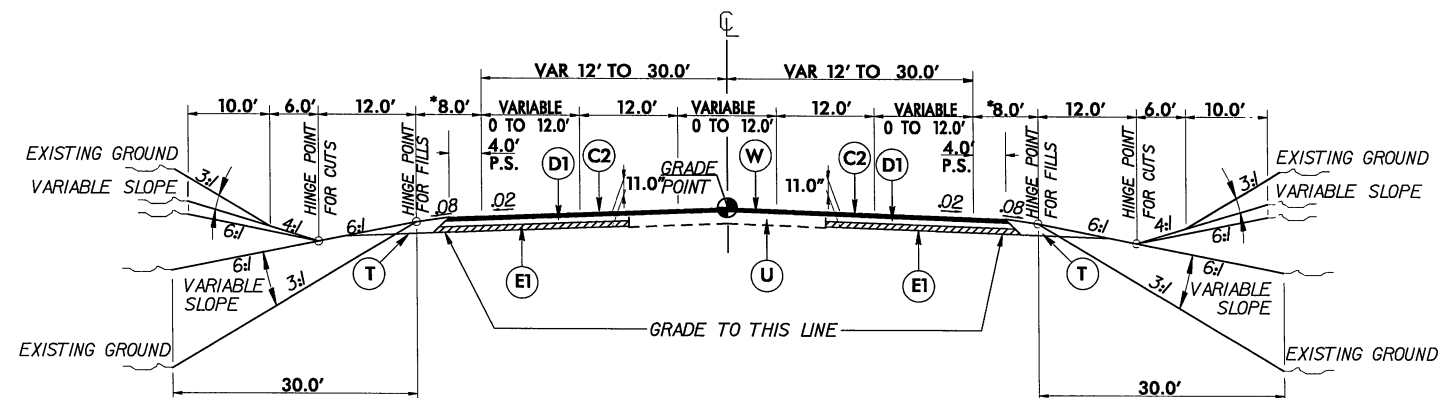
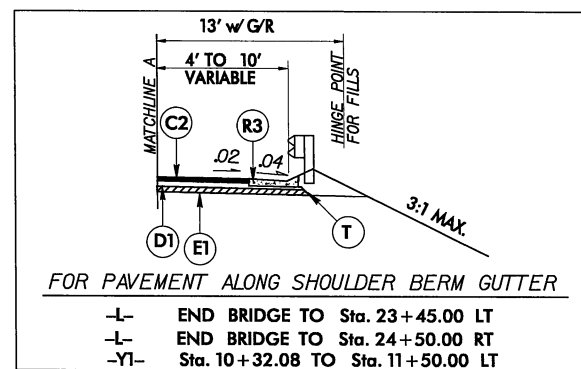
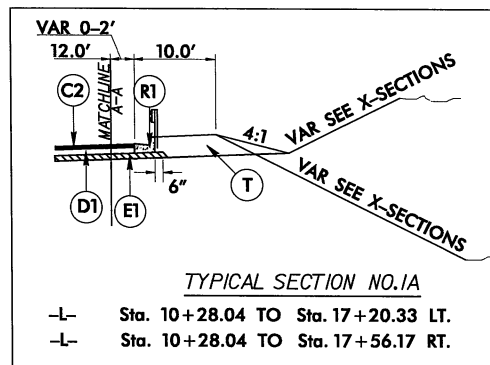
TIP PROJECT: B-3680

CONTRACT:



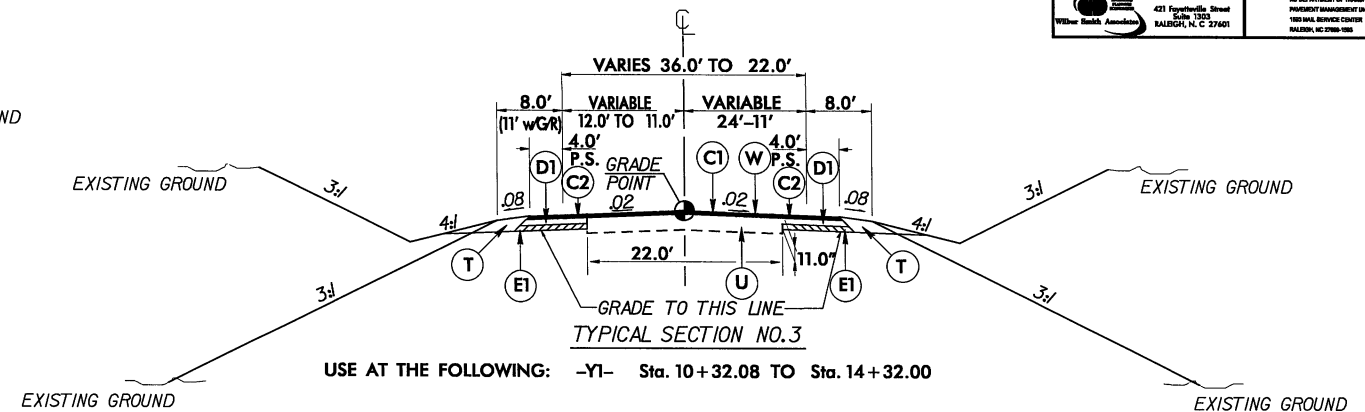
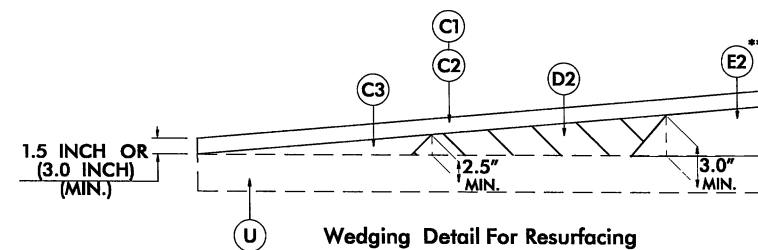
USE AT THE FOLLOWING:

- L- Sta. 10+28.04 TO 17+62.25 (BEGIN BRIDGE)
- L- Sta. 19+92.25 (END BRIDGE) TO Sta. 23+32.88



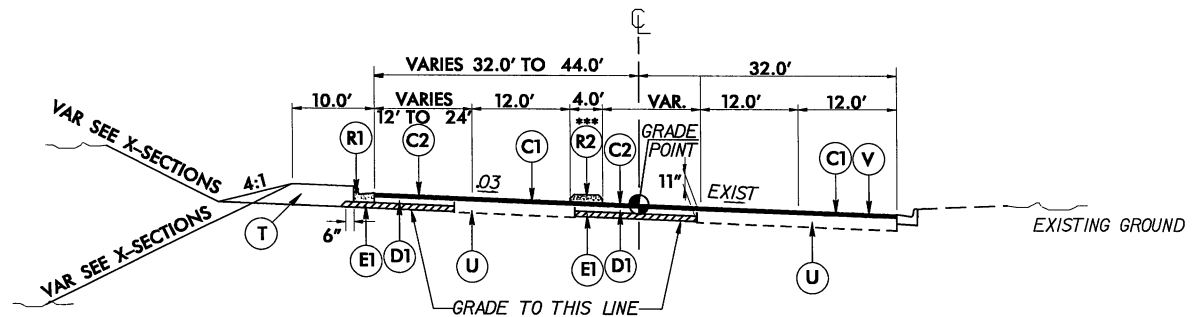
USE AT THE FOLLOWING:

- L- Sta. 23+32.88 TO Sta. 33+57.42



USE AT THE FOLLOWING:

- Y1- Sta. 10+32.08 TO Sta. 14+32.00



USE AT THE FOLLOWING:

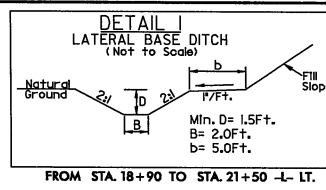
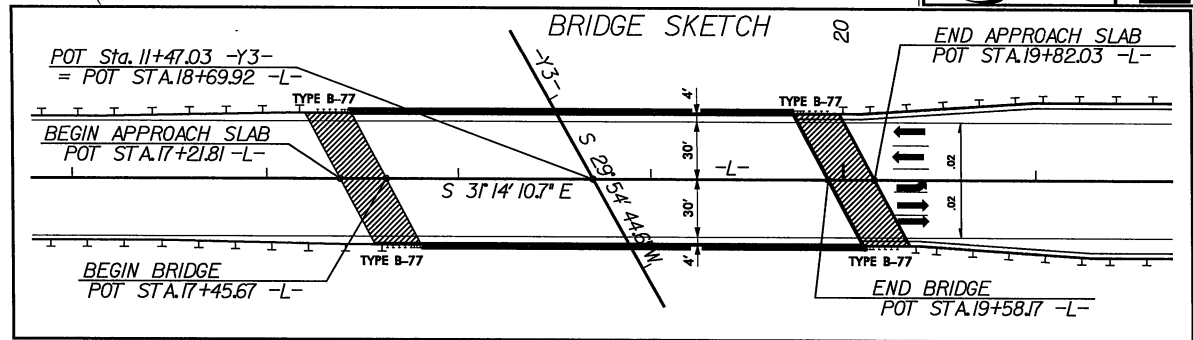
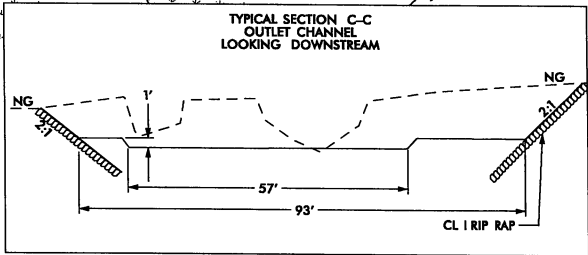
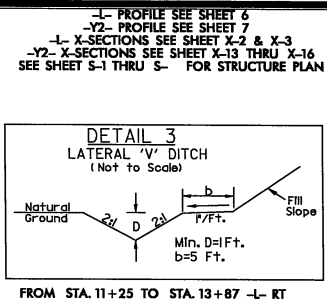
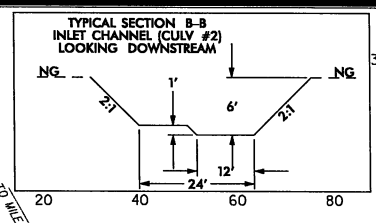
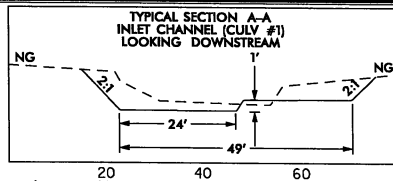
- Y2- Sta. 10+78.00 TO Sta. 19+35.71

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	PROPOSED APPROXIMATE 1.5 IN. ASPHALT SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS/SY.	E1	PROP. APPROX. 4.0 IN. ASPHALT BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS/SY.	T	EARTH MATERIAL
C2	PROPOSED APPROXIMATE 3.0 IN. ASPHALT SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LIFTS.	E2	PROP. VAR. DEPTH ASPHALT BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS/SY IN LIFTS NOT LESS THAN 3 IN. NOR GREATER THAN 5.5 IN.	U	EXISTING PAVEMENT
C3	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS/SY IN LIFTS NOT LESS THAN 1.5 IN. NOR GREATER THAN 2.0 IN.	R1	2'-6" CURB & GUTTER	V	MILL OUT & REPLACE EXISTING PAVEMENT AS NOTED TO A DEPTH OF 3.0"
D1	PROP. APPROX. 4.0 IN. ASPHALT INT. COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS/SY	R2	5" MONOLITHIC CONCRETE ISLAND (KEYED IN) ***	W	WEDGING (SEE WEDGE DETAIL ABOVE)
D2	PROP. VAR. DEPTH ASPHALT INT. COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS/SY IN LIFTS NOT LESS THAN 2.5 IN. NOR GREATER THAN 4.0 IN. (MAX TOTAL LAYER=4.0 IN.)	R3	SHOULDER BERM GUTTER		

NOTES :

- * INCREASE SHLD. TO 13' WHEN GUARDRAIL IS USED (EXCEPT WHEN PLACED AT FACE OF CURB)
- ** FOR B25.0C PLACED ON UNSTABILIZED SUBGRADE, MINIMUM LIFT THICKNESS IS 4.0 IN.
- *** PROPOSED ISLAND: -Y2- STA. 14+20.40 TO 17+96.21 TIE TO EXIST. ISLAND: -Y2- STA. 10+78.00 TO 14+20.40 REMOVE EXIST. MEDIAN ISLAND: -Y2- STA. 15+38.91 TO -L- STA. 18+07.63
- MILLING ALONG -Y2- REQUIRED TO MEET MINIMUM RESURFACING DEPTH OF 1.5"
- PAVEMENT EDGES ARE 1:1 UNLESS OTHERWISE NOTED.

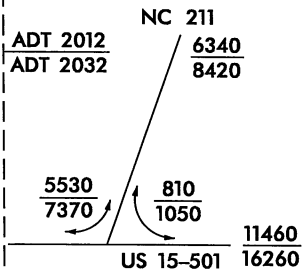


TRAFFIC DIAGRAM

30358	14920	17160
40278	20120	23560
US		
2220	15-501	
3420		
ADT 2012		
17658	23578	ADT 2032
US 1		

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MATCHLINE SEE SHEET 5
-L- Sta. 20+50.00



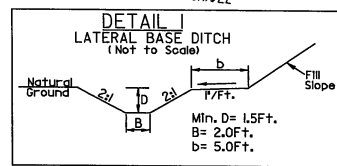
-L-

Pls Sta 29+09.49
θs = 0° 38' 40.5"
Ls = 90.00'
LT = 60.00'
ST = 30.00'

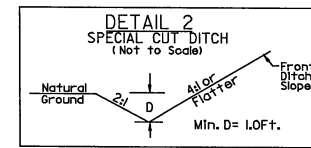
NC GRID
NAD 83

PROJECT REFERENCE NO.		SHEET NO.			
B-3680		5			
RW SHEET NO.					
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER			
					
 421 Fayetteville Street Raleigh, N.C. 27601				 SUNGATE DESIGN GROUP, P.A. 30 JONES FARM ROAD RALEIGH, NORTH CAROLINA 27601	

MATCHLINE SEE SHEET 4
-L- Sta. 20+50.00



FROM STA. 18+90 TO STA. 21+50 -L- LT.

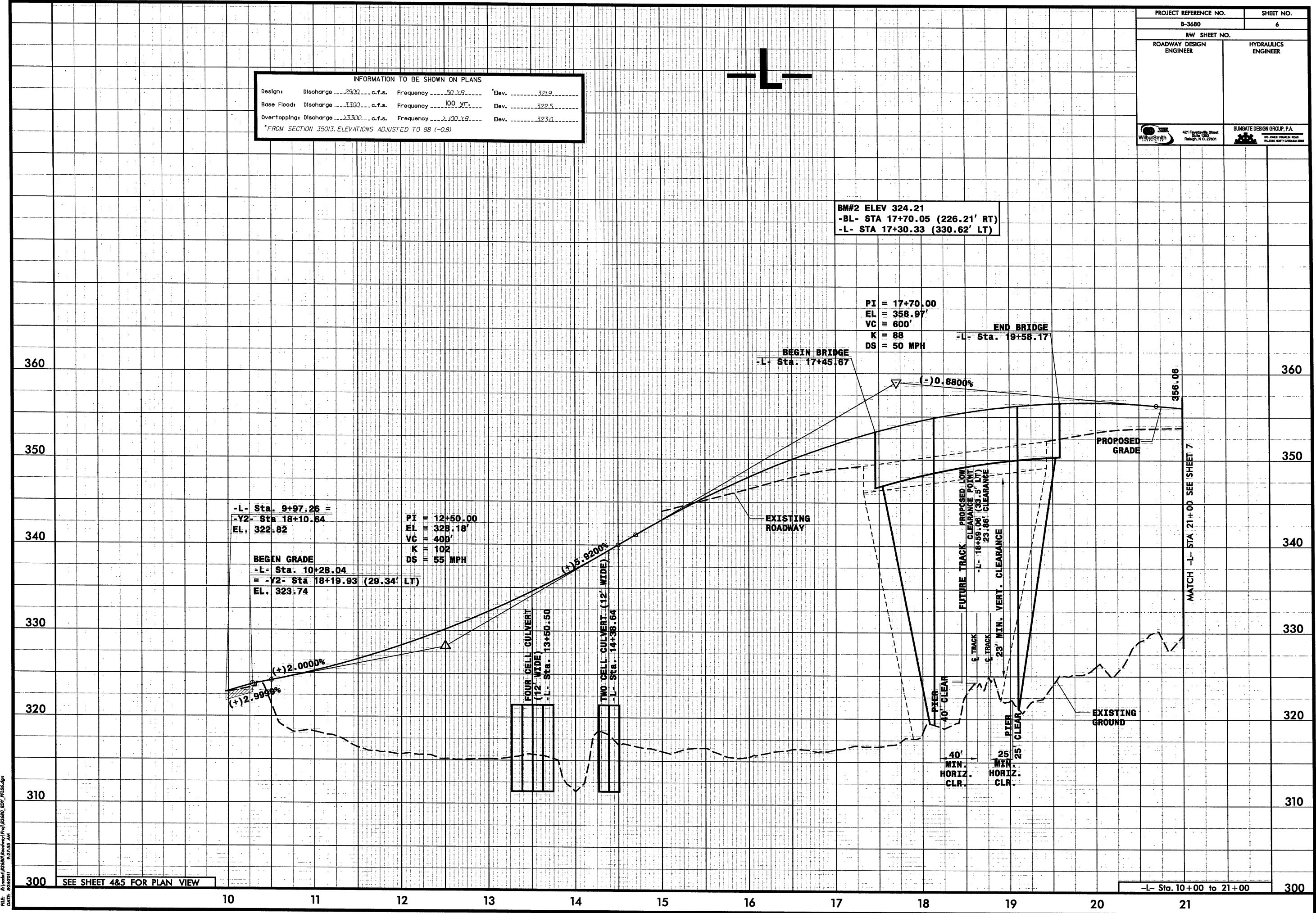


FROM STA. 29+50 TO STA. 33+00 -L- RT.

INFORMATION TO BE SHOWN ON PLANS

Design:	Discharge	2900 c.f.s.	Frequency	50 yr	Elev.	321.9
Base Flood:	Discharge	3300 c.f.s.	Frequency	100 yr	Elev.	322.5
Overtopping:	Discharge	33300 c.f.s.	Frequency	100 yr	Elev.	323.0

*FROM SECTION 35013. ELEVATIONS ADJUSTED TO 88 (-0.8)



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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

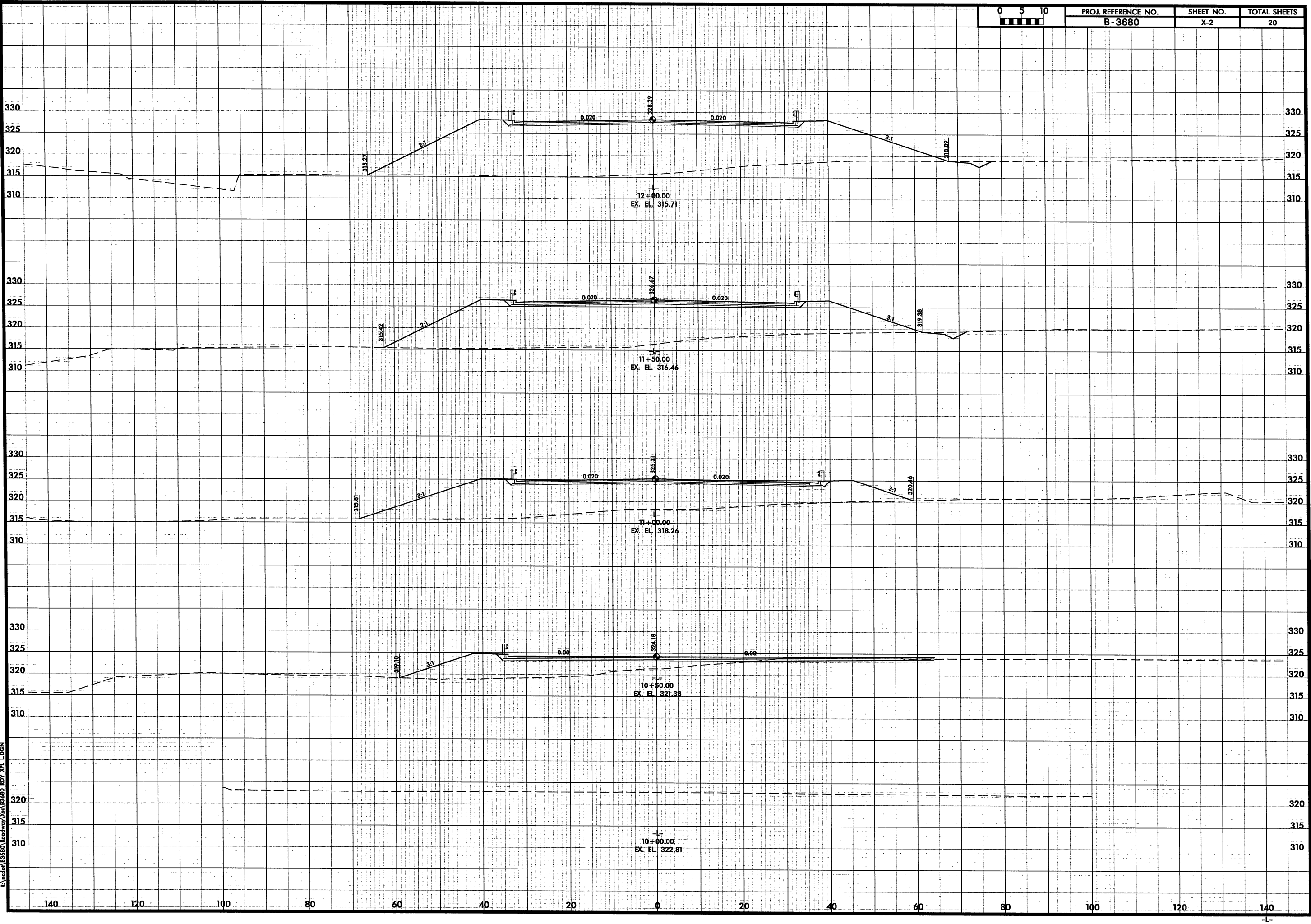
CROSS-SECTION SUMMARY

IN CUBIC YARDS

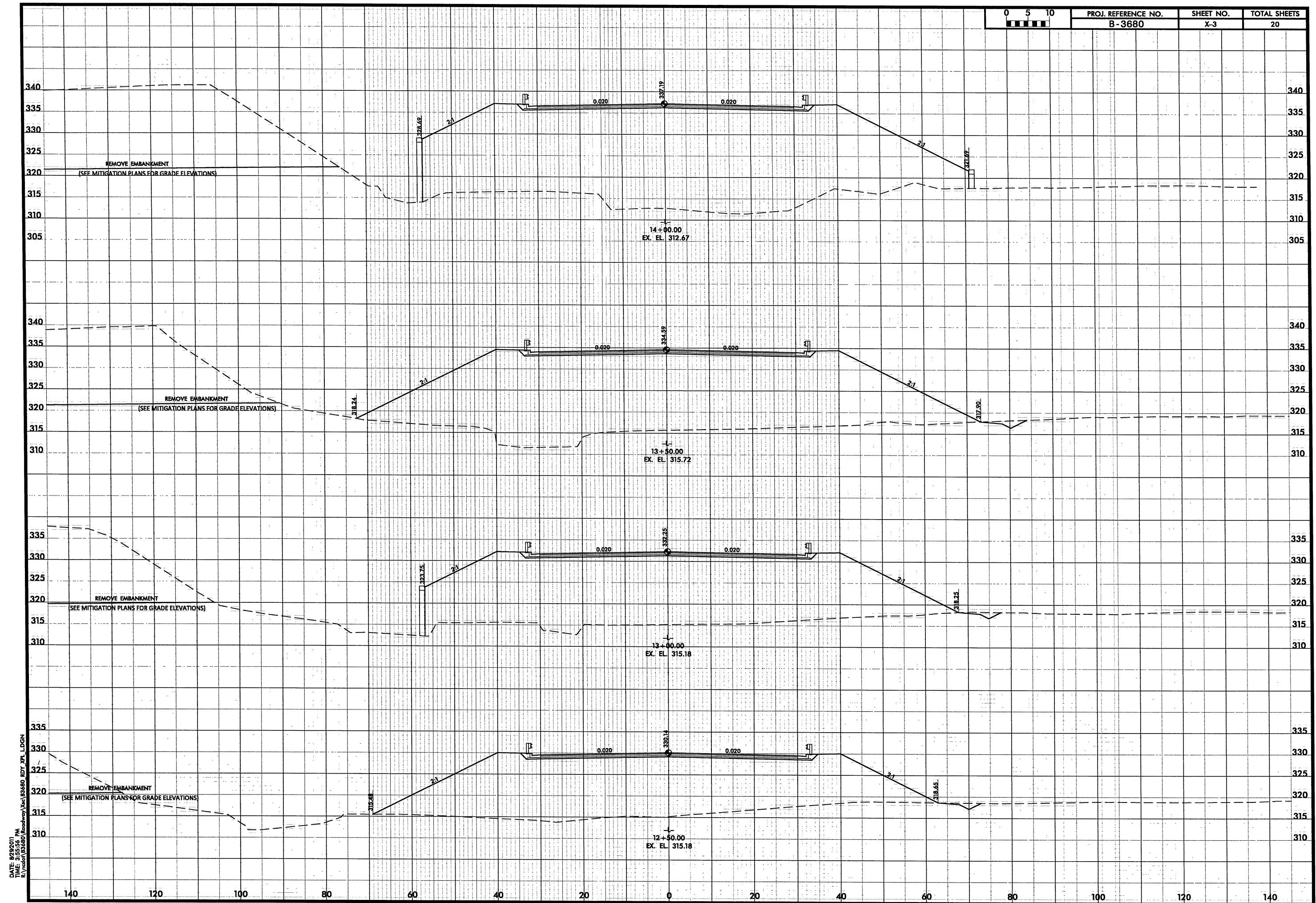
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

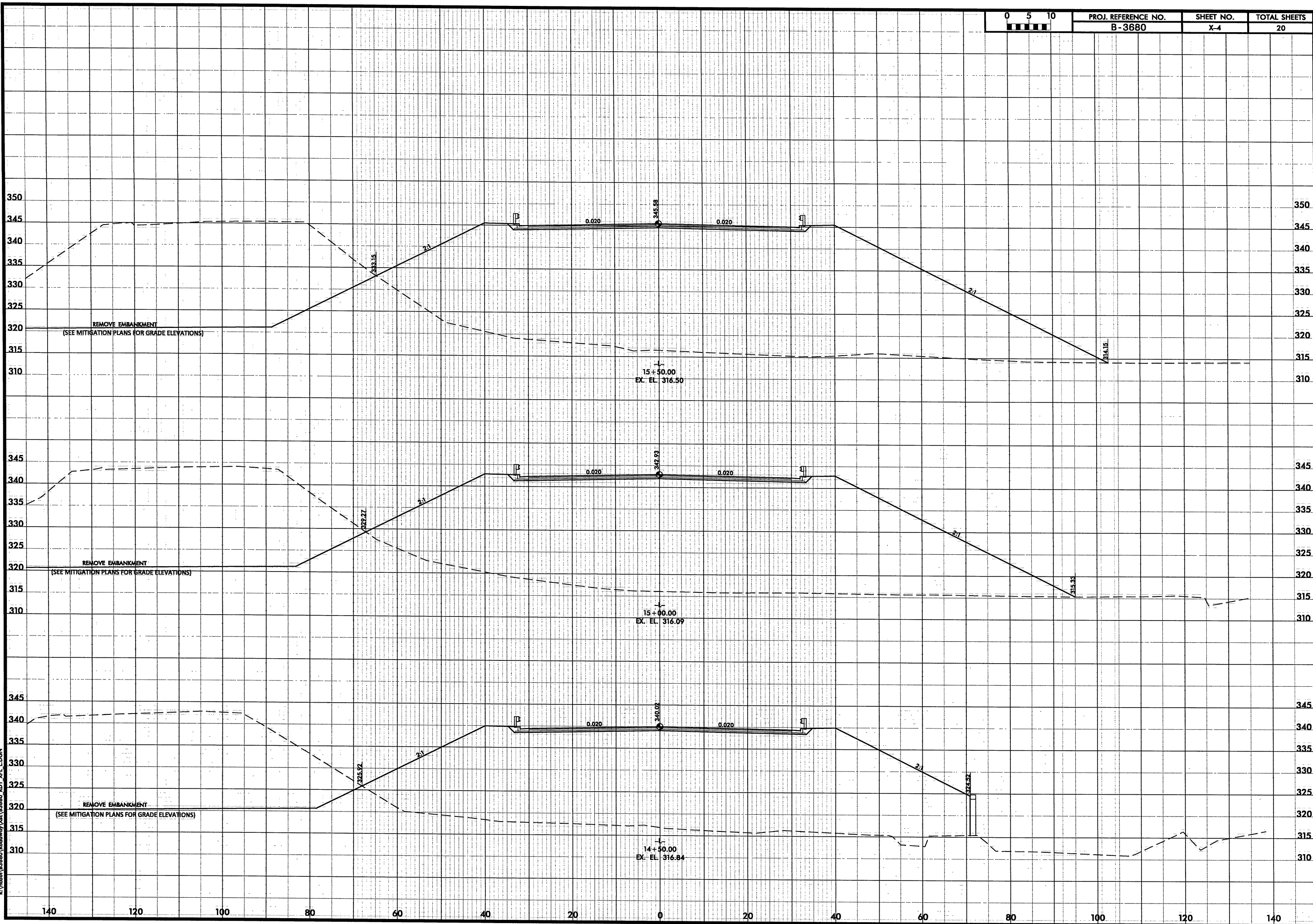
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L	(cu. yd.)	(cu. yd.)	(cu. yd.)	Y1	(cu. yd.)	(cu. yd.)	(cu. yd.)	Ex-L-	(cu. yd.)	(cu. yd.)	(cu. yd.)						
10+33.1854	0	0	0	10+36.3526	0	0	0	31+50.0000	3006	0	0						
10+50.0000	10	71	0	10+50.0000	0	0	0	32+00.0000	2610	0	0						
11+00.0000	29	842	0	11+00.0000	82	0	0	32+50.0000	2411	0	0						
11+50.0000	0	1467	5	11+50.0000	89	2	0	33+00.0000	2107	0	0						
12+00.0000	0	1920	9	12+00.0000	81	2	0	33+50.0000	1865	0	0						
12+50.0000	0	2394	9	12+50.0000	91	0	0	34+00.0000	1604	0	0						
13+00.0000	0	2887	9	13+00.0000	100	0	0	34+50.0000	1511	0	0						
13+50.0000	0	3511	11	13+50.0000	78	1	0	35+00.0000	1333	0	0						
14+00.0000	0	4182	7	14+00.0000	57	1	0										
14+50.0000	0	4698	0	14+32.0000	18	0	0										
15+00.0000	0	5307	0														
15+50.0000	0	6076	0	Station	Uncl. Exc.	Embt	DDE										
16+00.0000	0	6628	0														
16+50.0000	0	7132	0	Y2	(cu. yd.)	(cu. yd.)	(cu. yd.)										
17+00.0000	0	7635	0	10+78.0000	0	0	0										
17+50.0000	0	7936	0	11+00.0000	0	0	0										
17+62.2500	0	1972	0	11+50.0000	1	37	0										
18+08.40	TOE OF EMB.	3714	0	12+00.0000	0	47	0										
19+40.40	TOE OF EMB.	3642	0	12+50.0000	5	48	0										
19+50.0000	0	0	28	13+00.0000	13	38	0										
19+92.2500	0	0	31	13+50.0000	15	19	0										
20+00.0000	0	1137	6	14+00.0000	13	8	0										
20+50.0000	0	7039	40	14+50.0000	9	3	0										
21+00.0000	0	6475	50	15+00.0000	6	6	0										
21+50.0000	0	5676	41	15+50.0000	24	10	0										
22+00.0000	0	4670	15	16+00.0000	46	12	0										
22+50.0000	0	3819	0	16+50.0000	48	9	0										
23+00.0000	0	3187	0	17+00.0000	47	23	0										
23+50.0000	0	2498	0	17+50.0000	44	43	0										
24+00.0000	3	1644	0	18+00.0000	38	21	0										
24+50.0000	40	991	0	18+50.0000	16	0	0										
25+00.0000	73	377	0	19+00.0000	2	8	0										
25+50.0000	58	0	0	19+35.7100	2	6	0										
26+00.0000	40	8	0														
26+50.0000	68	17	0	Station	Uncl. Exc.	Embt	DDE										
27+00.0000	99	17	0														
27+50.0000	100	24	0	Ex-L-	(cu. yd.)	(cu. yd.)	(cu. yd.)										
28+00.0000	118	33	0	22+00.0000	138	0	0										
28+50.0000	128	37	0	22+50.0000	271	0	0										
29+00.0000	118	32	0	23+00.0000	291	0	0										
29+50.0000	99	29	0	23+50.0000	364	0	0										
30+00.0000	90	35	0	24+00.0000	413	0	0										
30+50.0000	91	42	0	24+50.0000	515	0	0										
31+00.0000	82	49	0	25+00.0000	633	0	0										
31+50.0000	75	53	0	25+50.0000	267	0	0										
32+00.0000	105	55	0	26+00.0000	342	0	0										
32+50.0000	115	55	0	28+00.0000	1394	0	0										
33+00.0000	77	28	0	28+50.0000	2911	0	0										
33+50.0000	43	2	0	29+00.0000	3106	0	0										
33+57.4200	2	0	0	29+50.0000	3178	0	0										
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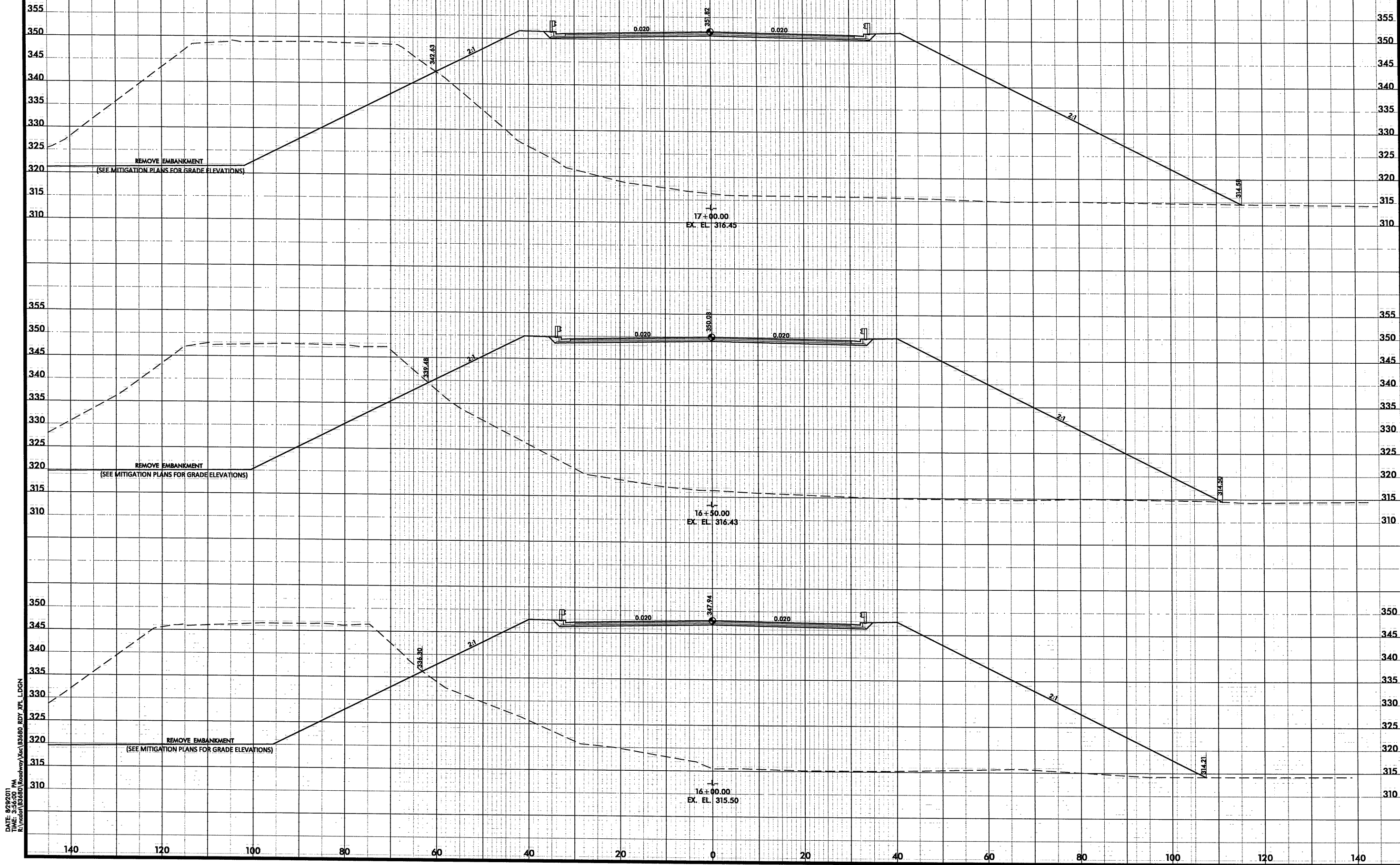


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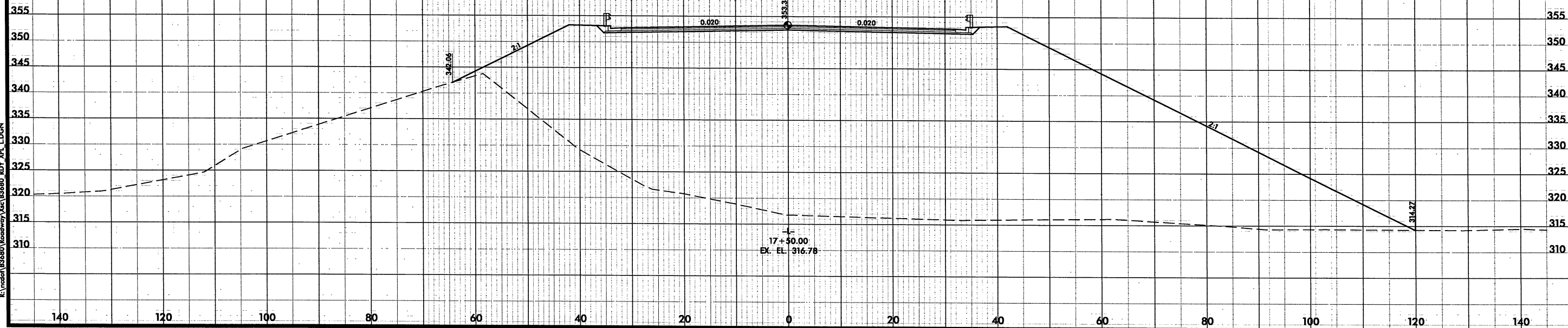


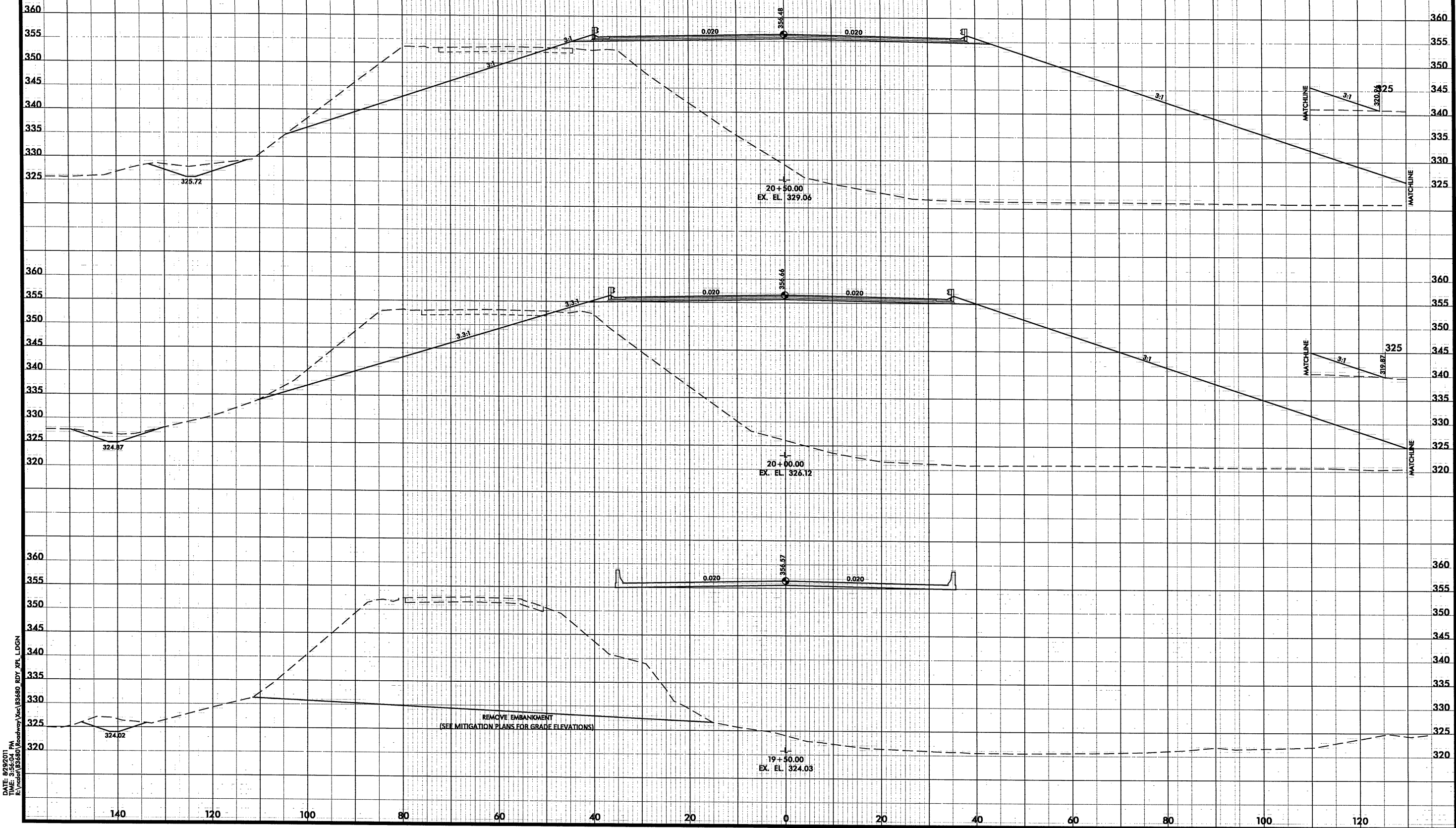
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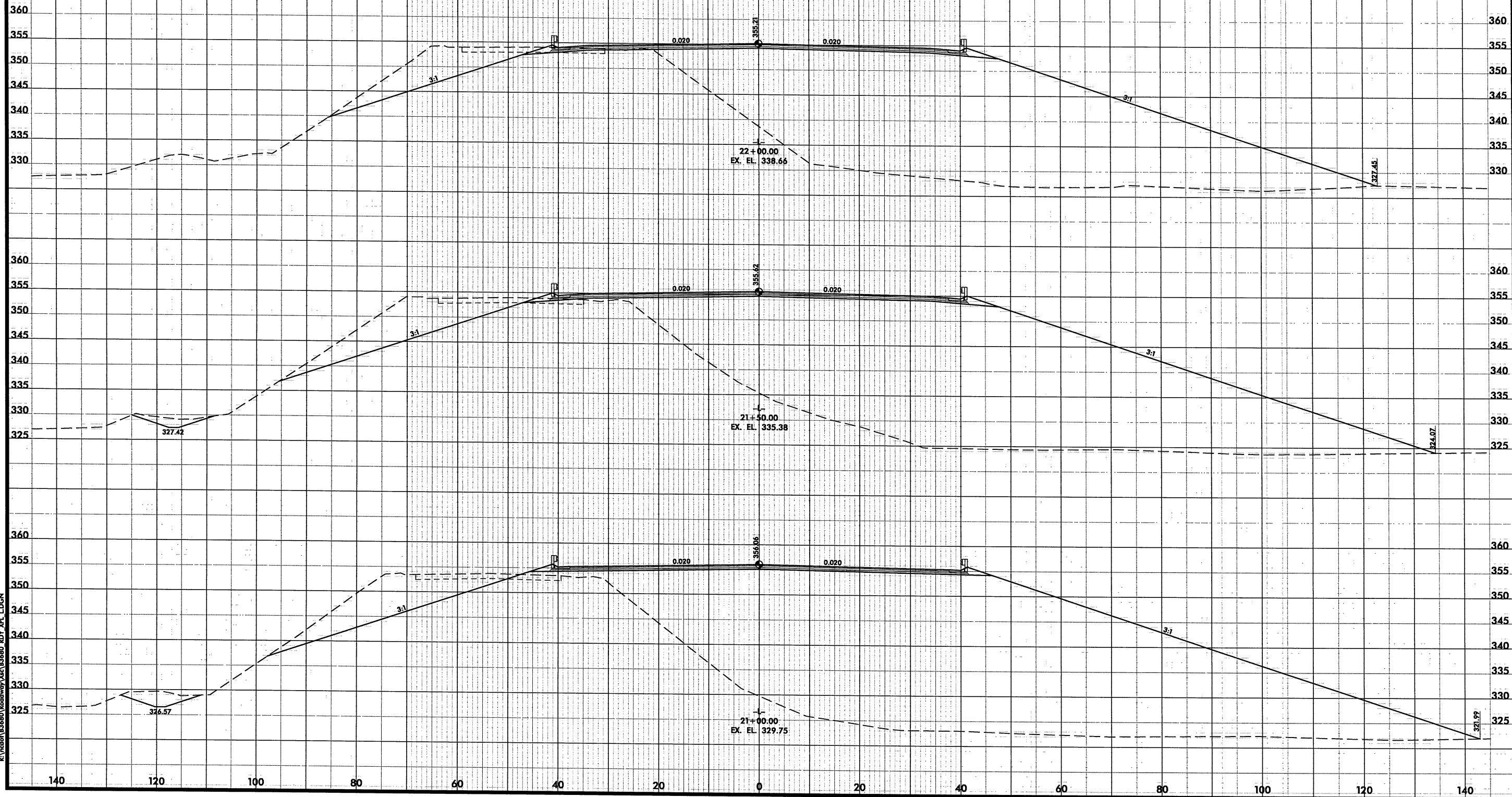


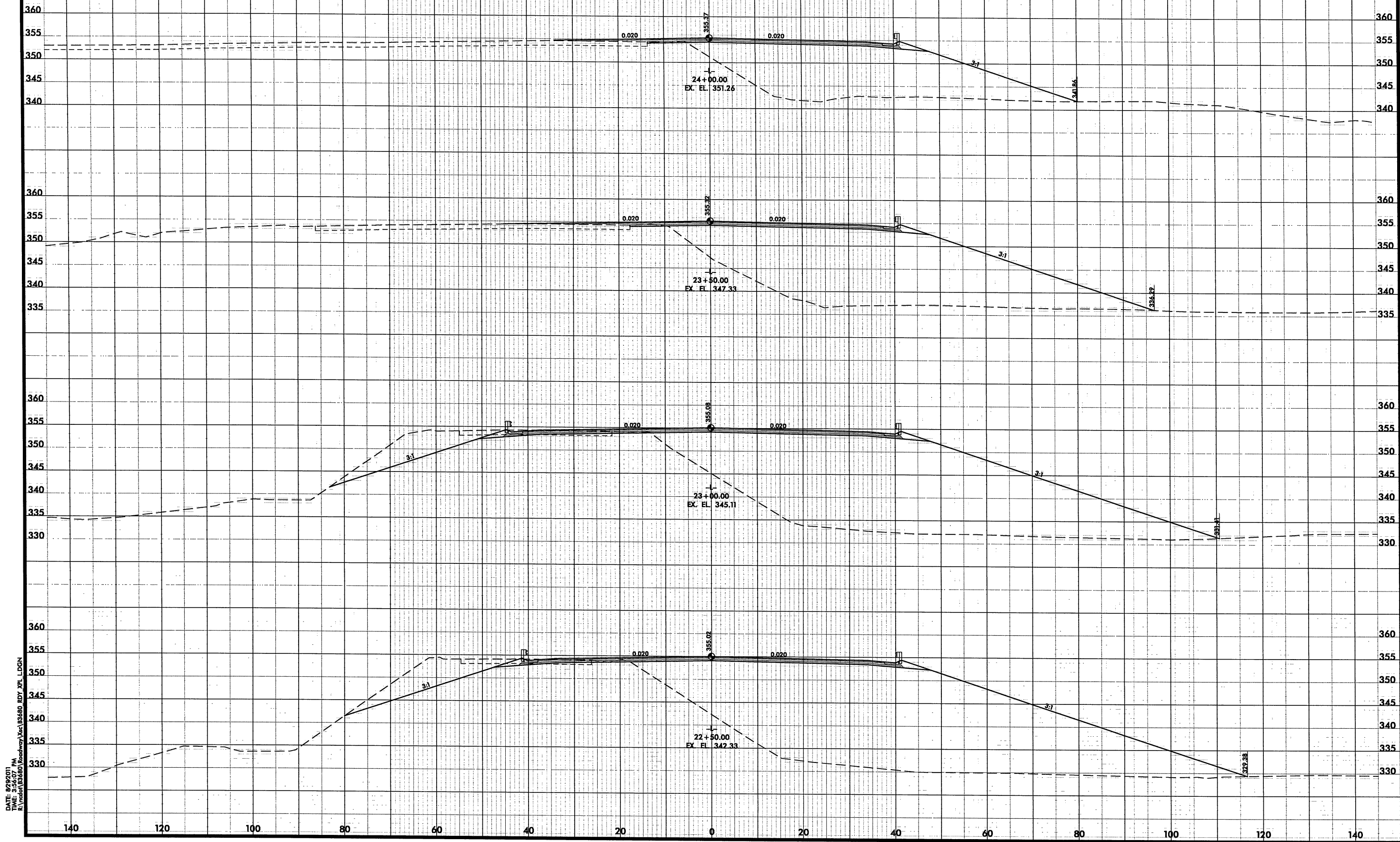
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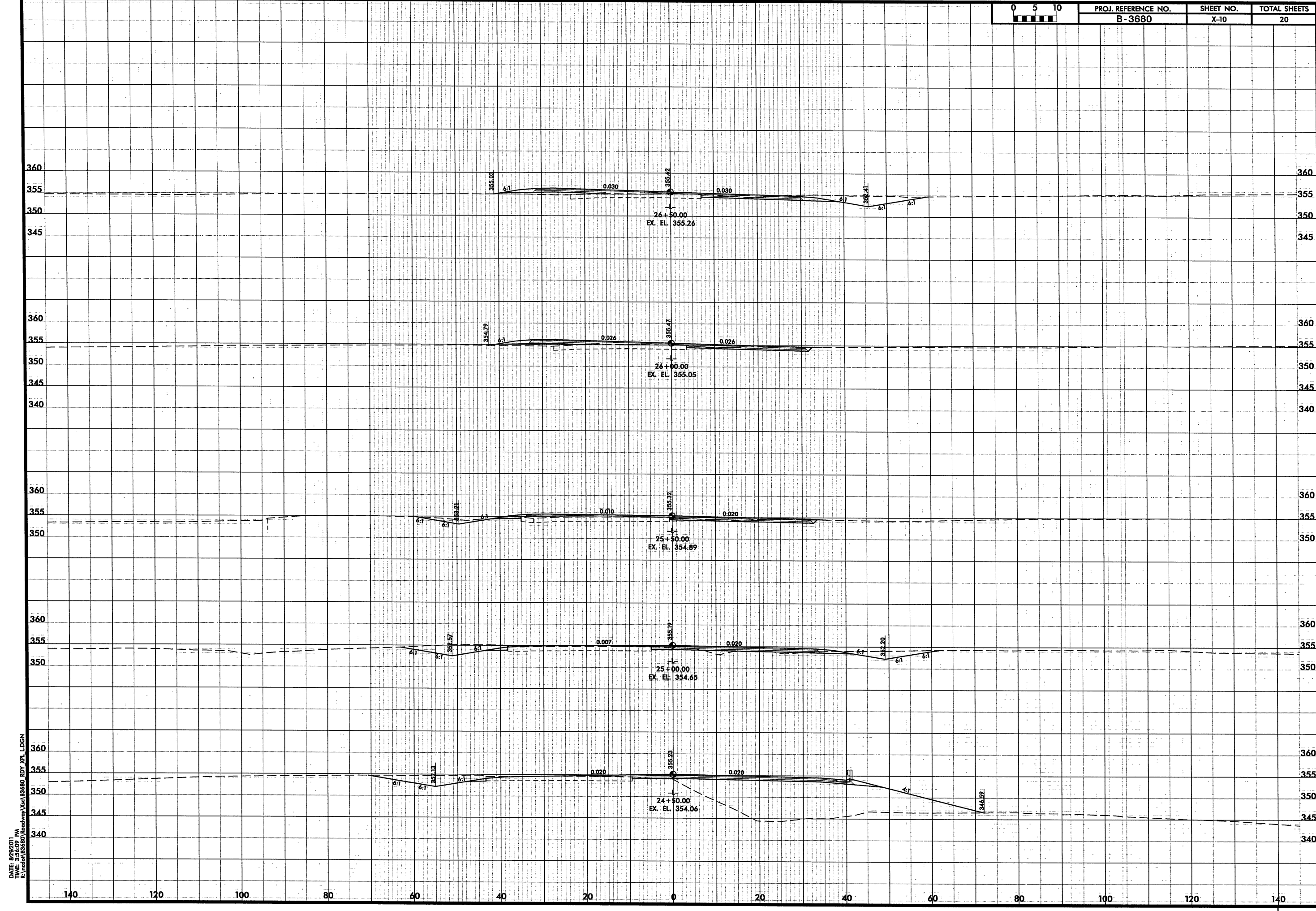


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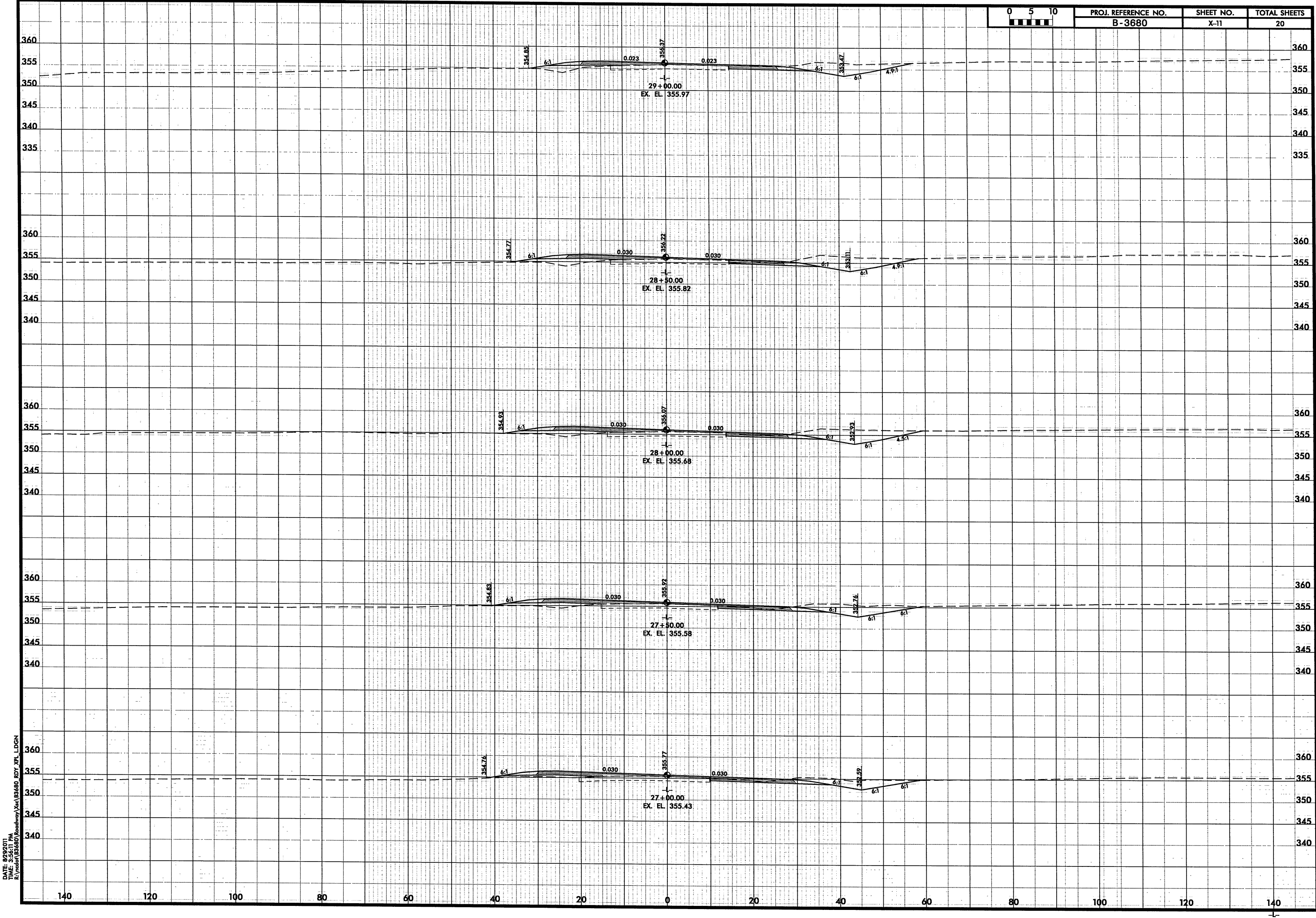




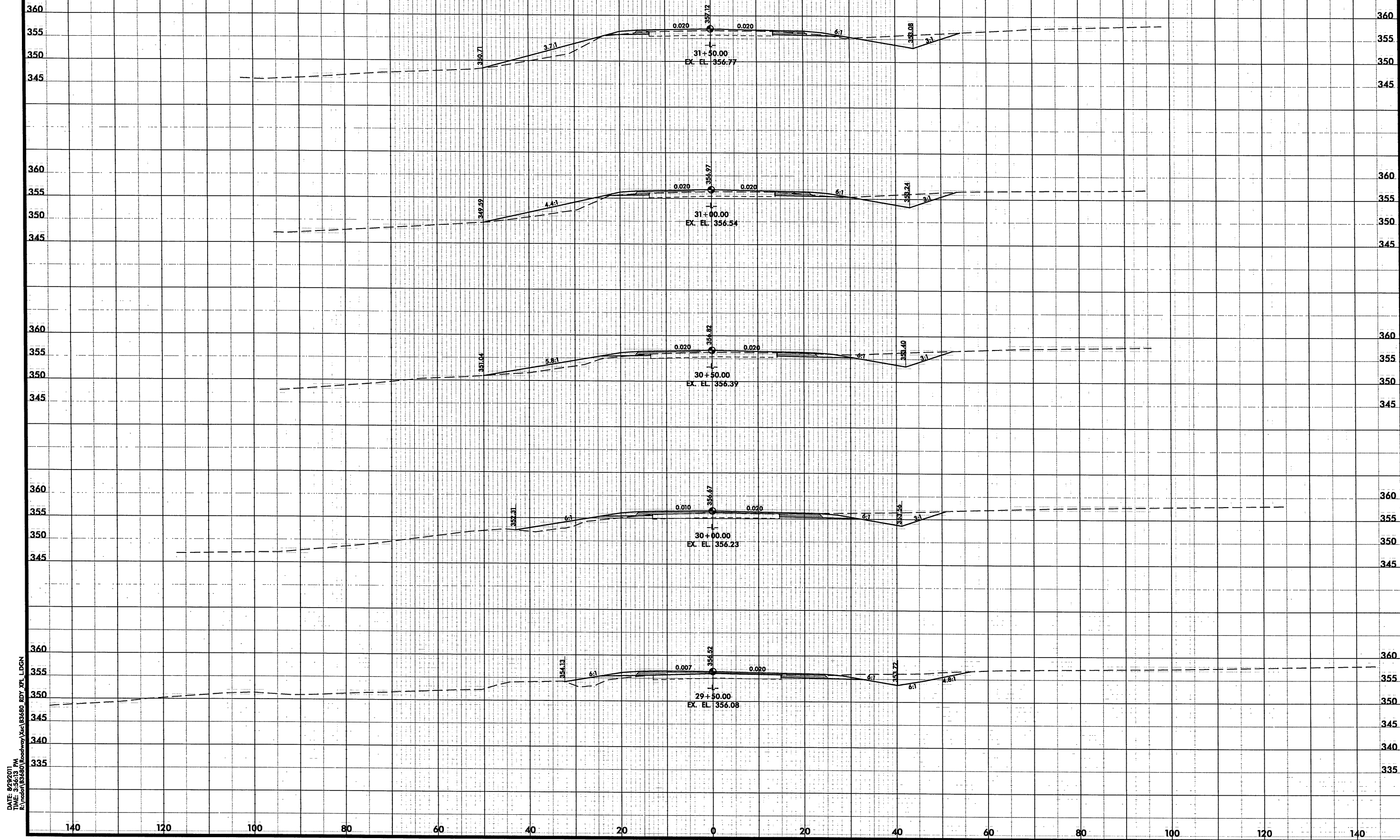
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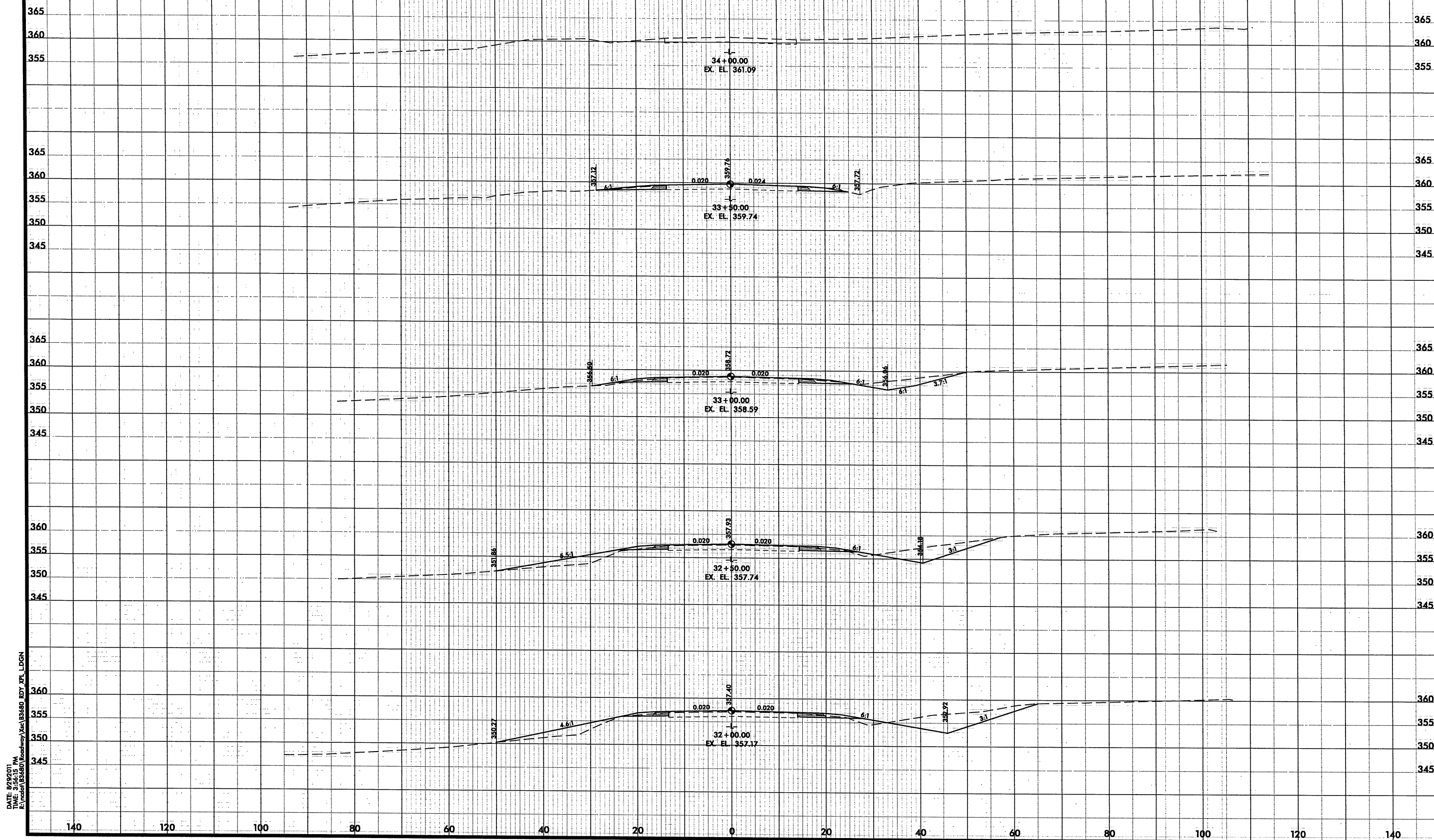
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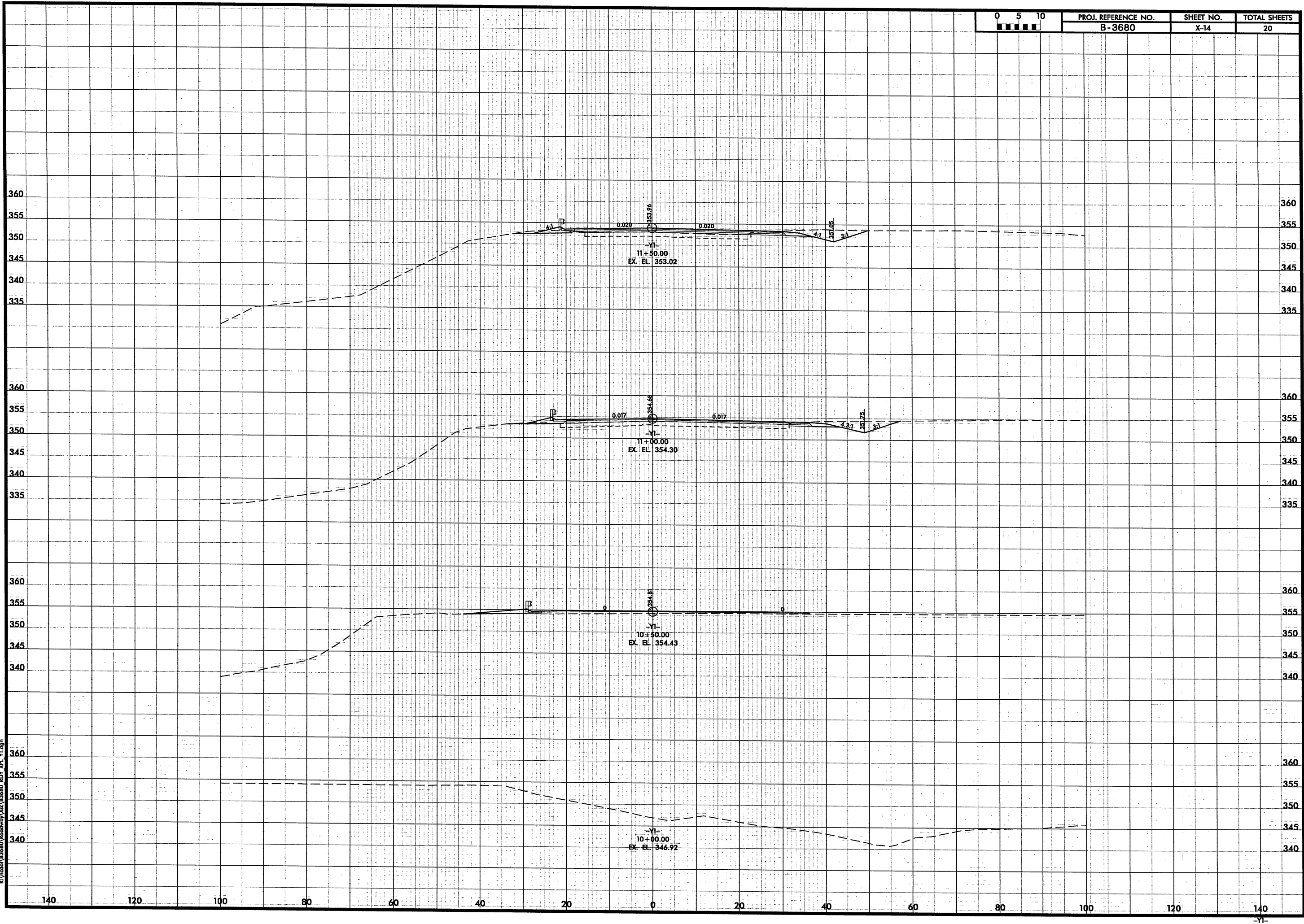


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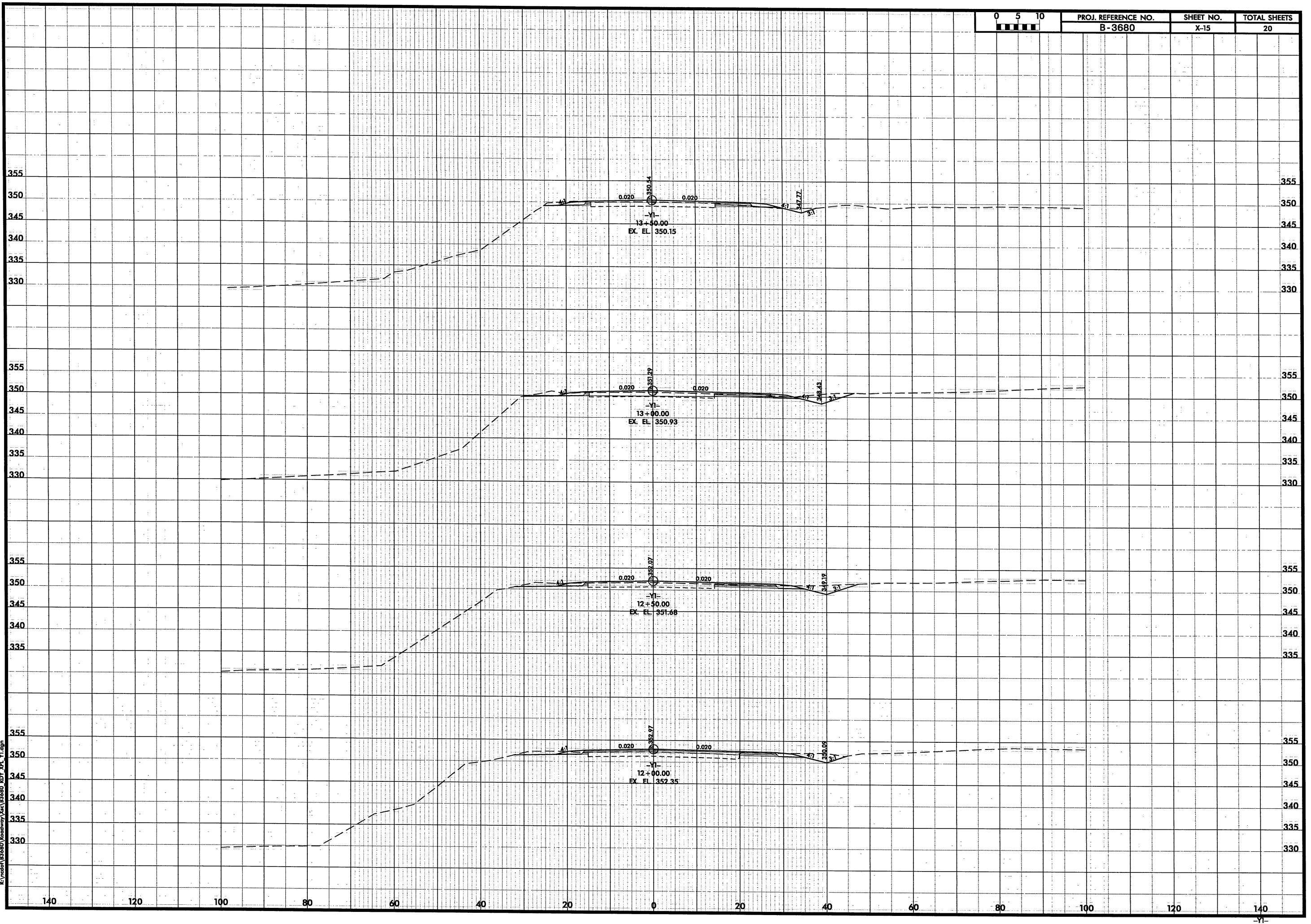
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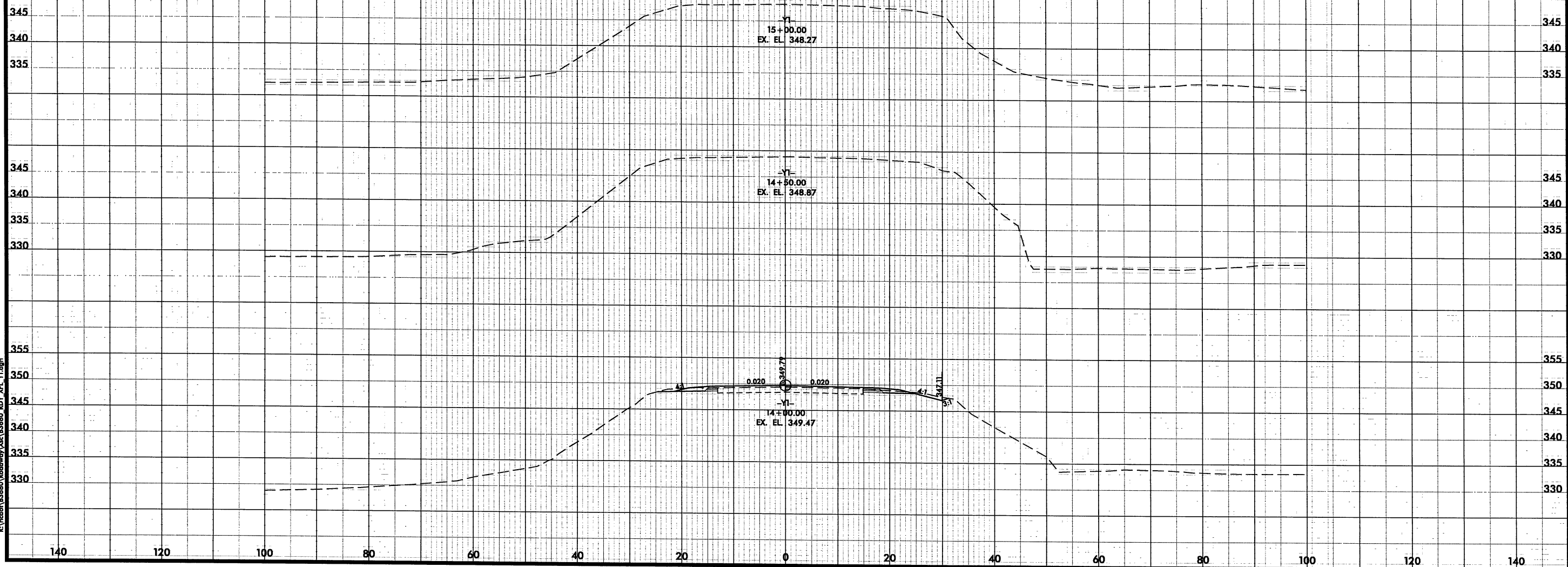


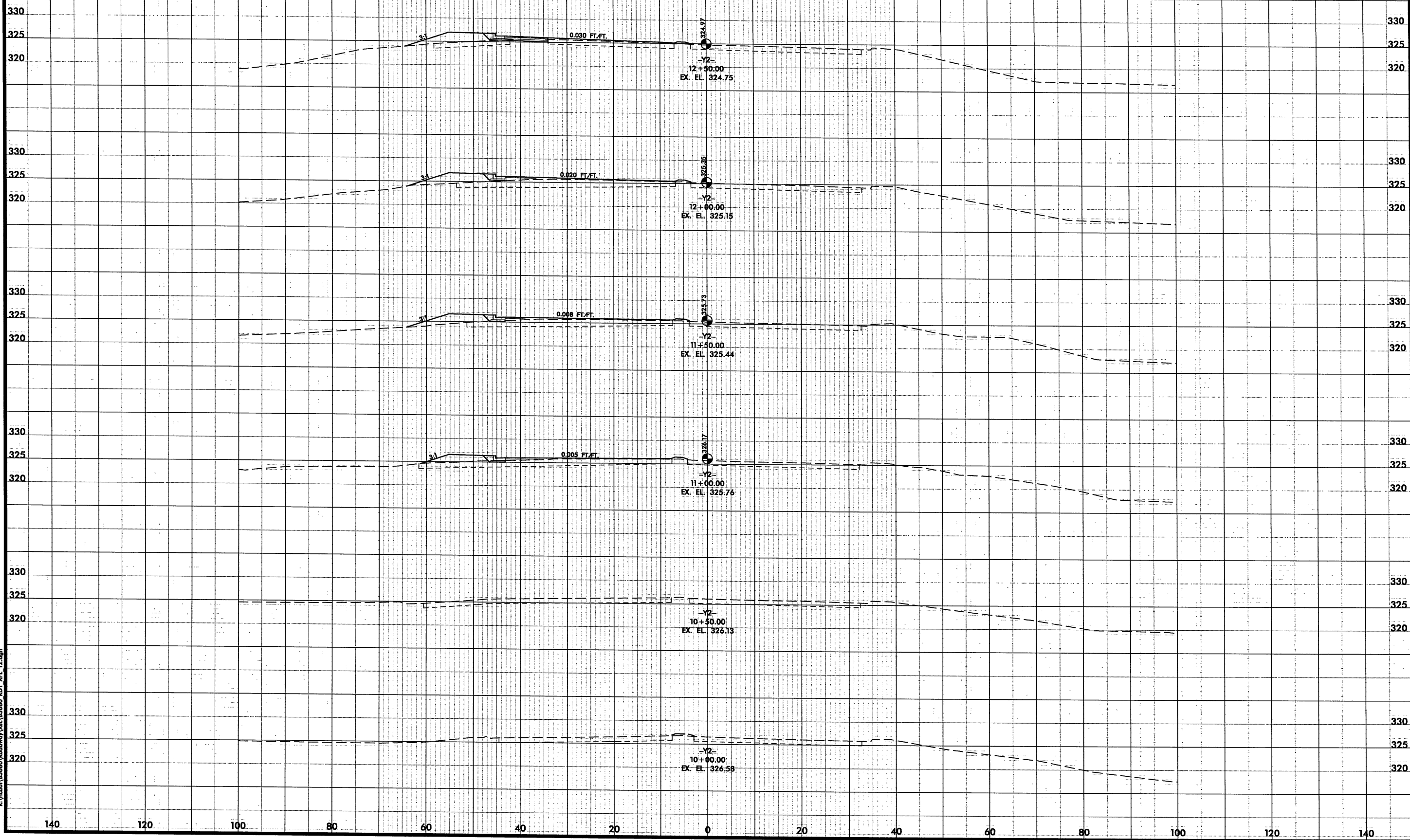
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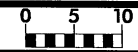


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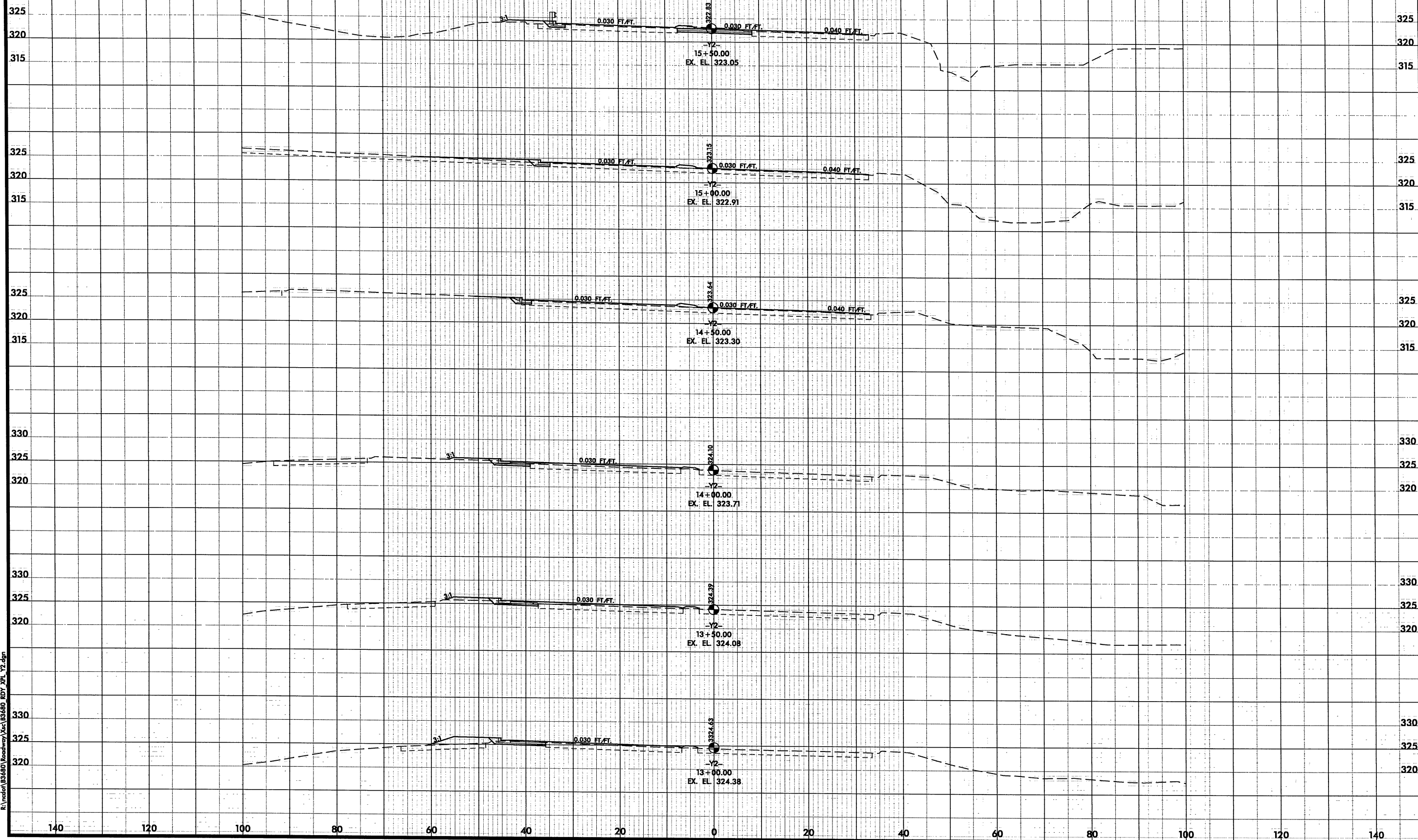


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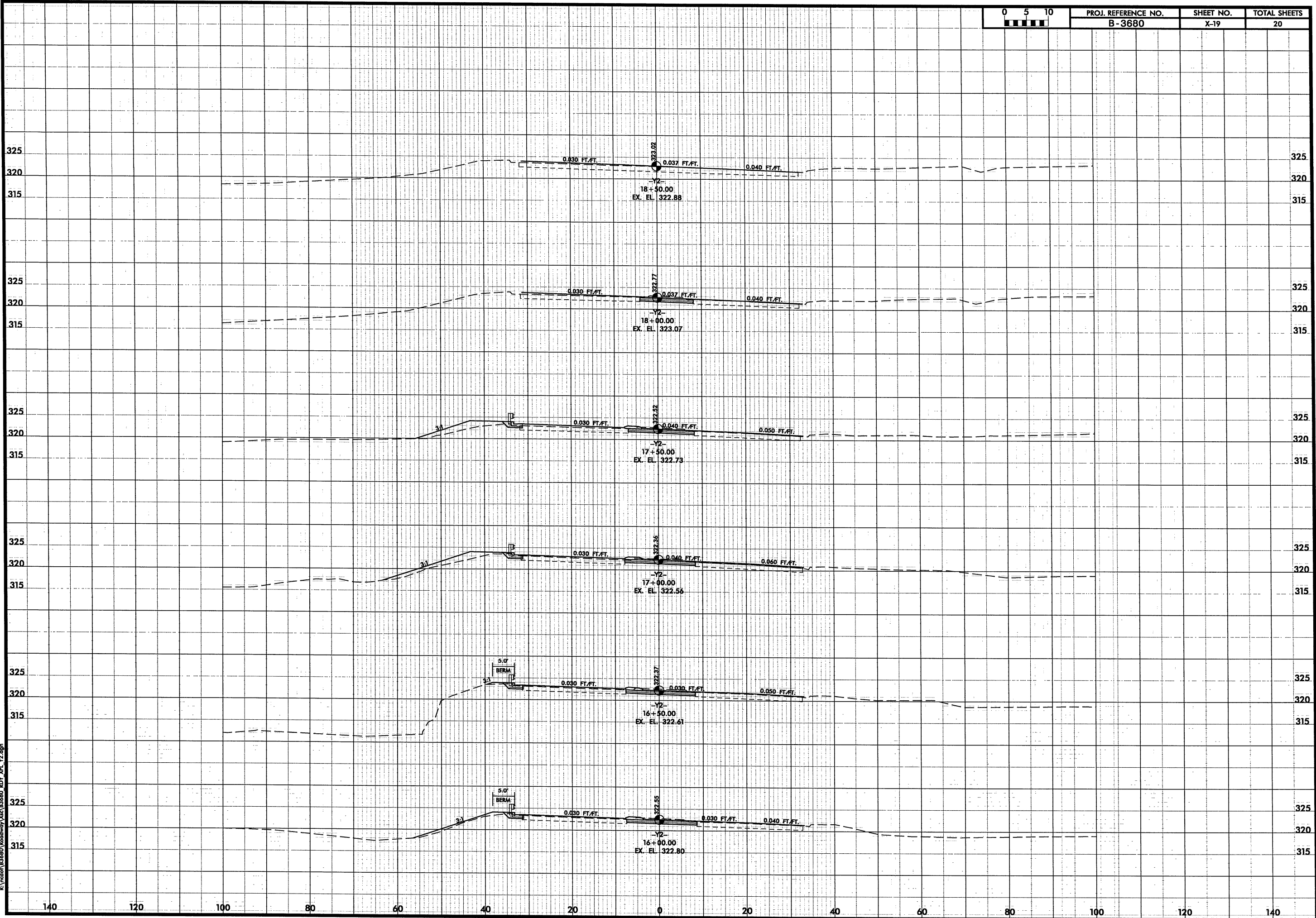


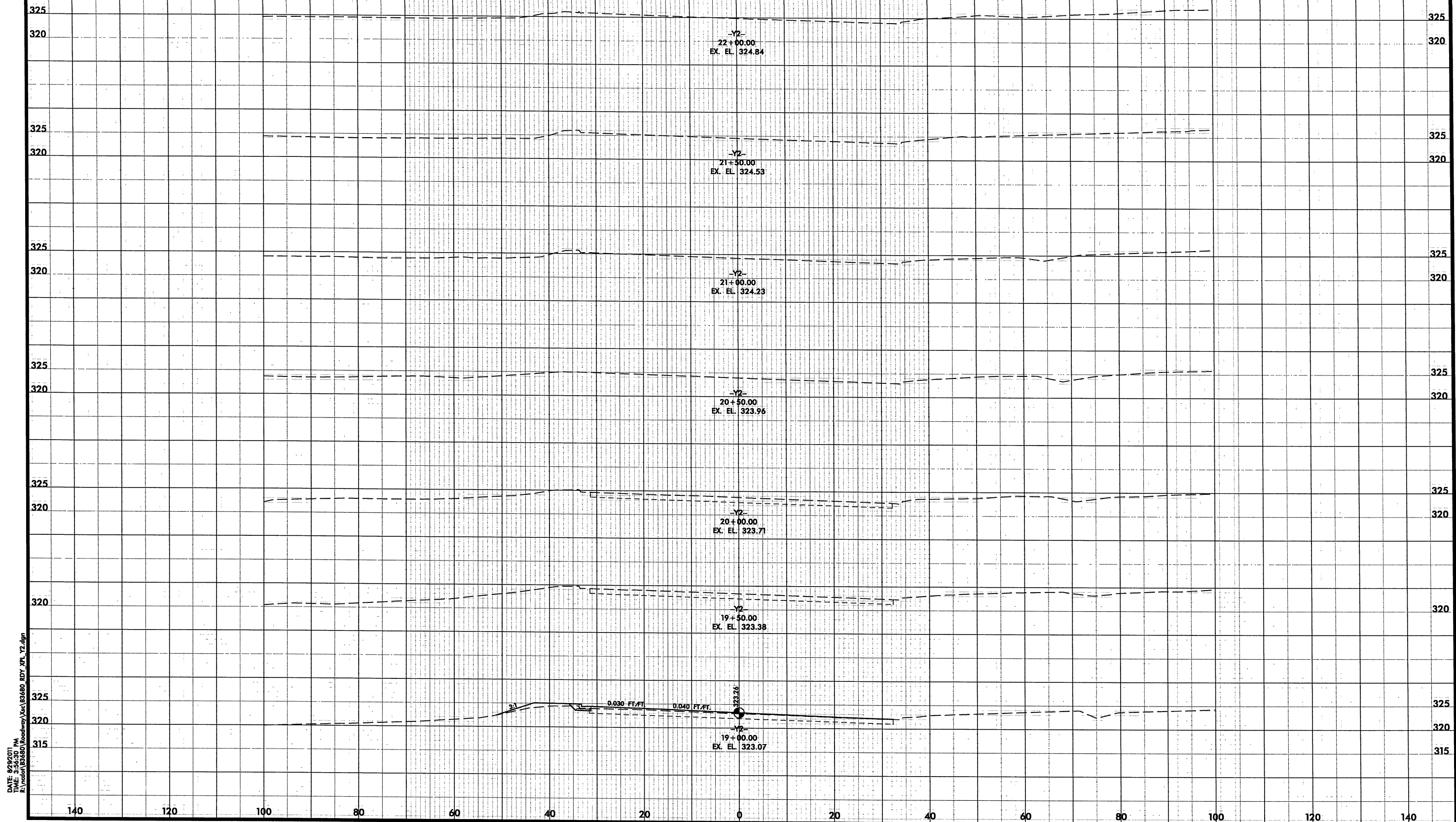
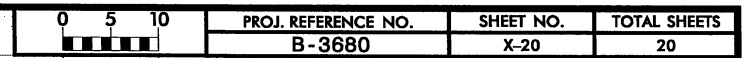
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