STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

June 29, 2020

MEMO TO: Chad D. Kimes, P.E.
Division 3 Engineer

FROM: Mason Herndon
Division Environmental Program Supervisor

SUBJECT: Section 404 Individual Permit Modification and Section 401 Water Quality Certification Modification for construction of the Hampstead Bypass from South of NC 210 to North of SR 1563 (Sloop Point Loop Road) in Pender County. WBS 40237.1.1, TIP No. R-3300B

Attached are modifications to the U.S. Army Corps of Engineers Section 404 Permit, N.C. Division of Water Resources (NCDWR) 401Water Quality Certification and Division of Coastal Management Federal Consistency Determination for construction of the Hampstead Bypass from South of NC 210 to North of SR 1563 (Sloop Point Loop Road) in Pender County. These modifications only approve construction of Section B. Except as revised by these modifications, all permit conditions in the original U-4751/R-3300 permits remain valid.

If you have any questions or if I can be of any further assistance, please do not hesitate to contact me.

ec:

Katie Hite, P.E. Division Project Development Engineer
David Leonard, P.E. Division Project Lead
Trace Howell, P.E. Division Design Construct
Jonathan Mitchell, Division Contract & Proposals Engineer

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
5501 BARBADOS BOULEVARD
CASTLE HAYNE, NC 28429-5647

Telephone: 910-341-2000
Fax: 910-675-0143
Customer Service: 1-877-368-4968

Website: ncdot.gov

Location:
5501 BARBADOS BOULEVARD
CASTLE HAYNE, NC 28429-5647

PROJECT COMMITMENTS

Proposed Military Cutoff Road Extension and
Proposed US 17 Hampstead Bypass
New Hanover and Pender Counties
State Project 40191.1.2/40237.1.2
STIP Projects U-4751 and R-3300

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Project Development and Environmental Analysis Unit

Additional coordination with the US Fish and Wildlife Service regarding the project's potential effects on endangered species will be conducted prior to submitting the Section 404 permit application to the US Army Corps of Engineers.

If red-cockaded woodpecker foraging habitat ceases to exist at the northern interchange at the time NCDOT applies for authorization from the US Army Corps of Engineers to construct the project, the Department will revisit the original interchange design, known as Alternative E-H ORIG. As currently described, Alternative E-H ORIG would further minimize wetland impacts compared to Alternative E-H with Option 6TR, which is the selected alternative.

Memorandums of Agreement will be prepared between the US Army Corps of Engineers, the State Historic Preservation Office, and NCDOT for Mount Ararat AME Church and archaeological site 31PD344**. The US Army Corps of Engineers will serve as the lead federal agency with respect to compliance with Section 106 of the National Historic Preservation Act.

The preliminary traffic noise analysis conducted for the project found five locations where noise barriers may be feasible and reasonable for the selected alternative. A more detailed review will be completed during project final design to determine whether these or other noise barriers are feasible and reasonable.

The red knot and the northern long-eared bat are proposed for listing by the USFWS as threatened and/or endangered species. The listings may become effective as soon as October 2014. These species are not included in USFWS's current list of protected species for New Hanover and Pender Counties. NCDOT is working closely with USFWS to understand how these proposed listings may impact NCDOT projects. NCDOT will continue to coordinate appropriately with USFWS to determine if this project will incur potential effects to the red knot and northern long-eared bat, and how to address these potential effects, if necessary.

These commitments were addressed prior to permitting.

Project Development and Environmental Analysis Unit and Roadway Design Unit

NCDOT will continue to explore options to avoid and minimize impacts to jurisdictional resources with the proposed US 17 Hampstead Bypass service roads and will seek formal concurrence from the merger team after all service road options have been explored.

This commitment was addressed prior to permitting.

Roadway Design Unit, Hydraulics Unit, Roadside Environmental Unit and Division 3

Howe Creek has been designated an outstanding resource water (ORW) by the North Carolina Division of Water Resources (NCDWR). Tributaries of this stream (BDITCH1) are designated ORW due to the classification of their receiving waters. Design Standards in Sensitive Watersheds will be implemented for BDITCH1 during project construction.

Old Topsail Creek and Nixons Creek are designated as Commercial Shellfishing, High Quality Waters (SA; HQW) by NCDWR. Tributaries of these streams (NSA, NSF, NDITCH1 and ZTRIB1) are designated SA; HQW due to the classification of their receiving waters. Design Standards in Sensitive Watersheds will be implemented for these streams during project construction.

This commitment will be implemented during construction.

Roadway Design Unit and Hydraulics Unit

3:1 slopes are proposed in wetland areas and adjacent to streams.

This commitment was addressed during design.

Division 3 Construction

Areas within 750 feet of Cape Fear Public Utility Authority (CFPUA) wellheads will be treated as environmentally sensitive areas during construction. NCDOT will require the contractor to use orange fencing and post signs to identify these areas as environmentally sensitive. Staging areas and refueling will not be permitted within the environmentally sensitive areas.

No right-of-way acquisition or construction will occur within a 100-foot radius around the Belvedere Subdivision well and access to the well site will be maintained. The well is located between existing US 17 and North Belvedere Drive in Hampstead.

This commitment was addressed during design.

Roadway Design Unit and Division 3

The Special Provisions for the Military Cutoff Road Extension (Project U-4751) will include a requirement for the contractor to educate their employees that project construction is occurring within a wellhead protection area.

NCDOT will require the contractor for Military Cutoff Road Extension to provide a mobile

response spill kit on site during construction. At the end of project construction, the kit will be transferred to the Cape Fear Public Utility Authority. The CFPUA has agreed to provide a place to store the kit at their water treatment plant located adjacent to the proposed Military Cutoff Road Extension.

This commitment will be implemented during construction.

Roadway Design Unit and Transportation Program Management

NCDOT will coordinate with local officials as the project progresses regarding the status of local greenway plans and proposed walking trails.

The Wilmington Metropolitan Planning Organization (MPO) has requested the inclusion of a multi-use path along proposed Military Cutoff Road Extension. The multi-use path would tie into an existing multi-use path along Military Cutoff Road. The construction of a multi-use path as part of the proposed project will be dependent upon a cost-sharing and maintenance agreement between NCDOT and the Wilmington MPO. NCDOT will continue to coordinate with the Wilmington MPO on the inclusion of the multi-use path along Military Cutoff Road Extension.

This commitment was addressed during design.

Roadway Design Unit and Utilities Section

NCDOT will coordinate with the Pender County School System regarding impacts of the proposed Hampstead Bypass on the Topsail Schools complex's wastewater treatment facility during the project's right-of-way phase.

This commitment will be implemented during construction.

Roadway Design Unit

Well locations and a 100-foot buffer around the wells will be depicted on final construction plans for proposed Military Cutoff Road Extension.

NCDOT will further investigate ways to avoid impacts to the Corbett Tract and the Plantation Road Mitigation sites during detailed project design. If possible, no right-of-way will be acquired from these sites.

The U-turn bulb-out on Military Cutoff Road Extension just north of the Cape Fear Public Utility Authority Nano Water Treatment Plant will not be placed in the adjacent wetland (Wetland CWA).

This commitment was addressed during design.

Hydraulics Unit

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), the delegated state agency for administering FEMA's National Flood Insurance Program, to determine the status of the project with regard to applicability of NCDOT's Memorandum of Agreement with FMP (dated April 22, 2013), or approval of a Conditional Letter of Map

Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

NCDOT will review the existing permit requirements for all stormwater ponds impacted by Military Cutoff Road Extension to ensure the permitted treatment requirements are maintained under post-construction conditions.

This commitment was addressed during design.

Roadway Design Unit and Structure Design Unit

Bicycle safe bridge railing will be provided on the NC 210 bridge over the US 17 Hampstead Bypass. Four-foot paved shoulders will be provided on NC 210 within the project limits.

A retaining wall will be provided on the west side of proposed Military Cutoff Road Extension south of Putnam Drive to avoid impacts to Wetland PD-01.

The use of retaining walls will be evaluated at stormwater ponds BPE and BPF, which are located on the east side of Military Cutoff Road Extension between Lendire Road and Torchwood Boulevard.

This commitment was addressed during design.

Division 3

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying the drainage structure(s) and roadway embankment located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

This commitment was addressed during design.

Geotechnical Unit

Military Cutoff Road Extension may impact five properties that either have or formerly had underground storage tanks. US 17 Hampstead Bypass Alternative E-H may impact one property that either has or formerly had underground storage tanks. Preliminary site assessments to identify the nature and extent of any contamination will be performed at any potential hazardous materials sites prior to right-of-way acquisition.

This commitment was addressed prior to right-of-way acquisition

COMMITMENTS FROM PERMITTING

Phased Permits

This permit only authorizes work on U-4751 of TIP U-4751/R-3300 (Military Cutoff-Hampstead Bypass). Construction of R-3300 of TIP U-4751/R-3300 shall not commence

until final design has been completed for those sections, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, and any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (USACE).

The modification request for future R-3300 will be recirculated under Public Notice to gather relevant comments related to finalized hydraulic structures and other modifications realized during final plan preparation. NCDOT is responsible for providing updated mailing list labels along with the final plans for R-3300 at the time of modification request.

These Commitments were addressed for R-3300B with application and will be addressed after final design completion for R-3300A.

Cultural Resources

NCDOT shall abide by all stipulations identified in the Memorandum of Agreement between the United States Army Corps of Engineers and the North Carolina State Historic Preservation Officer, signed 29 January 2015 and filed by the Advisory Council on April 15, 2016.

While accomplishing the authorized work, if the permittee discovers any previously unknown cultural resources, the USACE will be immediately notified so that required coordination can be initiated with the North Carolina Division of Cultural Resources.

COMMITMENTS FROM R-3300B PERMITTING

The use of riprap placed for stream channel stabilization shall be buried to the natural streambed elevation in stream channels in such a manner that it does not impede aquatic life passage or change the dimension, pattern and profile of the stream. [15A NCAC 02H.0506(b)(2)]

Erosion control matting in riparian areas shall not contain a nylon mesh grid which will impinge and entrap small animals. Matting should be secured in place by staples, stakes, or wherever possible live stakes of native trees. Riparian areas are defined as a distance 25 feet from the top of stream bank, [15A NCAC 02B.0224, .0225]

MEMORANDUM OF AGREEMENT
AMONG THE UNITED STATES ARMY CORPS OF ENGINEERS,
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
AND
NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
FOR
PROPOSED SR 1409 (MILITARY CUTOFF ROAD) EXTENSION AND
PROPOSED US 17 HAMPSTEAD BYPASS
NEW HANOVER AND PENDER COUNTIES
TIP PROJECT U-4751 & R-3300
WBS NO. 40191.1.2

WHEREAS, the United State Army Corps of Engineers (USACE) has determined that the proposed SR 1409 (Military Cutoff Road) Extension and the proposed US 17 Hampstead Bypass in New Hanover and Pender Counties (the Undertaking) will have an adverse effect on the Mount Ararat AME Church, a property determined eligible for the National Register of Historic Places (NRHP); and

WHEREAS, the Undertaking will compromise the historic integrity of the Mount Ararat AME Church by intruding into the property as it requires obtaining Right of Way and temporary easements along the eastern property line; and

WHEREAS, the Undertaking will affect archaeological site 31PD344**, a property determined eligible for listing in the National Register of Historic Places; and

WHEREAS, in accordance with 36 CFR Part 800, the NCDOT acknowledges and accepts the advice and conditions outlined in the Council "Recommended Approach for the Consultation on the Recovery of Significant Information from Archaeological Sites," published in the Federal Register (FR Doc. 99-12055) on May 17, 1999; and

WHEREAS, the consulting parties agree that the recovery of significant information from the archaeological site listed above may be done in accordance with the published guidance; and

WHEREAS, the USACE has consulted with the North Carolina State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the North Carolina Department of Transportation (NCDOT) has participated in the consultation and been invited by USACE and the SHPO to be a signatory to this Memorandum of Agreement (MOA); and

WHEREAS, Members of Mount Ararat AME Church have participated in the consultation and are invited to concur with the MOA; and

WHEREAS, the USACE has notified the Advisory Council on Historic Preservation (Council) of the adverse effect and the Council has declined to comment or participate in the consultation;

NOW, THEREFORE, USACE, NCDOT, and the SHPO agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on the historic properties.

STIPULATIONS

The USACE and NCDOT shall ensure that the following measures are carried out:

I. **Relocation of Burials at Mount Ararat AME Church and Cemetery:** NCDOT will work with the church pastor and cemetery committee as well as family members of the impacted burials to relocate individuals and/or family plots as needed in accordance with North Carolina General Statutes 65 and 70.

II. **Historical Documentation of Mount Ararat AME Church:** NCDOT will prepare a written and photographic documentation of the church and cemetery which will be provided to the church and filed with NCDOT and SHPO. This documentation shall include a written history of the church and cemetery, a cemetery plan including archival research and the results of ground-penetrating radar studies conducted by NCDOT or their consultants, and photodocumentation of the site in accordance with the attached Historic Structures Recordation Plan prior to the initiation of construction.

III. **Landscape, Signage, and Fencing Plan:** NCDOT, in consultation with the church and SHPO, will develop a landscaping plan for the church and cemetery and will provide for its implementation. Any plant materials lost within two (2) years of planting will be replaced by NCDOT. The landscaping plan will also include consideration of the signage for the church and cemetery, as well as fencing, parking and access.

IV. **Restricted Staging and Construction Areas:** No construction staging or parking will be allowed within the historic boundary of the church and cemetery. Temporary construction fencing will be placed along the Temporary Construction Easement line within historic boundary to mark the restricted area.

V. **Installation of Street Light:** NCDOT will arrange for installation of a street light at the corner of Ruth Avenue and Ogden Street adjacent to the church property.

VI. **Archaeological Site 31PD344** Data Recovery Plan:** The NCDOT will develop a Data Recovery Plan (DRP) for archaeological site 31PD344**, the National Register-eligible site that will be affected by the subject Undertaking, in consultation with the SHPO. The DRP will include proposed measures for involving the interested public in the data recovery and for disseminating the results of the work to the interested public.

a) The NCDOT will ensure that the DRP will be implemented after Right-of-Way is acquired or once Right of Entry is secured from the property

owners and prior to construction activities within the site locations as shown in the DRP.

b) Upon completion of the Data Recovery the NCDOT will submit a Management Summary to SHPO detailing the results of the field investigations. The Management Summary will contain sufficient information to demonstrate that the field investigation portion of the DRP has been implemented.

c) Upon receipt of the Management Summary SHPO will respond within ten (10) days to the recommendations contained within the document.

d) Upon acceptance of the recommendations in the Management Summary HPO will issue the NCDOT documentation that the Data Recovery field investigations have been completed.

e) The analyses and reports detailing site 31PD344** will be completed by the NCDOT or their consultants within twelve (12) months after completion of the fieldwork.

VII. Unanticipated Discovery: If historic properties are discovered or unanticipated effects on historic properties are found after construction has commenced, NCDOT will consult with SHPO and the property owner(s) in accordance with 36 CFR 800.13(b). If after consultation with the property owner(s) additional mitigation is determined necessary, the NCDOT, in consultation with the property owner(s), will develop and implement appropriate protection/mitigation measures for the resource(s). Inadvertent or accidental discovery of human remains will be handled in accordance with North Carolina General Statutes 65 and 70.

VIII. Dispute Resolution: Should any of the Signatory or Concurring Party(ies) object within (30) days to any plans or documentation provided for review or object to the implementation of any of the stipulations pursuant to this MOA, the USACE shall consult with the objecting party(ies) to resolve the objection. If the USACE or objecting party(ies) determines that the objection cannot be resolved, the USACE will forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

1. Provide the USACE with recommendations which the USACE will take into account in reaching a final decision regarding the dispute, or
2. Notify the USACE that it will comment pursuant to 36 CFR Section 800.7(c) and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the USACE, in accordance with 36 CFR Section 800.7 (c) (4) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; USACE and NCDOT's responsibility to carry out all of the actions under this agreement that are not the subject of the dispute will remain unchanged.

IX. **Amendments:** If any Signatory to this MOA believes that its terms cannot be carried out or that an amendment to the terms must be made, that party(ies) shall immediately consult with the other party(ies) to develop amendments in accordance with 36 CFR 800.6(c)(7). If an amendment cannot be agree upon, the dispute resolution process set forth in Stipulation VIII will be followed.

X. **Termination:** Any Signatory may terminate this MOA by providing notice to the other party(ies) provided that the party(ies) will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. Termination of this MOA will require compliance with 36 CFR 800. This MOA may be terminated by the execution of a subsequent MOA that explicitly terminates or supersedes its terms.

XI. **Duration:** Unless terminated pursuant to Stipulation X above, this MOA will be in effect until USACE, in consultation with the other Signatory and Concurring Party(ies), determines that all of its terms have satisfactorily been fulfilled or if NCDOT is unable or decides not to construct the Undertaking.

AGREE:

United State Army Corps of Engineers

Scott C. McLendon
Chief, Wilmington Regulatory Division

29 Jan 2015
Date

State Historic Preservation Officer:

Dr. Kevin Cherry
North Carolina State Historic Preservation Officer

10/20/2014
Date

North Carolina Department of Transportation:

For Richard W. Hancock, PE
Project Development & Environmental Analysis Branch Manager

9/16/14
Date

FILED:

By: _____
Advisory Council on Historic Preservation

_____
Date

MEMORANDUM OF AGREEMENT
AMONG THE UNITED STATES ARMY CORPS OF ENGINEERS,
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
AND
NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
FOR
PROPOSED SR 1409 (MILITARY CUTOFF ROAD) EXTENSION AND
PROPOSED US 17 HAMPSTEAD BYPASS
NEW HANOVER AND PENDER COUNTIES
TIP PROJECT U-4751 &R-3300
WBS NO. 40191.1.2

Execution of this Memorandum of Agreement by USACE, NCDOT and the SHPO, its subsequent filing with the Council, and implementation of its terms evidence that USACE has afforded the Council an opportunity to comment on the Undertaking that USACE has taken into account the effects of the Undertaking on the historic properties.

CONCUR:

Rev. Larry M. Powers
Mount Ararat AME Church

17-NOV-14
Date

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

June 26, 2020

Regulatory Division

Action ID. SAW-2007-01386

Chad Kimes, PE
Division 3 Engineer
N.C. Department of Transportation
5501 Barbados Blvd.
Castle Hayne, NC 28429

Dear Mr. Kimes:

Reference the Department of the Army (DA) permit issued on August 10, 2017, for the discharge of fill material into waters and wetlands adjacent to various creeks, and their tributaries in order to construct TIP# U-4751 and R-3300 (Military Cut Off Road and Hampstead ByPass), in New Hanover and Pender Counties, North Carolina. This was a phased permit for the entire project with only U-4751 authorized for construction to date. Subsequent permit modifications would authorize construction of additional phases within the limits of the original permit.

Further reference your April 7, 2020 request for modification to the 2017 permit mentioned above. This request is for authorization to construct section B of R-3300 which is a 6.916-mile new location phase starting around NC 210 and extending to Sloop Point Loop Road in Pender County. This phase of the project will permanently impact 55.428 acres of non-riparian wetlands, 16.886 acres of riparian wetlands, and 5,756 linear feet of stream channel. This phase would also temporarily impact 0.354 acre of wetlands and 489 linear feet of stream channel during construction.

I have determined that the proposed project modifications described above are not contrary to the public interest and consistent with the 404 (B) (1) and therefore, the DA permit is hereby modified.

All original conditions in the August 10, 2017 permit remain enforceable with an expiration date of December 31, 2022. New special conditions follow:

1. All work authorized by this permit shall be performed in strict compliance with the permit plans 1-165 of 165 dated 4/1/2020 and 6/9/2020, and Utility Plans 1-23 of

23 dated 4/1/2020 and 6/9/2020 which are a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the U.S. Army Corps of Engineers (Corps) prior to any active construction in waters or wetlands.

2. Any rip rap placed in the main flow (thalweg) of any channel along this project must be buried to the natural streambed elevation.

3. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Forms. The requirements of these forms, including any special conditions listed on these forms, are hereby incorporated as special conditions of this permit.

This modification approval will be utilized for future compliance of the project. If you have questions, please contact Brad Shaver of the Wilmington Regulatory Field Office, at telephone (910) 251-4611.

FOR THE COMMANDER

Monte Matthews Date: 2020.06.26 13:24:37 -04'00'

Monte Matthews
Lead Project Manager
Wilmington District

Copies Furnished (electronic w/o attachments):

Mr. Mason Herndon, NCDOT
Ms. Joanne Steenhuis, NCDEQ-DWR
Ms. Amanetta Somerville, USEPA
Mr. Gary Jordan, USFWS
Mr, Travis Wilson, NCWRC
Ms. Renee Gledhill-Earley, SHPO
Mr. Monte Matthews, USACE
Ms, Cathy Brittingham, NC DCM

Mr. Stephen Lane, NC DCM
Ms. Beth Harmon, NC DMS (attached mitigation transfer form)
Mr. Christian Preziosi, NE Bank (attached mitigation transfer form)
Mr. Todd Tugwell, USACE (attached both mitigation tra

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403

August 7, 2017

Regulatory Division

Action ID. SAW-SAW-2007-01386: U-4751 and R-3300, New Hanover and Pender Counties, North Carolina

Mr. Phillip S. Harris III, P.E., C.P.M.
North Carolina Department of Transportation
Natural Environment Section Head
1548 Mail Service Center
Raleigh, North Carolina 27699

Dear Mr. Harris:

In accordance with your written request of December 21, 2016, and the ensuing administrative record, enclosed is a copy of a Department of Army (DA) Permit to directly discharge fill material into waters and wetlands along multiple drainages to construct a 5.5 mile six-lane divided roadway (U-4751) on new location from Hwy 17 Business to US 17 By-Pass, New Hanover County, North Carolina.

Any deviation in the authorized work will likely require modification of this permit. If a change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notifies you that your permit has been modified.

Carefully read your permit. The general and specific conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

a. You must complete construction before December 31, 2022.

b. You must notify this office in advance as to when you intend to commence and complete work.

c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

You should address all questions regarding this authorization to Mickey T. Sugg, at the Wilmington Regulatory Field Office, telephone number 910-251-4811.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our website at http://per2.nwp.usace.army.mil/survey.html and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office.

Sincerely,



For Robert J. Clark
Colonel, US Army
District Commander

Enclosures

Copies Furnished (w/Special Conditions & Plans):

Chief, Source Data Unit
Attn: Ms. Sharon Tear
NOAA/National Ocean Service
1315 East-West Highway, Room 7316
Silver Spring, Maryland 20910-3282

U.S. Fish and Wildlife Service
Attn: Mr. Pete Benjamin
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

National Marine Fisheries Service
Attn: Dr. Ken Riley
Habitat Conservation Service
Pivers Island
Beaufort, North Carolina 28516

U.S. Environmental Protection Agency
Attn: Ms. Jennifer Derby, Chief
Wetlands Protection Service – Region IV
Water Management Division
61 Forsyth Street
Atlanta, Georgia 30303

U.S. Environmental Protection Agency
Attn: Mr. Todd A. Bowers
Wetlands and Marine Regulatory Section
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8931

North Carolina Department of
Environmental Quality
Attn: Mr. Doug Huggett
Division of Coastal Management
400 Commerce Avenue
Morehead City, North Carolina 28557

National Marine Fisheries Service
Attn: Dr. Pace Wilber
Habitat Conservation Service
219 Fort Johnson Road
Charleston, South Carolina 29412-9110

DEPARTMENT OF THE ARMY PERMIT

Permittee: North Carolina Department of Transportation-c/o: Mr. Phillip Harris III, P.E., C.P.M.

Permit No.: SAW-2007-01386

Issuing Office: CESAW-RG-L

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: The overall project purpose is to directly discharge fill material into waters and wetlands (60.51 acres of non-riparian wetlands and 2,122 linear feet of stream channel) along multiple drainages to construct a 5.5 mile six-lane divided roadway (U-4751). The future year project/second phase (R-3300) would be authorized for construction by modification at a future date.

Project Location: (U-4751) on new location from Hwy 17 Business to US 17 By-Pass, New Hanover County, North Carolina.

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2022 If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

() Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf
of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity
authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE) for PHILIP S. HARRIS III

07-31-2017
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER) ROBERT J. CLARK
FOR COLONEL, U.S. ARMY
DISTRICT COMMANDER

10 Aug 2017
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS (Action ID 2007-01386)

In accordance with 33 U.S.C. 1341(d), all conditions of the North Carolina Division of Water Resources 401 Water Quality Certification #004116 and the North Carolina Division of Coastal Management Consistency Certification (CD17-018) are incorporated as part of the Department of the Army permit.

NCDOT must adhere to Green Sheet Project Commitments as presented in the September 2014 State Record of Decision incorporated by reference.

1. Phased Permits:

A. This permit only authorizes work on U-4751 of TIP U-4751/R-3300 (Military Cutoff-Hampstead Bypass). Construction of R-3300 of TIP U-4751/R-3300 shall not commence until final design has been completed for those sections, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, and any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (USACE).

B. The modification request for future R-3300 will be recirculated under Public Notice to gather relevant comments related to finalized hydraulic structures and other modifications realized during final plan preparation. NCDOT is responsible for providing updated mailing list labels along with the final plans for R-3300 at the time of modification request.

2. Plans:

A. The permittee will ensure that the construction design plans for this project do not deviate from the permit plans. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the USACE, Wilmington Regulatory Field Office prior to any active construction in waters or wetlands.

B. All work authorized by this permit must be performed in strict compliance with the plans dated 5/9/2017, received on 6/1/2017 entitled U-4751, permit drawings 1-83 of 83, which are a part of this permit. Any modification to these plans must be approved by the USACE prior to implementation.

3. Pre-Construction Meetings:

A. The permittee shall schedule and attend a pre-construction meeting between its representatives, the contractors representatives, and the USACE, Wilmington Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all the terms and conditions contained with this Department of the Army Permit. The permittee shall provide the USACE, Wilmington Field Office, NCDOT Project Manager, with a copy of the final permit plans at least two weeks

prior to the pre-construction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the pre-construction meeting for a time frame when the USACE, NCDCM, and NCDWR Project Managers can attend. The permittee shall invite the USACE, NCDCM, and NCDWR Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

4. Threatened and Endangered Species:

A. This USACE permit does not authorize you to take an endangered species, in particular *Picoides borealis* (Red-cockaded woodpecker). In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., a Biological Opinion (BO) under the ESA, Section 7, with "incidental take" provisions with which you must comply). The U.S. Fish and Wildlife Service (USFWS) BO, dated July 21, 2016, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this USACE permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your USACE permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

B. This USACE permit does not authorize you to take a threatened or species, in particular, the Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*). In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., a Biological Opinion (BO) under the ESA, Section 7, with "incidental take" provisions with which you must comply). The U.S. Fish and Wildlife Service's (USFWS's) Programmatic BO titled "Northern Long-eared Bat (NLEB) Programmatic Biological Opinion for North Carolina Department of Transportation (NCDOT) Activities in Eastern North Carolina (Divisions 1-8)," dated March 25, 2015, and adopted on April 10, 2015, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that are specified in the BO. Your authorization under this USACE permit is conditioned upon your compliance with all the mandatory terms and conditions (incorporated by reference into this permit) associated with incidental take of the BO. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and would also constitute non-compliance with your USACE permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

5. Maintain circulation and flow of waters

A. Unless otherwise requested in the applicant's application and depicted on the approved work plans, culverts greater than 48 inches in diameter will be buried at least one foot

below the bed of the stream. Culverts 48 inches in diameter and less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert.

B. Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

C. Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters and wetlands.

6. Sediment Erosion Control:

A. During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

B. No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit.

C. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades on those areas, prior to project completion.

D. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to ensure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to ensure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the

Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

E. Design Standards for Sensitive Watersheds must be implemented during project construction for all tributaries of streams within the study area designated as HQW or ORW due to the classification of their receiving waters

F. The permittee shall install barrier fencing around all wetlands that are not to be disturbed to make them readily visible and prevent construction equipment from inadvertently entering or disturbing these areas.

7. Temporary Fills

A. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

8. Borrow and Waste

A. To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent waters and wetlands, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material or to dispose of dredged, fill or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as such information is available. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any stream or wetland. All jurisdictional wetland delineations on borrow and waste areas shall be verified by the USACE and shown on the approved reclamation plans.

B. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act.

9. Project Maintenance

A. The permittee shall advise the USACE in writing prior to beginning work authorized by this permit and again upon completion of the work authorized by this permit.

B. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this

project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

C. The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

D. The permittee shall take measures to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with any water in or entering into water of the United States. Water inside coffer dams or casings that has been in contact with concrete shall only be returned to water of the United States when it no longer poses a threat to aquatic organisms (i.e. concrete is set and cured).

10. Mitigation

A. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

B. The attached transfer forms cover two separate sources for mitigation. The non-riparian wetland mitigation will come from the Northeast Cape Fear Umbrella Mitigation Bank (total need of 121.57 acre credits) and stream credits will come from the North Carolina Division of Mitigation Services (total need of 3,041 linear feet credits).

11. Cultural Resources

A. NCDOT shall abide by all stipulations identified in the Memorandum of Agreement between the United States Army Corps of Engineers and the North Carolina State Historic Preservation Officer, signed 29 January 2015 and filed by the Advisory Council on April 15, 2016, copy attached.

B. While accomplishing the authorized work, if the permittee discovers any previously unknown cultural resources, the USACE will be immediately notified so that required coordination can be initiated with the North Carolina Division of Cultural Resources.

12. Enforcement

A. All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Wilmington Regulatory Field Office, c/o Mr. Brad Shaver, Field office address, and by telephone at: 910-251-4611. The Permittee shall reference the following permit number, SAW-2007-01386, on all submittals.

B. Violation of these conditions or violation of Section 404 of the Clean Water Act of Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

C. A representative of the USACE will periodically and randomly inspect the work for compliance with these conditions. Deviations from these procedures may result in an administrative financial penalty and/or directive to cease work until the problem is resolved to the satisfaction of the USACE.

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ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

June 17, 2020

Mason Herndon, Environmental Program Supervisor
NC DOT Division 3
5501 Barbados Blvd.
Castle Hayne, NC 28429

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the Proposed Hampstead Bypass on a new alignment in Pender County, State Project No. 40237.1.2, TIP No. R-3300B.
NCDWR Project No. 20161268 v. 3

Dear Mr. Herndon:

Attached hereto is a modification of Certification No. WQ 004116 issued to The North Carolina Department of Transportation (NCDOT) dated June 5, 2017 and modified on March 1, 2019.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

DocuSigned by:
Amy Chapman
[redacted]

S. Daniel Smith, Director
Division of Water Resources

Attachment

Electronic copy only distribution:
Brad Shaver, US Army Corps of Engineers, Wilmington Field Office
Chris Rivenbark, NC Department of Transportation
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Cathy Brittingham, NC Division of Coastal Management
Beth Harmon, Division of Mitigation Services
Joanne Steenhuis, NC Division of Water Resources Wilmington Regional Office

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Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to permanently impact an additional 72.314 acres of jurisdictional wetlands, 1.491 acres of open waters and 6212 linear feet of jurisdictional streams (Intermittent : 1552 lf and Perennial 4204 lf) in Pender County. The project shall be constructed pursuant to the modification dated received April 7, 2020 and subsequent information received on June 10, 2020, June 11, 2020, June 15, 2020 and June 17, 2020. The authorized impacts are as described below:

Stream Impacts in the *Cape Fear and White Oak River Basins

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	**Bank Stabiliz-ation (Linear Feet)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
*Site 3 609+50 to 618+70-L1			419	36		455	419
*Site 3 Inlet Bank Stabilization					33		
*Site 3 611+98 to 612+68-L1-LT Outlet ditch bank stabilization					56		
*Outlet Bank Stabilization					38		
*Site 3 53+88 to 54+12-Y30-LT				25		25	
*Site 3 54+51 to 56+42-Y30-LT			91	10		101	91
*Site 3 57+15 to 58+74-Y30DET				125		125	
*Site 3 13+40 to 19+59-Y30RPA			441	55		496	441
*Site 3 15+01 to 15+56-Y30RPA-LT				12	29	12	
*Site 3 26+15 to 26+49-SR6-LT Outlet Channel				14		14	
Site 3 Outlet Bank Stabilization					14		
*Site 3 18+22 to 20+14-Y30RPD			243			243	243
*Site 3 19+69 to 20+05-Y30RPD-LT				25		25	
*Site 3 Inlet Bank Stabilization					25		
*Site 3 Outlet Bank Stabilization					22		

*Site 5 638+99 to 642+01-L1	172		192			364	
*Site 6 641+99 to 643+06-L1			355	31		386	355
*Site 7 645+01 to 666+60-L1			1768	52		1820	1768
Site 7 Outlet Bank Stabilization					34		
*Site 7 18+94 to 20+52-Y38			226			226	
*Site 7 19+57 to 20+40-Y38-RT Flood Plain Bench ****				10	32	10	
*Site 13 709+67 to 715+63-L1			228			228	228
*Site 13 712+83 to 713+95-L1-RT			78	14		92	78
*Site 13 711+78 to 712+35-L1-LT Outlet Channel				12		12	
*Site 13 Flood Plain Bench**** Outlet bank Stabilization					42		
Site 19 769+74 to 854+07-L1	773					773	
Site 19 18+01 to 22+37-Y32	484					484	
Site 21 23+66 to 25+54-Y19	97					97	
Site 21 24+82 to 25+32-Y19 Outlet Channel		33					
*Site 22 10+17 to 12+28-SR5			163			163	
Site 31 LLT 320+33 LT	26					26	
Site 31 LLT 320+33 LT Channel Realignment ***	39***	19				19	
Site 31 LLT 320+33 RT Bank Stabilization -rip rap pad					20		
Site 31 LLT 320+33 RT Channel Realignment***			37***	16		16	
Total	1552	52	4204	437	345	6212	3623

Total Stream Impacts for Project: 6212 linear feet (Intermittent : 1552 lf and Perennial 4204 lf)
****Bank Stabilization does Not count towards Impacts**
***** Channel Realignment impacts not included as impacts**
****** Flood Plain Benches do not impact the thalweg**
Intermittent Streams do not count towards impacts
Permanent Stream impacts in the Cape Fear Basin = 3623 lf requiring mitigation

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Wetland Impacts in the *Cape Fear and White Oak River Basins

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	**Hand Clearing (ac)	Total Wetland Impact (ac)
*Site 1 584+18 to 601+51 L1	5.436		0.005	0.699		6.14
*Site 1 5+13 to 5+71-Y30RPB-LT			0.015	0.016		0.031
*Site 1 13+27 to 18+16-Y30RPB	0.883			0.118		1.001
*Site 1 19+30 to 26+02-Y30RPC	1.190		0.025	0.080		1.295
*Site 1 27+65 SR4				0.004		0.004
*Site 1 20+90 to 21+60 SR5	0.008		0.028	0.027		0.063
*Site 1 43+83 to 44+59-Y30DET-LT	0.038			0.003		0.041
*Site 2 41+43 to 43+15- Y30-RT	0.141		0.022			0.163
*Site 3 609+50 to 618+70-L1	1.754		0.002	0.089	0.210	1.845
*Site 3 611+72 to 611+91-L1-RT Inlet Channel			0.004			0.004
*Site 3 611+98 to 612+68-L1-LT				0.005	0.015	0.005
*Site 3 45+87 to 47+20-Y30-LT	0.180		0.035	0.024		0.239
*Site 3 53+88 to 54+12-Y30-LT			0.013	0.009		0.022
*Site 3 54+51 to 56+42 -Y30-LT			0.082			0.082
*Site 3 56+99 to 57+43-Y30-RT	0.008					0.008
*Site 3 57+15 to 58+74-Y30DET		0.149			0.010	0.149
*Site 3 13+40 to 19+59-Y30RPA	1.694		0.045	0.188		1.927
*Site 3 15+01 to 15+56 -Y30RPA-LT			0.020			0.020
*Site 3 26+15 to 26+49-SR6-LT			0.005			0.005
*Site 3 18+22 to 20+14-Y30RPD	0.470			0.064	0.026	0.534
*Site 3 19+69 to 20+05-Y30RPD-LT			0.004			0.004
*Site 3 18+99 to 19+24-Y30RPD-RT			0.012			0.012
*Site 4 623+04 to 632+02-L1	1.812			0.131		1.943
*Site 4 633+70 to 634+01-L1-LT				0.005		0.005
*Site 5 638+99 to 642+01-L1	0.065					0.065
*Site 7 645+01 to 666+60-L1	4.805		0.249	0.380		5.434

*Site 7 Outlet Channel			0.062			0.062
*Site 7 18+94 to 20+52-Y38	0.072		0.033	0.018		0.123
*Site 7 19+83-Y38-RT			0.009			0.009
*Site 7 19+38 to 20+09-Y38-LT				0.007		0.007
*Site 7 19+57 to 20+40Y38-RT			0.062	0.008		0.070
*Site 7 18+94 to 19+38-Y38			0.033	0.018		0.051
*Site 7 11+08 to 12+48-Y38DET		0.110			0.020	0.110
*Site 8 673+01 to 673+68-L1-RT	0.071			0.012		0.083
*Site 9 673+18 to 689+67-L1-LT	0.087			0.041		0.128
*Site 11 695+36 to 695+47-L1-LT				0.001		0.001
*Site 13 709+67 to 715+63-L1	2.160			0.114		2.274
*Site 13 712+83 to 713+95-L1-RT			0.024	0.015		0.039
*Site 13 711+78 to 712+35-L1-LT			0.021	0.010		0.031
*Site 15 730+72 to 743+68-L1	4.898		0.060	0.228		5.186
*Site 15 15+72 to 22+37-SR7	1.059		0.014	0.193		1.266
*Site 15 15+91 to 16+09-SR7-RT			0.012			0.012
*Site 16 18+25 to 21+01-Y31-RT	0.066			0.009		0.075
*Site 16 18+74 to 21+34-Y31DET		0.082			0.024	0.082
*Site 17 18+38 to 19+05-Y31-LT	0.002			0.007		0.009
*Site 17 26+86 to 28+87-SR7	0.190		0.030	0.022		0.242
*Site 18 45+47 to 47+66-SR7	0.252			0.043		0.295
*Site 18 766+70 to 769+26-L1	0.534			0.020		0.554
*Site 19 769+74 to 854+07-L1	23.110		0.073	3.036		26.219
*Site 19 48+38 to 56+57-SR7	1.002			0.188		1.19
*Site 19 14+42 to 19+70-SR8	0.359			0.055		0.414
Site 19 769+74 to 854+07-LT	3.697					3.697
Site 19 7+45 to 16+31-Y32RPB1	2.075			0.156		2.231
Site 19 18+01 to 22+37-Y32	1.094		0.054	0.002		1.15
Site 19 29+50 to 39+40-Y32	4.455		0.110	0.335		4.90
Site 21 23+66 to 25+54-Y19	0.372			0.020		0.392
Site 21 25+09-Y19			0.013			0.013

Site 21 24+82 to 25+32-Y19			0.033	0.010		0.043
*Site 22 10+17 to 12+28-SR5	0.209		0.002	0.009		0.220
*Site 24 16+83 to 18+03-Y30DET-RT		0.013			0.012	0.013
*Site 25 46+69 to 46+76-Y31DET-RT					0.001	
Site 26 Y19 50+00 RT				0.005		0.005
Site 28 L279+29 to 286-56 RT	0.307			0.085		0.392
Site 29 L293+08 to 293+80 RT	0.016			0.003		0.019
Site 30 L 301+00 RT	0.005			0.001		0.006
Site 32 13+45 to 14+89-Y43-LT				0.014		0.014
*Site U3 23+91 to 26+36-SR6-LT					0.171	
*Site U3 19+29 to 22+74-Y30RPD-LT					0.143	
*Site U3 10+57 to 13+41-Y30RPD-LT					0.192	
*Site U3 52+05 to 56+54-Y30-LT					0.257	
*Site U17 19+10 to 19+16-Y31-LT					0.060	
*Site U24 16+77 to 16+97-Y30-RT					0.019	
Site U28 289+27 to 286+83-I-RT					0.322	
Site U29 293+53 to 293+90-I-RT					0.006	
Site U33 219+74 to 220+73-L-RT					0.081	
Site U34 34+21 to 34+86-SR6-LT					0.014	
Site U35 279+95 to 280+81-L-LT					0.080	
Site U35 281+62 to 283+85-L-LT					0.178	
Site U35 284+33 to 286+01-L-LT					0.147	
Total	64.576	0.354	1.211	6.527	**1.988**	72.668

Total Permanent Wetland Impacts for Project : 72.314acres Temp Impacts: 0.354 acre
**** Hand Clearing does not count towards impacts**
Wetland impacts in the CFB: 59.452 ac Temp impacts 0.354 ac
Wetland impacts in the WOB: 12.862 ac Temp impacts 0 ac

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Open Water Impacts in the *Cape Fear and White Oak River Basin

Site	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
*Site 10 676+64 to 679+37-L1 Pond	0.633		0.633
*Site 12 700+69 to 702+88-L1 Pond	0.416		0.416
*Site 14 724+44 to 725+96-L1	0.100	0.007	0.107
*Site 14 724+48 to 724+73-L1-RT	0.007		0.007
*Site 14 17+51 to 18+26-Y31RPC	0.035	0.006	0.041
*Site 14 17+57 to 17+87-Y31RPC	0.008		0.008
*Site 23 603+49 to 604+94-L1-RT Pond	0.279		0.279
Total	**1.478**	**0.013**	**1.491**

Total Open Water Impact for Project: 1.491acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear and White Oak River Basins in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modified application dated received April 7, 2020 and subsequent information received on June 10, 2020, June 11, 2020, June 15, 2020 and June 17, 2020. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated June 5, 2017 and modified on March 1, 2019 still apply except where superseded by this certification. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 300 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7**)**. For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit (SAW-2007-1386).

Conditions of Certification:

1. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated June 5, 2017 and subsequent modifications dated March 1, 2019 still apply except where superseded by this certification.
2. The use of rip-rap placed for stream channel stabilization shall be buried to the natural streambed elevation in stream channels in such a manner that it does not impede aquatic life passage or change the dimension, pattern and profile of the stream. [15A NCAC 02H.0506(b)(2)]

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3. Erosion control matting in riparian areas shall not contain a nylon mesh grid which can impinge and entrap small animals. Matting should be secured in place by staples, stakes, or wherever possible live stakes of native trees. Riparian areas are defined as a distance 25 feet from top of stream bank. [15A NCAC 02B.0224, .0225]

4. The NCDOT Division Environmental Officer/Supervisor or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)

5. Compensatory mitigation for impacts for 72.314 acres wetlands is required. Of this 12.862 acres should be in the White Oak Basin, (3.33 acres Riparian and 9.532 acres Non-Riparian), 59.452 acres in the Cape Fear Basin (13.534 acres Riparian and 45.918 acres Non-Riparian). We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North East Cape Fear Umbrella Mitigation Bank (NECFUMB), and that the NECFUMB has agreed to implement the mitigation for the project. NECFUMB has indicated in letters dated December 6, 2016 (wetlands already purchased for the 20161268 V1 section of this project) and May 21, 2020 that they will assume responsibility for satisfying the Federal Clean Water Act compensatory mitigation requirements for the above-referenced project.

6. Compensatory mitigation for 3623 linear feet of impact to streams in the Cape Fear Basin is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated June 17, 2020 that they will assume responsibility for satisfying the Federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

DocuSign Envelope ID: 7FA6FCD0-CF8E-41A3-82F1-F8180BD17850

A copy of the petition must also be served on DEQ as follows:

Mr. Bill F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 17th day of June 2020

DIVISION OF WATER RESOURCES

DocuSigned by:
Amy Chapman
9C9886312DCD474...
S. Daniel Smith, Director

WQC No. WQ 004116

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

S. JAY ZIMMERMAN
Director

June 5, 2017

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

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the proposed extension to Military Cutoff (SR 1409) and US 17 Hampstead Bypass in New Hanover and Pender Counties, TIP Nos. U-4751 and R-3300 (respectively). NCDWR Project No.20161268

Dear Mr. Harris:

Attached hereto is a copy of Certification No. WQ004116 issued to The North Carolina Department of Transportation (NCDOT) dated June 5, 2017.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

S. Jay Zimmerman, Director
Division of Water Resources

Electronic copy only distribution:
Brad Shaver, US Army Corps of Engineers, Wilmington Field Office
Mason Herndon, Division 3 Environmental Officer
Rodger Rochelle, NC Department of Transportation
Chris Rivenbark, NC Department of Transportation
Dr. Cynthia Van Der Wiele, US Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Stephen Lane, NC Division of Coastal Management
Jason Elliott, NCDOT, Natural Environment Section
Beth Harmon, Division of Mitigation Services
Joanne Steenhuis, NC Division of Water Resources Wilmington Regional Office
File Copy

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and 15A NCAC 2B. This certification authorizes the NCDOT to impact 60.52 acres of jurisdictional wetlands, 8.27 acres of open waters and 1,891 linear feet of jurisdictional streams in New Hanover and Pender Counties. The project shall be constructed pursuant to the application dated received December 21, 2016. 2017and subsequent information received on May 30, 2017. **No impacts to R-3300 are being authorized at this time.** The authorized impacts are as described below:

Stream Impacts in the Cape Fear River Basin

Permit Drawing Site Number	Station From/To	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear feet)	Stream Impacts Requiring Mitigation (linear ft)
10	117+49-L-LT & RT			373	201	574	373
15	151+41-L-RT			303	58	361	303
18	166+73-L-LT&RT	231	19			250	0
25	199+05-L-LT&RT			251	16	267	251
27	205+35-211+16-L LT&RT			544	46	590	544
27 Streambank				14		14	14
29	212+90-213+70-L-LT&RT			34	46	80	34
32	214+85-L-RT			36	33	69	36
34	223+72.58-224+45L-RT			32	37	69	32
36	42+74-42+78 Y8RPDB LT&RT			200	56	256	200
36 streambank				41		41	41
38	40+46-Y8-LT			43	10	53	43
40	18+68 Y18-LT			20		20	20
Total for U-4751		231	19	1,891	503	2,644	1,891
R-3300	Preliminary Proposed Impacts	3,167		8,733		11,900	8,733
TOTAL:		3,398	38	10,624	503	14,544	10,624

Total Stream Impact for U-4751: 1,891 linear feet

Wetland Impacts in the Cape Fear River Basin* (Site 1 is in White Oak River Basin)

Permit Drawing Site Number	Station From/To	Wetland Type	Fill (Permanent) (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
1*	27+77-28+11-L-RT	NR	0.002			0.009		0.01
1a*	11+15-15+20 Y1RPD LT&RT	NR	1.114			0.097		1.21
2	20+16-24+68 Y1RPB LT&RT	NR	0.257		0.054	0.024		0.34
3	52+3-63+29-L-LT&RT	NR	5.02			0.256		5.28
4	63+20-77+3-L-LT&RT	NR	6.02			0.302		6.32
5	84+90-85+68-L-LT	NR				0.0001		0.00
15	15+41-L-RT	NR	0.006		0.062	0.023		0.09
16	151+41-165+59-L-LT&RT	NR	5.715			0.314		6.03
19	165+51-168+79-L-LT&RT	NR	0.506			0.011		0.52
21	169+92-180+39-L-LT&RT	NR	4.087			0.312		4.40
23	177+13-198+17-L-LT&RT	NR	6.425		0.018	0.4		6.84
24	27+55-31+96 SR4-LT	NR	0.028			0.043		0.07
26	15+94-29+38 Y8RPDB	NR	10.827			1.159		11.99
28	208+35-214+86-L-LT&RT	NR	4.604		0.006	0.511		5.12
33	216+46-225+15-L-LT&RT	NR	5.759			0.424		6.18
37	4+04.6-62+90 Y8RPCA LT&RT	NR	4.966		0.051	0.967		5.98
39	112+37-120+65 Y8 LT	NR	0.045			0.082		0.13
41	37+46-39+65 Y8 LT	NR				0.01		0.01
Total for U-4751			55.38	0.00	0.19	4.94	0.00	60.52
R-3300	Preliminary Proposed Impacts		155.86					155.86
Total			**211.24**	**0.00**	**0.19**	**4.94**	**0.00**	**216.38**

Total Wetland Impact for U-4751: 60.52 acres.

Open Water Impacts in the Cape Fear River Basin *(Site 1 is in the White Oak River Basin)

Permit Drawing Site Number	Station Number From/To	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
1b*	15+20-15+29 -Y1RPD LT&RT	0.03	0.01	0.03
6	110+42-L LT&RT	0.21	0.03	0.23
6a Streambank		0.01		0.01
7	14+05 Y4- LT&RT	0.16		0.16
8	110+41-117+49-L- LT	0.47		0.47
9	112+57-116+35-L-RT	0.51		0.51
10	117+49-L-LT&RT	0.34	0.19	0.53
11	118+15-217+87-L-LT	0.28		0.28
12	120+35-127+74-L-RT	0.70		0.70
13	126+00-126+50-L-LT	0.01	0.01	0.01
14	124+39-145+48-L-RT	2.05	0.02	2.07
15	151+41-L-RT	0.15	0.02	0.17
17	166+32-L-LT&RT	0.06	0.00	0.06
18	166+73-L-LT&RT	0.07	0.01	0.08
20	163+73-L-LT&RT	0.11		0.11
22	175+00-184+16-L-LT&RT	0.98	0.02	1.00
23	177+13-198+17-L-LT&RT	0.42	0.04	0.46
25	199+05-L-LT&RT	0.12	0.01	0.12
27	205+35-211+16-L-LT&RT	0.25	0.02	0.27
27a Streambank			0.01	0.01
29	212+90-213+70-L-RT	0.00	0.02	0.02
30	26+22-30+19 Y8RPC-LT&RT	0.14	0.01	0.14
30a Streambank		0.01		0.01
31	215+61.5-L-LT&RT	0.08	0.01	0.09
32	214+85-L-RT	0.01	0.02	0.02
34	223+72.58-224+45-L-RT	0.01	0.01	0.03
35	33+79 Y8RPDB-LT	0.19	0.00	0.19
35a Streambank		0.00		0.00
36	40+74-42+78 Y8RPDB LT&RT	0.34	0.04	0.38
36a Streambank		0.02		0.02
38	40+46-Y8-LT	0.01	0.02	0.04
40	18+68-Y18-LT	0.06		0.06
Total for U-4851		**7.76**	**0.51**	**8.27**
R-3300	Proposed impacts	2.56		2.56
TOTAL		**10.32**	**0.51**	**10.83**

Total Open Water Impact for U-4751: 8.27 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear River Basin and the White Oak River Basins in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received December 21, 2016 and subsequent information received on May 30, 2017. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a

copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)]

2. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage. [15A NCAC 02H.0506(b)(2)]

3. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed. [15A NCAC 02H.0506(b)(2)]

4. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)]

5. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.) [15A NCAC 02H.0506(b)(2) and (b)(3)]

6. Tall fescue shall not be used in the establishment of temporary or permanent groundcover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed soils within the riparian area and on disturbed steep slopes with the following exception. Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain a nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied from a fertilizer- and limestone-free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters in prohibited. Riparian areas are defined as a distance 25 feet landward from top of stream bank.

7. When final design plans are completed for R-3300, a modification to the 401 Water Quality Certification shall be submitted with five copies and fees to the NC Division of Water Resources. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. No construction activities that impact any wetlands, streams, surface waters, or buffers located in R-3300 shall begin until after the permittee applies for, and receives a written modification of the 401 Water Quality Certification from the NC Division of Water Resources. [15A NCAC 02H. 0506(b)]

General Conditions

8. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]

9. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]

10. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]

11. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]

12. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]

13. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507 (c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

14. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3) and (c)(3)]

15. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]

16. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]

17. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]

18. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]

19. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]

20. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]

21. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

22. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization, including all non-commercial borrow and waste sites associated with the project, shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]

23. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

24. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]

25. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]

26. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02H 0506(b)(2)]

27. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities. [15A NCAC 02H.0506(b)(3) and (c)(3)

28. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]

    a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual.*
    b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual.* The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
    c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual.*
    d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

29. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]

30. Compensatory mitigation for 1,891 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the Division of Mitigation Services (DMS), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated December 5, 2016 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.

31. Compensatory mitigation for impacts to 60.52 acres of non-riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the Northeast Cape Fear Umbrella Mitigation Bank, and that the bank has agreed to implement the mitigation for the project. The Northeast Cape Fear Umbrella Mitigation Bank has indicated in a letter dated December 6,

2016 that they will assume responsibility for satisfying the Federal Clean Water Act compensatory mitigation requirements for the above-referenced project.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

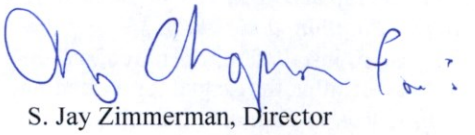
Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Bill F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699

This the 2nd day of June 2017

DIVISION OF WATER RESOURCES



S. Jay Zimmerman, Director

WQC No.WQ004116

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

NORTH CAROLINA
Environmental Quality

June 25, 2020

Mr. Mason Herndon, Environmental Program Supervisor
N.C. Department of Transportation, Division 3
5501 Barbados Blvd
Castle Hayne, NC 28429

SUBJECT: **CD 17-018** - Supplemental Consistency Concurrence, SR 1409 (Military Cutoff Road) extension and US 17 Hampstead Bypass in New Hanover and Pender Counties, TIP Nos. U-4751 and R-3300.

Dear Mr. Herndon:

The N.C. Division of Coastal Management (DCM) received a supplemental consistency certification from the N.C. Department of Transportation (NCDOT) dated April 7, 2020 for TIP No. R-3300B, which is approximately 6.9 miles long, and which involves construction of a four-lane divided roadway from South of NC 210 to a point North of SR 1563 (Sloop Point Road) in Pender County. When DCM issued a conditional concurrence on June 16, 2017 for the complete 17.5-mile project which includes TIP No. U-4751 and TIP No. R-3300, final design was only complete for TIP No. U-4751, which is 5.5 miles. TIP No. R-3300 includes an A-Section and a B-Section, and at this time, final design is complete for TIP No. R-3300B. TIP No. R-3300A is still in preliminary design.

The April 7, 2020 submittal included a cover letter, supporting information document, green sheet project commitments, a Memorandum of Agreement (MOA) among the U.S. Army Corps of Engineers, NCDOT, and the N.C. State Historic Preservation Officer, and a mitigation request to the N.C. Division of Mitigation Services (DMS). After the April 7, 2020 submittal, DCM received the following additional revised information: a revised mitigation proposal dated May 20, 2020, a credit reservation letter from the Northeast Cape Fear Umbrella Mitigation Bank dated May 21, 2020, six revised permit drawings and updated wetland impact summary sheets received on June 10, 2020, and a revised DMS Acceptance Letter dated June 17, 2020.

North Carolina's coastal zone management program consists of, but is not limited to, the Coastal Area Management Act, the State's Dredge and Fill Law, Chapter 7 of Title 15A of North Carolina's Administrative Code, and the land use plan(s) of the county and/or local municipalities in which the proposed project is located. It is the objective of DCM to manage the State's coastal resources to ensure that proposed Federal actions would be compatible with safeguarding and perpetuating the biological, social, economic and aesthetic values of the State's coastal resources.

DCM circulated the supplemental consistency certification for TIP No. R-3300B to state agencies that would have a regulatory or resource interest in the proposed development. No comments were received asserting that the proposed project would be inconsistent with North Carolina's coastal management program.

DCM reviewed the information submitted by NCDOT, and the comments received from state agencies, pursuant to the management objectives and enforceable policies of Subchapters 7H and 7M of Chapter 7 in Title 15A of the North Carolina Administrative Code. DCM concurs that the proposed project is consistent, to the maximum extent practicable, with North Carolina's approved coastal management program, with the following conditions:

1. This Conditional Supplemental Consistency Concurrence certifies consistency of TIP R-3300B for the purposes of construction. However, it does not certify consistency of TIP R-3300A for the purposes of construction. In the future, when the final design and a final compensatory mitigation plan for TIP R-3300A are complete, NCDOT shall submit a Supplemental Consistency Determination to DCM in accordance with provisions of Federal Consistency under 15 CFR 930.46, Supplemental Coordination for Proposed Activities. NCDOT shall request that DCM respond with a determination if the project with the proposed changes remains consistent with North Carolina's coastal management program.

2. The project shall be implemented in accordance with the Modification of the 401 Water Quality Certification No. WQ004116 which was issued by the N.C. Division of Water Resources (DWR) on June 17, 2020 (NCDWR Project No. 20161268 v. 3).

3. In accordance with comments received from the N.C. Division of Water Resources Public Water Supply Section on May 4, 2020, plans and specifications for the relocation and/or replacement of water mains must be submitted to the N.C. Division of Water Resources, Public Water Supply Plan Review Section, for approval prior to construction. Final approval must be issued before water mains are placed into service.

Should the proposed action be modified, a revised consistency certification could be necessary. This might take the form of either a supplemental consistency certification pursuant to 15 CFR 930.46, or a new consistency certification pursuant to 15 CFR 930.36. Likewise, if further project assessments reveal environmental effects not previously considered by the proposed development, a supplemental consistency certification may be required.

If you have any questions or concerns, please contact Cathy Brittingham via e-mail at cathy.brittingham@ncdenr.gov or Stephen Lane via e-mail at Stephen.Lane@ncdenr.gov. Thank you for your consideration of the North Carolina coastal management program.

Sincerely,

Daniel Govoni
Federal Consistency Coordinator

cc: Brad Shaver, USACE
Joanne Steenhuis, DWR
Beth Harmon, DMS
Travis Wilson, WRC
Renee Gledhill-Earley, SHPO
Heidi Cox, DWR-PWSS
Tara MacPherson, DCM
Stephen Lane, DCM

NORTH CAROLINA
Department of Environmental Quality

North Carolina Department of Environmental Quality | Division of Coastal Management
Morehead City Office | 400 Commerce Avenue | Morehead City, North Carolina 28557
252.808.2808

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

General Project Information

WBS Element:	40237.1.1	**TIP Number:**	R-3300B	**Project Type:**	New Location	**Date:**	3/29/2019
NCDOT Contact:	Mason Herndon			**Contractor / Designer:**	Joshua G. Dalton		
	Address: Div 3 Environmental Program Supervisor 5501 Barbados Blvd. Castle Hayne, NC 28429			**Address:**	Sungate Design Group, PA 905 Jones Franklin Rd Raleigh, NC 27606		
	Phone: 910-341-2036			**Phone:**	919-859-2243		
	Email: tmherndon@ncdot.gov			**Email:**	jdalton@sungatedesign.com		
City/Town:	Hampsted			**County(ies):**	Pender		
River Basin(s):	Cape Fear	White Oak		**CAMA County?**	Yes		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	6.916 miles	**Surrounding Land Use:**	Rural, Residentail, Commercial		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	89.6 ac.			12.6 ac.	
Typical Cross Section Description:	Two 12' travel lanes in each direction (4 total) with 10' paved shoulders and 34' wide grass median.			N/A, new location roadway.	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 55400	Year: 2040		Existing: N/A	Year: 2016
General Project Narrative: (Description of Minimization of Water Quality Impacts)	R-3300B is a new location roadway project for future NC 417 (Hampstead Bypass) from south of NC 210 to east of SR 1563 (Sloop Point Loop Road). Work will include grading, drainage, paving, structures, signals, and culverts. Wetland and stream impacts have been minimized using maximum 3:1 side slopes across jurisdictional streams and through wetland areas. Off-site and roadway drainage have been seperated to the maximum extent practical and roadway drainage discharged outside of wetlands areas, where possible. Toe protection at toe of fill slopes, in lieu of lateral ditches, have been propsoed in wetland areas to minmize impacts to wetlands, where possible. Culverts in jurisdication streams will be buried to promote fish passage. A stormwater wet detention basin and dry detention basin have been designed at the northern most interchange to provide stormwater quality and quantity control.				

Waterbody Information

Surface Water Body (1):	UT to Old Topsail Creek		**NCDWR Stream Index No.:**	18-87-12	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class SA		
		Supplemental Classification:	High Quality Waters (HQW)		
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	NSF			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

Additional Waterbody Information

Surface Water Body (2):	Winding Branch (Trib to Harrisons Creek)		**NCDWR Stream Index No.:**	18-74-49		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	Swamp Waters (Sw)			
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:	LSB			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (3):	Harrisons Creek		**NCDWR Stream Index No.:**	18-74-49		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	Swamp Waters (Sw)			
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:	LSC			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (4):	Godfrey Creek		**NCDWR Stream Index No.:**	18-74-49-1		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	Swamp Waters (Sw)			
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:	LSD			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: **TIP No.:** R-3300B **County(ies):** Pender

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
5	-Y30- 46+88 LT	(2)Winding Branch (Trib	Riprap Energy Dissipator Basin	Class I	48.0	Pipe	54	95.0	2.1	N/A
10	-L1- 677+37 RT	(3)Harrisons Creek	Riprap Energy Dissipator Basin	Class I	33.0	Pipe	54	65.0	1.9	N/A

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 40237.1.1 **TIP No.:** R-3300B **County(ies):** Pender

Level Spreaders, Hazardous Spill Basins, and Forebays

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Level Spreader, Hazardous Spill Basin, or Forebay?	Drainage Area (ac)	New Built-Upon Area (ac)	Required / Minimum Treatment			Treatment Achieved		BMP Associated w/ Buffer Rules?
23	-L1_N- 866+50 LT	(1)UT to Old Topsail Creek	Forebay	1.41	0.88	0.1 inches of runoff from NBUA	303.6	cf	1116.0	cf	No
23	-Y32- 39+75 RT	(1)UT to Old Topsail Creek	Forebay	2.89	0.23	0.1 inches of runoff from NBUA	79.4	cf	1300.2	cf	No

*Hazardous spill basins are pollution prevention measures designed for spill containment rather than stormwater treatment. Under Required / Minimum Treatment and Treatment Achieved, provide the minimum required volume and the actual HSB volume, respectively. Refer to the NCDOT Stormwater Best Management Practices Toolbox (2014) for design guidance.

Additional Comments

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 40237.1.1 **TIP No.:** R-3300B **County(ies):** Pender

Other Best Management Practices

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Upon Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
23	-L1_N- 868+00 LT	(1)UT to Old Topsail Creek	Wet Detention Basin	12.1	2.9	0.378	1.65	No
23	-Y32- 29+23 RT	(1)UT to Old Topsail Creek	Dry Detention Basin	10.3	2.6	2.08	9.99	No

Additional Comments

Note: Volume treated (WQv) based on storage up to elevation of first opening above tee pipe.

09/08/99

TIP PROJECT: R-3300B



FDFI PLANS SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PENDER COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3300B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40237.1.1	N/A	PE
40237.2.1	N/A	RW
40237.2.2	N/A	UTIL

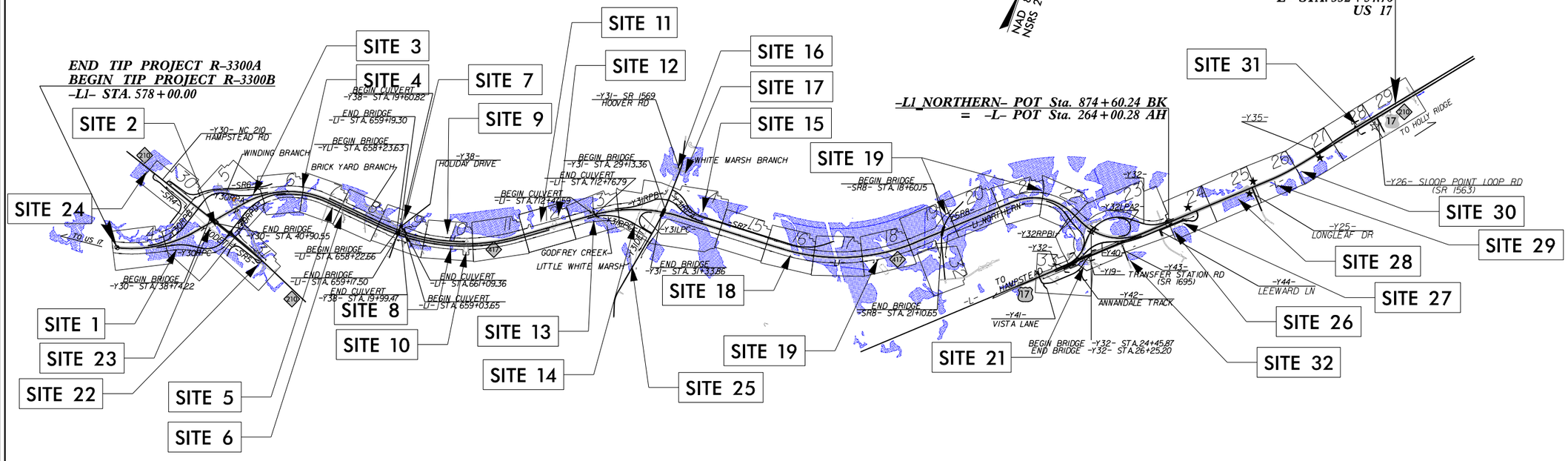
PERMIT DRAWING
SHEET 1 OF 165

DATE: 04-01-2020

LOCATION: NC 417 (HAMPSTEAD BYPASS) FROM SOUTH OF NC 210 TO NORTH OF SR 1563 (SLOOP POINT LOOP ROAD).

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, SIGNALS, AND CULVERTS

WETLAND AND SURFACE WATER IMPACTS PERMIT



SUNGATE DESIGN GROUP, P.A.
605 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. P-0929

☆ UPDATE EXISTING SIGNAL
★ PROPOSED SIGNAL

-THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
-CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY MODIFIED METHOD III.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2016 = N/A
ADT 2040 = 55,400
DHV = 8 %
D = 60 %
T = 6 % *
V = 70 MPH
*(TTST 2% + DUALS 4%)
FUNC CLASS = FREEWAY
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3300B = 6.893 MILES
LENGTH STRUCTURE TIP PROJECT R-3300B = 0.023 MILES
TOTAL LENGTH TIP PROJECT R-3300B = 6.916 MILES

PREPARED IN THE OFFICE OF:
STANTEC CONSULTING
801 Jones Franklin Road |Suite 300| Raleigh, NC 27606
Tel. (919) 851-6866 | Fax. (919) 851-7024 | www.stantec.com
License No. F-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 16, 2018

LETTING DATE:
JULY 21, 2020

MICHAEL D. LINDGREN, P.E.
PROJECT ENGINEER

TRACE HOWELL, P.E.
NCDOT DIVISION 3 CONTACT

HYDRAULICS ENGINEERS

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

–Y30DET–

REVISIONS

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
TEL (919) 851-6866
Fax (919) 851-7024
www.stantec.com
License No. F-0372

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	2B-2
NW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWING SHEET 2 OF 165

DATE: 04–01–2020

NAD 83/NSRS 2007

MATCHLINE –Y30DET– STA 40+00.00

FOR –Y30DET– PROFILE SEE SHEETS 2B–3 & 2B–4

BEGIN CONSTRUCTION
–Y30DET– PC Sta. 16+72.60
–Y30– PC Sta. 16+72.60

–Y30DET– PRC Sta. 19+96.79

–Y30DET– PT Sta. 22+26.96

–Y30DET– PC Sta. 26+31.98

–Y30DET– PRC Sta. 27+62.06

–Y30DET– PT Sta. 28+73.64

–Y30DET– PC Sta. 39+51.4

ENLARGEMENT VIEW
SEE SHEET 4 OF 165

SITE 24

DETAIL 2B-7
TEMPORARY SPECIAL LATERAL 'V' DITCH
(Not to Scale)

DETAIL 2B-3
TEMPORARY SPECIAL LATERAL 'V' DITCH
(Not to Scale)

DETAIL 2B-2
TEMPORARY SPECIAL SILT BASE DITCH
(Not to Scale)

DETAIL 2B-6
TOE PROTECTION
(Not to Scale)

–Y30– PC Sta. 46+86.72

–Y30DET– PT Sta. 41+18.81

–Y30DET– PC Sta. 49+52.44

–Y30DET– PT Sta. 50+55.31

–Y30– PT Sta. 59+12.58

–Y30DET– PRC Sta. 59+79.23

–Y30DET– PC Sta. 57+96.57

ENLARGEMENT VIEW
SEE SHEET 6 OF 165

SITE 3

END CONSTRUCTION
–Y30DET– PT Sta. 62+57.50
–Y30– PT Sta. 62+35.77

SITE 2

SITE 1

ENLARGEMENT VIEW
SEE SHEET 5 OF 164

PERMANENT IMPACTS SHOWN
ON SHEET 149 OF 165

PERMANENT IMPACTS SHOWN
ON SHEET 27 OF 165

HC HC	DENOTES HAND CLEARING
T T	DENOTES TEMPORARY FILL IN WETLAND
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F F	DENOTES FILL IN WETLAND

REVISIONS

–Y30DET–

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
TEL (919) 851-6866
Fax (919) 851-7024
www.stantec.com
License No. F-0372

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	2B-2
NW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWING SHEET 3 OF 165

DATE: 04–01–2020

NAD 83/NSRS 2007

MATCHLINE –Y30DET– STA 40+00.00

FOR –Y30DET– PROFILE SEE SHEETS 2B–3 & 2B–4

ENLARGEMENT VIEW SEE SHEET 4 OF 165

SITE 24

BEGIN CONSTRUCTION
–Y30DET– PC Sta. 16+72.68
–Y30– PC Sta. 16+72.60

–Y30DET– PRC Sta. 19+96.79

–Y30DET– PT Sta. 22+26.96

–Y30DET– PC Sta. 26+31.98

–Y30DET– PRC Sta. 27+62.06

–Y30DET– PT Sta. 28+73.64

–Y30DET– PC Sta. 39+51.14

DETAIL 2B-7
TEMPORARY SPECIAL LATERAL "V" DITCH
(Not to Scale)

DETAIL 2B-3
TEMPORARY SPECIAL LATERAL "V" DITCH
(Not to Scale)

DETAIL 2B-2
TEMPORARY SPECIAL SILT BASE DITCH
(Not to Scale)

DETAIL 2B-6
TOE PROTECTION
(Not to Scale)

–Y30– PC Sta. 46+86.72

–Y30DET– PT Sta. 41+88.81

–Y30DET– PC Sta. 49+52.44

–Y30DET– PT Sta. 50+55.31

–Y30– PT Sta. 59+12.58

–Y30DET– PRC Sta. 59+79.23

–Y30DET– PC Sta. 57+96.57

–Y30DET– PT Sta. 62+57.50
–Y30– PT Sta. 62+35.77

END CONSTRUCTION

SITE 1

SITE 2

SITE 3

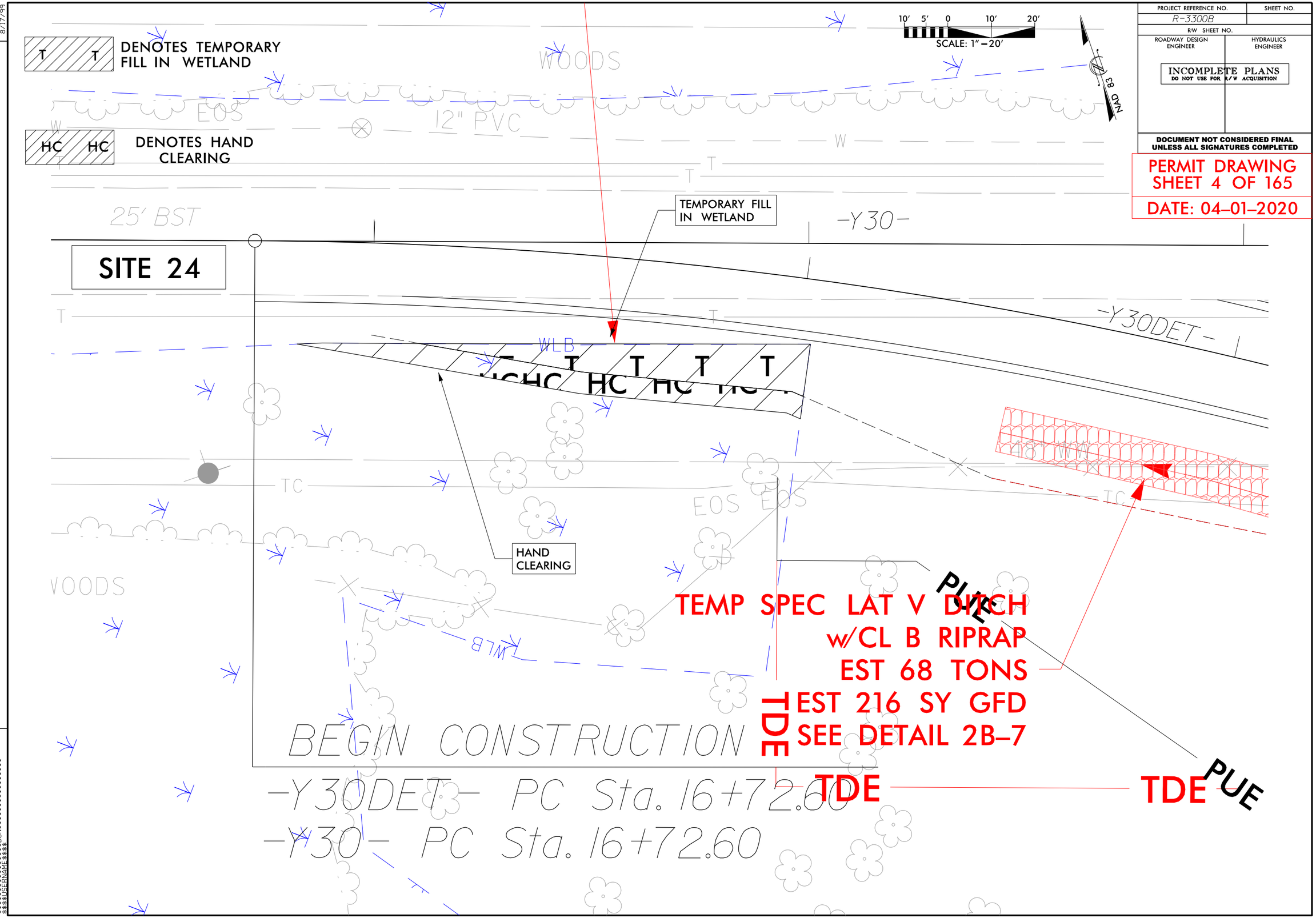
ENLARGEMENT VIEW SEE SHEET 5 OF 165

ENLARGEMENT VIEW SEE SHEET 67 OF 165

PERMANENT IMPACTS SHOWN ON SHEET 27 OF 165

PERMANENT IMPACTS SHOWN ON SHEET 149 OF 165

HC HC	DENOTES HAND CLEARING
T T	DENOTES TEMPORARY FILL IN WETLAND
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F F	DENOTES FILL IN WETLAND



PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 4 OF 165
DATE: 04-01-2020
SCALE: 1" = 20'
10' 5' 0 10' 20'
NAD 83
T T DENOTES TEMPORARY FILL IN WETLAND
HC HC DENOTES HAND CLEARING
WOODS
EOS
12" PVC
25' BST
TEMPORARY FILL IN WETLAND
-Y30-
SITE 24
-Y30DET-
WLB
HC HC HC HC
TC
EOS EOS
HAND CLEARING
WOODS
WLB
PUE
TEMP SPEC LAT V DITCH
w/CL B RIPRAP
EST 68 TONS
EST 216 SY GFD
SEE DETAIL 2B-7
TDE
TDE
TDE
PUE
BEGIN CONSTRUCTION
-Y30DET- PC Sta. 16+72.60
-Y30- PC Sta. 16+72.60
REVISIONS
8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 5 OF 165

DATE: 04–01–2020

NAD 83

10' 5' 0 10' 20'
SCALE: 1" = 20'

(UNKNOWN WIDTH)
TC
TC
RICHARD B. GRIFFITH
WOODS
17
-Y30DET-
44+00
45+00
WLB
WLB
WLB
WLB
F
E
24" TEMP. PIPE
-Y30DET-
FENCE
X
SITE 2
SITE 1
PERMANENT IMPACTS SHOWN ON SHEET 28 OF 165
F F DENOTES FILL IN WETLAND

$$$$USERNAME$$$$
$$$$SYSTIME$$$$
$$$$DGN$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 6 OF 165

DATE: 06-09-2020

T T DENOTES TEMPORARY FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

HC HC DENOTES HAND CLEARING

CA

13' WD HW
36" CMP

15' WD HW

W

T

T

-Y30-

-Y30DET

59+00

NAD 83

10' 5' 0 10' 20'
SCALE: 1" = 20'

TEMP SPEC CUT VARIABLE
BASE DITCH w/PSRM
EST 1000 SY

PERMANENT IMPACTS SHOWN ON SHEET 149 OF 165

TEMPORARY FILL IN WETLAND

CL B RIPRAP
EST 22 TONS
EST 56 SY GFD

-Y30DET

57+00

F F

18" CMP

WLB

T T T

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-248

PERMIT DRAWING
SHEET 7 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

20

0.012 0.012 4:1 3:1

24.22 21.90

18+50.00

20

WETLANDS

WETLANDS

SITE 24

TEMPORARY FILL IN WETLANDS

HAND CLEARING

0.020 2:1

20

23.81

18+00.00

20

WETLANDS

WETLANDS

SITE 24

TEMPORARY FILL IN WETLANDS

HAND CLEARING

0.020 2:1

20

23.70

17+50.00

20

WETLANDS

WETLANDS

HAND CLEARING

0.020 3:1

20

23.70

17+00.00

20

WETLANDS

20

23.55

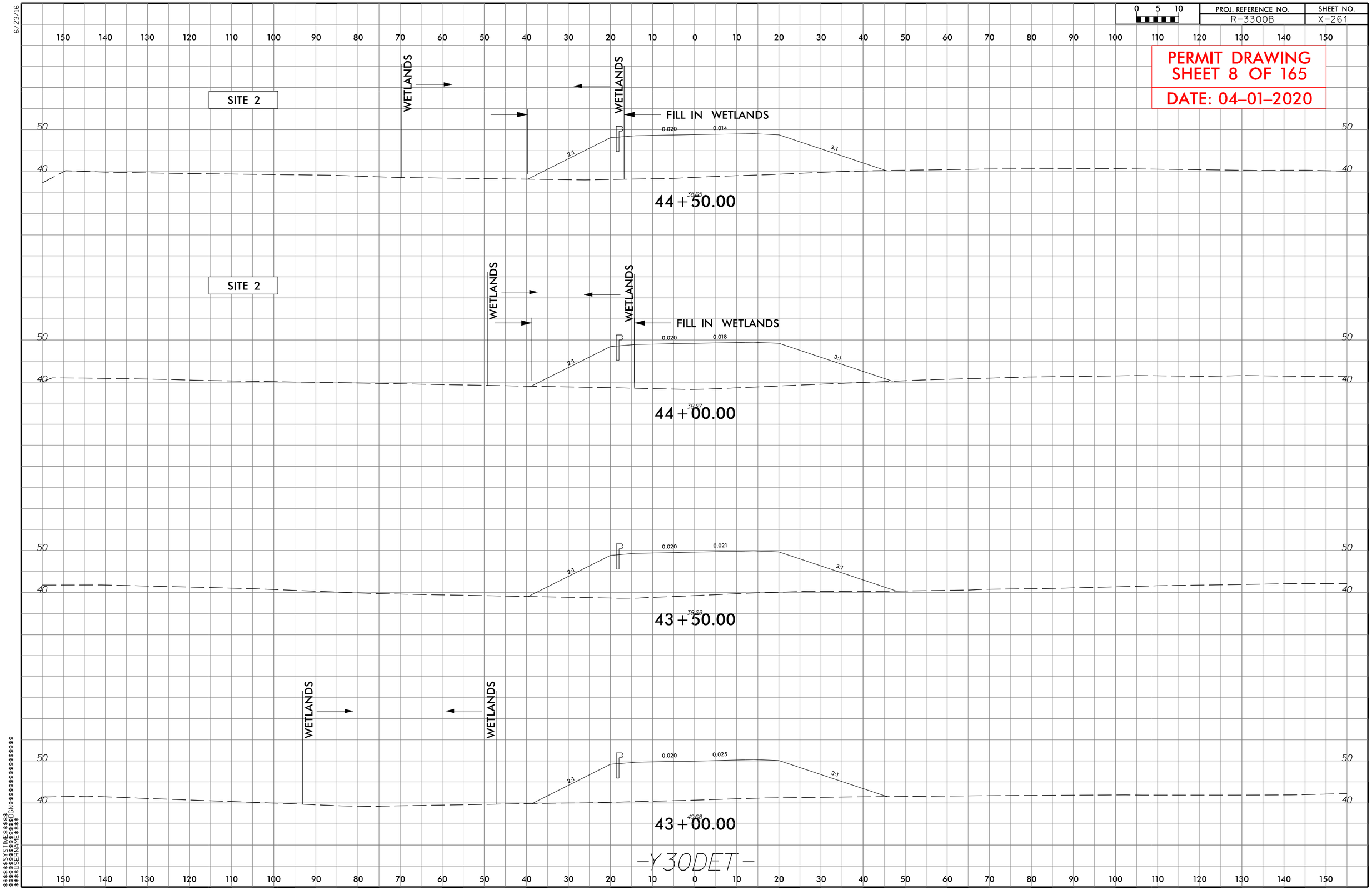
16+50.00

20

-Y30DET-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-261
PERMIT DRAWING
SHEET 8 OF 165
DATE: 04-01-2020
SITE 2
WETLANDS
WETLANDS
FILL IN WETLANDS
0.020
0.014
2:1
3:1
44+50.00
SITE 2
WETLANDS
WETLANDS
FILL IN WETLANDS
0.020
0.018
2:1
3:1
44+00.00
0.020
0.021
2:1
3:1
43+50.00
WETLANDS
WETLANDS
0.020
0.025
2:1
3:1
43+00.00
-Y30DET-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-267

PERMIT DRAWING
SHEET 9 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 3

WETLANDS

TEMPORARY FILL IN WETLANDS

HAND CLEARING

0.040 0.040

3:1 3:1

33.35

30 30

3382

58+50.00

WETLANDS WETLANDS

TEMPORARY FILL IN WETLANDS

TEMPORARY IMPACTS IN SURFACE WATER

TEMPORARY FILL IN WETLANDS

HAND CLEARING

0.028 0.028

3:1 3:1

32.00

30 30

3282

58+00.00

SITE 3

WETLANDS WETLANDS

TEMPORARY FILL IN WETLANDS

TEMPORARY IMPACTS IN SURFACE WATER

TEMPORARY FILL IN WETLANDS

0.020 0.007

3:1 3:1

31.58

30 30

3388

57+50.00

0.020 0.014

3:1 3:1

31.15

30 30

3439

57+00.00

WETLANDS

0.020 0.020

3:1 3:1

30.73

30 30

3280

56+50.00

-Y30DET-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$

8/17/99

REVISIONS

-Y31DET-

NAD 83/NSRS 2007

50' 25' 0 50' 100'

SCALE: 1" = 100'

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Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	2B-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 10 OF 165

DATE: 04-01-2020

-Y31- PC Sta. 15+62.10

-Y31- PT Sta. 18+20.70

PERMANENT IMPACTS SHOWN ON SHEET 78 OF 165

GEOTEXTILE UNDER TEMPORARY FILL IN WETLANDS EST 810 SY

S 1° 36' 026" E

S 2° 22' 37.5" W

TEMP SPEC LAT V DITCH SEE DETAIL 2B-3

TEMP. 18"

TEMP STD 2' BASE DITCH SEE DETAIL 2B-4

DAYLIGHT DITCH AT NG

BEGIN CONSTRUCTION
-Y31- PT Sta. 18+20.70
-Y31DET- PC Sta. 18+20.70

PERMANENT IMPACTS SHOWN ON SHEET 78 OF 165

SITE 16

-Y31DET- PRC Sta. 21+67.89

-Y31DET- PT Sta. 24+47.17

-Y31DET- S 7° 02' 55.2" W

CASTLE BAY PROPERTY OWNERS, ASSOC.

CHARLES E BRYANT

ELAINE S. BROWN

RACHEL P. GAINES

THOMAS E. MCFEE, ET AL, TRUSTEES

ROSE S. BRYANT, ET AL

ERNEST R. LEWIS

ERNEST D. BRYANT, JR., ET UX

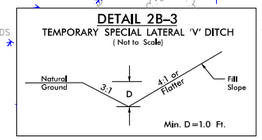
THELMA B. LENNON

SR 1569 HOOVER RD 20' BST

WHITE MARSH BRANCH

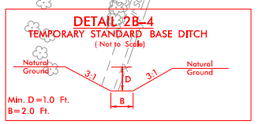
LITTLE WHITE MARSH

DETAIL 2B-3
TEMPORARY SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 21+00 TO STA. 22+00 -Y31DET- LT
FROM STA. 30+50 TO STA. 34+50 -Y31DET- LT
FROM STA. 43+50 TO STA. 46+50 -Y31DET- RT

DETAIL 2B-4
TEMPORARY STANDARD BASE DITCH
(Not to Scale)



STA. 21+50 -Y31DET- RT
STA. 43+25 -Y31DET- LT

ENLARGEMENT VIEW
SEE SHEET 12 OF 165

MICHAEL NADEAU

PERMANENT IMPACTS SHOWN ON SHEET 77 OF 165

-Y31- PT Sta. 35+58.66

HOOVER ROAD INVESTMENT, LLC

T T DENOTES TEMPORARY FILL IN WETLAND

HC HC DENOTES HAND CLEARING

24" HDPE

24" CMP

ELAINE B. SPILLER

ELAINE S. BROWN

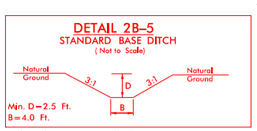
PROFESSIONAL POWER GROUP INC

TEMP SPEC LAT V DITCH SEE DETAIL 2B-3

30" RCP-IV TEMP. PIPE

CL I RIP RAP EST 11 TONS EST 22 SY GFD

DETAIL 2B-5
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 37+50 TO STA. 40+00 -Y31DET- RT

18" RCP-IV TEMP. PIPE

CL B RIPRAP EST 3 TONS EST 10 SY GFD

BACKFILL EX. CHANNEL TO NG

STD 4' BASE DITCH SEE DETAIL 2B-5

-Y31DET- PC Sta. 40+12.35

PROFESSIONAL POWER GROUP

TOM H. JONES ET AL

ALBERT W. SPILLER

SANDRA K. POWELL

18" TEMP. PIPE

-Y31DET- PRC Sta. 43+26.42

MATCHLINE -Y31DET- STA 29+50.00

MATCHLINE -Y31DET- STA 44+0.00

MATCHLINE INSET -Y31DET- STA 44+0.00

-Y31- S 10° 58' 49.0" W

HERMAN J. BARANOWSKI, ET UX

HILDUR C. SWAIN

NORMA C. MOORE

MARK D. KING, ET UX

SITE 25

TEMP SPEC LAT V DITCH SEE DETAIL 2B-3

EROSION CONTROL DEVICE AREA

END CONSTRUCTION
-Y31- POT Sta. 47+00.00
-Y31DET- PT Sta. 47+13.23

NAD 83/NSRS 2007

ENLARGEMENT VIEW
SEE SHEET 13 OF 165

TEMP STD 2' BASE DITCH SEE DETAIL 2B-4

18" TEMP. RCP-IV

SYSTIME=$$$

8/17/99

REVISIONS

-Y31DET-

NAD 83/NSRS 2007

50' 25' 0 50' 100'

SCALE: 1" = 100'

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Raleigh, NC 27606
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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	2B-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 11 OF 165

DATE: 04-01-2020

-Y31- PC Sta. 15+62.10

-Y31- PT Sta. 18+20.70

PERMANENT IMPACTS SHOWN ON SHEET 77 OF 165

GEOTEXTILE UNDER TEMPORARY FILL IN WETLANDS EST. 810 SY

S 1° 36' 026" E

S 2° 22' 37.5" W

TEMP. SPEC. LAT. V DITCH SEE DETAIL 2B-3

TEMP. STD. 2' BASE DITCH SEE DETAIL 2B-4

DAYLIGHT DITCH AT NG

BEGIN CONSTRUCTION

-Y31- PT Sta. 18+20.70

-Y31DET- PC Sta. 18+20.70

PERMANENT IMPACTS SHOWN ON SHEET 78 OF 165

-Y31DET- PRC Sta. 21+67.89

SITE 16

-Y31DET- PT Sta. 24+47.37

-Y31DET- S 7° 02' 55.2" W

DETAIL 2B-3
TEMPORARY SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope

Min. D=1.0 Ft.

FROM STA. 21+00 TO STA. 22+00 -Y31DET- LT
FROM STA. 30+50 TO STA. 34+50 -Y31DET- LT
FROM STA. 43+50 TO STA. 46+50 -Y31DET- RT

DETAIL 2B-4
TEMPORARY STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, Natural Ground, B

Min. D=1.0 Ft.
B=2.0 Ft.

STA. 21+50 -Y31DET- RT
STA. 43+25 -Y31DET- LT

ENLARGEMENT VIEW
SEE SHEET 12 OF 165

ENLARGEMENT VIEW
SEE SHEET 13 OF 165

T T DENOTES TEMPORARY FILL IN WETLAND

HC HC DENOTES HAND CLEARING

-Y31- PT Sta. 35+58.66

MATCHLINE -Y31DET- STA 29+50.00

MATCHLINE -Y31DET- STA 29+50.00

MATCHLINE -Y31DET- STA 44+00.00

TEMP SPEC LAT V DITCH SEE DETAIL 2B-3

-Y31DET- S 7° 02' 55.2" W

30" RCP-IV TEMP. PIPE

CL I RIP RAP EST 11 TONS EST 22 SY GFD

18" RCP-IV TEMP. PIPE

BACKFILL EX. CHANNEL TO NG

CL B RIPRAP EST 3 TONS EST 10 SY GFD

STD 4' BASE DITCH SEE DETAIL 2B-5

-Y31DET- PC Sta. 40+12.35

DETAIL 2B-5
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, Natural Ground, B

Min. D=2.5 Ft.
B=4.0 Ft.

FROM STA. 37+50 TO STA. 40+00 -Y31DET- RT

-Y31- S 10° 58' 49.0" W

SITE 25

TEMP SPEC LAT V DITCH SEE DETAIL 2B-3

TEMP STD 2' BASE DITCH SEE DETAIL 2B-4

18" TEMP. RCP-IV

END CONSTRUCTION
-Y31- POT Sta. 47+00.00
-Y31DET- PT Sta. 47+13.23

-Y31DET- PRC Sta. 43+26.42

NAD 83/NSRS 2007

CASTLE BAY PROPERTY OWNERS, ASSOC.

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ROSE S. BRYANT, ET AL

ERNEST R. LEWIS

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ELAINE B. SPILLER

PROFESSIONAL POWER GROUP INC

HOOVER ROAD INVESTMENT, LLC

MARK D. KING, ET UX

HERMAN L. BARANOWSKI, ET UX

HILDUR C. SWAIN

SANDRA K. POWELL

NORMA C. MOORE

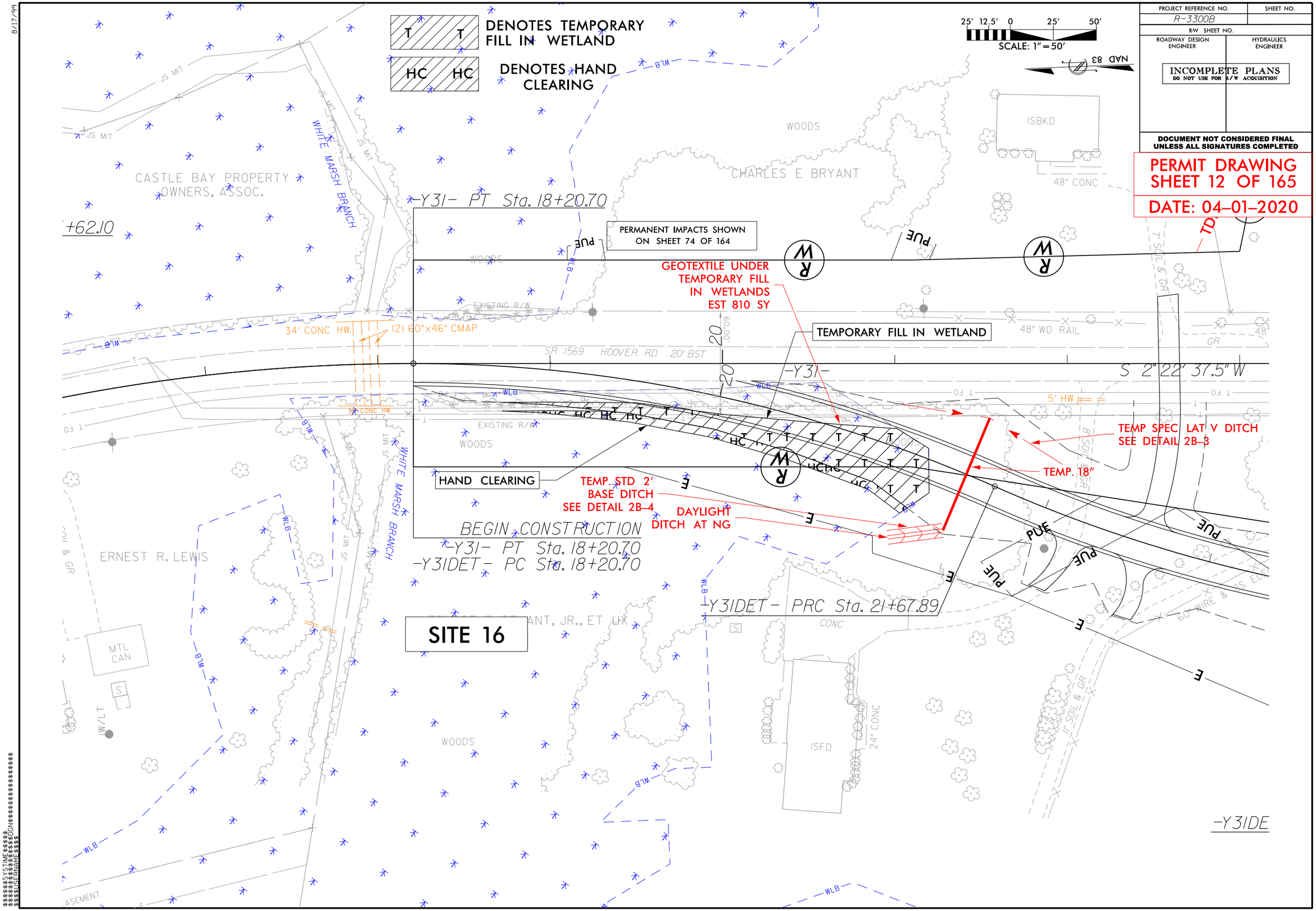
TOM H. JONES ET AL

ALBERT W. SPILLER

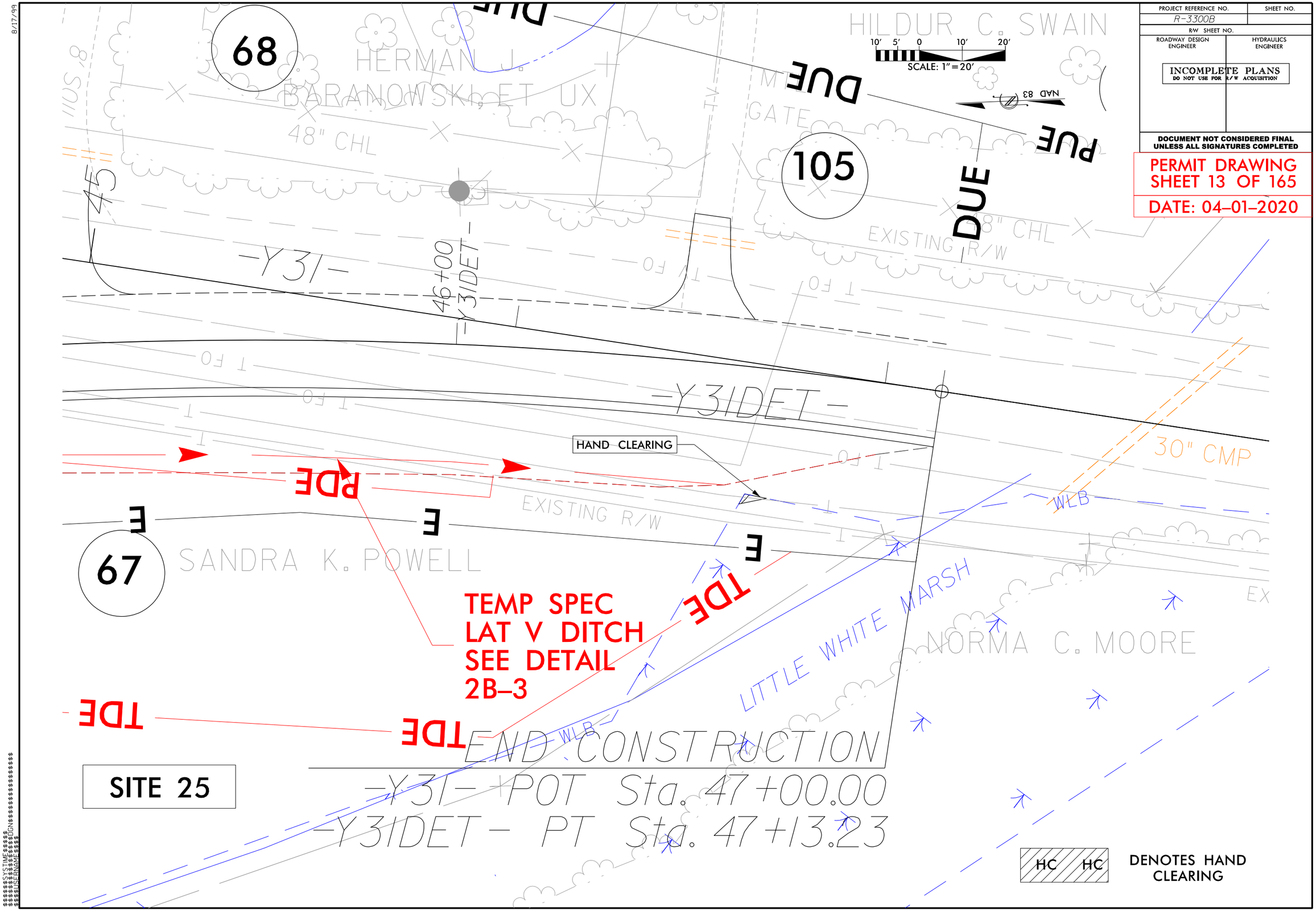
SR 1569 HOOVER RD 20' BST

WHITE MARSH BRANCH

SYSTIME=$$$



DENOTES TEMPORARY FILL IN WETLAND
DENOTES HAND CLEARING
SCALE: 1" = 50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 12 OF 165
DATE: 04-01-2020
CASTLE BAY PROPERTY OWNERS, ASSOC.
WHITE MARSH BRANCH
-Y31- PT Sta. 18+20.70
+62.10
PERMANENT IMPACTS SHOWN ON SHEET 74 OF 164
GEOTEXTILE UNDER TEMPORARY FILL IN WETLANDS EST 810 SY
TEMPORARY FILL IN WETLAND
34' CONC HW
(2) 60"x46" CMAP
SR 1569 HOOVER RD 20' BST
-Y31-
S 2° 22' 37.5" W
TEMP SPEC LAT V DITCH SEE DETAIL 2B-3
TEMP. 18"
HAND CLEARING
TEMP. STD 2' BASE DITCH SEE DETAIL 2B-4
DAYLIGHT DITCH AT NG
BEGIN CONSTRUCTION
-Y31- PT Sta. 18+20.70
-Y31DET- PC Sta. 18+20.70
-Y31DET- PRC Sta. 21+67.89
ERNEST R. LEWIS
MTL CAN
SITE 16
WOODS
CHARLES E BRYANT
ISBKD
48" CONC
48" WD RAIL
5' HW
ISFD
24" CONC
-Y31DE



PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 13 OF 165
DATE: 04-01-2020
SCALE: 1"=20'
NAD 83
68
105
67
HERMAN J. BARANOWSKI, ET UX
HILDUR C. SWAIN
SANDRA K. POWELL
NORMA C. MOORE
48" CHL
EXISTING R/W
30" CMP
HAND CLEARING
TEMP SPEC
LAT V DITCH
SEE DETAIL
2B-3
LITTLE WHITE MARSH
WLB
TDE
RDE
DUE
PUE
-Y31-
-Y31DET-
46+00
END CONSTRUCTION
-Y31- POT Sta. 47+00.00
-Y31DET- PT Sta. 47+13.23
SITE 25
HC HC
DENOTES HAND CLEARING

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-307

PERMIT DRAWING
SHEET 14 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

50 3:1 4:1 3:1 50

22+00.00

50 4:1 4:1 4:1 3:1 50

21+50.00

WETLANDS

WETLANDS

SITE 16

50 3:1 2:1 50

TEMPORARY FILL IN WETLANDS
HAND CLEARING

21+00.00

WETLANDS

WETLANDS

50 3:1 2:1 50

TEMPORARY FILL IN WETLANDS
HAND CLEARING

20+50.00

WETLANDS

SITE 16

50 2:1 50

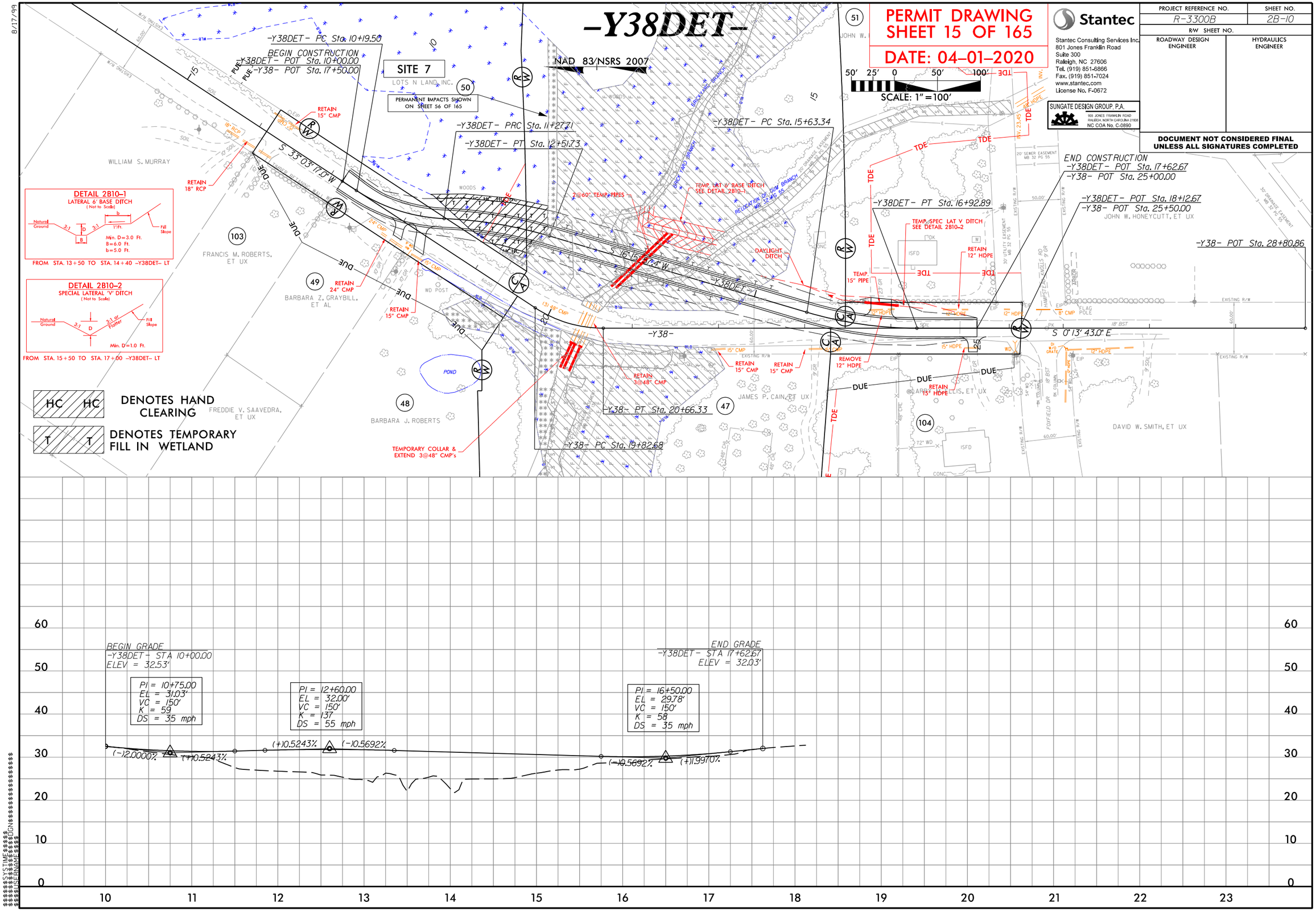
TEMPORARY FILL IN WETLANDS
HAND CLEARING

20+00.00

-Y31DET-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$



-Y38DET-
PERMIT DRAWING
SHEET 15 OF 165
DATE: 04-01-2020
Stantec
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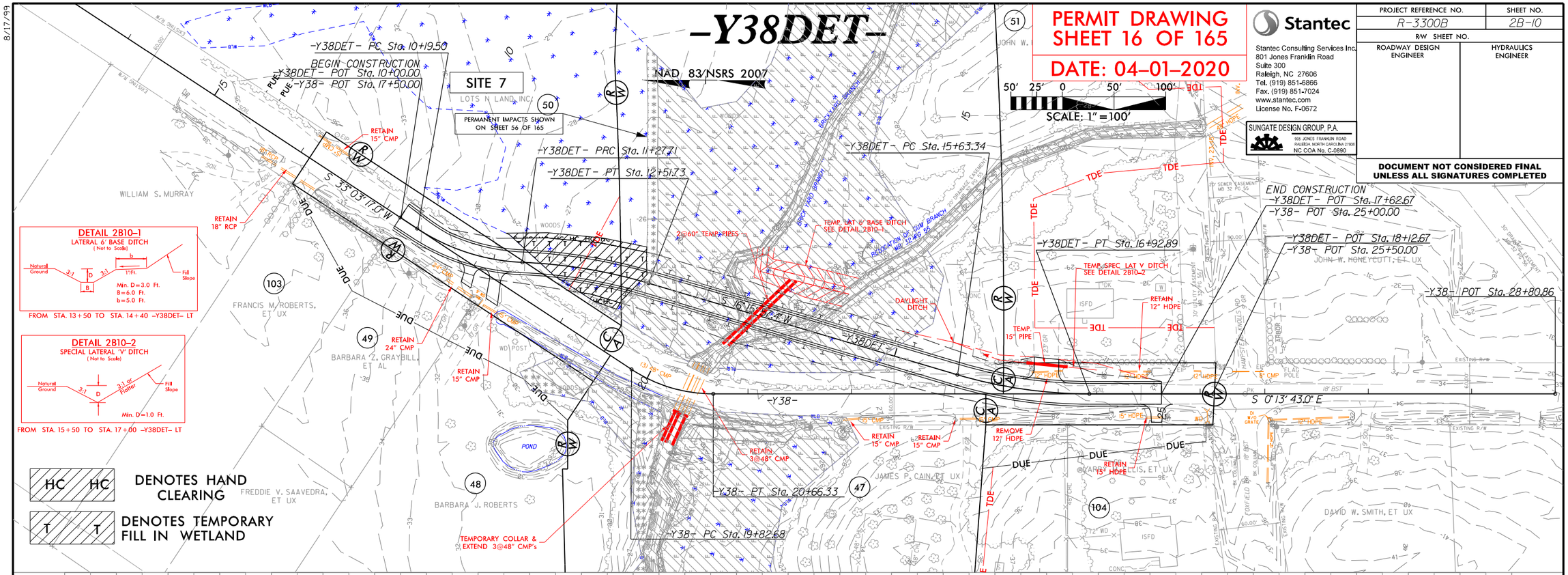
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672
SUNGATE DESIGN GROUP, P.A.
NC COA No. C-0890
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
2B-10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SCALE: 1" = 100'
NAD 83/NSRS 2007
SITE 7
LOTS N LAND, INC.
PERMANENT IMPACTS SHOWN ON SHEET 56 OF 165
-Y38DET- PC Sta. 10+19.50
BEGIN CONSTRUCTION
-Y38DET- POT Sta. 10+00.00
-Y38- POT Sta. 17+50.00
-Y38DET- PRC Sta. 11+27.71
-Y38DET- PT Sta. 12+51.73
-Y38DET- PC Sta. 15+63.34
-Y38DET- PT Sta. 16+92.89
END CONSTRUCTION
-Y38DET- POT Sta. 17+62.67
-Y38- POT Sta. 25+00.00
-Y38DET- POT Sta. 18+12.67
-Y38- POT Sta. 25+50.00
-Y38- POT Sta. 28+80.86
-Y38- PT Sta. 20+66.33
-Y38- PC Sta. 19+82.68
S 33°03'17.0" W
S 16°15'57.4" W
S 0°13'43.0" E
WILLIAM S. MURRAY
FRANCIS M. ROBERTS, ET UX
BARBARA Z. GRAYBILL, ET AL
BARBARA J. ROBERTS
FREDDIE V. SAAVEDRA, ET UX
JAMES P. CAIN, ET UX
DAVID W. SMITH, ET UX
JOHN W. HONEYCUTT, ET UX
DETAIL 2B10-1
LATERAL 6' BASE DITCH
(Not to Scale)
Min. D=3.0 Ft.
B=6.0 Ft.
b=5.0 Ft.
FROM STA. 13+50 TO STA. 14+40 -Y38DET- LT
DETAIL 2B10-2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D=1.0 Ft.
FROM STA. 15+50 TO STA. 17+00 -Y38DET- LT
DENOTES HAND CLEARING
DENOTES TEMPORARY FILL IN WETLAND
TEMPORARY COLLAR & EXTEND 3@48" CMP's
TEMP. LAT 6' BASE DITCH SEE DETAIL 2B10-1
TEMP. SPEC LAT V DITCH SEE DETAIL 2B10-2
DAYLIGHT DITCH
RETAIN 15" CMP
RETAIN 18" RCP
RETAIN 24" CMP
RETAIN 3@48" CMP
RETAIN 12" HDPE
RETAIN 15" HDPE
REMOVE 12" HDPE
TEMP. 15" PIPE
2@60" TEMP. PIPES
POND
BEGIN GRADE
-Y38DET- STA 10+00.00
ELEV = 32.53'
PI = 10+75.00
EL = 31.03'
VC = 150'
K = 59
DS = 35 mph
PI = 12+60.00
EL = 32.00'
VC = 150'
K = 137
DS = 55 mph
PI = 16+50.00
EL = 29.78'
VC = 150'
K = 58
DS = 35 mph
END GRADE
-Y38DET- STA 17+62.67
ELEV = 32.03'
(-)2.0000%
(+)0.5243%
(+)0.5243%
(-)0.5692%
(-)0.5692%
(+)1.9970%



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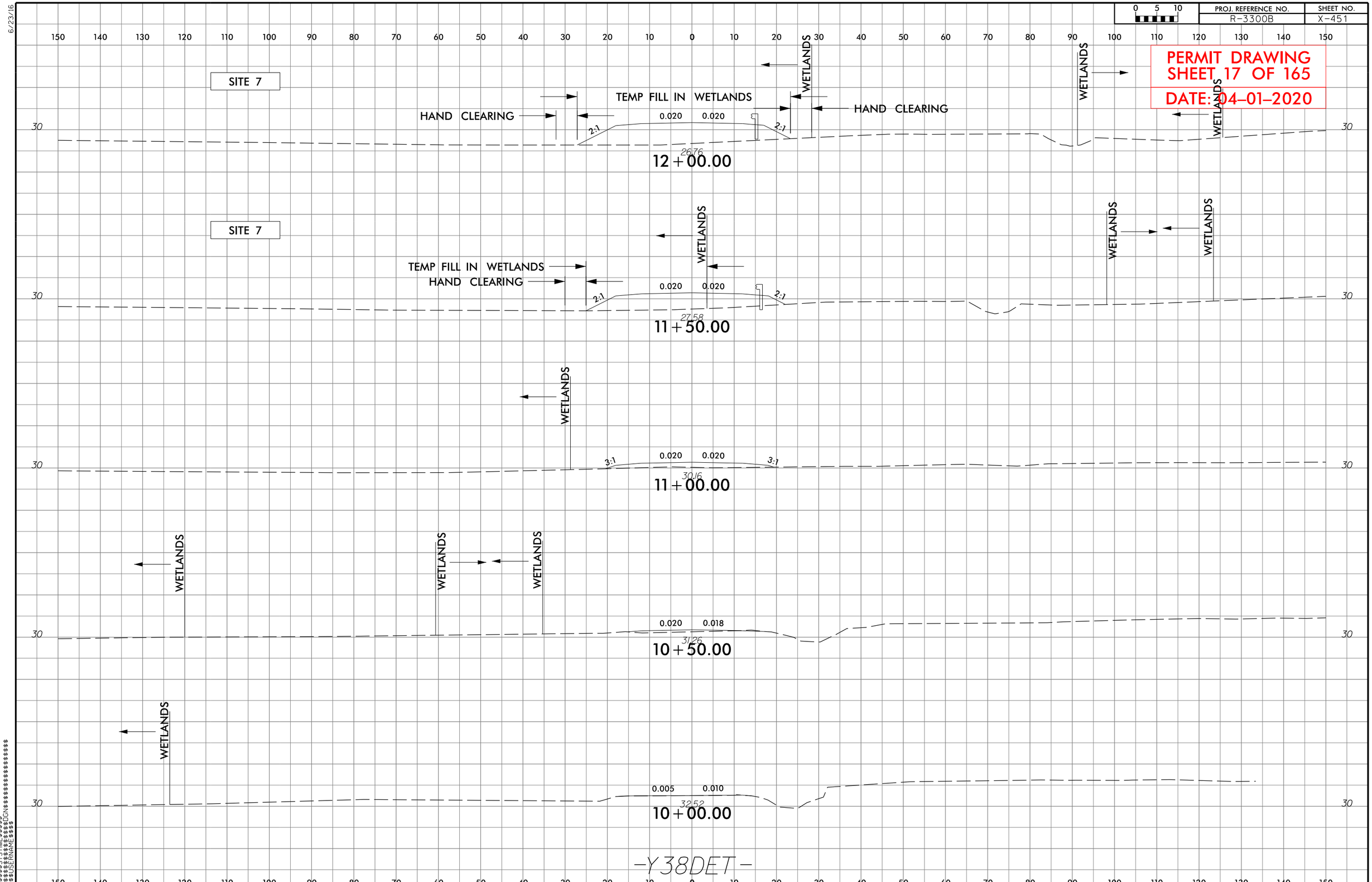
SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	2B-10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/17/99



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-451
PERMIT DRAWING
SHEET 17 OF 165
DATE: 04-01-2020
SITE 7
TEMP FILL IN WETLANDS
HAND CLEARING
WETLANDS
0.020
0.020
2:1
26.76
12+00.00
SITE 7
TEMP FILL IN WETLANDS
HAND CLEARING
WETLANDS
0.020
0.020
2:1
27.58
11+50.00
WETLANDS
3:1
0.020
0.020
3:1
30.16
11+00.00
WETLANDS
WETLANDS
WETLANDS
0.020
0.018
31.26
10+50.00
WETLANDS
0.005
0.010
32.52
10+00.00
-Y38DET-

5/14/99

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Raleigh, NC 27606
Tel. (919) 851-6866
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SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 18 OF 165

DATE: 04-01-2020

DETAIL 1
LATERAL BASE DITCH (Not to Scale)

Min. D=1.0 Ft.
B=2.0 Ft.
b=5.0 Ft.

FROM STA. 581+86 TO STA. 584+00 -L1- RT
FROM STA. 656+50 TO STA. 658+40 -L1- RT
FROM STA. 694+65 TO STA. 695+50 -L1- LT
FROM STA. 713+50 TO STA. 718+00 -L1- LT
FROM STA. 28+50 TO STA. 31+00 -SR6- LT
FROM STA. 48+00 TO STA. 50+00 -Y30- RT
FROM STA. 14+50 TO STA. 16+00 -Y30RPA- RT
FROM STA. 22+00 TO STA. 24+00 -Y30RPA- RT
FROM STA. 23+00 TO STA. 25+00 -Y30RPC- RT
FROM STA. 24+50 TO STA. 25+50 -Y31- LT

DETAIL 2
LATERAL 'V' DITCH (Not to Scale)

Min. D=1.5 Ft.
b=5.0 Ft.

FROM STA. 726+00 TO STA. 728+70 -L1- LT
FROM STA. 17+60 TO STA. 20+15 -Y30RPC- RT

DETAIL 2A
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Min. D=1.0 Ft.

FROM STA. 695+50 TO STA. 700+50 -L1- LT

DETAIL 3
SPECIAL LATERAL BASE DITCH (Not to Scale)

Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
Type of Liner=Class B Rip-Rap

FROM STA. 21+50 TO STA. 23+75 -SR6- LT
FROM STA. 19+50 TO STA. 21+50 -SR6- RT

DETAIL 3A
LATERAL BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
B=2.0 Ft.
b=5.0 Ft.

FROM STA. 659+00 TO STA. 661+90 -L1- RT

DETAIL 4
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Min. D=1.0 Ft.

FROM STA. 10+50 TO STA. 13+50 -SR4- RT
FROM STA. 10+30 TO STA. 12+50 -SR4- LT
FROM STA. 23+50 TO STA. 24+75 -SR4- RT
FROM STA. 23+50 TO STA. 24+75 -SR4- LT
FROM STA. 25+00 TO STA. 27+65 -SR4- RT
FROM STA. 25+00 TO STA. 27+65 -SR4- LT
FROM STA. 19+50 TO STA. 21+25 -SR5- LT
FROM STA. 17+80 TO STA. 19+75 -Y38- RT
FROM STA. 23+15 TO STA. 24+50 -Y38- RT
FROM STA. 23+18 TO STA. 25+00 -Y38- LT
FROM STA. 20+00 TO STA. 22+00 -Y31- LT
FROM STA. 10+50 TO STA. 11+40 -Y42- LT
FROM STA. 10+50 TO STA. 11+40 -Y42- RT

DETAIL 5
SPECIAL LATERAL BASE DITCH (Not to Scale)

Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
Type of Liner=Class I Rip-Rap

FROM STA. 23+00 TO STA 24+00 -Y30- RT

DETAIL 5A
LATERAL BASE DITCH (Not to Scale)

Min. D=1.0 Ft.
B=4.0 Ft.
b=5.0 Ft.

FROM STA. 663+00 TO STA. 671+50 -L1- LT
FROM STA. 25+00 TO STA. 31+00 -SR7- LT
FROM STA. 13+10 TO STA. 15+00 -Y31RPA- RT

DETAIL 6
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Min. D=1.0 Ft.

FROM STA. 700+50 TO STA. 703+50 -L1- RT
FROM STA. 704+00 TO STA. 705+70 -L1- RT
FROM STA. 9+00 TO STA. 11+00 -Y31LPC- LT

DETAIL 6A
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Min. D=1.0 Ft.
Max. d=1.0 Ft.
Type of Liner=Class B Rip-Rap

FROM STA. 24+00 TO STA. 25+00 -Y30- LT

DETAIL 7
STANDARD BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=2.0 Ft.
*When B is < 6.0'
Type of Liner=Class B Rip-Rap

FROM STA. 22+80 TO STA. 23+40 -Y30- LT

DETAIL 8
STANDARD 'V' DITCH (Not to Scale)

Min. D=1.0 Ft.

STA. 27+65 -SR4- LT & RT

DETAIL 9
SPECIAL LATERAL BASE DITCH (Not to Scale)

Min. D=1.5 Ft.
B=2.0 Ft.

FROM STA. 20+00 TO STA. 21+50 -SR6- LT
FROM STA. 13+00 TO STA. 15+00 -SR5- LT
FROM STA. 16+00 TO STA. 19+00 -SR5- LT
FROM STA. 40+50 TO STA. 47+00 -Y31- LT
FROM STA. 17+00 TO STA. 19+50 -SR6- RT
FROM STA. 22+00 TO STA. 23+50 -SR6- RT

DETAIL 10
STANDARD BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
B=2.0 Ft.

FROM STA. 21+03 TO STA. 21+50 -SR6- RT
FROM STA. 59+00 TO STA. 60+25 -Y30- RT
FROM STA. 11+40 TO STA. 13+00 -Y42- LT
FROM STA. 13+50 TO STA. 14+30 -Y42- LT
STA. 16+00 -SR7- RT
STA. 16+00 -SR5- RT
STA. 54+00 -Y30- LT
STA. 680+00 -L1- LT

DETAIL 11
STANDARD BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=4.0 Ft.
*When B is < 6.0'
Type of Liner=Class B Rip-Rap

FROM STA. 13+50 TO STA. 14+17 -Y30RPA- LT

DETAIL 12
LATERAL BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=4.0 Ft.
b=5.0 Ft.
*When B is < 6.0'
Type of Liner=Class B Rip-Rap

FROM STA. 17+00 TO STA. 24+00 -Y30RPA- LT

DETAIL 13
LATERAL BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
B=4.0 Ft.
b=5.0 Ft.

FROM STA. 635+50 TO STA. 642+75 -L1- RT
FROM STA. 724+00 TO STA. 725+50 -L1- LT
FROM STA. 12+79 TO STA. 18+50 -Y31RPB- LT
FROM STA. 12+00 TO STA. 13+50 -Y30RPA- LT
FROM STA. 601+40 TO STA. 604+00 -L1- RT

DETAIL 14
FALSE SUMP (Not to Scale)

Median Ditch — 9" — 2' — L (See Chart Below) — 20' — GI etc.
S=Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL 15
SPECIAL CUT BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=2.0 Ft.
Type of Liner=Coir Fiber Matting

FROM STA. 24+00 TO STA. 28+50 -Y30- RT

DETAIL 16
STANDARD BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=2.0 Ft.
*When B is < 6.0'
Type of Liner=CL I Rip-Rap

FROM STA. 10+55 TO STA. 10+83 -SR5- LT
STA. 672+20 -L1- LT

DETAIL 17
LATERAL BASE DITCH (Not to Scale)

Min. D=3.0 Ft.
B=6.0 Ft.
b=5.0 Ft.

FROM STA. 54+65 TO STA. 57+00 -Y30- LT

DETAIL 18
SPECIAL LATERAL BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
B=4.0 Ft.

FROM STA. 57+00 TO STA. 59+50 -Y30- LT

DETAIL 19
STANDARD BASE DITCH (Not to Scale)

Min. D=3.0 Ft.
B=4.0 Ft.

FROM STA. 20+50 TO STA. 21+50 -SR5- RT
FROM STA. 732+76 TO STA. 733+91 -L1- LT
STA. 28+75 -Y31- RT
FROM STA. 24+87 TO STA. 25+37 -Y30RPC- RT

DETAIL 20
SPECIAL LATERAL BASE DITCH (Not to Scale)

Min. D=1.0 Ft.
B=4.0 Ft.

FROM STA. 693+75 TO STA. 700+00 -L1- RT

DETAIL 21
LATERAL 'V' DITCH (Not to Scale)

Min. D=1.5 Ft.
b=5.0 Ft.

FROM STA. 726+00 TO STA. 728+70 -L1- LT
FROM STA. 10+50 TO STA. 16+50 -SR7- LT
FROM STA. 28+20 TO STA. 28+80 -Y31- LT
FROM STA. 733+00 TO STA. 735+50 -L1- LT

DETAIL 22
SPECIAL LATERAL BASE DITCH (Not to Scale)

Min. D=1.5 Ft.
B=4.0 Ft.

FROM STA. 748+00 TO STA. 760+50 -L1- RT

DETAIL 23
STANDARD BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=4.0 Ft.
*When B is < 6.0'
Type of Liner=Class I Rip-Rap

STA. -Y30RPD- RT
STA. 5+50 -Y30RPB- LT

DETAIL 24
LATERAL BASE DITCH (Not to Scale)

Min. D=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.

FROM STA. 578+00 TO STA. 581+86 -L1- RT
FROM STA. 677+50 TO STA. 683+00 -L1- LT
FROM STA. 28+50 TO STA. 33+00 -Y30- RT
FROM STA. 50+00 TO STA. 54+00 -Y30- RT
FROM STA. 11+00 TO STA. 12+40 -Y31LPC- LT
FROM STA. 07+00 TO STA. 14+00 -Y30RPA- RT

DETAIL 25
STANDARD BASE DITCH (Not to Scale)

Min. D=2.0 Ft.
B=3.0 Ft.

STA. 693+50 -L1- RT
STA. 694+50 -L1- LT

DETAIL 26
PIPE OUTLET CHANNEL (Not to Scale)

CHANNEL BED (2.0')
Length=20 Ft.
d=2.0 Ft.
Est.=20 Tons of Class I Rip-Rap

STA. 22+80 -Y30- LT

DETAIL 27
CHANNEL CHANGE (Not to Scale)

Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=4.0 Ft.
b=N/A
Type of Liner=Class I Riprap, Keyed-In

STA. 649+20 -L1- LT

DETAIL 28
CHANNEL CHANGE (Not to Scale)

Min. D=2.5 Ft.
Max. d=2.5 Ft.
B=6.0 Ft.
b=N/A
Type of Liner=Class I Riprap, Keyed-In

642+45 -L1- LT

DETAIL 29
RIP RAP AT EMBANKMENT (Not to Scale)

10'min.
1.0'min.
1.5'
Type of Liner= CL I RIPRAP

STA. 26+50 -SR6- LT
STA. 642+75 -L1- RT

DETAIL 30
PIPE OUTLET CHANNEL (Not to Scale)

CHANNEL BED (4.0')
Length=24 Ft.
d=3.0 Ft.
Est.=33 Tons of Class I Rip-Rap (Ea. Location)

STA. 724+60 -L1- RT
STA. 17+75 -Y31RPC- RT

DETAIL 31
TOE PROTECTION (Not to Scale)

d=1.0 Ft.
b=4.0 Ft.
Type of Liner=Class B Rip-Rap

FROM STA. 15+25 TO STA. 18+00 -SR4- RT
FROM STA. 11+00 TO STA. 12+50 -SR5- LT
FROM STA. 31+00 TO STA. 37+50 -SR6- RT
FROM STA. 31+00 TO STA. 39+00 -SR7- RT
FROM STA. 607+60 TO STA. 611+70 -L1- RT
FROM STA. 612+10 TO STA. 614+00 -L1- RT
FROM STA. 612+60 TO STA. 617+00 -L1- LT
FROM STA. 623+00 TO STA. 626+50 -L1- LT
FROM STA. 623+50 TO STA. 628+00 -L1- RT
FROM STA. 631+50 TO STA. 632+80 -L1- LT
FROM STA. 659+90 TO STA. 663+50 -L1- LT
FROM STA. 672+50 TO STA. 674+50 -L1- LT
FROM STA. 683+00 TO STA. 689+00 -L1- LT
FROM STA. 709+36 TO STA. 711+90 -L1- LT
FROM STA. 709+40 TO STA. 713+20 -L1- RT
FROM STA. 712+30 TO STA. 714+00 -L1- LT
FROM STA. 718+50 TO STA. 722+50 -L1- LT
FROM STA. 756+00 TO STA. 759+50 -L1- LT
FROM STA. 789+00 TO STA. 796+00 -L1- RT
FROM STA. 801+50 TO STA. 806+50 -L1- RT
FROM STA. 803+50 TO STA. 807+20 -L1- LT
FROM STA. 809+50 TO STA. 814+00 -L1- RT
FROM STA. 822+50 TO STA. 824+00 -L1- RT
FROM STA. 826+00 TO STA. 830+50 -L1- RT
FROM STA. 832+00 TO STA. 836+00 -L1- RT
FROM STA. 823+00 TO STA. 825+00 -L1- LT
FROM STA. 826+50 TO STA. 829+50 -L1- LT
FROM STA. 841+00 TO STA. 851+00 -L1- LT
FROM STA. 15+50 TO STA. 20+00 -SR8- RT
FROM STA. 20+20 TO STA. 23+00 -SR8- LT
FROM STA. 15+75 TO STA. 17+50 -Y30RPA- LT
FROM STA. 08+85 TO STA. 19+70 -Y30RPD- LT
FROM STA. 18+50 TO STA. 19+50 -Y31- LT
FROM STA. 30+75 TO STA. 34+00 -Y31- LT
FROM STA. 08+12 TO STA. 10+00 -Y31RPC- RT
FROM STA. 19+45 TO STA. 20+50 -Y30RPD- RT
FROM STA. 07+00 TO STA. 20+50 -Y32RPB1- RT
FROM STA. 23+50 TO STA. 24+82 -Y19- RT
FROM STA. 37+50 TO STA. 40+00 -Y32- LT

DETAIL 32
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Min. D=1.5 Ft.

FROM STA. 38+50 TO STA. 46+50 -Y31- RT
FROM STA. 11+50 TO STA. 14+50 -Y19- LT
FROM STA. 18+30 TO STA. 21+00 -Y30- RT

DETAIL 33
LATERAL BASE DITCH (Not to Scale)

Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
b=5.0 Ft.
Type of Liner=PSRM

FROM STA. 26+50 TO STA. 28+50 -SR6- LT

DETAIL 34
CHANNEL CHANGE (Not to Scale)

Min. D=4.0 Ft.
Max. d=Top of Bank
B=12.0 Ft.
b=Varies
Type of Liner=Class I Riprap

FROM STA. 656+05 TO STA. 658+60 -L1- LT
FROM STA. 659+10 TO STA. 659+55 -L1- LT

DETAIL 35
CHANNEL CHANGE (Not to Scale)

Min. D=2.5 Ft.
B=5.0 Ft.
b=10.0 Ft.

FROM STA. 661+85 TO STA. 664+00 -L1- RT

DETAIL 35A
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Min. D=2.0 Ft.

FROM STA. 27+50 TO STA. 34+00 -Y19- LT

DETAIL 35B
STANDARD BASE DITCH (Not to Scale)

Min. D=1.0 Ft.
B=2.0 Ft.

STA. 32+63 -SR8-

DETAIL 36
CHANNEL CHANGE (Not to Scale)

Backfill Ex. Channel to Nat. Grnd.
Min. D=Match Exist. Channel
B=6.0 Ft.

FROM STA. 23+20 TO STA. 25+40 -Y38- LT

DETAIL 37
INLET & OUTLET CHANNEL DETAIL (NOT TO SCALE)

FLOODPLAIN BENCH
CL 'I' RIPRAP OUTLET ONLY
CL 'I' RIPRAP
12' — 12'

STA. 712+00 -L1- LT
STA. 713+00 -L1- RT

DETAIL 38
OUTLET CHANNEL (Not to Scale)

Length=90 Ft.
Min. D=2.0 Ft.
B=6.0 Ft.

STA. 612+50 -L1- LT

DETAIL 39
LATERAL BASE DITCH (Not to Scale)

Min. D=3.0 Ft.
B=4.0 Ft.
b=5.0 Ft.

FROM STA. 40+32 TO STA. 44+35 -Y30- RT
FROM STA. 46+15 TO STA. 47+25 -Y30- RT
FROM STA. 17+00 TO STA. 18+00 -Y32RPB1- RT

DETAIL 39A
SPECIAL LATERAL BASE DITCH (Not to Scale)

Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=4.0 Ft.
Type of Liner=Class B Rip-Rap

FROM STA. 19+20 TO STA. 20+00 -Y31- LT

DETAIL 39B
CHANNEL CHANGE (Not to Scale)

Length=55 Ft.
Min. D=2 Ft.
B=varies 6 to 12 Ft.

STA. 15+40 -Y30RPA- LT

DETAIL 40
INLET & OUTLET CHANNEL DETAIL (NOT TO SCALE)

FLOODPLAIN BENCH
CL 'I' RIPRAP ON CHANNEL BANKS
CL 'I' RIPRAP w/ NATIVE MATERIAL PLACED ON TOP TO FILL VOIDS
12' — 2' — 24' @ INLET & OUTLET

STA. 19+75 -Y38- LT
STA. 19+85 -Y38- RT

DETAIL 41
INLET CHANNEL DETAIL (NOT TO SCALE)

FLOODPLAIN BENCH
CL 'I' RIPRAP ON CHANNEL BANKS
CL 'I' RIPRAP w/ NATIVE MATERIAL PLACED ON TOP TO FILL VOIDS
12' — 3' — 23' @ INLET

STA. 662+00 -L1- RT

DETAIL 42
INLET/OUTLET CHANNEL BANK STABILIZATION (Not to Scale)

RIP-RAP LINED BANKS
CHANNEL BED (varies 6' to 12')
In Length=25 Ft.
Out Length=45 Ft.
d=2.0 Ft.
Est.= 40 Tons of Class 'I' Rip-Rap (Inlet)
Est.= 72 Tons of Class 'I' Rip-Rap (Outlet)

STA. 19+10 -Y30RPD- RT
STA. 19+85 -Y30RPD- LT

DETAIL 43
SPECIAL LATERAL 'V' DITCH (Not to Scale)

Min. D=2.0 Ft.
Max. d=1.5 Ft.
Type of Liner=Class B Rip-Rap

FROM STA. 16+50 TO STA. 17+80 -Y38- RT

DETAIL 44
INLET CHANNEL BANK STABILIZATION (Not to Scale)

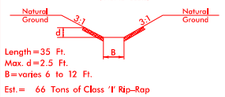
RIP-RAP LINED BANKS
CHANNEL BED (varies 6' to 12')
Length=30 Ft.
d=2.0 Ft.
Est.= 44 Tons of Class 'I' Rip-Rap

STA. 611+85 -L1- RT

$$$$SYSTIME$$$$ $$$$DGN$$$$ $$$$USERNAME$$$$

5/14/99

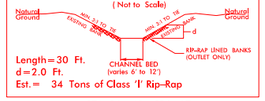
DETAIL 45
OUTLET CHANNEL BANK STABILIZATION
(Not to Scale)



Length = 35 Ft.
Max. d = 2.5 Ft.
B = varies 6 to 12 Ft.
Est.= 66 Tons of Class 'I' Rip–Rap

STA. 612 + 40 –L1– LT

DETAIL 46
OUTLET CHANNEL BANK STABILIZATION
(Not to Scale)



Length = 30 Ft.
d = 2.0 Ft.
Est.= 34 Tons of Class 'I' Rip–Rap

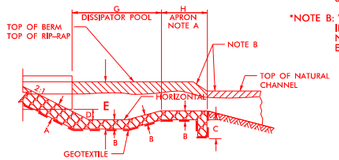
STA. 26 + 40 –SR6– LT

DETAIL 47
RIP–RAPPED ENERGY DISSIPATOR BASIN

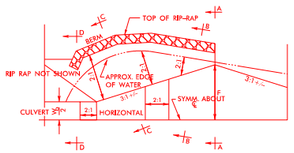
*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A) = SPECIFIED VELOCITY.

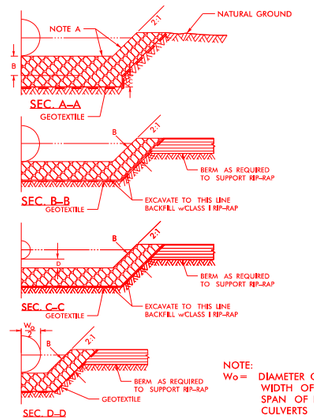
*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

℄ SECTION



HALF PLAN





NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

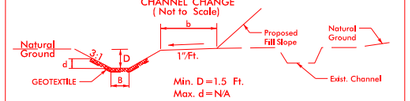
DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	2.5	2.5						
B	1.7	1.7						
C	1.7	1.7						
D	0.7	0.3						
E	6.1	4.7						
F	8.3	7.3						
G	13.5	12.0						
H	4.5	4.0						

*ALL DIMENSIONS APPROXIMATE IN FEET (FT)

BASIN #	LOCATION (AT OUTLET)
1	–Y30– 46 + 88 LT
2	–L1– 677 + 37 RT
3	
4	
5	
6	
7	
8	

5/05

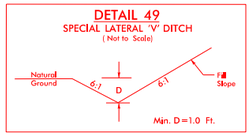
DETAIL 48
CHANNEL CHANGE
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = N/A
B = 4.0 Ft.
b = 10 Ft.
Type of Liner = Vegetation

FROM STA. 787 + 50 TO STA. 788 + 50 –L1– RT

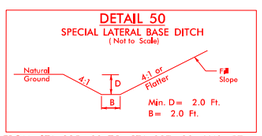
DETAIL 49
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FROM STA. 231 + 00 TO STA. 232 + 00 –Y40– RT

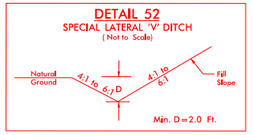
DETAIL 50
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 2.0 Ft.
B = 2.0 Ft.

FROM STA. 235 + 00 TO STA. 237 + 20 –Y40– RT

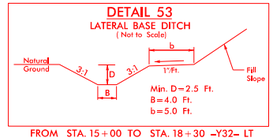
DETAIL 52
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 2.0 Ft.

FROM STA. 12 + 00 TO STA. 15 + 00 –Y32– LT

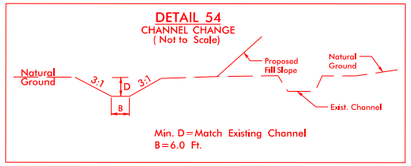
DETAIL 53
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2.5 Ft.
B = 4.0 Ft.
b = 5.0 Ft.

FROM STA. 15 + 00 TO STA. 18 + 30 –Y32– LT

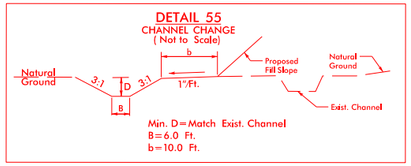
DETAIL 54
CHANNEL CHANGE
(Not to Scale)



Min. D = Match Existing Channel
B = 6.0 Ft.

FROM STA. 18 + 30 TO STA. 21 + 90 –Y32– LT

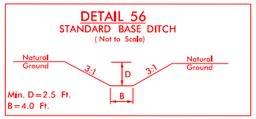
DETAIL 55
CHANNEL CHANGE
(Not to Scale)



Min. D = Match Exist. Channel
B = 6.0 Ft.
b = 10.0 Ft.

FROM STA. 26 + 00 TO STA. 31 + 65 –Y32– LT

DETAIL 56
STANDARD BASE DITCH
(Not to Scale)



Min. D = 2.5 Ft.
B = 4.0 Ft.

STA. 677 + 00 –L1– RT

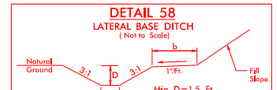
DETAIL 57
STANDARD BASE DITCH
(Not to Scale)



Min. D = 2.0 Ft.
B = 4.0 Ft.

FROM STA. 21 + 00 TO STA. 21 + 75 –Y32RPB1– RT

DETAIL 58
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 4.0 Ft.
b = 5.0 Ft.

FROM STA. 646 + 50 TO STA. 654 + 50 –L1– RT

DETAIL 59
STANDARD BASE DITCH
(Not to Scale)



Min. D = 4.0 Ft.
Max. d = 4.0 Ft.
B = 6.0 Ft.
*When B is < 6.0'
Type of Liner = Class I Rip–Rap

STA. 50 + 35 –Y19– RT

DETAIL 60
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.

FROM STA. 17 + 00 TO STA. 23 + 50 –Y19– LT

DETAIL 62
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 3.0 Ft.

FROM STA. 41 + 00 TO STA. 48 + 12 –Y32– LT

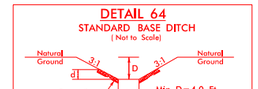
DETAIL 63
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.
b = 5.0 Ft.

FROM STA. 655 + 00 TO STA. 656 + 00 –L1– RT

DETAIL 64
STANDARD BASE DITCH
(Not to Scale)



Min. D = 4.0 Ft.
Max. d = 4.0 Ft.
B = 6.0 Ft.
When B is > 6.0'
Std. No. 876.01
Type of Liner = Class I Rip–Rap

STA. 18 + 10 –Y32RPB1–

DETAIL 65
INLET CHANNEL CHANGE
(Not to Scale)



Min. D = 3.5 Ft.
Max. d = 3.5 Ft.
B = 8.0 Ft.
Est.= 202 Tons of Class 'I' Rip–Rap

STA. 18 + 40 –Y32– LT

DETAIL 66
OUTLET CHANNEL CHANGE
(Not to Scale)



Min. D = 2 Ft.
Max. d = 2 Ft.
B = 8.0 Ft.
Est.= 105 Tons of Class 'I' Rip–Rap

STA. 25 + 00 –Y19– RT

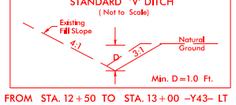
DETAIL 67
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 2.5 Ft.
b = 5.0 Ft.

FROM STA. 52 + 15 TO STA. 56 + 40 –SR7– RT

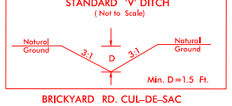
DETAIL 68
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FROM STA. 12 + 50 TO STA. 13 + 00 –Y43– LT

DETAIL 69
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.

BRICKYARD RD. CUL–DE–SAC

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
920 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

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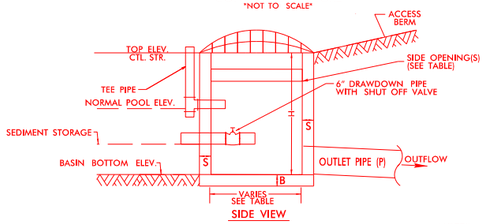
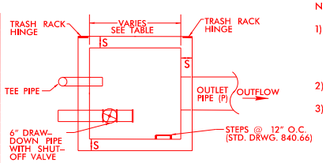
DETAIL P-1
WET DETENTION OUTLET CONTROL STRUCTURE
NOT TO SCALE



SIDE VIEW

SIDE OPENING DIMENSIONS

STRUCTURE NUMBER	# OF SIDES w/ OPENING	INVERT ELEV. (FEET)	OPENING WIDTH (INCHES)	OPENING HEIGHT (INCHES)
2356	2	42.5'	60"	6"



PLAN VIEW
TRASH RACK NOT SHOWN FOR CLARITY

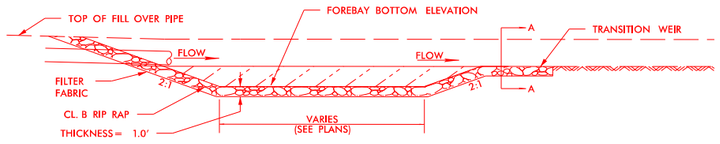
NOTES

1) NO BEDDING MATERIAL TO BE USED. THERFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
2) ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE.
3) SHUT OFF VALVE MAY BE A GATE VALVE, BALL VALVE, SHEAR GATE, ETC. SHUT OFF VALVE IS TO REMAIN CLOSED DURING NORMAL OPERATON.

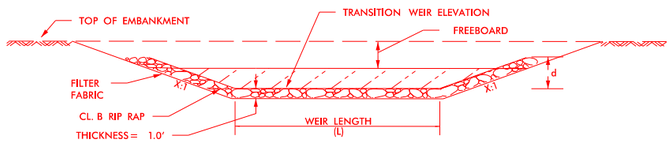
MINIMUM DIMENSIONS FOR WET DETENTION BASIN DRAWDOWN STRUCTURE

STATION	STRUCTURE NUMBER	SIDE WALLS (INCHES)	BASE B (INCHES)	CTL. STR. DIMENSIONS W	L	H	TOP ELEVATION CONTROL STRUCTURE	BASIN BOTTOM ELEV.	TEE PIPE DIAMETER INCHES	TEE PIPE INV. ELEV. (NORMAL POOL)	DRAWDOWN PIPE INVERT	OUTLET PIPE INVERT	OUTLET PIPE DIAMETER(P) INCHES	OUTLET PIPE MATERIAL
L1_N 869+04 LT	2356	6"	18"	5.0'	5.0'	4.0'	43.5'	38.5'	3.0"	41.5'	39.5'	39.5'	42"	RCP-IV

DETAIL P-2
FOREBAY
(Not to Scale)



PROFILE VIEW



SECTION A-A
"TRANSITION BERM CROSS-SECTION"

MINIMUM DIMENSIONS FOR FOREBAY

LOCATION	FOREBAY BOTTOM ELEV.	TRANSITION WEIR ELEV.	TRANSITION WEIR LENGTH (L)	WEIR SIDE SLOPES (X:1)	d
L1_N 866+50 LT	39.0'	42.0'	38'	3	1.0'
Y32 39+75 RT	39.0'	42.0'	56'	3	1.0'
?	?	?	?	?	?
?	?	?	?	?	?
?	?	?	?	?	?
?	?	?	?	?	?
?	?	?	?	?	?

DETAIL P-3
REBAR & ORIFICE TRASH RACKS
(N.T.S.)

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A " BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.
5. PROVIDE OPENING IN TRASH RACK TO ACCOMODATE SLUICE GATE, IF APPLICABLE, ON THE OUTLET PIPE. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATES.

PLAN



SECTION A-A

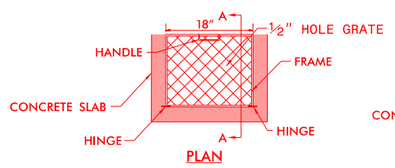
INSET 'A'



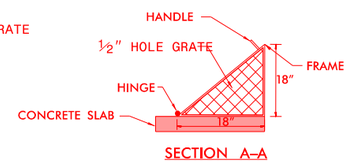
SECTION B-B

INSET 'B'

REBAR TRASH RACK
NOT TO SCALE



PLAN



SECTION A-A

ORIFICE TRASH RACK
NOT TO SCALE

ORIFICE TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A " BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. REMOVEABLE ORIFICE TRASH RACK SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM A-153.

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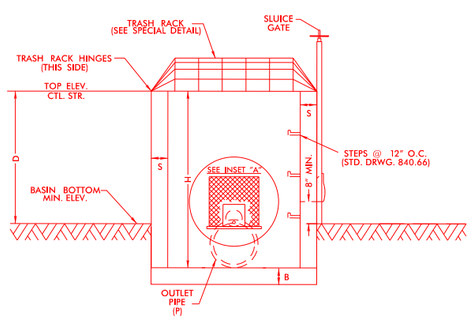
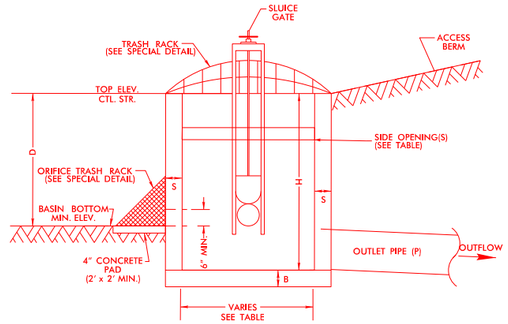
DETAIL P-4

DRY DETENTION DRAWDOWN STRUCTURE w/SLUICE GATE

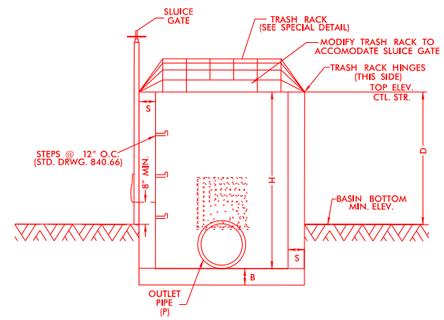
NOT TO SCALE



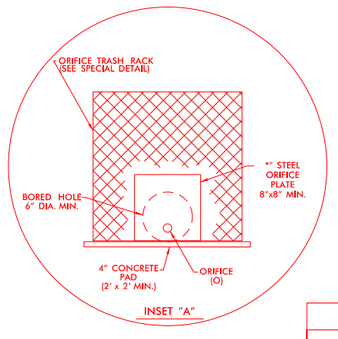
SIDE 1



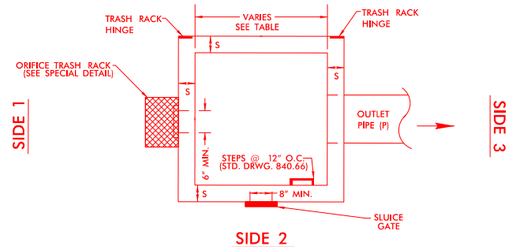
SIDE 2



SIDE 3



INSET "A"



SIDE 2

PLAN VIEW

TRASH RACK NOT SHOWN FOR CLARITY

NOTES:
1. 15" MINIMUM DIAMETER FOR OUTLET PIPE.
2. 2" MINIMUM DIAMETER ORIFICE. IF ORIFICE IS GREATER THAN 6", A STEEL PLATE IS NOT REQUIRED.
3. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
4. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION. A GATE VALVE MAY BE USED IN LIEU OF THE 8" SLUICE GATE.
5. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION.
6. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
7. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATE.
8. ADJUST FOOTER DIMENSIONS AS NEEDED FOR ANTI-FLOTATION.

SIDE OPENING DIMENSIONS

STRUCTURE NUMBER	# OF SIDES w/ OPENING	INVERT ELEV. (FEET)	OPENING WIDTH (INCHES)	OPENING HEIGHT (INCHES)
2333	1	43.5'	60"	6"

MINIMUM DIMENSIONS FOR DRY DETENTION/HAZARDOUS SPILL BASIN DRAWDOWN STRUCTURE

STATION	STRUCTURE NUMBER	S (INCHES) 6" MIN.	B (INCHES) 6" MIN.	BASIN BOTTOM MINIMUM ELEV.	TOP ELEVATION CONTROL STRUCTURE	MAX. STORAGE DEPTH(D) FEET	INV. ELEV. CTL. STR.	CTL. STR. DIMENSIONS (W x L x H)	ORIFICE DIAMETER (O) INCHES	ORIFICE INV. ELEV.	OUTLET PIPE DIAMETER(P) INCHES
-Y32- 29+23 RT	2333	6.0	18.0	43.0	45.0	2.0	40.0	5' x 5' x 5'	4.0	43.0	48"

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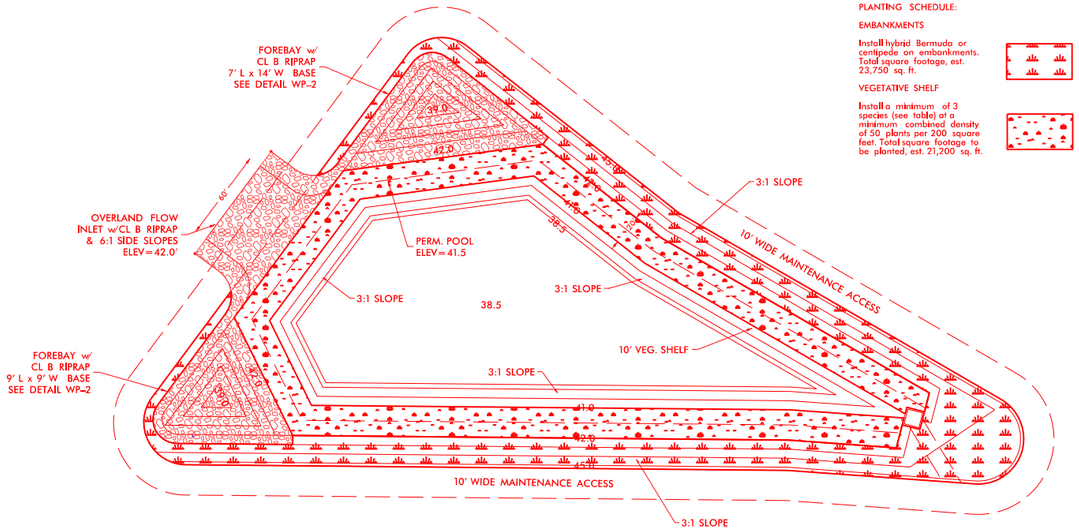
WET DET. BASIN DETAILS

OPERATION AND MAINTENANCE PROVISIONS

BMP element:	Potential problems:	How to remediate the problem:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the wet pond	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
	Vegetation is too short or too long.	Maintain vegetation at a height of approximately six inches.
The inlet device: pipe or swale	The pipe is clogged.	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged.	Replace the pipe.
	Erosion is occurring in the swale.	Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.
The forebay	Sediment has accumulated to a depth greater than the original design depth for sediment storage.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
	Erosion has occurred.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.
The vegetated shelf	Best professional practices show that pruning is needed to maintain optimal plant health.	Prune according to best professional practices
	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if a soil test indicates it is necessary.
	Weeds are present.	Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.
The main treatment area	Sediment has accumulated to a depth greater than the original design sediment storage depth.	Search for the source of the sediment and remedy the problem if possible. Remove
		the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
	Algal growth covers over 50% of the area.	Consult a professional to remove and control the algal growth.
	Cattails, phragmites or other invasive plants cover 50% of the basin surface.	Remove the plants by wiping them with pesticide (do not spray).
The embankment	Shrubs have started to grow on the embankment.	Remove shrubs immediately.
	Evidence of muskrat or beaver activity is present.	Use traps to remove muskrats and consult a professional to remove beavers.
	A tree has started to grow on the embankment.	Consult a dam safety specialist to remove the tree.
	An annual inspection by an appropriate professional shows that the embankment needs repair.	Make all needed repairs.
The outlet device / The receiving water	Clogging has occurred.	Clean out the outlet device. Dispose of the sediment off-site.
	The outlet device is damaged	Repair or replace the outlet device.
	Erosion or other signs of damage have occurred at the outlet.	Contact the local NC Division of Water Quality Regional Office, or the 401 Oversight Unit at 919-733-1786.
Floating wetland island (if applicable)	Weeds or volunteer trees are growing on the mat.	Remove the weeds or trees.
	The anchor cable is damaged, disconnected or missing.	Restore the anchor cable to its design state.

WET DET. BASIN –L1_NORTH– 868+00 LT – PLANTING PLAN



WET DET. BASIN –L1_NORTH– 868+00 LT – PLAN & PROFILE

Landscape Plan:

1. Embankment slopes of the pond shall be vegetated with non–dumping turf grass, perennial grasses such as hybrid Bermuda or centipede are recommended; trees and woody shrubs shall not be allowed; and

2. The vegetated shelf shall be planted with a minimum of three diverse species of herbaceous, native vegetation at a minimum density of 50 plants per 200 square feet of shelf area. Species shall be selected from the table of Plants for Submerged and Partially Submerged Vegetative Shelves, shown below. Wetland seed mixes shall not be used.

3. Trees and woody shrubs shall not be planted on the embankment slopes and any volunteers should be removed as part of regular maintenance actives.

PLANTS FOR SUBMERGED AND PARTIALLY SUBMERGED VEGETATIVE SHELVES

Botanical Name	Common Name
Asclepias incarnata	Swamp Milkweed
Carex spp.	Sedges
Carex tenera	Quill sedge
Eupatoriadelphus dubius	Dwarf Joe Pye Weed
Eupatoriadelphus fistulosus	Joe Pye Weed
Eupatoriadelphus maculatus	Spotted trumpetweed
Hibiscus coccineus	Scarlet rose mallow
Hibiscus laevis	Halberdleaf rosemallow
Juncus effuses	Rush
Kosteletzkya virginica	Seashore Mallow
Lobelia cardinalis	Cardinal flower
Pontederia cordata	Pickerelweed
Rhynchospora spp.	Beakrush
Saccharum baldwinii	Narrow plumegrass
Sagittaria latifolia	Duck Potato
Saururus cernuus	Lizardtail
Scirpus cyperinus	Woolgrass
Scirpus spp.	Bulrush

Maintenance Plan:

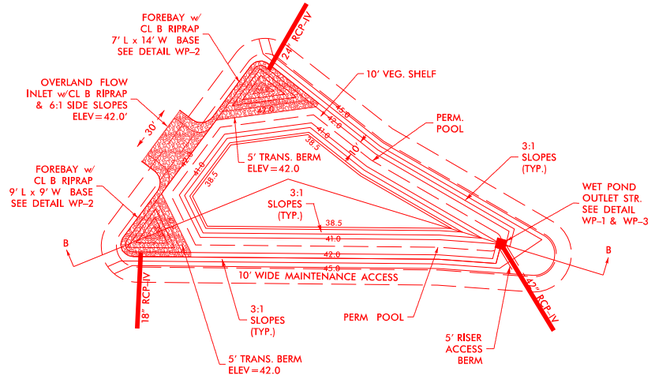
1. Immediately after the wet pond is established, the plants on the vegetated shelf and perimeter of the basin should be watered twice weekly if needed, until the plants become established (commonly six weeks).

2. No portion of the wet pond should be fertilized after the first initial fertilization that is required to establish the plants on the vegetated shelf.

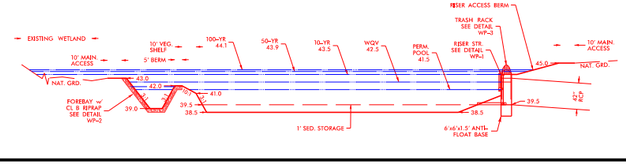
3. Stable groundcover should be maintained in the drainage area to reduce the sediment load to the wet pond.

4. If the pond must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain should be minimized as much as possible.

PLAN VIEW



SECTION B–B



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
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DATE: 04–01–2020

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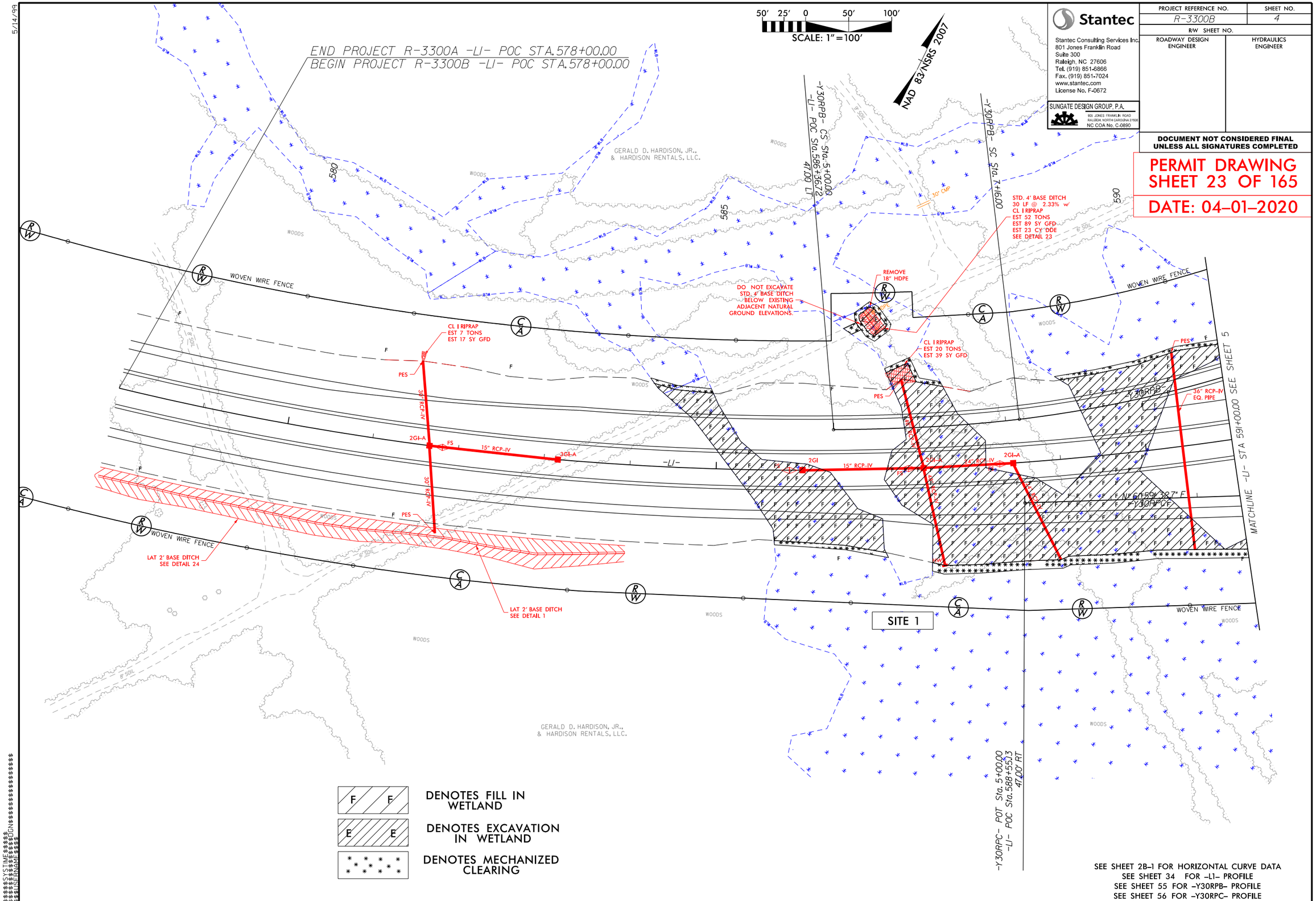
$$$$$USERNAME$$$$$



DENOTES FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 34 FOR -L1- PROFILE
SEE SHEET 55 FOR -Y30RPB- PROFILE
SEE SHEET 56 FOR -Y30RPC- PROFILE

Stantec
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801 Jones Franklin Road
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Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

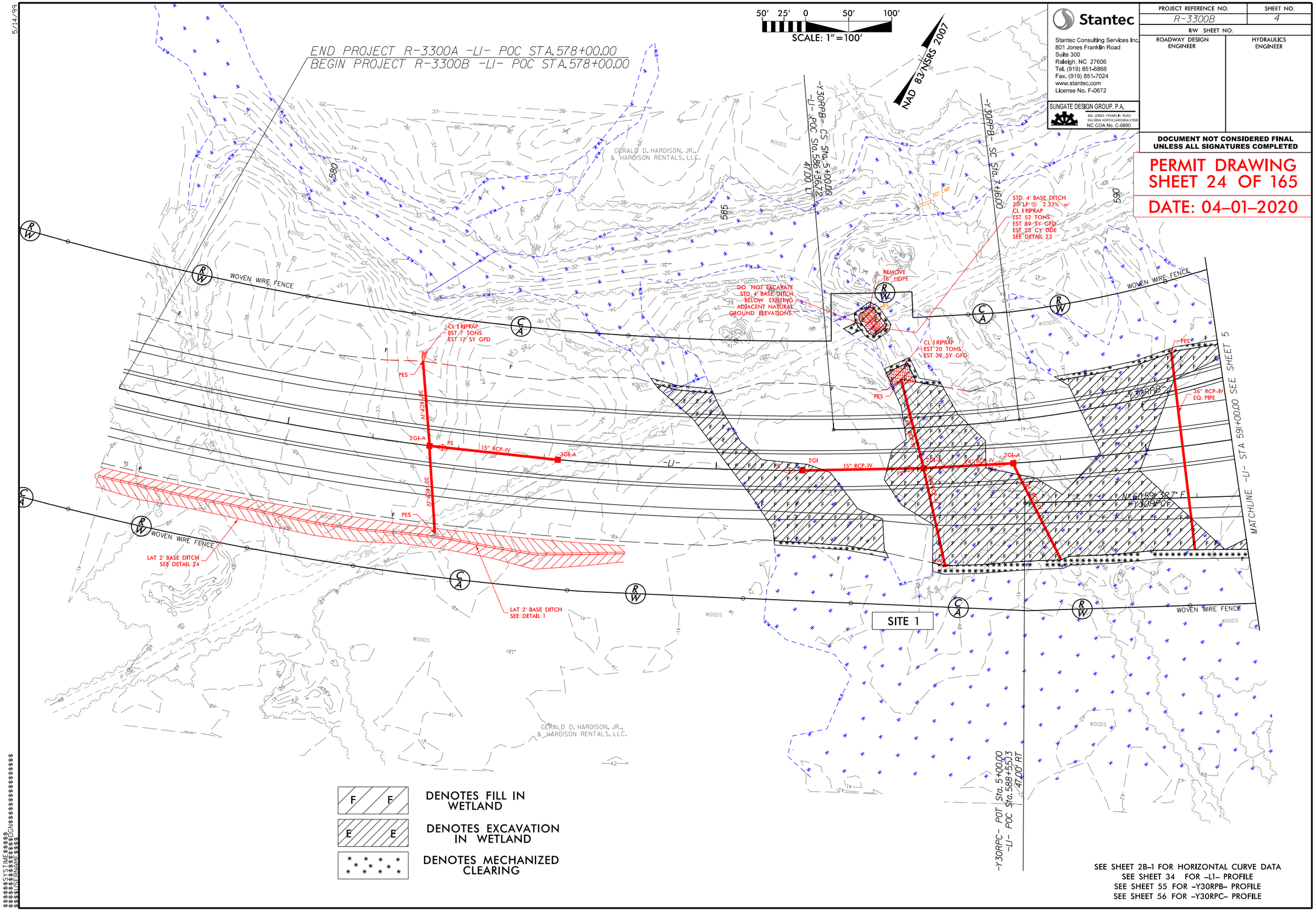
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 23 OF 165

DATE: 04-01-2020

5/14/99



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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 24 OF 165

DATE: 04-01-2020

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 34 FOR -L1- PROFILE
SEE SHEET 55 FOR -Y30RPB- PROFILE
SEE SHEET 56 FOR -Y30RPC- PROFILE

5/14/99

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-5

PERMIT DRAWING
SHEET 25 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 1

WETLANDS

Y30RPC
5+45.56

Y30RPB
7+59.64

0.080 0.060 4.951:1 6:1 0.060

3:1

46.16

FILL IN WETLANDS

3:1

MECHANIZED CLEARING

40.25

589+00.00

50 40 30

WETLANDS

Y30RPB
7+10.32

0.078 0.060 4.951:1 6:1 0.060

4.20:1

45.81

FILL IN WETLANDS

3:1

MECHANIZED CLEARING

39.95

588+50.00

50 40 30

WETLANDS

Y30RPB
6+61.01

0.060 0.060 4.951:1 6:1 0.060

3.94:1

45.46

FILL IN WETLANDS

3:1

MECHANIZED CLEARING

38.13

588+00.00

50 40 30

WETLANDS

MECHANIZED CLEARING

Y30RPB
6+11.71

FILL IN WETLANDS

0.060 0.060 4.951:1 6:1 0.060

3:1

45.11

SITE 1

MECHANIZED CLEARING

3:1

38.12

587+50.00

50 40 30

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$$$SYSTIME$$$$$
$$$$$$$$SIMPLEDGN$$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-6

PERMIT DRAWING
SHEET 26 OF 165
DATE: 04-01-2020

SITE 1

591+00.00

FILL IN WETLANDS
MECHANIZED CLEARING
WETLANDS
Y30RPB 9+57.14
0.080
0.060
4.951:1
6:1
47.24
0.060
Y30RPC 7+49.61
0.059
0.059
WETLANDS
3:1
FILL IN WETLANDS
MECHANIZED CLEARING

590+50.00

MECHANIZED CLEARING
FILL IN WETLANDS
WETLANDS
Y30RPB 9+07.72
0.080
0.060
4.951:1
6:1
47.09
0.060
Y30RPC 6+98.40
0.061
0.061
WETLANDS
3:1
FILL IN WETLANDS
MECHANIZED CLEARING

590+00.00

MECHANIZED CLEARING
Y30RPB 8+58.33
0.079
0.060
FILL IN WETLANDS
WETLANDS
4.951:1
6:1
46.84
WETLANDS
0.060
Y30RPC 6+47.33
0.060
0.060
FILL IN WETLANDS
3:1
MECHANIZED CLEARING

589+50.00

WETLANDS
MECHANIZED CLEARING
FILL IN WETLANDS
Y30RPB 8+08.97
0.079
0.060
4.951:1
6:1
46.51
0.060
Y30RPC 5+96.39
0.060
0.060
3:1
SITE 1
MECHANIZED CLEARING

-11-

$$$$$$CYCTIME$$$$$$
$$$$$$

5/14/99

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

GRAPHIC SCALE
100 50 0 100 200
PLANS

PERMIT DRAWING SHEET 27 OF 165

DATE: 04-01-2020

ENLARGEMENT VIEW SEE SHEET 29 OF 165

ENLARGEMENT VIEW SEE SHEET 31 OF 165

ENLARGEMENT VIEW SEE SHEET 32 OF 165

ENLARGEMENT VIEW SEE SHEET 30 OF 165

SEE SHEET 2 OF 165

SITE 1 | SITE 2 | SITE 3 | SITE 23 | TOTAL TAKE

F F DENOTES FILL IN WETLAND
E E DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
HC HC DENOTES HAND CLEARING

SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 34 & 35 FOR -L1- PROFILE
SEE SHEET 53 FOR -Y30- PROFILE
SEE SHEETS 54 & 55 FOR -Y30RPA- PROFILE
SEE SHEETS 55 & 56 FOR -Y30RPB- PROFILE
SEE SHEETS 56 & 57 FOR -Y30RPC- PROFILE
SEE SHEETS 57 & 58 FOR -Y30RPD- PROFILE
SEE SHEETS 69 & 70 FOR -SR6- PROFILE

$$$

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

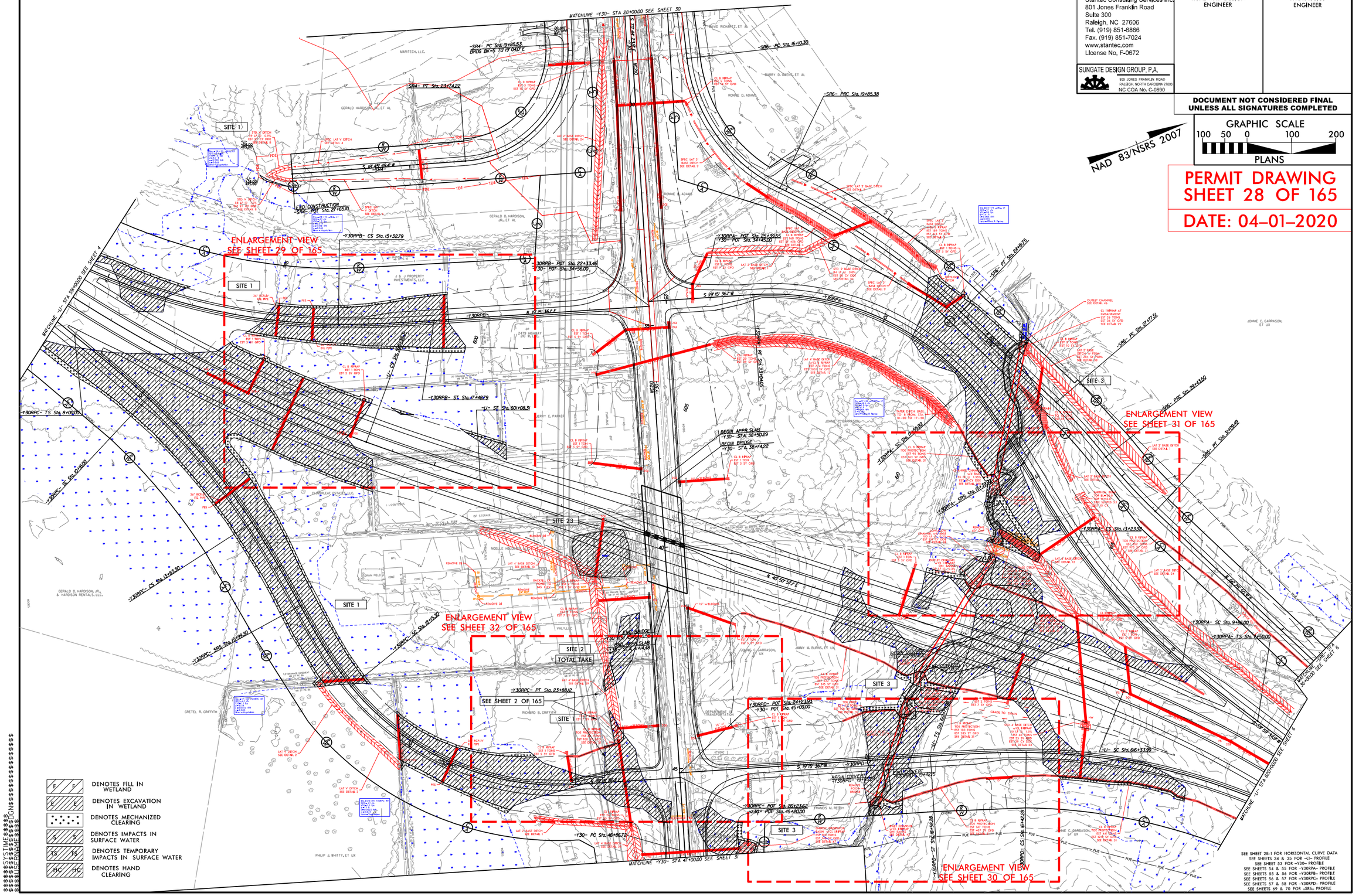
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

GRAPHIC SCALE
100 50 0 100 200
PLANS

PERMIT DRAWING SHEET 28 OF 165

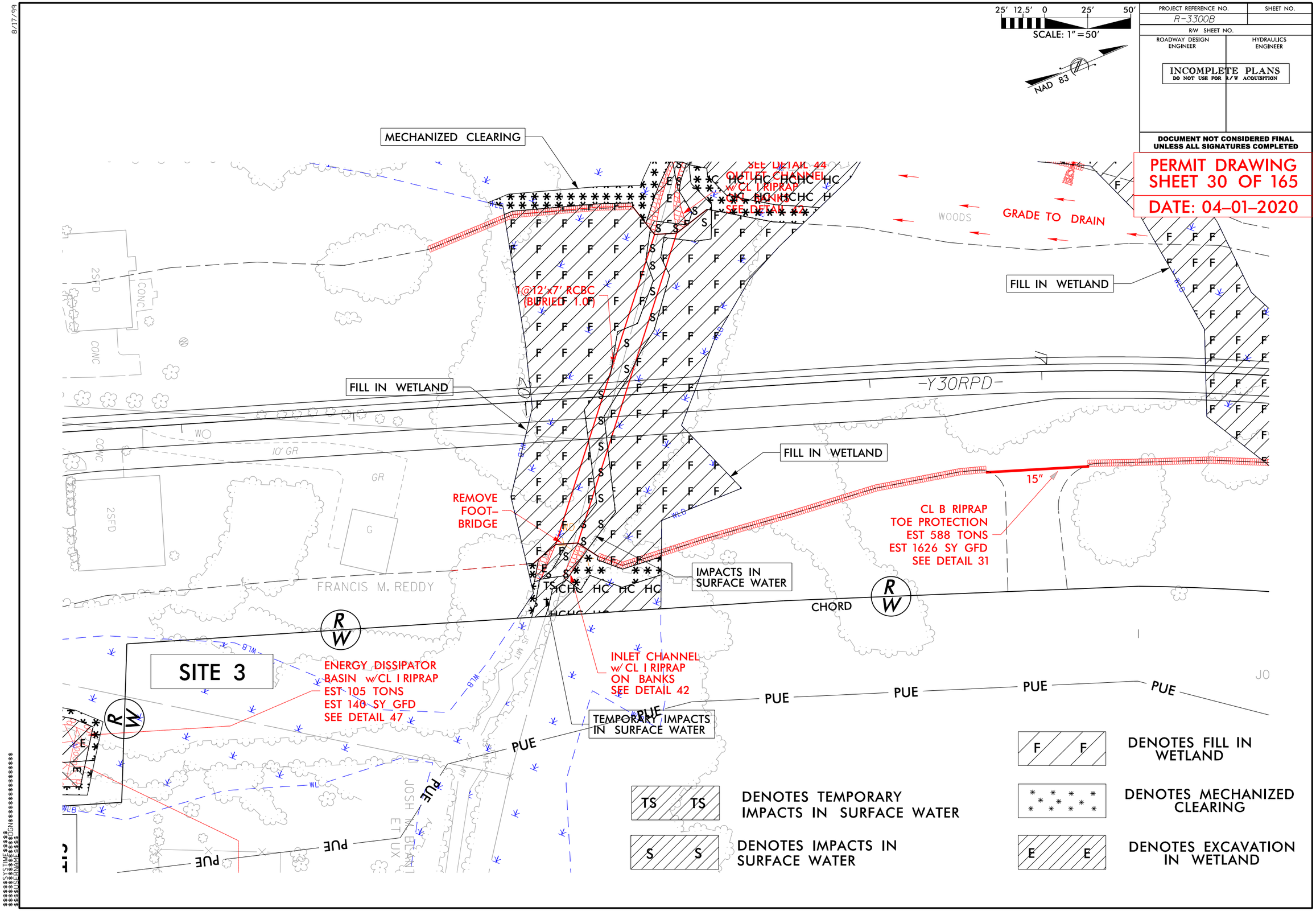
DATE: 04-01-2020



SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 34 & 35 FOR -L1- PROFILE
SEE SHEET 53 FOR -Y30- PROFILE
SEE SHEETS 54 & 55 FOR -Y30RPA- PROFILE
SEE SHEETS 55 & 56 FOR -Y30RPB- PROFILE
SEE SHEETS 56 & 57 FOR -Y30RPC- PROFILE
SEE SHEETS 57 & 58 FOR -Y30RPD- PROFILE
SEE SHEETS 69 & 70 FOR -SR6- PROFILE

8/17/99

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$



PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 30 OF 165
DATE: 04-01-2020
SCALE: 1" = 50'
NAD 83
MECHANIZED CLEARING
SEE DETAIL 44
OUTLET CHANNEL w/CL I RIPRAP ON BANKS
SEE DETAIL 42
GRADE TO DRAIN
WOODS
FILL IN WETLAND
1@12'x7' RCBC (BURIED 1.0')
-Y30RPD-
REMOVE FOOT-BRIDGE
15"
CL B RIPRAP TOE PROTECTION
EST 588 TONS
EST 1626 SY GFD
SEE DETAIL 31
IMPACTS IN SURFACE WATER
FRANCIS M. REDDY
CHORD
SITE 3
ENERGY DISSIPATOR BASIN w/CL I RIPRAP
EST 105 TONS
EST 140 SY GFD
SEE DETAIL 47
INLET CHANNEL w/ CL I RIPRAP ON BANKS
SEE DETAIL 42
TEMPORARY IMPACTS IN SURFACE WATER
PUE
DENOTES FILL IN WETLAND
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND

8/17/99

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

HC HC DENOTES HAND CLEARING

25' 12.5' 0 25' 50'
SCALE: 1" = 50'

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 31 OF 165

DATE: 04-01-2020

SEE DETAIL 1

SITE 3

FILL IN WETLAND

MECHANIZED CLEARING

EXCAVATION

TEMPORARY IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

HAND CLEARING

FILL IN WETLAND

1@12'x7' RCBC (BURIED 1.0')

DITCH AT EL=23.0

CHANNEL CHANGE w/6' BASE 55 LF @ 1.35% EST 51 CY DDE SEE DETAIL 39B

BACKFILL EX. CHANNEL TO NG ELEV.

LAT 2' BASE DITCH SEE DETIAL 1

EARTHEN BERM TOP EL=30.0' TOP W=5.0' SIDE SLOPES 3:1 EST 10 CY

FILL IN WETLAND

HAND CLEARING

REMOVE 60" CMP

LOW-FLOW CHANNEL w/6' BASE 100 LF @ 0.3% EST 110 CY DDE SEE DETAIL 38

24" RCP-IV

EXCAVATION

LAT 4' BASE DITCH SEE DETAIL 13

HAND CLEARING

HAND CLEARING

FILL IN WETLAND

OUTLET CHANNEL w/CL I RIP-RAP ON BANKS 35 LF @ 0.3% SEE DETAIL 45

15" RCP-IV

LAT 2' BASE DITCH SEE DETAIL 24

WOODS

8' SOIL ROAD

10' SOIL

-Y30RPA-

-L-

-GI-

-RW-

-UE-

-PUE-

-CA-

-FS-

-WLB-

-RCB-

-ELB-

-ERB-

-RCB-

$$$$USERNAME$$$$
$$$$SYSTIME$$$$
$$$$DGN$$$$

8/17/99

F F — DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E — DENOTES EXCAVATION IN WETLAND

25′ 12.5′ 0 25′ 50′
SCALE: 1″ = 50′

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 32 OF 165

DATE: 06–09–2020

SITE 2

SITE 1

RICHARD B. GRIFFITH

SITE 3

DEPARTMENT OF TRANSPORTATION

JOHN ET UX

FILL IN WETLAND

LAT 4′ BASE DITCH
40+32 TO 44+35
EST 607 CY DDE
SEE DETAIL 39

EXCAVATION

FILL IN WETLAND
–Y30DET–
SEE SHEET 2 OF 165

MECHANIZED CLEARING

FILL IN WETLAND

15″ w/ELBOWS

2GI

15″ w/ELB's

48″ RCP-IV

HW

N 15° 15′ 36″ E

CL I RIPRAP
EST 26 TONS
EST 50 SY GFD

FLOWABLE FILL

MECHANIZED CLEARING

15″ w/ELBOWS

2GI

FILL IN WETLAND

31′ CONC REMOVE

15″ CMP

12″ CONC

12″ PVC

24″ RCP

48″ CMP

GATE

RETAINING WALL

25′ BST

NC 210

–Y30–

–Y30RPC–

–Y30RPD–

WOODS

WLB

FENCE

43

45

$$$$$$$SYSTIME$$$$$$
$$$$$$$USERNAME$$$$$$
$$$$$$$DGN$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-11

PERMIT DRAWING
SHEET 33 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WETLANDS

WETLANDS

SITE 1

FILL IN WETLANDS

FILL IN WETLANDS

MECHANIZED CLEARING

MECHANIZED CLEARING

50 40 30

0.060 4:1 4.951:1 6:1 0.060 4:1

46.94 41.70

598+00.00

FILL IN WETLANDS

MECHANIZED CLEARING

MECHANIZED CLEARING

50 40 30

0.060 4:1 4.951:1 6:1 0.060 4:1

46.79 41.75

597+50.00

FILL IN WETLANDS

MECHANIZED CLEARING

MECHANIZED CLEARING

50 40 30

0.060 4:1 4.951:1 6:1 0.060 4:1

46.63 41.83

597+00.00

FILL IN WETLANDS

MECHANIZED CLEARING

MECHANIZED CLEARING

50 40 30

0.060 4:1 4.951:1 6:1 0.060 4:1

46.48 42.06

596+50.00

FILL IN WETLANDS

MECHANIZED CLEARING

MECHANIZED CLEARING

50 40 30

0.060 4:1 4.951:1 6:1 0.060 4:1

46.37 42.17

596+00.00

FILL IN WETLANDS

SITE 1

MECHANIZED CLEARING

MECHANIZED CLEARING

50 40 30

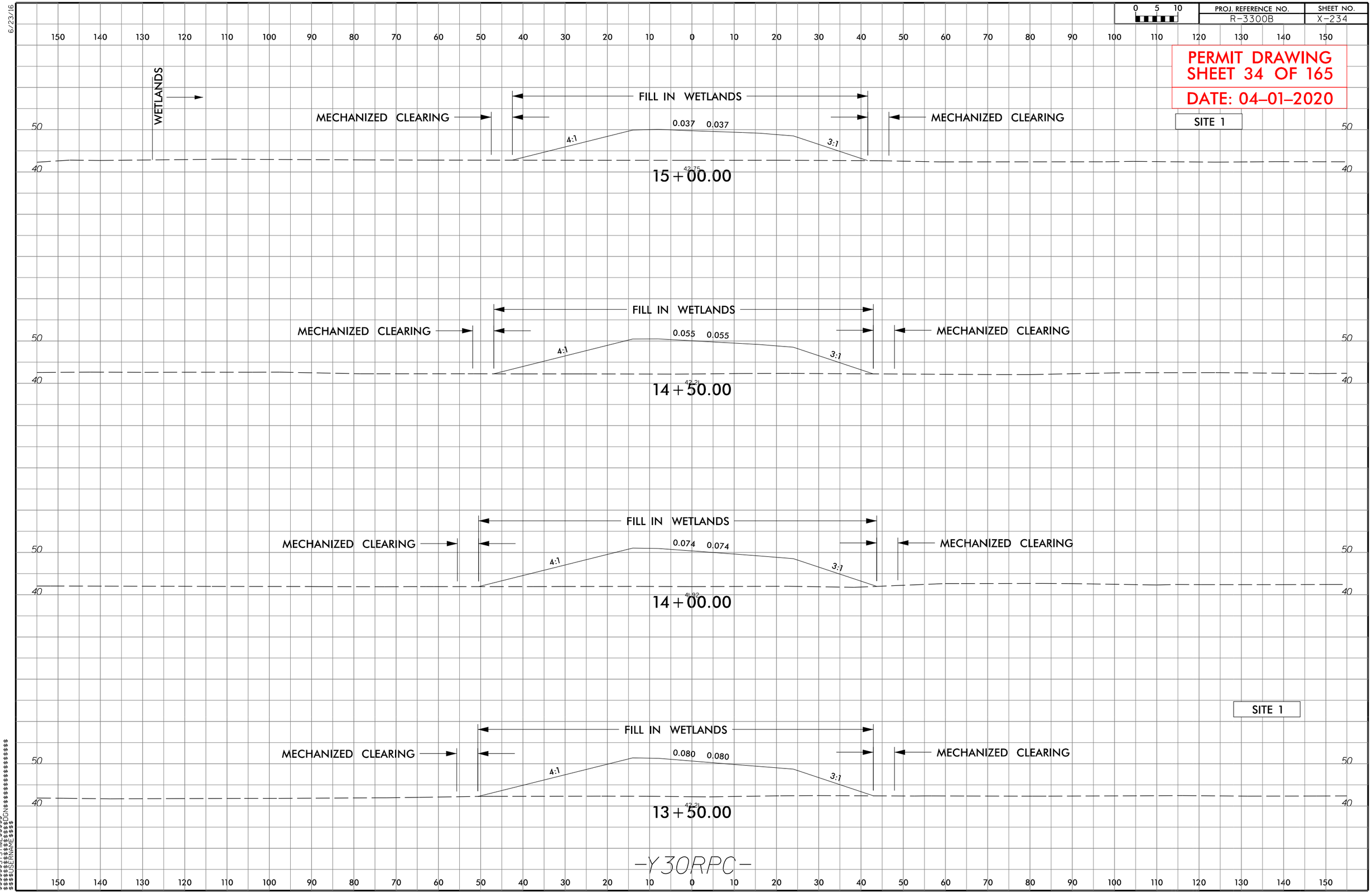
0.060 4:1 4.951:1 6:1 0.060 4:1

46.33 42.10

595+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$



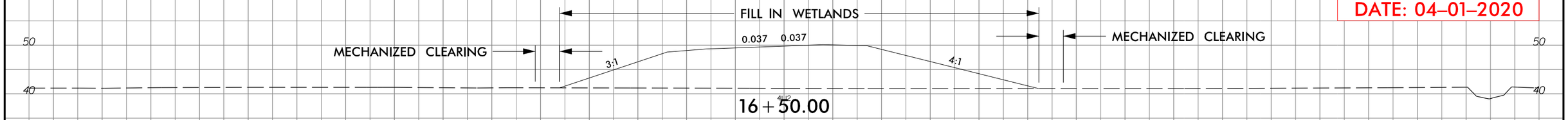
PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-234
PERMIT DRAWING
SHEET 34 OF 165
DATE: 04-01-2020
SITE 1
WETLANDS
FILL IN WETLANDS
MECHANIZED CLEARING
0.037 0.037
4:1
3:1
15+00.00
0.055 0.055
14+50.00
0.074 0.074
14+00.00
0.080 0.080
13+50.00
-Y30RPC-

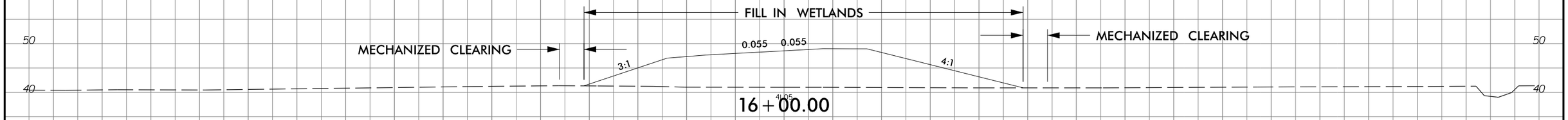
6/23/16

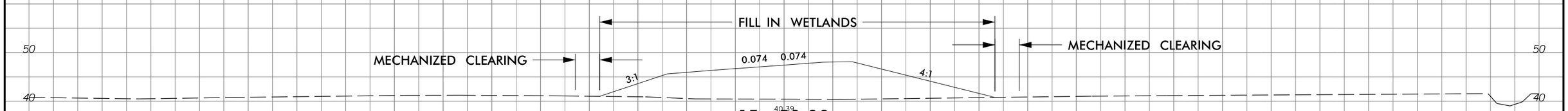
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-228

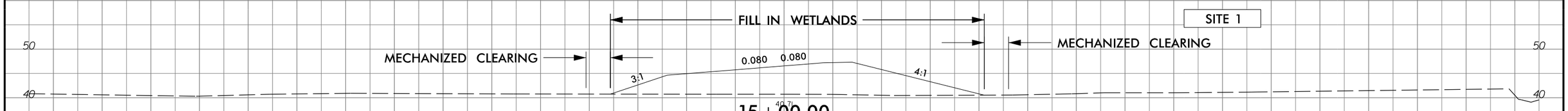
PERMIT DRAWING
SHEET 35 OF 165
DATE: 04-01-2020

SITE 1









SITE 1

-Y30RPB-

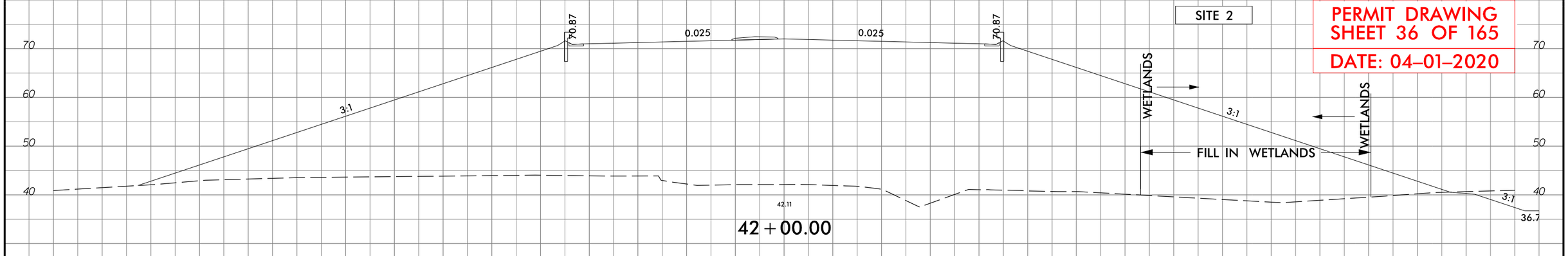
$$$$$$$SYSTIME$$$$$
$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-207

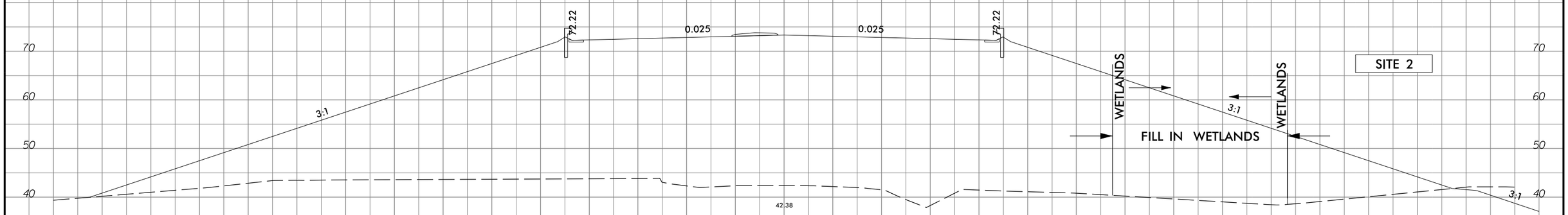
PERMIT DRAWING
SHEET 36 OF 165
DATE: 04-01-2020

SITE 2

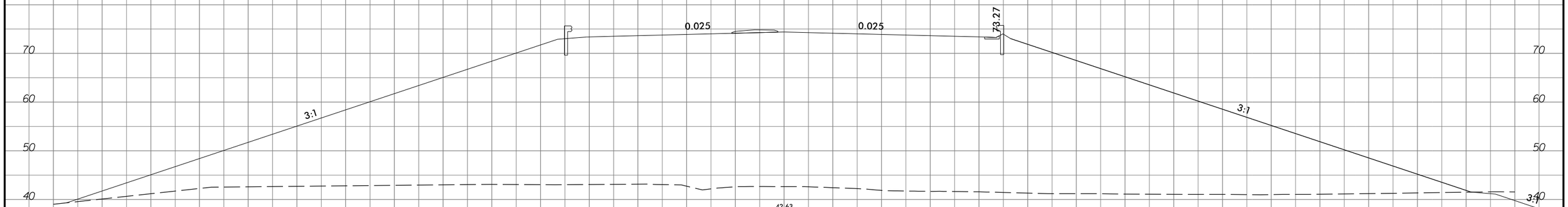


42 + 00.00

SITE 2



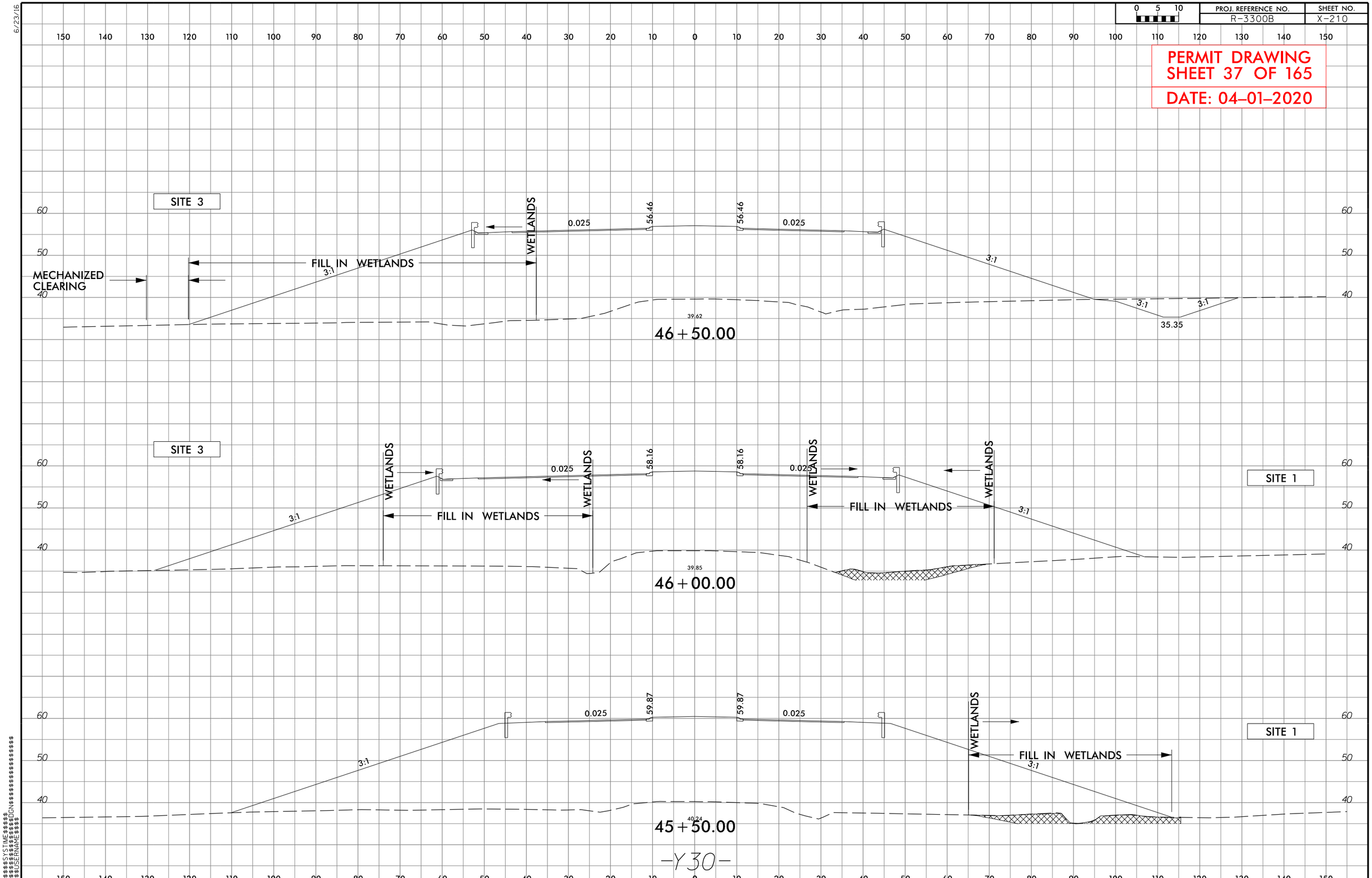
41 + 50.00



41 + 00.00

-Y30-

$$$$$$SYSTIME$$$$
$$$$$$



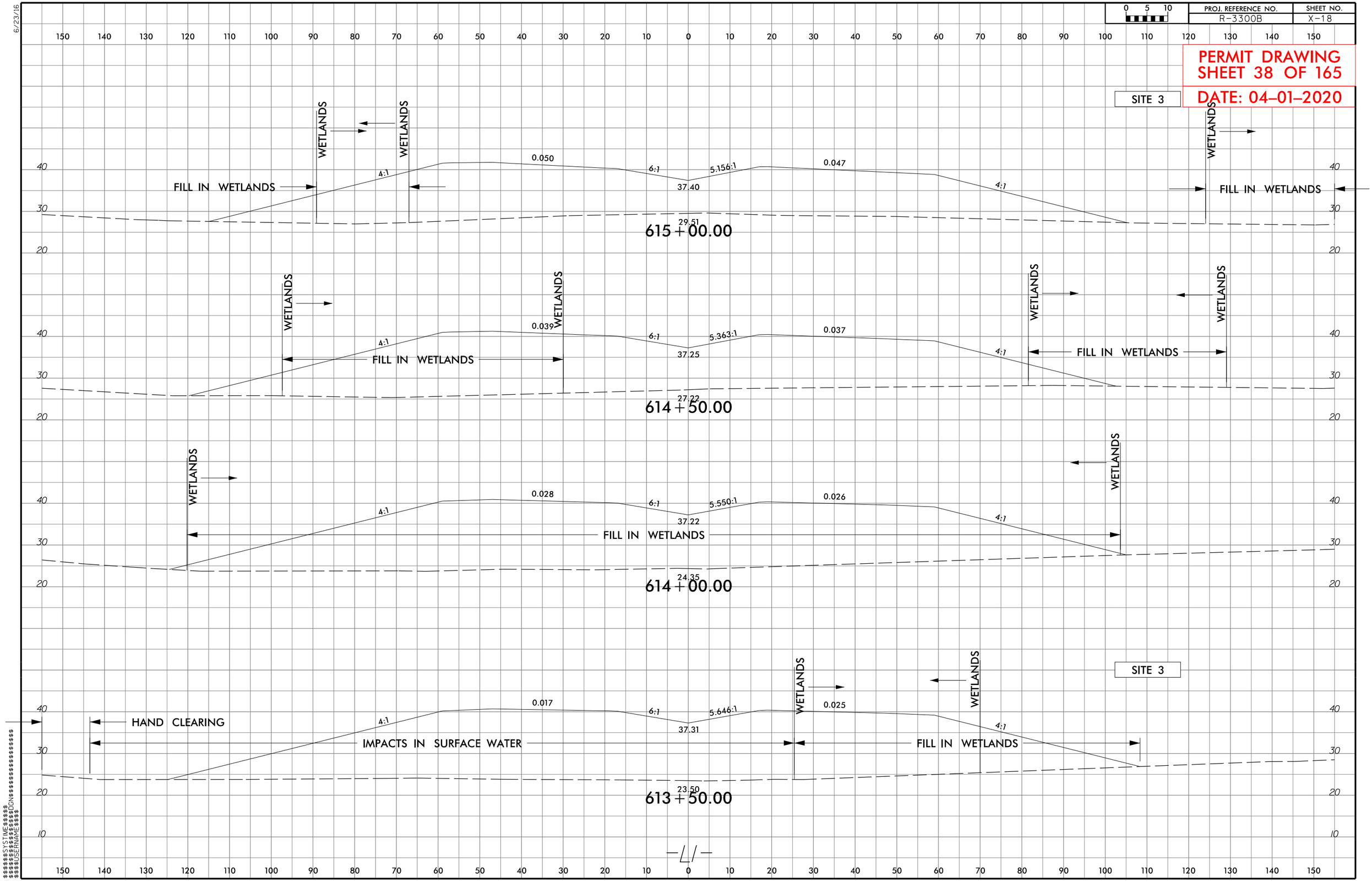
PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-210
PERMIT DRAWING
SHEET 37 OF 165
DATE: 04-01-2020
SITE 3
MECHANIZED CLEARING
FILL IN WETLANDS
WETLANDS
0.025
56.46
56.46
0.025
3:1
3:1
3:1
3:1
35.35
39.62
46+50.00
SITE 3
WETLANDS
WETLANDS
WETLANDS
WETLANDS
0.025
58.16
58.16
0.025
FILL IN WETLANDS
FILL IN WETLANDS
3:1
3:1
SITE 1
39.85
46+00.00
0.025
59.87
59.87
0.025
WETLANDS
FILL IN WETLANDS
3:1
3:1
SITE 1
40.24
45+50.00
-Y30-

6/23/16

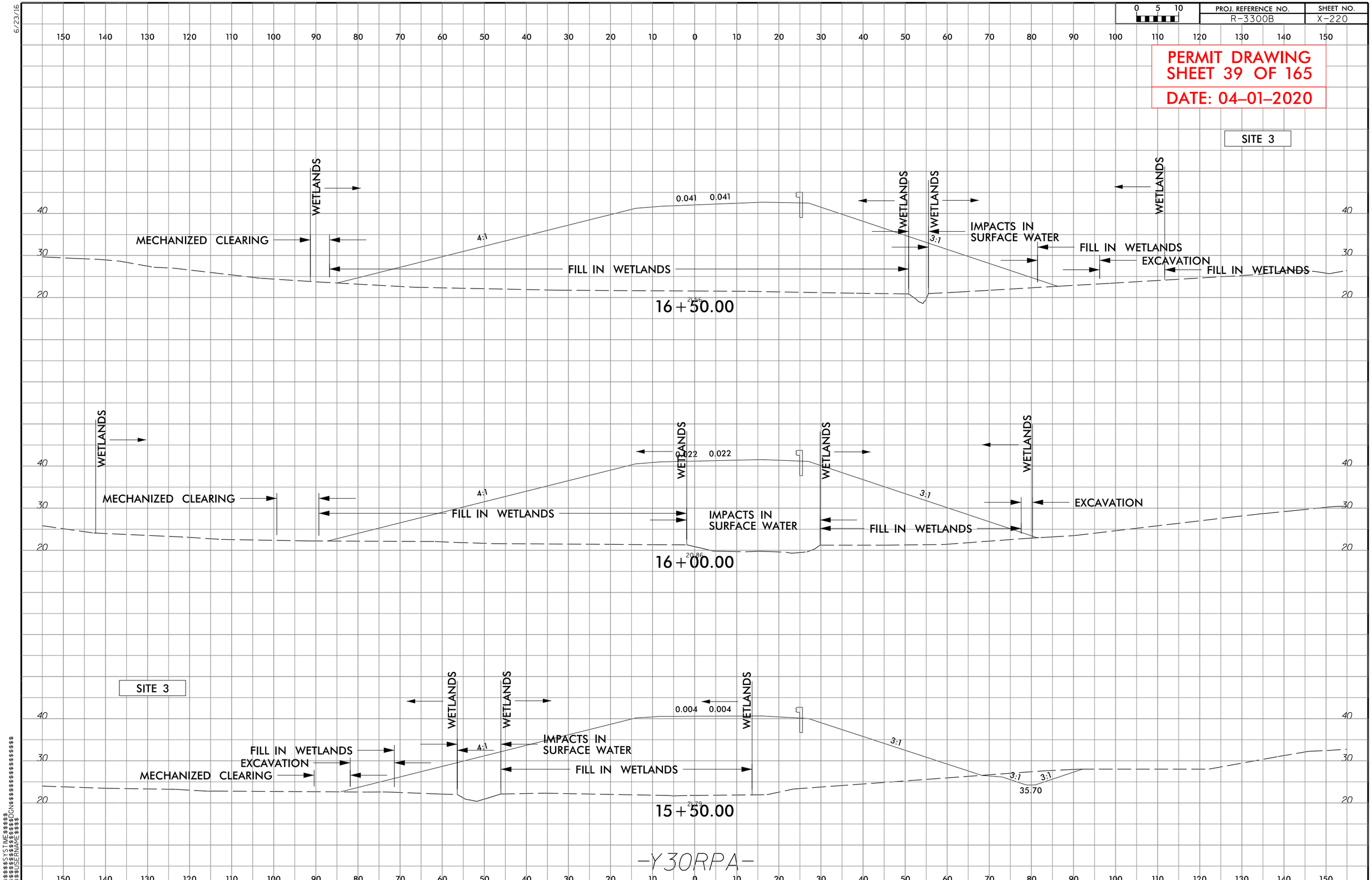
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-18

PERMIT DRAWING
SHEET 38 OF 165
DATE: 04-01-2020

SITE 3



$$$$$$SYSTIME$$$$$
$$$$$$



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-220
PERMIT DRAWING
SHEET 39 OF 165
DATE: 04-01-2020
SITE 3
WETLANDS
MECHANIZED CLEARING
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
EXCAVATION
4:1
3:1
0.041
0.022
0.004
16+50.00
16+00.00
15+50.00
35.70
-Y30RPA-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-241

PERMIT DRAWING
SHEET 40 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 3

WETLANDS

WETLANDS

WETLANDS

FILL IN WETLANDS

MECHANIZED CLEARING

0.080 0.080

3:1

4:1

40

30

32.45

14+50.00

WETLANDS

FILL IN WETLANDS

MECHANIZED CLEARING

0.080 0.080

3:1

4:1

40

30

32.71

14+00.00

WETLANDS

FILL IN WETLANDS

MECHANIZED CLEARING

0.080 0.080

3:1

4:1

40

30

34.31

13+50.00

SITE 3

WETLANDS

WETLANDS

FILL IN WETLANDS

MECHANIZED CLEARING

0.080 0.080

3:1

4:1

40

30

36.22

13+00.00

-Y30RPD-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

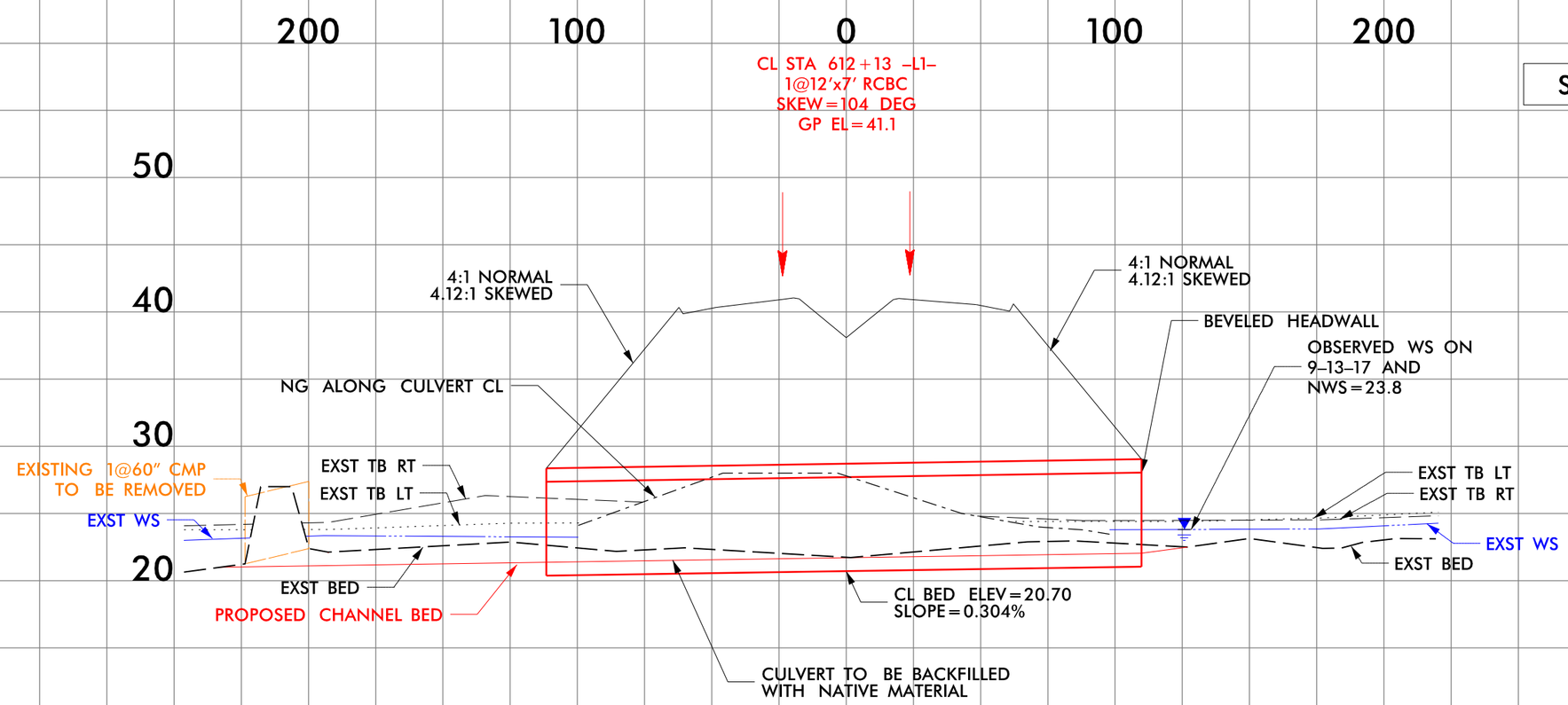
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

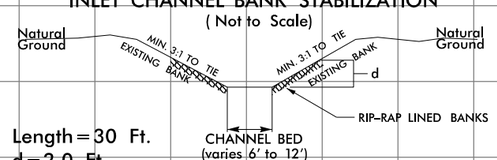
PERMIT DRAWING
SHEET 41 OF 165

DATE: 04-01-2020

SITE 3

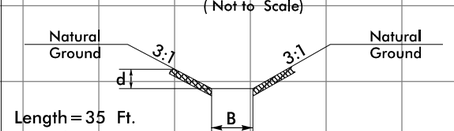


DETAIL
INLET CHANNEL BANK STABILIZATION
(Not to Scale)



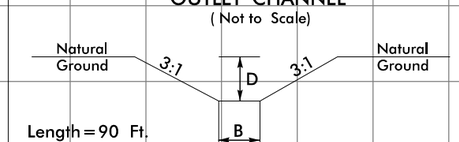
Length=30 Ft.
d=2.0 Ft.
Est.= 44 Tons of Class 'I' Rip-Rap

DETAIL
OUTLET CHANNEL BANK STABILIZATION
(Not to Scale)



Length=35 Ft.
Max. d=2.5 Ft.
B=varies 6 to 12 Ft.
Est.= 66 Tons of Class 'I' Rip-Rap

DETAIL
OUTLET CHANNEL
(Not to Scale)



Length=90 Ft.
Min. D=2.0 Ft.
B=6.0 Ft.

5/14/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
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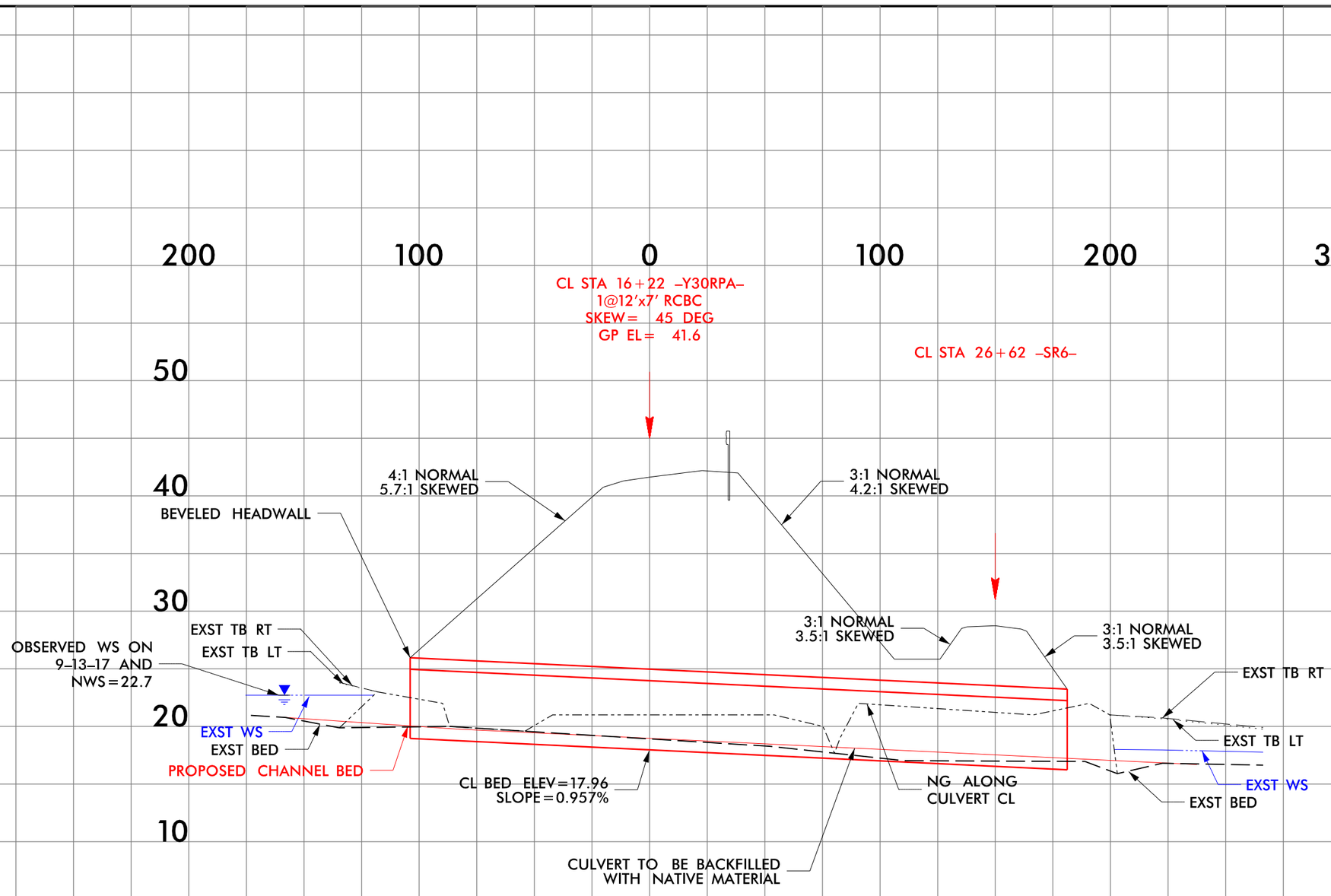
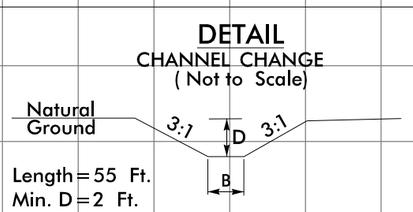
PERMIT DRAWING
SHEET 42 OF 165
DATE: 04-01-2020

SITE 3

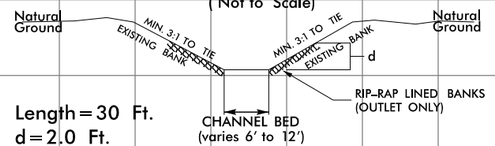


DETAIL
CHANNEL CHANGE
(Not to Scale)



Length = 55 Ft.
Min. D = 2 Ft.
B = varies 6 to 12 Ft.

DETAIL
OUTLET CHANNEL BANK STABILIZATION
(Not to Scale)



Length = 30 Ft.
d = 2.0 Ft.
Est. = 34 Tons of Class 'I' Rip–Rap

$$$$$SYSTIME$$$$$
$$$$$USERNAME$$$$$ON$$$$$$$$$$$$$$$$$$$$
$$$$$FILENAME$$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.

ROADWAY DESIGN ENGINEER

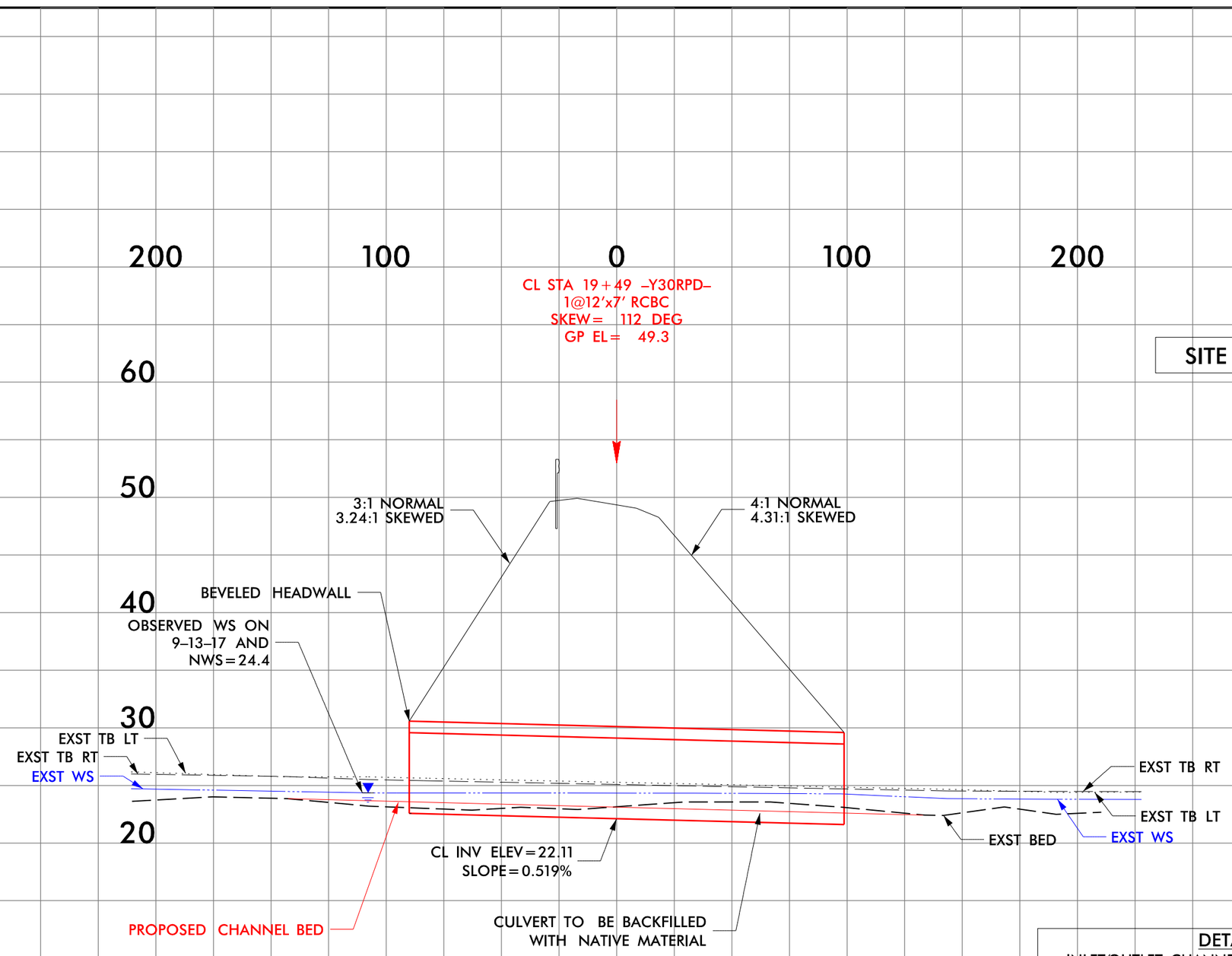
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

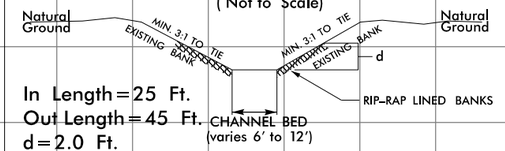
PERMIT DRAWING
SHEET 43 OF 165
DATE: 04-01-2020

SITE 3



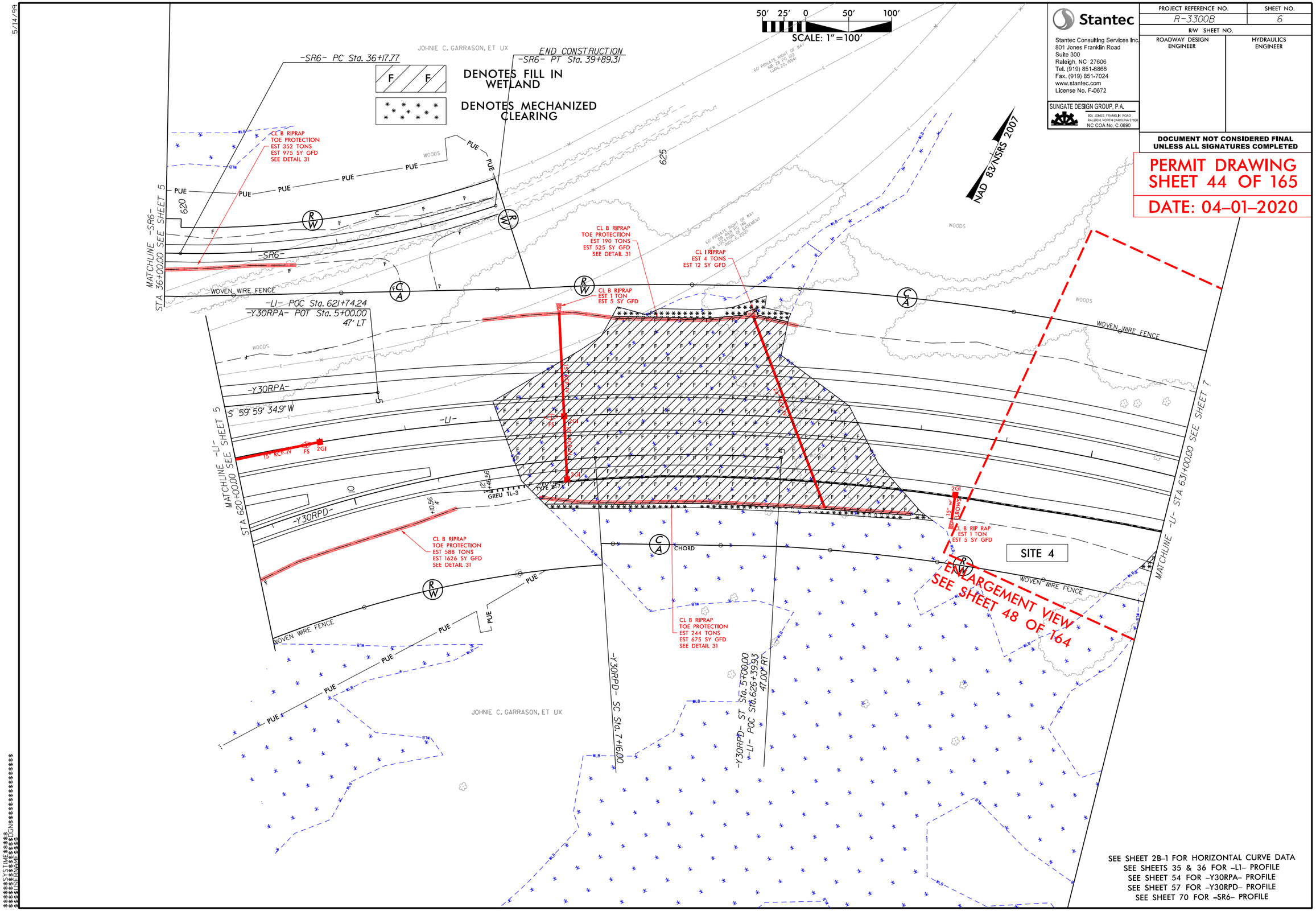
DETAIL
INLET/OUTLET CHANNEL BANK STABILIZATION

(Not to Scale)



In Length=25 Ft.
Out Length=45 Ft.
d=2.0 Ft.
Est.= 40 Tons of Class 'I' Rip–Rap (Inlet)
Est.= 72 Tons of Class 'I' Rip–Rap (Outlet)

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$



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www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 44 OF 165

DATE: 04-01-2020

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 35 & 36 FOR -L1- PROFILE
SEE SHEET 54 FOR -Y30RPA- PROFILE
SEE SHEET 57 FOR -Y30RPD- PROFILE
SEE SHEET 70 FOR -SR6- PROFILE

5/14/99

5/14/99

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 45 OF 165

DATE: 04–01–2020

50′ 25′ 0 50′ 100′
SCALE: 1″=100′

NAD 83/NSRS 2007

JOHNIE C. GARRASON, ET UX

-SR6- PC Sta. 36+17.77

END CONSTRUCTION
-SR6- PT Sta. 39+89.31

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

MATCHLINE -SR6- STA 36+00.00 SEE SHEET 5

MATCHLINE -LI- STA 620+00.00 SEE SHEET 5

MATCHLINE -LI- STA 631+00.00 SEE SHEET 7

CL B RIPRAP
TOE PROTECTION
EST 352 TONS
EST 975 SY GFD
SEE DETAIL 31

CL B RIPRAP
TOE PROTECTION
EST 190 TONS
EST 525 SY GFD
SEE DETAIL 31

CL I RIPRAP
EST 4 TONS
EST 12 SY GFD

CL B RIPRAP
EST 1 TON
EST 5 SY GFD

CL B RIPRAP
TOE PROTECTION
EST 588 TONS
EST 1626 SY GFD
SEE DETAIL 31

CL B RIPRAP
TOE PROTECTION
EST 244 TONS
EST 675 SY GFD
SEE DETAIL 31

CL B RIP RAP
EST 1 TON
EST 5 SY GFD

-SR6-

-LI- POC Sta. 621+74.24
-Y30RPA- POT Sta. 5+00.00
47′ LT

-Y30RPA-

S 59° 59′ 34.9″ W

-LI-

-Y30RPD-

-Y30RPD- SC Sta. 7+16.00

-Y30RPD- ST Sta. 5+00.00
-LI- POC Sta. 626+39.93
47.00′ RT

CHORD

SITE 4

ENLARGEMENT VIEW
SEE SHEET 48 OF 164

WOVEN WIRE FENCE

PUE

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 35 & 36 FOR –L1– PROFILE
SEE SHEET 54 FOR –Y30RPA– PROFILE
SEE SHEET 57 FOR –Y30RPD– PROFILE
SEE SHEET 70 FOR –SR6– PROFILE

$$$$SYSTIME$$$$
$$$$SYSDATE$$$$
$$$$USERNAME$$$$

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-26

PERMIT DRAWING
SHEET 46 OF 165
DATE: 04–01–2020

SITE 4

WETLANDS
MECHANIZED CLEARING
3:1
0.075
6:1
4.705:1
51.10
FILL IN WETLANDS
42.09
625+50.00
Y30RPD
5+88.20
0.075
0.075
3:1
MECHANIZED CLEARING

WETLANDS
MECHANIZED CLEARING
3:1
0.075
6:1
4.705:1
51.10
FILL IN WETLANDS
42.61
625+00.00
Y30RPD
6+37.24
0.075
0.075
3:1
MECHANIZED CLEARING

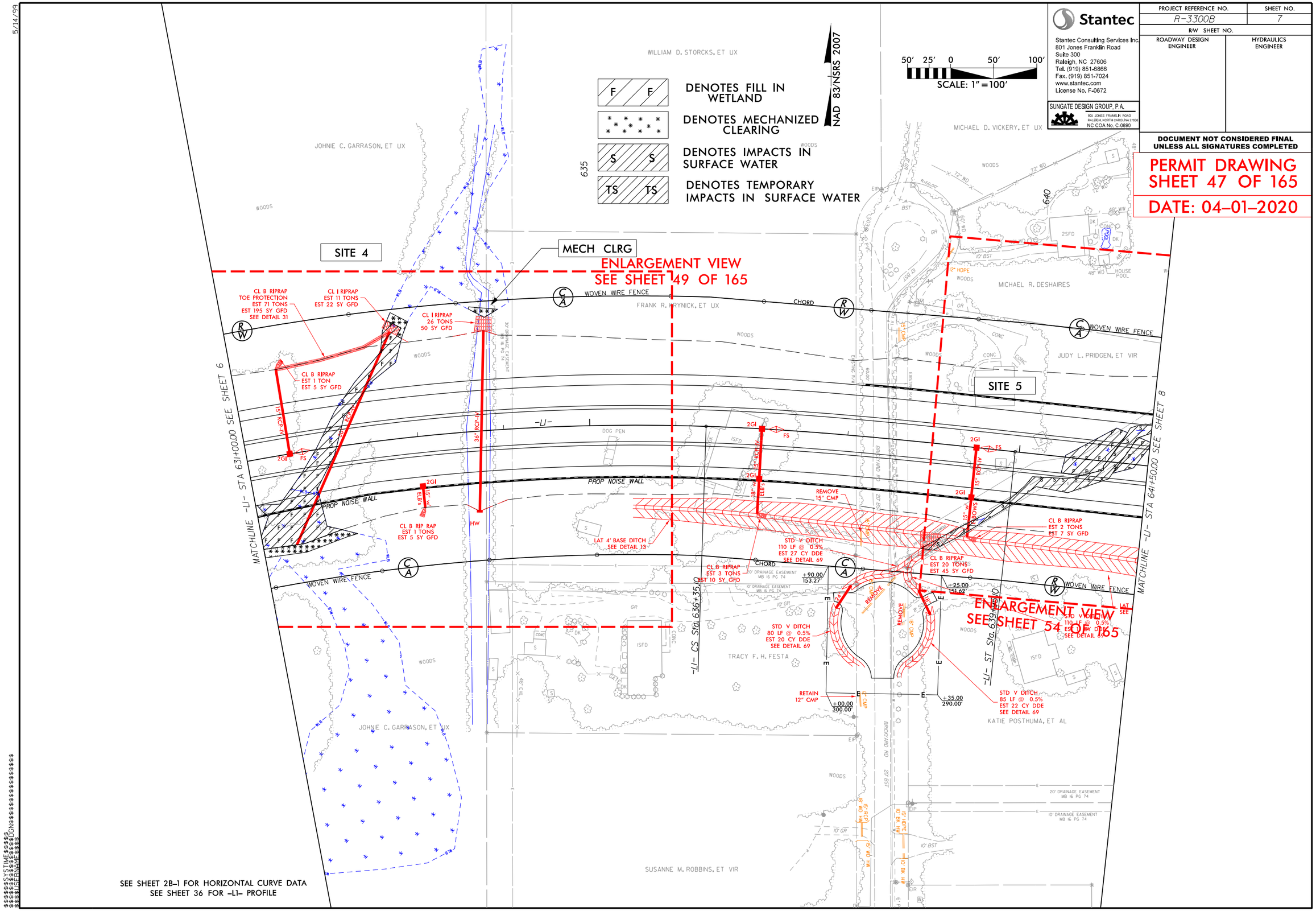
WETLANDS
MECHANIZED CLEARING
3:1
0.075
6:1
4.705:1
51.00
FILL IN WETLANDS
42.44
624+50.00
Y30RPD
6+86.27
0.075
0.075
3:1
MECHANIZED CLEARING

WETLANDS
3:1
0.075
6:1
4.705:1
50.80
FILL IN WETLANDS
42.51
624+00.00
Y30RPD
7+35.29
0.075
0.080
3:1
SITE 4
MECHANIZED CLEARING
WETLANDS

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

60 50 40 30

$$$$SYSTIME$$$$
$$$$SCALE$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE

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NC COA No. C-0890

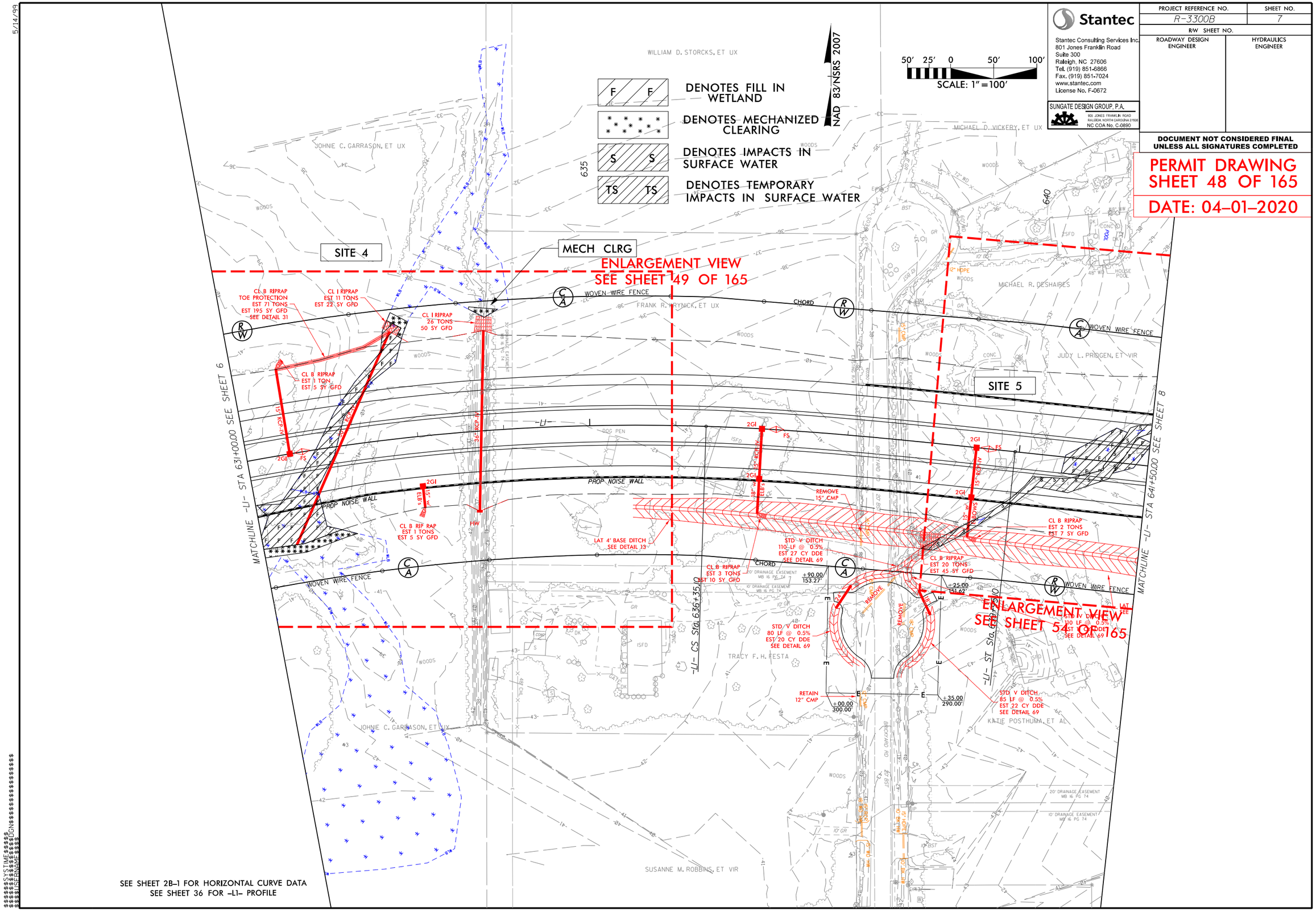
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 47 OF 165

DATE: 04-01-2020

5/14/99



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE

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R-3300B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 48 OF 165

DATE: 04-01-2020

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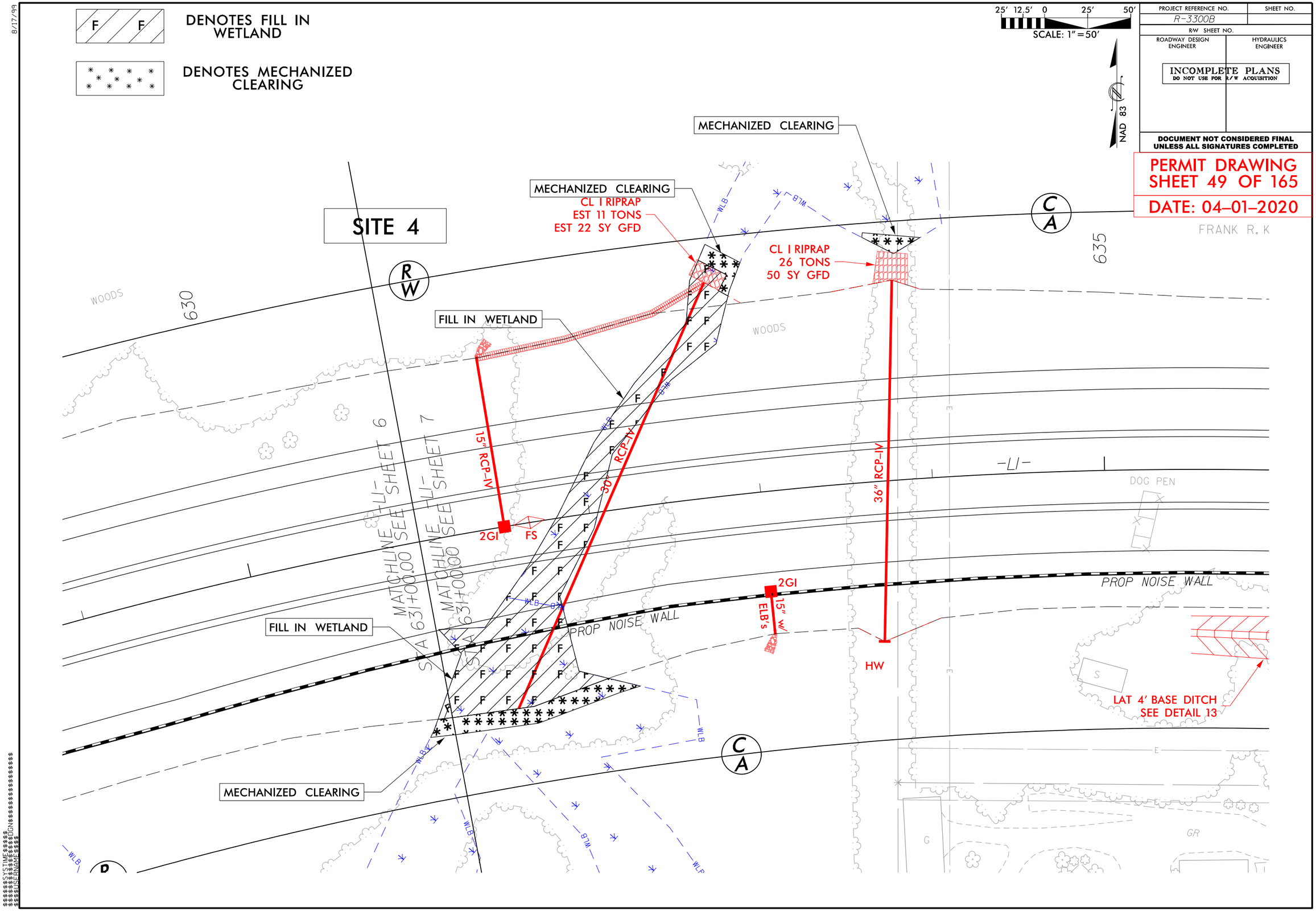
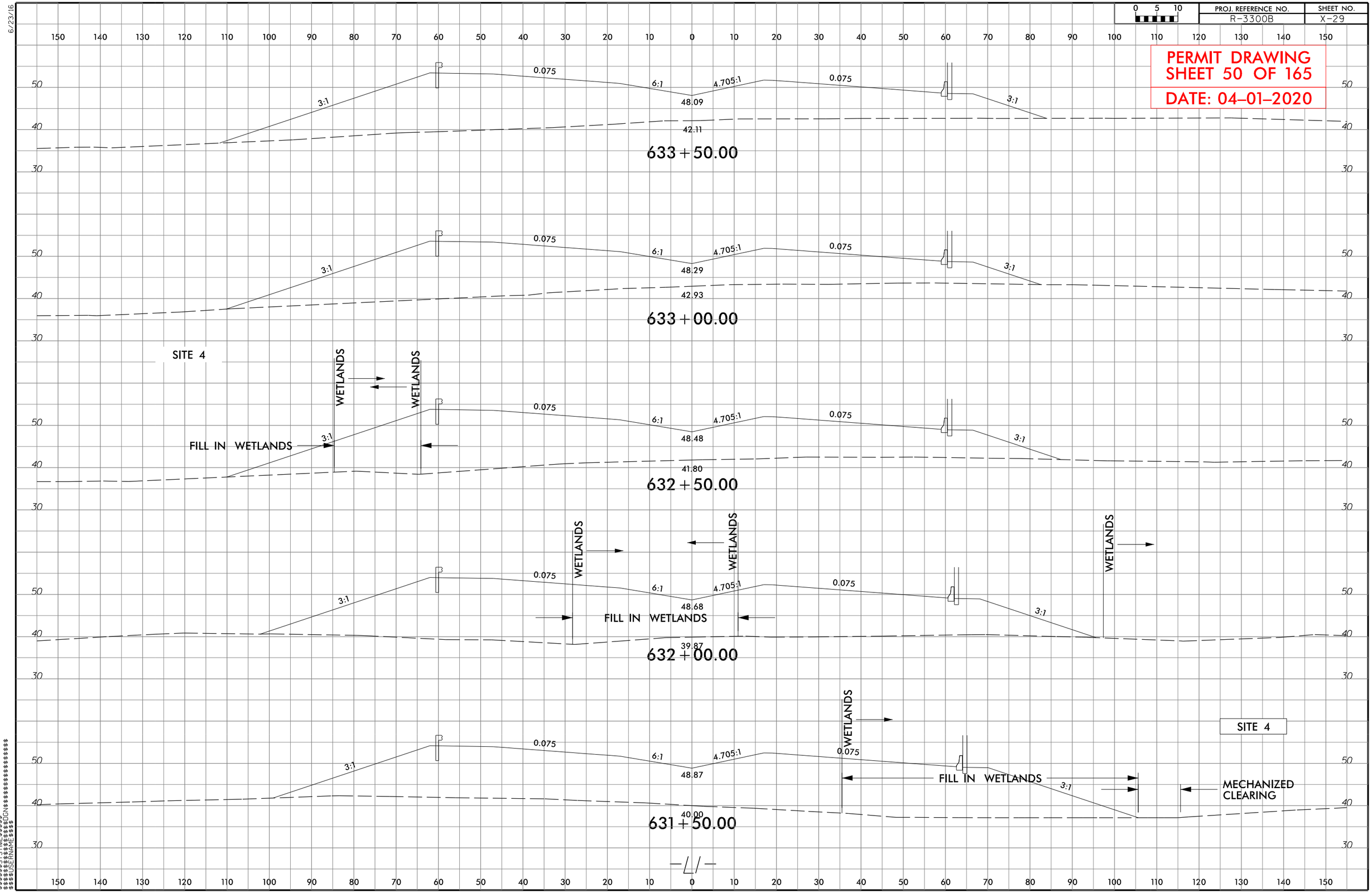
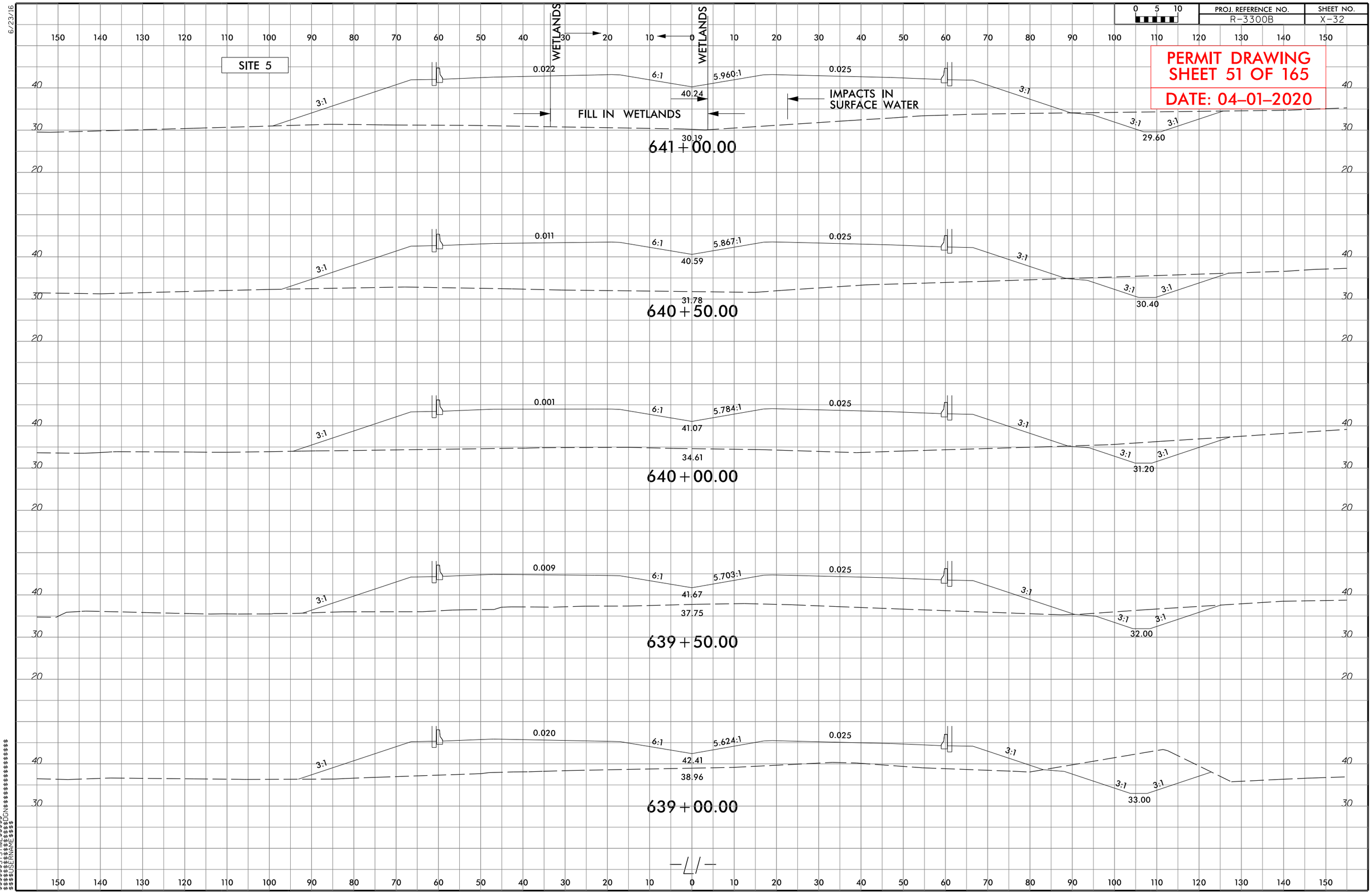


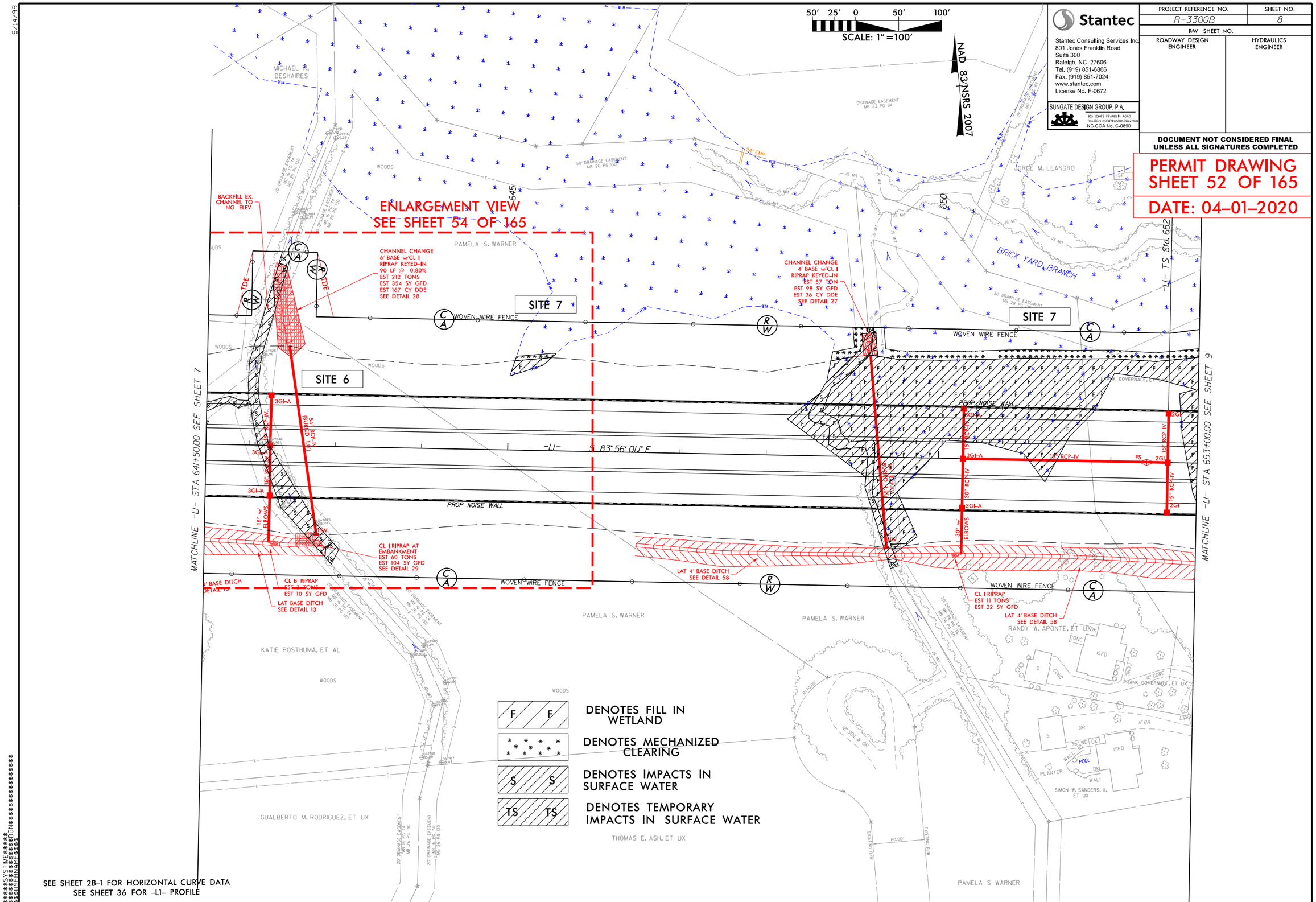
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
SCALE: 1" = 50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 49 OF 165
DATE: 04-01-2020
SITE 4
MECHANIZED CLEARING
CL I RIPRAP
EST 11 TONS
EST 22 SY GFD
CL I RIPRAP
26 TONS
50 SY GFD
FILL IN WETLAND
15" RCP-IV
30" RCP-IV
36" RCP-IV
2GI
FS
HW
ELB's
15" w/
MATCHLINE -LI- STA 631+00.00 SEE SHEET 6
MATCHLINE -LI- STA 631+00.00 SEE SHEET 7
PROP NOISE WALL
LAT 4' BASE DITCH
SEE DETAIL 13
WOODS
DOG PEN
FRANK R. K
630
635



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-29
PERMIT DRAWING
SHEET 50 OF 165
DATE: 04-01-2020
633+50.00
0.075
6:1
4.705:1
0.075
3:1
3:1
48.09
42.11
633+00.00
0.075
6:1
4.705:1
0.075
3:1
3:1
48.29
42.93
SITE 4
WETLANDS
WETLANDS
FILL IN WETLANDS
0.075
6:1
4.705:1
0.075
3:1
3:1
48.48
41.80
632+50.00
WETLANDS
WETLANDS
WETLANDS
FILL IN WETLANDS
0.075
6:1
4.705:1
0.075
3:1
3:1
48.68
39.87
632+00.00
WETLANDS
SITE 4
FILL IN WETLANDS
MECHANIZED CLEARING
0.075
6:1
4.705:1
0.075
3:1
3:1
48.87
40.00
631+50.00



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-32
PERMIT DRAWING
SHEET 51 OF 165
DATE: 04-01-2020
SITE 5
WETLANDS
WETLANDS
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
0.022
6:1
5.960:1
0.025
3:1
40.24
30.19
29.60
641+00.00
0.011
6:1
5.867:1
0.025
3:1
40.59
31.78
30.40
640+50.00
0.001
6:1
5.784:1
0.025
3:1
41.07
34.61
31.20
640+00.00
0.009
6:1
5.703:1
0.025
3:1
41.67
37.75
32.00
639+50.00
0.020
6:1
5.624:1
0.025
3:1
42.41
38.96
33.00
639+00.00



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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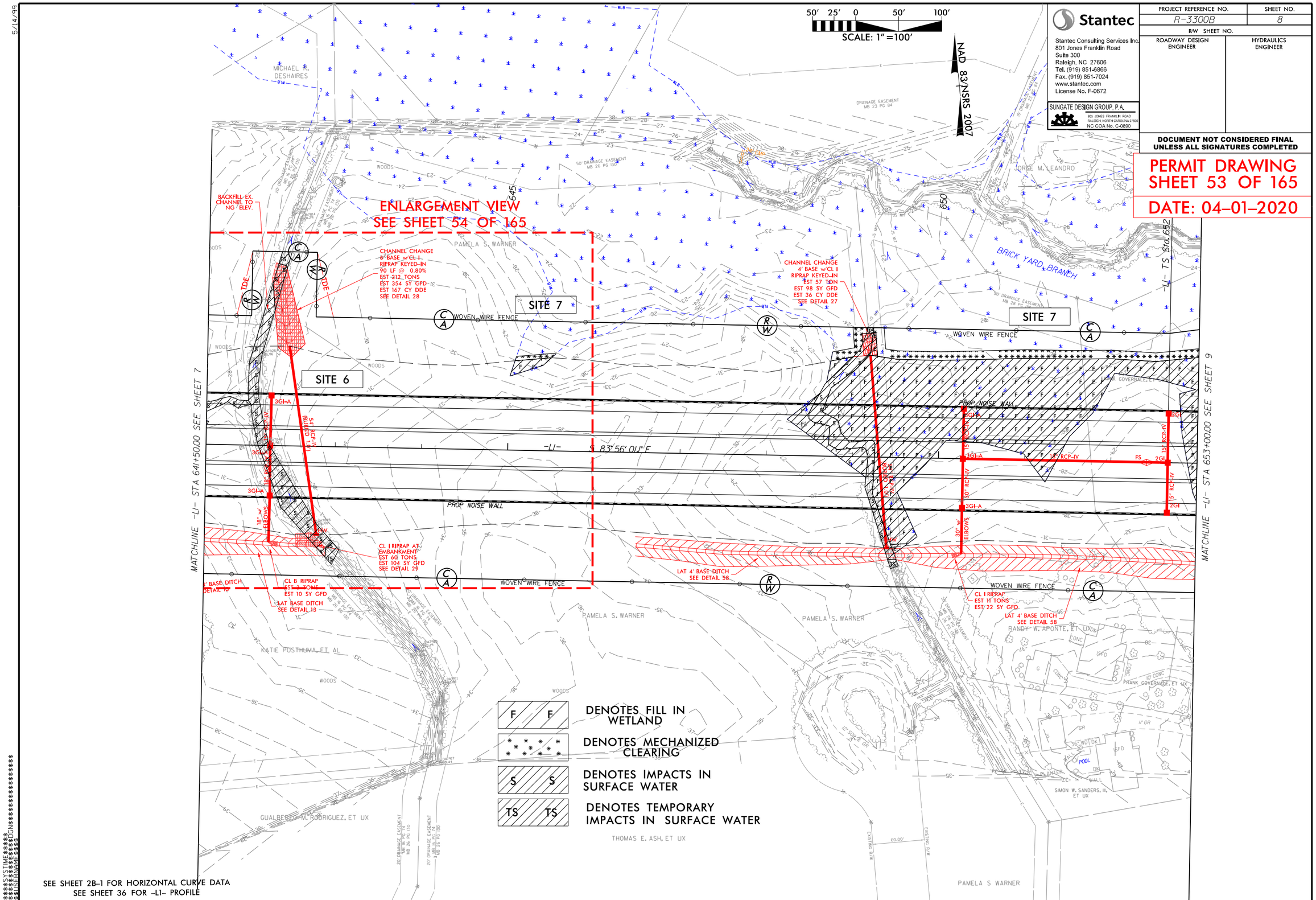
PERMIT DRAWING
SHEET 52 OF 165

DATE: 04-01-2020

5/14/99



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SEE SHEET 36 FOR -L1- PROFILE

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R-3300B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 53 OF 165

DATE: 04-01-2020

5/14/99

8/17/99

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25' 12.5' 0 25' 50'
SCALE: 1" = 50'

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 54 OF 165

DATE: 04-01-2020

TEMPORARY IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

MECHANIZED CLEARING

FILL IN WETLAND

FILL IN WETLAND

FILL IN WETLAND

IMPACTS IN SURFACE WATER

TEMPORARY IMPACTS IN SURFACE WATER

SITE 5

SITE 6

SITE 7

PAMELA S. WARNER

MICHAEL R. DESHAIRES

JUDY L. PRIDGEN, ET VIR

WOODS

HOUSE

POOL

10' BST

48" WD

48"

12" HDPE

GR

CONC

CONC

CONC

11/2SFD

640

645

MATCHLINE -L1- 641+50.00 SEE SHEET 8

MATCHLINE -L1- 641+50.00 SEE SHEET 8

TIDE

TIDE

WLB

2GI

FS

15" RCP-IV

2GI

15" w/ ELBOWS

3GI-A

15" RCP-IV

3GI-A

18" RCP-IV

3GI-A

18" w/ ELBOWS

54" RCP-IV (BURIED 1.0')

HW

PROP NOISE WALL

CL B RIPRAP
EST 20 TONS
EST 45 SY GFD

LAT 4' BASE DITCH
SEE DETAIL 13

CL I RIPRAP AT EMBANKMENT
EST 60 TONS
EST 104 SY GFD
SEE DETAIL 29

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-37

PERMIT DRAWING
SHEET 55 OF 165
DATE: 04-01-2020

SITE 7

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

0.025 | 5.633:1 | 6:1 | 0.019

41.57 | 28.49 | 30.20

653+50.00

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

0.025 | 5.717:1 | 6:1 | 0.008

40.80 | 27.97 | 28.60

653+00.00

FILL IN WETLANDS

MECHANIZED CLEARING

WETLANDS

0.025 | 5.803:1 | 6:1 | 0.004

40.18 | 29.60 | 28.35

652+50.00

FILL IN WETLANDS

MECHANIZED CLEARING

WETLANDS

0.025 | 5.893:1 | 6:1 | 0.015

39.69 | 29.29 | 28.10

652+00.00

SITE 7

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

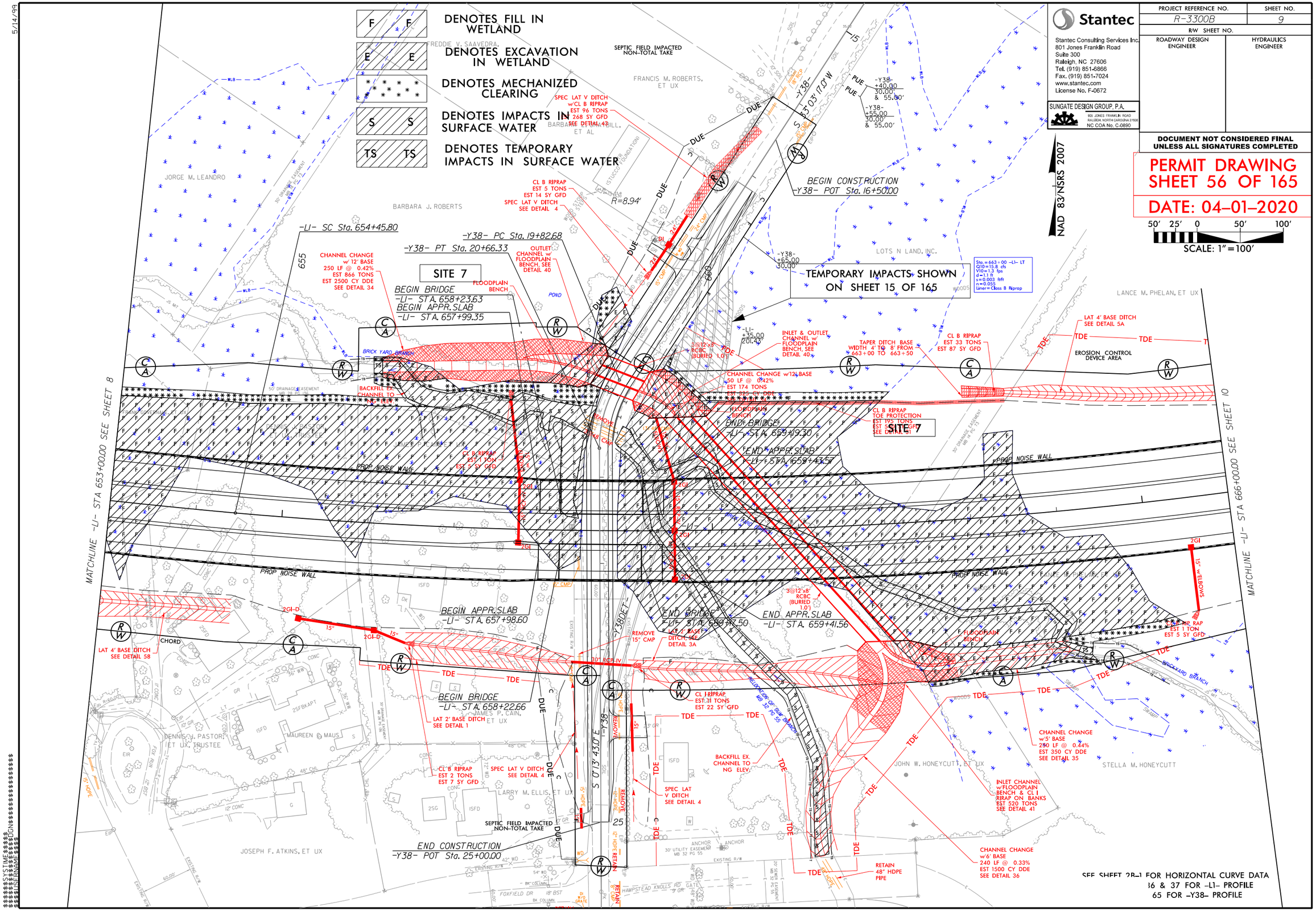
0.025 | 6:1 | 6:1 | 0.025

39.34 | 27.42 | 27.85

651+50.00

3:1 | 40 | 30 | 20 | 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$SYSTIME$$$$$
$$$$$



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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 56 OF 165

DATE: 04-01-2020

5/14/99

5/14/99

F F — DENOTES FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FREDDIE V. SAAVEDRA

SEPTIC FIELD IMPACTED NON-TOTAL TAKE

FRANCIS M. ROBERTS, ET UX

BARBARA DETAMORE BILL, ET AL

JORGE M. LEANDRO

BARBARA J. ROBERTS

LOTS N LAND, INC.

LANCE M. PHELPS, ET UX

JAMES P. LAING, ET UX

DENNIS V. PASTORI, ET UX, TRUSTEE

MAUREEN B. MAUS

LARRY M. ELLIS, ET UX

JOSEPH F. ATKINS, ET UX

JOHN W. HONEYCUTT, ET UX

STELLA M. HONEYCUTT

EROSION CONTROL DEVICE AREA

WOODS

POND

SWAMP

BRICKYARD BRANCH

BRICK YARD BRANCH

FOXFIELD DR

HAMPSTEAD KNOLLS RD

-L1- SC Sta. 654+45.80

-Y38- PC Sta. 19+82.68

-Y38- PT Sta. 20+66.33

-L1- PT Sta. 663+50.00

-L1- PC Sta. 663+00.00

-Y38- Sta. 16+50.00

BEGIN CONSTRUCTION -Y38- POT Sta. 16+50.00

END CONSTRUCTION -Y38- POT Sta. 25+00.00

BEGIN BRIDGE -L1- STA. 658+23.63

BEGIN APPR. SLAB -L1- STA. 657+99.35

END BRIDGE -L1- STA. 659+49.30

END APPR. SLAB -L1- STA. 659+43.50

BEGIN APPR. SLAB -L1- STA. 657+98.60

END BRIDGE -L1- STA. 659+41.50

END APPR. SLAB -L1- STA. 659+41.56

BEGIN BRIDGE -L1- STA. 658+22.66

SITE 7

SITE 7

R=8.94'

S 53° 03' 17.0" W

S 0° 13' 43.0" E

-Y38-

-L1-

-L1- STA 653+00.00 SEE SHEET 8

MATCHLINE -L1- STA 666+00.00 SEE SHEET 10

CHANNEL CHANGE w/ 12' BASE 250 LF @ 0.42% EST 866 TONS EST 2500 CY DDE SEE DETAIL 34

OUTLET CHANNEL w/ FLOODPLAIN BENCH, SEE DETAIL 40

FLOODPLAIN BENCH

SPEC LAT V DITCH w/CL B RIPRAP EST 96 TONS EST 268 SY GFD SEE DETAIL 43

CL B RIPRAP EST 5 TONS EST 14 SY GFD

SPEC LAT V DITCH SEE DETAIL 4

CL B RIPRAP EST 5 TONS EST 5 SY GFD

-Y38- +40.00 30.00' & 55.00'

-Y38- +55.00 30.00' & 55.00'

-Y38- +55.00 30.00'

-L1- +35.00 20L45

TEMPORARY IMPACTS SHOWN ON SHEET 15 OF 165

Sta. = 663+00 -L1- LT
Q10 = 15.8 cfs
V10 = 1.3 fps
d = 1.1 ft
s = 0.003 ft/ft
n = 0.055
Liner = Class B Riprap

INLET & OUTLET CHANNEL w/ FLOODPLAIN BENCH, SEE DETAIL 40

3@12'x8' RCBC (BURIED 1.0')

CHANNEL CHANGE w/12' BASE 50 LF @ 0.42% EST 174 TONS EST 325 CY DDE

TAPER DITCH BASE WIDTH 4' TO 8' FROM 663+00 TO 663+50

CL B RIPRAP EST 33 TONS EST 87 SY GFD

LAT 4' BASE DITCH SEE DETAIL 5A

CL B RIPRAP TOE PROTECTION EST 175 TONS EST 550 SY GFD SEE DETAIL 51

BACKFILL EX. CHANNEL TO NG ELEV.

REMOVE 15" CMP

30" RCP IV

LAT 4' BASE DITCH SEE DETAIL 3A

LAT 4' BASE DITCH SEE DETAIL 58

LAT 2' BASE DITCH SEE DETAIL 1

CL B RIPRAP EST 2 TONS EST 7 SY GFD

SPEC LAT V DITCH SEE DETAIL 4

CL B RIPRAP EST. 11 TONS EST. 22 SY GFD

SPEC LAT V DITCH SEE DETAIL 4

SEPTIC FIELD IMPACTED NON-TOTAL TAKE

CHANNEL CHANGE w/5' BASE 250 LF @ 0.44% EST 350 CY DDE SEE DETAIL 35

INLET CHANNEL w/FLOODPLAIN BENCH & CL I RIRAP ON BANKS EST 520 TONS SEE DETAIL 41

CHANNEL CHANGE w/6' BASE 240 LF @ 0.33% EST 1500 CY DDE SEE DETAIL 36

RETAIN 48"/HDPE PIPE

PROP NOISE WALL

2CI

2CI-D

15" w/ FLOWS

SEE SHEET 2R-1 FOR HORIZONTAL CURVE DATA
16 & 37 FOR -L1- PROFILE
65 FOR -Y38- PROFILE

NAD 83/NSRS 2007

50' 25' 0 50' 100'

SCALE: 1" = 100'

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Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
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SUNGATE DESIGN GROUP, P.A.
920 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

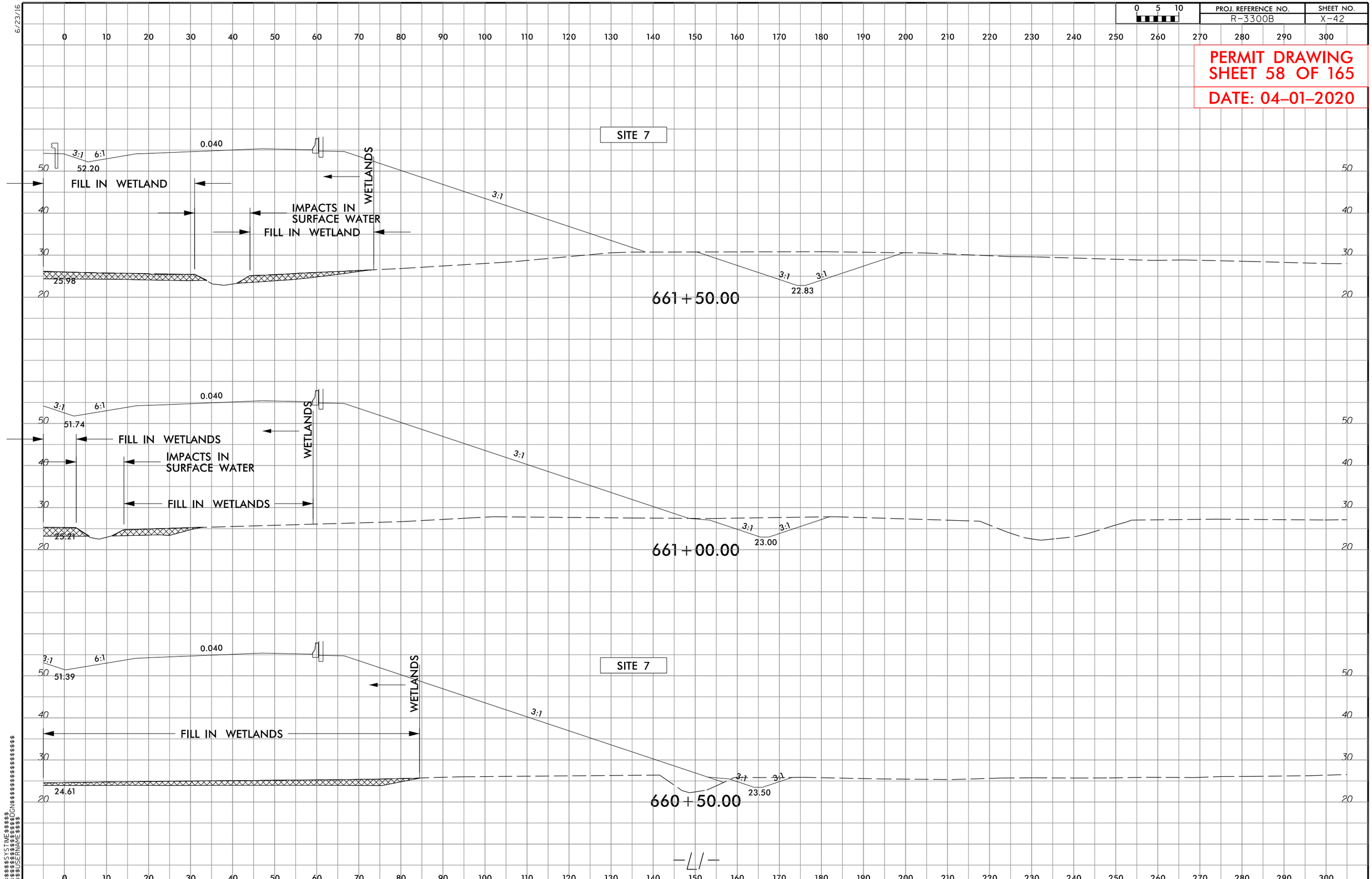
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 57 OF 165

DATE: 04-01-2020

$$$$$$SYSTIME$$$$$$
$$$$$$SYSDATE$$$$$$
$$$$$$USERNAME$$$$$$



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-42
PERMIT DRAWING
SHEET 58 OF 165
DATE: 04-01-2020
SITE 7
0.040
3:1
6:1
52.20
FILL IN WETLAND
WETLANDS
IMPACTS IN
SURFACE WATER
FILL IN WETLAND
25.98
22.83
661+50.00
51.74
FILL IN WETLANDS
IMPACTS IN
SURFACE WATER
FILL IN WETLANDS
25.21
23.00
661+00.00
51.39
FILL IN WETLANDS
24.61
23.50
660+50.00

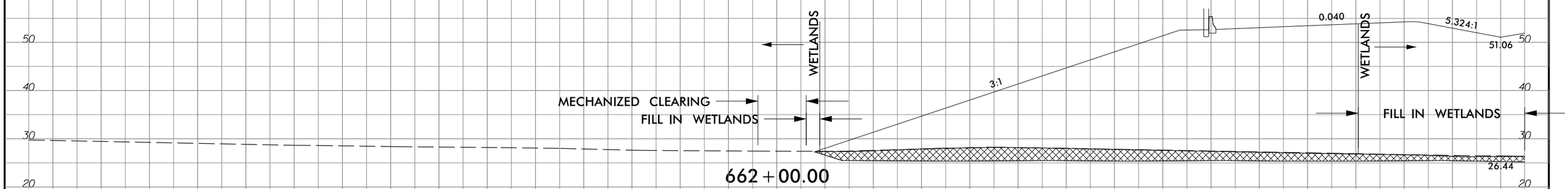
6/23/16

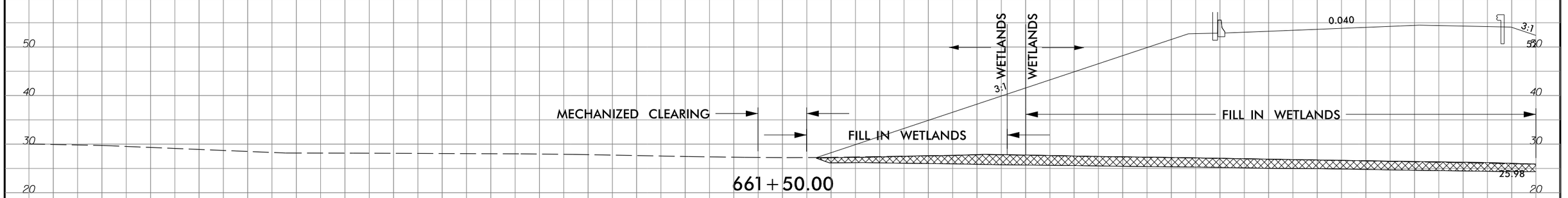
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-48

PERMIT DRAWING
SHEET 59 OF 165
DATE: 04-01-2020

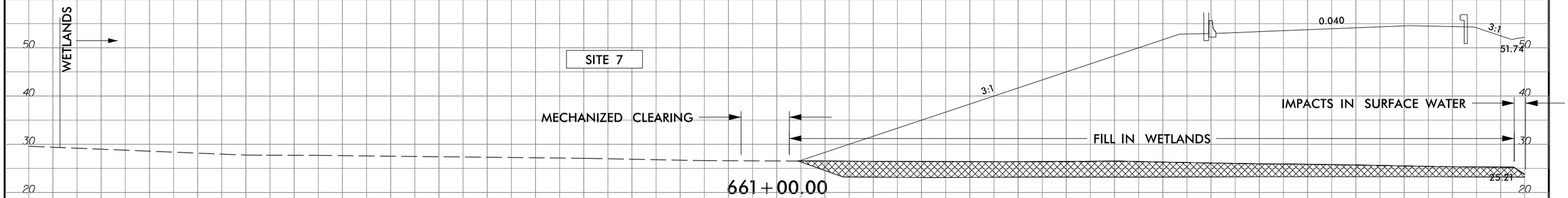
300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

SITE 7





SITE 7



300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

$$$$$$SYSTIME$$$$$
$$$$$$

5/14/99

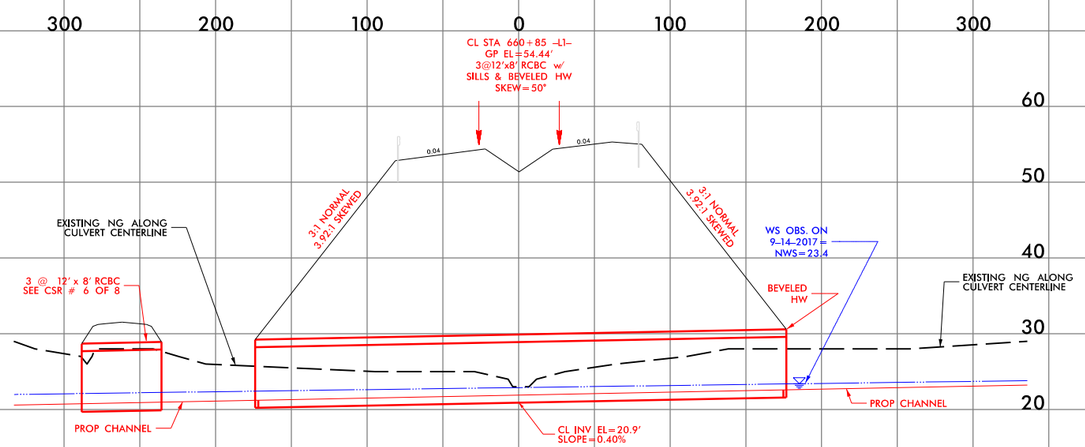
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

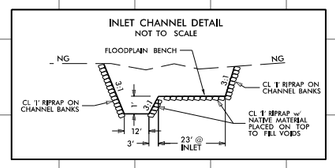
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

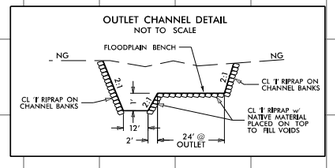
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 60 OF 165
DATE: 04-01-2020

SITE 7







SKEWED MULTI-BARREL CULVERT LOW FLOW CHANNEL, SILLS AND FLOODPLAIN BENCH

(NOT TO SCALE)

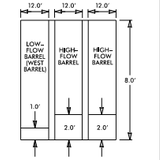
*NOTES:

1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE FLOODPLAIN AT THIS PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

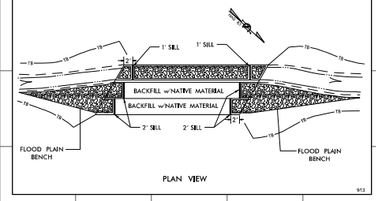
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.



SILLS AT
INLET AND OUTLET

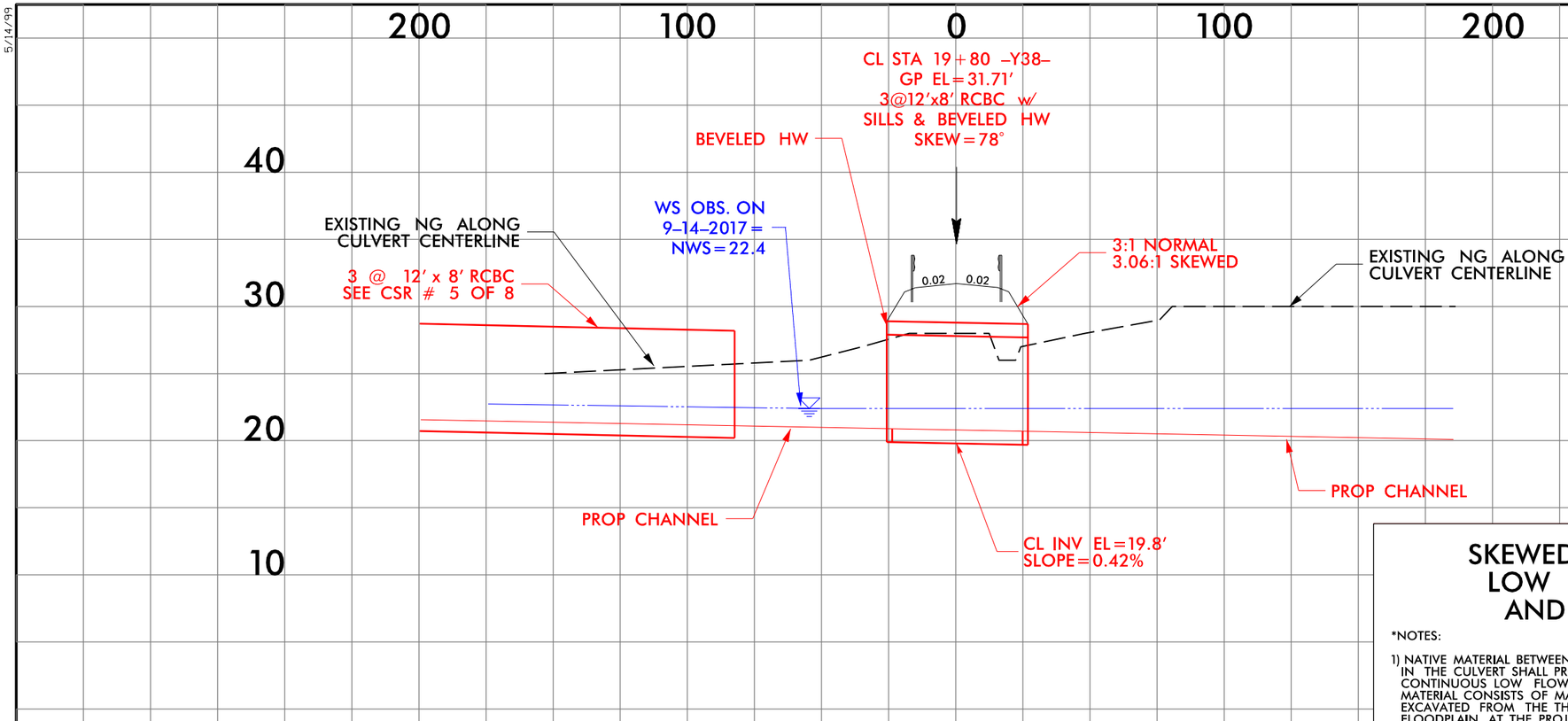


PLAN VIEW

9/12

USER NAME = $USER
DESIGN = $$
FILE NAME = $$
TIME = $$

5/14/99



PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

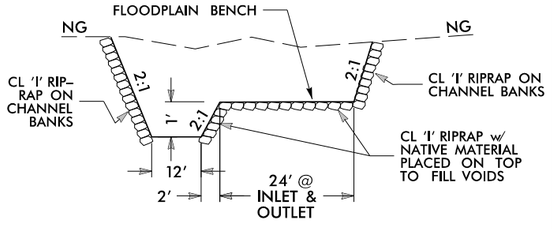
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 61 OF 165

DATE: 04–01–2020

SITE 7

INLET & OUTLET CHANNEL DETAIL
NOT TO SCALE



SKEWED MULTI–BARREL CULVERT LOW FLOW CHANNEL, SILLS AND FLOODPLAIN BENCH
(NOT TO SCALE)

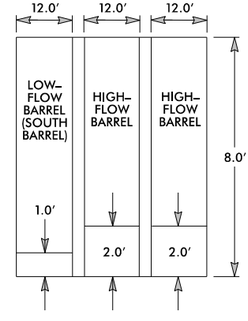
*NOTES:

1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP–RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP–RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

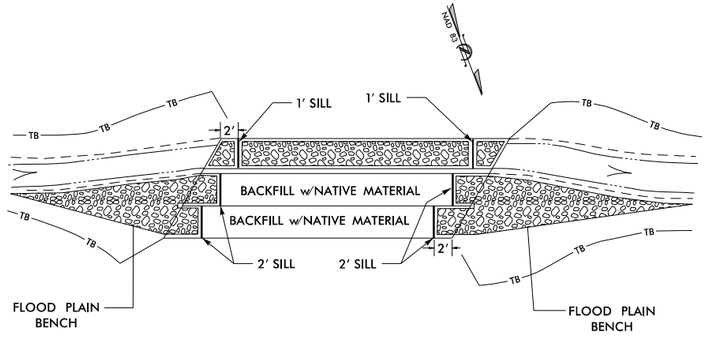
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.



SILLS AT INLET AND OUTLET



PLAN VIEW

9/13

$$$$$$SYSTIME$$$$$$
$$$$$$USERNAME$$$$$$

5/14/99

50' 25' 0 50' 100'
SCALE: 1" = 100'

NAD 83/NSRS 2007

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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SUNGATE DESIGN GROUP, P.A.
920 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 62 OF 165

DATE: 04-01-2020

MICHAEL M. SPAHR
LANCE M. PHELAN, ET UX
ELIZABETH A. MOBLEY
JOSHUA D. PENNINGTON
RALPH S. PENNINGTON, ET UX
WOODS
670
675
60' ACCESS EASEMENT DB 1805 PG 30 MB 55 PG 23
30' ACCESS EASEMENT DB 1805 PG 30 MB 55 PG 23
ONE MILE RD
WILDROSE LANE
GARY DR
GR
CONC PAVERS W/ YARD ART
ARBOR
WD POST
WIRE
CONC
ISFD
2SFD
2SBKD
DK
BK
S
B
SOIL
CANOPY
POND
WINDMILL
48" CHL
WOVEN WIRE FENCE
PROP NOISE WALL
MATCHLINE -L1- STA 666+00.00 SEE SHEET 9
MATCHLINE -L1- STA 679+00.00 SEE SHEET 11

STD 2' BASE DITCH w/CL I RIPRAP
90 LF @ 4.0%
EST 140 TONS
EST 247 SY GFD
WOODS EST 88 CY DDE
SEE DETAIL 16

ENLARGEMENT VIEW
SEE SHEET 64 OF 165

LAT 4' BASE DITCH
SEE DETAIL 5A

CL B RIPRAP
EST 3 TONS
EST 10 SY GFD

LAT 2' BASE DITCH
SEE DETAIL 24

CL B RIPRAP
TOE PROTECTION
EST 109 TONS
EST 300 SY GFD
SEE DETAIL 31

CL B RIPRAP
EST 1 TON
EST 5 SY GFD

SITE 9
SITE 7
SITE 8
SITE 10

MECH CLRG

CL B RIPRAP
EST 3 TON
EST 11 SY GFD

CL I RIPRAP
EST 7 TONS
EST 17 SY GFD

CL B RIPRAP
EST 1 TON
EST 5 SY GFD

BREACH DAM

REMOVE CMP & OUTLET STRUCTURE

STD. 4' BASE DITCH
80 LF @ 1.0%
EST 300 CY DDE
SEE DETAIL 56

ENERGY DISSIPATOR BASIN w/CL I RIPRAP
EST 93 TONS
EST 124 SY GFD
SEE DETAIL 47

15" RCP -IV
18" RCP-IV
24" RCP-IV
30" RCP-IV
42" RCP-IV
12" CMP
8" CMP
18" w ELBOWS
24" w ELB's
3GI-A
2GI
2GI-A
FS
F
P

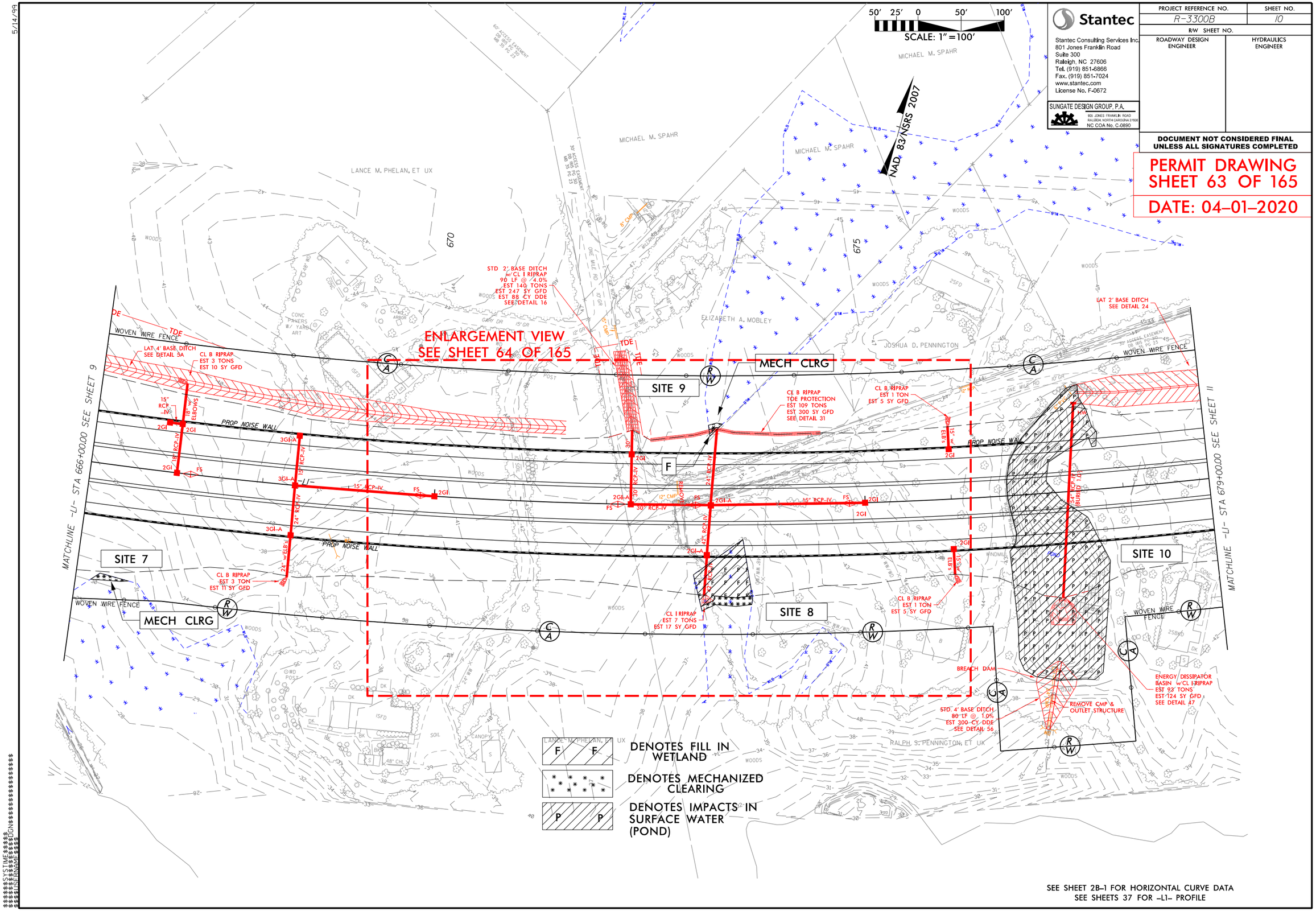
DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER (POND)

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 FOR -L1- PROFILE

$$$$$$SYSTIME$$$$$$
$$$$$$USERNAME$$$$$$



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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

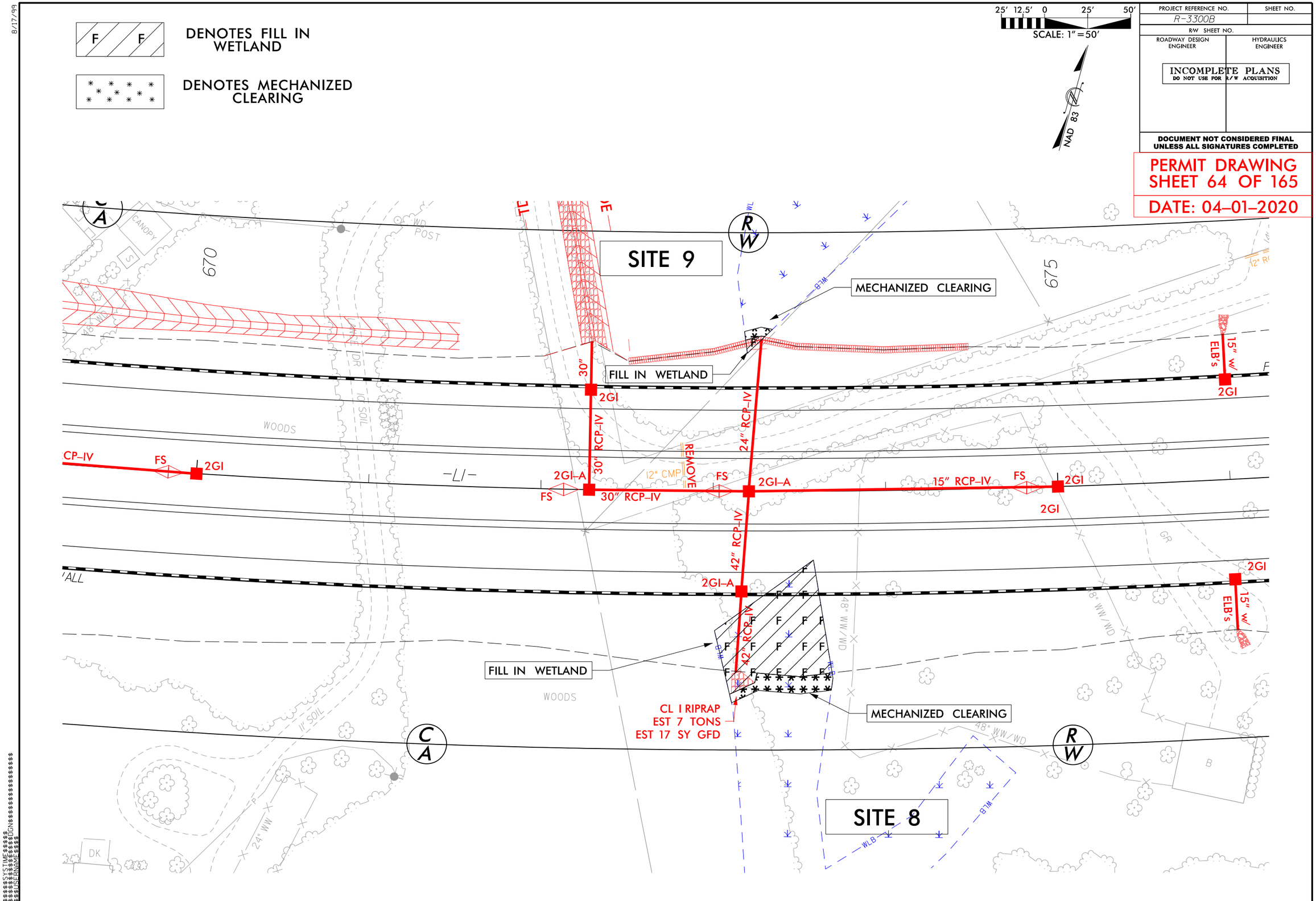
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 63 OF 165

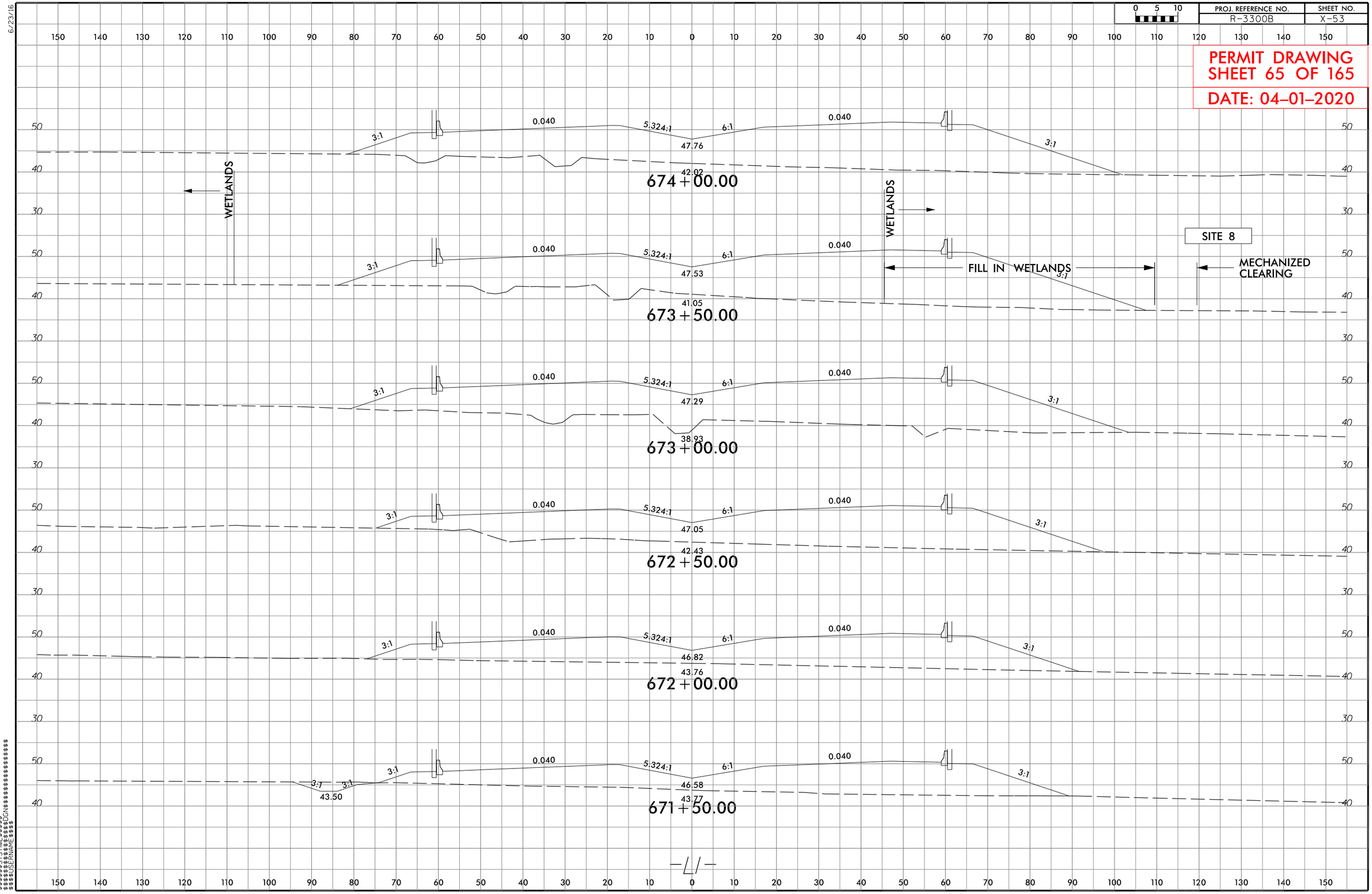
DATE: 04-01-2020

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 FOR -L1- PROFILE

5/14/99



DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
SCALE: 1" = 50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 64 OF 165
DATE: 04-01-2020
SITE 9
SITE 8
MECHANIZED CLEARING
FILL IN WETLAND
CL I RIPRAP
EST 7 TONS
EST 17 SY GFD
30" RCP-IV
24" RCP-IV
42" RCP-IV
15" RCP-IV
12" CMP
REMOVE
2GI
2GI-A
FS
ELB's
15" w/
WOODS
670
675



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-53
PERMIT DRAWING
SHEET 65 OF 165
DATE: 04-01-2020
674+00.00
673+50.00
673+00.00
672+50.00
672+00.00
671+50.00
WETLANDS
WETLANDS
SITE 8
FILL IN WETLANDS
MECHANIZED CLEARING
0.040
5.324:1
6:1
3:1
47.76
42.02
47.53
41.05
47.29
38.93
47.05
42.43
46.82
43.76
46.58
43.77
43.50

5/14/99

SCALE: 1" = 100'

NAD 83/NSRS 2007

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

RALPH S. PENNINGTON, ET UX

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 66 OF 165

DATE: 04-01-2020

SITE 9

-L1- CS Sta. 690+57.24

-L1- ST Sta. 692+37.24

MATCHLINE -L1- STA 679+00.00 SEE SHEET 10

MATCHLINE -L1- STA 693+00.00 SEE SHEET 12

TDE

STD. 2' BASE DITCH
120 LF @ 1.3%
EST 250 CY DDE
SEE DETAIL 10

LAT 2' BASE DITCH
SEE DETAIL 24

REMOVE 15" HDPE

LAT 2' BASE DITCH
SEE DETAIL 24

CL B RIPRAP
TOE PROTECTION
EST 455 TONS
EST 1284 SY GFD
SEE DETAIL 31

EROSION CONTROL DEVICE AREA

WOVEN WIRE FENCE

CHORD
WOVEN WIRE FENCE

PES

N 54° 50' 44.0" E

CABLE GUIDERAIL ANCHOR UNIT

CABLE GUIDERAIL ANCHOR UNIT

PROP NOISE WALL

2GI

FS

15" RCP-IV

3GI-A

3GI-A

18" RCP-IV

18"

CL B RIPRAP
EST 2 TON
EST 7 SY GFD

36" RCP-IV

BASKETBALL COURT

ONE MILE RD

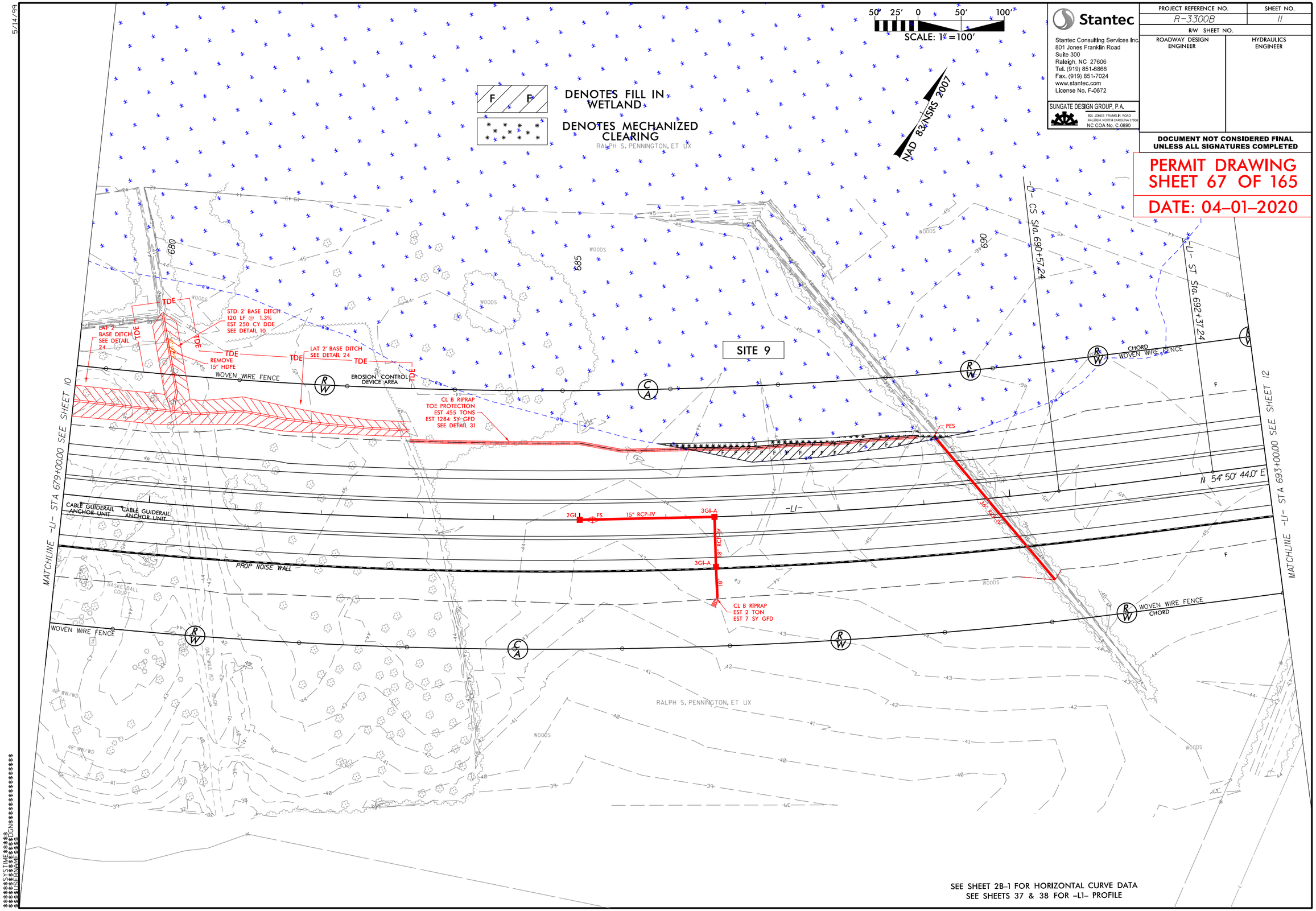
48" WW/WD

48" WW/WD

WOODS

RALPH S. PENNINGTON, ET UX

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 & 38 FOR -L1- PROFILE



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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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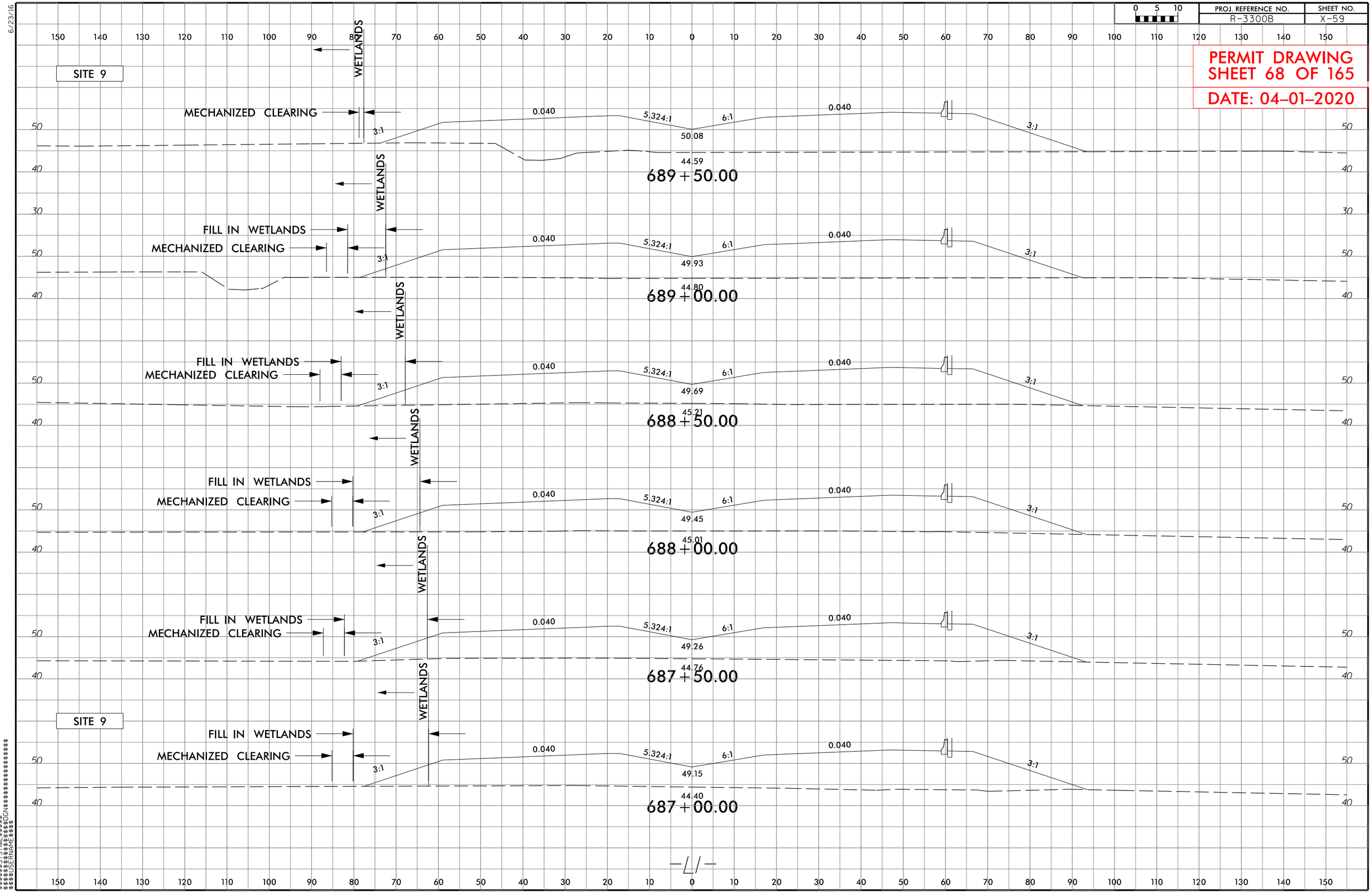
PERMIT DRAWING SHEET 67 OF 165

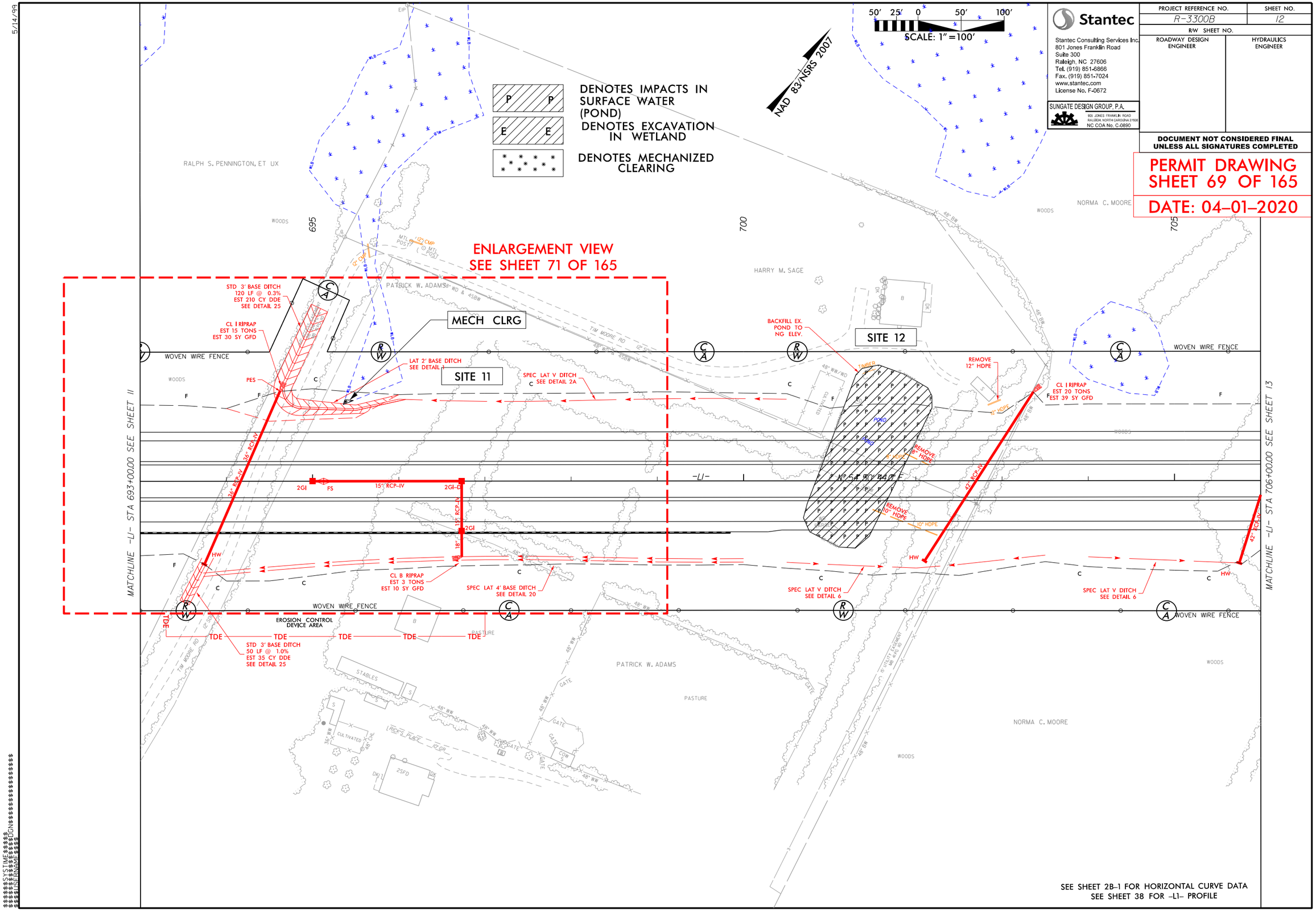
DATE: 04-01-2020

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 37 & 38 FOR -L1- PROFILE

5/14/99



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-59
PERMIT DRAWING
SHEET 68 OF 165
DATE: 04-01-2020
SITE 9
WETLANDS
MECHANIZED CLEARING
FILL IN WETLANDS
0.040
5.324:1
6:1
3:1
50.08
44.59
689+50.00
49.93
44.80
689+00.00
49.69
45.21
688+50.00
49.45
45.01
688+00.00
49.26
44.76
687+50.00
49.15
44.40
687+00.00



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 38 FOR -L1- PROFILE

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RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 69 OF 165

DATE: 04-01-2020

5/14/99

5/14/99

$$$$$$$$SYTIMES$$$$$$$$
$$$$$$$$SYDATE$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

50′ 25′ 0 50′ 100′
SCALE: 1″ = 100′

NAD 83/NSRS 2007

P P DENOTES IMPACTS IN SURFACE WATER (POND)
E E DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING

ENLARGEMENT VIEW
SEE SHEET 71 OF 165

MATCHLINE -L1- STA 693+00.00 SEE SHEET 11

MATCHLINE -L1- STA 706+00.00 SEE SHEET 13

RALPH S. PENNINGTON, ET UX

PATRICK W. ADAMS

HARRY M. SAGE

NORMA C. MOORE

WOODS

WOVEN WIRE FENCE

TIM MOORE RD

SITE 11

SITE 12

MECH CLRG

STD 3′ BASE DITCH
120 LF @ 0.3%
EST 210 CY DDE
SEE DETAIL 25

CL I RIPRAP
EST 15 TONS
EST 30 SY GFD

LAT 2′ BASE DITCH
SEE DETAIL

SPEC LAT V DITCH
SEE DETAIL 2A

BACKFILL EX. POND TO NG ELEV.

REMOVE 12″ HDPE

CL I RIPRAP
EST 20 TONS
EST 39 SY GFD

36″ RCP-IV

15″ RCP-IV

18″ RCP-IV

42″ RCP-IV

2GI

FS

CL B RIPRAP
EST 3 TONS
EST 10 SY GFD

SPEC LAT 4′ BASE DITCH
SEE DETAIL 20

SPEC LAT V DITCH
SEE DETAIL 6

EROSION CONTROL DEVICE AREA

TDE

STD 3′ BASE DITCH
50 LF @ 1.0%
EST 35 CY DDE
SEE DETAIL 25

STABLES

PASTURE

CULTIVATED

TRUCK PLACE

POND

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 38 FOR -L1- PROFILE

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R-3300B	12
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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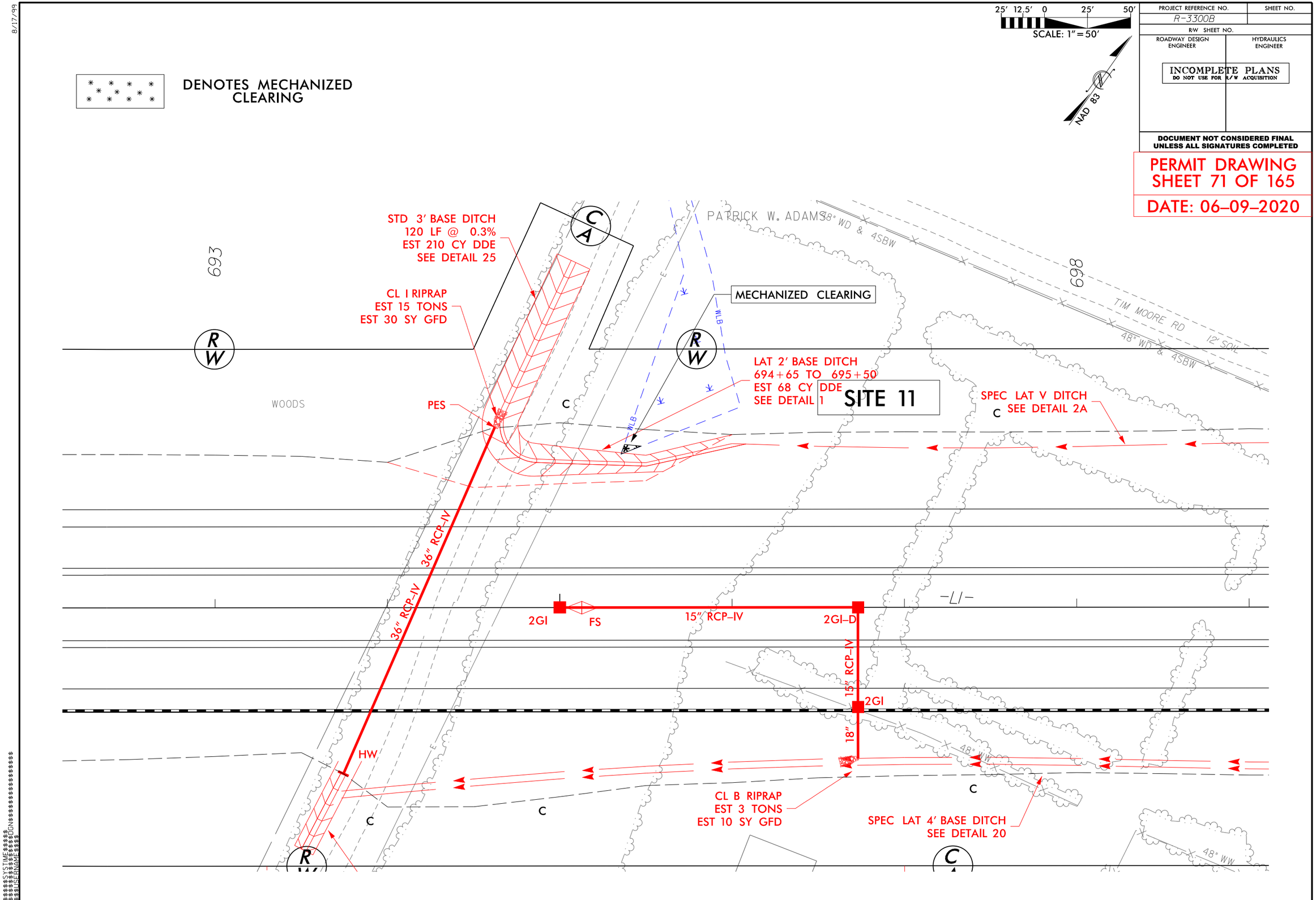
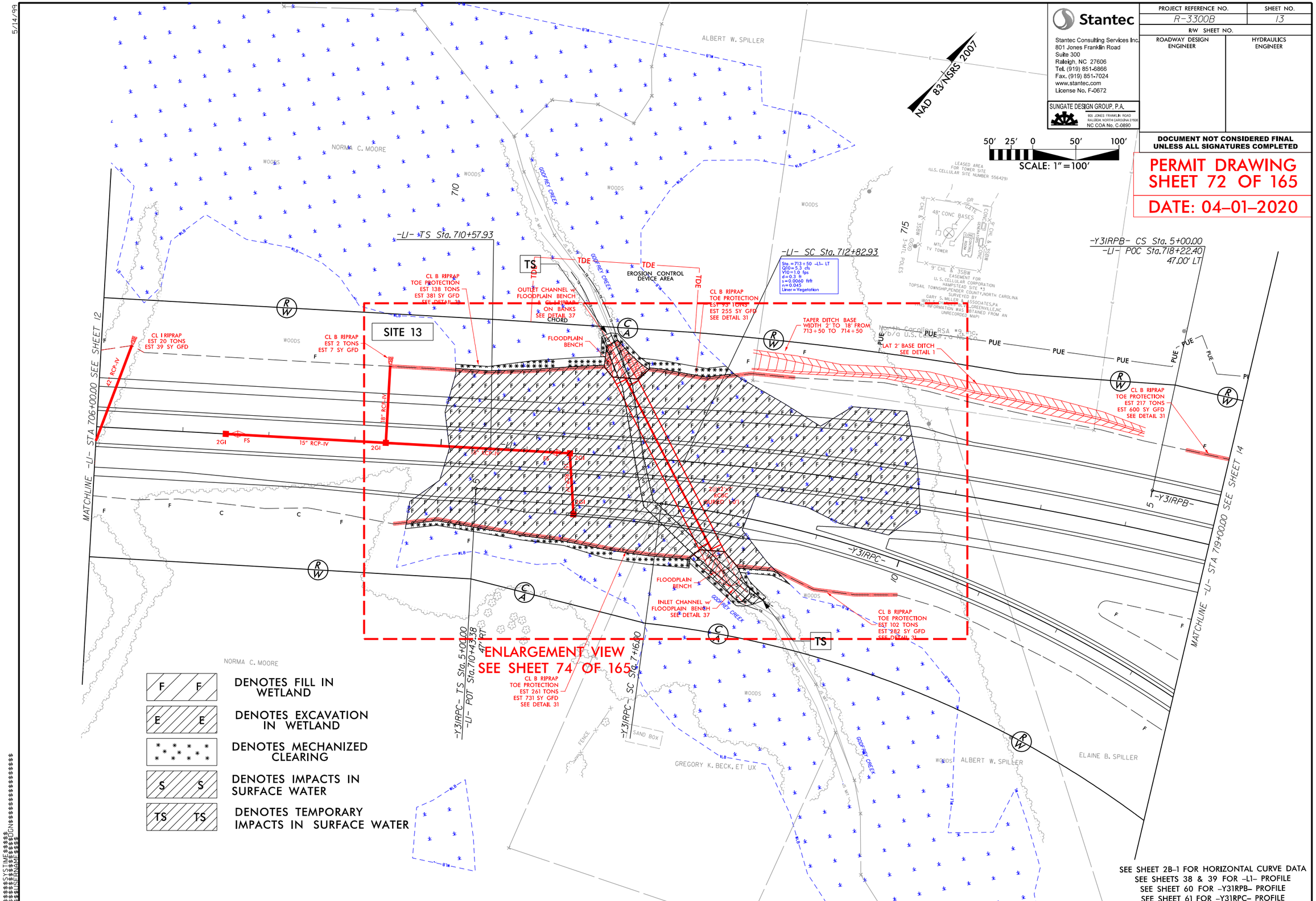
PERMIT DRAWING
SHEET 70 OF 165

DATE: 04-01-2020



DENOTES MECHANIZED CLEARING
SCALE: 1" = 50'
25' 12.5' 0 25' 50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 71 OF 165
DATE: 06-09-2020
STD 3' BASE DITCH
120 LF @ 0.3%
EST 210 CY DDE
SEE DETAIL 25
CL I RIPRAP
EST 15 TONS
EST 30 SY GFD
PES
MECHANIZED CLEARING
LAT 2' BASE DITCH
694+65 TO 695+50
EST 68 CY DDE
SEE DETAIL 1
SITE 11
SPEC LAT V DITCH
SEE DETAIL 2A
PATRICK W. ADAMS
38" WD & 4SBW
TIM MOORE RD
12' SOIL
48" WD & 4SBW
693
698
WOODS
36" RCP-IV
36" RCP-IV
2GI
FS
15" RCP-IV
2GI-D
15" RCP-IV
2GI
18"
HW
CL B RIPRAP
EST 3 TONS
EST 10 SY GFD
SPEC LAT 4' BASE DITCH
SEE DETAIL 20
48" WW
48" WW



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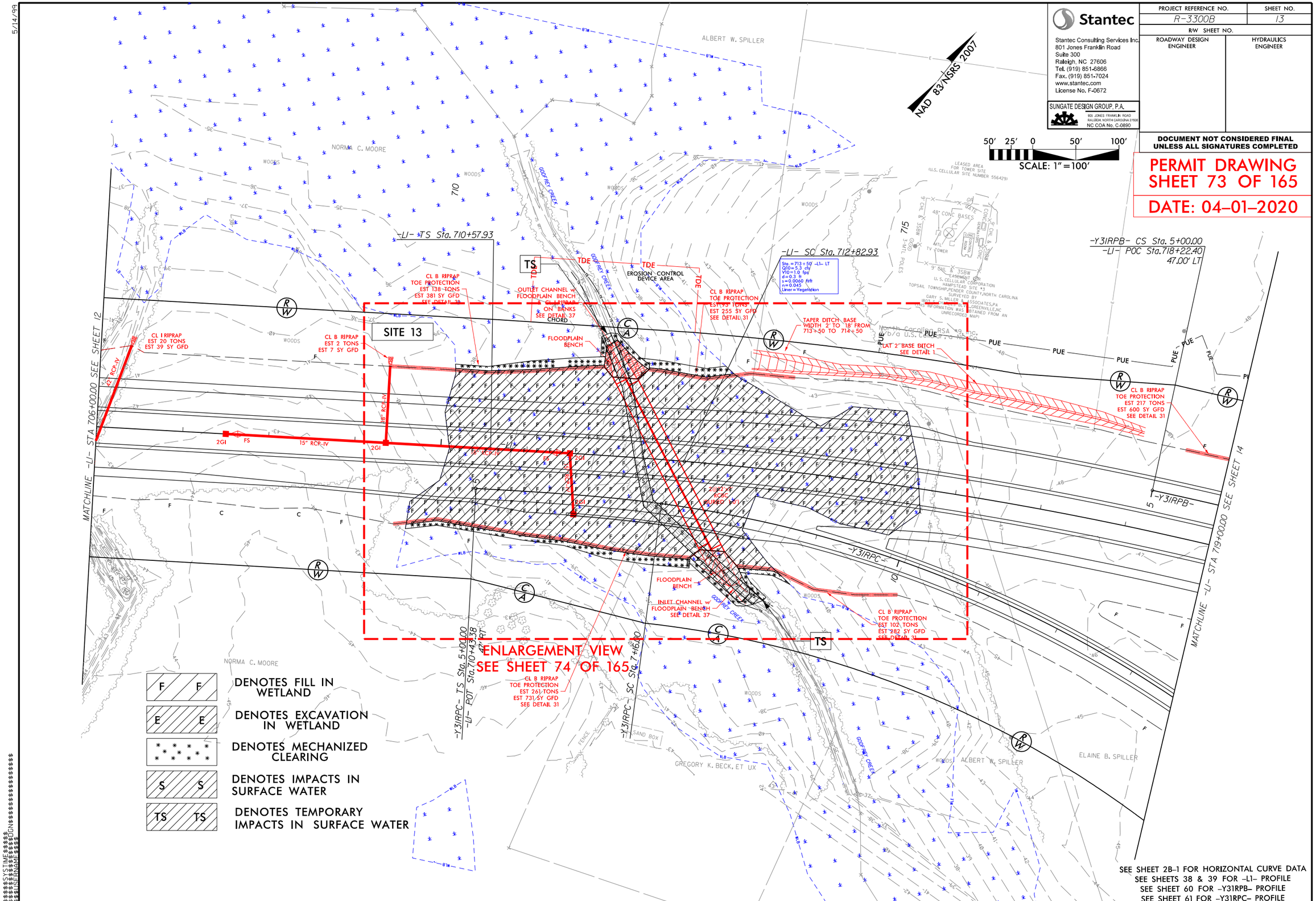
SUNGATE DESIGN GROUP, P.A.
NC COA No. C-0890
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
13
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 72 OF 165
DATE: 04-01-2020
NAD 83/NSRS 2007
SCALE: 1"=100'
ALBERT W. SPILLER
NORMA C. MOORE
GREGORY K. BECK, ET UX
ELAINE B. SPILLER
-L1- TS Sta. 710+57.93
-L1- SC Sta. 712+82.93
-Y31RPB- CS Sta. 5+00.00
-L1- POC Sta. 718+22.40
47.00' LT
SITE 13
EROSION CONTROL DEVICE AREA
CL B RIPRAP TOE PROTECTION EST 138 TONS EST 381 SY GFD SEE DETAIL 31
OUTLET CHANNEL w/ FLOODPLAIN BENCH & CL I RIPRAP ON BANKS SEE DETAIL 37
CL B RIPRAP TOE PROTECTION EST 93 TONS EST 255 SY GFD SEE DETAIL 31
CL I RIPRAP EST 20 TONS EST 39 SY GFD
CL B RIPRAP EST 2 TONS EST 7 SY GFD
FLOODPLAIN BENCH
TAPER DITCH BASE WIDTH 2' TO 18' FROM 713+50 TO 714+50
LAT 2' BASE DITCH SEE DETAIL 1
CL B RIPRAP TOE PROTECTION EST 217 TONS EST 600 SY GFD SEE DETAIL 31
INLET CHANNEL w/ FLOODPLAIN BENCH SEE DETAIL 37
CL B RIPRAP TOE PROTECTION EST 102 TONS EST 282 SY GFD SEE DETAIL 31
CL B RIPRAP TOE PROTECTION EST 261 TONS EST 731 SY GFD SEE DETAIL 31
ENLARGEMENT VIEW
SEE SHEET 74 OF 165
MATCHLINE -L1- STA 706+00.00 SEE SHEET 12
MATCHLINE -L1- STA 719+00.00 SEE SHEET 14
-Y31RPC- TS Sta. 5+00.00
-L1- POT Sta. 710+43.38
-Y31RPC- SC Sta. 7+16.00
-Y31RPB-
-Y31RPC-
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 38 & 39 FOR -L1- PROFILE
SEE SHEET 60 FOR -Y31RPB- PROFILE
SEE SHEET 61 FOR -Y31RPC- PROFILE



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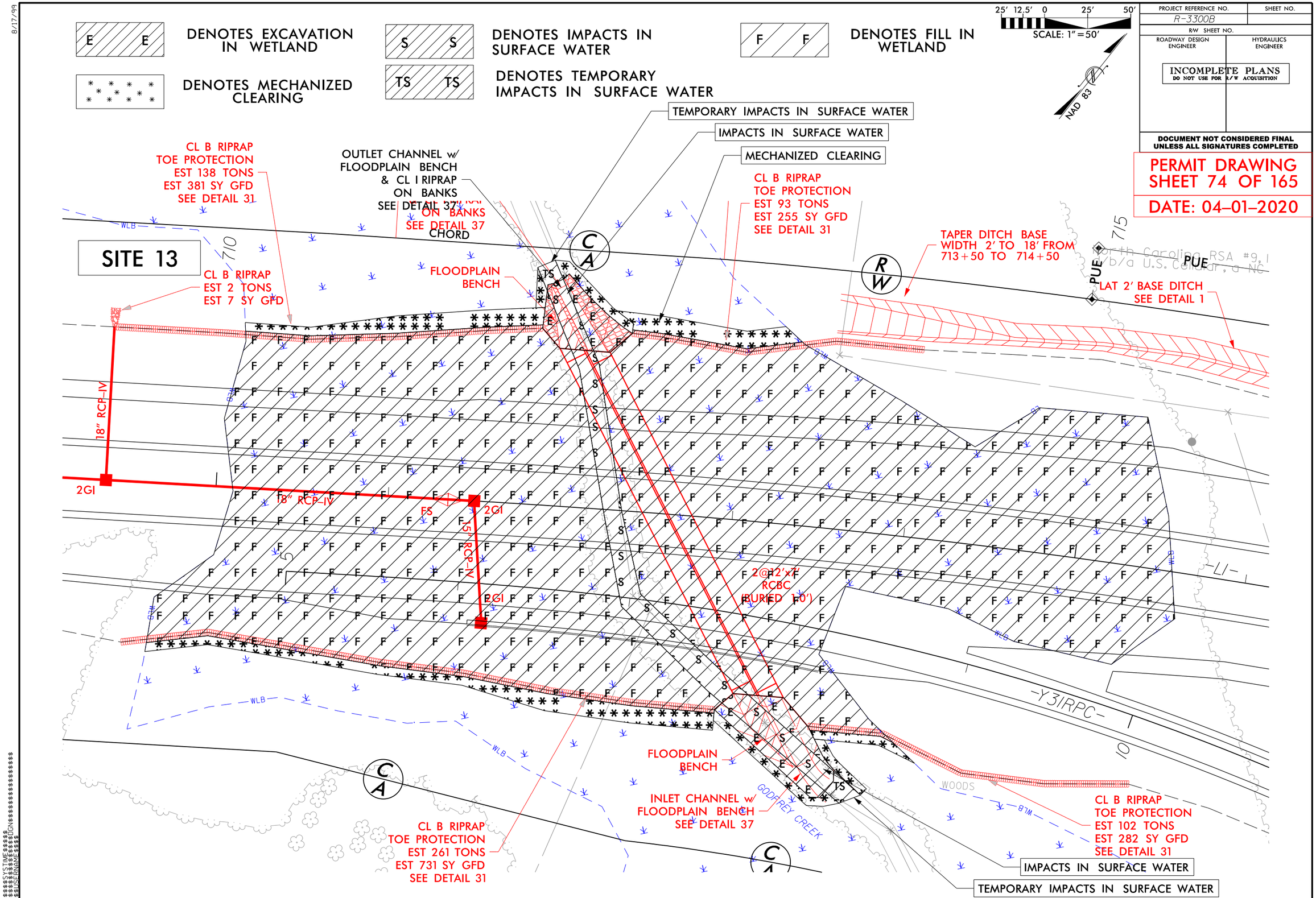
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
13
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 73 OF 165
DATE: 04-01-2020
NAD 83/NSRS 2007
50' 25' 0 50' 100'
SCALE: 1"=100'
ALBERT W. SPILLER
NORMA C. MOORE
GODFREY CREEK
-L1- TS Sta. 710+57.93
-L1- SC Sta. 712+82.93
-Y31RPB- CS Sta. 5+00.00
-L1- POC Sta. 718+22.40
47.00' LT
SITE 13
CL B RIPRAP TOE PROTECTION EST 138 TONS EST 381 SY GFD SEE DETAIL 31
OUTLET CHANNEL w/ FLOODPLAIN BENCH & CL I RIPRAP ON BANKS SEE DETAIL 37
EROSION CONTROL DEVICE AREA
CL B RIPRAP TOE PROTECTION EST 93 TONS EST 255 SY GFD SEE DETAIL 31
TAPER DITCH BASE WIDTH 2' TO 18' FROM 713+50 TO 714+50
LAT 2' BASE DITCH SEE DETAIL 1
CL I RIPRAP EST 20 TONS EST 39 SY GFD
CL B RIPRAP EST 2 TONS EST 7 SY GFD
FLOODPLAIN BENCH
CL B RIPRAP TOE PROTECTION EST 217 TONS EST 600 SY GFD SEE DETAIL 31
MATCHLINE -L1- STA 706+00.00 SEE SHEET 12
MATCHLINE -L1- STA 719+00.00 SEE SHEET 14
-Y31RPB-
-Y31RPC-
FLOODPLAIN BENCH
INLET CHANNEL w/ FLOODPLAIN BENCH SEE DETAIL 37
CL B RIPRAP TOE PROTECTION EST 102 TONS EST 282 SY GFD SEE DETAIL 31
ENLARGEMENT VIEW
SEE SHEET 74 OF 165
CL B RIPRAP TOE PROTECTION EST 261 TONS EST 731 SY GFD SEE DETAIL 31
-Y31RPC- TS Sta. 5+00.00
-L1- POT Sta. 710+43.38
-Y31RPC- SC Sta. 7+16.00
GREGORY K. BECK, ET UX
ELAINE B. SPILLER
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 38 & 39 FOR -L1- PROFILE
SEE SHEET 60 FOR -Y31RPB- PROFILE
SEE SHEET 61 FOR -Y31RPC- PROFILE



DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
SCALE: 1"=50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
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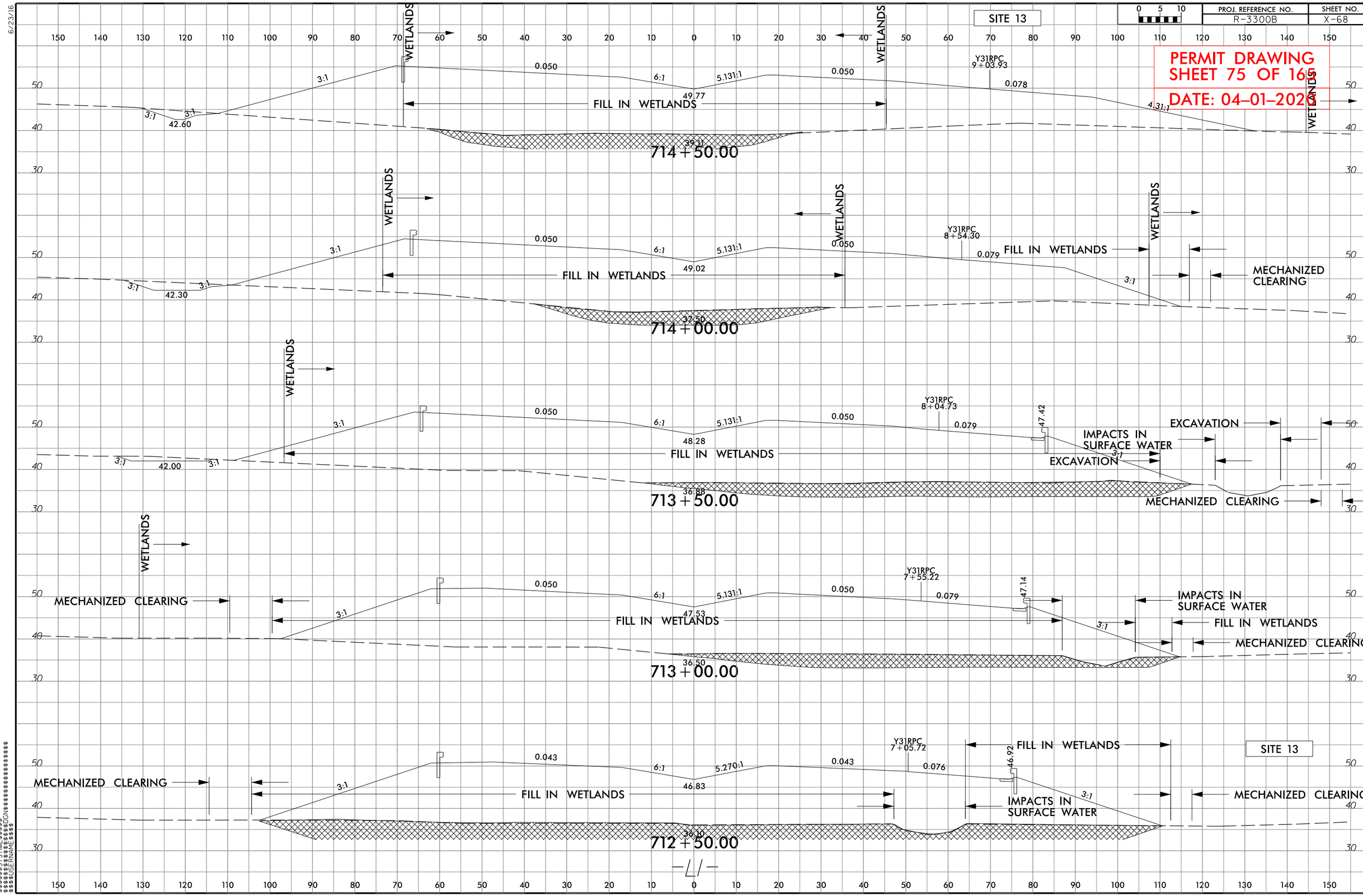
SHEET 74 OF 165
DATE: 04-01-2020
SITE 13
TEMPORARY IMPACTS IN SURFACE WATER
IMPACTS IN SURFACE WATER
MECHANIZED CLEARING
CL B RIPRAP
TOE PROTECTION
EST 138 TONS
EST 381 SY GFD
SEE DETAIL 31
OUTLET CHANNEL w/
FLOODPLAIN BENCH
& CL I RIPRAP
ON BANKS
SEE DETAIL 37
CHORD
CL B RIPRAP
TOE PROTECTION
EST 93 TONS
EST 255 SY GFD
SEE DETAIL 31
TAPER DITCH BASE
WIDTH 2' TO 18' FROM
713+50 TO 714+50
LAT 2' BASE DITCH
SEE DETAIL 1
CL B RIPRAP
EST 2 TONS
EST 7 SY GFD
FLOODPLAIN
BENCH
18" RCP-IV
2GI
FS
15" RCP-IV
2@12'x7'
RCBC
(BURIED 1.0')
FLOODPLAIN
BENCH
INLET CHANNEL w/
FLOODPLAIN BENCH
SEE DETAIL 37
GODFREY CREEK
CL B RIPRAP
TOE PROTECTION
EST 261 TONS
EST 731 SY GFD
SEE DETAIL 31
CL B RIPRAP
TOE PROTECTION
EST 102 TONS
EST 282 SY GFD
SEE DETAIL 31
IMPACTS IN SURFACE WATER
TEMPORARY IMPACTS IN SURFACE WATER
WOODS
WLB
PUE
Y31RPC



SITE 13
PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-68
PERMIT DRAWING
SHEET 75 OF 165
DATE: 04-01-2020
WETLANDS
FILL IN WETLANDS
Y31RPC
9+03.93
0.050
6:1
5.131:1
0.078
3:1
4.31:1
49.77
42.60
39.11
714+50.00
Y31RPC
8+54.30
0.079
49.02
42.30
37.50
714+00.00
MECHANIZED CLEARING
Y31RPC
8+04.73
47.42
48.28
42.00
36.88
713+50.00
IMPACTS IN SURFACE WATER
EXCAVATION
Y31RPC
7+55.22
47.14
47.53
36.50
713+00.00
Y31RPC
7+05.72
46.92
0.043
5.270:1
0.076
46.83
36.10
712+50.00

PROJECT REFERENCE NO.	SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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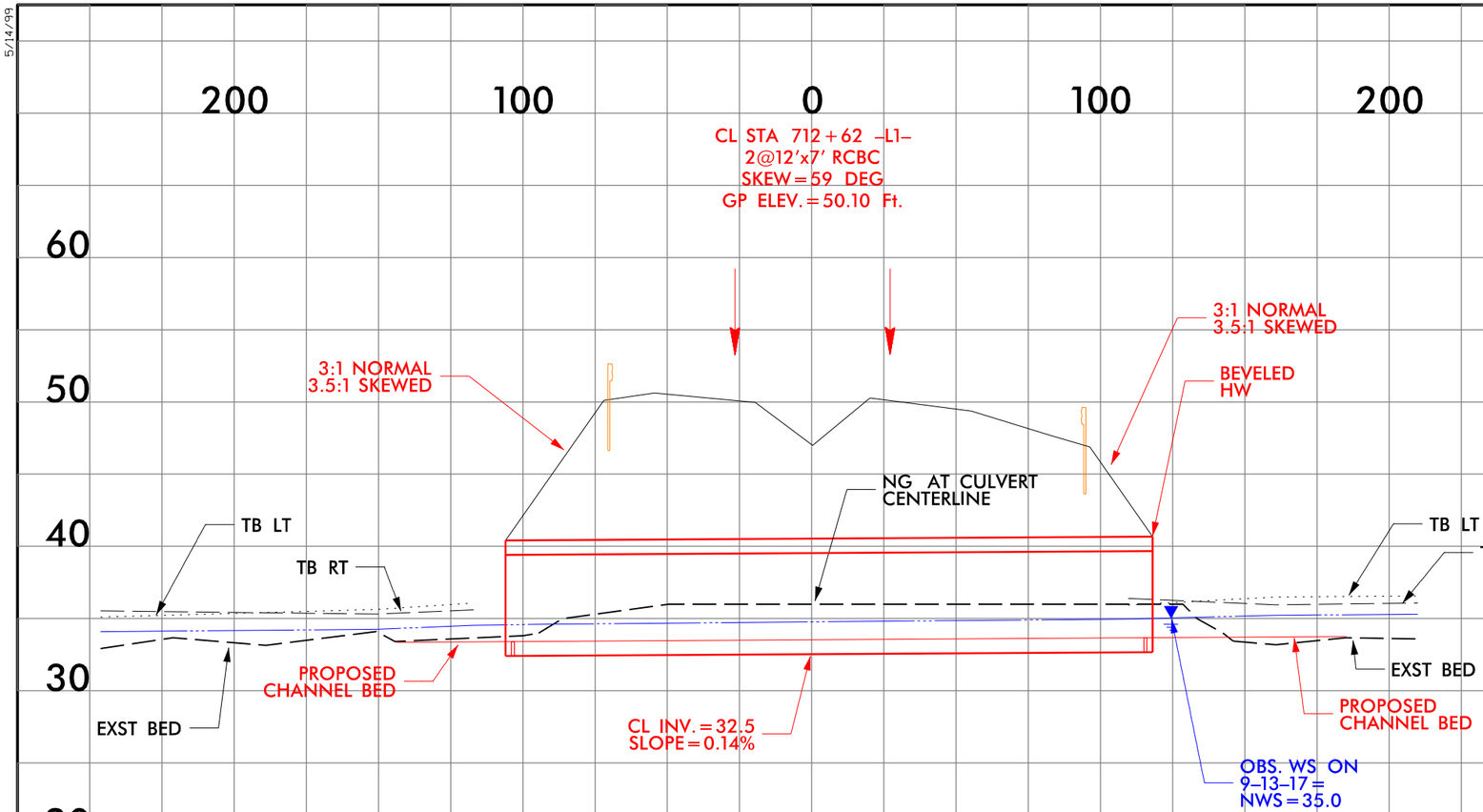
SHEET 76 OF 165
DATE: 04-01-2020



SITE 13

MULTI-BARREL CULVERT LOW FLOW CHANNEL, SILLS AND FLOODPLAIN BENCH

(NOT TO SCALE)

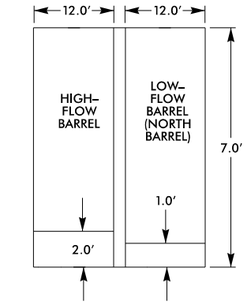
*NOTES:

1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

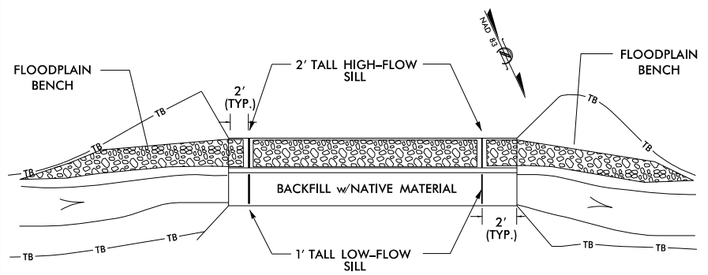
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.



SILLS AT INLET AND OUTLET

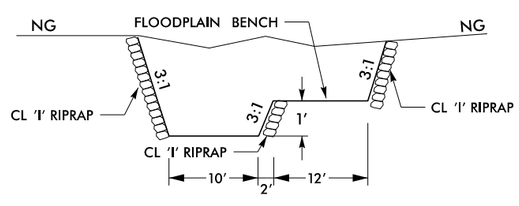


PLAN VIEW

9/13

INLET & OUTLET CHANNEL DETAIL

(NOT TO SCALE)



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$$$$$$$$SYSTIME$$$$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/NSRS 2007

GRAPHIC SCALE
100 50 0 100 200
PLANS

PERMIT DRAWING SHEET 77 OF 165

DATE: 04-01-2020

F F DENOTES FILL IN WETLAND
F F DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

TEMPORARY IMPACTS SHOWN ON SHEET 10 OF 164

ENLARGEMENT VIEW SEE SHEET 81 OF 165

ENLARGEMENT VIEW SEE SHEET 79 OF 165

ENLARGEMENT VIEW SEE SHEET 82 OF 165

ENLARGEMENT VIEW SEE SHEET 80 OF 165

SITE 14

SITE 15

SITE 16

SITE 17

INSET 2

TEMPORARY IMPACTS SHOWN ON SHEET 10 OF 165

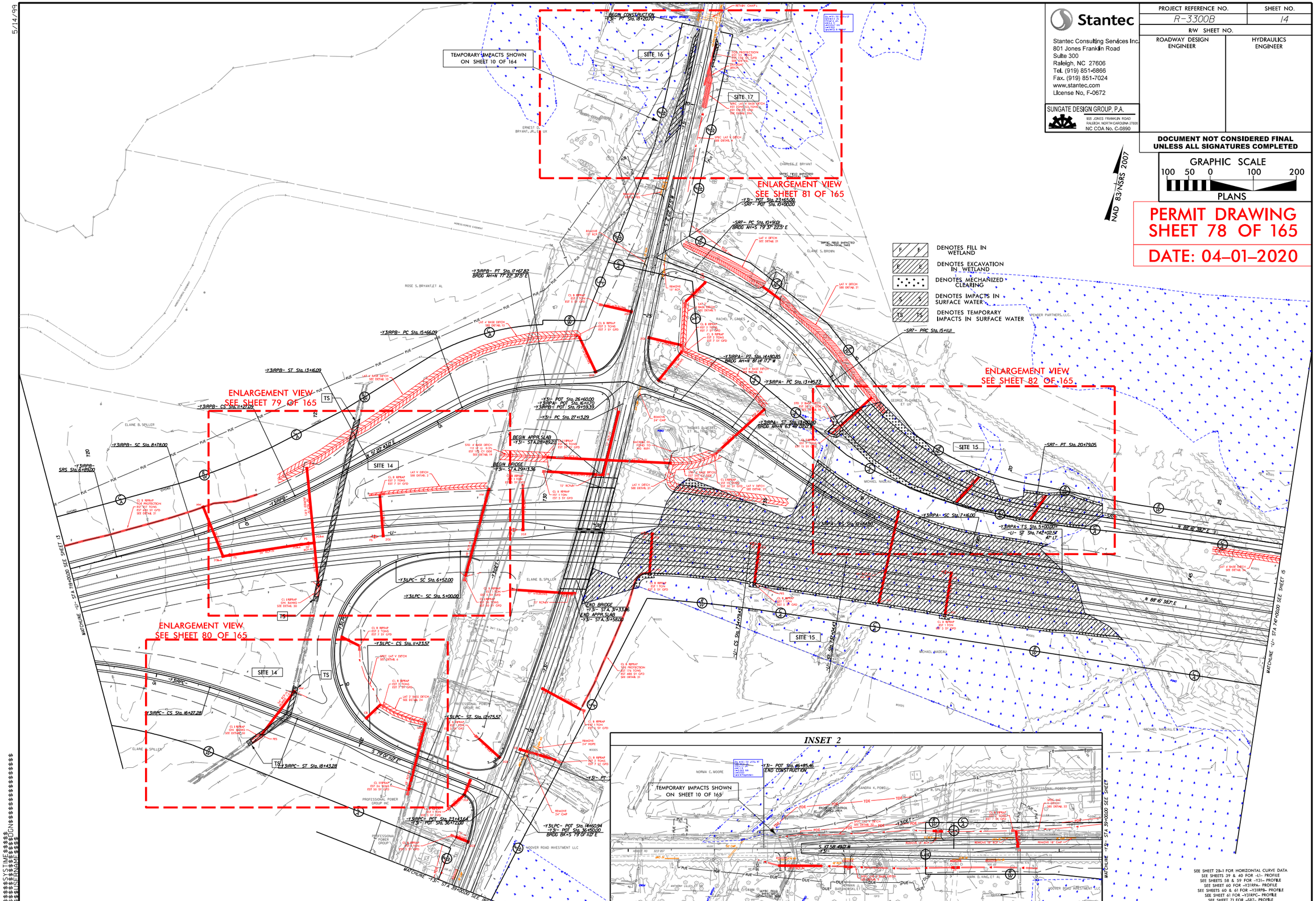
MATCHLINE -Y3- STA 179+00.00 SEE SHEET 15

MATCHLINE -Y3- STA 397+00.00 SEE SHEET

MATCHLINE -L1- STA 749+00.00 SEE SHEET 15

SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 39 & 40 FOR -L1- PROFILE
SEE SHEETS 58 & 59 FOR -Y3- PROFILE
SEE SHEET 60 FOR -Y31RPA- PROFILE
SEE SHEETS 60 & 61 FOR -Y31RPB- PROFILE
SEE SHEET 61 FOR -Y31RPC- PROFILE
SEE SHEET 71 FOR -SR7- PROFILE
SEE SHEET 62 FOR -Y31LPC- PROFILE

$$$$SYSTIME$$$$
$$$$SYSTIME$$$$
$$$$SYSTIME$$$$



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R-3300B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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GRAPHIC SCALE
100 50 0 100 200
PLANS

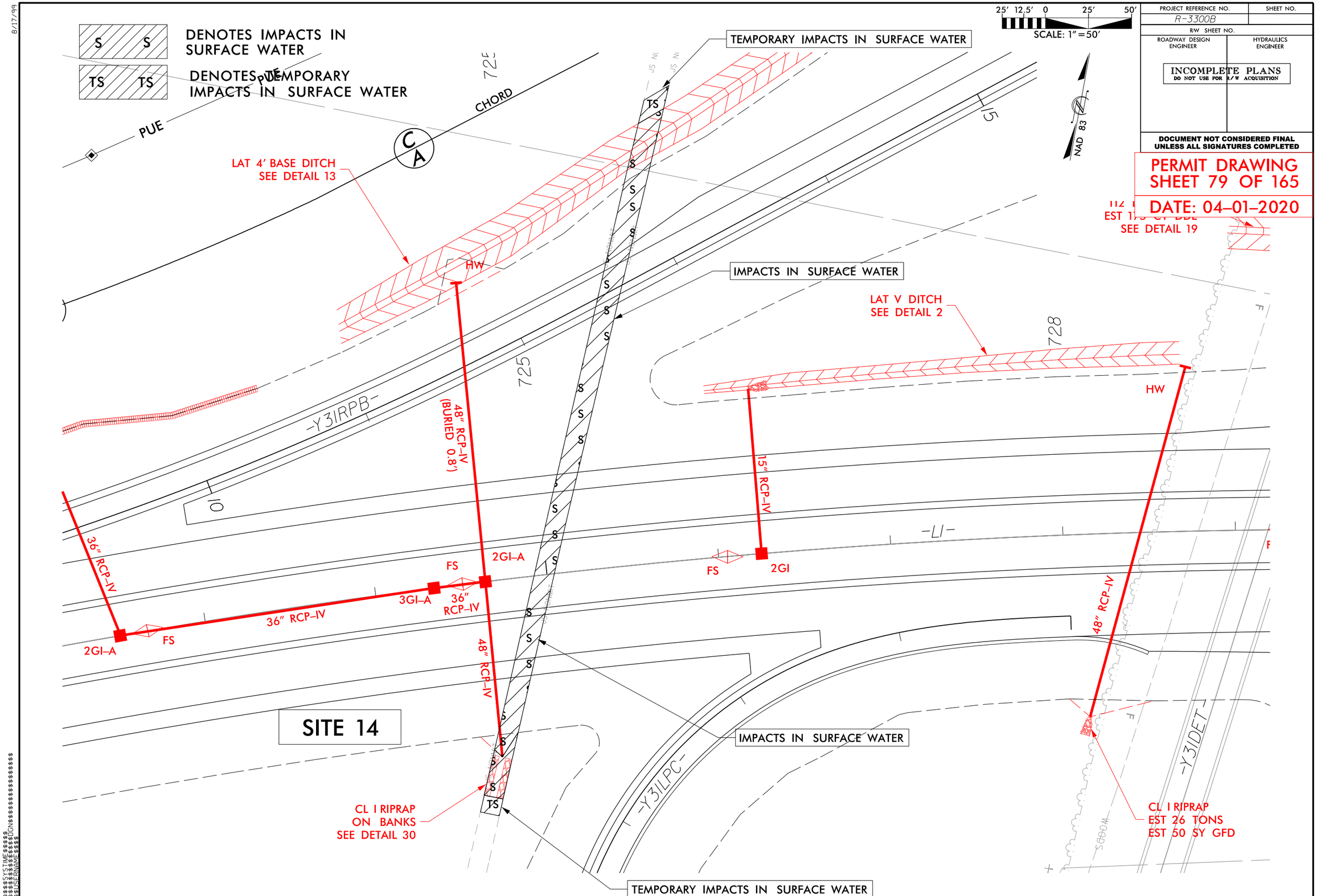
NAD 83/NSRS 2007

PERMIT DRAWING SHEET 78 OF 165

DATE: 04-01-2020

SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 39 & 40 FOR -L1- PROFILE
SEE SHEETS 58 & 59 FOR -Y31- PROFILE
SEE SHEET 60 FOR -Y31RPA- PROFILE
SEE SHEETS 60 & 61 FOR -Y31RPB- PROFILE
SEE SHEET 61 FOR -Y31RPC- PROFILE
SEE SHEET 71 FOR -SR7- PROFILE
SEE SHEET 62 FOR -Y31LPC- PROFILE

5/14/99



PROJECT REFERENCE NO. R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

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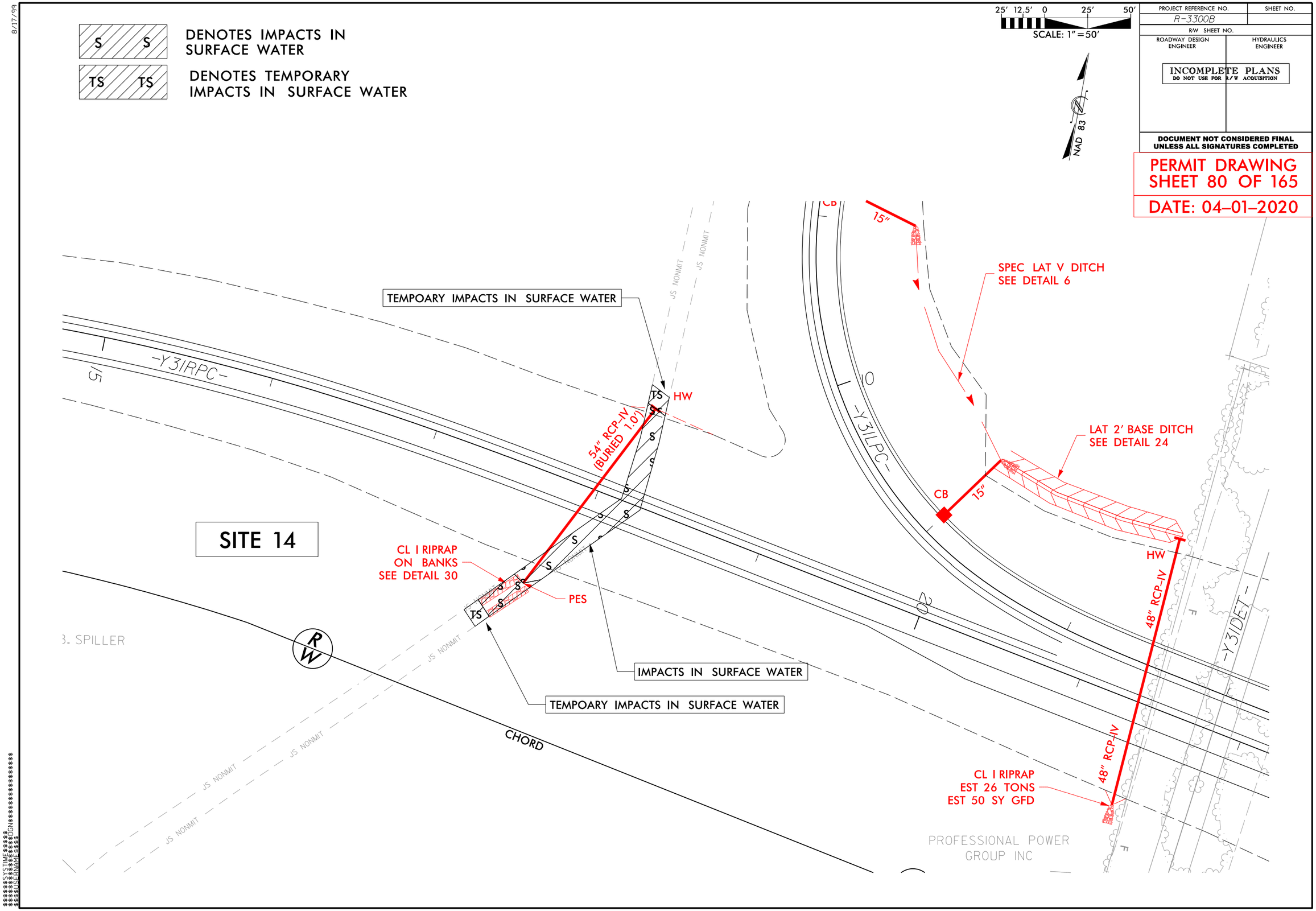
PERMIT DRAWING
SHEET 79 OF 165
DATE: 04-01-2020

8/17/99



DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
25' 12.5' 0 25' 50'
SCALE: 1"=50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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PERMIT DRAWING
SHEET 80 OF 165
DATE: 04-01-2020
TEMPOARY IMPACTS IN SURFACE WATER
SPEC LAT V DITCH
SEE DETAIL 6
LAT 2' BASE DITCH
SEE DETAIL 24
54" RCP-IV
(BURIED 1.0')
HW
CB
15"
CL I RIPRAP
ON BANKS
SEE DETAIL 30
PES
SITE 14
IMPACTS IN SURFACE WATER
TEMPOARY IMPACTS IN SURFACE WATER
48" RCP-IV
CL I RIPRAP
EST 26 TONS
EST 50 SY GFD
-Y31RPC-
-Y31LPC-
-Y31DET-
JS NONMIT
CHORD
PROFESSIONAL POWER GROUP INC

8/17/99

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

25' 12.5' 0 25' 50'
SCALE: 1" = 50'

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 81 OF 165

DATE: 04-01-2020

TEMPORARY IMPACTS SHOWN ON SHEET 10 OF 165

SITE 16

MECHANIZED CLEARING

FILL IN WETLAND

RETAIN CMAP's

SITE 17

FILL IN WETLAND

MECHANIZED CLEARING

DAYLIGHT DITCH

SPEC LAT 4' BASE DITCH
EST TONS 53 TONS
EST 150 SY GFD
SEE DETAIL 39A

SPEC LAT V DITCH
SEE DETAIL 4

WHITE MARSH BRANCH

WHITE MARSH BRANCH

(2) 60"x46" CMAP

32" CONC

WOODS

WLB

PUE

SR 1569 HOOVER RD 20' BST

48' WD RAIL

24" CONC

ISLD

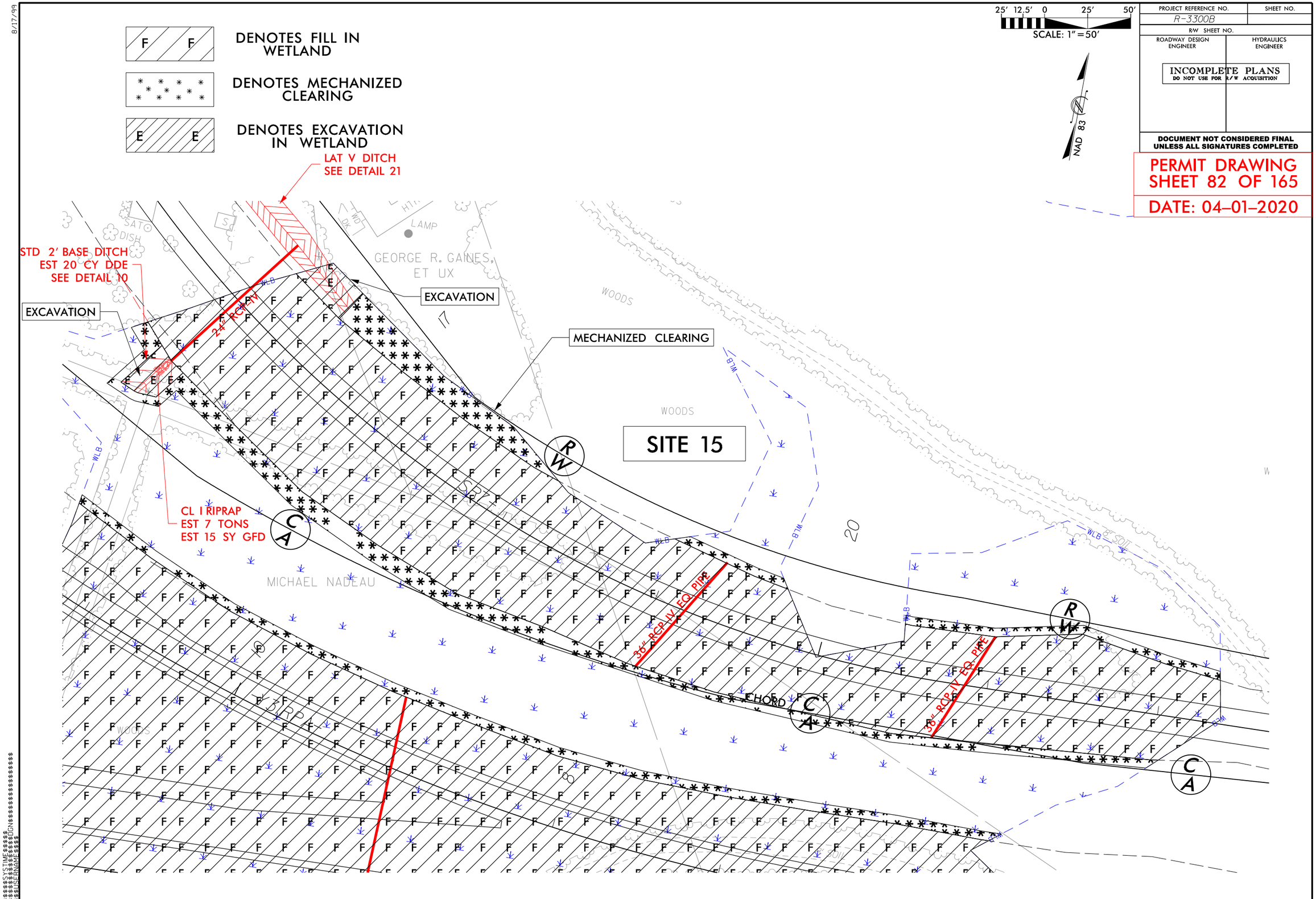
CONC

SOIL & GR

CHARLES E BRYANT

SEPTIC FIELD IMPACTED
NON-TOTAL TAKE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$



DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
LAT V DITCH
SEE DETAIL 21
STD 2' BASE DITCH
EST 20 CY DDE
SEE DETAIL 10
EXCAVATION
EXCAVATION
MECHANIZED CLEARING
GEORGE R. GAINES, ET UX
WOODS
WOODS
SITE 15
CL I RIPRAP
EST 7 TONS
EST 15 SY GFD
MICHAEL NADEAU
36" RCP IV EQ. PIPE
36" RCP IV EQ. PIPE
CHORD
SCALE: 1"=50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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PERMIT DRAWING
SHEET 82 OF 165
DATE: 04-01-2020

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-84

PERMIT DRAWING
SHEET 83 OF 165
DATE: 04-01-2020

SITE 15

WETLANDS

FILL IN WETLANDS

MECHANIZED CLEARING

Y31RPA
5+02.57

742+50.00

58.69
51.22

742+00.00

58.15
49.82

Y31RPA
5+52.57

741+50.00

57.52
49.28

Y31RPA
6+02.58

741+00.00

56.94
48.65

Y31RPA
6+52.60

740+50.00

56.46
48.55

0.025
0.039
6:1
3:1
4:1

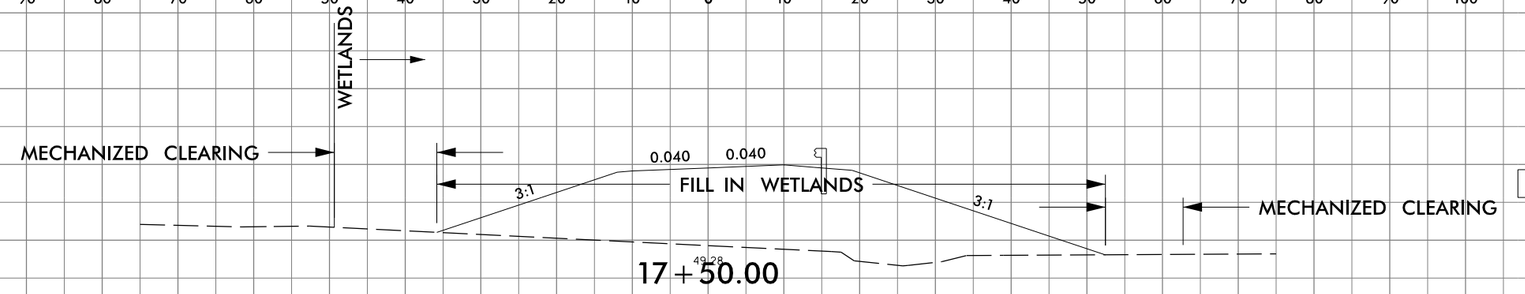
$$$$$$CYCTIME$$$$$$
$$$$$$

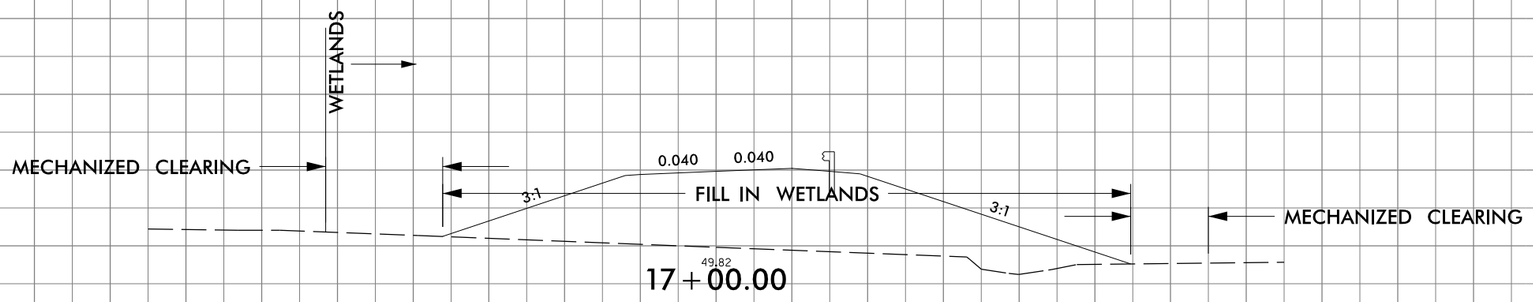
6/23/16

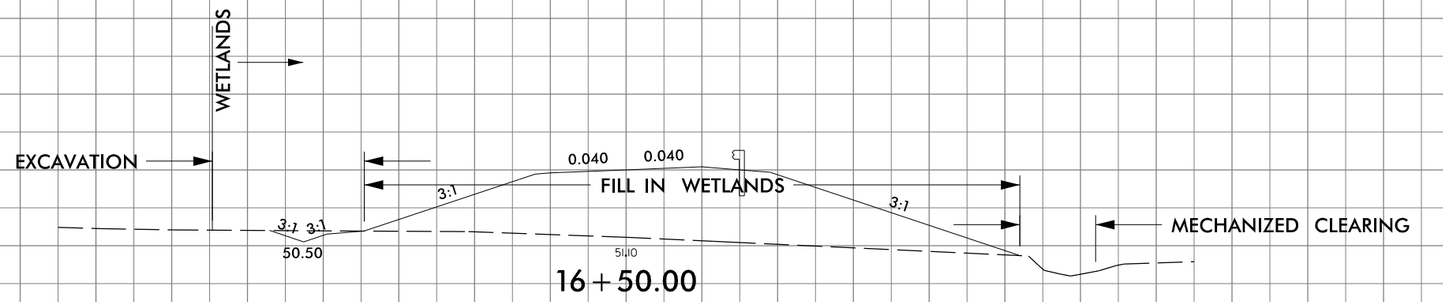
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-410

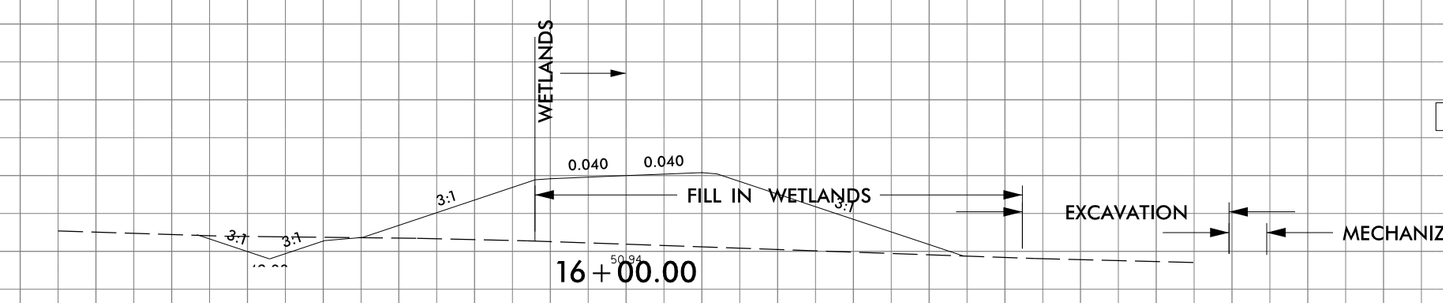
PERMIT DRAWING
SHEET 84 OF 165
DATE: 04-01-2020

SITE 15





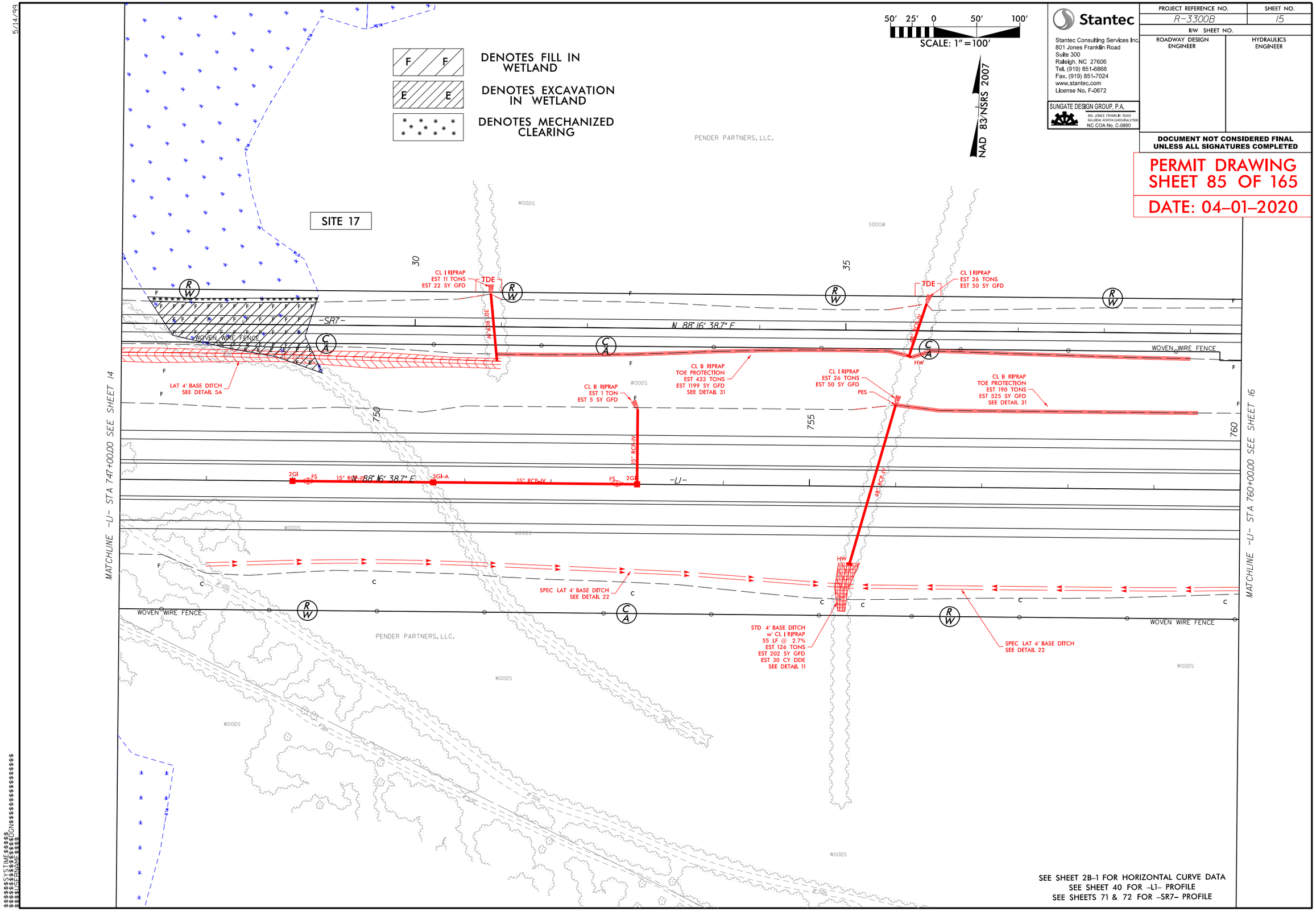




SITE 15

-SR7-

$$$$$$SYSTIME$$$$$$
$$$$$$



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Fax. (919) 851-7024
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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 85 OF 165

DATE: 04-01-2020

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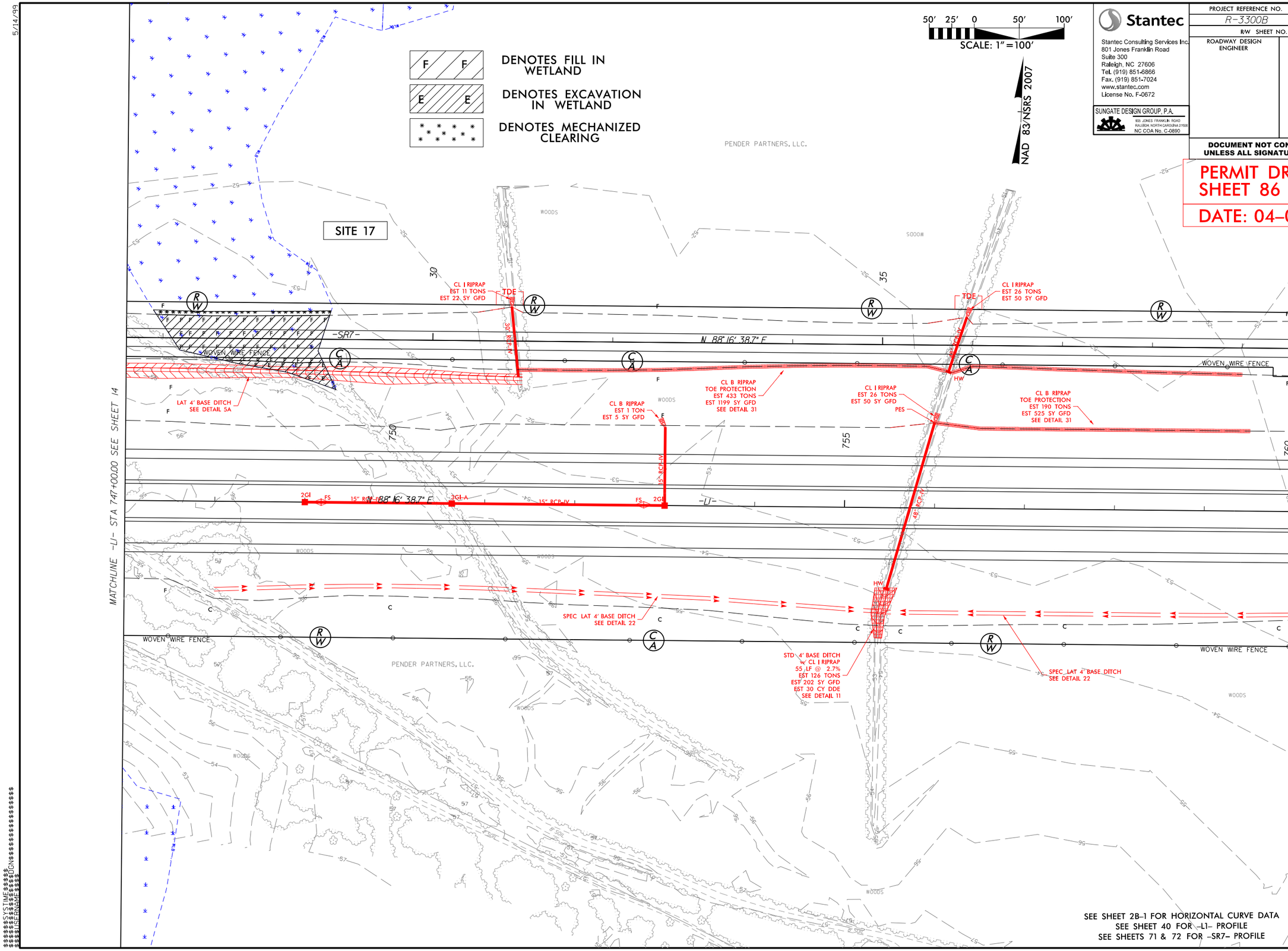

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 40 FOR -L1- PROFILE
SEE SHEETS 71 & 72 FOR -SR7- PROFILE

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R-3300B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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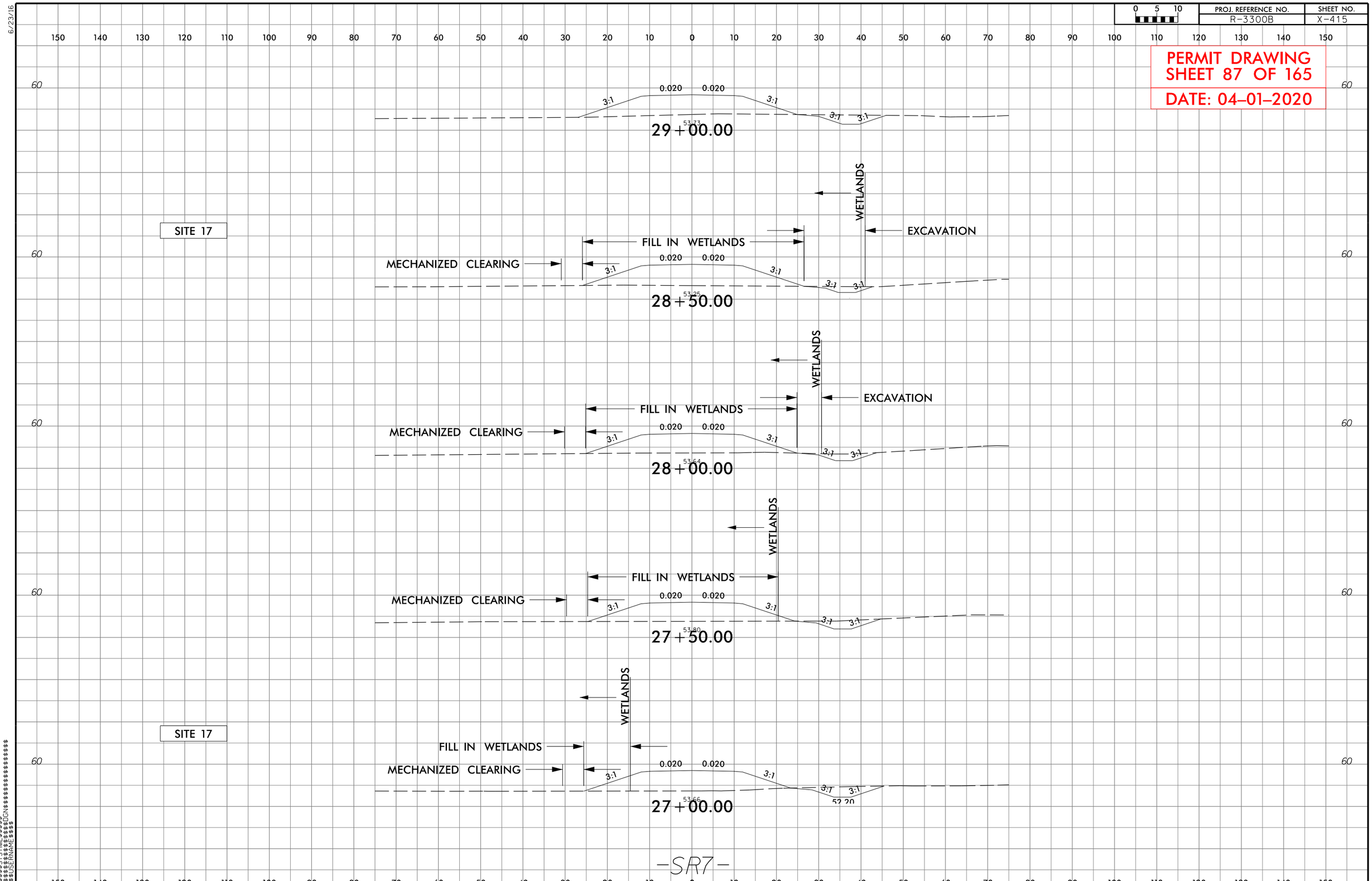
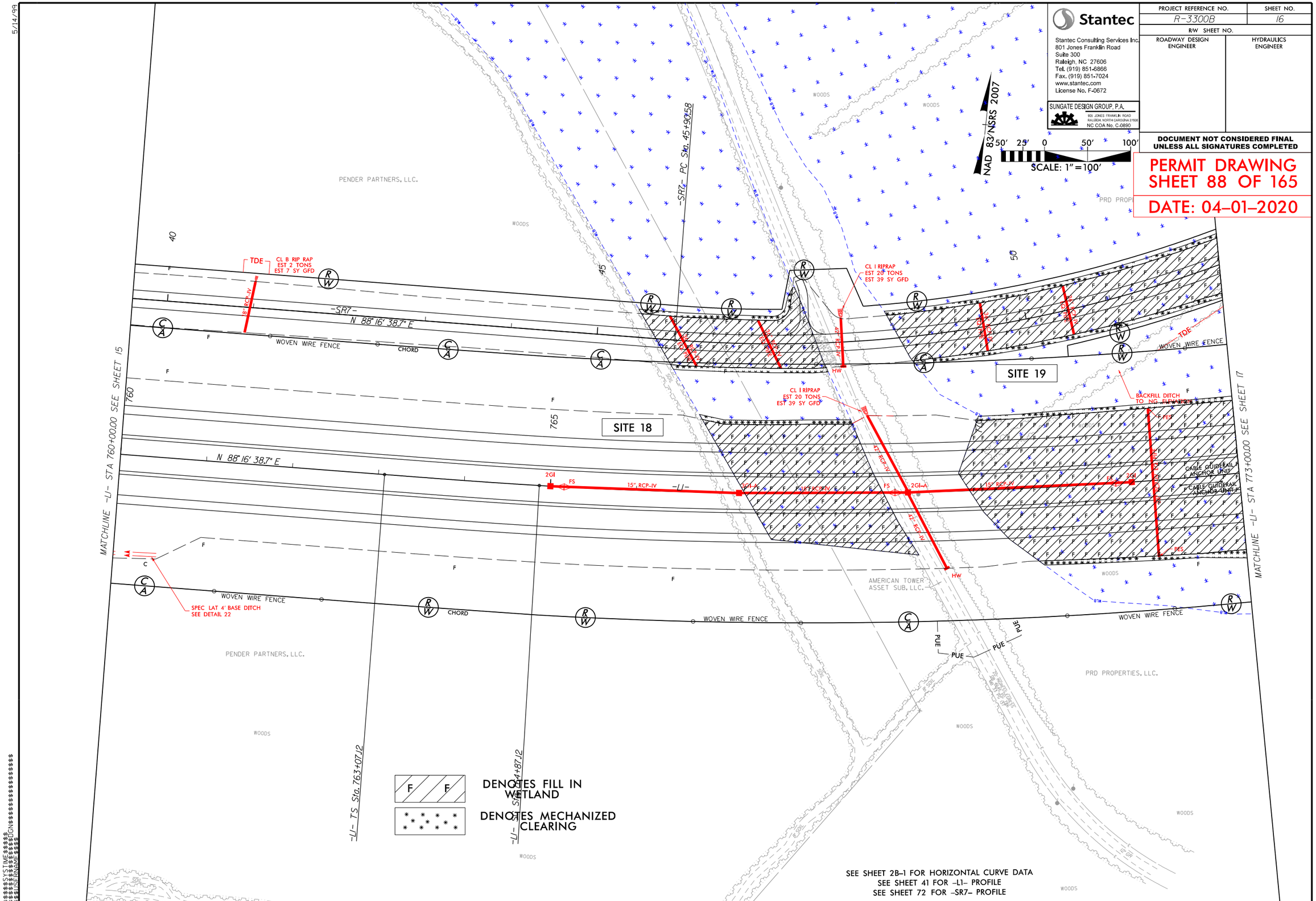
PERMIT DRAWING
SHEET 86 OF 165

DATE: 04-01-2020

5/14/99



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-415
PERMIT DRAWING
SHEET 87 OF 165
DATE: 04-01-2020
SITE 17
29+00.00
WETLANDS
EXCAVATION
FILL IN WETLANDS
MECHANIZED CLEARING
28+50.00
28+00.00
27+50.00
27+00.00
0.020
3:1
-SR7-



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NC COA No. C-0890

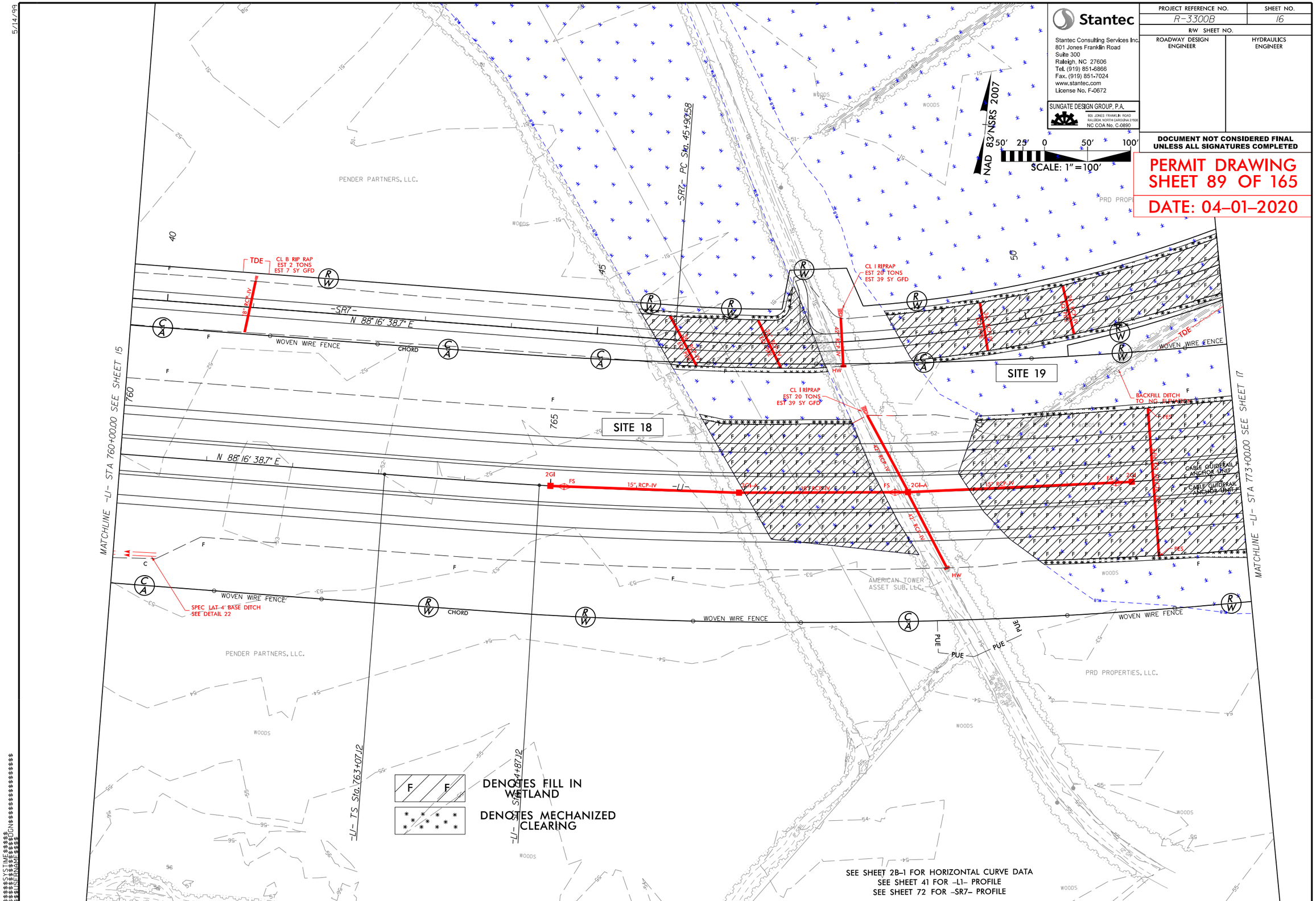
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 88 OF 165

DATE: 04-01-2020

5/14/99



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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 89 OF 165

DATE: 04-01-2020

5/14/99

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-93

PERMIT DRAWING
SHEET 90 OF 165
DATE: 04–01–2020

SITE 18

WETLANDS

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 | 5.324:1 | 6:1 | 0.040 | 3:1 | 3.80:1

57.19 | 52.09

768+50.00

WETLANDS

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 | 5.324:1 | 6:1 | 0.040 | 3:1 | 3.85:1

56.97 | 52.20

768+00.00

WETLANDS

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 | 5.324:1 | 6:1 | 0.040 | 3:1 | 3.87:1

56.86 | 51.90

767+50.00

WETLANDS

SITE 18

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 | 5.324:1 | 6:1 | 0.040 | 3:1 | 3.83:1

56.84 | 51.86

767+00.00

WETLANDS

4.88:1 | 0.040 | 5.324:1 | 6:1 | 0.040 | 3.82:1

56.93 | 52.08

766+50.00

4.26:1 | 0.040 | 5.324:1 | 6:1 | 0.040 | 3.74:1

57.09 | 52.37

766+00.00

$$$$$$$$SYSTIME$$$$$
$$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-424

PERMIT DRAWING
SHEET 91 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 19

WETLANDS

FILL IN WETLANDS

MECHANIZED CLEARING

3:1 3:1

50 50

48+50.00

3:1 3:1

50 50

48+00.00

WETLANDS

SITE 18

FILL IN WETLANDS

3:1 3:1

MECHANIZED CLEARING

50 50

47+50.00

MECHANIZED CLEARING

FILL IN WETLANDS

3:1 3:1

MECHANIZED CLEARING

50 50

47+00.00

SITE 18

FILL IN WETLANDS

3:1 3:1

50 50

46+50.00

-SR7-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-94

PERMIT DRAWING
SHEET 92 OF 165
DATE: 04-01-2020

SITE 19

MECHANIZED CLEARING
FILL IN WETLANDS
0.040
5.324:1
6:1
0.040
3:1
3:1
58.88
52.78
771+50.00
WETLANDS
MECHANIZED CLEARING

WETLANDS
MECHANIZED CLEARING
FILL IN WETLANDS
0.040
5.324:1
6:1
0.040
3:1
3:1
58.60
52.80
771+00.00
WETLANDS

MECHANIZED CLEARING
FILL IN WETLANDS
0.040
5.324:1
6:1
0.040
3:1
3:1
58.32
52.81
770+50.00
WETLANDS
WETLANDS

SITE 19

WETLANDS
MECHANIZED CLEARING
FILL IN WETLANDS
0.040
5.324:1
6:1
0.040
3:1
3.62:1
58.04
52.06
770+00.00

WETLANDS
4.24:1
0.040
5.324:1
6:1
0.040
3.57:1
57.75
52.44
769+50.00

WETLANDS
WETLANDS
SITE 18
FILL IN WETLANDS
4.49:1
0.040
5.324:1
6:1
0.040
3.56:1
57.47
52.61
769+00.00

$$$$$$$CYCTIME$$$$$
$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-425

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 19

PERMIT DRAWING
SHEET 93 OF 165
DATE: 04-01-2020

FILL IN WETLANDS

MECHANIZED CLEARING — 3:1 — 3:1 — MECHANIZED CLEARING

50

51+00.00

FILL IN WETLANDS

MECHANIZED CLEARING — 3:1 — 3:1 — MECHANIZED CLEARING

50

50+50.00

FILL IN WETLANDS

MECHANIZED CLEARING — 3:1 — 3:1 — MECHANIZED CLEARING

50

50+00.00

FILL IN WETLANDS

MECHANIZED CLEARING — 3:1 — 3:1 — MECHANIZED CLEARING

50

49+50.00

WETLANDS →

FILL IN WETLANDS

MECHANIZED CLEARING — 3:1 — 3:1 — MECHANIZED CLEARING

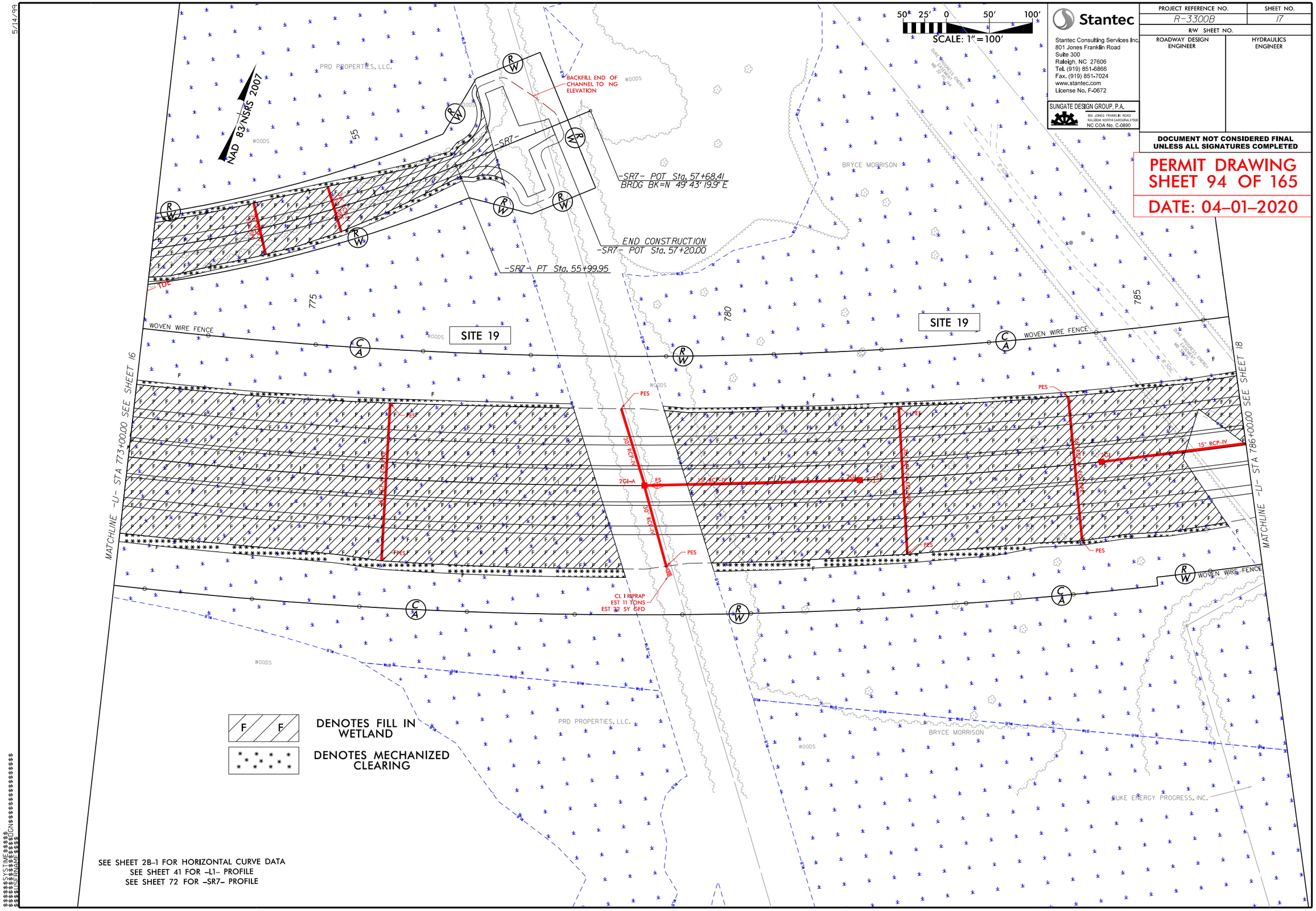
50

49+00.00

SITE 19

-SR7-

$$$$SYSTIME$$$$
$$$$DGN$$$$



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 41 FOR -L1- PROFILE
SEE SHEET 72 FOR -SR7- PROFILE

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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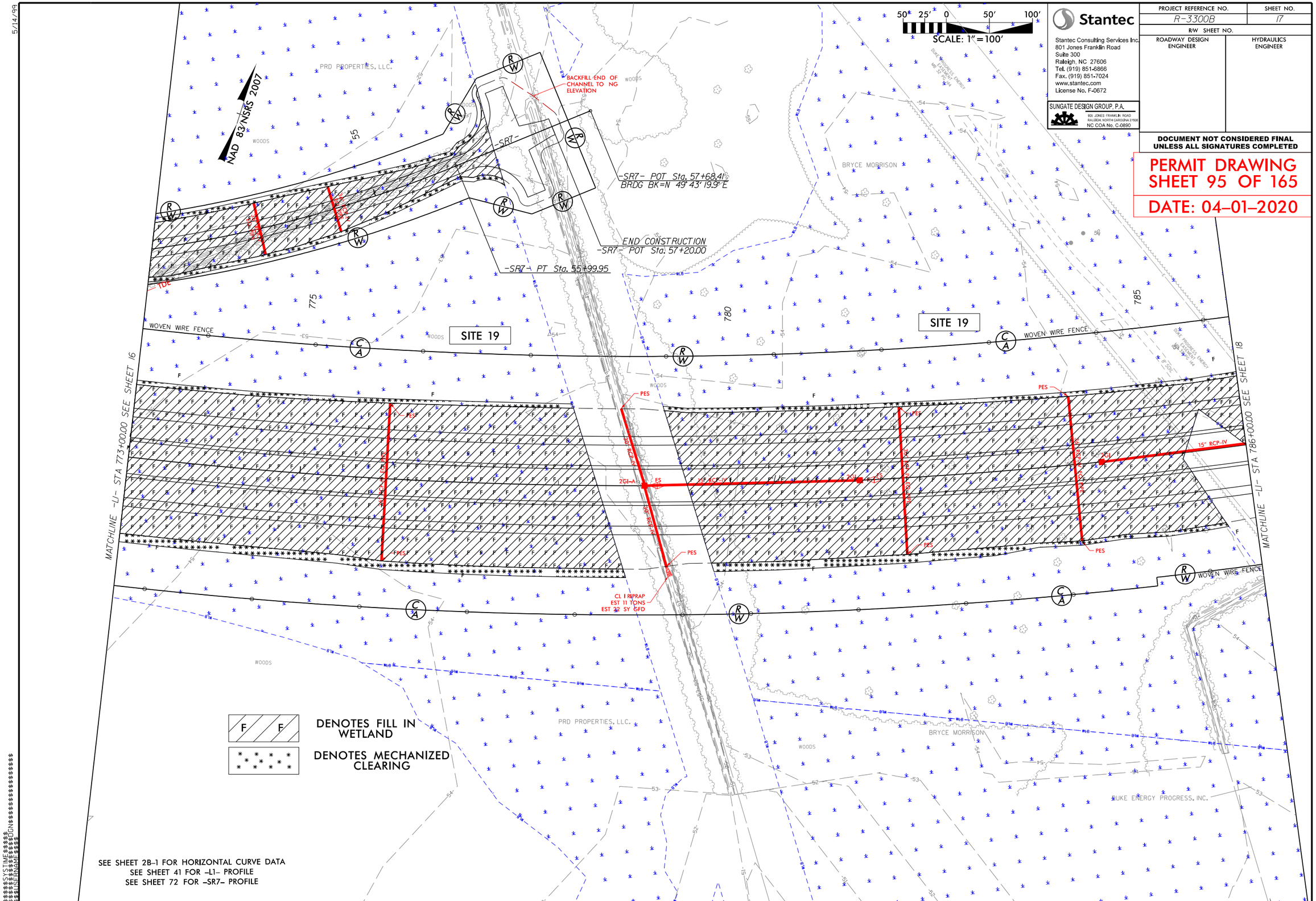
PERMIT DRAWING SHEET 94 OF 165

DATE: 04-01-2020

5/14/99



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R-3300B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 95 OF 165

DATE: 04-01-2020

5/14/99

6/23/16

SITE 19

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-96

PERMIT DRAWING
SHEET 96 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

60
50

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 — 5.324:1 — 6:1 — 0.040

3:1

61.57

53.61

776+50.00

3:1

MECHANIZED CLEARING

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 — 5.324:1 — 6:1 — 0.040

3:1

61.40

53.68

776+00.00

3:1

MECHANIZED CLEARING

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 — 5.324:1 — 6:1 — 0.040

3:1

61.14

53.76

775+50.00

3:1

MECHANIZED CLEARING

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 — 5.324:1 — 6:1 — 0.040

3:1

60.86

53.85

775+00.00

3:1

MECHANIZED CLEARING

SITE 19

MECHANIZED CLEARING

FILL IN WETLANDS

0.040 — 5.324:1 — 6:1 — 0.040

3:1

60.57

53.95

774+50.00

3:1

MECHANIZED CLEARING

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-427

PERMIT DRAWING
SHEET 97 OF 165
DATE: 04-01-2020

SITE 19

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WETLANDS

FILL IN WETLANDS
MECHANIZED CLEARING
3:1 0.020 0.020 3:1
52.57
50
56+00.00
50

FILL IN WETLANDS
MECHANIZED CLEARING
MECHANIZED CLEARING
3:1 0.030 0.030 3:1
52.52
50
55+50.00
50

FILL IN WETLANDS
MECHANIZED CLEARING
MECHANIZED CLEARING
3:1 0.030 0.030 3:1
52.08
50
55+00.00
50

FILL IN WETLANDS
MECHANIZED CLEARING
MECHANIZED CLEARING
3:1 3:1
49.74
50
54+50.00
50

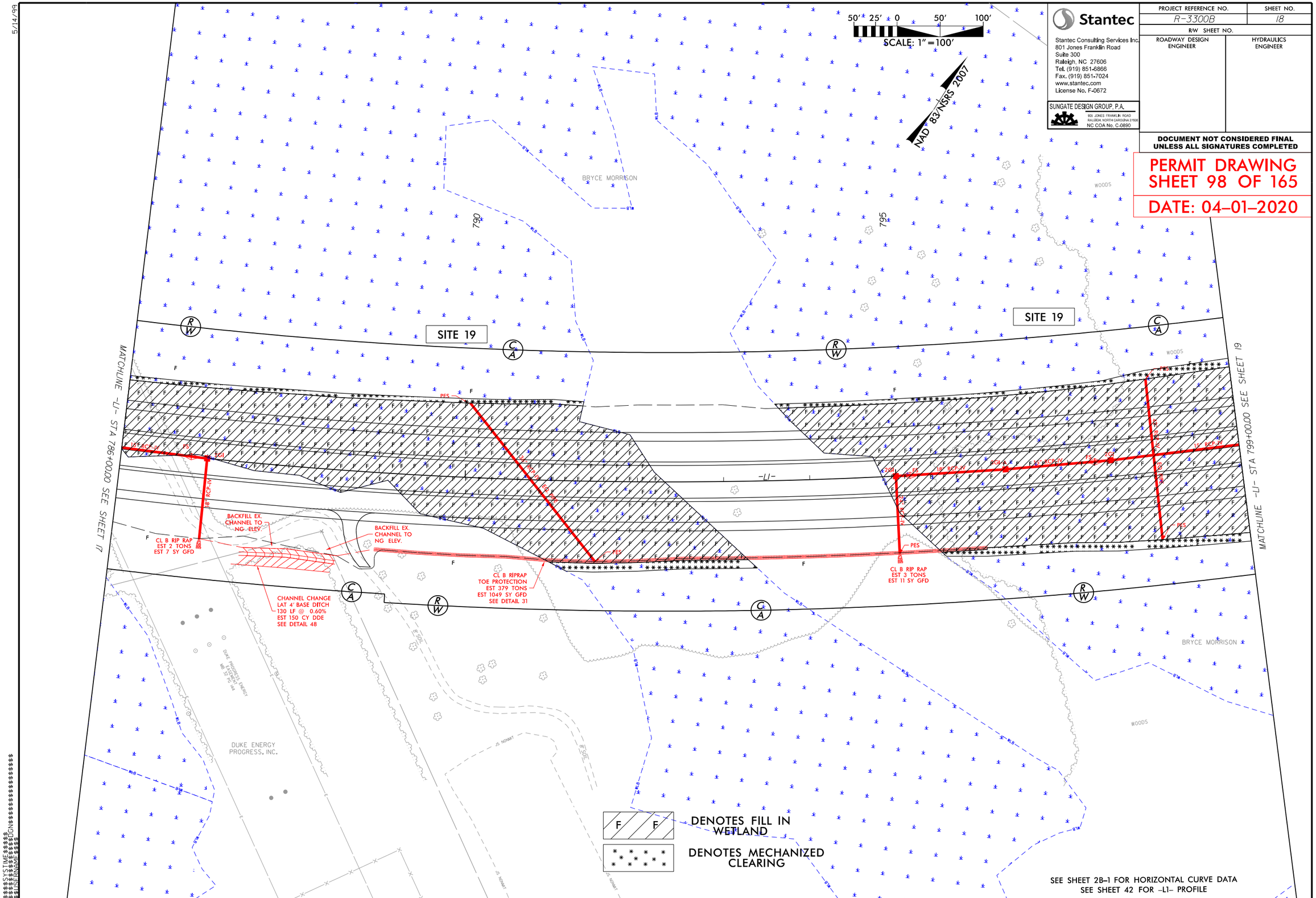
FILL IN WETLANDS
MECHANIZED CLEARING
MECHANIZED CLEARING
3:1 3:1
50.60
50
54+00.00
50

SITE 19

-SR7-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$



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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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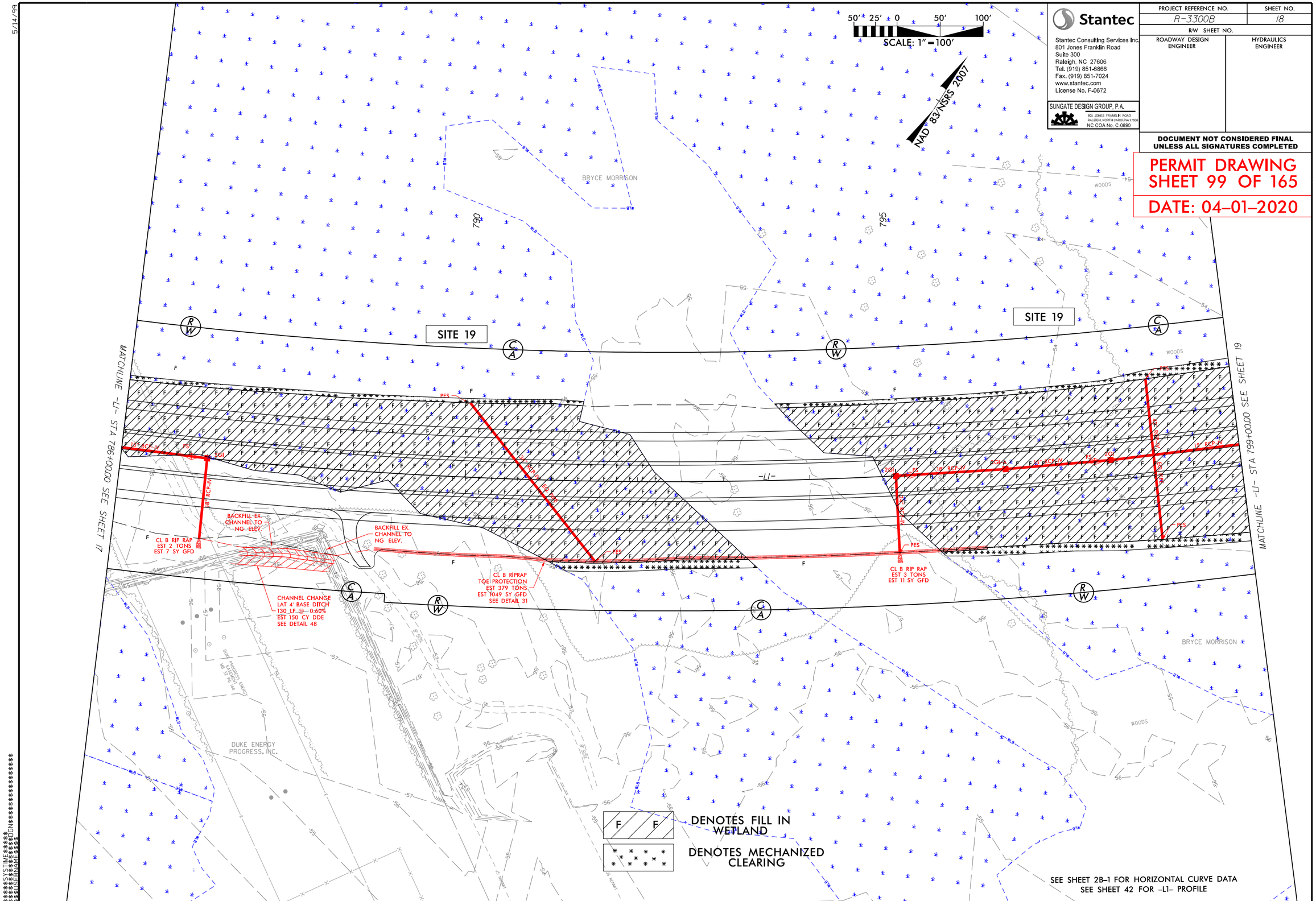
SHEET 98 OF 165

DATE: 04-01-2020

5/14/99



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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 99 OF 165

DATE: 04-01-2020

5/14/99

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-101

PERMIT DRAWING
SHEET 100 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 19

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

3:1 | 0.040 | 5.324:1 | 6:1 | 0.040 | 4:1

61.33 | 54.72

789+00.00

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

3:1 | 0.040 | 5.324:1 | 6:1 | 0.040 | 4:1

61.06 | 54.85

788+50.00

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

3:1 | 0.040 | 5.324:1 | 6:1 | 0.040 | 3:1

60.79 | 54.80

788+00.00

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

3:1 | 0.040 | 5.324:1 | 6:1 | 0.040 | 3.25:1

60.53 | 54.54

787+50.00

SITE 19

MECHANIZED CLEARING

FILL IN WETLANDS

WETLANDS

3:1 | 0.040 | 5.324:1 | 6:1 | 0.040 | 4:1

60.26 | 54.43

787+00.00

60

50

$$$$$$$$SYSTIME$$$$
$$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-104

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 19

PERMIT DRAWING
SHEET 101 OF 165
DATE: 04-01-2020

60 / 50

MECHANIZED CLEARING — 3:1 — FILL IN WETLAND — 3:1 — MECHANIZED CLEARING

0.040 — 5:324:1 — 6:1 — 0.040

61.76 — 53.88

797+50.00

60 / 50

MECHANIZED CLEARING — 3:1 — FILL IN WETLAND — 3:1 — MECHANIZED CLEARING

0.040 — 5:324:1 — 6:1 — 0.040

61.51 — 54.15

797+00.00

60 / 50

MECHANIZED CLEARING — 3:1 — FILL IN WETLAND — 3:1 — MECHANIZED CLEARING

0.040 — 5:324:1 — 6:1 — 0.040

61.38 — 54.42

796+50.00

WETLANDS

60 / 50

MECHANIZED CLEARING — 3:1 — FILL IN WETLAND — 3:1 — MECHANIZED CLEARING

0.040 — 5:324:1 — 6:1 — 0.040

61.39 — 54.70

796+00.00

WETLANDS

SITE 19

60 / 50

MECHANIZED CLEARING — 3:1 — FILL IN WETLAND — 3:1 — MECHANIZED CLEARING

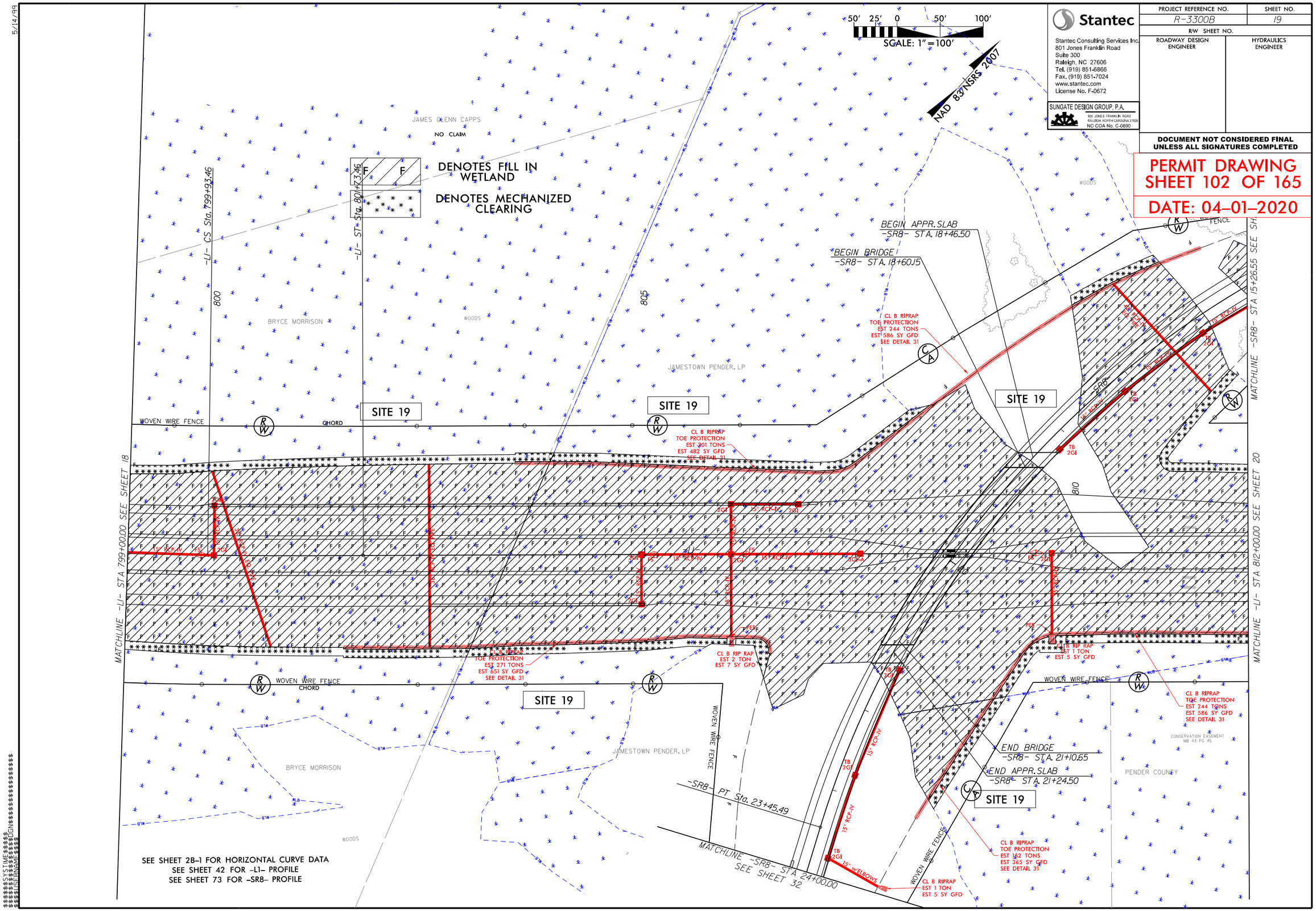
0.040 — 5:324:1 — 6:1 — 0.040

61.53 — 54.99

795+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$



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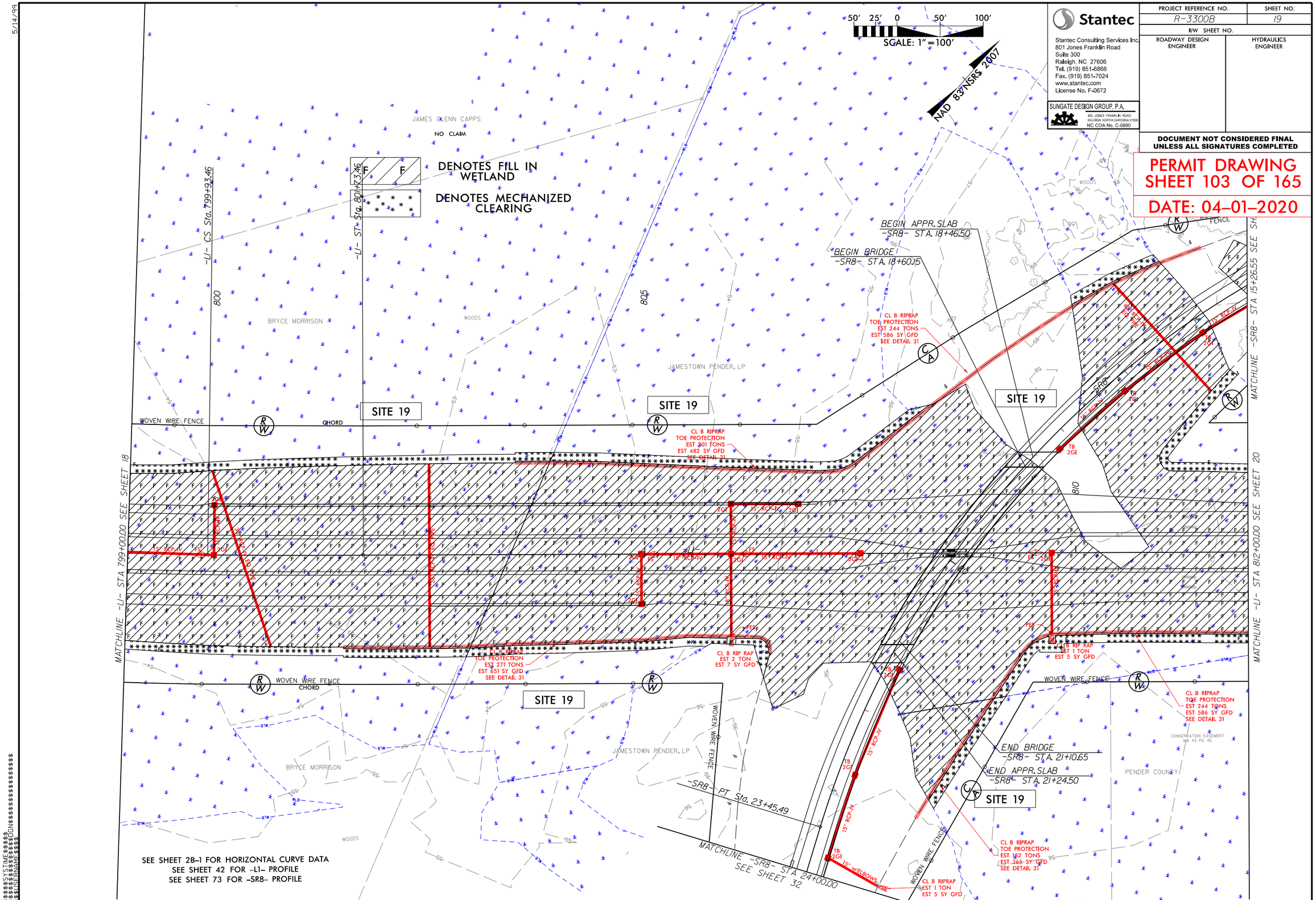
License No. F-0672
SUNGATE DESIGN GROUP, P.A.
NC COA No. C-0890
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
19
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 102 OF 165
DATE: 04-01-2020
SCALE: 1" = 100'
NAD 83/NSRS 2007
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
JAMES GLENN CAPPS
NO CLAIM
BRYCE MORRISON
JAMESTOWN PENDER, LP
WOVEN WIRE FENCE
CHORD
WOODS
SITE 19
BEGIN APPR. SLAB -SR8- STA. 18+46.50
BEGIN BRIDGE -SR8- STA. 18+60.15
END BRIDGE -SR8- STA. 21+10.65
END APPR. SLAB -SR8- STA. 21+24.50
-SR8- PT Sta. 23+45.49
MATCHLINE -SR8- STA 24+00.00 SEE SHEET 32
MATCHLINE -LI- STA 799+00.00 SEE SHEET 18
MATCHLINE -LI- STA 812+00.00 SEE SHEET 20
MATCHLINE -SR8- STA 15+26.55 SEE SH
CL B RIPRAP TOE PROTECTION EST 244 TONS EST 586 SY GFD SEE DETAIL 31
CL B RIPRAP TOE PROTECTION EST 301 TONS EST 482 SY GFD SEE DETAIL 31
CL B RIPRAP TOE PROTECTION EST 271 TONS EST 651 SY GFD SEE DETAIL 31
CL B RIP RAP EST 2 TON EST 7 SY GFD
CL B RIP RAP EST 1 TON EST 5 SY GFD
CL B RIPRAP TOE PROTECTION EST 152 TONS EST 365 SY GFD SEE DETAIL 31
CL B RIPRAP EST 1 TON EST 5 SY GFD
15" RCP-IV
15" w/ELBOWS
PENDER COUNTY
CONSERVATION EASEMENT MB 43 PG 45
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 42 FOR -L1- PROFILE
SEE SHEET 73 FOR -SR8- PROFILE



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 42 FOR -L1- PROFILE
SEE SHEET 73 FOR -SR8- PROFILE

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 103 OF 165

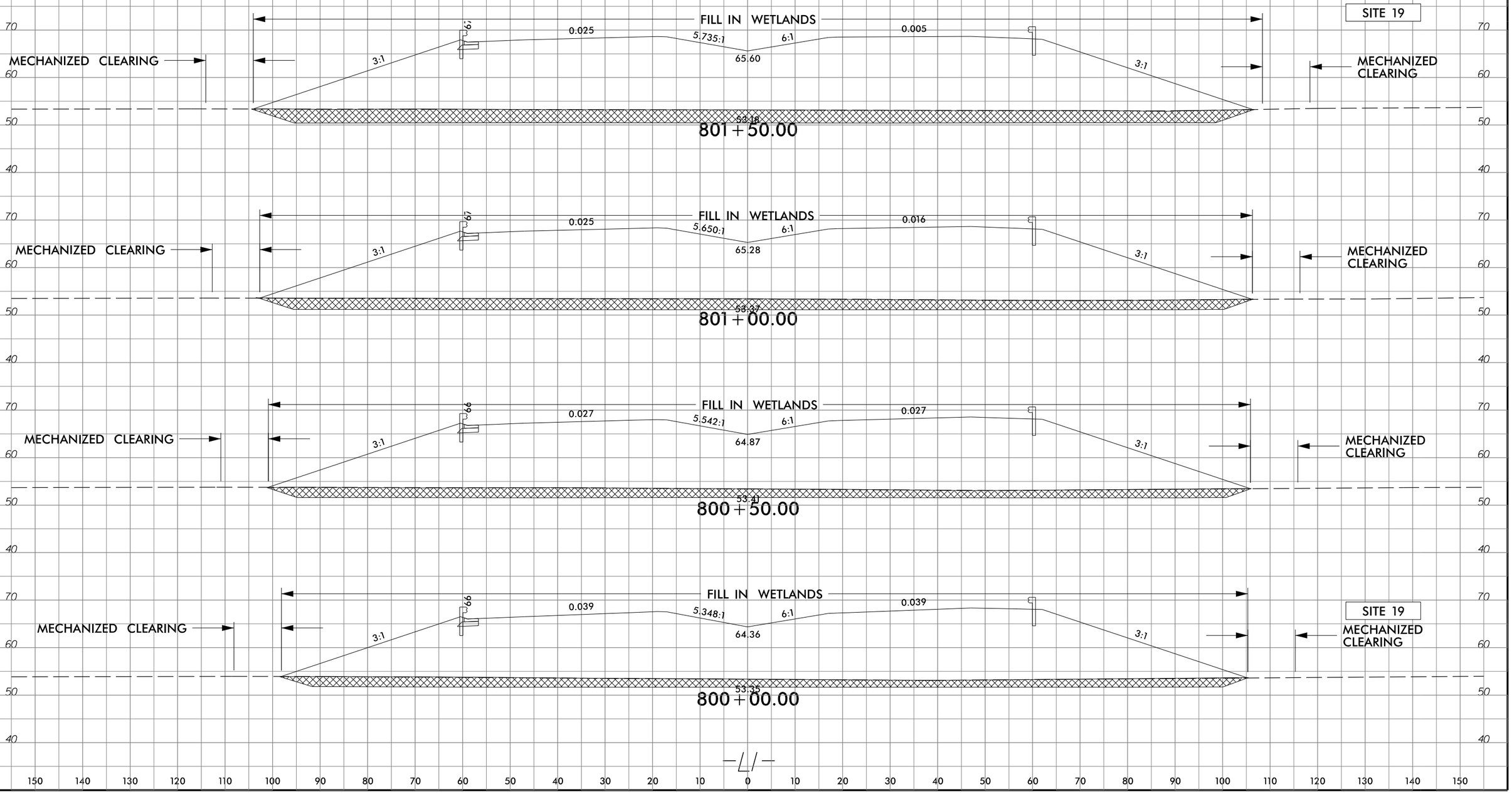
DATE: 04-01-2020

5/14/99

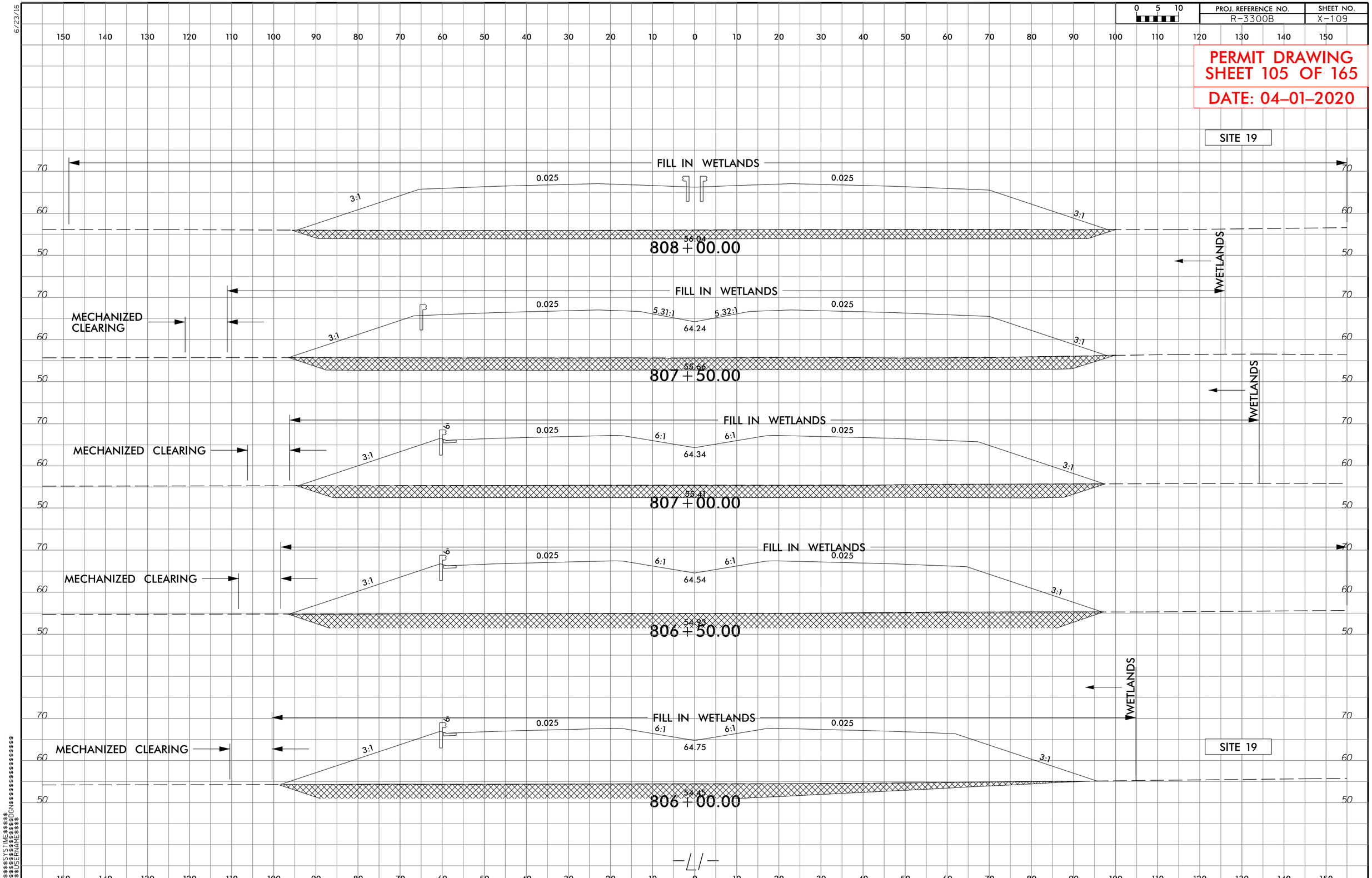
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-106

PERMIT DRAWING
SHEET 104 OF 165
DATE: 04-01-2020



$$$$$$SYSTIME$$$$$$
$$$$$$



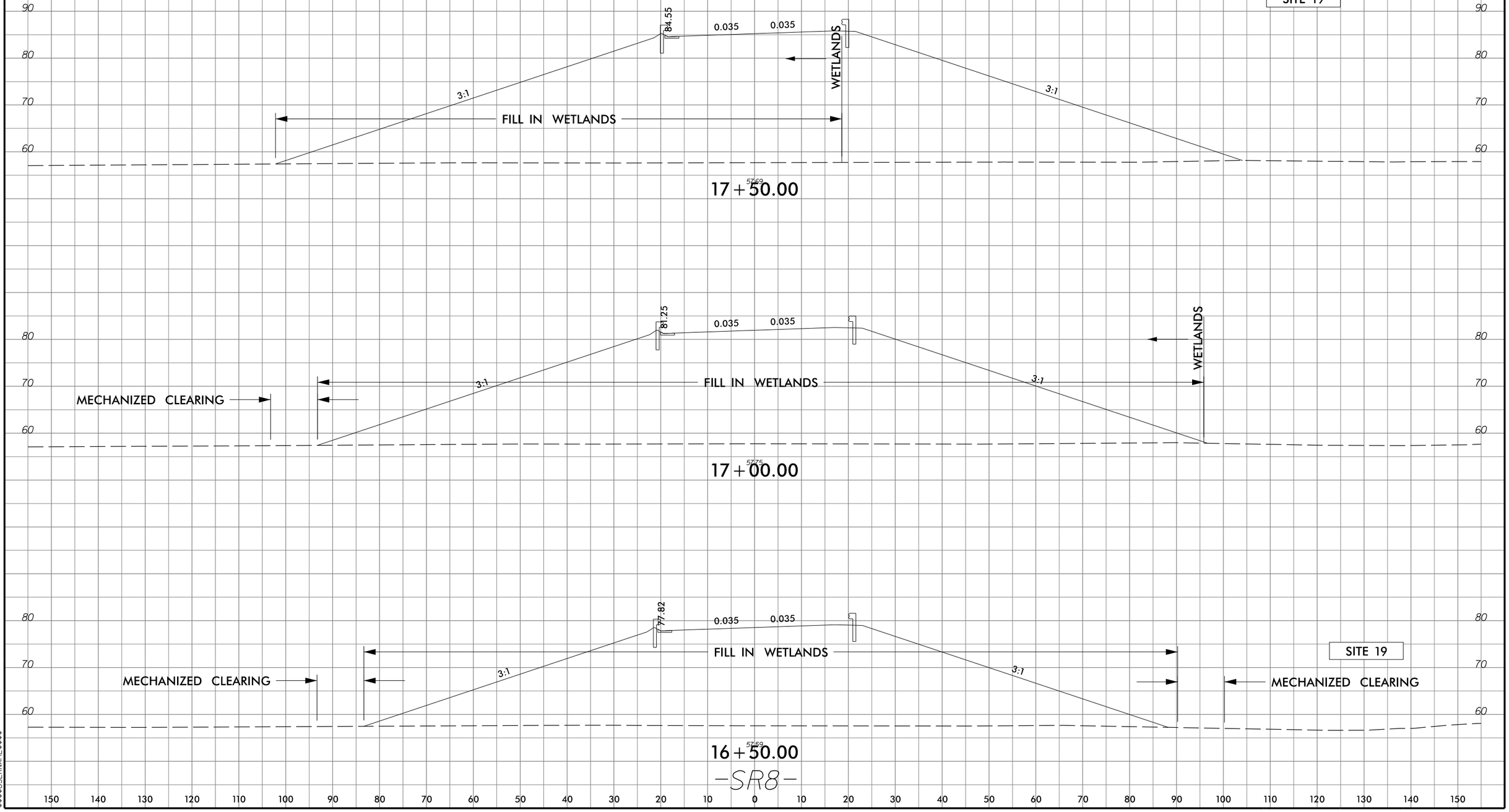
PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-109
PERMIT DRAWING
SHEET 105 OF 165
DATE: 04-01-2020
SITE 19
FILL IN WETLANDS
0.025
3:1
56.04
808+00.00
WETLANDS
MECHANIZED CLEARING
5.31:1
5.32:1
64.24
55.66
807+50.00
6:1
64.34
55.41
807+00.00
64.54
54.93
806+50.00
64.75
54.45
806+00.00
SITE 19

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-431

PERMIT DRAWING
SHEET 106 OF 165
DATE: 04-01-2020

SITE 19



$$$$$$SYSTIME$$$$$$
$$$$$$

5/14/99

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

50' 25' 0 50' 100'
SCALE: 1"=100'

NAD 83/NSRS 2007

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 107 OF 165

DATE: 04-01-2020

MATCHLINE -SR8- STA 15+26.55 SEE SHEET 19

MATCHLINE -L1- STA 812+00.00 SEE SHEET 19

MATCHLINE -L1_NORTHERN- STA 825+00.00 SEE SHEET 21

END FENCE

BEGIN CONSTRUCTION
-SR8- POT Sta.12+55.00

S 18° 29' 32.4" W

S 27° 03' 33.3" W

-SR8- PI Sta.11+00.00

-SR8- POT Sta.10+00.00

-SR8-

-SR8- PC Sta.13+52.11

CL B RIP RAP
EST 1 TON
EST 5 SY GFD

BEGIN FENCE

WOVEN WIRE FENCE

-L1- POT Sta. 820+00.00 BK =
-L1_NORTHERN- POT Sta. 820+00.00 AH

JAMESTOWN PENDER, LP

SITE 19

WOVEN WIRE FENCE

CL B RIPRAP
TOE PROTECTION
EST 109 TONS
EST 300 SY GFD
SEE DETAIL 31

CL B RIP RAP
EST 1 TON
EST 5 SY GFD

N 48° 11' 57.44" E

N 36° 11' 57.34" E -L1_NORTHERN-

24" RCP-IV
EQ. PIPE

30" RCP-IV
EQ. PIPE

15" RCP-IV

2GI

CL B RIPRAP
TOE PROTECTION
EST 244 TONS
EST 586 SY GFD
SEE DETAIL 31

CL B RIP RAP
EST 1 TON
EST 5 SY GFD

CL B RIPRAP
TOE PROTECTION
EST 82 TONS
EST 225 SY GFD
SEE DETAIL 31

PENDER COUNTY

CONSERVATION EASEMENT
MB 43 PG 45

PENDER CO BOARD OF EDUCATION

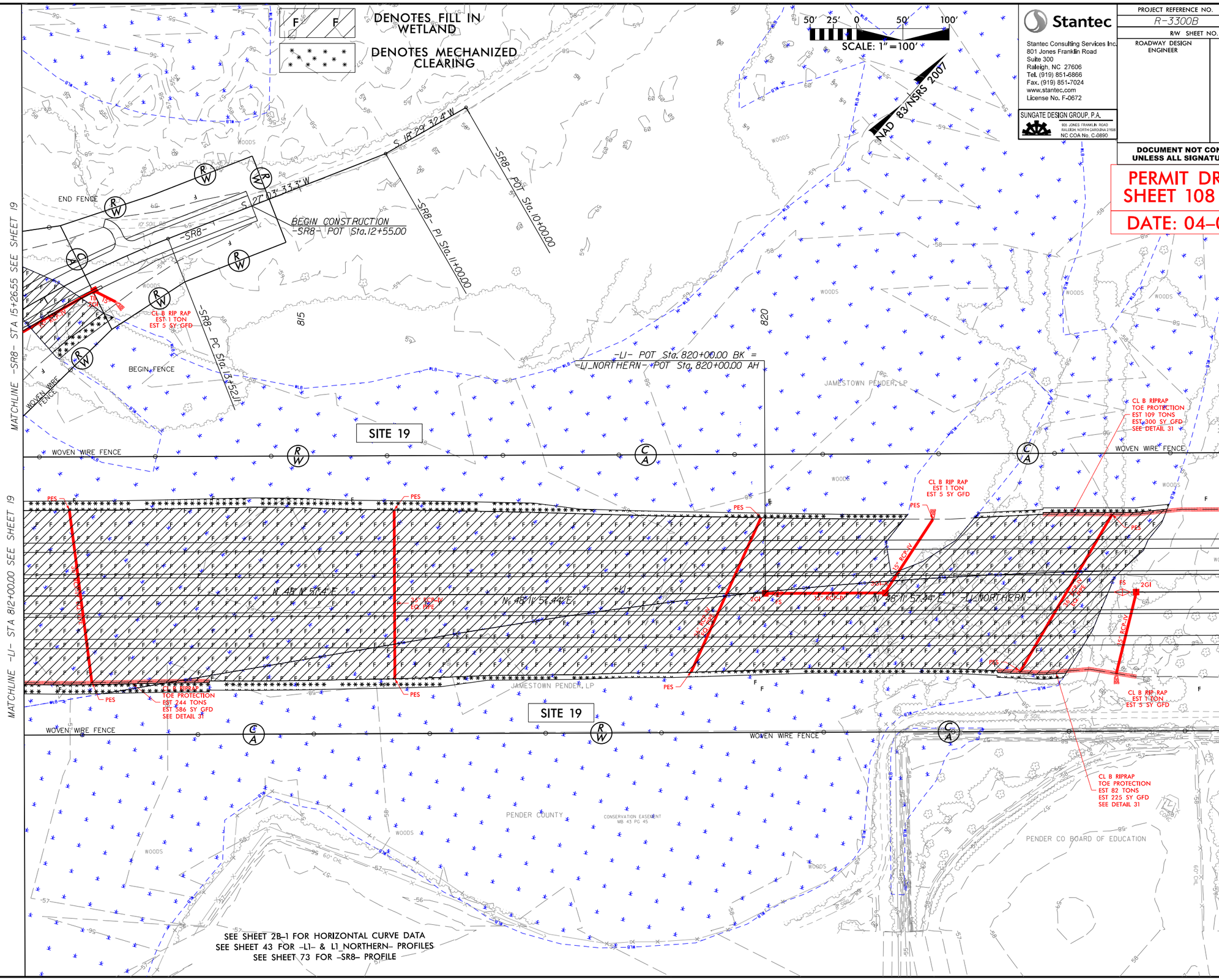
WOODS

8' SOIL

60' CHL

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 43 FOR -L1- & L1_NORTHERN- PROFILES
SEE SHEET 73 FOR -SR8- PROFILE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$



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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 108 OF 165

DATE: 04-01-2020

5/14/99

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$USERNAME$$$$$$

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-113

PERMIT DRAWING
SHEET 109 OF 165
DATE: 04-01-2020

SITE 19

FILL IN WETLANDS

MECHANIZED CLEARING

0.025 6:1 6:1 0.025

3:1 3:1

64.59

57.93

819 + 00.00

SITE 19

MECHANIZED CLEARING

FILL IN WETLANDS

MECHANIZED CLEARING

0.025 6:1 6:1 0.025

3:1 3:1

64.93

57.89

818 + 50.00

MECHANIZED CLEARING

FILL IN WETLANDS

MECHANIZED CLEARING

0.025 6:1 6:1 0.025

3:1 3:1

65.27

57.58

818 + 00.00

FILL IN WETLANDS

MECHANIZED CLEARING

0.025 6:1 6:1 0.025

3:1 3:1

65.61

57.53

817 + 50.00

FILL IN WETLANDS

MECHANIZED CLEARING

0.025 6:1 6:1 0.025

3:1 3:1

65.96

57.56

817 + 00.00

SITE 19

FILL IN WETLANDS

MECHANIZED CLEARING

0.025 6:1 6:1 0.025

3:1 3:1

66.30

57.51

816 + 50.00

SITE 19

MECHANIZED CLEARING

$$$$$$$CYCTIME$$$$$
$$$$$$$

5/14/99

50' 25' 0 50' 100'
SCALE: 1" = 100'

NAD 83/NSRS 2007

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 110 OF 165

DATE: 04–01–2020

JAMESTOWN PENDER, LP

WOODS

830

835

CL B RIPRAP TOE PROTECTION EST 163 TONS EST 450 SY GFD SEE DETAIL 31

CHORD

WOVEN WIRE FENCE

SITE 19

MATCHLINE –L1_NORTHERN– STA 825+00.00 SEE SHEET 20

–L1_NORTHERN–

N 48° 11' 57.44" E

15" RCP

2GI

15" w/ ELBOWS

CL B RIP RAP EST 1 TON EST 5 SY GFD

CL B RIPRAP EST 1 TON EST 5 SY GFD

15" HDPE

CL B RIPRAP TOE PROTECTION EST 244 TONS EST 675 SY GFD SEE DETAIL 31

CL B RIP RAP EST 2 TON EST 7 SY GFD

CL B RIPRAP TOE PROTECTION EST 217 TONS EST 600 SY GFD SEE DETAIL 31

CL B RIPRAP EST 1 TON EST 5 SY GFD

MTL BLEACHERS

CONC

48" CHL

RUBBERIZED TRACK

–L1_NORTH– TS Sta. 827+20.30

–L1_NORTH– SC Sta. 830+56.30

PENDER CO BOARD OF EDUCATION

MATCHLINE –L1_NORTHERN– STA 837+00.00 SEE SHEET 22

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 2B–1 FOR HORIZONTAL CURVE DATA
SEE SHEET 43 FOR –L1_NORTHERN– PROFILE

$$$$$SYSTIME$$$$$
$$$$$LOGIN$$$$$

5/14/99

50' 25' 0 50' 100'
SCALE: 1"=100'

NAD 83/NSRS 2007

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 111 OF 165

DATE: 04-01-2020

JAMESTOWN PENDER, LP

WOODS

830

835

CL B RIPRAP TOE PROTECTION EST 163 TONS EST 450 SY GFD SEE DETAIL 31

CHORD

WOVEN WIRE FENCE

SITE 19

-L1_NORTHERN-

N 48° 11' 57.44" E

15" RCP (AVG)

15" RCP

2GI

15" ELBOWS

CL B RIP RAP EST 1 TON EST 5 SY GFD

CL B RIPRAP EST 1 TON EST 5 SY GFD

45° HDPE

CL B RIPRAP TOE PROTECTION EST 244 TONS EST 675 SY GFD SEE DETAIL 31

CL B RIP RAP EST 2 TON EST 7 SY GFD

CL B RIPRAP TOE PROTECTION EST 217 TONS EST 600 SY GFD SEE DETAIL 31

CL B RIPRAP EST 1 TON EST 5 SY GFD

48" CHL

MTL BLEACHERS

CONC

RUBBERIZED TRACK

-L1_NORTH- TS Sta. 827+20.30

-L1_NORTH- SC Sta. 830+56.30

PENDER CO BOARD OF EDUCATION

MATCHLINE -L1_NORTHERN- STA 825+00.00 SEE SHEET 20

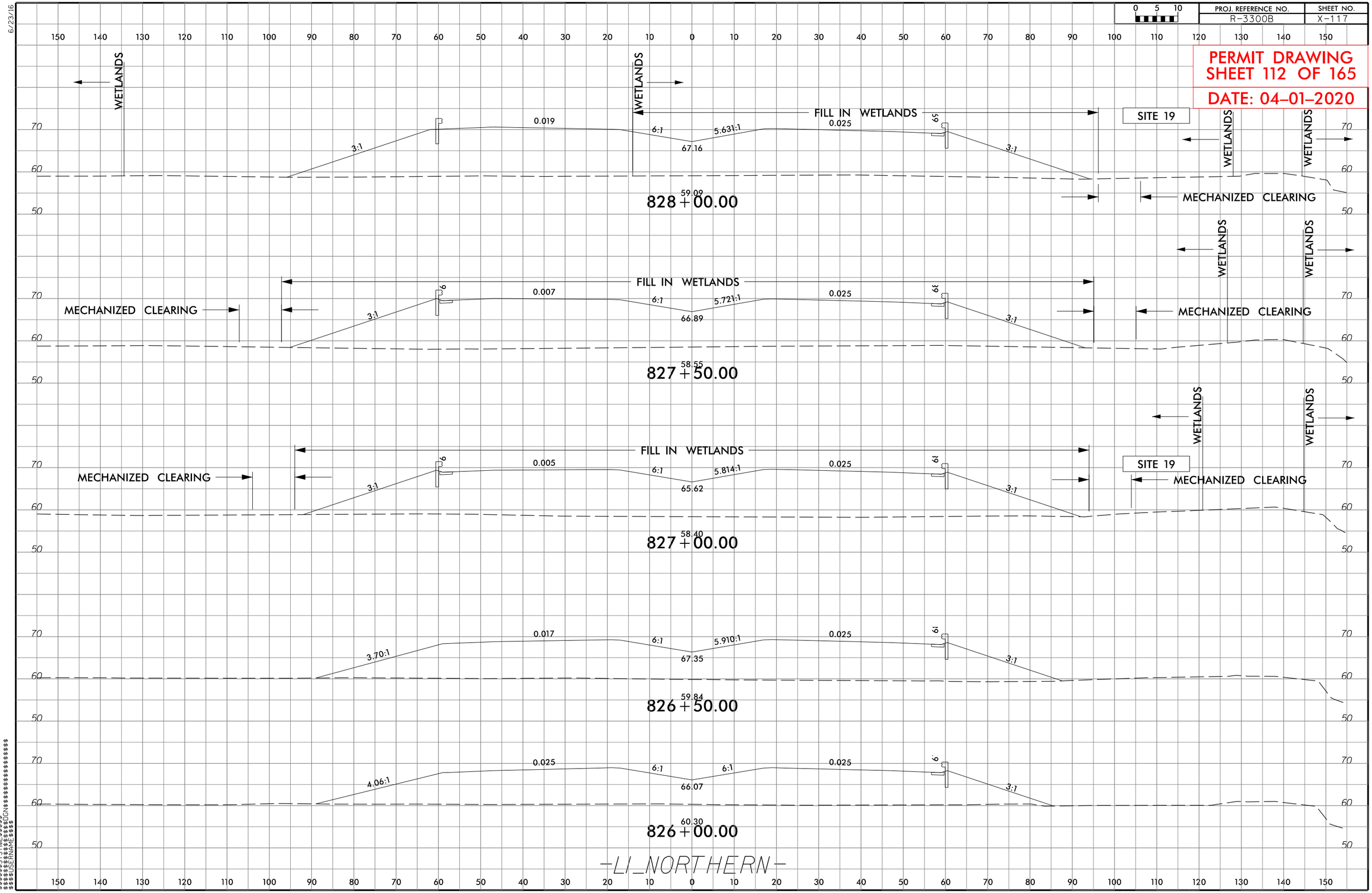
MATCHLINE -L1_NORTHERN- STA 837+00.00 SEE SHEET 22

F F DENOTES FILE IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 43 FOR -L1_NORTHERN- PROFILE

$$$$$SYSTIME$$$$$
$$$$$SYSDATE$$$$$
$$$$$FILENAME$$$$$



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-117
PERMIT DRAWING
SHEET 112 OF 165
DATE: 04-01-2020
WETLANDS
FILL IN WETLANDS
SITE 19
MECHANIZED CLEARING
0.019
0.025
3:1
6:1
5.631:1
67.16
59.09
828+00.00
0.007
5.721:1
66.89
58.55
827+50.00
0.005
5.814:1
65.62
58.40
827+00.00
0.017
5.910:1
67.35
59.84
826+50.00
0.025
4.06:1
66.07
60.30
826+00.00
-LI_NORTHERN-

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-119

PERMIT DRAWING
SHEET 113 OF 165
DATE: 04-01-2020

SITE 19

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

70 60 50

WETLANDS

0.080 FILL IN WETLANDS 0.080

6:1 4.628:1

70.03

3:1 3:1

69.59

FILL IN WETLANDS

MECHANIZED CLEARING

60.20

833+00.00

WETLANDS WETLANDS WETLANDS

0.080 FILL IN WETLANDS 0.080

6:1 4.628:1

69.71

3:1 3:1

69.27

FILL IN WETLANDS

60.05

832+50.00

WETLANDS WETLANDS

MECHANIZED CLEARING

0.080 FILL IN WETLANDS 0.080

6:1 4.628:1

69.39

3:1 3:1

59.96

832+00.00

WETLANDS WETLANDS WETLANDS

MECHANIZED CLEARING

0.080 FILL IN WETLANDS 0.080

6:1 4.628:1

69.07

3:1 3:1

MECHANIZED CLEARING

59.93

831+50.00

WETLANDS WETLANDS

MECHANIZED CLEARING

0.080 FILL IN WETLANDS 0.080

6:1 4.628:1

69.75

3:1 3:1

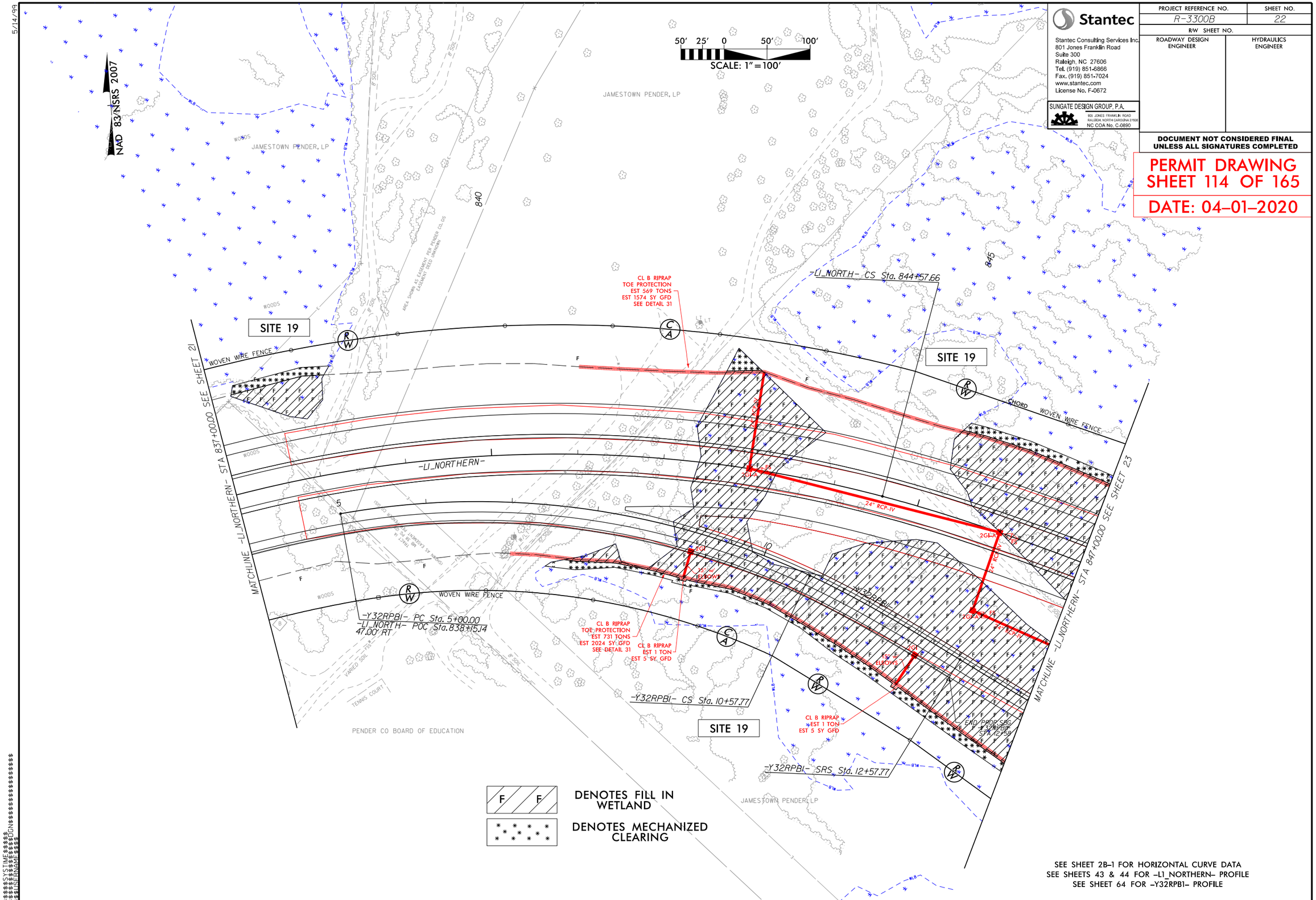
SITE 19

60.00

831+00.00

-LI_NORTHERN-

$$$$$$SYSTIME$$$$$$
$$$$$$



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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 114 OF 165

DATE: 04-01-2020

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 43 & 44 FOR -L1_NORTHERN- PROFILE
SEE SHEET 64 FOR -Y32RPB1- PROFILE

5/14/99

5/14/99

NAD 83/NSRS 2007

50′ 25′ 0 50′ 100′
SCALE: 1″=100′

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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 115 OF 165

DATE: 04-01-2020

JAMESTOWN PENDER, LP

WOODS

840

845

–L1_NORTH– CS Sta. 844+57.66

SITE 19

SITE 19

SITE 19

CL B RIPRAP
TOE PROTECTION
EST 569 TONS
EST 1574 SY GFD
SEE DETAIL 31

CL B RIPRAP
TOE PROTECTION
EST 731 TONS
EST 2024 SY GFD
SEE DETAIL 31

CL B RIPRAP
EST 1 TON
EST 5 SY GFD

CL B RIPRAP
EST 1 TON
EST 5 SY GFD

WOVEN WIRE FENCE

CHORD WOVEN WIRE FENCE

–L1_NORTHERN– STA 837+00.00 SEE SHEET 21

MATCHLINE –L1_NORTHERN– STA 837+00.00

MATCHLINE –L1_NORTHERN– STA 847+00.00 SEE SHEET 23

–Y32RPB1– PC Sta. 5+00.00
–L1_NORTH– POC Sta. 838+15.14
47.00′ RT

–Y32RPB1– CS Sta. 10+57.77

–Y32RPB1– SRS Sta. 12+57.77

END PROP SBG
–Y32RPB1–
STA 12+58

2GI-A

24" RCP-IV

15" w
ELBOWS

F2GIEA

F4 RCP-IV

TENNIS COURT

PENDER CO BOARD OF EDUCATION

AREA SHOWN AS EASEMENT PER DEED BOOK 1011, PAGE 615

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

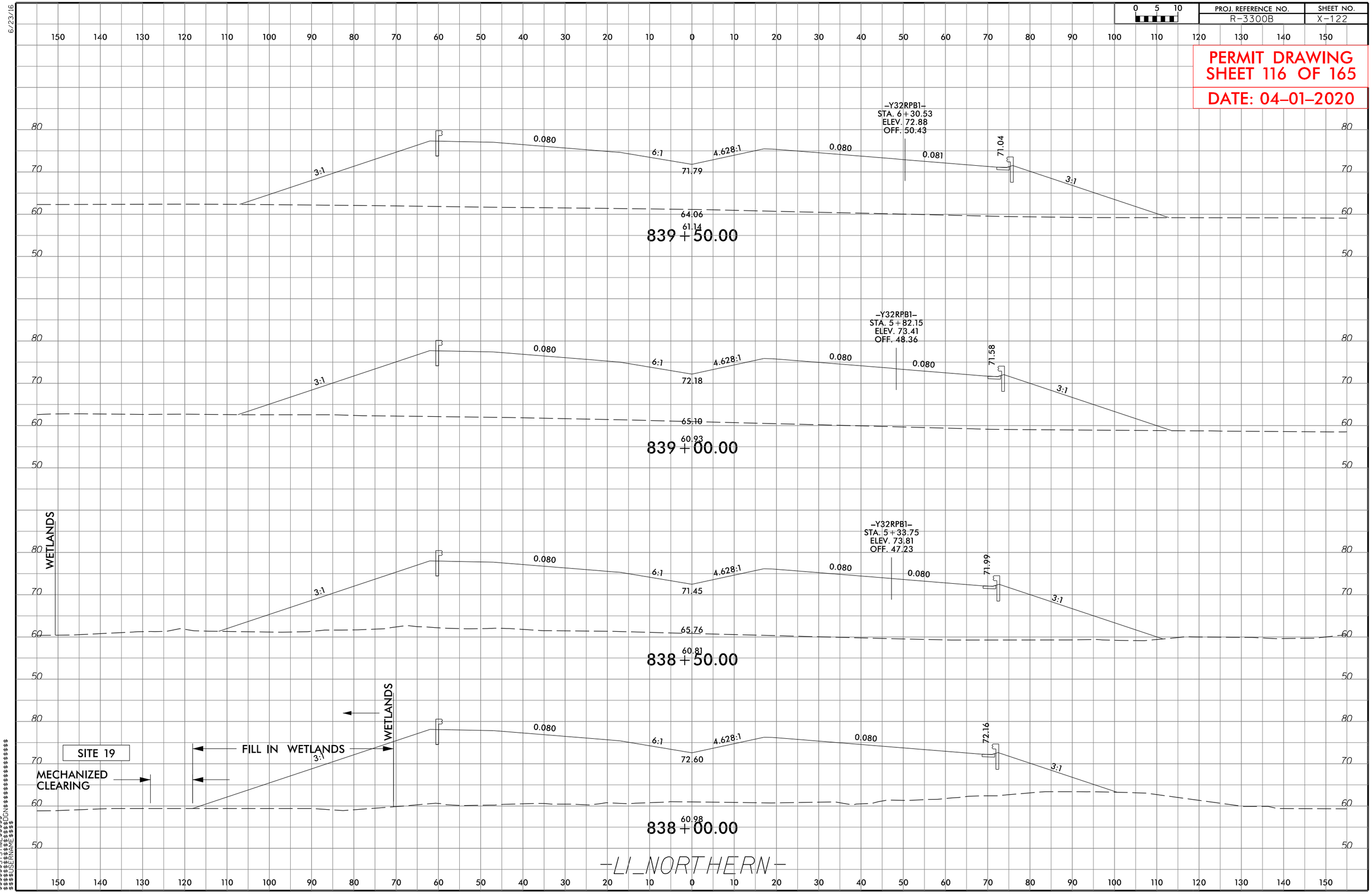
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 43 & 44 FOR –L1_NORTHERN– PROFILE
SEE SHEET 64 FOR –Y32RPB1– PROFILE

$$$$$$SYSTIME$$$$$$
$$$$$$ISSDATE$$$$$$
$$$$$$PENAME$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-122

PERMIT DRAWING
SHEET 116 OF 165
DATE: 04-01-2020



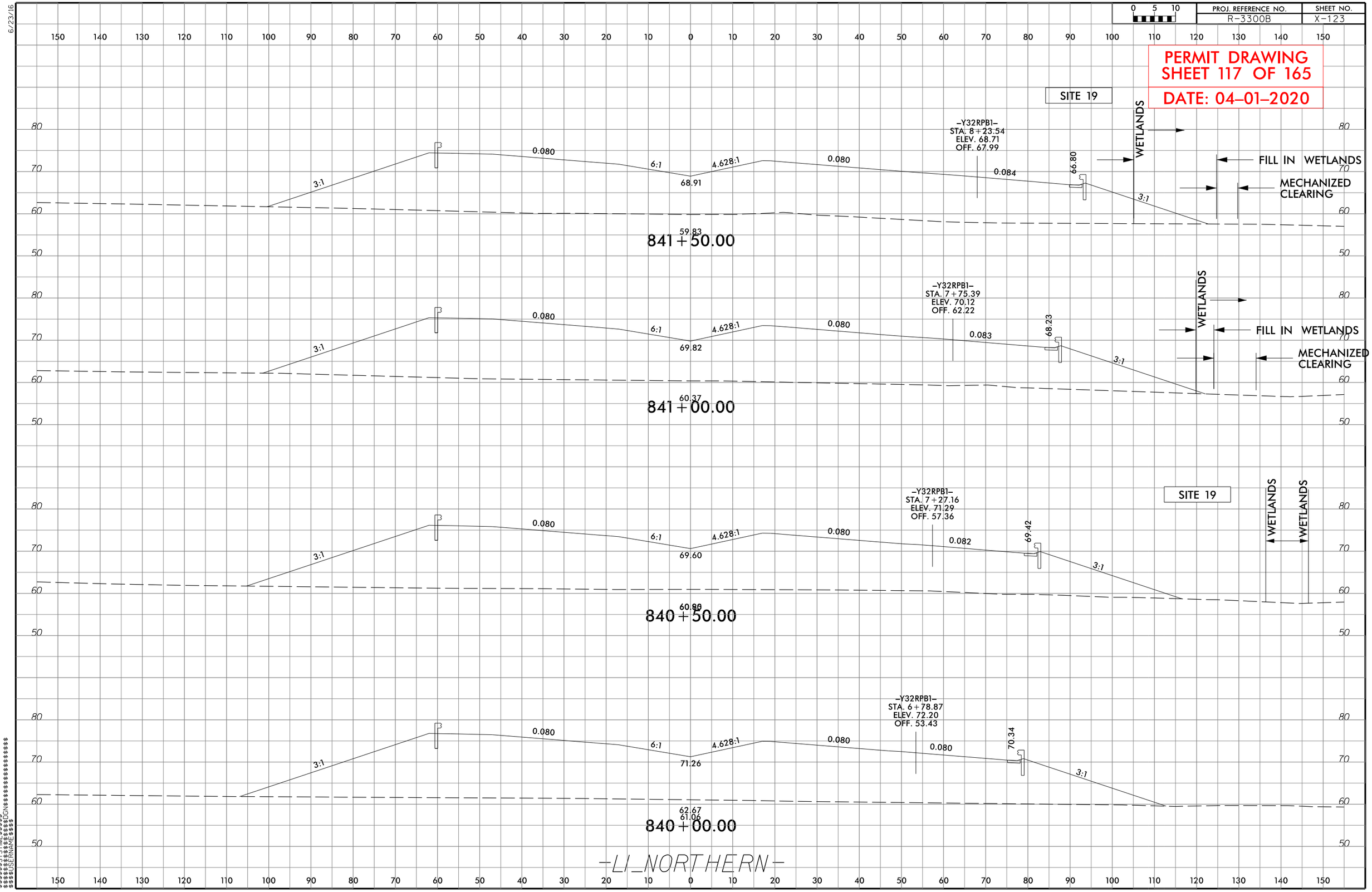
$$$$$$$CYCTIME$$$$$
$$$$$$$

6/23/16

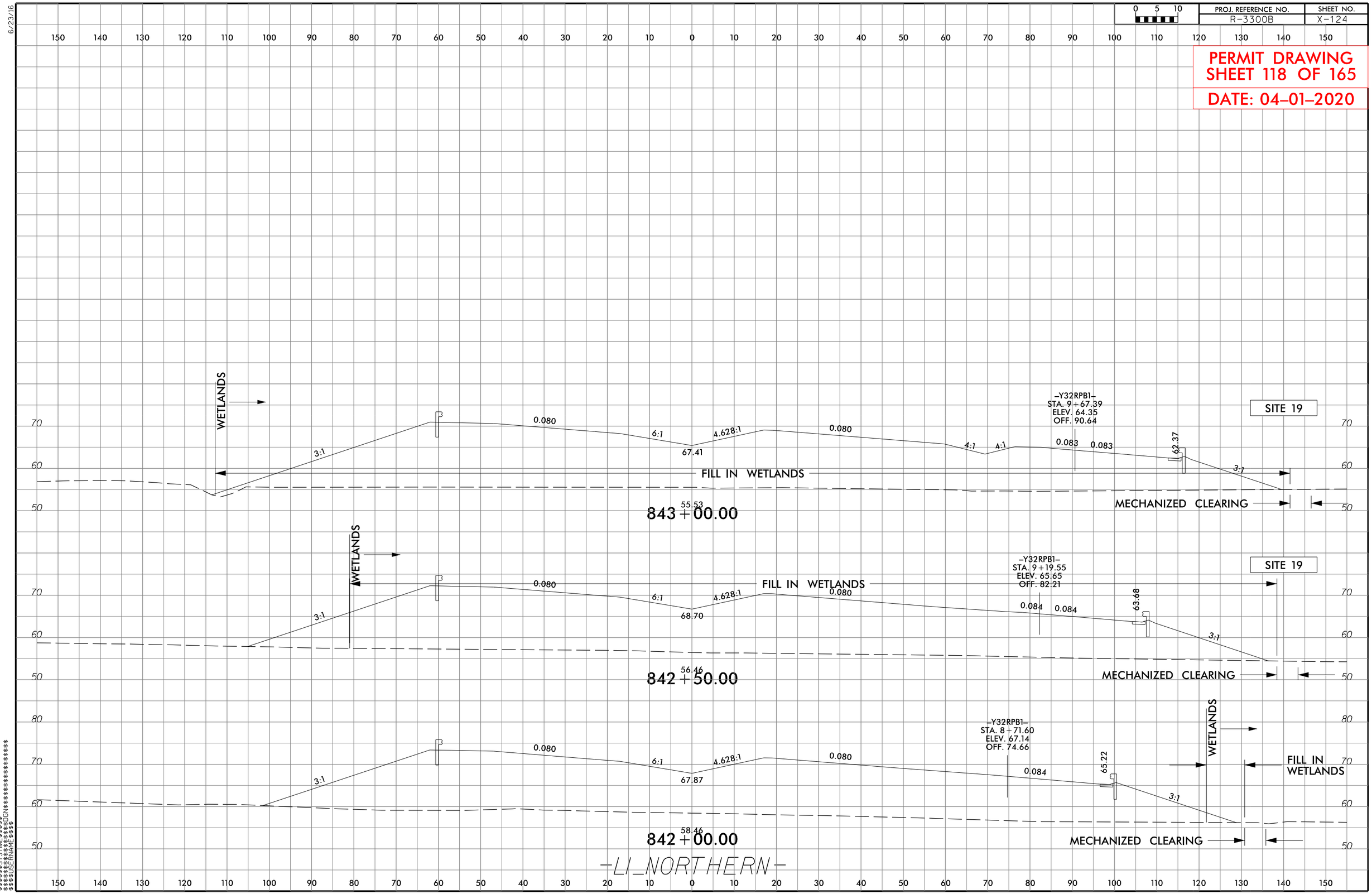
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-123

PERMIT DRAWING
SHEET 117 OF 165
DATE: 04-01-2020

SITE 19



$$$$$$$CYCTIME$$$$$
$$$$$$$



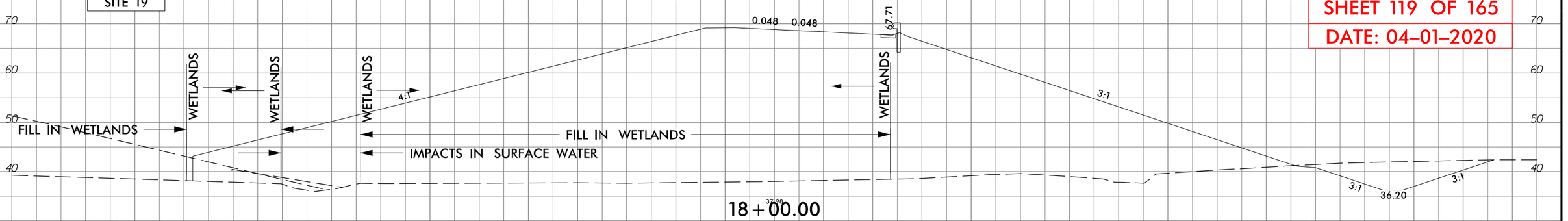
PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-124
PERMIT DRAWING
SHEET 118 OF 165
DATE: 04-01-2020
WETLANDS
SITE 19
-Y32RPB1-
STA. 9+67.39
ELEV. 64.35
OFF. 90.64
0.080
6:1
4.628:1
67.41
4:1
0.083
62.37
3:1
FILL IN WETLANDS
MECHANIZED CLEARING
55.53
843+00.00
-Y32RPB1-
STA. 9+19.55
ELEV. 65.65
OFF. 82.21
68.70
0.084
63.68
56.46
842+50.00
-Y32RPB1-
STA. 8+71.60
ELEV. 67.14
OFF. 74.66
67.87
65.22
58.46
842+00.00
-LI_NORTHERN-

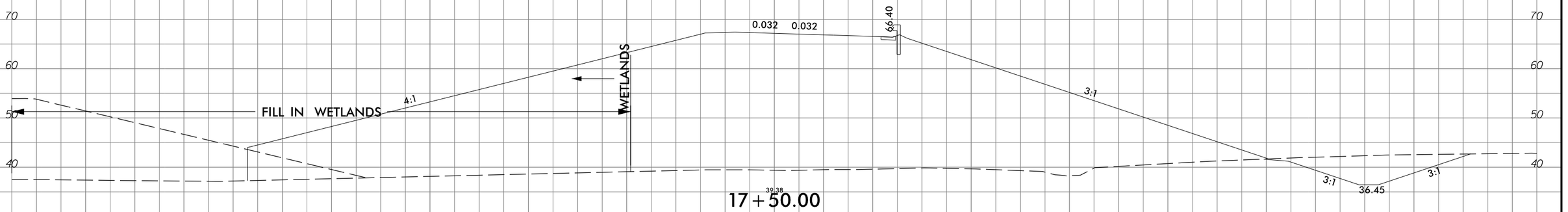
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-352

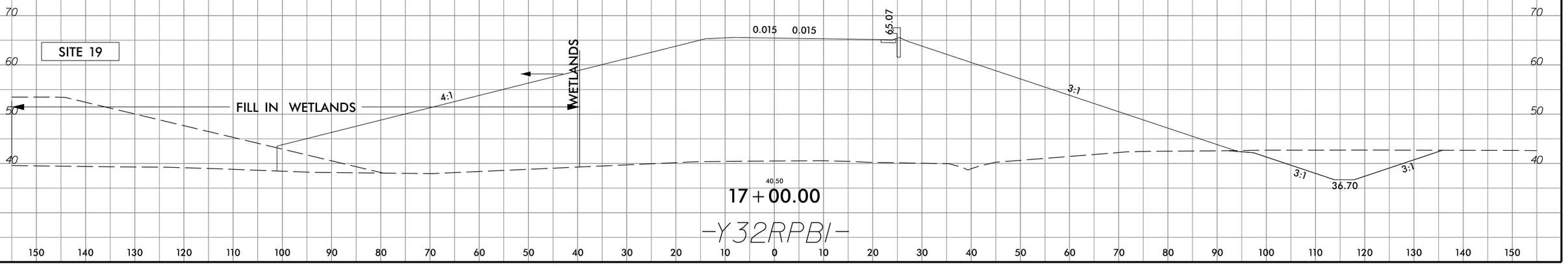
PERMIT DRAWING
SHEET 119 OF 165
DATE: 04-01-2020

SITE 19





SITE 19



-Y32RPBI-

$$$$$$SYSTIME$$$$$$
$$$$$$

5/14/99

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE
100 50 0 100 200
PLANS

NAD 83/NSRS 2007

PERMIT DRAWING SHEET 120 OF 165

DATE: 04-01-2020

F F DENOTES FILL IN WETLAND
E E DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENLARGEMENT VIEW SEE SHEET 122 OF 165

ENLARGEMENT VIEW SEE SHEET 122OF 165

SEE SHEET 28-I FOR HORIZONTAL CURVE DATA
SEE SHEETS 44 & 45 FOR -L1_NORTHERN- PROFILE
SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 50 & 51 FOR -Y19- PROFILE
SEE SHEETS 62 & 63 FOR -Y32- PROFILE
SEE SHEET 64 FOR -Y32LPA2- PROFILE
SEE SHEETS 64 & 65 FOR -Y32RPB1- PROFILE
SEE SHEET 66 FOR -Y40- PROFILE
SEE SHEET 67 FOR -Y44- & -Y43- PROFILES

$$$

5/14/99

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RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE
100 50 0 100 200
PLANS

NAD 83/NSRS 2007

PERMIT DRAWING
SHEET 121 OF 165

DATE: 04-01-2020

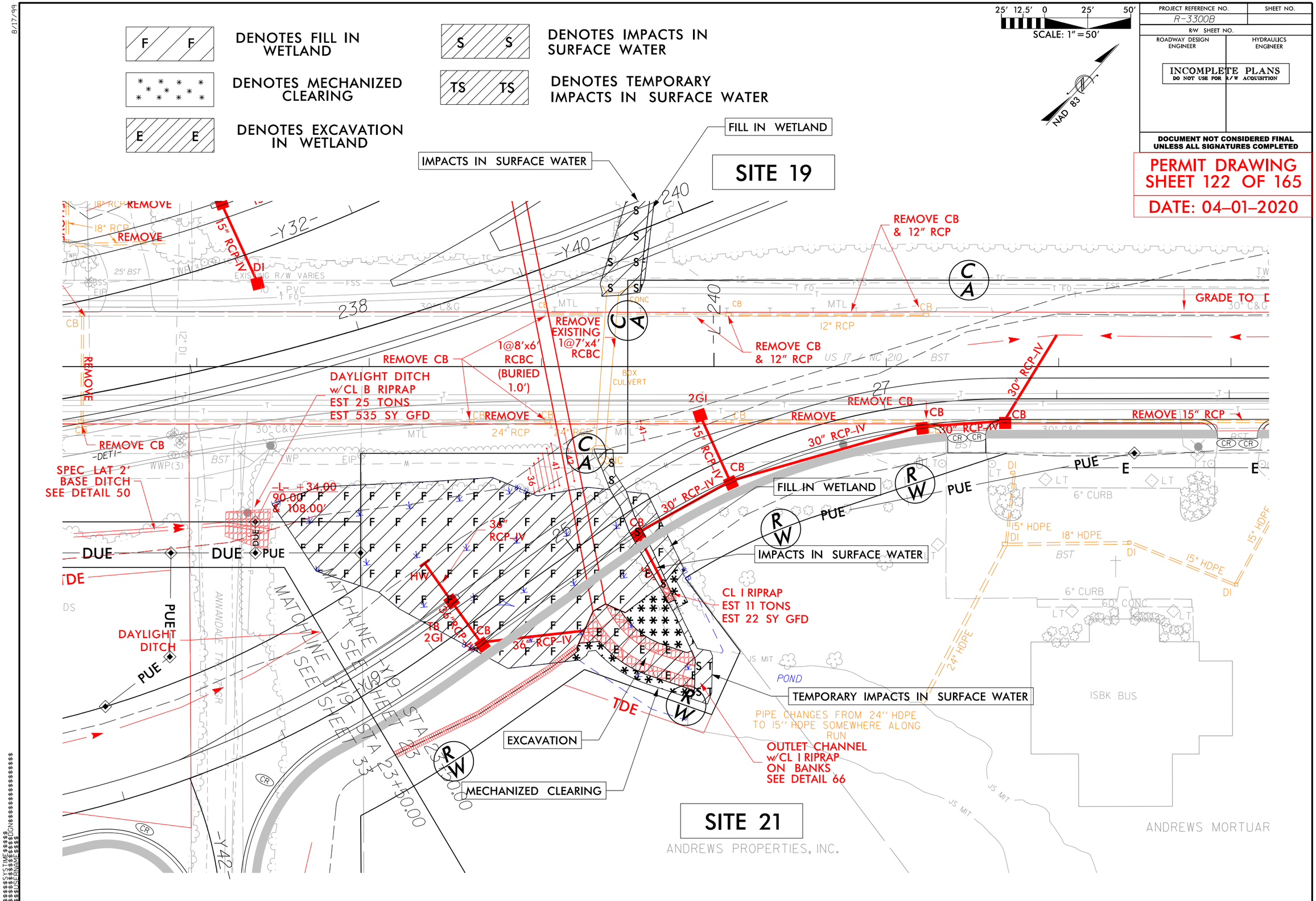
F F DENOTES FILL IN WETLAND
E E DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENLARGEMENT VIEW
SEE SHEET 122 OF 165

ENLARGEMENT VIEW
SEE SHEET 123 OF 165

SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 44 & 45 FOR -L1_NORTHERN- PROFILE
SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 50 & 51 FOR -Y19- PROFILE
SEE SHEETS 62 & 63 FOR -Y32- PROFILE
SEE SHEET 64 FOR -Y32LPA2- PROFILE
SEE SHEETS 64 & 65 FOR -Y32RPB1- PROFILE
SEE SHEET 66 FOR -Y40- PROFILE
SEE SHEET 67 FOR -Y44- & -Y43- PROFILES

$$$



DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
SCALE: 1"=50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 122 OF 165
DATE: 04-01-2020
SITE 19
FILL IN WETLAND
IMPACTS IN SURFACE WATER
REMOVE CB & 12" RCP
GRADE TO D
REMOVE EXISTING 1@7'x4' RCBC
1@8'x6' RCBC (BURIED 1.0')
REMOVE CB
DAYLIGHT DITCH w/CL B RIPRAP EST 25 TONS EST 535 SY GFD
REMOVE 15" RCP
30" RCP-IV
15" RCP-IV
SPEC LAT 2' BASE DITCH SEE DETAIL 50
-L- +34.00 90.00' & 108.00'
36" RCP-IV
DAYLIGHT DITCH
CL I RIPRAP EST 11 TONS EST 22 SY GFD
TEMPORARY IMPACTS IN SURFACE WATER
PIPE CHANGES FROM 24" HDPE TO 15" HDPE SOMEWHERE ALONG RUN
OUTLET CHANNEL w/CL I RIPRAP ON BANKS SEE DETAIL 66
EXCAVATION
MECHANIZED CLEARING
SITE 21
ANDREWS PROPERTIES, INC.
ANDREWS MORTUAR
ISBK BUS
POND
MATCHLINE SEE SHEET 23

8/17/99

DENOTES MECHANIZED CLEARING

25' 12.5' 0 25' 50'
SCALE: 1" = 50'

NAD 83

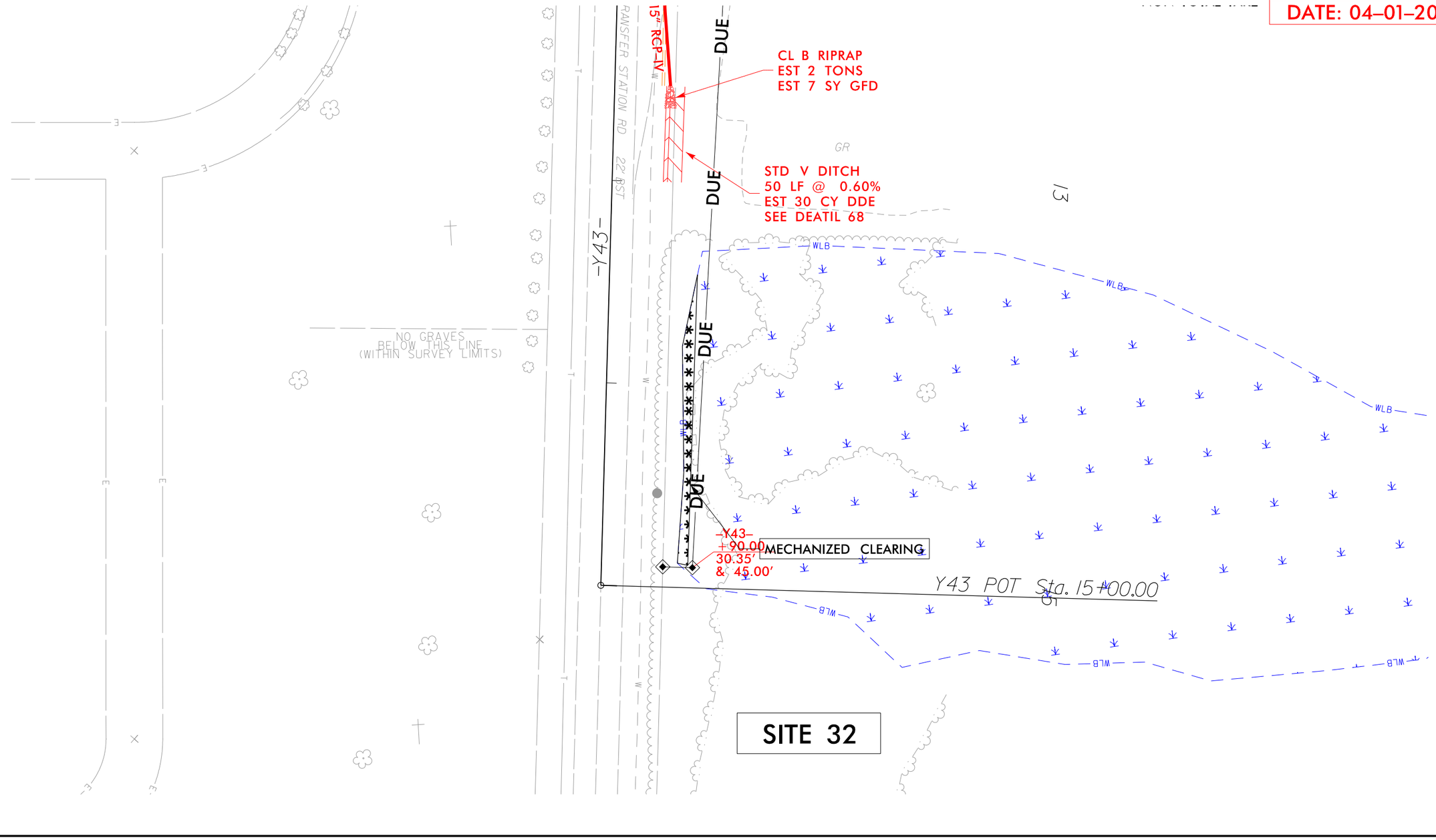
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 123 OF 165

DATE: 04-01-2020



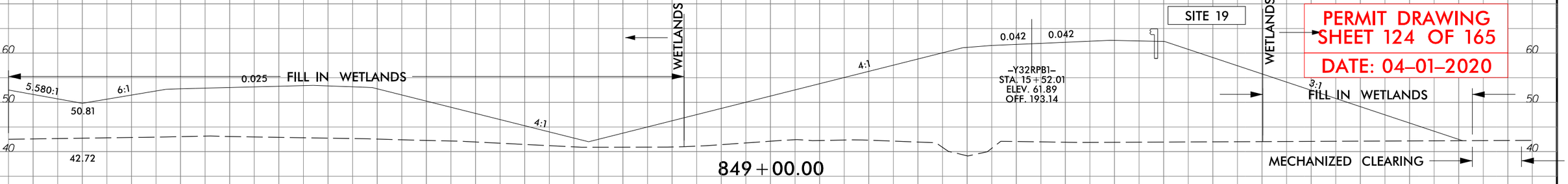
$$$$SYSTIME$$$$
$$$$USERNAME$$$$ $$$$DGN$$$$

6/23/16

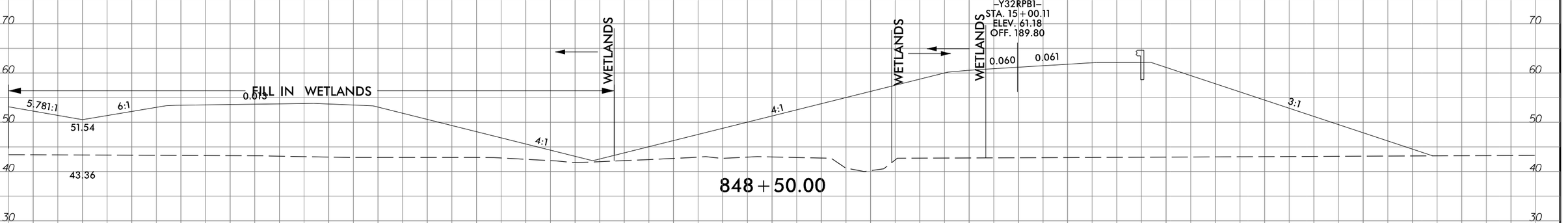
PROJ. REFERENCE NO.	SHEET NO.
R-3300B	X-127

PERMIT DRAWING
SHEET 124 OF 165
DATE: 04-01-2020

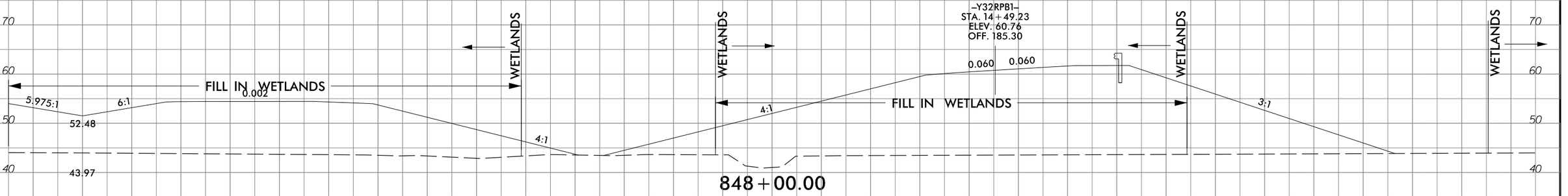
849+00.00



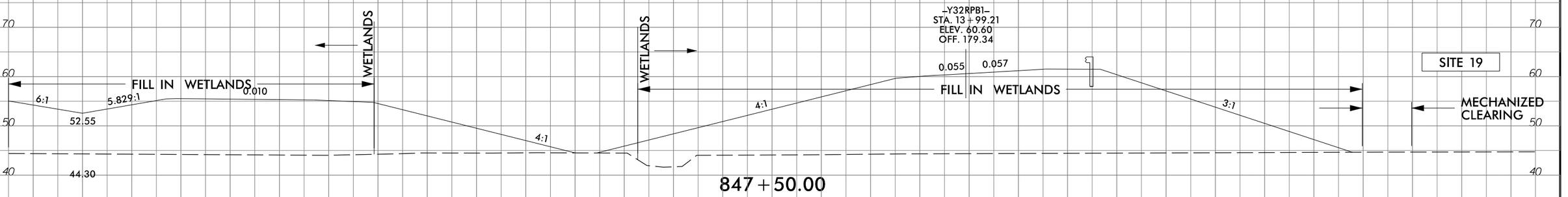
848+50.00



848+00.00



847+50.00



-LI_NORTHERN-

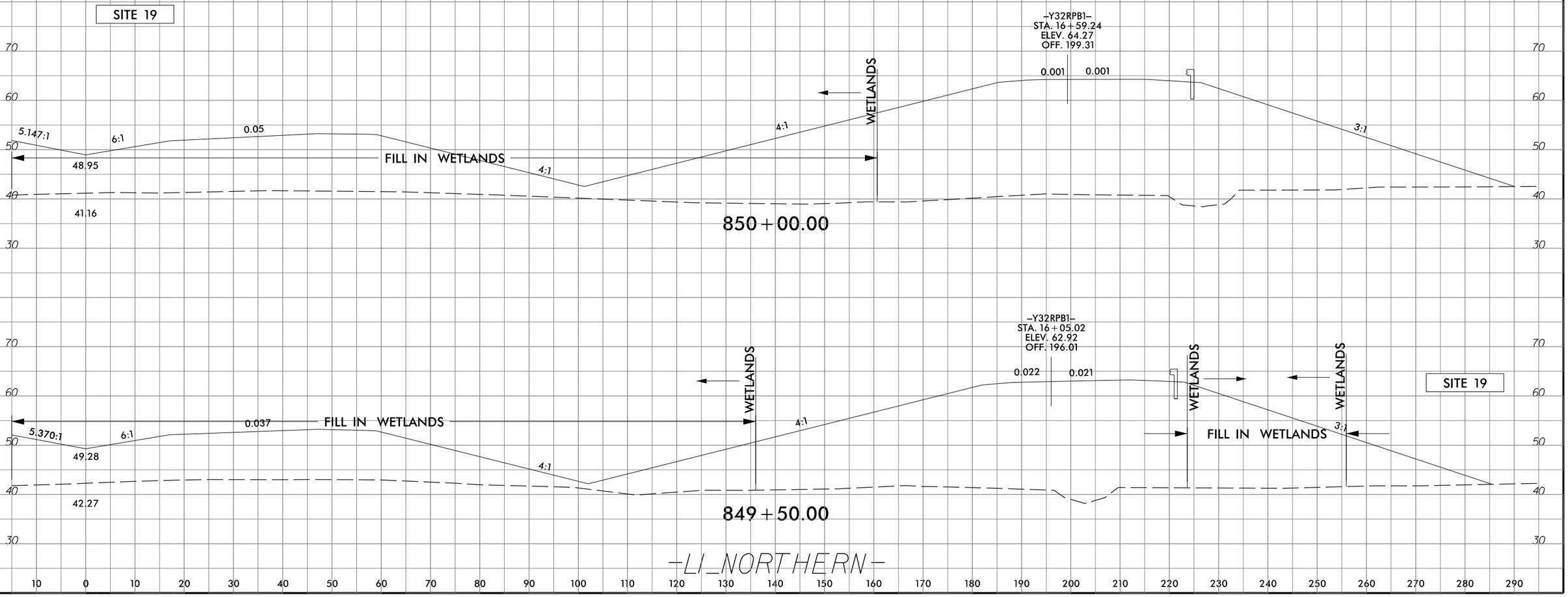
$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

6/23/16

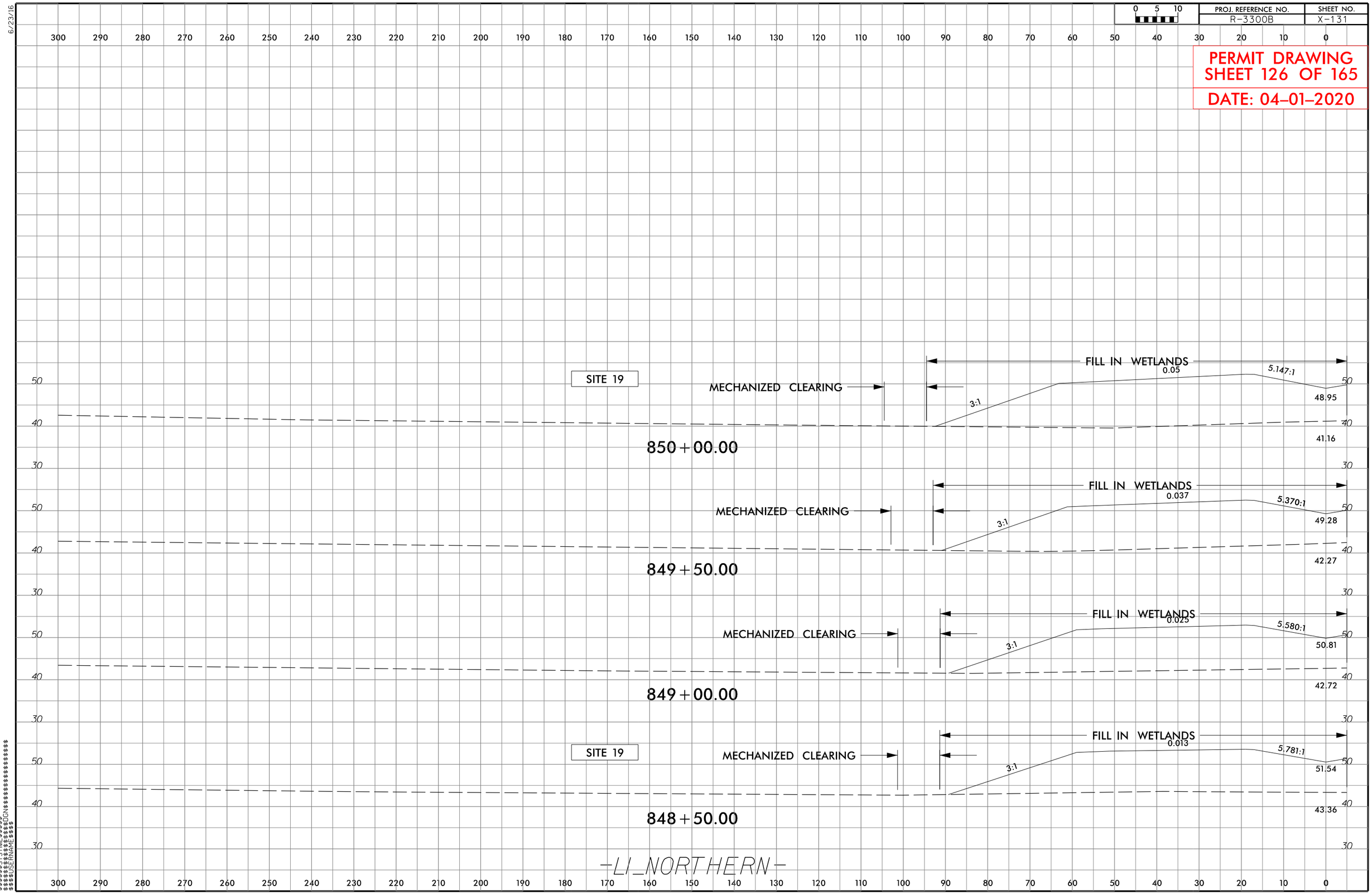
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-128

PERMIT DRAWING
SHEET 125 OF 165
DATE: 04-01-2020

SITE 19



$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

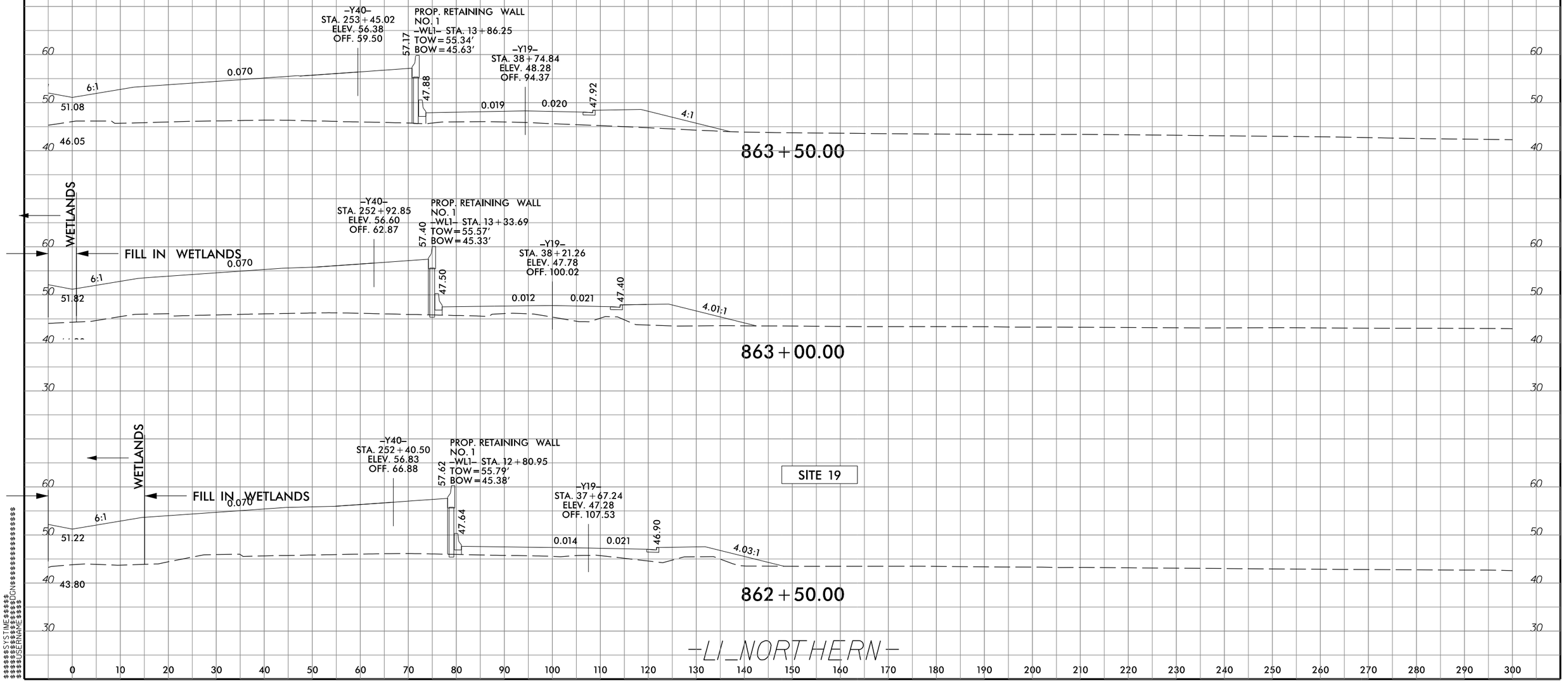


PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-131
PERMIT DRAWING
SHEET 126 OF 165
DATE: 04-01-2020
SITE 19
MECHANIZED CLEARING
FILL IN WETLANDS
0.05
5.147:1
3:1
48.95
41.16
850+00.00
0.037
5.370:1
49.28
42.27
849+50.00
0.025
5.580:1
50.81
42.72
849+00.00
0.013
5.781:1
51.54
43.36
848+50.00
-LI_NORTHERN-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-140

PERMIT DRAWING
SHEET 127 OF 165
DATE: 04-01-2020



$$$$$$$CYCTIME$$$$$
$$$$$$$

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-141

PERMIT DRAWING
SHEET 128 OF 165
DATE: 04-01-2020

SITE 19

WETLANDS

MECHANIZED CLEARING

-Y32LPA2-
STA. 8+09.86
ELEV. 50.78
OFF. -129.68

FILL IN WETLANDS

49.57

0.056

0.056

4:1

5:1

4:1

0.020

0.070

5.396:1

6:1

51.08

46.05

863+50.00

WETLANDS

-Y32LPA2-
STA. 7+51.05
ELEV. 51.15
OFF. -93.81

FILL IN WETLANDS

MECHANIZED CLEARING

49.93

0.068

0.073

4.654:1

4:1

0.070

5.216:1

6:1

51.82

44.30

863+00.00

SITE 19

-Y32LPA2-
STA. 6+98.34
ELEV. 51.77
OFF. -70.43

FILL IN WETLANDS

MECHANIZED CLEARING

50.63

0.071

4:1

0.070

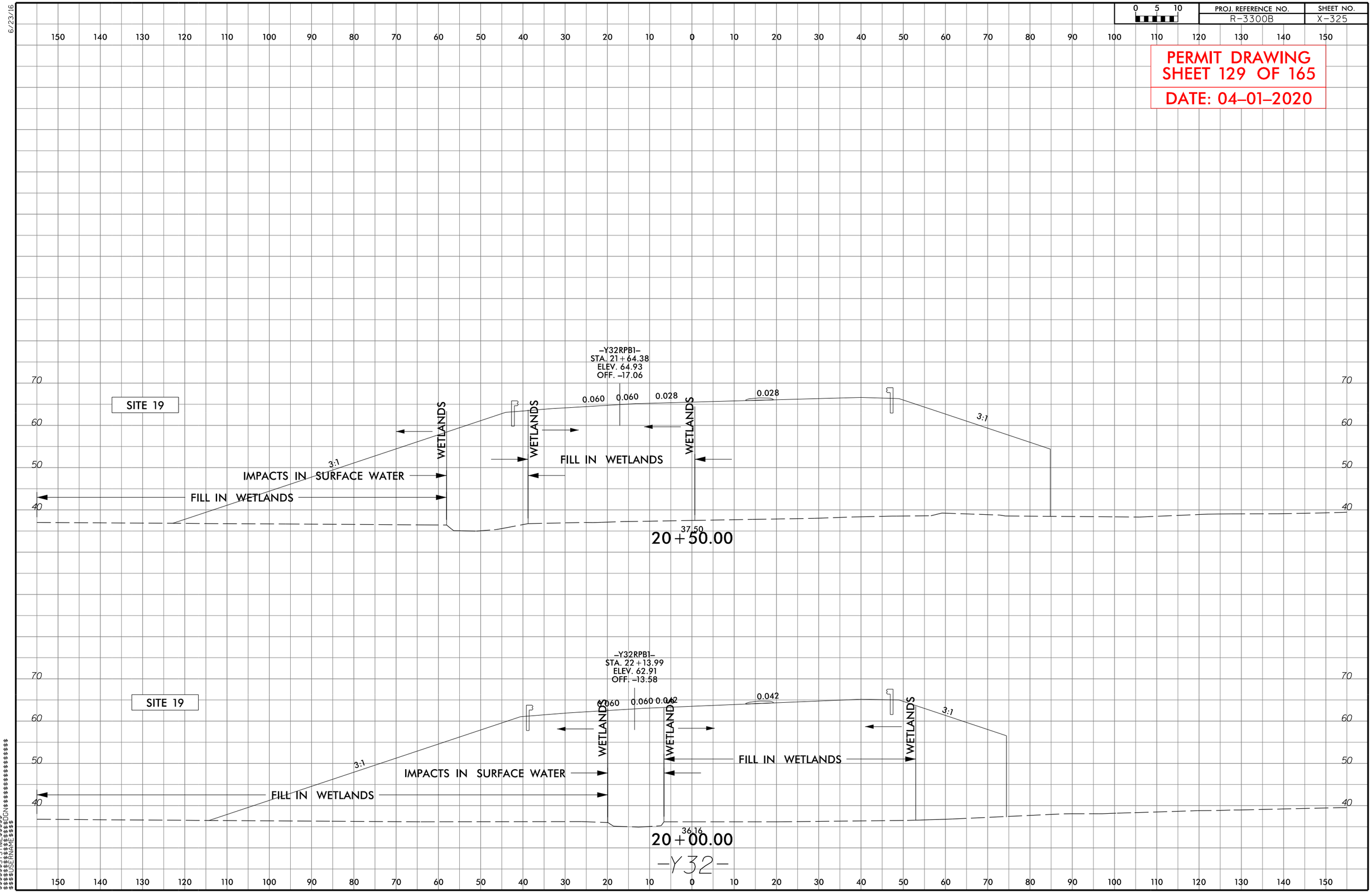
5.133:1

51.22

862+50.00

-LI_NORTHERN-

$$$$$CYCTIME$$$$$
$$$$$



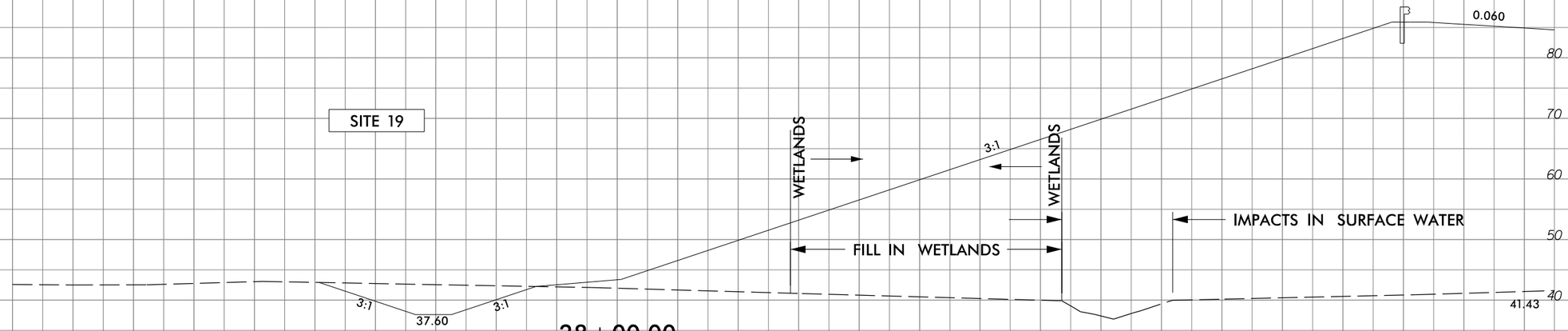
PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-325
PERMIT DRAWING
SHEET 129 OF 165
DATE: 04-01-2020
SITE 19
-Y32RPB1-
STA. 21+64.38
ELEV. 64.93
OFF. -17.06
0.060
0.060
0.028
0.028
3:1
3:1
WETLANDS
WETLANDS
WETLANDS
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
FILL IN WETLANDS
37.50
20+50.00
SITE 19
-Y32RPB1-
STA. 22+13.99
ELEV. 62.91
OFF. -13.58
0.060
0.060
0.042
0.042
3:1
3:1
WETLANDS
WETLANDS
WETLANDS
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
FILL IN WETLANDS
36.16
20+00.00
-Y32-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-338

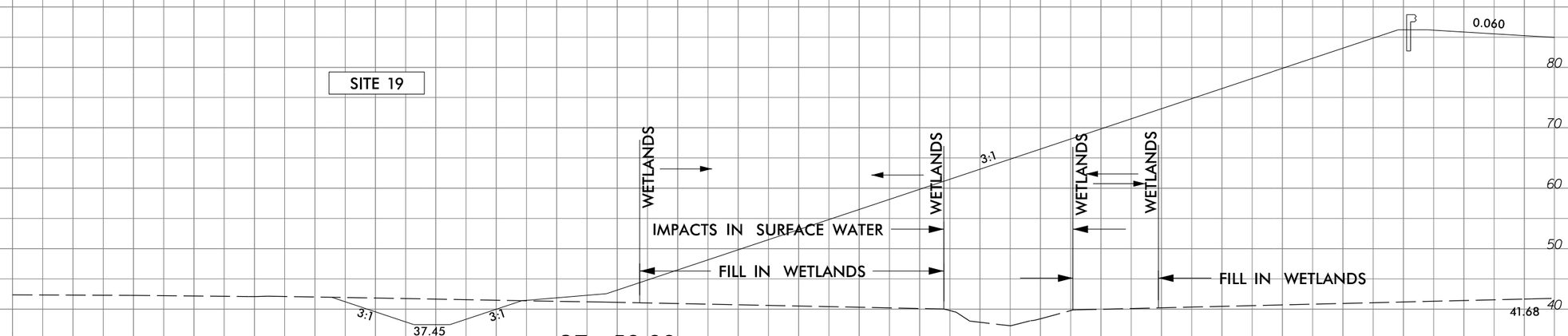
PERMIT DRAWING
SHEET 130 OF 165
DATE: 04-01-2020

SITE 19



28+00.00

SITE 19



27+50.00

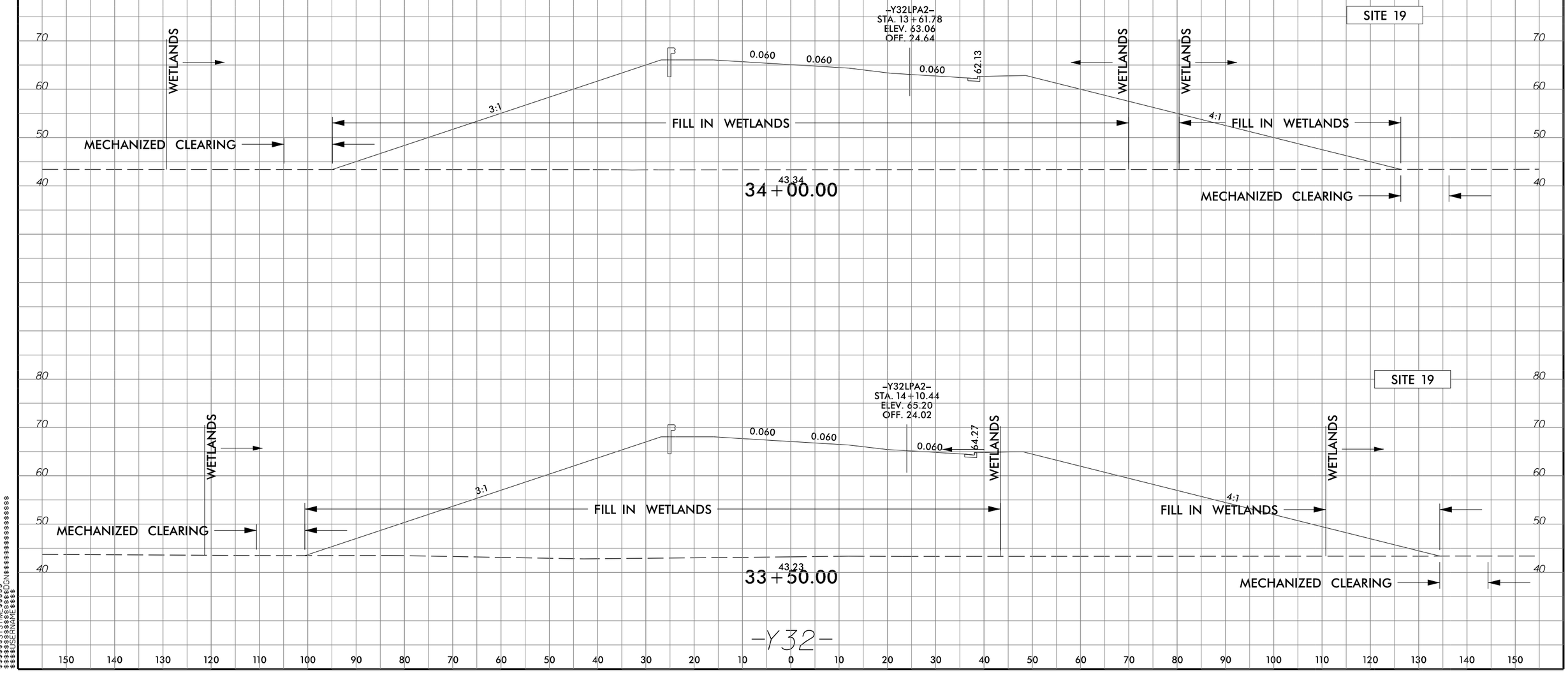
-Y32-

$$$$$$SYSTIME$$$$$
$$$$$$

6/23/16

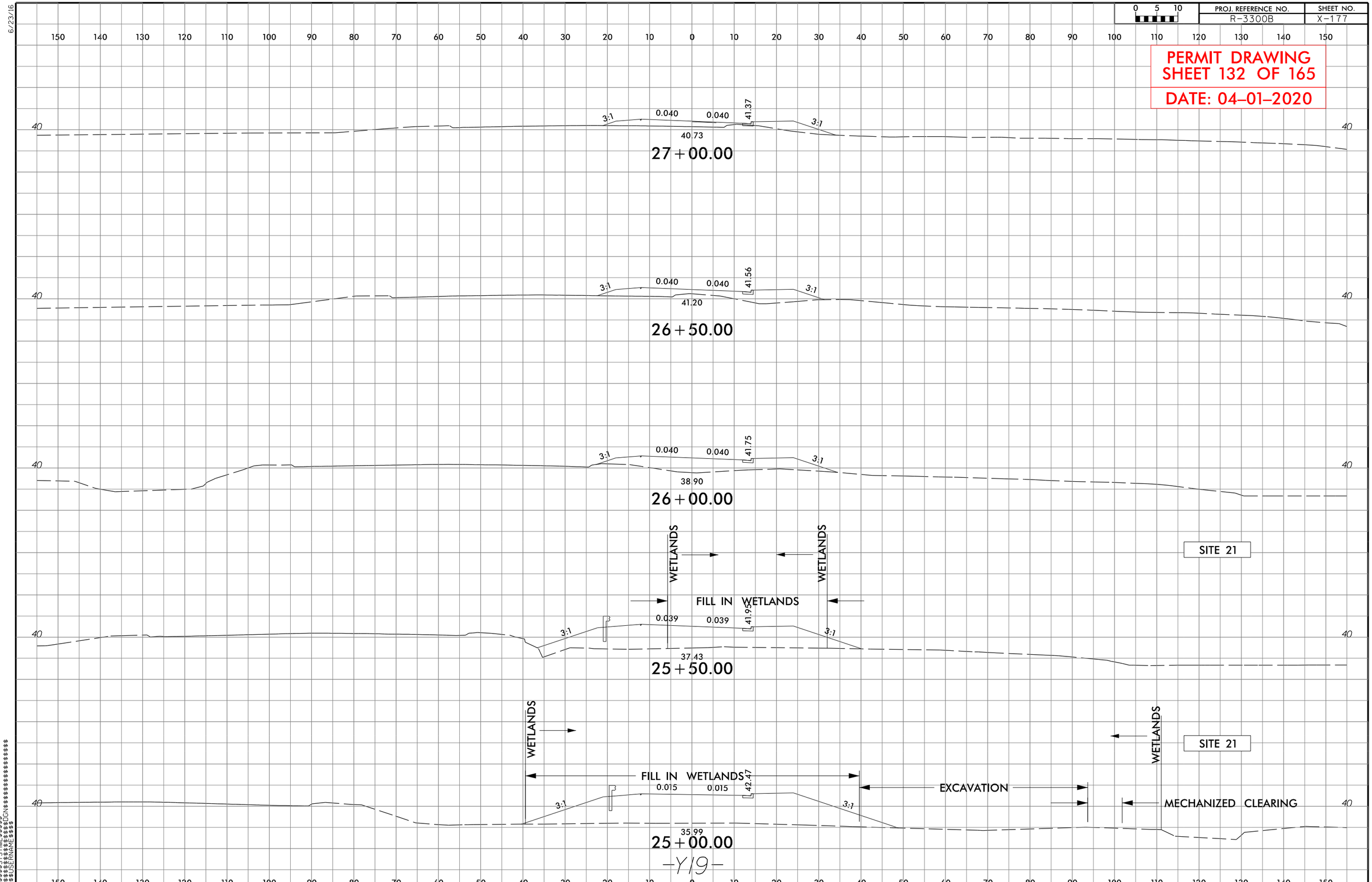
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-344

PERMIT DRAWING
SHEET 131 OF 165
DATE: 04-01-2020



-Y32-

$$$$$$SYSTIME$$$$$
$$$$$$SYSDATE$$$$$
$$$$$$DGN$$$$$$



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-177
PERMIT DRAWING
SHEET 132 OF 165
DATE: 04-01-2020
27+00.00
0.040
0.040
41.37
40.73
3:1
26+50.00
0.040
0.040
41.56
41.20
26+00.00
0.040
0.040
41.75
38.90
SITE 21
WETLANDS
WETLANDS
FILL IN WETLANDS
25+50.00
0.039
0.039
41.95
37.43
SITE 21
WETLANDS
WETLANDS
FILL IN WETLANDS
EXCAVATION
MECHANIZED CLEARING
25+00.00
0.015
0.015
42.47
35.99
-Y19-

PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

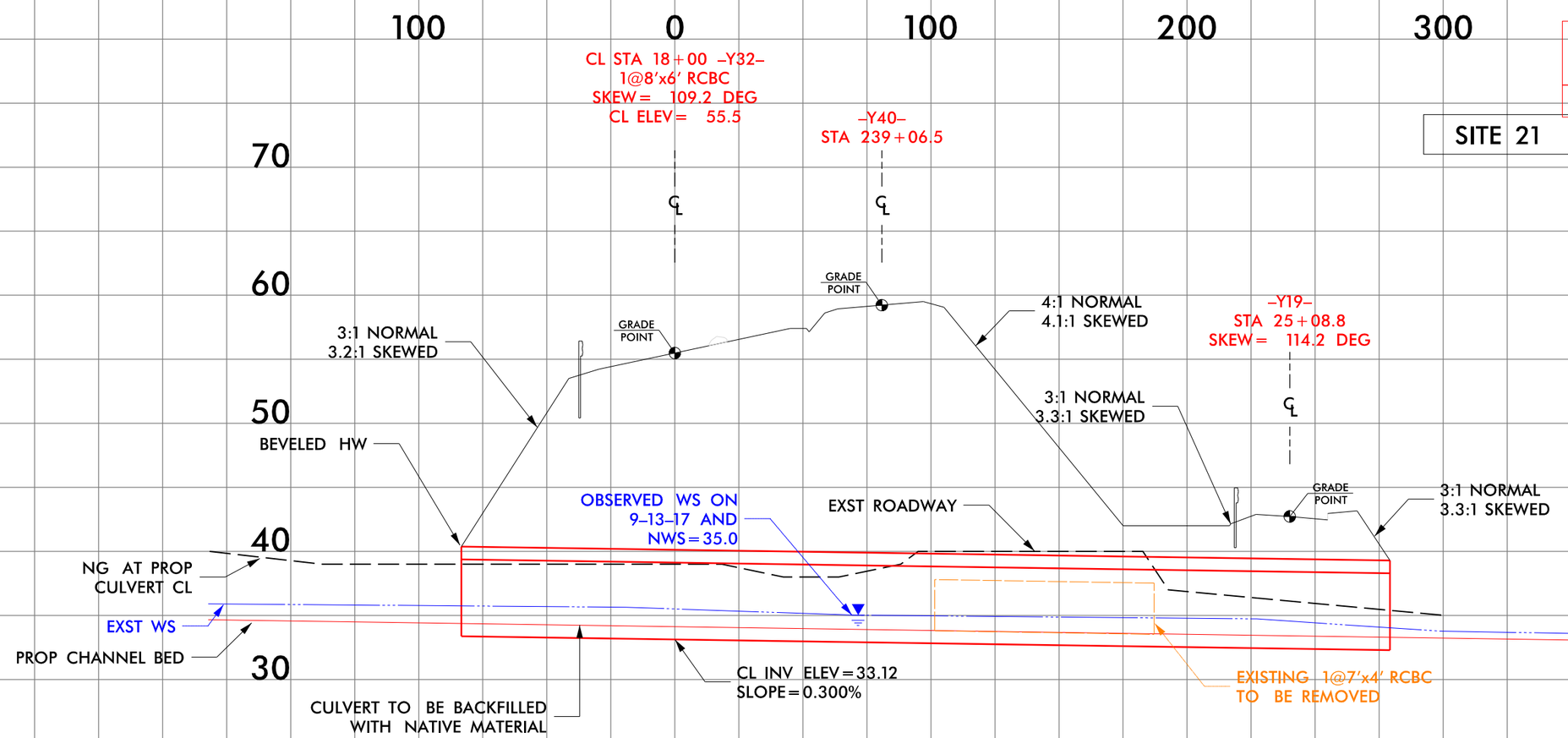
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

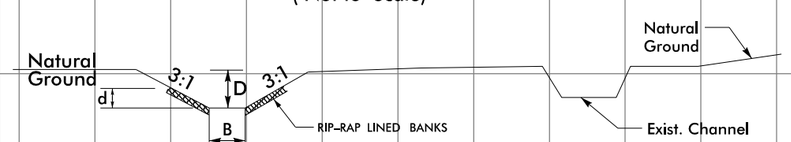
PERMIT DRAWING
SHEET 133 OF 165

DATE: 04-01-2020

SITE 21

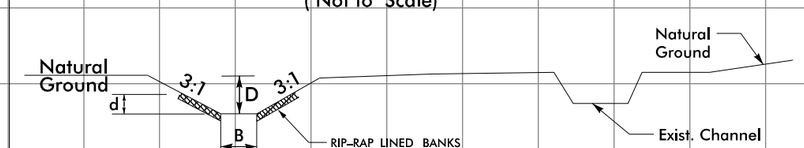


DETAIL
INLET CHANNEL CHANGE
(Not to Scale)



Min. D=3.5 Ft.
Max. d=3.5 Ft.
B=8.0 Ft.
Est.=202 Tons of Class 'I' Rip-Rap

DETAIL
OUTLET CHANNEL CHANGE
(Not to Scale)



Min. D=2 Ft.
Max. d=2 Ft.
B=8.0 Ft.
Est.=105 Tons of Class 'I' Rip-Rap

5/14/99

5/14/99

REVISIONS

03/5/2019 - R/W REVISION; ADDED ROW, DUE, PUE & TDE ON PARCEL 183; ADDED ROW & PUE ON PARCEL 184. - STANTEC

PERMIT DRAWING
SHEET 134 OF 165

DATE: 04-01-2020

Dewberry
2 160 WYCLIFF ROAD
SUITE 405
RALEIGH, NC 27607
PHONE: 919.881.9929
NC COA No. F-0829

100' 0' 100'

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

NAD 83/ NSRS 2007

Stantec
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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	24
FOR R/W SEE U-5732 SHEET NO.	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

N 47°44'32" E
629.20'

STATE OF NORTH CAROLINA
DB 4645 PG 2490
DB 4306 PG 107
DB 720 PG 180
DB 2290 PG 309
MB 58 PG 67
MB 28 PG 18
MB 28 PG 31
MB 28 PG 32
MB 52 PG 55
MB 37 PG 141

N 48°15'29" E
672.08'

270

275

-L- POT Sta. 272+08.20
-Y19- POT Sta. 60+00.62
BRDG BK=N 41° 58' 21.2" W

WOODS

EXISTING R/W RAD 1560'

R/W CAP

EXISTING R/W

-L- ±30.00 117.00

CL B RIP RAP
3 TONS
10 S.Y. GEOTEXTILE

SPEC LAT V DITCH SEE DETAIL 62

-Y32- POT Sta. 48+80.11
-L- POT Sta. 265+68.08
43.00' LT

54" RCP -IV

54" HW

54" RCP-IV

2:6 C&G

CB

15" RCP-IV

N 48° 01' 38.8" E

DB 3695 PG 163
DB 720 PG 180

30" C&G

REMOVE CB AND 15" RCP

15" RCP

1'-6" C&G

US 17/ NC 210 60' BST

-L-

REMOVE CB

REMOVE

2GI

-L- +15.63 119.00

BEGIN FENCE

-L- +22.85 63.39'

-Y19- ±15.00 25.00' & 40.00'

-Y19- ±60.00 52.28'

-Y19- ±30.00 55.00'

CL B RIP RAP
1 TONS
5 S.Y. GEOTEXTILE

-Y19- PC Sta. 53+27.35

-Y19- PT Sta. 54+67.07

-Y19- ±43.00 30.37' & 42.00'

-Y19- ±50.00 68.00' & 84.00'

-Y19- ±84.00 66.00' & 81.00'

-Y19- ±67.07 40.00'

-Y19- ±12.45 40.00'

-Y19- ±50.00 128.00'

TDE

RAMP

SITE 27

SITE 26

183

HAMPSTEAD INVESTORS, LLC.
DB 1829 PG 272
MB 18 PG 64
MB 20 PG 60

STD. 6' BASE DITCH w/CL I RIPRAP
60 LF @ 0.2%
EST 17 TONS
EST 276 SY GFD
EST 235 CY DDE
SEE DETAIL 59

END NOISE WALL NO.22
-NW22- STA.19+15.00
-Y19- STA.55+05.18 24.50' LT

-Y19- PC Sta. 56+12.45
BRDG BK=N 80° 02' 58.4" E

S 19°22'51" E
410.28'

S 38°44'27" E
303.32'

100' TAPER

-L- +00.00 115.00

-L- +77.69 115.00

-L- +65.00 115.00

END FENCE

-Y19- PT Sta. 59+31.90

GRADE TO DRAIN

GRADE TO DRAIN

DRIVE ONLY

+13.25 R60

+05.93 R100

+41.90

+56.88

+58.49

+65.71

-Y19- ±90.00 40.00'

-Y19- ±75.00 70.00' & 80.00'

-Y19- ±05.00 100.00'

PUE

TB DI

UNKNOWN PE

184

WEATHERSBEE PROPERTIES, INC.
DB 1347 PG 26
DB 766 PG 45
MB 43 PG 95
MB 18 PG 64
MB 10 PG 21

CL B RIP RAP
1 TONS
3 S.Y. GEOTEXTILE

54" RCP-IV

42" RCP-IV

ARV

TWP(2)

DB 3695 PG 163
DB 720 PG 180

2'-6" C&G

MATCHLINE -L- STA 264+00.28 SEE SHEET 23

MATCHLINE -L- STA 276+00.00 SEE SHEET 25

★ PROPOSED SIGNAL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE

SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 51 FOR -Y19- PROFILE

1V182019
DEWBERRY
R3300B_Permit Drawings_20191118.pdf

PERMIT DRAWING
SHEET 135 OF 165

DATE: 04-01-2020

Dewberry

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	24
FOR R/W SEE U-5732 SHEET NO.	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

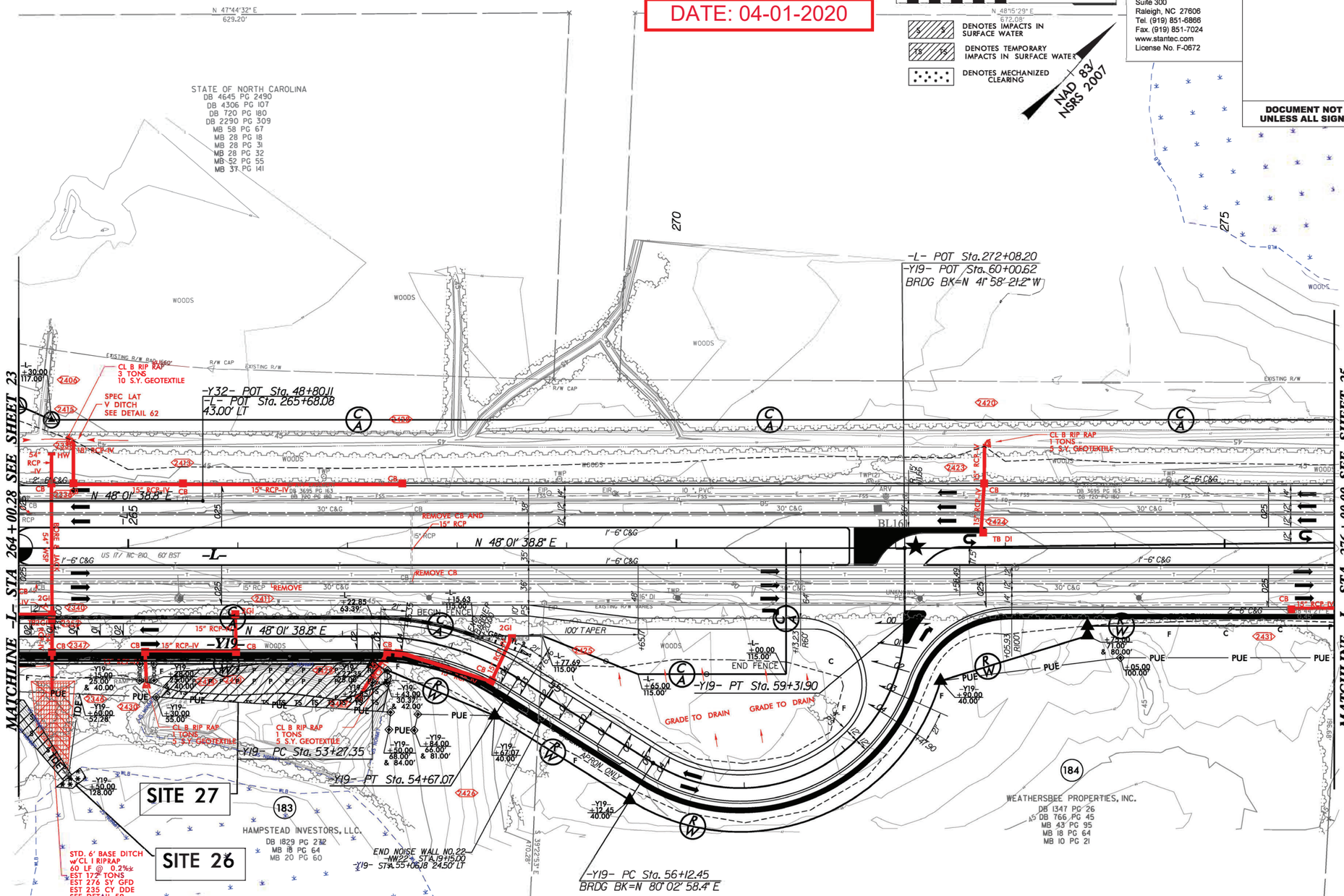
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

NAD 83/ NSRS 2007



★ PROPOSED SIGNAL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE

SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 51 FOR -Y19- PROFILE

REVISIONS

03/15/2019 - R/W REVISION: ADDED ROW, DUE, PUE & TDE ON PARCEL 183; ADDED ROW & PUE ON PARCEL 184. - STANTEC

5/14/99

11/18/2019
DEWBERRY
R3300B_Permit Drwaings_20191118.pdf

PERMIT DRAWING
SHEET 136 OF 165

DATE: 04-01-2020

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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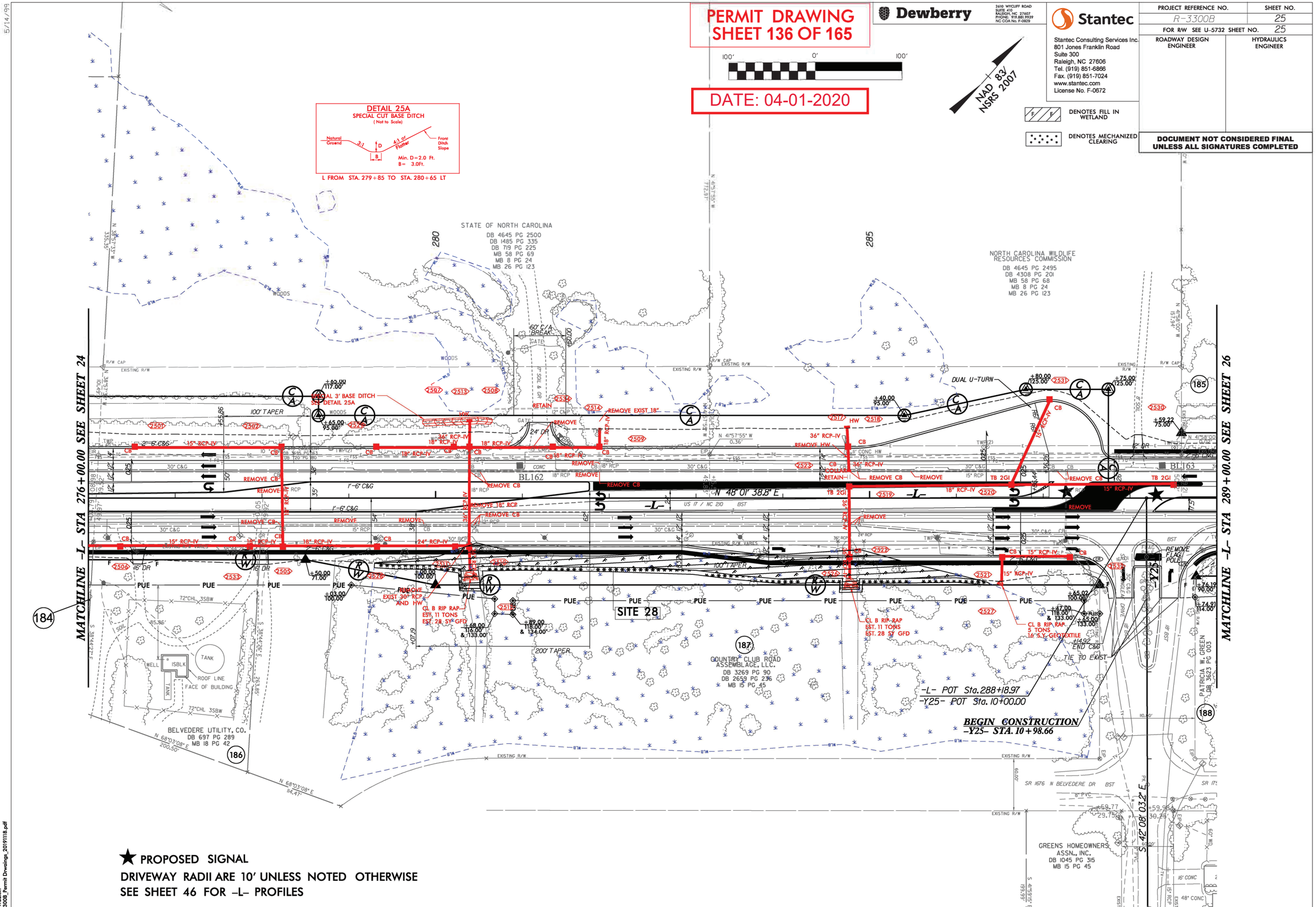
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	25
FOR R/W SEE U-5732 SHEET NO.	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



★ PROPOSED SIGNAL
DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE
SEE SHEET 46 FOR -L- PROFILES

5/14/99

11/18/2019
DEWBERRY
R33008_Permit Drwaings_20191118.pdf

5/14/99

PERMIT DRAWING
SHEET 137 OF 165

DATE: 04-01-2020

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. P-0929

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	25
FOR R/W SEE U-5732 SHEET NO.	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

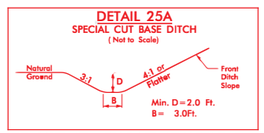
100' 0' 100'

NAD 83/ NSRS 2007

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DETAIL 25A
SPECIAL CUT BASE DITCH
(Not to Scale)



L FROM STA. 279+85 TO STA. 280+65 LT

MATCHLINE –L– STA 276+00.00 SEE SHEET 24

MATCHLINE –L– STA 289+00.00 SEE SHEET 26

STATE OF NORTH CAROLINA
DB 4645 PG 2500
DB 1485 PG 335
DB 719 PG 225
MB 58 PG 69
MB 8 PG 24
MB 26 PG 123

NORTH CAROLINA WILDLIFE RESOURCES COMMISSION
DB 4645 PG 2495
DB 4308 PG 201
MB 58 PG 68
MB 8 PG 24
MB 26 PG 123

BELVEDERE UTILITY, CO.
DB 697 PG 289
MB 18 PG 42

COUNTRY CLUB ROAD ASSEMBLAGE, LLC.
DB 3269 PG 90
DB 2659 PG 236
MB 15 PG 45

GREENS HOMEOWNERS ASSN., INC.
DB 1045 PG 315
MB 15 PG 45

PATRICIA W. GREEN
DB 3623 PG 003

SITE 28

DUAL U-TURN

-L- POT Sta. 288+18.97
-Y25- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y25- STA. 10+98.66

★ PROPOSED SIGNAL
DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE
SEE SHEET 46 FOR –L– PROFILES

11/8/2019
DEWBERRY
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PERMIT DRAWING
SHEET 138 OF 165
DATE: 04-01-2020

Dewberry
2 60 WYC LIFF CIR D
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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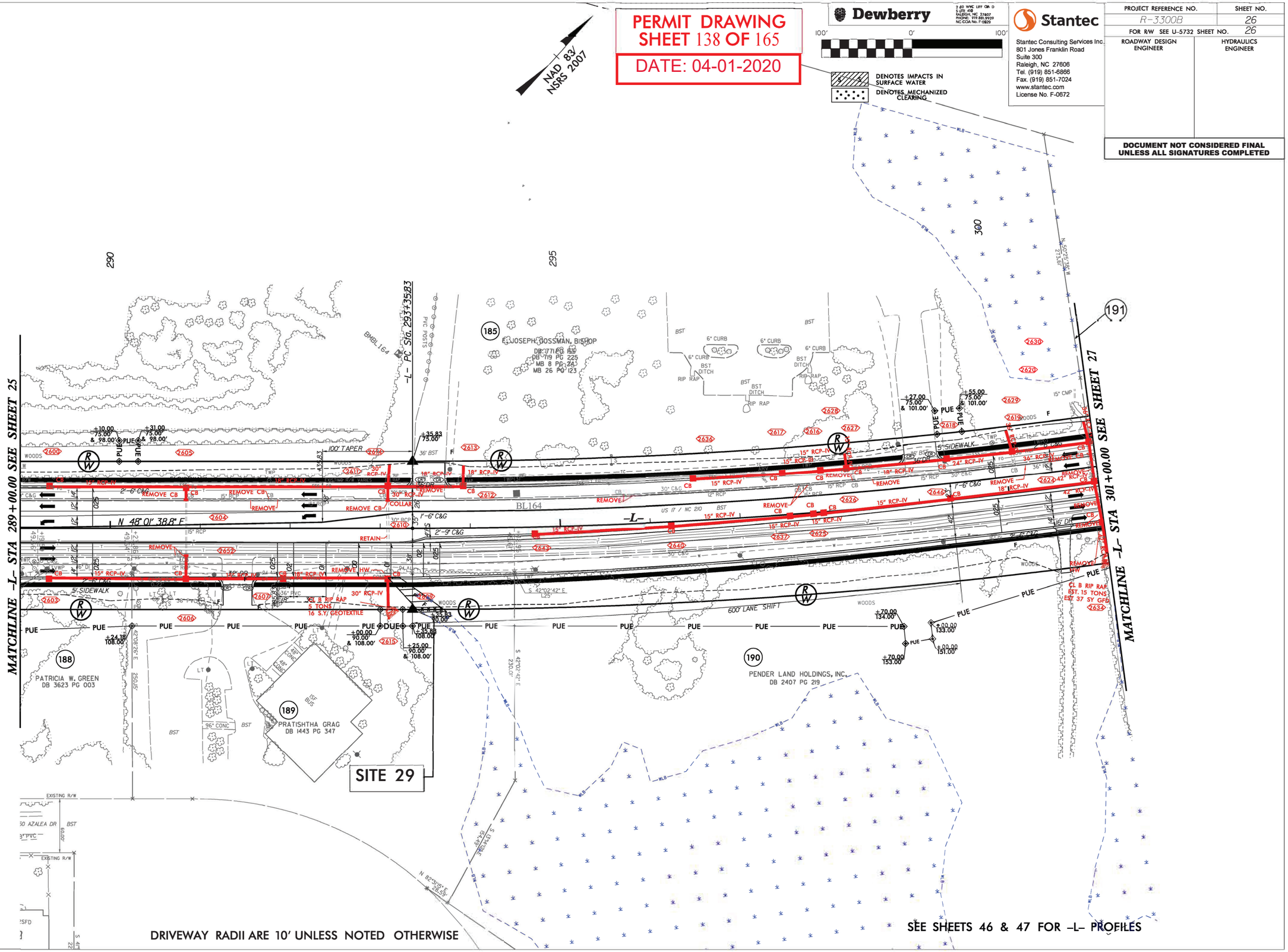
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	26
FOR R/W SEE U-5732 SHEET NO.	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING



DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE

SEE SHEETS 46 & 47 FOR -L- PROFILES

11/18/2019
DEWBERRY
R3300B_Permit Drwaings_20191118.pdf

PERMIT DRAWING
SHEET 139 OF 165
DATE: 04-01-2020

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2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9929
NC COA No. F-0929

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
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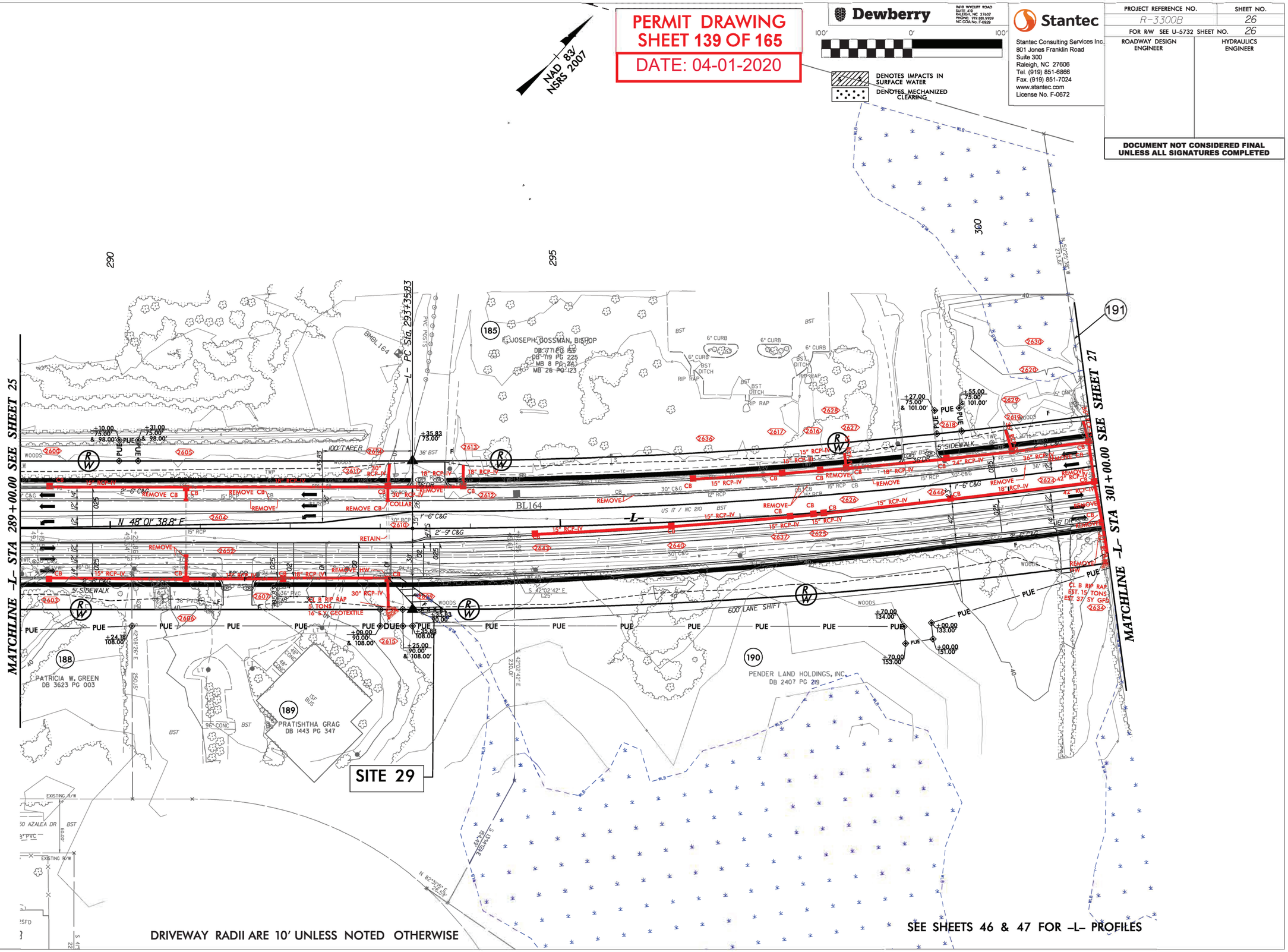
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	26
FOR R/W SEE U-5732 SHEET NO.	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING



DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE

SEE SHEETS 46 & 47 FOR -L- PROFILES

5/14/99

11/18/2019
DEWBERRY
R3300B_Permit Drwaings_20191118.pdf

PERMIT DRAWING
SHEET 140 OF 165

DATE: 04-01-2020

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2-610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

Stantec
Stantec Consulting Services Inc.
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Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
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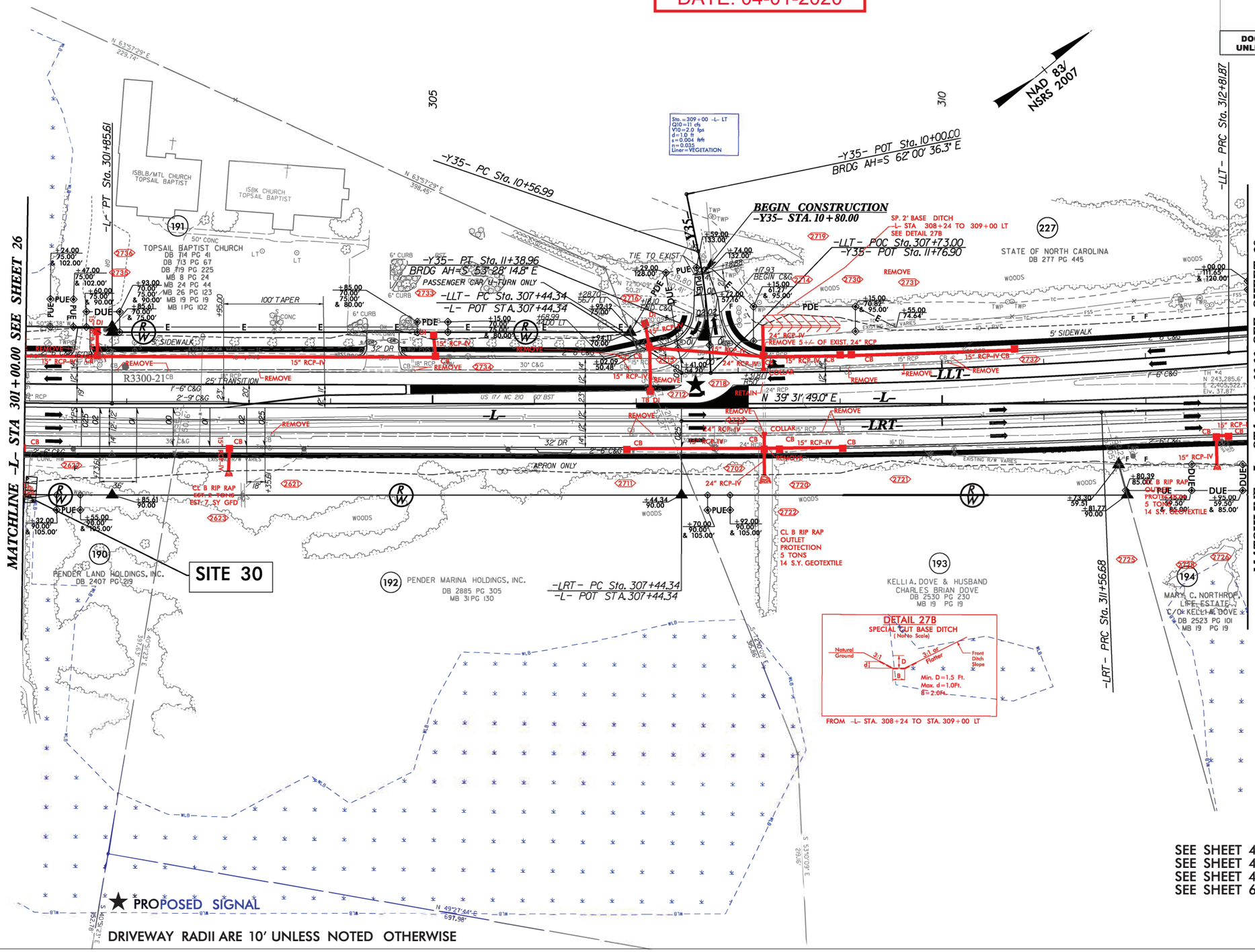
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	27
FOR R/W SEE U-5732 SHEET NO.	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS

11/28/2018 - R/W REVISION: ADDED PARCEL NUMBER 227. - STANTEC

5/14/99

11/18/2019
DEWBERRY
R3300B_Permit Drwaings_20191118.pdf

PERMIT DRAWING
SHEET 141 OF 165

DATE: 04-01-2020

Dewberry
2-610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
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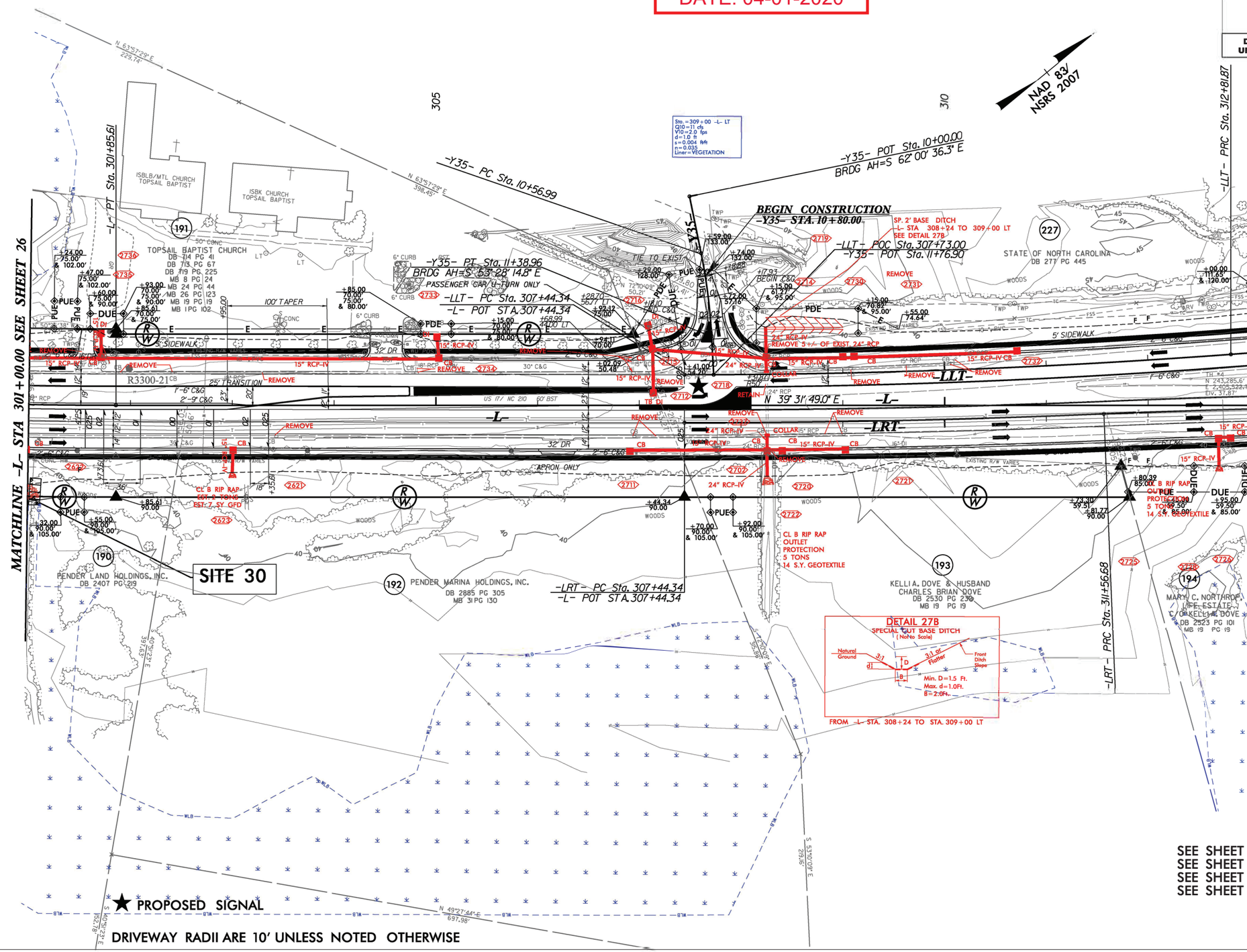
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	27
FOR R/W SEE U-5732 SHEET NO.	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



★ PROPOSED SIGNAL

DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE

SEE SHEET 47 FOR -L- PROFILES
SEE SHEET 48 FOR -LLT- PROFILE
SEE SHEET 49 FOR -LRT- PROFILE
SEE SHEET 65 FOR -Y35- PROFILE

REVISIONS

11/28/2018 - R/W REVISION: ADDED PARCEL NUMBER 227. - STANTEC

5/14/99

11/18/2019
DEWBERRY
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PERMIT DRAWING
SHEET 142 OF 165
DATE: 04-01-2020

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC CoA No. F-0829

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	28
OR RW SEE U-5732	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/ NSRS 2007

100' 0' 100'

REVISIONS
5/14/99
11/28/2018 – R/W REVISION; ADDED PARCEL NUMBER 227. – STANTEC

-LLT- PT Sta. 318+19.39

-LRT- PT Sta. 315+69.02

MATCHLINE -L- STA 313+00.00 SEE SHEET 27

MATCHLINE -L- STA 325+00.00 SEE SHEET 29

STATE OF NORTH CAROLINA
DB 277 PG 445

CL II RIP RAP OUTLET PROTECTION 2 TONS 7 S.Y. GEOTEXTILE

CL II RIP RAP OUTLET PROTECTION 2 TONS 7 S.Y. GEOTEXTILE

CL II RIP RAP OUTLET PROTECTION 2 TONS 7 S.Y. GEOTEXTILE

CL II RIP RAP OUTLET PROTECTION 5 TONS 14 S.Y. GEOTEXTILE

CL II RIP RAP OUTLET PROTECTION

BASE DITCH @ 0.3% SLOPE SEE DETAIL 28C

CHANNEL CHANGE SEE DETAIL 28B

REMOVE 166± 28' OF 15" RCP

LINE EXISTING CULVERT, SEE SPECIAL DETAIL

SP. CUT DITCH -L- STA. 323+43 TO 330+00 LT SEE DETAIL 28D

SP. CUT DITCH -LRT- STA. 320+40 TO 325+50 RT SEE DETAIL 28D

Sta. = 323+43-L- LT
Q10 = 5.1 cfs
V10 = 1.4 fps
d = 1.0 ft
s = 0.003 ft/ft
n = 0.035
Liner = VEGETATION

Sta. = 320+40 -L- RT
Q10 = 1.5 cfs
V10 = 1.6 fps
d = 0.5 ft
s = 0.009 ft/ft
n = 0.035
Liner = VEGETATION

-LRT- 323+00.99 TO 324+00.99 SEE DETAIL ON SHEET 2A

-L- STA. 323+43 TO 330+00 LT SEE DETAIL 28D

-LRT- STA. 320+40 TO 325+50 RT SEE DETAIL 28D

N 39° 31' 49.0" E -LLT-

N 39° 31' 49.0" E -LRT-

N 42°48'15" E 25.20'

S 47°11'45" E 196.34'

S 47°11'45" E 27.97'

N 42°48'15" W 30.30'

R3300-22

GREU TL-3

GREU TL-5

GREU TL-6

GREU TL-7

GREU TL-8

GREU TL-9

GREU TL-10

GREU TL-11

GREU TL-12

GREU TL-13

GREU TL-14

GREU TL-15

GREU TL-16

GREU TL-17

GREU TL-18

GREU TL-19

GREU TL-20

GREU TL-21

GREU TL-22

GREU TL-23

GREU TL-24

GREU

5/14/99

REVISIONS

11/28/2018 – R/W REVISION: ADDED PARCEL NUMBER 227. – STANTEC

11/8/2019
DEWBERRY
R3300B_Permit Drawings_20191118.pdf

PERMIT DRAWING
SHEET 143 OF 165
DATE: 04-01-2020

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0829

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	28
FOR R/W SEE U-5732 SHEET NO.	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

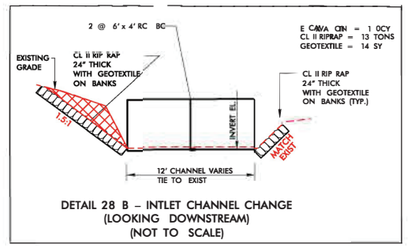
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

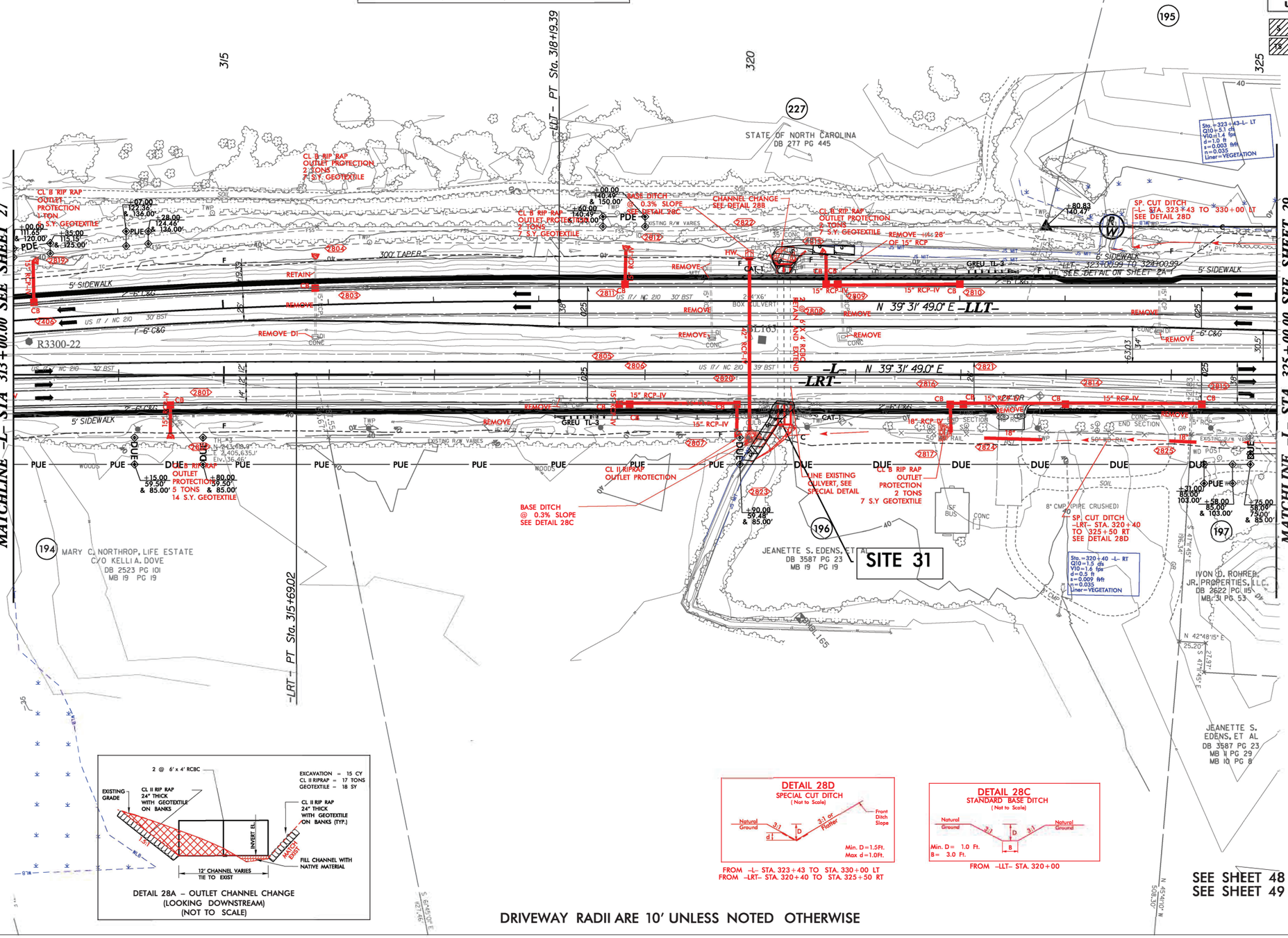
S S — DENOTES IMPACTS IN SURFACE WATER
15 15 — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/ NSRS 2007

100' 0' 100'

DETAIL 28 B – INTLET CHANNEL CHANGE
(LOOKING DOWNSTREAM)
(NOT TO SCALE)




–LLT– PT Sta. 318+19.39
–LRT– PT Sta. 315+69.02
MATCHLINE –L– STA 313+00.00 SEE SHEET 27
MATCHLINE –L– STA 325+00.00 SEE SHEET 29
315
320
325
227
195
196
197
194
STATE OF NORTH CAROLINA
DB 277 PG 445
MARY C. NORTHROP, LIFE ESTATE
C/O KELLI A. DOVE
DB 2523 PG 101
MB 19 PG 19
JEANETTE S. EDENS, ET AL
DB 3587 PG 23
MB 19 PG 19
SITE 31
IVON D. ROHRER, JR. PROPERTIES, LLC.
DB 2622 PG 115
MB 51 PG 53
JEANETTE S. EDENS, ET AL
DB 3587 PG 23
MB 11 PG 29
MB 10 PG 8
CL B RIP RAP OUTLET PROTECTION 2 TONS 7 S.Y. GEOTEXTILE
BASE DITCH @ 0.3% SLOPE SEE DETAIL 28C
CHANNEL CHANGE SEE DETAIL 28B
REMOVE 26' OF 15" RCP
GREU TL-3
–L– STA. 323+43 TO STA. 330+00 LT
–LRT– STA. 320+40 TO STA. 325+50 RT
SEE DETAIL ON SHEET 2A
SP. CUT DITCH –L– STA. 323+43 TO 330+00 LT SEE DETAIL 28D
Sta. = 323+43-L- LT
Q10 = 5.1 cfs
V10 = 1.4 fps
d = 1.0 ft
s = 0.003 ft/ft
n = 0.035
Liner = VEGETATION
Sta. = 320+40 -L- RT
Q10 = 1.5 cfs
V10 = 1.6 fps
d = 0.5 ft
s = 0.009 ft/ft
n = 0.035
Liner = VEGETATION
CL II RIPRAP OUTLET PROTECTION
LINE EXISTING CULVERT, SEE SPECIAL DETAIL
CL B RIP RAP OUTLET PROTECTION 2 TONS 7 S.Y GEOTEXTILE
BASE DITCH @ 0.3% SLOPE SEE DETAIL 28C
SP. CUT DITCH –LRT– STA. 320+40 TO 325+50 RT SEE DETAIL 28D
8" CMP (PIPE CRUSHED)
15" RCP-IV
18" RCP-IV
24" RCP-IV
42" RCP-IV
CB
DI
JB
TB
INLET
END SECTION
REMOVE
RETAIN
5' SIDEWALK
6' SIDEWALK
300' TAPER
US 17 / NC 210 30' BST
2-6' C&G
1'-6" C&G
N 39° 31' 49.0" E –LLT–
N 39° 31' 49.0" E –LRT–
N 42°48'15" E 25.20'
S 47°11'45" E 196.34'
S 47°11'45" E 27.37'
N 45°40'30" W 506.30'
R3300-22
TH #3
EL 2,405,635.1
Elv. 36.46'
TH #4
EL 2,405,619.9
Elv. 36.46'
+07.00 122.36' & 136.00'
+28.00 124.46' & 136.00'
+00.00 111.65' & 120.00'
+35.00 115.18' & 125.00'
+00.00 140.49' & 150.00'
+60.00 140.49' & 150.00'
+80.83 140.47'
+15.00 59.58' & 85.00'
+80.00 59.50' & 85.00'
+90.00 59.48' & 85.00'
+31.00 83.00' 103.00'
+58.00 85.00' & 103.00'
+75.00 58.08' 75.00' & 85.00'
PDE
PUE
DUE
WOODS
SOIL
TWP
EXISTING R/W VARIES
2805
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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-188

PERMIT DRAWING
SHEET 144 OF 165

DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

40

0.020 0.020 44.34

PROP. RETAINING WALL NO. 3
-WL3- STA. 52+00.00
TOP OF WALL = 44.98'
BOTTOM OF WALL = 39.68'

41.27

52+00.00

50

40

0.020 0.020 44.52

PROP. RETAINING WALL NO. 3
-WL3- STA. 51+50.00
TOP OF WALL = 45.16'
BOTTOM OF WALL = 40.79'

41.95

51+50.00

40

0.020 0.020 44.72 3:1

43.14

51+00.00

WETLAND

SITE 26

40

0.004 0.020 44.92 3:1

43.48

50+50.00

40

0.020 0.020 45.12 3:1

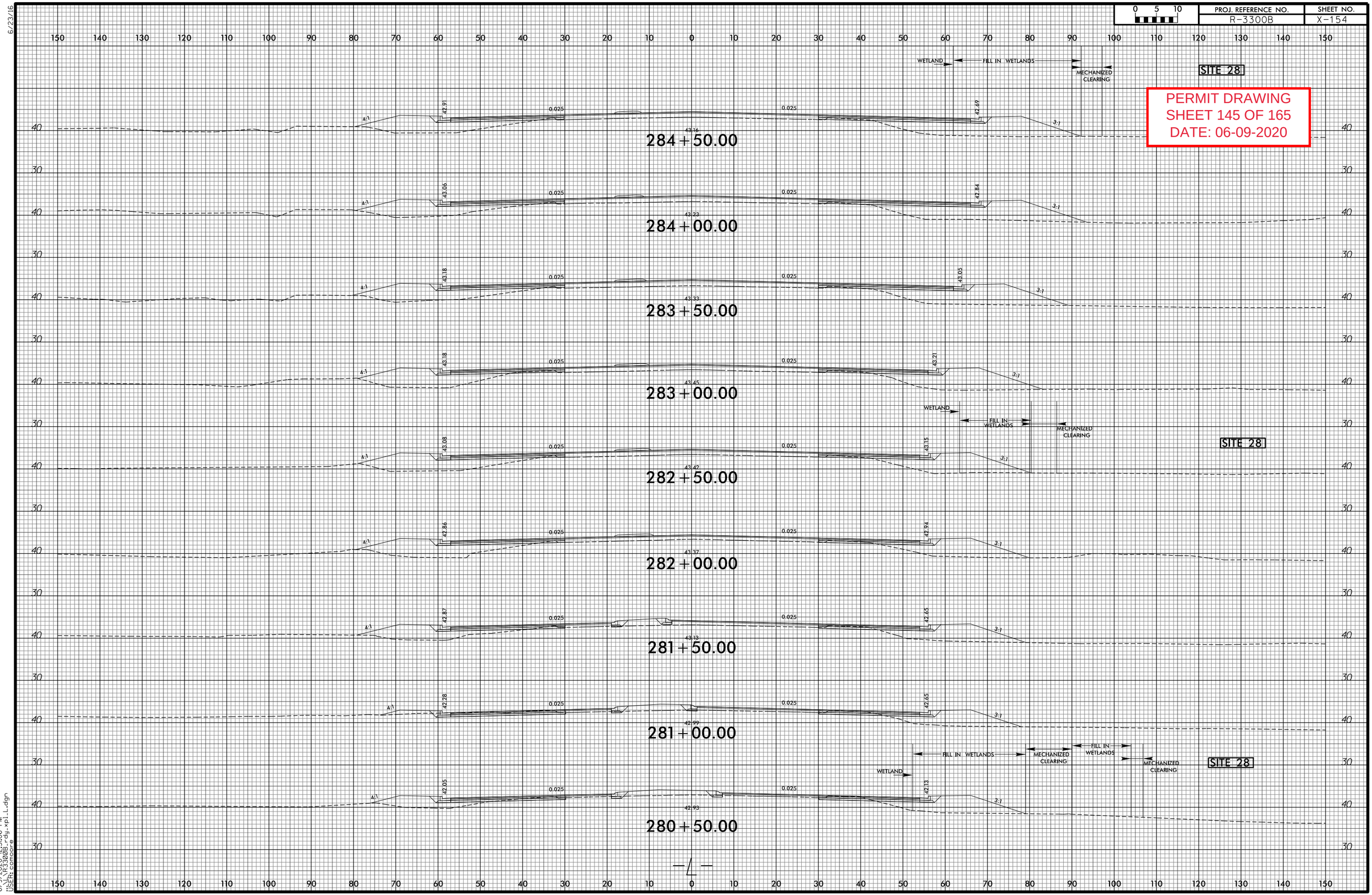
43.57

50+00.00

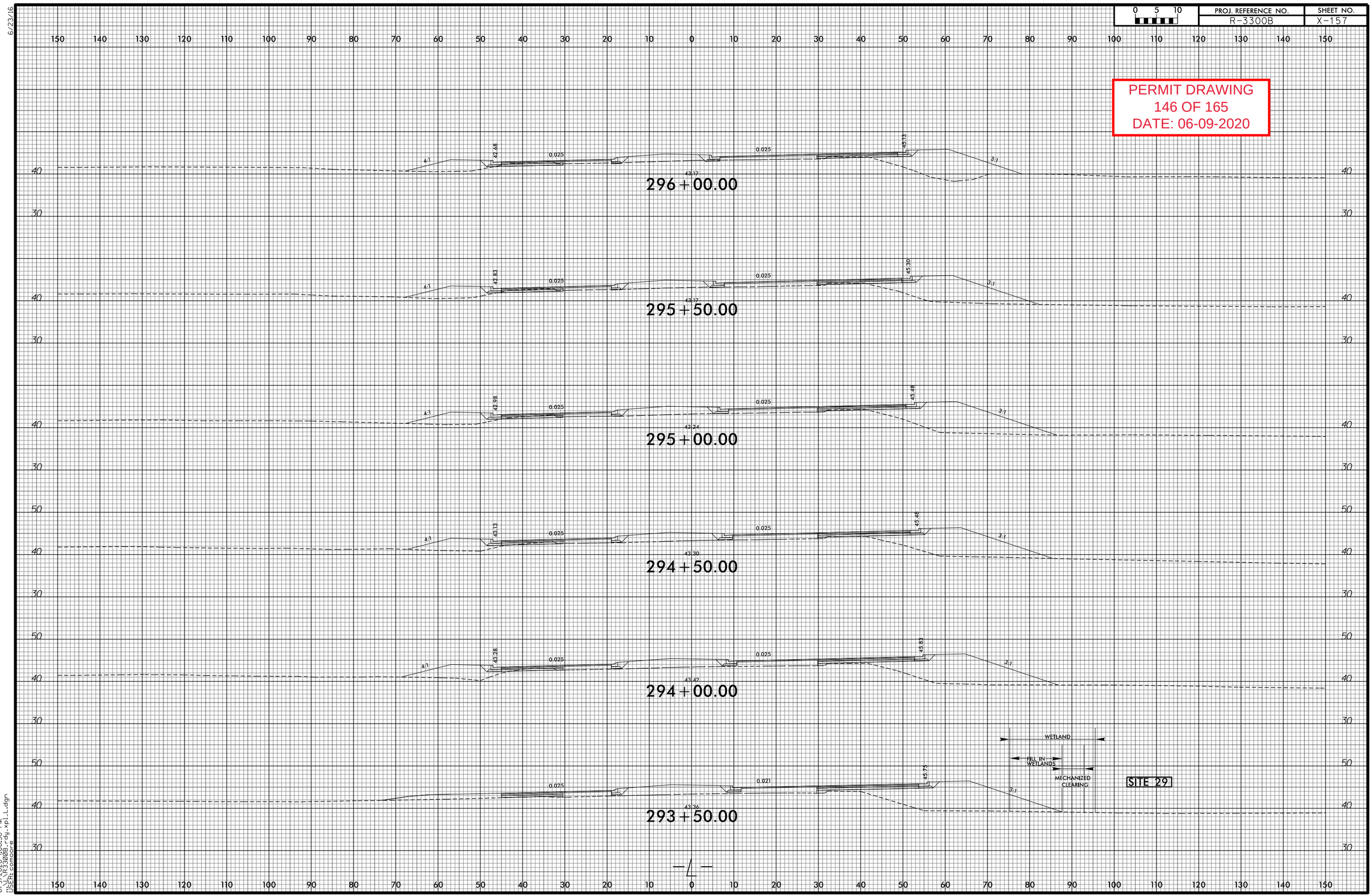
-Y19-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1118-0109
DEWBERRY
R3300B_Permit Drawings_20191118.pdf



PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-154
PERMIT DRAWING
SHEET 145 OF 165
DATE: 06-09-2020
SITE 28
WETLAND
FILL IN WETLANDS
MECHANIZED CLEARING
284+50.00
284+00.00
283+50.00
283+00.00
282+50.00
282+00.00
281+50.00
281+00.00
280+50.00
0.025
4:1
3:1



6/23/16

6/9/2020 1:06:30 PM
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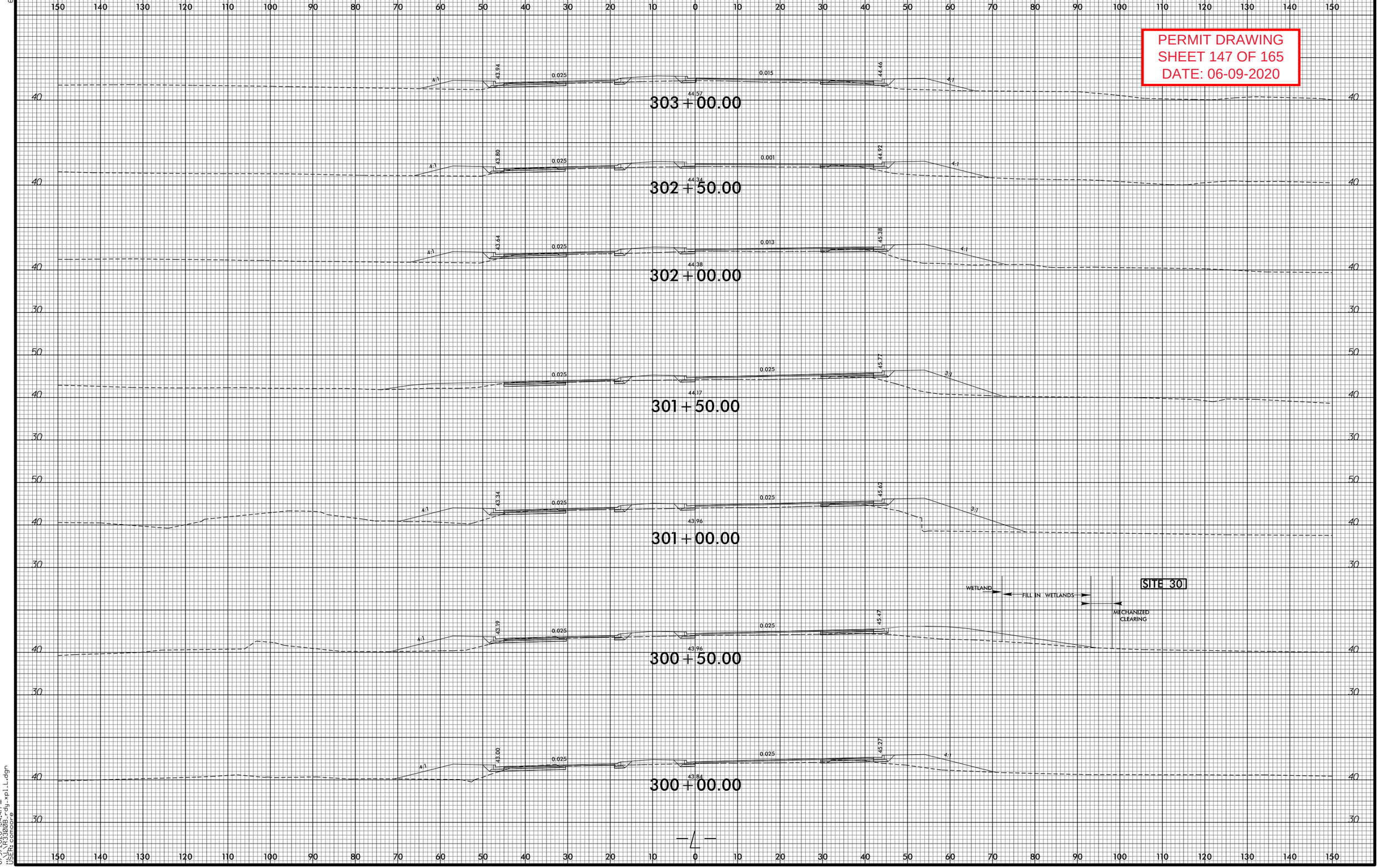

6/23/16

6/9/2020 1:14:41 PM
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USER: comoore

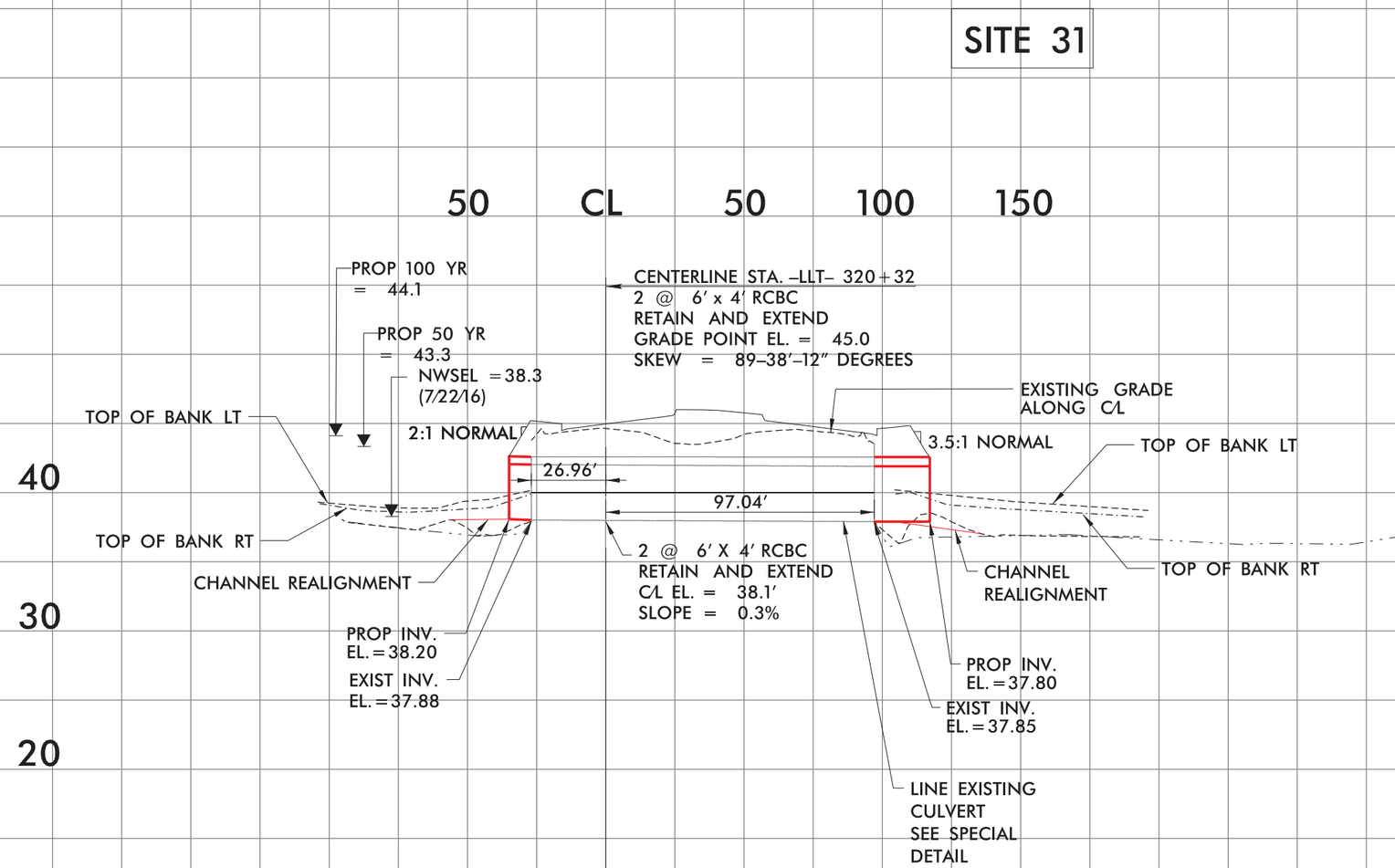
PROJECT REFERENCE NO.	SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 148 OF 165
DATE: 04-01-2020



5/14/99

12/2/2019
DEWBERRY
R-3300B_Permit Drawings_20191202.pdf

5/14/99

50' 25' 0 50' 100'
SCALE: 1"=100'
NAD 83/NSRS 2007

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
920 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 149 OF 165

DATE: 04-01-2020

MATCHLINE -Y30- STA 47+00.00 SEE SHEET 5

JOSH M. BLANTON ET UX

AMANDA B. WHITLEY

REBECCA F. DRISH, ET VIR

JOHNIE C. GARRASON, ET UX

FLOYD L. ELAM, JR.

SUSAN D. LORUSSO

PAUL E. HOLT

MARTIN J. EVANS, ET UX

WILLIAM D. STORCKS, ET UX

EFFIE BELL

RICHARD H. LEWIS, ET UX

RICHARD B. GRIFFITH

-SR5- POT Sta. 10+00.00
-Y30- POT Sta. 56+60.00

-SR5- PC Sta. 10+38.30
BRDG BK=S 23°11' 13.7" W

-SR5- PT Sta. 13+23.81

-SR5- PRC Sta. 12+06.91

-SR5- PC Sta. 17+61.80

-SR5- PT Sta. 20+97.10

-SR5- POT Sta. 22+76.14

-Y30- PT Sta. 59+12.58

END CONSTRUCTION
-Y30- POT Sta. 60+27.00

END CONSTRUCTION
-SR5- POT Sta. 22+76.14

SITE 1

SITE 3

SITE 22

ENERGY DISSIPATOR BASIN w/CL I RIPRAP
EST 105 TONS
EST 140 SY GFD
SEE DETAIL 47

CL B RIPRAP
EST 1 TON
EST 5 SY GFD

STD 4' BASE DITCH
50 LF @ 6.0%
EST 75 CY DDE
SEE DETAIL 19

15" RCP-IV

REMOVE 15" CMP

REMOVE BST 15" CMP

NC210 -Y30-

STD 2' BASE DITCH
EST CY 13 DDE
SEE DETAIL 10

CL B RIPRAP
EST 3 TONS
EST 10 SY GFD

REMOVE 18" RCP

LAT 2' BASE DITCH
SEE DETAIL 24

LAT 2' BASE DITCH
SEE DETAIL 1

CL B RIPRAP
EST 2 TONS
EST 7 SY GFD

EARTHEN BERM
TOP EL. 41.0
TOP W = 5.0'
SLOPES 3:1
EST 10 CY

-Y30DET

RETAIN 15" RCP

18" RCP-IV

N 71° 16' 17.1" W
-SR5-

SPEC LAT 2' BASE DITCH
SEE DETAIL 9

WOODS

ISBKD

SPEC LAT V DITCH
SEE DETAIL 4

STD 4' BASE DITCH
100 LF @ 0.3%
EST 95 CY DDE
SEE DETAIL 19

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

30" RCP-IV

ENLARGEMENT VIEW
SEE SHEET 152 OF 165

ENLARGEMENT VIEW
SEE SHEET 151 OF 165

STD 2' BASE DITCH
EST CY 36 DDE
SEE DETAIL 10

LAT 6' BASE DITCH
SEE DETAIL 17

CL I RIPRAP
EST 236 TONS
EST 389 SY GFD

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

30" RCP

30" RCP-IV

7' CONC HW

REMOVE HW

15" RCP

REMOVE 18" RCP

GRADE TO DRAIN

SPEC LAT 2' BASE DITCH
SEE DETAIL 9

CL I RIPRAP
EST 26 TONS
EST 50 SY GFD

SPEC LAT 4' BASE DITCH
SEE DETAIL 18

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

48" RCP-IV

5' WD HW

REMOVE 5' WD HW

36" CMP

REMOVE 36" CMP

RETAIN 36" CMP

@66" RCP-IV (BURIED 1.0')

R=10'

S 65° 47' 37.4" E

STD 2' BASE DITCH
EST 75 CY DDE
SEE DETAIL 10

STD 2' BASE DITCH
w/CL I RIPRAP
50 LF @ 5.0%
EST 85 TONS
EST 150 SY GFD
EST 30 CY DDE
SEE DETAIL 16

CL B RIPRAP TOE PROTECTION
EST 82 TONS
EST 225 SY GFD
SEE DETAIL 31

TEMPORARY IMPACTS SHOWN ON SHEET 2 OF 165

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 53 & 54 FOR -Y30- PROFILE
SEE SHEET 69 FOR -SR5- PROFILE

$$$

5/14/99

50' 25' 0 50' 100'

SCALE: 1"=100'

NAD 83/NSRS 2007

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R-3300B	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 150 OF 165

DATE: 04-01-2020

MATCHLINE -Y30- STA 47+00.00 SEE SHEET 5

JOSH H. BRANTON ET UX

AMANDA B. WHITLEY

REBECCA F. DRISH, ET VIR

JOHNIE C. GARRASON, ET UX

FLOYD L. ELAM, JR.

SUSAN D. LORUSSO

RICHARD H. LEWIS, ET UX

PAUL E. HOLT

WILLIAM D. STORCKS, ET UX

EFFIE BELL

MARTIN J. EVANS, ET UX

RICHARD B. GRIFFITH

-SR5- POT Sta. 10+00.00
-Y30- POT Sta. 56+60.00

END CONSTRUCTION
-Y30- POT Sta. 60+27.00

-SR5- PC Sta. 10+38.30
BRDG BK=S 23°11' 13.7" W

-Y30- PT Sta. 59+12.58

-SR5- PC Sta. 17+61.80

-SR5- PT Sta. 13+23.81

-SR5- PRC Sta. 12+05.91

-SR5- PT Sta. 20+97.10

END CONSTRUCTION
-SR5- POT Sta. 22+76.14

-SR5- POT Sta. 22+76.14

-Y30DET

NC210
-Y30-

N 71° 16' 17.1" W
-SR5-

S 65° 47' 37.4" E

SITE 1

SITE 3

SITE 22

ENERGY DISSIPATOR BASIN w/CL I RIPRAP
EST 105 TONS
EST 140 SY GFD
SEE DETAIL 47

CL B RIPRAP
EST 1 TON
EST 5 SY GFD

STD 4' BASE DITCH
50 LF @ 6.0%
EST 75 CY DDE
SEE DETAIL 19

15" RCP-IV

REMOVE 15" CMP

REMOVE 15" CMP

STD 2' BASE DITCH
EST CY 13 DDE
SEE DETAIL 10

CL B RIPRAP
EST 3 TONS
EST 10 SY GFD

LAT 2' BASE DITCH
SEE DETAIL 24

LAT 2' BASE DITCH
SEE DETAIL 1

CL B RIPRAP
EST 2 TONS
EST 7 SY GFD

EARTHEN BERM
TOP EL 41.0
TOP W = 5.0'
SLOPES 3:1
EST 10 CY

RETAIN 15" RCP

18" RCP-IV

15" RCP

SPEC LAT 2' BASE DITCH
SEE DETAIL 9

STD 2' BASE DITCH
EST CY 36 DDE
SEE DETAIL 10

LAT 6' BASE DITCH
SEE DETAIL 17

CL I RIPRAP
EST 236 TONS
EST 389 SY GFD

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

30" RCP

30" RCP-IV

REMOVE 48" RCP

REMOVE HW

GRADE TO DRAIN

CL I RIPRAP
EST 26 TONS
EST 50 SY GFD

SPEC LAT 4' BASE DITCH
SEE DETAIL 18

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

RETAIN 36" CMP

48" RCP-IV

5' WD HW

REMOVE 5' WD HW

@ 68° RCP-IV (BURIED 1.0')

REMOVE

R=10'

STD 2' BASE DITCH
EST 75 CY DDE
SEE DETAIL 10

STD 2' BASE DITCH w/ CL I RIPRAP
50 LF @ 5.8%
EST 85 TONS
EST 150 SY GFD
EST 30 CY DDE
SEE DETAIL 16

CL B RIPRAP TOE PROTECTION
EST 82 TONS
EST 225 SY GFD
SEE DETAIL 31c

SPEC LAT V DITCH
SEE DETAIL 4

STD 4' BASE DITCH
100 LF @ 20.3%
EST 95 CY DDE
SEE DETAIL 19

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

30" RCP-IV

ENLARGEMENT VIEW
SEE SHEET 151 OF 165

ENLARGEMENT VIEW
SEE SHEET 152 OF 165

TEMPORARY IMPACTS SHOWN ON SHEET 2 OF 165

F F	DENOTES FILL IN WETLAND
E E	DENOTES EXCAVATION IN WETLAND
	DENOTES MECHANIZED CLEARING
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 53 & 54 FOR -Y30- PROFILE
SEE SHEET 69 FOR -SR5- PROFILE

$$$

8/17/99

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25' 12.5' 0 25' 50'
SCALE: 1" = 50'

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 151 OF 165

DATE: 04-01-2020

TEMPORARY IMPACTS IN SURFACE WATER

SITE 3

LAT 6' BASE DITCH
SEE DETAIL 17

LAT 6' BASE DITCH
SEE DETAIL 17

CL I RIPRAP
EST 236 TONS
EST 389 SY GFD

CL I RIPRAP
EST 26 TONS
EST 50 SY GFD

SPEC LAT 4'
BASE DITCH
SEE DETAIL 18

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

STD 2' BASE DITCH
EST CY 36 DDE
SEE DETAIL 0

EXCAVATION

PUE

CL I RIPRAP
EST 11 TONS
EST 22 SY GFD

48" RCP IV

13' WD HW

36" CMP

REMOVE 5' WD HW

12" PVC

30" RCP-IV

FLOWABLE FILL

30" RCP

FILL IN WETLAND

IMPACTS IN SURFACE WATER

REMOVE 18" RCP

REMOVE

REMOVE HW

7' CONC HW

2@66" RCP-IV
(BURIED 1.0')

18" CMP REMOVE HW

GRADE TO DRAIN

CL B RIPRAP
EST 3 TONS
EST 10 SY GFD

18" RCP-IV

30" RCP-IV

15"

PUE

DUE

PDE

IMPACTS IN SURFACE WATER

EXCAVATION
STD 2' BASE DITCH
w/CL I RIPRAP
50 LF @ 5.0%
EST 85 TONS
EST 150 SY GFD
EST 30 CY DDE
SEE DETAIL 16

SITE 3

TEMPORARY IMPACTS SHOWN
ON SHEET 2 OF 165

MECHANIZED CLEARING

SITE 22

RICHARD H. LEWIS, ET UX

WOODS

ISFD

CONC

-Y30-

-SR5-

-Y30DET-

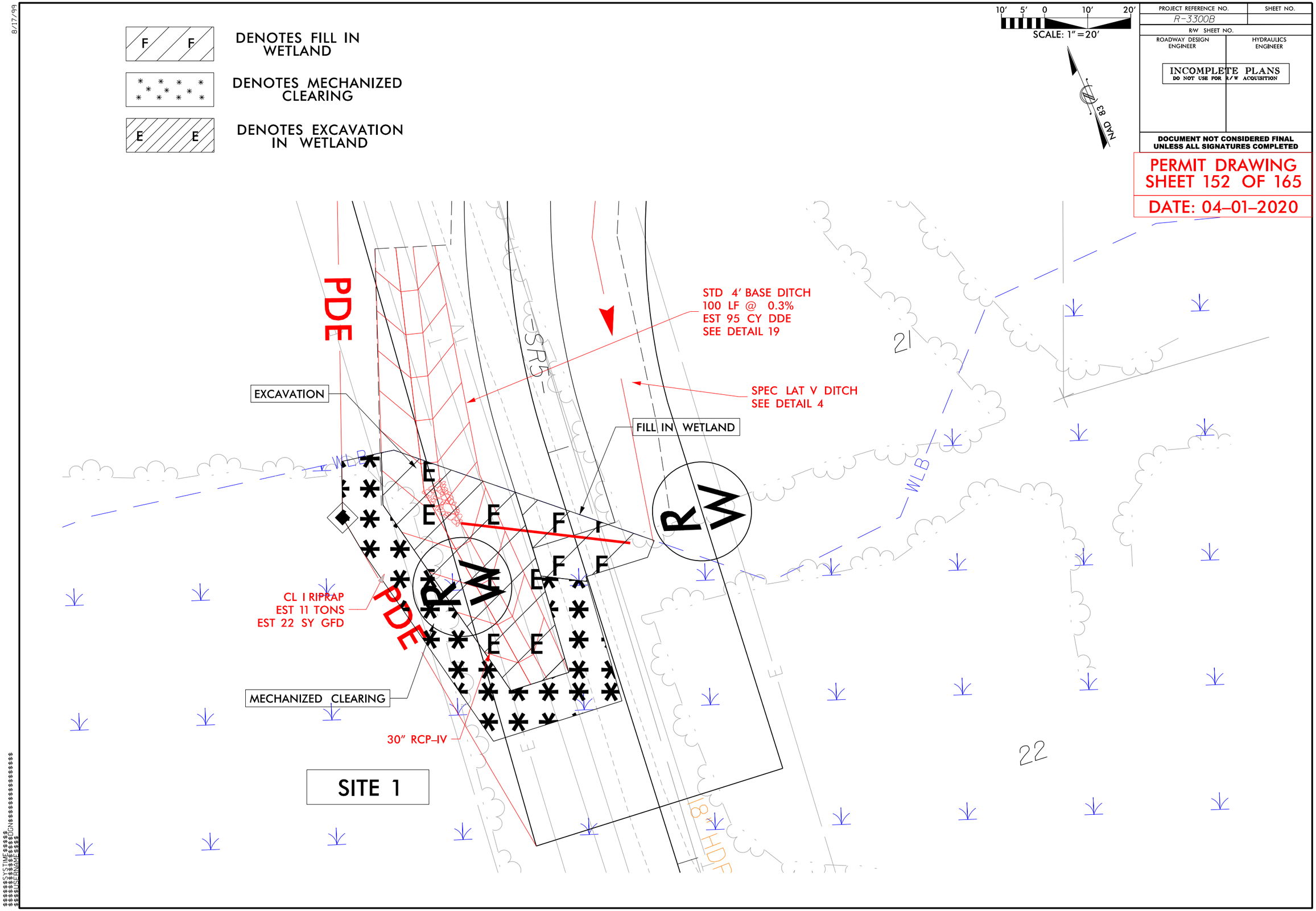
R=10'

55

58

57

$$$$SYSTIME$$$$
$$$$USERNAME$$$$



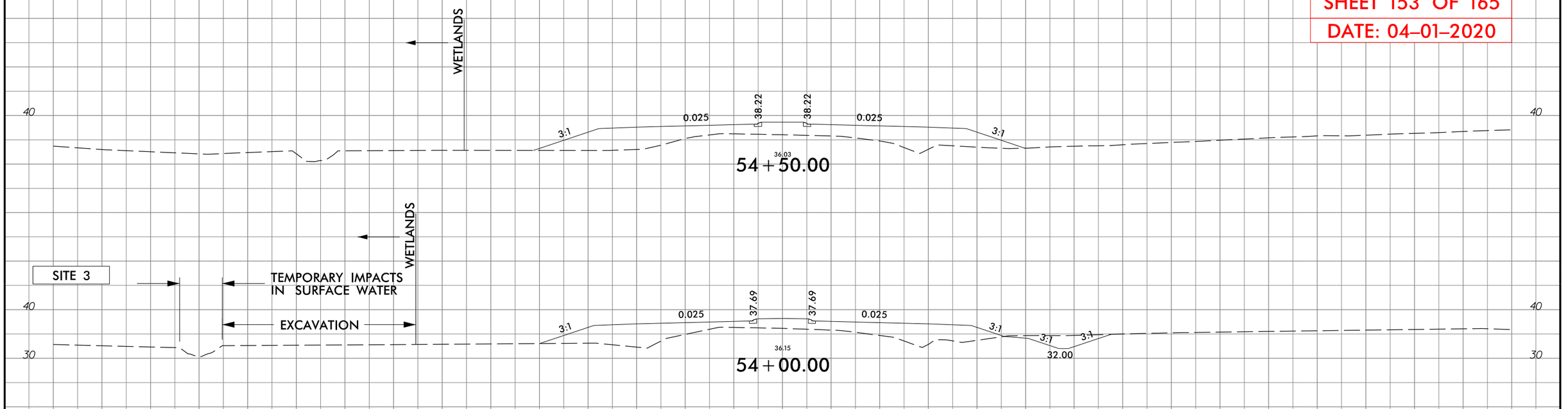
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND
SCALE: 1"=20'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 152 OF 165
DATE: 04-01-2020
PDE
STD 4' BASE DITCH
100 LF @ 0.3%
EST 95 CY DDE
SEE DETAIL 19
SPEC LAT V DITCH
SEE DETAIL 4
EXCAVATION
FILL IN WETLAND
SR5
WLB
CL I RIPRAP
EST 11 TONS
EST 22 SY GFD
MECHANIZED CLEARING
30" RCP-IV
SITE 1
21
22

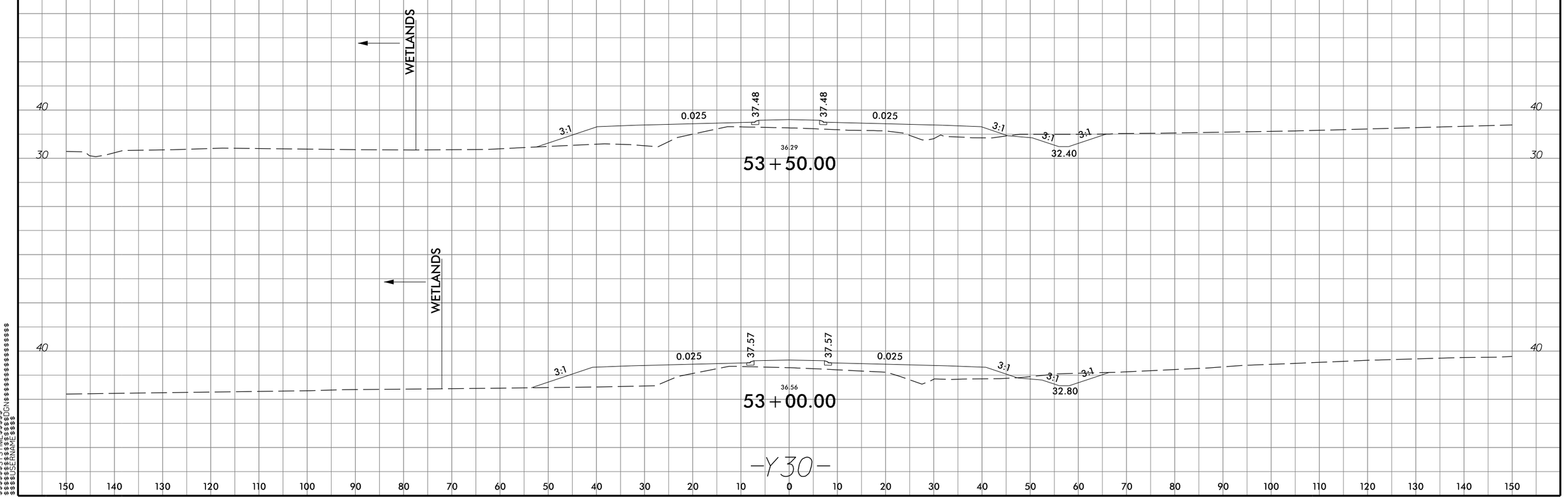
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-214

PERMIT DRAWING
SHEET 153 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

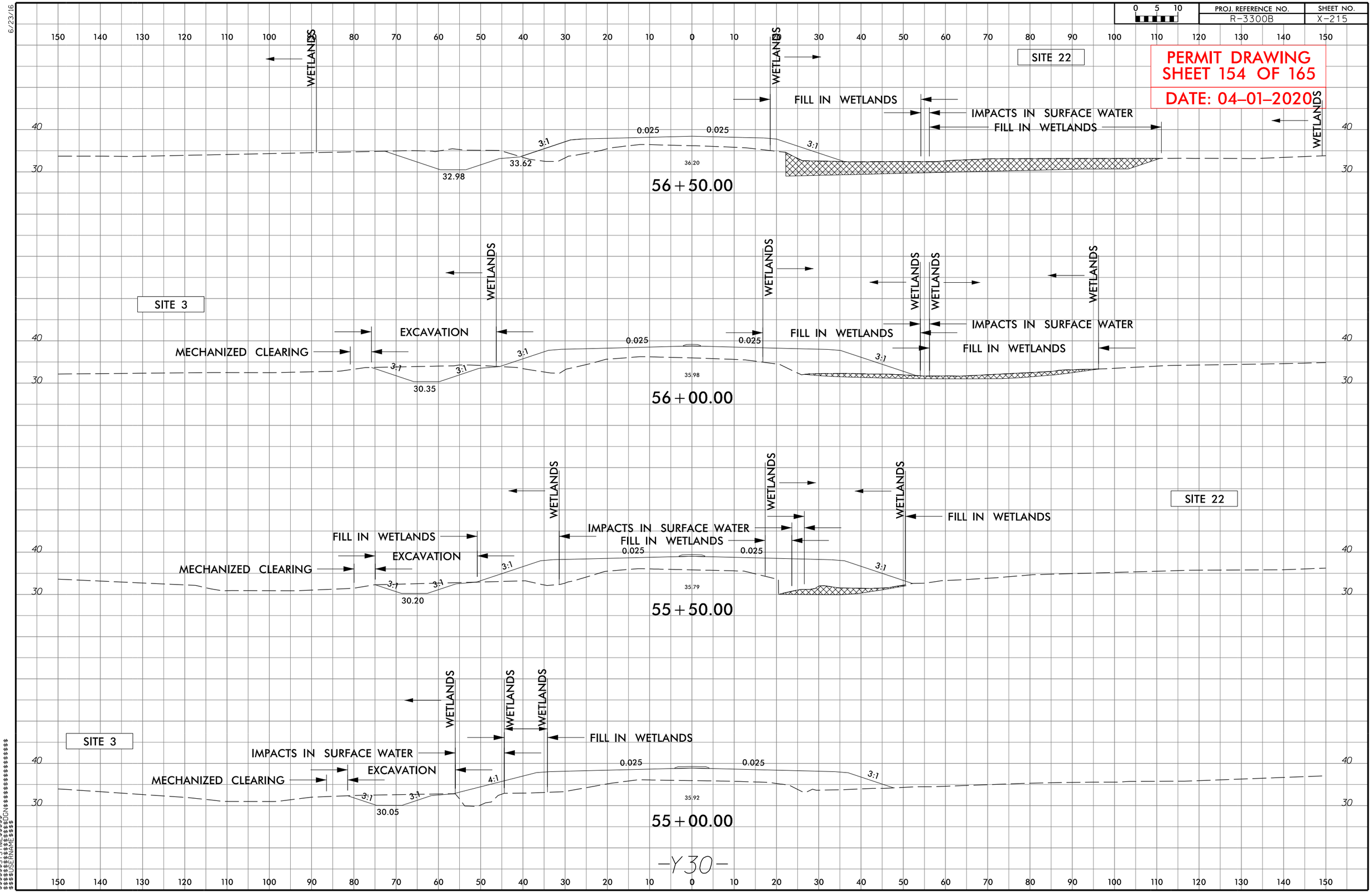




-Y30-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$



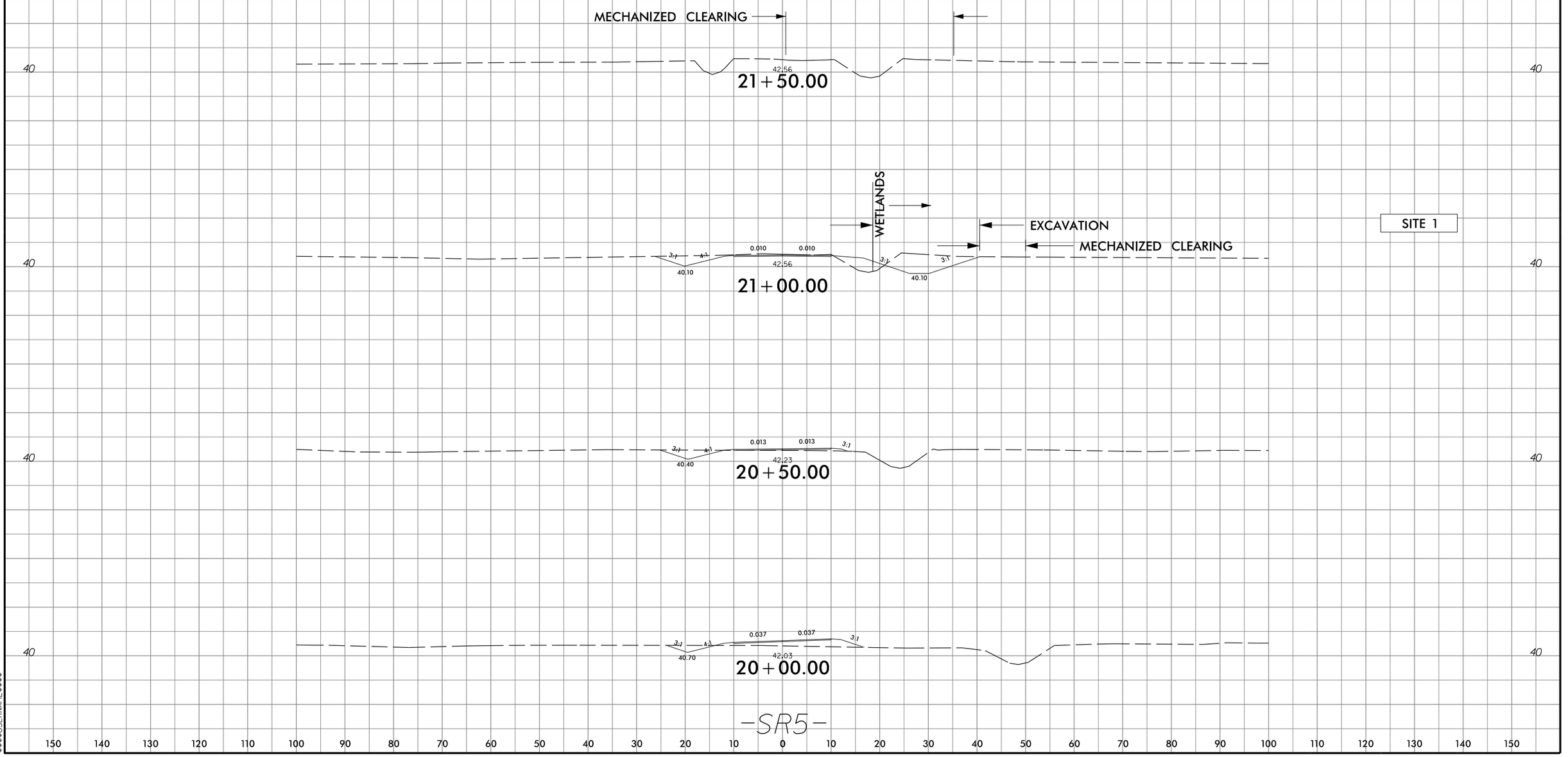
PROJ. REFERENCE NO.
R-3300B
SHEET NO.
X-215
PERMIT DRAWING
SHEET 154 OF 165
DATE: 04-01-2020
SITE 22
WETLANDS
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
FILL IN WETLANDS
0.025
0.025
3:1
3:1
32.98
33.62
36.20
56+50.00
SITE 3
EXCAVATION
MECHANIZED CLEARING
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
FILL IN WETLANDS
0.025
0.025
3:1
3:1
3:1
3:1
30.35
35.98
56+00.00
SITE 22
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
FILL IN WETLANDS
FILL IN WETLANDS
EXCAVATION
MECHANIZED CLEARING
0.025
0.025
3:1
3:1
3:1
3:1
30.20
35.79
55+50.00
SITE 3
FILL IN WETLANDS
IMPACTS IN SURFACE WATER
EXCAVATION
MECHANIZED CLEARING
0.025
0.025
4:1
3:1
3:1
3:1
30.05
35.92
55+00.00
-Y30-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-393

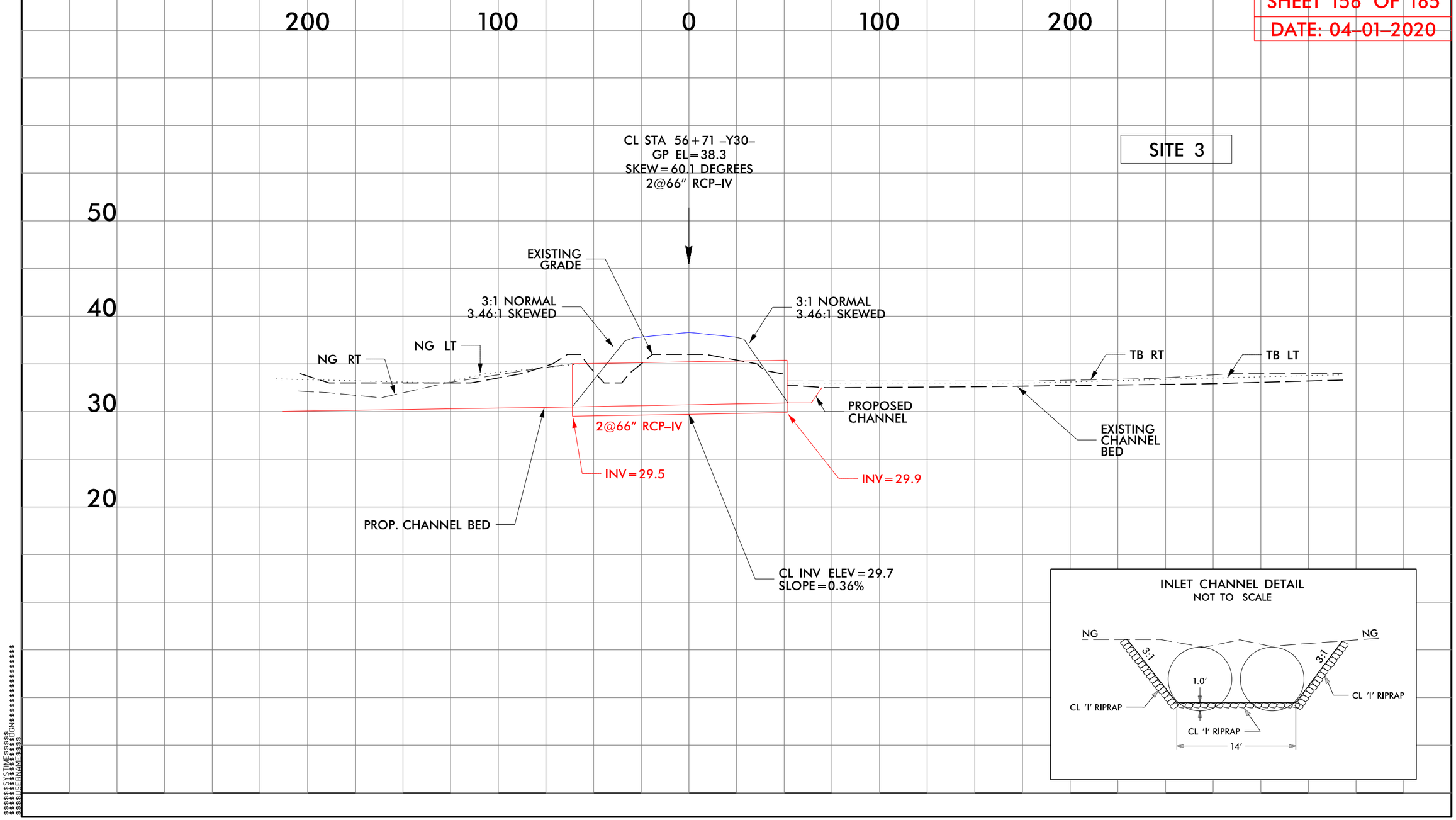
PERMIT DRAWING
SHEET 155 OF 165
DATE: 04-01-2020

SITE 1



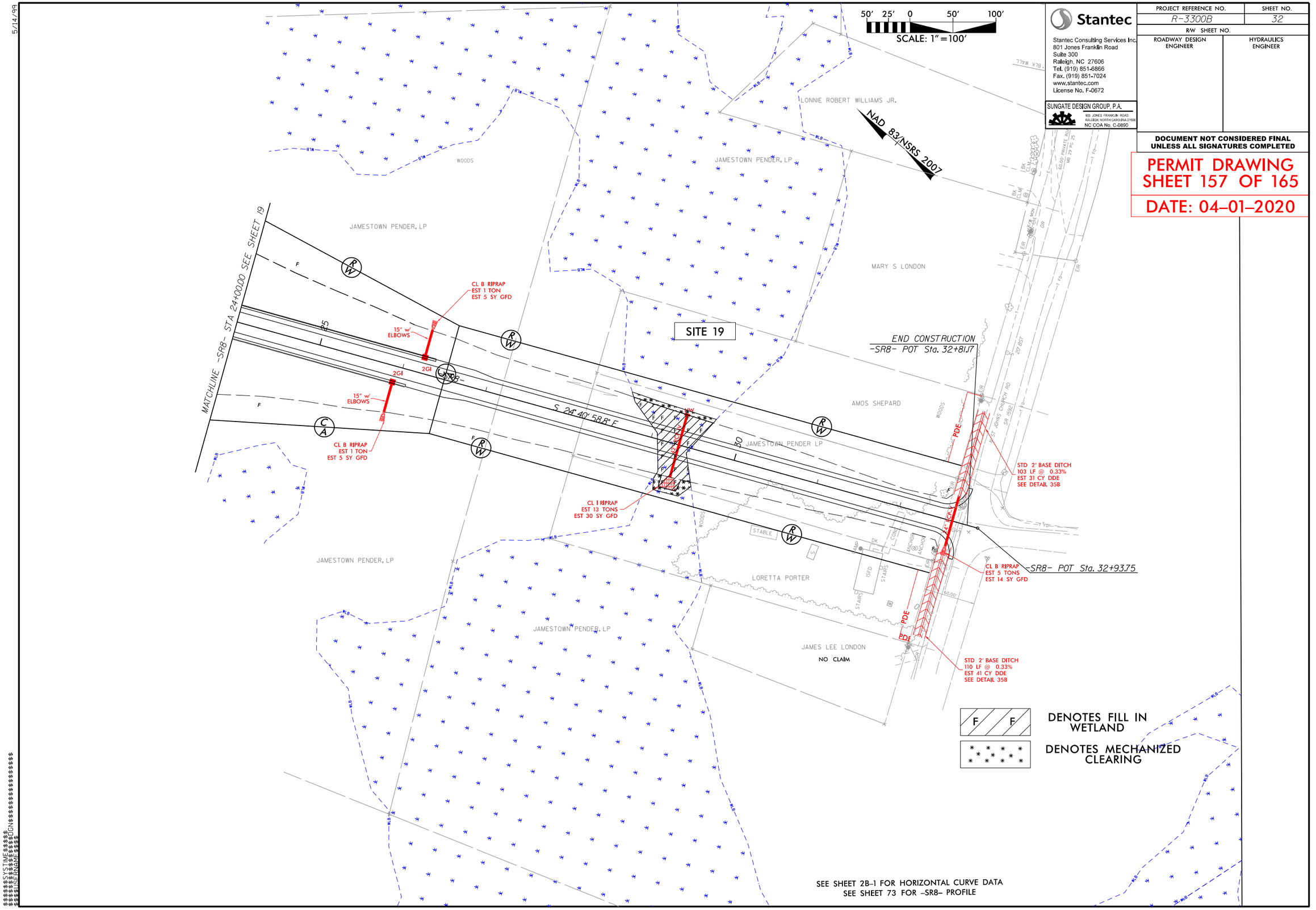
$$$$$$SYSTIME$$$$
$$$$$$

PROJECT REFERENCE NO. | SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 156 OF 165
DATE: 04-01-2020



5/14/99

5/14/99



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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 157 OF 165

DATE: 04-01-2020

$$$$USERNAME$$$$ $$$$SYSTIME$$$$

5/14/99

$$$$USERNAME$$$$ $$$$SYSTIME$$$$

SCALE: 1" = 100'

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 158 OF 165

DATE: 04-01-2020

NAD 83/NSRS 2007

MATCHLINE -SR8- STA. 244+00.00 SEE SHEET 19

SITE 19

END CONSTRUCTION -SR8- POT Sta. 32+81.17

-SR8- POT Sta. 32+93.75

S 24°40'58.6" E

CL B RIPRAP EST 1 TON EST 5 SY GFD

15" w/ ELBOWS

2GI

CL B RIPRAP EST 10 TONS EST 30 SY GFD

STD 2' BASE DITCH 103 LF @ 0.33% EST 31 CY DDE SEE DETAIL 35B

CL B RIPRAP EST 5 TONS EST 14 SY GFD

STD 2' BASE DITCH 110 LF @ 0.33% EST 41 CY DDE SEE DETAIL 35B

PDE

EDL

JAMESTOWN PENDER, LP

LONNIE ROBERT WILLIAMS JR.

MARY S LONDON

AMOS SHEPARD

LORETTA PORTER

JAMES LEE LONDON
NO CLAIM

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 73 FOR -SR8- PROFILE

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3300B	X-439

PERMIT DRAWING
SHEET 159 OF 165
DATE: 04-01-2020

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WETLANDS

60 3:1 0.020 0.020 3:1 60

5636
30+00.00

SITE 19

FILL IN WETLANDS
MECHANIZED CLEARING

WETLANDS

60 3:1 0.020 0.020 3:1 60

5640
29+50.00

SITE 19

FILL IN WETLANDS
MECHANIZED CLEARING

WETLANDS

60 3:1 0.020 0.020 3:1 60

5702
29+00.00

WETLANDS

60 3:1 0.020 0.020 3:1 60

5652
28+50.00

WETLANDS

60 3:1 0.020 0.020 3:1 60

5713
28+00.00

-SR8-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$SYSTIME$$$$$$
$$$$$$

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	584+18 to 601+51-L1-	ROADWAY FILL	5.436		0.005	0.699						
	5+13 to 5+71-Y30RPB-LT				0.015	0.016						
	13+27 to 18+16-Y30RPB-		0.883			0.118						
	19+30 to 26+02-Y30RPC-		1.190		0.025	0.080						
	27+65-SR4-					0.004						
	20+90 to 21+60-SR5-		0.008		0.028	0.027						
	43+83 to 44+59-Y30DET-LT		0.038			0.003						
2	41+43 to 43+15-Y30-RT	ROADWAY FILL	0.141		0.022							
	43+21 to 44+49-Y30DET-LT *											
3	609+50 to 618+70-L1-	ROADWAY FILL	1.754		0.002	0.089	0.210	0.526	0.010	419	36	
	611+72 to 611+91-L1-RT	1 at 12'x7' RCBC										
		INLET CHANNEL			0.004							
		INLET BANK STABILIZATION								33		
	611+98 to 612+68-L1-LT	OUTLET CHANNEL				0.005	0.015	0.014		56		
		OUTLET BANK STABILIZATION								38		
	45+87 to 47+20-Y30-LT	ROADWAY FILL	0.180		0.035	0.024						
	53+88 to 54+12-Y30-LT	30" RCP OUTLET DITCH			0.013	0.009			0.005		25	
	54+51 to 56+42-Y30-LT	2 at 66" RCP OUTLET DITCH			0.082			0.019	0.002	91	10	
	56+99 to 57+43-Y30-RT	ROADWAY FILL	0.008									
	57+15 to 58+74-Y30DET-			0.149			0.010		0.006		125	
	13+40 to 19+59-Y30RPA-		1.694		0.045	0.188		0.094	0.011	441	55	
TOTALS:			**11.332**	**0.149**	**0.276**	**1.262**	**0.235**	**0.653**	**0.034**	**1078**	**251**	**0**

NOTES:
* Site 2 detour impacts included in roadway fill impacts (Total Take).

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06-09-2020
PENDER COUNTY
R-3300B
40237.2.1
SHEET 160 OF 165

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
3	15+01 to 15+56-Y30RPA-LT	1 at 12'x7' RCBC INLET CHANNEL			0.020			0.005	0.003	29	12	
	26+15 to 26+49-SR6-LT	OUTLET CHANNEL			0.005				0.004		14	
		OUTLET BANK STABILIZATION								14		
	18+22 to 20+14-Y30RPD-	ROADWAY FILL	0.470			0.064	0.026	0.060		243		
	19+69 to 20+05-Y30RPD-LT	1 at 12'x7' RCBC INLET CHANNEL			0.004				0.005		25	
		INLET BANK STABILIZATION								25		
	18+99 to 19+24-Y30RPD-RT	OUTLET CHANNEL			0.012							
		OUTLET BANK STABILIZATION								22		
4	623+04 to 632+02-L1-	ROADWAY FILL	1.812			0.131						
	633+70 to 634+01-L1-LT	30" RCP PIPE OUTLET				0.005						
5	638+99 to 642+01-L1-	ROADWAY FILL	0.065					0.085		364		
6	641+99 to 643+06-L1-	ROADWAY FILL						0.121	0.010	355	31	
7	645+01 to 666+60-L1-	ROADWAY FILL	4.805		0.249	0.380		0.606	0.012	1768	52	
		OUTLET CHANNEL			0.062							
		OUTLET BANK STABILIZATION								34		
	18+94 to 20+52-Y38-	ROADWAY FILL	0.072		0.033	0.018		0.112		226		
	19+83-Y38-RT	3 AT 12'x8' RCBC			0.009							
	19+38 to 20+09-Y38-LT	INLET CHANNEL				0.007						
	19+57 to 20+40Y38-RT	OUTLET CHANNEL			0.062	0.008		0.013	0.003	32	10	
TOTALS:			**7.224**	**0.000**	**0.456**	**0.613**	**0.026**	**1.002**	**0.037**	**3112**	**144**	**0**

NOTES:

Revised 2018 Feb

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06-09-2020
PENDER COUNTY
R-3300B
40237.2.1
SHEET 161 OF 165

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
7	18+94 to 19+38-Y38-	ROADWAY FILL			0.033	0.018						
	11+08 to 12+48-Y38DET-			0.110			0.020					
8	673+01 to 673+68-L1-RT	ROADWAY FILL	0.071			0.012						
9	673+18 to 689+67-L1-LT	ROADWAY FILL	0.087			0.041						
10	676+64 to 679+37-L1-	DRAIN POND						0.633				
11	695+36 to 695+47-L1-LT	ROADWAY FILL				0.001						
12	700+69 to 702+88-L1-	DRAIN POND						0.416				
13	709+67 to 715+63-L1-	ROADWAY FILL	2.160			0.114		0.063		228		
	712+83 to 713+95-L1-RT	2 at 12'x7' RCBC INLET CHANNEL			0.024	0.015		0.022	0.004	78	14	
	711+78 to 712+35-L1-LT	OUTLET CHANNEL			0.021	0.010			0.003		12	
		OUTLET STABILIZATION								42		
14	724+44 to 725+96-L1-	ROADWAY FILL						0.100	0.007			
	724+48 to 724+73-L1-RT	48" RCP OUTLET STABILIZATION						0.007				
	17+51 to 18+26-Y31RPC-	ROADWAY FILL						0.035	0.006			
	17+57 to 17+87-Y31RPC-	54" RCP OUTLET STABILIZATION						0.008				
TOTALS:			**2.318**	**0.110**	**0.078**	**0.211**	**0.020**	**1.284**	**0.020**	**348**	**26**	**0**

NOTES:
Site 14: JS Non-Mitigable

Revised 2018 Feb

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06-09-2020
PENDER COUNTY
R-3300B
40237.2.1
SHEET 162 OF 165

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
15	730+72 to 743+68-L1-	ROADWAY FILL	4.898		0.060	0.228						
	15+72 to 22+37-SR7-		1.059		0.014	0.193						
	15+91 to 16+09-SR7-RT	24" RCP OUTLET CHANNEL			0.012							
16	18+25 to 21+01 -Y31-RT	ROADWAY FILL	0.066			0.009						
	18+74 to 21+34-Y31DET-			0.082			0.024					
17	18+38 to 19+05-Y31-LT	ROADWAY FILL	0.002			0.007						
	26+86 to 28+87-SR7-		0.190		0.030	0.022						
18	45+47 to 47+66-SR7-	ROADWAY FILL	0.252			0.043						
	766+70 to 769+26-L1-		0.534			0.020						
19	769+74 to 854+07-L1-	ROADWAY FILL	26.807		0.073	3.036		0.254		773		
	48+38 to 56+57-SR7-		1.002			0.188						
	14+42 to 29+70-SR8-		0.359			0.055						
	7+45 to 16+31-Y32RPB1-		2.075			0.156						
	18+01 to 22+37-Y32-		1.094		0.054	0.002		0.144		484		
	29+50 to 39+40-Y32-		4.455		0.110	0.335						
TOTALS:			**42.793**	**0.082**	**0.353**	**4.294**	**0.024**	**0.398**	**0.000**	**1257**	**0**	**0**

NOTES:
Site 20 Combined with Site 19.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06-09-2020
PENDER COUNTY
R-3300B
40237.2.1

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
21	23+66 to 25+54-Y19-	ROADWAY FILL	0.372			0.020		0.014		97		
	25+09-Y19-	1 AT 8'x6' RCBC			0.013							
	24+82 to 25+32-Y19-	OUTLET CHANNEL			0.033	0.010			0.009		33	
22	10+17 to 12+28-SR5-	ROADWAY FILL	0.209		0.002	0.009		0.007		163		
23	603+49 to 604+94-L1-RT	POND						0.279				
24	16+83 to 18+03-Y30DET-RT	ROADWAY FILL		0.013			0.012					
25	46+69 to 46+76-Y31DET-RT	ROADWAY FILL					0.001					
26	Y19 50+00 RT	Channel Realignment				0.005		0.028				
27	Y19 51+27 to 53+44	Roadway Fill						0.117	0.046			
28	L 279+29 to 286+56 RT	Roadway Fill	0.307			0.085						
29	L 293+08 to 293+80 RT	Roadway Fill	0.016			0.003						
30	L 301+00 RT	Roadway Fill	0.005			0.001						
TOTALS:			**0.909**	**0.013**	**0.048**	**0.133**	**0.013**	**0.445**	**0.055**	**260**	**33**	**0**

NOTES:
Site 26: JS Non-Mitigable

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06-09-2020
PENDER COUNTY
R-3300B
40237.2.1

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
31	LLT 320+33 LT	6' X 4' RCBC Extension						0.009		26		
	LLT 320+33 LT	Channel Realignment (LT)						0.012	0.004	39	19	
	LLT 320+33 RT	CL. B Rip Rap Pad						0.004		20		
	LLT 320+33 RT	Channel Realignment (RT)						0.008	0.004	37	16	
32	13+45 to 14+89-Y43-LT	DITCH				0.014						
	TOTALS THIS SHEET		**0.000**	**0.000**	**0.000**	**0.014**	**0.000**	**0.033**	**0.008**	**122**	**35**	**0**
	TOTAL SHEET 160		11.332	0.149	0.276	1.262	0.235	0.653	0.034	1078	251	0
	TOTAL SHEET 161		7.224	0.000	0.456	0.613	0.026	1.002	0.037	3112	144	0
	TOTAL SHEET 162		2.318	0.110	0.078	0.211	0.020	1.284	0.020	348	26	0
	TOTAL SHEET 163		42.793	0.082	0.353	4.294	0.024	0.398	0.000	1257	0	0
	TOTAL SHEET 164		0.909	0.013	0.048	0.133	0.013	0.445	0.055	260	33	0
TOTALS:			**64.576**	**0.354**	**1.211**	**6.527**	**0.318**	**3.815**	**0.154**	**6177**	**489**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06-09-2020
PENDER COUNTY
R-3300B
40237.2.1
SHEET 165 OF 165

Revised 2018 Feb

TIP PROJECT: R-3300B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PENDER COUNTY

T.I.P. NO.	SHEET NO.
R-3300B	UC-01

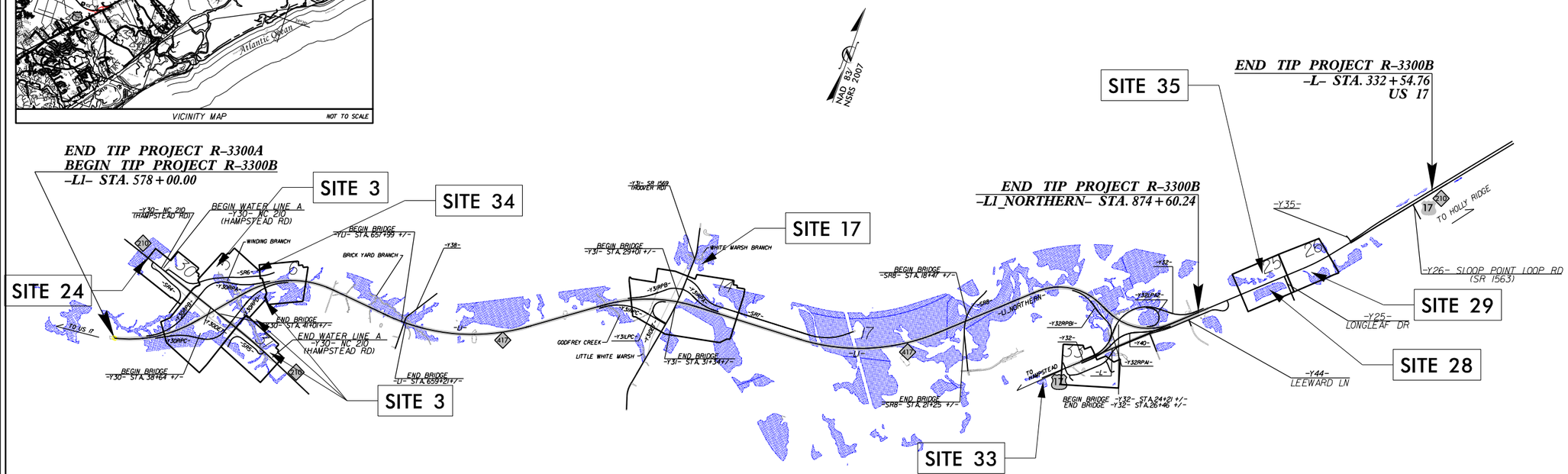
PERMIT DRAWING
SHEET 1 OF 23

DATE: 04-01-2020

LOCATION: NC 417 (HAMPSTEAD BYPASS) FROM SOUTH OF NC 210 TO US-17 NORTH OF HAMPSTEAD

TYPE OF WORK: UTILITY RELOCATES





PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

GRAPHIC SCALES

PLANS: 50 0 50 100

PROFILE (HORIZONTAL): 50 0 50 100

PROFILE (VERTICAL): 10 0 10 20

PREPARED IN THE OFFICE OF

Stantec

STANTEC CONSULTING SERVICES INC.
801 JONES FRANKLIN ROAD,
SUITE 300
RALEIGH, NC 27606
TEL: (919) 851-6865
FAX: (919) 851-7024
www.stantec.com
License No.: F-0672

RICKY GREENE, PE — *CONSULTANT CONTACT #1*
LINDA PASS, PE — *CONSULTANT CONTACT #2*
ROBIN ROCK — *CONSULTANT CONTACT #3*

SEAL

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

_____ *UTILITIES REGIONAL ENGINEER*
_____ *UTILITIES ENGINEER*
_____ *UTILITIES AREA COORDINATOR*
_____ *UTILITIES COORDINATOR*

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$USERNAME$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

5/14/99

PERMIT DRAWING
SHEET 2 OF 23
DATE: 04-01-2020

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	NEU-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE
100 50 0 100 200
PLANS

NAD 83/NSRS 2007

HC HC DENOTES HAND CLEARING

ENLARGEMENT VIEW SEE SHEET 3 OF 23

DESIGN IMPACTS SEE SHEET 27 OF 165

DETOUR IMPACTS SEE SHEET 2 OF 165

ENLARGEMENT VIEW SEE SHEET 4 OF 23

ENLARGEMENT VIEW SEE SHEET 5 OF 23

ENLARGEMENT VIEW SEE SHEET 6 OF 23

MATCHLINE -Y30- STA 28+00.00 SEE SHEET 30

MATCHLINE -L- STA 39+00.00 SEE SHEET 4

MATCHLINE -L- STA 41+00.00 SEE SHEET 31

MATCHLINE -L- STA 60+00.00 SEE SHEET 6

-SR4- PC Sta. 19+85.53
BRDG 84-5 170 19 040 E

-SR4- PT Sta. 23+74.22

-SR4- POT Sta. 21+65.10
END CONSTRUCTION

-SR6- PC Sta. 15+10.30

-SR6- PRC Sta. 19+85.38

-Y30RPB- CS Sta. 15+32.79

-Y30RPB- POT Sta. 22+33.46
-Y30- POT Sta. 34+56.00

-Y30RPA- POT Sta. 24+19.55
-Y30- POT Sta. 34+26.00

-Y30RPB-

-Y30RPA-

-SR6- PT Sta. 24+82.75

-SR6- PC Sta. 27+17.50

-SR6- PRC Sta. 29+43.50

-SR6- PT Sta. 31+29.68

-Y30RPC- TS Sta. 8+00.00

-Y30RPC- SC Sta. 10+15.00

-Y30RPC- CS Sta. 13+83.30

-Y30RPC- SCS Sta. 15+99.30

-Y30RPC- SC Sta. 18+45.30

-Y30RPC- ST Sta. 20+88.12

-Y30RPB- ST Sta. 47+48.79

-L- ST Sta. 60+08.31

-Y30RPA- SC Sta. 17+55.92

-Y30RPA- SCS Sta. 15+39.00

-Y30RPA- CS Sta. 13+21.38

-Y30RPA- SC Sta. 9+86.00

-Y30RPA- TS Sta. 8+50.00

-L- SC Sta. 64+33.99

-L- LS Sta. 64+21.38

-Y30RPD-

-Y30RPC- POT Sta. 26+23.62
-Y30- POT Sta. 45+20.00

-Y30- PC Sta. 45+86.72

-Y30RPC- ST Sta. 46+26.28

-Y30RPD- ST Sta. 23+04.05

BEGIN APPR SLAB
-Y30- STA. 38+50.29
BEGIN BRIDGE
-Y30- STA. 38+74.22

END BRIDGE
-Y30- STA. 41+14.48
END APPR SLAB
-Y30- STA. 41+39.15

4'X4'X3' BORE PIT

ABANDONED

SITE 3

SITE 34

SITE 3

SITE 3

MARTECH, LLC.
GERALD HARDISON, JR., ET AL
DAVID RICHARTZ, ET AL
BARRY D. OBENS, ET AL
RONNIE D. ADAMS
GERALD D. HARDISON, JR., ET AL
J & J PROPERTY INVESTMENTS, LLC.
2479 HIGHWAY 210, LLC.
JERRY E. PARKER
CLOVERLEAF ESTATES, LLC
NOELLE HOLDINGS, LLC
GERALD D. HARDISON, JR., & HARDISON RENTALS, LLC.
VALT, LLC
GRETEL R. GRIFFITH
RICHARD B. GRIFFITH
PHILIP J. WHITTY, ET UX
JOHNNIE C. GARRASON, ET UX
JIMMY W. BURNS, ET UX
FRANCIS M. REDDY

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

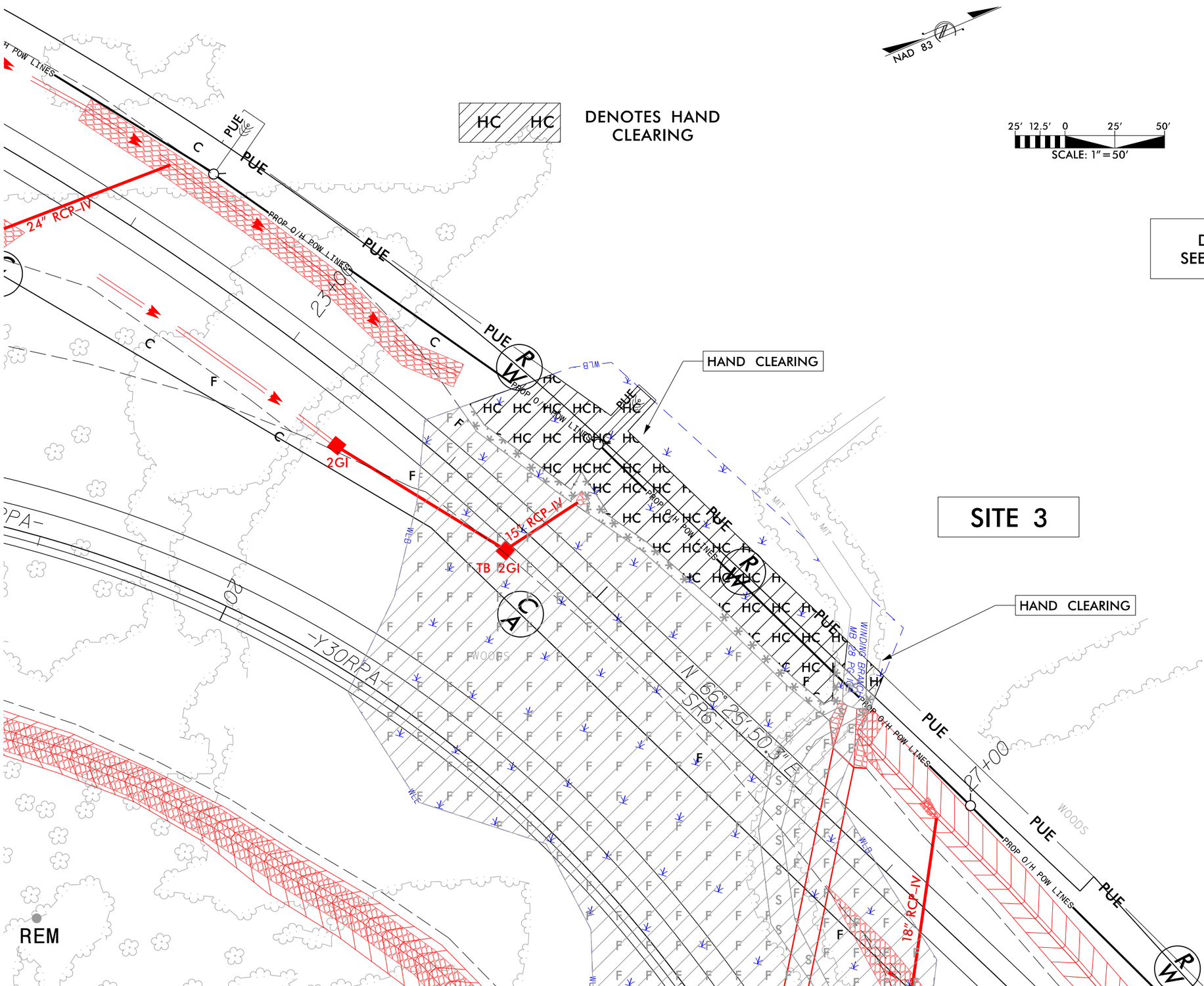
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

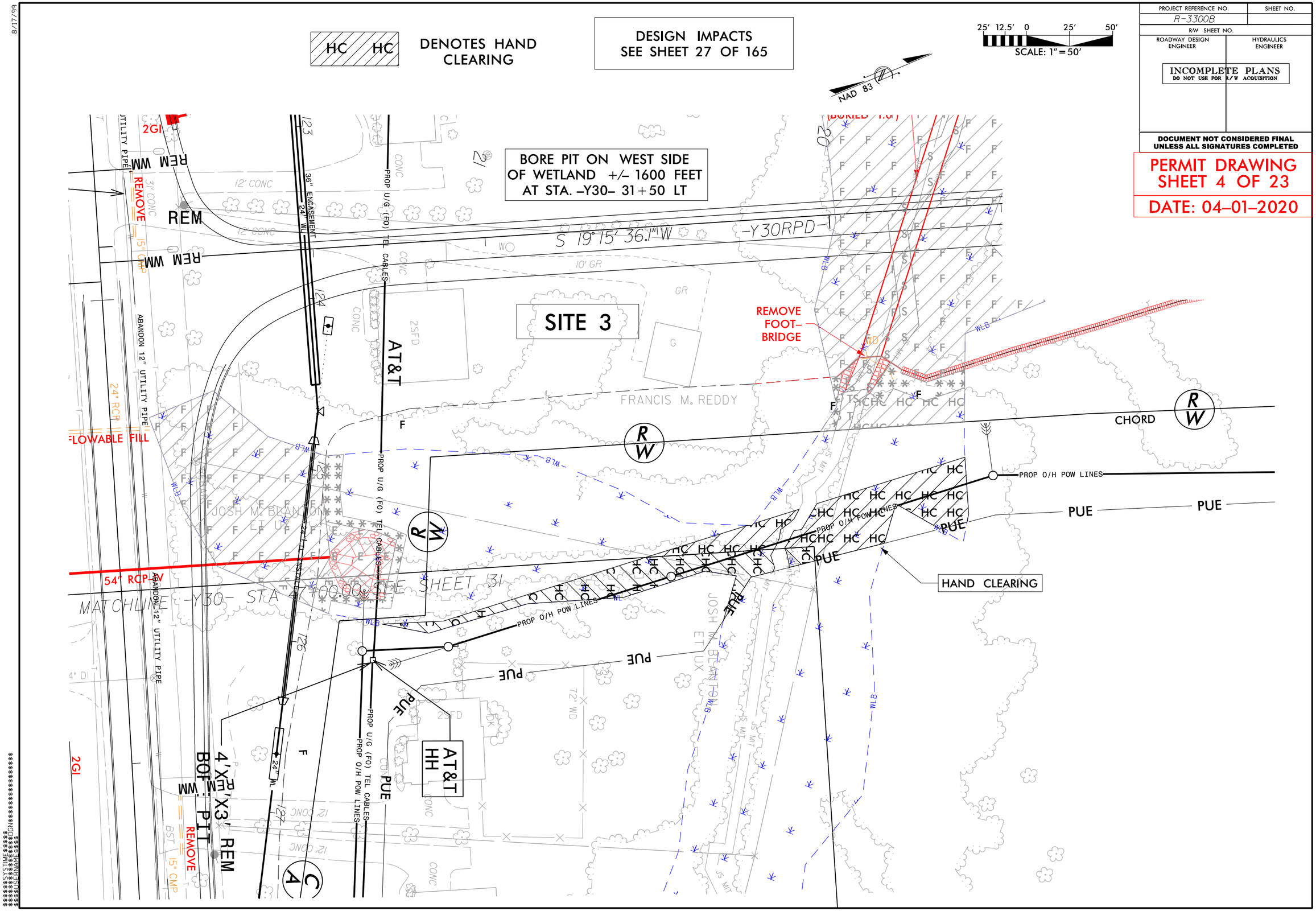
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 3 OF 23

DATE: 04-01-2020

DESIGN IMPACTS
SEE SHEET 27 OF 165





HC HC
DENOTES HAND CLEARING
DESIGN IMPACTS SEE SHEET 27 OF 165
25' 12.5' 0 25' 50'
SCALE: 1" = 50'
NAD 83
PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 4 OF 23
DATE: 04-01-2020
BORE PIT ON WEST SIDE OF WETLAND +/- 1600 FEET AT STA. -Y30- 31+50 LT
SITE 3
REMOVE FOOT-BRIDGE
HAND CLEARING
FRANCIS M. REDDY
JOSH M. BLANTON ET UX
S 19° 15' 36.1" W
-Y30RPD-1
CHORD
PROP O/H POW LINES
PUE
REM WM
REMOVE
FLOWABLE FILL
54" RCP-W
MATCHLINE -Y30- STA 4+00.00 SEE SHEET 31
ABANDON 12" UTILITY PIPE
36" ENCASEMENT
24" WL
PROP U/G (FO) TEL CABLES
AT&T
AT&T HH
4'X4'X3' REM BOF PIT
2GI

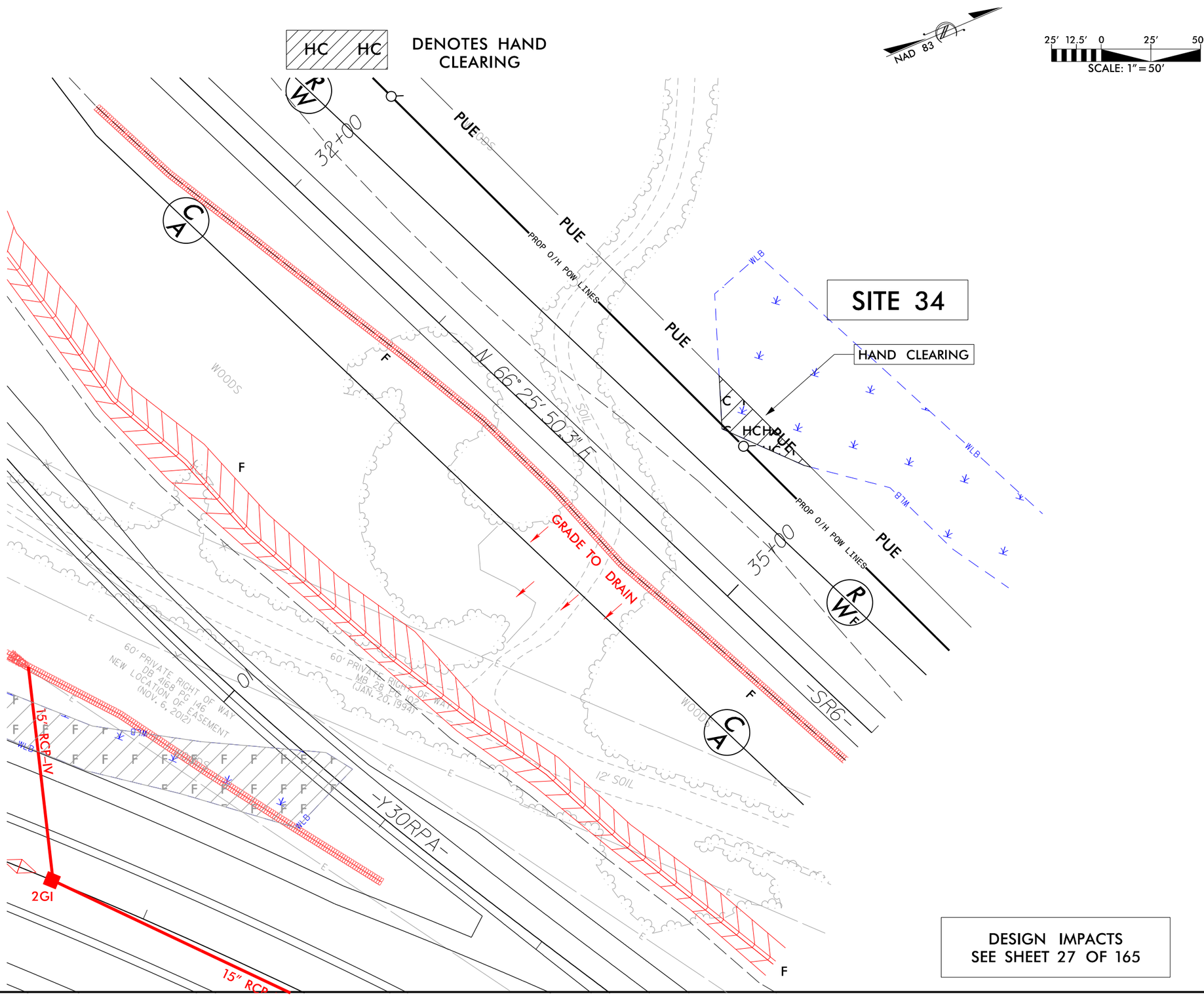
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

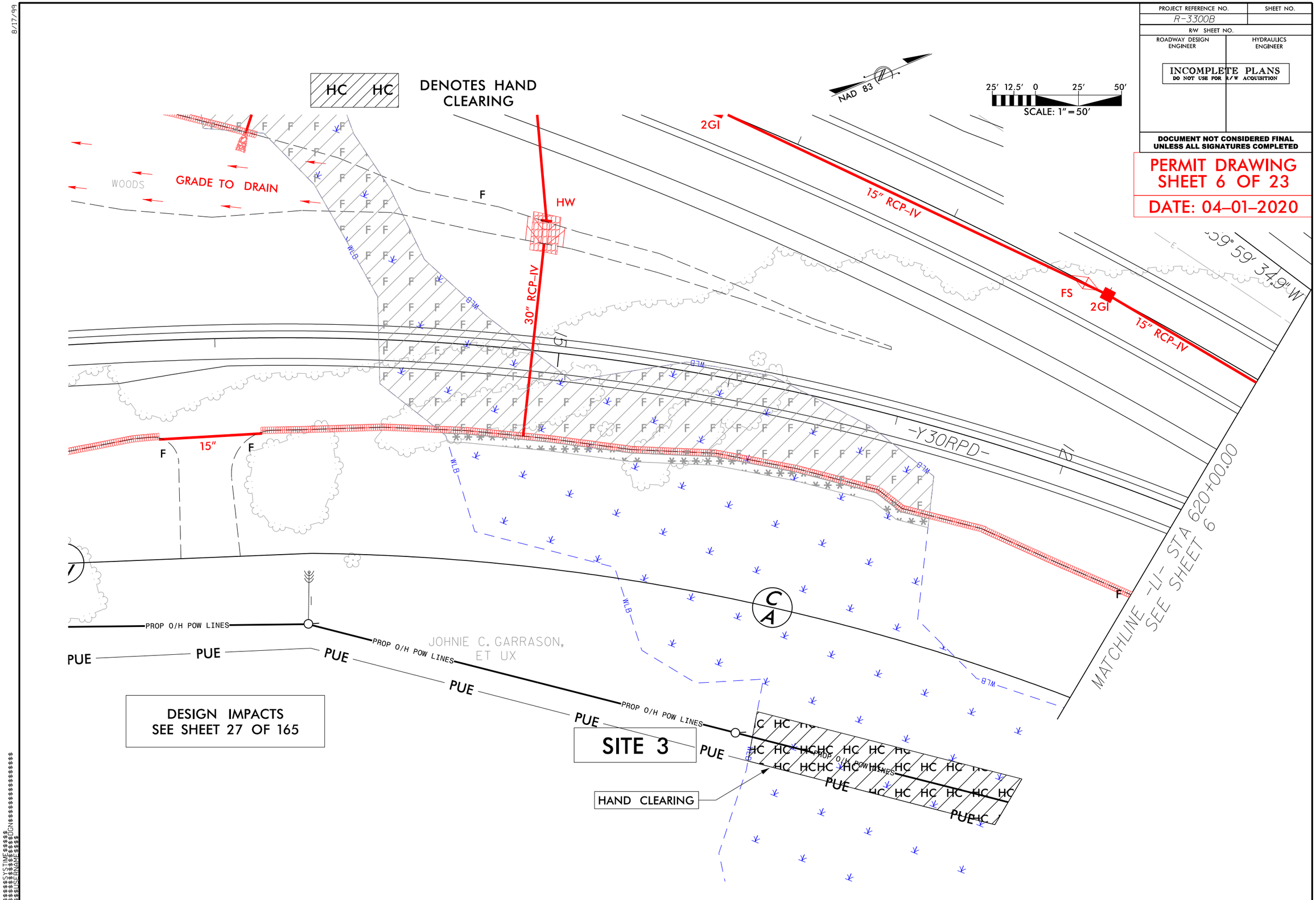
PERMIT DRAWING
SHEET 5 OF 23

DATE: 04-01-2020



DESIGN IMPACTS
SEE SHEET 27 OF 165

8/17/99



PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 6 OF 23
DATE: 04-01-2020
HC HC
DENOTES HAND CLEARING
NAD 83
25' 12.5' 0 25' 50'
SCALE: 1" = 50'
WOODS
GRADE TO DRAIN
HW
30" RCP-IV
2GI
15" RCP-IV
FS
2GI
15" RCP-IV
-Y30RPD-
15"
WLB
MATCHLINE -LI- STA 620+00.00
SEE SHEET 6
PROP O/H POW LINES
PUE
JOHNIE C. GARRASON, ET UX
DESIGN IMPACTS
SEE SHEET 27 OF 165
SITE 3
HAND CLEARING

5/14/99

50' 25' 0 50' 100'
SCALE: 1" = 100'

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
920 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 7 OF 23

DATE: 04-01-2020

NAD 83/NSRS 2007

JOHNIE C. GARRASON, ET UX

-SR6- PC Sta. 36+17.77

END CONSTRUCTION
-SR6- PT Sta. 39+89.31

HC HC DENOTES HAND CLEARING

MATCHLINE -SR6- STA 36+00.00 SEE SHEET 5

MATCHLINE -SR6- STA 39+00.00 SEE SHEET 7

MATCHLINE -LI- STA 631+00.00

MATCHLINE -LI- STA 620+00.00 SEE SHEET 5

-LI- POC Sta. 621+74.24
-Y30RPA- POT Sta. 5+00.00
47' LT

-Y30RPA-

S 59° 59' 34.9" W

-LI-

-Y30RPD-

-Y30RPD- SC Sta. 7+19.00

-Y30RPD- ST Sta. 5+00.00
-LI- POC Sta. 626+39.93
47.00' RT

DESIGN IMPACTS
SEE SHEET 44 OF 165

SITE 3

JOHNIE C. GARRASON, ET UX

60' PRIVATE RIGHT OF WAY AND 18' P.U.E. OF JOHNIE C. GARRASON, ET UX

60' PRIVATE RIGHT OF WAY AND 18' P.U.E. OF NEW LOCATION OF EASEMENT (NOV. 6, 2007)

PROP O/H POW LINES

PUE

WOODS

15" RCP-IV

FS

2GI

15"x24" RCP-IV

15" w/ ELBOWS

CHORD

ENLARGEMENT VIEW
SEE SHEET 8 OF 23

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 35 & 36 FOR -L1- PROFILE
SEE SHEET 54 FOR -Y30RPA- PROFILE
SEE SHEET 57 FOR -Y30RPD- PROFILE
SEE SHEET 70 FOR -SR6- PROFILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$SYSUSER$$$$$$
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 8 OF 23

DATE: 04–01–2020

HC HC DENOTES HAND CLEARING

DESIGN IMPACTS
SEE SHEET 44 OF 165

NAD 83

25′ 12.5′ 0 25′ 50′
SCALE: 1″ = 50′

MATCHLINE -L1- SEE SHEET 5
STA 620+00.00

15' RCP

-Y30RPD-

10

9

2GI

PROP O/H POW LINES

PUE

R/W

C/A CHORD

WLB

HC HC HC

5/14/99

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALE
100 50 0 100 200
PLANS

NAD 83/NSRS 2007

PERMIT DRAWING SHEET 9 OF 23

DATE: 04-01-2020

TEMPORARY IMPACTS SHOWN ON SHEET 10 OF 165

ENLARGEMENT VIEW SEE SHEET 10 OF 23

PERMANENT IMPACTS SHOWN ON SHEET 77 OF 165

HC HC DENOTES HAND CLEARING

SITE 17

-Y3IRPA- PT Sta. 17+67.82
BRDG AH=N 77° 22' 37.5" E

-Y3IRPB- PC Sta. 15+66.09

-Y3IRPB- ST Sta. 13+15.09

-Y3IRPB- CS Sta. 11+27.09

-Y3IRPB- SC Sta. 8+78.00

-Y3IRPB- SRS Sta. 6+95.00

-Y3IRPC- CS Sta. 16+27.28

-Y3IRPC- ST Sta. 18+43.28

-Y3IRPA- PC Sta. 13+45.73

-Y3IRPA- PT Sta. 14+80.85
BRDG AH=N 87° 14' 17.7" W

-Y3IRPA- ST Sta. 14+90.80
BRDG AH=N 63° 46' 09.2" E

-SR7- PRC Sta. 15+11.11

-SR7- PC Sta. 10+29.01
BRDG AH=S 79° 31' 22.5" E

-Y3- POT Sta. 23+65.00
-SR7- POT Sta. 10+00.00

-Y3- POT Sta. 26+60.00
-Y3IRPA- POT Sta. 15+27.70
-Y3IRPB- POT Sta. 19+59.59

-Y3- PC Sta. 27+13.29

BEGIN APPR SLAB
-Y3- STA.28+89.22

BEGIN BRIDGE
-Y3- STA.29+13.36

END BRIDGE
-Y3- STA. 31+33.86

END APPR.SLAB
-Y3- STA. 31+58.00

-Y3LPC- SC Sta. 6+52.00

-Y3LPC- SC Sta. 5+00.00

-Y3LPC- CS Sta. 11+23.57

-Y3LPC- ST Sta. 12+75.50

-Y3LPC- POT Sta. 23+14.56
-Y3- POT Sta. 36+72.87

-Y3LPC- POT Sta. 14+60.94
-Y3- POT Sta. 36+52.00
BRDG BK=S 79° 01' 11" E

-Y3- PT

-Y3- POT Sta. 46+85.46
END CONSTRUCTION

-L1- CS Sta. 73+39.64

-L1- ST Sta. 73+56.43

-L1- PT Sta. 74+40.00

-L1- ST Sta. 74+02.57

-Y3IRPA- SC Sta. 7+16.00

-Y3IRPA- ES Sta. 10+64.80

-Y3IRPA- TS Sta. 5+00.00

-SR7- PT Sta. 20+79.05

INSET 2

SEE SHEET 28-1 FOR HORIZONTAL CURVE DATA
SEE SHEETS 39 & 40 FOR -L1- PROFILE
SEE SHEETS 58 & 59 FOR -Y3- PROFILE
SEE SHEET 60 FOR -Y3IRPA- PROFILE
SEE SHEETS 60 & 61 FOR -Y3IRPB- PROFILE
SEE SHEET 61 FOR -Y3IRPC- PROFILE
SEE SHEET 71 FOR -SR7- PROFILE
SEE SHEET 62 FOR -Y3ILPC- PROFILE

$$$$SYSTIME$$$$
$$$$LOGIN$$$$
$$$$FILENAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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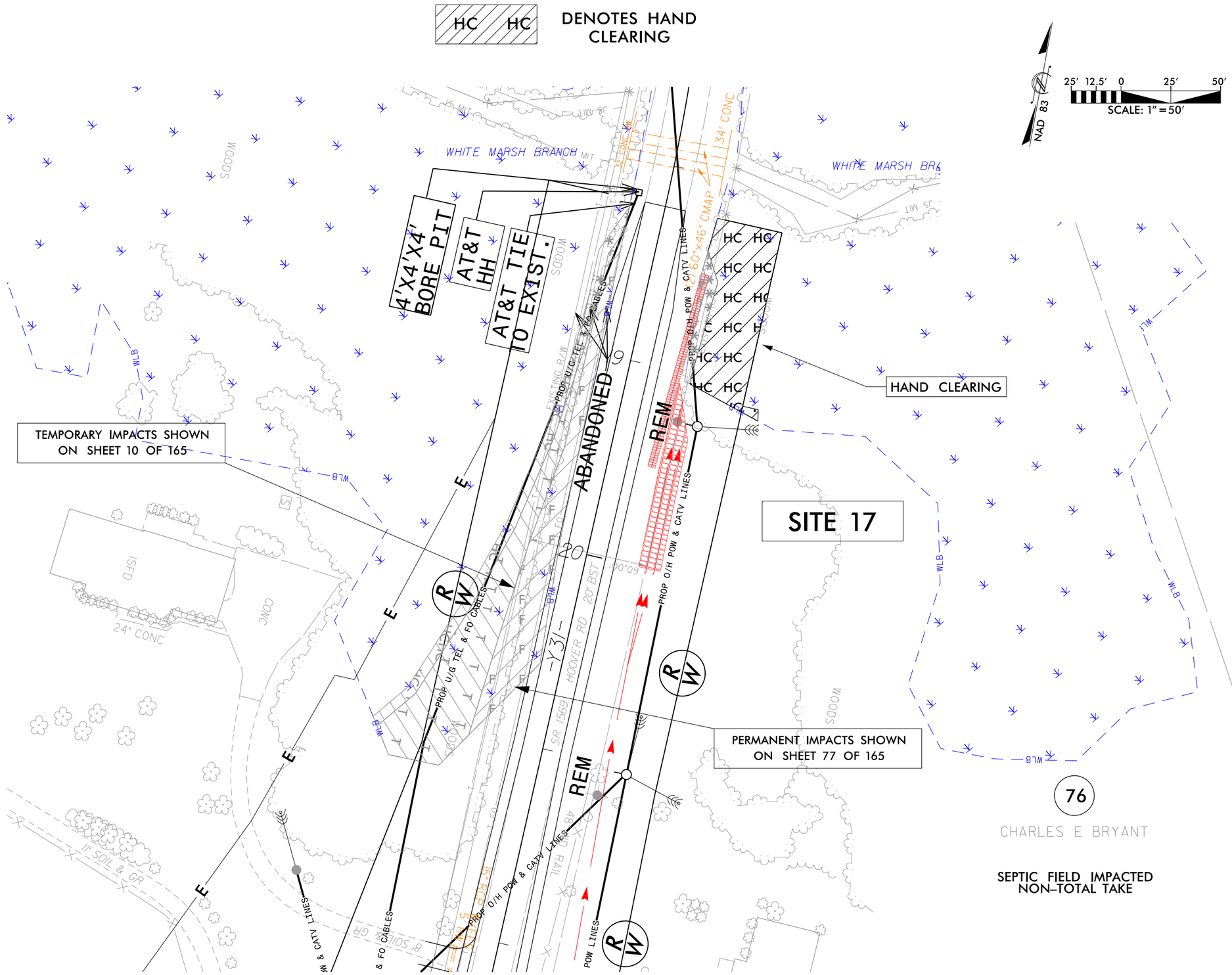
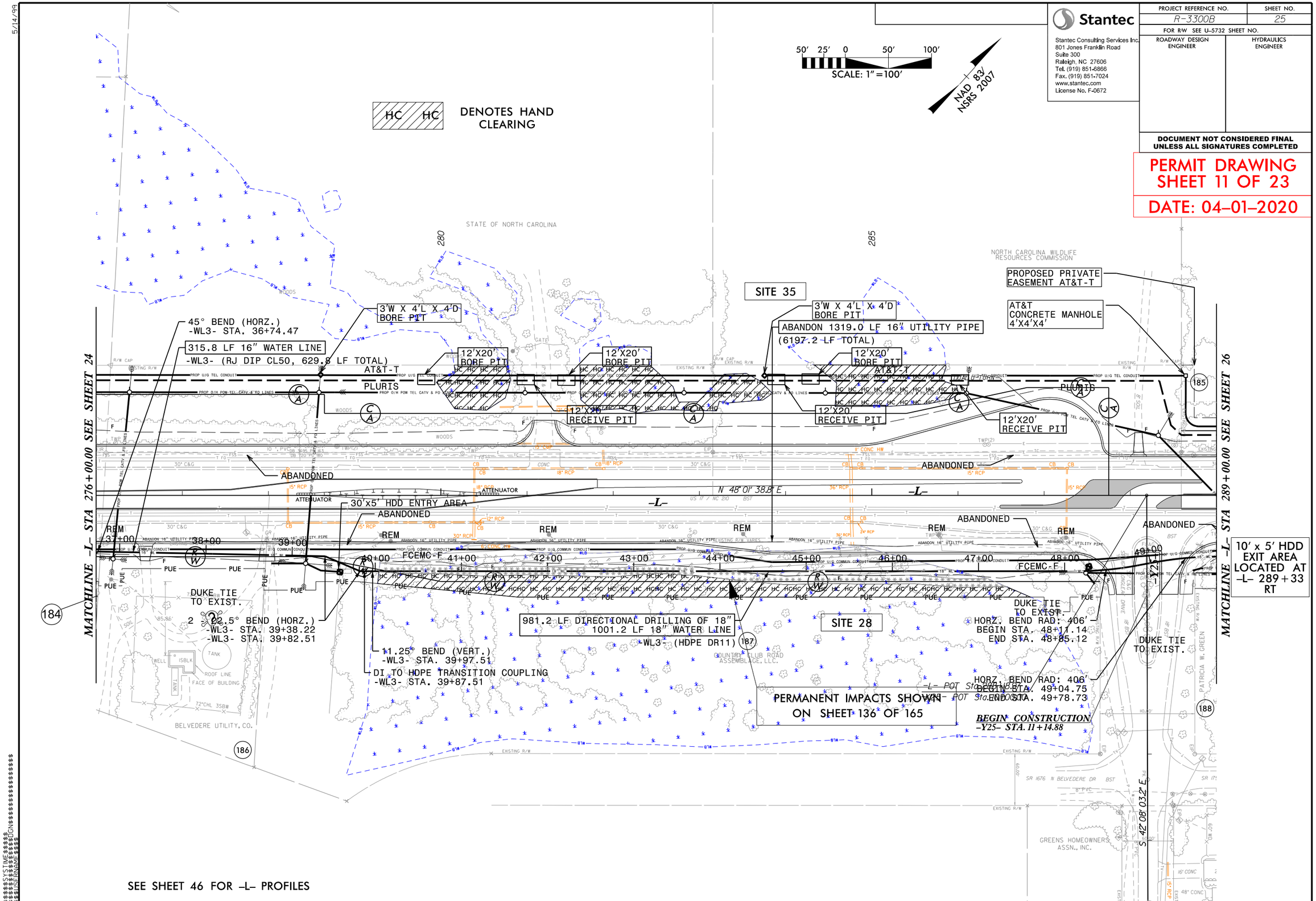
PERMIT DRAWING
SHEET 10 OF 23

DATE: 04-01-2020



8/17/99



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Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.
R-3300B
SHEET NO.
25
FOR R/W SEE U-5732 SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 11 OF 23
DATE: 04-01-2020
SCALE: 1" = 100'
NAD 83/ NSRS 2007
HC HC DENOTES HAND CLEARING
STATE OF NORTH CAROLINA
NORTH CAROLINA WILDLIFE RESOURCES COMMISSION
SITE 35
SITE 28
PROPOSED PRIVATE EASEMENT AT&T-T
AT&T CONCRETE MANHOLE 4'X4'X4'
3'W X 4'L X 4'D BORE PIT
ABANDON 1319.0 LF 16" UTILITY PIPE (6197.2 LF TOTAL)
12'X20' BORE PIT
12'X20' RECEIVE PIT
45° BEND (HORZ.) -WL3- STA. 36+74.47
315.8 LF 16" WATER LINE -WL3- (RJ DIP CL50, 629.8 LF TOTAL)
AT&T-T
PLURIS
ABANDONED
30'x5' HDD ENTRY AREA
N 48° 01' 38.8" E
MATCHLINE -L- STA 276+00.00 SEE SHEET 24
MATCHLINE -L- STA 289+00.00 SEE SHEET 26
10' x 5' HDD EXIT AREA LOCATED AT -L- 289+33 RT
DUKE TIE TO EXIST.
2 - 22.5° BEND (HORZ.) -WL3- STA. 39+38.22 -WL3- STA. 39+82.51
11.25° BEND (VERT.) -WL3- STA. 39+97.51
DI TO HDPE TRANSITION COUPLING -WL3- STA. 39+87.51
981.2 LF DIRECTIONAL DRILLING OF 18" 1001.2 LF 18" WATER LINE -WL3- (HDPE DR11)
HORZ. BEND RAD: 406' BEGIN STA. 48+11.14 END STA. 48+85.12
HORZ. BEND RAD: 406' BEGIN STA. 49+04.75 END STA. 49+78.73
PERMANENT IMPACTS SHOWN ON SHEET 136 OF 165
BEGIN CONSTRUCTION -Y25- STA. 11+14.88
BELVEDERE UTILITY, CO.
GREENS HOMEOWNERS ASSN., INC.
S 42° 08' 03.2" E
SEE SHEET 46 FOR -L- PROFILES

5/14/99

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	26
FOR R/W SEE U-5732 SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 12 OF 23

DATE: 04-01-2020

50' 25' 0 50' 100'
SCALE: 1" = 100'

NAD 83/ NSRS 2007

HC HC DENOTES HAND CLEARING

ENLARGEMENT VIEW SEE SHEET 13 OF 23

PERMANENT IMPACTS SHOWN ON SHEET 138 OF 165

PROPOSED PRIVATE EASEMENT AT&T-T

ABANDON 1207.5 LF 16" UTILITY PIPE (6197.2 LF TOTAL)

3'W X 4'L X 4'D BORE PIT

3'W X 4'L X 4'D BORE PIT

30'x5' HDD ENTRY AREA

PRIVATE EASEMENT AT&T-T

PRIVATE EASEMENT

ABANDONED

ABANDONED

N 48° 01' 38.8" E

-L- PC Sta. 293+35.83

MATCHLINE -L- STA 289+00.00 SEE SHEET 25

MATCHLINE -L- STA 301+00.00 SEE SHEET 27

10'x5' HDD EXIT AREA

RELOCATE FIRE HYDRANT
7.5 LF FIRE HYDRANT LEG
16"X16"X6" TEE
-WL3- STA. 49+98.73
DI TO HDPE TRANSITION COUPLING
-WL3- STA. 49+88.73
11.25° BEND (VERT.)
-WL3- STA. 49+78.73

1111.6 LF 16" WATER LINE
-WL3- (RJ DIP CL50)

HORZ. BEND RAD: 4000'
BEGIN STA. 55+07.10
END STA. 61+00.32

DI TO HDPE TRANSITION COUPLING
-WL3- STA. 61+00.32
11.25° BEND (VERT.)
-WL3- STA. 61+05.32

81.6 LF DIRECTIONAL DRILLING OF 18"
86.6 LF 18" WATER LINE
-WL3- (HDPE DR11, 195.4 LF TOTAL)

SITE 29

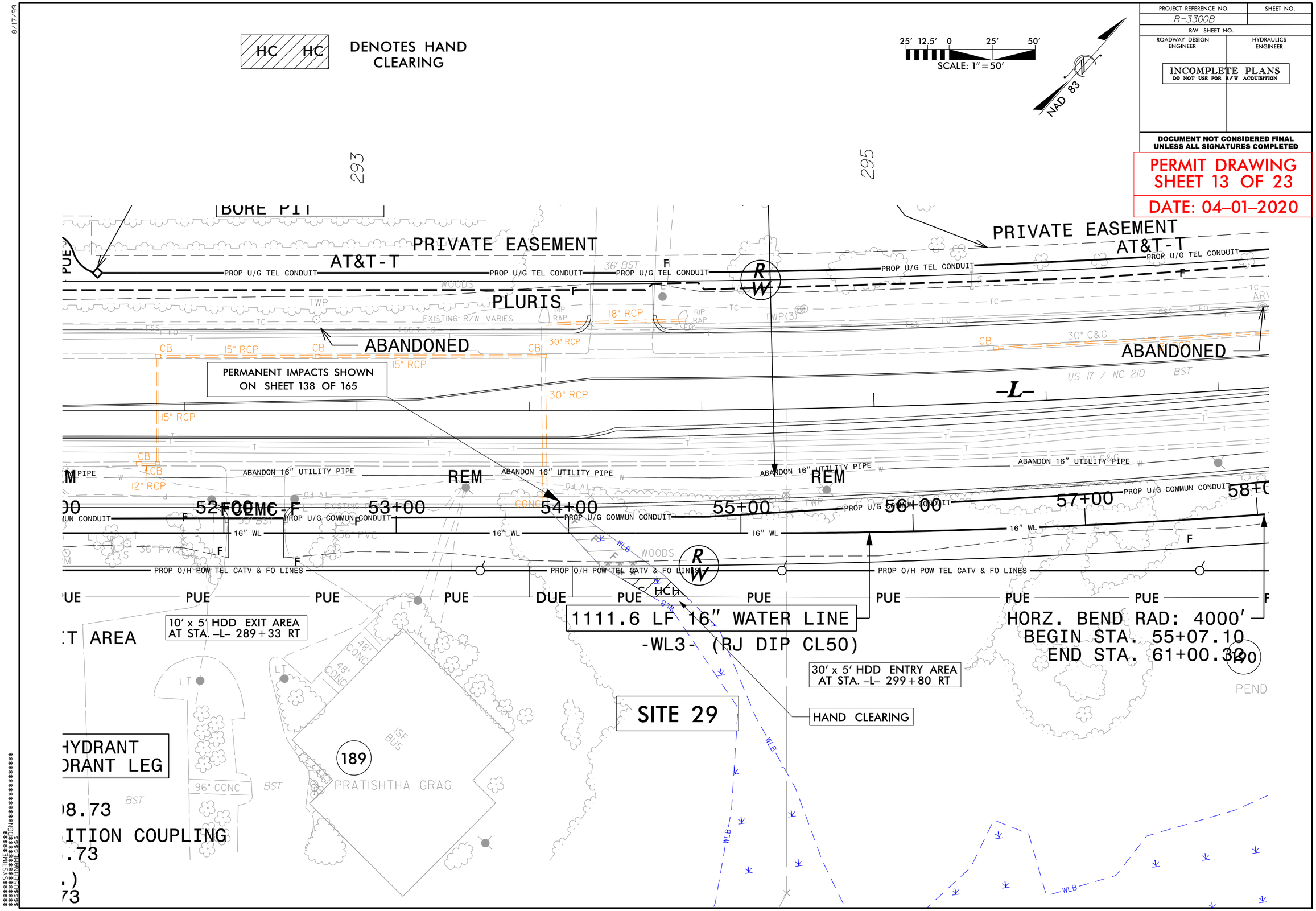
ST. JOSEPH, BOSSMAN, BISHOP

PATRICIA W. GREEN

PRATISHTHA GRAG

PENDER LAND HOLDINGS, INC.

SEE SHEETS 46 & 47 FOR -L- PROFILES



PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
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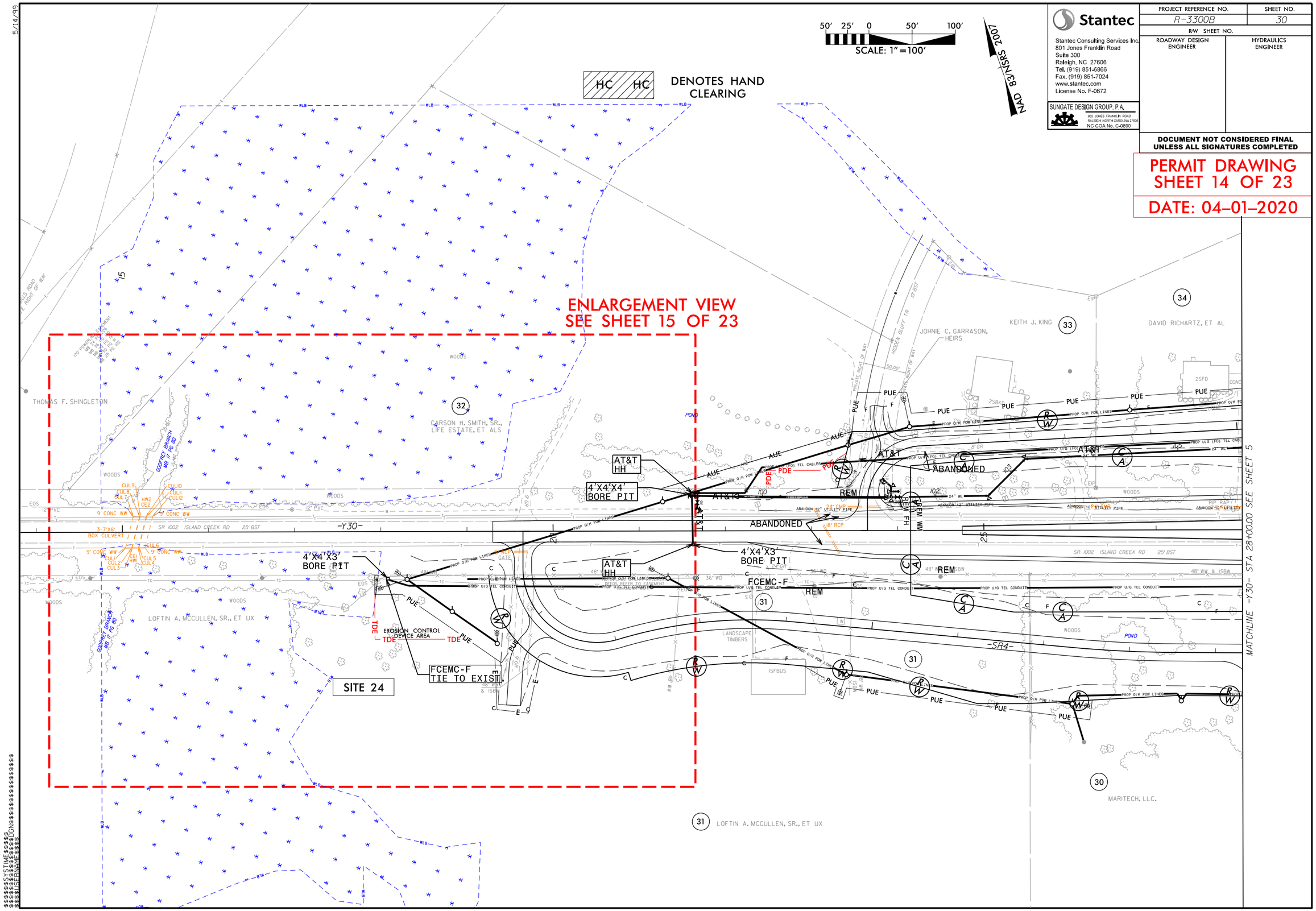
PERMIT DRAWING
SHEET 13 OF 23
DATE: 04-01-2020
HC HC
DENOTES HAND CLEARING
SCALE: 1" = 50'
NAD 83
293
295
BORE PIT
PRIVATE EASEMENT
AT&T-T
PROP U/G TEL CONDUIT
PLURIS
ABANDONED
PERMANENT IMPACTS SHOWN ON SHEET 138 OF 165
ABANDON 16" UTILITY PIPE
REM
52+00
53+00
54+00
55+00
56+00
57+00
58+00
PROP U/G COMMUN CONDUIT
16" WL
PROP O/H POW TEL CATV & FO LINES
PUE
DUE
10' x 5' HDD EXIT AREA AT STA. -L- 289+33 RT
1111.6 LF 16" WATER LINE
-WL3- (RJ DIP CL50)
HORZ. BEND RAD: 4000'
BEGIN STA. 55+07.10
END STA. 61+00.32
30' x 5' HDD ENTRY AREA AT STA. -L- 299+80 RT
HAND CLEARING
SITE 29
PRATISHTHA GRAG
189
190
PEND
HYDRANT
DRANT LEG
ITION COUPLING



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Stantec Consulting Services Inc.
801 Jones Franklin Road
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Raleigh, NC 27606
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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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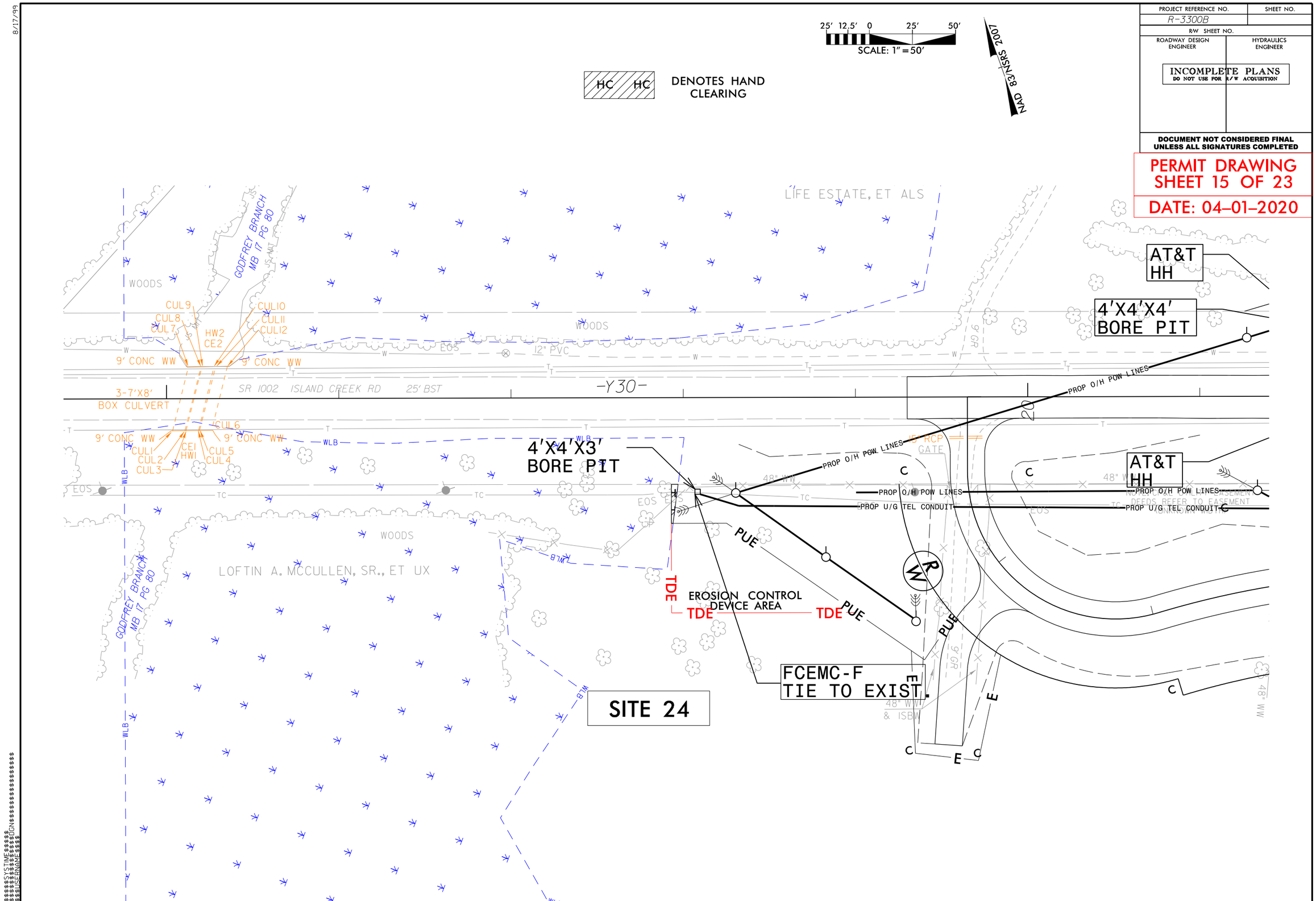
PERMIT DRAWING
SHEET 14 OF 23

DATE: 04-01-2020



PROJECT REFERENCE NO.
R-3300B
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 15 OF 23
DATE: 04-01-2020
25' 12.5' 0 25' 50'
SCALE: 1" = 50'
NAD 83/NSRS 2007
HC HC
DENOTES HAND CLEARING
LIFE ESTATE, ET ALS
GODFREY BRANCH MB 17 PG 80
WOODS
CUL9
CUL8
CUL7
HW2
CE2
CUL10
CUL11
CUL12
9' CONC WW
3-7'X8' BOX CULVERT
SR 1002 ISLAND CREEK RD 25' BST
-Y30-
12" PVC
EOS
CUL6
CUL1
CUL2
CUL3
CE1
HW1
CUL5
CUL4
WLB
4'X4'X3' BORE PIT
AT&T HH
4'X4'X4' BORE PIT
PROP O/H POW LINES
PROP U/G TEL CONDUIT
15" RCP
GATE
48" WW
PUE
TDE
EROSION CONTROL DEVICE AREA
LOFTIN A. MCCULLEN, SR., ET UX
FCEMC-F TIE TO EXIST.
48" WW & ISBW
SITE 24

5/14/99

ENLARGEMENT VIEW
SEE SHEET 4 OF 23

50' 25' 0 50' 100'
SCALE: 1" = 100'

NAD 83/NSRS 2007

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801 Jones Franklin Road
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Raleigh, NC 27606
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920 JONES FRANKLIN ROAD
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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 16 OF 23

DATE: 04-01-2020

MATCHLINE -Y30- STA 47+00.00 SEE SHEET 5

-SR5- POT Sta. 10+00.00
-Y30- POT Sta. 56+60.00

END CONSTRUCTION
-Y30- POT Sta. 60+27.00

-SR5- PC Sta. 10+38.30
BRDG BK=S 23° 11' 13.7" W

-SR5- PT Sta. 13+23.81

-SR5- PRC Sta. 12+06.91

-SR5- PC Sta. 17+61.80

-SR5- PT Sta. 20+97.10

END CONSTRUCTION
-SR5- POT Sta. 22+76.14

-SR5- POT Sta. 22+76.14

-Y30- PT Sta. 62+12.58

N 71° 16' 17.1" W
-SR5-

S 65° 47' 37.4" E

SITE 3

SITE 3

4'X4'X3' BORE PIT

4'X4'X3' REM BORE PIT

4'X4'X3' BORE PIT

4'X4'X3' BORE PIT

4'X4'X3' BORE PIT

ABANDONED

ABANDONED

FCEMC-F TIE TO EXIST.

TEMPORARY IMPACTS SHOWN ON SHEET 2 OF 165

PERMANENT IMPACTS SHOWN ON SHEET 149 OF 165

HC HC DENOTES HAND CLEARING

JOSH M. BRANTON ET UX

AMANDA B. WHITLEY

REBECCA F. DRISH, ET VIR

JOHNIE C. GARRASON, ET UX

FLOYD L. ELAM, JR.

SUSAN D. LORUSSO

RICHARD H. LEWIS, ET UX

PAUL E. HOLT

WILLIAM D. STORCKS, ET UX

EFFIE BELL

MARTIN J. EVANS, ET UX

RICHARD B. GRIFFITH

PAUL E. HOLT

AT&T HH

AT&T HH

AT&T HH

AT&T

AT&T

FCEMC-F

FCEMC-F

REM

PUE

DUE

PDE

ADE

TDE

ABANDON 12" UTILITY PIPE

ABANDON 12" PVC

NC 210 -Y30-

NC 210 25' BST

15" CMP

18" CMP

30" RCP

15" RCP

7' CONC HW

5' BK HW

15' WD HW

24" RCP

18" RCP

PROP U/G (FO) TEL CABLES

PROP O/H POW LINES

PROP U/G TEL CONDUIT

PROP U/G POW LINES

ABANDON 12" UTILITY PIPE

NOTE: CP&L UTILITY EASEMENT DEEDS REFER TO EASEMENT UNKNOWN WIDTH

EXISTING R/W

2SFD

SEPTIC TANK

ISBKD

ISFD

WOODS

CONC PAVERS

72" WD

48" WD

22" WD

24" WD

15' SOIL & GR

6' UTILITY EASEMENT

30' DRAINAGE EASEMENT
DB 485 PG 514

SEE SHEET 5

5/22/2019

–Y30–

PERMIT DRAWING
SHEET 17 OF 23
DATE: 04–01–2020

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Suite 300
Raleigh, NC 27606
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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PIPE HYDRAULIC DATA
42" RCP Sta. 35+77 –Y30–

DRAINAGE AREA	= 11	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 50	CFS
DESIGN HW ELEVATION	= 43.5	FT
100 YEAR DISCHARGE	= 55	CFS
100 YEAR HW ELEVATION	= 43.7	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 93	CFS
OVERTOPPING ELEVATION	= 45.6	FT

MATCHLINE –Y30– STA. 28+00.00

PROPOSED GRADE

BEGIN BRIDGE
–Y30– STA 38+64+/–

PI = 39+55.00
EL = 80.41'
VC = 560'
K = 85
DS = 50 mph

END BRIDGE
–Y30– STA 41+00+/–

(+)3.2000%

(–)3.4077%

(+) 0.4000%

18" RCP

END SPEC CUT DITCH
BEG LAT 2' BASE DITCH
PI STA 28+50 –Y30– RT
ELEV=39.44

BM #21
R/R SPIKE IN 6" SWEET GUM
76.23' RT OF –Y30– STA 30+66.19
ELEV. 45.11'

END LAT
2' BASE DITCH
PI STA 33+00 –Y30– RT
ELEV=41.24

EXISTING GROUND

15" RCP

42" RCP

BM #22
R/R SPIKE SET IN 10" HICKORY
639.88' LT OF –Y30– STA 39+67.95
ELEV. 26.37'

(–) 0.3000%

BEG LAT
4' BASE DITCH
PI STA 40+32 –Y30– RT
ELEV=37.20

MATCHLINE –Y30– STA. 41+00.00

28 29 30 31 32 33 34 35 36 37 38 39 40 41

–Y30–

PIPE HYDRAULIC DATA
54" RCP Sta. 46+88 –Y30–

DRAINAGE AREA	= 48	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 39.7	FT
100 YEAR DISCHARGE	= 130	CFS
100 YEAR HW ELEVATION	= 40.4	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 150	CFS
OVERTOPPING ELEVATION	= 41.0	FT

MATCHLINE –Y30– STA. 41+00.00

PROPOSED GRADE

SITE 3

PI = 52+60.00
EL = 35.94'
VC = 370'
K = 79
DS = 45 mph

4'x4'x3' bore pit

(–) 0.3000%

END LAT
4' BASE DITCH
PI STA 44+35 –Y30– RT
ELEV=36.00

EXISTING GROUND

BEG LAT
4' BASE DITCH
PI STA 46+15 –Y30– RT
ELEV=35.45

(–) 0.30%

54" RCP

(+)
0.30%

PI =46+88.000
EI = 35.24

END LAT
4' BASE DITCH
PI STA 47+25 –Y30– RT
ELEV=35.35

BEG LAT
BASE DITCH
PI STA 48+00 –Y30– RT
ELEV=38.70

(–) 0.5000%

(–) 1.4000%

PI =50+00.000
EI = 37.70

(–)3.4077%

(+)1.2679%

(–) 2.4000%

(–) 0.8000%

PI =51+50.000
EI = 35.60

PI =52+50.000
EI = 33.20

END LAT BASE DITCH
PI STA 54+00 –Y30– RT
ELEV=32.00

MATCHLINE –Y30– STA. 54+00.00

FOR –Y30RPD– PLAN SEE SHEETS 5 & 6

FOR –Y30– PLAN SEE SHEETS 5, 30, & 31

41 42 43 44 45 46 47 48 49 50 51 52 53 54

10/23/2019
U:\Raleigh\Proj\R3300B_Rdy_pl_53.dgn
kbaze

5/28/2019

–Y30–

PERMIT DRAWING
SHEET 18 OF 23
DATE: 04–01–2020

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6666
Fax. (919) 851-7024
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NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA
30" RCP Sta. 54+00 –Y30–

DRAINAGE AREA	5.6	AC
DESIGN FREQUENCY	50	YRS
DESIGN DISCHARGE	30	CFS
DESIGN HW ELEVATION	34.9	FT
100 YEAR DISCHARGE	33	CFS
100 YEAR HW ELEVATION	35.2	FT
OVERTOPPING FREQUENCY	100+	YRS
OVERTOPPING DISCHARGE	46	CFS
OVERTOPPING ELEVATION	36.5	FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	210	CFS
DESIGN FREQUENCY	50	YRS
DESIGN HW ELEVATION	35.4	FT
BASE DISCHARGE	240	CFS
BASE FREQUENCY	100	YRS
BASE HW ELEVATION	35.8	FT
OVERTOPPING DISCHARGE	335	CFS
OVERTOPPING FREQUENCY	500+	YRS
OVERTOPPING ELEVATION	37.5	FT

PIPE HYDRAULIC DATA
30" RCP Sta. 58+77 –Y30–

DRAINAGE AREA	5.6	AC
DESIGN FREQUENCY	50	YRS
DESIGN DISCHARGE	25	CFS
DESIGN HW ELEVATION	36.1	FT
100 YEAR DISCHARGE	27	CFS
100 YEAR HW ELEVATION	36.2	FT
OVERTOPPING FREQUENCY	100+	YRS
OVERTOPPING DISCHARGE	35	CFS
OVERTOPPING ELEVATION	36.8	FT

PI STA 56+50 –Y30– LT
ELEV=30.50

PI = 55+25.00
EL = 39.30'
VC = 120'
K = 61
DS = 45 mph

END LAT
6' BASE DITCH
BEG SPEC LAT
4' BASE DITCH
PI STA 57+00 –Y30– LT
ELEV=31.12

END GRADE
–Y30– STA 59+00.00
EL.= 37.82'

PI = 58+25.00
EL = 37.22'
VC = 150'
K = 100
DS = 50 mph

4x4x3 bore pit

(+)1.2679%
(–)0.6933%
(–)0.6933%
(+)0.8000%
(+)1.2400%
(+) 0.3000%
(+) 1.2400%
30" RCP
Stack Rdr.
30" RCP
10' Min
EXISTING GROUND

END LAT
6' BASE DITCH
PI STA 59+50 –Y30– LT
ELEV=34.22

BEG LAT
6' BASE DITCH
PI STA 54+65 –Y30– LT
ELEV=29.95

MATCHLINE –Y30– STA. 54+00.00

SITE 3

FOR –Y30– PLAN SEE SHEET 31

–Y30RPA–

PIPE HYDRAULIC DATA
24" RCP Sta. 13+50 –Y30RPA–

DRAINAGE AREA	3.7	AC
DESIGN FREQUENCY	25	YRS
DESIGN DISCHARGE	15	CFS
DESIGN HW ELEVATION	28.5	FT
100 YEAR DISCHARGE	18	CFS
100 YEAR HW ELEVATION	28.8	FT
OVERTOPPING FREQUENCY	100+	YRS
OVERTOPPING DISCHARGE	27	CFS
OVERTOPPING ELEVATION	30.0	FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	370	CFS
DESIGN FREQUENCY	50	YRS
DESIGN HW ELEVATION	24.5	FT
BASE DISCHARGE	420	CFS
BASE FREQUENCY	100	YRS
BASE HW ELEVATION	24.8	FT
OVERTOPPING DISCHARGE	1450	CFS
OVERTOPPING FREQUENCY	500+	YRS
OVERTOPPING ELEVATION	40.6	FT

BEGIN GRADE
–Y30RPA– STA 5+00.00
–LJ– STA. 621+74.24, 47.00' LT
EL.= 53.78'

PI = 6+35.00
EL = 52.32'
VC = 195'
K = 194
DS = 65 mph

PI = 9+70.00
EL = 45.33'
VC = 200'
K = 233
DS = >70 mph

PI = 15+20.00
EL = 38.58'
VC = 380'
K = 102
DS = 50 mph

(–)1.0815%
(–)2.0866%
PROPOSED GRADE
(–)2.0866%
(–)1.2273%
(–)1.2273%
(+)2.5019%
(–) 4.0000%
(–) 2.0000%
(–) 1.4000%
(–) 0.6000%
EXISTING GROUND
(–) 3.0000%
(–) 0.8000%
24" RCP
(+) 0.6000%
(–) 2.5000%
(+) 0.4000%

BEG LAT
2' BASE DITCH
PI STA 7+00 –Y30RPA– RT
ELEV=40.70

PI STA 8+00 –Y30RPA– RT
ELEV=36.70

PI STA 9+00 –Y30RPA– RT
ELEV=34.70

PI STA 10+00 –Y30RPA– RT
ELEV=33.30

PI STA 11+50 –Y30RPA– LTR
ELEV=32.40

BEG LAT
4' BASE DITCH
PI STA 12+00 –Y30RPA– LT
ELEV=24.40

PI STA 13+50 –Y30RPA– RT
ELEV=26.40

END LAT
4' BASE DITCH
PI STA 13+50 –Y30RPA– LT
ELEV=23.20

BEG LAT
2' BASE DITCH
PI STA 14+50 –Y30RPA– RT
ELEV=26.75

END LAT
2' BASE DITCH
PI STA 14+00 –Y30RPA– RT
ELEV=26.70

BM #22
R/R SPIKE SET IN 10" HICKORY
208.65' LT OF –Y30RPA– STA 15+30.53
ELEV. 26.37'

1@12'x7' RCBC
WS ON 9-13-17
22.7

END LAT
2' BASE DITCH
PI STA 16+00 –Y30RPA– RT
ELEV=23.00

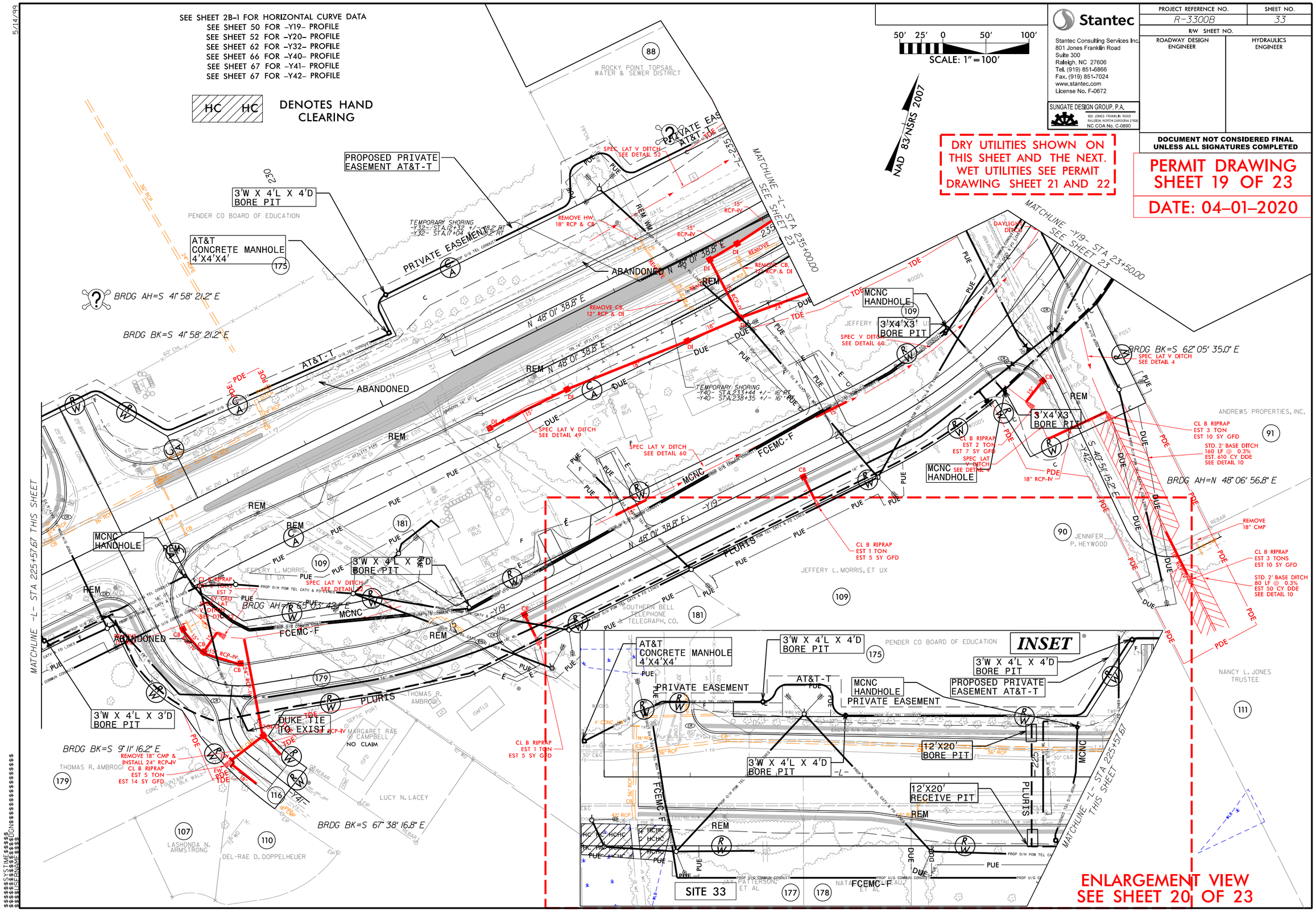
BEG TAPER FROM
LAT 8' BASE
DITCH W/CL B RIPRAP
TO LAT 4' BASE
DITCH W/CL B RIPRAP
PI STA 17+50 –Y30RPA– LT

BEG LAT 8' BASE
DITCH W/CL B RIPRAP
PI STA 17+00 –Y30RPA– LT
ELEV=25.20

MATCHLINE –Y30RPA– STA. 18+00.00

FOR –Y30RPA– PLAN SEE SHEETS 5 & 6

10/23/2019
U:\R\3300\Eng\Proj\R3300B_Rdy_sh1_54.dgn
[date]



SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 50 FOR -Y19- PROFILE
SEE SHEET 52 FOR -Y20- PROFILE
SEE SHEET 62 FOR -Y32- PROFILE
SEE SHEET 66 FOR -Y40- PROFILE
SEE SHEET 67 FOR -Y41- PROFILE
SEE SHEET 67 FOR -Y42- PROFILE
HC HC DENOTES HAND CLEARING
50' 25' 0 50' 100'
SCALE: 1"=100'
NAD 83/NSRS 2007
Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672
SUNGATE DESIGN GROUP, P.A.
NC COA No. C-0890
PROJECT REFERENCE NO. R-3300B
SHEET NO. 33
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 19 OF 23
DATE: 04-01-2020
DRY UTILITIES SHOWN ON THIS SHEET AND THE NEXT. WET UTILITIES SEE PERMIT DRAWING SHEET 21 AND 22
PROPOSED PRIVATE EASEMENT AT&T-T
3'W X 4'L X 4'D BORE PIT
AT&T CONCRETE MANHOLE 4'X4'X4'
PRIVATE EASEMENT
ABANDONED
BRDG AH=S 41° 58' 21.2" E
BRDG BK=S 41° 58' 21.2" E
MATCHLINE -L- STA 235+00.00 SEE SHEET 23
MATCHLINE -Y19- STA 23+50.00 SEE SHEET 23
MATCHLINE -L- STA 225+57.67 THIS SHEET
MCNC HANDHOLE
3'X4'X3' BORE PIT
BRDG BK=S 62° 05' 35.0" E
BRDG AH=N 48° 06' 56.8" E
BRDG AH=N 65° 03' 42.1" E
BRDG BK=S 9° 11' 16.2" E
BRDG BK=S 67° 38' 16.8" E
DUKE TIE TO EXIST
3'W X 4'L X 3'D BORE PIT
PENDER CO BOARD OF EDUCATION
ROCKY POINT TOPSAIL WATER & SEWER DISTRICT
JEFFERY L. MORRIS, ET UX
ANDREWS PROPERTIES, INC.
JENNIFER P. HEYWOOD
NANCY L. JONES TRUSTEE
THOMAS R. AMBROGI
LUCY N. LACEY
LASHONDA N. ARMSTRONG
DEL-RAE D. DOPPELHEUER
SOUTHERN BELL TELEPHONE & TELEGRAPH, CO.
INSET
12'X20' BORE PIT
12'X20' RECEIVE PIT
SITE 33
ENLARGEMENT VIEW SEE SHEET 20 OF 23

8/17/99

HC HC DENOTES HAND CLEARING

25′ 12.5′ 0 25′ 50′
SCALE: 1″ = 50′

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 20 OF 23

DATE: 04–01–2020

DRY UTILITIES SHOWN ON THIS SHEET AND THE PREVIOUS. WET UTILITIES SEE PERMIT DRAWING SHEET 21 AND 22

AT&T CONCRETE MANHOLE 4′X4′X4′

3′W X 4′L X 4′D BORE PIT

PENDER CO BOARD OF EDUCATION

175

AT&T-T PUE

MCNC HANDHOLE

PRIVATE EASEMENT

3′W X 4′L X 4′D BORE PIT

PROPOSED PRIVATE EASEMENT AT&T-T

PUE

PROP U/G TEL CONDUIT

PROP U/G TEL CONDUIT F

PROP U/G TEL CONDUIT

PROP U/G TEL CONDUIT

11′ CONC

WOODS

RIPRAP

VALVE

EXISTING R/W VARIES

36" RCP

CB

CR

BST

Pluris, CLC, 10" PVC FSS

TWP

FO LINES

220

225

12′X20′ BORE PIT

3′W X 4′L X 4′D BORE PIT

PROP O/H POW TEL CATV & FO LINES

PROP O/H POW TEL CATV & FO LINES

FCEMC-F

12′X20′ RECEIVE PIT

REM

REM

42" RCP

HC HC HCHC

HC HC HCHC

HC HC HCHC

PUE

PUE

PROP U/G COMMUN CONDUIT

PROP U/G COMMUN CONDUIT

PROP U/G COMMUN CONDUIT

PROP U/G CO

PROP O/H POW TEL CA

PUE

DUE

SITE 33

JAY PATTERSON, ET AL

NATA ET AL

177

178

FCEMC-F

MCNC

PLURIS

MATCHLINE -L- STA 225+57.67 THIS SHEET

HAND CLEARING

HAND CLEARING

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

5/14/99

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 50 FOR -Y19- PROFILE
SEE SHEET 52 FOR -Y20- PROFILE
SEE SHEET 62 FOR -Y32- PROFILE
SEE SHEET 66 FOR -Y40- PROFILE
SEE SHEET 67 FOR -Y41- PROFILE
SEE SHEET 67 FOR -Y42- PROFILE

HC HC DENOTES HAND CLEARING

50' 25' 0 50' 100'
SCALE: 1"=100'

NAD 83/NSRS 2007

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SUNGATE DESIGN GROUP, P.A.
920 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

WET UTILITIES SHOWN ON THIS SHEET AND THE NEXT. DRY UTILITIES SEE PERMIT DRAWING SHEET 19 AND 20

PERMIT DRAWING SHEET 21 OF 23

DATE: 04-01-2020

REMOVE WATER METER

ABANDON 938.0 LF 16" UTILITY PIPE (1559.3 LF TOTAL)

TEMPORARY SHORING
-Y32- STA.15+32 +/- 18.2' RT
-Y32- STA.15+04 +/- 18.2' RT

-WL1- STA. 10+00.00
11.25° BEND (HORZ.)
-L- STA. 225+97.45 RT 72.90'
BRDG BK=S 4° 58' 2" E
45° BEND (HORZ.)
-WL1- STA. 10+10.00
BRDG AH=1318.70'
118 LF 16" EXIST. 16" WATER LINE W/ LONG PATTERN SLEEVE & CONCRETE THRUST BLOCK

REMOVE HW, 18" RCP & CB
REMOVE CB, 12" RCP & DI
REMOVE CB, 12" RCP & DI
REMOVE 18" RCP

PRIVATE EASEMENT
N 48° 01' 38.8" E
REM N 48° 01' 38.8" E
REM N 48° 01' 38.8" E
N 48° 01' 38.8" E

MATCHLINE -L- STA 235+00.00 SEE SHEET 23

MATCHLINE -Y19- STA 23+50.00 SEE SHEET 23

158.1 LF 12" WATER LINE
-WL2- (RJ DIP CL50, 597.1 LF TOTAL)
SEE DETAIL 60
11.25° BEND (ROTATED)
-WL2- STA. 10+20.00

12" VALVE
-WL2- STA. 10+05.00

16" VALVE
-WL1- STA. 22+52.68
11.25° BEND (VERT.)
-WL1- STA. 22+21.99

22.5° BEND (HORZ.)
-WL1- STA. 22+56.68
BRDG BK=S 62° 05' 35.0" E

16"X16"X12" TEE
-WL1- STA. 22+06.99
-WL2- STA. 10+00.00
11.25° BEND (VERT.)
-WL1- STA. 22+11.99

16" VALVE
-WL1- STA. 21+88.99

11.25° BEND (HORZ.)
-WL1- STA. 20+56.68

342.1 LF 16" WATER LINE
-WL1- (RJ DIP CL50, 1410.7 LF TOTAL)

HORZ. BEND RAD: 764'
BEGIN STA. 13+38.96
END STA. 15+66.10

45° BEND (HORZ.)
-WL1- STA. 11+31.92
BRDG BK=S 9° 11' 16.2" E

45° BEND (ROTATED)
-WL1- STA. 12+35.56

3 - 45° BEND (VERT.)
-WL1- STA. 12+07.09
-WL1- STA. 12+09.98
-WL1- STA. 12+29.98
BRDG BK=S 67° 38' 16.8" E

DUKE TIE TO EXIST. 18" RCP-IV

REMOVE 18" CMP & INSTALL 24" RCP-IV
CL B RIPRAP EST 5 TON
EST 14 SY GFD

CL B RIPRAP EST 1 TON EST 5 SY GFD

CL B RIPRAP EST 2 TON EST 7 SY GFD
SPEC LAT V DITCH SEE DETAIL 32

CL B RIPRAP EST 2 TON EST 7 SY GFD
SPEC LAT V DITCH SEE DETAIL 4

CL B RIPRAP EST 3 TON EST 10 SY GFD
STD 2' BASE DITCH 160 LF @ 0.3% EST 610 CY DDE SEE DETAIL 10

CL B RIPRAP EST 3 TONS EST 10 SY GFD
STD 2' BASE DITCH 80 LF @ 0.3% EST 50 CY DDE SEE DETAIL 10

SPEC LAT V DITCH SEE DETAIL 52
SPEC LAT V DITCH SEE DETAIL 49
SPEC LAT V DITCH SEE DETAIL 60
SPEC LAT V DITCH SEE DETAIL 4

TEMPORARY SHORING
-Y40- STA.233+44 +/- 16' RT
-Y40- STA.238+35 +/- 16' RT

DAYLIGHT DITCH

REMOVE 18" CMP

ABANDONED

PENDER CO BOARD OF EDUCATION
JEFFERY L. MORRIS, ET UX
THOMAS R. AMBROGI
MARGARET RAE CAMPBELL NO CLAIM
SOUTHERN BELL TELEPHONE TELEGRAPH, CO.
ANDREWS PROPERTIES, INC.
JENNIFER P. HEYWOOD
NANCY L. JONES TRUSTEE
LASHONDA N. ARMSTRONG
DEL-RAE D. DOPPELHEUER

ROCKY POINT TOPSAIL WATER & SEWER DISTRICT

MATCHLINE -L- STA 225+57.67 THIS SHEET

MATCHLINE -L- STA 225+57.67 THIS SHEET

INSET

TIE-IN TO EXIST. 6" WATER LINE
-L- STA. 225+15.28 LT 64.48'

RECONNECT FIRE HYDRANT
RECONNECT WATER METER

90° BEND (ROTATED)
3 - 45° BENDS (VERT.)

111.6 LF 6" WATER LINE

ABANDON 124.9 LF 6" UTILITY PIPE

16" TAPPING SLEEVE AND VALVE

TIE-IN TO EXIST. 16" WATER LINE
-L- STA. 225+09.61 RT 41.45'

SITE 33

ENLARGEMENT VIEW SEE SHEET 22 OF 23

8/17/99

HC HC DENOTES HAND CLEARING

25′ 12.5′ 0 25′ 50′
SCALE: 1″ = 50′

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

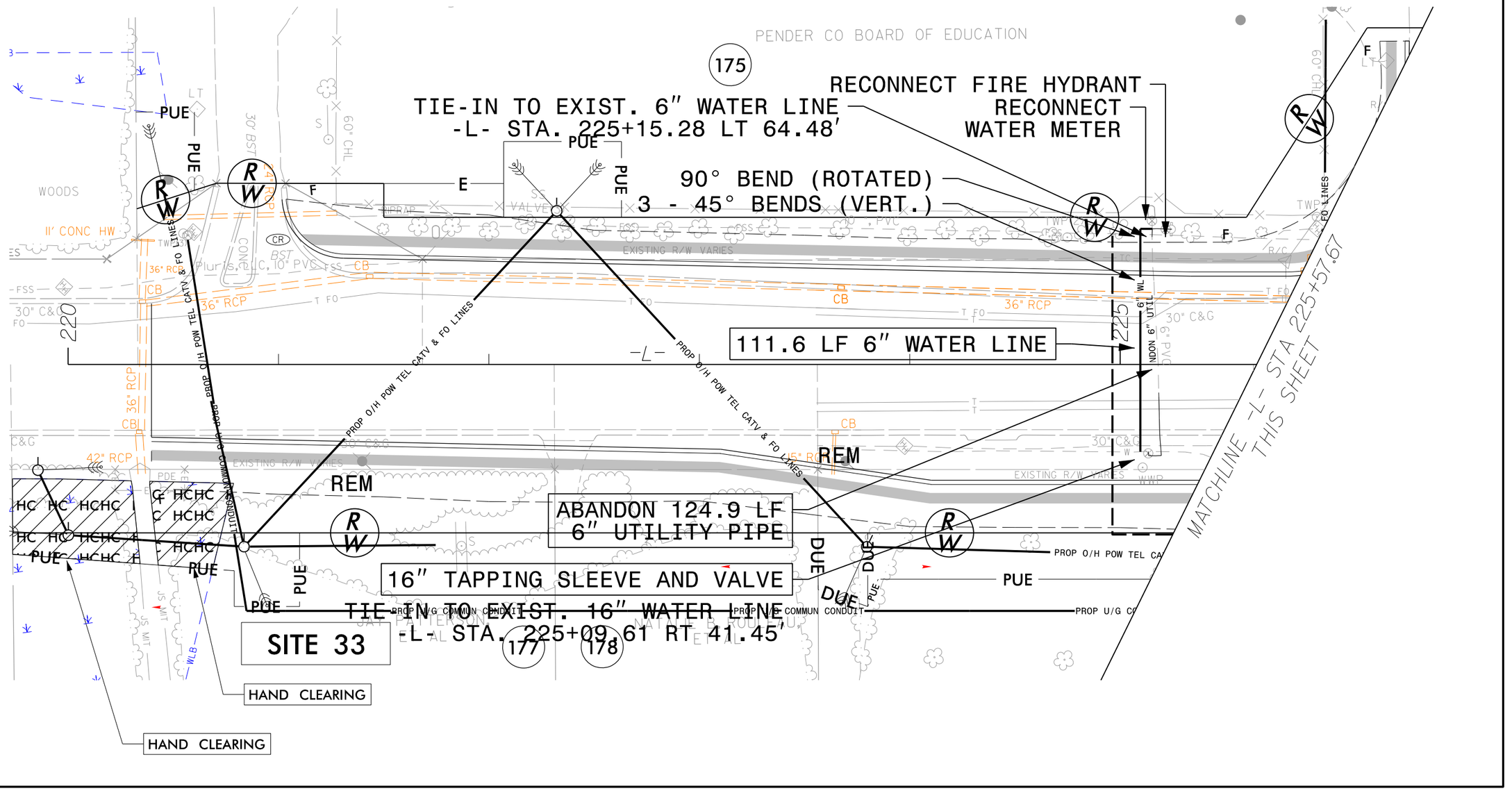
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 22 OF 23

DATE: 04–01–2020

WET UTILITIES SHOWN ON THIS SHEET AND THE PERVIOUS. DRY UTILITIES SEE PERMIT DRAWING SHEET 19 AND 20



WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
3	23+91 to 26+36-SR6-LT	UTILITY					0.171					
	19+29 to 22+74-Y30RPD-LT						0.143					
	10+57 to 13+41-Y30RPD-LT						0.192					
	52+05 to 56+54-Y30-LT						0.257					
17	19+10 to 19+16-Y31-LT	UTILITY					0.060					
24	17+93 to 17+97-Y30-RT	UTILITY					0.019					
28	279+27 to 286+83-L-RT	UTILITY					0.322					
29	293+53 to 293+90-L-RT	UTILITY					0.006					
33	219+74 to 220+73-L-RT	UTILITY					0.081					
34	34+21 to 34+86-SR6-LT	UTILITY					0.014					
35	279+95 to 280+81-L-LT	UTILITY					0.080					
	281+62 to 283+85-L-LT						0.178					
	284+33 to 286+01-L-LT						0.147					
TOTALS:			**0.000**	**0.000**	**0.000**	**0.000**	**1.669**	**0.000**	**0.000**	**0**	**0**	**0**

NOTES:
Converting a mature forested area to a maintained corridor= 1.51 AC

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
06-09-2020
PENDER COUNTY
R-3300B
40237.2.1
SHEET 23 OF 23

Revised 2018 Feb