Town of New Milford

Project Manual and Bid Documents

For:

Reconstruction of Pickett District Road

Affirmative Action /Equal Opportunity Employer
Minority/Women
Business Enterprises are encouraged to apply

Funded by:
The taxpayers of the Town of New Milford

Prepared By:

Alfred Benesch & Company
120 Hebron Avenue
Glastonbury, Connecticut 06033

Mayor Pete Bass

PURCHASING AUTHORITY
Town of New Milford, Connecticut

REQUEST FOR BIDS – Road Reconstruction

Sealed bids will be received at the Purchasing Office until 3 p.m., on Thursday, June 13, 2019. Bids must be in a sealed envelope, addressed to the Purchasing Authority, 10 Main Street, New Milford, CT 06776. Bids will be opened publicly in the E. Paul Martin Room by the Purchasing Authority, Thursday, June 13, 2019 at 3:30 p.m. Late bids will be considered informal and rejected.

INTENT: The Town of New Milford is seeking qualified construction companies to perform drainage and road reconstruction services at various locations throughout town.

Specifications and bid forms for each project must be obtained online at www.newmilford.org.

There will be a mandatory meeting in the E. Paul Martin Room, Town Hall, 10 Main Street, New Milford on Thursday, May 30, 2019 at 10 a.m. All prospective bidders must attend this mandatory meeting in person in order to be considered a qualified respondent.

The Purchasing Authority reserves the right to reject any and all bids. In addition to the bid specifications, all bids are subject to the terms, provisions and conditions of the New Milford "Municipal Purchases" Ordinance, set forth in Article III, Section 2-92 (a) through (o) inclusive, of the Code of New Milford. By bidding on the proposed purchase, the bidder agrees to such terms, provisions and conditions.

Any bidder found by the Purchasing Authority to be delinquent in the payment of taxes and/or sewer use charges due to the Town of New Milford shall be subject to the provisions of Section 2-92 (e) of the Code of New Milford. Copies of the Bid Ordinance may be obtained at the Office of the Town Clerk, Town Hall.

Pete Bass, Mayor
An Equal Opportunity/Affirmative Action Employer

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BIDDING INFORMATION
INSTRUCTIONS FOR BIDDERS – REQUIREMENTS - FORMS

A. GENERAL

1. SUBMISSION, RECEIPT AND OPENING OF BIDS:

The Town of New Milford, CT ("Town" or "Municipality") invites bids on the project described herein. All blanks must be appropriately filled in. Bids will be received by the Purchasing Authority until 3:00 PM on Thursday, June 13, 2019 and then publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed, and delivered to:

Purchasing Authority - Town of New Milford, CT
Roger Sherman Town Hall – Lower Level
10 Main Street
New Milford, CT 06776

Said submissions should be clearly designated as Bid for the Reconstruction of Pickett District Road. The Municipality reserves its right to consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or the authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 45 days after the actual date of the opening thereof. The Municipality may accept or reject any or all bids or any portions thereof and take any action deemed to be in the best interest of the Town.

2. PREPARATION OF BID:

Two (2) original copies of each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures. Each bid must be submitted in a sealed envelope bearing on the outside, the name of the bidder, his address, and **person of contact**. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the paragraph above.

Only complete bids will be accepted. In order for a bid to be complete, it must include all of the following:

A. Bid Forms (Quantity Estimate Sheets & Bid Sheet Summary)
B. Indemnification, Acknowledgement & Agreement
C. Non-Collusion Affidavit of Prime Bidder
D. Certificate as to Corporate Principal
E. Statement of Contractor's Qualifications
F. Bid Security (5% Bid Bond)
G. Certificates of Insurance
H. Any other documents required in the Special Provisions (Section II)

3. QUALIFICATIONS OF BIDDER:

The Municipality may make whatever investigations it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Municipality all information and data for this purpose as the Municipality may request. The Municipality reserves the right to reject

any bid if the evidence submitted by, or investigation of, the bidder fails to satisfy the Municipality that the bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

4. ADDENDA AND INTERPRETATIONS:
No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally, **either in person or via phone.**

Every request for such interpretation must be in writing and addressed to:

Michael F. Zarba, P.E.
Director of Public Works - Town of New Milford
mzarba@newmilford.org

and, to be given consideration, must be received no later than 12:00 PM on Tuesday, June 4, 2019. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be posted no later Thursday, June 6, 2019. Any addenda shall be posted on the State of Connecticut's DAS Website as well as the Town's website, www.newmilford.org. Failure of any bidder to receive any such addenda or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

5. BID SECURITY; FAILURE TO ENTER CONTRACT:
Each bid must be accompanied by a bid bond duly executed by the bidder as principal and having a surety thereon approved by the Municipality, in the amount of five percent (5%) of the bid.

The successful bidder, upon failure or refusal to execute and deliver the contract, bonds and certificates of insurance required within ten (10) business days after receiving notice of the acceptance of its bid, shall forfeit to the Municipality, as liquidated damages for such failure or refusal, the security deposited with its bid.

6. SECURITY FOR FAITHFUL PERFORMANCE:
Simultaneously with its delivery of the executed contract, the Contractor shall furnish a one hundred percent (100%) surety bond or bonds as security of faithful performance of his contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified herein. The surety on such bond or bonds shall be a duly authorized licensed Connecticut surety satisfactory to the Town, and listed in the Department of Treasury's Listing of Approved Sureties (Circular 570).

7. POWER OF ATTORNEY:
Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney in the form set forth under CT General Statute § 1-352.

8. LAWS AND REGULATIONS:
The bidders' attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the construction of the project shall apply to the contract throughout, and they are considered included in the contract the same as

though they were written out in full.

9. CONDITIONS: OBLIGATION OF BIDDER:
Each bidder must inform themselves fully of the conditions relating to the construction of the project and the employment of labor thereto. Failure to do so will not relieve an awarded bidder of their obligation to furnish all material and labor required for executing the provisions of the Agreement. Insofar as possible, the Contractor executing the work must employ such methods or means as will cause the least interruption of or interference with the work of any other Contractor.

At the time of the opening of the bids, each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the plans and the contract documents *(including all addenda)*. The failure or omission of a bidder to examine any form, instrument or document shall in no way relieve the bidder from any obligation with respect to his bid.

10. PRE-BID MEETING
A mandatory pre-bid meeting will be held in the E. Paul Martin Room in New Milford Town Hall, 10 Main Street, New Milford, CT on May 30, 2019 at 10:00 a.m. DST. Attendance of this meeting is required in order to submit a bid for this project. Representatives of the designing engineering firms will be in attendance, and questions may be asked. Questions and answers will be published in an addendum to the bid. See Item 4. for information on addenda time lines.

11. PREVAILING WAGE
The Bidder shall conform to Connecticut's prevailing wage law codified in Connecticut General Statutes Sections 31-53 and 31-53a. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in these sections, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.
Wage rates and associated information can be found in Appendix A.

12. CONTRACT TIME AND LIQUIDATED DAMAGES

The completion date for this contract is November 1, 2019. See the Notice to Contractors in the "Special Provisions".

B. BIDDING REQUIREMENTS AND FORMS

1. Corrections
Any and all erasures or other changes in the Bid must be initialed by the Bidder.

2. Time for Receiving Bids
Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered. The Town is not responsible for any errors or irregularities with the delivery method utilized for submittal of the Proposal. Any proposals received after the closing date and time will be returned unopened.

3. Withdrawal of Bids

Bids may be withdrawn by written request prior to the bid opening. The Bid Guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

4. Award of Contract: Rejection of Bids

a. Basis of Award:

1) Bids, as stated in the "Bid Sheet", will be compared on the basis of the sum of the quantities multiplied by respective unit prices, added to lump-sum prices. In the event that there is a discrepancy in the bid sheet between the lump-sum or unit prices written in words and figures, the prices written in words shall govern. The Town agrees to examine and consider each bid submitted in consideration of the Bidder's Agreements, as herein above set forth in the Bid Sheet.

ALTERNATE's NOTE:

- *Alternate bid items shall include the cost of all labor, materials, equipment, time extension or deletion, general conditions, general requirements, overhead, profit, insurance, for the work. Claims for extras resulting from the acceptance or rejection of any alternate item will not be allowed.*

2) The Town shall have the right to accept or omit any Alternate.

3) The Drawings, Specifications and other Contract Documents shall be considered appropriately modified by either the acceptance or omission of any Alternates.

4) A separate Bid Bond shall be at least one-third of the sum of the Alternates.

5) The contract completion date (calendar days) will be adjusted if Alternates are added. Such adjustment must be memorialized in writing, signed by the Mayor and Director of Public Works, and attached in addendum to the Agreement.

The additional days granted should be considered to perform the alternate work only and substantial completion based on base bid items and contract days.

All costs associated with the above time extensions(s) are to be included in the Alternate Price. After award of the contract, one or more of the alternates for which funds are available may be added to the Contract in the discretion of the Owner. The adjustment to the bid price shall be solely based on the bid price for the alternate(s) added. The Contractor will be notified as to which alternates will be included in the Contract within fourteen (14) calendar days of the Award of Contract.

b. Rejection of Bids:

The **Town specifically** reserves the right to consider as not responsible any Bidder who does not habitually perform with his own forces at least fifty percent (50%) of the dollar value of the work involved in this Contract.

c. Use of Separate Bid Sheets

Bidders should submit forms, as required. Bid documents should not be attached to bid specifications.

QUANTITY ESTIMATE SHEETS

Base Bid - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0201001	Clearing and Grubbing _____dollars cents	LS	1		
0202000	Earth Excavation _____dollars cents	CY	5070		
0202100	Rock Excavation _____dollars cents	CY	10		
0202503	Removal of Concrete Curbing _____dollars cents	LF	1400		
0202529	Cut Bituminous Concrete Pavement _____dollars cents	LF	2738		
0207000	Borrow _____dollars cents	CY	1390		

Company Name

Date

Base Bid - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0209001	Formation of Subgrade _____dollars cents	SY	9900		
0212000	Subbase _____dollars cents	CY	3580		
0219001	Sedimentation Control System _____dollars cents	LF	5600		
0219050A	Catch Basin Sediment Filter _____dollars cents	EA	52		
0286001.1	Rock in Drainage Trench Excavation (0'-10' Deep) _____dollars cents	CY	10		
0403869A	Cold Reclaim Asphalt Paving _____dollars cents	SY	4300		
0405000A	Cutting and Patching Pavement _____dollars cents	SY	1250		

Company Name

Date

Base Bid - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0406010-1	Bituminous Concrete (Class 1) _____dollars cents	TON	1720		
0406010-2	Bituminous Concrete (Class 2) _____dollars cents	TON	3190		
0406236	Material for Tack Coat _____dollars cents	GAL	2802		
0406275A	Fine Milling of Bituminous Concrete (0-4") _____dollars cents	SY	17250		
0507771	Reset Catch Basin _____dollars cents	EA	3		
0586001.1	Type "C" Catch Basin (0'-10' Deep) _____dollars cents	EA	9		
0586040.1	Type "C-L" Catch Basin (0'-10' Deep) _____dollars cents	EA	1		

Company Name

Date

Base Bid - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0586650	Reset Manhole _____dollars cents	EA	13		
0586750	Type "C" Catch Basin Top _____dollars cents	EA	29		
0586751	Type "C" Catch Basin Double Grate Type 2 Top _____dollars cents	EA	2		
0586760	Type "C-L" Catch Basin Top _____dollars cents	EA	7		
0686230.12	12" HDPE Pipe (0-10' Deep) _____dollars cents	EA	79		
0686230.15	15" HDPE Pipe (0-10' Deep) _____dollars cents	LF	333		

Company Name

Date

Base Bid - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0751711	4" Underdrain _____dollars cents	LF	400		
0811001	Concrete Curbing _____dollars cents	LF	4425		
0815001	Bituminous Concrete Curbing Lip Curbing _____dollars cents	LF	2880		
0922500A	Bituminous Concrete Driveway (Commercial) _____dollars cents	SY	650		
0922501A	Bituminous Concrete Driveway _____dollars cents	SY	150		
0944000	Furnishing and Placing Topsoil _____dollars cents	SY	3920		

Company Name

Date

Base Bid - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0950005	Turf Establishment _____dollars cents	SY	3920		
0971001A	Maintenance and Protecting of Traffic _____dollars cents	LS	1		
0975004	Mobilization and Project Closeout _____dollars cents	LS	1		
0980001	Construction Stakeout _____dollars cents	LS	1		
1111451A	Loop Detector Saw Cut _____dollars cents	LS	1		
1206023A	Removal and Relocation of Existing Signs _____dollars cents	LS	1		

Company Name

Date

Base Bid - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
1208931	Sign Face - Sheet Aluminum (Type IX Retroflective Sheeting) _____dollars cents	SF	10		
1210101	4" White Epoxy Resin Pavement Markings _____dollars cents	LF	926		
1210102	4" Yellow Epoxy Resin Pavement Markings _____dollars cents	LF	19500		
1210105	Epoxy Resin Pavement Markings, Symbols and Legends _____dollars cents	SF	91		
1220027	Construction Signs _____dollars cents	SF	100		
	Base Bid Total:				

"Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepency between "Unit Price" and "Total", the unit price will govern.	Base Bid Total (in words): _____dollars _____cents

Company Name

Date

Bid Alternate 1 - Pickett District Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0751711	6" Underdrain (in Subbase - Pipe Only) _____dollars cents	LF	2095		

"Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepency between "Unit Price" and "Total", the unit price will govern.

Bid Alternate 1 Total (in words):

_____dollars

_____cents

Company Name

Date

5h

Reconstruction of Second Hill Road
BID SHEET SUMMARY

BASE BID AMOUNT $ _____

TOTAL WRITTEN VALUE (from Quantity Estimate Sheets):

_____DOLLARS and

_____CENTS

ALTERNATE BID
Alternate Bid items will be considered if economically desirable. AMOUNT $ _____

TOTAL WRITTEN VALUE (from Alternate Quantity Estimate Sheets):

_____DOLLARS and

_____ _____CENTS

THIS BID INCLUDES ADDENDUM NOS._____
(please write in all Addenda #'s received)

THE UNDERSIGNED BIDDER UNDERSTANDS THAT, IN ADDITION TO THE BID SPECIFICATIONS, ALL BIDS ARE SUBJECT TO THE TERMS, PROVISIONS AND CONDITIONS OF THE NEW MILFORD "MUNICIPAL PURCHASES" ORDINANCE, SET FORTH IN ARTICLE III, SECTION 2-92 (a) THROUGH (o) INCLUSIVE, OF THE CODE OF NEW MILFORD.

Per Article X, 7.81.c We _____ hereby submit a bid for materials, equipment and/or labor to the Town of New Milford. The bid is for bid documents titled _____. The below named bidder and individual or signatory signing this on behalf of the bidder hereby certify under penalty of perjury that, if this bid is selected, no natural gas waste or oil waste will be used by the undersigned bidder in performance of the contract. We further certify that no subcontractor, agent or vendor will be allowed or permitted to use materials containing natural gas waste or oil waste.

PROPOSAL SUBMITTED: BY: _____ TITLE: _____
NAME (AUTHORIZED CORPORATE OFFICER)

SIGNATURE: _____ DATE: _____

OFFICIAL ADDRESS: The undersigned hereby designates as his/her office to which notice of acceptance and other notices may be mailed, telephoned of delivered:
NAME: _____
ADDRESS: _____
_____
DATE: _____

PHONE (DAY) _____ (CELL) _____FAX: _____
EMAIL: _____

NOTE: This document, in order to be considered valid, must be signed by a principal, officer or owner of the bidding firm. Such signature will attest to the fact that all terms, conditions and specifications have been read, understood and accepted by the bidder.

PURCHASING AUTHORITY
Town of New Milford, Connecticut
INDEMNIFICATION, ACKNOWLEDGEMENT & AGREEMENT

BID: Reconstruction of Pickett District Rd

BID OPENING: June 13, 2019

To the fullest extent permitted by law, the contractor shall indemnify and hold harmless the Town of New Milford, and agents and employees of said Town from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including loss or use resulting therefrom, but only to the extent caused in whole or in part by acts or omissions of the contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to the Town of New Milford. In claims against any person or entity indemnified under this paragraph by an employee of the contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this paragraph shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the contractor or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

Contractor acknowledge and understands that the Town of New Milford has adopted as its policy, the nondiscrimination agreements and warranties required under Connecticut General Statutes § 4a-60(a)(1) and § 4a-60a(a)(1), as amended in State of Connecticut Public Act 07-245 and sections 9(a)(1) and 10(a)(1) of Public Act 07-142, as those statutes may be amended from time to time. Contractor further agrees to comply with such mandates.

Signature: _____

Printed name: _____

Title: _____

Company: _____
Date: _____

An Equal Opportunity/Affirmative Action Employer

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
(To Accompany Bid)

State of Connecticut
County of _____

_____being first duly sworn affirms that:

1. He is _____of _____, the Bidder that has submitted the attached bid;
2. He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such bid;
3. Such Price is genuine and is not a collusive or sham bid;
4. Neither the said Bidder nor any of its officers, partners, Owners, agents, representatives, employees or parties in interest, including this affidavit, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by Agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached bid or of any other Bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Town of New Milford, or any person interested in the proposed Contract; and
5. The price or prices quoted in the Subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, Owners, employees or parties in interest, including this affiant.

Signature: _____ Printed name: _____

Title: _____

Company: _____

Date: _____

CERTIFICATE OF ACKNOWLEDGMENT

On this the _____ day of _____, 2019, before me, _____ a Notary Public or Commissioner of the Superior Court or Justice of the Peace in and for said state, personally appeared _____, known to me (or satisfactorily proven) to be the person(s) whose name(s) (is/are) subscribed to the within instrument and acknowledged that (he/she/they) executed, in authorized capacity, the same for the purposes therein contained.

WITNESSS whereof I hereunto set my hand:

_____
Notary Public/Commissioner of the Superior Court/Justice of the Peace (circle one)

_____
My Commission Expires/Juris Number (circle one)

CERTIFICATE AS TO CORPORATE PRINCIPAL
(To Accompany Bid)

I, _____ certify that I am the Secretary of the Corporation named as Principal in the within bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

(Corporate Seal – if available)

Signature: _____ Printed name: _____

Title: _____

Company: _____

Date: _____

STATEMENT OF CONTRACTOR'S QUALIFICATIONS
(To be included with Bid)

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized Please answer questions on separate attached sheets. The Contractor may submit any additional information he desires.

1. Name of Contractor.

2. Permanent main office address, including phone and facsimile numbers.

3. When organized.

4. If a corporation, where incorporated.

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)

7. General character of work performed by your company.

8. Have you ever failed to complete the work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each and the month and year completed.

11. List your major equipment available for this Contract, including make and model year.

12. List your experience in work similar to this project.

13. List the background and experience of the principal members of your organization including all personnel licensed by the State of Connecticut.

14. List of the work to be performed by Subcontractors and summarize the dollar value of each Subcontract.

15. Credit available: $

16. Give Bank References:

17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Town of New Milford?

18. The undersigned hereby authorizes and represents any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated this _____ day of _____ 20__

Signature: _____ Printed name: _____

Title: _____

Company: _____

Date: _____

CERTIFICATE OF ACKNOWLEDGMENT

State of Connecticut

County of _____

On this the _____ day of _____, 2019, before me, _____ a Notary Public or Commissioner of the Superior Court or Justice of the Peace in and for said state, personally appeared _____, known to me (or satisfactorily proven) to be the person(s) whose name(s) (is/are) subscribed to the within instrument and acknowledged that (he/she/they) executed, in authorized capacity, the same for the purposes therein contained.

WITNESSS whereof I hereunto set my hand:

_____

Notary Public/Commissioner of the Superior Court (circle one)

_____

My Commission Expires/Juris Number (circle one)

6. Execution of Agreement and Bonds

All bonds required by the Contract Documents shall be obtained from a surety or insurance company that is duly licensed and/or authorized in the State of Connecticut to issue bonds for the limits and coverage required. The surety is further subject to approval by the Finance Director and/or the Town Attorney of New Milford.

Having satisfied all conditions of award as set forth elsewhere in these Documents, the successful Bidder shall, within the period specified in the paragraph above, furnish a Performance Bond in a penal sum of not less than one hundred percent (100%) and a Labor and Material Payment Bond in a penal sum of not less than one hundred percent (100%) of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bonds shall be in the same form as that included in the Contract Documents, or other acceptable form to the Owner and shall bear the same date as or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bonds. These bonds shall be signed by a Guaranty or Surety Company listed in the latest issue of the U.S. Treasury Circular 570 and the penal sum shall be within the maximum specified for such Company in said Circular 570.

Notwithstanding the foregoing, all bonds required by law shall be in accordance with the form and substance so required by law. The failure of the successful Bidder to execute such Agreement and to supply the required bonds within ten (10) calendar days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant, based upon reasons determined sufficient by the Owner, shall constitute a default, and the Owner may either award the Contract to the next lowest responsible Bidder or re-advertise for Bids.

a. Performance and Payment Bond:

The Contractor shall secure and furnish performance and payment bonds in the amount at least equal to the contract price bid. These bonds shall serve to secure the faithful performance and payment of all the Contractor's obligations under the Contract Documents.

These bonds shall remain in effect for a period of two (2) years from the date of acceptance by the Town guaranteeing the bidders work in all phases of construction, which shall also cover all damages due to trench settlement and/or other defects found throughout the two year period.

b. Additional or Substitute Bond:

If at any time the Town becomes dissatisfied with the performance bond as issued by the present surety or sureties, or if for any other reason such bond shall cease to be adequate surety to the Town, the Contractor shall within five (5) days after notice from the Town to do so, substitute an acceptable bond in such form and sum and signed by such other sureties as may be satisfactory to the Town.

The premium on all such bonds shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until new sureties shall have qualified.

c. Power Of Attorney:
Attorneys-in Fact who sign contract bonds must file with each bond a certified copy of their power of attorney to sign said bond.

7. Insurance Requirements: Certificates of Insurance must accompany all bids.
Contractors shall carry the following minimum insurance coverage's and the provisions specified below must be met.

- Insurance carriers providing the required insurance coverage's must have an A.M. Best's financial rating of "A-VII" or better.

- The Town of New Milford, its officials, employees and volunteers, MUST be named as additional insured with reference to this project on a primary and non-contributory basis. The insurer shall waive all rights of subrogation against the Town of New Milford, CT, its officers, employees and volunteers arising from work performed by the Contractor.

- The policy endorsement evidencing this coverage must be provided with the certificate of liability insurance. Any changes in insurance coverage will require (30) thirty days of notice to the Town of New Milford by certified mail with return receipt requested.

- The contract should have a hold harmless indemnification agreement provision which protects the Town of New Milford to the greatest extent that Connecticut Law will allow.

- If Umbrella Liability is used to make up required limits, the policy shall not reduce or restrict coverage provided by the underlying Commercial General Liability or Automobile Liability insurance policies.

- Note that these limits are not all inclusive and are subject to change to reflect scope and cost of individual projects. These minimum required limits are not a limitation of contractor liability.

a. Commercial General Liability
(Form 1988 ISO Occurrence Form or equivalent) Limits of Liability shall be combined bodily injury & property damage.

General Liability Aggregate	$1,000,000.
Products & Completed Operations Aggregate	$1,000,000.
Personal Injury	$1,000,000.
Each Occurrence for Bodily Injury and Property Damage	$2,000,000.
Fire Damage (Any One Fire)	$ 50,000.
Medical Expense (Any One Person)	$ 5,000.
Umbrella Excess	$2,000,000.

Umbrella limits over General Liability limits may be used to make up the required limits. The additional insured coverage MUST be provided by the Umbrella to mirror the General Liability coverage.

b. Automobile Liability
Policies must include coverage for all vehicles utilized on the job including owned vehicles, hired vehicles and non-owned vehicles. Limits of insurance shall be combined single limit bodily injury and property damage $2,000,000. Umbrella limits over Automobile Liability limits may be used to make up the required limits.

c. Statutory Workers Compensation and Employers Liability
Policy coverage will include limits of $100,000 each accident, $100,000 Disease-each employee and $500,000 Disease-policy limit, or in accordance with the requirements of the State of Connecticut, whichever is greater.

GENERAL SPECIFICATIONS – PART I

A. DEFINITIONS AND TERMINOLOGY

1. Defined Terms:

Wherever the words defined in this section, or pronouns used in their stead, occur in the specifications, they shall have the meanings herein given.

Contract Documents: Whenever the term "Contract Documents" is used herein, it shall include the Agreement, Information to Bidders, General Specifications, Bid Documents, Technical Specifications, Special Notes, Addenda, and Project Plans, including all modifications thereof incorporated in-the documents before their execution.

Director of Public Works: The Director of Public Works (also known as "Public Works Director), of the Town of New Milford, CT, who shall have complete authority, direction and control of all work related to the project.

Engineer: The Engineer shall mean the Town of New Milford Town Engineer, or other person specifically designated/directed as such by the Director of Public Works

Contractor: Party of the second part to the contract, acting directly or through his agent or employees.

Sub-Contractor: Any individual, firm, partnership or corporation to whom the Contractor sub-lets or assigns any part or parts of this project covered by this contract.

Notice: The term "notice" as used herein shall mean and include written notices. Written notice shall be deemed to have been served, when deposited in a United States Mailbox to or at last known business address of the person, firm or corporation for whom intended or to his or their or its duly authorized agent, representative or office, or enclosed in a postage prepaid wrapper or envelope addressed to such person or firm or corporation at his or their or its last known business address. Email and facsimile transmission are acceptable for this provision upon mutual consent, memorialized in writing, of both parties.

2. Abbreviations:

Where any of the following abbreviations are used in the Specifications, they shall have the meaning set forth below:

AASHTO American Association of State Highway Transportation Officials
ACI American Concrete Institute
AISC American Institute of Steel Construction
ASA American Standard Association
ASCE American Society of Civil Engineers
ASTM American Society for Testing and Materials
NEC National Electrical Code

3. Substitutes "(Or Equal Clauses)":
Whenever in this contract or specifications, a particular brand or make of material, device or equipment is shown or specified such brand, make of material, device or equipment should be regarded merely as a standard, unless otherwise specified. If three or more brands, makes of material, devices or equipment are shown or specified, each should be regarded as the equal of the others.

Subject to the discretion of the Director of Public Works, all material and workmanship shall in every respect be in accordance with what is in conformity with approved modern practice. Whenever the plans, drawings, specifications, other contract documents, or the quality of the work, admit of doubt as to what is permissible, the interpretation will be made by the Director of Public Works, as to which is in accordance with approved modern practice, in order to meet the particular requirements of the contract.

In all cases, new material shall be used unless this provision is waived with a special written notice by the Director of Public Works.

B. SPECIAL PROVISIONS

Each bidder must fully inform himself of the construction and labor conditions relating to the work which is now or will be performed. Failure to do so will not relieve the successful bidder of his obligation to furnish all labor and materials necessary to carry out the provisions of the contract documents and to complete the contemplated work. Inasmuch as possible, the contractor must, in carrying out his work, employ such methods or means as will not cause any interruptions or interference with the work of any other contractor.

The successful bidder must furnish a field and office organization chart and equipment list to be used on the job to demonstrate that he has the capability to perform the work prescribed for this project and shall furnish the Town all other information and data requested on the form provided for this purpose; such submission to be made prior to construction startup.

1**. Inspection of Site:**
Prior to submitting their bid, each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to the work and labor, and shall fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder shall thoroughly examine and be familiar with all drawings, technical specifications, and contract documents.

The Bidder understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty of guarantee, express or implied, that the subsurface and/or other structures (surface and/or subsurface) actually encountered will be the same as these shown on the drawings or in any of the other contract documents and he agrees that he shall not use or be entitled to use any such information made available to him through the contract documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Town, arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by

him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this bid.

2. Sub-Surface Structures:

a. All sub-surface structures and public utility lines have been located as far as possible, as indicated on the plans and information obtained from the respective utilities. The Town does not assume the responsibility for the accuracy of this information.

b. Contractors are required to contact Call Before You Dig (CBYD) at 1-800-922-4455 PRIOR TO performing any excavation.

3. Sub-Surface Conditions:

Bidders are notified that it is obligatory for them to obtain all the information they require as to the existing physical conditions relative to the work and in particular to sub-surface conditions. THE TOWN SHALL NOT BE HELD LIABLE FOR ANY ADDITIONAL COST TO THE CONSTRUCTION WHICH MAY RESULT DUE TO THESE CONDITIONS, and each bidder shall rely exclusively upon his own investigation, and that he makes this bid with the full knowledge of the kind, quality and quantity of work required.

C. EMPLOYMENT OBLIGATIONS OF BIDDERS

1. Superintendent:

The Contractor shall supply a Superintendent full time on the job. Contractor must submit the name and the title of the person assigned Superintendent for this contract and said person must be satisfactory to the Town of New Milford and, except for extraordinary circumstances, shall not be replaced without written consent of the Town.

2. Working Hours and Holidays:

The Contractor shall perform no work during the Town of New Milford employees' holidays nor before or after the Town's normal working hours, without specific approval of the Director. The normal working hours of the Town are Monday through Friday, 8:00 a.m. to 4:00 p.m. Working hours may be limited by project permits. Proposed schedules other than the Town's normal working hours must be submitted in writing and approved by the Director, in writing, PRIOR to the contractor working said hours or days.

THE OFFICIAL TOWN OF NEW MILFORD HOLIDAYS

New Year's Day	Martin Luther King Day
Lincoln's Birthday	Washington's Birthday
Good Friday	Memorial Day
Independence Day	Labor Day
Columbus Day	Veterans' Day
Thanksgiving Day	Friday after Thanksgiving
Christmas Day	

3. Hiring of Local Labor:

The Contractor and every subcontractor working on the project shall employ to the maximum extent practical, in carrying out the work under this contract, qualified persons who regularly

reside in the designated area where such project is located. For the purposes of this contract, the designated area is Litchfield County Non-Metro.

The contractor will be responsible for ensuring that subcontractors comply with this goal. This section emphasizes that every contractor and subcontractor undertaking to do work on the project shall employ to the maximum extent practical, in carrying out the work under this contract, qualified persons who regularly reside in the designated area where such project is located. For the purposes of this contract, the designated area is Litchfield County Non-Metro.

4. Qualifications for Employment:
No person under the age of sixteen (16) years and no person currently serving sentences in a penal or correctional institution shall be employed to perform any work on the project under this contract. No person whose age or physical condition is such as to make their employment dangerous to their health or safety, or to the health and safety of others shall be employed to perform any work on the project under this contract; provided that this sentence shall not operate against the employment of physically handicapped persons otherwise employed where such persons may be safely assigned to work which they can ably perform.

There shall be no discrimination because of race, creed, color or political affiliation in employment of persons for work on the project under this contract and by signing this bid document the company so certifies that it is an Equal Opportunity Employer.

This contract is subject to all Federal and State Affirmative Action regulations. This includes the documentation attached and included within the contract.

5. Payment of Employees:
The Contractor and each of his subcontractors shall pay each of his employees engaged in the work on the project under this contract in full (less deductions made mandatory by law) in a timely and routine manner.

6. Accident to Persons Prevention:
a. Precaution shall be exercised at all times for the protection of all persons - including employees - and personal property from injury or loss. The safety provisions of applicable laws, building, and construction codes shall be observed at all times while performing work for this contract. Except as otherwise provided by law, neither the Town of New Milford nor any of its agents shall be responsible for monitoring Contractor's compliance with any laws or regulations.

b. Machinery, equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions as set forth by law and of the "Manual of Accident Prevention for Construction", published by the Associated General Contractors of America, to the extent that such provisions are not in breach of applicable laws.

D. PROTECTION OF PROPERTY
1. Protection of Work and Property: The Contractor shall at all times safely guard and protect his own work and that of adjacent property from damage. All passageways, guard fences, lights and

other facilities required for protection by local conditions must be provided and maintained.

Contractor shall not load any part of any structure or allow any part of any structure to be loaded in a manner that will endanger it or employees or persons occupying or utilizing the area. Nor shall the Contractor allow or subject any part of the work or adjacent property to pressures or stresses that will endanger it. Should any reasonable claim be made by a property owner or occupant the Contractor shall promptly replace and/or make good on any such damage, loss or injury by either negotiation, arbitration or other dispute resolution process. Claims not fully settled by the completion of work shall be grounds for the Town to withhold payments, as necessary.

2. Power of Contractor to Act in an Emergency:
In case of an emergency which threatens loss or injury of property and/or safety of life, the Contractor shall be allowed to act without previous instructions from the Town, as he sees fit. He shall notify the Director of Public Works immediately thereafter of any compensation claimed by the Contractor due to such extra work, and shall submit same to the Director of Public Works for approval.

3. Driveways and Property Entrances:
a. Excavated materials and equipment shall be placed in such position as not to unnecessarily impede travel on the streets, or access to driveways. A sufficiently clear space for pedestrian travel shall be maintained on the sidewalks, and all property entrances and driveways shall be kept clear, where possible. Where necessary, bridges shall be constructed and maintained for residents. Before closing any driveway or entrance, the Contractor shall give the owner or resident of the property involved, due notice of such temporary closing.
b. No direct payment will be allowed for this work or condition, but shall be considered as included in the base bid submitted.

4. Occupying Private Land:
The Contractor shall not (except after written consent from the proper parties) enter or occupy with workers, tools, materials, or equipment, any land outside the right-of-way or property of the Town. A copy of the written consent shall be given to the Director of Public Works.

5. Preservation of Trees:
Trees and shrubs on the site of the work shall be protected during the entire period of the contract, and if injured/removed by the Contractor or his employees, shall be replaced at his expense before the completion of the contract, unless it is:
a. covered by the bid items;
b. pursuant to the Director of Public Works' order

GENERAL SPECIFICATIONS – Part II

A. TRAFFIC AND SAFETY PRECAUTIONS

1. Maintenance of Traffic:

The Contractor shall conduct his operations in such a manner so that he does not impose unnecessary hardship upon the residents along the route of the work. Traffic shall be maintained within the project area except where it is found impracticable, or seriously interferes with the Contractor's operations. If permanent repairs are not completed immediately, the pavement surface along the line of work shall be maintained in a condition comparable to the adjacent road surface.

People living or having business within the barricaded zone shall be permitted to use the highway for auto traffic if possible. The Contractor shall protect all phases of the work from damage due to traffic, etc., and provide necessary watchmen, certified flagmen and/or the New Milford Police Department.

2. Interference With and Protection of Streets:

a. The Contractor shall not close or obstruct any portion of a street, road or private way without obtaining permits therefore from the proper authorities (CT DOT). If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards. Streets, roads, private ways and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.
b. The Contractor shall, at least 24 hours in advance, notify the Police and Fire Departments in writing, with a copy to the Director of Public Works, if the closure of a street or road is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well-lighted, in order to minimize confusion. All detour plans and proposed signage must be approved by the Director of Public Works prior to implementation

3. Insufficiency of Safety Precautions:

If at any time, the work is not properly lighted, barricaded, or in any other respect safe in regard to public travel, persons on or about the work, or public or private property, the Director of Public Works shall have the right to order such safeguards to be erected and such precautions to be taken as he deems advisable and the Contractor shall comply promptly with such orders. The Contractor shall pay all costs and expenses incurred by the Town in so doing.

4. Sanitary Regulations:

When deemed necessary by OSHA or the Director of Public Works, the Contractor shall provide suitable sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded from public observation and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work on the lands of the Town, or on adjacent property.

5. Dust:
The Contractor shall at all times during the execution of this contract, control the nuisance of flying dust, by water sprinkling or by application of CaCl2.

B. MATERIAL INSPECTIONS AND TESTS

1. Materials:

Samples - Inspection – Approval - Unless otherwise expressly provided on the Drawings or in any of the other contract documents, only new material and equipment shall be incorporated in the work.

As soon as possible after execution of the Agreement, the Contractor shall submit to the Director of Public Works the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to determine whether the manufacturer and/or supplier have the ability to furnish a product meeting the specifications.

Facilities and labor for the storage, handling and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the work.

All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented including the name of the building or work location for which the material is intended and the name of the contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Director of Public Works by letter, email or facsimile transmission that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, testing and approval before the materials and equipment are needed for incorporation in the work. The consequence of his failure to do so shall be the Contractor's sole responsibility.

2. Inspection and Tests:

a. Costs for Tests:

The selection of laboratories and/or agencies for the inspection and tests of supplies, materials or equipment shall be subject to the direction of the Engineer. If inspection, tests, analysis of the materials or equipment should disclose that said material or equipment requires rejection, then the cost of said inspection, test analysis shall be borne by the Contractor and said cost shall be deducted from the Contractor's current estimate by the Engineer. If supplies, material or equipment shall be found acceptable, the cost of said inspection, tests or analysis shall be borne by the Town.

b. Handling and Distribution:

The Contractor shall handle, haul and distribute all materials and all surplus materials on the different portions of the work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the work, and shall be

responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the work.

3. Inspection of Work Away From the Site:
If work to be done away from the construction site is to be inspected on behalf of the Town during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

C. DRAWINGS, SPECIFICATIONS AND SCHEDULES

1. Contractor's Shop and Working Drawings:

a. The Contractor shall submit for approval (in reproducible form unless otherwise specified) shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated for the contract and materials and equipment for which such drawings are specifically requested. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing, when it is customary to do so. When the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the contract. When so specified, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted for approval in place of shop and working drawings. In such case, requirements shall be as specified for shop and working drawings, insofar as applicable, except that the submission shall be in quadruplicate.
b. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings. No material or equipment shall be purchased or fabricated for the contract until the required shop and working drawings have been submitted as herein above provided and approved as conforming to the contract requirements. All such materials and equipment and the work involved in their installation or incorporated into the work shall then be as shown in and represented by said drawings. Until the necessary approval has been given, the Contractor shall not proceed with any portion of the work such as the construction of foundations, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which approval is required.
c. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning approved drawings to them. Unless otherwise approved, all shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the Town, Contractor, and building, equipment or structure to which the drawing applies, and shall be accompanied by a letter of transmittal giving a list of the drawing number and the names mentioned above.
d. The approval of shop and working drawings, etc., will be general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc., necessary for proper fitting and construction of the work as required in the contract and for achieving the result and performance specified hereunder. Should the Contractor submit

for approval, equipment that requires modifications to the structures, piping, layout, etc., detailed on the drawings, he shall also submit for approval, details of the proposed modifications. If such equipment and modifications are approved, the Contractor, at no additional cost to the Town, shall do all work necessary to make such modifications.

The marked-up reproducible of the shop and working drawings or one marked-up copy of catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when so requested.

2. Coordination of Plans/Specifications:
Any requirement on the plans or in these Specifications, Special Notes/Provisions shall be equally binding on the Contractor. In case of conflict, the plans shall take precedence over the Specifications. Special Notes/Provisions shall take precedence over Plans and Specifications.

3. Dimensions of Existing Structures:
Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

4. Work To Conform:
During its progress, and on its completion, the work shall conform truly to the lines, levels and grades indicated on the drawings or given by the Director of Public Works and shall be built in a thoroughly substantial and workmanlike manner.

5. Planning And Progress Schedules:
Before starting the work and from time to time during its progress as the Director of Public Works may request the Contractor shall submit a written description of the methods he plans to use in doing the work and the various steps he intends to take. Within two (2) days after the date of starting work, the Contractor shall prepare and submit to the Director of Public Works a written schedule fixing the respective dates for the start and completion of various parts of the work. The Contractor shall update the schedule on a monthly basis and submit each schedule to the Director of Public Works for review, approval and change where necessary during the progress of the work.

6. Precautions During Adverse Weather
During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the work may be properly done and satisfactory in all respects. When required, protection shall be provided by the use of plastic sheets, tarpaulins, wood and building paper shelters or other approved means.

AGREEMENT - Construction Contract

THIS AGREEMENT ("Agreement" or "Construction Contract") is a contract between the Town of New Milford, CT (hereinafter "Town"), a municipal corporation with principal offices located at 10 Main Street – New Milford, CT 06776, and _____ of _____ CT (hereinafter "Contractor"), with principal offices located at _____.

WITNESSETH

WHEREAS, the Contractor has submitted a timely and qualified bid to the Town, in response to the Town's Request for Proposal _____.

WHEREAS, Pursuant to § 2-92 of the Code of Ordinances, the Town through its Purchasing Authority has accepted the Contractor's Proposal for said work, according to the terms set forth herein.

WHEREAS, the Contractor and the Town desire to enter into this Construction Contract and agree as follows:

1. SCOPE OF SERVICES – The Scope of Services shall consist of those duties, functions, obligations, responsibilities and task, as set forth in:
   a. The specifications in the Town of New Milford, CT's Request for Proposal _____, which is incorporated in its entirety by reference herein;
   b. The Contractor's proposal that was submitted, and subsequently awarded in response to the Request for Proposal set forth in 1a.

2. TERM OF CONTRACT; COMPLETION OF WORK; COMPENSATION
   a. The Contractor shall commence work following 1) execution of this Construction Contract by both parties and 2) issuance of Notice to Proceed by the Director of Public Works, and shall complete the work in a diligent and efficient manner on or before _____.
   b. The Town and Contractor expressly recognize that time is of the essence and the Town is positioned to sustain loss if the Contractor fails to complete the work within the period set forth in 2a, plus any extensions thereof agreed to. They also recognize the delay, expense and difficulties involved in proving in an arbitration or legal proceeding the actual loss suffered by the Town if the work is not completed on time. For this reason, instead of requiring any such proof, Town and Contractor agree that as liquidated damages for delay (but not as penalty), Contractor shall pay the Town one thousand dollars ($1,000.00) for each day past the time specified. Furthermore, the Town shall have the right to terminate this Agreement and/or pursue appropriate legal recourse on the Contractor's breach of this Agreement.
   c. The Town shall pay as compensation to the Contractor, for all work completed, those unit prices for the goods and services set forth in the Contractor's bid, subject to available funding and supplemental appropriations made by the procedure set forth in the Town Charter.

d. The total contract price shall include all charges, direct costs, indirect costs, expenses and fees of the Contractor. Said compensation shall be paid by the Town upon review and approval of the Contractor's invoices for payment by the Director of Public Works. Additionally, the Contractor shall procure and fund all permits and licenses necessary for execution of the work.
e. The Contractor agrees, by the execution of the Contract that they shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing, and the Town shall be justified in rejecting any claim based on facts regarding which the Contractor should have known as a result thereof.

3. REVIEW OF WORK; PAYMENTS; RIGHT TO WITHHOLD
   a. The Contractor will permit the Director of Public Works, or his designee, to review – at any time – all work performed under the terms of this Construction Contract at any stage of the work.
   b. The Contractor shall supply a Superintendent full time on the job. Contractor must submit the name and the title of the person assigned Superintendent for this contract and said person must be satisfactory to the Town of New Milford and, except for extraordinary circumstances, shall not be replaced without written consent of the Town.
   c. All work under the Agreement is subject to complete control of the Town's Director of Public Works. Any direction, determination, or other order given by the Town to the Contractor shall be by the Director of Public Works. In doing so, the Director of Public Works may consult with his staff or any consultants for with respect to technical requirements, but decision making authority shall rest with the Director of Public Works.
   d. The Director of Public Works shall hold final say over quality and suitability of materials and work and may direct the Contractor to 1) correct any work deemed unapproved and 2) to remove any material rejected.
   e. The Contractor agrees to invoice the Town for services performed on a monthly basis as work progresses, sent to the Town no later than the 5th of every month. The Town will issue payments to the Contractor within thirty (30) days after receipt of an invoice. No invoice will be paid prior to services rendered and/or goods received.
   f. The Town shall retain five percent (5%) of each estimate until final completion and acceptance of all work covered by this contract.
   g. It shall be incumbent upon the Contractor to meet with the Director of Public Works, or his designee, to measure and determine actual field quantities of items and/or materials corresponding to that pay period. All materials and supplies must be free from any encumbrances and not subject to any chattel mortgage and/or conditional sale for which interest is retained by the seller/merchant.
   h. The Town specifically reserves the right to withhold any appropriated payment, in whole or in part, due to one or more of the following reasons:
      1) Assuring payment of just claims due any entity supplying labor and/or materials for work covered by this Agreement.

2) Protecting the Town from loss and/or corrective expenses due to defective work not fully or properly remedied according to the provisions set forth in this Agreement.
3) Protecting the Town from loss due to injury to persons or damage to the work or property of other contractors, subcontractors, or others caused by the act or neglect of the Contractor or any of his subcontractors or other subordinates.

4. INDEMNIFICATION; INSURANCE; BONDING
   a. The Contractor shall obtain and pay for such insurance as more particularly described in the Town's "Insurance Requirements" as set forth in the Request for Proposal _____.
   b. The Contractor shall indemnify and hold harmless the Town, its officers, agents, and employees, from and, if requested, shall defend them against any loss, cost, damage, injury, liability, and claim for injury, liability, and claim for injury to or death of a person, including employees of the Contractor or loss of or damage to property, resulting directly from the Contractor's performance of this Agreement, or by any omission to perform some duty imposed by law or agreement upon the Contractor, its officers, agents and/or employees. The foregoing indemnity shall include, without limitation, reasonable fees of attorneys, Contractors and experts, and related costs and the Town's cost of investigating any claims against it.
   c. In addition to the Contractor's obligation to indemnify the Town, the Contractor specifically acknowledges and agrees that it has an immediate and independent obligation to defend the Town from any claim which actually or potentially falls within this indemnification provision, even if the allegations are or may be groundless, false or fraudulent, which obligation arises at the time such claim is tendered to the Contractor by the Town and continues at all times thereafter.
   d. The Contractor shall indemnify and hold the Town harmless from all loss and liability, including attorneys' fees, court costs and all other litigation expenses arising out of the Contractor's performance of this Agreement.
   e. The Contractor shall secure and furnish performance bonds and payment bonds in the amount at least equal to the contract bid price as set forth in the Request for Proposal _____.

5. BOOKS AND RECORDS

   The Contractor shall maintain or cause to be maintained all records, books, or other documents relative to charges, costs, expenses, fees, alleged breaches of Agreement, settlement of claims, or any other matter pertaining to the Contractor's demand for compensation by the Town for a period of not less than two (2) years from the date of the final payment for work performed under this Agreement.

6. REPRESENTATION
   a. The Contractor represents that it is an expert in relation to the work to be performed under this Agreement, including familiarity with all federal, state, and municipal laws which may in any way impact the work and those employed with this project.
   b. The Contractor represents that it is financially solvent.

c. The Contractor further represents that it has the requisite skill, expertise, and knowledge necessary to perform the scope of services required under the terms of this Agreement, including any supplementary work and the Town relies upon said representation in executing this Agreement.

7. CHANGE ORDERS; EXTRAS; ADDENDUM
   a. Any change in condition learned of by the Contractor during the course of the project must be reported in writing to the Director of Public Works immediately.
   b. It is specifically understood and agreed to by the Contractor that all change orders and/or contract extras must be memorialized in writing.
      1) All change orders – whether proposed by the Town or Contractor - must detail all changes in the work and designate method of determining any changes in the contract sum or duration.
      2) Any revisions to progress schedule, schedule of values, and other documents related to the project shall be addressed in the change orders.
      3) After review by legal counsel for each party, change orders must be signed by both the Director of Public Works and Mayor on behalf of the Town, signed by the Contractor, and attached to this Agreement by addendum.
   c. The Town shall not be liable for payment of any additional costs unless and until the provisions of this Section and any section related hereto in the Town's Request for Proposal are complied with.

8. SUB-CONTRACTING

   The Contractor is prohibited from subcontracting unless it has obtained, in writing, the permission of the Town - specifically the Director of Public Works - to employ the specific subcontractors proposed to be used by the Contractor.
   a. The Contractor shall provide the Director of Public Works with the names and addresses of all proposed subcontractors at least five (5) business days prior to their engagement.
   b. Any agreement made in violation of this Section shall confer no rights on any subcontractor and shall be null and void.

9. NON-APPROPRIATION
   a. Contractor acknowledges that the Town is a municipal corporation and that the Town's obligation to make payments under this Agreement is contingent upon the appropriation by the Town of funds sufficient for such purposes, for each budget year in which this Agreement us in effect.
   b. If sufficient funds to provide for the payment(s) hereunder are not appropriated, the Town may terminate this Agreement upon notice in writing to the Contractor.

10. SEVERABILITY; CONTROLLING LAW; OTHER LEGAL PROVISIONS
   a. In the event any provision or portion of this contract is judicially or legislatively determined to be invalid, such determination shall not affect or impair the validity of the remaining contract provisions.

b. This contract shall be construed and interpreted in accordance with the laws of the State of Connecticut.
c. In the event there is a conflict between this Agreement and the Town's Request for Proposal package, and/or the Contractor's accepted bid, the Town shall have the sole discretion as to which provision shall govern.
d. All work done under this contract shall be in conformance with the Town of New Milford ROW Ordinance; Town of New Milford ROW Ordinance Detail Drawings; Town of New Milford construction standards; the latest edition Manual of Uniform Traffic Control Devices; Town of New Milford Transportation Design Standards; CT DOT Form 817 or current; the plans and these special provisions.

11. INSPECTION OF CONTRACT WORK; ACCEPTANCE OR REJECTION
a. The Contractor shall thoroughly inspect the work performed under this Agreement within thirty (30) days of the completion thereof. The Town, through its Director of Public Works with the assistance of the Town Engineer, will additionally perform its own independent inspection.
b. Immediately following the inspection of contract work conducted pursuant to Section 11a, the Town through the Director of Public Works shall submit to the Contractor an Affidavit setting forth either acceptance of the work performed under this Agreement or an itemized list of work to be corrected, repaired or replaced.

12. FINAL PAYMENT[1]
a. Upon issuance of a Certificate of Completion, the Contractor shall furnish, within seven (7) calendar days, a Final Estimate indicating all charges, payments, credits and retainage made to date and the final amount owed to the Contractor for all services and materials due.
b. Within thirty (30) days of filing said estimate, the Town shall pay the Contractor the amount therein stated less all prior payments (including retainage) and advances whatsoever to or for the account of the Contractor. All prior estimates and payments, including those relating to extra work, shall be subject to correction by this payment, which throughout this contract is called the Final Payment.
c. Prior to accepting Final Payment, the Contractor must submit to the Town an Affidavit certifying completion of the entire project, including any items pursuant to Section 11b.
d. The acceptance by the Contractor of the Final Payment, shall represent a release to the Town of all claims and of all liability to the contract or for all things done or furnished in connection with this work, and for every act of the Town and others relating to or arising out of this work, accepting the Contractor's claim for interest upon the Final Payment, if the payment is improperly delayed.

13. DISPUTES
a. If a dispute arises out of or relates to this Agreement, or the alleged breach thereof, and if the dispute is not settled through negotiation, the parties agree first to try in good faith to settle the dispute by mediation within thirty (30) days administered

[1] No payment, final otherwise, shall release the Contractor or sureties from any obligation under this Agreement or of the Performance Bond.

under the most recently published Mediation Rules of the American Arbitration Association, before resorting to arbitration, litigation, or some other dispute resolution procedure.

b. The mediation process shall be confidential based on terms acceptable to the mediator and/or mediation service provider.

14. TERMINATION FOR CAUSE

a. If, through any cause arising, the Contractor shall fail to fulfill, in a timely and proper manner, its obligations under this Agreement, or if the Contractor shall violate any of the covenants, agreements or stipulations of this Agreement, the Town shall thereupon have the right to terminate this Agreement for cause by giving written notice to the Contractor of such termination and specifying the effective date thereof, at least five (5) days prior to the effective date of such termination. In such an event, all finished or unfinished reports, documents, data, studies, surveys, drawings, maps, models, photographs, and reports or other material prepared by the Contractor and/or its subcontractors under this Agreement shall, at the option of the Town, become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents and other materials to the effective date of termination.

b. The term "cause" includes, without limitation, the following:

1) If the Contractor furnished any statement, representation, warranty or certification in connection with this Agreement, which is materially false, deceptive, incorrect, or fatally incomplete.

2) If the Contractor fails to perform to the Town's satisfaction any material requirement of the Agreement, or is in violation of any specific provision thereof.

3) If the Town reasonably determines satisfactory performance of the Agreement is substantially endangered or can reasonably anticipate such an occurrence or default.

c. Notwithstanding the above, the Contractor shall not be relieved of liability to the Town for any damages sustained by the Town by virtue of any breach of the Agreement by the Contractor, and the Town may withhold any payment to the Contractor for the purposes of setoff until such time as the exact amount of damages due the Town from the Contractor is determined.

15. TERMINATION FOR CONVENIENCE.

a. The Town may terminate this Agreement at any time the Town determines that the purposes of the distribution of monies under the Agreement would no longer be served by the completion of the work/project.

b. The Town shall effect such termination by giving written notice of termination to the Contractor and specifying the effective date thereof, at least twenty (20) days before the effective date of said termination. In that event, all finished or unfinished documents and other materials as described in this Agreement shall, at the option of the Town, become its property. If the Agreement is terminated by the Town as provided herein, the Contractor shall be paid an amount which bears the same ration

to the total compensation as the services actually and satisfactorily performed to the effective date of termination bear to the total services of the Contractor pursuant to the terms of the Agreement, less payments of compensation previously made, and subject to the Town's right of set off for any damages pursuant to the terms of the Agreement.

16. NOTICES

Any required notices set forth herein shall be sent as follows, by certified mail, return receipt requested or by any other delivery services as follows:

a. To the Contractor at the address set forth in the accepted bid.
b. To the Town at: Director of Public Works, Roger Sherman Town Hall – 10 Main Street; New Milford, CT 06776

IN WITNESS WHEREOF, the Town of New Milford, CT has caused this Construction Contract to be signed and executed on its behalf by the Mayor and duly attested by the Director of Public Works, and _____ has signed and executed on behalf of the Contractor, _____, this Agreement this **_____ day of _____, 20__.**

CONTRACTOR	**TOWN OF NEW MILFORD, CT**
_____	_____
Contractor	Pete Bass Mayor
Attested:	
_____	_____
Purchasing Agent	Director of Public Works

SECTION II – SPECIAL PROVISIONS

RECONSTRUCTION OF PICKETT DISTRICT ROAD

LIST OF SPECIAL PROVISIONS

Note: This list has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this list shall not be considered part of the contract.

NOTICE TO CONTRACTOR – CONTRACT TIME AND LIQUIDATED DAMAGES

NOTICE TO CONTRACTOR - USE OF CONNECTICUT DOT FORM 817

NOTICE TO CONTRACTOR - PROCUREMENT OF MATERIALS

NOTICE TO CONTRACTOR – ALL INCLUSIVE DRAINAGE

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

SECTION 1.05 – CONTROL OF THE WORK

SECTION 1.07 - LEGAL RELATIONS & RESPONSIBILITIES

SECTION 1.08 - PROSECUTION AND PROGRESS

SECTION 2.86 - DRAINAGE TRENCH EXCAVATION, ROCK IN DRAINAGE TRENCH EXCAVATION

SECTION 4.06 - BITUMINOUS CONCRETE

SECTION 5.86 – CATCH BASINS, MANHOLES AND DROP INLETS

SECTION 6.86 – DRAINAGE PIPE, DRAINAGE PIPE ENDS

SECTION M.04 – BITUMINOUS CONCRETE

ITEM #0219050A – CATCH BASIN SEDIMENT FILTER

ITEM #0403869A — COLD RECLAIMED ASPHALT PAVEMENT

ITEM #0405000A – CUTTING AND PATCHING PAVEMENT

ITEM #0406275A - FINE MILLING OF BITUMINOUS CONCRETE (0" – 4")

ITEM #0751711A – 4" UNDERDRAIN

ITEM #0811000A – CONCRETE CURBING

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

ITEM #1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)

ITEM #1208932A – SIGN FACE - SHEET ALUMINUM (TYPE IV RETROREFLECTIVE SHEETING)

RECONSTRUCTION OF PICKETT DISTRICT ROAD

Town of New Milford

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016, as revised by the Supplemental Specifications dated July 2018 (otherwise referred to collectively as "ConnDOT Form 817") is hereby made part of this contract, as modified by the Special Provisions contained herein. The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Special Provisions relate in particular to Reconstruction of Pickett District Road in the Town of New Milford, Connecticut.

NOTICE TO CONTRACTOR – USE OF CONNECTICUT DOT FORM 817

State of Connecticut Department of Transportation's Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, 2016, are hereby included as the basis for specifications for this project, as supplemented by the Supplemental Specifications and Special Provisions. References to Form 817 shall mean the State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, 2016 or its latest edition and any supplemental specifications. References to State of Connecticut, etc. shall be interpreted to mean the Town of New Milford, the Engineer, or a duly authorized agent of the Town. In the case of conflicts between Form 817 and other specifications or requirements contained herein, including the Town of New Milford Specifications, as applicable, the more stringent specification or requirement shall govern at the discretion of the Engineer.

NOTICE TO CONTRACTOR - CONTRACT TIME AND LIQUIDATED DAMAGES

In order to minimize the hazard, cost and inconvenience to the traveling public, pollution of the environment and the detriment to the business area, it is necessary to limit the time of construction work, which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

For this contract, an assessment per day for liquidated damages, at a rate of One Thousand Dollars ($1,000) per day shall be applied to each calendar day the work exceeds a completion date of November 1, 2019.

NOTICE TO CONTRACTOR - PROCUREMENT OF MATERIALS

Upon award, the Contractor shall proceed with shop drawings, working drawings, procurement of materials, and all other submittals required to complete the work in accordance with the contract documents.

NOTICE TO CONTRACTOR - ALL-INCLUSIVE DRAINAGE

ADDED SECTIONS:

2.86 – DRAINAGE TRENCH EXCAVATION

ROCK IN DRAINAGE TRENCH EXCAVATION

5.86 – CATCH BASINS, MANHOLES AND DROP INLETS

6.86 – DRAINAGE PIPES

DRAINAGE PIPE ENDS

This Contract contains the above-noted Special Provisions for all-inclusive drainage, developed to replace the following Sections in their entireties:

- Section 5.07 – *Catch Basins, Manholes and Drop Inlets*
- Section 6.51 – *Culverts*
- Section 6.52 – *Culvert Ends*

The Section 5.86 and 6.86 items include excavation and bedding material in the drainage structure, pipe and pipe end unit prices.

Section 2.05 *Trench Excavation* may be included for miscellaneous trenching, where necessary, but will not be used with all-inclusive drainage items.

Other Standard Specifications, Supplemental Specifications or Special Provisions may contain references to Articles or Subarticles from previous versions of Sections 5.07, 6.51 and 6.52 which are no longer valid.

The following Standard Specifications Sections or Supplements contain references to Articles or Subarticles from Section 2.05 which shall remain in effect:

- Section 2.06 – *Ditch Excavation*
- Section 5.06 – *Retaining Walls, Endwalls and Steps*
- Section 7.51 – *Underdrains and Outlets*
- Section 10.01 – *Trenching and Backfilling*

'Rock in Drainage Trench Excavation' is now defined in Section 2.86. 'Rock in Trench Excavation' will remain in Section 2.05 and may be used with trenching not associated with all-inclusive drainage items.

Any references to Articles beginning with "5.07," "6.51," or "6.52" shall refer to the pertinent topic or materials in the new Special Provisions contained herein.

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

The attached project specific utility work schedules were provided to the Connecticut Department of Transportation (Department) by the utility companies regarding their identified work on this project.

The utility scheduling information is provided to assist the Contractor in scheduling its activities. However, the Department does not ensure its accuracy and Section 1.05.06 of the Standard Specifications still is in force.

The utility scheduling information shall be incorporated into the Contractor's pre-award schedule in accordance with the Department's Bidding and Award Manual and Section 1.05.08 of the Contract.

After award, the Contractor shall conduct a utility coordination meeting or meetings to obtain

contemporaneous scheduling information from the utilities prior to submitting its baseline schedule to the Department in accordance with Section *(insert 1.05.08 or Project Coordinator here)* of the Contract.

The Contractor shall incorporate the contemporaneous utility scheduling information into its baseline schedule submittal. The baseline schedule shall include Contractor predecessor and successor activities to the utility work in such detail as acceptable to the Engineer.

SECTION 1.05 - CONTROL OF THE WORK

Replace Article 1.05.02 *with the following:*

1.05.02—Contractor Submittals, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department's Action:

1. Contractor Submittals: The plans provided by the Department show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show the location, character, dimensions, and details necessary to complete the Project. If the plans do not show complete details, they will show the necessary dimensions and details, which when used along with the other Contract documents, will enable the Contractor to prepare working drawings, shop drawings or product data necessary to complete the Project.

The submittals shall be sent to the Department's reviewer(s), sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods as specified herein (including any necessary revisions, resubmittal, and final review), and acquisition of materials, without causing a delay of the Project.

2. Working Drawings: When required by the Contract or when ordered to do so by the Engineer, the Contractor shall prepare and submit the working drawings, signed, sealed and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, for review. The drawings shall be delivered sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods specified herein (including any necessary revisions, resubmittal, and final review).

There will be no direct payment for furnishing any working drawings, procedures or supporting calculations, but the cost thereof shall be considered as included in the general cost of the work.

a. Working Drawings for Permanent Construction: The Contractor shall supply to the Assistant District Engineer a certificate of insurance in accordance with 1.03.07 at the time that the working drawings for the Project are submitted.

The Contractor's designer, who prepares the working drawings, shall secure and maintain at no direct cost to the State a Professional Liability Insurance Policy for errors and omissions in the minimum amount of $2,000,000 per error or omission. The Contractor's designer may elect to obtain a policy containing a maximum $250,000 deductible clause, but if the Contractor's designer should obtain a policy containing such a clause, they shall be liable to the extent of at least the deductible amount. The Contractor's designer shall obtain the appropriate and proper endorsement of its Professional Liability Policy to cover the indemnification clause in this Contract, as the same relates to negligent acts, errors or omissions in the Project work performed by them. The Contractor's designer shall continue this liability insurance coverage for a period of

(i) 3 years from the date of acceptance of the work by the Engineer, as evidenced by a State of Connecticut, Department of Transportation form entitled "Certificate of Acceptance of Work," issued to the Contractor; or

(ii) 3 years after the termination of the Contract, whichever is earlier, subject to the continued commercial availability of such insurance.

b. Working Drawings for Temporary Construction: The Contractor shall submit drawings, calculations, procedures and other supporting data to the Assistant District Engineer.

3. Shop Drawings: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver shop drawings to the Designer for review. Review timeframes and submission locations are as specified herein.

There will be no direct payment for furnishing any shop drawings, but the cost thereof shall be considered as included in the general cost of the work.

4. Product Data: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver product data.

The Contractor shall submit the product data in a single submittal for each element or group of elements of construction.

The Contractor shall mark each copy of the product data submittal to show applicable choices and options. Where product data includes information on several products that are not required, copies shall be marked to indicate the applicable information. Product data shall include the following information and confirmation of conformance with the Contract to the extent applicable: manufacturer's printed recommendations, compliance with recognized trade association standards, compliance with recognized testing agency standards, application of testing agency labels and seals, notation of coordination requirements, Contract item number, and any other information required by the individual Contract provisions.

There will be no direct payment for furnishing any product data, but the cost thereof shall be considered as included in the general cost of the work.

5. Submittal Preparation and Processing – Review Timeframes: The Contractor shall allow 7 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department's reviewer. For any submittals marked with "Revise and Resubmit" or "Rejected," the Department is allowed an additional 7 calendar days for review of any resubmissions.

An extension of Contract time will not be authorized due to the Contractor's failure to transmit submittals sufficiently in advance of the work to permit processing.

The furnishing of shop drawings, working drawings or product data, or any comments or suggestions by the Designer or Engineer concerning shop drawings, working drawings or product data, shall not relieve the Contractor of any of its responsibility for claims by the State or by third parties, as per 1.07.10.

The furnishing of the shop drawings, working drawings and product data shall not serve to

relieve the Contractor of any part of its responsibility for the safety or the successful completion of the Project construction.

6. Department's Action: The Designer or Engineer will review each submittal, mark each with a self-explanatory action stamp, and return the stamped submittal promptly to the Contractor. The Contractor shall not proceed with the part of the Project covered by the submittal until the submittal is marked "No Exceptions Noted" or "Exceptions as Noted" by the Designer or Engineer. The Contractor shall retain sole responsibility for compliance with all Contract requirements. The stamp will be marked as follows to indicate the action taken:

a. If submittals are marked "No Exceptions Noted," the Designer or Engineer has not observed any statement or feature that appears to deviate from the Contract requirements. This disposition is contingent on being able to execute any manufacturer's written warranty in compliance with the Contract provisions.
b. If submittals are marked "Exceptions as Noted" the considerations or changes noted by the Department's Action are necessary for the submittal to comply with Contract requirements. The Contractor shall review the required changes and inform the Designer or Engineer if they feel the changes violate a provision of the Contract or would lessen the warranty coverage.
c. If submittals are marked "Revise and Resubmit," the Contractor shall revise the submittals to address the deficiencies or provide additional information as noted by the Designer or Engineer. The Contractor shall allow an additional review period as specified in 1.05.02-5.
d. If submittals are marked "Rejected," the Contractor shall prepare and submit a new submittal in accordance with the Designer's or Engineer's notations. The resubmissions require an additional review and determination by the Designer or Engineer. The Contractor shall allow an additional review period as specified in 1.05.02-5.

SECTION 1.07 – LEGAL RELATIONS AND RESPONSIBILITIES

Work under this item shall conform to the applicable provisions of Article 1.07.07 – Public Convenience and Safety of the Standard Specifications Form 817 amended as follows:

Add the following:

The Contractor shall provide the necessary access for emergency vehicles through the work zones to abutting properties at all times.

Sweeping and cleaning of surfaces beyond the limits of construction required for dust control or to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation.

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation that will provide less than a 10-foot travel lane along any project roadway.

Article 1.07.13 – Contractor's Responsibility for Adjacent Property and Service

Add the following:

The Contractor, in constructing or installing facilities alongside or near drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls, vaults, or other structures shall sustain them securely in place. The Contractor shall coordinate with the officers and agents of the various utility companies and municipal departments to assure that the services of these structures are maintained. The Contractor shall also be responsible for the repair or replacement, at no additional cost to the Town, of any damage to such structures caused by construction operations. The Contractor is responsible to leave them in the same condition as they existed prior to commencement of the work. In case of damage to utilities, the Contractor shall promptly notify the utility owner and shall, if requested by the Engineer, furnish labor and equipment to work temporarily under the utility owner's direction. Pipes or other structures damaged by the operation of the Contractor may be repaired by the utility owner which suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation from the Town.

If during construction there is an existing utility and/or structure found to be in conflict with the proposed work under this Contract, the Contractor shall protect and maintain the services to the utilities and structures and shall notify the Engineer of the conflict. The Engineer will, as soon as possible, identify the utilities to be relocated or other such activities deemed suitable for resolution.

If live service connections are to be interrupted by excavations of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall be plugged off or otherwise made secure.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all of the work involved in protecting or repairing property as specified in this Section shall be included in the prices paid for the various Contract items of work, and no additional compensation will be allowed.

Prior to opening an excavation, effort shall be made to determine whether underground installations will be encountered and, if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Charter Communications Entertainment I, LLC dba Charter Communications of Western Conn.
Mr. Keith Cournoyer,
Construction Supervisor
207 Tuckie Road
North Windham, CT 06256
PHONE: (860) 456-8346 EXT: 53029
E-MAIL: Keith.Cournoyer@charter.com

Frontier
Ms. Lynne DeLucia,
Engineering
1441 North Colony Road
Meriden, CT 06450-4101
PHONE: (203) 238-5000 Mobile: 860-967-4389
E-MAIL: Lynne.m.anastasio@ftr.com

Mr. Gary Swanson B.S.M.E.
Telecommunications Specialist
Outside Network Engineer
555 Lakewood Rd
Waterbury, CT 06704-2420
PHONE: (203) 575-6112
E-MAIL: gary.k.swanson@ftr.com

Mr. Robert Shepard
Telecom. Spec-ONE
555 Lakewood Rd
Waterbury, CT 06704-2420
PHONE: (203) 575-6703 Mobile: (203) 819-0087
E-MAIL: robert.c.shepard@ftr.com

Eversource Energy – Electric Distribution
Mr. Thomas Woronik
Supervisor - Construction Engineering
22 East High Street
East Hampton, CT 06424
PHONE: (860) 267-3891
E-MAIL: Thomas.Woronik@eversource.com

Mr. Walter Moskaluk
Field Engineering/Design
20 Barnabas Road
Newtown, CT 06470
PHONE: (203) 270-5830 Mobile: (203) 524-5347
E-MAIL: Walter.Moskaluk@eversource.com

Town of New Milford

Mr. Michael Zarba
Director of Public Works
10 Main Street
New Milford, CT 06776
PHONE: (860) 355-6040
E-MAIL: mzarba@newmilford.org

Disclaimer: The Contractor shall verify the completeness and accuracy of the information provided above.

SECTION 1.08 - PROSECUTION AND PROGRESS

Section 1.08 - Prosecution and Progress is amended as follows:

Article 1.08.03 – Prosecution of Work of the Standard Specifications Form 817 is amended as follows:

Add the following:

Before starting any work under this Contract, the Contractor shall prepare, and submit to the Engineer for approval, a minimum of 15 days in advance, a plan illustrating the Typical Traffic Management Plan for all roadways to be reclaimed/reconstructed. This plan shall illustrate typical use and layout of construction signs, drums, and other traffic control devices to be employed during each time period of work to maintain traffic and access to abutting properties. The Contractor must obtain approval of the Typical Traffic Management Plan from the Engineer prior to commencing work on the specified roadways.

All appropriate Maintenance and Protection of Traffic devices are to be installed prior to commencing construction operations.

Particular care shall be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Traffic control devices required only during working hour operations shall be removed at the end of each working day.

Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation which will provide less than a 10-foot travel lane along any project roadway.

Article 1.08.04 - Limitation of Operations is supplemented by the following:

In order to provide for traffic operations as outlined in the special provision "Maintenance and Protection of Traffic", the Contractor will not be permitted to perform any work which will interfere with normal traffic operation on any project road during the following periods:

On the following Legal Holidays:

New Year’s Day
Martin Luther King Day
Lincoln’s Birthday
Washington’s Birthday

Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veterans Day
Thanksgiving Day
Day Following Thanksgiving
Christmas Day

Also, any other day between the hours of 5:00 pm and 7:00 am, unless approved otherwise by the Town.

The Contractor will not be allowed to perform any work on Saturday or Sunday, unless approved otherwise by the Town.

All construction activities, including the loading and unloading of materials and equipment, shall be limited to Monday through Friday, 7:00 a.m. to 5:00 p.m., unless approved otherwise by the Town.

The Contractor is further advised that once the bituminous surface of a project roadway has been removed or reclaimed, it shall be the Contractor's responsibility to immediately proceed with the necessary earthwork and grading to establish a base that is of the shape and strength to effectively receive traffic at the end of each work day. Suitable base for traffic shall include: 1) reclaimed segments of roadway where a minimum of six inches of pulverized or reclaimed asphalt and gravel base remains in place following reclamation and has been shaped and graded to permit positive drainage and rolled/compacted to the satisfaction of the Engineer to permit vehicle loads; or 2) segments of roadway that have been excavated to proposed subgrade, backfilled with compacted reclaimed material as subbase, and where processed aggregate base has been placed and compacted in accordance with the contract documents. No traffic will be permitted on the exposed subgrade.

The Contractor shall be limited in the length and area of roadway to be excavated each work day. The extent of length or area excavated each day shall in no case exceed the limits for which a suitable base for traffic can be established by the end of each work day. The Contractor shall not be permitted to excavate more than 500 linear feet of roadway per work day unless it can be demonstrated that a suitable base for traffic can be established by the end of each work day on a consistent and on-going basis as judged by the Engineer.

Roadways will NOT be allowed to be left unpaved for greater than 14 calendar days unless specific written authorization has been requested from, and received by, the Engineer. If said roadway is not paved with binder course within the specified 14-calendar day limit, the Engineer shall notify the Contractor of the deficient condition and the Contractor shall cease all other construction activities until the subject roadway is properly prepared and the specified overlays completed.

The Contractor shall further schedule construction operations to minimize the period of time that vehicle traffic is placed upon any intermediate or leveling overlay course. Prior to the construction of subsequent bituminous courses, any damage noted by the Engineer on the previously placed bituminous courses shall be repaired as directed by the Engineer at the Contractor's expense.

The Contractor shall notify the Engineer 24 hours in advance of the commencement of any paving operations. The purpose of this notice period is to allow ample time to conduct pre-paving condition inspection, obtain approval to pave and to secure paving inspection and testing personnel.

Local detours shall be implemented in accordance with the contract documents.

Access to local property and businesses must be maintained at all times unless prior arrangements are made with property owners or business proprietors.

Provisions shall be made for the safe passage of school buses and emergency vehicles without delay. The contractor shall communicate on an on-going basis with school officials and emergency personnel for the project duration.

All temporary connections to abutting driveways and existing roadways must be accomplished in a satisfactory manner prior to the end of the work day. Excavation and installation of subbase must be accomplished full width for the proposed roadway.

Other Limitations

Longitudinal dropdowns greater than 2 inches will not be allowed during those periods when the roadway is restored to bi-directional traffic either during or at the end of each work day.

Where dropdowns occur between newly completed work, partially completed work, and/or existing paved areas, a gradual transition shall be established with appropriate signage to warn motorists of "Bump" (or other acceptable sign legend). Transitions shall be passable for low clearance vehicles and shall not result in any vehicles "bottoming out".

The cost of furnishing, installing and removing any temporary material or any earthwork or grading required for transitions to establish safe travel conditions shall be included in the contract lump sum for "Maintenance and Protection of Traffic".

SECTION 2.86 - DRAINAGE TRENCH EXCAVATION, ROCK IN DRAINAGE TRENCH EXCAVATION

2.86.01—Description
2.86.03—Construction Methods
2.86.04—Method of Measurement
2.86.05—Basis of Payment

2.86.01—Description: Drainage trench excavation consists of the excavation necessary for the proper installation of drainage structures, pipes, pipe ends and any other incidental drainage items.

It shall include earth and rock excavation, removal of existing pipes, dewatering, backfill, and disposal of materials; to the trench limits described herein, to the dimensions shown on the plans, or as directed by the Engineer.

Classifications:

(1) Drainage Trench Excavation will include only the excavation necessary for the construction of the drainage items and the removals specified above.

(2) Rock in Drainage Trench Excavation, insofar as it applies to drainage trench excavation, shall be defined as **1/2 cubic yard or more** in volume of the following obstructions removed from the limits of the drainage trench:

(a) rock in definite ledge formation
(b) boulders, or portions of boulders
(c) cement masonry structures
(d) concrete or reinforced concrete structures
(e) reinforced concrete pipe
(f) subsurface concrete pavement or concrete base

The removal shall be as indicated or directed from within the limits defined in 2.86.03 for drainage trench excavation.

2.86.03—Construction Methods:

(1) Drainage Trench Excavation Limits:

Horizontal Limits: Trench widths for pipes, pipe ends, pipe-arches, and drainage structures shall be as follows:

(a) 2 feet greater than the nominal inside diameter of circular pipe or nominal inside span of elliptical pipe or pipe-arch for such diameters or spans of less than 30 inches
(b) 3 feet greater than the nominal inside diameter of circular pipe or the nominal inside span of elliptical pipe or pipe-arch for such diameters or spans that are 30 inches or greater
(c) 4 feet greater than the nominal inside diameter or nominal horizontal inside span for pipe-arches fabricated from structural plates
(d) 2 feet beyond the neat lines of all exterior or foundation walls of drainage structures

Vertical Limits: Trench depths shall extend vertically as follows:

(a) From the bottom of the trench to the bottom of the roadway excavation, or in areas away from roadway excavation, to the top of existing ground surface.
(b) Where drainage pipe is to be laid in a fill area, the embankment shall be placed and

compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

(2) Drainage Trench Excavation: Drainage trench excavation shall be made in conformity with the requirements of the plans, or as directed by the Engineer. The Contractor shall furnish and employ such shores, braces, pumps, or ancillary equipment as needed for the proper protection of property, proper completion of the work, as well as safety of the public and employees of both the Contractor and the Department. All bracing and shoring shall be removed when no longer required for the construction or safety of the work. When required, the Contractor shall provide or have on the Site at all times any OSHA certification for equipment to be used, per 1.07.07. For support of trenches greater than 10 feet in depth, working drawings shall be submitted, in accordance with 1.05.02. The Contractor shall control erosion and sedimentation at trench locations and ensure that pumped water from the drainage excavation is discharged in accordance with the requirements of 1.10.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved backfill, thoroughly compacted in lifts not to exceed 6 inches, for the full trench width. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

After the excavation is complete, the Contractor shall notify the Engineer and no drainage structure or material shall be placed in the excavated area until the Engineer has approved the depth of excavation and the character of the foundation material.

(3) Rock in Drainage Trench Excavation:

(a) Rock in Drainage Trench Excavation - Ledge: When rock in definite ledge form is encountered, the Contractor shall excavate a minimum of 12 inches below the bottom of the proposed pipe or drainage structure; and this depth shall be filled with bedding material (as specified in M.08.03-1) below the proposed pipe; or granular fill (as specified in M.02.01) below the proposed drainage structure, which shall be thoroughly compacted in lifts not to exceed 6 inches.

(b) Rock in Drainage Trench Excavation - Boulders: When boulders are encountered, the Contractor shall remove them from the trench and if backfill is required, the void shall be filled with bedding material, surplus excavated material (as specified in 2.02.03-8) or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(c) Rock in Drainage Trench Excavation –Structures: When cement masonry, concrete or reinforced concrete structures are encountered within the drainage trench limits, the Contractor shall remove the structure in its entirety or as directed by the Engineer, and if backfill is required, the void shall be filled with bedding material, surplus excavated material or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(4) Backfill: Suitable material excavated from the drainage trench shall be used as backfill material prior to consideration of using any other source of backfill. Backfill material used shall be of a quality satisfactory to the Engineer and shall be free from large or frozen lumps, wood and other extraneous material. Rock fill or stones larger than 5 inches shall not be placed within 1 foot of the drainage structure or pipe. The grading shall be completed to the lines shown on the plans, or as ordered, by refilling to the required elevation with approved material, placed in layers not to exceed 6 inches in depth after

compaction, which shall be thoroughly compacted with equipment approved by the Engineer.

All surplus or unsuitable material shall be removed and disposed of as directed. Should additional material be required for backfilling, it may be obtained from the Project surplus excavation in accordance with 2.02.03-8 or from borrow pits, gravel pits, or elsewhere as directed by the Engineer.

2.86.04—Method of Measurement:

Drainage Trench Excavation: Drainage trench excavation will not be measured for payment.

If granular fill or borrow is required to replace unsuitable material it will be measured for payment as directed by the Engineer.

Rock in Drainage Trench Excavation: If any material meeting the definition of Rock in Drainage Trench Excavation is encountered, the Contractor shall strip it of sufficient overlying material to allow for proper measurement and shall then notify the Engineer that the rock surface is ready for measurement. If the Contractor fails to give such notice, the Engineer will presume that the measurements taken at the time the Engineer first saw the material in question will give the true quantity of excavation.

Rock in Drainage Trench Excavation will be measured according to the classification provided in 2.86.01 and within the drainage trench excavation limits provided in 2.86.03.

For the removal of underground obstructions, as classified in 2.86.01-2, the measurement shall be the actual volume of rock removed (1/2 cubic yard or more) as approved by the Engineer.

Rock in Drainage Trench Excavation will not be measured for payment in fills.

Bedding Material or other suitable fill, as specified in 2.86.03(3), used to fill voids after rock is excavated will not be measured for payment.

2.86.05—Basis of Payment:

Drainage Trench Excavation: There will be no direct payment for drainage trench excavation required for the installation of drainage pipes, pipe ends, catch basins, drop inlets, manholes, and other drainage structures, or any other incidental drainage work including materials, tools, equipment and labor necessary to complete the drainage trench excavation in conformity with the plans or as directed by the Engineer.

There will be no direct payment for backfill or disposal of surplus material necessary for the satisfactory completion of this work.

There will be no direct payment made for shoring, bracing, dewatering, or for material or equipment necessary for the satisfactory completion of the work.

Where called for on the plans to install temporary earth retaining systems for the support of existing facilities, pavement, utilities, or for other constraints, payment will be made in accordance with such items in the Contract.

If granular fill or borrow is used to replace unsuitable material, payment will be made at the respective Contract unit prices, or in the absence of such items in the Contract, as Extra Work in accordance with 1.04.05.

Rock in Drainage Trench Excavation: When rock, conforming to the description in 2.86.01 is encountered within the limits of drainage trench excavation, its removal will be classified and paid for at the Contract unit price per cubic yard for "Rock in Drainage Trench Excavation 0' – 10' Deep," or "Rock in Drainage Trench Excavation 0' – 20' Deep," as the case may be.

Those portions of drainage trench excavation classified and paid for as "Rock in Drainage

Trench Excavation" of the various depths will be the actual volumes of rock excavated within the limits for drainage trench excavation, at the applicable bottom depth price.

Where no item or items for "Rock in Drainage Trench Excavation" at the applicable depth appear in the proposal and rock is encountered in drainage trench excavation, its removal will be paid for as Extra Work in accordance with 1.04.05.

When excavation is necessary in fill, no such excavation will be paid for as "Rock in Drainage Trench Excavation."

When excavation is necessary for any purpose other than drainage-related items, no such excavation will be paid under this item.

Bedding material or any other suitable material used to fill voids vacated by excavated rock will not be paid for but shall be included in the unit price per cubic yard for "Rock in Drainage Trench Excavation."

Pay Item	Pay Unit
Rock in Drainage Trench Excavation 0' - 10' Deep	c.y.
Rock in Drainage Trench Excavation 0' - 20' Deep	c.y.

SECTION 4.06 - BITUMINOUS CONCRETE

Section 4.06 is being deleted in its entirety and replaced with the following:

4.06.01—Description
4.06.02—Materials
4.06.03—Construction Methods

1. **Material Documentation**
2. **Transportation of Mixture**
3. **Paving Equipment**
4. **Test Section**
5. **Transitions for Roadway Surface**
6. **Spreading and Finishing of Mixture**
7. **Longitudinal Joint Construction Methods**
8. **Contractor Quality Control (QC) Requirements**
9. **Temperature and Seasonal Requirements**
10. **Field Density**
11. **Acceptance Sampling and Testing**
12. **Density Dispute Resolution Process**
13. **Corrective Work Procedure**
14. **Protection of the Work**
15. **Cut Bituminous Concrete Pavement**

4.06.04—Method of Measurement
4.06.05—Basis of Payment

4.06.01—Description: Work under this Section shall include the production, delivery, placement and compaction of a uniform textured, non-segregated, smooth bituminous concrete pavement to the grade and cross section shown on the plans.

The following terms as used in this specification are defined as:

Bituminous Concrete: A composite material consisting of prescribed amounts of asphalt binder and aggregates. Asphalt binder may also contain additives engineered to modify specific properties and/or behavior of the composite material. References to bituminous concrete apply to all of its forms, such as those identified as hot-mix asphalt (HMA) or polymer-modified asphalt (PMA).

Bituminous Concrete Plant (Plant): A structure where aggregates and asphalt binder are combined in a controlled fashion into a bituminous concrete mixture suitable for forming pavements and other paved surfaces.

Course: A continuous layer (a lift or multiple lifts) of the same bituminous concrete mixture placed as part of the pavement structure.

Density Lot: The total tonnage of all bituminous concrete placed in a single lift which are:

PWL density lots = When the project total estimated quantity per mixture is larger than 3,500 tons

Simple Average density lots = When the project total estimated quantity per mixture is 3,500 tons or less

Disintegration: Erosion or fragmentation of the pavement surface which can be described as polishing, weathering-oxidizing, scaling, spalling, raveling, or formation of potholes.

Dispute Resolution: A procedure used to resolve conflicts between the Engineer and the Contractor's results that may affect payment.
Hot Mix Asphalt (HMA): A bituminous concrete mixture typically produced at 325°F.
Job Mix Formula (JMF): A recommended aggregate gradation and asphalt binder content to achieve the required mixture properties.
Lift: An application of a bituminous concrete mixture placed and compacted to a specified thickness in a single paver pass.
Percent Within Limits (PWL): The percentage of the lot falling between the Upper Specification Limit (USL) and the Lower Specification Limit (LSL).
Polymer Modified Asphalt (PMA): A bituminous concrete mixture containing a polymer-modified asphalt binder and using a qualified warm mix technology.
Production Lot: The total tonnage of a bituminous concrete mixture from a single source that may receive an adjustment.
Production Sub Lot: Portion of the production lot typically represented by a single sample.
Quality Assurance (QA): All those planned and systematic actions necessary to provide CTDOT the confidence that a Contractor will perform the work as specified in the Contract.
Quality Control (QC): The sum total of activities performed by the vendor (Producer, Manufacturer, and Contractor) to ensure that a product meets contract specification requirements.
Superpave: A bituminous concrete mix design used in mixtures designated as "S*" Where "S" indicates Superpave and * indicates the sieve related to the nominal maximum aggregate size of the mix.
Segregation: A non-uniform distribution of a bituminous concrete mixture in terms of gradation, temperature, or volumetric properties.
Warm Mix Asphalt (WMA) Technology: A qualified additive or technology that may be used to produce a bituminous concrete at reduced temperatures and/or increase workability of the mixture.

4.06.02—Materials: All materials shall meet the requirements of Section M.04.

1. Materials Supply: The bituminous concrete mixture must be from one source of supply and originate from one Plant unless authorized by the Engineer.

2. Recycled Materials: Reclaimed Asphalt Pavement (RAP), Crushed Recycled Container Glass (CRCG), Recycled Asphalt Shingles (RAS), or crumb rubber (CR) from recycled tires may be incorporated in bituminous concrete mixtures in accordance with Project Specifications.

4.06.03—Construction Methods

1. Material Documentation: All vendors producing bituminous concrete must have Plants with automated vehicle-weighing scales, storage scales, and material feeds capable of producing a delivery ticket containing the information below.

a. State of Connecticut printed on ticket.
b. Name of Producer, identification of Plant, and specific storage silo if used.
c. Date and time.
d. Mixture Designation mix type and level. Curb mixtures for machine-placed curbing must state "curb mix only."
e. If WMA Technology is used, "-W" must be listed following the mixture designation.
f. Net weight of mixture loaded into the vehicle. (When RAP and/or RAS is used, the

moisture content shall be excluded from mixture net weight.)

g. Gross weight (equal to the net weight plus the tare weight or the loaded scale weight).
h. Tare weight of vehicle (daily scale weight of the empty vehicle).
i. Project number, purchase order number, name of Contractor (if Contractor other than Producer).
j. Vehicle number - unique means of identification of vehicle.
k. For Batch Plants: individual aggregate, recycled materials, and virgin asphalt max/target/min weights when silos are not used.
l. For every mixture designation: the running daily and project total delivered and sequential load number.

The net weight of mixture loaded into the vehicle must be equal to the cumulative measured weights of its components.

The Contractor must notify the Engineer immediately if, during production, there is a malfunction of the weight recording system in the automated Plant. Manually written tickets containing all required information will be allowed for no more than 1 hour.

The State reserves the right to have an Inspector present to monitor batching and/or weighing operations.

2. Transportation of Mixture: The mixture shall be transported in vehicles that are clean of all foreign material, excessive coating or cleaning agents, and that have no gaps through which material might spill. Any material spilled during the loading or transportation process shall be quantified by re-weighing the vehicle. The Contractor shall load vehicles uniformly so that segregation is minimized. Loaded vehicles shall be tightly covered with waterproof covers acceptable to the Engineer. Mesh covers are prohibited. The cover must minimize air infiltration. Vehicles found not to be in conformance shall not be loaded

Vehicles with loads of bituminous concrete being delivered to State projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW). The Contractor shall furnish a list and allowable weights of all vehicles transporting mixture. The State reserves the right to check the gross and tare weight of any vehicle. If the gross or tare weight varies from that shown on the delivery ticket by more than 0.4%, the Engineer will recalculate the net weight. The Contractor shall correct the discrepancy to the satisfaction of the Engineer.

If a vehicle delivers mixture to the Project and the delivery ticket indicates that the vehicle is overweight, the load may not be rejected but a “Measured Weight Adjustment” will be taken in accordance with Article 4.06.04.

Vehicle body coating and cleaning agents must not have a deleterious effect on the mixture. The use of solvents or fuel oil, in any concentration, is prohibited for the coating of vehicle bodies.

For each delivery, the Engineer shall be provided a clear, legible copy of the delivery ticket.

3. Paving Equipment: The Contractor shall have the necessary paving and compaction equipment at the Project Site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective, or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Engineer. During the paving operation, the use of solvents or fuel oil, in any concentration, is strictly prohibited as a release agent or cleaner on any paving equipment (i.e., rollers, pavers, transfer devices, etc.).

Refueling or cleaning of equipment is prohibited in any location on the Project where fuel or solvents might come in contact with paved areas or areas to be paved. Solvents used in cleaning

mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off of areas paved or to be paved.

Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Engineer. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam (minimum length 20 feet).

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Roller types shall include steel wheeled, pneumatic, or a combination thereof. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination. Vibratory rollers shall be equipped with indicators for amplitude, frequency, and speed settings/readouts to measure the impacts per foot during the compaction process. Oscillatory rollers shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 psi uniformly over the surface. The Contractor shall furnish documentation to the Engineer regarding tire size, pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

Lighting: For paving operations which will be performed during hours of darkness the paving equipment shall be equipped with lighting fixtures as described below or with an approved equal. Lighting shall minimize glare to passing traffic. The lighting options and minimum number of fixtures are listed in Tables 4.06-1 and 4.06-2.

TABLE 4.06-1: Minimum Paver lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type A	3	Mount over screed area
	Type B (narrow) or Type C (spot)	2	Aim to auger and guideline
	Type B (wide)or Type C (flood)	2	Aim 25feet behind paving machine
2	Type D Balloon	2	Mount over screed area

TABLE 4.06-2: Minimum Roller Lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type B (wide)	2	Aim 50 feet in front of and behind roller
	Type B (narrow)	2	Aim 100 feet in front of and behind roller
2	Type C (flood)	2	Aim 50 feet in front of and behind roller
	Type C (spot)	2	Aim 100 feet in front of and behind roller
3	Type D Balloon	1	Mount above the roller

*All fixtures shall be mounted above the roller.

Type A: Fluorescent fixture shall be heavy duty industrial type. Each fixture shall have a minimum output of 8,000 lumens. The fixtures shall be mounted horizontally and be designed for continuous row installation.

Type B: Each floodlight fixture shall have a minimum output of 18,000 lumens.

Type C: Each fixture shall have a minimum output of 19,000 lumens.

Type D: Balloon light – each balloon light fixture shall have minimum output of 50,000 lumens and emit light equally in all directions.

Material Transfer Vehicle (MTV): A MTV shall be used when placing bituminous concrete surface course (a lift or multiple lifts) as indicated in the Contract except as noted on the plans or as directed by the Engineer. In addition, continuous paving lengths of less than 500 feet may not require the use of a MTV as determined by the Engineer.

The MTV must be a vehicle specifically designed for the purpose of delivering the bituminous concrete mixture from the delivery vehicle to the paver. The MTV must continuously remix the bituminous concrete mixture throughout the placement process.

The use of a MTV will be subject to the requirements stated in Article 1.07.05 Load Restrictions. The Engineer may limit the use of the vehicle if it is determined that the use of the MTV may damage highway components, utilities, or bridges. The Contractor shall submit to the Engineer at time of pre-construction the following information:

1. The make and model of the MTV.
2. The individual axle weights and axle spacing for each piece of paving equipment (haul vehicle, MTV and paver).
3. A working drawing showing the axle spacing in combination with all pieces of equipment that will comprise the paving echelon.

4. Test Section: The Engineer may require the Contractor to place a test section whenever the requirements of this specification or Section M.04 are not met.

The Contractor shall submit the quantity of mixture to be placed and the location of the test section for review and approval by the Engineer. The same equipment used in the construction of a passing test section shall be used throughout production.

If a test section fails to meet specifications, the Contractor shall stop production, make necessary adjustments to the job mix formula, Plant operations, or procedures for placement and compaction. The Contractor shall construct test sections, as allowed by the Engineer, until all the required specifications are met. All test sections shall also be subject to removal as set forth in Article 1.06.04.

5. Transitions for Roadway Surface: Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile

as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall meet the criteria below unless otherwise specified.

Permanent Transitions: Defined as any gradual change in pavement elevation that remains as a permanent part of the work.

A transition shall be constructed no closer than 75 feet from either side of a bridge expansion joint or parapet. All permanent transitions, leading and trailing ends shall meet the following length requirements:

Posted Speed Limit	**Permanent Transition Length Required**
> 35 mph	30 feet per inch of elevation change
35 mph or less	15 feet per inch of elevation change

In areas where it is impractical to use the above-described permanent transition lengths, the use of a shorter permanent transition length may be permitted when approved by the Engineer.

Temporary Transitions: Defined as a transition that does not remain a permanent part of the work.

All temporary transitions shall meet the following length requirements:

Posted Speed Limit	**Temporary Transition Length Required**
> 50 mph	Leading Transition: 15 feet per inch of vertical change (thickness) Trailing Transition: 6 feet per inch of vertical change (thickness)
40, 45 or 50 mph	Leading and Trailing: 4 feet per inch of vertical change (thickness)
35 mph or less	Leading and Trailing: 3 feet per inch of vertical change (thickness)

Note: Any temporary transition to be in place over the winter shutdown period or during extended periods of inactivity (more than 14 calendar days) shall meet the greater than 50 mph requirements shown above.

6. Spreading and Finishing of Mixture: Prior to the placement of the mixture, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance.

Immediately before placing a bituminous concrete lift, a uniform coating of tack coat shall be applied to all existing underlying pavement surfaces and on the exposed surface of a wedge joint. Such surfaces shall be clean and dry. Sweeping or other means acceptable to the Engineer shall be used.

The mixture shall not be placed whenever the surface is wet or frozen.

Tack Coat Application: The tack coat shall be applied by a pressurized spray system that results in uniform overlapping coverage at an application rate of 0.03 to 0.05 gal./s.y. for a non-milled surface and an application rate of 0.05 to 0.07 gal./s.y. for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be an application rate of 0.03 to 0.05 gal /s.y. The Engineer must approve the equipment and the method of measurement prior

to use. The material for tack coat shall be heated to 160°F ± 10°F and shall not be further diluted.

Tack coat shall be allowed sufficient time to break prior to any paving equipment or haul vehicles driving on it.

The Contractor may request to omit the tack coat application between bituminous concrete layers that have not been exposed to traffic and are placed during the same work shift. Requests to omit tack coat application on the upper and lower surfaces of a wedge joint will not be considered.

Placement: The mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the specified thickness and dimensions indicated in the plans and specifications.

When unforeseen weather conditions prevent further placement of the mixture, the Engineer is not obligated to accept or place the bituminous concrete mixture that is in transit from the Plant.

In advance of paving, traffic control requirements shall be set up, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The mixture temperature will be verified by means of a probe or infrared type of thermometer. The placement temperature range shall be listed in the quality control plan (QCP) for placement and meet the requirements of Table M.04.03-4. Any HMA material that that falls outside the specified temperature range as measured by a probe thermometer may be rejected.

The Contractor shall inspect the newly placed pavement for defects in mixture or placement before rolling is started. Any deviation from standard crown or section shall be immediately remedied by placing additional mixture or removing surplus mixture. Such defects shall be corrected to the satisfaction of the Engineer.

Where it is impracticable due to physical limitations to operate the paving equipment, the Engineer may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation.

Placement Tolerances: Each lift of bituminous concrete placed at a specified thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to an adjustment or removal. Lift tolerances will not relieve the Contractor from meeting the final designed grade. Lifts of specified non-uniform thickness, i.e. wedge or shim course, shall not be subject to thickness and area adjustments.

a) Thickness: Where the average thickness of the lift exceeds that shown on the plans beyond the tolerances shown in Table 4.06-3, the Engineer will calculate the thickness adjustment in accordance with Article 4.06.04.

TABLE 4.06-3: Thickness Tolerances

Mixture Designation	**Lift Tolerance**
S1	+/- 3/8 inch
S0.25, S0.375, S0.5	+/- 1/4 inch

Where the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 4.06-3, the Contractor, with the approval of the Engineer, shall take corrective action in accordance with this Section.

b) Area: Where the width of the lift exceeds that shown on the plans by more than the

specified thickness, the Engineer will calculate the area adjustment in Article 4.06.04.

c) Delivered Weight of Mixture: When the delivery ticket shows that the truck exceeds the allowable gross weight for the vehicle type, the Engineer will calculate the weight adjustment in accordance with Article 4.06.04.

Transverse Joints: All transverse joints shall be formed by saw-cutting to expose the full thickness of the lift. Tack coat shall be applied to the sawn face immediately prior to additional mixture being placed.

Compaction: The Contractor shall compact the mixture to meet the density requirements as stated in Article 4.06.04 and eliminate all roller marks without displacement, shoving cracking, or aggregate breakage.

When placing a lift with a specified thickness less than 1 1/2 inches, or a wedge course, the Contractor shall provide a minimum rolling pattern as determined by the development of a compaction curve. The procedure to be used shall be documented in the Contractor's QCP for placement and demonstrated on the first day of placement.

The use of the vibratory system on concrete structures is prohibited. When approved by the Engineer, the Contractor may operate a roller using an oscillatory system at the lowest frequency setting.

If the Engineer determines that the use of compaction equipment in the dynamic mode may damage highway components, utilities or adjacent property, the Contractor shall provide alternate compaction equipment.

Rollers operating in the dynamic mode shall be shut off when changing directions.

These allowances will not relieve the Contractor from meeting pavement compaction requirements.

Surface Requirements:

If in the opinion of the Engineer the smoothness of the finished paved surface is unacceptable, the problem shall be corrected by the Contractor at its own expense.

7. Longitudinal Joint Construction Methods: The Contractor shall use Method I - Notched Wedge Joint (see Figure 4.06-1) when constructing longitudinal joints where lift thicknesses are 1 ½ inches to 3 inches. S1.0 mixtures shall be excluded from using Method I. Method II - Butt Joint (see Figure 4.06-2) shall be used for lifts less than 1 1/2 inches or greater than 3 inches. Each longitudinal joint shall maintain a consistent offset from the centerline of the roadway along its entire length. The difference in elevation between the two faces of any completed longitudinal joint shall not exceed 1/4 inch at any location.

Method I - Notched Wedge Joint:

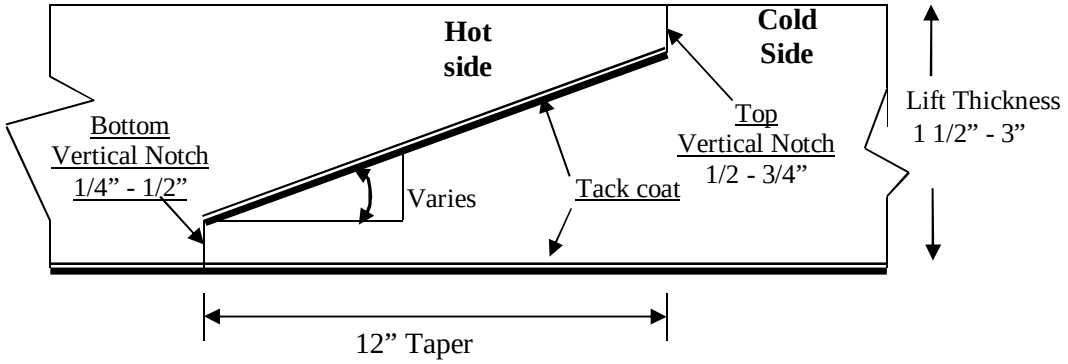
A notched wedge joint shall be constructed as shown in Figure 4.06-1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches. The device shall have an integrated vibratory system. The top vertical notch must be located at the centerline or lane line in the final lift. The requirement for paving full width "curb to curb" as described in Method II may be waived if addressed in the QC plan and approved by the Engineer.

The taper portion of the wedge joint shall be evenly compacted using equipment other than the paver or notch wedge joint device. The compaction device shall be the same width as the taper and not reduce the angle of the wedge or ravel the top notch of the joint during compaction.

When placed on paved surfaces, the area below the sloped section of the joint shall be treated with tack coat. The top surface of the sloped section of the joint shall be treated with tack coat prior to placing the completing pass.

The taper portion of the wedge joint shall not be exposed to traffic for more than 5 calendar days.

Figure 4.06-1: Notched Wedge Joint (Not to Scale)



Any exposed wedge joint must be located to allow for the free draining of water from the road surface.

The Engineer reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

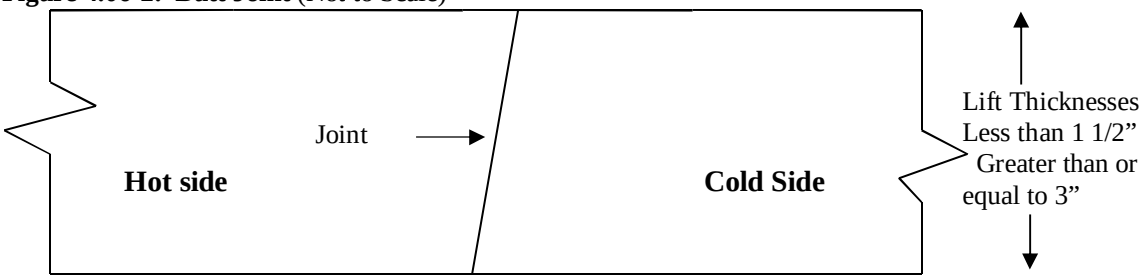
If Method I cannot be used on those lifts which are 1 ½ inches to 3 inches, Method III may be substituted according to the requirements below for "Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment."

Method II - Butt Joint:

When adjoining passes are placed, the Contractor shall use the end gate to create a near vertical edge (refer to Figure 4.06-2). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). During placement of multiple lifts, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inch from the joint in the lift immediately below. The joint in the final lift shall be at the centerline or at lane lines. The end gate on the paver should be set so there is an overlap onto the cold side of the joint.

The Contractor shall not allow any butt joint to be incomplete at the end of a work shift unless otherwise allowed by the Engineer. When using this method, the Contractor is not allowed to leave a vertical edge exposed at the end of a work shift and must complete paving of the roadway full width "curb to curb."

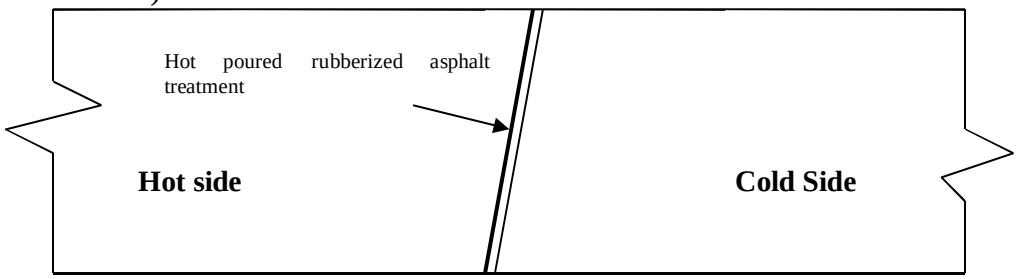
Figure 4.06-2: Butt Joint (Not to Scale)



Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment:

If Method I cannot be used due to physical constraints in certain limited locations, the Contractor may submit a request in writing for approval by the Engineer to use Method III as a substitution in those locations. There shall be no additional measurement or payment made when Method III is substituted for Method I. When required by the Contract or approved by the Engineer, Method III (see Figure 4.06-3) shall be used.

Figure 4.06-3: Butt Joint with Hot Poured Rubberized Asphalt Treatment
(Not to Scale)



All of the requirements of Method II must be met with Method III. In addition, the longitudinal vertical edge must be treated with a rubberized joint seal material meeting the requirements of ASTM D6690, Type 2. The joint sealant shall be placed on the face of the "cold side" of the butt joint as shown above prior to placing the "hot side" of the butt joint. The joint seal material shall be applied in accordance with the manufacturer's recommendation so as to provide a uniform coverage and avoid excess bleeding onto the newly placed pavement.

8. Contractor Quality Control (QC) Requirements: The Contractor shall be responsible for maintaining adequate quality control procedures throughout the production and placement operations. Therefore, the Contractor must ensure that the materials, mixture, and work provided by Subcontractors, Suppliers, and Producers also meet Contract specification requirements.

This effort must be documented in Quality Control Plans (QCP) and must address the actions, inspection, or sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control and to respond to correct the situation in a timely fashion.

The Standard QCP for production shall consist of the quality control program specific to the production facility.

There are 3 components to the QCP for placement: a Standard QCP, a Project Summary Sheet that details Project-specific information, and, if applicable, a separate Extended Season Paving Plan as required in 4.06.03-9 "Temperature and Seasonal Requirements."

The Standard QCP for both production and placement shall be submitted to the Department for approval each calendar year and at a minimum of 30 days prior to production or placement.

Production or placement shall not occur until all QCP components have been approved by the Engineer.

Each QCP shall include the name and qualifications of a Quality Control Manager (QCM). The QCM shall be responsible for the administration of the QCP, and any modifications that may become necessary.

The QCM shall have the ability to direct all Contractor personnel on the Project during paving operations.

The QCPs shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QC Technician performing in-place density testing shall be NETTCP certified as a paving inspector.

Approval of the QCP does not relieve the Contractor of its responsibility to comply with the Project specifications. The Contractor may modify the QCPs as work progresses and must document the changes in writing prior to resuming operations. These changes include but are not limited to changes in quality control procedures or personnel. The Department reserves the right to deny significant changes to the QCPs.

QCP for Production: Refer to M.04.03-1.

QCP for Placement: The Standard QCP, Project Summary Sheet, and Extended Season Paving Plan shall conform to the format provided by the Engineer. The format is available at http://www.ct.gov/dot/lib/dot/documents/dconstruction/pat/qcp_outline_hma_placement.pdf

The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that bituminous concrete placement conforms to the requirements as outlined in its QCP during all phases of the work. The Contractor shall document these activities for each day of placement.

The Contractor shall submit complete field density testing and inspection records to the Engineer within 48 hours in a manner acceptable to the Engineer.

The Contractor may obtain 1 mat core and 1 joint core per day for process control, provided this process is detailed in the QCP. The results of these process control cores shall not be used to dispute the Department's determinations from the acceptance cores. The Contractor shall submit the location of each process control core to the Engineer for approval prior to taking the core. The core holes shall be filled to the same requirements described in Subarticle 4.06.03-10.

9. Temperature and Seasonal Requirements: Paving, including placement of temporary pavements, shall be divided into 2 seasons, "In-Season" and "Extended-Season." In-Season paving occurs from May 1 to October 14, and Extended Season paving occurs from October 15 to April 30. The following requirements shall apply unless otherwise authorized or directed by the Engineer:

- Mixtures shall not be placed when the air or subbase temperature is less than 40°F unless approved by the Engineer to facilitate the convenience and/or safety of the motoring public.
- Should paving operations be scheduled during the Extended Season, the Contractor must submit an Extended Season Paving Plan for the Project that addresses minimum delivered mix temperature considering WMA, PMA, or other additives; maximum paver speed; enhanced rolling patterns; and the method to balance mixture delivery and placement operations. Paving during Extended Season shall not commence until the Engineer has approved the plan.

10. Field Density The Contractor shall obtain cores for the determination of mat and longitudinal joint density of bituminous concrete pavements. Within five calendar days of

placement, mat and joint cores shall be extracted on each lift with a specified thickness of 1 1/2 inches or more. Joint cores shall not be extracted on HMA S1.0 lifts.

The Contractor shall extract cores from random locations determined by the Engineer in accordance with ASTM D3665. Four (4) or six (6) inch diameter cores shall be extracted for S0.25, S0.375 and S0.5 mixtures; 6 inch diameter cores shall be required for S1.0 mixtures. The Contractor shall coordinate with the Engineer to witness the extraction, labeling of cores, and filling of the core holes.

Each lift will be separated into lots as follows:

a. Simple Average Density Lots: For total estimated quantities below 2,000 tons, the lift will be evaluated in one lot which will include the total paved tonnage of the lift and all longitudinal joints between the curb lines.
   For total estimated quantities between 2,000 and 3,500 tons, the lift will be evaluated in two lots in which each lot will include approximately half of the total tonnage placed for the full paving width of a lift including all longitudinal joints between the curb lines.
b. PWL Density Lots: Mat density lots will include each 3,500 tons of mixture placed within 30 calendar days. Joint density lots will include 14,000 linear feet of constructed joints. Bridge density lots will always be analyzed using simple average lot methodology.
c. Partial Density Lot (For PWL only): A mat density lot with less than 3,500 tons or a joint density lot with less than 14,000 linear feet due to:
   - completion of the course; or
   - a lot spanning 30 calendar days.

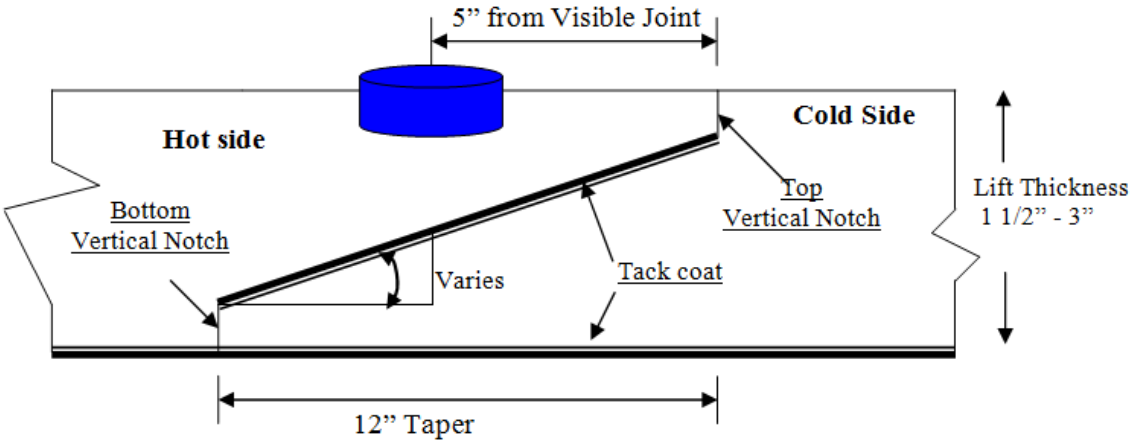
Prior to paving, the type and number of lot(s) will be determined by the Engineer. Noncontiguous areas such as highway ramps may be combined to create one lot.

After the lift has been compacted and cooled, the Contractor shall cut cores to a depth equal to or greater than the lift thickness and shall remove them without damaging the lift(s) to be tested. Any core that is damaged or obviously defective while being obtained will be replaced with a new core from a location within 2 feet measured in a longitudinal direction.

A mat core shall not be located any closer than 1 foot from the edge of a paver pass. If a random number locates a core less than 1 foot from any edge, the location will be adjusted by the Engineer so that the outer edge of the core is 1 foot from the edge of the paver pass.

Method I, Notched Wedge Joint cores shall be taken so that the center of the core is 5 inches from the visible joint on the hot mat side (Figure 4.06-4).

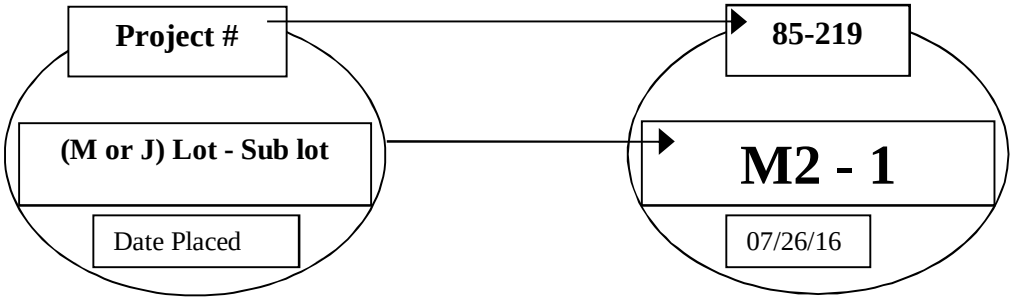
Figure 4.06-4: Notched Wedge Joint Cores (Not to Scale)



When Method II or Method III Butt Joint is used, cores shall be taken from the hot side so the edge of the core is within 1 inch of the longitudinal joint.

The cores shall be labeled by the Contractor with the Project number, date placed, lot number, and sub-lot number. The core's label shall include "M" for a mat core and "J" for a joint core. For example, a mat core from the first lot and the first sub-lot shall be labeled with "M1 – 1." A mat core from the second lot and first sub-lot shall be labeled "M2-1" (see Figure 4.06-5). The Engineer shall fill out a MAT-109 to accompany the cores. The Contractor shall deliver the cores and MAT-109 to the Department's Central Lab. The Contractor shall use a container approved by the Engineer. The container shall have a lid capable of being locked shut and tamper proof. The Contractor shall use foam, bubble wrap, or another suitable material to prevent the cores from being damaged during handling and transportation. Once the cores and MAT-109 are in the container the Engineer will secure the lid using security seals at the removable hinges(s) and at the lid opening(s). The security seals' identification number must be documented on the MAT-109. All sealed containers shall be delivered to the Department's Central Lab within two working days from time of extraction. Central Lab personnel will break the security seal and take possession of the cores.

Figure 4.06-5: Labeling of Cores



Each core hole shall be filled within 4 hours upon core extraction. Prior to being filled, the hole shall be prepared by removing any free water and applying tack coat using a brush or other means to uniformly cover the cut surface. The core hole shall be filled using a bituminous concrete mixture at a minimum temperature of 240°F containing the same or smaller nominal maximum aggregate size and compacted with a hand compactor or other mechanical means to the maximum compaction possible. The bituminous concrete shall be compacted to 1/8 inch above the finished pavement.

Simple Average Density Lots:

A standard simple average density lot is the quantity of material placed within the defined area excluding any bridge decks.

A combo simple average density lot is the quantity of material placed within the defined area including bridge decks less than or equal to 500 feet long.

A bridge simple average density lot is the quantity of material placed on a bridge deck longer than 500 feet.

The number of cores per lot shall be determined in accordance with Table 4.06-4. If a randomly selected mat or joint core location is on a bridge deck, the core is to be obtained on the bridge deck in addition to the core(s) required on the bridge deck.

The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

The longitudinal locations of mat cores within a standard, combo, or bridge lot containing multiple paving passes will be determined using the combined length of the paving passes within the lot.

TABLE 4.06-4: Number of Cores per Lot (Simple Average)

Lot Type	**No. of Mat Cores**		**No. of Joint Cores**	
Standard Lot < 500 Tons	3		3	
Standard Lot ≥ 500 Tons	4		4	
Combo Lot < 500 Tons	2 plus	1 per bridge (≤ 300')	2 plus	1 per bridge (≤ 300)
Combo Lot ≥ 500 Tons(1)	4 plus	2 per bridge (301' – 500')	4 plus	2 per bridge (301' – 500')

TABLE 4.06-5: Number of Core per Bridge Density Lot (Simple Average)

Length of Bridge(s) (Feet)	**Minimum No. of Mat Cores**	**Minimum No. of Joint Cores**
< 500	2	2
501 – 1,500	3	3
1,501 – 2,500	4	4
2,501 and greater	5	5

PWL Density Lots:

A PWL mat density lot is 3,500 tons of material placed within the defined area excluding any bridges. One mat core will be obtained per every 500 tons placed.

A PWL joint density lot is 14,000 linear feet of longitudinal joint excluding any joints on bridge decks. One joint core will be obtained per every 2,000 linear feet of joint.

Bridge density lots will always be analyzed as using the simple average lot methodology. The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

11. Acceptance Sampling and Testing: Sampling shall be performed in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Engineer.

Plant Material Acceptance: The Contractor shall provide the required sampling and testing during all phases of the work in accordance with M.04. The Department will verify the Contractor's acceptance test results. Should any test results exceed the specified tolerances in the Department's current QA Program for Materials, the Contractor's test results for a subject lot or sub lot may be replaced with the Department's results for the purpose of calculating

adjustments. The verification procedure is included in the Department's current QA Program for Materials.

Density Acceptance: The Engineer will perform all acceptance testing in accordance with AASHTO T 331. The density of each core will be determined using the daily production's average maximum theoretical specific gravity (Gmm) established during the testing of the parent material at the Plant. When there was no testing of the parent material or any Gmm exceeds the specified tolerances in the Department's current QA Program for Materials, the Engineer will determine the maximum theoretical density value to be used for density calculations.

12. Density Dispute Resolution Process: The Contractor and Engineer will work in partnership to avoid potential conflicts and to resolve any differences that may arise during quality control or acceptance testing for density. Both parties will review their sampling and testing procedures and results and share their findings. If the Contractor disputes the Engineer's test results, the Contractor must submit in writing a request to initiate the Dispute Resolution Process within five calendar days of the notification of the test results. No request for dispute resolution will be allowed unless the Contractor provides quality control results from samples taken prior to and after finish rolling, and within the timeframe described in 4.06.03-8 supporting its position. No request for dispute resolution will be allowed for a density lot in which any core was not taken within the required 5 calendar days of placement. Should the dispute not be resolved through evaluation of existing testing data or procedures, the Engineer may authorize the Contractor to obtain a new core or set of core samples per disputed lot. The core samples must be extracted no later than seven calendar days from the date of the Engineer's authorization. All such core samples shall be extracted and the core hole filled using the procedure outlined in 4.06.03-10.

a) Simple Average Lots: The Contractor may only dispute any simple average lot that is adjusted at or below 95 percent payment. The number and location (mat, joint, or structure) of the cores taken for dispute resolution must reflect the number and location of the original cores. The location of each core shall be randomly located within the respective original sub lot. The dispute resolution results shall be combined with the original results and averaged for determining the final in-place density value.

b) PWL Lots: The Contractor may dispute any PWL sublot when the PWL falls below 50% calculated in accordance with section 4.06.04.2.b. An additional random core in the sublot may be taken to validate the accuracy of the core in question. The Department will verify the additional core test result and may average the original test result with the additional core result for purpose of calculating adjustments.

13. Corrective Work Procedure:

If pavement placed by the Contractor does not meet the specifications, and the Engineer requires its replacement or correction, the Contractor shall:

a) Propose a corrective procedure to the Engineer for review and approval prior to any corrective work commencing. The proposal shall include:
   - Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.
   - Proposed work schedule.
   - Construction method and sequence of operations.
   - Methods of maintenance and protection of traffic.
   - Material sources.
   - Names and telephone numbers of supervising personnel.

b) Any corrective courses placed as the final wearing surface shall match the specified lift thickness after completion.

14. Protection of the Work: The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor's operations for the duration of the Project.

15. Cut Bituminous Concrete Pavement: Work under this item shall consist of making a straight-line cut in the bituminous concrete pavement to the lines delineated on the plans or as directed by the Engineer. The cut shall provide a straight, clean, vertical face with no cracking, tearing or breakage along the cut edge.

4.06.04—Method of Measurement:

1. HMA S* or PMA S*: Bituminous concrete will be measured for payment as the amount of material in tons placed as determined by the net weight on the delivered tickets and adjusted by area, thickness and weight as follows:

Quantity Adjustments**:** Adjustments may be applied to the placed bituminous concrete quantities that will be measured for payment using the following formulas:

Yield Factor for Adjustment Calculation = 0.0575 tons/SY/inch

Actual Area (SY) = [(Measured Length (ft)) x (Avg. of width measurements (ft))]÷9 s.f./SY

Actual Thickness (t) = Total tons delivered / [Actual Area (SY) x 0.0575 tons/SY/inch]

a) Area: If the average width exceeds the allowable tolerance, an adjustment will be made using the following formula. The tolerance for width is equal to the specified thickness (inch) of the lift being placed.

Quantity Adjusted for Area (T_A) = [(L x W_{adj})/9] x (t) x 0.0575 Tons/SY/inch = (-) tons

Where: L = Length (ft)
(t) = Actual thickness (inches)
W_{adj} = (Designed width (ft) + tolerance /12) - Measured Width)

b) Thickness: If the actual average thickness is less than the allowable tolerance, the Contractor shall submit a repair procedure to the Engineer for approval. If the actual thickness exceeds the allowable tolerance, an adjustment will be made using the following formula:

Quantity Adjusted for Thickness (T_T) = A x t_{adj} x 0.0575 = (-) tons

Where: A = Area = {[L x (Design width + tolerance (lift thickness)/12)] / 9}
t_{adj} = Adjusted thickness = [(Dt + tolerance) - Actual thickness]
Dt = Designed thickness (inches)

c) Weight: If the quantity of bituminous concrete representing the mixture delivered to the Project is in excess of the allowable gross vehicle weight (GVW) for each vehicle, an adjustment will be made using the following formula:

Quantity Adjusted for Weight (T_W) = GVW – DGW= (-) tons

Where: DGW = Delivered gross weight as shown on the delivery ticket or measured on a certified scale

2. Bituminous Concrete Adjustment Cost:

a) Production Lot Adjustment: An adjustment may be applied to each production lot as follows:

i. Non-PWL Production Lot (less than 3,500 tons):

The adjustment values in Tables 4.06-6 and 4.06-7 will be calculated for each sub lot based on the Air Void (AV) and Asphalt Binder Content (PB) test results for that sub lot. The total adjustment for each day's production (lot) will be computed as follows:

Tons Adjusted for Superpave Design (T_{SD}) = $[(AdjAV_t + AdjPB_t) / 100] \times Tons$

Where: $AdjAV_t$: Percent adjustment for air voids

$AdjPB_t$: Percent adjustment for asphalt binder

Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

Percent Adjustment for Air Voids = $AdjAV_t = [AdjAV_1 + AdjAV_2 + AdjAV_i + \ldots + AdjAV_n)] /n$

Where: $AdjAV_t$ = Total percent air void adjustment value for the lot

$AdjAV_i$ = Adjustment value from Table 4.06-6 resulting from each sub lot or the average of the adjustment values resulting from multiple tests within a sub lot, as approved by the Engineer.

n = number of sub lots based on Table M.04.03-2

TABLE 4.06-6: Adjustment Values for Air Voids

Adjustment Value ($AdjAV_i$) (%)	**S0.25, S0.375, S0.5, S1 Air Voids (AV)**
+2.5	3.8 - 4.2
+3.125*(AV-3)	3.0 - 3.7
-3.125*(AV-5)	4.3 – 5.0
20*(AV-3)	2.3 – 2.9
-20*(AV-5)	5.1 – 5.7
-20.0	≤ 2.2 or ≥ 5.8

Percent Adjustment for Asphalt Binder = $AdjPB_t = [(AdjPB_1 + AdjPB_2 + AdjPB_i + \ldots + AdjPB_n)] /n$

Where: $AdjPB_t$= Total percent liquid binder adjustment value for the lot

$AdjPB_i$ = Adjustment value from Table 4.06-7 resulting from each sub lot

n = number of binder tests in a production lot

TABLE 4.06-7: Adjustment Values for Binder Content

Adjustment Value ($AdjAV_i$) (%)	**S0.25, S0.375, S0.5, S1 Pb**
0.0	JMF Pb ± 0.3
- 10.0	≤ JMF Pb - 0.4 or ≥ JMF Pb + 0.4

ii. PWL Production Lot (3500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on AV, VMA, and PB test results. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

Only one test result will be considered for each sub lot. The specification limits are listed in M.04.

For AV, PB, and voids in mineral aggregate (VMA), the individual material quantity characteristic adjustment (Adj) will be calculated as follows:

For PWL between 50 and 90%: $Adj(AV_t \text{ or } PB_t \text{ or } VMA_t) = (55 + 0.5\ PWL) - 100$

For PWL at and above 90%: $Adj(AV_t \text{ or } PB_t \text{ or } VMA_t) = (77.5 + 0.25\ PWL) - 100$

Where: $AdjAV_t$ = Total percent AV adjustment value for the lot

$AdjPB_t$= Total percent PB adjustment value for the lot

$AdjVMA_t$= Total percent VMA adjustment value for the lot

A lot with PWL less than 50% in any of the 3 individual material quality characteristics will be evaluated under 1.06.04.

The total adjustment for each production lot will be computed using the following formula:

Tons Adjusted for Superpave Design (T_{SD}) = $[(0.5AdjAV_t + 0.25AdjPB_t + 0.25\ AdjVMA_t) / 100]$ X Tons

Where Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material or if the last test result of the prior lot is over 30 calendar days old, the adjustment will be calculated as indicated in 4.06.04-2.a)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.a)ii.

Production Lot Adjustment: T_{SD} x Unit Price = Est. (Pi)

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Pi)= Pay Unit in dollars representing incentive or disincentive per lot

b) Density Lot Adjustment: An adjustment may be applied to each density lot as follows:

i. Simple Average Density Lot (less than 3500 tons) and Bridge Lots:

The final lot quantity shall be the difference between the total payable tons for the Project and the sum of the previous lots. If either the Mat or Joint adjustment value is "remove and replace," the density lot shall be removed and replaced (curb to curb).

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

Tons Adjusted for Density (T_D) = [{(PA_M x 0.50) + (PA_J x 0.50)} / 100] X Tons
Where: T_D = Total tons adjusted for density for each lot
PA_M = Mat density percent adjustment from Table 4.06-8
PA_J = Joint density percent adjustment from Table 4.06-9
Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

TABLE 4.06-8: Adjustment Values for Pavement Mat density

Average Core Result Percent Mat Density	**Percent Adjustment (Bridge and Non-Bridge) [(1)(2)]**
97.1 - 100	-1.667*(ACRPD-98.5)
94.5 – 97.0	+2.5
93.5 – 94.4	+2.5*(ACRPD-93.5)
92.0 – 93.4	0
90.0 – 91.9	-5*(92-ACRPD)
88.0 – 89.9	-10*(91-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:
(1) ACRPD = Average Core Result Percent Density
(2) All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67.

TABLE 4.06-9: Adjustment Values for Pavement Joint Density

Average Core Result Percent Joint Density	**Percent Adjustment (Bridge and Non-Bridge) [(1)(2)]**
97.1 – 100	-1.667*(ACRPD-98.5)
93.5 – 97.0	+2.5
92.0 – 93.4	+1.667*(ACRPD-92)
91.0 – 91.9	0
89.0 – 90.9	-7.5*(91-ACRPD)
88.0 – 88.9	-15*(90-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:
(1) ACRPD = Average Core Result Percent Density
(2) All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67

Additionally, any sublot with a density result below 87% will be evaluated under 1.06.04.

ii. PWL Density Lot (3,500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on mat and joint density test results. Only one result will be included for each sublot. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

The specification limits for the PWL determination are as follows:

Mat Density: 91.5-98%
Joint Density: 90-98%

For mat and joint density, the individual percent adjustment (PA) will be calculated as follows:

For PWL between 50 and 90%: PA ($_M$ or $_J$)= 0.25 * PWL – 22.50

For PWL at and above 90%: PA ($_M$ or $_J$)= 0.125 * PWL – 11.25

Where: PA_M = Total percent mat density adjustment value for the PWL mat density lot

PA_J= Total percent joint density adjustment value for the PWL joint density lot

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

A lot with PWL less than 50% will be evaluated under 1.06.04.

The total adjustment for each PWL mat density lot will be computed as follows:

Tons Adjusted for Mat Density (T_{MD}) = (PA_M / 100) X Tons

Where: Tons= Weight of material (tons) in the lot adjusted by 4.06.4-1.

The total adjustment for each PWL joint density lot will be computed as follows:

Tons Adjusted for Joint Density (T_{JD}) = (PA_J / 100) X J_Tons

Tons Adjusted for Joint Density will be calculated at the end of each project or project phase.

Where: $J\_Tons = \text{Tons in project or phase adjusted by 4.06.4} - 1 \times \frac{\text{Lot joint length}}{\text{Joint length in project or phase}}$

All bridge density lot adjustments will be evaluated in accordance with 4.06.04-2.b)i.

Additionally, any sublot with a density result below 87% will be evaluated under 1.06.04.

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material and placement conditions or if the last test result of the prior lot is over 30 calendar days old, the mat and joint individual adjustments will be calculated in accordance to Tables 4.06-8 and 4.06-9. T_{MD} and T_{JD} will be calculated as indicated in 4.06.04-2.b)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.b)ii.

Density Lot Adjustment (Simple Average Lots): T_D x Unit Price = Est. (Di)
Density Lot Adjustment (PWL Lots): (T_{MD} or T_{JD}) x Unit Price = Est. (DMi or DJi)

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Di)= Pay Unit in dollars representing incentive or disincentive per simple average density lot
Est. (DMi)= Pay Unit in dollars representing incentive or disincentive per PWL mat lot
Est. (DJi)= Pay Unit in dollars representing incentive or disincentive per PWL joint lot

Additionally, any sublot with a density result below 87% will be evaluated under 1.06.04.

3. Transitions for Roadway Surface: The installation of permanent transitions will be measured under the appropriate item used in the formation of the transition.

The quantity of material used for the installation of temporary transitions will be measured for payment under the appropriate item used in the formation of the transition. The installation and removal of a bond breaker and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is not measured for payment.

4. Cut Bituminous Concrete Pavement: The quantity of bituminous concrete pavement cut will be measured in accordance with 2.02.04.

5. Material for Tack Coat: The quantity of tack coat will be measured for payment by the number of gallons furnished and applied on the Project and approved by the Engineer. No tack coat material shall be included that is placed in excess of the tolerance described in 4.06.03.

a. Container Method – Material furnished in a container will be measured to the nearest 1/2 gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Engineer or using a separate graduated container capable of measuring the volume to the nearest 1/2 gallon. The container in which the material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.
b. Vehicle Method
    i. Measured by Weight: The number of gallons furnished will be determined by weighing the material on calibrated scales furnished by the Contractor. To convert weight to gallons, one of the following formulas will be used:
    Tack Coat (gallons at 60°F) = Measured Weight (pounds) / Weight per gallon at 60°F
    Tack Coat (gallons at 60°F) = 0.996 x Measured Weight (pounds) / Weight per gallon at 77°F
    ii. Measured by automated metering system on the delivery vehicle:
    Tack Coat (gallons at 60°F) = 0.976 x Measured Volume (gallons).

6. Material Transfer Vehicle (MTV): The furnishing and use of a MTV will be measured separately for payment based on the actual number of surface course tons delivered to a paver using the MTV.

4.06.05—Basis of Payment:

1. HMA S* or PMA S*: The furnishing and placing of bituminous concrete will be paid for at the Contract unit price per ton for " HMA S*" or " PMA S*."

All costs associated with providing illumination of the work area are included in the general cost of the work.

All costs associated with cleaning the surface to be paved, including mechanical sweeping, are included in the general cost of the work. All costs associated with constructing longitudinal joints are included in the general cost of the work.

All costs associated with obtaining cores for acceptance testing and dispute resolution are included in the general cost of the work.

2. Bituminous Concrete Adjustment Costs: This adjustment will be calculated using the formulas shown below if all of the measured adjustments in 4.06.04-2 are not equal to zero. A positive or negative adjustment will be applied to monies due the Contractor.

Production Lot: Σ Est (Pi) = Est. (P)
Density Lot (Simple Average Lots): Σ Est (Di) = Est. (D)
Density Lot (PWL): Σ Est (DMi) + Σ (DJi) = Est. (D)
Bituminous Concrete Adjustment Cost= Est. (P) + Est. (D)

Where: Est. ( )= Pay Unit in dollars representing incentive or disincentive in each production or density lot calculated in 4.06.04-2

The Bituminous Concrete Adjustment Cost item, if included in the bid proposal or estimate, is not to be altered in any manner by the Bidder. If the Bidder should alter the amount shown, the altered figure will be disregarded and the original estimated cost will be used for the Contract.

3. Transitions for Roadway Surface: The installation of permanent transitions will be paid under the appropriate item used in the formation of the transition. The quantity of material used for the installation of temporary transitions will be paid under the appropriate pay item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is included in the general cost of the work.

4. The cutting of bituminous concrete pavement will be paid in accordance with 2.02.05.

5. Material for tack coat will be paid for at the Contract unit price per gallon at 60°F for "Material for Tack Coat."

6. The Material Transfer Vehicle (MTV) will be paid at the Contract unit price per ton for "Material Transfer Vehicle."

Pay Item	Pay Unit
HMA S*	ton
PMA S*	ton
Bituminous Concrete Adjustment Cost	est.
Material for Tack Coat	gal.
Material Transfer Vehicle	ton

SECTION 5.86 - CATCH BASINS, MANHOLES AND DROP INLETS

5.86.01—Description: The work under this Section shall consist of furnishing, preparing, and installing catch basins, manholes and drop inlets (and also the removal, abandonment, alteration, reconstruction, or conversion of such existing structures) in conformity with the lines, grades, dimensions and details shown on the plans.

This Section shall also include resetting or replacing catch basin tops as well as manhole frames and covers.

5.86.02—Materials: The materials for this work shall meet the following requirements:

Drainage structures shall meet the requirements of M.08.02 and shall utilize concrete with a 28-day minimum compressive strength of 4000 psi.

Galvanizing shall meet the requirements of M.06.03.

Mortar shall meet the requirements of M.11.04.

Butyl rubber joint seal shall meet the requirements of ASTM C990.

Granular fill, if necessary, shall meet the requirements of M.02.01.

Protective compound material shall be a type appearing on the Department's Qualified Products List and be acceptable to the Engineer, as specified in M.03.09.

5.86.03—Construction Methods: Drainage trench excavation, including rock in drainage trench excavation and backfilling, shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where a drainage structure is to be installed below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the proposed drainage structure or to ensure a uniform foundation for the structure.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved granular fill, thoroughly compacted in lifts not to exceed 6 inches. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

When a drainage structure outside of proposed drainage trench limits is to be removed, it shall be completely removed and all pipes shall be removed or plugged with cement masonry.

When a drainage structure is to be abandoned, the structure shall be removed to a depth 2 feet below the subgrade or as directed by the Engineer. The floor of the structure shall be broken and all pipes shall be plugged with cement masonry.

Drainage structures shall be constructed in accordance with the plans and the requirements contained herein for the character of the work involved. The provisions of 6.02.03 pertaining to bar reinforcement shall apply except that shop drawings need not be submitted for approval unless called for in the plans, Contract or directed by the Engineer. Welding shall be performed in accordance with the applicable sections of the AWS Structural Welding Code, D1.1.

When it becomes necessary to increase the horizontal dimensions of manholes, catch basins and drop inlets to sizes greater than those shown on the plans in order to provide for multiple pipe installations, large pipes or for other reasons, the Contractor shall construct such manholes, catch basins and drop inlets to modified dimensions as directed by the Engineer.

The surfaces of the tops of all catch basins, and drop inlets shall be given a coat of protective compound material, at the manufacturer's recommended application rate, immediately upon completion of the concrete curing period.

All masonry units shall be laid in full mortar beds.

Metal fittings for catch basins, manholes or drop inlets shall be set in full mortar beds or otherwise secured as shown on the plans.

All inlet and outlet pipes shall be set flush with the inside face of the wall of the drainage structure as shown on the plans. The pipes shall extend through the walls for a sufficient distance beyond the outside surface to allow for satisfactory connections, and the concrete or masonry shall be constructed around them neatly to prevent leakage along their outer surfaces.

When constructing a new drainage structure within a run of existing pipe, the section of existing pipe disturbed by the construction shall be replaced with new pipe of identical type and size extending from the drainage structure to the nearest joint of the existing pipe in accordance with 6.86.03 or as directed by the Engineer.

Backfilling shall be performed in accordance with 2.86.03.

Frames, covers and tops which are to be reset shall be removed from their present beds, the walls or sides shall be rebuilt to conform to the requirements of the new construction and the frames, covers and tops shall be reset as shown on the plans or as directed by the Engineer.

5.86.04—Method of Measurement:

Drainage Trench Excavation: In accordance with 2.86.04, excavation for drainage trench will not be measured for payment but shall be included in the Contract unit price for the type of structure being installed.

Rock in Drainage Trench Excavation: Rock in Drainage Trench Excavation will be measured in accordance with the drainage trench excavation limits described in 2.86.03.

Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Resetting of Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Replacement of frames, covers, and tops will be measured as a unit for catch basin top or manhole frame and cover.

Conversion of drainage structures as specified on the plans, or as directed by the Engineer, including structure reconstruction will be measured for payment as a unit.

Removal or abandonment of drainage structures outside of drainage trench excavation limits, as defined in 2.86.03, will be measured as separate units.

There will be no measurement or direct payment for the application of the protective compound material, the cost of this work shall be considered as included in the general cost of the work.

Measurement for payment for work and materials involved with installing pipes to connect new drainage structures into a run of existing pipe will be as provided for under the applicable Contract items in accordance with 6.86.04.

There will be no measurement or direct payment for plugging existing pipes with cement masonry, the cost of this work will be considered as included in the general cost of the work.

5.86.05—Basis of Payment:

Drainage Trench Excavation for the installation of proposed structures described herein will be paid for under the respective drainage Contract item(s) for which the excavation is being performed, in accordance with the provisions of 2.86.05.

Rock in Drainage Trench Excavation will be paid for in accordance with the provisions of 2.86.05.

Manholes and Catch Basins will be paid for at the Contract unit price for each "Manhole," or "Catch Basin," of the type specified, at "0' to 10' Deep" or "0' to 20' Deep," complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Drop Inlets will be paid for at the Contract unit price for each "Drop Inlet," of the type specified, complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Manholes, Catch Basins and Drop Inlets constructed to modified dimensions as directed by the Engineer, will be paid for as follows:

Where the interior floor area has to be increased to accommodate existing field conditions, as measured horizontally at the top of the base of the completed structure, and does not exceed 125% of the interior floor area as shown on the plans for that structure, then the structure shall be paid for at the Contract unit price for each "Manhole," "Catch Basin," or "Drop Inlet" of the type specified. Where the floor area is greater than 125%, the increase in the unit price for the individual structure shall be in direct proportion to the increase of the completed structure interior floor area as compared to the interior floor area as shown on the plans for that structure. Such increased unit price shall include all excavation, materials, equipment, tools, and labor incidental to the completion of the structure.

Reset Units will be paid for at the Contract unit price each for "Reset Manhole," "Reset Catch Basin," or "Reset Drop Inlet," of the type specified, respectively, complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement structure, and all materials, equipment, tools and labor incidental thereto, except when the work requires reconstruction greater than 3 feet, measured vertically, then the entire cost of resetting the unit will be paid for as Extra Work in accordance with the provisions of 1.04.05.

Frames, Covers, and Tops when required in connection with reset units, will be paid for at the Contract unit price each for such "Manhole Frame and Cover" or "(Type) Catch Basin Top," complete in place, including all incidental expense; or when no price exists, the furnishing and placing of such material will be paid for as Extra Work in accordance with the provisions of 1.04.05.

When the catch basin top has a stone or granite curb in its design, the curb or inlet shall be included in the cost of the "(Type) Catch Basin Top."

Conversion of drainage structures will be paid for at the Contract unit price each for "Convert Catch Basin to (Type) Catch Basin," "Convert Catch Basin to (Type) Manhole," or "Convert Manhole to (Type) Catch Basin," complete in place, which price shall include

excavation, cutting of pavement, removal and replacement of pavement, backfill, all alterations to existing structure, all materials including catch basin frame and grate of the type specified, or manhole frame and cover, all equipment, tools and labor incidental thereto.

The maximum change in elevation of frame under these items shall not exceed 3 feet. Greater depth changes, if required, shall be paid for as Extra Work, in accordance with 1.04.05.

Removal or abandonment of drainage structures outside of drainage trench excavation limits as defined in 2.86.03 will be paid for at the Contract unit price each for "Remove Drainage Structure – 0' to 10' Deep," "Remove Drainage Structure – 0' to 20' Deep," or "Abandon Drainage Structure," which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, and all equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
(Type) Catch Basin – 0' to 10' Deep	ea.
(Type) Catch Basin – 0' to 20' Deep	ea.
Manhole (Size) – 0' to 10' Deep	ea.
Manhole (Size) – 0' to 20' Deep	ea.
(Type) Drop Inlet	ea.
Reset Catch Basin	ea.
Reset Manhole	ea.
Reset Drop Inlet	ea.
Convert Catch Basin to (Type) Catch Basin	ea.
Convert Catch Basin to (Type) Manhole	ea.
Convert Manhole to (Type) Catch Basin	ea.
Manhole Frame and Cover	ea.
(Type) Catch Basin Top	ea.
Remove Drainage Structure – 0' to 10' Deep	ea.
Remove Drainage Structure – 0' to 20' Deep	ea.
Abandon Drainage Structure	ea.

SECTION 6.86 - DRAINAGE PIPES, DRAINAGE PIPE ENDS

6.86.01—Description: This work shall consist of furnishing, preparing and installing drainage pipes of the size and type specified, bedding material, joint sealant, rubber gaskets, clamps, collars, grout, grout collars, drainage trench excavation, backfilling or satisfactory disposal of all materials, the removal of which is necessary for the proper completion of the work, connecting proposed drainage systems to existing systems, plugging or abandoning existing pipes and removal of existing pipe within trench limits, as shown on the plans or as directed by the Engineer.

This Section shall also include removal of drainage pipes outside of drainage trench excavation limits, as defined in 2.86.03-1.

6.86.02—Materials: The materials for this work shall meet the following requirements:

Drainage Pipe, Drainage Pipe Ends, Sealers, Gaskets and connection hardware shall meet the requirements of M.08.01.

Bedding Material shall meet the requirements of M.08.03-1.

Granular Fill, if necessary, shall meet the requirements of M.02.01.

Brick Masonry shall meet the requirements of M.11.03 and Mortar shall meet the requirements of M.11.04.

Concrete used for Concrete Pipe Connections shall be Class "F" Concrete meeting the requirements of M.03.

6.86.03—Construction Methods:

(1) Drainage Trench Excavation: Drainage trench excavation and backfilling shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where drainage pipe is to be laid below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the bedding material.

Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

(2) Rock in Drainage Trench Excavation: When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

(3) Drainage Pipe Installation: New or re-laid drainage pipes shall be installed on 4 inches of bedding material (12 inches if over rock in ledge formation), the details as shown on the plans, or as directed by the Engineer. Prior to placement of the drainage pipe, in accordance with the plans, bedding material shall be pre-shaped to 10% of the total height of the pipe in order to keep the pipe in the center of the trench. Following placement of the

drainage pipe, bedding material backfill shall be placed in accordance with the following table:

Internal Pipe Diameter	**Required Bedding Material Backfill**
< 48 inches*	25% of total height of the pipe
≥ 48 inches*	12 inches above the top of the pipe
*Includes pipe arch of equivalent internal horizontal span See Standard Drawing	

The placement of the drainage pipe shall start at the downstream end and progress upstream or as shown on the plans, or as directed by the Engineer. All drainage pipes shall be carefully laid in the center of the drainage trench, true to the lines and grades given. Bell ends shall face upgrade and all joints shall be tight.

Joints in concrete pipe shall be sealed with cold-applied bituminous sealer, preformed plastic gaskets or flexible, watertight, rubber-type gaskets. Portland cement mortar shall not be used for sealing pipe joints except with permission of the Engineer.

When cold-applied bituminous sealer is used, the bell and spigot ends shall be wiped clean and dry before applying the bituminous sealer to the pipe ends. Before the drainage pipes are placed in contact with each other, the spigot or tongue end shall be completely covered with bituminous sealer; then the pipe shall be laid to line and grade so the inside surface of all abutting pipes are flush. Additional bituminous sealer shall be applied to the joint after the connection has been made to ensure a water tight connection.

Where the end of an existing drainage pipe is not compatible with the end of a proposed concrete pipe, the Contractor shall align the inner diameters of the pipes being connected, butt the pipe ends together, and construct a cast-in-place concrete pipe connection, as shown in the plans. Incompatible bell/spigot or tongue/groove ends shall be cut off as required to ensure the interior drainage pipe walls are aligned to provide a smooth transition between the pipes.

Metal pipe and pipe arches shall be carefully joined and firmly clamped together by approved connecting bands, which shall be properly bolted in place before any backfill is placed.

Newly installed drainage pipe which is not in true alignment, or which shows any settlement or distortion, shall be reinstalled in accordance with 1.05.03.

When drainage pipe outside of proposed drainage trench limits is to be removed, it shall be removed to the limits shown on the plans and all remaining pipes shall be plugged with cement masonry.

Where shown on the plans or directed by the Engineer, the Contractor shall plug abandoned existing pipes with cement masonry.

(4) Drainage Pipe End Installation: Reinforced concrete drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. The

joints shall be sealed as specified in 6.86.03-3 and backfill shall be placed around both sides of the unit simultaneously to the elevation shown on the plans.

Metal drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. After the attachment of the drainage pipe end, backfill shall be placed around both sides of the unit up to the elevation shown on the plans, exercising caution to avoid displacement or deformation of the unit.

6.86.04—Method of Measurement: This work will be measured as follows:

Drainage Trench Excavation, in accordance with 2.86.04, will not be measured for payment.

Rock in Drainage Trench Excavation will be measured in accordance with 2.86.04.

Bedding Material will not be measured for payment.

New and Re-laid Pipes and Pipe Arches will be measured for payment by the actual number of linear feet of pipe or pipe arch of the various sizes and types, completed and accepted and measured in place along the invert. Coupling bands and fittings for pipes and pipe arches will not be measured for payment.

Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends will be measured for payment as separate units.

Corrugated Metal Pipe Elbows (of the Size and Type specified) will be measured for payment by the actual number of linear feet of pipe elbows completed and accepted, based on 6 linear feet per elbow, as shown on the plans. Coupling bands for elbows will not be measured for payment.

Concrete Pipe Connection will be measured for payment by the number of each concrete pipe connection constructed at locations where proposed concrete pipes tie into an existing pipe with an incompatible end, completed and accepted by the Engineer.

Removal of drainage pipe outside of drainage trench excavation limits, as defined in 2.86.03, will be measured for payment by the actual number of linear feet of drainage pipe removed.

There will be no measurement for plugging existing pipes with cement masonry.

6.86.05—Basis of Payment:

Drainage Trench Excavation for the installation of drainage pipes will not be paid separately but shall be included in the Contract unit price for the respective drainage pipe or pipe end item(s), in accordance with the provisions of 2.86.05.

Rock in Drainage Trench Excavation will be paid for in accordance with the provisions of 2.86.05.

Bedding Material necessary for the installation of drainage items described herein will be included in the Contract unit price for the respective drainage pipe or pipe end item(s). Bedding material required to fill voids when rock in drainage trench is encountered will not be measured for payment but shall be included in the Contract unit price for "Rock in Drainage Trench Excavation," in accordance with 2.86.05.

New Pipes and Pipe Arches will be paid for at the Contract unit price per linear foot for "(Size and Type) Pipe (Thickness) – 0' to 10' Deep," "(Size and Type) Pipe (Thickness) – 0' to 20' Deep," "(Size) Pipe Arch (Thickness) – 0' to 10' Deep" or "(Size) Pipe Arch (Thickness) – 0' to 20' Deep" complete in place, including materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Relaid Pipes and Pipe Arches will be paid for at the Contract unit price per linear foot for "Relaid Pipe (Size and Type) – 0' to 10' Deep," "Re-laid Pipe (Size and Type) – 0' to 20' Deep," "Relaid Pipe Arch (Size and Type) – 0' to 10' Deep," or "Relaid Pipe Arch (Size and Type) – 0'

to 20' Deep," complete in place, including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends will be paid for at the Contract unit price for each drainage pipe end of the Size and Type specified, complete in place, including all excavation, materials, attachment systems, equipment, tools and labor incidental thereto.

Corrugated Metal Pipe Elbows will be paid for at the Contract unit price per linear foot for "(Size and Type) Corrugated Metal Pipe Elbow" including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Concrete Pipe Connection will be paid for at the Contract unit price each for "Concrete Pipe Connection" complete in place, including all materials, equipment, tools and labor incidental thereto.

Removal of drainage pipes of all types and sizes, outside of drainage trench excavation limits, as defined in 2.86.03-1, will be paid for at the Contract unit price per linear foot for "Remove Existing Pipe – 0' to 10' Deep," or "Remove Existing Pipe – 0' to 20' Deep," which price shall include excavation, temporary trench protection, backfill, and all equipment, tools and labor incidental thereto.

There will be no direct payment for the plugging of existing drainage pipes, but the cost thereof shall be included in the respective drainage Contract item(s).

Pay Item	Pay Unit
(Size and Type) Pipe (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe (Thickness) – 0' to 20' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 20' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 10' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 20' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 10' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 20' Deep	l.f.
(Size) Reinforced Concrete Drainage Pipe End	ea.
(Size) Metal Drainage Pipe End	ea.
(Size and Type) Corrugated Metal Pipe Elbow	l.f.
Concrete Pipe Connection	ea.
Remove Existing Pipe – 0' to 10' Deep	l.f.
Remove Existing Pipe – 0' to 20' Deep	l.f.

SECTION M.04 - BITUMINOUS CONCRETE

Section M.04 is being deleted in its entirety and replaced with the following:

M.04.01—Bituminous Concrete Materials and Facilities
M.04.02—Mix Design and Job Mix Formula (JMF) M.04.03—Production Requirements

NOTE: This is not a Connecticut Department of Transportation (CDOT) project, so there will be no testing by CDOT for this project. All references regarding CDOT testing shall be deleted and replaced with the material producers and/or supplier's requirements, specifications and procedures. Bituminous Concrete shall be tested and inspected as ordered by the Engineer, Owner or his representatives.

Only bituminous concrete material from CDOT approved producers and/or suppliers shall be used on this project.

M.04.01 —Bituminous Concrete Materials and Facilities: Each source of material, and facility or plant used to produce and test bituminous concrete must be qualified on an annual basis by the Engineer. Test Procedures and Specifications referenced herein are in accordance with the latest AASHTO and ASTM Standard Test Procedures and Specifications. Such references when noted with an (M) have been modified by the Engineer and are detailed in Table M.04.03-7.

The Contractor shall submit to the Engineer all sources of coarse aggregate, fine aggregate, mineral filler, PG binder, and if applicable any additives such as but not limited to anti-strip, warm mix, and polymer modifiers. The Contractor shall submit a Safety Data Sheet (SDS) for each grade of binder, and additive to be used on the Project. The Contractor shall not change any material sources without prior approval of the Engineer.

An adequate quantity of each size aggregate, mineral filler, bitumen, and additives, shall be maintained at the bituminous concrete plant site at all times while the plant is in operation to ensure that the plant can consistently produce bituminous concrete mixtures that meet the job mix formula (JMF) as specified in Article M.04.02. The quantity of such material shall be reviewed by the Engineer on an individual plant basis and is dependent upon the plant's daily production capacity. A total quantity of any material on site that amounts to less than one day's production capacity may be cause for the job mix formula to be rejected.

1. **Coarse Aggregate:**
   a. Requirements: The coarse aggregate shall consist of clean, hard, tough, durable fragments of crushed stone or crushed gravel of uniform quality. Aggregates from multiple sources of supply must not be mixed or stored in the same stockpile.

Basis of Approval: The request for approval of the source of supply shall include a washed sieve analysis in accordance with AASHTO T 27. The Gsa, Gsb, and Pw_a shall be determined in accordance with AASHTO T 85. The coarse aggregate must not contain more than 1% crusher dust, sand, soft disintegrated pieces, mud, dirt, organic and other injurious materials. When tested for abrasion using AASHTO T 96, the aggregate loss must not exceed 40%. When tested for soundness using AASHTO T 104 with a magnesium sulfate solution, the coarse aggregate must not have a loss exceeding 10% at the end of 5 cycles.

For all bituminous mixtures, materials shall also meet the coarse aggregate angularity criteria as specified in Tables M.04.02-2 thru M.04.02-4 for blended aggregates retained on the #4 sieve when tested according to ASTM D 5821. The amount of aggregate particles of the coarse aggregate blend retained on the #4 sieve that are flat and elongated shall be determined in accordance with ASTM D 4791 and shall not exceed 10% by weight when tested to a 5:1 ratio, as shown in Tables M.04.02-2 thru M.04.02-4.

2. **Fine Aggregate:**
   a. Requirements: The fine aggregate from each source quarry/pit deposit shall consist of clean, hard, tough, rough-surfaced and angular grains of natural sand; manufactured sand prepared from washed stone screenings; stone screenings, slag or gravel; or combinations thereof, after mechanical screening or manufactured by a process approved by the Engineer. The Contractor is prohibited from mixing two or more sources of fine aggregate on the ground for the purpose of feeding into a plant.

   All fine aggregate shall meet the listed criteria shown in items #1 thru #7 of Table M.04.01-1. Table M.04.01-1 indicates the quality tests and criteria required for all fine aggregate sources. Individually approved sources of supply shall not be mixed or stored in the same stockpile. The fine aggregates must be free from injurious amounts of clay, loam, and other deleterious materials.

TABLE M.04.01-1: Fine Aggregate Criteria by Pit/Quarry Source

Item	Title	AASHTO Protocol(s)	Criteria
1	Grading	T 27 & T 11	100% Passing 3/8 inch 95% Passing the #4 min.
2	Absorption	T 84	3% maximum
3	Plasticity limits	T 90	0 or not detectable
4	L.A. Wear	T 96	50% maximum(fine agg. particle size # 8 and above)
5	Soundness by Magnesium Sulfate	T 104	20% maximum @ 5 cycles
6	Clay Lumps and Friable Particles	T 112	3% maximum
7	Deleterious Material	As determined by the Engineer	Organic or inorganic calcite, hematite, shale, clay or clay lumps, friable materials, coal-lignite, shells, loam, mica, clinkers, or organic matter (wood, etc.). -Shall not contain more than 3% by mass of any individual listed constituent and not more than 5% by mass in total of all listed constituents.
8	Petrographic Analysis	ASTM C 295	Terms defined in Section M.04.01-2c.

b. Basis of Approval: A Quality Control Plan for Fine Aggregate (QCPFA) provided by the Contractor shall be submitted for review and approval for each new source documenting how conformance to Items 1 through 7 as shown in Table M.04.01-1 is monitored. The QCPFA must be resubmitted any time the process, location or manner of how the fine aggregate (FA) is manufactured changes, or as requested by the Engineer. The QCPFA must include the locations and manufacturing processing methods. The QCPFA for any source may be suspended by the Engineer due to the production of inconsistent material.

The Contractor shall submit all test results to the Engineer for review. The Contractor shall also include a washed sieve analysis in accordance with AASHTO T 27/T 11. Any fine aggregate component or final combined product shall have 100% passing the 3/8 inch sieve and a minimum of 95% passing the # 4. The Gsa, Gsb, and Pw_a shall be determined in accordance with AASHTO T 84.

The Contractor will be notified by the Engineer if any qualified source of supply fails any portion of Table M.04.01-1. One retest will be allowed for the Contractor to make corrections and/or changes to the process. If, upon retest, the material does not meet the requirements of items 1-7, additional testing will be required in accordance with item 8.

The Contractor may provide a Petrographic analysis of the material performed by a third party acceptable to the Engineer at its' own expense. The Contractor shall submit the results of the analysis with recommended changes to the manufacturing process to the Engineer. The Contractor shall submit fine aggregate samples for testing by the Engineer after the recommended changes have been made.

The Contractor may request the use of such fine aggregate on select project(s) for certain applications of bituminous concrete pavement. Such material will be monitored for a period no less than 48 months, at no cost to the State. Terms of any evaluation and suitable application will be determined by the Engineer.

3. Mineral Filler:

a. Requirements: Mineral filler shall consist of finely divided mineral matter such as rock dust, including limestone dust, slag dust, hydrated lime, hydraulic cement, or other accepted mineral matter. At the time of use it shall be freely flowing and devoid of agglomerations. Mineral filler shall be introduced and controlled at all times during production in a manner acceptable to the Engineer.

b. Basis of Approval: The request for approval of the source of supply shall include the location, manufacturing process, handling and storage methods for the material. Mineral filler shall conform to the requirements of AASHTO M 17.

4. Performance Graded Asphalt Binder:

a. General:

i Liquid PG binders shall be uniformly mixed and blended and be free of contaminants such as fuel oils and other solvents. Binders shall be properly heated and stored to prevent damage or separation.

ii. The blending at mixing plants of PG binder from different suppliers is strictly prohibited. Contractors who blend PG binders will be classified as a supplier and will

be required to certify the binder in accordance with AASHTO R 26(M). The binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29. The Contractor shall submit a

Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the binder specific gravity at 77ºF; rotational viscosity at 275ºF and 329ºF and the mixing and compaction viscosity- temperature chart for each shipment.

iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder materials. Contractor plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used, and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment (tanker truck) is accompanied by a statement certifying that the transport vehicle was inspected before loading and was found acceptable for the material shipped and that the binder will be free of contamination from any residual material, along with two (2) copies of the bill of lading.

iv. Basis of Approval: The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with necessary certification in accordance with AASHTO R 26(M). Only suppliers/refineries that have an approved "Quality Control Plan for Performance Graded Binders" formatted in accordance with AASHTO R 26(M) will be allowed to supply PG binders to Department projects.

b. Neat Performance Grade (PG) Binder:

i. PG binder shall be classified by the supplier as a "Neat" binder for each lot and be so labeled on each bill of lading. Neat PG binders shall be free from modification with: fillers, extenders, reinforcing agents, adhesion promoters, thermoplastic polymers, acid modification and other additives such as re-refined motor oil, and shall indicate such information on each bill of lading and certified test report.

ii. The asphalt binder shall be PG 64S-22.

c. Modified Performance Grade (PG) Binder:

Unless otherwise noted, the asphalt binder shall be Performance Grade PG 64E-22 asphalt modified solely with a Styrene-Butadiene-Styrene (SBS) polymer. The polymer modifier shall be added at either the refinery or terminal and delivered to the bituminous concrete production facility as homogenous blend. The stability of the modified binder shall be verified in

accordance with ASTM D7173 using the Dynamic Shear Rheometer (DSR). The DSR G*/sin(δ) results from the top and bottom sections of the ASTM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the Certified Test Report. The binder shall meet the requirements of AASHTO M 332 (including Appendix X1) and AASHTO R 29.

d. Warm Mix Additive or Technology:

i. The warm mix additive or technology must be listed on the NEAUPG Qualified Warm Mix Asphalt (WMA) Technologies List at the time of bid, which may be accessed online at http://www.neaupg.uconn.edu/wma_info.html.

ii. The warm mix additive shall be blended with the asphalt binder in accordance with the manufacturer's recommendations.

iii. The blended binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29 for the specified binder grade. The Contractor shall submit a Certified Test Report showing the results of the testing demonstrating the binder grade. In addition, it must include the grade of the virgin binder, the brand name of the warm mix additive, the manufacturer's suggested rate for the WMA additive, the water injection rate (when applicable) and the WMA Technology manufacturer's recommended mixing and compaction temperature ranges.

5. Emulsified Asphalts:

a. General:

i. Emulsified asphalts shall be homogeneous and be free of contaminants such as fuel oils and other solvents. Emulsions shall be properly stored to prevent damage or separation.

ii. The blending at mixing plants of emulsified asphalts from different suppliers is strictly prohibited. Contractors who blend emulsified asphalts will be classified as a supplier and will be required to certify the emulsion in accordance with AASHTO PP 71. The emulsified asphalt shall meet the requirements of AASHTO M 140(M) or AASHTO M 208 as applicable.

b. Supplier Approval:

i. The request for approval of the source of supply shall list the location where the material is manufactured, the handling and

storage methods, and certifications in accordance with AASHTO PP 71. Only suppliers that have an approved "Quality Control Plan for Emulsified Asphalt" formatted in accordance with AASHTO PP 71 will be allowed to supply emulsified asphalt to Department projects.

ii. The supplier shall submit to the Division Chief a Certified Test Report representing each lot in accordance with AASHTO PP 71. The Certified Test Report shall include test results for each specified requirement for the grade delivered and shall also indicate the density at 60ºF. Additionally, once a month one split sample for each emulsified asphalt grade shall be submitted.

c. Basis of Approval
   i. Each shipment of emulsified asphalt delivered to the project site shall be accompanied with the corresponding SDS and Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon at 60°F.
   ii. Anionic emulsified asphalts shall conform to the requirements of AASHTO M-140(M). Materials used for tack coat shall not be diluted and meet grade RS-1 or RS-1H. When ambient temperatures are 80˚F and rising, grade SS-1 or SS-lH may be substituted if permitted by the Engineer.

   iii. Cationic emulsified asphalt shall conform to the requirements of AASHTO M-208. Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80˚F and rising, grade CSS-1 or CSS-lh may be substituted if permitted by the Engineer.

6. Reclaimed Asphalt Pavement (RAP):

a. Requirements: RAP shall consist of asphalt pavement constructed with asphalt and aggregate reclaimed by cold milling or other removal techniques approved by the Engineer. For bituminous concrete mixtures containing RAP, the Contractor shall submit a JMF in accordance with Article M.04.02 to the Engineer for review.

b. Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:
   i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a materials certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations

listed.

ii. When the RAP material source or quality is not known, the Contractor shall test the material and provide the following information along with a request for approval to the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a material certificate stating that the RAP consists of aggregates that meet the specification requirements of sub articles M.04.01-1 through 3 and that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:

1. A 50-pound sample of the RAP to be incorporated into the recycled mixture.
2. A 25-pound sample of the extracted aggregate from the RAP.
3. A statement that RAP material has been crushed to 100% passing the ½ inch sieve and remains free from contaminants such as joint compound, wood, plastic, and metals.

7. Crushed Recycled Container Glass (CRCG):

a. Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.

b. Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic and metal and conform to the following gradation:

CRCG Grading Requirements	
Sieve Size	Percent Passing
3/8-inch	100
No. 4	35-100
No. 200	0.0-10.0

8. Joint Seal Material:

a. Requirements: Joint seal material shall be a hot-poured rubber compound intended for use in sealing joints and cracks in bituminous concrete pavements. Joint seal material must meet the requirements

of ASTM D 6690 – Type 2.

9. Recycled Asphalt Shingles (RAS)

a. Requirements: RAS shall consist of processed asphalt roofing shingles from post- consumer asphalt shingles or from manufactured shingle waste. The RAS material under consideration for use in bituminous concrete mixtures must be certified as being asbestos free and shall be entirely free of whole, intact nails. The RAS material shall meet the requirements of AASHTO MP 23.

The producer shall test the RAS material to determine the asphalt content and the gradation of the RAS material. The producer shall take necessary action to prevent contamination of RAS stockpiles.

10. Plant Requirements:

a. Mixing Plant and Machinery: The mixing plant used in the preparation of the bituminous concrete shall comply with AASHTO M 156/ASTM D 995 for a Batch Plant or a Drum Dryer Mixer Plant, and be approved by the Engineer.

b. Storage Silos: For all mixes, the Contractor may use silos for short-term storage of mixtures with prior notification and approval of the Engineer. A silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. Prior approval must be obtained for storage times greater than those indicated. When multiple silos are filled, the Contractor shall discharge one silo at a time. Simultaneous discharge of multiple silos is not permitted.

Type of silo cylinder	Maximum storage time for all classes (hr)
Open Surge	4 Mfg Recommendations
Unheated – Non-insulated	8 Mfg Recommendations
Unheated – Insulated	18 Mfg Recommendations
Heated – No inert gas	TBD by the Engineer

c. Documentation System: The mixing plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence and timing the mixing operations. Recording equipment shall monitor the batching sequence of each component of

the mixture and produce a printed record of these operations on each delivery ticket, as specified herein. Material feed controls shall be automatically or manually adjustable to provide proportions within the tolerances listed below for any batch size.

An asterisk (*) shall be automatically printed next to any individual batch weight(s) exceeding the tolerances in ASTM D 995 section 8.7.3. The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

There must be provisions so that scales are not manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed character (m) shall automatically be printed on the truck and batch plant printout when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning. For each day's production, each project shall be provided a clear, legible copy of these recordings on each delivery ticket.

d. Aggregates: The Contractor shall ensure that aggregate stockpiles are managed to provide uniform gradation and particle shape, prevent segregation and cross contamination in a manner acceptable to the Engineer. For drum plants only, the Contractor shall determine the percent moisture content at a minimum, prior to production and half way through production.

e. Mixture: The dry and wet mix times shall be sufficient to provide proper coating (minimum 95% as determined by AASHTO T 195(M)) of all particles with bitumen and produce a uniform mixture.

The Contractor shall make necessary adjustments to ensure all types of bituminous concrete mixtures contain no more than 0.5% moisture throughout when tested in accordance with AASHTO T 329.

f. RAP: The Contractor shall indicate the percent of RAP, the moisture content (as a minimum determined twice daily prior to production and halfway through production), and the net dry weight of RAP added to the mixture on each delivery ticket. For each day of production, the production shall conform to the job mix formula and RAP percentage

and no change shall be made without the prior approval of the Engineer.

g. Asphalt Binder: The last day of every month, a binder log shall be submitted when the monthly production for the Department exceeds 5000 tons. Blending of PG binders from different suppliers or grades at the bituminous concrete production facility is strictly prohibited.

h. Warm mix additive: For mechanically foamed WMA, the maximum water injection rate shall not exceed 2.0% water by total weight of binder and the water injection rate shall be constantly monitored during production.

i. Field Laboratory: The Contractor shall furnish the Engineer an acceptable field laboratory at the production facility to test bituminous concrete mixtures during production. The field laboratory shall have a minimum of 300 square feet, have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, and be equipped with all necessary testing equipment as well as with a PC, printer, and telephone with a dedicated hard-wired phone line. In addition, the

PC shall have a high speed internet connection with a minimum upstream of 384 Kbps and a functioning web browser with unrestricted access to https://ctmail.ct.gov. This equipment shall be maintained in clean and good working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a suitable heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Windows shall be installed to provide sufficient light and ventilation. During summer months adequate cooling or ventilation must be provided so the indoor air temperature shall not exceed the ambient outdoor temperature. Light fixtures and outlets shall be installed at convenient locations, and a telephone shall be within audible range of the testing area. The laboratory shall be equipped with an adequate workbench that has a suitable length, width, and sampling tables, and be approved by the Engineer.

The quantity of all equipment and supplies necessary to perform the tests must be sufficient to initiate and complete the number of tests identified in Table M.04.03-2 for the quantity of mixture

produced at the facility on a daily basis. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the project with all necessary testing materials and equipment.

The Contractor shall maintain a list of laboratory equipment used in the acceptance testing processes including but not limited to, balances, scales, manometer/vacuum gauge, thermometers, gyratory compactor, clearly showing calibration and/or inspection dates, in accordance with AASHTO R 18. The Contractor shall notify the Engineer if any modifications are made to the equipment within the field laboratory. The Contractor shall take immediate action to replace, repair, and/or recalibrate any piece of equipment that is out of calibration, malfunctioning, or not in operation.

M.04.02 —Mix Design and Job Mix Formula (JMF)

1. Curb Mix:

a. Requirements: When curb mix is specified, the Contractor shall develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation, binder content and air voids as shown in Table M.04.02-1. The Contractor may use RAP in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer.

b. Basis of Approval: The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

The Contractor shall test the mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T

209. If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the

sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

TABLE M.04.02 – 1:
Master Ranges for Curb Mix Mixtures

Notes: (a) Compaction Parameter 50gyration N_{des}. (b) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T 164 or AASHTO T 308.		
Mix	**Curb Mix**	**Production Tolerances from JMF target**
Grade of PG Binder content %	**PG 64S-22 6.5 - 9.0**	**0.4**
Sieve Size		
# 200	3.0 – 8.0 (b)	2.0
# 50	10 - 30	4
# 30	20 - 40	5
# 8	40 - 70	6
# 4	65 - 87	7
¼”		
3/8 “	95 - 100	8
½ “	100	8
¾”		8
1”		
2”		
Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%		
Mixture Temperature		
Binder	325°F maximum	
Aggregate	280-350° F	
Mixtures	265-325° F	
Mixture Properties		
VOIDS %	0 – 4.0 (a)	

2. Marshall Method - Class 1, 2, 3, 4, 5, 5A, 5B and 12:

a. Requirements: When specified, the Marshall method shall be employed to develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation and bitumen content for each class of bituminous concrete designated for the

project in accordance with the latest Asphalt Institute's MS-2 manual. Each class of bituminous concrete must meet the requirements as shown in Table M.04.02-1.

b. Basis of Approval: The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF and production percentage of bitumen must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF and production percentage of bitumen for each class of mixture. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

The Engineer will test each class of mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209(M). If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced. All equipment, tests and computations shall conform to the Marshall method in accordance with AASHTO T 245(M).

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

c. Marshall Mixture (Virgin): For bituminous concrete mixtures that contain no recycled material, the limits prescribed in Table M.04.02-1 govern. The Contractor shall submit to the Engineer for approval, a

JMF with the individual fractions of the aggregate expressed as percentages of the total weight of the mix and the source(s) of all materials. The JMF shall indicate two bitumen contents; the JMF target percentage and a production percentage (actual amount added to mix) of bitumen for each mix class by total weight. For surface course Class 1, a 0.45 power gradation chart shall also be submitted on which is plotted the percentage passing each sieve. The JMF shall also indicate the target temperature of completed mixture as it is dumped from the mixer and tested in accordance with Article M.04.03.

d. Marshall Mixtures with RAP: In addition to subarticles M.04.02 – 1a through c, RAP in bituminous concrete shall comply with requirements stated in Article M.04.01, and as stated herein. Upon approval of the Engineer, a maximum of 15% RAP may be used with no binder grade modification. RAP material shall not be used with any other recycling option.
The Contractor may increase the RAP percentage in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer. The following information shall be included in the JMF submittal:

- Gradation and asphalt content of the RAP.
- Percentage of RAP to be used.
- Virgin aggregate source(s).
- Total binder content based on total mixture weight.
- Production pull percentage of added virgin binder based on total mixture weight.
- Gradation of combined bituminous concrete mixture (including RAP).
- Grade of virgin added, if greater than 15% of total mix weight.

e. Marshall Mixture with CRCG: In addition to subarticle M.04.02 – 1a through c, for bituminous concrete that contains CRCG, the Contractor shall submit a materials certificate to the Engineer stating that the mixture and its components comply with requirements stated in subarticle M.04.01 - (6). Additionally, 1% hydrated lime, or other accepted non- stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

3. Cold Patch Method - Class 5, 5A, 5B:

a. Requirements: This mixture must be capable of being stockpiled and workable at all times. A non-stripping agent accepted by the Engineer shall be used in accordance with manufacturer's recommendations. The Contractor shall take necessary steps to ensure that this mixture uses

aggregate containing no more than 1% moisture and is not exposed to any rain, snow, or standing water for a period of 6 hours after being mixed. This mixture shall be mixed and stockpiled at the point of production on a paved surface at a height not greater than 4 feet during the first 48 hours prior to its use.

i. Class 5A mixture shall have 3/8 to ½ inch polypropylene fibers that have been approved by the Engineer added at a rate of 6 pounds per ton of mixture.
ii. Class 5B mixture shall have ¼ inch polyester fibers that have been approved by the Engineer added at the rate of 2 1/2 pounds per ton of mixture.
iii. Class 5 mixture shall not contain fibers.

b. Basis of Approval: The aggregates, fibers and binder (MC-250) shall meet the requirements as specified in sub articles M.04.01-1 through 4 and in Table M.04.02-1. The use of recycled material is not permitted with these classes of bituminous concrete. Mixtures not conforming to the binder content as shown in Table M.04.02-1 shall be subject to rejection. There is a two test minimum per day of production. Mixtures not conforming to the gradation as shown in Table M.04.02-1 shall be subject to payment adjustment as specified in Section 4.06.

TABLE M.04.02 – 1 MASTER RANGES FOR MARSHALL BITUMINOUS-CONCRETE MIXTURES

Notes: (a) 75 blow (Marshall Criteria). (b) 3-6% when used for a roadway wearing surface. (c) For divided highways with 4 or more lanes, a stability of 1500 lbs is required. (d) Contains an accepted non-stripping compound. (e) To help prevent stripping, the mixed material will be stockpiled on a paved surface and at a height not greater than 4 feet during the first 48 hours. (f) As determined by AASHTO T 245(M). (g) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T 164 or AASHTO T 308(M). (h) Mixture with 5% or more aggregate retained on ¾" sieve. (i) Mixtures finer than condition (h) above. (j) Class 5 mixture shall contain no fibers. Class 5A mixture shall have 3/8 to ½ inch polypropylene fibers that have been previously accepted by the Engineer added at a minimum rate of 6 pounds per ton of mixture. Class 5B mixture shall have ¼ inch polyester fibers that have been previously accepted by the Engineer added at the minimum rate of 2 1/2 pounds per ton of mixture

CLASS	**1**	**2**	**3 (Curb Mix)**	**4**	**12**	**5 (e)(j)**	**5A (e)(j)**	**5B (e)(j)**	**JMF % Tol. (±)**
Grade of PG Binder content %	**PG 64-22 5.0 – 6.5**	**PG 64-22 5.0 – 8.0**	**PG 64-22 6.5 - 9.0**	**PG 64-22 4.0 - 6.0**	**PG 64-22 7.5 - 10.0**	**MC-250 (d) 6.0 - 7.5**	**MC-250 (d) 6.0 - 7.5**	**MC-250 (d) 6.0 - 7.5**	0.4
Sieve Size	**Percent Passing (%)**								
# 200	3.0 – 8.0 (g)	3.0 – 8.0 (g)	3.0 – 8.0 (g)	0.0 – 5.0 (g)	3.0 – 10.0 (g)	0.0 - 2.5	0 .0- 2.5	0.0 - 2.5	2.0
# 50	6 – 26	8 – 26	10 - 30	5 - 18	10 - 40				4
# 30	10 - 32	16 - 36	20 - 40		20 - 60	2 - 15	2 – 15	2 - 15	5
# 8	28 - 50	40 - 64	40 - 70	20 - 40	60 - 95	10 - 45	10 – 45	10 - 45	6
# 4	40 - 65	55 - 80	65 - 87	30 - 55	80 - 95	40 - 100	40 – 100	40 - 100	7
¼”									
3/8 “	60 - 82	90 - 100	95 - 100	42 - 66	98 - 100	100	100	100	8
½ “	70 - 100	100	100		100				8
¾”	90 - 100			60 - 80					8
1”	100								
2”				100					
Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%									
Mixture Temperature									
Binder	325°F maximum					140-185° F			
Aggregate	280-350° F					100-175° F			
Mixtures	**265-325° F**				**275-325°F**	**120-175° F**			**25 °F**
Mixture Properties									
VOIDS - %	3.0 – 6.0 (a)	2.0 – 5.0 (b)	0 – 4.0		0 - 5.0 (a)				
Stability (f) lbs. min.	1200 (c)	1000	1000		1000				
FLOW (f) in.	.08 - .15	.08 - .15	.08 - .18		.08 - .15				
VMA % - min.	15(h) :16 (i)								

M.04.03 — Production Requirements:

1. Standard Quality Control Plan (QCP) for Production:

The QCP for production shall describe the organization and procedures which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the production process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must detail the inspection, sampling and testing protocols to be used, and the frequency for each.

Control Chart(s) shall be developed and maintained for critical aspect(s) of the production process as determined by the Contractor. The control chart(s) shall identify the material property, applicable upper and lower control limits, and be updated with current test data. As a minimum, the following quality characteristics shall be included in the control charts: percent passing #4 sieve, percent passing #200 sieve, binder content, air voids, Gmm and VMA. The control chart(s) shall be used as part of the quality control system to document variability of the bituminous concrete production process. The control chart(s) shall be submitted to the Engineer the first day of each month.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications.

The Contractor shall submit complete production testing records to the Engineer within 24 hours in a manner acceptable to the Engineer.

The QCP shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QCP must also include a list of sampling & testing methods and frequencies used during production, and the names of all Quality Control personnel and their duties.

Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of bituminous concrete that complies with these specifications. The Contractor shall submit any changes to the QCP as work progresses.

2. Acceptance Sampling & Testing Methods: Acceptance samples of mixtures shall be obtained from the hauling vehicles and tested by the Contractor at the facility during each day's production.

The hauling vehicle from which samples are obtained shall be selected using stratified – random sampling based on the total estimated tons of production in accordance with ASTM D 3665,

except that the first test shall be randomly taken from the first 151 tons or as directed by the Engineer.

The number of sub lots and tests required per sub lot is based on the total estimated tons of production per day as indicated in Table M.04.03-1. Quantities of the same type/level mix per plant may be combined daily for multiple state projects to determine the number of sub lots.

The payment adjustment for air voids and liquid binder will be calculated per sub lot as described in Section 4.06.

An acceptance test shall not be performed within 150 tons of production from a previous acceptance test unless approved by the Engineer. Quality Control tests are not subject to this restriction. Unless otherwise tested, a minimum of one (1) acceptance test shall be performed for every four days of production at a facility for each type/level mix (days of production may or may not be consecutive days).

The Contractor shall submit all acceptance tests results to the Engineer within 24 hours or prior to the next day's production. All acceptance test specimens and supporting documentation must be retained by the Contractor. Verification testing will be performed by the Engineer on the retained specimens in accordance with the Department's QA Program for Materials.

Should the Engineer be unable to verify the Contractor's acceptance test result(s) due to a failure of the Contractor to retain acceptance test specimens or supporting documentation, the Contractor shall review its quality control plan, determine the cause of the nonconformance and respond in writing within 24 hours to the Engineer describing the corrective action taken at the plant. In addition the Contractor must provide supporting documentation or test results to validate the subject acceptance test result(s). The Engineer may invalidate any positive adjustments for material corresponding to the acceptance test(s). Failure of the Contractor to adequately address quality control issues at a facility may result in suspension of production for the project at that facility.

Contractor personnel performing acceptance sampling and testing must be present at the facility prior to, and during production, and be certified as a NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Production of material for use on this project must be suspended by the Contractor if such personnel are not present.

Technicians found by the Engineer to be non-compliant with NETTCP or Department policies may be removed by the Engineer from participating in the acceptance testing process for this project until their actions can be reviewed.

Anytime during production that testing equipment becomes inoperable, production can continue for a maximum of 1 hour. The Contractor shall obtain box sample(s) in accordance with Table M.04.03-1 to satisfy the daily acceptance testing requirement for the quantity shipped to the

project. The box sample(s) shall be tested once the equipment issue has been resolved to the satisfaction of the Engineer. Production beyond 1 hour may be considered by the Engineer.

Production will not be permitted beyond that day until the subject equipment issue has been resolved.

Table M.04.03 – 1: Acceptance Testing Frequency per Type/Level/Plant

Daily quantity produced in tons (lot)	Number of Sub Lots/Tests
0 to 150	0, Unless requested by the Engineer
151 to 600	1
601 to 1,200	2
1,201 to 1,800	3
1,801 or greater	1 per 600 tons or portions thereof

i. Marshall Mix Acceptance Sampling and Testing Procedures: When the Marshall mix design is specified, the following acceptance procedures and AASHTO test methods shall be used:

Table M.04.03 – 2: Marshall Acceptance Test Procedures

Protocol	Reference	Description
1	**AASHTO T 30(M)**	Mechanical Analysis of Extracted Aggregate
2	**AASHTO T 40(M)**	Sampling Bituminous Materials
3	**AASHTO T 308(M)**	Binder content by Ignition Oven method (adjusted for aggregate correction factor)
4	**AASHTO T 245(M)**	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
5	**AASHTO T 209(M)**	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
6	**AASHTO T 269(M)**	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
7	**AASHTO T 329**	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

a. Cessation of Supply: Marshall Mix Production shall cease for the Project from any facility that consistently fails to produce mixture that meets the JMF and volumetric properties. The criteria for ceasing the supply of a class of mixture from any plant are as follows:

i. Off-Test Status: The results of AASHTO T 164 or AASHTO T 308(M) and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. The Contractor will be notified that a plant is "off test" for a class of mixture when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that class of

mixture.

ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the "off test" adjusted payment.

iii. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF change on classes 1, 2, 3, 4 and 12 as allowed by the Engineer prior to any additional testing. A JMF change shall include the date and name of the Engineer that allowed it. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.

iv. The Engineer may cease supply of mixture from the plant when the test results from three non-consecutive samples of a class of mixture are not within the JMF tolerances or the test results from two non-consecutive samples not within the master range indicated in Table M.04.02-1 during any one production period, due to inconsistent production.

v. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

b. Adjustments for Off Test Mixture under Cessation of Supply: The bituminous concrete plant shall cease supplying to the project:

i. When the test results from three consecutive samples are "off test" and not within the JMF tolerances or,

ii. The test results from two consecutive samples are "off test" and not within the ranges indicated in Table M.04.02 – 1 or,

iii. When the percent of material passing the minus #200 sieve material exceeds the percent of extracted bitumen content for three consecutive samples during any production period of the values stated in Table M.04.02-1:
   a. The quantity of mixtures shipped to the project determined to be "off test" and outside the tolerances will be tabulated by the Engineer and will be adjusted in accordance with Section 4.06.
   b. Following cessation, a trial production period will be required at the plant for that class of mixture. Use of that class of mixture from that plant will be prohibited on the Project until the plant has demonstrated the ability to consistently produce acceptable mixture.
   c. When the Engineer has accepted the mixtures from the trial production period, the use of that mixture on the Project may resume.

3. Curb Mix Acceptance Sampling and Testing Procedures:

Curb Mixes shall be tested by the Contractor at a frequency of one test per every 250 tons of cumulative production, regardless of the day of production.

When these mix designs are specified, the following acceptance procedures and AASHTO test methods shall be used:

TABLE M.04.03 – 2: Curb Mix Acceptance Test Procedures

Protocol	Reference	Description
1	**AASHTO T 30(M)**	Mechanical Analysis of Extracted Aggregate
2	**AASHTO T 168**	Sampling of Bituminous Concrete
3	**AASHTO T 308**	Binder content by Ignition Oven method (adjusted for aggregate correction factor)
4	**AASHTO T 209(M)**	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
5	**AASHTO T 329**	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

a. Determination of Off-Test Status:

i. The test results of AASHTO T 308 and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. Curb Mixtures are considered “off test" when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that mixture. If the mix is “off test”, the Contractor must take immediate actions to correct the deficiency and a new acceptance sample shall be tested on the same day or the following day of production.

ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the “off test” status.

iii. The Engineer may cease supply from the plant when test results from three consecutive samples are not within the JMF tolerances or the test results from two consecutive samples not within the master range indicated in Table M.04.02-1 regardless of production date.

b. JMF Changes

i. If a test indicates that the bitumen content or gradation are outside the tolerances, the

Contractor may make a single JMF change as allowed by the Engineer prior to any additional testing. A JMF change shall include the date and name of the Engineer that allowed it. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.

ii. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

TABLE M.04.03-7:

Modifications to Standard AASHTO and ASTM Test Specifications and Procedures

AASHTO Standard Specification	
Reference	**Modification**
M 140	Emulsified Asphalt grade RS-1H shall meet all the requirements of the emulsified asphalt grade RS-1 except for the penetration requirement of the residue that will change from 100 to 200 penetration units (0.1 mm) to 40 to 90 penetration units (0.1 mm).
M 320	1. Mass change for PG 64-22 shall be a maximum loss of 0.5% when tested in accordance with AASHTO T 240. 2. The two bottles used for the mass change determination may be re-heated and used for further testing.
AASHTO Standard Method of Test	
Reference	**Modification**
T 27	Section 7.7 Samples are not washed
T 30	Section 7.2 thru 7.4 Samples are not routinely washed for production testing
T 168	Samples are taken at one point in the pile. Samples from a hauling vehicle are taken from only one point instead of three as specified. Selection of Samples: Sampling is equally important as the testing, and the sampler shall use every precaution to obtain samples that are truly representative of the bituminous mixture. Box Samples: In order to enhance the rate of processing samples taken in the field by construction or maintenance personnel the samples will be tested in the order received and data processed to be determine conformance to material specifications and to prioritize inspections by laboratory personnel.
T 195	Section 4.3 only one truck load of mixture is sampled. Samples are taken from opposite sides of the load.
T 209	Section 7.2 The average of two bowls is used proportionally in order to satisfy minimum mass requirements. 8.3 Omit Pycnometer method.
T 283	When foaming technology is used, the material used for the fabrication of the specimens shall be cooled to room temperature, and then reheated to the manufactures recommended compaction temperature prior to fabrication of the specimens.

T 308	In addition to the standard testing procedure, the Department has adopted a procedure that addresses a correction factor that is calculated using the composite aggregate percentages (**C**omposite **A**ggregate **C**orrection **F**actor **M**ethod **(CACF)**). The aggregate is burned in compliance with the standard AASHTO procedure Method A exclusively. All modifications are listed for this method only. A2.2 and A2.3 Omit
	A2.4 Omit. Replace with: Determine an aggregate gradation for each aggregate component "blank" in accordance with T30. A2.5 Omit. Replace with: The individual aggregate samples are to be dried in an oven at a maximum temperature of 148 ± 5ºC (300 ± 9º F) to a constant weight. RAP samples are to be oven dried at a maximum temperature of 110 ± 5ºC (230 ± 9º F) to a constant weight. RAP samples will be burned for total binder content only and not to arrive at a correction factor for a mixture. A2.6 and A2.7 and A2.8 Omit. A2.8.1 Omit Note 2 A2.9 Omit. Replace with: Perform a gradation analysis on the residual aggregate in accordance with T30 and compare it to the gradation performed prior to burning. A2.9.1 and A2.9.2 Omit The correction factors for each size aggregate are provided by the Contractor to the Engineer prior to the Annual Plant Inspection. The Engineer may verify the correction factors. The Composite Aggregate Correction Factor (CACF) for any mixture may be calculated by summing the result of the correction factor for each individual aggregate multiplied by the percentage of that aggregate in the overall mixture. (Note: All correction factors must be re-calculated every time the percentage of any aggregate changes within the mixture.) If the average corrected Pb content from the ignition oven differs by 0.3% or more from the average bituminous concrete facility production weigh ticket in five (5) consecutive tests regardless of the production date (moving average), the Contractor shall immediately investigate, determine an assignable cause and correct the issue. When two consecutive moving average differences are 0.3% or more, the Engineer may require a new correction factor calculation for all the aggregate components in the mix. In addition to the standard testing procedure, the Department has adopted a procedure that addresses the time involved between sampling the hot-mix asphalt specimen and the beginning of the test. 6.3 Omit. Replace with: The test specimen must be ready to be placed in an approved ignition furnace for testing within ten minutes of being obtained from the hauling vehicle and the test shall start immediately after.
T 331	6.1 Cores are dried to a constant mass prior to testing using a core-dry machine.

AASHTO Standard Recommended Practices	
Reference	**Modification**
R 26	Quality Control Plans must be formatted in accordance with AASHTO R 26, certifying suppliers of performance-graded asphalt binders, Section 9.0, Suppliers Quality Control Plan, and "NEAUPG Model PGAB QC Plan." 1. The Department requires that all laboratory technician(s) responsible for testing PG-binders be certified or Interim Qualified by the New England Transportation Technician Certification Program (NETTCP) as a PG Asphalt Binder Lab Technician. 2. Sampling of asphalt binders should be done under the supervision of qualified technician. NECTP "Manual of Practice," Chapter 2 Page 2-4 (Key Issues 1-8). 3. All laboratories testing binders for the Department are required to be accredited by the AASHTO Materials Reference Laboratory (AMRL). 4. Sources interested in being approved to supply PG-binders to the Department by use of an "in-line blending system," must record properties of blended material, and additives used. 5. Each source of supply of PG-binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders etc., shall disclose the type of additive, percentage and any handling specifications/limitations required. 6. All AASHTO M 320 references shall be replaced with AASHTO M 332. 7. Each year, in April and September, the supplier shall submit test results for two BBR testing at two different temperatures in accordance with AASHTO R 29. Suppliers shall provide AASHTO M 332 testing results and split samples at a minimum of once per lot.

R 35	**<u>Volumetric Calculations of VMA and Correction Factor</u>** VMA_a - Voids in Mineral Aggregate from (Va + Vbe) the mix: A. VMA calculated from the mix shall be determined in accordance with *Formula 5.16.1A*. It can be correlated that the VMA calculated from AASHTO R-35 is equivalent to VMA_a when the Pb_a x (100-Pb_t) / 100 is known and substituted for A_{cf}, as shown in *Formula 5.16.1A (ii)*. Test results from VMA_a shall therefore be required to meet all contract specifications. Values of VMA_a that are out of specifications during production may be cause for the contractor to determine assignable reason, take corrective action, and modify the Job Mix Formula (JMF), as needed. Continued VMA_a data that is out of specifications may be cause for the Engineer to order cessation of supply. *Formula 5.16.1A.* Determining the VMA of bituminous concrete by the mix or air voids & effective binder method: $$VMA_a = V_a + \frac{(Gmb_d \times (Pb_t \times A_{cf}))}{G_b}$$ Where: VMA_a = VMA calculated from plant production mix(V_a + Vb_e) Gmb_d = Bulk specific gravity as determined by AASHTO T 166(M) Pb_t = Total Binder Content (corrected) by AASHTO T 308(M) A_{cf} = Absorption correction factor provided by Contractor (refer to B. i and ii) B. Determining the bituminous concrete mix binder correction factor for each class by use of percent absorption of water by AASHTO T 84/85, AASHTO M 323 and D_f method. This value shall be performed by the Contractor during the mix design only and submitted as a JMF value. Two methods for determining the A_{cf} are shown, although method (i) will be the desired method to be used. Both methods are equivalent when the Gsa, Gsb and Pwa are recent and valid for the mix. *i.* $A_{cf} = Df \times Pwa \times (100 - Pb_t) / 100$ *ii.* $A_{cf} = (Pb_a$ *from annual JMF submittal*$) \times (100 - Pb_t) / 100$ Where: Df = as determined by Formula 5.16.1B. Pwa = as determined by AASHTO T 84/85 Pb_a = as determined by AASHTO M 323 (from annual JMF submittal) D_f (Density Factor): The Contractor shall calculate the bituminous concrete

	mix design D_f (*derived from formula X1.2 APPENDIX X1 of AASHTO R 35)* for each class of material, in accordance with *Formula 5.16.1B.* *Formula 5.16.1B.* Determining the Density Factor *(D_f)* of mix design bituminous concrete: $$D_f = \left(\frac{Gse - Gsb}{Gsa - Gsb} \right)$$ Where: D_f = Density Factor or multiplier determined by AASHTO R-35(M) Gse = Effective Specific Gravity determined by AASHTO M-323 at plant Gsa = Apparent Specific Gravity determined by AASHTO T 84/85 of mix design Gsb = Bulk Specific Gravity determined by AASHTO T 84/85 of mix design

ITEM #0219050A – CATCH BASIN SEDIMENT FILTER

Section 2.19– Supplemented by the following:

2.19.02 – Materials: Add the following:
Silt Sacks shall be made of a permeable geotextile meeting the requirements of Sections 7.55 and M.08.

2.19.03 – Construction Methods: Delete section and replace with the following:

Sedimentation Control Systems shall be installed by the Contractor in locations shown on the plans or as directed by the Engineer. Hay bales systems shall be installed lengthwise along the contour with ends of adjacent bales tightly abutting each other. All hay bales shall be installed so that bindings are oriented around the sides, rather than along the tops and bottoms. Each hay bale shall be entrenched 4 in deep and backfilled, with the backfilled soil placed toward the potential silt source. They shall be held in place by 2 wooden stakes in each hay bale and each wooden stake shall be driven 18 in deep into the ground. Gaps shall be filled with hay or straw to prevent water or debris escaping between the bales.

Geotextile systems shall be installed along the contour so that the bottom 6 in of the fabric is buried by either trenching or by laying the 6-in section horizontally on the ground and burying by ramping the soil up to the control fence. All geotextile fences shall have be exposed at least 30 in high as installed. Spacing between posts shall not exceed 10 ft and all wooden posts shall be driven a minimum of 12 in deep into the ground. When joints between sections of geotextile sedimentation control systems are necessary, geotextile shall be spliced together only at a support post, with a minimum 6-in overlap, and shall be securely sealed.

Silt sacks shall be installed in the catch basins per the manufacturer's recommendations.

When trench excavation of a hay bale or geotextile fence is obstructed by an occasional stone or tree root, provide a smooth transition between the trench bottom and the obstruction.

Clean out of accumulated sediment shall be accomplished when 1/2 of the original height of the hay bales, silt sack or geotextile fence systems as installed becomes filled with sediment, or as ordered by the Engineer.

Hay bales or geotextile fence systems shall be maintained or replaced until they are no longer necessary for the purpose intended or are ordered removed for the Site at the completion of the Project when full stabilization has occurred, unless specifically authorized by the Engineer to be left in place allowed to remain in toe of slope areas unless ordered removed by the Engineer

2.19.04 – Method of Measurement: Delete section and replace with the following:

This work will be measured for payment by the actual number of linear feet of "Sedimentation Control System" or "Sedimentation Control (Type) System" installed and accepted and per "Catch Basin Sediment Filter" installed and accepted. Measurement shall be made along the center-line of the top of the system. Replacement systems will not be measured for payment.

2.19.05 – Basis of Payment: Delete section and replace with the following:

Payment for this work will be made at the Contract unit price per linear foot for "Sedimentation Control System" or "Sedimentation Control (Type) System" complete in place, and Contract unit price per each for "Catch Basin Sediment Filter" complete in place, which price shall

include all materials, equipment, tools and labor incidental to the installation, maintenance, replacement, removal and disposal of the system and surplus material. No payment shall be made for the clean out of accumulated sediment.

Pay Item	Pay Unit
Sedimentation Control System	L.F.
Sedimentation Control (Type) System	L.F.
Catch Basin Sediment Filter	EA.

ITEM #0403869A — COLD RECLAIMED ASPHALT PAVEMENT

Description: The work under this section shall consist of the preparation of a reclaimed (recycled) subbase course composed of a mixture of the existing bituminous concrete pavement and any underlying granular material. The manufacture of the reclaimed subbase course shall be done by in-place pulverizing and blending of the existing bituminous concrete pavement material and any underlying granular material, thus creating a homogeneous mixture of reclaimed subbase material. This process is known as reclamation. The work shall also consist of shaping, finishing, fine grading, and compaction of the reclaimed subbase material. The entire process shall be accomplished in accordance with these specifications and conform to the specified grades and cross-sections shown on the plans or as directed by the Engineer.

Reclaiming the subbase will apply to a portion of the existing pavement as indicated on the plans, and as noted on the roadway profile.

Materials:

The reclaimed subbase material shall consist of existing bituminous concrete pavement and any underlying granular material and shall meet the gradation requirements of Gravel Subbase M.02.06 Grading B.

Samples of material will be obtained by the Materials Testing Laboratory as often as deemed necessary by the Engineer.

If it is necessary to raise or lower any utilities or underdrains, the trench backfill material shall meet the requirements of Section M.02.05 or have the approval of the Engineer.

Construction Methods:

A. Prior to the start of the reclamation, all utilities and drainage systems shall be relocated as necessary. Methods, equipment, tools, and any machinery to be used during construction shall be approved by the Engineer prior to the start of the project. Prior to the actual reclaiming of the onsite paved areas, catch basins that might be affected shall be sufficiently barricaded so as to prevent reclaimed subbase material, silt or runoff from plugging the drainage system.

B. Sufficient surface drainage must be provided for each stage of construction so that ponding does not occur on the reclaimed subbase course prior to the placement of processed aggregate base.

C. Reclamation shall be accomplished by means of a self-propelled, traveling rotary reclaimer or equivalent machine capable of cutting through existing bituminous concrete pavement to the depth shown on the typical section. The machine shall be equipped with an adjustable grading blade leaving its path generally smooth for initial compaction. Equipment such as road planers or cold milling machines designed to mill or shred the existing bituminous concrete, rather than crush or fracture it, shall NOT be allowed. Existing bituminous concrete pavement and any underlying granular material must be pulverized and mixed so as to form a homogenous mass of reclaimed subbase material which will bond together when compacted.

D. In areas where the vertical or horizontal geometry of the proposed roadway is different than that of the existing, the paved areas shall be reclaimed in-place as noted above in the Description. It is not proposed or anticipated that reclaimed subbase will be further removed and then reused for roadway elevation grade changes. To the extent that the reclaimed subbase material is disturbed for any trench excavation., it shall be replaced in compacted lifts not exceeding 5" depths.

E. Reshaping using the reclaimed subbase material should be minimized in order to ensure that the paved areas have a uniform thickness of reclaimed subbase material throughout. Unless otherwise specified, when reshaping of the roadway is required, it should be performed utilizing additional processed aggregate base atop the reclaimed subbase. The reclaimed subbase material shall be compacted prior to the placement of any additional granular material used. Subsequent to the compaction of the reclaimed subbase material, any reshaped material or additional material placed on the areas should not exceed five (5) inches in depth before being compacted.

F. Compaction shall be achieved by the use of at least one vibratory roller having a compaction width of not less than five (5) feet and a gross weight of not less than ten (10) tons. It shall have the capability of producing high amplitude and low frequency vibrations. Additional rollers and compactors may be used. The compaction of the reclaimed subbase material shall be a minimum of 95 percent of the proctor wet density (AASHTO T-l80D).

G. The reclaimed subbase material shall be compacted to the requirements above prior to the placement of traffic on the area.

H. A motor grader shall be used for shaping, fine grading, and finishing the surface of the reclaimed material or any other granular materials placed to form the surface prior to placing fi11 or processed aggregate base as shown on the typical sections.

I. Any surface irregularities which develop during or after the above described work shall be corrected until it is brought to a firm and uniform surface satisfactory to the Engineer.

Method of Measurement: The cold reclaimed asphalt pavement work will be measured for payment in square yards completed and compacted in-place prior to the separate placement processed aggregate base, which such item will be paid for at the respective bid unit price. The thickness will be as indicated on the plans, or as ordered by the Engineer and within +2 inches) and -1 inch. Measurement to determine the thickness will be made by the Engineer at intervals of 500 feet or less. If deficient thicknesses are found, the Engineer will make such additional measurements as he considers necessary to determine the limits of the deficiency. Areas not within allowable tolerance shall be corrected, as ordered by the Engineer, without additional compensation to the Contractor.

Basis of Payment: This work will be paid for at the contract unit price per square yard for "Cold Reclaimed Asphalt Pavement," which price shall include all materials (except additional aggregate), equipment, tools, and labor incidental thereto. Additional aggregate shall be paid at the contract unit price per cubic yards delivered to the project site.

Pay Item	**Pay Unit**
Cold Reclaim Asphalt Pavement	S.Y.

ITEM #0405000A – CUTTING AND PATCHING PAVEMENT

4.05.01 –Description: This item shall consist of measures to repair areas that after milling have no visible base or subbase material and are not suitable for an overlay without proper preparation.

4.05.02 –Materials: The materials shall consist of items meeting the pertinent articles of the Standard Specifications and approved by the Engineer. Pertinent items include but are not limited to:

- Cut Bituminous Concrete Pavement
- Bituminous Concrete Class 1
- Subbase

4.05.03 –Construction Method: The Contractor shall clearly delineate all areas that are going to be repaired for the Town/Engineer to inspect and confirm the need for the repair.
Once the location and size of the repair is confirmed. The Contractor is to sawcut the existing bituminous asphalt and remove seventeen 17 inches of material in preparation for pavement repairs. Contractor is to install 3 inches of bituminous concrete class 1 atop of 12 inches of subbase leaving 2 inches for the final overlay course to be performed. Contractor is to feather the limits of the repair area in order to not have vehicle impact while driving over the repair area.

4.05.04 –Method of Measurement: Payment lines for Cutting and Patching Pavement will be the the outer limits of the repair as delineated in the field by the contractor, documented and approved by the Town/Engineer and to the depth as dictated in the corresponding detail.

4.05.05 –Basis of Payment: Pavement repairs, including all work provided hereinbefore will be paid for at the Contract unit price per square yard for "Cutting and Patching Pavement," which price shall include all cutting of bituminous concrete, excavation, materials, equipment, tools, compaction testing and labor necessary thereto.
There will be no specific payment for the work of removal of temporary blending when preparing for final overlay course this is to be included in the unit price.

Pay Item	Pay Unit
Cutting and Patching Pavement	S.Y.

ITEM #0406275A- FINE MILLING OF BITUMINOUS CONCRETE (0”- 4”)

Description: This work shall consist of the milling, removal, and disposal of existing bituminous concrete pavement.

Construction Methods: The Contractor shall remove the bituminous concrete material using means acceptable to the Engineer. The pavement surface shall be removed to the line, grade, and existing or typical cross-section shown on the plans or as directed by the Engineer.

The bituminous concrete material shall be disposed of offsite by the Contractor at an approved disposal facility unless otherwise stated in the Contract.

Any milled surface, or portion thereof, that is exposed to traffic shall be paved within five (5) calendar days unless otherwise stated in the plans or Contract.

The equipment for milling the pavement surface shall be designed and built for milling bituminous concrete pavements. It shall be self-propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement.

The milling machine shall be equipped with a built-in automatic grade averaging control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference, including string line, contact ski (30 feet minimum), non-contact ski (20 feet minimum), or mobile string line (30 feet minimum). The transverse controls shall have an automatic system for controlling cross-slope at a given rate. The Engineer may waive the requirement for automatic grade or slope controls where the situation warrants such action.

The machine shall be able to provide a 0 to 4 inch deep cut in one pass. The rotary drum of the machine shall use carbide or diamond tipped tools spaced not more than $^{5}/_{16}$ inch apart. The forward speed of the milling machine shall be limited to no more than 45 feet/minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a lesser equipped milling machine may be permitted when approved by the Engineer.

Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor’s responsibility and shall be repaired at the Contractor’s expense.

To prevent the infiltration of milled material into the storm drainage system, the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor's expense.

Surface Tolerance: The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, or poor workmanship. The Contractor, under the direction of the Inspector, shall perform random spot-checks with a Contractor supplied ten-foot straightedge to verify surface tolerances at a minimum of five (5) locations per day. The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed ¼ inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed ¼ inch. Any unsatisfactory surfaces produced are the responsibility of the Contractor and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

The depth of removal will be verified by taking measurements every 250 feet per each pass of the milling machine, or as directed by the Engineer. These depth measurements shall be used to monitor the average depth of removal.

Where a surface delamination between bituminous concrete layers or a surface delamination of bituminous concrete on Portland cement concrete causes a non-uniform texture to occur, the depth of milling shall be adjusted in small increments to a maximum of +/- ½ inch to eliminate the condition.

When removing bituminous concrete pavement entirely from an underlying Portland cement concrete pavement, all of the bituminous concrete pavement shall be removed leaving a uniform surface of Portland cement concrete, unless otherwise directed by the Engineer.

Any unsatisfactory surfaces produced by the milling operation are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

No vertical faces, transverse or longitudinal, shall be left exposed to traffic unless the requirements below are met. This shall include roadway structures (catch basins, manholes, utility valve boxes, etc.). If any vertical face is formed in an area exposed to traffic, a temporary paved transition shall be established according to the requirements shown on the plans. If the milling machine is used to form a temporary transition, the length of the temporary transition shall conform to Special Provision Section 4.06 –Bituminous Concrete, "Transitions for Roadway Surface," the requirements shown on the plans, or as directed by the Engineer. At all permanent limits of removal, a clean vertical face shall be established by saw cutting prior to paving.
Roadway structures shall not have a vertical face of greater than one (1) inch exposed to traffic as a result of milling. All structures within the roadway that are exposed to traffic and greater

than one (1) inch above the milled surface shall receive a transition meeting the following requirements:

For roadways with a posted speed limit of 35 mph or less*:

1. Round structures with a vertical face of greater than 1 inch to 2.5 inches shall be transitioned with a hard rubber tapered protection ring of the appropriate inside diameter designed specifically to protect roadway structures.
2. Round structures with a vertical face greater than 2.5 inches shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.
3. All rectangular structures with a vertical face greater than 1 inch shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.

*Bituminous concrete tapers at a minimum 24 to 1 (24:1) taper in all directions may be substituted for the protection rings if approved by the Engineer.

For roadways with a posted speed limit of 40, 45 or 50 mph:

1. All structures shall receive a transition of bituminous concrete formed at a minimum 36 to 1 (36:1) taper in the direction of travel. Direction of travel includes both the leading and trailing side of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

For roadways with a posted speed limit of greater than 50 mph:

1. All structures shall receive a transition of bituminous concrete formed at a minimum 60 to 1 (60:1) taper in the direction of travel. Direction of travel includes both the leading and trailing side of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

All roadway structure edges and bituminous concrete tapers shall be clearly marked with fluorescent paint. The paint shall be maintained throughout the exposure to traffic.

The milling operation shall proceed in accordance with the requirements of the “Maintenance and Protection of Traffic” and “Prosecution and Progress” specifications, or other Contract requirements. The more stringent specification shall apply.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper truck. The sweeper truck shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. The sweeper truck shall operate at a forward speed that allows for the maximum pickup of millings from the roadway surface. Other sweeping equipment may be provided in lieu of the sweeper truck where acceptable by the Engineer.

Any milled area that will not be exposed to live traffic for a minimum of 48 hours prior to paving shall require a vacuum sweeper truck in addition to, or in lieu of, mechanical sweeping. The vacuum sweeper truck shall have sufficient power and capacity to completely remove all millings from the roadway surface including any fine particles within the texture of the milled

surface. Vacuum sweeper truck hose attachments shall be used to clean around pavement structures or areas that cannot be reached effectively by the main vacuum. Compressed air may be used in lieu of vacuum attachments if approved by the Engineer.

Method of Measurement: This work will be measured for payment by the number of square yards of area from which the milling of asphalt has been completed and the work accepted. No area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar structures.

Basis of Payment: This work will be paid for at the Contract unit price per square yard for "Fine Milling of Bituminous Concrete (0 to 4 Inches)." This price shall include all equipment, tools, labor, and materials incidental thereto.

No additional payments will be made for multiple passes with the milling machine to remove the bituminous surface.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractors negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled or paved transition; removal and disposal of millings; furnishing a sweeper truck and sweeping after milling. The costs for these items shall be included in the Contract unit price.

Pay Item	Pay Unit
Fine Milling of Bituminous Concrete (0 to 4 Inches)	S.Y.

ITEM #0751711A – 4" UNDERDRAIN

Section 7.51– Supplemented by the following:

7.51.01 – Description: Replace the entire section with the following:
Underdrains shall consist of pipe pervious to water, laid in a trench refilled with pervious material. They shall be of the dimensions and details as indicated on the plans. They shall be classified as "Underdrains," "Foundation Underdrains," "Slope Underdrains," "Curtain Drains" or "Structure Underdrains."

Outlets for underdrains and curtain drains shall consist of pipe laid in a trench and refilled with earth. The size and type of outlet pipe shall be the same as that of the underdrain to which it is connected, except that it shall not be pervious to water.

7.51.02 – Materials: Add the following:
(1) Pipe: The pipe of underdrains, curtain drains and outlets shall meet the requirements of M.08.01 and be ADS Doublewall Pipe.

7.51.03 – Construction Methods: Add the following:
All underdrain and curtain drain pipes are to be wrapped in geotextile fabric or in a nylon sleeve.

7.51.04 – Method of Measurement: Replace the entire section with the following:

This work will be measured for payment by the actual number of linear feet of underdrains, curtain drains, foundation underdrains, slope underdrains, structure underdrains and outlets for underdrains, curtain drains, completed accepted and measured in place. Trench excavation will not be measured for payment. Rock in trench will be measured for payment in accordance with Article 2.05.04.

7.51.05 Basis of Payment: Replace the entire section with the following:

This work will be paid for at the Contract per unit price per linear foot for "Underdrains," "Foundation Underdrains," "Slope Underdrains," "Curtain Drains" or "Structure Underdrains" complete in place, which price shall include the pipe of the size specified, elbows, tees, wyes, couplings, fittings, trench excavation, geotextile, aggregate, sand, tools material and labor incidental thereto.

There will be no direct payment made for capping, plugging, or connecting underdrains or outlets to existing or proposed drainage systems or structures, but the cost thereof shall be included in the cost of the underdrain items involved.

Rock in trench will be paid for in accordance with Articles 2.05.05 at the Contract unit price per cubic yard for "Rock in Trench Excavation" of the applying depth.

Pay Item	Pay Unit
4" Underdrain	l.f.

ITEM #0811000A – CONCRETE CURBING

Section 8.11 is being deleted in its entirety and replaced with the following:

8.11.01 —Description: This item shall consist of concrete curbing, furnished in accordance with the dimensions and details of the plans, and installed to the lines and grades shown on the plans.

8.11.02 —Materials: The concrete for extruded, cast-in-place or slip formed curbing shall be Class "F" concrete meeting the pertinent requirements of Section M.03.

Precast curb shall meet the requirements of Subarticle M.08.02-4.

Joint filler shall meet the requirements of Subarticle M.03.08□2.

If required, base material shall meet the requirements of Section M.02.

8.11.03 —Construction Methods: Construction methods for concrete curbing shall meet the requirements of Article 6.01.03, as supplemented by the following:

1. Excavation: Excavation shall be made to the required depth, and the base upon which the curbing is to be set shall be compacted to a firm, even surface.

2. Section Lengths: All curbing sections shall have uniform length of approximately 10 ft, unless otherwise directed. The length of straight curb sections may be varied slightly where necessary for closures, but no section less than 6 ft long will be permitted. Curbing set on a radius of 100 ft or less shall be constructed in accordance with the details on the plans.

3. Cast-In-Place Curbing: Concrete shall be placed in clean forms on a moist, firm, unfrozen base.

The concrete shall be placed and finished to a smooth, even surface.

As an exception to Article 6.01.03, where forms are used, they shall be so constructed that the form for exposed faces may be removed before the concrete has taken final set in order to permit finishing.

4. Precast Concrete Curbing: A mound of concrete, as shown on the plans, shall be placed at all joints.

5. Backfilling: The grading shall be completed to the lines shown on the plans, or as ordered, by refilling to the required elevation with approved material which shall be placed in layers of not over 6 in deep and shall be thoroughly compacted.

6. Openings: Where indicated on the plans, or directed, openings shall be made through the curbing at the elevations and of the size required.

8.11.04 —Method of Measurement: This work will be measured along the top of the curb and will be the actual number of linear feet of concrete curbing completed and accepted.

8.11.05 —Basis of Payment: Payment for this work will be made at the Contract unit price per linear foot for "Concrete Curbing", "Precast Concrete Curbing" of the type specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto; the unit price shall also include all excavation, backfilling, disposal of surplus material and openings related to this item.

There will be no direct payment for furnishing, placing and compacting base material, but the cost of this work shall be considered as included in the general cost of the work.

Pay Item	Pay Unit
Concrete Curbing (Type)	l.f.
Precast Concrete Curbing (Type)	l.f.
Extruded Concrete Curbing (Type)	l.f.

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

9.71.01 - Description: Add the following:

The Contractor shall maintain and protect traffic as follows and as limited in the Special Provision "Section 1.08 - Prosecution and Progress."

All Project Roadways

The Contractor shall be permitted to close the project roadways when actively working in the roadway. The contractor shall implement the detour in accordance with the contract documents.

The Contractor shall maintain and protect a minimum of one lane for alternating one way traffic on a paved or compacted gravel travel path not less than 10 feet in width or as approved by the Engineer. Gravel travel path shall be compacted reclaimed material or compacted processed aggregate base.

During AM Peak travel periods (7AM to 9AM) and PM Peak travel periods (3PM to 5PM) the contractor shall maintain two way traffic at all times unless approved by the Engineer. Traffic shall be maintained in accordance with the Traffic Control Plans and details. Due to corridor constraints, 10 foot wide lanes are acceptable instead of 11 foot wide lanes shown in the Traffic Control Plans and details.

For alternating one-way traffic operations, the Contractor shall utilize certified flagger(s) and shall have in place appropriate signage. The length of the alternating one-way traffic operation shall not exceed 500 feet (excluding tapers) unless otherwise approved by the Engineer.

Exce

pted therefrom will be those periods, during the allowable periods, when the Contractor will be allowed to halt traffic for a period of time approved by the Engineer in advance.

The Contractor shall furnish, install and relocate Construction Signs, Temporary Precast Concrete Barrier Curb, Drums, Cones, Construction Barricades, Barricade Warning Lights, temporary construction fencing, etc., as necessary, to safely maintain traffic operations through and around the project site.

Water, sweeping or calcium chloride for dust control that is required as a result of temporary gravel roadways, or as directed by the Engineer, shall be included in this item.

Driveways

The Contractor shall maintain access to and egress from all driveways throughout the project limits unless the Contractor has first negotiated alternate arrangements with the property owners or as otherwise noted on the plans. Driveway construction shall be coordinated with the property owners. At a minimum, temporary graded surfaces shall consist of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure. The cost for installation and maintenance of all such temporary access measures shall be included in the Maintenance and Protection of Traffic item.

9.71.03 - Construction Method: Add the following:

Pavement Markings
During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Final Pavement Markings
The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled “Epoxy Resin Pavement Markings, Symbols, and Legends” after such time as determined by the Engineer.

Use of Traffic Drums and Traffic Cones
Traffic drums or cones shall be used to delineate open trenches, raised catch basins and other hazards.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS (English Version)
The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

Traffic Control Patterns:
Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

Speed and volume of traffic
Duration of operation
Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

Signing
The Contractor shall maintain all existing signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate existing signs and sign supports as many times as deemed necessary and install temporary sign supports and foundations if necessary and as directed by the Engineer. The temporary relocation of any existing signs and supports, the furnishing, installation and removal of any temporary supports and foundations, and the installation and relocation of temporary signs shall be paid for under the item "Maintenance and Protection of Traffic."

When all work is completed, the Contractor shall remove and relocate existing signs to new posts at the permanent locations, as shown on the plans, which shall be paid for under "Clearing and Grubbing."

Signing Patterns

The Contractor shall erect and maintain all temporary signing patterns in accordance with the traffic control plans contained herein, unless directed or approved otherwise by the Engineer. Proper distances between advance warning signs and proper taper lengths are mandatory.

These signs shall be post-mounted on breakaway sign supports or installed on portable sign supports. These signs are to remain for two weeks, after which the signs and sign supports are to be removed.

Placement of Signs:

Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of the Town Engineer, Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. The agenda should include:

- Review Project scope of work and time
- Review Section 1.08, Prosecution and Progress
- Review Section 9.70, Traffic persons
- Review Section 9.71, Maintenance and Protection of Traffic
- Review Contractor’s schedule and method of operations.
- Review areas of special concern
- Open discussion of work zone questions and issues
- Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL

2.a) If the required minimum number of signs and equipment are not available; the traffic control pattern shall not be installed.

2.b) The Contractor shall have back-up equipment (signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.

2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.

2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

3.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

3.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.

3.c) Stopping traffic may be allowed:

- During paving, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.

- To move slow moving equipment across live traffic lanes into the work area.

3.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic.

3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

3.f) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.

SECTION 4. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

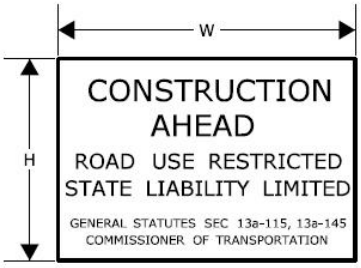
4.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

4.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.

4.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

4.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SERIES 16 SIGNS



		W H
16-E	80-1605	84" x 60"
16-H	80-1608	60" x 42"
16-M	80-1613	30" x 24"

		W H
16-S	80-1619	48" x 30"

THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

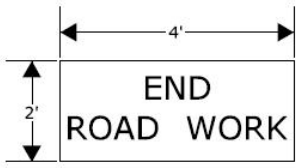
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

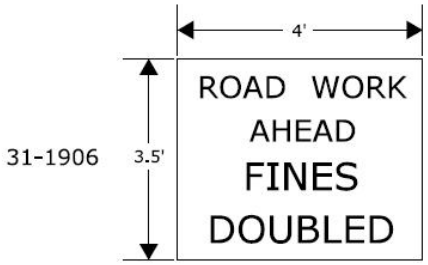
THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.





SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 11:35:43-04'00'

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.

5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.

6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.

7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10 SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180' (55m)
35	250' (75m)
40	320' (100m)
45	540' (165m)
50	600' (180m)
55	660' (200m)
65	780' (240m)

METRIC CONVERSION CHART (1" = 25mm)

ENGLISH	METRIC	ENGLISH	METRIC	ENGLISH	METRIC
12"	300mm	42"	1050mm	72"	1800mm
18"	450mm	48"	1200mm	78"	1950mm
24"	600mm	54"	1350mm	84"	2100mm
30"	750mm	60"	1500mm	90"	2250mm
36"	900mm	66"	1650mm	96"	2400mm

SCALE: NONE

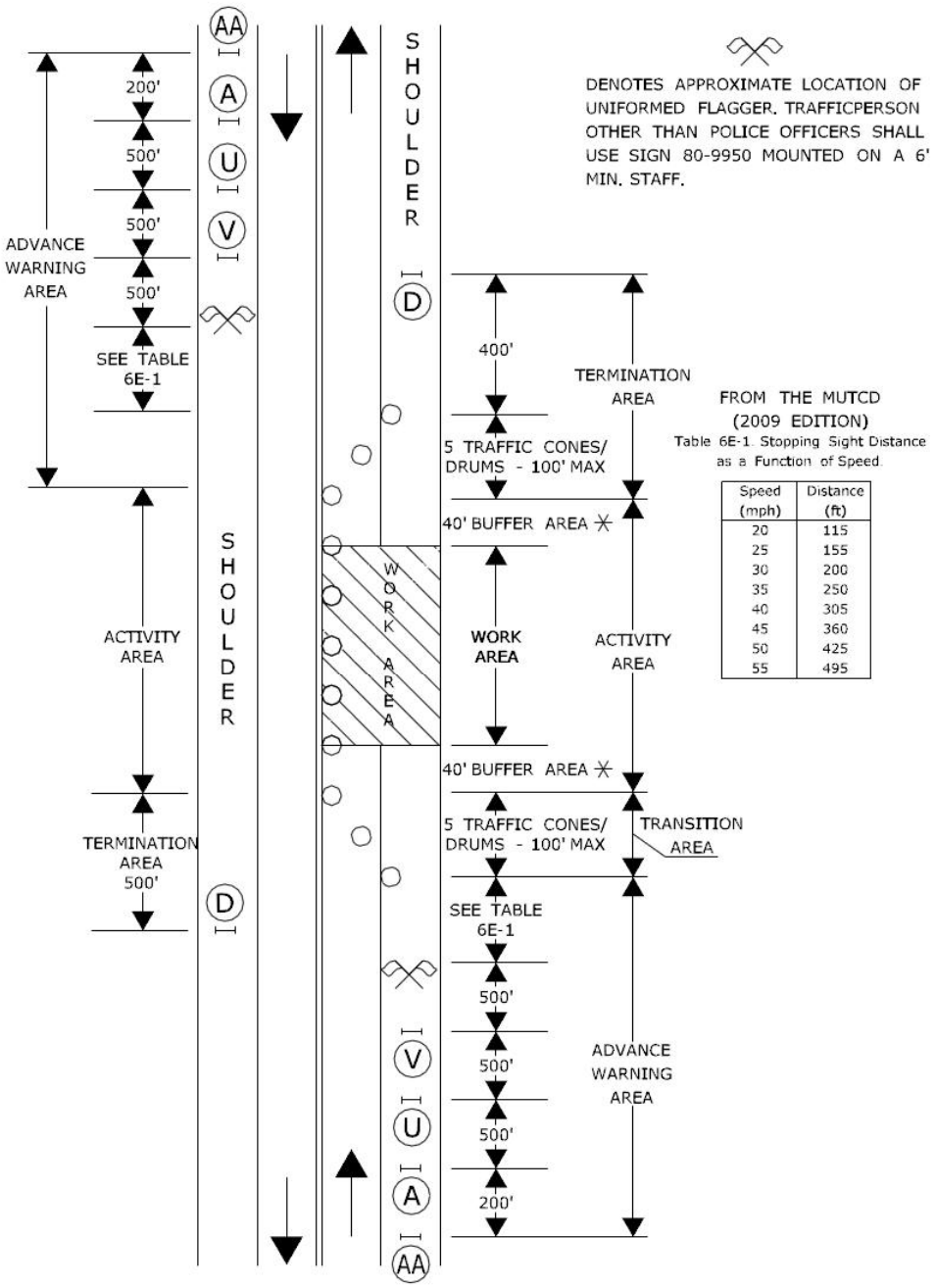
CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:50:35-04'00'
PRINCIPAL ENGINEER

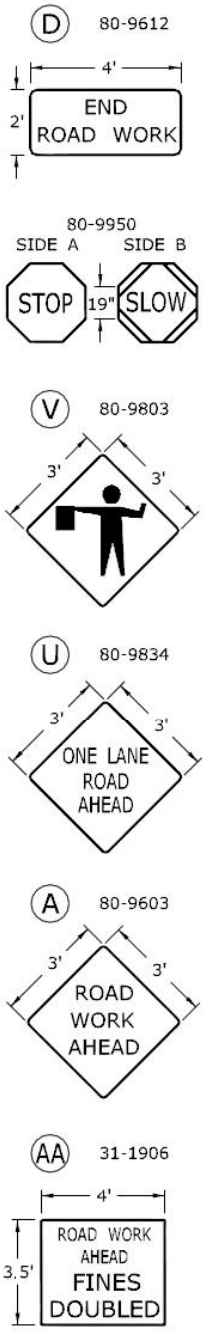
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS



FROM THE MUTCD (2009 EDITION)
Table 6E-1. Stopping Sight Distance as a Function of Speed

Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495

SIGN FACE
108 SQ. FT (MIN.)



○ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 13 - SHEET 1 OF 2

SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:55:23-04'00'
PRINCIPAL ENGINEER

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.

B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.

C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.

◯ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
⟵ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

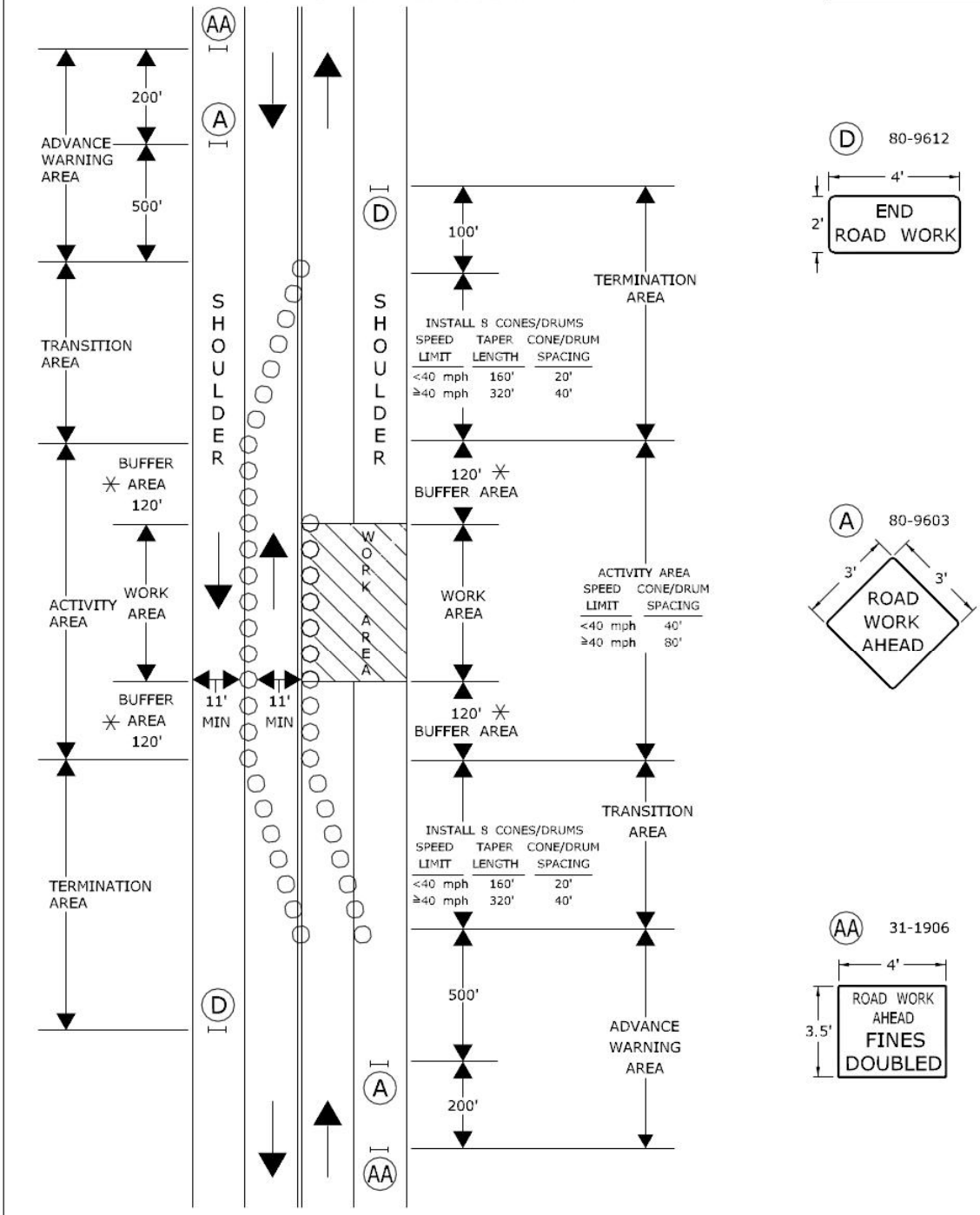
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:55:45-04'00'

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)



D 80-9612

A 80-9603

AA 31-1906

TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 15

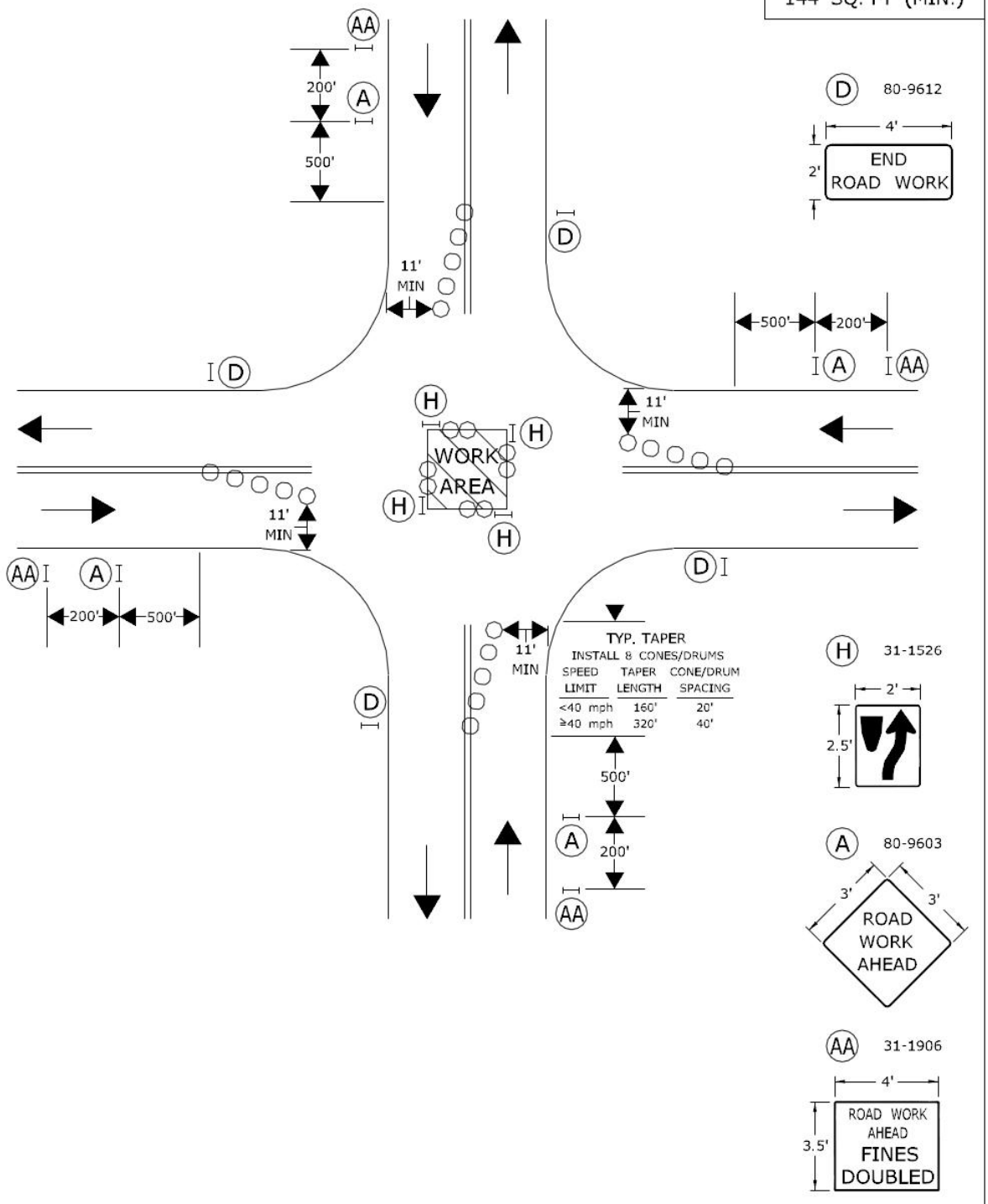
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ Charles S. Harlow 2012.06.05 15:56:29-04'00'
PRINCIPAL ENGINEER

WORK IN MIDDLE OF ROADWAY AT INTERSECTION

SIGN FACE
144 SQ. FT (MIN.)



◯ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 17

SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:57:16-04'00'
PRINCIPAL ENGINEER

Article 9.71.05 – Basis of Payment is supplemented by the following:

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include furnishing, installing, and removing the material for the temporary traversable slope in those areas where a longitudinal dropdown exists.

If there is no method for payment for the temporary transition in those areas where a transverse dropdown exists, then the contract lump sum price for the "Maintenance and Protection of Traffic" shall also include furnishing, installing, and removing the material for the temporary transition.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing temporary sign supports and foundations if necessary, during construction of the project.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include any temporary adjustments or modifications required to the permanent drainage structures, including but not limited to the resetting of catch basin and manhole tops as necessary, to facilitate temporary drainage measures prior to final paving.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for installation and maintenance of all temporary access to all residential properties, including but not limited to temporary graded surfaces consisting of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include furnishing, installing and relocating Construction Signs, Temporary Precast Concrete Barrier Curb, Traffic Drums, Traffic Cones, Construction Barricades, Barricade Warning Lights, temporary construction fencing, and all other additional materials, means and methods to maintain public safety.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include water, sweeping or calcium chloride for dust control that is required as a result of temporary gravel roadways or as directed by the Engineer.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for installation, maintenance and removal of all temporary pavement markings, as required by the specifications, throughout the duration of the project.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include the cost of the necessary certified flagger(s) required to maintain traffic control patterns and operations in accordance with Section 9.7 of the Form 817. There shall be no separate measurement or payment made for Trafficperson.

Pay Item	Pay Unit
Maintenance and Protection of Traffic	LS

ITEM NO. 1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description is supplemented with the following:
Work under this item shall consist of the removal and/or relocation of designated side-mounted extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Engineer. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction Methods is supplemented with the following:
The Contractor shall take care during the removal and relocation of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the Town.

Foundations and other materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

Sheet aluminum signs designated for relocation are to be re-installed on new sign posts.

Article 12.06.04 – Method of Measurement is supplemented with the following:
Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum signs, sign posts, and sign supports designated for relocation, all new sign posts and associated hardware for signs designated for relocation, all extruded aluminum signs, sheet aluminum signs, sign posts and sign supports designated for scrap, and foundations and other materials designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment is supplemented with the following:
This work will be paid for at the contract lump sum price for "Removal and Relocation of Existing Signs" which price shall include relocating designated extruded aluminum and sheet aluminum signs, sign posts, and sign supports, providing new posts and associated hardware for relocated signs, removing and disposing of foundations and other materials, and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of extruded aluminum signs, sheet aluminum signs, sign posts, and sign supports designated for scrap and all equipment, material, tools and labor incidental thereto.

Pay Item	Pay Unit
Removal and Relocation of Existing Signs	L.S.

ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)

ITEM #1208932A – SIGN FACE - SHEET ALUMINUM (TYPE IV RETROREFLECTIVE SHEETING)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

This item shall also include field testing of metal sign base posts as directed by the Engineer.

12.08.03—Construction Methods:

Delete the last sentence and add the following:

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

Field Testing of Metal Sign Posts: When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

12.08.04—Method of Measurement:

Add the following:

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

12.08.05—Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per square foot for "Sign Face - Sheet Aluminum" of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

Pay Factor Scale: Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

Number of Posts to be Tested and Pay Factors (Based on Number of Defects)

Number of Posts in Project =>	**51-100**	**101-250**	**251-1000**	**>1000**
Sample Size=>	**5 Posts**	**10 Posts**	**40 Posts**	**60 Posts**
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing

SECTION III – APPENDICES

APPENDIX A – CT DEPARTMENT OF LABOR–WAGE RATES

Project: Reconstruction To Pickett District Road

Minimum Rates and Classifications
for Heavy/Highway Construction

ID#: **H** 26038

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number:

Project Town: New Milford

FAP Number:

State Number:

Project: Reconstruction To Pickett District Road

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	34.72	32.15
2) Carpenters, Piledrivermen	32.60	25.34
2a) Diver Tenders	32.60	25.34

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

3) Divers	41.06	25.34
03a) Millwrights	33.14	25.74
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	49.75	21.05
4a) Painters: Brush and Roller	33.62	21.05
4d) Painters: Blast and Spray	36.62	21.05
4e) Painters: Tanks, Tower and Swing	35.62	21.05
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	38.82	26.25+3% of gross wage

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Project: Reconstruction To Pickett District Road

6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.47	35.14 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	42.62	31.21
----LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	30.05	20.10
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	30.30	20.10
10) Group 3: Pipelayers	30.55	20.10
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	30.55	20.10

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

12) Group 5: Toxic waste removal (non-mechanical systems)	32.05	20.10
13) Group 6: Blasters	31.80	20.10
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	31.05	20.10
Group 8: Traffic control signalmen	16.00	20.10
Group 9: Hydraulic Drills	29.30	18.90
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	32.22	20.10 + a

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

13b) Brakemen, Trackmen	31.28	20.10 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	31.28	20.10 + a
15) Form Erectors	31.60	20.10 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	31.28	20.10 + a
17) Laborers Topside, Cage Tenders, Bellman	31.17	20.10 + a

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

18) Miners	32.22	20.10 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	38.53	20.10 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	38.34	20.10 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	36.41	20.10 + a
21) Mucking Machine Operator	39.11	20.10 + a
----TRUCK DRIVERS----(*see note below)		

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

Two axle trucks	29.13	23.33 + a
Three axle trucks; two axle ready mix	29.23	23.33 + a
Three axle ready mix	29.28	23.33 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	29.33	23.33 + a
Four axle ready-mix	29.38	23.33 + a
Heavy duty trailer (40 tons and over)	29.58	23.33 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	29.38	23.33 + a

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

----POWER EQUIPMENT OPERATORS----

Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	39.55	24.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	39.23	24.30 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	38.49	24.30 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	38.10	24.30 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	37.51	24.30 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	37.51	24.30 + a

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Project: Reconstruction To Pickett District Road

Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	37.20	24.30 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	36.86	24.30 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	36.46	24.30 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	36.03	24.30 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	33.99	24.30 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	33.99	24.30 + a
Group 12: Wellpoint Operator.	33.93	24.30 + a

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

Group 13: Compressor Battery Operator.	33.35	24.30 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	32.21	24.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	31.80	24.30 + a
Group 16: Maintenance Engineer/Oiler	31.15	24.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	35.46	24.30 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	33.04	24.30 + a

**NOTE: SEE BELOW

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.50	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76

----LINE CONSTRUCTION----

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.10	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45

01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

As of: Monday, May 06, 2019

Project: Reconstruction To Pickett District Road

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: Monday, May 06, 2019

Opportunity * Guidance * Support

CONNECTICUT DEPARTMENT OF LABOR

THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages
CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine
Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

STATUTE 31-55a

- SPECIAL NOTICE -

To: All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.

- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

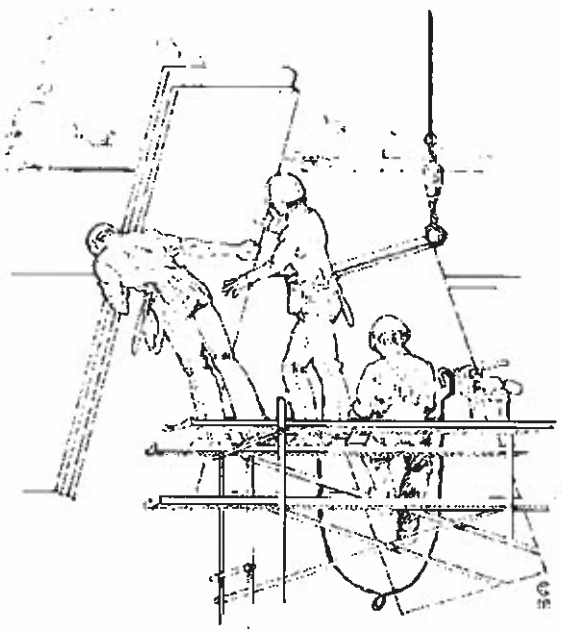
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative — title

for _____, located at _____,
contracting agency — address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number — address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature — Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

Construction Manager at Risk/General Contractor/Prime Contractor

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____, _____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:

SUBCONTRACTOR NAME & ADDRESS

WORKER'S COMPENSATION INSURANCE CARRIER

POLICY #

EFFECTIVE DATE:
EXPIRATION DATE:

PAYROLL NUMBER | Week-Ending Date | PROJECT NAME & ADDRESS

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE: S	M	T	W	TH	F	S	Total ST Hours / Total O/T Hours	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS: FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY								$ Base Rate / $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate / $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate / $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate / $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CPI

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER ____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____	_____	_____
(Signature)	(Title)	Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For
Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE							Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				S	M	T	W	TH	F	S					FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER		
				HOURS WORKED EACH DAY																
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

PAGE NUMBER _____ OF

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS: Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472

SUBCONTRACTOR NAME & ADDRESS: XYZ Corporation, 2 Main Street, Yantic, CT 06389

WORKER'S COMPENSATION INSURANCE CARRIER: Travelers Insurance Company
POLICY # #BAC8888928
EFFECTIVE DATE 1/1/09
EXPIRATION DATE 12/31/09

PAYROLL NUMBER: 1

Week-Ending Date: 9/26/09

PROJECT NAME & ADDRESS: DOT 105-296, Route 82

PERSON/WORKER, ADDRESS and SECTION	APPR RATE *%	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE: S 20	M 21	T 22	W 23	TH 24	F 25	S 26	Total ST Hours / Total OT Hours	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS: FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
Robert Craft 81 Maple Street Willimantic, CT 06226		M/C	Electrical Lineman E-1 1234567 Owner OSHA 123456		8	8	8	8	8		S-TIME 40 O-TIME	$ 30.75 Base Rate $ 8.82 Cash Fringe	1 $ 5.80 2 $ 3 $ 2.01 4 $ 5 $ 6 $	$1,582.80				P-xxxx	$1,582.80	#123 $ xxx.xx
Ronald Jones 212 Elm Street Norwich, CT 06360	65%	M/B	Electrical Apprentice OSHA 234567		8	8	8	8	8		S-TIME 40 O-TIME	$ 19.99 Base Rate $ 16.63 Cash Fringe	1 $ 2 $ 3 $ 4 $ 5 $ 6 $	$1,464.80	xx.xx	xxx.xx	xx.xx	G-xxx	$1,464.80	#124 $xxx.xx
Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B		M/H	Project Manager			8					S-TIME 8 O-TIME	$ Base Rate $ Cash Fringe	1 $ 2 $ 3 $ 4 $ 5 $ 6 $	$1,500.00	xx.xx	xx.xx	xx.xx	M-xx.x		#125 xxx.xx
											S-TIME O-TIME	$ Base Rate $ Cash Fringe	1 $ 2 $ 3 $ 4 $ 5 $ 6 $							

7/13/2009
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER 1 OF 2

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care Blue Cross 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09.

I, Robert Craft of XYZ Corporation, thereafter known as

Employer) in my capacity as Owner (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY

That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine *"job classification"* on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- ***ELECTRICIANS***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***FORK LIFT OPERATOR***

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- ***GLAZIERS***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***INSULATOR***

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's Rate
1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

• Laborer's Rate
1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems.
License required per Connecticut General Statutes: F-1,2,3,4.

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ***License required, drivers only, per Connecticut General Statutes.***

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

⇨ Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

APPENDIX B
GEOTECHNICAL ENGINEERING REPORT

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

GEOTECHNICAL ENGINEERING REPORT
RECONSTRUCTION OF PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

Prepared for:

Alfred Benesch & Company
120 Hebron Avenue, 2nd Floor
Glastonbury, Connecticut 06033

Prepared by:

Down To Earth Consulting, LLC
122 Church Street
Naugatuck, Connecticut 06770

File No. 0015-011.00
March 2019

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

March 10, 2019
File No. 0015-011.00

Mr. Ryan G. Scrittorale, PE
Project Manager
Alfred Benesch & Company
120 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033

Via email: RScrittorale@benesch.com

Re: Geotechnical Engineering Report
Reconstruction of Pickett District Road
New Milford, Connecticut

Down To Earth Consulting, LLC (DTE) has completed a geotechnical evaluation for the proposed roadway improvements that will be located along Pickett District Road in New Milford, Connecticut. Our services included characterizing the subsurface conditions in the vicinity of the existing roadway alignment, completing soils laboratory testing, performing geotechnical engineering analyses, and providing geotechnical design and construction recommendations for the project. Results of our analyses and geotechnical recommendations are included herein. Our services were completed in general accordance with our proposal, dated January 31, 2019.

We appreciate this opportunity to work with you. Please call if you have any questions.

Sincerely,

Down To Earth Consulting, LLC

Raymond P. Janeiro, P.E.
Principal

Daniel F. LaMesa, P.E.
Reviewer/Principal

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 GENERAL

This report summarizes the subsurface exploration program and geotechnical design and construction recommendations for the proposed Pickett District Road Reconstruction Project in New Milford, Connecticut. The site location is shown on the attached Area Plan (Figure 1 in Appendix 1).

Our understanding of proposed project concepts was based, in part, on the *Capital Road Design 2019 - Request for Proposals*, prepared by the New Milford Department of Public Works and provided by Alfred Benesch & Company on December 17, 2018.

1.2 DESIGN CRITERIA

Our recommendations are based on the 2005 ConnDOT Geotechnical Engineering Manual (revised February 2009) and reference the 2016 ConnDOT Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817.

2.0 EXISTING CONDITIONS AND PROPOSED RECONSTRUCTION

Pickett District Road will be reconstructed between the intersection of Danbury Road (US Route 202) and Still River Drive in the Town of New Milford. The total length of roadway reconstruction is approximately 9,545 feet. The project will include resurfacing/replacing the existing pavement, replacement of curbing, and potential replacement of existing drainage systems. We assume the proposed horizontal and vertical roadway alignments will closely match the existing alignments.

3.0 SUBSURFACE DATA

3.1 GENERAL SITE GEOLOGY

We reviewed available subsurface/geologic information in the vicinity of the project area (1:125,000 scale, Surficial Materials Map of Connecticut, Janet Radway Stone, 1992 and Bedrock Geological Map of Connecticut, John Rodgers, 1985).

The surficial material in the site area is generally mapped as glacial outwash deposits (i.e., sands and sands overlying fine-grained deposits). Bedrock is mapped as white to gray, dolomitic Marble.

3.2 TEST BORINGS

We observed and logged twenty test borings (R-1 through R-20) drilled by Associated Borings Co., Inc., on February 8 and 11, 2019. Explorations were generally limited to the southern travel lane due to the presence of a high-pressure gas line beneath the roadway's northern travel lane. Boring locations are depicted on Figure 2 (in Appendix 1) and the logs are included in Appendix 2. The borings were located in the field by taping/pacing from existing site features and their locations should be considered approximate.

The borings were drilled to explore the soil, bedrock (if encountered), and groundwater conditions in the proposed roadway improvement areas. Solid-stem auger drilling methods were used to advance borings to depths ranging from 3 to 5 feet below existing grades.

Representative soil samples were obtained for soil classification and laboratory testing by split barrel sampling procedures in general accordance with ASTM D-1586. The split-spoon sampling procedure utilizes a standard 2-inch O.D. split-barrel sampler that is driven into the bottom of the boring with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampler the middle 12-inches of a normal 24-inch penetration is recorded as the Standard Penetration Resistance Value (N). The blows (i.e., “N-Value”) are indicated on the boring logs at their depth of occurrence and provide an indication of the relative consistency of the material.

Groundwater levels were measured using a weighted tape in open drill holes or inferred from wet soil samples during drilling.

3.3 LABORATORY TESTING

Soil laboratory testing was completed by Thielsch Engineering, Inc. on samples obtained from the borings. The testing was completed in accordance with applicable ASTM Standards to confirm field classifications and for pavement subgrade frost considerations. Refer to Appendix 3 for the laboratory testing results.

4.0 SUBSURFACE CONDITIONS

4.1 SUBSURFACE PROFILE

The generalized subsurface profile, as inferred from the subsurface explorations, generally consists of Fill overlying natural Sand deposits. A more detailed description of the subsurface materials encountered is presented below. Refer to the borings logs in Appendix 2 for specific details.

4.1.1 Asphalt

Based on the findings in the borings, the existing pavement section generally consists of 3 to 7.5 inches of asphalt. Details on encountered pavement thicknesses are described below.

Roadway Boring	Observed Asphalt Thickness (inches)	Observed Base/Subbase Layer
R-1	7	3”+/- Processed Aggregate
R-2	5	-
R-3	7.5	-
R-4	5.5	2”+/- Black-colored Sand
R-5	7	2”+/- Black-colored Sand
R-6	3	8”+/- Sand & Gravel
R-7	3	6”+/- Sand & Gravel
R-8	3.5	8”+/- Sand & Gravel
R-9	3.5	-
R-10	4.5	-
R-11	6.5	-
R-12	4.5	-
R-13	6	-
R-14	3	-
R-15	6	-
R-16	5	-
R-17	4	-
R-18	4	-
R-19	4	-
R-20	7	10”+/- Sand & Gravel

4.1.2 Existing Fill

Fill was encountered at each of the boring locations. This stratum ranged in thickness from about 1 to over 5 feet thick and generally consisted of medium dense to very dense, dark-brown to brown, fine to coarse sand with varying amounts of gravel (5 to 40%) and silt (5 to 35%). Occasional asphalt fragments and geotextile fabric (in R-17) were also observed in the Fill. The thickness, character, and consistency of the Fill will vary between exploration locations.

4.1.3 Sand

Sand was observed below the Fill stratum in several borings (i.e., R-6, R-11 through R-14, and R-16 through R-19). This stratum generally consisted of stratified layers of light brown, loose to medium dense, fine to medium sand with varying (5 to 25%) amounts of silt and varying (0 to 15%) amounts of gravel.

4.2 GROUNDWATER

Groundwater was not encountered in the explorations. Water levels measured in the boreholes may not have had sufficient time to stabilize during the explorations and should be considered approximate. Groundwater levels will vary depending on factors such as temperature, season, precipitation, construction activity, and other conditions, which may be different from those at the time of these measurements.

5.0 GEOTECHNICAL DESIGN RECOMMENDATIONS

We offer the following geotechnical design recommendations based on the subsurface conditions encountered at the site and available project information

5.1 SUBGRADE CONDITIONS

According to FHWA design criterion (NCHRP 1-37A), soils are considered potentially frost susceptible if more than 3 percent of soil particles are smaller (by weight) than 0.02 millimeters in diameter. FHWA further categorizes the degree of frost susceptibility into four groups, F1 through F4, where F1 soils are less susceptible to frost and F4 soils are the most susceptible. The subgrade soils below the existing pavement generally fall within the F2 to F3 group described as sands containing greater than 3 percent finer than 0.075 mm by weight. Therefore, the existing subgrade soils would be considered *medium to highly* frost susceptible.

We recommend a minimum pavement section thickness (i.e., combined thickness of asphalt and non-frost susceptible base and subbase) of 19-inches for this level of frost susceptibility. The recommended minimum pavement section thickness is based on frost design considerations. A thicker pavement section may be necessary based on pavement structural requirements.

We recommend a California Bearing Ratio (CBR) of 20 for the existing subgrade soils. This CBR was estimated based correlations to the SPT N-Values (Livneh and Ishai, 1988) and visual soil descriptions. If necessary, site specific CBR testing results could be completed which may justify higher CBR values.

5.2 PRELIMINARY PAVEMENT RECOMMENDATIONS

Based on the provided ATR Traffic Counts reports prepared by Reliable Traffic Counts, LLC (dated 02/12/2019), we calculate the following minimum pavement section to satisfy recommended design structural number(s) in accordance with AASHTO guidance (1993 Pavement Design Guide).

ITEM	MINIMUM THICKNESS (in.)	CTDOT SPECIFICATION (FORM 817)
Pavement Wearing Course	3	HMA S0.5 Superpave
Pavement Binder Course	4	HMA S1.0 Superpave
Subbase Course	12	Gravel Subbase (M.02.06, Grading B)

5.3 DRAINAGE

Due to the frost susceptibility and elevated moisture content of the encountered subgrade soils, we recommend that edge drains be included in the new pavement section to remove water from the subgrade and mitigate degradation from frost impacts. Refer to CTDOT Standard No. 751-B for typical roadway drain details.

Sag curves locations should also include adequate base or subbase to provide a gradient sufficient to prevent the pavement section from becoming saturated; alternatively, perpendicular underdrains could be installed to drain these locations.

6.0 MATERIAL RECOMMENDATIONS

6.1 ON-SITE MATERIALS

Based on our visual soil classifications, some of the site soils that do not contain organic material may be reusable as Granular Fill (if the material gradation conforms to the recommendations in Section 6.2) or General Fill.

6.2 GRANULAR FILL

Granular Fill shall consist of ConnDOT Standard Form 817, Section M.02.01. Granular Fill should be compacted to a minimum of 95 percent of its maximum dry density, as determined by AASHTO T180, Method D.

7.0 CONSTRUCTION RECOMMENDATIONS

Our field observations indicate that much of the existing pavement has generally reached or exceeded its design life. We recommend full-depth reconstruction of Pickett District Road, especially since much of the roadway's northern travel lane consists of an asphalt patch from recent construction of a high-pressure gas line. Existing asphalt thicknesses and base materials could not be determined in associated patched areas. Full-depth reclamation could also be considered in some areas to reduce material costs. Geotechnical recommendations for both full-depth reconstruction and reclamation are discussed below. The design team should choose the appropriate rehabilitation alternative to meet anticipated loads, vehicular traffic, and life expectancy.

7.1 FULL-DEPTH RECLAMATION OPTION

A full-depth reclamation alternative would provide a similar life expectancy compared to a full removal and replacement option. It would allow for construction of a new pavement section while minimizing importing/exporting of materials. This alternative would require milling the existing pavement layer in-place and would require field quality control to verify that after milling, the reclaimed material is similarly graded to conventional pavement subbase materials.

7.2 SUBGRADE PREPARATION

We recommend densifying proposed pavement subgrades (existing subgrade materials and/or reclaimed materials) with a minimum of six passes with a vibratory drum roller having a minimum dynamic force of 5,000 lbs per foot of drum width. Proof compaction with smaller vibratory equipment may be used in areas where there is a concern that heavy vibratory equipment could damage buried utilities (e.g., existing high-pressure gas line) or other nearby structures.

Regardless of the proposed rehabilitation (i.e., reconstruction or reclamation), the subgrade should be observed by an experienced geotechnical engineer during improvement. Areas exhibiting instability and/or containing disturbed or deleterious material should receive additional compaction and/or be over-excavated and replaced with compacted Granular Fill.

7.3 TEMPORARY EXCAVATIONS

The site soils are classified as OSHA Class "C" soil and can be cut at a maximum one vertical to one and a half horizontal (1V:1.5H) slope up to a maximum excavation depth of 20 feet. These maximum slope and excavation depths assume no surcharge load (i.e., stockpiles, construction equipment, etc.) at the top of the excavations or groundwater seepage.

7.4 TEMPORARY GROUNDWATER CONTROL

Based on information obtained from the subsurface exploration program, it is not anticipated that groundwater will be encountered during construction. We anticipate that stormwater can be managed with conventional sump pumps and trenches in the excavations; however, the contractor should review the plans and borings and make his/her own interpretation of the means and methods needed to control water during construction. Stormwater runoff should not be permitted to accumulate on/within exposed subgrades and the runoff should be directed away from the exposed subgrade areas.

8.0 REVIEW OF FINAL DESIGN, PLANS, AND SPECIFICATIONS

When project plans are available, they should be provided to DTE for review of conformance with our geotechnical recommendations. If any changes are made to the proposed roadway locations or elevations, the recommendations provided in this report will need to be verified by DTE for applicability.

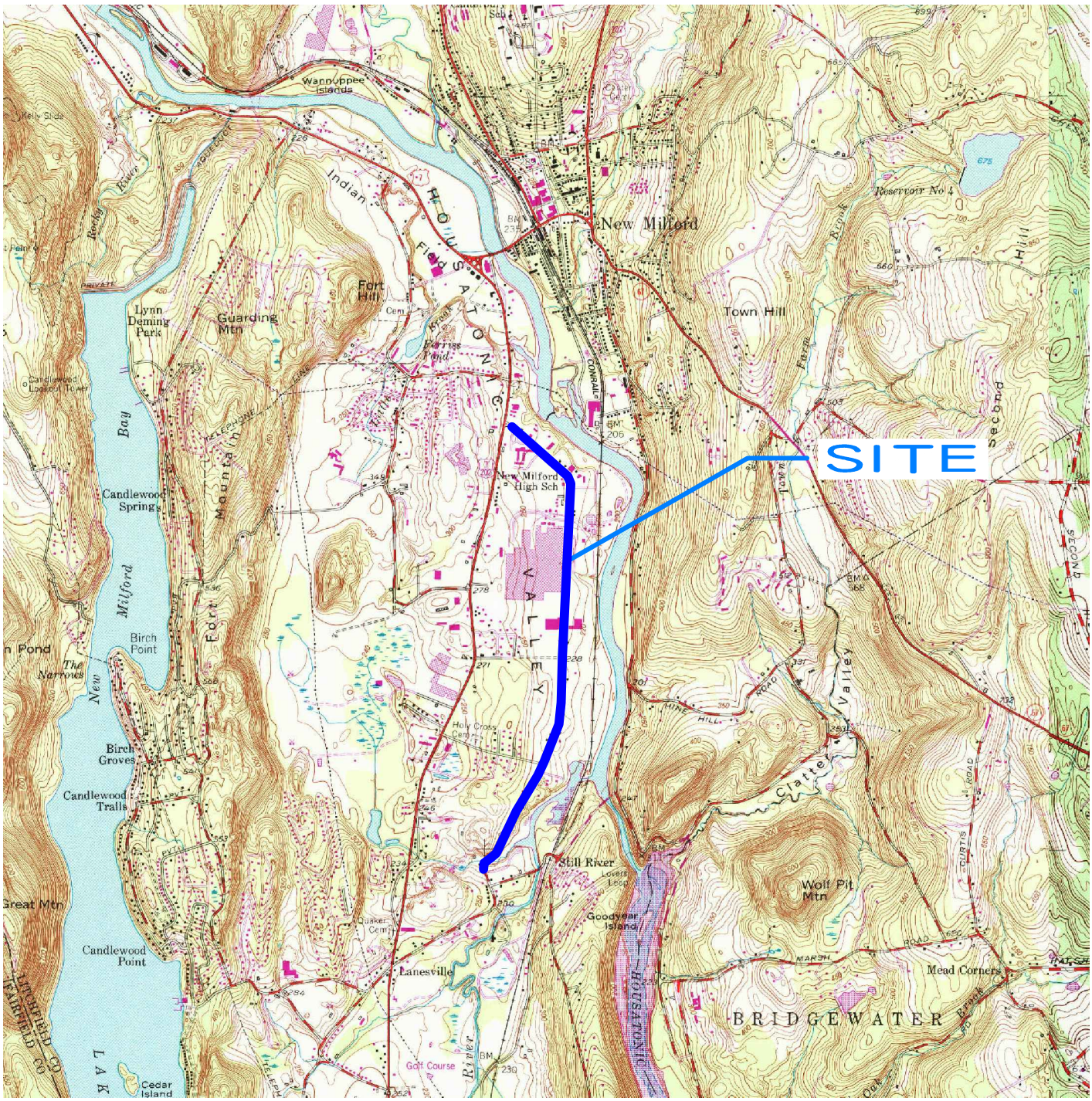
9.0 CLOSURE

We trust the information presented herein is sufficient for your use to progress design of the Pickett District Road Reconstruction Project. We have enjoyed working with you on this project and look forward to our continued involvement. Please do not hesitate to call us if you have any questions.

This report is subject to the limitations included in Appendix 4.

APPENDIX 1 -

FIGURES



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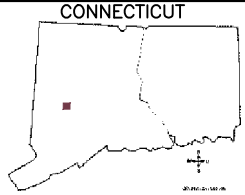
NAUGATUCK, CONNECTICUT 06770

CONNECTICUT



QUADRANGLE LOCATION

AREA PLAN
ROADWAY RECONSTRUCTION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

REFERENCE:
USGS TOPOGRAPHIC QUADRANGLE: NEW MILFORD, CT

SCALE 1"= 2,000'

2,000' 1,000' 0 2,000'

PROJECT NO.	0015-011.00
DATE:	02/27/19
FIGURE NO.	1

DRAWN BY: RPJ

REVIEWED BY: RPJ

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LEGEND

R-1 — TEST BORING NO. AND LOCATION BY DOWN TO EARTH CONSULTING, LLC

NOTES:
1) BASE MAP DEVELOPED FROM AN ELECTRONIC AERIAL PHOTO PROVIDED BY GOOGLE, 2019.
2) BORINGS WERE COMPLETED BY ASSOCIATED BORINGS CO., INC. AND OBSERVED BY DOWN TO EARTH CONSULTING, LLC.
3) THE LOCATIONS OF THE EXPLORATIONS WERE DETERMINED BY TAPING AND VISUAL ESTIMATES FROM EXISTING SITE FEATURES. THESE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

DESIGNED BY OTHERS						
DRAWN BY RPJ						
CHECKED BY RPJ						
	NO.	DATE		DRWN.	CHKD	APPVD
APPROVED BY RPJ	REVISIONS					

SCALE 1"= 600'
600' 300' 0 600'

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PROJECT
ROADWAY RECONSTRUCTION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

DWG. TITLE.
SITE AND BORING LOCATION PLAN

DTE FILE NO. 0015-011.00
SCALE AS NOTED
DATE 02/27/19
FIGURE NO. 2

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APPENDIX 2 -

TEST BORING LOGS

DOWN TO EARTH CONSULTING, LLC
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PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-1
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/8/2019	Date End	2/8/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/8/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								7" Asphalt
2		S-1	24/9	1 to 3	23-18-11-7		Medium dense, brown fine to coarse SAND and GRAVEL, trace Silt	3"+/- Aggregate Base
3								FILL
4							END OF BORING @ 3 FEET BELOW GRADE	
5							(REQUESTED BY PUBLIC WORKS DUE TO PROXIMITY TO FORCE MAIN PIPE)	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

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PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-2
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/8/2019	Date End	2/8/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/8/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								5" Asphalt
2		S-1	24/7	1 to 3	23-31-29-21		Very dense, light brown/white fine to coarse SAND, some fine Gravel (fractured), little Silt	FILL
3								
4							END OF BORING @ 3 FEET BELOW GRADE (REQUESTED BY PUBLIC WORKS DUE TO PROXIMITY TO FORCE MAIN PIPE)	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES: Grab sample collected off augers from 1 to 3 feet below grade for laboratory analyses.

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PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-3
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/8/2019	Date End	2/8/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/8/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								7.5" Asphalt
2		S-1	24/7	1 to 3	22-21-19-12		Dense, black to brown fine to coarse SAND, little Silt, little fine Gravel	
3								FILL
4		S-2	24/5	3 to 5	8-9-11-10		Medium dense, gray-brown to brown fine to coarse SAND, little Silt, trace fine Gravel	
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

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PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-4
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/8/2019	Date End	2/8/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/8/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								5.5" Asphalt
2		S-1	24/8	1 to 3	14-18-23-22		Dense, black/dark brown fine to coarse SAND, some Silt, trace fine Gravel	2"+/- Black Sand FILL
3								
4		S-2	12/1	3 to 4	11-16		Medium dense, dark brown fine to coarse SAND and fine GRAVEL, some Silt	
5							END OF BORING @ 4 FEET BELOW GRADE (DUE TO PROXIMITY TO WATER MAIN)	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-5
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/8/2019	Date End	2/8/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/8/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								7" Asphalt
2		S-1	24/9	1 to 3	29-21-17-11		Dense, brown/black fine to coarse SAND and fine GRAVEL, little Silt, trace Asphalt fragments	2"+/- Black Sand
3								FILL
4		S-2	24/4	3 to 5	4-7-6-5		Medium dense, dark brown/black fine to coarse SAND and GRAVEL, some Silt, trace Asphalt fragments	
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

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PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-6
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								3" Asphalt
2		S-1	24/9	1 to 3	25-35-26-23		Very dense, dark brown to brown fine to coarse SAND, some (+) Silt, little fine Gravel	8" Sand & Gravel FILL
3								
4		S-2	24/12	3 to 5	9-8-10-13		Medium dense, Top 10": dark brown fine to coarse SAND, little Silt, trace fine Gravel; Bottom 2": light brown, fine to medium SAND, little Silt	
5								SAND
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-7
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								3" Asphalt
2		S-1	12/5	1 to 2	35-80		Very dense (refusal), dark brown fine to coarse SAND and GRAVEL, trace Silt	6" Sand & Gravel FILL
3								
4		S-2	0/0	3.25	50/0"		Very dense (refusal), No Recovery	
5							END OF BORING @ 3.25 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES: Inferred boulder encountered at 2 feet below grade.

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-8
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								3.5" Asphalt 8" Sand & Gravel FILL
2		S-1	24/0	1 to 3	21-35-36-26		Very dense, No Recovery (Lab Results: fine to coarse SAND, little (+) Silt, trace fine Gravel)	
3								
4		S-2	24/8	3 to 5	7-10-8-11		Medium dense, dark brown/brown fine to coarse SAND, little Silt, trace fine Gravel	
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES: Grab sample collected off augers from 1 to 3 feet below grade for laboratory analyses.

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-9
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								3.5" Asphalt
2		S-1	24/7	1 to 3	20-32-19-14		Dense, dark brown fine to coarse SAND, some fine Gravel, little Silt	FILL
3								
4		S-2	24/6	3 to 5	16-10-8-9		Medium dense, dark brown fine to coarse SAND, trace Silt, trace fine Gravel	
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-10
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								4.5" Asphalt
2		S-1	24/0	1 to 3	16-26-17-12		Dense, No Recovery	
3							(Lab Results: fine to coarse SAND, some fine Gravel, little (+) Silt)	FILL
4		S-2	24/9	3 to 5	4-8-7-7		Medium dense, dark brown fine to coarse SAND, little Silt, little fine Gravel	
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES: Grab sample collected off augers from 1 to 3 feet below grade for laboratory analyses.

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-11
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								6.5" Asphalt
2		S-1	24/9	1 to 3	13-11-11-12		Medium dense, dark brown to light brown fine to coarse SAND, little (+) Silt, trace fine Gravel	FILL
3								
4		S-2	24/7	3 to 5	8-8-8-7		Medium dense, light brown fine to coarse SAND, little Silt	SAND
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-12
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								4.5" Asphalt
2		S-1	24/8	1 to 3	14-13-10-8		Medium dense, brown to dark brown fine to coarse SAND, some fine Gravel, little (+) Silt	FILL
3								
4		S-2	24/6	3 to 5	6-9-9-9		Medium dense, light brown fine to medium SAND, trace Silt	SAND
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-13
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								6" Asphalt
2		S-1	8/4	1 to 1.7	14-50/2"		Very dense (refusal), dark brown to brown fine to coarse SAND, little fine Gravel, little Silt, with fractured coarse gravel fragments at sample tip	FILL
3								
4		S-2	18/6	3.5 to 5	3-4-6		Medium dense, brown fine to coarse SAND and GRAVEL, some Silt, moist	SAND
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES: Inferred cobbles/boulder encountered at 2 to 3 feet below grade.

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-14
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								3" Asphalt FILL
2		S-1	24/12	1 to 3	14-17-14-14		Dense, light brown fine SAND, some Silt, trace fine Gravel	SAND
3								
4		S-2	24/6	3 to 5	10-10-7-6		Medium dense, brown fine to coarse SAND, little fine Gravel, little Silt	
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
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SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-15
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								6" Asphalt
2		S-1	24/7	1 to 3	14-15-12-11		Medium dense, dark brown fine to coarse SAND, some fine Gravel, little Silt	FILL
3								
4		S-2	24/6	3 to 5	9-10-9-7		Medium dense, dark brown fine to coarse SAND, little Silt	
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-16
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								5" Asphalt
2		S-1	24/11	1 to 3	17-30-16-12		Dense, dark brown fine to coarse SAND, some Silt, trace fine Gravel	FILL
3								
4		S-2	24/8	3 to 5	9-8-9-9		Medium dense, light brown fine SAND, little Silt	SAND
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-17
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								4" Asphalt
2		S-1	24/10	1 to 3	19-33-31-25		Very dense, dark brown fine to coarse SAND, some fine Gravel, little Silt, trace Asphalt fragments, with piece of geotextile fabric mid-sample	FILL
3								
4		S-2	24/4	3 to 5	20-16-16-14		Dense, light brown fine to medium SAND, trace Silt, with piece of coarse gravel mid-sample	SAND
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-18
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								4" Asphalt
2		S-1	24/13	1 to 3	21-23-26-26		Dense, Top 10": brown fine to coarse SAND, some fine to coarse Gravel, little (+)	FILL
3							Silt; Bottom 3": light brown fine to medium SAND, trace Silt	
4		S-2	24/9	3 to 5	20-22-21-19		Dense, light brown fine to medium SAND, trace Silt	SAND
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-19
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								4" Asphalt
2		S-1	24/6	1 to 3	30-43-37-29		Very dense, dark brown fine to coarse GRAVEL and SAND, trace Silt, with piece of coarse gravel jammed at sample tip	FILL
3								
4		S-2	24/8	3 to 5	16-16-18-18		Dense, brown fine SAND, some Silt	SAND
5								
6							END OF BORING @ 5 FEET BELOW GRADE	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
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27								
28								
29								
30								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
PROPOSED ROADWAY REHABILITATION
PICKETT DISTRICT ROAD
NEW MILFORD, CONNECTICUT

BORING NO. R-20
SHEET 1 of 1
FILE NO. 0015-011.00
CHKD. BY DFL

Boring Co.	Associated Borings Co., Inc.	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	Not Available	Datum	Not Available
Logged By	Ray Janeiro	Date Start	2/11/2019	Date End	2/11/2019

Sampler Type:	Cathead - Donut Hammer
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	Truck Rig
Drilling Method:	4" O.D. Solid-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
2/11/2019				Not Encountered

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	STRATA DESCRIPTION
1								7" Asphalt
2		S-1	24/8	1 to 2.4	18-21-12/5"		Dense, gray/white fine to coarse SAND and fine GRAVEL, trace Silt	10" Sand & Gravel Base
3								FILL
4							END OF BORING @ 2.4 FEET BELOW GRADE (DUE TO UNDERGROUND CULVERT PIPE)	
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 1 to 10%	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

FIELD NOTES:

APPENDIX 3 -

LABORATORY TESTING RESULTS

THIELSCH ENGINEERING

195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
thielsch.com
Let's Build a Solid Foundation

Client Information:
Down To Earth Consulting, LLC
Naugatuck, CT 06770
PM: Ray Janeiro
Assigned By: Ray Janeiro
Collected By: DTE

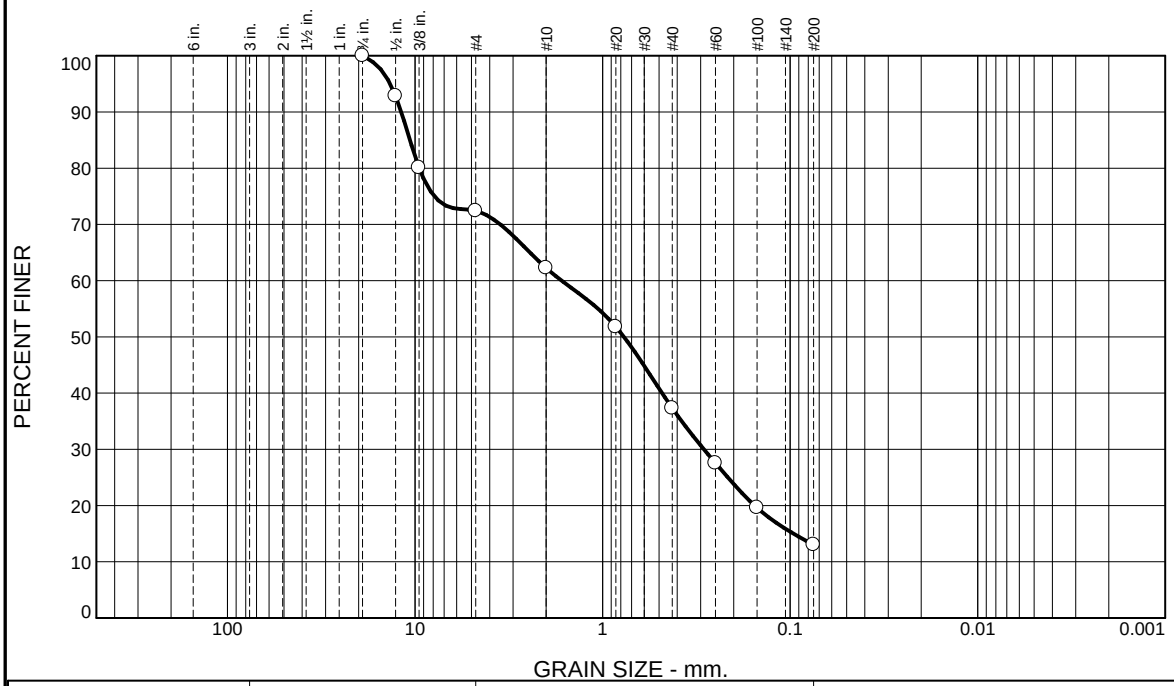
Project Information:
Pickett District Road
New Milford, CT
DTE Project Number: 0015-011.00
Summary Page: 1 of 1
Report Date: 2.20.19

LABORATORY TESTING DATA SHEET

Boring ID	Sample No.	Depth (ft)	Laboratory No.	Identification Tests						Corrosivity Tests								Laboratory Log and Soil Description
				Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	Sulfate (mg/kg)	Chloride (mg/kg)	Sulfide (mg/kg)	Redox Potential (mv)	Electrical Resist. As Received Ohm-cm	Electrial Resist. Saturated Ohm-cm	pH	
				D2216	D4318		D6913			D2874	EPA				G57		G51	
R-2	S-1	1-3	19-S-351	2.7			27.6	59.4	13.0									Brown silty sand with gravel
R-4	S-1	1-3	19-S-352	8.5			7.1	69.7	23.2									Brown silty sand
R-6	S-1	1-3	19-S-353	6.6			16.8	52.0	31.2									Brown silty sand with gravel
R-8	Grab	1-3	19-S-354	5.3			5.3	75.6	19.1									Brown silty sand
R-10	Grab	1-3	19-S-355	4.5			25.5	57.2	17.3									Brown silty sand with gravel
R-12	S-1	1-3	19-S-356	4.4			26.2	56.2	17.6									Brown silty sand with gravel
R-14	S-1	1-3	19-S-357	11.9			0.5	69.8	29.7									Brown silty sand
R-16	S-1	1-3	19-S-358	7.4			8.3	65.2	26.5									Brown silty sand
R-18	S-1	1-3	19-S-359	6.2			25.4	55.8	18.8									Brown silty sand with gravel
R-6	Grab	0.75-1	19-S-360	5.0			23.3	56.2	20.5									Brown silty sand with gravel
R-10	Grab	0.5-1	19-S-361	5.3			38.5	48.6	12.9									Brown silty sand with gravel
R-13	Grab	0.5-1	19-S-362	8.5			23.0	54.2	22.8									Brown silty sand with gravel

Date Received ***2.14.19*** Reviewed By: Date Reviewed: ***2.20.2019***

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	27.6	10.1	25.0	24.3	13.0	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	92.9		
0.375"	80.1		
#4	72.4		
#10	62.3		
#20	51.8		
#40	37.3		
#60	27.6		
#100	19.6		
#200	13.0		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 11.8502 D_{85}= 10.6533 D_{60}= 1.6529
D_{50}= 0.7696 D_{30}= 0.2882 D_{15}= 0.0960
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-2 / S-1

Thielsch Engineering Inc.

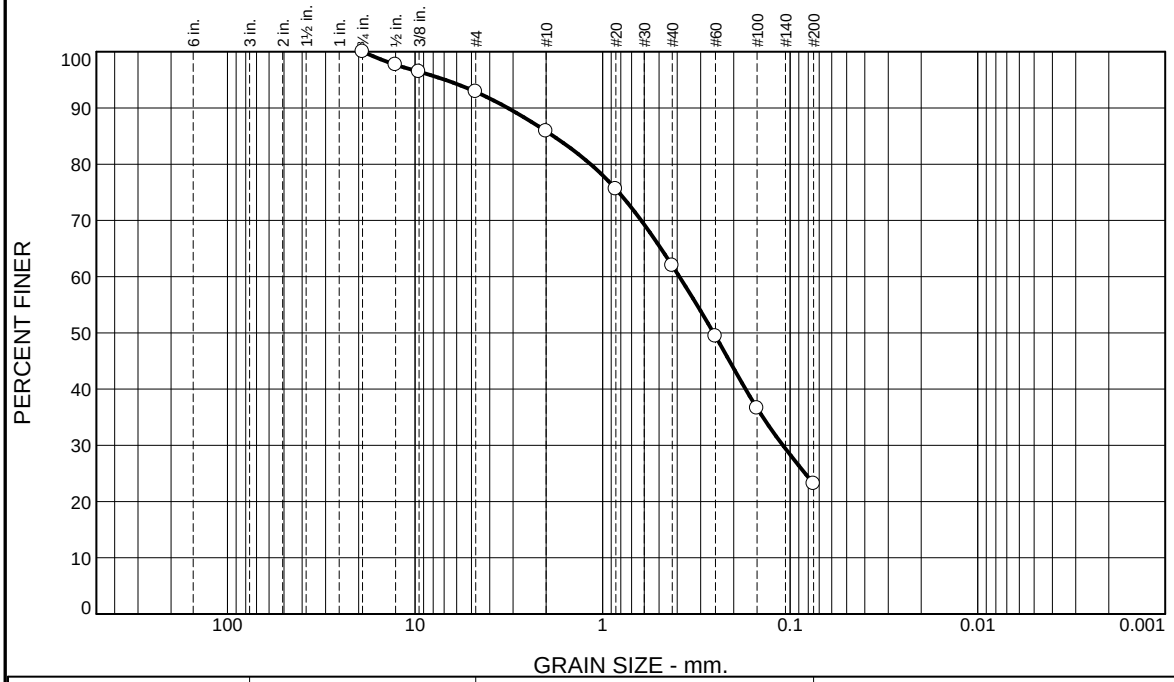
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-351

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.1	7.0	23.9	38.8	23.2	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	97.7		
0.375"	96.5		
#4	92.9		
#10	85.9		
#20	75.6		
#40	62.0		
#60	49.4		
#100	36.6		
#200	23.2		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 3.2004 D_{85}= 1.8281 D_{60}= 0.3895
D_{50}= 0.2560 D_{30}= 0.1093 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

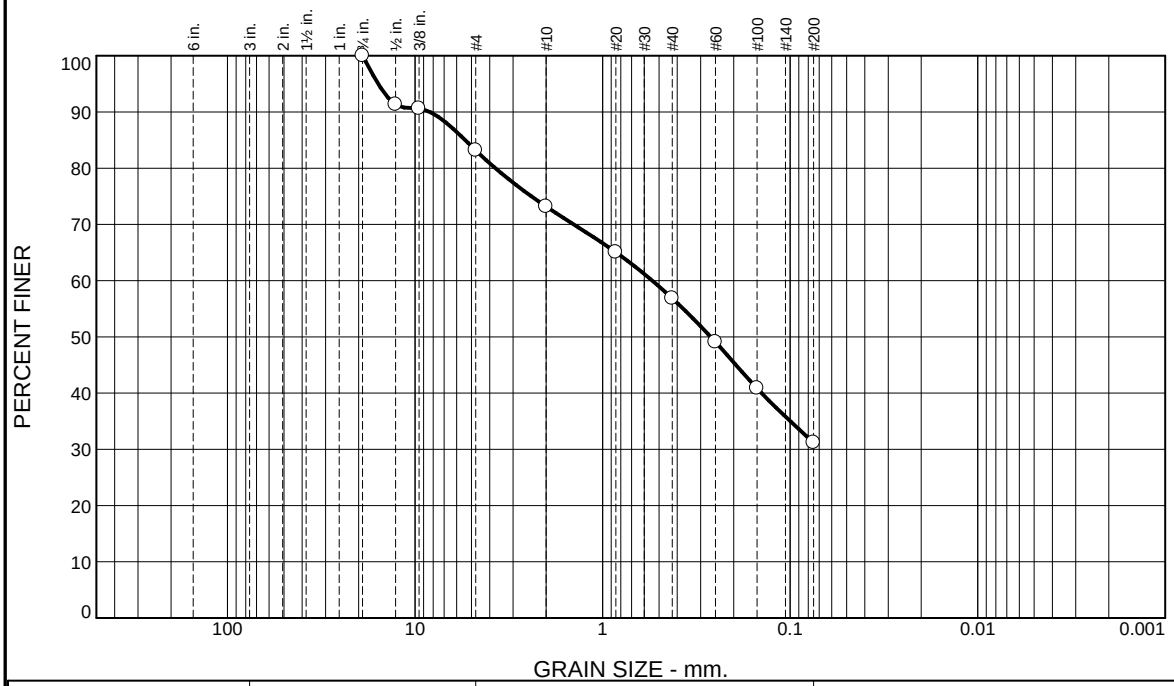
Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-4 / S-1

Thielsch Engineering Inc.

Cranston, RI

Client: Down To Earth Consulting, LLC
Project: Pickett District Road
New Milford, CT
Project No: 0015-011.00 **Figure** 19-S-352

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	16.8	10.0	16.3	25.7	31.2	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	91.3		
0.375"	90.6		
#4	83.2		
#10	73.2		
#20	65.1		
#40	56.9		
#60	49.1		
#100	40.8		
#200	31.2		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 8.3145 D_{85}= 5.4050 D_{60}= 0.5431
D_{50}= 0.2651 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample visually classified as non-plastic.

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-6 / S-1

Thielsch Engineering Inc.

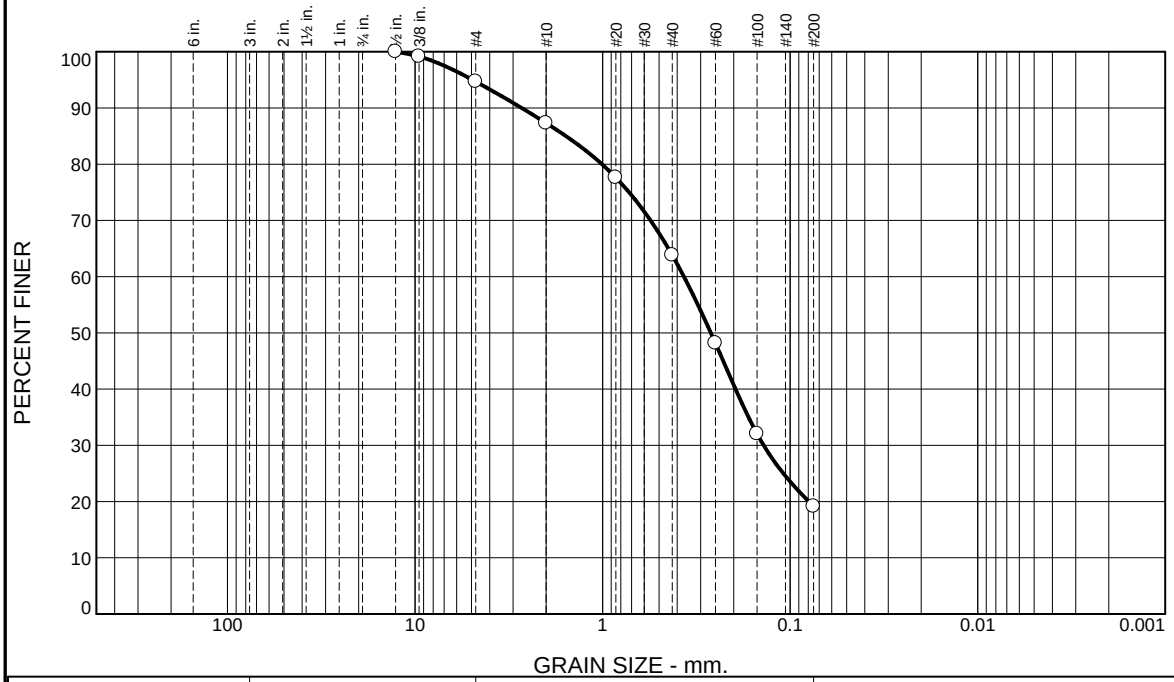
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-353

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.3	7.4	23.5	44.7	19.1	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.5"	100.0		
0.375"	99.2		
#4	94.7		
#10	87.3		
#20	77.6		
#40	63.8		
#60	48.1		
#100	32.0		
#200	19.1		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 2.6994 D_{85}= 1.5662 D_{60}= 0.3683
D_{50}= 0.2646 D_{30}= 0.1384 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-8 / GRAB

Thielsch Engineering Inc.

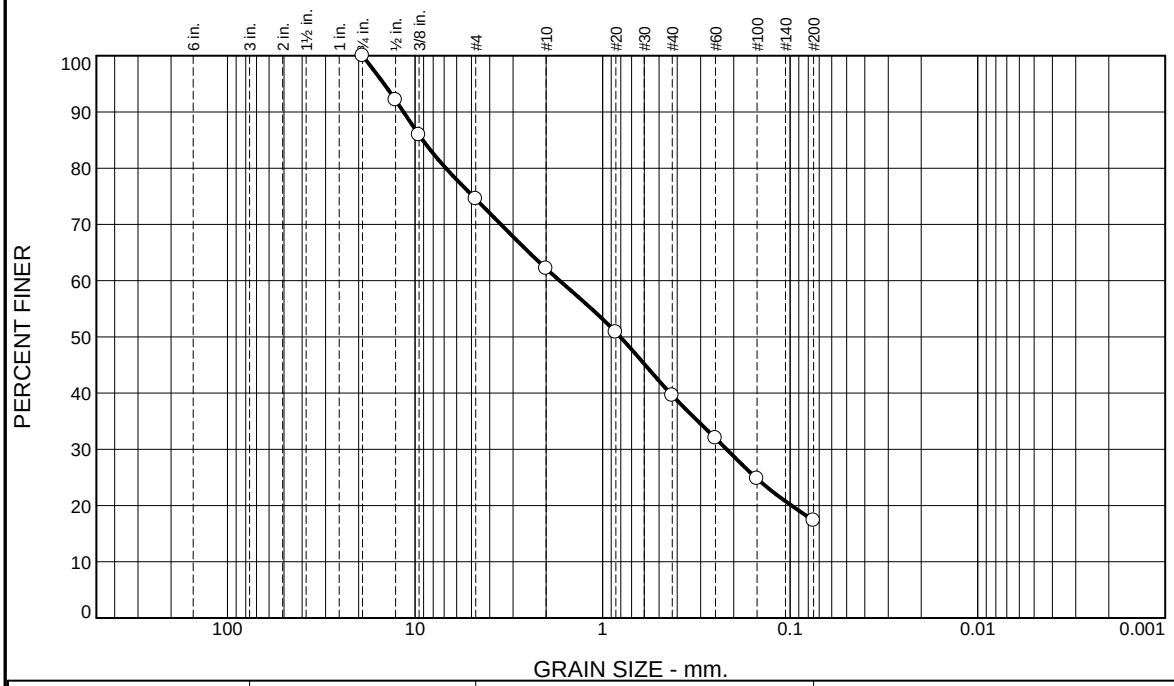
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-354

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	25.5	12.3	22.6	22.3	17.3	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	92.1		
0.375"	85.9		
#4	74.5		
#10	62.2		
#20	50.8		
#40	39.6		
#60	32.0		
#100	24.8		
#200	17.3		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 11.5157 D_{85}= 9.0964 D_{60}= 1.6943
D_{50}= 0.8057 D_{30}= 0.2180 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-10 / GRAB

Thielsch Engineering Inc.

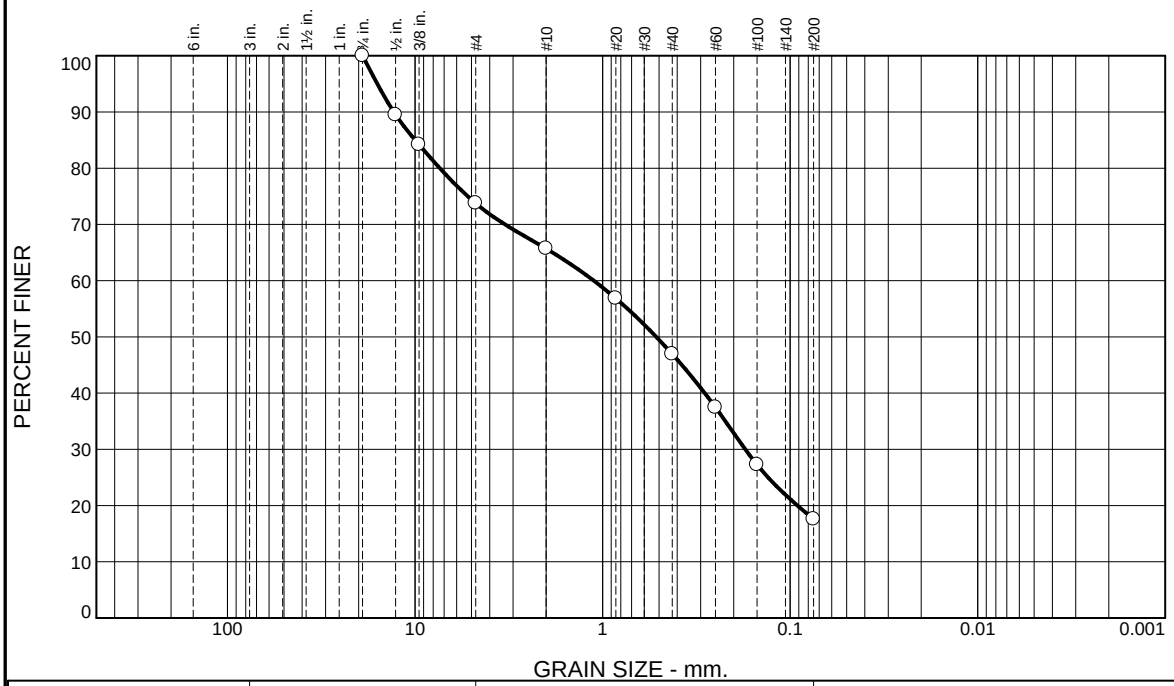
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-355

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	26.2	8.1	18.8	29.3	17.6	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	89.5		
0.375"	84.2		
#4	73.8		
#10	65.7		
#20	56.8		
#40	46.9		
#60	37.5		
#100	27.3		
#200	17.6		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 12.9928 D_{85}= 9.9935 D_{60}= 1.1144
D_{50}= 0.5173 D_{30}= 0.1733 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

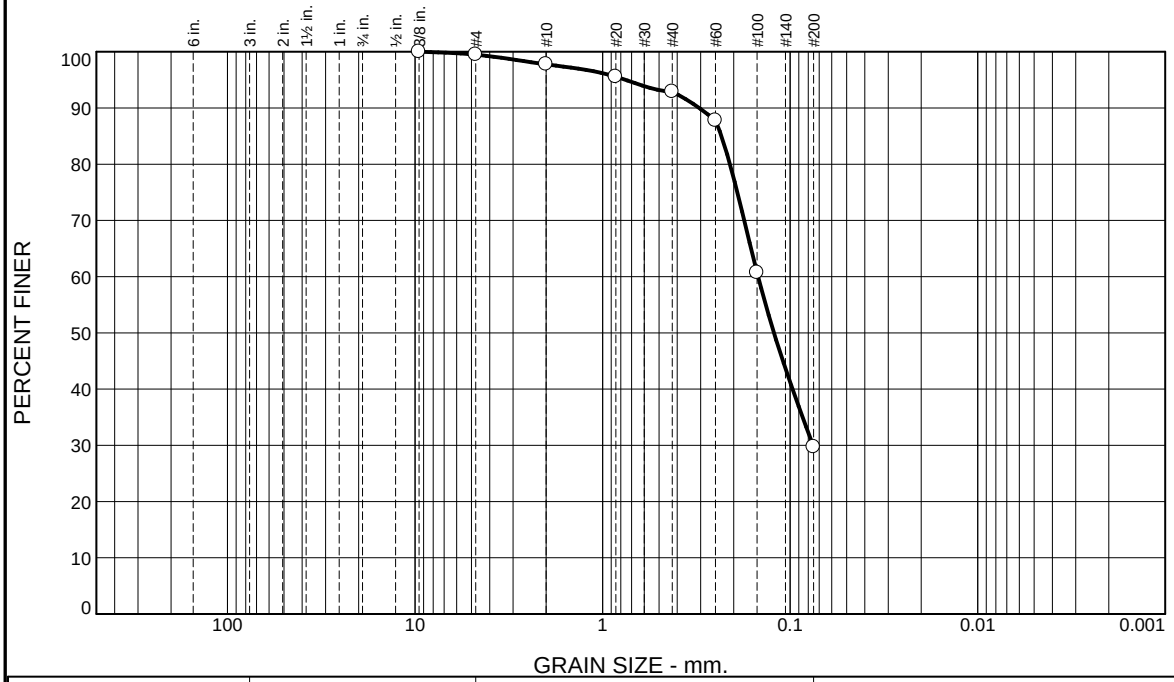
Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-12 / S-1

Thielsch Engineering Inc.

Cranston, RI

Client: Down To Earth Consulting, LLC
Project: Pickett District Road
New Milford, CT
Project No: 0015-011.00 **Figure** 19-S-356

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.7	4.9	63.2	29.7	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375"	100.0		
#4	99.5		
#10	97.8		
#20	95.6		
#40	92.9		
#60	87.8		
#100	60.7		
#200	29.7		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 0.3049 D_{85}= 0.2324 D_{60}= 0.1481
D_{50}= 0.1219 D_{30}= 0.0755 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-14 / S-1

Thielsch Engineering Inc.

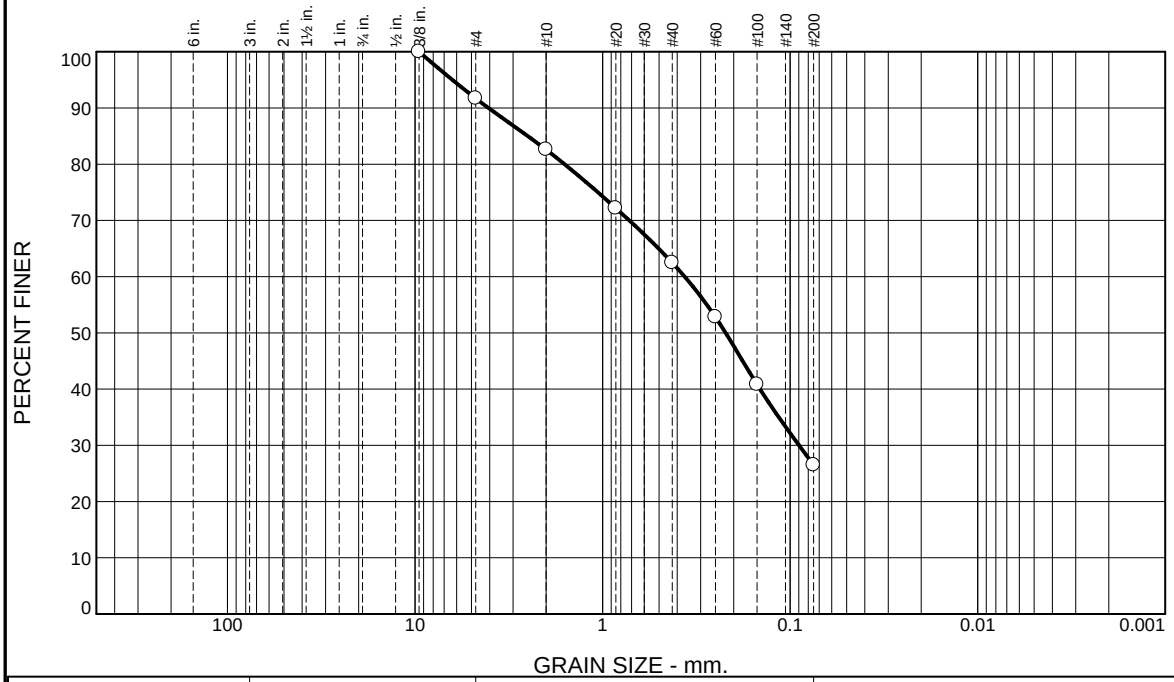
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-357

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.3	9.1	20.1	36.0	26.5	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375"	100.0		
#4	91.7		
#10	82.6		
#20	72.2		
#40	62.5		
#60	52.8		
#100	40.8		
#200	26.5		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 4.0541 D_{85}= 2.5049 D_{60}= 0.3650
D_{50}= 0.2207 D_{30}= 0.0897 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-16 / S-1

Thielsch Engineering Inc.

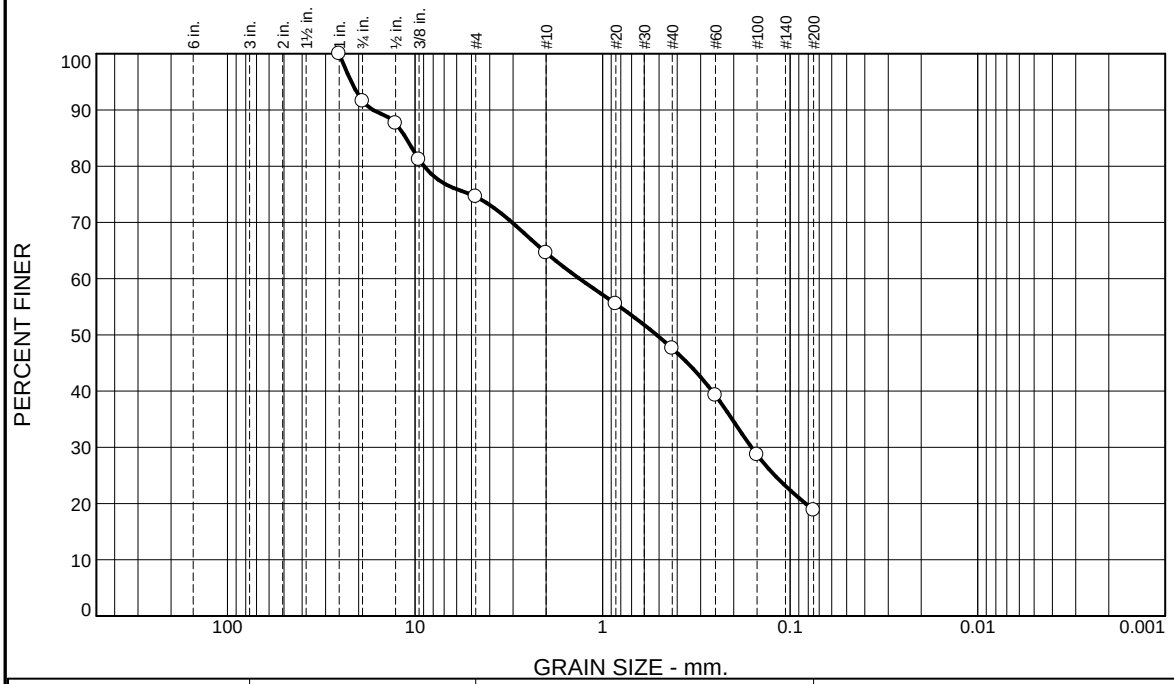
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-358

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.4	17.0	10.0	17.0	28.8	18.8	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	91.6		
0.5"	87.6		
0.375"	81.2		
#4	74.6		
#10	64.6		
#20	55.5		
#40	47.6		
#60	39.2		
#100	28.7		
#200	18.8		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 16.7831 D_{85}= 11.1706 D_{60}= 1.3258
D_{50}= 0.5152 D_{30}= 0.1606 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

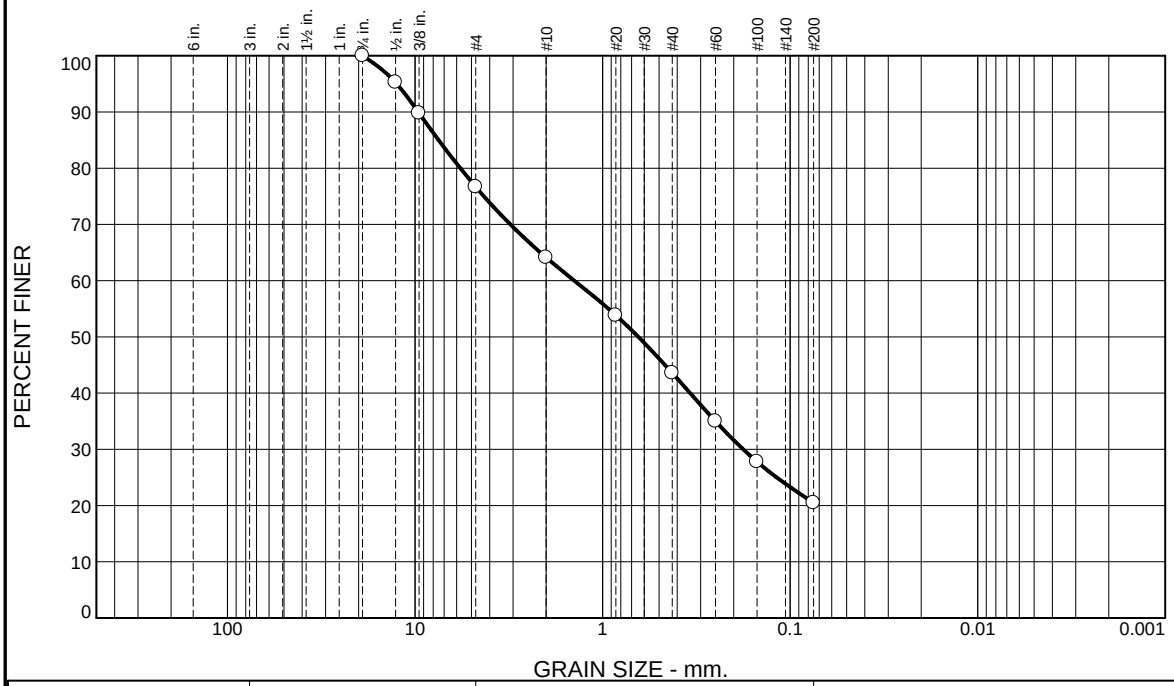
Source of Sample: Borings **Depth:** 1-3' **Date Sampled:**
Sample Number: R-18 / S-1

Thielsch Engineering Inc.

Cranston, RI

Client: Down To Earth Consulting, LLC
Project: Pickett District Road
New Milford, CT
Project No: 0015-011.00 **Figure** 19-S-359

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	23.3	12.6	20.5	23.1	20.5	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	95.3		
0.375"	89.8		
#4	76.7		
#10	64.1		
#20	53.8		
#40	43.6		
#60	35.0		
#100	27.8		
#200	20.5		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 9.6243 D_{85}= 7.4828 D_{60}= 1.4143
D_{50}= 0.6448 D_{30}= 0.1779 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 0.75-1' **Date Sampled:**
Sample Number: R-6 / GRAB

Thielsch Engineering Inc.

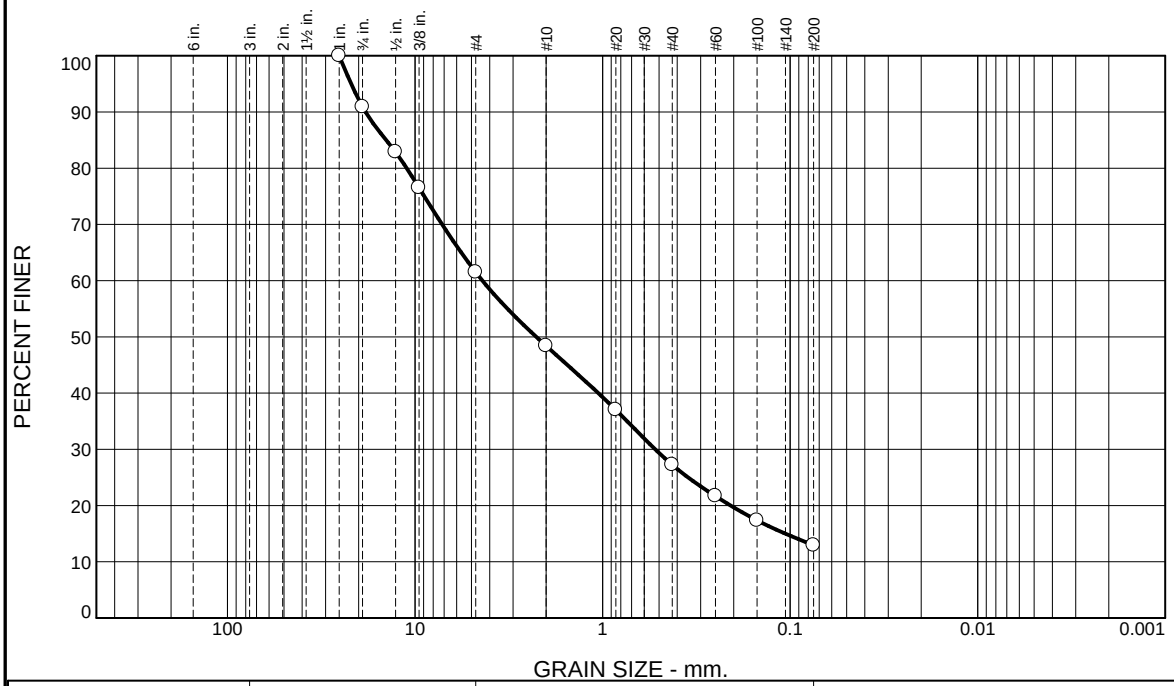
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-360

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.1	29.4	13.1	21.2	14.3	12.9	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	90.9		
0.5"	82.9		
0.375"	76.5		
#4	61.5		
#10	48.4		
#20	37.0		
#40	27.2		
#60	21.7		
#100	17.4		
#200	12.9		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 18.3643 D_{85}= 14.2504 D_{60}= 4.3706
D_{50}= 2.2568 D_{30}= 0.5241 D_{15}= 0.1059
D_{10}= C_u= C_c=

Remarks

Date Received: 2.14.19 **Date Tested:** 2.19.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 0.5-1' **Date Sampled:**
Sample Number: R-10 / GRAB

Thielsch Engineering Inc.

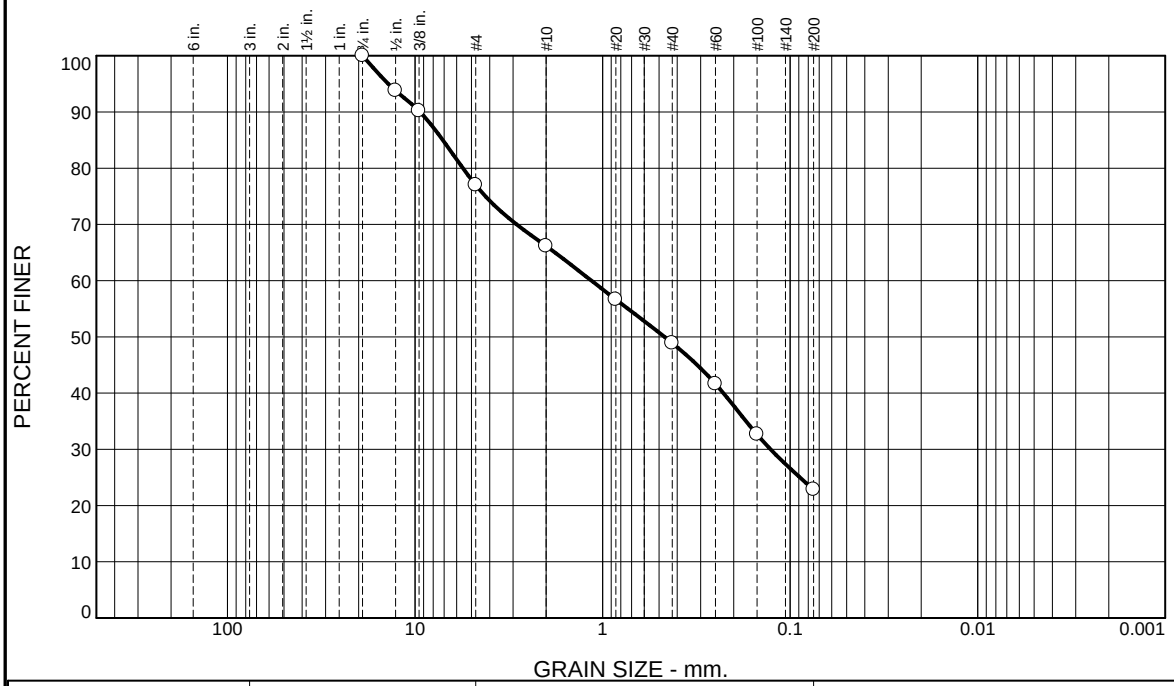
Cranston, RI

Client: Down To Earth Consulting, LLC

Project: Pickett District Road
New Milford, CT

Project No: 0015-011.00 **Figure** 19-S-361

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	23.0	10.8	17.3	26.1	22.8	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	93.8		
0.375"	90.2		
#4	77.0		
#10	66.2		
#20	56.6		
#40	48.9		
#60	41.6		
#100	32.6		
#200	22.8		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 9.4017 D_{85}= 7.1053 D_{60}= 1.1462
D_{50}= 0.4674 D_{30}= 0.1271 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample had a strong gas smell.

Date Received: 2.14.19 **Date Tested:** 2.20.19

Tested By: MN / ZS

Checked By: Rebecca Roth

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 0.5-1' **Date Sampled:**
Sample Number: R-13 / GRAB

Thielsch Engineering Inc.

Cranston, RI

Client: Down To Earth Consulting, LLC
Project: Pickett District Road
New Milford, CT
Project No: 0015-011.00 **Figure** 19-S-362

APPENDIX 4 -

LIMITATIONS

LIMITATIONS

Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from subsurface explorations by Down To Earth Consulting, LLC (DTE) and others. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.

3. Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors occurring since the time measurements were made.

Review

4. In the event that any changes in the nature, design or location of the proposed roadway is planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by DTE. It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

Construction

5. It is recommended that this firm be retained to provide soil engineering services during construction of the earthworks and foundation phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

Use of Report

6. This report has been prepared for the exclusive use of Alfred Benesch and Company for specific application to the project noted in this geotechnical report in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

7. This soil and foundation engineering report has been prepared for this project by DTE. This report is for design purposes only and is not sufficient to prepare an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to design considerations only.

8. This report may contain comparative cost estimates for the purpose of evaluating alternative foundation schemes. These estimates may also involve approximate quantity evaluations. It should be noted that quantity estimates may not be accurate enough for construction bids. Since DTE has no control over labor and materials cost and design, the estimates of construction costs have been made on the basis of experience. DTE does not guarantee the accuracy of cost estimates as compared to contractor's bids for construction costs.

APPENDIX C
INLAND WETLAND PERMIT

TOWN OF NEW MILFORD

Town Hall
10 Main Street
New Milford, Connecticut 06776
Telephone (860) 355-6083 • Fax (860) 210-2664

Office of Inland Wetlands Commission

CERTIFIED: RETURN RECEIPT

May 10, 2019

Michael Zarba
Director of Public Works
Town of New Milford
10 Main Street
New Milford, CT 06776

RE: **DPW, Town of New Milford, A19-019, Pickett District Road, road improvements.**

To Whom It May Concern:

At the meeting of the New Milford Inland Wetlands Commission held May 9, 2019 the Commission reviewed the above referenced permit application. The Commission moved to APPROVE WITH CONDITIONS the application for DPW, Town of New Milford, A19-019, Pickett District Road, road improvements, according to the map plan set entitled "Pickett District Road Improvements; Roadway Plans", dated June 2017 and the information contained in the application. The expiration date of this permit is May 9, 2024.

Conditions of approval:

1) All fill or other construction debris from the project shall be stored at a location approved by the Wetlands Enforcement Officer including off site storage and staging areas.

2) The Town shall replace curbing at existing locations and in locations necessary to direct water into catchbasins.

3) The Town shall not create new drainage outflows or inter connect drainage system or watersheds between existing drainage systems as the potential impact of water diversion has not been studied.

4) During construction all debris piles, scrap metal and garbage shall be disposed of in a proper manner.

5) There shall be no grading, clearing, landscaping, or deposition of materials outside of the proposed work area as outlined on the approved plan.

6) No future dumping, composting, clearing or construction is allowed within regulated areas

without a permit.

7) The applicant shall employ Best Management Practices for the control of erosion and sedimentation at all times during construction consistent with the "Guidelines for Soil Erosion and Sediment Control" revised 2002, published by the Connecticut Council on Soil and Water Conservation.

8) If any changes in these plans are required for any reason that may affect wetlands, watercourses, drainage or regulated areas, the changes must be submitted to and approved by the Inland Wetlands Commission prior to the activity taking place. Failure to submit changes to the Commission will void this permit.

9) This permit is subject to the "General Provisions".

In conclusion, in the Commissions judgment, the subject project will have only those impacts outlined in the application on wetlands and watercourses providing all conditions are followed along with Best Management Practices. The Wetlands Commission finds that alternative designs for this project while obtaining the applicants basic goals would offer similar impacts to the property and thus similar potential impacts to wetlands and watercourses on site.

State Statute provides for a 15-day appeal period on the Commission's decision. This is measured from the date of publication of the Commission's decision in a Newspaper having general circulation within New Milford.

Thank you for protecting New Milford's wetland and watercourse resources. If you have any questions, please contact the wetland's office.

Sincerely,

James Ferlow
Wetlands Enforcement Officer

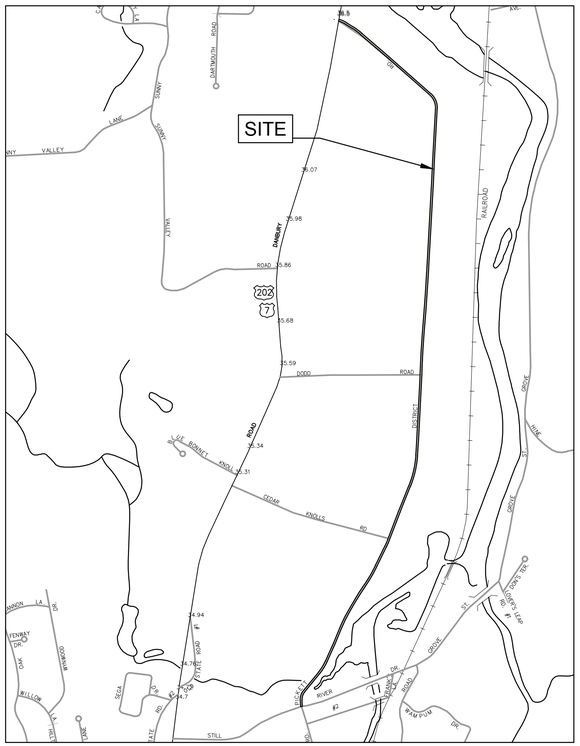
copy: file

RECONSTRUCTION OF PICKETT DISTRICT ROAD

NEW MILFORD, CONNECTICUT
BENESCH PROJECT # 70531.01

1707

LOCATION MAP



MAY 2019

CONSTRUCTION PLANS

PICKETT DISTRICT ROAD

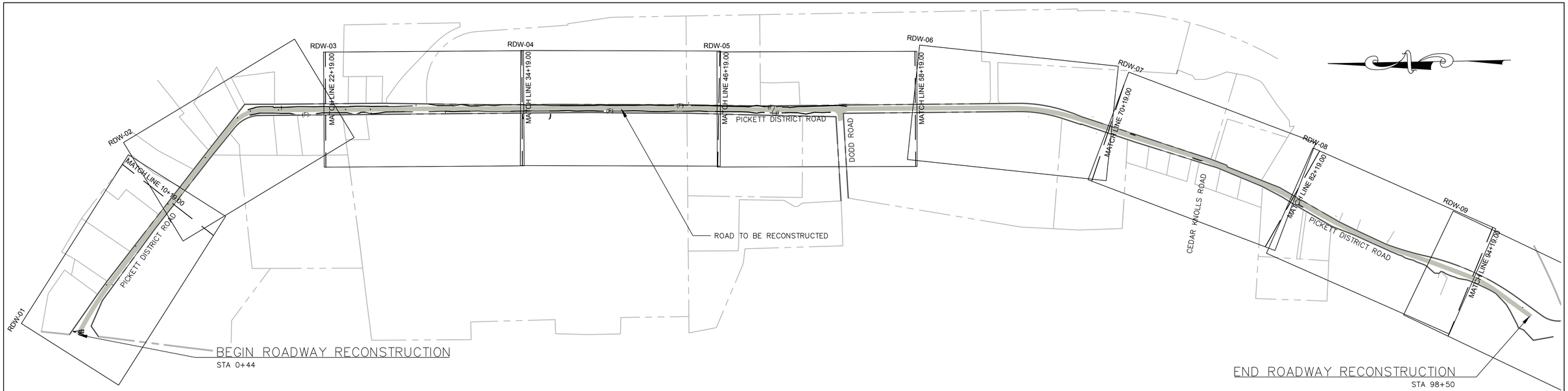
PROJECT LENGTH: 9,806 LF
BEGIN STA: 0+44
END STA: 98+50

LIST OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
1		TITLE SHEET
2	IND-01	INDEX PLAN & GENERAL NOTES
3	TYP-01	TYPICAL CROSS SECTIONS
4-5	MSD-01-02	MISCELLANEOUS DETAILS
6-15	SV-01-10	EXISTING CONDITIONS
16-24	RDW-01-09	ROADWAY PLANS
25-33	PRO-01-09	ROADWAY PROFILES
34	INT-01	INTERSECTION GRADING PLANS
35-62	XSC-01-28	CROSS SECTIONS
63-67		HIGHWAY GUIDE SHEETS
68-70		TRAFFIC GUIDE SHEETS
73-78		HIGHWAY STANDARD SHEETS
79-83		TRAFFIC STANDARD SHEETS

PREPARED BY

benesch



1 INDEX PLAN

Scale: 1" = 300'

GENERAL NOTES:

1. MAPPING AND SURVEY WERE PREPARED BY ALFRED BENESCH & CO., 90 NATIONAL DRIVE, GLASTONBURY, CT. THE CONTRACTOR SHALL VERIFY SURVEY INFORMATION BEFORE CONSTRUCTION.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
3. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R & R).
4. ALL EXISTING STATE, COUNTY, CITY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1.800.922.4455, AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION.
6. UTILITIES SHOWN HAVE BEEN COMPILED BASED ON FIELD SURVEY AND INFORMATION FURNISHED BY THE UTILITY OWNERS. ACCURACY, LOCATION AND COMPLETENESS IS NOT GUARANTEED TO BE CORRECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THE LOCATION OF ALL UTILITIES WHICH MAY AFFECT THE WORK.
7. WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
8. ALL EXISTING UTILITY GATE BOXES, MANHOLE FRAMES AND COVERS, CATCH BASIN FRAMES AND GRATES AND OTHER CASTINGS TO BE RETAINED SHALL BE ADJUSTED TO LINE AND/OR GRADE.
9. WORK REQUIRED ON ELECTRIC, GAS, CABLE T.V. OR TELEPHONE STRUCTURES AND LINES SHALL BE CARRIED OUT BY THE OWNER OF THAT UTILITY. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS TO COORDINATE THE ALTERATION AND ADJUSTMENT OF THESE AND ANY OTHER PRIVATE UTILITIES WITH THE UTILITY COMPANIES.
10. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE PROVIDED FOR UNDER CONTRACT ITEMS.
11. ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM BORROW PLACED AND SEEDED. THE LOAM BORROW SHALL HAVE A MINIMUM DEPTH OF 4" AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.
12. CATCH BASINS DAMAGED OR FILLED WITH SEDIMENTATION DURING THE CONSTRUCTION PROCESS SHALL BE CLEANED, FLUSHED, REPAIRED AND/OR REPLACED AT CONTRACTOR'S EXPENSE.
13. PUBLIC OR PRIVATE PROPERTIES, BEYOND THE WORK LIMITS, SUCH AS MAIL BOXES, LIGHT POLES, SIDEWALKS, SHRUBS, FENCES, STREET SIGNS, ETC. DAMAGED OR DISTURBED SHALL BE FIXED/REPLACED AT THE CONTRACTOR'S EXPENSE, AS DIRECTED BY THE ENGINEER.
14. ANY PRIVATELY OWNED LAWN AREAS BEYOND THE WORK LIMIT, DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE SODDED AT CONTRACTOR'S EXPENSE.
15. IMMEDIATELY PRIOR TO PLACING NEW HOT MIX ASPHALT ADJACENT TO EXISTING HOT MIX ASPHALT, THE VERTICAL FACE SHALL BE CLEANED AND COATED WITH BITUMEN FOR TACK COAT.
16. TOWN LAYOUT LINES SHOWN HAVE BEEN COMPILED BASED ON ACTUAL FIELD SURVEY, LATEST PLANS AND CITY OF SOMERS RECORDS. ACCURACY, LOCATION AND COMPLETENESS IS NOT GUARANTEED.
17. BEFORE ANY DRAINAGE STRUCTURES ARE CONSTRUCTED OR CONNECTIONS ARE MADE THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES AND DRAINAGE INVERTS TO AVOID CONFLICTS WITH UTILITIES, UNLESS OTHERWISE NOTED ON THE CONSTRUCTION PLANS OR DIRECTED BY THE ENGINEER.
18. TREES AND SHRUBS NOT NOTED TO BE REMOVED, AND TREE AND SHRUBS NOTED "SAVE" ON THE DRAWINGS, SHALL BE PROTECTED BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS. TREE AND SHRUB PROTECTION MEASURES SHALL NOT BE MEASURED FOR PAYMENT. COSTS ASSOCIATED WITH PROTECTING TREES AND SHRUBS SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS, AND NO ADDITIONAL PAYMENT SHALL BE MADE TO THE CONTRACTOR. TREES OR SHRUBS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN-KIND BY THE CONTRACTOR AT HIS OR HER OWN EXPENSE.

GENERAL LEGEND

EXISTING	PROPOSED	
		STATE BOUNDARY LINE
		CITY, TOWN OR COUNTY BOUNDARY LINE
		STATE HIGHWAY LAYOUT LINE
		CITY, TOWN OR COUNTY LAYOUT LINE
		EASEMENT LINE
		PROPERTY LINE
WF		EDGE OF VEGETATED WETLAND/WETLAND FLAG
		HIGHWAY/PROPERTY BOUND (TYPE NOTED)
S N00°00'00"E +93.16	PC S N00°00'00"E +93.164	CONSTRUCTION/SURVEY BASELINE
		TREE (TYPE & SIZE NOTED)
		EDGE OF WOODS/SHRUBS
		WHEELCHAIR RAMP
		BENCH
MB	MB	MAIL BOX
PM	PM	PARKING METER
		SIGN & POST
X X X	X X X	FENCE (SIZE & TYPE AS NOTED)
		HIGHWAY GUARD (TYPE AS NOTED)
		BALANCED WALL (SIZE & TYPE AS NOTED)
		RETAINING WALL (SIZE & TYPE AS NOTED)
76	76	CONTOURS
100.00 100.50 / 100.00	×100.00 100.50 / 100.00	SPOT ELEVATION, TOP AND BOTTOM CURB
	EOP	CURB OR BERM (TYPE AS NOTED)
EOP		EDGE OF PAVEMENT (NO CURB OR BERM)
		BACK OF SIDEWALK
		TOP OR BOTTOM OF SLOPE (CUT OR FILL)
		SAWCUT LINE
		GRANITE RUBBLE BLOCK PAVEMENT
		SCORED CONCRETE PAVEMENT
	Boring B-2	BORINGS, PAVEMENT CORES
D UD	D	DRAIN LINE
		SUBDRAIN (PERFORATED)
		DIRECTION OF FLOW
		PAVED WATERWAY

EXISTING	PROPOSED	
DMH	MH	MANHOLE
CB,GI,DI	PCCB	PRECAST CONCRETE CATCH BASIN
CBCI,CBGI	CBCI,CBGI	CATCH BASIN (OR GUTTER INLET) WITH CURB INLET
LB		LEACHING BASIN
FE		R.C. CULVERT END
HDWL		HEADWALL
S	S	SEWER LINE
SMH	SMH	SEWER MANHOLE
CS	CS	COMBINED SEWER LINE
CSMH	CSMH	COMBINED SEWER MANHOLE
FMGV		FORCE MAIN GATE VALVE
W	W	WATER MAIN
WMH	WMH	WATER MANHOLE
HYD		HYDRANT
FA,FSP	FA,FSP	FIRE ALARM BOX, FIRE STAND PIPE
		REDUCER
CS,WSO		CURB STOP OR WATER SHUT OFF
WG	WG	WATER GATE
G	G	GAS MAIN
GG	GG	GAS GATE
GSO	GSO	GAS SHUT OFF
E	E	ELECTRICAL LINE OR DUCT
		ELECTRICAL CONDUIT
EMH	EMH	ELECTRICAL MANHOLE
EHH		ELECTRICAL HANDHOLE
PB	PB	PULL BOX (300mm x 300mm)
JB,SB	JB,SB	ELECTRICAL JUNCTION OR SWITCH BOX
LCC		TRAFFIC SIGNAL CABINET W/ FDN
LP		LIGHT POLE
U.P.#		UTILITY POLE
GUY	GUY	GUY WIRE & ANCHOR
T	T	TELEPHONE LINE OR DUCT
TMH	TMH	TELEPHONE MANHOLE
ST	ST	STEAM LINE
STMH	STMH	STEAM MANHOLE/TUNNEL HATCH
		PLUG OR CAP
		DELINEATOR
OH	OH	OVERHEAD WIRES
CATV	CATV	CABLE TV
		HAYBALES

GENERAL ABBREVIATIONS

ABAN	ABANDON
ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
ADJ	ADJUST
APPROX	APPROXIMATE
BC	BOTTOM OF CURB
BCLC	BITUMINOUS CONCRETE LIP CURB
BD	BOUND
BIT CONC	BITUMINOUS CONCRETE
BO	BY OTHERS
BM	BENCH MARK
BW	BOTTOM OF WALL
CEM CONC	CEMENT CONCRETE
CCB	CAPE COD BERM
CI	CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CLR	CLEARANCE
CLF	CHAIN LINK FENCE
CLDI	CEMENT LINED DUCTILE IRON
CMP	CORRUGATED METAL PIPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
DR	DRIVEWAY
ELEV OR EL	ELEVATION
EOP	EDGE OF PAVEMENT
ETW	EDGE OF TRAVELED WAY
EXIST	EXISTING
F & C	FRAME AND COVER
F & G	FRAME AND GRATE
FDN	FOUNDATION
FND	FOUND
FWD	FILLED WITH DEBRIS
GRAN	GRANITE
INV	INVERT
L.O. LINE	LAYOUT LINE
MAX	MAXIMUM
MIN	MINIMUM
MHB	MASSACHUSETTS HIGHWAY BOUND
MHD	MASSACHUSETTS HIGHWAY DEPARTMENT
MLB	MODIFIED LOAM BORROW
MON	MONUMENT
NIC	NOT IN CONTRACT
NGVD	NATIONAL GEODETIC VERTICAL DATUM
N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRE
PROP	PROPOSED
PVC	POLYVINYLCHLORIDE PIPE
PVMT	PAVEMENT
PWW	PAVED WATERWAY
R & D	REMOVE AND DISPOSE
R & R	REMOVE AND RESET
R & S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RCP	REINFORCED CONCRETE PIPE
RET	RETAIN
ROW	RIGHT OF WAY
RR	RAILROAD
SB	STONE BOUND
SB/DH	STONE BOUND/DRILL HOLE
SHLD	SHOULDER
SHLO	STATE HIGHWAY LAYOUT
STA	STATION
STL	STEEL
TC	TOP OF CURB
TOS	TOP OF SLOPE
TBM	TEMPORARY BENCH MARK
TS	TRAFFIC SIGNAL
TSV & B	TAPPING SLEEVE, VALVE AND BOX
TYP	TYPICAL
TW	TOP OF WALL
UC	UNDER CONSTRUCTION
USGS	U.S. GEOLOGICAL SURVEY
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
WCR	WHEELCHAIR RAMP

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 300 600
SCALE 1"=300'

TOWN OF NEW MILFORD

CONSULTANT: benesch

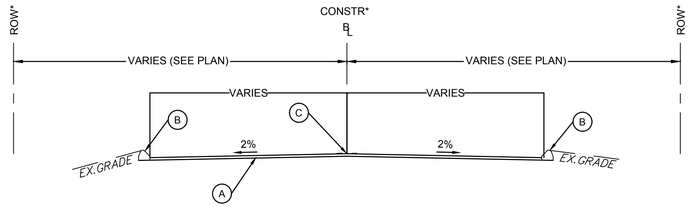
PROJECT TITLE: PICKETT DISTRICT ROAD IMPROVEMENTS

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: INDEX PLAN

PROJECT NO. 70531.01
DRAWING NO. IND-01
SHEET NO. 2

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_IDX.dwg



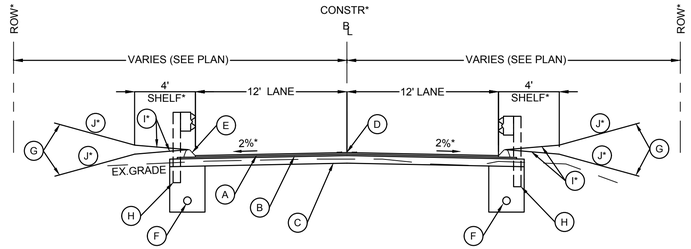
MILL AND OVERLAY (STA. 00+44 - 17+41 & STA. 54+50 - 98+50)

N.T.S.

NOTE:
1. CONTRACTOR SHALL ELIMINATE LOW POINTS AND RE-ESTABLISH CENTER CROWN.

LEGEND

- Ⓐ 2" MILL AND OVERLAY WITH BITUMINOUS CONCRETE PAVEMENT CLASS 2
- Ⓑ 6" BITUMINOUS CURB (SHOWN FOR REFERENCE ONLY)
- Ⓒ POINT OF APPLICATION OF GRADE



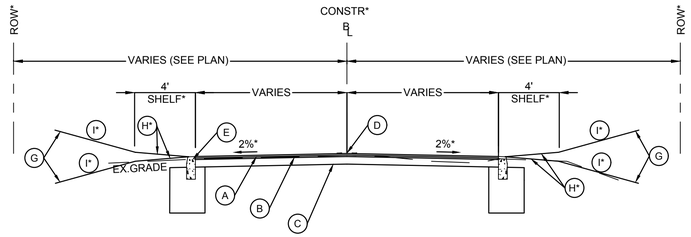
FULL DEPTH RECONSTRUCTION (STA. 17+41 - 27+99 & 44+13 - 54+50)

N.T.S.

NOTE:
1. * REFER TO CROSS-SECTIONS
2. FOR ADD-ALTERNATE #1 (PERFORATED PIPE IN SUBBASE) REFER TO MISCELLANEOUS DETAILS (MSD-01 FOR DETAIL.

LEGEND

- Ⓐ 2" BITUMINOUS CONCRETE, CLASS 2
- Ⓑ 3" BITUMINOUS CONCRETE, CLASS 1 IN TWO EQUAL LIFTS
- Ⓒ 12" SUBBASE (M.02.06 GRADING B)
- Ⓓ POINT OF APPLICATION OF GRADE
- Ⓔ CURBING (WHERE SHOWN ON PLANS AND TYPE AS SHOWN ON PLANS)
- Ⓕ 4"Ø PERFORATED UNDERDRAIN (WHERE SHOWN ON PLANS)
- Ⓖ TURF ESTABLISHMENT (WHERE SHOWN ON PLANS)
- Ⓗ METAL BEAM RAIL (WHERE SHOWN ON PLANS)
- Ⓘ 12:1 MAXIMUM SIDE SLOPE (WHERE SHOWN ON PLANS)
- Ⓙ 2:1 MAXIMUM SIDE SLOPE (WHERE SHOWN ON PLANS)



COLD RECLAIM (STA. 27+99 - 44+13)

N.T.S.

NOTE:
1. * REFER TO CROSS-SECTIONS
2. FOR ADD-ALTERNATE #1 (PERFORATED PIPE IN SUBBASE) REFER TO MISCELLANEOUS DETAILS (MSD-01) FOR DETAIL.
3. CONTRACTOR SHALL ELIMINATE LOW POINTS AND RE-ESTABLISH CENTER CROWN.

LEGEND

- Ⓐ 2" BITUMINOUS CONCRETE, CLASS 2
- Ⓑ 3" BITUMINOUS CONCRETE, CLASS 1 IN TWO EQUAL LIFTS
- Ⓒ 12" COLD RECLAIM BASE MATERIAL
- Ⓓ POINT OF APPLICATION OF GRADE
- Ⓔ 6" PRECAST CONCRETE CURBING FLUSH (WHERE SHOWN ON PLANS)
- Ⓖ TURF ESTABLISHMENT (WHERE SHOWN ON PLANS)
- Ⓗ 12:1 MAXIMUM SIDE SLOPE (WHERE SHOWN ON PLANS)
- Ⓘ 2:1 MAXIMUM SIDE SLOPE (WHERE SHOWN ON PLANS)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE AS NOTED

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_TYP.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: TYPICAL ROADWAY SECTIONS

PROJECT NO. 70531.01
DRAWING NO. TYP-01
SHEET NO. 3

Border Version: 11/29/13

EROSION AND SEDIMENTATION CONTROL NARRATIVE FOR:
PICKETT DISTRICT ROAD CULVERTS
NEW MILFORD, CONNECTICUT

I. INTRODUCTION

The erosion and sediment control plan has been prepared as part of the construction plans for Pickett District Road in New Milford, Connecticut. Information relating to sedimentation and erosion control is included in these Drawings. All sedimentation and erosion control activities shall be in compliance with the Stormwater Pollution Prevention Plan prepared for this project.

II. NARRATIVE

A. DESCRIPTION OF DEVELOPMENT

The project site is approximately 9,800 feet of roadway located on Pickett District Road in New Milford, CT. The proposed construction to the site consist of removal of existing pavement and curbing, mill and overlay, pavement reclaim, full depth reconstruction, installation of new storm drainage, pavement, and curbing.

B. CONSTRUCTION AND GRADING SCHEDULE

1. CONSTRUCTION SEQUENCE

a. Erosion and Sediment Control

(1.) Install haybales and silt fence as shown on the drawing or as directed by the Construction Administrator.
(2.) Provide temporary sedimentation traps as necessary to control runoff. Provide 134 cy of storage per acre of disturbed area. Direct overland flow with the use of channels and berms to the basin location. Relocate temporary sedimentation basins as site conditions warrant. Sedimentation basin shall not be located within 100 feet of the wetlands.
(3.) Install Temporary Construction Entrance as shown on the drawings or as directed by the Construction Administrator.

b. Clearing and Grubbing

(1.) Strip and clear area for the proposed improvements.
(2.) No vegetation shall be cut outside of the established and approved clearing area. Under no circumstances shall trees greater than 4 inches in diameter be cut unless proper review and approval by the Construction Administrator has been obtained. Dispose of cleared items at an approved off-site disposal area.

c. Site Excavation and Grading

(1.) Strip and Stock topsoil. Install silt fence around stockpile as required. The side slopes of stockpiled material shall be no steeper than 2:1. Stockpiles that are not to be used within 30 days shall be seeded and mulched immediately after formation of the stockpile or as directed by the Construction Administrator.
(2.) Relocate or install additional silt fence or hay bales to fully enclose and control all work areas as directed by the Construction Administrator.
(3.) As site grading progresses, provide temporary channels, settling basins, or berms as necessary to direct site runoff to the proposed or existing drainage structures as directed by the Construction Administrator at no additional cost to the owner.
(4.) The contractor shall stockpile all excess excavated material as directed by the Construction Administrator. Silt fence shall be placed around the perimeter of all stockpiles. Excess material that will not be reused shall be taken offsite immediately.
(5.) Replace clogged sedimentation control bales as required and clean sediment from basins when accumulation sediment exceeds 8" in depth at no additional cost to the owner.
(6.) Sediment buildup along silt fence protection shall be removed when it is half the height of the silt fence.

d. Storm Drainage Structures

(1.) As soon as possible construct storm drainage systems on-site.
(2.) Following construction of catch basins and other inlets, provide hay bales around all inlets to prevent sediment from entering newly constructed or existing drainage systems.

e. Rough Grading and Paving of Roadway

(1.) Sediment and erosion controls within the parking areas and access roads shall be left in place until immediately before paving. Measures outside of the paved area shall remain until a stable vegetative growth has been established on all slopes or until directed by the Construction Administrator.

f. Final Items

(1.) Clean all catch basins and storm manholes of all accumulated sediment as directed by the Construction Administrator.
(2.) Remove all silt fence barriers unless directed otherwise by the Construction Administrator.

2. CONTINGENCY PLANS FOR FAILED EROSION AND SEDIMENTATION CONTROL MEASURES

1. Failed erosion and sedimentation control measures will be evaluated on a case by case basis by the Construction Administrator and appropriate measures taken. These measures may include cleaning and/or replacement of defective facilities or installation of new or supplemental facilities at no additional cost to the owner.

C. DESIGN CRITERIA

The following design references were followed for the preparation of storm drainage design and erosion and sediment control plans:

1. "Connecticut Department of Transportation Drainage Manual"
2. "2002 Connecticut Guidelines for Soil Erosion and Sediment Control" by The Connecticut Council on Soil and Water Conservation in Cooperation with the Connecticut Department of Environmental Protection, DEP Bulletin 34.

D. CONSTRUCTION DETAILS

Construction details for the proposed project are presented on the detail sheets. Additional details can be found in Chapter 5 of the "2002 Connecticut Guidelines for Soil Erosion and Sediment Control"

E. INSTALLATION PROCEDURES

The installation procedures for stormwater management facilities and erosion and sedimentation control measures are presented in the projects technical specifications for Drainage; and Sedimentation and Erosion Control. Additional installation procedures are shown on the construction details both graphically and by use of construction notes.

F. OPERATION AND MAINTENANCE

1. DURING CONSTRUCTION

As contained in the Sedimentation and Erosion Control Specifications, operations and maintenance during construction will consist of periodic replacement, relocation, and/or cleaning of clogged hay bales, silt fence, temporary sedimentation basins and construction entrances at no additional cost to the owner. The Contractor's Representative will provide periodic inspection of erosion control systems. The Contractor shall place, repair or replace erosion control measures identified by the Owner within 24 hours. All drainage structures shall be inspected on daily basis and any necessary corrective action taken, at no additional cost to the owner.

No equipment, storage, or temporary lay down is allowed within the wetland limit.

2. LONG TERM

Upon completion of construction all catch basins and stormwater manholes will be cleaned of all accumulated sediment. Thereafter, an inspection should be made by the Contractor after each storm event and each spring following the end of all pavement sanding operations. Sediment shall be removed whenever the thickness of accumulated sediment reaches 12" or more. More frequent inspection and cleaning may be required and will be determined once the system is in operation.

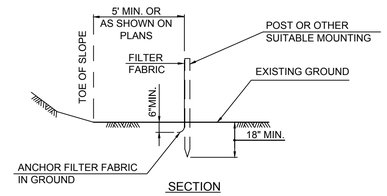
All paved surfaces should be cleaned on a regular basis to avoid added sediment clogging of basin tops or pipes.

G. DESIGNATED ON-SITE AGENT

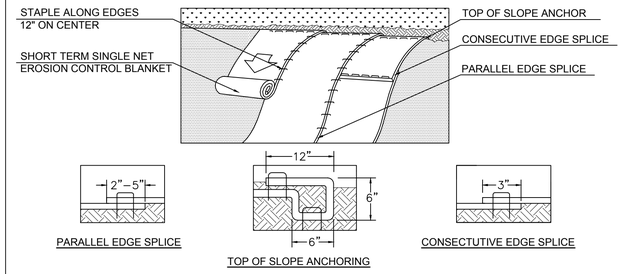
1. The Contractor shall inspect and repair as necessary all erosion and sedimentation controls at least once a week and after each storm event of 0.1 inches or greater. Detailed inspection reports shall be kept on file at an on-site location during the entire length of the construction phase.

2. The Contractor shall designate a responsible party to act as an on-site agent.

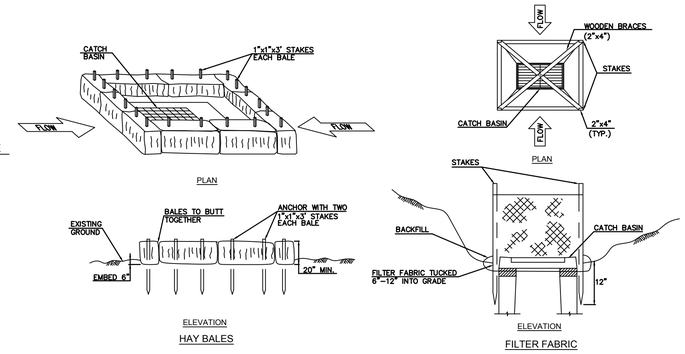
3. EMERGENCY CONTACT NUMBER: To be provided by Contractor.



SILT FENCE
N.T.S.

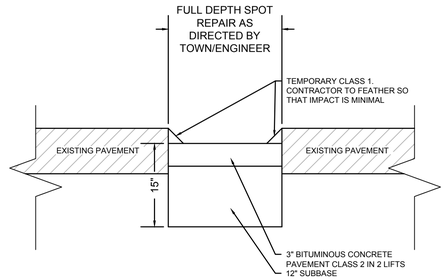


EROSION CONTROL BLANKET
N.T.S.

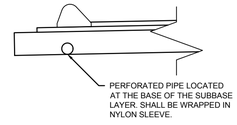


INLET PROTECTION AT TYPE "C-L" CATCH BASIN
SCALE: N.T.S.

DETAIL OF INLET SEDIMENT CONTROL DEVICE WITH CURB DEFLECTOR
SCALE: N.T.S.



CUTTING & PATCHING PAVEMENT
N.T.S.



PERFORATED PIPE IN SUBBASE (ADD-ALTERNATE #1)
N.T.S.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE AS NOTED

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01 E-S Details.dwg

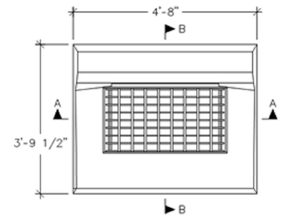
PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

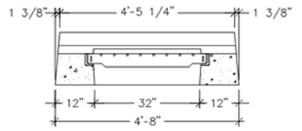
DRAWING TITLE: EROSION AND SEDIMENTATION CONTROL

PROJECT NO. 70531.01
DRAWING NO. MSD-01
SHEET NO. 4

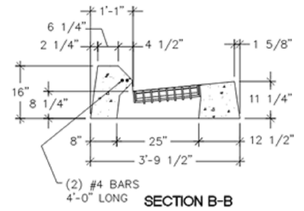
Border Version: 11/29/13



TOP PLAN VIEW



SECTION A-A



SECTION B-B

TYPE "C" BITUMINOUS CURB CATCH BASIN TOP

CONFORMS TO CTDOT STANDARD SHEET #HW-507_07, DATED 9-18-09.

DESIGN NOTES:
1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60, MIN. COVER 2" UNLESS NOTED. (ADD'L BARS ADDED FOR HANDLING BARS NOT SHOWN).
2. CONCRETE COMPRESSIVE STRENGTH- 4000 PSI AT 28 DAYS SELF COMPACTING CONCRETE MIX.
3. METHOD OF MANUFACTURE: WET CAST
4. SECTION IS MONOLITHIC.
5. GALVANIZED FRAME & GRATE.
6. GRATE- TYPE A OR B ARE AVAILABLE.

WEIGHT CHART

PRODUCT	APPROX. WEIGHT
TYPE "C" TOP	1700 LBS

UNITED CONCRETE PRODUCTS INC.
173 CHURCH STREET
YALESVILLE, CT 06492
TEL. 800 234-3119
(203) 269-3119
FAX. (203) 265-4941

TOWN OF MILFORD STANDARD CATCH BASIN TOP
FOR TYPE 'C' CATCH BASINS

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE AS NOTED

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

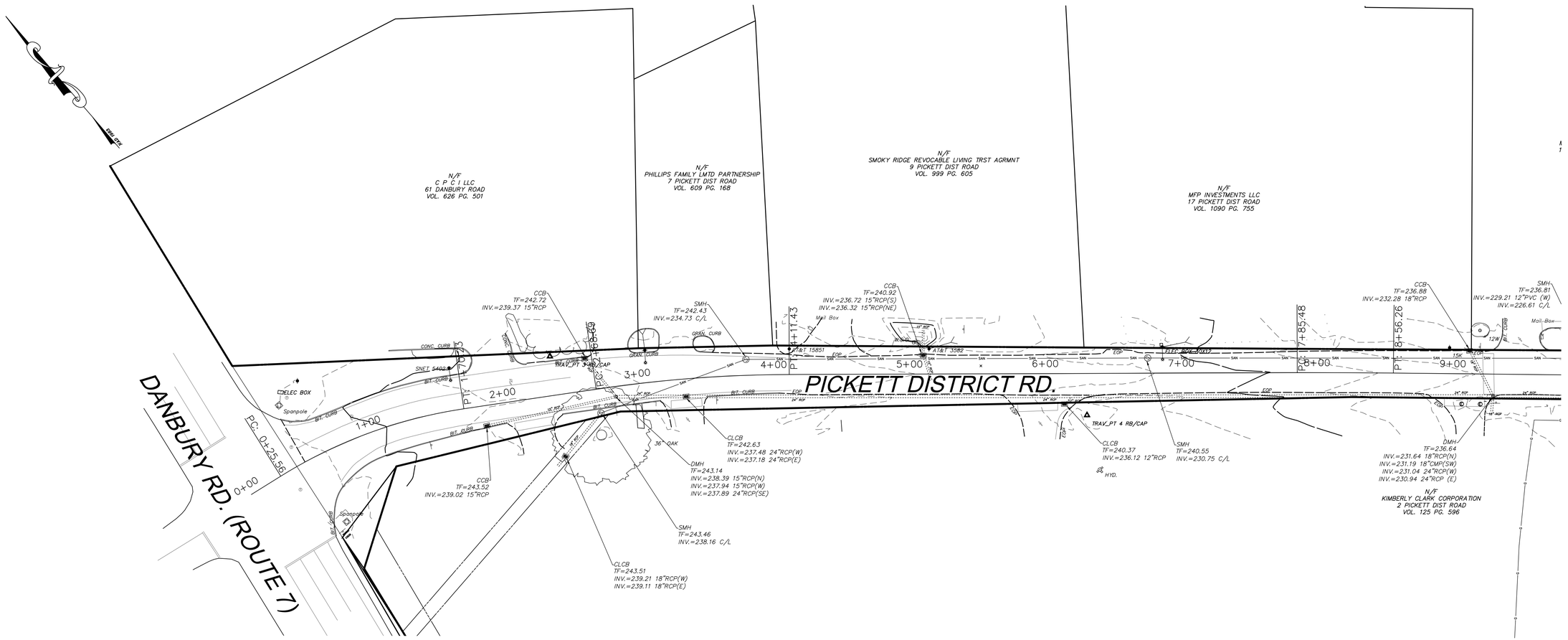
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: MISCELLANEOUS DETAILS

PROJECT NO. 70531.01
DRAWING NO. MSD-02
SHEET NO. 5

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01 E-S Details.dwg

Border Version: 11/29/13



LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

- E — ELECTRIC SERVICE
- G — GAS PIPES
- SAN — SANITARY SEWER PIPES
- STORM WATER PIPES (LESS THAN 12")
- STORM WATER PIPES (12" OR LARGER)
- STM — STREAM PIPES (SUPPLY & COND.)
- T — TELEPHONE SERVICE
- W — WATER PIPES
- COM — COMMUNICATION/FIBER OPTIC SERVICE
- FP — FIRE PROTECTION PIPES
- UG — UNKNOWN UTILITY SERVICE
- OH — OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

- PROPERTY/BOUNDARY LINES (CLASS A-2)
- PROPERTY/BOUNDARY LINES (CLASS D)
- EASEMENT LINES

FEATURE LINES

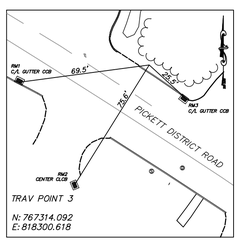
- CURBED ROADWAY
- EDGE OF PAVED ROAD/DRIVE
- BUILDING ROOFLINE (AERIAL PHOTOS)
- RETAINING WALL
- STOCKADE FENCE
- CHAIN LINK/WIRE FENCE
- TREE/VEGATATION LINE
- STONE WALL
- SURFACE WATER (WATERCOURSE)
- WETLANDS LIMIT
- EDGE OF LANDSCAPING
- INTERMEDIATE CONTOUR
- INDEX CONTOUR

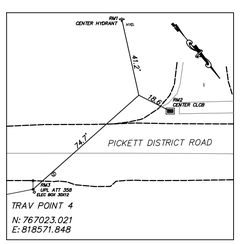
SYMBOL LEGEND

- CATCH BASIN
- ROUND DRAIN
- SQUARE DRAIN
- STORM DRAIN MANHOLE
- ELECTRIC MANHOLE
- SANITARY MANHOLE
- STEAM MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- MANHOLE (OF UNKNOWN TYPE)
- HAND HOLE (SQ. / REC.)
- W.G. WATER VALVE
- G.G. GAS VALVE
- HYDRANT
- COMBO STANDPIPE
- GUY WIRE
- SIGN (SINGLE POST)
- SIGN (DOUBLE POST)
- BORING (AS DRILLED)
- BORING (AS STAKED)
- x 427.3 SPOT ELEVATION
- WETLANDS FLAG
- PROPERTY MONUMENT
- UTILITY MONUMENT (SET AS 2' OFFSET)
- IRON PIPE OR REBAR FOUND
- IRRIGATION CONTROL BOX
- EMERGENCY PHONE
- TRAFFIC CONTROLLER CABINET
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- STREET LIGHT
- LIGHT POST
- BOLLARD LIGHT
- BOULDER / ROCK
- CONIFER SHRUB
- DECIDUOUS SHRUB
- DECIDUOUS TREE (SAPLING)
- DECIDUOUS TREE
- CONIFER TREE

ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
COM	COMMUNICATION
CON.	CONIFER
CONC.	CONCRETE
CNG	CONNECTICUT NATURAL GAS
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CL&P	CONNECTICUT LIGHT & POWER COMPANY
CP	CONTROL POINT
DEC.	DECIDUOUS
DMH	DRAINAGE MANHOLE
E	EAST OR ELECTRIC
EL.	ELECTRIC
ELEV.	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
F.L.	FLOW LINE
FND.	FOUND
GRAN.	GRANITE
GSTC	GRANITE STONE CURB
HELCO	HARTFORD ELECTRIC COMPANY
HYD.	HYDRANT
H.H.	HAND HOLE
L.P.	LIGHT POLE
MH	MANHOLE
M	METER
M.W.	MONITOR WELL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NATIONAL AMERICAN VERTICAL DATUM
NE	NORTHEAST
N/F	NOW OR FORMERLY
NW	NORTHWEST
PVC	POLYVINYL CHLORIDE
P.I.V.	POST INDICATOR VALVE
RET.	RETAINING
RCP	REINFORCED CONCRETE PIPE
R.L.	RAIN LEADER
S	SOUTH OR SUPPLY
SE	SOUTHEAST
SW	SOUTHWEST
SAN.	SANITARY
SMH	SANITARY MANHOLE
SNET	SOUTHERN NEW ENGLAND TELEPHONE
SQ.	SQUARE
STM	STEAM
TMH	TELEPHONE MANHOLE
TEL.	TELEPHONE
T.F.	TOP OF FRAME
UNK.	UNKNOWN
W	WATER OR WEST
W.G.	WATER GATE





MAP REFERENCES

1. "MAP PREPARED FOR THE TOWN OF NEW MILFORD SHOWING PROPERTY TO BE CONVEYED TO KIMBERLY CLARK CORPORATION OFF PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1 INCH = 50 FT. DATED APRIL 9, 1997 REVISED JUNE 2, 1997
2. "NEW YORK NEW HAVEN AND HARTFORD RAILROAD DEPARTMENT OF REAL ESTATE, RIGHT OF WAY, AND TAXES LAND IN NEW MILFORD, CONN TO BE CONVEYED BY THE BRIDGEPORT WOOD FISHING CO."
3. "MAP SHOWING EASEMENT AREA TO BE GRANTED TO THE CONNECTICUT LIGHT AND POWER COMPANY ACROSS THE PROPERTY OF KIMBERLY CLARK CORPORATION AND ONE ONE FIVE, LLC 58 PICKETT DISTRICT ROAD AND 115 DANBURY ROAD NEW MILFORD, CONNECTICUT." SCALE 1"=60'. DATED NOVEMBER 2007. BY URS CORPORATION AES
4. "PROPERTY & TOPOGRAPHIC SURVEY PREPARED FOR NEELTRAN, INC. 71 PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1"=40'. DATED 2-03-05. BY CCA, LLC
5. "MAP OF DOCKTOR BROTHERS PROPERTY OLD STATE ROAD & PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1"=100'. DATED SEPT. 7, 2004. BY ROBERT W. GROSSENBACHER, L.S.
6. "RIGHT OF WAY SURVEY PICKETT DISTRICT ROAD PUMP STATION SITE PREPARED FOR TOWN OF NEW MILFORD PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1"=40'. DATED 6-07-01. BY CCA, LLC
7. "MAP PREPARED FOR ANTONIO CAPANNA SR. PICKETT DISTRICT ROAD TOWN OF NEW MILFORD COUNTY OF LITCHFIELD STATE OF CONNECTICUT." SCALE 1"=40'. DATED DECEMBER, 1994. BY ARTHUR H. HOWLAND, L.S. & P.E.
8. "MAP PREPARED FOR MCNAMARA FAMILY PARTNERSHIP PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1 INCH = 40 FT. DATED AUGUST 15, 1988
9. "MAP PREPARED FOR ARMANDO D. ROBLES & JOHN E. MAROIS NEW MILFORD, CONNECTICUT." SCALE 1"=40'. DATED SEPT. 18,1971
10. "MAP SHOWING CAROLINE CONDOMINIUM PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1"=20'. DATED JANUARY 21, 1982
11. "FINAL PLAN PREPARED FOR WILLIAM H. DODD PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1 INCH = 100 FT. DATED JUNE 12, 1995. BY C. JAMES OSBORNE JR. LAND SURVEYING AND ENGINEERING
12. "LOT LINE REVISION SURVEY PREPARED FOR ALAN R. AND VALERIE P. SMITH #203 PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1"=40'. DATED MARCH 16, 2004. BY LINWOOD R. GEE & SON L.L.S.
13. "MAP PREPARED FOR PICKETT DISTRICT PROPERTIES, LLC 264 PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1 INCH = 40 FT. DATED JULY 28, 1999. BY OJOJ LLC
14. "MAP PREPARED FOR BRT CORPORATION PICKETT DISTRICT ROAD NEW MILFORD, CONNECTICUT." SCALE 1"=40'. DATED JANUARY 22, 1982
15. "MAP SHOWING PROPERTY LINDSTEDT OIL CO., INC. PICKETT DISTRICT, NEW MILFORD, CONN." SCALE 1"=100'. DATED OCTOBER, 1963. BY L.W. MARSH SURVEYOR

SURVEY NOTES

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300B-1 THRU 20-300B-20 AND THE "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
   1.1. THE TYPE OF SURVEY IS A RIGHT OF WAY, TOPOGRAPHIC AND GENERAL LOCATION SURVEY.
   1.2. THE BOUNDARY DETERMINATION CATEGORY IS RESURVEY.
   1.3. THE ACCURACIES ARE AS FOLLOWS:

HORIZONTAL CONTROL	CLASS "A-2"
VERTICAL CONTROL	CLASS "V-2"
RIGHT OF WAY	CLASS "A-2"
TOPOGRAPHY	CLASS "T-2"
SURFACE UTILITIES	CLASS "T-2"
UNDERGROUND UTILITIES	CLASS "D"
PROPERTY LINE/LOT LINE	CLASS "D"

2. THE COORDINATES AND ELEVATIONS DEPICTED ON THE PLAN REPRESENT THE NAD '83 AND THE NAVD '88 DATUMS. COORDINATES WERE ESTABLISHED ON THE SITE BASED UPON GPS OBSERVATIONS TAKEN ON JANUARY 13, 2019 USING TRIMBLE GNSS RTK R10 RECEIVERS AND SOLUTIONS PROVIDED THROUGH THE KEYNET NETWORK.
3. UNDERGROUND UTILITIES (IF DEPICTED) HAVE BEEN COMPILED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. THIS INFORMATION IS TO BE CONSIDERED APPROXIMATE AND ALFRED BENESCH & COMPANY DOES NOT TAKE RESPONSIBILITY FOR SUBSEQUENT ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THIS PLAN AS A RESULT. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCES OF WHICH ARE UNKNOWN TO ALFRED BENESCH & COMPANY. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION. CALL "CALL BEFORE YOU DIG" 1-800-922-4455.
4. THE PROPERTY LIES WITHIN THE "OTHER AREAS ZONE 'X' – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN." PER THE FIRM FLOOD INSURANCE RATE MAP NEW MILFORD, CONNECTICUT, LITCHFIELD COUNTY PANEL 18 OF 18 MAP NUMBER: 09004900018D EFFECTIVE DATE: JUNE 4, 1987

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS DEPICTED AND NOTED HEREON.

DAVID A. CARICCHIO, P.L.S. No. 70036 *DATE*
ALFRED BENESCH & COMPANY, GLASTONBURY, CONNECTICUT
(not valid without original signature and embossed seal)

REVISIONS		
No.	DATE	DESCRIPTION

SURVEY BOOK: 19-01
SURVEYOR: NC/CS/JD
DRAWN: CS/DC
CHECKED: DC
APPROVED: DC

SCALE: HORZ.: 1" = 40'
VERT.:
SURVEY DATUM: HORZ.: NAD 1983
VERT.: NAVD 1988

GRAPHIC SCALE
40 20 0 40

Prepared By:

benesch

Alfred Benesch & Company
120 Hebron Avenue - 2nd Floor
Glastonbury, Connecticut 06033
Phone (860) 633-4341, Fax: (860) 633-1068
www.benesch.com

RIGHT OF WAY / TOPOGRAPHIC SURVEY
PREPARED FOR
TOWN OF NEW MILFORD
PICKETT DISTRICT ROAD
NEW MILFORD CONNECTICUT

PROJ. No.: 70526.00
DATE: FEBRUARY 2019

SV-01

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Date of Plot: March 06, 2019 - 10:22 AM

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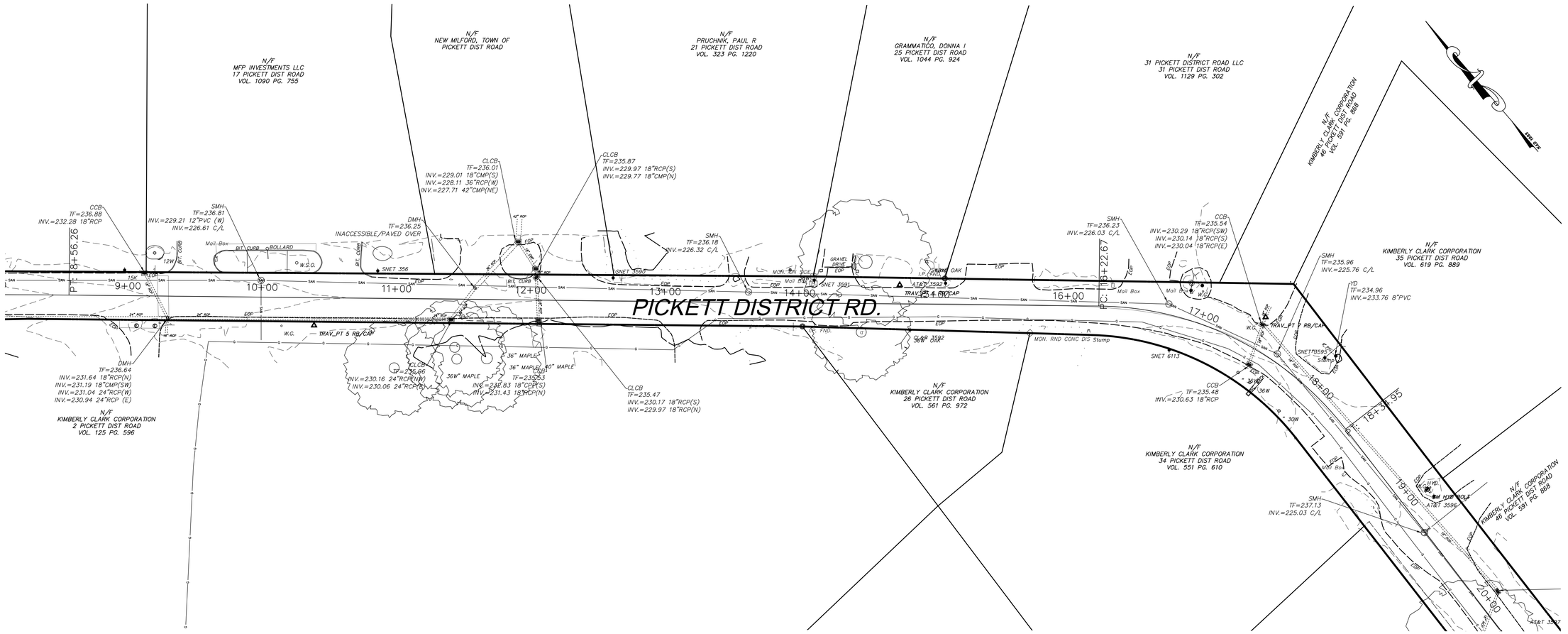

LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

E	ELECTRIC SERVICE
G	GAS PIPES
SAN	SANITARY SEWER PIPES
	STORM WATER PIPES (LESS THAN 12")
	STORM WATER PIPES (12" OR LARGER)
STM	STEAM PIPES (SUPPLY & COND.)
T	TELEPHONE SERVICE
W	WATER PIPES
COM	COMMUNICATION/FIBER OPTIC SERVICE
FP	FIRE PROTECTION PIPES
UG	UNKNOWN UTILITY SERVICE
OH	OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

	PROPERTY/BOUNDARY LINES (CLASS A-2)
	PROPERTY/BOUNDARY LINES (CLASS D)
	EASEMENT LINES

FEATURE LINES

	CURBED ROADWAY
	EDGE OF PAVED ROAD/DRIVE
	BUILDING ROOFLINE (AERIAL PHOTOS)
	RETAINING WALL
	STOCKADE FENCE
	CHAIN LINK/WIRE FENCE
	TREE/VEGATATION LINE
	STONE WALL
UNDISP	SURFACE WATER (WATERCOURSE)
UNDISP	WETLANDS LIMIT
UNDISP	EDGE OF LANDSCAPING
80	INTERMEDIATE CONTOUR
80	INDEX CONTOUR

SYMBOL LEGEND

	CATCH BASIN
	ROUND DRAIN
	SQUARE DRAIN
	STORM DRAIN MANHOLE
E	ELECTRIC MANHOLE
S	SANITARY MANHOLE
S	STEAM MANHOLE
T	TELEPHONE MANHOLE
W	WATER MANHOLE
M	MANHOLE (OF UNKNOWN TYPE)
	HAND HOLE (SQ. / REC.)
W.G.	WATER VALVE
G.G.	GAS VALVE
	HYDRANT
	COMBO STANDPIPE
	GUY WIRE
	SIGN (SINGLE POST)
	SIGN (DOUBLE POST)
	BORING (AS DRILLED)
	BORING (AS STAKED)
x 427.3	SPOT ELEVATION
WF	WETLANDS FLAG
	PROPERTY MONUMENT
	UTILITY MONUMENT (SET AS 2' OFFSET)
	IRON PIPE OR REBAR FOUND
	IRRIGATION CONTROL BOX
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	UTILITY POLE
	UTILITY POLE W/ LIGHT
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	DECIDUOUS SHRUB
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	DECIDUOUS TREE
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ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
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CL&P	CONNECTICUT LIGHT & POWER COMPANY
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DEC.	DECIDUOUS
DMH	DRAINAGE MANHOLE
E.	EAST OR ELECTRIC
EL.	ELECTRIC
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
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F.L.	FLOW LINE
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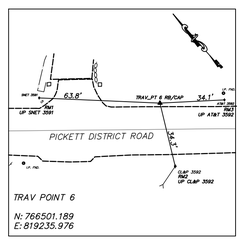
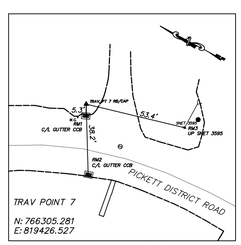
MH	MANHOLE
M	METER
M.W.	MONITOR WELL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NATIONAL AMERICAN VERTICAL DATUM
NE	NORTHEAST
N/F	NOW OR FORMERLY
NW	NORTHWEST
PVC	POLYVINYL CHLORIDE
P.I.V.	POST INDICATOR VALVE
RET.	RETAINING
RCP	REINFORCED CONCRETE PIPE
R.L.	RAIN LEADER
S	SOUTH OR SUPPLY
SE	SOUTHEAST
SW	SOUTHWEST
SAN.	SANITARY
SMH	SANITARY MANHOLE
SNET	SOUTHERN NEW ENGLAND TELEPHONE
SQ.	SQUARE
STM	STEAM
TMH	TELEPHONE MANHOLE
TEL.	TELEPHONE
T.F.	TOP OF FRAME
UNK.	UNKNOWN
W	WATER OR WEST
W.G.	WATER GATE





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DAVID A. CARICCHIO, P.L.S. No. 70036 — DATE
ALFRED BENESCH & COMPANY, GLASTONBURY, CONNECTICUT
(not valid without original signature and embossed seal)

No.	DATE	REVISIONS DESCRIPTION

SURVEY BOOK: 19-01
SURVEYOR: NC/CS/DC
DRAWN: CS/DC
CHECKED: DC
APPROVED: DC

Prepared By:

benesch

Alfred Benesch & Company
120 Hebron Avenue - 2nd Floor
Glastonbury, Connecticut 06033
Phone (860) 633-4341, Fax: (860) 633-1068
www.benesch.com

RIGHT OF WAY / TOPOGRAPHIC SURVEY
PREPARED FOR
TOWN OF NEW MILFORD
PICKETT DISTRICT ROAD
NEW MILFORD — CONNECTICUT

PROJ. No.: 70526.00
DATE: FEBRUARY 2019

SV-02

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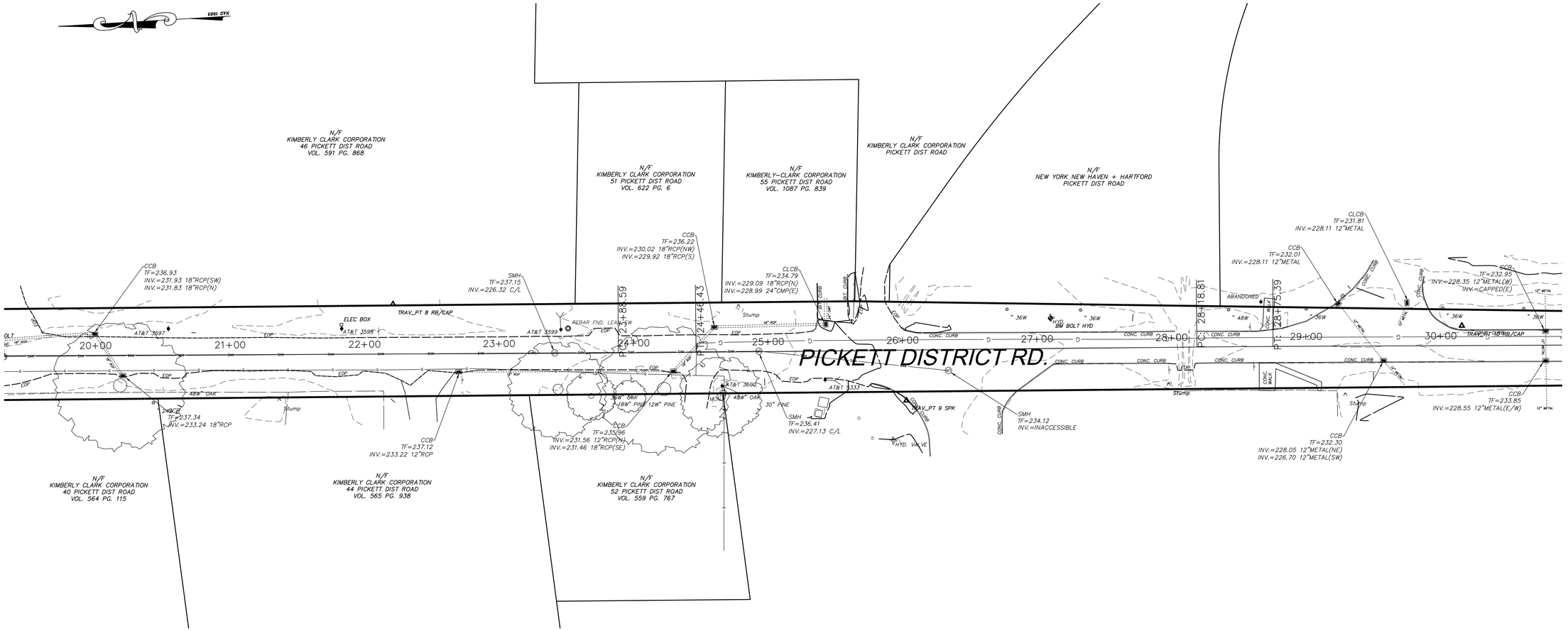

LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

E	ELECTRIC SERVICE
G	GAS PIPES
SAN	SANITARY SEWER PIPES
	STORM WATER PIPES (LESS THAN 12")
	STORM WATER PIPES (12" OR LARGER)
STM	STEAM PIPES (SUPPLY & COND.)
T	TELEPHONE SERVICE
W	WATER PIPES
COM	COMMUNICATION/FIBER OPTIC SERVICE
FP	FIRE PROTECTION PIPES
UG	UNKNOWN UTILITY SERVICE
OH	OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

	PROPERTY/BOUNDARY LINES (CLASS A-2)
	PROPERTY/BOUNDARY LINES (CLASS D)
	EASEMENT LINES

FEATURE LINES

	CURBED ROADWAY
	EDGE OF PAVED ROAD/DRIVE
	BUILDING ROOFLINE (AERIAL PHOTOS)
	RETAINING WALL
	STOCKADE FENCE
	CHAIN LINK/WIRE FENCE
	TREE/VEGATATION LINE
	STONE WALL
	SURFACE WATER (WATERCOURSE)
UNDEF	WETLANDS LIMIT
UNDEF	EDGE OF LANDSCAPING
	INTERMEDIATE CONTOUR
250	INDEX CONTOUR

SYMBOL LEGEND

CATCH BASIN
ROUND DRAIN
SQUARE DRAIN
STORM DRAIN MANHOLE
ELECTRIC MANHOLE
SANITARY MANHOLE
STEAM MANHOLE
TELEPHONE MANHOLE
WATER MANHOLE
MANHOLE (OF UNKNOWN TYPE)
HAND HOLE (SQ. / REC.)
W.G. WATER VALVE
G.G. GAS VALVE
HYDRANT
COMBO STANDPIPE
GUY WIRE
SIGN (SINGLE POST)
SIGN (DOUBLE POST)
BORING (AS DRILLED)
BORING (AS STAKED)
x 427.3 SPOT ELEVATION
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PROPERTY MONUMENT
UTILITY MONUMENT (SET AS 2' OFFSET)
IRON PIPE OR REBAR FOUND
IRRIGATION CONTROL BOX
EMERGENCY PHONE
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UTILITY POLE
UTILITY POLE W/ LIGHT
STREET LIGHT
LIGHT POST
BOLLARD LIGHT
BOULDER / ROCK
CONIFER SHRUB
DECIDUOUS SHRUB
DECIDUOUS TREE (SAPLING)
DECIDUOUS TREE
CONIFER TREE

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W	WATER OR WEST
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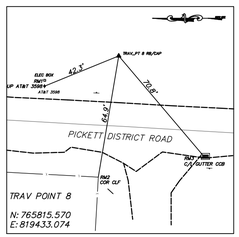

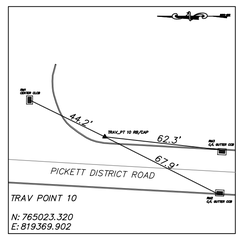

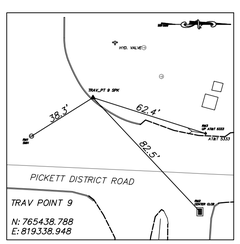

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SCALE: HORZ.: 1" = 40'
VERT.:
SURVEY DATUM: HORZ.: NAD 1983
VERT.: NAVD 1988

GRAPHIC SCALE
40 0 20 40

Prepared By:

benesch
Alfred Benesch & Company
120 Hebron Avenue - 2nd Floor
Glastonbury, Connecticut 06033
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RIGHT OF WAY / TOPOGRAPHIC SURVEY
PREPARED FOR
TOWN OF NEW MILFORD
PICKETT DISTRICT ROAD
NEW MILFORD CONNECTICUT

PROJ. No.: 70526.00
DATE: FEBRUARY 2019

SV-03

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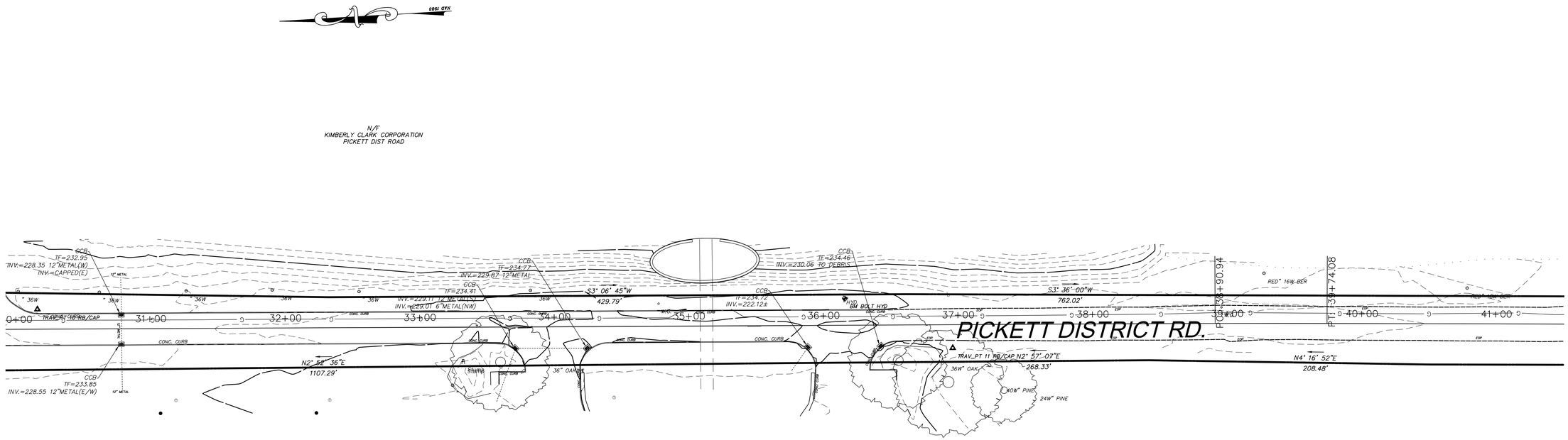

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UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

E	ELECTRIC SERVICE
G	GAS PIPES
SAN	SANITARY SEWER PIPES
	STORM WATER PIPES (LESS THAN 12")
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UG	UNKNOWN UTILITY SERVICE
OH	OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

	PROPERTY/BOUNDARY LINES (CLASS A-2)
	PROPERTY/BOUNDARY LINES (CLASS D)
	EASEMENT LINES

FEATURE LINES

	CURBED ROADWAY
	EDGE OF PAVED ROAD/DRIVE
	BUILDING ROOFLINE (AERIAL PHOTOS)
	RETAINING WALL
	STOCKADE FENCE
	CHAIN LINK/WIRE FENCE
	TREE/VEGATATION LINE
	STONE WALL
	SURFACE WATER (WATERCOURSE)
	WETLANDS LIMIT
UNDISC. UNDISC.	EDGE OF LANDSCAPING
50'	INTERMEDIATE CONTOUR
	INDEX CONTOUR

SYMBOL LEGEND

	CATCH BASIN
	ROUND DRAIN
	SQUARE DRAIN
	STORM DRAIN MANHOLE
	ELECTRIC MANHOLE
	SANITARY MANHOLE
	STEAM MANHOLE
	TELEPHONE MANHOLE
	WATER MANHOLE
	MANHOLE (OF UNKNOWN TYPE)
	HAND HOLE (SQ. / REC.)
W.G.	WATER VALVE
G.G.	GAS VALVE
	HYDRANT
	COMBO STANDPIPE
	GUY WIRE
	SIGN (SINGLE POST)
	SIGN (DOUBLE POST)
	BORING (AS DRILLED)
	BORING (AS STAKED)
x 427.3	SPOT ELEVATION
WF-#	WETLANDS FLAG
	PROPERTY MONUMENT
	UTILITY MONUMENT (SET AS 2' OFFSET)
	IRON PIPE OR REBAR FOUND
	IRRIGATION CONTROL BOX
	EMERGENCY PHONE
	TRAFFIC CONTROLLER CABINET
	UTILITY POLE
	UTILITY POLE W/ LIGHT
	STREET LIGHT
	LIGHT POST
	BOLLARD LIGHT
	BOULDER / ROCK
	CONIFER SHRUB
	DECIDUOUS SHRUB
	DECIDUOUS TREE (SAPLING)
	DECIDUOUS TREE
	CONIFER TREE

ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
COM	COMMUNICATION
CON.	CONIFER
CONC.	CONCRETE
CNG	CONNECTICUT NATURAL GAS
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CL&P	CONNECTICUT LIGHT & POWER COMPANY
CP	CONTROL POINT
DEC.	DECIDUOUS
DMH	DRAINAGE MANHOLE
E	EAST OR ELECTRIC
EL.	ELECTRIC
ELEV.	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
F.L.	FLOW LINE
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NE	NORTHEAST
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P.I.V.	POST INDICATOR VALVE
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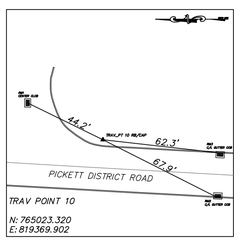
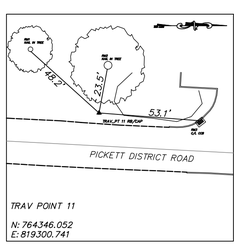
R.L.	RAIN LEADER
S	SOUTH OR SUPPLY
SE	SOUTHEAST
SW	SOUTHWEST
SAN.	SANITARY
SMH	SANITARY MANHOLE
SNET	SOUTHERN NEW ENGLAND TELEPHONE
SQ.	SQUARE
STM	STEAM
TMH	TELEPHONE MANHOLE
TEL.	TELEPHONE
T.F.	TOP OF FRAME
UNK.	UNKNOWN
W	WATER OR WEST
W.G.	WATER GATE





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DAVID A. CARICCHIO, P.L.S. No. 70036 — DATE
ALFRED BENESCH & COMPANY, GLASTONBURY, CONNECTICUT
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APPROVED: DC

SCALE: HORZ.: 1" = 40'
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SURVEY DATUM: HORZ.: NAD 1983
VERT.: NAVD 1988

GRAPHIC SCALE
40 0 20 40

Prepared By:

benesch

Alfred Benesch & Company
120 Hebron Avenue - 2nd Floor
Glastonbury, Connecticut 06033
Phone (860) 633-4341, Fax: (860) 633-1068
www.benesch.com

RIGHT OF WAY / TOPOGRAPHIC SURVEY
PREPARED FOR
TOWN OF NEW MILFORD
PICKETT DISTRICT ROAD
NEW MILFORD CONNECTICUT

PROJ. No.: 70526.00
DATE: FEBRUARY 2019

SV-04

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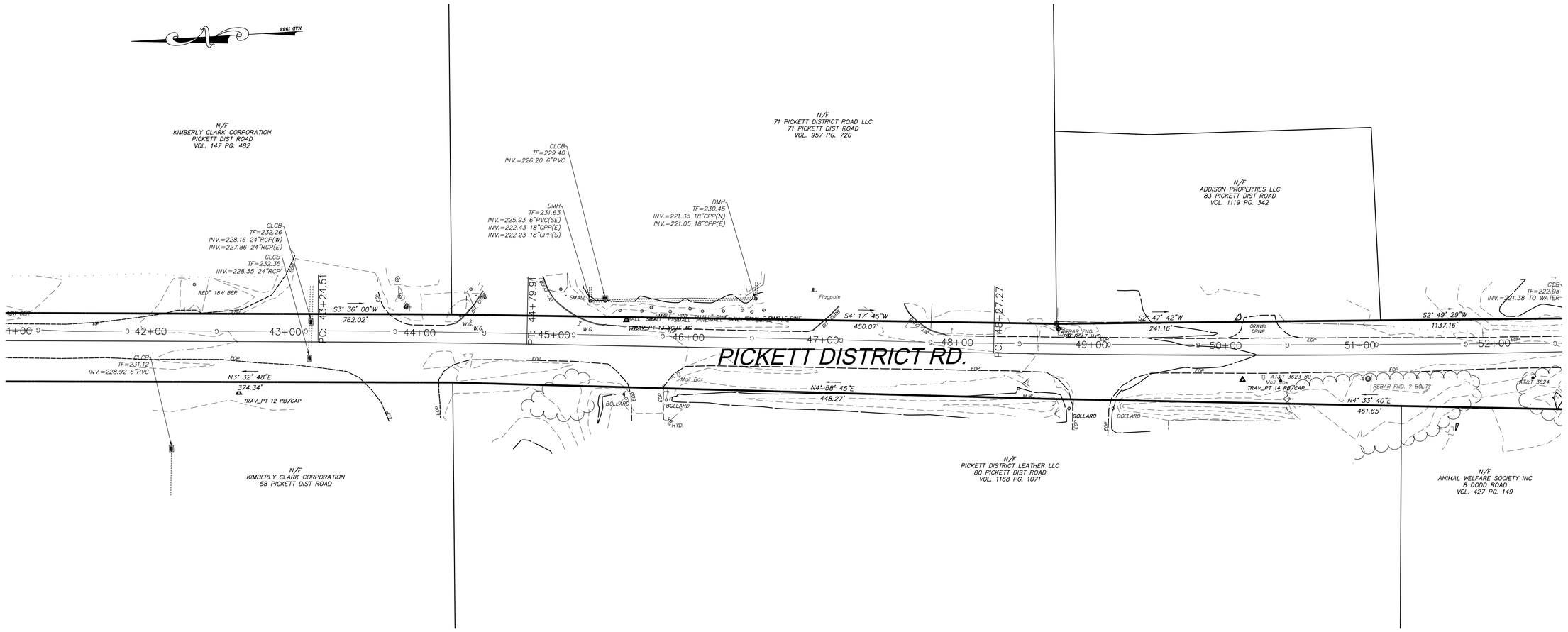

LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

- E — ELECTRIC SERVICE
- G — GAS PIPES
- SAN — SANITARY SEWER PIPES
- STORM WATER PIPES (LESS THAN 12")
- STORM WATER PIPES (12" OR LARGER)
- STM — STEAM PIPES (SUPPLY & COND.)
- T — TELEPHONE SERVICE
- W — WATER PIPES
- COM — COMMUNICATION/FIBER OPTIC SERVICE
- FP — FIRE PROTECTION PIPES
- UG — UNKNOWN UTILITY SERVICE
- OH — OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

- PROPERTY/BOUNDARY LINES (CLASS A-2)
- PROPERTY/BOUNDARY LINES (CLASS D)
- EASEMENT LINES

FEATURE LINES

- CURBED ROADWAY
- EDGE OF PAVED ROAD/DRIVE
- BUILDING ROOFLINE (AERIAL PHOTOS)
- RETAINING WALL
- STOCKADE FENCE
- CHAIN LINK/WIRE FENCE
- TREE/VEGATATION LINE
- STONE WALL
- SURFACE WATER (WATERCOURSE)
- WETLANDS LIMIT
- EDGE OF LANDSCAPING
- INTERMEDIATE CONTOUR
- INDEX CONTOUR

SYMBOL LEGEND

- CATCH BASIN
- ROUND DRAIN
- SQUARE DRAIN
- STORM DRAIN MANHOLE
- ELECTRIC MANHOLE
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- STEAM MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- MANHOLE (OF UNKNOWN TYPE)
- HAND HOLE (SQ. / REC.)
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- STREET LIGHT
- LIGHT POST
- BOLLARD LIGHT
- BOULDER / ROCK
- CONIFER SHRUB
- DECIDUOUS SHRUB
- DECIDUOUS TREE (SAPLING)
- DECIDUOUS TREE
- CONIFER TREE

ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
COM	COMMUNICATION
CON.	CONIFER
CONC.	CONCRETE
CNG	CONNECTICUT NATURAL GAS
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CL&P	CONNECTICUT LIGHT & POWER COMPANY
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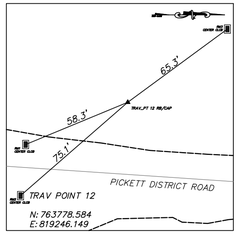

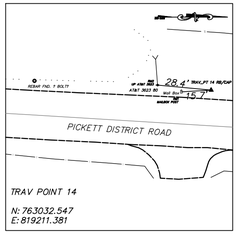

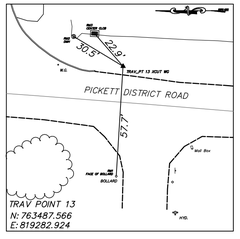

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GRAPHIC SCALE
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RIGHT OF WAY / TOPOGRAPHIC SURVEY
PREPARED FOR
TOWN OF NEW MILFORD
PICKETT DISTRICT ROAD
NEW MILFORD CONNECTICUT

Prepared By:

benesch

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PROJ. No.: 70526.00
DATE: FEBRUARY 2019

SV-05

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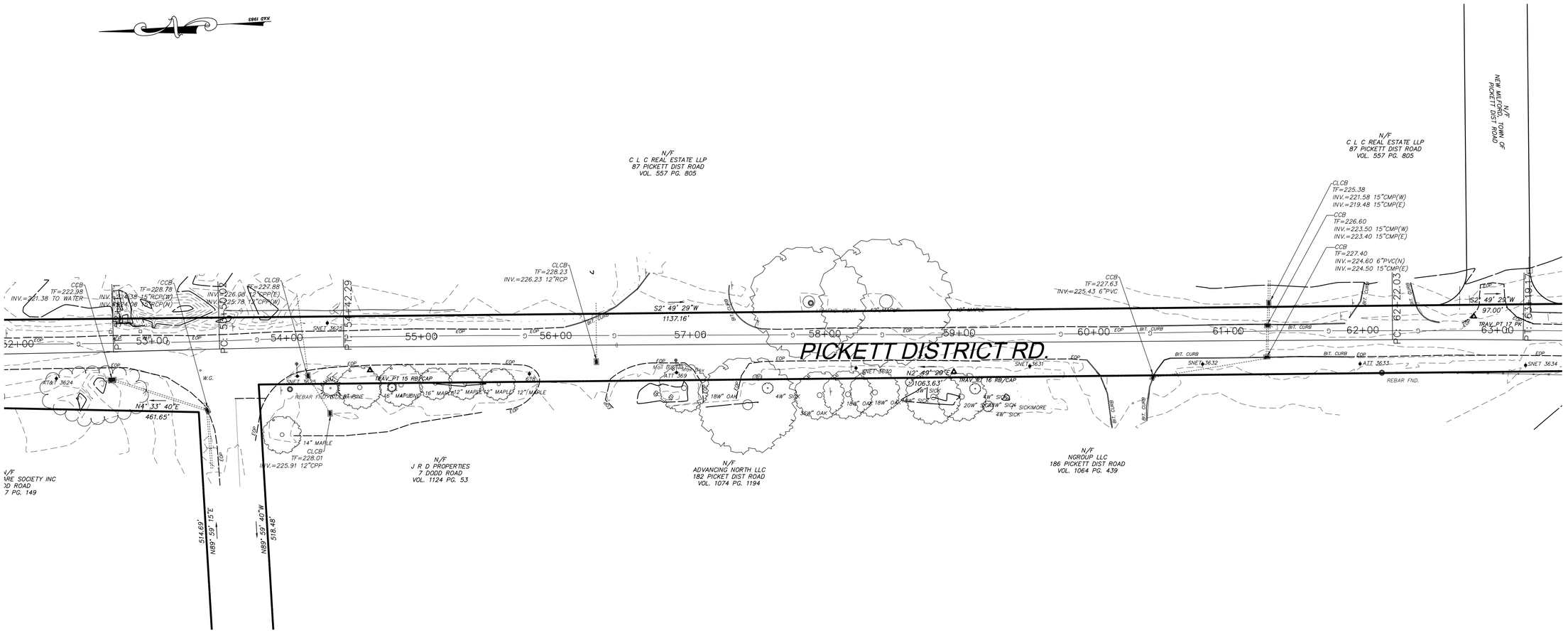

LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

E	ELECTRIC SERVICE
G	GAS PIPES
SAN	SANITARY SEWER PIPES
	STORM WATER PIPES (LESS THAN 12")
	STORM WATER PIPES (12" OR LARGER)
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T	TELEPHONE SERVICE
W	WATER PIPES
COM	COMMUNICATION/FIBER OPTIC SERVICE
FP	FIRE PROTECTION PIPES
UG	UNKNOWN UTILITY SERVICE
OH	OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

	PROPERTY/BOUNDARY LINES (CLASS A-2)
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	EASEMENT LINES

FEATURE LINES

	CURBED ROADWAY
	EDGE OF PAVED ROAD/DRIVE
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	TREE/VEGATATION LINE
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	SURFACE WATER (WATERCOURSE)
	WETLANDS LIMIT
UNDSCP UNDSCP	EDGE OF LANDSCAPING
	INTERMEDIATE CONTOUR
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SYMBOL LEGEND

	CATCH BASIN
	ROUND DRAIN
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	BOULDER / ROCK
	CONIFER SHRUB
	DECIDUOUS SHRUB
	DECIDUOUS TREE (SAPLING)
	DECIDUOUS TREE
	CONIFER TREE

ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
COM	COMMUNICATION
CON.	CONIFER
CONC.	CONCRETE
CNG	CONNECTICUT NATURAL GAS
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CL&P	CONNECTICUT LIGHT & POWER COMPANY
CP	CONTROL POINT
DEC.	DECIDUOUS
DMH	DRAINAGE MANHOLE
E	EAST OR ELECTRIC
EL.	ELECTRIC
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EMH	ELECTRIC MANHOLE
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SQ.	SQUARE
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TEL.	TELEPHONE
T.F.	TOP OF FRAME
UNK.	UNKNOWN
W	WATER OR WEST
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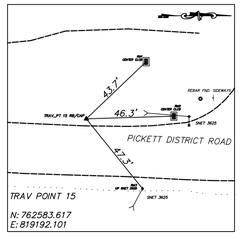

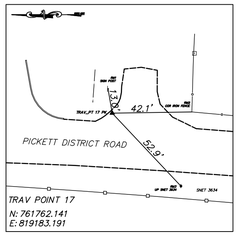

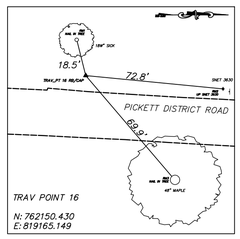

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SV-06

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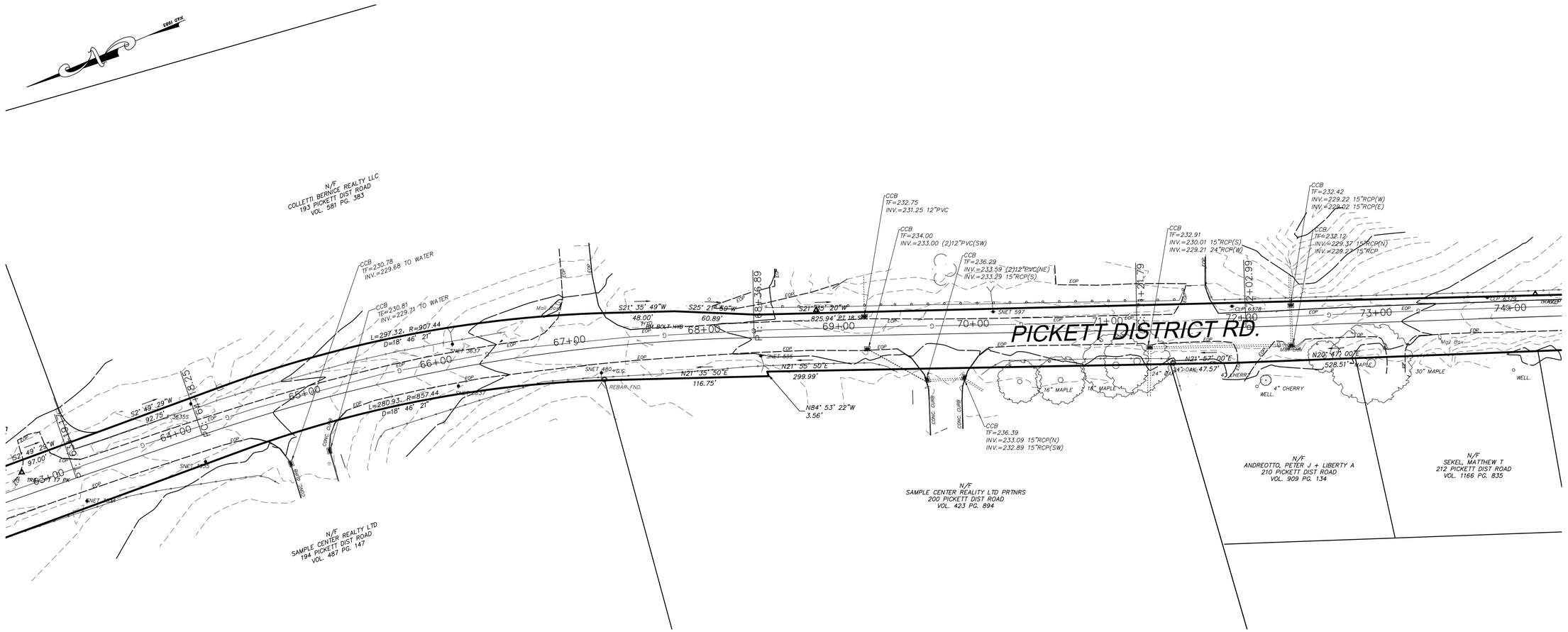

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WETLANDS FLAG
PROPERTY MONUMENT
UTILITY MONUMENT (SET AS 2' OFFSET)
IRON PIPE OR REBAR FOUND
IRRIGATION CONTROL BOX
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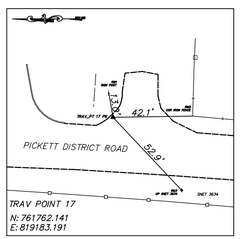

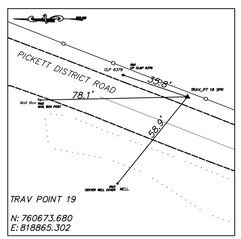

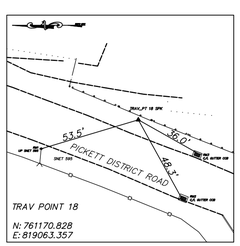

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DAVID A. CARICCHIO, P.L.S. No. 70036 *DATE*
ALFRED BENESCH & COMPANY, GLASTONBURY, CONNECTICUT
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CHECKED: DC
APPROVED: DC

SCALE: HORZ.: 1" = 40'
VERT.:
SURVEY DATUM: HORZ.: NAD 1983
VERT.: NAVD 1988

GRAPHIC SCALE
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Prepared By:

benesch

Alfred Benesch & Company
120 Hebron Avenue - 2nd Floor
Glastonbury, Connecticut 06033
Phone (860) 633-4341, Fax: (860) 633-1068
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RIGHT OF WAY / TOPOGRAPHIC SURVEY
PREPARED FOR
TOWN OF NEW MILFORD
PICKETT DISTRICT ROAD
NEW MILFORD CONNECTICUT

PROJ. No.: 70526.00
DATE: FEBRUARY 2019

SV-07

File Location/Name - C:\Users\courpersen\appdata\local\temp\AcPublish_30060\70526 PICKETT DISTRICT.dwg
Date of Plot: March 06, 2019 - 10:30 AM

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attached xrefs: X:\70500s\70526.00__New_Milford_Bond_Rd\Survey\ACAD\70526 PICKETT DISTRICT - TIES.dwg

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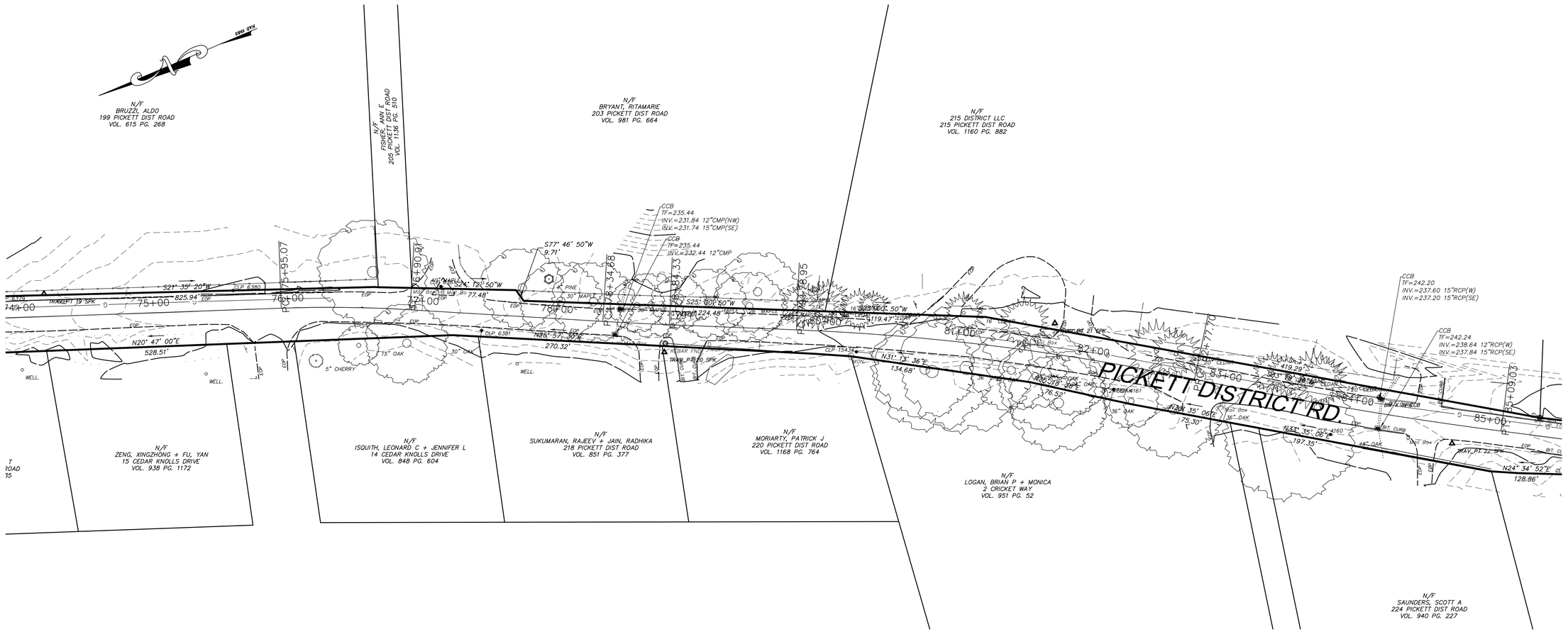


LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

E	ELECTRIC SERVICE
G	GAS PIPES
SAN	SANITARY SEWER PIPES
	STORM WATER PIPES (LESS THAN 12")
	STORM WATER PIPES (12" OR LARGER)
STM	STEAM PIPES (SUPPLY & COND.)
T	TELEPHONE SERVICE
W	WATER PIPES
COM	COMMUNICATION/FIBER OPTIC SERVICE
FP	FIRE PROTECTION PIPES
UG	UNKNOWN UTILITY SERVICE
OH	OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

	PROPERTY/BOUNDARY LINES (CLASS A-2)
	PROPERTY/BOUNDARY LINES (CLASS D)
	EASEMENT LINES

FEATURE LINES

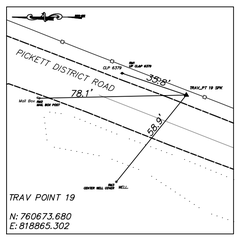
	CURBED ROADWAY
	EDGE OF PAVED ROAD/DRIVE
	BUILDING ROOFLINE (AERIAL PHOTOS)
	RETAINING WALL
	STOCKADE FENCE
	CHAIN LINK/WIRE FENCE
	TREE/VEGATATION LINE
	STONE WALL
	SURFACE WATER (WATERCOURSE)
UNDEF	WETLANDS LIMIT
UNDEF	EDGE OF LANDSCAPING
50	INTERMEDIATE CONTOUR
	INDEX CONTOUR

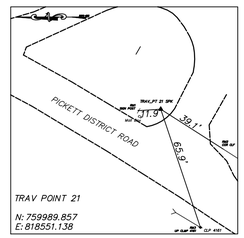
SYMBOL LEGEND

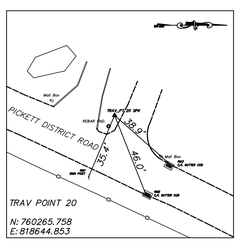
CATCH BASIN
ROUND DRAIN
SQUARE DRAIN
STORM DRAIN MANHOLE
ELECTRIC MANHOLE
SANITARY MANHOLE
STEAM MANHOLE
TELEPHONE MANHOLE
WATER MANHOLE
MANHOLE (OF UNKNOWN TYPE)
HAND HOLE (SQ. / REC.)
W.G. WATER VALVE
G.G. GAS VALVE
HYDRANT
COMBO STANDPIPE
GUY WIRE
SIGN (SINGLE POST)
SIGN (DOUBLE POST)
BORING (AS DRILLED)
BORING (AS STAKED)
x 427.3 SPOT ELEVATION
WETLANDS FLAG
PROPERTY MONUMENT
UTILITY MONUMENT (SET AS 2' OFFSET)
IRON PIPE OR REBAR FOUND
IRRIGATION CONTROL BOX
EMERGENCY PHONE
TRAFFIC CONTROLLER CABINET
UTILITY POLE
UTILITY POLE W/ LIGHT
STREET LIGHT
LIGHT POST
BOLLARD LIGHT
BOULDER / ROCK
CONIFER SHRUB
DECIDUOUS SHRUB
DECIDUOUS TREE (SAPLING)
DECIDUOUS TREE
CONIFER TREE

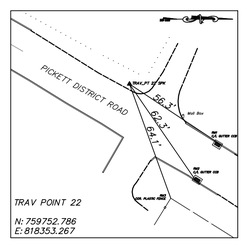
ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
COM	COMMUNICATION
CON.	CONIFER
CONC.	CONCRETE
CNG	CONNECTICUT NATURAL GAS
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CL&P	CONNECTICUT LIGHT & POWER COMPANY
CP	CONTROL POINT
DEC.	DECIDUOUS
DMH	DRAINAGE MANHOLE
E	EAST OR ELECTRIC
EL.	ELECTRIC
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
F.L.	FLOW LINE
FND.	FOUND
GRAN.	GRANITE
GSTC	GRANITE STONE CURB
HELCO	HARTFORD ELECTRIC COMPANY
HYD.	HYDRANT
H.H.	HAND HOLE
L.P.	LIGHT POLE
MH	MANHOLE
M	METER
M.W.	MONITOR WELL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NATIONAL AMERICAN VERTICAL DATUM
NE	NORTHEAST
N/F	NOW OR FORMERLY
NW	NORTHWEST
PVC	POLYVINYL CHLORIDE
P.I.V.	POST INDICATOR VALVE
RET.	RETAINING
RCP	REINFORCED CONCRETE PIPE
R.L.	RAIN LEADER
S	SOUTH OR SUPPLY
SE	SOUTHEAST
SW	SOUTHWEST
SAN.	SANITARY
SMH	SANITARY MANHOLE
SNET	SOUTHERN NEW ENGLAND TELEPHONE
SQ.	SQUARE
STM	STEAM
TMH	TELEPHONE MANHOLE
TEL.	TELEPHONE
T.F.	TOP OF FRAME
UNK.	UNKNOWN
W	WATER OR WEST
W.G.	WATER GATE









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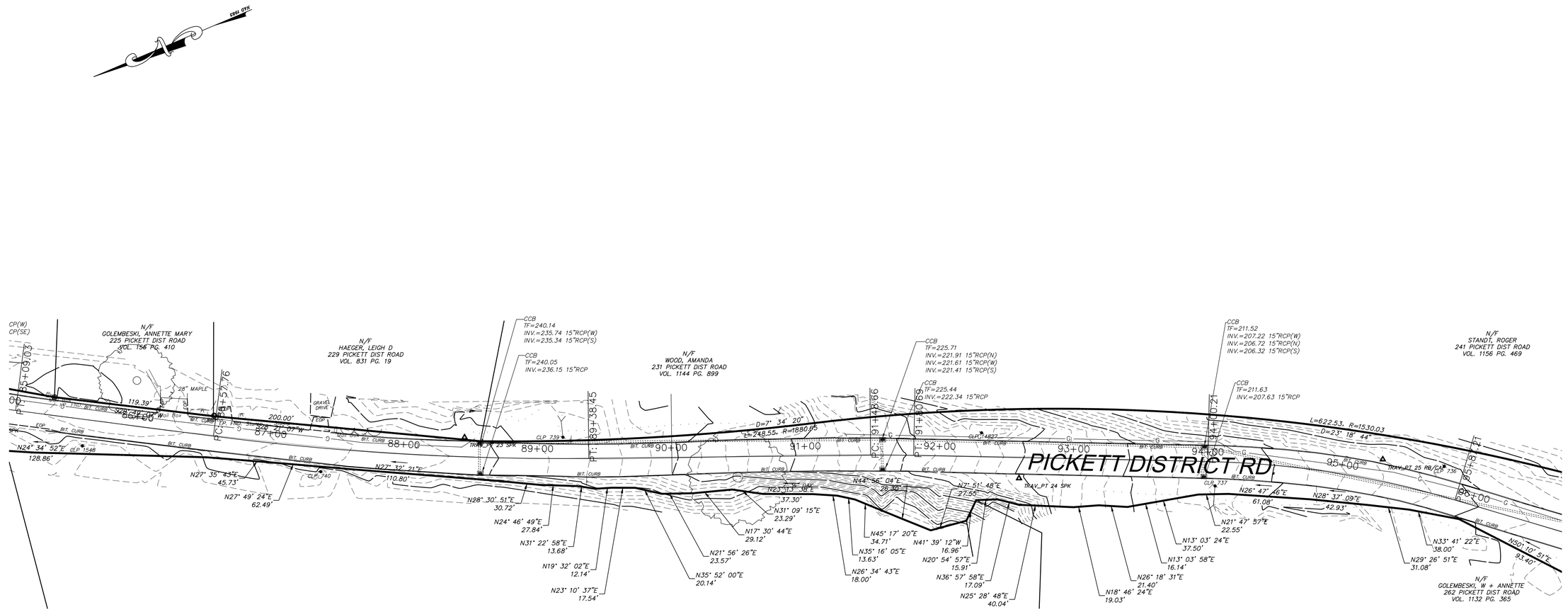

LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

- E — ELECTRIC SERVICE
- G — GAS PIPES
- SAN — SANITARY SEWER PIPES
- STORM WATER PIPES (LESS THAN 12")
- STORM WATER PIPES (12" OR LARGER)
- STM — STEAM PIPES (SUPPLY & COND.)
- T — TELEPHONE SERVICE
- W — WATER PIPES
- COM — COMMUNICATION/FIBER OPTIC SERVICE
- FP — FIRE PROTECTION PIPES
- UG — UG — UNKNOWN UTILITY SERVICE
- OH — OVERHEAD WIRES

PROPERTY/BOUNDARY LINES

- PROPERTY/BOUNDARY LINES (CLASS A–2)
- PROPERTY/BOUNDARY LINES (CLASS D)
- EASEMENT LINES

FEATURE LINES

- CURBED ROADWAY
- EDGE OF PAVED ROAD/DRIVE
- BUILDING ROOFLINE (AERIAL PHOTOS)
- RETAINING WALL
- STOCKADE FENCE
- CHAIN LINK/WIRE FENCE
- TREE/VEGATATION LINE
- STONE WALL
- SURFACE WATER (WATERCOURSE)
- WETLANDS LIMIT
- LNDSCP — LNDSCP — EDGE OF LANDSCAPING
- INTERMEDIATE CONTOUR
- 50 — INDEX CONTOUR

SYMBOL LEGEND

- CATCH BASIN
- ROUND DRAIN
- SQUARE DRAIN
- STORM DRAIN MANHOLE
- ELECTRIC MANHOLE
- SANITARY MANHOLE
- STEAM MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- MANHOLE (OF UNKNOWN TYPE)
- HAND HOLE (SQ. / REC.)
- W.G. — WATER VALVE
- G.G. — GAS VALVE
- HYDRANT
- COMBO STANDPIPE
- GUY WIRE
- SIGN (SINGLE POST)
- SIGN (DOUBLE POST)
- BORING (AS DRILLED)
- BORING (AS STAKED)
- × 427.3 — SPOT ELEVATION
- WF-# — WETLANDS FLAG
- PROPERTY MONUMENT
- UTILITY MONUMENT (SET AS 2' OFFSET)
- IRON PIPE OR REBAR FOUND
- IRRIGATION CONTROL BOX
- EMERGENCY PHONE
- TRAFFIC CONTROLLER CABINET
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- STREET LIGHT
- LIGHT POST
- BOLLARD LIGHT
- BOULDER / ROCK
- CONIFER SHRUB
- DECIDUOUS SHRUB
- DECIDUOUS TREE (SAPLING)
- DECIDUOUS TREE
- CONIFER TREE

ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
COM	COMMUNICATION
CON.	CONIFER
CONC.	CONCRETE
CNG	CONNECTICUT NATURAL GAS
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CL&P	CONNECTICUT LIGHT & POWER COMPANY
CP	CONTROL POINT
DEC.	DECIDUOUS
DMH	DRAINAGE MANHOLE
E	EAST OR ELECTRIC
EL.	ELECTRIC
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
F.L.	FLOW LINE
FND.	FOUND
GRAN.	GRANITE
GSTC	GRANITE STONE CURB
HELCO	HARTFORD ELECTRIC COMPANY
HYD.	HYDRANT
H.H.	HAND HOLE
L.P.	LIGHT POLE
MH	MANHOLE
M	METER
M.W.	MONITOR WELL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NATIONAL AMERICAN VERTICAL DATUM
NE	NORTHEAST
N/F	NOW OR FORMERLY
NW	NORTHWEST
PVC	POLYVINYL CHLORIDE
P.I.V.	POST INDICATOR VALVE
RET.	RETAINING
RCP	REINFORCED CONCRETE PIPE
R.L.	RAIN LEADER
S	SOUTH OR SUPPLY
SE	SOUTHEAST
SW	SOUTHWEST
SAN.	SANITARY
SMH	SANITARY MANHOLE
SNET	SOUTHERN NEW ENGLAND TELEPHONE
SQ.	SQUARE
STM	STEAM
TMH	TELEPHONE MANHOLE
TEL.	TELEPHONE
T.F.	TOP OF FRAME
UNK.	UNKNOWN
W	WATER OR WEST
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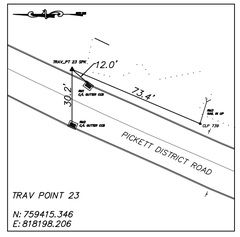

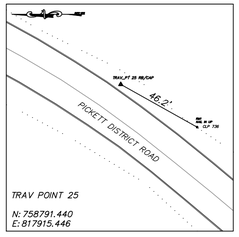

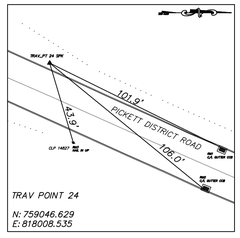

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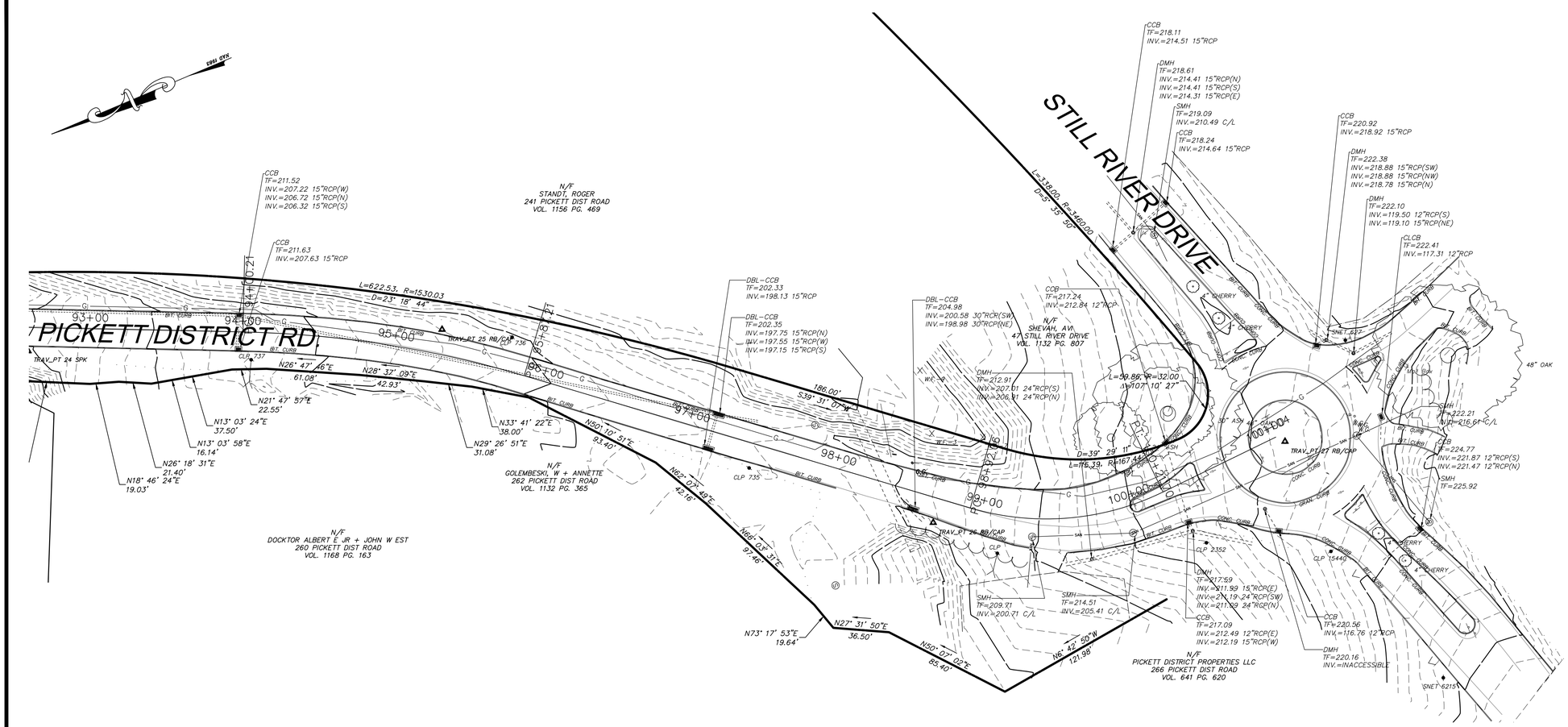

LEGEND

UTILITY SERVICES (UNDERGROUND OR OVERHEAD)

E	ELECTRIC SERVICE
G	GAS PIPES
SAN	SANITARY SEWER PIPES
	STORM WATER PIPES (LESS THAN 12")
	STORM WATER PIPES (12" OR LARGER)
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PROPERTY/BOUNDARY LINES

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	EDGE OF PAVED ROAD/DRIVE
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	STOCKADE FENCE
	CHAIN LINK/WIRE FENCE
	TREE/VEGATATION LINE
	STONE WALL
	SURFACE WATER (WATERCOURSE)
	WETLANDS LIMIT
UNDISP	EDGE OF LANDSCAPING
	INTERMEDIATE CONTOUR
250	INDEX CONTOUR

SYMBOL LEGEND

	CATCH BASIN
	ROUND DRAIN
	SQUARE DRAIN
	STORM DRAIN MANHOLE
	ELECTRIC MANHOLE
	SANITARY MANHOLE
	STEAM MANHOLE
	TELEPHONE MANHOLE
	WATER MANHOLE
	MANHOLE (OF UNKNOWN TYPE)
	HAND HOLE (SQ. / REC.)
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	HYDRANT
	COMBO STANDPIPE
	GUY WIRE
	SIGN (SINGLE POST)
	SIGN (DOUBLE POST)
	BORING (AS DRILLED)
	BORING (AS STAKED)
x 427.3	SPOT ELEVATION
WF-#	WETLANDS FLAG
	PROPERTY MONUMENT
	UTILITY MONUMENT (SET AS 2' OFFSET)
	IRON PIPE OR REBAR FOUND
	IRRIGATION CONTROL BOX
	EMERGENCY PHONE
	TRAFFIC CONTROLLER CABINET
	UTILITY POLE
	UTILITY POLE W/ LIGHT
	STREET LIGHT
	LIGHT POST
	BOLLARD LIGHT
	BOULDER / ROCK
	CONIFER SHRUB
	DECIDUOUS SHRUB
	DECIDUOUS TREE (SAPLING)
	DECIDUOUS TREE
	CONIFER TREE

ABBREVIATIONS

A/C	AIR CONDITIONER
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
BIT.	BITUMINOUS
BLK.	BLACK
CB	CATCH BASIN
COM	COMMUNICATION
CON.	CONIFER
CONC.	CONCRETE
CNG	CONNECTICUT NATURAL GAS
CL	CENTERLINE
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CL&P	CONNECTICUT LIGHT & POWER COMPANY
CP	CONTROL POINT
DEC.	DECIDUOUS
DMH	DRAINAGE MANHOLE
E	EAST OR ELECTRIC
EL.	ELECTRIC
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
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MH	MANHOLE
M	METER
M.W.	MONITOR WELL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NATIONAL AMERICAN VERTICAL DATUM
NE	NORTHEAST
N/F	NOW OR FORMERLY
NW	NORTHWEST
PVC	POLYVINYL CHLORIDE
P.I.V.	POST INDICATOR VALVE
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RCP	REINFORCED CONCRETE PIPE
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TMH	TELEPHONE MANHOLE
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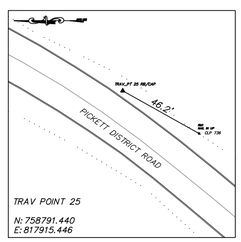
T.F.	TOP OF FRAME
UNK.	UNKNOWN
W	WATER OR WEST
W.G.	WATER GATE



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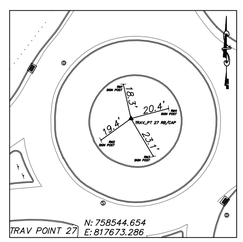
E: 817915.446



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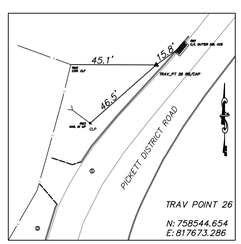
N: 758544.654
E: 817673.286



TRAV POINT 26
N: 758544.654
E: 817673.286

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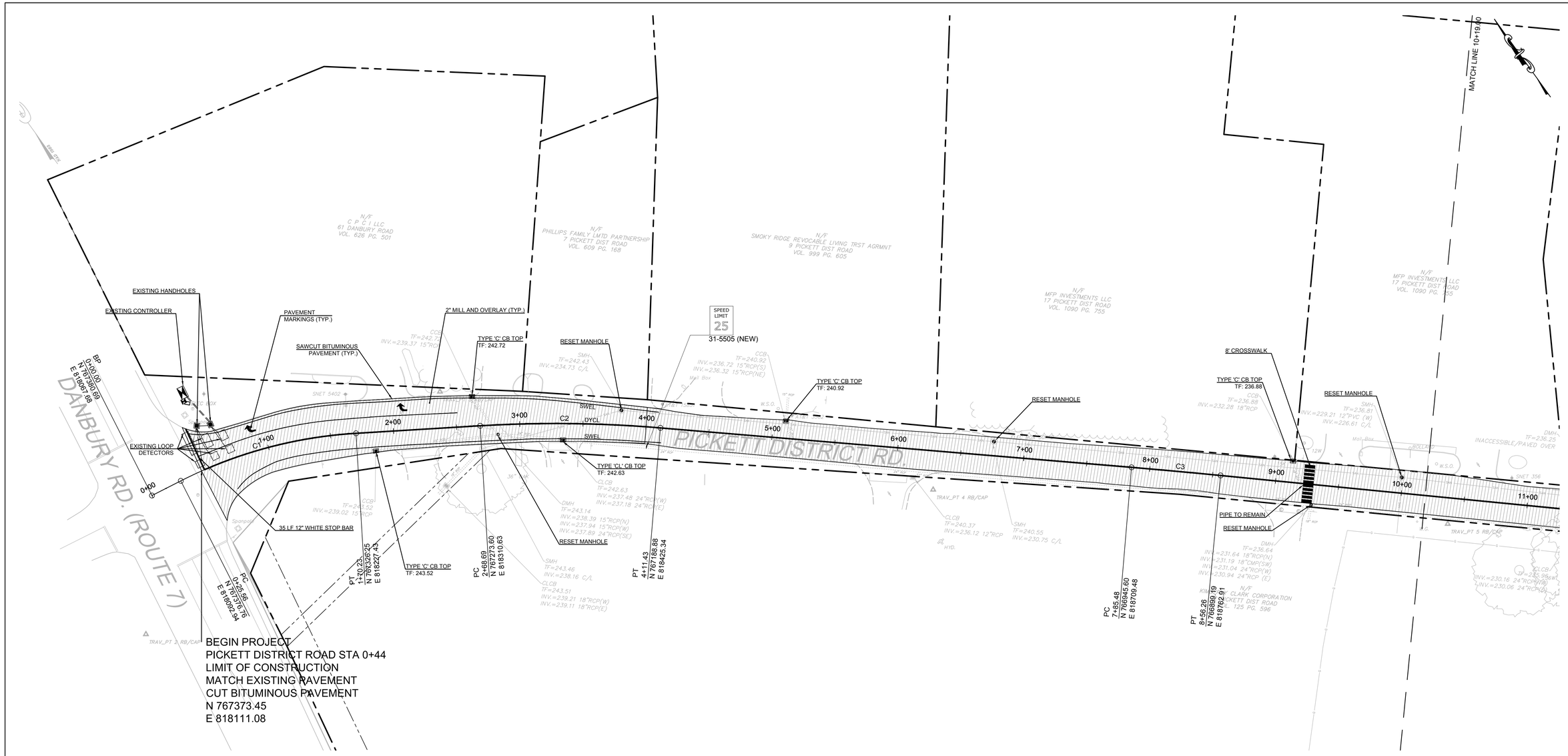

2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- **A** RIGHT TO GRADE REQUIRED
- **B** EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
- **C** DRAINAGE RIGHT OF WAY REQUIRED
- **D** RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
- **E** RIGHT TO CONSTRUCT DRIVEWAY REQUIRED

CURVE DATA
PICKETT DISTRICT ROAD

CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C1	P.C.	0+25.56	767376.76	818092.94	23°28'56.3"	73.37	353	144.67
	P.I.	0+98.92	767365.49	818165.43				
	P.T.	1+70.23	767326.25	818227.43				
C2	P.C.	2+68.69	767273.60	818310.63	8°14'39.3"	71.49	992	142.74
	P.I.	3+40.18	767235.37	818371.04				
	P.T.	4+11.43	767188.88	818425.34				
C3	P.C.	7+85.48	766945.60	818709.48	0°48'39.5"	35.39	5000	70.77
	P.I.	8+20.87	766922.58	818736.36				
	P.T.	8+56.26	766899.19	818762.91				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 40 80
SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01
DRAWING NO. RDW-01
SHEET NO. 16

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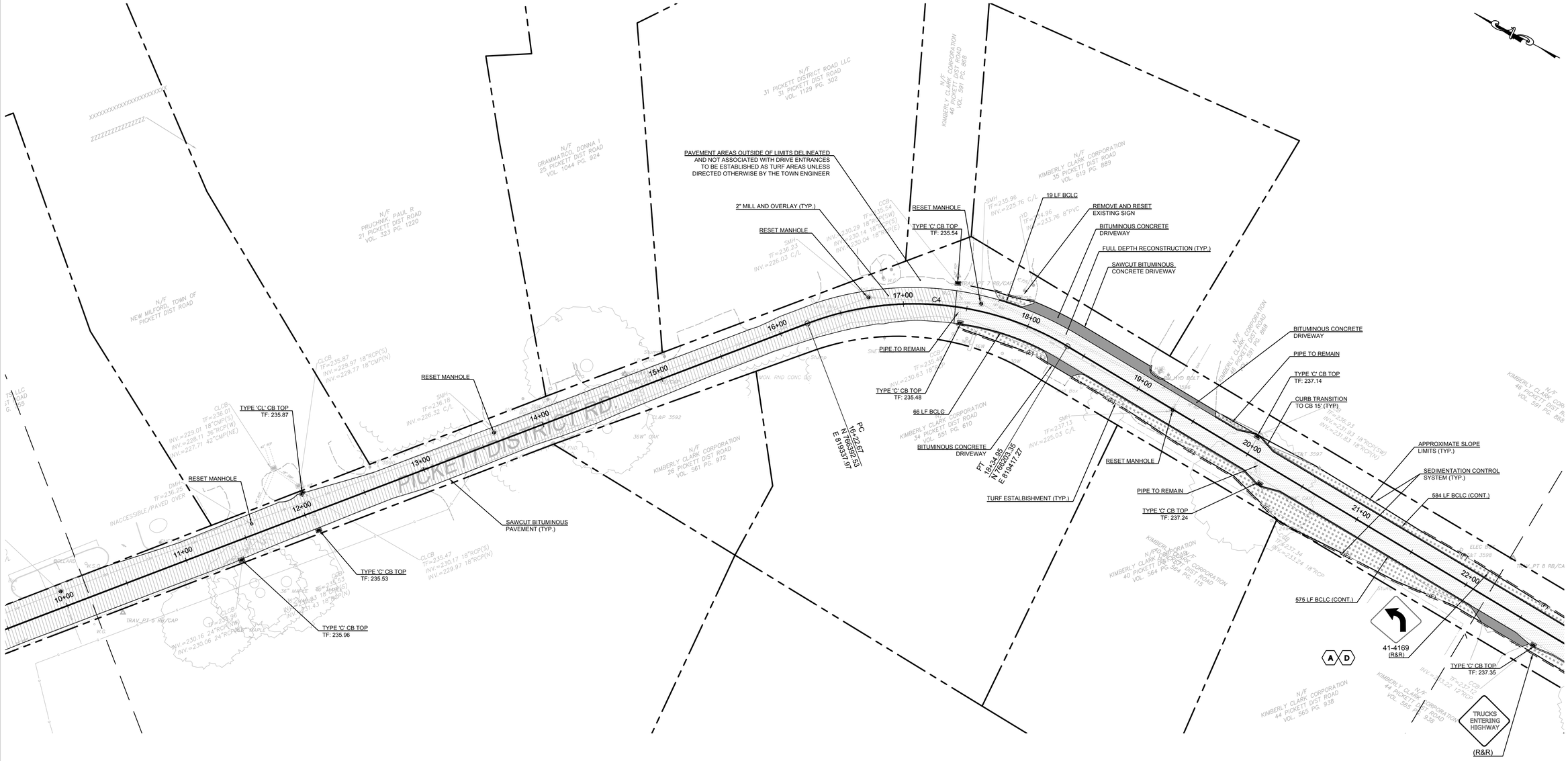


2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

A	RIGHT TO GRADE REQUIRED
B	EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
C	DRAINAGE RIGHT OF WAY REQUIRED
D	RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
E	RIGHT TO CONSTRUCT DRIVEWAY REQUIRED

CURVE DATA
PICKETT DISTRICT ROAD

CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C4	P.C.	16+22.67	766392.53	819337.97	51°45'22.9"	114.00	235	212.28
	P.I.	17+36.67	766317.17	819423.51				
	P.T.	18+34.95	766203.35	819417.27				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 40 80
SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

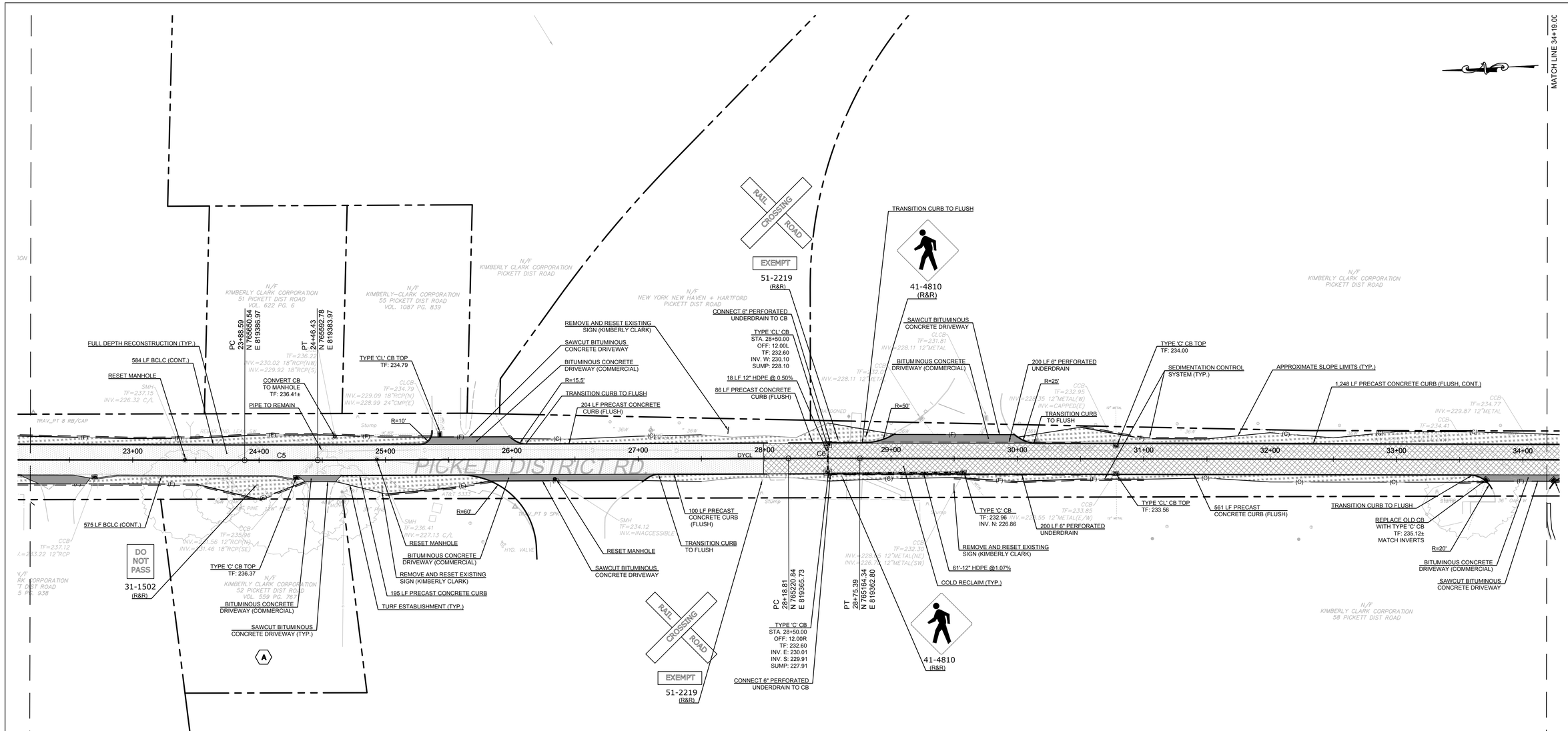
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_RDW.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01
DRAWING NO. RDW-02
SHEET NO. 17



2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- A RIGHT TO GRADE REQUIRED
- B EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
- C DRAINAGE RIGHT OF WAY REQUIRED
- D RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
- E RIGHT TO CONSTRUCT DRIVEWAY REQUIRED

CURVE DATA

PICKETT DISTRICT ROAD

CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C5	P.C.	23+88.59	765650.54	819386.97	0°19'53.1"	28.92	10000	57.84
	P.I.	24+17.51	765621.66	819385.38				
	P.T.	24+46.43	765592.78	819383.97				
C6	P.C.	28+18.81	765220.84	819365.73	0°19'26.9"	28.29	10000	56.58
	P.I.	28+47.10	765192.58	819364.35				
	P.T.	28+75.39	765164.34	819362.80				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80
SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01

DRAWING NO. RDW-03

SHEET NO. 18

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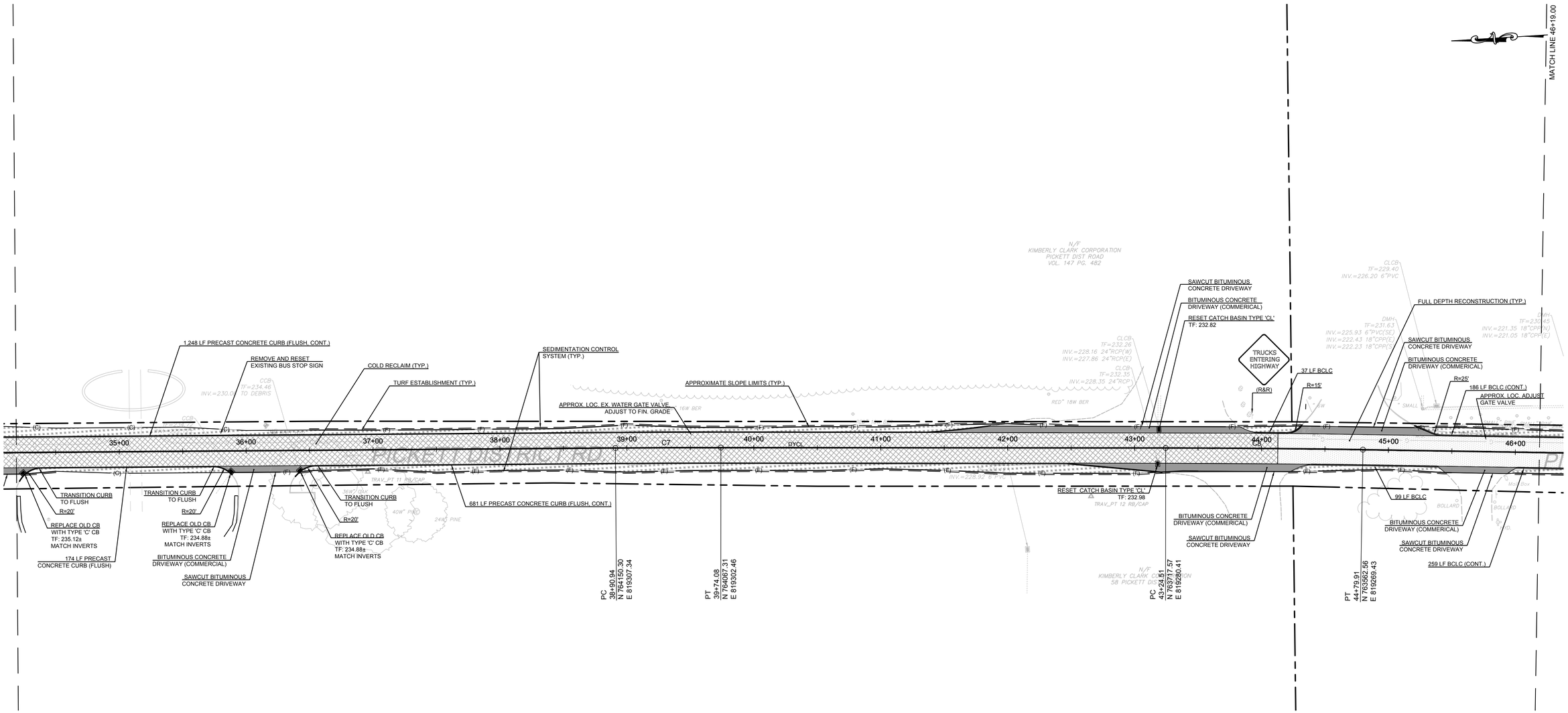

2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- (A) **RIGHT TO GRADE REQUIRED**
- (B) **EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED**
- (C) **DRAINAGE RIGHT OF WAY REQUIRED**
- (D) **RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED**
- (E) **RIGHT TO CONSTRUCT DRIVEWAY REQUIRED**

CURVE DATA

PICKETT DISTRICT ROAD

CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C7	P.C.	38+90.94	764150.30	819307.34	0°28'34.8"	41.57	10000	83.14
	P.I.	39+32.51	764108.80	819305.07				
	P.T.	39+74.08	764067.31	819302.46				
C8	P.C.	43+24.51	763717.57	819280.41	0°53'25.4"	77.70	10000	155.40
	P.I.	44+02.21	763640.02	819275.52				
	P.T.	44+79.91	763562.56	819269.43				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 40 80

SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01

DRAWING NO. RDW-04

SHEET NO. 19

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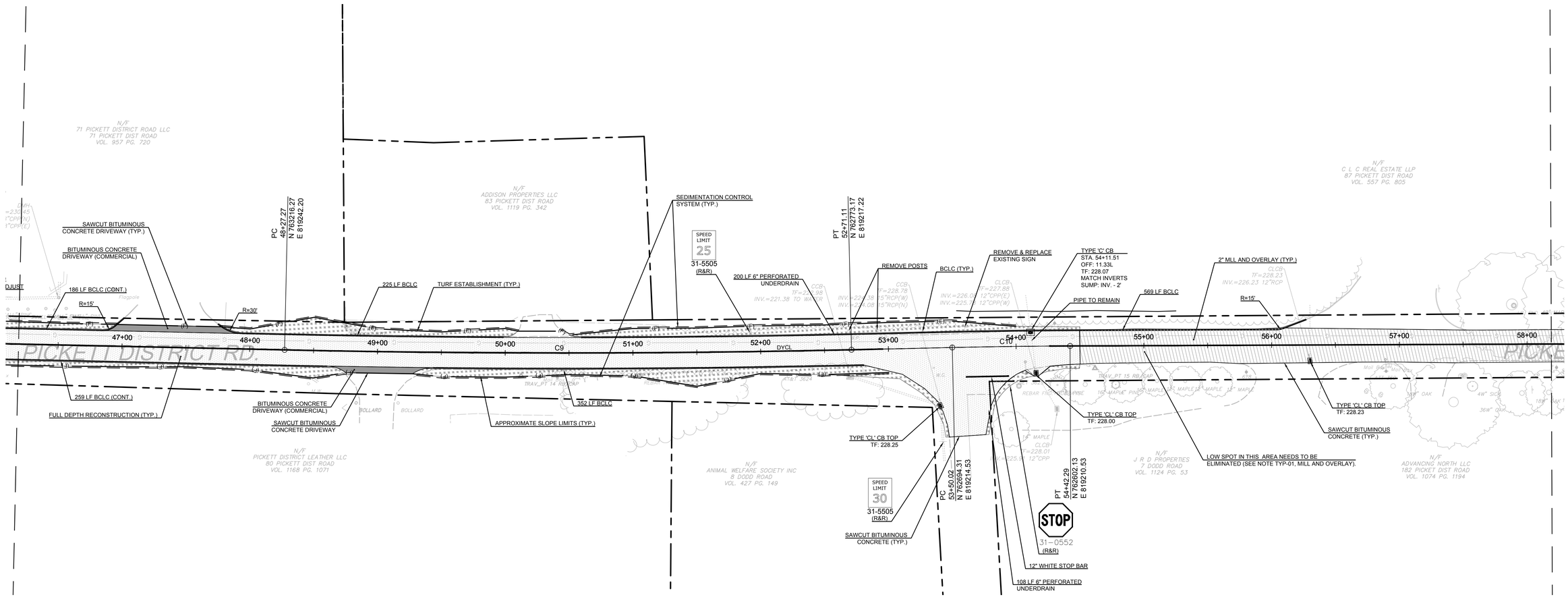

2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- **A** RIGHT TO GRADE REQUIRED
- **B** EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
- **C** DRAINAGE RIGHT OF WAY REQUIRED
- **D** RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
- **E** RIGHT TO CONSTRUCT DRIVEWAY REQUIRED

CURVE DATA								
PICKETT DISTRICT ROAD								
CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C9	P.C.	48+27.27	763216.27	819242.20	2°32'34.8"	221.96	10000	443.84
	P.I.	50+49.22	762995.00	819224.79				
	P.T.	52+71.11	762773.17	819217.22				
C10	P.C.	53+50.02	762694.31	819214.53	1°03'26.3"	46.13	5000	92.27
	P.I.	53+96.15	762648.20	819212.96				
	P.T.	54+42.29	762602.13	819210.53				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET
0 40 80
SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01
DRAWING NO. RDW-05
SHEET NO. 20

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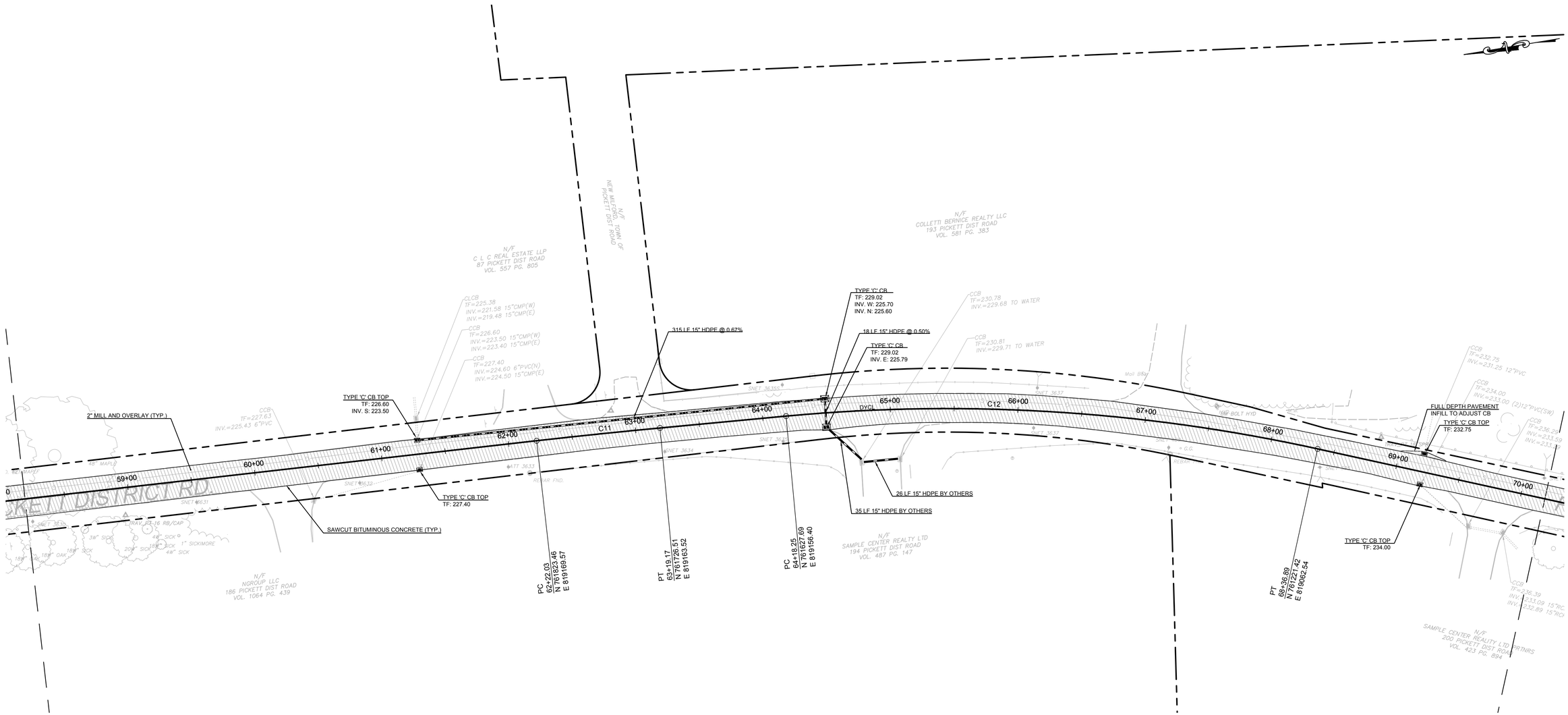

2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- A — RIGHT TO GRADE REQUIRED
- B — EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
- C — DRAINAGE RIGHT OF WAY REQUIRED
- D — RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
- E — RIGHT TO CONSTRUCT DRIVEWAY REQUIRED

CURVE DATA

PICKETT DISTRICT ROAD

CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C11	P.C.	62+22.03	761823.46	819169.57	1°06'47.4"	48.57	5000	97.14
	P.I.	62+70.60	761774.96	819167.02				
	P.T.	63+19.17	761726.51	819163.52				
C12	P.C.	64+18.25	761627.69	819156.40	17°46'04.0"	211.02	1350	418.64
	P.I.	66+29.26	761417.22	819141.22				
	P.T.	68+36.89	761221.42	819062.54				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET

0 40 80

SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01

DRAWING NO. RDW-06

SHEET NO. 21

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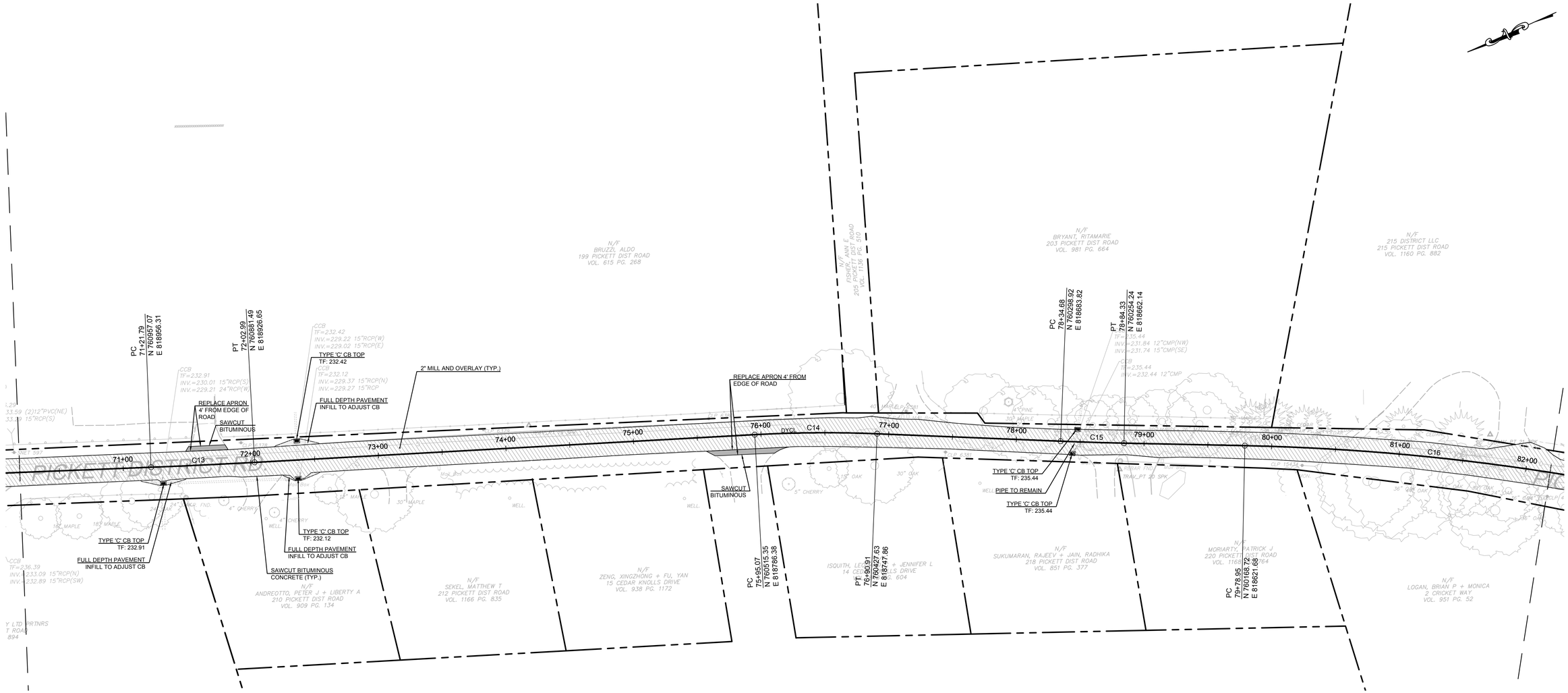


2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- (A) **RIGHT TO GRADE REQUIRED**
- (B) **EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED**
- (C) **DRAINAGE RIGHT OF WAY REQUIRED**
- (D) **RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED**
- (E) **RIGHT TO CONSTRUCT DRIVEWAY REQUIRED**

CURVE DATA

PICKETT DISTRICT ROAD

CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C13	P.C.	71+21.79	760957.07	818956.31	0°55'49.7"	40.60	5000	81.20
	P.I.	71+62.39	760919.40	818941.17				
	P.T.	72+02.99	760881.49	818926.65				
C14	P.C.	75+95.07	760515.35	818786.38	5°29'28.4"	47.96	1000	95.84
	P.I.	76+43.03	760470.57	818769.22				
	P.T.	76+90.91	760427.63	818747.86				
C15	P.C.	78+34.68	760298.92	818683.82	1°08'16.9"	24.83	2500	49.66
	P.I.	78+59.51	760276.69	818672.76				
	P.T.	78+84.33	760254.24	818662.14				
C16	P.C.	79+78.95	760168.72	818621.68	9°30'34.1"	149.72	1800	298.75
	P.I.	81+28.67	760033.37	818557.66				
	P.T.	82+77.70	759910.47	818472.16				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80
SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_RDW.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

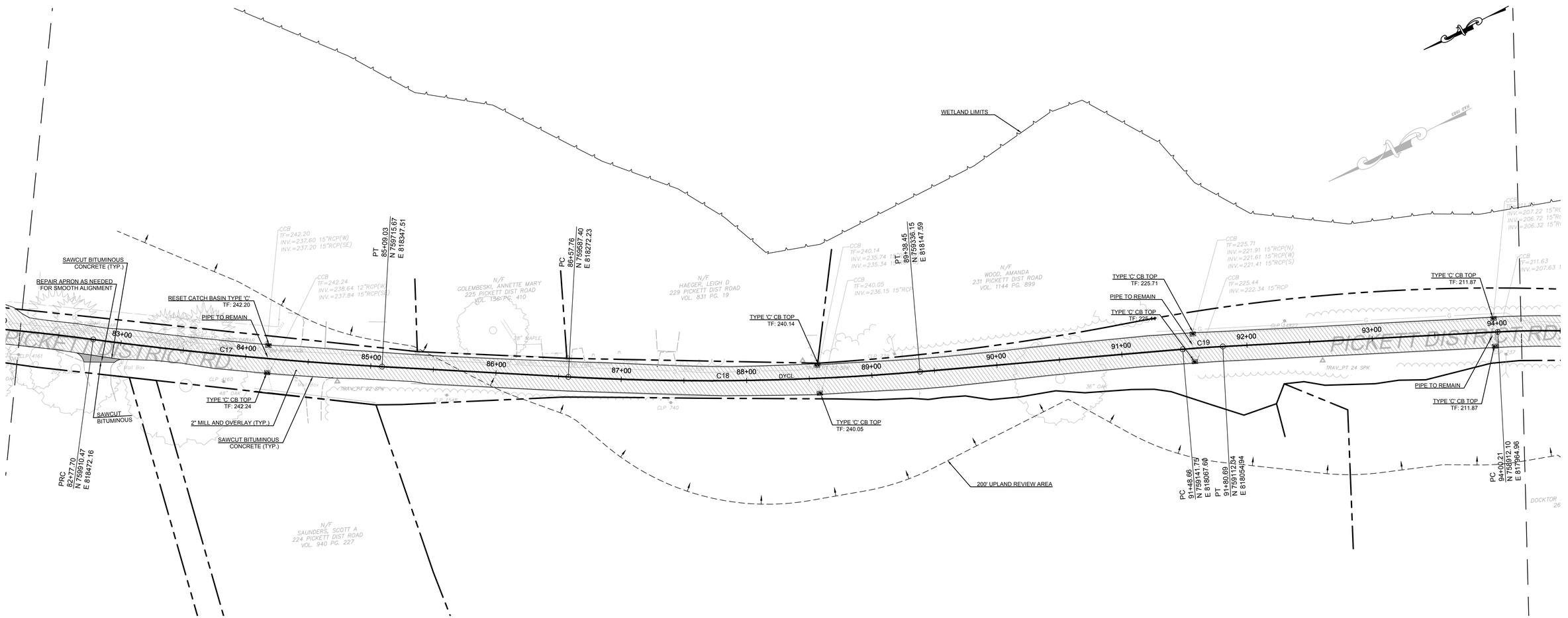
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01

DRAWING NO. RDW-07

SHEET NO. 22



CURVE DATA								
PICKETT DISTRICT ROAD								
CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C16	P.C.	79+78.95	760168.72	818621.68	9°30'34.1"	149.72	1800	298.75
	P.I.	81+28.67	760033.37	818557.66				
	P.T.	82+77.70	759910.47	818472.16				
C17	P.C.	82+77.70	759910.47	818472.16	4°25'05.3"	115.72	3000	231.33
	P.I.	83+93.42	759815.47	818406.08				
	P.T.	85+09.03	759715.67	818347.51				
C18	P.C.	86+57.76	759587.40	818272.23	8°02'28.8"	140.58	2000	280.70
	P.I.	87+98.33	759466.15	818201.08				
	P.T.	89+38.45	759336.15	818147.59				
C19	P.C.	91+48.66	759141.75	818067.60	1°50'05.6"	16.01	1000	32.02
	P.I.	91+64.67	759126.94	818061.51				
	P.T.	91+80.69	759112.34	818054.94				
C20	P.C.	94+00.21	758912.10	817964.96	15°18'22.8"	94.06	700	187.00
	P.I.	94+94.27	758826.31	817926.40				
	P.T.	95+87.21	758753.73	817866.56				

2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- A RIGHT TO GRADE REQUIRED
- B EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
- C DRAINAGE RIGHT OF WAY REQUIRED
- D RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
- E RIGHT TO CONSTRUCT DRIVEWAY REQUIRED

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80
SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_RDW.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

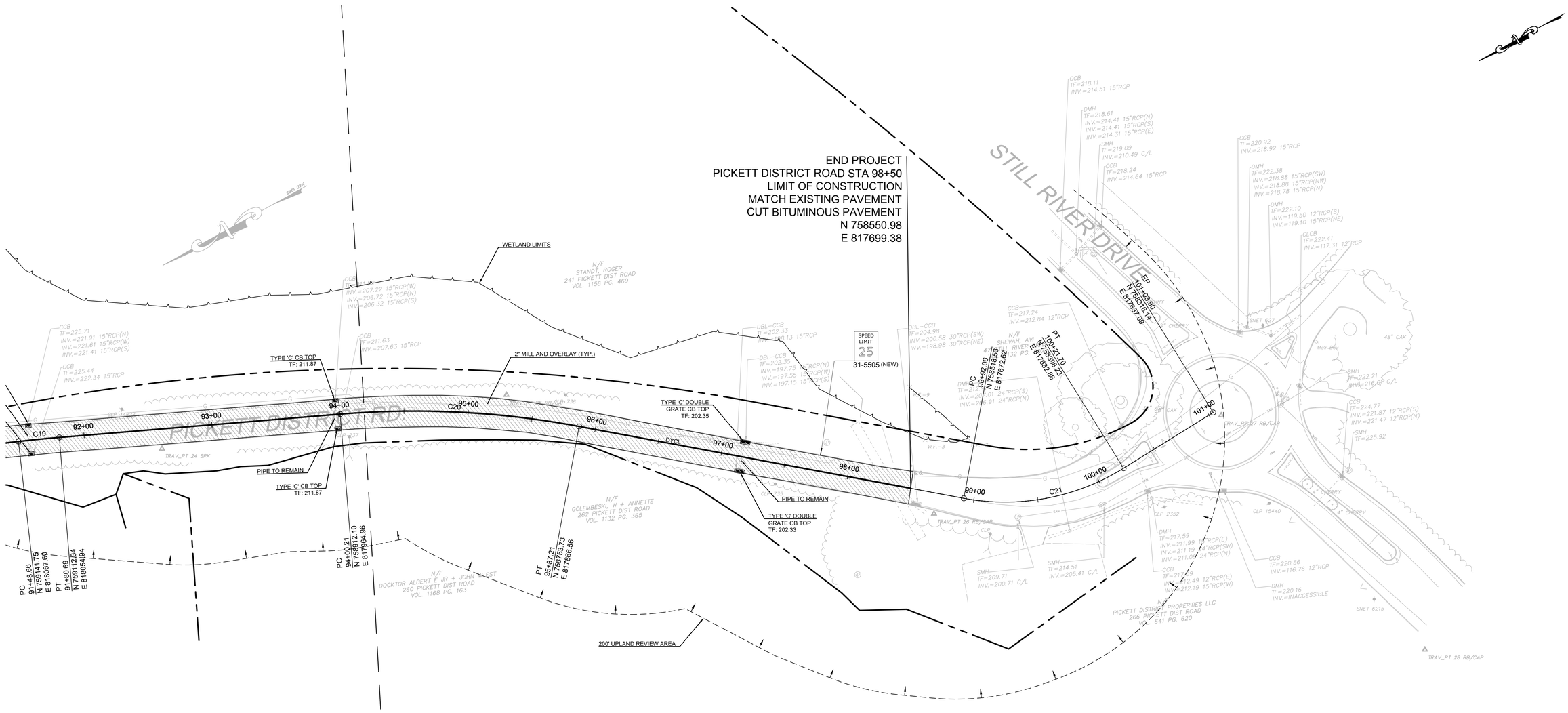
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01

DRAWING NO. RDW-08

SHEET NO. 23



2" MILL AND OVERLAY

FULL DEPTH RECONSTRUCTION

COLD RECLAIM

- A RIGHT TO GRADE REQUIRED
- B EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
- C DRAINAGE RIGHT OF WAY REQUIRED
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- E RIGHT TO CONSTRUCT DRIVEWAY REQUIRED

CURVE DATA
PICKETT DISTRICT ROAD

CURVE #	CONTROL POINT	STATION	NORTHING	EASTING	DELTA ANGLE	TANGENT	RADIUS	ARC LENGTH
C19	P.C.	91+48.66	759141.75	818067.60	1°50'05.6"	16.01	1000	32.02
	P.I.	91+64.67	759126.94	818061.51				
	P.T.	91+80.69	759112.34	818054.94				
C20	P.C.	94+00.21	758912.10	817964.96	15°18'22.8"	94.06	700	187.00
	P.I.	94+94.27	758826.31	817926.40				
	P.T.	95+87.21	758753.73	817866.56				
C21	P.C.	98+92.06	758518.53	817672.62	42°26'32.8"	67.95	175	129.63
	P.I.	99+60.02	758466.10	817629.39				
	P.T.	100+21.70	758398.23	817632.88				

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET
0 40 80
SCALE 1"=40'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PLAN

PROJECT NO. 70531.01
DRAWING NO. RDW-09
SHEET NO. 24

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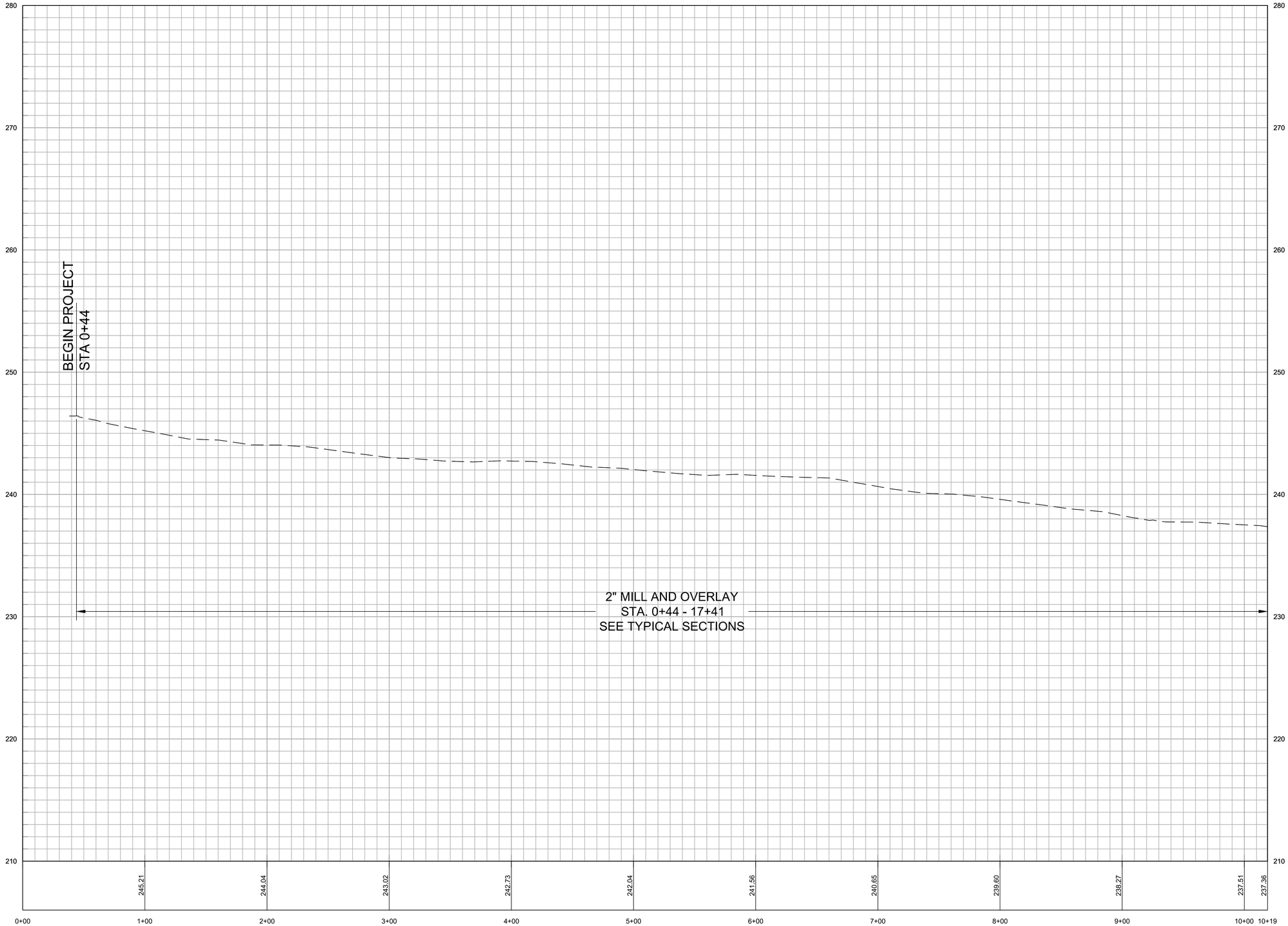


REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80

SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE:
RECONSTRUCTION OF
PICKETT DISTRICT ROAD

TOWN:
TOWN OF
NEW MILFORD

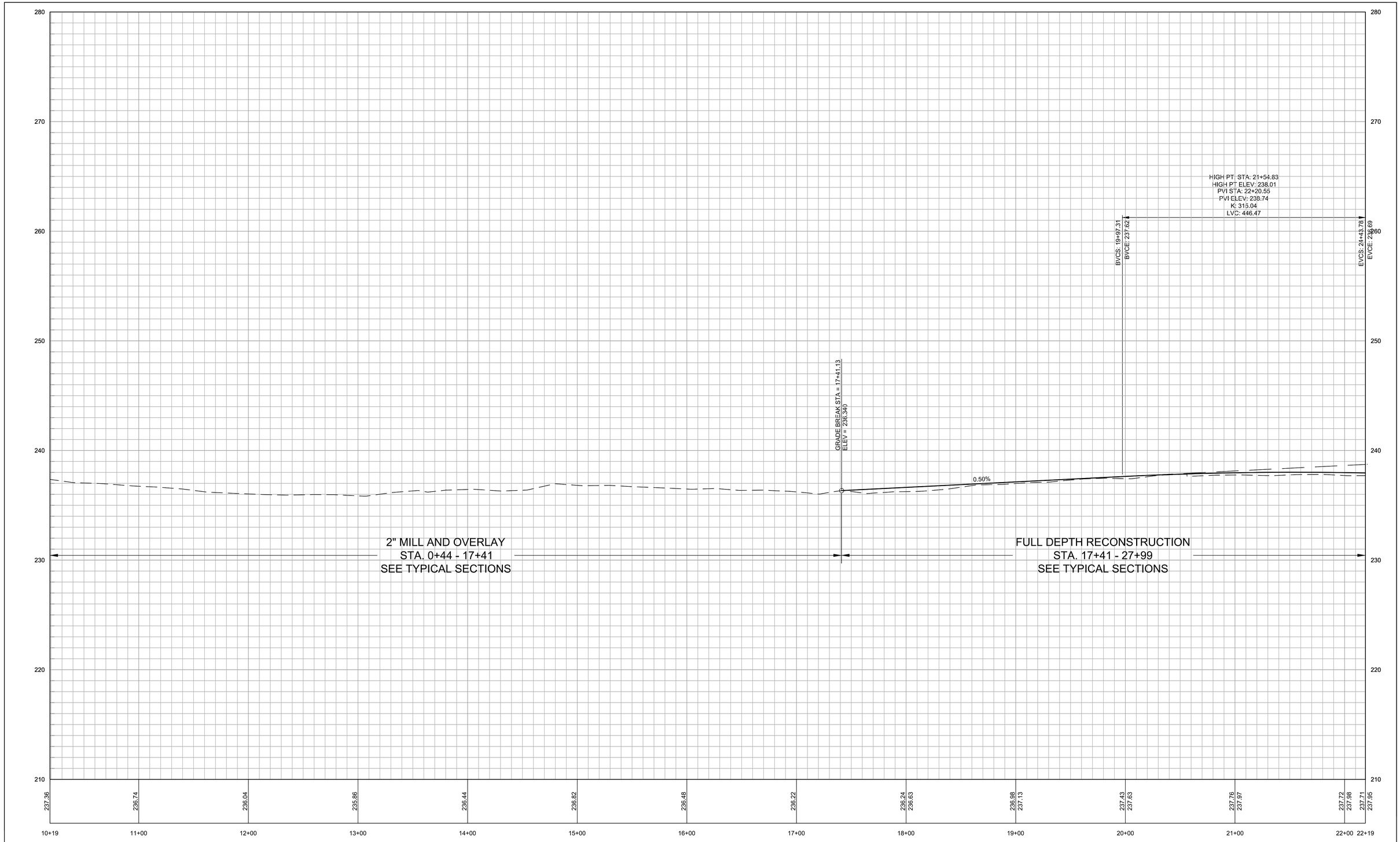
DRAWING TITLE:
ROADWAY
PROFILE

PROJECT NO.
70531.01

DRAWING NO.
PRO-01

SHEET NO.
25

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80
SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg

PROJECT TITLE:
RECONSTRUCTION OF
PICKETT DISTRICT ROAD

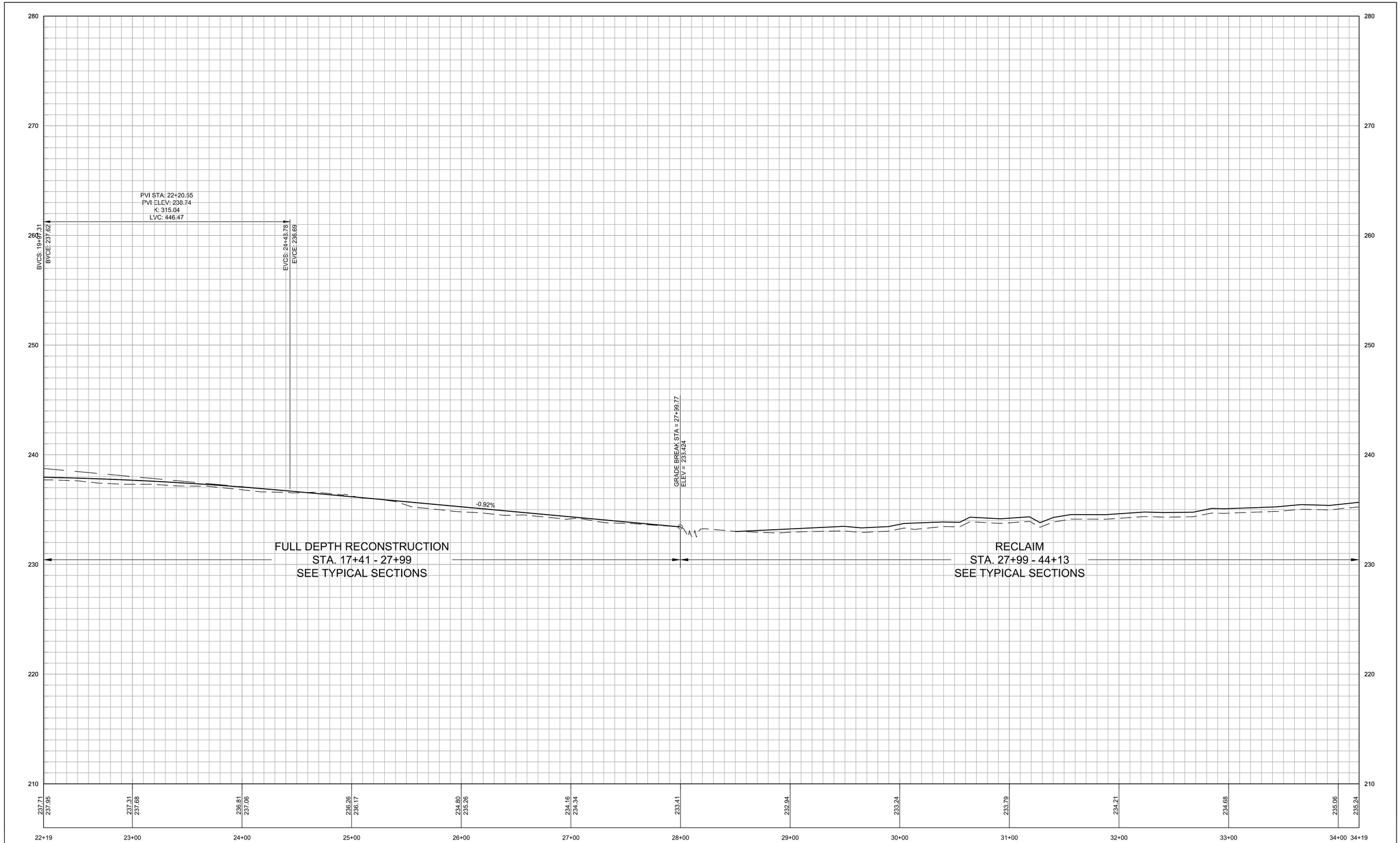
TOWN:
TOWN OF
NEW MILFORD

DRAWING TITLE:
ROADWAY
PROFILE

PROJECT NO.
70531.01

DRAWING NO.
PRO-02

SHEET NO.
26



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET

0 40 80

SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT

benesch

PROJECT TITLE:

RECONSTRUCTION OF
PICKETT DISTRICT ROAD

TOWN:

TOWN OF
NEW MILFORD

DRAWING TITLE:

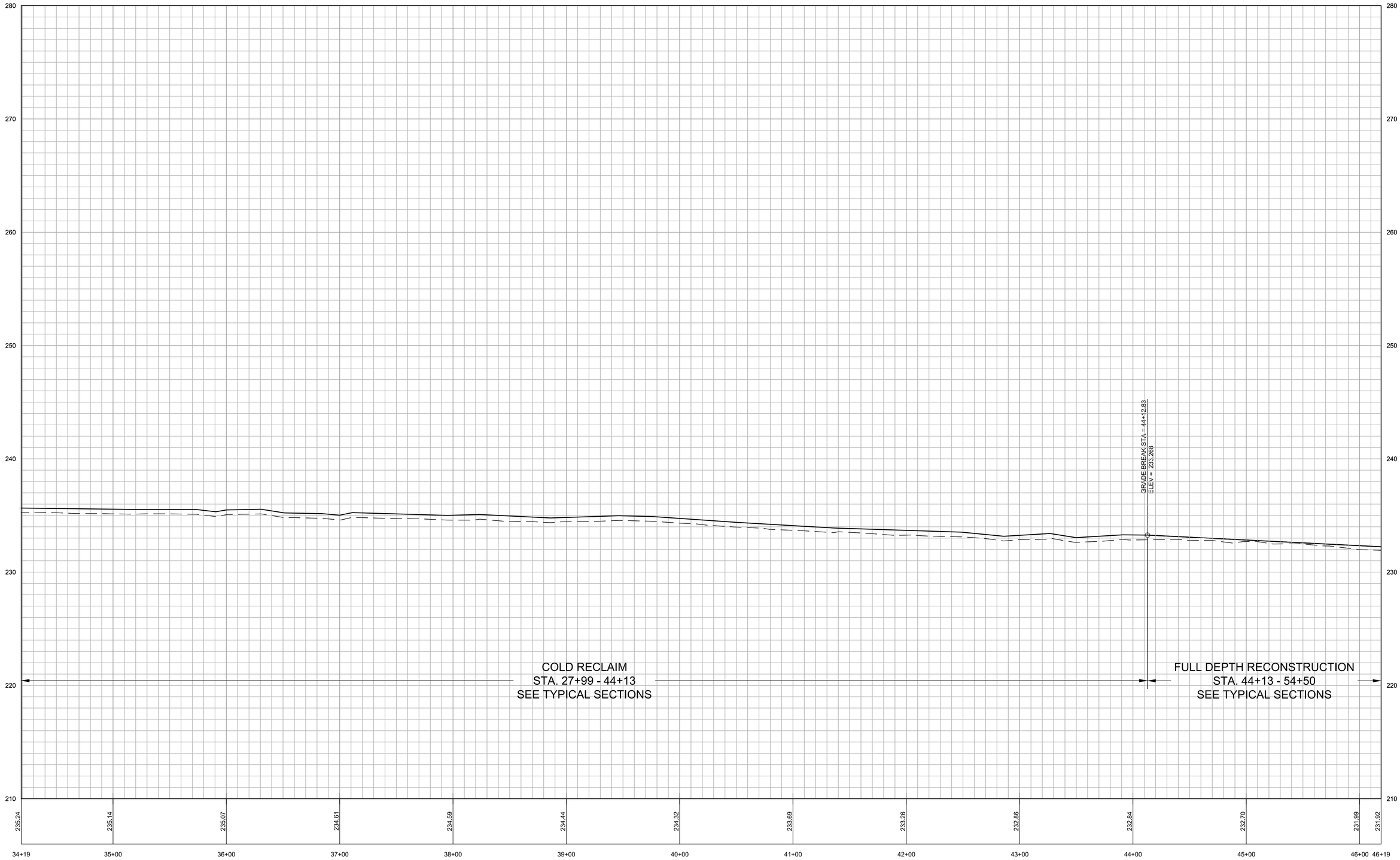
ROADWAY
PROFILE

PROJECT NO. 70531.01

DRAWING NO. PRO-03

SHEET NO. 27

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80
SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT

benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg

PROJECT TITLE:
RECONSTRUCTION OF
PICKETT DISTRICT ROAD

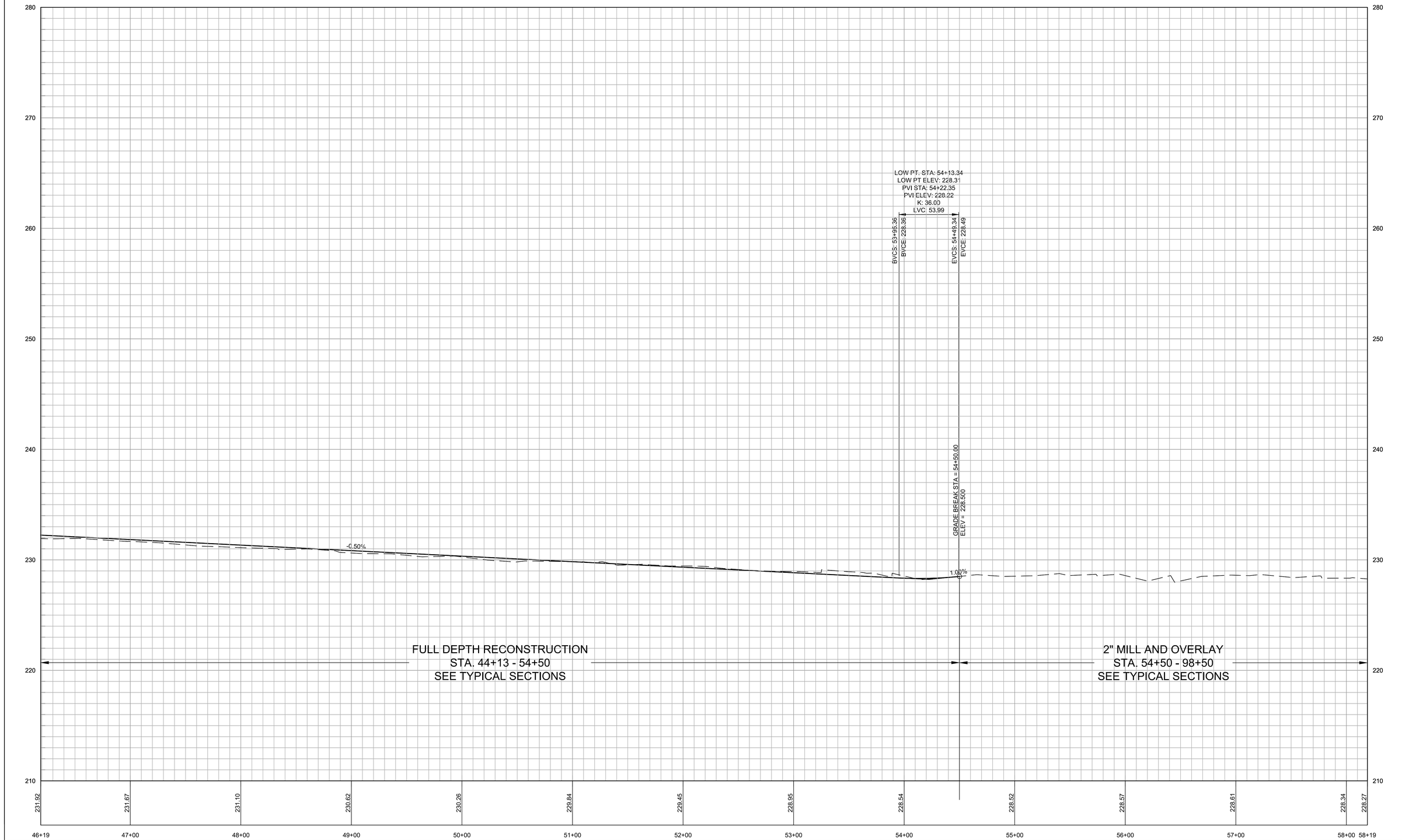
TOWN:
TOWN OF
NEW MILFORD

DRAWING TITLE:
ROADWAY
PROFILE

PROJECT NO.
70531.01

DRAWING NO.
PRO-04

SHEET NO.
28



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80

SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

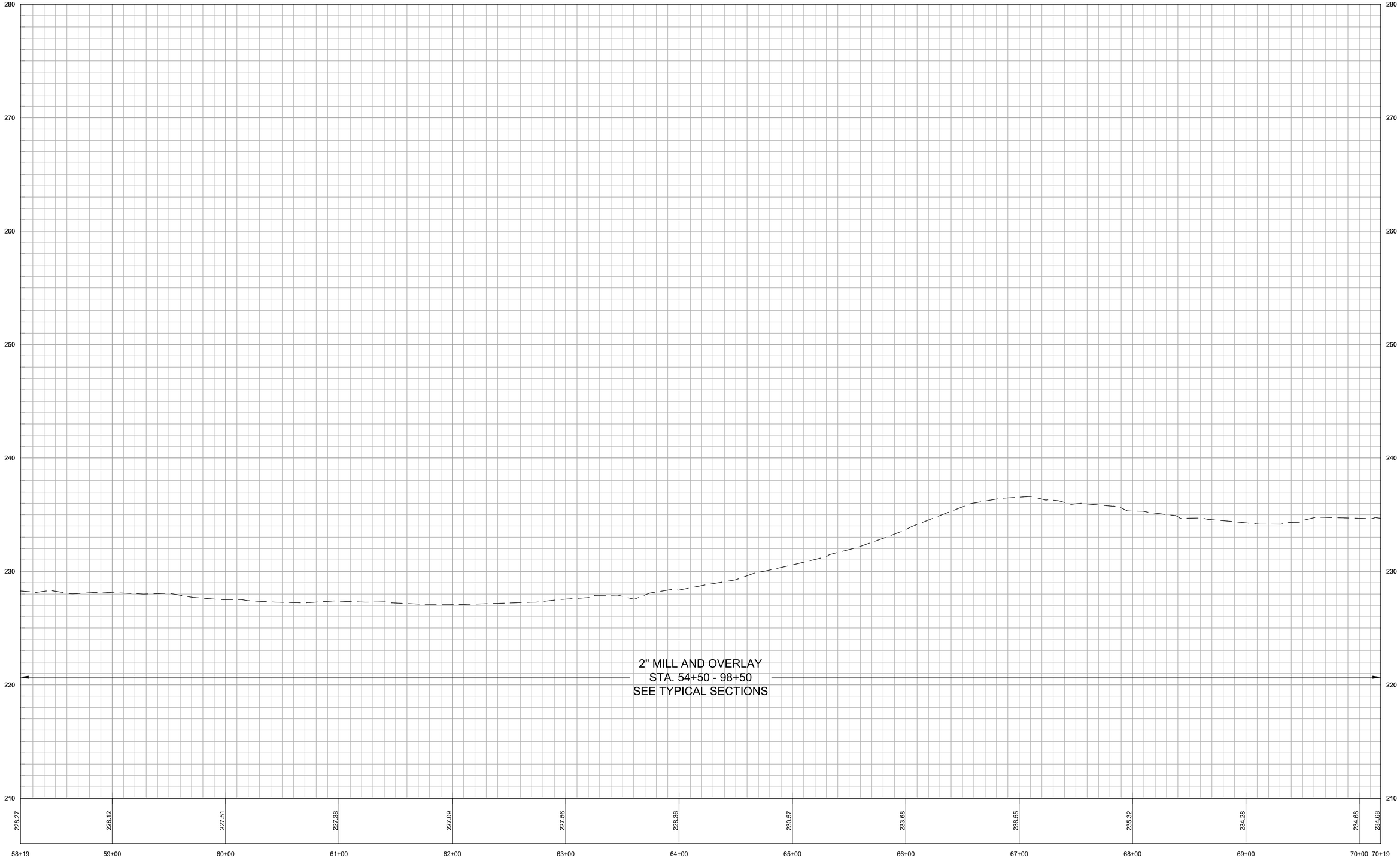
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY PROFILE

PROJECT NO. 70531.01

DRAWING NO. PRO-05

SHEET NO. 29



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80

SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT

benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg

PROJECT TITLE:
RECONSTRUCTION OF
PICKETT DISTRICT ROAD

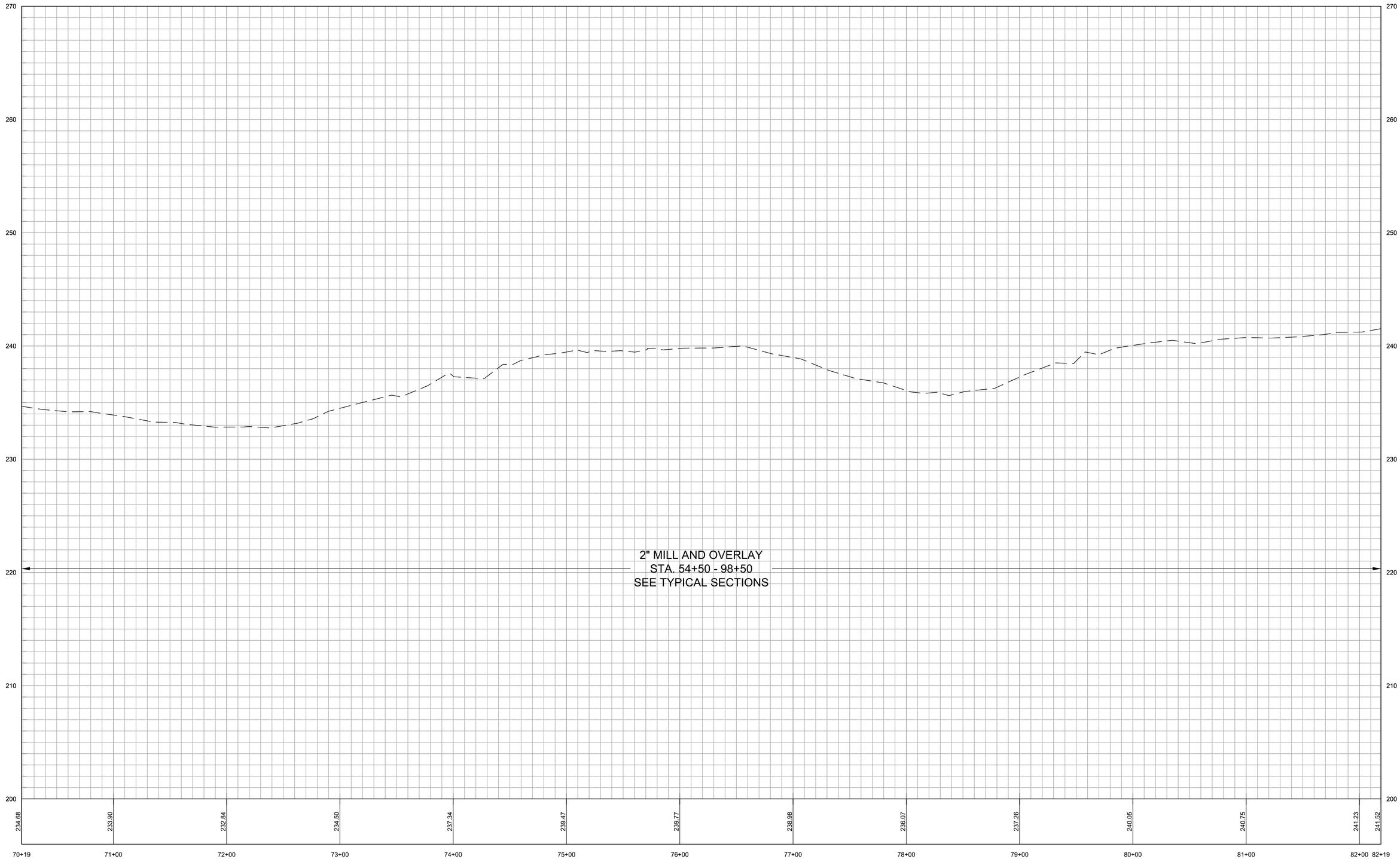
TOWN:
TOWN OF
NEW MILFORD

DRAWING TITLE:
ROADWAY
PROFILE

PROJECT NO.
70531.01

DRAWING NO.
PRO-06

SHEET NO.
30



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80

SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT

benesch

PROJECT TITLE:
RECONSTRUCTION OF
PICKETT DISTRICT ROAD

TOWN:
TOWN OF
NEW MILFORD

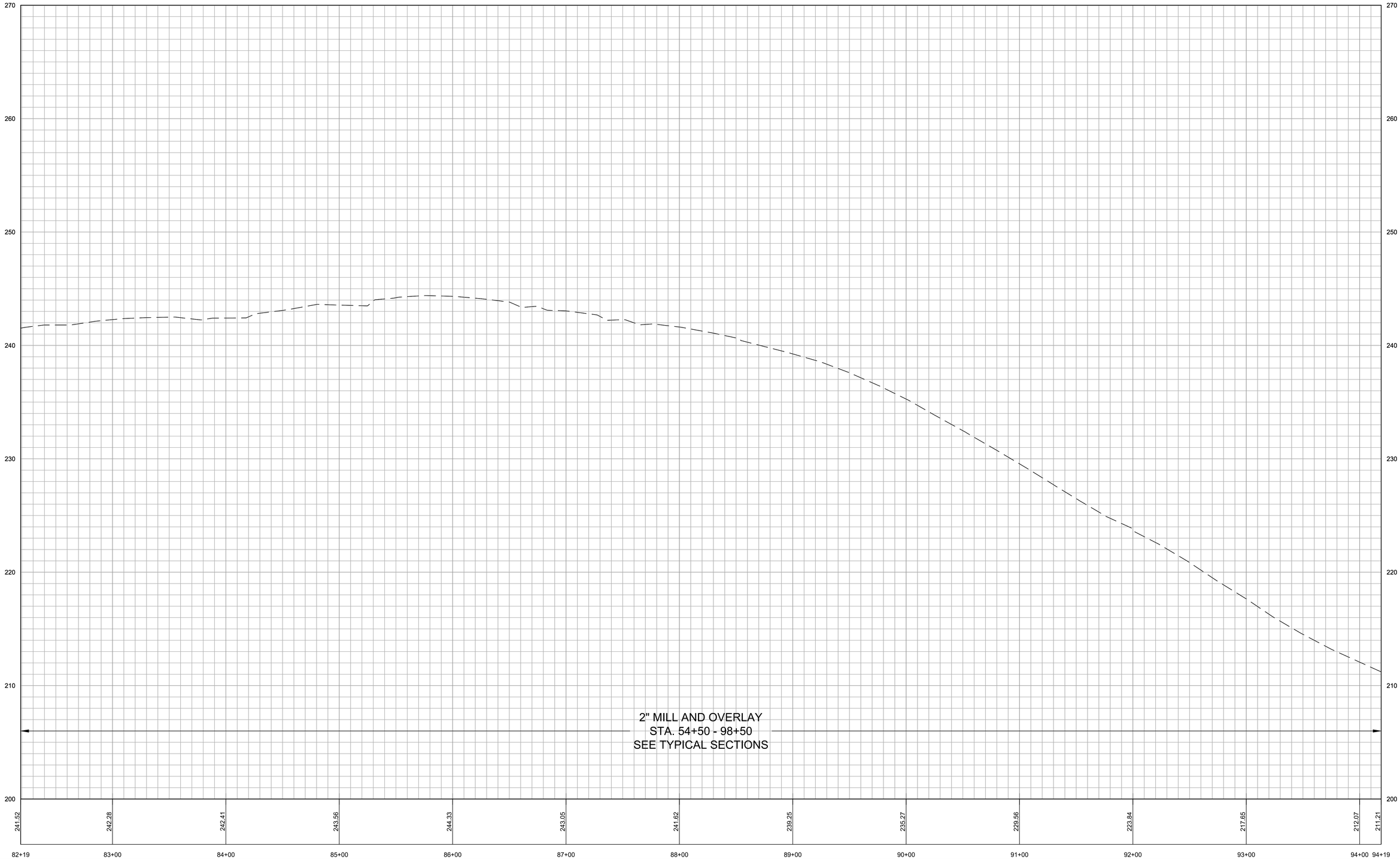
DRAWING TITLE:
ROADWAY
PROFILE

PROJECT NO.
70531.01

DRAWING NO.
PRO-07

SHEET NO.
31

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80

SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg

PROJECT TITLE:
RECONSTRUCTION OF
PICKETT DISTRICT ROAD

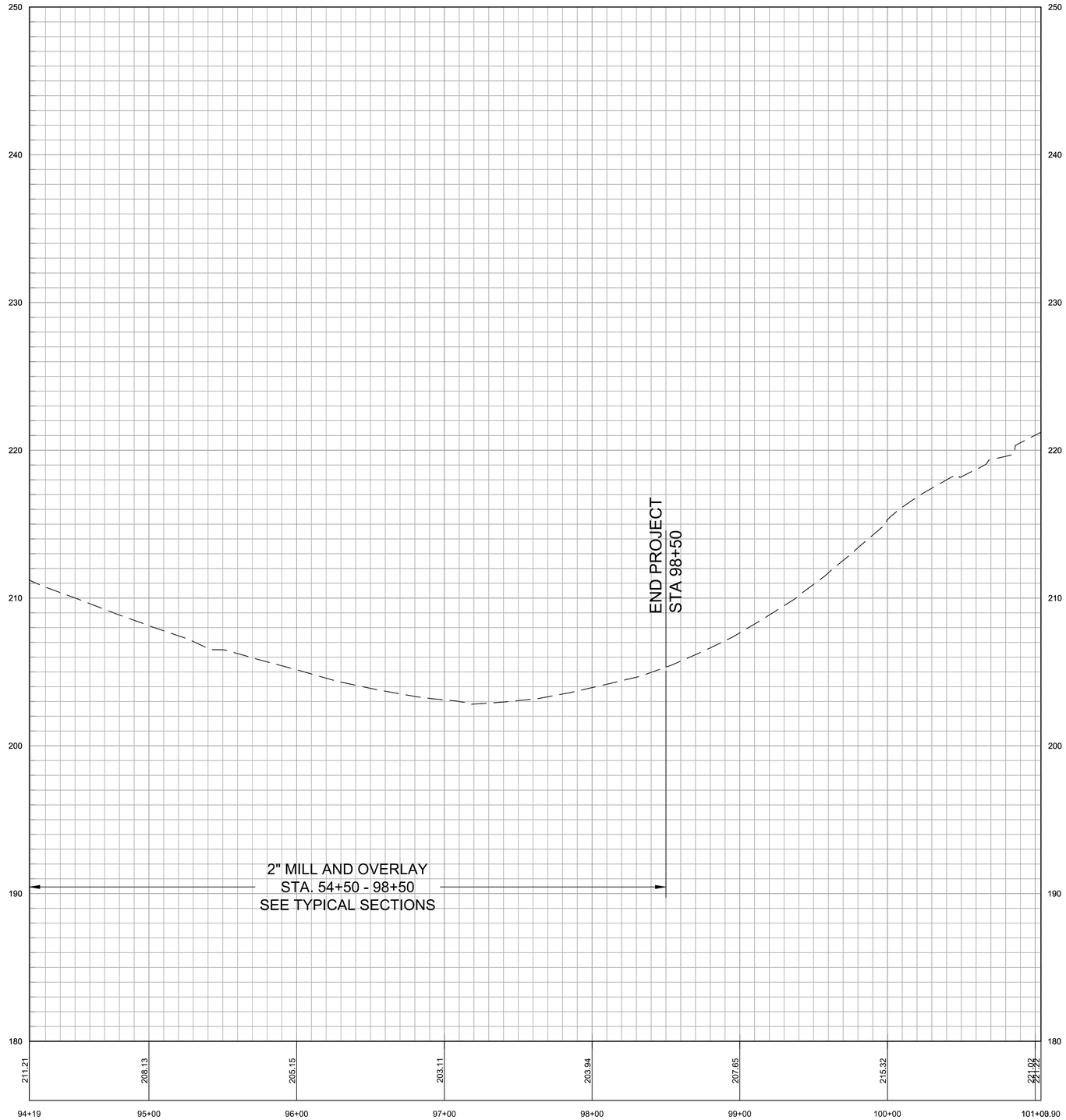
TOWN:
TOWN OF
NEW MILFORD

DRAWING TITLE:
ROADWAY
PROFILE

PROJECT NO.
70531.01

DRAWING NO.
PRO-08

SHEET NO.
32



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 40 80
SCALE: H 1"=40' V 1'=4'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

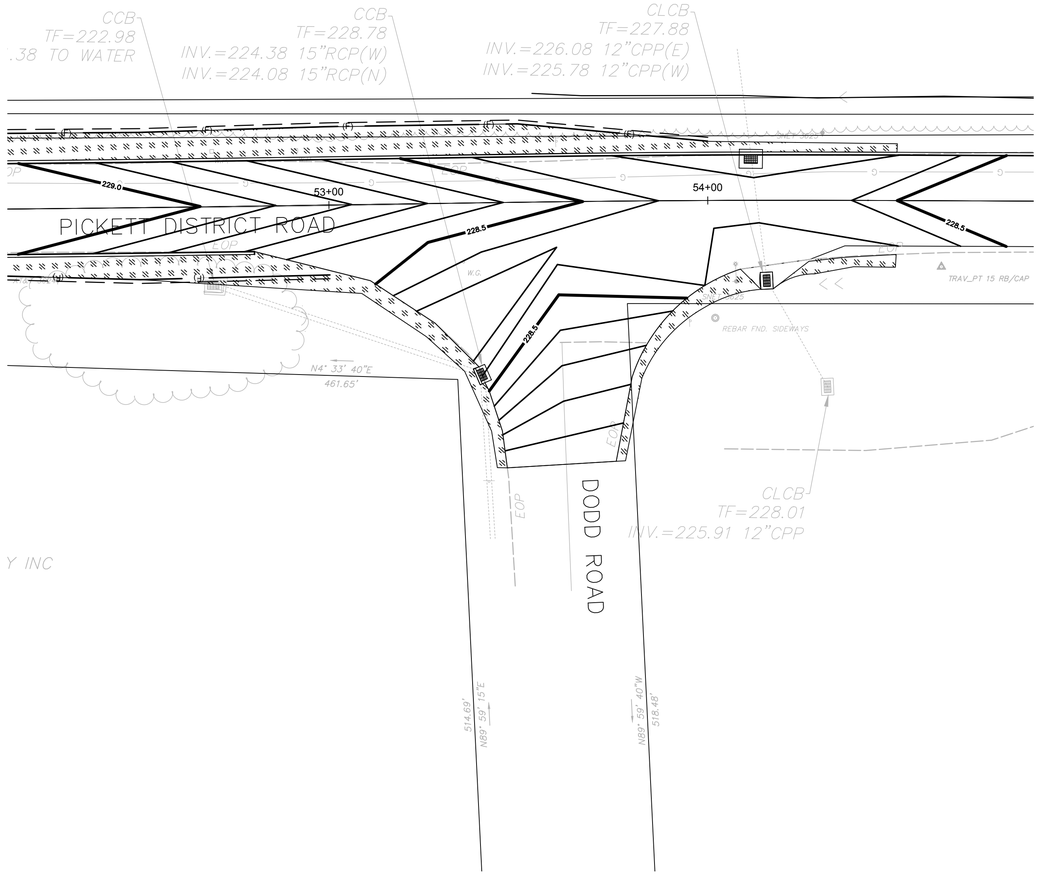
DRAWING TITLE: ROADWAY PROFILE

PROJECT NO. 70531.01

DRAWING NO. PRO-09

SHEET NO. 33

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_PRO.dwg



1 DODD ROAD

Scale: 1" = 20'

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET
0 20 40
SCALE 1"=20'

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files\70531.01_INT.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

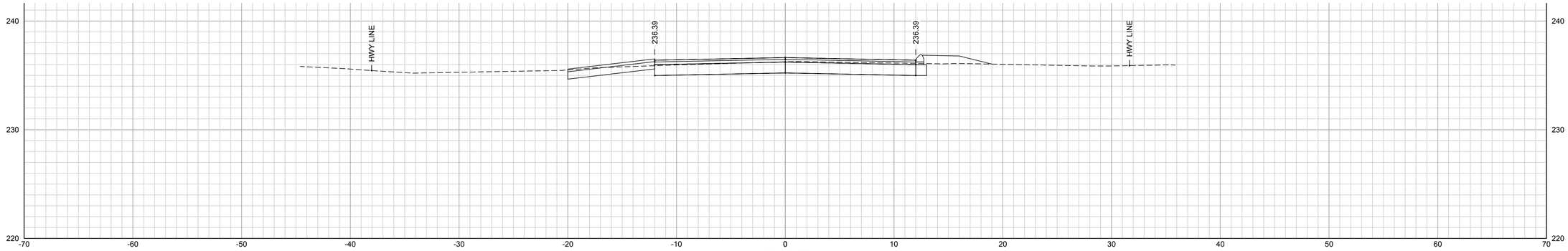
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: INTERSECTION GRADING PLAN

PROJECT NO. 70531.01

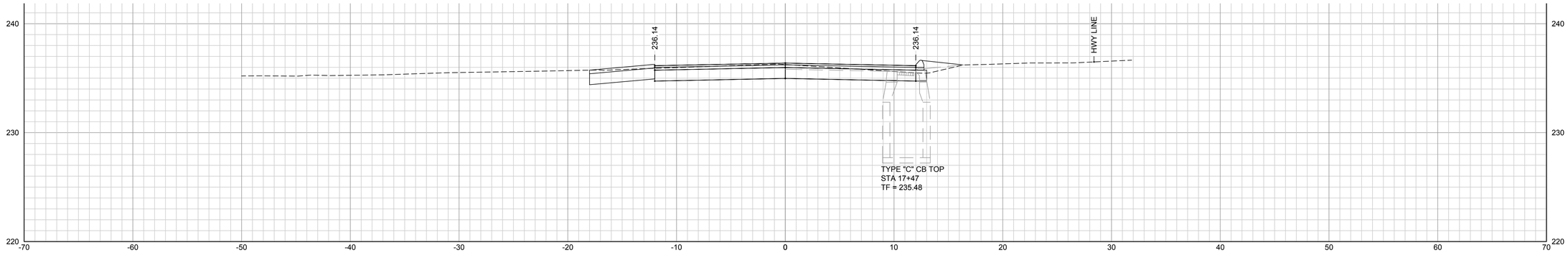
DRAWING NO. INT-01

SHEET NO. 34



18+00.00

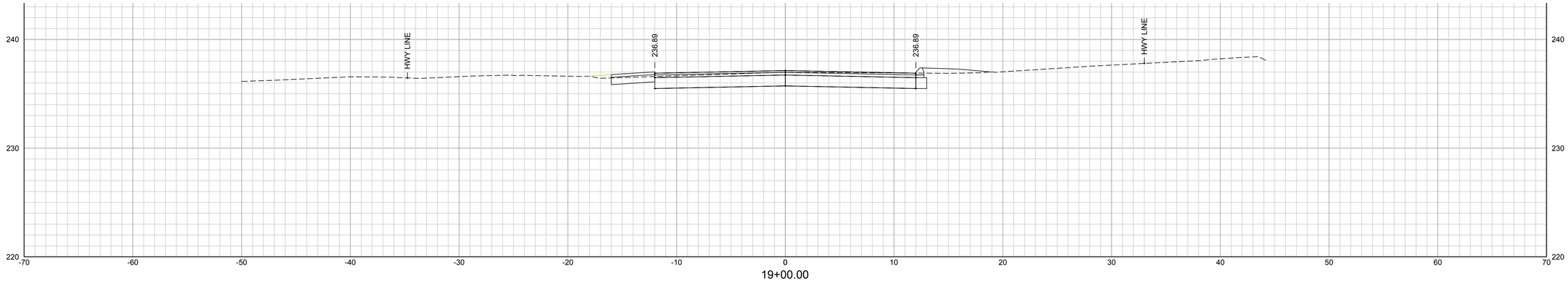
Design El.=236.63



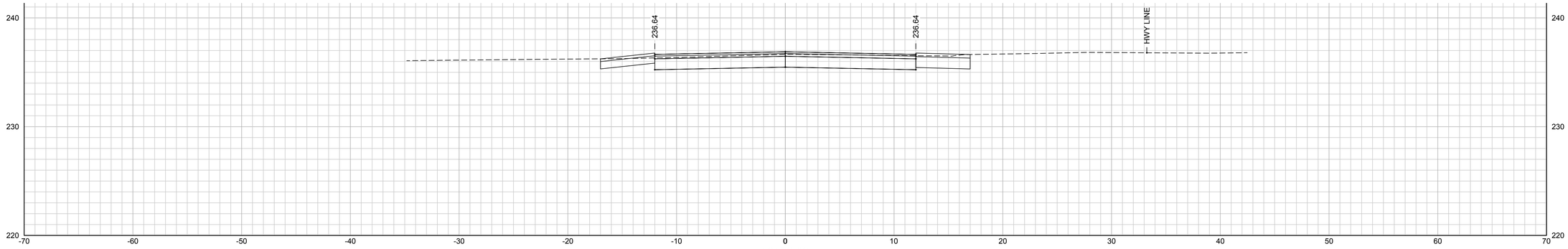
17+50.00

Design El.=236.38

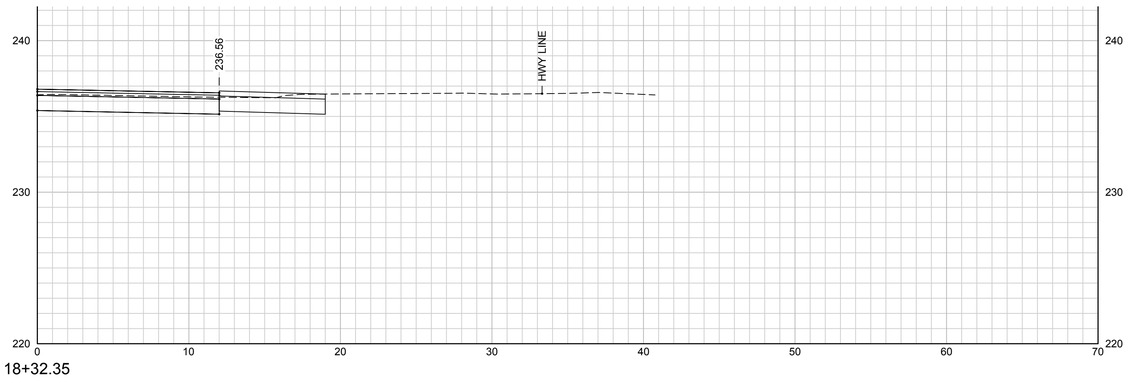
					DESIGNER/DRAFTER: JCO	TOWN OF NEW MILFORD	CONSULTANT benesch	PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD
					CHECKED BY: RGS			TOWN: TOWN OF NEW MILFORD
					SCALE IN FEET 0 5 10 SCALE 1"=5'			DRAWING TITLE: ROADWAY CROSS-SECTION
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Issue Date: MAY 17, 2019		Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg		PROJECT NO. 70531.01 / DRAWING NO. XSC-01 / SHEET NO. 35



19+00.00
Design El.=237.13



18+50.00
Design El.=236.88



18+32.35
Design El.=236.80

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT benesch

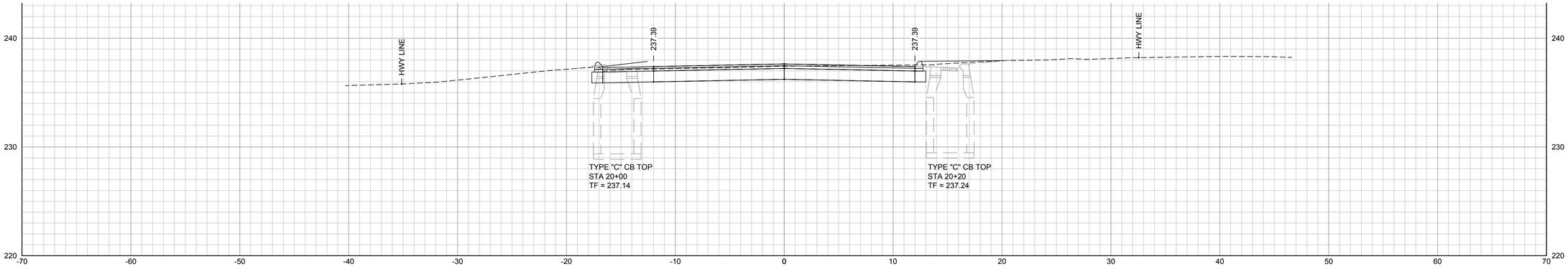
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

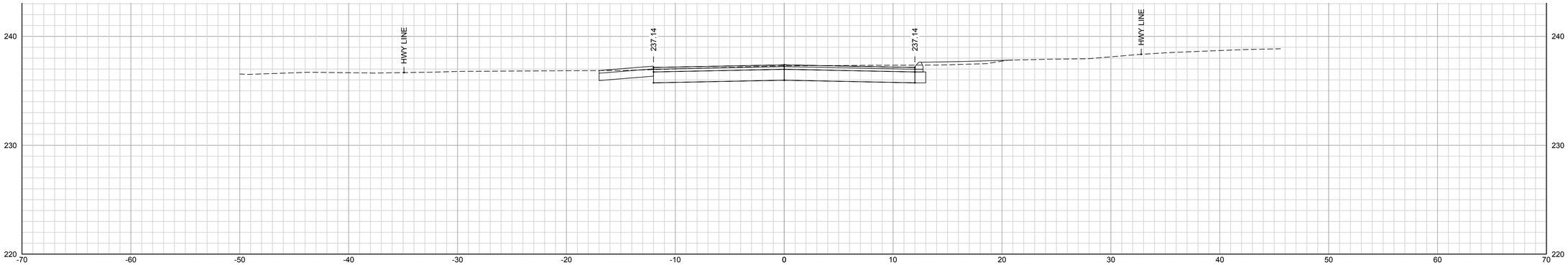
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

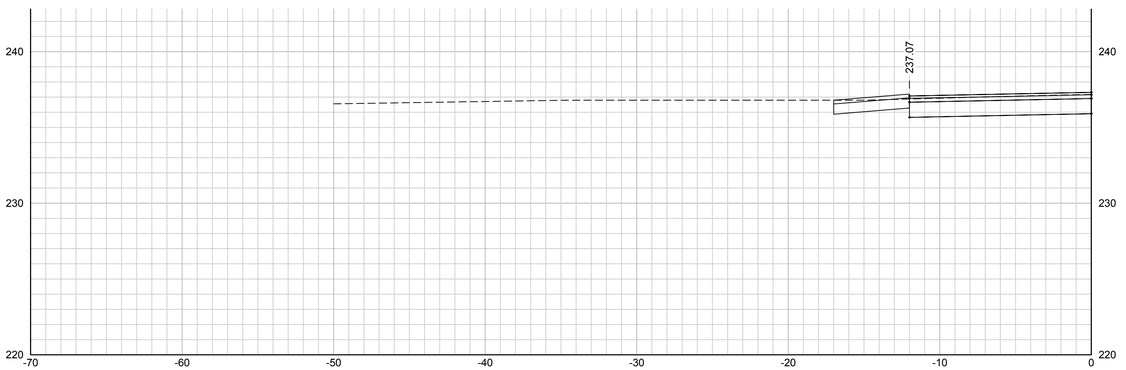
PROJECT NO. 70531.01
DRAWING NO. XSC-02
SHEET NO. 36



20+00.00
Design El.=237.63



19+50.00
Design El.=237.38



19+36.08
Design El.=237.31

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET
0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

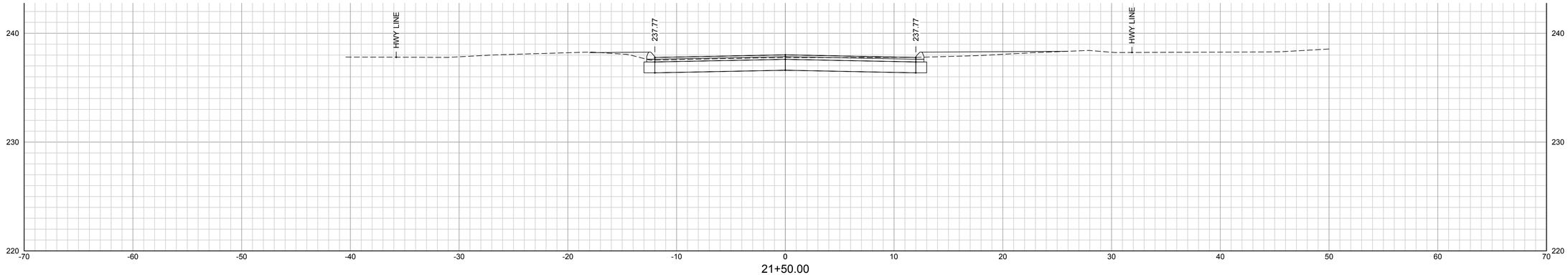
PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

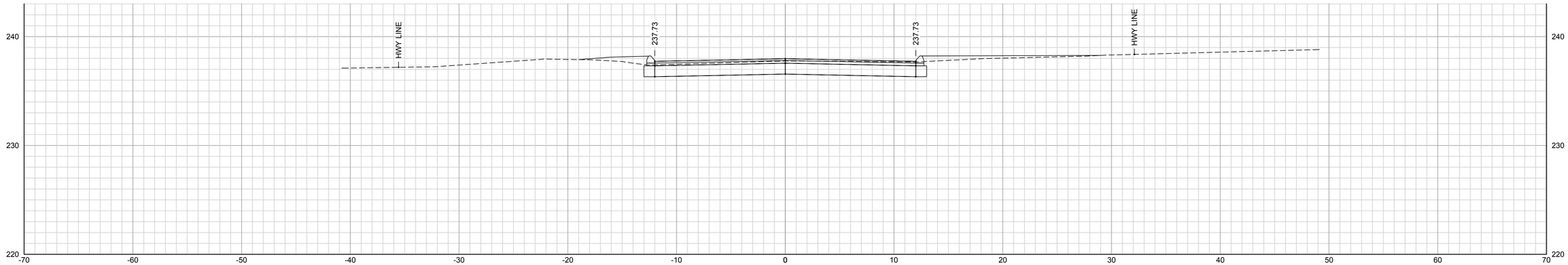
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01
DRAWING NO. XSC-03
SHEET NO. 37

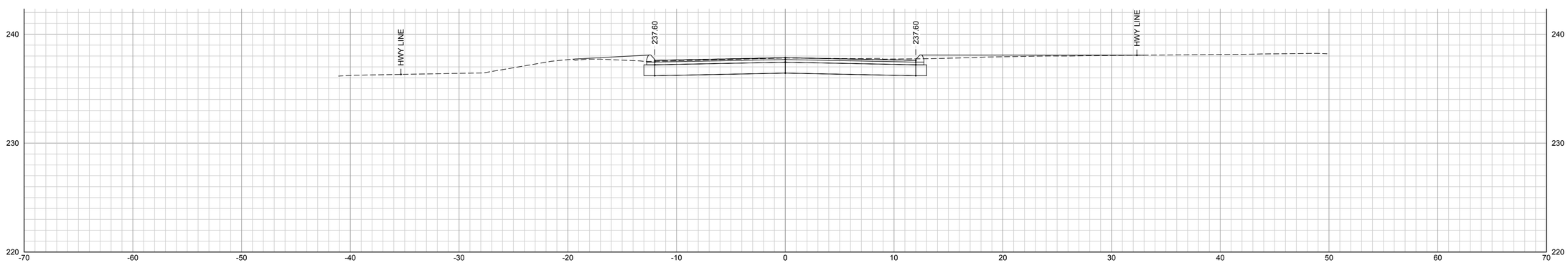
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg



21+50.00
Design El.=238.01



21+00.00
Design El.=237.97



20+50.00
Design El.=237.84

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

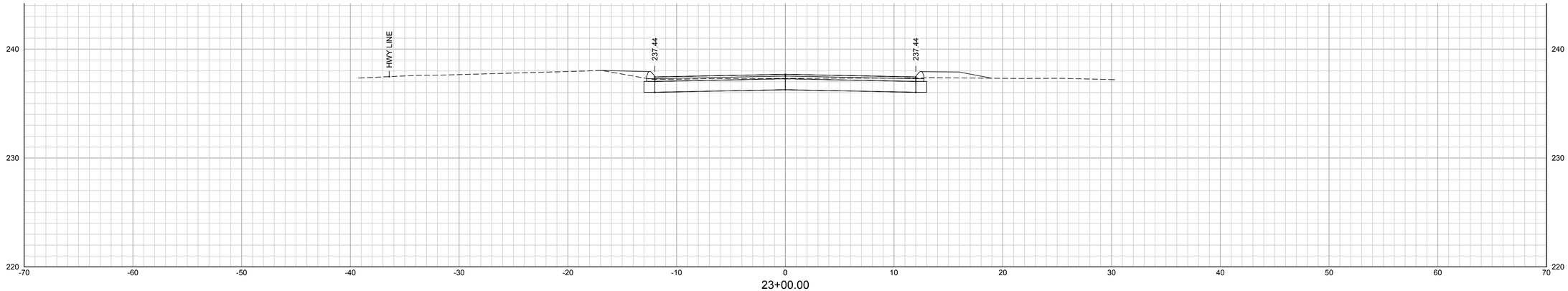
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

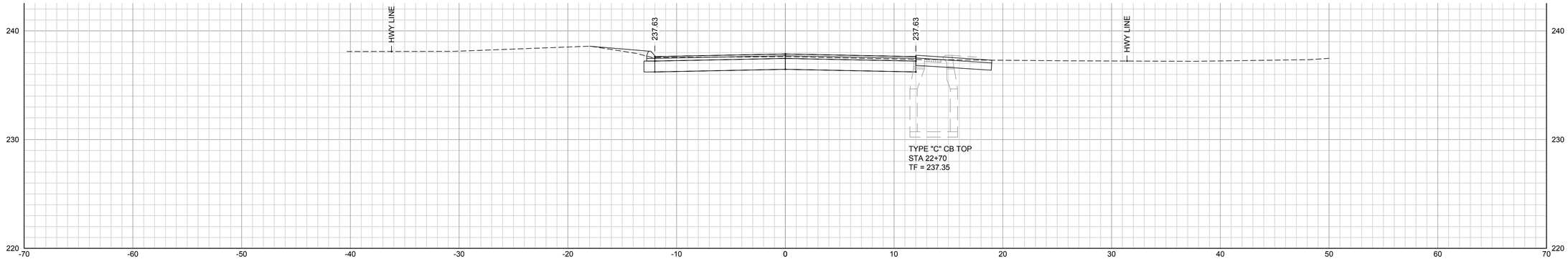
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

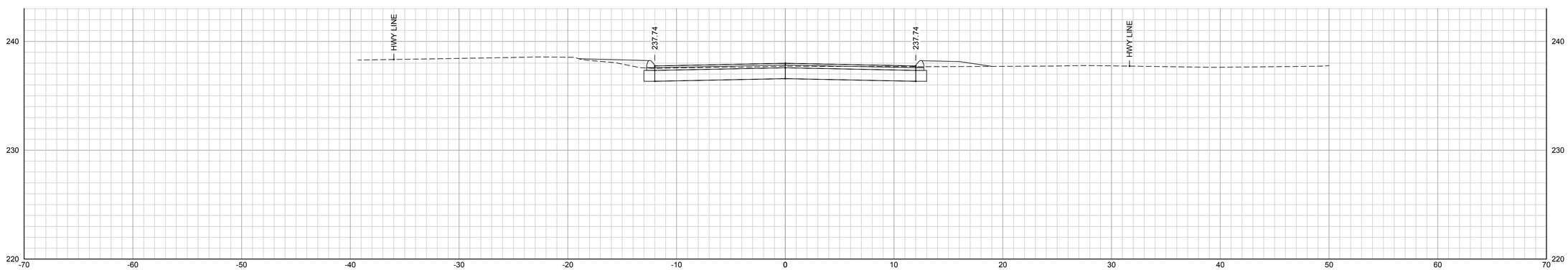
PROJECT NO. 70531.01
DRAWING NO. XSC-04
SHEET NO. 38



23+00.00
Design El.=237.68



22+50.00
Design El.=237.87



22+00.00
Design El.=237.98

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

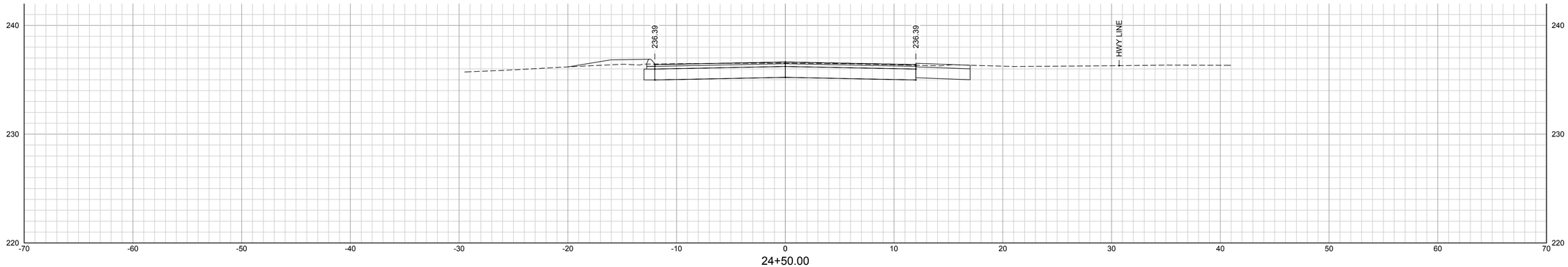
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

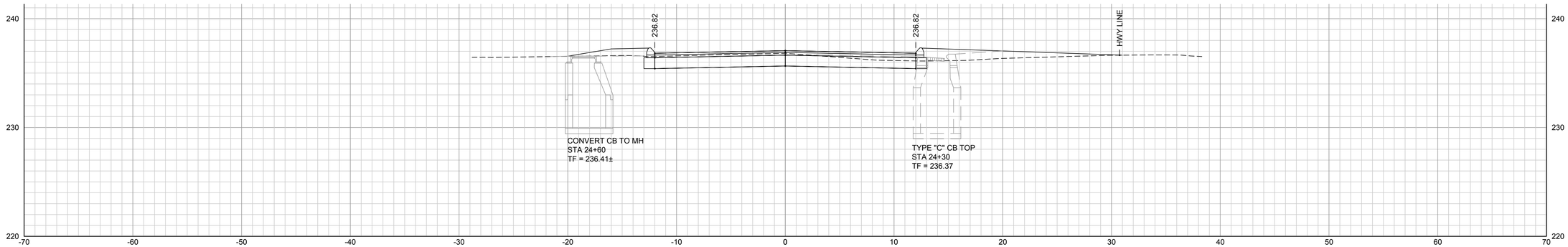
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

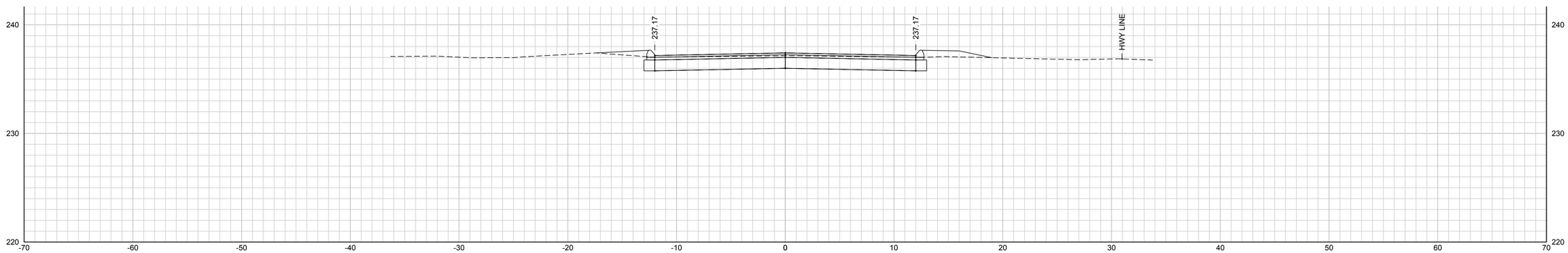
PROJECT NO. 70531.01
DRAWING NO. XSC-05
SHEET NO. 39



24+50.00
Design El.=236.63



24+00.00
Design El.=237.06



23+50.00
Design El.=237.41

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

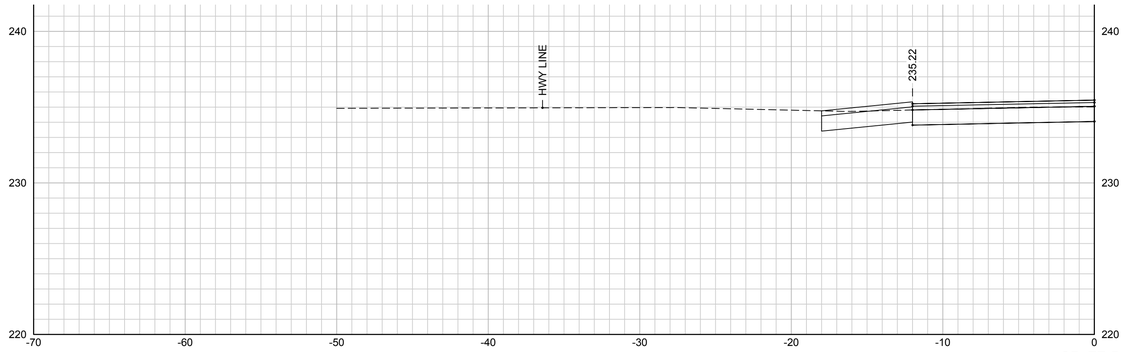
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01
DRAWING NO. XSC-06
SHEET NO. 40



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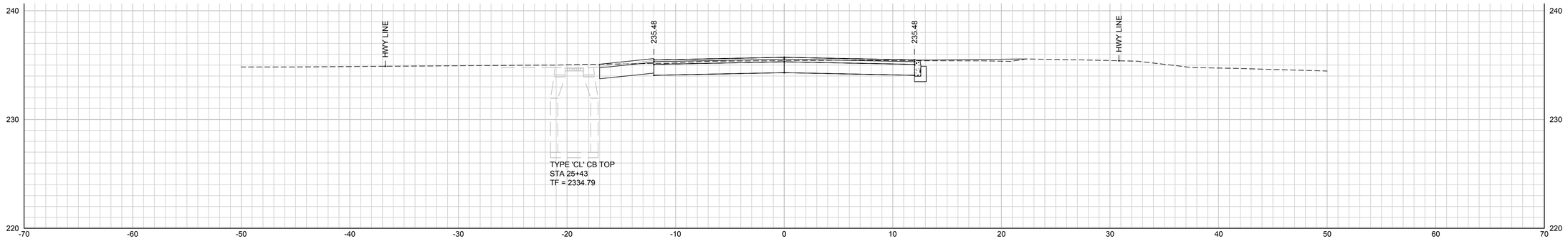
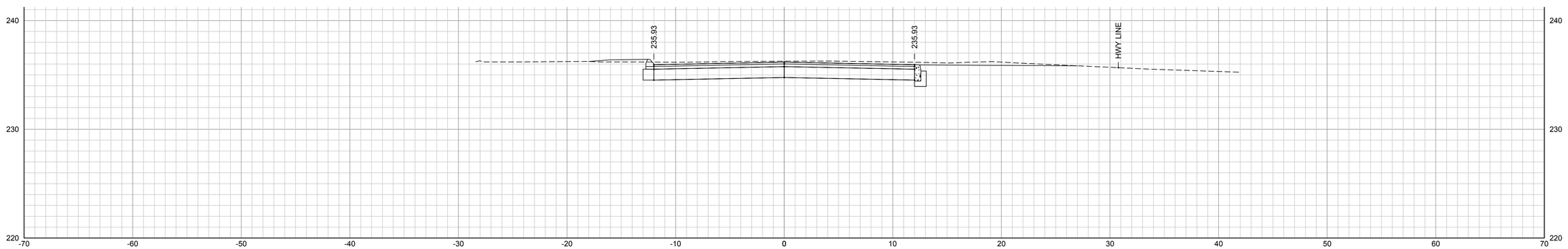
Design El.=235.46



25+50.00
Design El.=235.72



25+00.00
Design El.=236.17

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

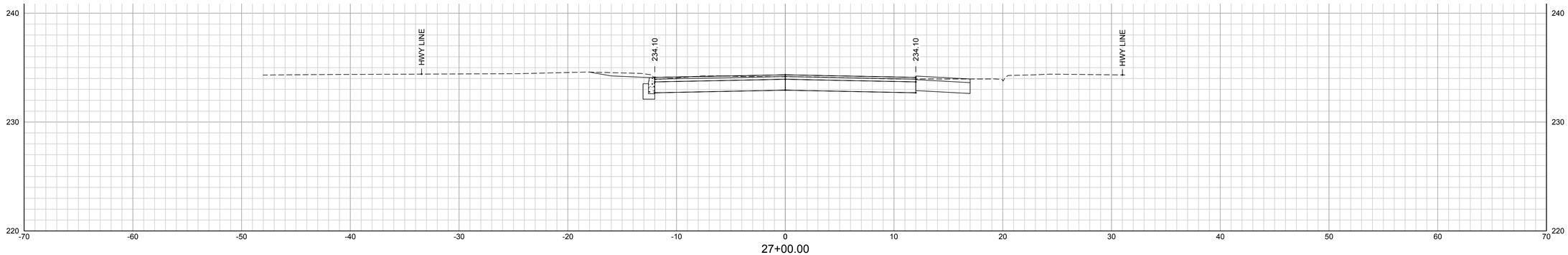
PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

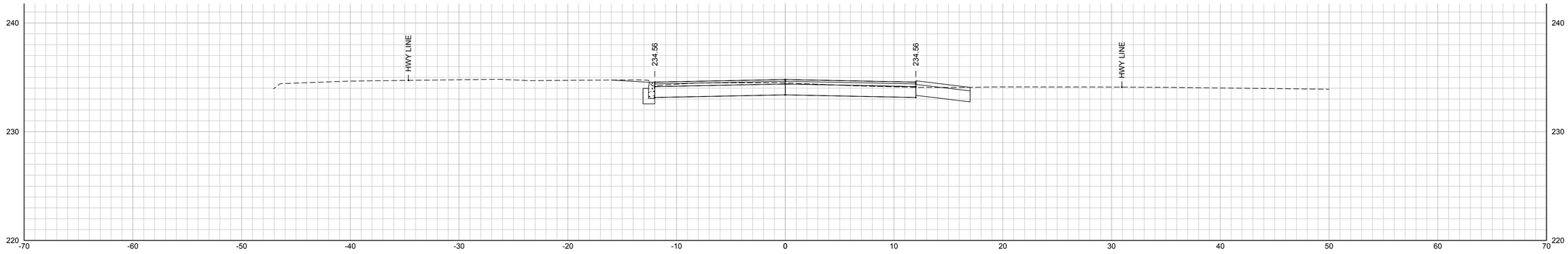
DRAWING TITLE: ROADWAY CROSS-SECTION

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg

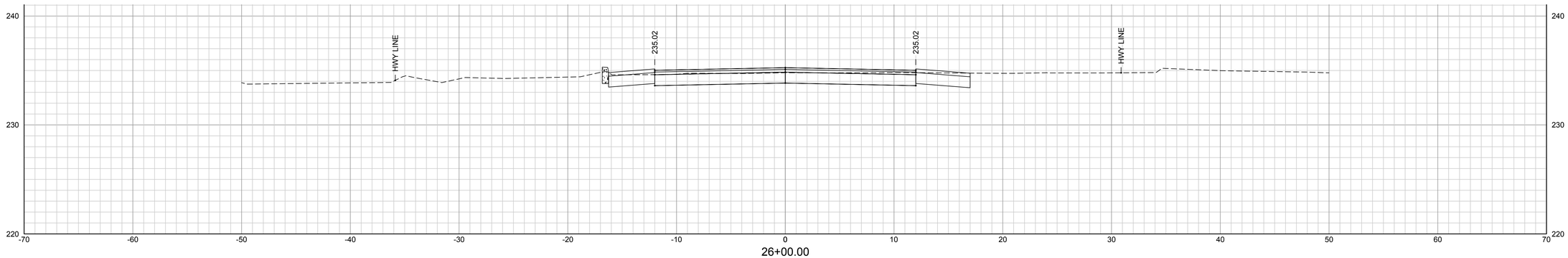
PROJECT NO. 70531.01
DRAWING NO. XSC-07
SHEET NO. 41



27+00.00
Design El.=234.34



26+50.00
Design El.=234.80



26+00.00
Design El.=235.26

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

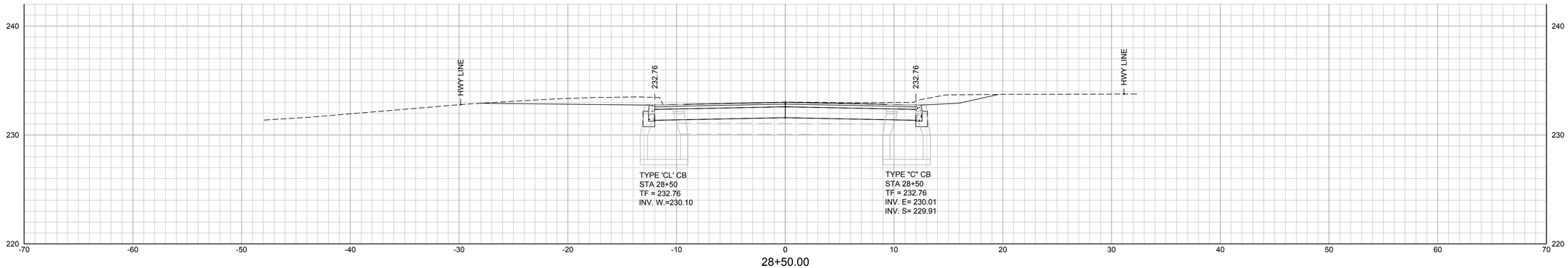
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01
DRAWING NO. XSC-08
SHEET NO. 42



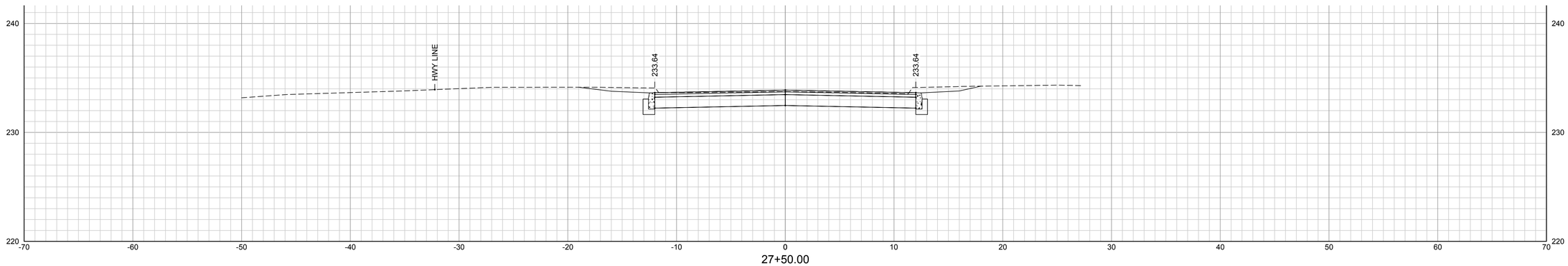
28+50.00

Design El.=233.00

28+00.00

Design El.=

RAILROAD CROSSING ELEVATION TO REMAIN UNCHANGED



27+50.00

Design El.=233.88

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

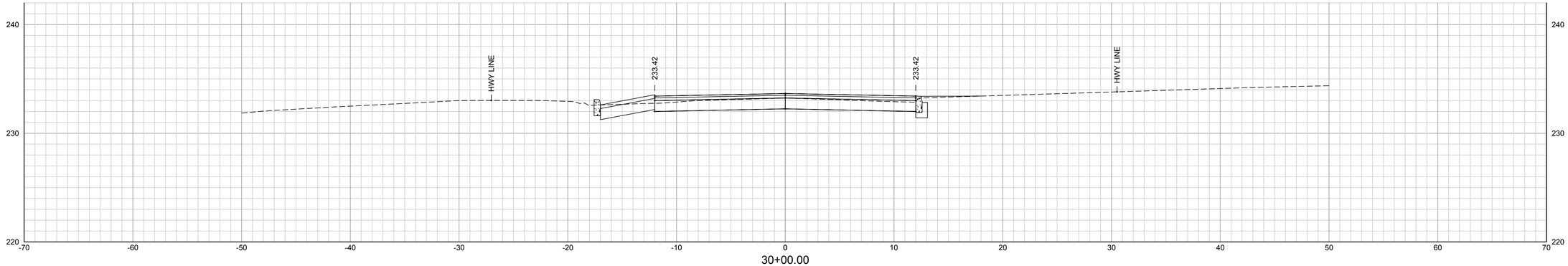
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-09

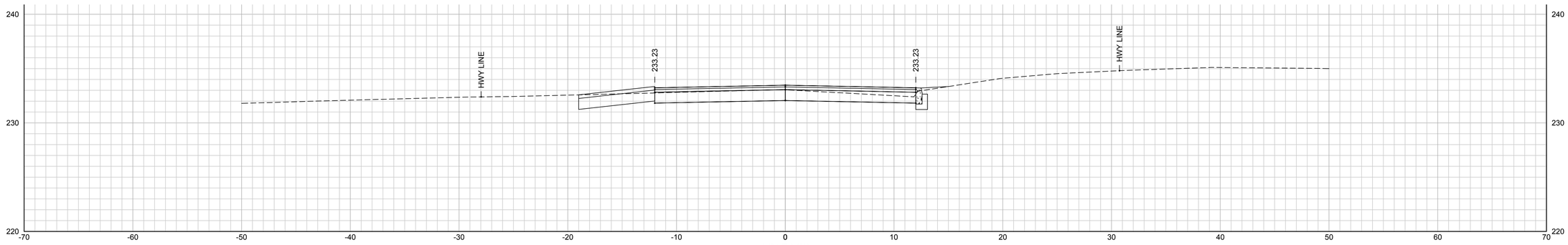
SHEET NO. 43

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg



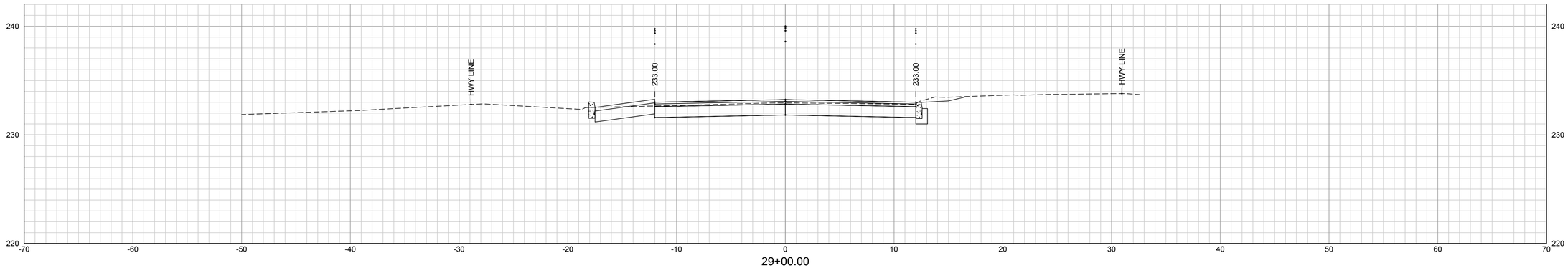
30+00.00

Design El.=233.66



29+50.00

Design El.=233.47



29+00.00

Design El.=233.24

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

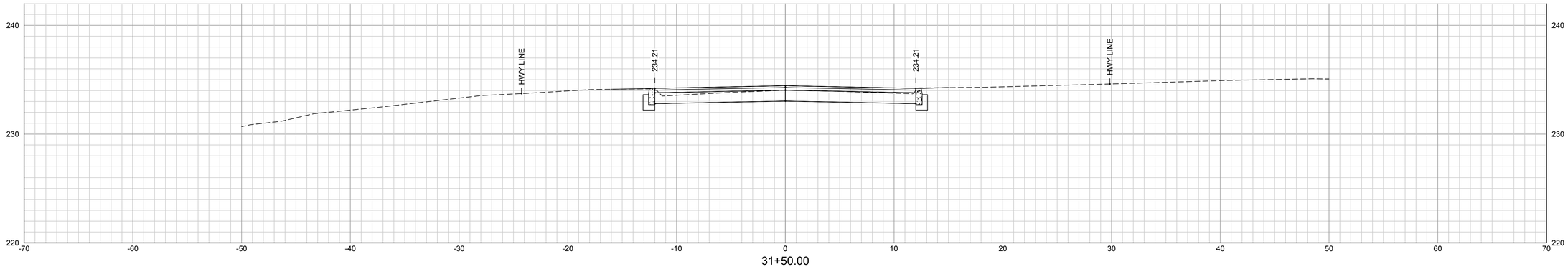
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-10

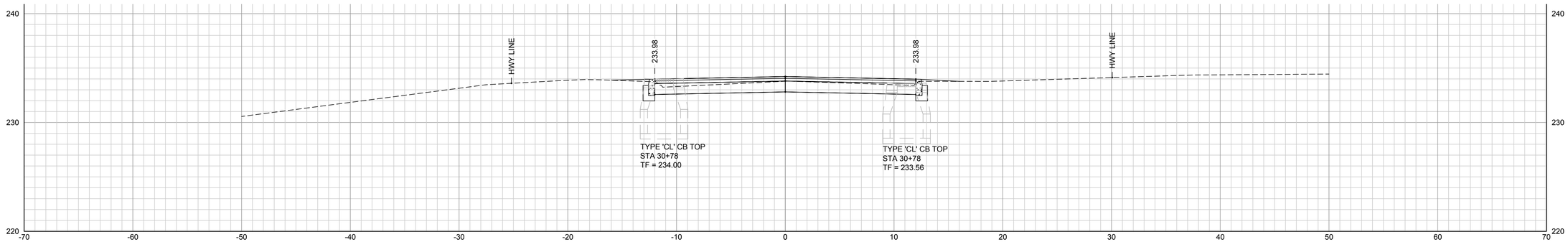
SHEET NO. 44

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg



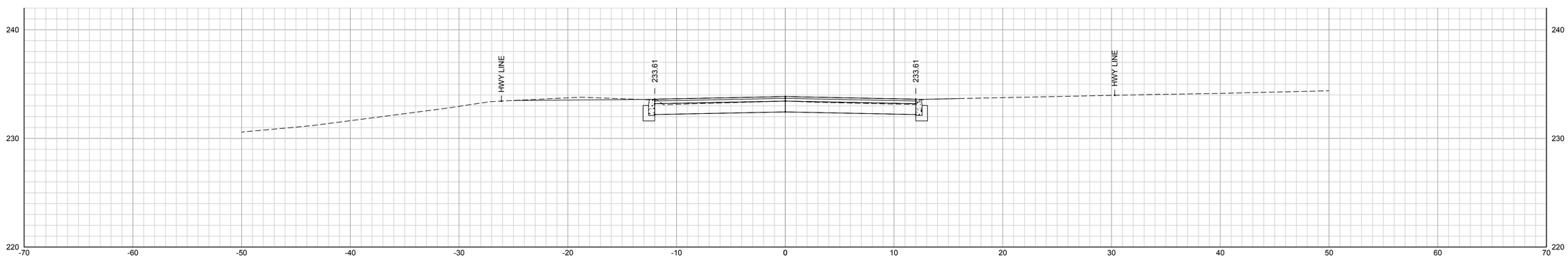
31+50.00

Design El.=234.45



31+00.00

Design El.=234.22



30+50.00

Design El.=233.85

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

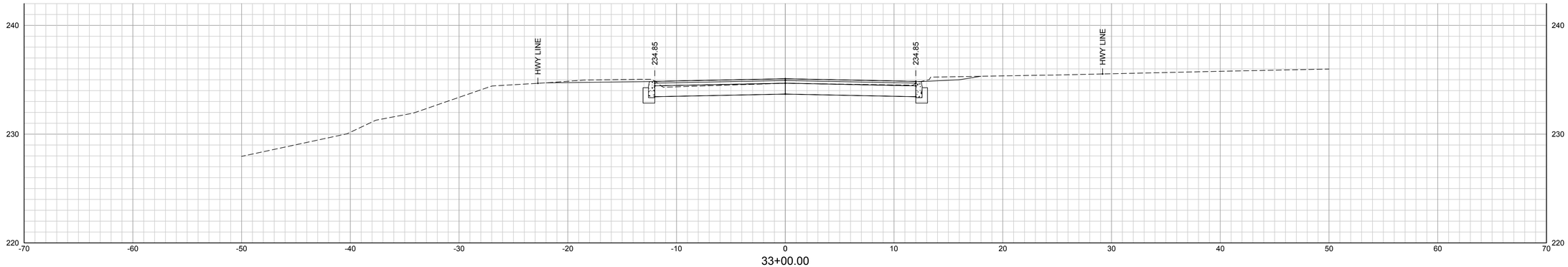
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-11

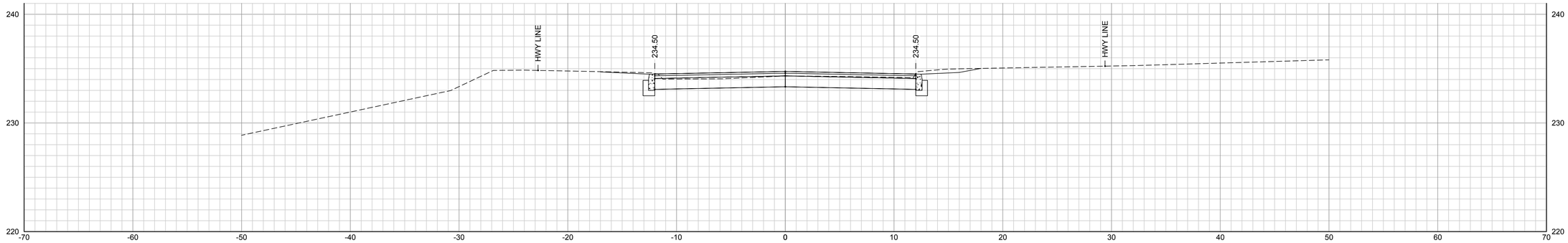
SHEET NO. 45

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg



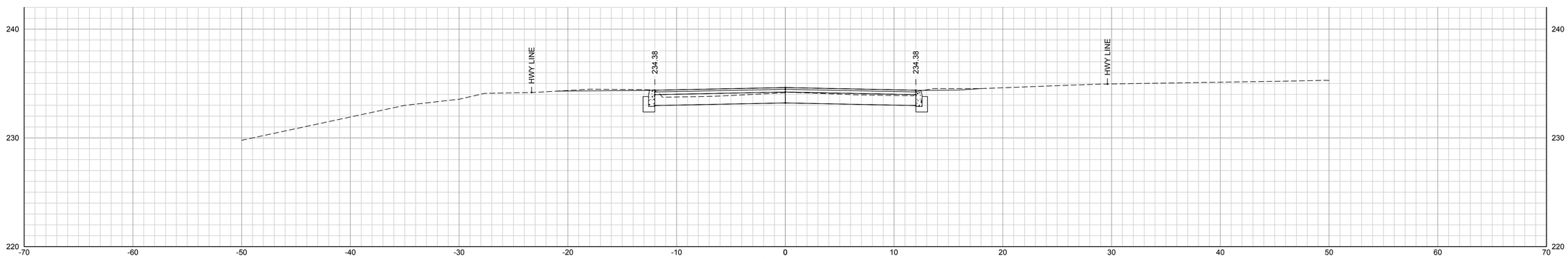
33+00.00

Design El.=235.09



32+50.00

Design El.=234.74



32+00.00

Design El.=234.62

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

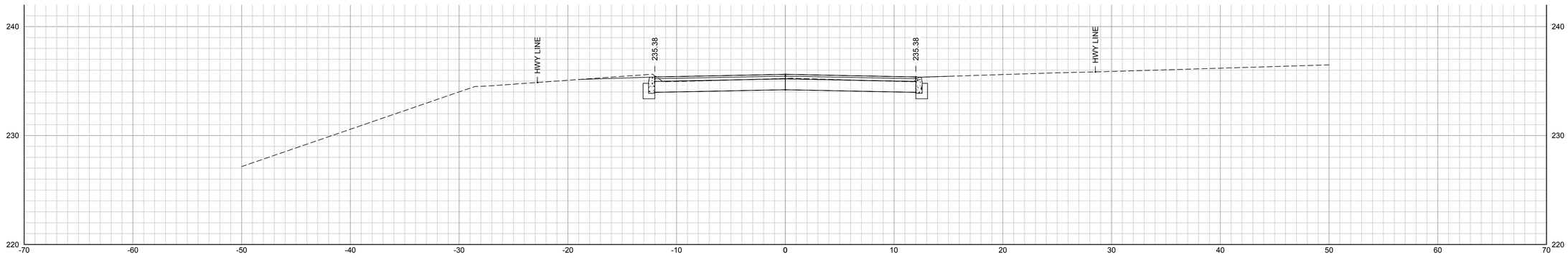
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-12

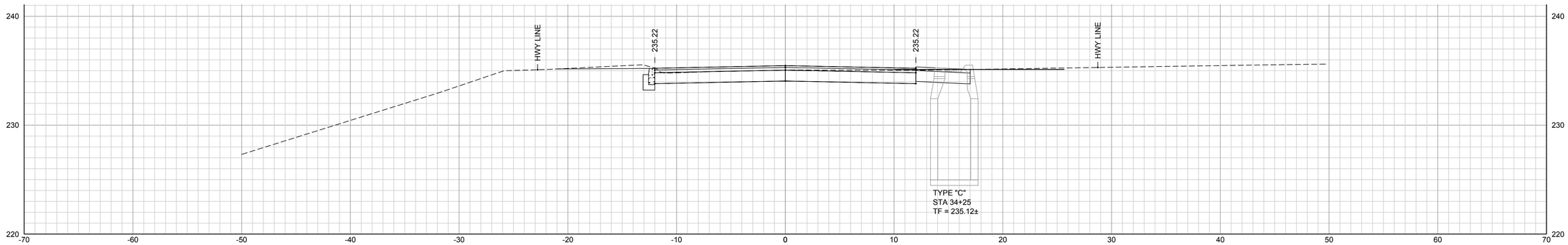
SHEET NO. 46

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg



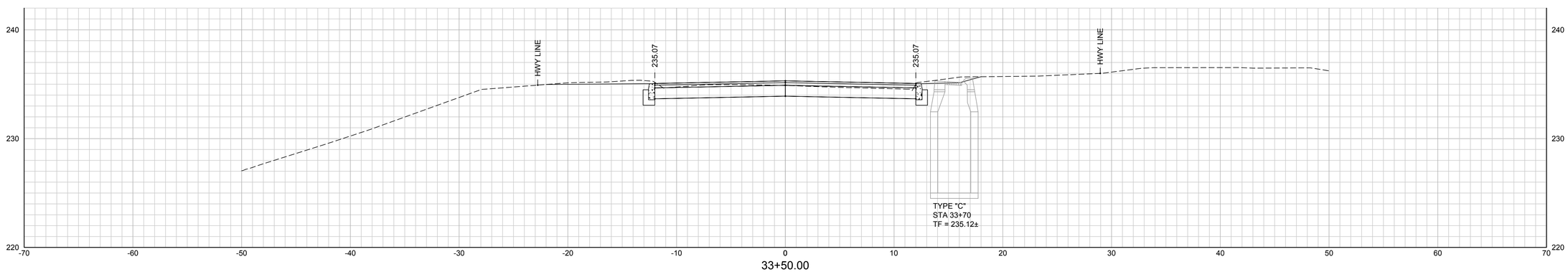
34+50.00

Design El.=235.62



34+00.00

Design El.=235.46



33+50.00

Design El.=235.31

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

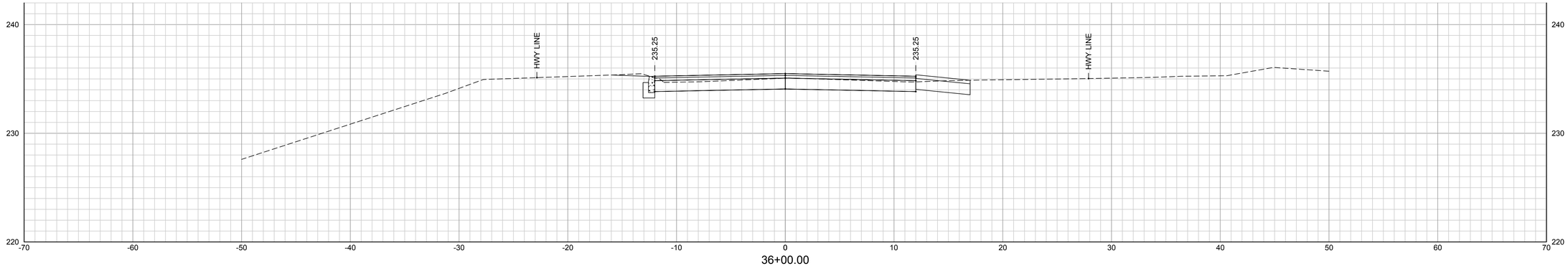
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

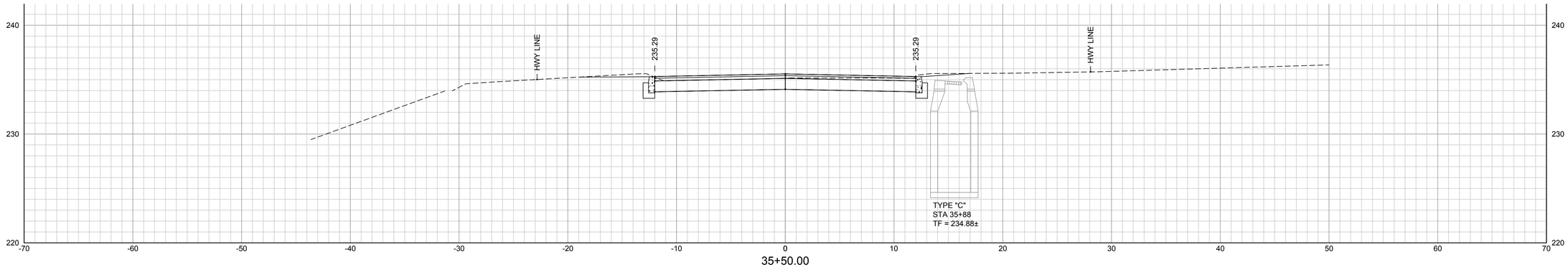
DRAWING NO. XSC-13

SHEET NO. 47

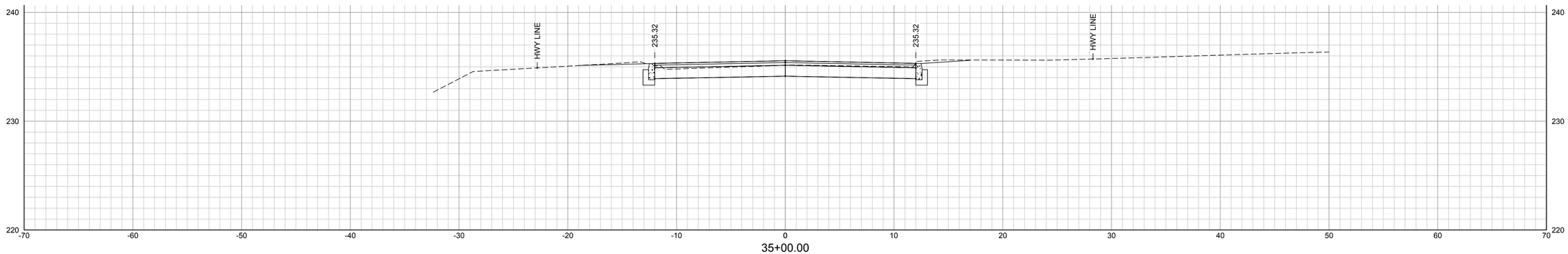
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg



36+00.00
Design El.=235.49



35+50.00
Design El.=235.53



35+00.00
Design El.=235.55

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

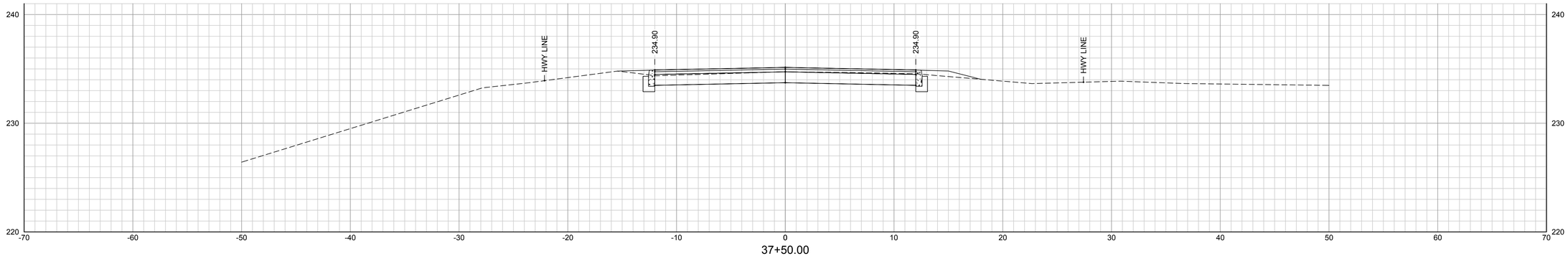
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 1-14.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

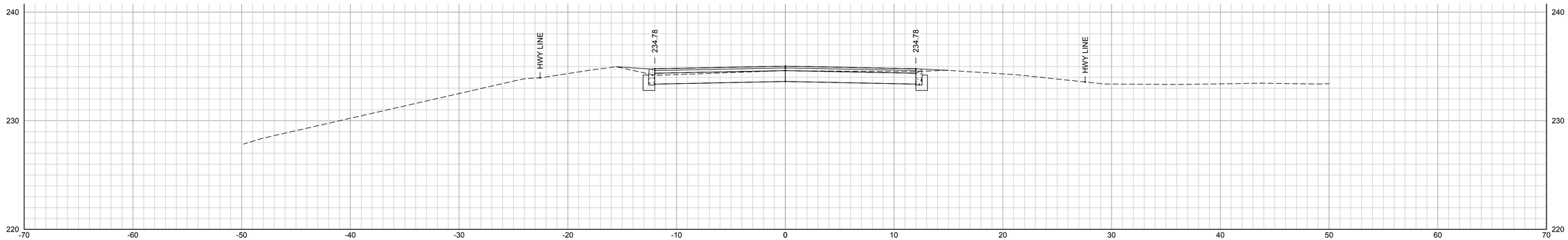
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01
DRAWING NO. XSC-14
SHEET NO. 48



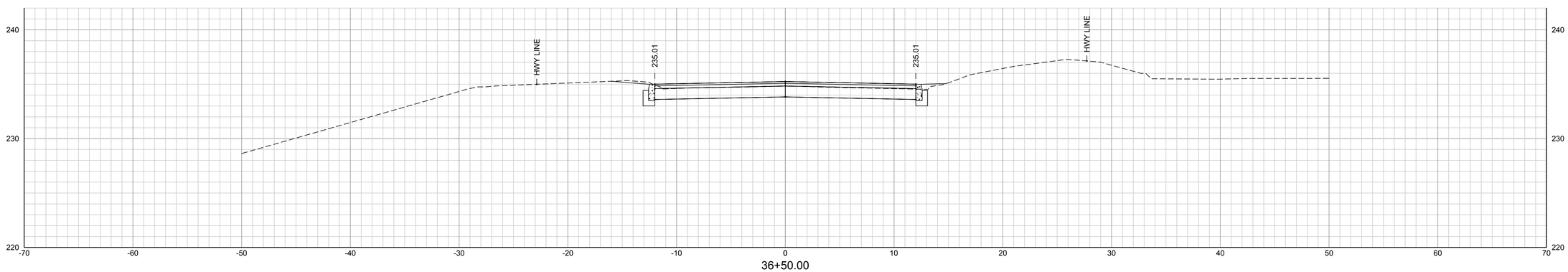
37+50.00

Design El.=235.14



37+00.00

Design El.=235.02



36+50.00

Design El.=235.25

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

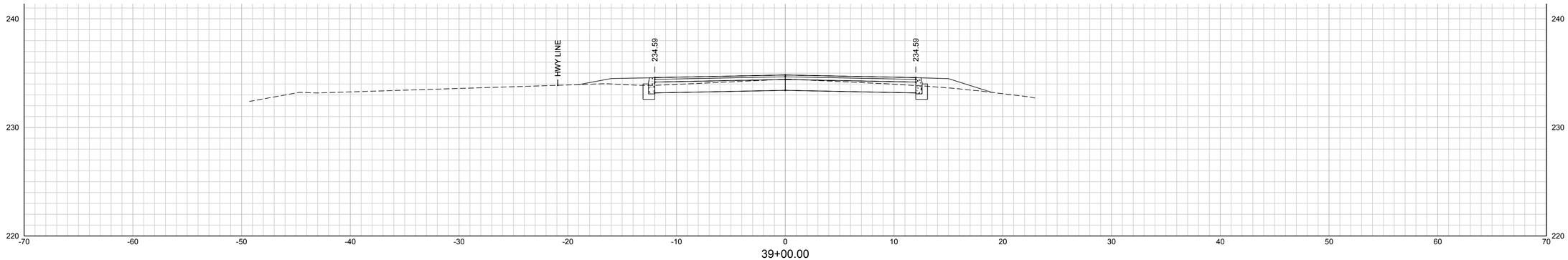
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-15

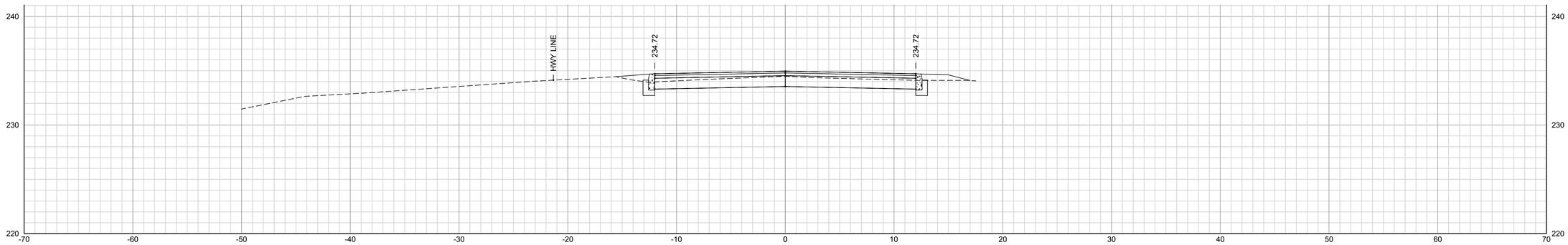
SHEET NO. 49

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



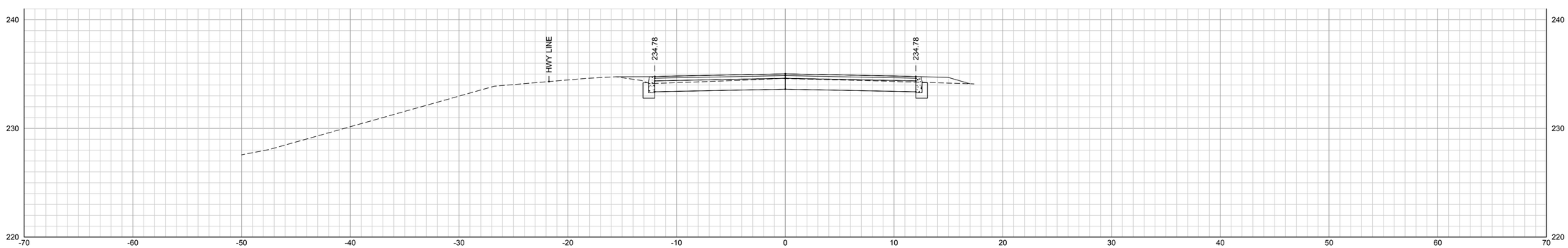
39+00.00

Design El.=234.83



38+50.00

Design El.=234.96



38+00.00

Design El.=235.02

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

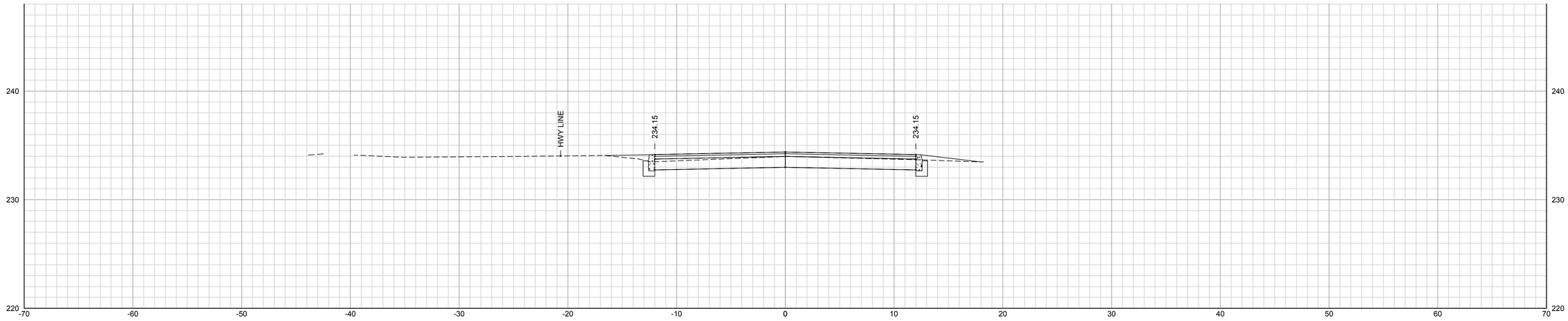
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-16

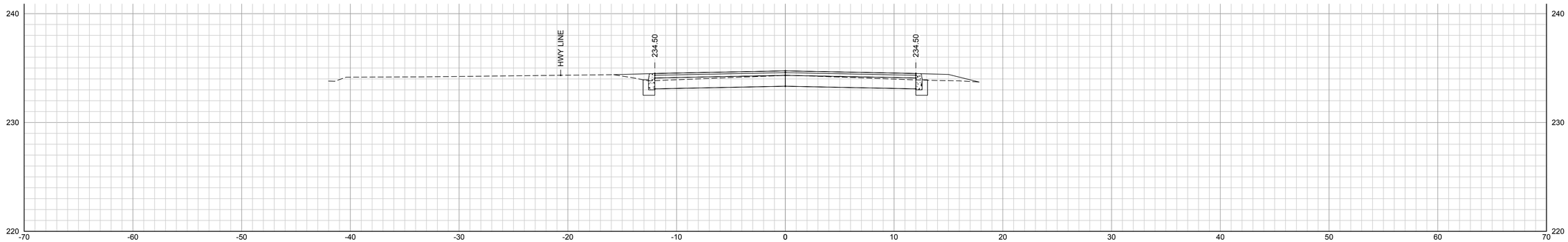
SHEET NO. 50

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



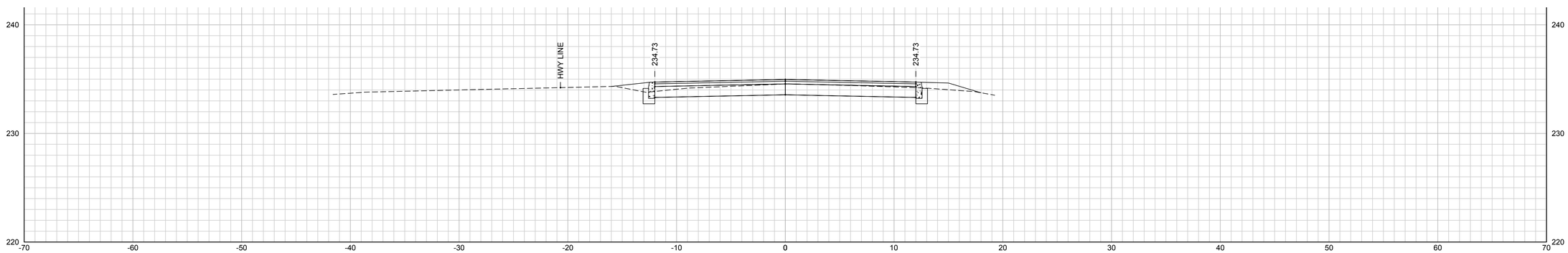
40+50.00

Design El.=234.39



40+00.00

Design El.=234.74



39+50.00

Design El.=234.97

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

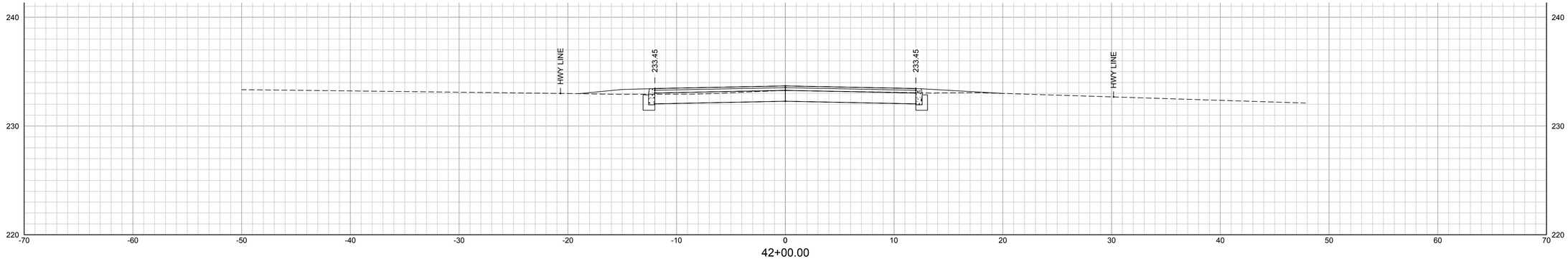
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-17

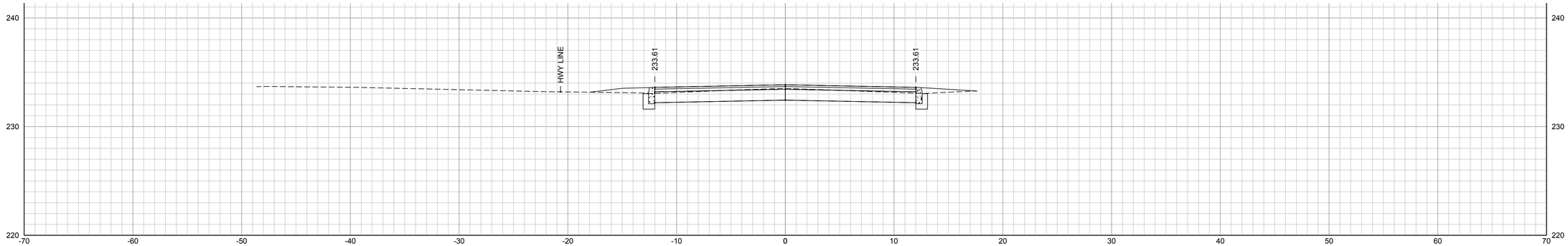
SHEET NO. 51

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



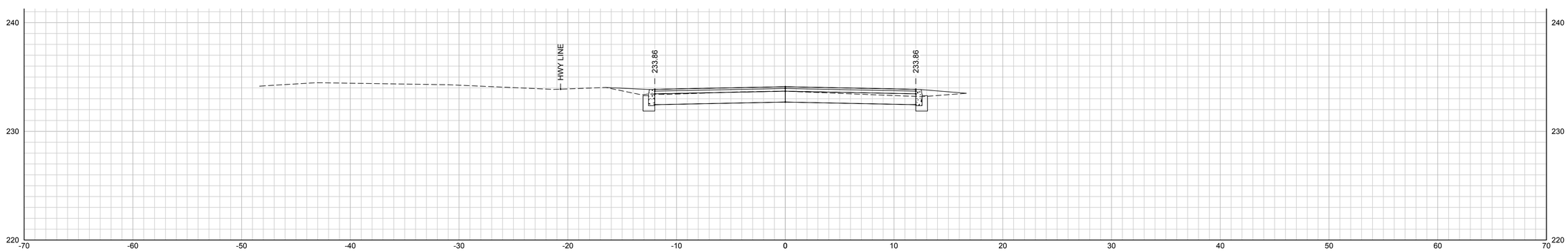
42+00.00

Design El.=233.69



41+50.00

Design El.=233.85



41+00.00

Design El.=234.10

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

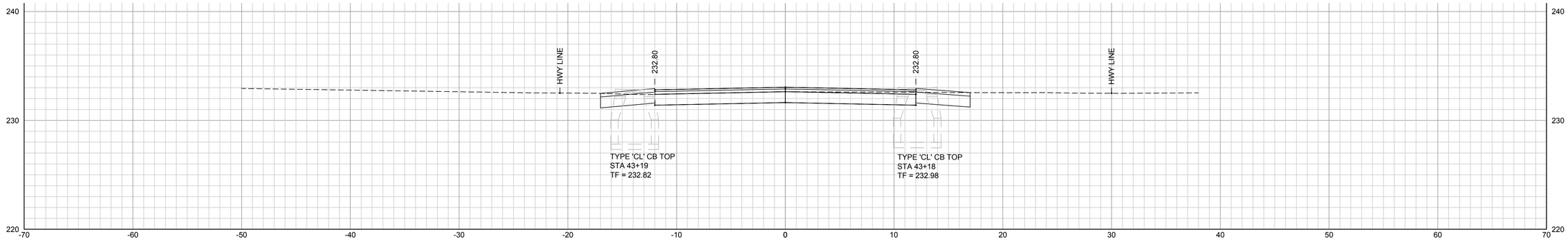
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

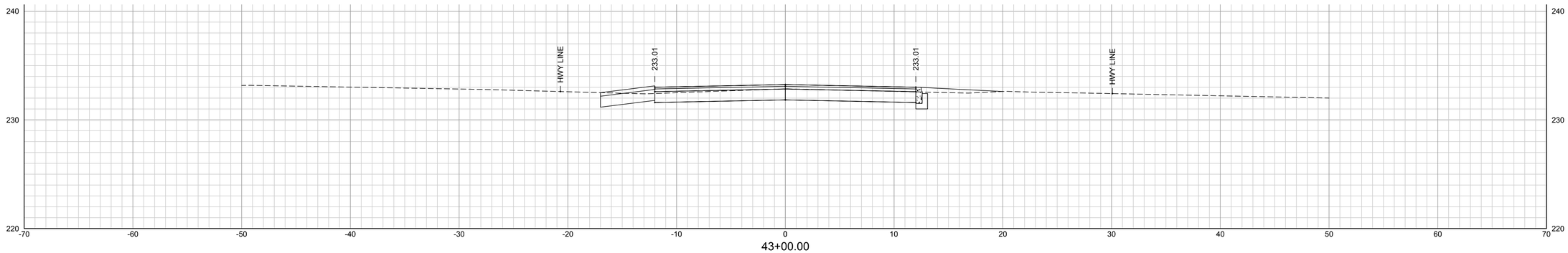
DRAWING NO. XSC-18

SHEET NO. 52

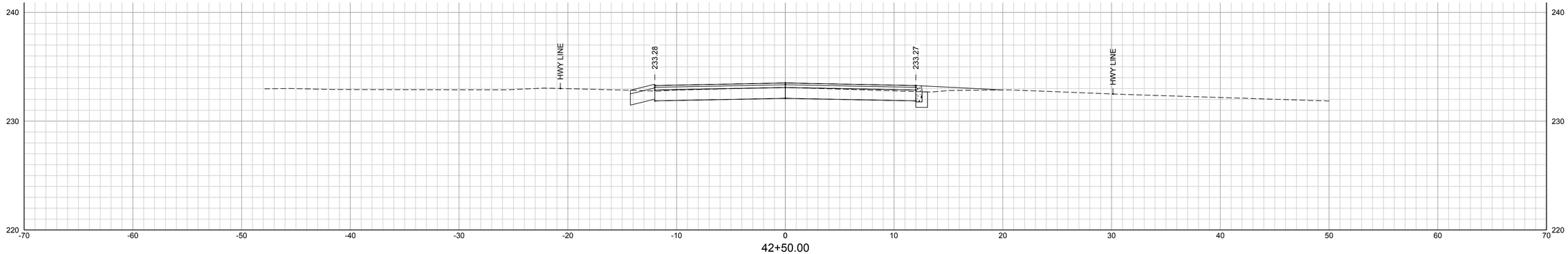
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



43+50.00
Design El.=233.05



43+00.00
Design El.=233.25



42+50.00
Design El.=233.51

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET
0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

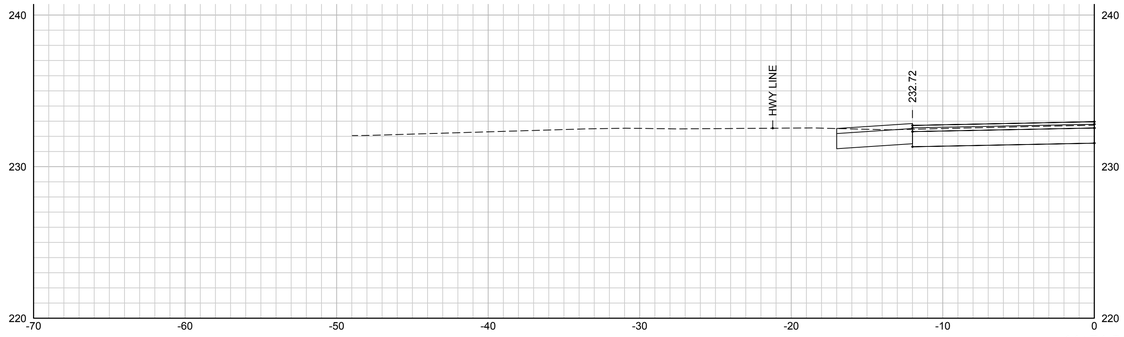
PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

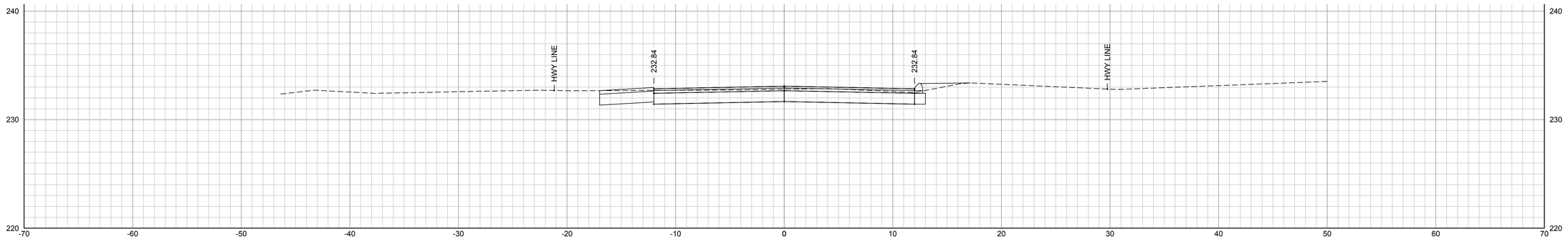
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01
DRAWING NO. XSC-19
SHEET NO. 53

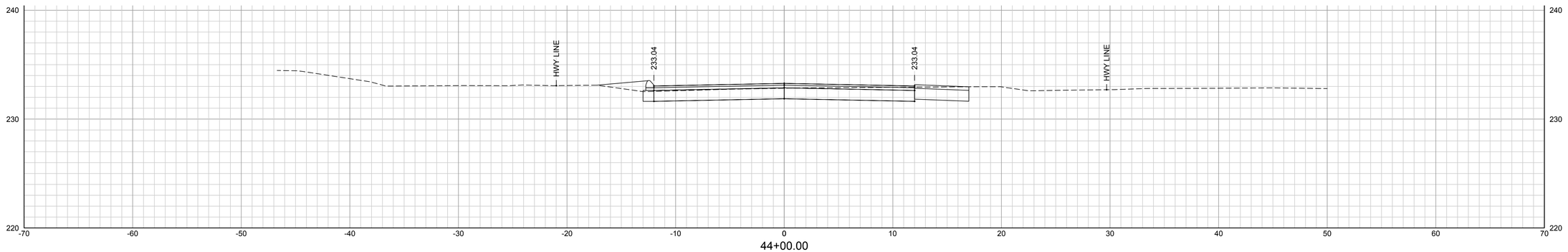
Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



44+74.51
Design El.=232.96



44+50.00
Design El.=233.08



44+00.00
Design El.=233.28

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

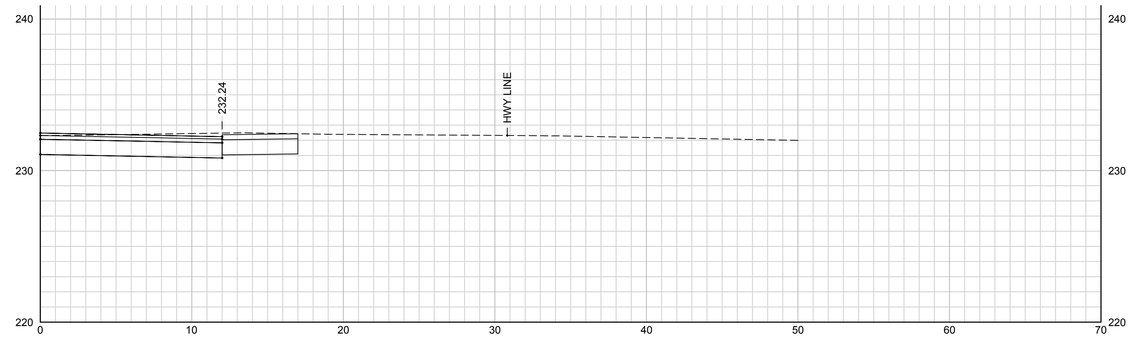
PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

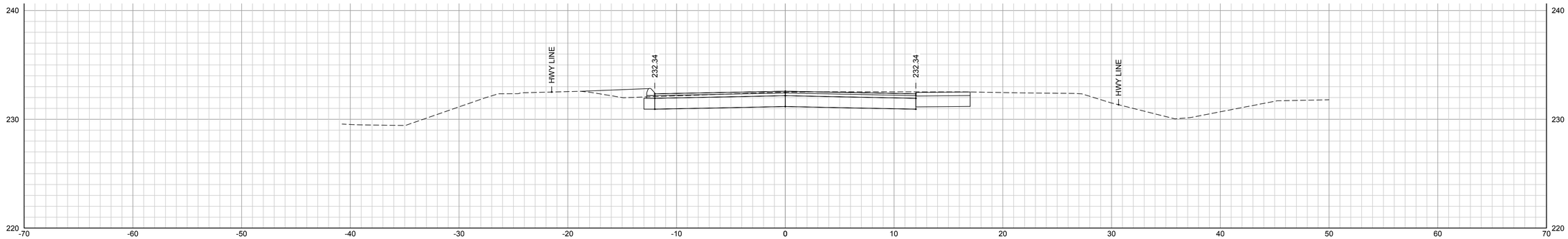
PROJECT NO. 70531.01
DRAWING NO. XSC-20
SHEET NO. 54

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



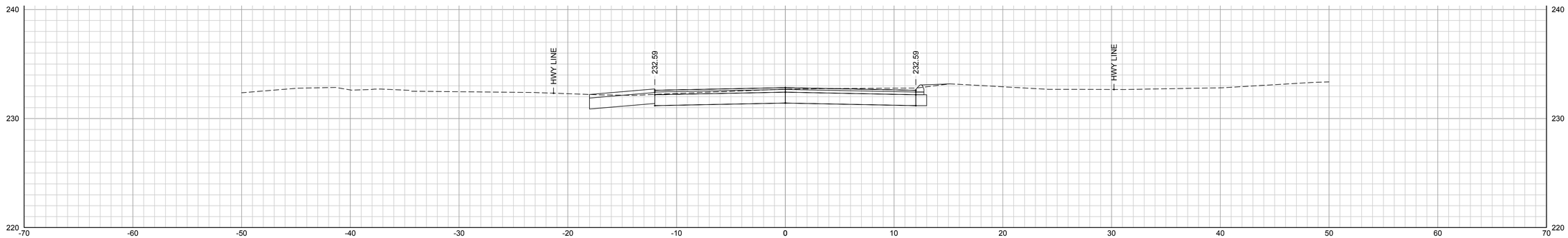
45+70.56

Design El.=232.48



45+50.00

Design El.=232.58



45+00.00

Design El.=232.83

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

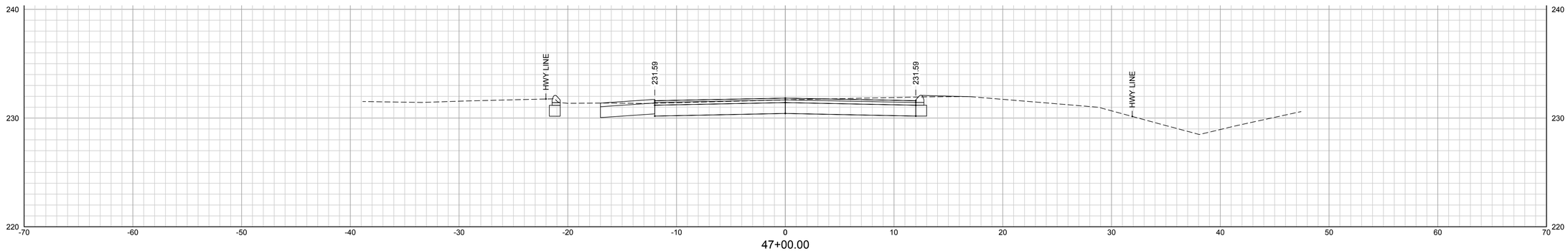
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-21

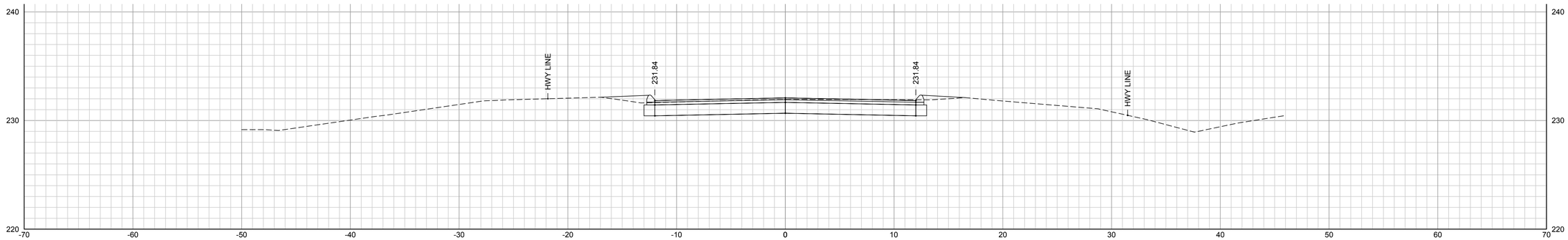
SHEET NO. 55

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



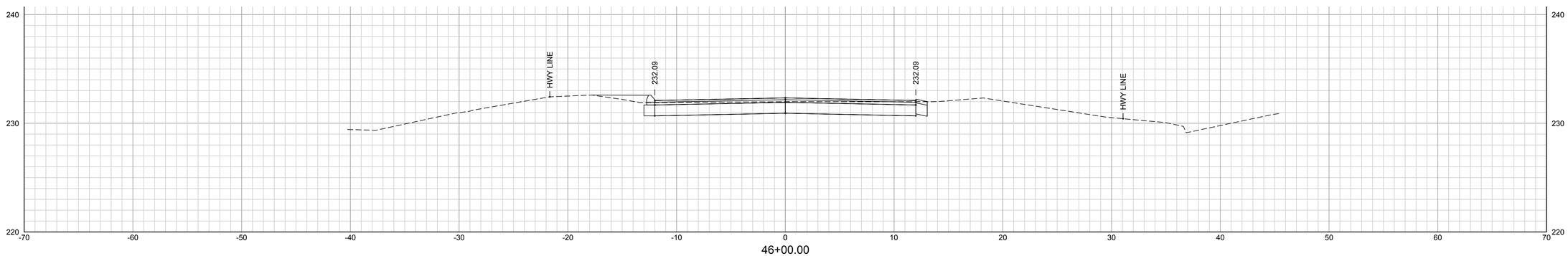
47+00.00

Design El.=231.83



46+50.00

Design El.=232.08



46+00.00

Design El.=232.33

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET

0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

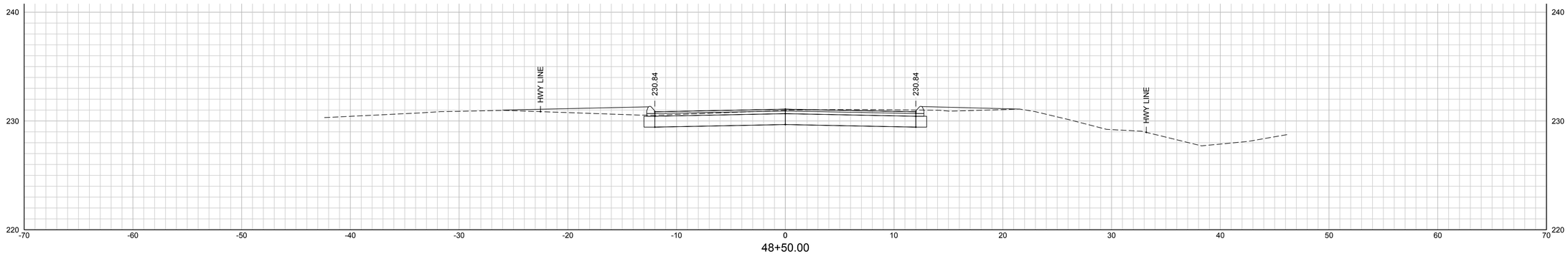
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-22

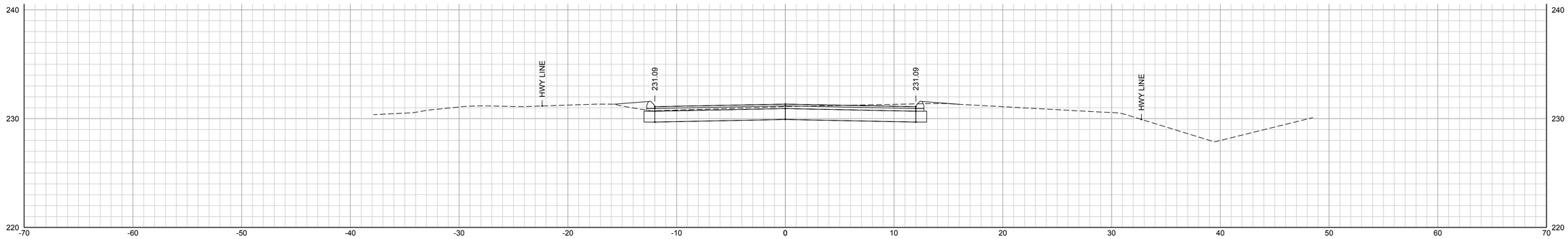
SHEET NO. 56

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



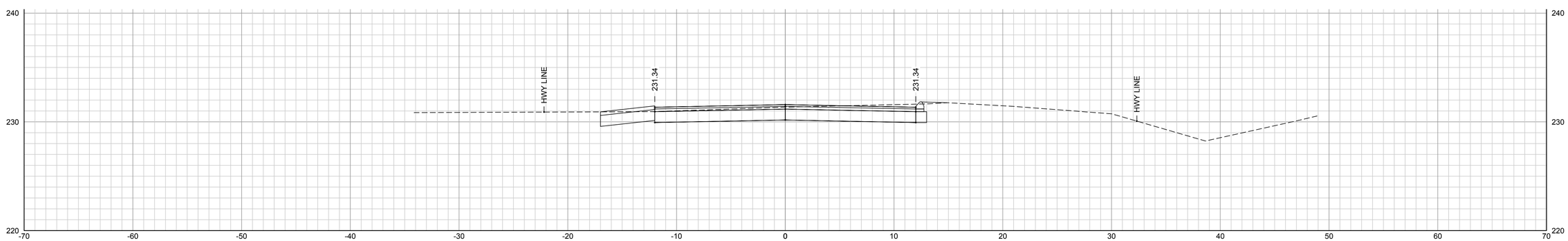
48+50.00

Design El.=231.08



48+00.00

Design El.=231.33



47+50.00

Design El.=231.58

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

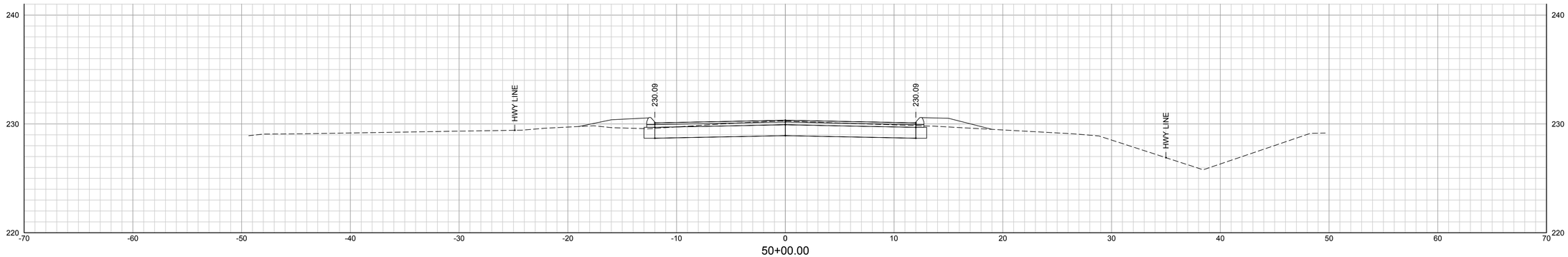
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

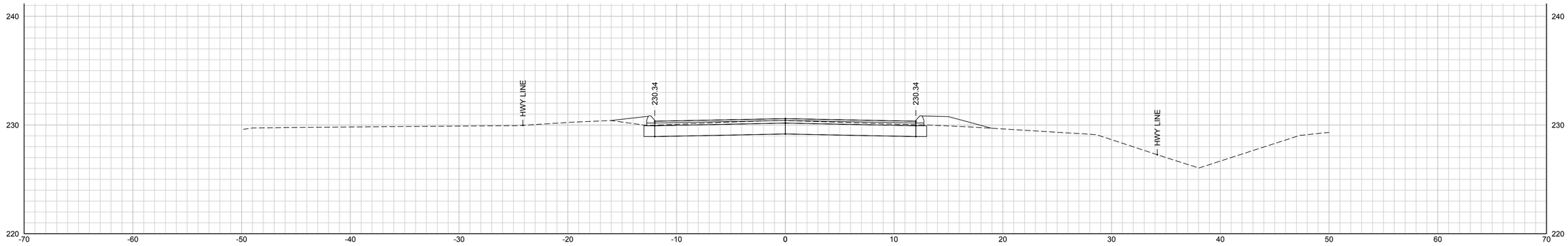
PROJECT NO. 70531.01

DRAWING NO. XSC-23

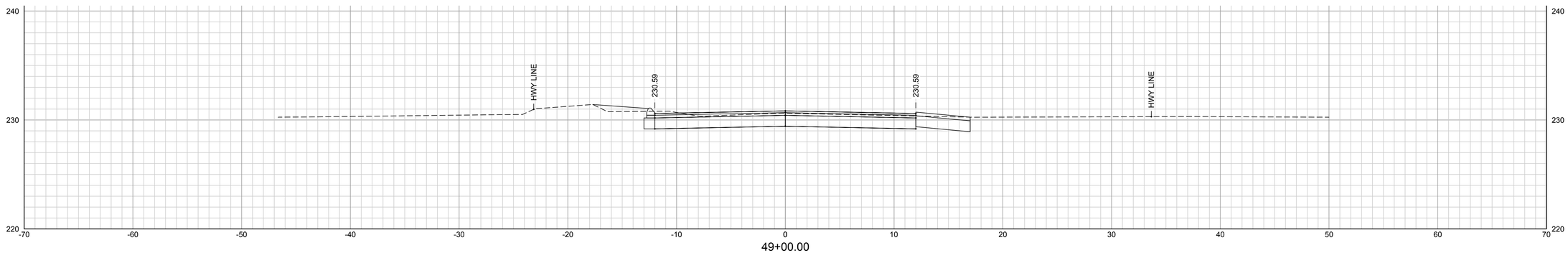
SHEET NO. 57



50+00.00
Design El.=230.33



49+50.00
Design El.=230.58



49+00.00
Design El.=230.83

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET
0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

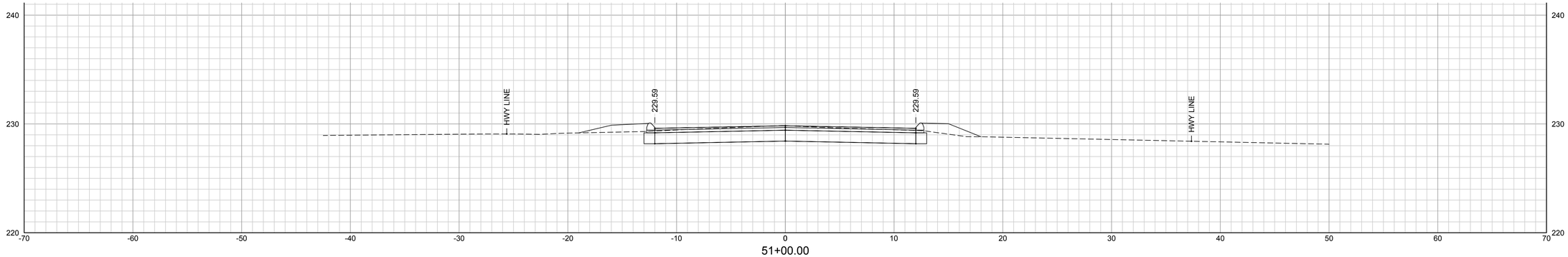
PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01
DRAWING NO. XSC-24
SHEET NO. 58

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



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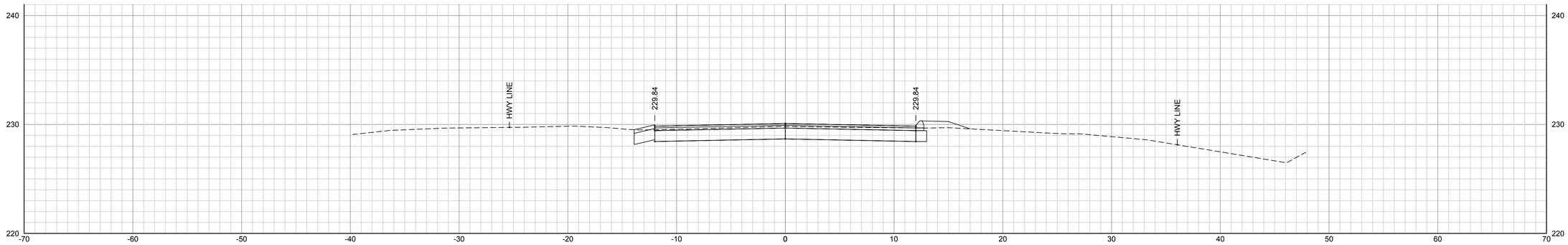
Design El.=229.83



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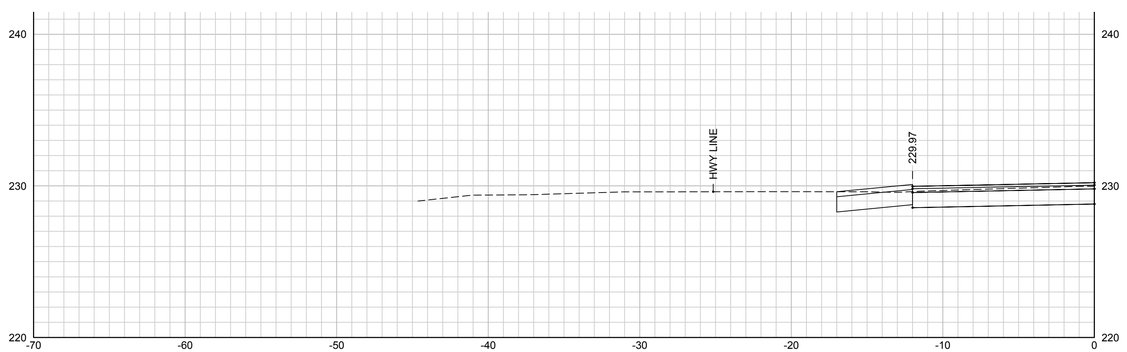

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Design El.=230.21

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

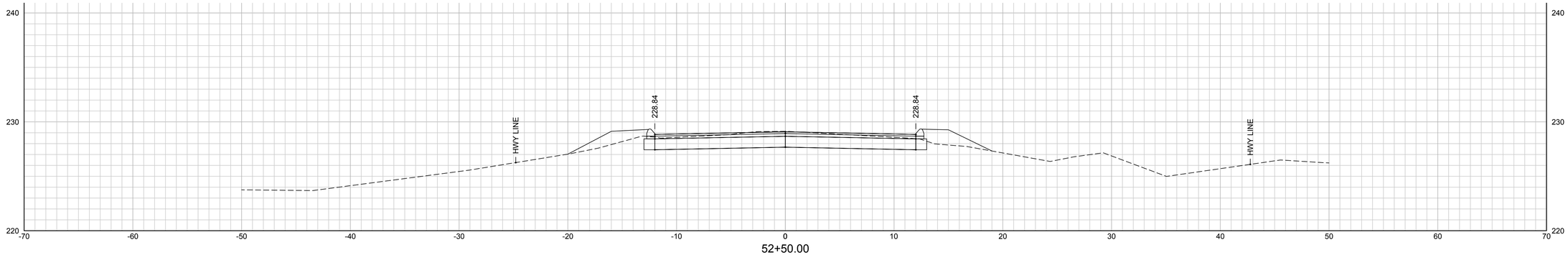
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-25

SHEET NO. 59



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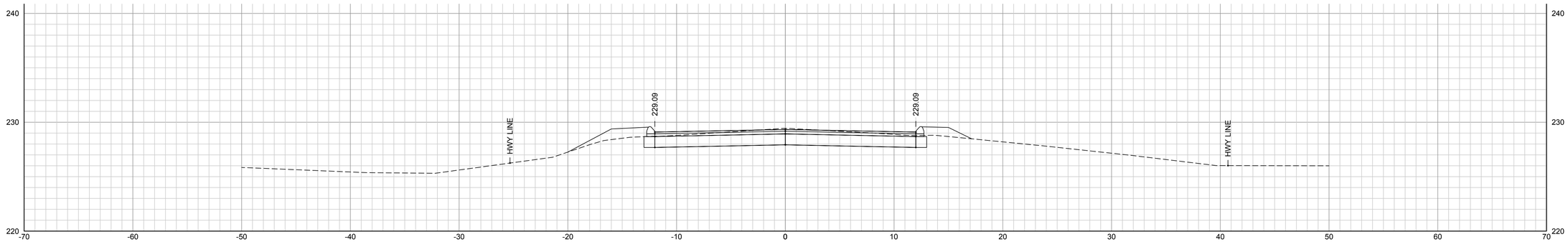
Design El.=229.08



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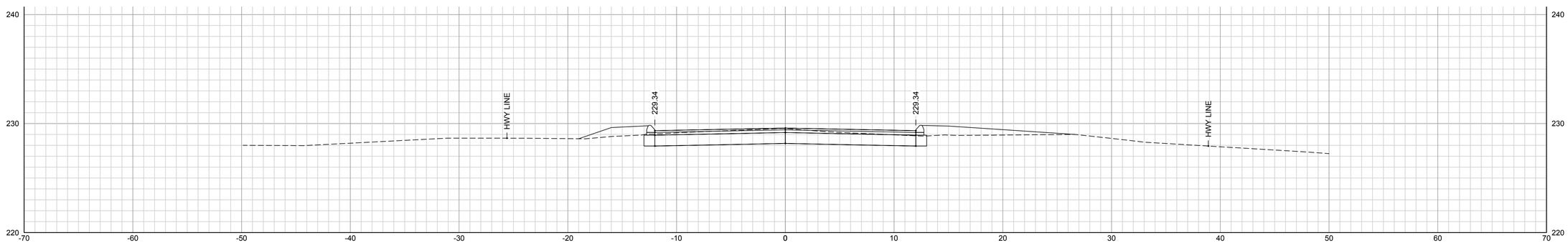
Design El.=229.33



51+50.00

Design El.=229.58

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET 0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT benesch

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg

PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

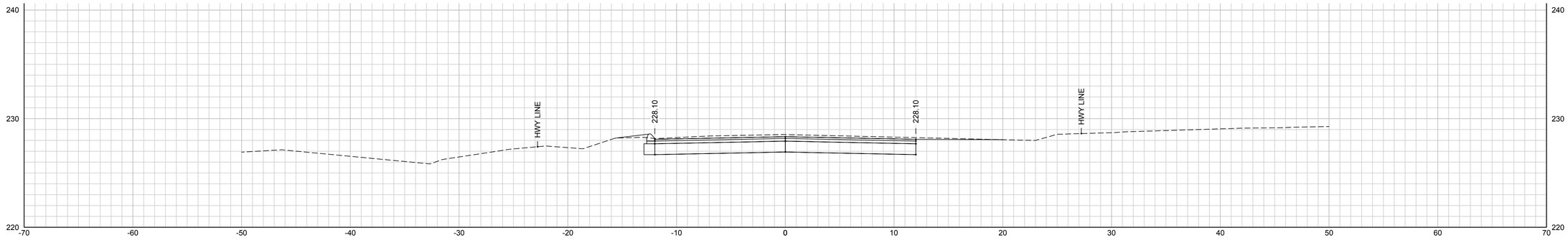
TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-26

SHEET NO. 60



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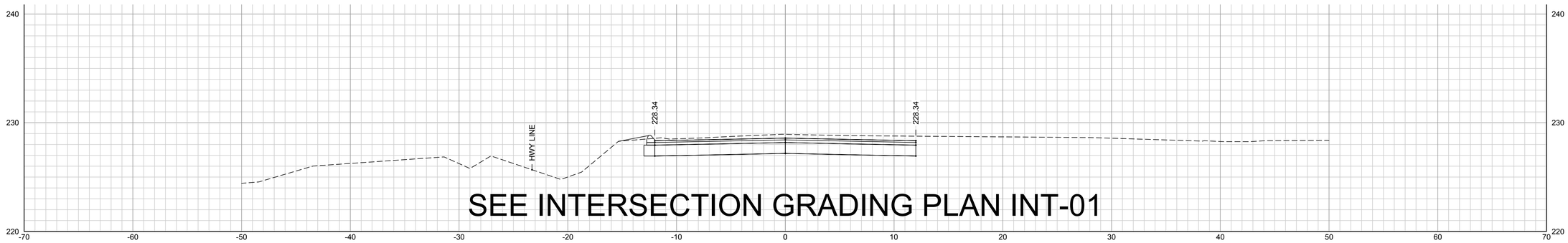
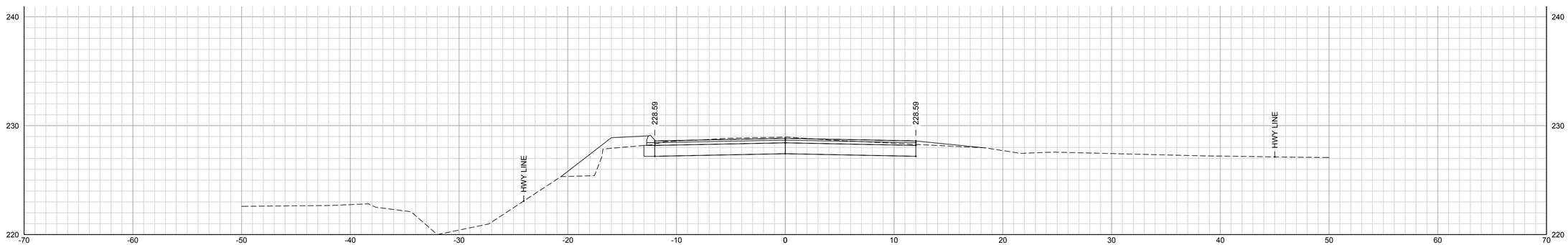
Design El.=228.34



SEE INTERSECTION GRADING PLAN INT-01

53+50.00
Design El.=228.58



53+00.00
Design El.=228.83

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO
CHECKED BY: RGS
SCALE IN FEET 0 5 10
SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT: benesch

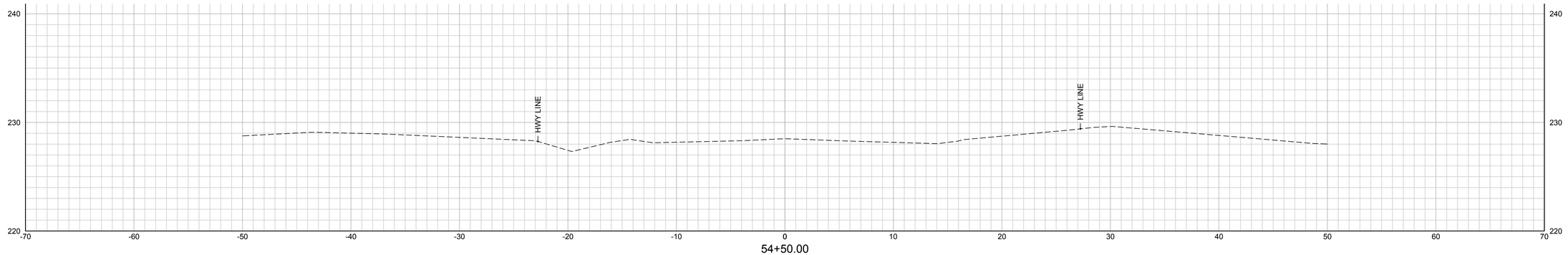
PROJECT TITLE: RECONSTRUCTION OF PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01
DRAWING NO. XSC-27
SHEET NO. 61

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



54+50.00

Design El.=

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Issue Date: MAY 17, 2019

DESIGNER/DRAFTER: JCO

CHECKED BY: RGS

SCALE IN FEET

0 5 10

SCALE 1"=5'

TOWN OF NEW MILFORD

CONSULTANT

benesch

PROJECT TITLE:

RECONSTRUCTION OF
PICKETT DISTRICT ROAD

TOWN: TOWN OF NEW MILFORD

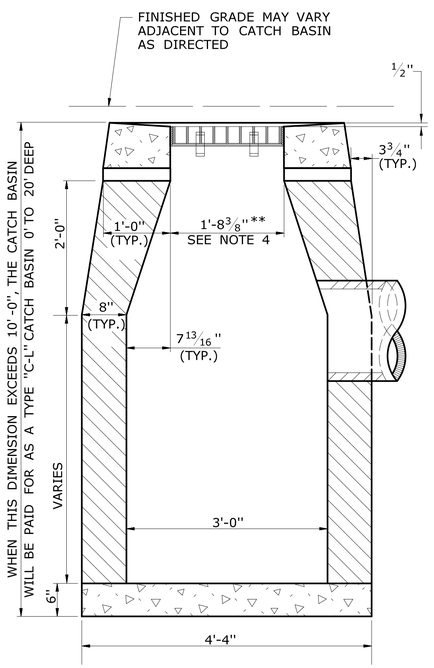
DRAWING TITLE: ROADWAY CROSS-SECTION

PROJECT NO. 70531.01

DRAWING NO. XSC-28

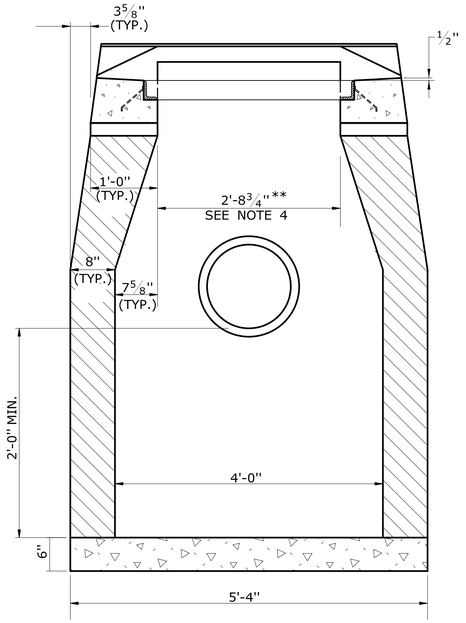
SHEET NO. 62

Filename: Y:\Glastonbury\70500S\70531.01_New_Mil_Pick_Dist\Eng_Docs\Work_files_70531.01_XSC - 15-28.dwg



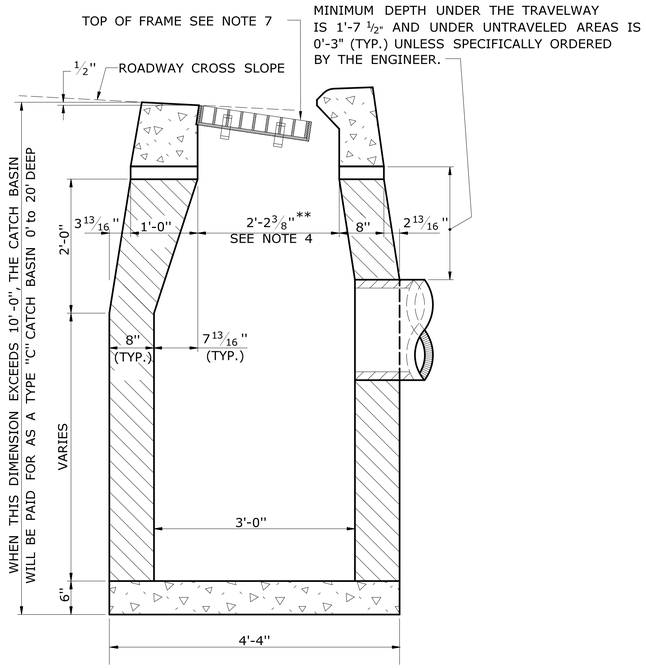
SECTION B

TYPE "C-L" CATCH BASIN



SECTION A

TYPE "C" & "C-L" CATCH BASIN (TYPE "C" TOP SHOWN)

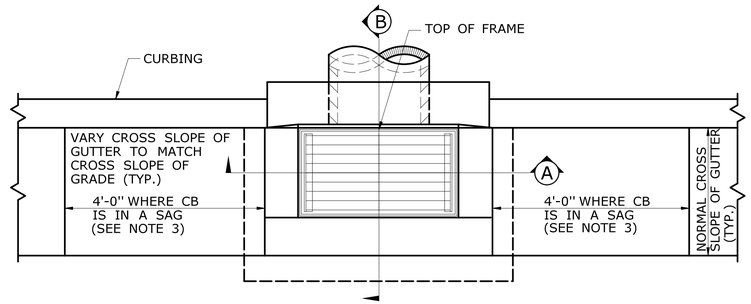


SECTION B

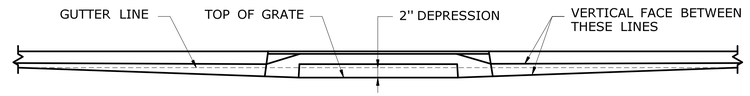
TYPE "C" CATCH BASIN

GENERAL NOTES:

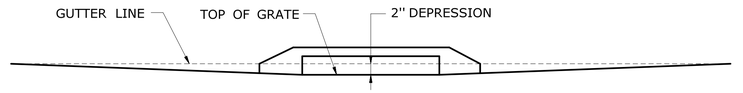
1. FOR CATCH BASIN TOPS, SEE DRAWING NO. DGS-07.
2. ALL FACES OF STRUCTURES IN CONTACT WITH CONCRETE PAVEMENT SHALL BE COVERED WITH A LAYER OF TAR PAPER OR APPROVED EQUAL.
3. USE 6'-0" ON UPGRADE SIDE (SEE PLAN VIEW) OF CONTINUOUS GRADE AND 1'-0" ON DOWNGRADE SIDE OF CONTINUOUS GRADE OR AS DIRECTED BY THE ENGINEER.
4. IF MASONRY UNITS ARE REQUIRED, THE BASIN SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE DIMENSIONS SHOWN. CORBELLING SHALL BE PERMITTED TO A MAXIMUM OF 3", NO PROJECTION SHALL EXTEND INSIDE THE LIMITS FOR THE CATCH BASIN OPENINGS SHOWN IN THE SECTION VIEWS **.
5. WALL THICKNESS OF ALL CATCH BASINS OVER 10' DEEP SHALL BE INCREASED TO 12" THICK. INSIDE DIMENSION SHALL REMAIN THE SAME. 12" THICKNESS SHALL START AFTER THE FIRST 10'.
6. SPACERS CAN BE EITHER CONCRETE MASONRY UNIT OR PRECAST WITH THE REQUIRED REINFORCING (RECOMMENDED BY THE MANUFACTURER) AS NEEDED TO PROVIDE THE PROPER GRADE SHOWN ON THE PLANS.
7. TOP OF FRAME ELEVATION SHALL BE MEASURED IN THE CENTER OF GRATE AT GUTTER LINE.



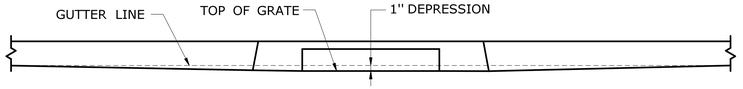
PLAN



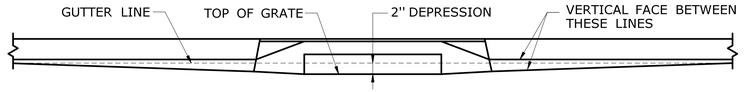
CATCH BASINS IN A LINE WITH 4" CONCRETE PARK CURBING OR 4" BITUMINOUS CONCRETE PARK CURBING



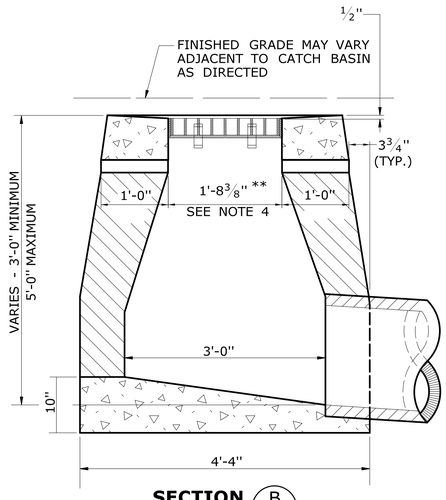
CATCH BASINS WHERE NO CURBING OF ANY TYPE EXISTS OR IS PROPOSED



CATCH BASINS IN A LINE WITH 6" CONCRETE CURBING OR 6" STONE CURBING

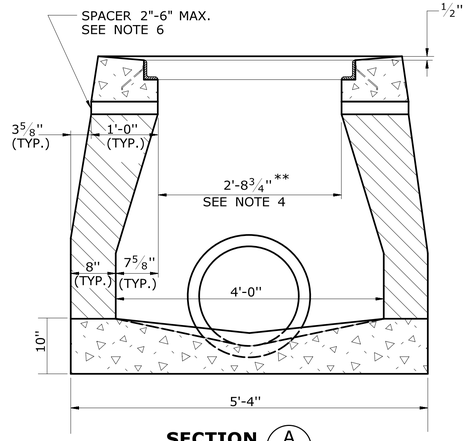


CATCH BASINS IN A LINE WITH 6" BITUMINOUS CONCRETE LIP CURBING (MACHINE FORMED)



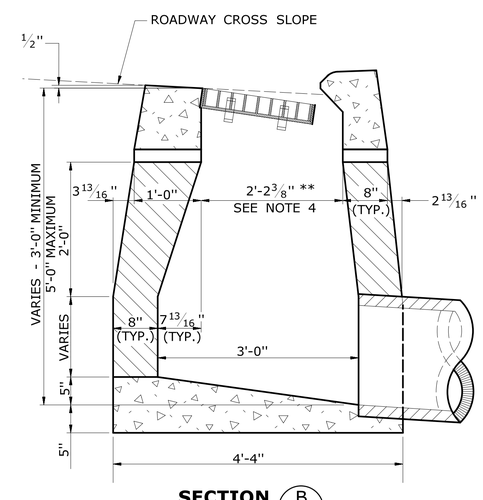
SECTION B

TYPE "C-L" DROP INLET



SECTION A

TYPE "C" & "C-L" DROP INLET (TYPE "C-L" TOP SHOWN)



SECTION B

TYPE "C" DROP INLET

DETAILS OF DEPRESSED GUTTER STRIP FOR TYPE "C" CATCH BASIN

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 11/30/2017

DESIGNER/DRAFTER: -

CHECKED BY: -

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_Highway_GD (11-21-17).dgn

SIGNATURE/ BLOCK:
OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE: - - -

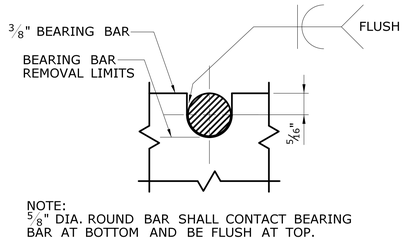
TOWN: - -

DRAWING TITLE: CATCH BASIN AND DROP INLET

PROJECT NO. -

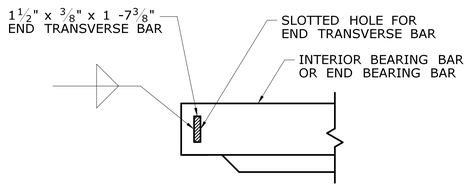
DRAWING NO. DGS-01

SHEET NO.

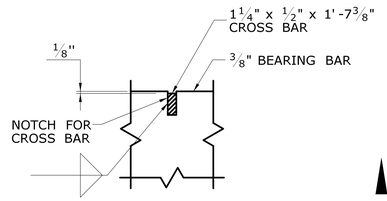


NOTE:
5/8" DIA. ROUND BAR SHALL CONTACT BEARING BAR AT BOTTOM AND BE FLUSH AT TOP.

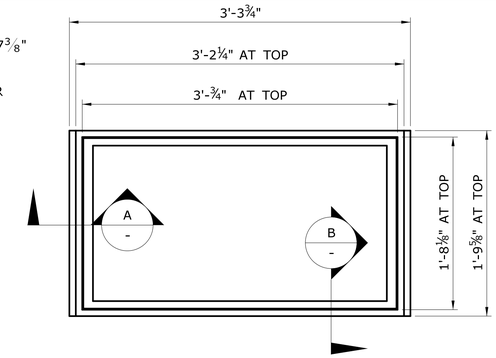
ROUND BAR ATTACHMENT
CATCH BASIN GRATE TYPE A



END TRANSVERSE BAR ATTACHMENT
CATCH BASIN GRATE TYPE A AND B



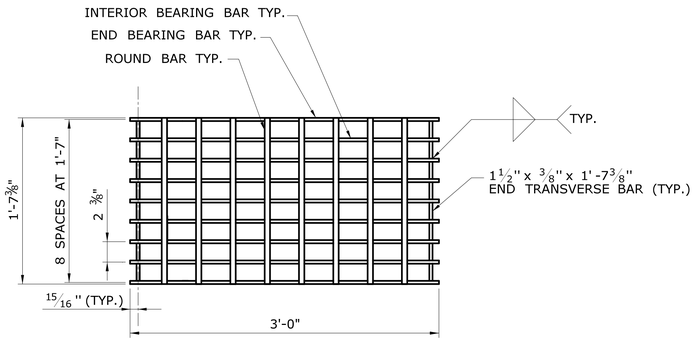
CROSS BAR ATTACHMENT
CATCH BASIN GRATE TYPE B



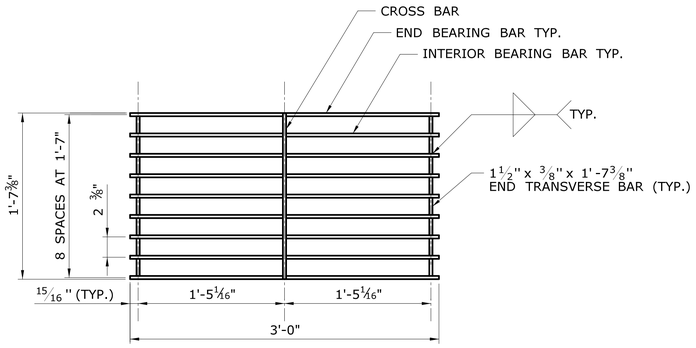
PLAN

GENERAL NOTES:

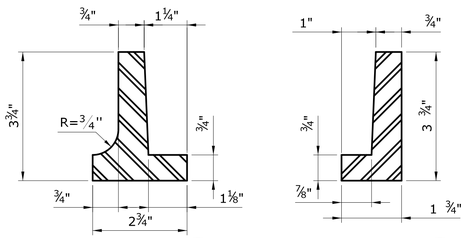
1. STEEL OR CAST IRON SHALL BE USED FOR FRAMES. STEEL SHALL BE USED FOR TYPE "A" AND "B" GRATES.
2. TYPE "A" GRATES SHALL BE USED ON ALL ROADWAYS WHERE BICYCLE TRAFFIC IS ALLOWED OR ON HEAVY DUTY LOCK DOWN TOPS AS DIRECTED BY THE ENGINEER.
3. TYPE "B" GRATES SHALL BE USED ON ALL LIMITED ACCESS HIGHWAYS, RAMPS AND WHERE BICYCLE TRAFFIC IS NOT ALLOWED OR AS DIRECTED BY THE ENGINEER.
4. DO NOT GALVANIZE CAST IRON FRAMES.
5. DIMENSIONAL TOLERANCES SHALL BE ± 1/16 INCH.
6. ALL STEEL BARS SHALL BE WELDED AT ALL INTERSECTIONS.



PLAN



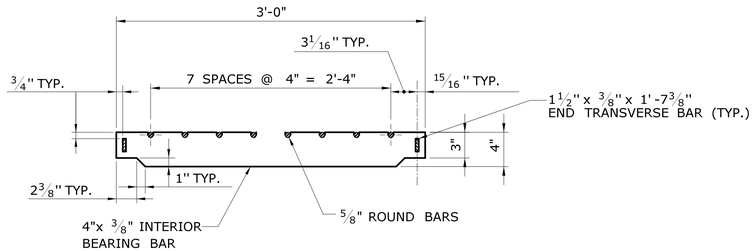
PLAN



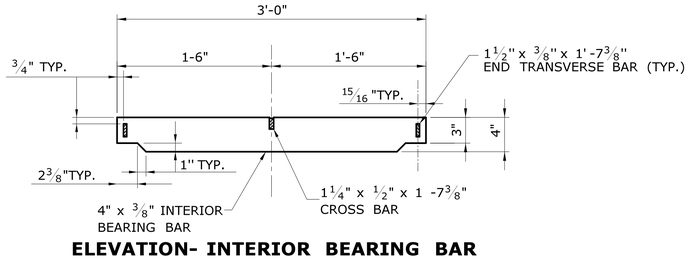
SECTION A
-

SECTION B
-

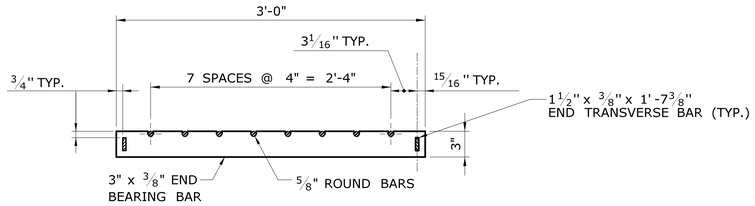
CAST IRON FRAME ALTERNATE



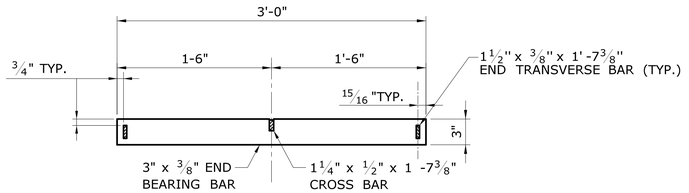
ELEVATION- INTERIOR BEARING BAR



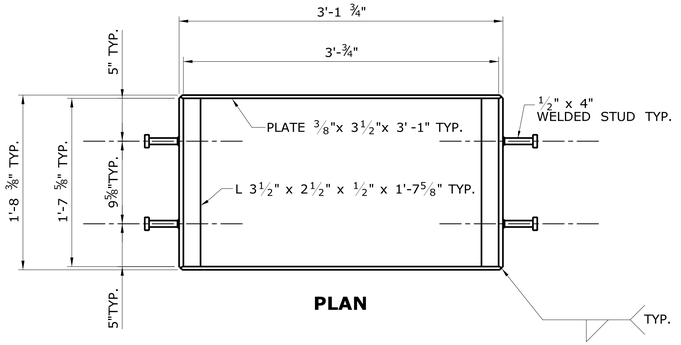
ELEVATION- INTERIOR BEARING BAR



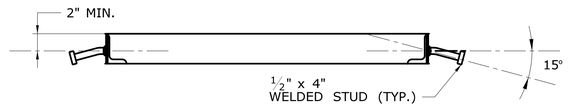
ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE A



ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE B



PLAN



WELDED STUD ANCHOR DETAILS
STEEL FRAME

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 11/30/2017

DESIGNER/DRAFTER: -
CHECKED BY: -

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT..HIghway..GD (11-21-17).dgn

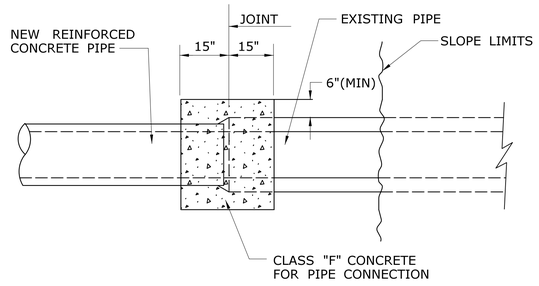
SIGNATURE/ BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: - - -

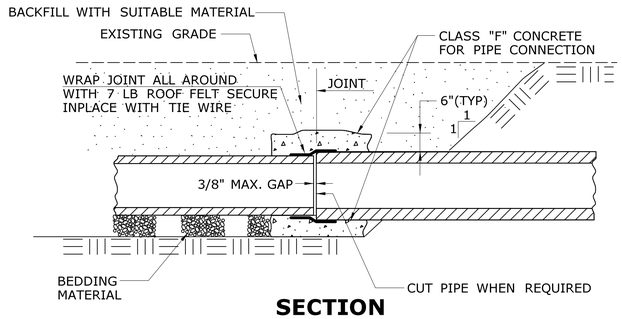
TOWN: - -

DRAWING TITLE:
CATCH BASIN FRAMES AND GRATES

PROJECT NO. -
DRAWING NO. DGS-08
SHEET NO.



PLAN

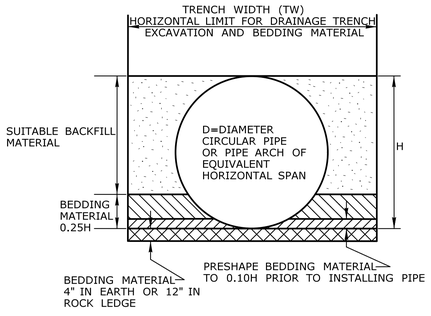


SECTION

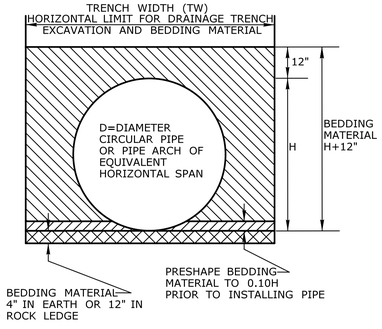
CONCRETE PIPE CONNECTION

NOTES:

1. "CONCRETE PIPE CONNECTION" IS INTENDED FOR USE WHERE A REINFORCED CONCRETE PIPE REPAIR OR MODIFICATION IS NEEDED SOMEWHERE WITHIN A PIPE RUN WHERE A BELL/SPIGOT JOINT CANNOT BE ACHIEVED.
2. MAINTAIN INTERIOR ALIGNMENT OF PIPE AT JOINTS UNTIL CONCRETE IS PROPERLY CURED.
3. BACKFILL OF PIPE REPAIR WITH SUITABLE MATERIAL MAY NOT TAKE PLACE UNTIL CONCRETE IS PROPERLY CURED.
4. CONTRACTOR SHALL MAINTAIN LINE AND GRADE OF PIPE REPAIR OR MODIFICATION BY METHODS APPROVED BY THE ENGINEER.
5. HOLES OR GAPS AT JOINT LARGER THAN 3/8" SHALL BE FILLED OR WRAPPED TO PREVENT CONCRETE FROM ENTERING PIPE.



PIPE TRENCH
FOR PIPES LESS THAN 48"



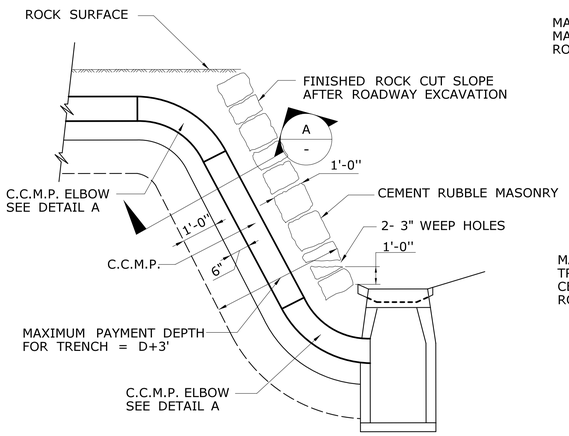
PIPE TRENCH
FOR PIPES GREATER THAN
OR EQUAL TO 48"

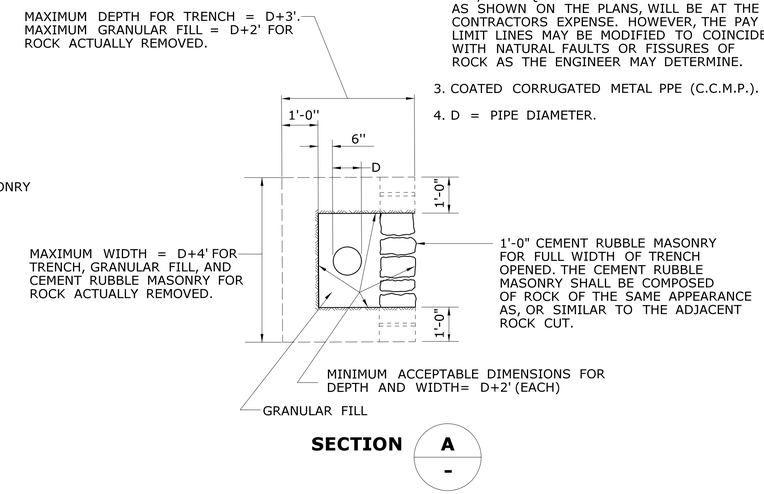
TRENCH WIDTH (TW) CHART

PIPE, PIPE-ARCH, OR DRAINAGE STRUCTURE	TRENCH WIDTH
PIPE OR PIPE-ARCH WITH NOMINAL INSIDE HORIZONTAL SPAN LESS THAN 30"	2' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
PIPE OR PIPE-ARCH WITH NOMINAL INSIDE HORIZONTAL SPAN GREATER THAN OR EQUAL TO 30"	3' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
PIPE OR PIPE-ARCH FABRICATED FROM STRUCTURAL PLATES	4' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
DRAINAGE STRUCTURES	2' BEYOND ALL EXTERIOR OR FOUNDATION WALLS

GENERAL NOTES:

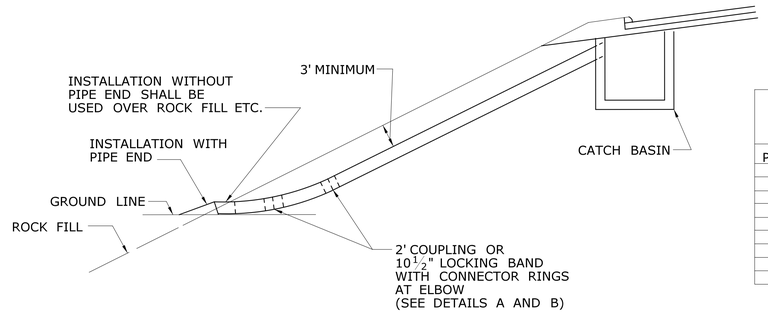
1. ROCK REMOVED BEYOND THE MAXIMUM LIMIT SHOWN SHALL BE REPLACED WITH CEMENT RUBBLE MASONRY AND GRANULAR FILL.
2. FILL, AS REQUIRED TO CLOSE THE OPENING AS SHOWN ON THE PLANS, WILL BE AT THE CONTRACTORS EXPENSE. HOWEVER, THE PAY LIMIT LINES MAY BE MODIFIED TO COINCIDE WITH NATURAL FAULTS OR FISSURES OF ROCK AS THE ENGINEER MAY DETERMINE.
3. COATED CORRUGATED METAL PPE (C.C.M.P.).
4. D = PIPE DIAMETER.





SECTION A - A

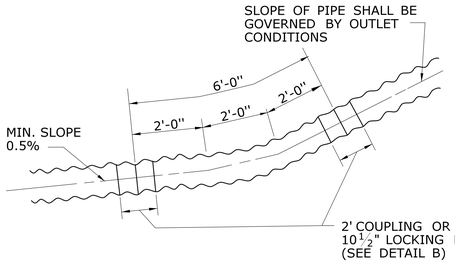
TYPICAL INSTALLATION OF C.C.M.P. IN ROCK SLOPE



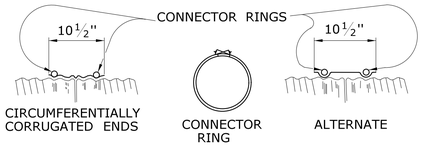
TYPICAL INSTALLATION OF C.C.M.P ELBOW IN FILL SLOPE

TABLE C
CONNECTOR RINGS

PIPE DIAMETER	LENGTH OF RING
12"	52"
15"	61"
18"	71"
21"	80"
24"	90"
30"	108"
36"	128"
42"	147"
48"	166"



DETAIL A
C.C.M.P. ELBOW AND COUPLING



RODS: 7/16" DIAMETER ELECTRO-GALVANIZED WITH 6" LENGTH OF 1/2" ROLLED THREADS EACH END, FURNISHED CURVED, TO FIT PIPE. SEE TABLE C

LUGS: DOUBLE TAKE UP, CAST IRON, ELECTRO-GALVANIZED.

NOTE: THE COUPLER FASTENING DEVICE SHALL NOT INTERFERE WITH INSTALLATION OF CONNECTOR RINGS.

DETAIL B
ELBOW DIMENSIONS

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 11/30/2017

DESIGNER/DRAFTER: -

CHECKED BY: -

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_Highway_GD (11-21-17).dgn

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: - - -

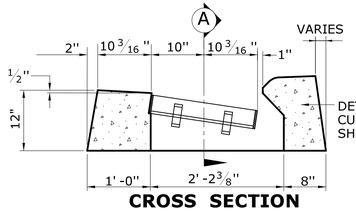
TOWN: -

DRAWING TITLE:
C.C.M. PIPE INSTALLATION & PIPE TRENCH

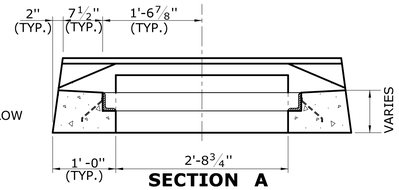
PROJECT NO. -

DRAWING NO. **DGS-11**

SHEET NO.

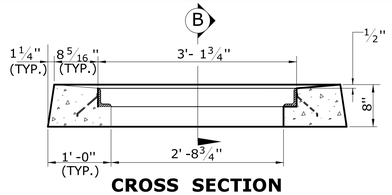


CROSS SECTION



SECTION A

TYPE "C" CATCH BASIN TOP



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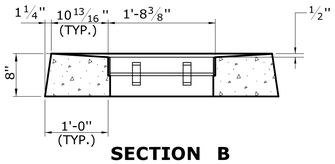
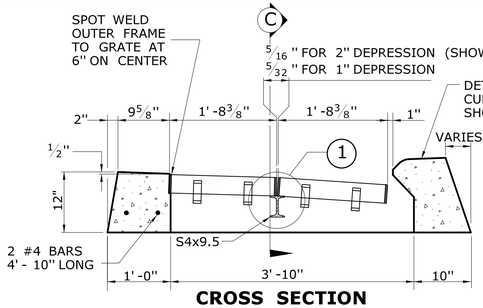


SECTION B

TYPE "C-L" CATCH BASIN TOP

GENERAL NOTES:

1. FOR DETAILS OF FRAMES AND GRATES, SEE DRAWING NO. DGS-08.
2. ALL BARS SHALL HAVE A MINIMUM 2" COVER.



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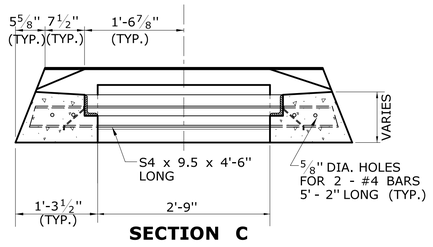
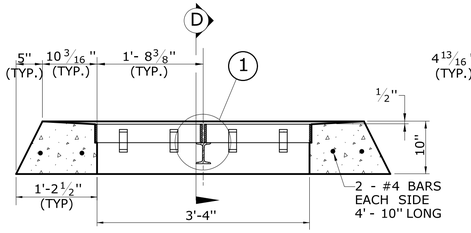


SECTION C

TYPE "C" CATCH BASIN DOUBLE GRATE - TYPE I TOP



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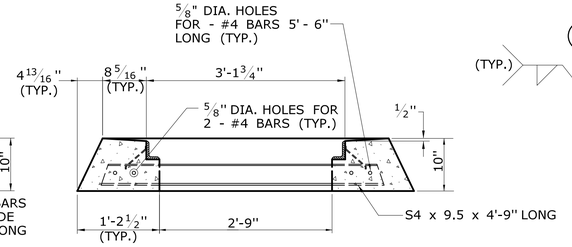
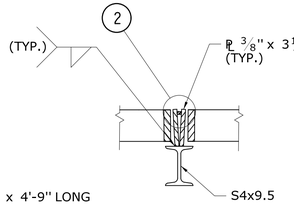
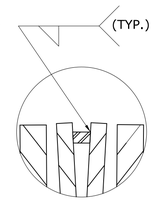


SECTION D

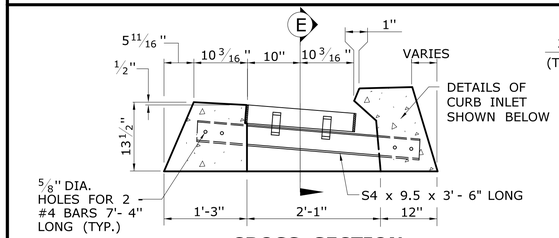


DETAIL "1"



DETAIL "2"

TYPE "C-L" CATCH BASIN DOUBLE GRATE - TYPE I TOP



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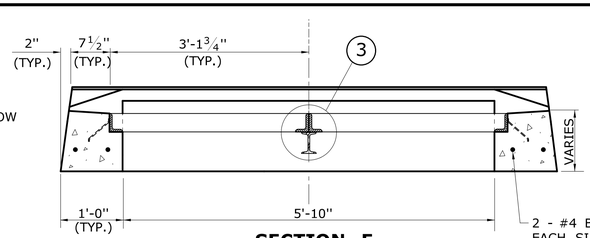
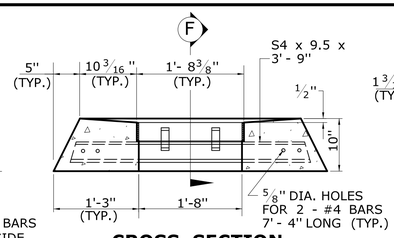
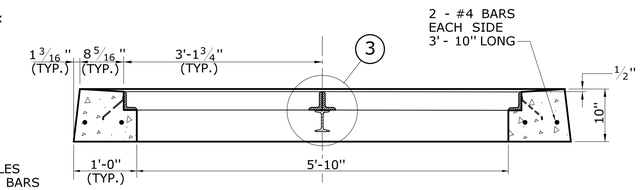


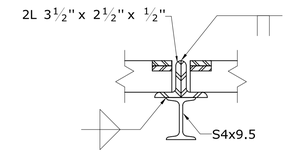
SECTION E



CROSS SECTION

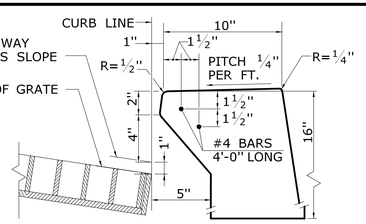


SECTION F

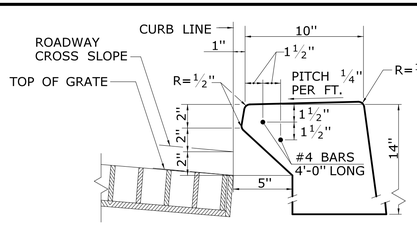


DETAIL "3"

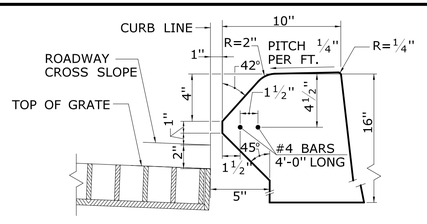
TYPE "C-L" CATCH BASIN DOUBLE GRATE - TYPE II TOP



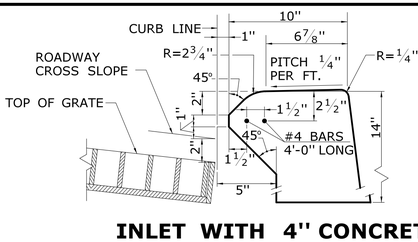
INLET WITH 6" CONCRETE OR STONE CURBING FOR TYPE "C" CB



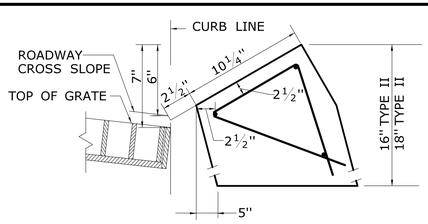
INLET WITH NO CURBING (PLAIN TYPE) FOR TYPE "C" CB



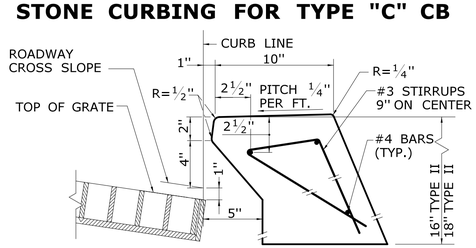
INLET WITH 6" BITUMINOUS CONCRETE LIP CURBING FOR TYPE "C" CB



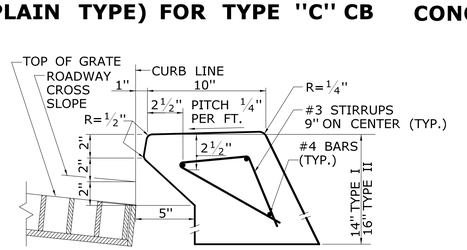
INLET WITH 4" CONCRETE PARK CURBING FOR TYPE "C" CB



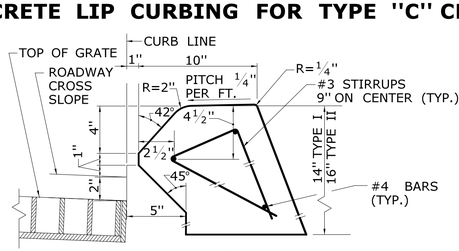
INLET WITH GRANITE SLOPE CURB FOR TYPE "C" CB



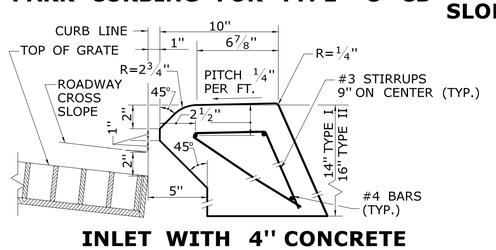
INLET WITH 6" CONCRETE OR STONE CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



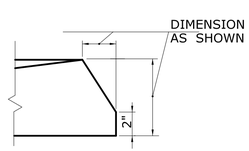
INLET WITH NO CURBING (PLAIN TYPE) FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



INLET WITH 6" BITUMINOUS CONCRETE LIP CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



INLET WITH 4" CONCRETE PARK CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



ALTERNATE CONSTRUCTION OF TYPE II TOP

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 1/30/2019

DESIGNER/DRAFTER: -

CHECKED BY: -

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_HIGHWAY_GD_[1-28-19].dgn

SIGNATURE/ BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: - - -

TOWN: - -

DRAWING TITLE: CATCH BASIN TOPS TYPE "C" & "C-L"

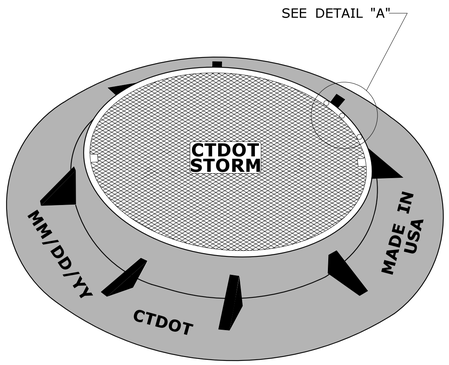
PROJECT NO. -

DRAWING NO. DGS-07

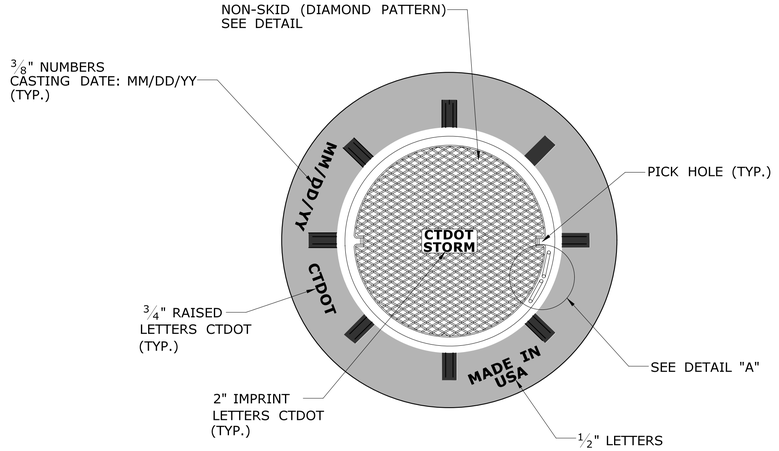
SHEET NO. 66

GENERAL NOTES:

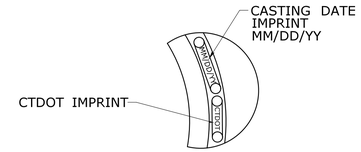
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.



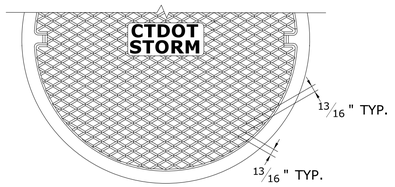
MANHOLE FRAME AND COVER



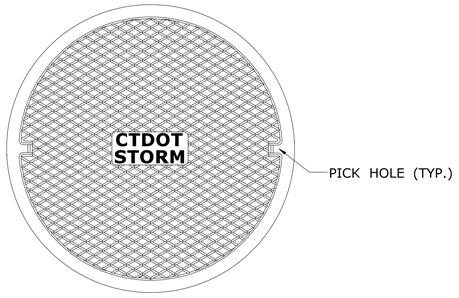
PLAN



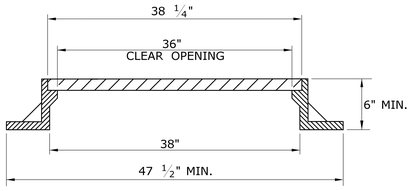
DETAIL "A"



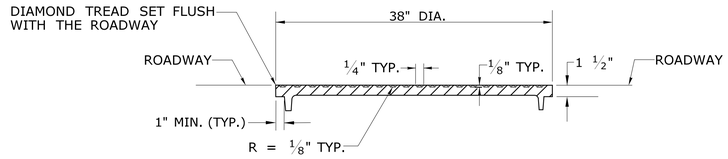
DIAMOND PATTERN PLAN



MANHOLE COVER PLAN



MANHOLE FRAME AND COVER



MANHOLE COVER WITH DIAMOND PATTERN

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 1/30/2019

DESIGNER/DRAFTER: -

CHECKED BY: -

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_HIGHWAY_GD_[1-28-19].dgn

SIGNATURE/ BLOCK:

OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE: - - -

TOWN: - -

DRAWING TITLE: **MANHOLE FRAME AND COVER**

PROJECT NO. -

DRAWING NO. **DGS-10a**

SHEET NO. 67

R1 - SERIES

R1-1

LEGEND - WHITE
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.85	18	31-0532	1	.080
5.19	30	31-0552	1	.080
7.98	36	31-0553	1	.080
13.3	48	31-0557	2	.100

R1-2

LEGEND - RED
BACKGROUND -WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
0.97	18	31-0520	1	.080
3.90	36	31-0523	1	.080
6.77	48	31-0522	2	.100
10.83	60	31-0528	2	.100

R1-3P

LEGEND - WHITE
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
0.75	18X6	31-0508		.080

R2 - SERIES

R2-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-5505	1	.080
7.50	30X36	31-5504	1	.080
12.00	36X48	31-5506	2	.100
20.00	48X60	31-5507	2	.100

R2-4a

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
32	48X96	31-5510	2	.125

R3 - SERIES

R3-1

LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1604	1	.080
9.00	36X36	31-1627	2	.080

R3-2

LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1603	1	.080
9.00	36X36	31-1629	2	.080

R3-3

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1648	1	.080
9.00	36X36	31-1647	2	.080

R3-4

LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1622	1	.080
9.00	36X36	31-1632	2	.080

R3-5

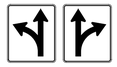
31-0183 31-0184

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36		1	.080

R3-6

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36	31-0175	1	.080

R3-6



31-0157 31-0158

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36		1	.080

R3-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30	31-0117	1	.080
9.00	36X36	31-0120	2	.080

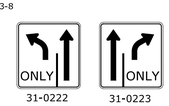
R3-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30	31-0118	1	.080
9.00	36X36	31-0123	2	.080

R3-8

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.00	24X36		1	.080
7.50	36X30	31-0290	1	.080

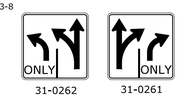
R3-8



31-0222 31-0223

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30		1	.080

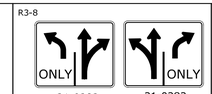
R3-8



31-0262 31-0261

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30		1	.080

R3-8



31-0282 31-0283

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	36X30		2	.080

R3-8

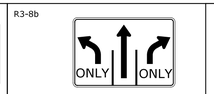
31-0295 31-0219

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	36X30		2	.080

R3-8

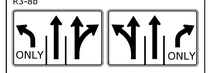
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.75	42X30	31-0279	2	.100

R3-8b



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
10.00	48X30	31-0302	2	.100

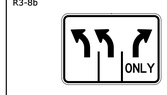
R3-8b



31-0307 31-0372

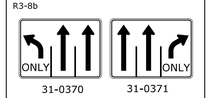
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
10.00	48X30		2	.100

R3-8b



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.75	42X30	31-0334	2	.100

R3-8b



31-0370 31-0371

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.75	42X30		2	.100

R4 - SERIES

R4-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1502	1	.080

R4-16

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
20.00	48X60	31-1574	2	.100

R4-3

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1562	1	.080
20.00	48X60	31-1564	2	.100

R4-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1526	1	.080
12.00	36X48	31-1536	2	.100
20.00	48X60	31-1546	2	.100

R5 - SERIES

R5-1

LEGEND - WHITE
BACKGROUND - WHITE
CIRCLE - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30	31-1119	1	.080
9.00	36X36	31-1120	2	.080
16.00	48X48	31-1121	2	.100

R5-1a

LEGEND - WHITE
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.00	36X24	31-1122	2	.080
8.75	42X30	31-1123	2	.100

R5-10a(CT)

LEGEND - BLACK
TOP SECTION BACKGROUND - YELLOW
BOTTON SECTION BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
32.50	60X78	31-1719	2	.125

R5-10c

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	31-1774	1	.080

R5-10a(CT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36X36	31-1775	2	.100

R5-11

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	30X24	31-1790	1	.080
20.00	48X36	31-1792	2	.100

R6 - SERIES

R6-1

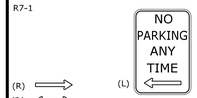
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	36X12	31-1188	1	.080
6.75	54X18	31-1189	2	.100

R6-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	36X12	31-1177	1	.080
6.75	54X18	31-1178	2	.100

R7 - SERIES

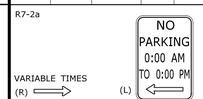
R7-1



LEGEND - RED
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	12X18	31-0630	1	.080

R7-2a



LEGEND - RED
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	12X18	31-0603	1	.080

R8 - SERIES

R8-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
12.00	48X36	31-0670	2	.100

R9 - SERIES

R9-3

LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

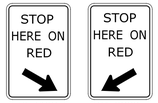
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	18X18	31-1705	1	.080
4.00	24x24	31-1769	1	.080
6.25	30x30	31-1770	1	.080

R9-3a

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	12X18	31-1702	1	.080

R10 - SERIES

R10-6



31-0801 31-0802

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.00	24X36		1	.080

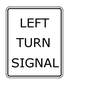
R10-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-0806	1	.080

R10-11b

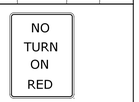
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36X36	31-0816	2	.080

R10-10L



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36	31-0852	1	.080

R10-11a



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36	31-0830	1	.080
12.00	36X48	31-0819	2	.100

R10-11c(CT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36	31-0847	1	.080

R11 - SERIES

R11-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1915	1	.080
20.00	48X60	31-1918	2	.100

RETROREFLECTIVE STRIP

LEGEND - N/A
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.00	4X48	31-5003	1	.080
2.00	4X72	31-5004	1	.080

NOTES:

1. THE LEGEND "O.S.T.A." SHALL APPEAR ON ALL R- SERIES SIGNS EXCEPT WHEN SUFFIXED WITH THE LETTER "Z".
2. FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
3. POSTS - SEE STANDARD SHEET TR-1208_02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
4. POSTS SHALL BE 4 LBS./FT.
5. SIGNS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF SHEET ALUMINUM. SPLICING OF SHEET ALUMINUM WILL NOT BE ACCEPTED.
6. FOR OVERHEAD MOUNTED SIGNS, SEE STANDARD SHEET TR-1114_01 - "BONDING AND UTILITY POLE ATTACHMENT DETAILS, SIGN HANGER, "Y" CLAMP DETAIL."

COLORS:

BACKGROUND - WHITE - EXCEPT AS NOTED.
LEGEND - BLACK - EXCEPT AS NOTED.
ALL SIGNS TO USE TYPE IX RETROREFLECTIVE SHEETING.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
3	12-2018	REVISED RETROREFLECTIVE STRIPS	TR-GS_01
2	10-2018	REVISED R5-11 SIGNS PER MUTCD	TR-GS_01
1	6-2018	NEW SHEET ISSUED	TR-GS_01

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 1/16/2019

DESIGNER/DRAFTER: **A. MERMELSTEIN**
CHECKED BY: **B. SCHILLING**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_TRAFFIC_GS.dgn

SIGNATURE/ BLOCK: **OFFICE OF ENGINEERING**
APPROVED BY: DATE:

PROJECT TITLE: -

TOWN: -

DRAWING TITLE: **SIGN FACE SHEET ALUMINUM (X)**
R-SERIES TYPICAL SIGN DETAILS

PROJECT NO. -
DRAWING NO. **TR-GS_01**
SHEET NO. 68

S - SERIES

S1-1

LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.75	36	41-2112	1	.080
12.00	48	41-2113	2	.100

W1 - SERIES

W1-1L

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4006	1	.080
9.00	36	41-4031	1	.080

W1-1R

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4005	1	.080
9.00	36	41-4160	1	.080

W1-6

LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW
(LEFT OR RIGHT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.00	48X24	41-4223	2	.100
12.50	60X30	41-4262	2	.100

W1-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4029	1	.080
9.00	36	41-4169	1	.080

W1-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4168	1	.080
9.00	36	41-4032	1	.080

W1-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.00	48X24	41-4207	2	.100
12.50	60X30	41-4208	2	.100

W1-8

LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW
(LEFT OR RIGHT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	18X24	41-3951	1	.080
7.50	30X36	41-4211	1	.080
12.00	36X48	41-4260	2	.080

W2 - SERIES

W2-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4226	1	.080
9.00	36	41-4236	1	.080

W2-2

(LEFT OR RIGHT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4225	1	.080
9.00	36	41-4235	1	.080

W3 - SERIES

W3-1

OCTAGON - RED

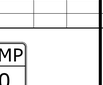
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-0501	1	.080
16.00	48	41-0503	2	.100

W3-2

TRIANGLE - RED & WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-0504	1	.080
16.00	48	41-0506	2	.100

W3-3



SYMBOL & LEGEND - BLACK
BACKGROUND - YELLOW
TOP CIRCLE - RED
BOTTOM CIRCLE - GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-0835	1	.080
16.00	48	41-0848	2	.100

WHEN FLASHING STOP AHEAD

W/ FLASHERS

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
25.00	60	41-0534	2	.125

W4 - SERIES

W4-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4448	1	.080
16.00	48	41-4452	2	.100

W4-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4449	1	.080
16.00	48	41-4459	2	.100

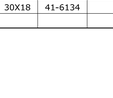
W4-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4442	1	.080
16.00	48	41-4446	2	.100

W4-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4441	1	.080
16.00	48	41-4447	2	.100

W4-3



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4468	1	.080
16.00	48	41-4435	2	.100

W4-3

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4470	1	.080
16.00	48	41-4434	2	.100

W5 - SERIES

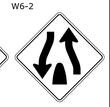
W5-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4402	1	.080
16.00	48	41-4404	2	.100

W6 - SERIES

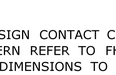
W6-1

W6-2



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4335	1	.080
16.00	48	41-4330	2	.100

W6-3



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4329	1	.080
16.00	48	41-4331	2	.100

W7 - SERIES

W7-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4506	1	.080
9.00	36	41-4530	1	.080
16.00	48	41-4508	2	.100

W8 - SERIES

W8-5

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4519	1	.080
9.00	36	41-4520	1	.080
16.00	48	41-4521	2	.100

W9 - SERIES

W9-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4443	1	.080
16.00	48	41-4444	2	.100

W9-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4440	1	.080
16.00	48	41-4445	2	.100

W9-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4454	1	.080
16.00	48	41-4456	2	.100

W9-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4453	1	.080
16.00	48	41-4455	2	.100

W11 - SERIES

W11-2

LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4829	1	.080
9.00	36	41-4830	1	.080

W11-8

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4680	1	.080
9.00	36	41-4681	1	.080

W12 - SERIES

W12-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4213	1	.080
9.00	36	41-4215	1	.080

LEFT LANE

(SUBPLATE)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	30X24	41-4721		.080

W12-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4706	1	.080
16.00	48	41-4708	2	.100

RIGHT LANE

(SUBPLATE)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	30X24	41-4722		.080

W13 - SERIES

W13-1P

(SUBPLATE)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	18X18	41-5566		.080
4.00	24X24	41-5567		.080
6.25	30X30	41-5574		.080

W13-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
12.00	36X48	41-5596	2	.100

W13-3

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
12.00	36X48	41-5581	2	.100

W16 - SERIES

W16-2aP

(SUBPLATE)
USE AT ADVANCE SIGN LOCATION
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

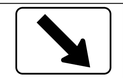
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-6140		.080

W16-7PL

(SUBPLATE)
USE AT CROSSWALK
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-2617		.080

W16-7PR



(SUBPLATE)
USE AT CROSSWALK
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-2619		.080

W16-9P

(SUBPLATE)
USE AT ADVANCE SIGN LOCATION
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-6126		.080
3.75	30X18	41-6137		.080

W16-2aP

(SUBPLATE)
USE AT ADVANCE SIGN LOCATION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-6130		.080
3.75	30X18	41-6134		.080

RETROREFLECTIVE STRIP

LEGEND - N/A
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.

LEGEND - N/A
BACKGROUND - FLUORESCENT YELLOW

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	4X48	41-5001	1	.080
2.00	4X72	41-5006	1	.080
2.00	4X72	41-5010	1	.080

NOTES:

1. FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
2. POSTS - SEE STANDARD SHEET TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
3. POSTS SHALL BE 4 LBS./FT.
4. SIGNS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF SHEET ALUMINUM. SPLICING OF SHEET ALUMINUM WILL NOT BE ACCEPTED.
5. FLUORESCENT YELLOW RETROREFLECTIVE STRIPS SHALL BE INSTALLED ON ALL SIGN POSTS FOR W1-6 AND W1-8 SIGNS. FLUORESCENT YELLOW GREEN RETROREFLECTIVE STRIPS SHALL BE INSTALLED ON ALL SIGN POSTS FOR S1-1 AND W11-2 SIGNS LOCATED AT CROSSINGS. RETROREFLECTIVE STRIPS SHOULD NOT BE INSTALLED ON ADVANCE CROSSING WARNING SIGNS. SEE STANDARD SHEET TR-1208_01 "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS" FOR RETROREFLECTIVE STRIP DETAILS AND INSTALLATION.

COLORS:

BACKGROUND - YELLOW - EXCEPT AS NOTED.
LEGEND - BLACK - EXCEPT AS NOTED.
ALL SIGNS TO USE TYPE IX RETROREFLECTIVE SHEETING.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
1	6-2018	NEW SHEET ISSUED	TR-GS_02

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 12/18/2018

DESIGNER/DRAFTER: **A. MERMELSTEIN**
CHECKED BY: **B. SCHILLING**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_TRAFFIC_GS.dgn

SIGNATURE/ BLOCK: **OFFICE OF ENGINEERING**
APPROVED BY: DATE:

PROJECT TITLE: -

TOWN: -

DRAWING TITLE: **SIGN FACE SHEET ALUMINUM** (Y) **S&W SERIES TYPICAL SIGN DETAILS**

PROJECT NO. -
DRAWING NO. **TR-GS_02**
SHEET NO. 69

D1 - SERIES

D1-1 — 51-5202 — Variable →

D1-2 — 51-5203 — Variable Variable →

VARIABLE LEGEND & ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	60X12	51-5202	2	.100
10.00	60X24	51-5203	2	.100

D3 - SERIES

D3-1 — Variable Road Name

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.00	48X18	51-2004	2	.100
7.50	60X18	51-2001	2	.100
9.00	72X18	51-2002	2	.125
10.50	84X18	51-2003	2	.125

D4 - SERIES

D4-2 — PARK - RIDE →

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	51-6006	1	.080
7.50	30X36	51-6007	1	.080
5.00	24X30	51-6033	1	.080
7.50	30X36	51-6034	1	.080
5.00	24X30	51-6044	1	.080
7.50	30X36	51-6045	1	.080

D4-2 — EXIT OOO — PARK - RIDE

VARIABLE EXIT NUMBER

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
38.50	84X66	51-2082	3	.125
38.50	84X66	51-2095	3	.125
38.50	84X66	51-2097	3	.125
38.50	84X66	51-2099	3	.125

D5 - SERIES

D5-2b — REST AREA

LEGEND - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
42.25	78X78	51-6901	2	.125

SERVICE PLAZA

LEGEND - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
39.00	72X78	51-6158	2	.125

D7 - SERIES

D-7 — 51-6802 — Variable →

51-6803 — Variable Variable →

W or W/O ARROW
VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.17	60X12	51-6802	2	.100
8.33	60X24	51-6803	2	.100

D9 - SERIES

D9-2 — H

** FOR ARROW SUBPLATES USE M5 & M6 SERIES

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6788	1	.080

51-6705 DIESEL →
51-6706 FOOD →
51-6708 GAS →
51-6709 LODGING →

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	36X9		2	.080

51-5405 STATE POLICE →
51-6714 CAMPING →
51-6960 INFO →

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	36X9		2	.080

D10 - SERIES

D10-4 — NORTH / AHEAD 95 / MILE 000

CARDINAL DIRECTION,
SHIELD AND NUMERALS ARE VARIABLE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.75	18X54	51-5307	1	.080

RECREATIONAL RS- SERIES

RS-054

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6873	1	.080

RS-117

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-7872	1	.080

51-2705 — 51-2706 L or R

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.19	21X15	51-2705		.080
2.19	21X15	51-2706		.080

E5 - SERIES

E5-1a — EXIT →

FOR USE AT "NO NUMBERED" EXITS

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
30.00	72X60	51-6150	2	.125

E5-1a — EXIT ← 00 (51-6124) — EXIT 00 → (51-6125)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
32.50	78X60		2	.125

E5-1a — EXIT ← 00 B (51-6126) — EXIT 00 B → (51-6127)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
45.00	108X60		2	.125

E5-1a — EXIT ← 00 A-B (51-6128) — EXIT 00 A-B → (51-6129)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
57.50	138X60		2	.125

I - SERIES

I-3 — (Variable) River

VARIABLE: RIVER, BROOK, CREEK

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	18X12	51-2009	1	.080
4.50	36X18	51-2007	2	.080
12.00	48X36	51-2051	2	.100

(Town Name) (INCORPORATED OR SETTLED) (DATE) TOWN LINE

VARIABLE: TOWN / CITY

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	40X27	51-2020	2	.080

I-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-1448	1	.080
6.25	30X30	51-1445	1	.080

PARKING AREA PATROLLED

LEGEND - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	36X30	51-5937	2	.080

INCIDENT MANAGEMENT

I-3 — N 0 .0 — N 0 0 .0 — N 0 0 0 .0

CARDINAL DIRECTION VARIABLE - N, S, E, W

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	12X36	51-5103	1	.080
4.00	12X48	51-5104	1	.080
5.00	12X60	51-5105	1	.080

SYMBOL - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	18X24	51-5943	1	.080

51-6504 Variable
51-6505 Variable Variable

TO BE SUBMOUNTED W/ 51-5943
LEGEND - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
0.75	18X6	51-6504		.080
1.50	18X12	51-6505		.080

M1 - SERIES

M1-1 — INTERSTATE CONNECTICUT 00 — INTERSTATE CONNECTICUT 000

51-6662 51-6666 VARIABLE: 1 or 2 DIGITS
51-6663 51-6667 VARIABLE: 3 DIGITS

LEGEND - WHITE
BACKGROUND - RED & BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.20	24X24	51-6662	1	.080
3.99	30X24	51-6663	1	.080
7.20	36X36	51-6666	2	.080
8.99	45X36	51-6667	2	.100

M1-4 — 00 — 000

51-6615 51-6635 VARIABLE: 1 or 2 DIGITS
51-6644 51-6645 VARIABLE: 3 DIGITS

LEGEND - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6615	1	.080
5.00	30X24	51-6644	1	.080
9.00	36X36	51-6635	2	.080
11.25	45X36	51-6645	2	.100

M1-5 — 00 — 000

51-6616 51-6636 VARIABLE: 1 or 2 DIGITS
51-6647 51-6646 VARIABLE: 3 DIGITS

LEGEND - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6616	1	.080
5.00	30X24	51-6647	1	.080
9.00	36X36	51-6636	2	.080
11.25	45X36	51-6646	2	.100

M2 - SERIES

M2-1 — JCT

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-6640	(1)	.080
2.19	21X15	51-6610	(2)	.080

M3 - SERIES

M3-1 — NORTH

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6651	(1)	.080
2.00	24X12	51-6611	(2)	.080
4.50	36X18	51-6655	(1)	.080
4.50	36X18	51-6625	(2)	.080

M3-4 — WEST

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6654	(1)	.080
2.00	24X12	51-6614	(2)	.080
4.50	36X18	51-6658	(1)	.080
4.50	36X18	51-6628	(2)	.080

M3-2 — EAST

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6652	(1)	.080
2.00	24X12	51-6612	(2)	.080
4.50	36X18	51-6656	(1)	.080
4.50	36X18	51-6626	(2)	.080

M3-3 — SOUTH

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6653	(1)	.080
2.00	24X12	51-6613	(2)	.080
4.50	36X18	51-6657	(1)	.080
4.50	36X18	51-6627	(2)	.080

M4 - SERIES

M4-5 — TO

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6650	(1)	.080
2.00	24X12	51-6620	(2)	.080

M5 - SERIES

M5-1 — 51-2690 51-2630 — 51-2691 51-2631

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2690	(1)	.080
2.19	21X15	51-2691	(1)	.080
2.19	21X15	51-2630	(2)	.080
2.19	21X15	51-2631	(2)	.080

M5-2 — 51-2692 51-2632 — 51-2693 51-2633

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2692	(1)	.080
2.19	21X15	51-2693	(1)	.080
2.19	21X15	51-2632	(2)	.080
2.19	21X15	51-2633	(2)	.080

M6 - SERIES

M6-1 — L or R

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2686	(1)	.080
2.19	21X15	51-2626	(2)	.080

M6-2 — 51-2688 51-2629 — 51-2689 51-2628 51-2609

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2688	(1)	.080
2.19	21X15	51-2689	(1)	.080
2.19	21X15	51-2628	(2)	.080
2.19	21X15	51-2629	(2)	.080
4.38	30X21	51-2609	(2)	.080

M6-3

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2685	(1)	.080
2.19	21X15	51-2625	(2)	.080

M6-4

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2697	(1)	.080
2.19	21X15	51-2627	(2)	.080

NOTES:

1. FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
2. POSTS - SEE STANDARD SHEET TR-1208_02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
3. POSTS SHALL BE 4 LBS./FT.
4. SIGNS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF SHEET ALUMINUM. SPLICING OF SHEET ALUMINUM WILL NOT BE ACCEPTED.

COLORS:

D - SERIES
- D1, 2, 3, 4, 10 BACKGROUND-GREEN, LEGEND-WHITE
- D7, RS BACKGROUND-BROWN, LEGEND-WHITE
- D9 BACKGROUND-BLUE, LEGEND-WHITE
- ALL OTHER D-SERIES AS NOTED

E - SERIES
- BACKGROUND-GREEN, LEGEND-WHITE

I - SERIES
- BACKGROUND-GREEN, LEGEND-WHITE (EXCEPT AS NOTED)

M2 - M6 SERIES
- (1) BACKGROUND-BLUE, LEGEND-WHITE
- (2) BACKGROUND-WHITE, LEGEND-BLACK

ALL COLORS SHALL BE TYPE IX RETROREFLECTIVE WITH THE EXCEPTION OF BROWN WHICH SHALL BE TYPE IV RETROREFLECTIVE AND BLACK WHICH SHALL BE OPAQUE.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
3	12-2018	REVISED D2, D3, D9, AND I SIGN SERIES.	TR-GS_03
2	7-2018	REVISED BROWN COLOR TO TYPE IV.	TR-GS_03
1	6-2018	NEW SHEET ISSUED	TR-GS_03

Plotted Date: 1/16/2019

DESIGNER/DRAFTER: A. MERMELSTEIN
CHECKED BY: B. SCHILLING

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\CTDOT_TRAFFIC_GS.dgn

SIGNATURE/ BLOCK: OFFICE OF ENGINEERING
APPROVED BY: DATE:

PROJECT TITLE: -

TOWN: -

DRAWING TITLE: SIGN FACE SHEET ALUMINUM (Z)
D,RS,E,I,&M SERIES TYPICAL SIGN DETAILS

PROJECT NO. -
DRAWING NO. TR-GS_03
SHEET NO. 70

*ONLY STANDARD SHEETS MARKED WITH AN "✓" ARE IN THIS PROJECT #

**REVISED OR ADDED

✓*	SHEET NO.	TITLE	APPROVAL DATE**
☐	HW-506_01	ENDWALLS, SLOPE PAVED INLETS AND OUTLETS	1-26-12
☐	HW-506_02	TYPE "D-G" & "L" ENDWALLS	7-13-12
☐	HW-506_03	ENDWALLS FOR PIPE ARCH	9-18-09
☐	HW-507_01	TYPE "C", "C-L" & DROP INLET CATCH BASIN	7-24-13
☐	HW-507_02	TYPE "C", "C-L" & DOUBLE GRATE TYPE - I	7-24-13
☐	HW-507_03	TYPE "C", "C-L" & DOUBLE GRATE TYPE - II	7-24-13
☐	HW-507_04	TYPE "C", "C-L" & ROUND PRECAST CONCRETE CB	11-10-11
☐	HW-507_05	TYPE "C" & "C-L" PRECAST CONCRETE CB DOUBLE GRATE TYPE - I	11-10-11
☐	HW-507_06	TYPE "C" & "C-L" PRECAST CONCRETE CB DOUBLE GRATE TYPE - II	11-10-11
☐	HW-507_07	TYPE "C" & "C-L" CATCH BASIN TOPS AND CURBS	11-10-11
☐	HW-507_08	CATCH BASIN FRAMES AND GRATES	9-18-09
☐	HW-507_09	HEAVY DUTY LOCK DOWN TOPS	7-12-12
☐	HW-507_10	MANHOLE - FRAME & COVER	7-24-13
☐	HW-651_01	C.C.M. PIPE INSTALLATIONS IN FILL & ROCK SLOPES & PIPE TRENCH DETAIL	7-24-13
☐	HW-651_02	SLOTTED DRAIN PIPE 12"- 15"-18"-24"-30" (305-381-457-610-762)	7-12-12
☐	HW-652_01	PIPE ENDS	7-24-13
✓	HW-751_01	UNDERDRAINS AND UNDERDRAIN OUTLETS	7-12-12
☐	HW-803_01a	PAVED APRONS	6-07-17
☐	HW-803_01b	PAVED DITCHES AND PAVED CHANNELS	6-07-17
✓	HW-811_01	CONCRETE CURBING	6-07-17
☐	HW-813_01	GRANITE STONE TRANSITION CURBING	7-24-13
☐	HW-813_02	STONE CURBING	6-07-17
✓	HW-815_01	BITUMINOUS CONCRETE CURBING	6-07-17
☐	HW-821_01a	TRANSITION - 45" (1145) F-SHAPE TO 45" (1145) VERTICAL SHAPE SHEET 1	1-26-12
☐	HW-821_01b	TRANSITION - 45" (1145) F-SHAPE TO 45" (1145) VERTICAL SHAPE SHEET 2	10-18-10
☐	HW-821_01c	TRANSITION - 45" (1145) F-SHAPE TO 45" (1145) VERTICAL SHAPE SHEET 3	1-26-12
☐	HW-821_02a	45" (1145) F-SHAPE PRECAST CONCRETE BARRIER CURB SHEET 1	7-24-13
☐	HW-821_02b	45" (1145) F-SHAPE PRECAST CONCRETE BARRIER CURB SHEET 2	7-24-13
☐	HW-821_03a	TRANSITION - 32" (813) JERSEY SHAPE TO 45" (1145) VERTICAL SHAPE SHEET 1	1-26-12
☐	HW-821_03b	TRANSITION - 32" (813) JERSEY SHAPE TO 45" (1145) VERTICAL SHAPE SHEET 2	10-18-10
☐	HW-821_03c	TRANSITION - 32" (813) JERSEY SHAPE TO 45" (1145) VERTICAL SHAPE SHEET 3	10-18-10
☐	HW-821_03d	TRANSITION - 32" (813) JERSEY SHAPE TO 45" (1145) VERTICAL SHAPE SHEET 4	10-18-10
☐	HW-821_03e	TRANSITION - 32" (813) JERSEY SHAPE TO 45" (1145) F-SHAPE	7-24-13

✓*	SHEET NO.	TITLE	APPROVAL DATE**
☐	HW-821_04a	MERRITT PARKWAY NARROW MEDIAN BARRIER	6-09-11
☐	HW-821_04b	MERRITT PARKWAY - 2' (610) WIDE MEDIAN BARRIER AND ROADSIDE BARRIER	7-24-13
☐	HW-821_05a	TRANSITION - 45" (1145) F-SHAPE TO 54" (1372) VERTICAL SHAPE SHEET 1	1-26-12
☐	HW-821_05b	TRANSITION - 45" (1145) F-SHAPE TO 54" (1372) VERTICAL SHAPE SHEET 2	1-26-12
☐	HW-821_06	54" (1372) VERTICAL SHAPE BARRIER	2-06-12
☐	HW-821_07	MISCELLANOUS DETAILS FOR BARRIER TRANSITIONS	7-12-12
☐	HW-822_01	TEMPORARY PRECAST CONCRETE BARRIER CURB	7-24-13
☐	HW-905_01	STONE WALL FENCE	1-25-19
☐	HW-906_01	WIRE FENCE	1-25-19
☐	HW-910_01	W-BEAM METAL BEAM RAIL HARDWARE	6-09-11
☐	HW-910_02	METAL BEAM RAIL (TYPE R-B 350) GUIDERAIL	6-09-11
☐	HW-910_03	METAL BEAM RAIL (TYPE MD-B 350)	6-09-11
☐	HW-910_04	METAL BEAM RAIL (TYPE R-B 350) SYSTEMS 5, 5A, & 6	6-09-11
☐	HW-910_05	METAL BEAM RAIL R-B 350 SPAN TYPE I, II, III SECTIONS	7-24-13
☐	HW-910_06	R-B 350 BRIDGE ATTACHMENT SAFETY SHAPE PARAPET	6-09-11
☐	HW-910_07	R-B 350 BRIDGE ATTACHMENT VERTICAL SHAPE PARAPET	1-25-19
☐	HW-910_08	R-B 350 BRIDGE ATTACHMENT TRAILING END	6-09-11
☐	HW-910_09a	MISCELLANEOUS GUIDERAIL TRANSITIONS SHEET 1	1-26-12
☐	HW-910_09b	MISCELLANEOUS GUIDERAIL TRANSITIONS SHEET 2	7-25-12
☐	HW-910_10	METAL BEAM RAIL 8" (203) X 6" (152) BOX BEAM	7-24-13
☐	HW-910_11	CURVED GUIDERAIL TREATMENT DETAIL	7-25-12
☐	HW-910_12a	MERRITT PARKWAY GUIDERAIL ATTACHMENT - SYSTEM 2 & 3	7-24-13
☐	HW-910_12b	MERRITT PARKWAY GUIDERAIL	7-24-13
☐	HW-910_12c	MERRITT PARKWAY GUIDERAIL TRAILING END ATTACHMENTS	7-24-13
☐	HW-910_12d	MERRITT PARKWAY MEDIAN GUIDERAIL AND END ANCHOR	6-09-11
☐	HW-910_13a	THRIE-BEAM METAL BEAM RAIL HARDWARE	7-24-13
☐	HW-910_13b	THRIE-BEAM TRANSITIONS	7-24-13
☐	HW-910_14a	THRIE-BEAM 350 BRIDGE ATTACHMENT	6-09-11
☐	HW-910_14b	THRIE-BEAM 350 GUIDERAIL TRANSITION TO R-B 350 GUIDERAIL	6-09-11
☐	HW-910_15	MD-B 350 MEDIAN BARRIER SAFETY SHAPE ATTACHMENT TYPE I	6-09-11
☐	HW-910_16	MD-B 350 MEDIAN BARRIER SAFETY SHAPE ATTACHMENT TYPE II	6-09-11
☐	HW-910_17	R-B TERMINAL SECTION	7-24-13
☐	HW-910_18	METAL BEAM RAIL (TYPE MD-I)	10-18-10

REV.	DATE	REVISION DESCRIPTION
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 1/23/2019

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_HIGHWAY_STD_[_1-23-19_].dgn Model: 1 - HW-INX_1

CTDOT
STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

HIGHWAY STANDARD SHEET INDEX

STANDARD SHEET NO.:

HW_INX

*ONLY STANDARD SHEETS MARKED WITH AN "✓" ARE IN THIS PROJECT #

**REVISED OR ADDED

✓*	SHEET NO.	TITLE	APPROVAL DATE**
☐	HW-910_19a	METAL BEAM RAIL (MODIFIED TYPE R-I) AND END ANCHORAGE TYPE I	7-24-13
☐	HW-910_19b	METAL BEAM RAIL (MODIFIED TYPE R-I) AND END ANCHORAGE TYPE II	7-24-13
☐	HW-910_19c	METAL BEAM RAIL (MODIFIED TYPE R-I) SYSTEMS 2 AND 3	7-24-13
☐	HW-910_20	MASH W-BEAM HARDWARE	1-05-18
☐	HW-910_21	METAL BEAM RAIL (R-B MASH) GUIDERAIL	1-25-19
☐	HW-910_22	METAL BEAM RAIL (MD-B MASH) GUIDERAIL	1-05-18
☐	HW-910_23	METAL BEAM RAIL (R-B MASH) HALF AND QUARTER POST SPACING	1-05-18
☐	HW-910_24	METAL BEAM RAIL SPAN SECTION TYPES II AND III	1-05-18
☐	HW-910_25	METAL BEAM RAIL TRANSITION 350 TO MASH	1-05-18
☐	HW-911_01	R-B END ANCHORAGE TYPE I AND II	1-25-19
☐	HW-911_02	MD-B END ANCHORAGE TYPE I	1-05-18
☐	HW-911_03	ANCHOR IN EARTH CUT SLOPE & ANCHOR IN ROCK CUT SLOPE	10-18-10
☐	HW-911_05	MERRITT PARKWAY GUIDERAIL END ANCHORS	7-24-13
☐	HW-913_01a	CHAIN LINK FENCE	5-06-19
☐	HW-913_01b	CHAIN LINK FENCE HARDWARE	5-06-19
☐	HW-913_02	CHAIN LINK FENCE GATES	5-06-19
☐	HW-918_01a	THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 1	7-24-13
☐	HW-918_01b	THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 2	1-26-12
☐	HW-918_01c	THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 3	7-24-13
✓	HW-921_01	DRIVEWAY RAMPS AND SIDEWALKS	6-07-17
☐	HW-949_01	PLANTING DETAILS FOR TREES	7-12-12
☐	HW-949_02	PLANTING DETAILS FOR SHRUBS	7-12-12
☐	HW-1800_01	GRADING PLAN FOR IMPACT ATTENUATION SYSTEMS (FLARED AND TANGENTIAL)	1-25-19
☐	HW-1800_02	GRADING PLAN FOR IMPACT ATTENUATION SYSTEM (MEDIAN/GORE)	1-25-19

✓*	SHEET NO.	TITLE	APPROVAL DATE**

REV.	DATE	REVISION DESCRIPTION
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Plotted Date: 5/13/2019

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_HIGHWAY_STD_[_4-16-19_].dgn Model: 2 - HW-INX_2

CTDOT
STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

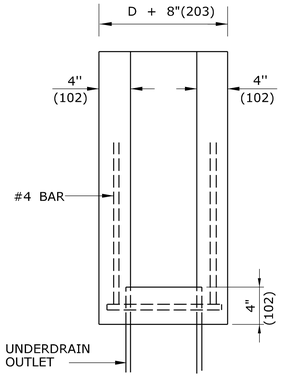
HIGHWAY
STANDARD SHEET INDEX

STANDARD SHEET NO.:

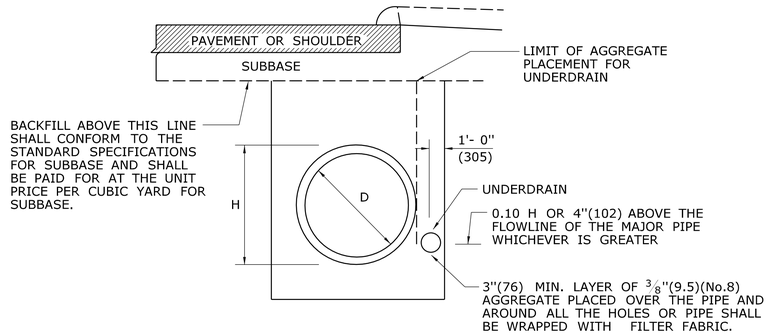
HW_INX
2 of 2

GENERAL NOTES:

1. THE OUTLET ENDWALL CAN BE EITHER PRECAST OR CAST IN PLACE. CONCRETE SHALL BE CLASS "C" CONCRETE.
2. IF PRECAST CONCRETE ENDWALL IS USED, THE OUTLET SHALL BE GROUTED AND SEALED TO ENDWALL OPENING WITH NON-SHRINK GROUT.

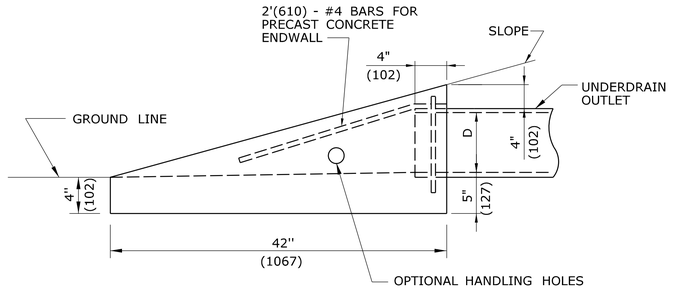


PLAN VIEW

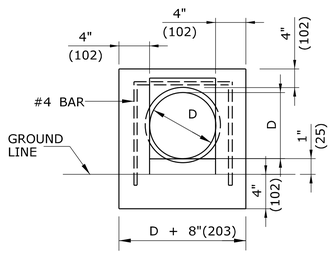


NOTE:
PAY LIMIT FOR TRENCH EXCAVATION AND BEDDING SHALL BE THE SAME AS FOR THE CULVERT ALONE. MATERIAL ABOVE THE BEDDING SHALL BE SUITABLE MATERIAL OR GRANULAR FILL.

CULVERT AND UNDERDRAIN IN THE SAME TRENCH

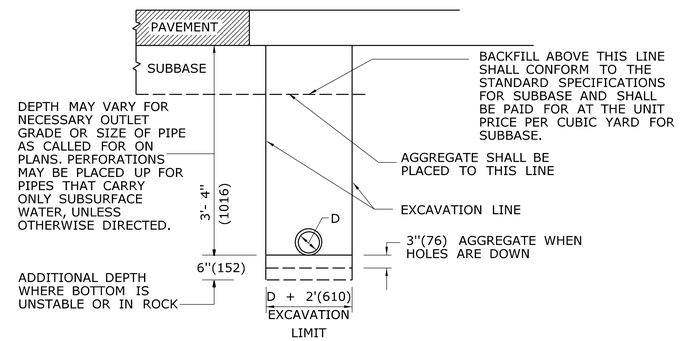


ENDWALL



ELEVATION

UNDERDRAIN OUTLET DETAILS



UNDERDRAIN

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

REV.	DATE	REVISION DESCRIPTION
1	6/01/10	REMOVED RODENT SCREEN DETAILS AND REVISED TITLES
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/23/2011

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_HIGHWAY_STD_JUNE2011.dgn Model: 20 - HW-751_01

SUBMITTED BY: NAME/DATE/TIME:

Digitally signed by Leo L. Fontaine
DN: cn=Leo L. Fontaine, o=Kleinfelder, ou=Transportation Principal Engineer Soils and Foundations, ou=Bureau of Engineering and Construction, ou=Department of Transportation, email=lfontaine@kleinfelder.com, c=US, st=State of Connecticut
Date: 2012.07.11 10:31:05 -04'00'

APPROVED BY: NAME/DATE/TIME:

James H. Norman
2012.07.12 09:39:25 -04'00'

CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

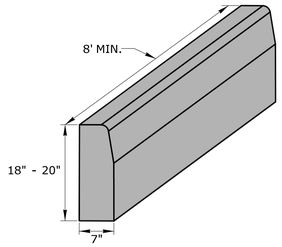
UNDERDRAINS AND UNDERDRAIN OUTLETS

STANDARD SHEET NO.:

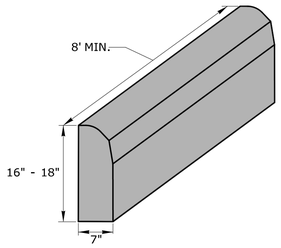
HW-751_01

GENERAL NOTE:

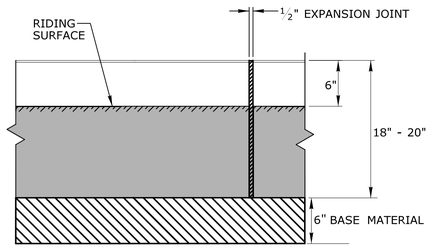
1. PRECAST CONCRETE CURBING MAY BE CAST BY THE MANUFACTURER WITH OPTIONAL LIFTING AND DOWEL BAR HOLES.



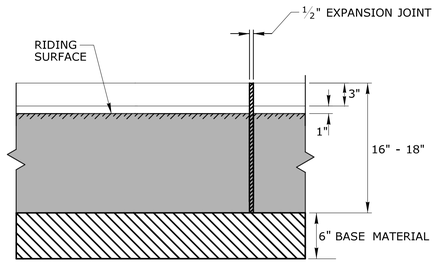
CONCRETE CURBING (6" REVEAL)



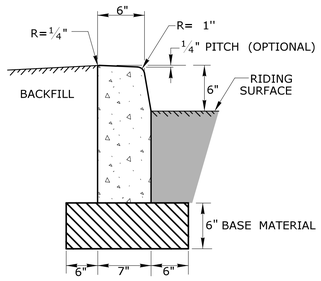
CONCRETE PARK CURBING (4" REVEAL)



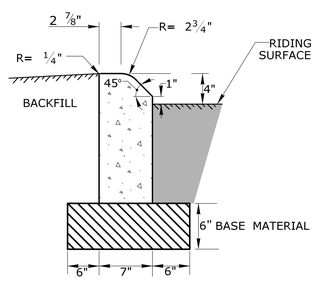
FRONT ELEVATION



FRONT ELEVATION



SECTION



SECTION

REV.	DATE	REVISION DESCRIPTION
1	6/01/10	REVISED TITLE FOR 6" CONC. CURB
2	6/17	REMOVED STONE, BITUMINOUS & GRANITE ITEMS

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/6/2017

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: HW-811_01.dgn Model: CT_Civil_2D_Sheet

SUBMITTED BY: NAME/DATE/TIME:
Leo Fontaine, P.E.
2017.06.07 07:33:29-04'00'

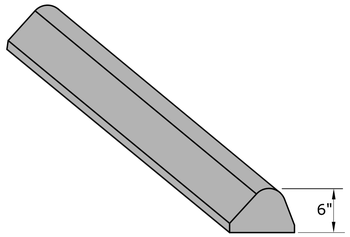
APPROVED BY: NAME/DATE/TIME:
Gregory M. Dorosh, P.E.
2017.06.07 10:41:26-04'00'

CTDOT STANDARD SHEET

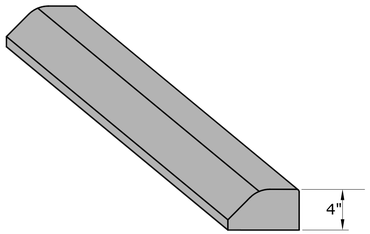
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
CONCRETE CURBING

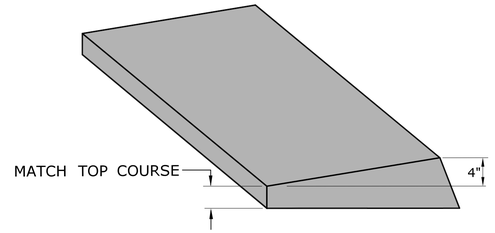
STANDARD SHEET NO.:
HW-811_01



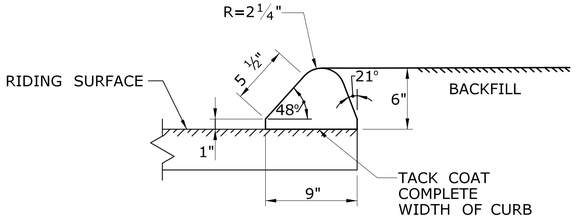
BITUMINOUS CONCRETE LIP CURBING
(6" HIGH)



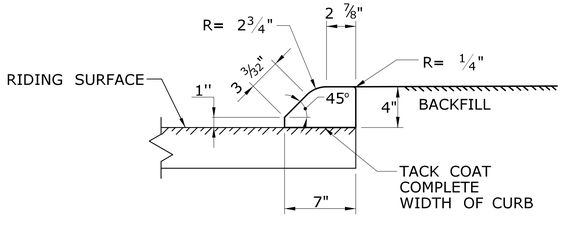
BITUMINOUS CONCRETE PARK CURBING
(4" HIGH)



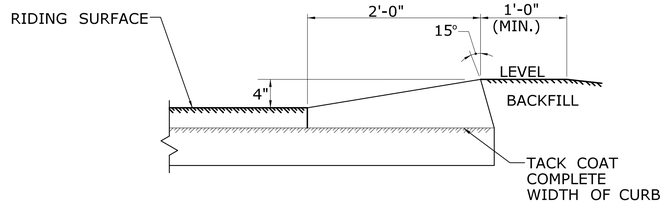
BITUMINOUS CONCRETE BERM CURBING
(4" HIGH)



SECTION



SECTION



SECTION

REV.	DATE	REVISION DESCRIPTION
1	6/17	NEW SHEET

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/6/2017

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: HW-815_01.dgn Model: CT_Civil_2D_Sheet

SUBMITTED BY: NAME/DATE/TIME:
Leo Fontaine, P.E.
2017.06.07 07:33:51-04'00'

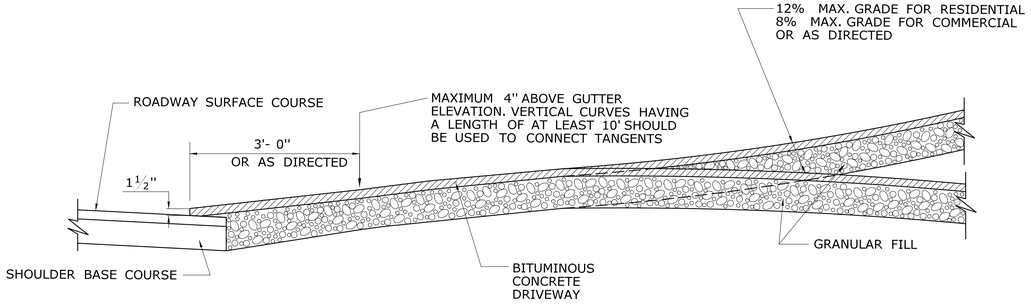
APPROVED BY: NAME/DATE/TIME:
Gregory M. Dorosh, P.E.
2017.06.07 10:44:27-04'00'

CTDOT
STANDARD SHEET

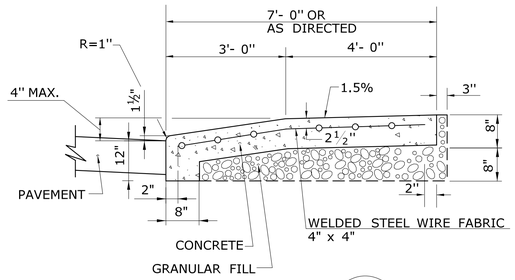
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
BITUMINOUS CONCRETE CURBING

STANDARD SHEET NO.:
HW-815_01



SECTION A



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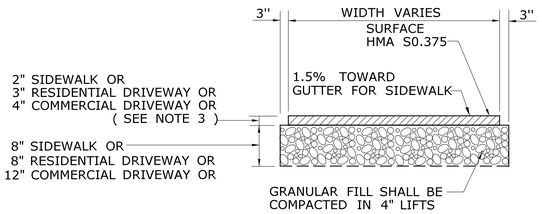
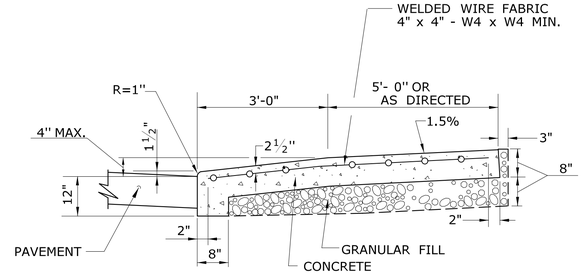


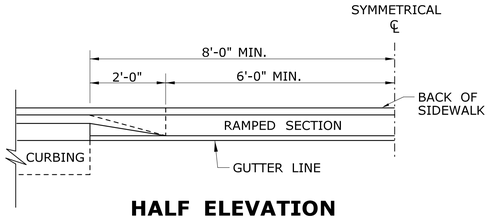
TYPICAL SECTION BITUMINOUS CONCRETE SIDEWALK AND DRIVEWAY



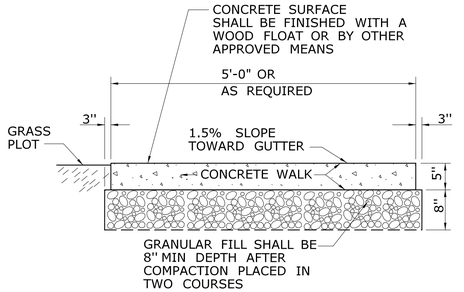
SECTION C

GENERAL NOTES:

1. DRIVEWAY ENTRANCE SHALL BE A MINIMUM OF 12' WIDE, EXCLUDING CURBING WHEN PRESENT.
2. WELDED WIRE FABRIC MATS WITH REINFORCING AT CLOSER SPACING MAY BE USED.
3. SURFACE HMA S0.375 TO BE PLACED IN TWO EQUAL LIFTS FOR BOTH RESIDENTIAL AND COMMERCIAL DRIVEWAYS.

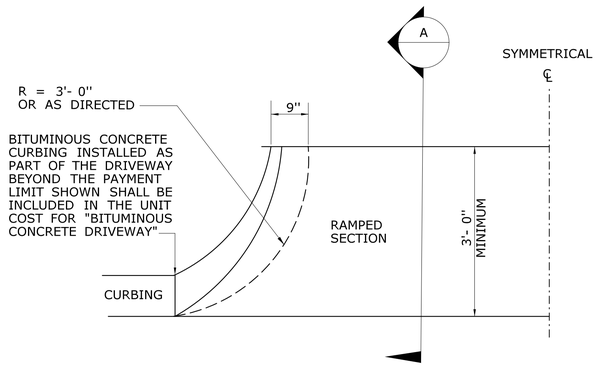


HALF ELEVATION

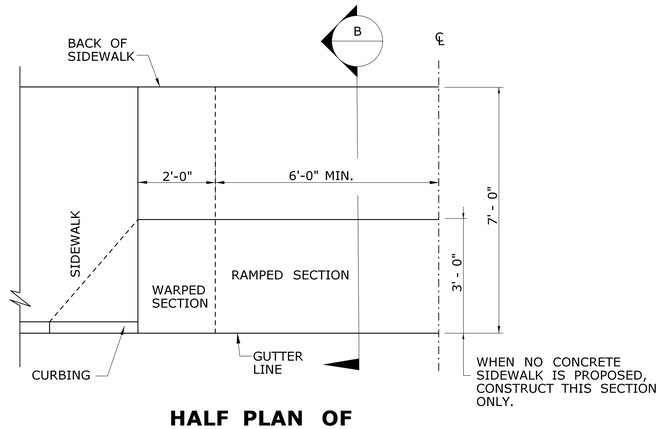


SECTION D

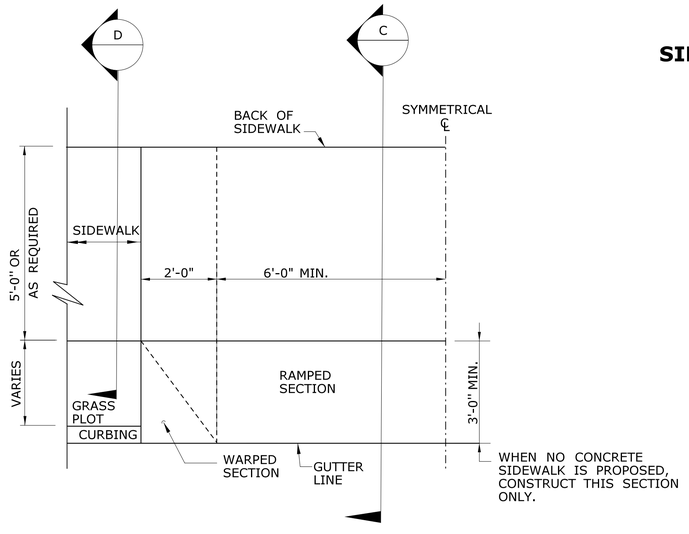
5' WIDE CONCRETE SIDEWALK WITH GRASS PLOT



HALF BITUMINOUS CONCRETE DRIVEWAY PLAN



HALF PLAN OF CONCRETE DRIVEWAY RAMP WHERE SIDEWALK ADJOINS CURBING



HALF PLAN OF CONCRETE DRIVEWAY RAMP WHERE CURB IS SEPARATED FROM SIDEWALK BY GRASS PLOT

REV.	DATE	REVISION DESCRIPTION
1	6/01/10	REVISED BORDER TITLE
2	6/01/10	REVISED HALF ELEVATION DETAILS
3	1/12	REVISE 2% MAX. SLOPE NOTE
4	6/17	REVISED SLOPES & MATERIAL COMPOSITIONS
-	-	INCREASED WALKING WIDTH OF CONCRETE DRIVEWAY RAMP

Plotted Date: 6/6/2017

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: HW-921_01.dgn Model: CT_Civil_2D_Sheet

SUBMITTED BY: NAME/DATE/TIME:
Leo Fontaine, P.E.
2017.06.07 07:34:10-04'00'

APPROVED BY: NAME/DATE/TIME:
Gregory M. Dorosh, P.E.
2017.06.07 10:47:32-04'00'

CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
DRIVEWAY RAMPS AND SIDEWALKS

STANDARD SHEET NO.:
HW-921_01

ONLY STANDARD SHEETS MARKED WITH AN "✓" ARE IN THIS PROJECT #

	SHEET NO.	TITLE	APPROVAL DATE
✓	TR-1000_01	GENERAL CLAUSES (TEST PROCEDURES)	1/2014
	TR-1001_01	TRENCHING & BACKFILLING, ELECTRICAL CONDUIT	4/2012
	TR-1002_01	TRAFFIC CONTROL FOUNDATIONS	1/2014
	TR-1010_01	CONCRETE HANDHOLE	4/2014
	TR-1102_01	PEDESTALS, PEDESTRIAN SIGNALS	4/2012
	TR-1105_01	TRAFFIC SIGNALS AND CABLE ASSIGNMENTS	8/2018
	TR-1107_01	PEDESTRIAN PUSH BUTTON	8/2018
	TR-1108_01	CONTROLLERS	5/2013
✓	TR-1111_01	LOOP VEHICLE DETECTOR AND SAWCUT	4/2014
	TR-1113_01	CONTROL CABLE	4/2014
	TR-1114_01	BONDING & UTILITY POLE ATTACHMENT DETAILS, SIGN HANGER, "Y" CLAMP DETAILS	8/2018

	SHEET NO.	TITLE	APPROVAL DATE
	TR-1205_01	DELINEATION, DELINEATORS AND OBJECT MARKER DETAILS	8/2018
✓	TR-1208_01	SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS	8/2018
✓	TR-1208_02	METAL SIGN POSTS AND SIGN MOUNTING DETAILS	6/2017
	TR-1210_01	PAVEMENT MARKINGS (DURABLE MARKINGS) FOR DIVIDED HIGHWAYS	OBSOLETE
	TR-1210_02	PAVEMENT MARKINGS (DURABLE MARKINGS) FOR DIVIDED HIGHWAYS	OBSOLETE
	TR-1210_03	SPECIAL DETAILS & TYPICAL PAVEMENT MARKINGS FOR TWO-WAY HIGHWAYS	OBSOLETE
✓	TR-1210_04	PAVEMENT MARKING LINES AND SYMBOLS	8/2018
	TR-1210_05	PAVEMENT MARKINGS FOR DIVIDED HIGHWAYS	4/2017
	TR-1210_06	PAVEMENT MARKINGS FOR DIVIDED HIGHWAYS	8/2018
	TR-1210_07	PAVEMENT MARKINGS FOR EXIT RAMPS	4/2017
	TR-1210_08	PAVEMENT MARKINGS FOR NON FREEWAYS	8/2018
	TR-1210_09	PAVEMENT MARKINGS FOR BICYCLE LANES, PARKING STALLS, AND RR CROSSINGS	4/2017
	TR-1220_01	SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS	8/2018
	TR-1220_02	CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES	8/2018

STANDARD SHEETS SHALL BE USED WITH STANDARD SPECIFICATIONS

REV.	DATE	REVISION DESCRIPTION
4	4-2017	REMOVED TR-1210_01 TO TR-1210_03. ADDED TR-1210_04 TO TR-1210_09
3	4-2014	REMOVED TR-1111_02.
2	1-2014	REMOVED TR-1103_01.
1	4-2012	RENUMBERED TR-1107_02 TO TR-1114_01. REMOVED TR-1116_01.

Plotted Date: 8/16/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_TRAFFIC_STD_DGN.DGN Model: TR-01-STD_INDEX

SUBMITTED BY: NAME/DATE/TIME:

CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

TRAFFIC STANDARD SHEET INDEX

STANDARD SHEET NO.:

TR-STD_INDEX

DOCUMENT ALL LOOP DETECTOR VALUES BOTH CALCULATED AND MEASURED.

DEFINITIONS:

LOOP: #14 AWG WIRE IN SAWCUT, TERMINATED IN HANDHOLE, IMSA SPEC 51-7.
LEAD-IN: 14/2 SHIELDED TWISTED PAIR CABLE FROM HANDHOLE TO CONTROLLER, IMSA SPEC 50-2.
LOOP CIRCUIT: LOOP SAWCUT WIRE SPLICED TO 14/2 LEAD-IN CABLE.
AMPLIFIER: ELECTRONIC DEVICE CONNECTED TO LOOP CIRCUIT. SENSES CHANGE IN RESONANT FREQUENCY AND CREATES AN OUTPUT TO THE CONTROLLER.
MEGOHMETER: INSTRUMENT SPECIFICALLY DESIGNED TO TEST THE INSULATION RESISTANCE OF A CIRCUIT. COMMON MANUFACTURERS: AMEC®, AMPROBE®, FLUKE®, MEGGER®.

1: RESISTANCE:

1a: INSULATION RESISTANCE: PERFORM A 600 VOLT (MINIMUM) MEGOHMETER TEST ON LOOP CIRCUIT. THE LOOP AMPLIFIER MUST BE DISCONNECTED FROM THE LOOP CIRCUIT OR THE LOOP AMPLIFIER WILL BE DAMAGED. THE RESISTANCE OF THE LOOP WIRE TO GROUND MUST BE GREATER THAN 100 MEG OHMS.

1b: WIRE RESISTANCE: MEASURE THE DC RESISTANCE OF THE LOOP CIRCUIT. THE LOOP CIRCUIT MUST BE DISCONNECTED FROM THE AMPLIFIER. USING AN OHMMETER CONNECTED ACROSS THE LOOP CIRCUIT, MEASURE THE DC RESISTANCE OF THE CONDUCTORS. THE RESISTANCE SHOULD BE LESS THAN 4 OHMS.

NOTE: ALL TESTS SHALL BE DONE AT THE CONTROLLER ASSEMBLY (CA), HOWEVER IT IS RECOMMENDED TO PERFORM A PRELIMINARY MEGOHMETER TEST AT THE HANDHOLE PRIOR TO SEALING THE SAWCUT AND SPLICING TO THE LEAD-IN. IF A DEFECTIVE LOOP WIRE IS FOUND, IT MAY BE EASILY REPLACED.

2: LOOP CIRCUIT INDUCTANCE:

2a: CALCULATE INDUCTANCE OF LOOP (L_{LOOP}) AND LEAD-IN CABLE ($L_{14/2}$).

LOOP INDUCTANCE (ENGLISH)

$L_{LOOP} = (P/4)(N^2 + N)$

LEAD-IN INDUCTANCE

$L_{14/2} = (0.24\,\mu h/FT)(D)$

LOOP INDUCTANCE (METRIC)

$L_{LOOP} = (3.28P/4)(N^2 + N)$

LEAD-IN INDUCTANCE

$L_{14/2} = (0.78\,\mu h/m)(D)$

WHERE:

L_{LOOP} = INDUCTANCE OF INDIVIDUAL LOOP SEGMENTS IN MICROHENRIES (μh).
$L_{14/2}$ = INDUCTANCE OF LEAD-IN CABLE.
P = PERIMETER OF INDIVIDUAL LOOP SEGMENT, IN FEET OR METERS.
N = NUMBER OF TURNS.
D = LENGTH OF LEAD-IN CABLE FROM SPLICE IN HANDHOLE TO CONTROLLER, IN FEET OR METERS.
$L_T = L_1 + L_2 + L_3$ etc.,
(TOTAL INDUCTANCE OF SEGMENTED LOOP SPLICED IN SERIES.)
$L_T = 1 / [(1 / L_1) + (1 / L_2) + (1 / L_3) + \text{etc.}]$,
(TOTAL INDUCTANCE OF SEGMENTED LOOP SPLICED IN PARALLEL.

WHERE:

L_T = TOTAL INDUCTANCE OF THE SEGMENTED ARRANGEMENT.
L_1, L_2, L_3 = INDUCTANCE OF INDIVIDUAL LOOP SEGMENTS.

EXAMPLE: (IN ENGLISH)

6' x 6', 4 TURNS, APPROXIMATELY 300' FROM THE CONTROLLER

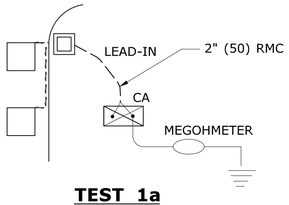
$L_{LOOP} = (24/4)(4^2 + 4)$
$L_{LOOP} = (6)(20)$
$L_{LOOP} = 120\,\mu h$

$L_{14/2} = (0.24\,\mu h/FT)(300)$
$L_{14/2} = (0.24)(300)$
$L_{14/2} = 72\,\mu h$

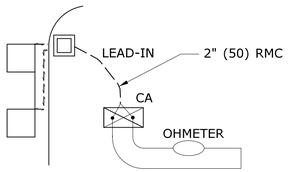
2b: MEASURE INDUCTANCE OF LOOP AND LEAD-IN AT CONTROLLER. USE INSTRUMENT DESIGNED TO MEASURE LOOP CIRCUIT INDUCTANCE.

3: POWER INTERRUPTION:

AFTER THE AMPLIFIER HAS TUNED AND IS OPERATING, DISCONNECT POWER BY REMOVING FUSE OR HARNESS CONNECTOR. RETURN POWER TO THE AMPLIFIER AND CONFIRM IT RE-TUNES AUTOMATICALLY WITHOUT ANY MANUAL ADJUSTMENTS.



TEST 1a



TEST 1b

PROJECT:
TOWN: LOCATION:

LOOP NUMBER	RESISTANCE OHMS		INDUCTANCE MICROHENRIES (μh)		AMPLIFIER POWER INTERRUPTION
	TO GROUND (1a)	LOOP WIRE (1b)	CALCULATED (2a)	MEASURED (2b)	PASS/FAIL (3)
D1 FRONT					
D1 REAR					
D2A					
D2B					
D4A FRONT					
D4B REAR					
D5					
D6A					
D6B					

LOOP CIRCUIT TEST DATA (EXAMPLE)

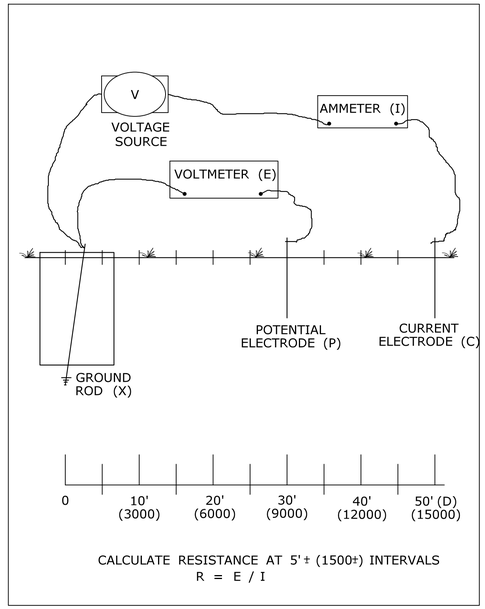
TEST PROCEDURE:

- INSERT ELECTRODE (C) A DISTANCE (D) FROM THE FOUNDATION. RECOMMEND A MINIMUM 50'.
- CONNECT A VOLTAGE SOURCE AND AMMETER BETWEEN THE FOUNDATION GROUND ROD (X) AND C.
- MEASURE THE CURRENT FLOW (I) BETWEEN X AND C.
- INSERT POTENTIAL ELECTRODE (P) AT 5'(1500) INTERVALS IN A STRAIGHT LINE TO ELECTRODE C.
- MEASURE VOLTAGE (E) AT EACH LOCATION OF P.
- CALCULATE RESISTANCE (R) AT EACH LOCATION OF P USING THE FORMULA R=E/I.
- PLOT THE VALUES ON A RxD GROUND RESISTANCE CHART.
- THE ACTUAL GROUND RESISTANCE IS WHERE THE PLOTTED CURVE IS RELATIVELY FLAT, USUALLY AT 62%± OF D.
  SEE EXAMPLE CHART: CURVE FLATTENS OUT AT 10 OHMS, APPROXIMATELY 30'(9000) FROM FOUNDATION.
- IF GROUND RESISTANCE IS GREATER THAN 10 OHMS, PERFORM CORRECTIVE ACTION AND RE-TEST.

SUGGESTED CORRECTIVE ACTION:

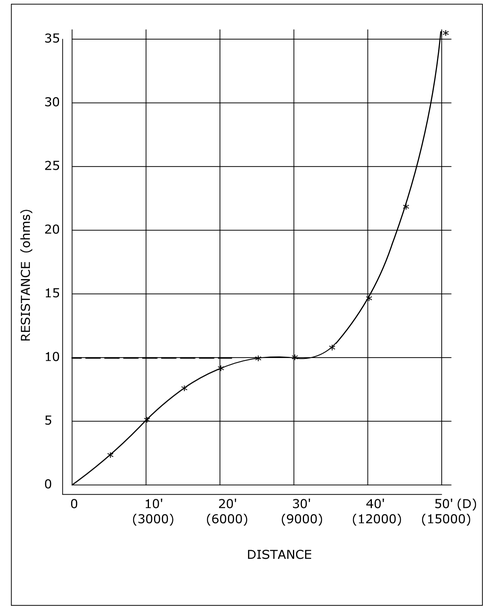
A. INSTALL ADDITIONAL 10'(3000) GROUND ROD(S).
REFER TO NESC SECTION 09, RULE 94.B.2.
DRIVE ADDITIONAL GROUND RODS NO CLOSER TO FOUNDATION THAN 6'(1800). IF MORE THAN ONE IS NEEDED, SPACE MINIMUM 6'(1800) APART.
BONDS TO ADDITIONAL GROUND ROD(S) SHALL BE MADE BY A CLAMP DESIGN FOR DIRECT BURIAL OR BY EXOTHERMIC WELDING TECHNIQUE.
TOP OF ADDITIONAL GROUND ROD(S) SHALL BE 6" (150) BELOW GRADE.

B. IN AREAS OF SHALLOW BEDROCK, INSTALL A GROUND GRID OR ARRAY CONSISTING OF BURIED WIRE, RODS, STRIPS OR PLATES.
REFER TO NESC SECTION 09, RULE 94.B.3.
REFER TO NEC SECTION 250.
MINIMUM DEPTH OF 18" (450).
GRID CONNECTIONS AND BONDS ON GROUND GRID SHALL BE MADE BY CLAMPS DESIGNED FOR DIRECT BURIAL OR BY EXOTHERMIC WELDING TECHNIQUE.



CALCULATE RESISTANCE AT 5'± (1500±) INTERVALS
R = E / I

3 POINT GROUND RESISTANCE TEST CIRCUIT



GROUND RESISTANCE CHART (EXAMPLE)

INDUCTIVE LOOP TEST PROCEDURE

PIN	COLOR	FUNCTION
A	WHITE	110 VAC Neutral
B	BROWN	Output Relay Common (moving contact)
C	BLACK	110 VAC (Fused)
D	RED	Loop
E	ORANGE	Loop
F	YELLOW	Output Relay Contact (Closes with moving contact when detecting vehicle)
G	BLUE	Output Relay Contact (Opens with moving contact when detecting vehicle)
H	GREEN	Chassis Ground
J	GREY	110 VAC Delay/Extend Override
Shell		Ground (shall be connected to pin H in the connector)

DETECTOR AMPLIFIER PIN DESIGNATION

NOTES:
1. WHEN REQUESTED BY THE ENGINEER, MEASURE RESISTANCE-TO-GROUND OF GROUND ROD AT TRAFFIC CONTROL FOUNDATIONS. SEE FALL-OF-POTENTIAL METHOD. IF LESS THAN 10 ohms, INSTALL SUPPLEMENTAL ELECTRODES AS REQUIRED. NEC ARTICLE 250.
2. DURING THE TEST, THE GROUND ROD SHOULD NOT BE BONDED TO ANY RMC IN THE FOUNDATION.
3. THE VOLTAGE SOURCE, VOLTMETER, AMMETER, ELECTRODES P AND C, AND CONNECTING CABLES ARE AVAILABLE AS A SPECIALIZED TEST INSTRUMENT.
4. REFER TO NATIONAL ELECTRICAL SAFETY CODE (NESC) SECTION 09, GROUNDING METHODS FOR ELECTRIC SUPPLY AND COMMUNCATIONS FACILITIES.
5. REFER TO NATIONAL ELECTRICAL CODE (NEC) CHAPTER 2, ARTICLE 250, GROUNDING.

3 POINT FALL-OF-POTENTIAL GROUND RESISTANCE TEST

LEGEND AS SHOWN ON TRAFFIC CONTROL SIGNAL PLAN:
- INDUCTIVE LOOP DETECTOR
- SAW CUT
- RIGID METAL CONDUIT
- HANDHOLE

REV.	DATE	REVISION DESCRIPTION
2	1-2014	REVISED GROUND RESISTANCE NOTES.
1	4-2012	MINOR REVISIONS.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 1/7/2014

DIMENSIONS ARE IN ENGLISH (‘.”) & METRIC UNITS (mm).
METRIC DIMENSIONS ARE ROUNDED:
- OVER 1" TO NEAREST 5 mm
- UNDER 1" TO NEAREST 1 mm.

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: CTDOT_TRAFFIC_STD.DGN Model: TR-1000_01

SUBMITTED BY: NAME/DATE/TIME:
Tracy L. Fogarty 2014.01.07 16:11:26-05'00'

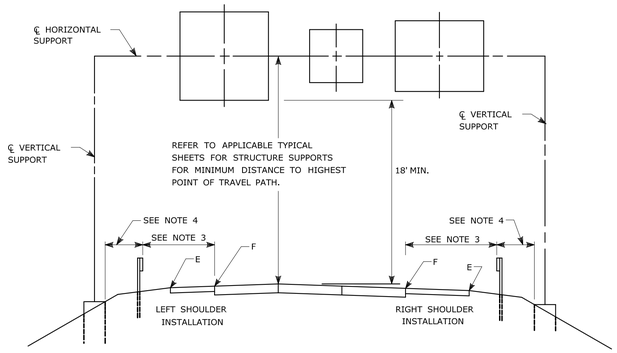
APPROVED BY: NAME/DATE/TIME:
Charles S. Harlow 2014.01.08 09:02:11-05'00'

CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
GENERAL CLAUSES (TEST PROCEDURES)

STANDARD SHEET NO.:
TR-1000_01



TYPICAL PLACEMENT OF OVERHEAD SIGNS ON SIGN SUPPORTS

NOTES:

1) FOR PLACEMENT OF CANTILEVER SIGN SUPPORT USE APPLICABLE PORTION OF ABOVE DETAIL.
2) BARRIER SYSTEMS MAY BE REQUIRED FOR BOTH SIDES OF SUPPORTS IN MEDIANS.
3) IMPACT PROTECTION SHALL BE PROVIDED FOR THE SIGN SUPPORTS LOCATED WITHIN CLEAR ZONE.
4) SIGN SUPPORT FOUNDATIONS SHALL BE LOCATED OUTSIDE OF BARRIER SYSTEMS DEFLECTION AREA.
5) ALL SIGNS ARE TO BE LEVEL, REGARDLESS OF CAMBER IN SUPPORT.

FOR MAXIMUM EFFECTIVENESS, POSITION SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS AS FOLLOWS:

ON A TANGENT SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH THE TRAFFIC LANE WHICH THE SIGN SERVES. SIGNS LOCATED 30 FT OR MORE FROM THE EDGE OF THE ROAD SHALL BE TURNED APPROXIMATELY 3° TOWARD THE ROAD.

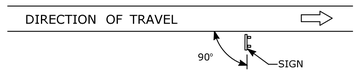


DIAGRAM "A"

ON A HORIZONTAL CURVE SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH A STRAIGHT LINE BETWEEN THE SIGN AND THE POINT AT WHICH THE SIGN SHALL BE READ.

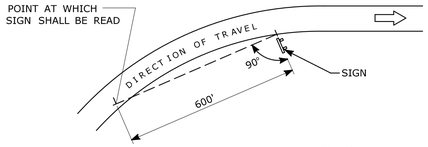
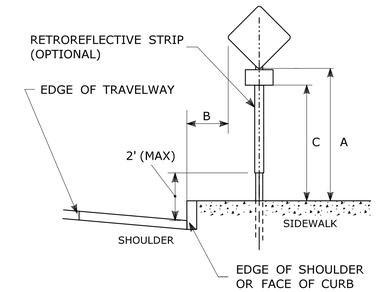
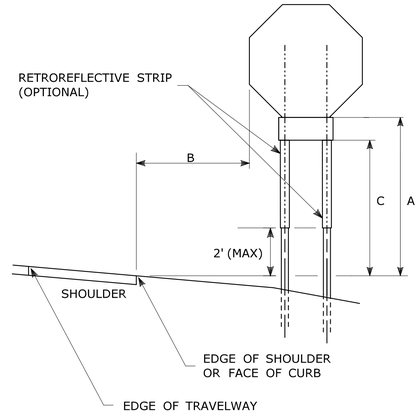
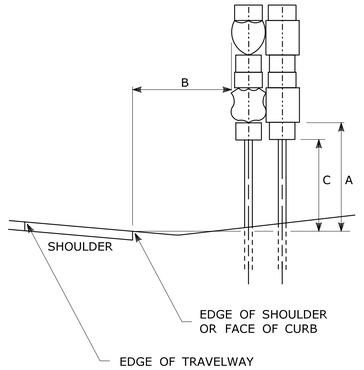


DIAGRAM "B"

SIGN ORIENTATION DETAILS FOR SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS







TYPICAL SIGN PLACEMENT DETAIL

NOTES:

ALL SIGNS AND SHIELDS ON DIRECTIONAL ASSEMBLIES SHALL ABUT VERTICALLY.

REFER TO STANDARD SHEET No. TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR SIGN POSTS AND SIGN MOUNTING.

IF A RETFOREFLECTIVE STRIP IS USED ON SIGN SUPPORT, IT SHALL BE PLACED FOR THE FULL LENGTH OF THE SUPPORT FROM THE BOTTOM OF THE SIGN TO WITHIN 2 FT ABOVE THE EDGE OF THE ROADWAY.

PARKING SIGNS TYPICALLY USE 45° MOUNTING BRACKET.

DIM."A" MIN SIGN HEIGHT	DIM."B" MIN LATERAL OFFSET ①	DIM."C" MIN PLAQUE HEIGHT ①	ASSEMBLY LOCATION
7' ②	6' 12' ③	5'	SIGNS ON FREEWAYS AND EXPRESSWAYS EXCEPT CHEVRON ALIGNMENT SIGNS, ONE-DIRECTION LARGE ARROW SIGNS, DO NOT ENTER SIGNS, AND WRONG WAY SIGNS
5'	2'	4'	• SIGNS IN RURAL AREAS • DO NOT ENTER AND WRONG WAY SIGNS ALONG EXIT RAMPS • DO NOT ENTER AND WRONG WAY SIGNS ON LIMITED ACCESS HIGHWAYS
5'	2'	N/A	• CHEVRON ALIGNMENT SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMPS, AND IN RURAL AREAS • ONE-DIRECTION LARGE ARROW SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMPS, AND IN RURAL AREAS
4'	6' 12' ③	N/A	INCIDENT MANAGEMENT SIGNS AND MILE POST MARKER ASSEMBLIES LOCATED ON FREEWAYS AND EXPRESSWAYS
4'	2'	4'	CENTRAL ISLANDS OF ROUNDABOUTS
7'	2' ④	6'	BUSINESS & RESIDENTIAL AREAS WHERE PARKING OR OTHER OBSTRUCTIONS LIMIT VISIBILITY
7'	2' ④	7'	SIDEWALKS ⑤

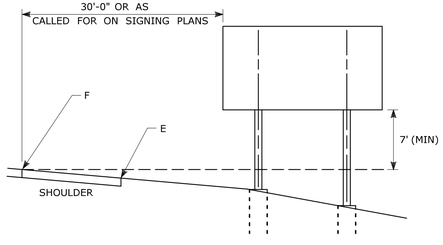
① OR AS DIRECTED BY THE ENGINEER

② 8 FT MINIMUM HEIGHT REQUIRED IF A SUPPLEMENTAL PLAQUE IS SUBMOUNTED BELOW THE MAJOR SIGN.

③ 6 FT FROM EDGE OF SHOULDER, WHEN SHOULDER IS OVER 6 FT WIDE
12 FT FROM EDGE OF TRAVELWAY, WHEN SHOULDER IS LESS THAN 6 FT WIDE.

④ A LATERAL OFFSET OF AT LEAST 1 FT FROM THE FACE OF THE CURB MAY BE USED WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING UTILITY POLES ARE CLOSE TO THE CURB.

⑤ A CLEAR PATH OF NOT LESS THAN 4 FT SHALL BE PROVIDED IN SIDEWALK AREAS.



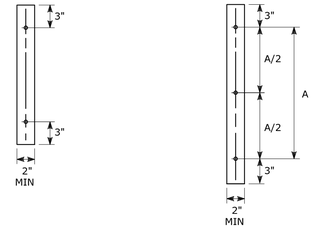
TYPICAL PLACEMENT OF SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

NOTES:

1) MIN. VERTICAL CLEARANCE ABOVE SIDEWALKS SHALL BE 7'.
2) WHERE GUIDE RAIL IS USED, THE OFFSET TO THE NEAR EDGE OF SIGN FACE SHALL BE AS SHOWN ELSEWHERE IN THE CONTRACT PLANS.
3) ON INTERSECTING ROADS AT RAMP TERMINI, THE OFFSET TO THE NEAR EDGE OF OF SIGN FACE SHALL BE 6' MIN. FROM POINT "E".
4) IF 30'-0" MIN. CANNOT BE MET, PLEASE CONTACT THE ENGINEER.

RETROREFLECTIVE STRIPS 48" LONG OR LESS:

RETROREFLECTIVE STRIPS OVER 48" LONG:



RETROREFLECTIVE STRIP DETAIL

NOTES:

RETROREFLECTIVE STRIPS WHICH ARE 48 IN LONG OR LESS SHALL BE ATTACHED USING 2 BOLTS AND RETROREFLECTIVE STRIPS OVER 48 IN LONG SHALL BE ATTACHED USING 3 BOLTS AS SHOWN ON THE DETAILS ABOVE.
REFER TO STANDARD SHEET No. TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR MOUNTING DETAILS.

RETROREFLECTIVE STRIP COLOR SHALL MATCH THE BACKGROUND COLOR OF THE SIGN, EXCEPT THAT THE COLOR OF THE STRIP FOR "YIELD" AND "DO NOT ENTER" SIGNS SHALL BE RED.

REV.	DATE	REVISION DESCRIPTION
3	8-2018	INCLUDED INCIDENT MANAGEMENT AND MILE MARKER SIGNS.
2	4-2017	MINOR REVISIONS.
1	2-2011	MINOR REVISIONS.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR_1208_01_1_2018.dgn Model: TR-1208_01

SUBMITTED BY: NAME/DATE/TIME:
Mark F. Makuch, P.E.
2018.08.17 09:06:06-04'00'

APPROVED BY: NAME/DATE/TIME:
Mark F. Carlino, P.E.
2018.08.21 07:48:06-04'00'

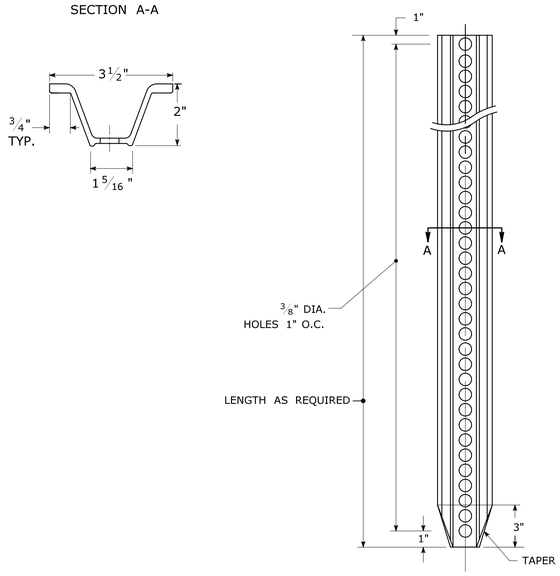
CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

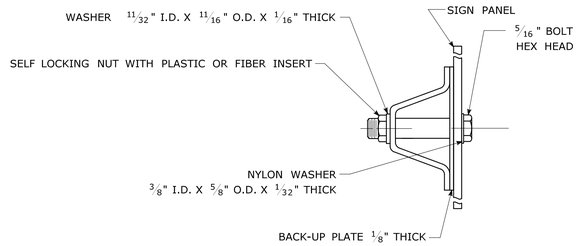
STANDARD SHEET TITLE:
SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS

STANDARD SHEET NO.:
TR-1208_01

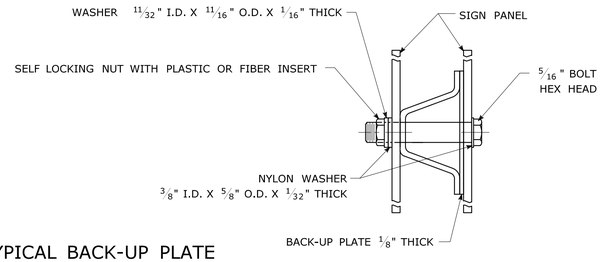
TYPICAL METAL SIGN POSTS



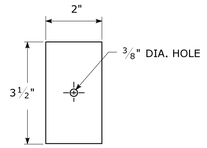
TYPICAL SIGN PANEL ATTACHMENT



TYPICAL BACK TO BACK SIGN PANEL ATTACHMENT



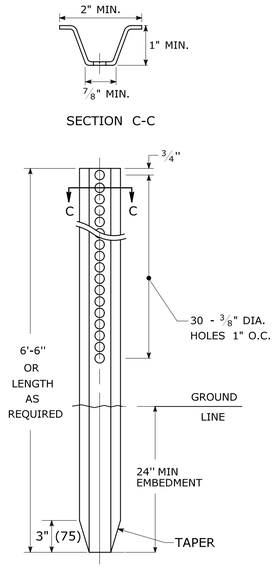
TYPICAL BACK-UP PLATE



BOLTS - STAINLESS STEEL CONFORMING TO ASTM F593, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
SELF LOCKING NUTS - STAINLESS STEEL CONFORMING TO ASTM F594, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
WASHERS - STAINLESS STEEL CONFORMING TO ASTM A240, (ALLOY TYPES 304 OR 316).

METAL DELINEATOR POST

WT./FT. = 1.12 LBS./FT. MIN.

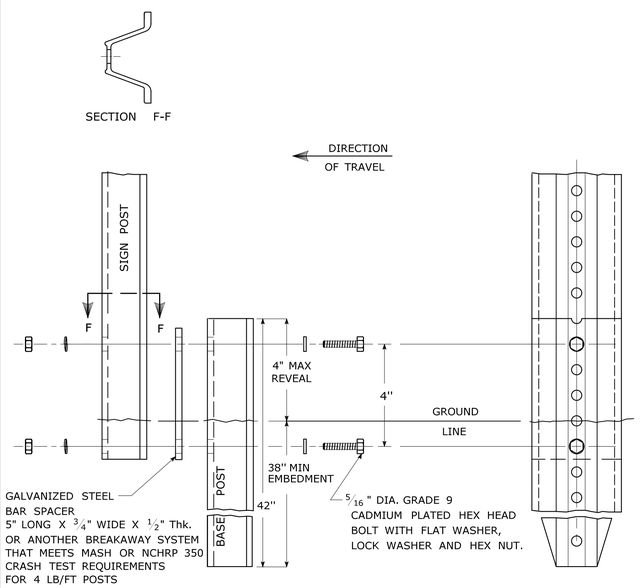


GENERAL NOTES:

1. STEEL FOR DELINEATOR POSTS SHALL BE ASTM A36 STEEL. STEEL FOR ALL OTHER POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499 GRADE 80 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT (MASS) OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS, STRAPS AND PLATES SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123.
3. WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYPE 1.
4. SPACER BAR FOR BREAKAWAY INSTALLATION SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A36.
5. ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A153.
6. ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." THE BREAKAWAY FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 mph WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
7. SIGN POSTS SHALL BE 4 LBS./FT.

BREAKAWAY INSTALLATION

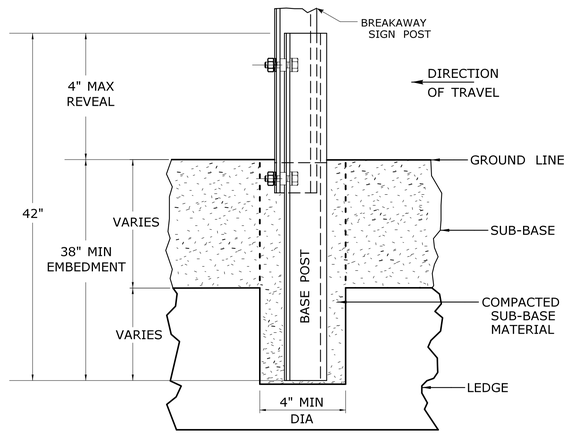
FOR 4 LBS./FT. POSTS



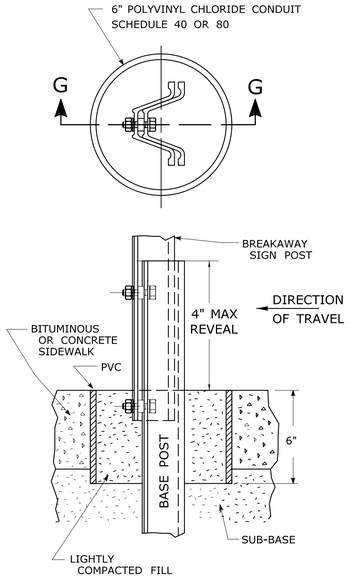
TYPICAL SIGN POST INSTALLATION IN LEDGE

LEDGE SHALL BE REMOVED TO DRIVE THE BASE POST TO A DEPTH OF 38".

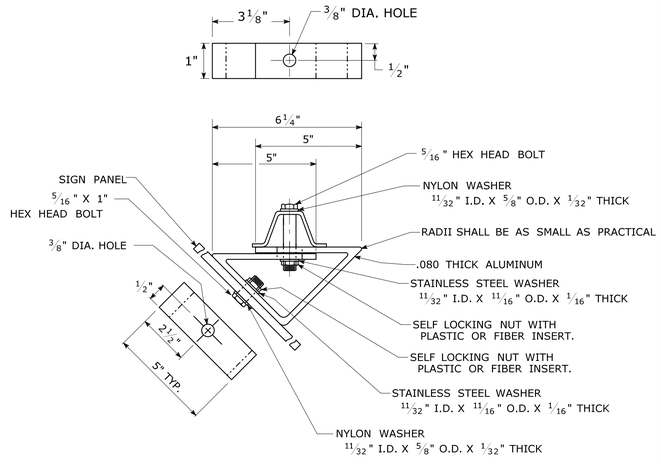
HOLE SHALL BE FILLED WITH SUB-BASE MATERIAL AND COMPACTED WITH A TAMPING BAR, OR TECHNIQUE APPROVED BY THE ENGINEER, PRIOR TO BASE POST INSTALLATION.



TYPICAL SLEEVE FOR PAVED AREAS



45° MOUNTING BRACKET FOR INSTALLATION OF PARKING SIGNS



REV.	DATE	REVISION DESCRIPTION
2	6-2017	SIGN POST REVISIONS.
1	2-2011	MINOR REVISIONS.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/6/2017

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1208_02_May_2017_Revision.dgn Model: TR-1208_02

SUBMITTED BY:	NAME/DATE/TIME:
Mark Makuch	Mark F. Makuch, P.E. 2017.06.07 07:30:30-04'00'
Mary E. Baker	Mary E. Baker, P.E. 2017.06.13 15:28:14-04'00'
APPROVED BY:	NAME/DATE/TIME:
Gregory M. Dorosh	Gregory M. Dorosh, P.E. 2017.06.15 09:27:29-04'00'

CTDOT STANDARD SHEET

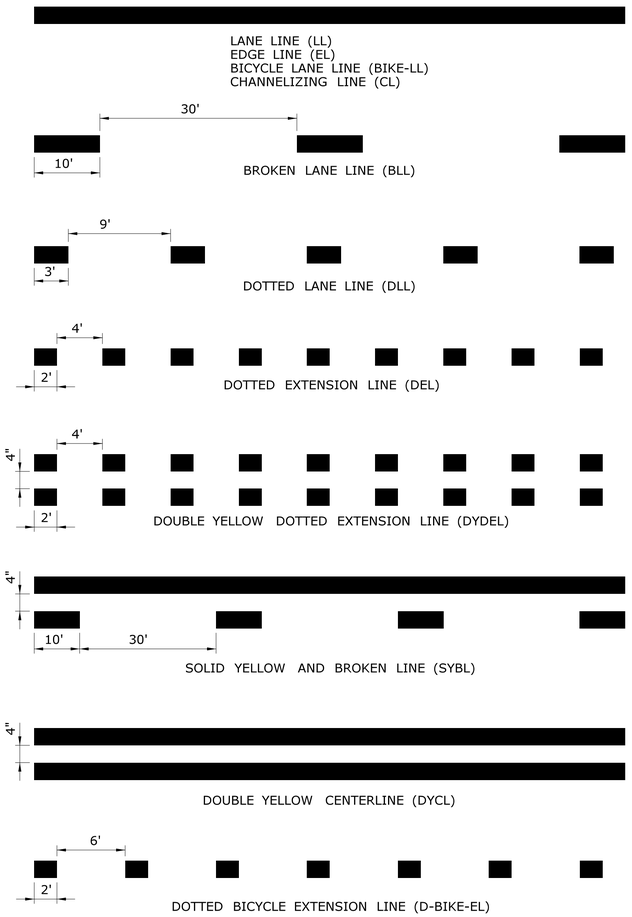
OFFICE OF ENGINEERING

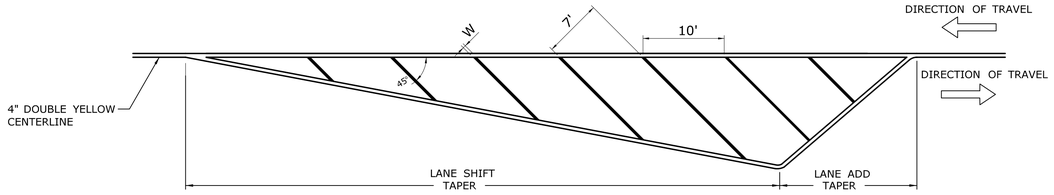
STANDARD SHEET TITLE:

METAL SIGN POSTS AND SIGN MOUNTING DETAILS

GUIDE SHEET NO.:

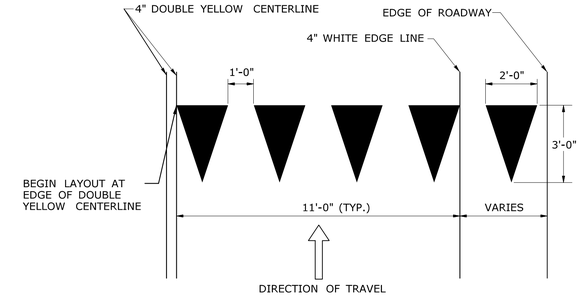
TR-1208_02



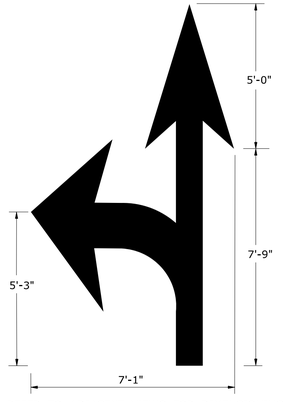


CROSS HATCHED ISLAND DETAIL
(YELLOW)

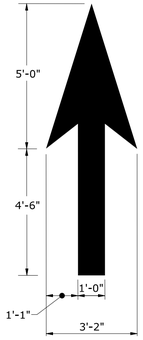
W IS TO BE 6" WHEN POSTED SPEED ≤ 45 MPH
W IS TO BE 12" WHEN POSTED SPEED > 45 MPH
CROSS HATCHED ISLANDS ARE TO BE INSTALLED WHERE CALLED FOR ON THE PLANS



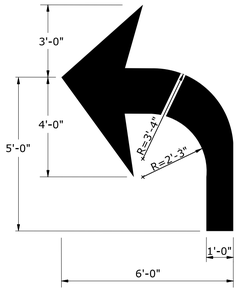
YIELD LINE DETAIL
(WHITE)



REFER TO ADJACENT VIEWS FOR DIMENSIONING
27.0 S.F.



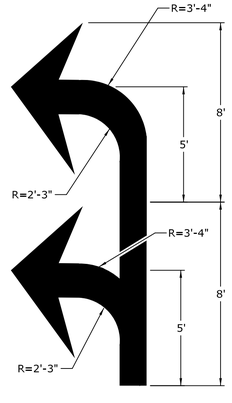
12.5 S.F.



15.5 S.F.

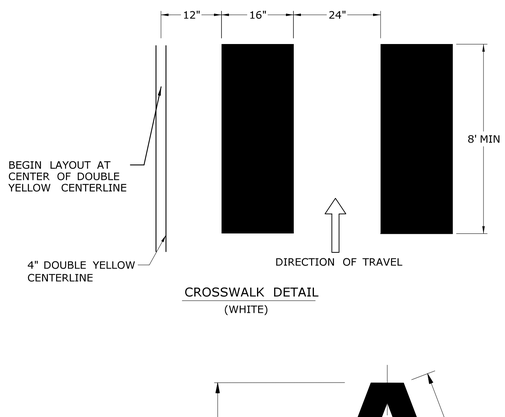
27.0 S.F.
LEFT & RIGHT
ARROW COMBO

38.5 S.F.
3 WAY ARROW
COMBO



35 S.F.
DOUBLE LEFT
ARROW

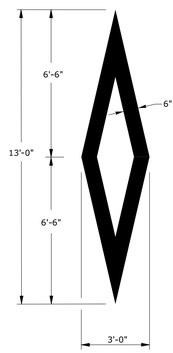
PAVEMENT ARROW DETAILS
(WHITE)
ARROWS SHALL BE CENTERED IN TRAVEL LANE



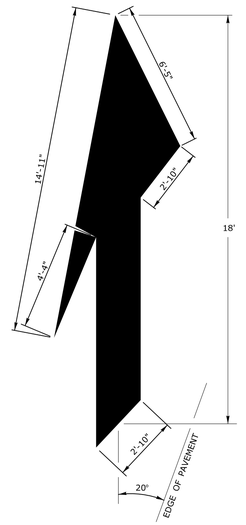
CROSSWALK DETAIL
(WHITE)

NOTES :

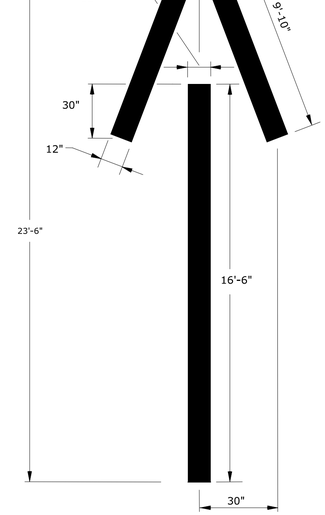
1. AREA OF PAVEMENT MARKINGS AS INDICATED IS APPROXIMATE.
2. RIGHT TURN PAVEMENT MARKING ARROWS ARE MIRROR IMAGE OF LEFT TURN PAVEMENT MARKING ARROWS.



WHITE PREFERENTIAL
LANE SYMBOL
13.0 S.F.



WHITE LANE
REDUCTION ARROW
41.8 S.F.



WHITE WRONG WAY
PAVEMENT ARROW
36.2 S.F.

REV.	DATE	REVISION DESCRIPTION
1	8-2018	REMOVED ROUNDABOUT MARKINGS.

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Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1210_04.dgn Model: CT_Civil_2D_Sheet

SUBMITTED BY:	NAME/DATE/TIME:
Mark Makuch	Mark F. Makuch, P.E. 2018.08.17 09:07:44-04'00'
APPROVED BY:	NAME/DATE/TIME:
	Mark F. Carlino, P.E. 2018.08.21 07:48:45-04'00'

CTDOT
STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

PAVEMENT MARKING LINES AND SYMBOLS

STANDARD SHEET NO.:

TR-1210_04