700 East Pratt Street, Suite 500 | Baltimore, MD 21202 | P 410.728.2900 | T 800.787.3755 | www.rkk.com

June 1, 2022

Dr. Robert Scarborough
Delaware Coastal Management Program
Delaware Department of Natural Resources and Environmental Control
100 W. Water Street, Suite 7B
Dover, DE 19904

Subject: CM/GC, North Millsboro Bypass, US 113 to SR 24
DCMP Federal Consistency Certification Request

Dear Dr. Scarborough:

On behalf of the Delaware Department of Transportation (DelDOT), Rummel, Klepper & Kahl, LLP is requesting a Delaware Coastal Management Program (DCMP) consistency review and certification for the CM/GC, North Millsboro Bypass, US 113 to SR 24 (herinafter referred to as CM/GC) project located in Millsboro, DE. The CM/GC project includes a two-lane State Route (SR) 24 Connector on new alignment along with a new grade separated interchange at US 113. The goal of the project is to preserve mobility for residents and businesses along US 113 and SR 24, while providing highway improvements that reduce congestion, decrease frequency and severity of accidents, and accommodate anticipated growth in local, seasonal, and through traffic. The CM/GC project includes new alignment, continuing from the US 113 interchange project to be constructed and permitted by others.

DelDOT has determined that the proposed project complies with Delaware's approved coastal management program and will be conducted in a manner consistent with the program. Several policies are relevant to this project's consistency and are detailed in the enclosed determination request.

If you have any questions or require additional information, please feel free to contact me at (410) 462-9159. Thank you for your time and continued assistance.

Sincerely,

Karley Routh

Karley Routh, QP, CA, LTE
Project Scientist

Enclosure: Coastal Zone Management Act Federal Consistency Form and Additional Information

cc: Heidi Krofft, DelDOT
Christie Bonniwell, DelDOT
Justin Reel, RK&K

Delaware Department of Natural Resources and Environmental Control
Delaware Coastal Management Program

Initial Review: _____
Updated On: _____
Complete: _____
Official Use Only

Coastal Zone Management Act Federal Consistency Form

This document provides the Delaware Coastal Management Program (DCMP) with a Federal Consistency Determination or Certification for activities regulated under the Coastal Zone Management Act of 1972, as amended, and NOAA's Federal Consistency Regulations, 15 C.F.R. Part 930. Federal agencies and other applicants for federal consistency are not required to use this form; it is provided to applicants to facilitate the submission of a Consistency Determination or Consistency Certification. In addition, federal agencies and applicants are only required to provide the information required by NOAA's Federal Consistency Regulations.

Project/Activity Name:	CM/GC, North Millsboro Bypass, US 113 to SR 24

I. Federal Agency or Non-Federal Applicant Contact Information:

Contact Name/Title: Christie Bonniwell

Federal Agency Contractor Name (if applicable): _____

Federal Agency: US Army Corps of Engineers
(either the federal agency proposing an action or the federal agency issuing a federal license/permit or financial assistance to a non-federal applicant)

Mailing Address: 800 S Bay Road

City: Dover State: DE Zip Code: 19903

E-mail: Christie.Bonniwell@delaware.gov Telephone #: 302-760-2369

II. Federal Consistency Category:

- ○ Federal Activity or Development Project (15 C.F.R. Part 930, Subpart C)
- ○ Outer Continental Shelf Activity (15 C.F.R. Part 930, Subpart E)
- ○ Federal Financial Assistance (15 C.F.R. Part 930, Subpart F)
- ◉ Federal License or Permit Activity (15 C.F.R. Part 930, Subpart D)
- ○ Federal License or Permit Activity which occurs wholly in another state (interstate consistency activities identified in DCMP's Policy document)

III. Detailed Project Description (attach additional sheets if necessary):

See attached.

IV. General Analysis of Coastal Effects (attach additional sheets if necessary):

See attached.

V. Detailed Analysis of Consistency with DCMP Enforceable Policies (attach additional sheets if necessary):

Policy 5.1: Wetlands Management

See attached.

Policy 5.2: Beach Management

N/A

Policy 5.3: Coastal Waters Management (includes wells, water supply, and stormwater management. Attach additional sheets if necessary)

See attached.

Policy 5.4: Subaqueous Land and Coastal Strip Management

See attached.

Policy 5.5: Public Lands Management

See attached.

Policy 5.6: Natural Lands Management

See attached.

Policy 5.7: Flood Hazard Areas Management

See attached.

Policy 5.8: Port of Wilmington

N/A

Policy 5.9: Woodlands and Agricultural Lands Management

See attached.

Policy 5.10: Historic and Cultural Areas Management

See attached.

Policy 5.11: Living Resources

See attached.

Policy 5.12 Mineral Resources Management

N/A

Policy 5.13: State Owned Coastal Recreation and Conservation

See attached.

Policy 5.14: Public Trust Doctrine

See attached.

Policy 5.15: Energy Facilities

N/A

Policy 5.16: Public Investment

N/A

Policy 5.17: Recreation and Tourism

See attached.

Policy 5.18: National Defense and Aerospace Facilities

N/A

Policy 5.19: Transportation Facilities

See attached.

Policy 5.20: Air Quality Management

See attached.

Policy 5.21: Water Supply Management

N/A

Policy 5.22: Waste Disposal Management

N/A

Policy 5.23: Development

N/A

Policy 5.24: Pollution Prevention

N/A

Policy 5.25: Coastal Management Coordination

See attached.

VI. JPP and RAS Review (Check all that apply)**:**

Has the project been reviewed in a monthly Joint Permit Processing and/or Regulatory Advisory Service meeting?

☐ JPP ☐ RAS ☒ None

*If yes, provide the date of the meeting(s): _____

VII. Statement of Certification/Determination and Signature (Check one and sign below)**:**

☐ **FEDERAL AGENCY CONSISTENCY DETERMINATION.** Based upon the information, data, and analysis included herein, the federal agency, or its contracted agent, listed in (I) above, finds that this proposed activity is consistent to the maximum extent practicable with the enforceable policies of the Delaware Coastal Management Program.

OR

☐ **FEDERAL AGENCY NEGATIVE DETERMINATION.** Based upon the information, data, and analysis included herein, the federal agency, or its contracted agent, listed in (I) above, finds that this proposed activity will not have any reasonably foreseeable effects on Delaware's coastal uses or resources (Negative Determination) and is therefore consistent with the enforceable policies of the Delaware Coastal Management Program.

OR

☒ **NON-FEDERAL APPLICANT'S CONSISTENCY CERTIFICATION.** Based upon the information, data, and analysis included herein, the non-federal applicant for a federal license or permit, or state or local government agency applying for federal funding, listed in (I) above, finds that this proposed activity complies with the enforceable policies of the Delaware Coastal Management Program and will be conducted in a manner consistent with such program.

Signature:	Christie Bonniwell Digitally signed by Christie Bonniwell DN: C=US, E=christie.bonniwell@delaware.gov, O=Delaware Department of Transportation, CN=Christie Bonniwell Date: 2022.05.31 08:39:22-04'00'		
Printed Name:	Christie Bonniwell	Date:	5/31/22

Pursuant to 15 C.F.R. Part 930, the Delaware Coastal Management Program must provide its concurrence with or objection to this consistency determination or consistency certification in accordance with the deadlines listed below. Concurrence will be presumed if the state's response is not received within the allowable timeframe.

Federal Consistency Review Deadlines:

Federal Activity or Development Project (15 C.F.R. Part 930, Subpart C)	60 days with option to extend an additional 15 days or stay review (15 C.F.R. § 930.41)
Federal License or Permit (15 C.F.R. Part 930, Subpart D)	Six months, with a status letter at three months. The six month review period can be stayed by mutual agreement. (15 C.F.R. § 930.63)
Outer Continental Shelf Activity (15 C.F.R. Part 930, Subpart E)	Six months, with a status letter at three months. If three month status letter not issued, then concurrence presumed. The six month review period can be stayed by mutual agreement. (15 C.F.R. § 930.78)
Federal Financial Assistance to State or Local Governments (15 C.F.R. Part 930, Subpart F)	State Clearinghouse schedule

OFFICIAL USE ONLY:

Reviewed By:	Fed Con ID:	Date Received:
Public notice dates: to	Comments Received: ☐ NO ☐ YES *[attach comments]*	
Decision type: *(objections or conditions attach details)*	_ Decision Date:	

III. Detailed Project Description

The CM/GC, North Millsboro Bypass, US 113 to SR 24 project (hereinafter referred to as CM/GC) is a substantial portion of the larger North Millsboro Bypass project that includes a two-lane State Route (SR) 24 Connector on new alignment along with a new grade separated interchange at US 113. The goal of the project is to preserve mobility for residents and businesses along US 113 and SR 24, while providing highway improvements that reduce congestion, decrease frequency and severity of accidents, and accommodate anticipated growth in local, seasonal, and through traffic. The CM/GC project includes new alignment, continuing from the US 113 interchange project to be constructed and permitted by others. The CM/GC alignment starts west of Betts Pond Road and continues east to tie into SR 24 with overpasses at Fox Run Road, the Norfolk Southern railroad, and SR 30. The alignment crosses Millsboro Pond with one nine span bridge and one six span bridge. The nine-span bridge (Bridge 3-596) is going to be constructed using a "Top-Down" construction approach, which eliminates the need for heavy construction equipment on the ground or within the limits of Millsboro Pond by building the bridge outward from the abutment and moving construction equipment across the completed sections of the structure. The six-span bridge (Bridge 3-597) is going to be constructed from a temporary trestle structure within Millsboro Pond.

IV. General Analysis of Coastal Effects

The CM/GC project will have minimal coastal effects. The project will result in 0.0420 acres (1,843.15 square feet) of fill and 1.2372 acres of shade (53,890.51 square feet) in the Millsboro Pond. Construction of the two bridges will cause temporary disturbance to the pond, which may temporarily inhibit recreational activities for the public.

The CM/GC has taken extensive precautions to protect rare, threatened, and endangered species in the project area. The CM/GC will conduct a striped mud turtle (*Kinosternon baurii*) survey to establish a clear zone and install "Smart Fence" around the clear zone to prevent any striped mud turtles from entering the clear zone during construction. The CM/GC will not conduct in-water activities between April 1 and July 15 to protect nesting and spawning sunfish species. To reduce in-water sunfish habitat loss, the CM/GC will replace any removed tree stumps after bridge construction. The CM/CG has determined that the construction activities will not affect the nearby Bald Eagle (*Haliaeetus leucococephalus*) nest. To protect spawning of two state-rare fish species, the CM/GC will avoid in-water work from April 1 to May 30. Finally, no forest clearing will occur between April 1 and July 31 to protest nesting birds and other wildlife species using forests for breeding.

The North Millsboro Bypass project will ultimately create a safer and faster route for the public to reach the Delaware beaches. The project will also create a safer travel corridor for the local Millsboro population by diverting the beach travelers around Millsboro.

Policy 5.1 Wetlands Management

The CM/GC project will have minimal effects on non-tidal wetlands. The project will permanently impact 0.0003 acres (12.76 square feet) of palustrine forested (PFO) wetlands for installation of bridge piles for Bridge 3-596. The roadway alignment and bridge span locations were selected to avoid and minimize impacts to wetlands. The project will not affect tidal wetlands.

Policy 5.3 Coastal Waters Management

Work in coastal waters will include permanent fill associated with bridge pier foundations, temporary fill and shading associated with trestle, and permanent shading by the two bridge decks. The bridge pier foundations for both bridges will permanently affect 0.042 acres (1,843.15 square feet) of open water resources. The trestle will temporarily fill 0.0115 acres (501.87 square feet) of open water and temporarily shade 0.3803 acres (16,568.47 square feet) of open water. Both bridges will permanently shade 1.2372 acres (53,890.51 square feet) of open water.

Impacts to coastal waters were avoided at the greatest extent possible by using the Top-Down construction approach for Bridge 3-596. Using the Top-Down approach, the bridge construction will result zero temporary open water impacts and only 0.0420 acres of permanent coastal water fill.

The project will include sediment and erosion control and stormwater management in accordance with current Department of Natural Resources and Environmental Control (DNREC) regulations to ensure state water quality standards are maintained. All temporary structure and fill materials will be completely removed from the project site upon project completion.

Policy 5.4 Subaqueous Land and Coastal Strip Management

The project will permanently impact 1.2795 acres (55,733.66 square feet) of DNREC jurisdictional subaqueous lands and temporarily impact 0.3803 acres (16,568.47 square feet) of DNREC jurisdictional subaqueous lands. Permanent impacts are a result of fill from bridge pier foundations and shade created by the bridge deck over the Millsboro Pond. Temporary fill impacts are a result of the temporary piles used to support the trestle structure and temporary shading created by the trestle structure over Millsboro Pond. Impacts to subaqueous lands were minimized during design and a Subaqueous Lands Permit is being pursued.

The CM/GC project area does not fall within the coastal strip.

Policy 5.5 Public Lands Management

The CM/GC project will be built on DelDOT-owned public lands. The integrity of the public lands will be preserved. The project will not preclude public use of the pond, except for temporary closure periods during bridge construction, which will only affect a small portion of the pond. The proposed bridge locations over Millsboro Pond were carefully selected to avoid the Doe Bridge Nature Preserve, further protecting public lands.

Policy 5.6 Natural Lands Management

The CM/GC project will minimally impact natural lands and will not diminish the natural aesthetic of the Millsboro Pond. The limits of the project were selected to avoid the Doe Bridge Natural Preserve to the north of the project alignment. In addition, several protective measures are required during construction to protect rare, threatened, and endangered species. These protective measures include restricted dates for in-water work to protect spawning state-rare fish and sunfish and restricted dates for forest clearing to protect forest-nesting birds and hibernating striped mud turtles. Bridge construction in Millboro Pond will require the removal of tree stumps that serve as sunfish habitat. The CM/GC will replace salvageable stumps removed during construction or replace removed stumps with trees from advanced tree clearing operations. The CM/GC will also establish "Smart Fence" around the limit of construction to prevent striped mud turtles from entering the construction zone.

Policy 5.7 Flood Hazard Areas Managements

The CM/GC project involves construction of two multi-span bridges that cross the Millsboro Pond in two locations. Bridge 3-596 is within the FEMA 100-year regulatory floodway and Bridge 3-597 is located in the 100-year floodplain The Hydrologic/Hydraulic and Scour Analyses Report for Bridge 3-596 and Bridge 3-597 indicates that the proposed bridges do not increase the 100-year water surface elevations for the affected waterways. The project designer will be conducting a separate FEMA floodplain analysis and will develop a floodplain report in accordance with the Sussex County Floodplain Ordinance (Ordinance No. 2384). The designer will coordinate approval of the Conditional Letter of Map Revision (CLOMR) with Sussex County. .

Policy 5.9 Woodlands and Agricultural Lands Management

The CM/GC project involves 15 acres of forest removal. DelDOT will mitigate for forest loss at a 1:1 ratio as outlined by Title 17, Delaware Code, Chapter 1, Section 209. DNREC recommends a 2:1 mitigation ratio for specimen tree removals. Forest mitigation requirements for the CM/GC project will be combined with the rest of the US 113 at SR 20 project and the Park Avenue Relocation project in two existing farm fields northeast of the intersection of US 113 and Betts Pond Rd . DelDOT is planting 15 acres of reforestation at 200 trees per acre plus an additional 22 trees to mitigate for the 11 specimen tree removals for the CM/CG project and a total of 43.6 acres of forest mitigation for all three projects. See the CM/GC, North Millsboro Bypass, US 113 to SR 24 Reforestation Plan attached.

Policy 5.10 Historic and Cultural Areas Management

DelDOT conducted a Phase I archeological survey in November 2021 and identified two pre-contact sites in the vicinity of the Millsboro Pond that are likely to contain high archeological integrity and are potentially eligible for the National Register of Historic Places (NRHP). Currently, DelDOT is proceeding with a Phase II investigation to assess areas that are unavoidable.

Policy 5.11 Living Resources

The Millsboro Pond is a non-tidal water body; thus, the project will have no effect on tidal waters. Requests for information on the presence of rare, threatened, and endangered species in the project area were sent to the U.S. Fish and Wildlife Service (USFWS) and the DNREC Division of Fish and Species Conservation and Research Program (SCRP) on September 17, 2021. The USFWS determined on October 17, 2019 that the project as proposed will have no effect on the endangered, threatened, or candidate species listed on the IPaC species list because is it unlikely that the species occur within the submitted project area.

The Department of Natural Resources and Environmental Control (DNREC) Species Conservation and Research Program (SCRP) was queried in a letter dated September 17, 2021. SCRP responded in a letter dated December 14, 2021 stating that a review of their databases indicated there are several state rare listed species that occur in or adjacent to the project site. Due to the presence of rare species, the project is within a State Natural Heritage Site. State Natural Heritage Sites are identified as "Designated Critical Resource Waters" by the Army Corps of Engineers (ACOE), and as such are subject to the restrictions and limitations imposed through Nationwide Permit General Condition No. 22.

SCRP stated the Striped Mud Turtle (*Kinosternon baurii*), which is known in only five localities in Delaware, was recently documented within the Millsboro Pond. To avoid incidental take of hibernating turtles, SCRP recommends forest clearing be limited to the active period (April through August). The Millsboro Pond is one of the most heavily fished ponds for gamefish in Delaware. To protect species in the sunfish family (*Centrarchidae*), WSCRP requests that no in-water activities take place between April 1 and July 15 when species are actively nesting, spawning, and guarding young. To reduce in-water sunfish habitat loss, DelDOT will replace the stumps disturbed during construction. Salvageable stumps will be stored and replaced and non-salvageable stumps will be replaced with stumped from the advanced clearing operations. WSCRP identified active Bald Eagle (*Haliaeetus leucococephalus*) nests approximately 900 feet from the project area.

The USFWS provided guidance on Bald Eagles for the project, which included implementing a time-of-year restriction of December 15 through June 30 on pile driving within 0.5 miles of Bald Eagle nests, or demonstrate that associated noise will be less than 80 decibels (dBA). DelDOT determined that the minimum distance between the Bald Eagle nest and the limit of construction is 780 feet and the sound level of a pile driver at a distance of 780 feet is 77 dBA. Based on these findings, a Bald Eagle time of year restriction is not required for the project. Populations of two state-rare fish species, fourspine stickleback (*Apeltes quadracus*) and ironcolor shiner (*Notropis chalybaeus*) were previously observed in Millsboro Pond. WSCRP requests a time-of-year restriction on in-water work from April 1 and May 30 to prevent interference with spawning. Finally, SCRP recommends no forest clearing between April 1 and July 31 to reduce impacts to forest nesting birds and other wildlife species that use the forests for breeding.

Policy 5.13 State Owned Coastal Recreation and Conservation

The CM/GC project will not adversely affect the recreational activities of the Millsboro Pond. During the construction of Bridge 3-596 and Bridge 3-597, recreational activities will be limited in Millsboro Pond within the project vicinity. DelDOT will coordinate with DNREC to implement restricted areas. The bridge construction will limit recreational activities in the vicinity of the project from Fall 2022 through Fall/Winter 2023. Following bridge completion, recreational activities in Millsboro Pond will not be restricted.

Policy 5.14 Public Trust Doctrine

The CM/GC project will not adversely affect the public's right of navigation or fishery on the Millsboro Pond.

Policy 5.17 Recreation and Tourism

The CM/GC project will not adversely affect the recreation and tourism of the Millsboro Pond.

Policy 5.19 Transportation Facilities

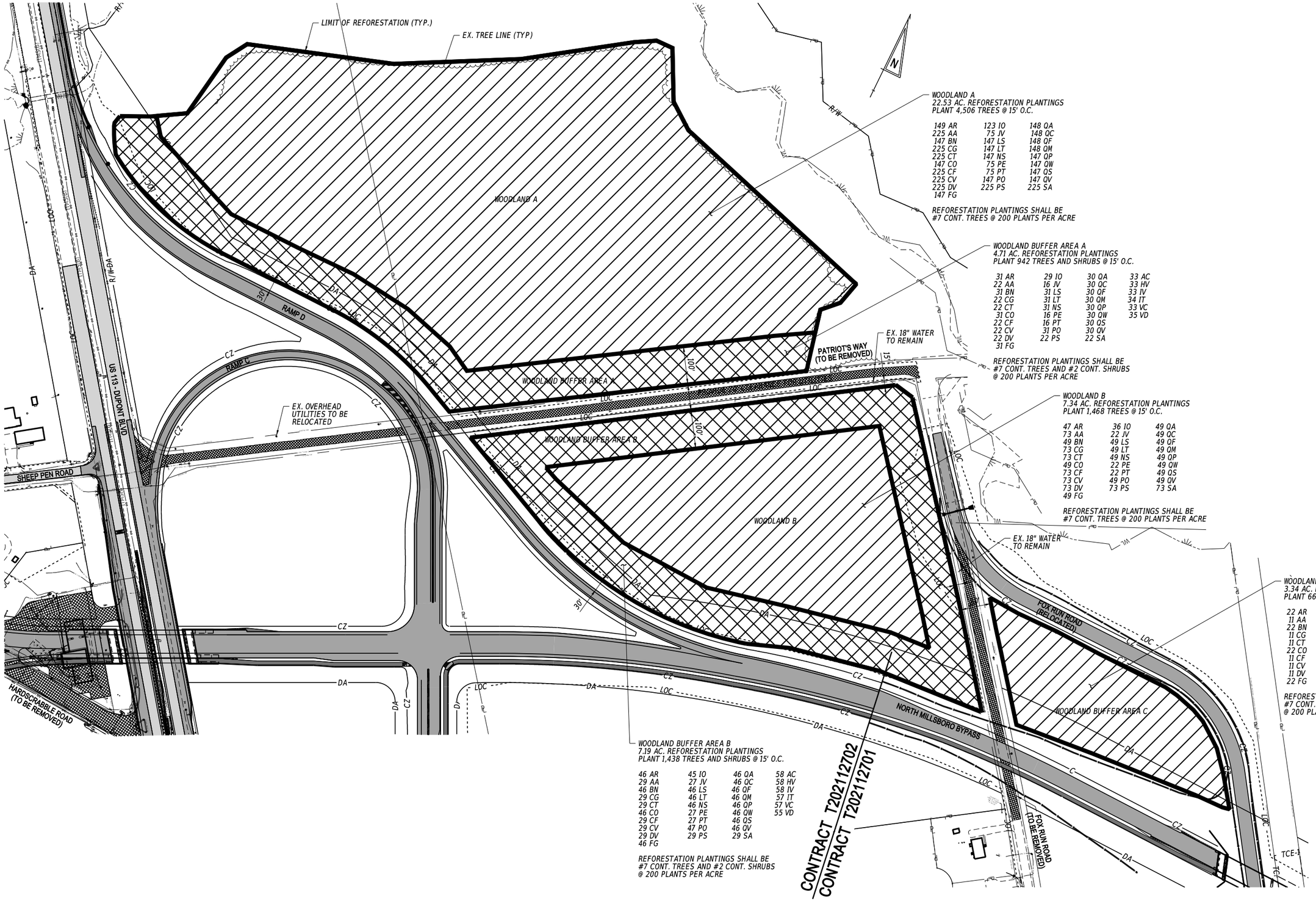
The purpose of the CM/GC project is to reduce congestion, decrease frequency and severity of accidents, and accommodate anticipated growth in local, season, and through traffic for the Town of Millsboro.

Policy 5.20 Air Quality Management

The CM/GC will not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS). Emissions from construction activities will be reduced by performing construction activities in accordance with DelDOT's *Road Design Manual* and best management practices. Best management practices include reduction of exposed erodible surface area, covering exposed surface areas with pavement or vegetation, reduction of equipment idling times, reduction of vehicle speeds onsite, and ensuring contractor knowledge of appropriate fugitive dust and equipment exhaust controls.

Policy 5.25 Coastal Management Coordination

DelDOT is providing an opportunity for DNREC, USACE, and other interested parties the opportunity to review and comment on the CM/GC project.



ADDENDA / REVISIONS	

SCALE
0 120 240 360
FEET

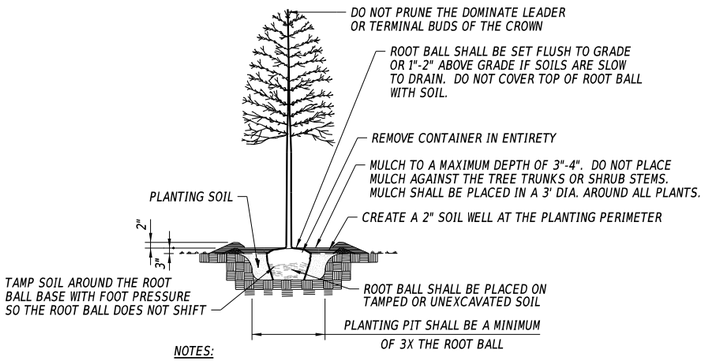
CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: H. PALM	
COUNTY	CHECKED BY: M. CAMPBELL	
SUSSEX		

REFORESTATION PLAN

LP-01
SECTION
WRA
SHEET NO.
X

3/25/2022
2:33:46 PM
N:\32149-002\CADD\US 113 NM Bypass\LP01_NMBP.dgn



NOTES:

1. PLANT TREES SUCH THAT THE TRUNK FLARE IS VISIBLE. ANY TREE WHERE THE TRUNK FLARE IS NOT VISIBLE SHALL BE REJECTED.

TREE & SHRUB PLANTING DETAIL

NOT TO SCALE

TOTAL REFORESTATION PLANTING SCHEDULE

SYMBOL	QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	ROOT	NOTES
TREES						
AR	295	ACER RUBRUM	RED MAPLE	# 7	CONT.	1" DIA. MIN.
AA	360	AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	# 7	CONT.	1" DIA. MIN.
BN	295	BETULA NIGRA	RIVER BIRCH	# 7	CONT.	1" DIA. MIN.
CG	360	CARYA GLABRA	PIGNUT HICKORY	# 7	CONT.	1" DIA. MIN.
CT	360	CARYA TOMENTOSA	MOCKERNUT HICKORY	# 7	CONT.	1" DIA. MIN.
CO	295	CELTIS OCCIDENTALIS	HACKBERRY	# 7	CONT.	1" DIA. MIN.
CF	360	CORNUS FLORIDA	FLOWERING DOGWOOD	# 7	CONT.	1" DIA. MIN.
CV	360	CRATAEGUS VIRIDIS	GREEN HAWTHORN	# 7	CONT.	1" DIA. MIN.
DV	360	DIOSPYROS VIRGINIANA	COMMON PERSIMMON	# 7	CONT.	1" DIA. MIN.
FG	295	FAGUS GRANDIFOLIA	AMERICAN BEECH	# 7	CONT.	1" DIA. MIN.
IO	252	ILEX OPACA	AMERICAN HOLLY	# 7	CONT.	1" DIA. MIN.
JV	150	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	# 7	CONT.	1" DIA. MIN.
LS	295	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM	# 7	CONT.	1" DIA. MIN.
LT	295	LIRIODENDRON TULIPIFERA	TULIP POPLAR	# 7	CONT.	1" DIA. MIN.
NS	295	NYSSA SYLVATICA	BLACKGUM	# 7	CONT.	1" DIA. MIN.
PE	150	PINUS ECHINATA	SHORTLEAF PINE	# 7	CONT.	1" DIA. MIN.
PT	150	PINUS TAEDA	LOBLOLLY PINE	# 7	CONT.	1" DIA. MIN.
PO	295	PLATANUS OCCIDENTALIS	SYCAMORE	# 7	CONT.	1" DIA. MIN.
PS	360	PRUNUS SEROTINA	BLACK CHERRY	# 7	CONT.	1" DIA. MIN.
QA	295	QUERCUS ALBA	WHITE OAK	# 7	CONT.	1" DIA. MIN.
QC	295	QUERCUS COCCINEA	SCARLET OAK	# 7	CONT.	1" DIA. MIN.
QF	295	QUERCUS FALCATA	SOUTHERN RED OAK	# 7	CONT.	1" DIA. MIN.
QM	295	QUERCUS MONTANA	CHESTNUT OAK	# 7	CONT.	1" DIA. MIN.
QP	295	QUERCUS PALUSTRIS	PIN OAK	# 7	CONT.	1" DIA. MIN.
QW	295	QUERCUS PHELLOS	WILLOW OAK	# 7	CONT.	1" DIA. MIN.
QS	295	QUERCUS STELLATA	POST OAK	# 7	CONT.	1" DIA. MIN.
QV	295	QUERCUS VELUTINA	BLACK OAK	# 7	CONT.	1" DIA. MIN.
SA	360	SASSAFRAS ALBIDUM	SASSAFRAS	# 7	CONT.	1" DIA. MIN.
SHRUBS						
AC	120	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	# 2	CONT.	
HV	120	HAMAMELIS VIRGINIANA	WITCHHAZEL	# 2	CONT.	
IV	120	ILEX VERTICILLATA	WINTERBERRY HOLLY	# 2	CONT.	
IT	120	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	# 2	CONT.	
VC	120	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	# 2	CONT.	
VD	120	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	# 2	CONT.	

PLANTING NOTES

1. ALL PLANTS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE DELDOT ROAD DESIGN MANUAL, APPENDIX A, AND THE DELDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 911, DATED AUGUST 2020, AND IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS FOR THIS CONTRACT.
2. LANDSCAPE PLANS ARE FOR LANDSCAPE PURPOSES ONLY. AS-BUILT UTILITY LOCATIONS MAY VARY. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND THE LOCATION OF ALL UTILITIES AS SHOWN. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.
3. TREE PLANTING SETBACKS - NO PROPOSED TREE SHALL BE PLACED WITHIN 15' HORIZONTALLY OF THE EXISTING WATER LINE OR ANY OTHER EXISTING UNDERGROUND OR OVERHEAD UTILITY LINE.
4. THE CONTRACTOR MUST CONTACT MISS UTILITY A MINIMUM OF 72 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION FOR PLANT MATERIAL INSTALLATION.
5. THE CONTRACTOR SHALL PROVIDE MAINTENANCE AND MONITORING OF THE REFORESTATION AREAS FOR ONE YEAR. AT THE END OF THE ONE YEAR PERIOD, 85% OF THE REFORESTATION TREES AND SHRUBS SHALL HAVE SURVIVED. IF LESS THAN 85% OF THE TREES AND SHRUBS ARE SURVIVING, ADDITIONAL TREES AND SHRUBS SHALL BE PLANTED TO ENSURE THE REQUIRED 85% SURVIVABILITY RATE IN ACCORDANCE WITH THE DELDOT LANDSCAPING AND REFORESTATION ACT IMPLEMENTATION (APPENDIX A).
6. ALL TREES AND SHRUBS SHALL HAVE A THREE FOOT (3') DIAMETER MULCH BED PLACED AROUND THEM.

SEEDING NOTES

1. REFORESTATION AREAS SHALL BE SEEDED WITH DELDOT PERMANENT GRASS SEEDING, DRY GROUND (PGS-DG) SEED MIXTURE PER SECTION 908 OF THE DELDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE SEEDING METHOD SHALL BE BROADCAST SEEDING. SEEDING SHALL OCCUR AFTER THE TREES, SHRUBS AND MULCH HAVE BEEN PLACED.
2. REFER TO APPROVED SEDIMENT AND EROSION CONTROL PLANS FOR TEMPORARY STABILIZATION SEEDING REQUIREMENTS.
3. TOPSOIL DOES NOT NEED TO BE APPLIED TO THE REFORESTATION AREAS. SOIL AMENDMENTS AND SUPPLEMENTS SHALL BE ADDED BASED ON THE SOILS ANALYSIS.

ITEM 908014 - PERMANENT GRASS SEEDING, DRY GROUND
ITEM 908026 - EROSION CONTROL MULCH

SEEDING AND MULCHING QUANTITY REQUIRED FOR REFORESTATION AREAS: 211,246 S.Y.
10% CONTINGENCY: 21,124 S.Y.
TOTAL SEEDING AND MULCHING REQUIRED: 232,370 S.Y.

MULCH REQUIREMENTS FOR TREE / SHRUB PLANTINGS (INCIDENTAL TO ITEM 911000 - PLANTINGS)

3"- 4" THICK MULCH QUANTITY REQUIRED FOR REFORESTATION BASED ON A THREE FOOT (3') DIAMETER MULCH BED AROUND EACH TREE AND SHRUB: 7,086 S.Y.
10% CONTINGENCY: 709 S.Y.
TOTAL MULCH REQUIRED: 7,795 S.Y.

REFORESTATION MITIGATION NEEDS ANALYSIS

PROJECT NAME	CONTRACT NUMBER	WOODED AREA REMOVED	REFORESTATION REQUIRED @ 200 TREES / ACRE	LARGE TREE REMOVAL @ 2:1 MITIGATION
PARK AVENUE RELOCATION PHASE 1	T202004601	23.5 ACRES	4,700 TREES	0
PARK AVENUE RELOCATION PHASE 2	T201904601	3.5 ACRES	700 TREES	0
NORTH MILLSBORO BYPASS, US 113 TO SR 24	T202112701	15.0 ACRES	3,000 TREES	(11) +22 TREES
US 113 AT SR 20, GSI	T202112702	1.6 ACRES	320 TREES	0
			TOTAL TREES REQUIRED = 8,720 MITIGATION SHALL BE PROVIDED BY PLANTING 92% TREES AND 8% SHRUBS	

THIS IS NOT A PAID ADVERTISEMENT

Public Notice

US Army Corps of Engineers
Philadelphia District
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OPR

Public Notice No.	Date
NAP-2019-00401	May 5, 2022
Application No.	File No.
NAP-2019-00401	NAP-2019-00401-85
In Reply Refer to:	
REGULATORY BRANCH	

This District has received an application for a Department of the Army permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: Christie Bonniwell of the Delaware Department of Transportation

AGENT: Karley Routh of Rummel Klepper & Kahl

WATERWAY: Millsboro Pond

LOCATION: Millsboro Pond from US Route 113 to State Route 24 in Millsboro, Sussex County, Delaware (Lat. 38.602867˚N/Long. 75.291778˚W).

ACTIVITY: The applicant has applied for a Department of the Army permit to construct a new bypass route from US Route 113 to State Route 24 over Millsboro Pond in Millsboro, Sussex County, Delaware. The project includes a grade separated interchange at US Route 113, a new alignment of State Route 24, new overpasses over Gravel Hill Road, Fox Run Road and the Norfolk Southern Railroad and two multi-span bridges (BR 3-596 and BR 3-597) over the northern portion of Millsboro Pond. The typical roadway section includes a 12-foot eastbound and 12-foot westbound travel lane and an 8-foot paved outside shoulder/bike lane in each direction. Furthermore, the project will include a 10-foot wide multi-use path on the southside of the alignment.

In an effort to avoid and minimize impacts, a Top-Down construction approach will be utilized for BR 3-596. The top-down construction method eliminates the need for heavy construction equipment on the ground or within the limits of the Millsboro Pond by building the bridge outward from the abutments and moving construction equipment across the completed sections of the structure. The top-down construction method enables the superstructure and the underground structure to be built simultaneously while utilizing the previously built span as the work platform equipment. This method allows for the elimination of temporary causeways or trestle structures; therefore, eliminating large temporary and permanent impacts to the pond. Due to the proposed pile bent design and construction method of Bridge 3-596, there are no permanent open water impacts associated with Bridge 3-596.

A top-down construction is not proposed for the construction on Bridge 3-597 due to the height of the structure and the length of the spans. As such, a temporary trestle approach will be implemented to construct Bridge 3-597, resulting in temporary impacts for placement of 36" diameter steel trestle piles in Millsboro Pond to be removed after construction is complete. Permanent open water impacts are limited to one fixed pier concrete tub form (58'-7" x 14'-4") and one expansion pier concrete tub form (58'-1" x 13'-10").

The new bypass route will permanently impact 0.0003 acre of non-tidal wetlands and 0.0377 acre of Millsboro Pond open water associated with the construction of bridge pier foundations. There will be an additional 0.0115 acre of temporary impacts associated with the placement of trestle piles for bridge construction in Millsboro Pond. The new bypass route is indicated on the attached project plans.

PURPOSE: The purpose of the project is to preserve mobility for local residents and businesses, while providing highway improvements that reduce congestion, decrease frequency and severity of accidents and accommodate increased traffic.

A preliminary review of this application indicates that species listed under the Endangered Species Act (ESA) or their critical habitat pursuant to Section 7 of the ESA as amended, are not present within the action area. As a result, consultation with the US Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the ESA is not necessary. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

The Magnuson-Stevens Fishery Conservation and Management Act requires all federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). A preliminary review of this application indicates that no EFH is present within the project area. As a result, consultation with NMFS pursuant to the EFH provisions of the MSA is not necessary. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

The USACE Cultural Resource Specialist is currently reviewing the proposed permit action for potential impacts to Historic Properties eligible for or listed on the National Register of Historic Places in accordance with Section 106 of the National Historic Preservation Act. A determination of effects will be coordinated with the State Historic Preservation Office, the Tribes and other consulting parties.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns,

wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments on the proposed work should be submitted, by email, within 15 days to the District Engineer, U.S. Army Corps of Engineers, Philadelphia District at PhiladelphiaDistrictRegulatory@usace.army.mil. If it is necessary to provide a paper copy of your comments, they should be submitted by traditional mail within 15 days to District Engineer, attn CENAP-OPR, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390.

Because the discharge of fill material into waters of the United States has been avoided and minimized to the maximum extent practicable resulting in permanent impacts to only 0.038 acre of waters of the United States and the activity will result in no more than minimal individual and cumulative adverse environmental effects, compensatory mitigation is neither proposed nor warranted.

In accordance with Section 307(c) of the Coastal Zone Management (CZM) Act of 1972, applicants for Federal Licenses or Permits to conduct an activity affecting land or water uses in a State's coastal zone must provide certification that the activity complies with the State's CZM Program. The applicant has stated that the proposed activity complies with and will be conducted in a manner that is consistent with the approved State CZM Program. No permit will be issued until the State has concurred with the applicant's certification or has waived its right to do so. Comments concerning the impact of the proposed and/or existing activity on the State's coastal zone should be sent to this office, with a copy to the State's Office of Coastal Zone Management.

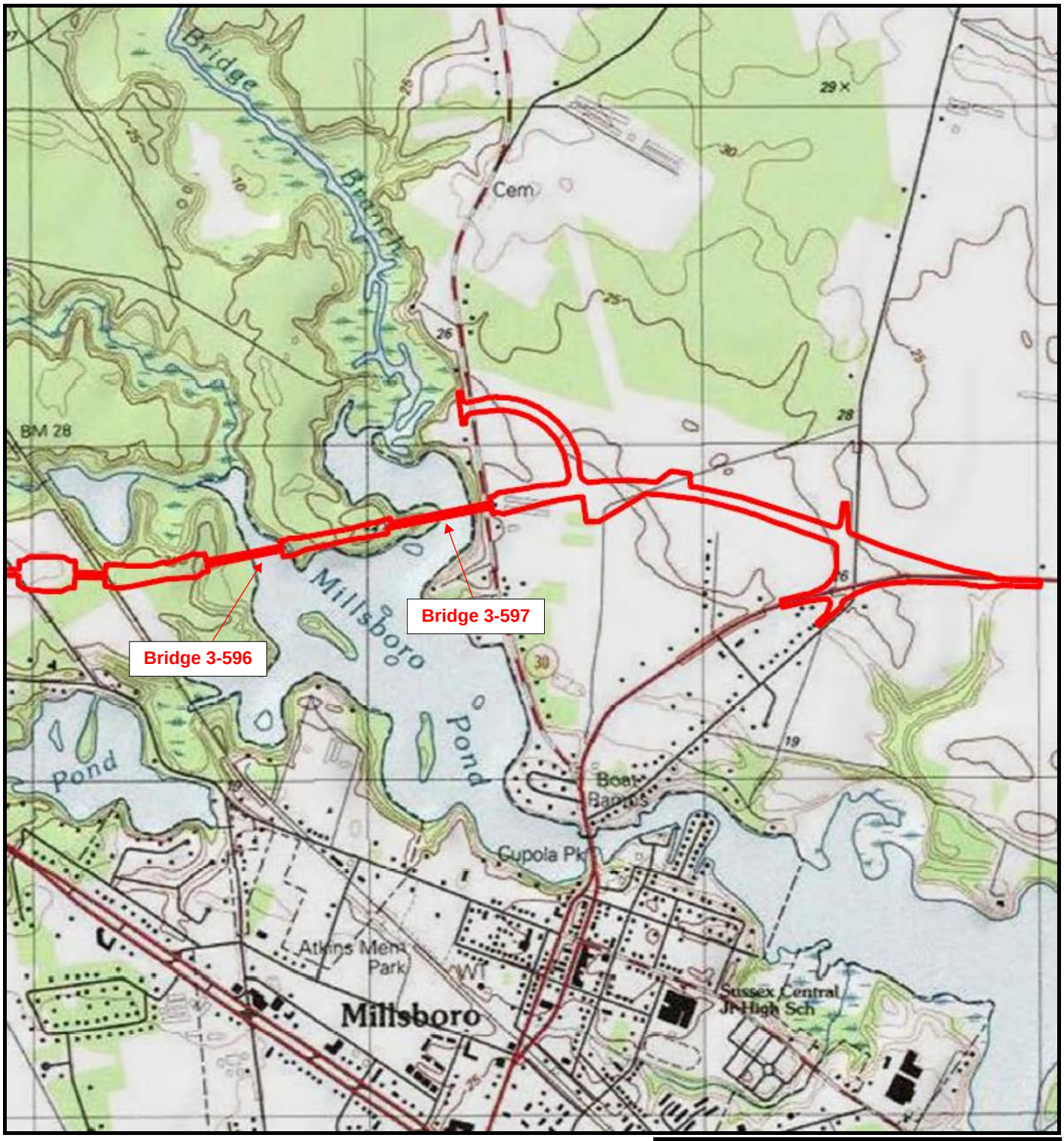
In accordance with Section 401 of the Clean Water Act, a Water Quality Certificate is necessary from the State government in which the work is located. Any comments concerning the work described above which relate to Water Quality considerations should be sent to this office with a copy to the State.

The evaluation of the impact of the work described above on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

Any person may request, by email, to the District Engineer at PhiladelphiaDistrictRegulatory@usace.army.mil, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing. If it is necessary to provide a written request by traditional mail, such request shall be submitted within the comment period specified in this notice to the District Engineer, attn CENAP-OPR, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390.

Additional information concerning this permit application may be obtained by calling Michael D. Yost at (267) 240-5278, or by email at michael.d.yost@usace.army.mil.

Todd A. Hoernemann
Chief, Applications Section I



DelDOT

North Millsboro Bypass

Figure 2 - Topographic Map

Source: U.S. Geological Survey (USGS)November 2019

0 0.25 0.5 1 Miles

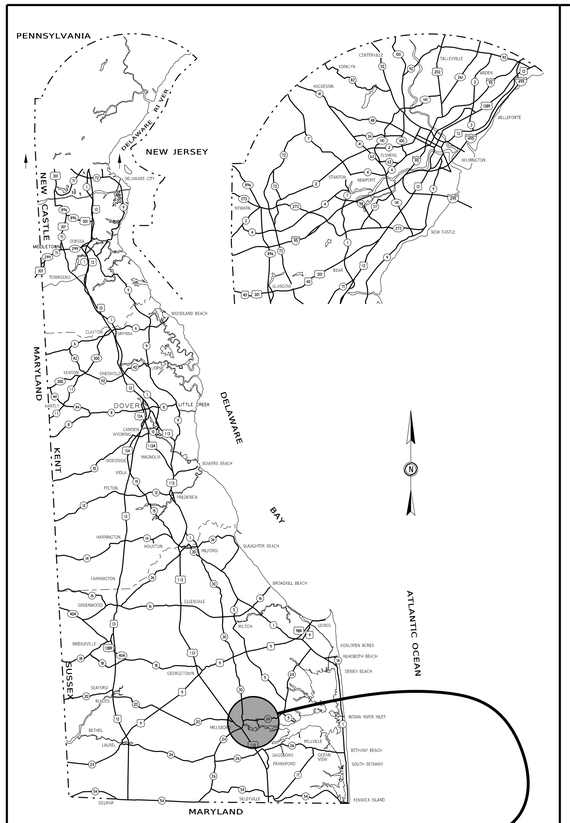
Legend

Limit of Disturbance

THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY UNITS

SEMI-FINAL PLANS



GENERAL LOCATION OF CONTRACT

CONSTRUCTION PLANS FOR:

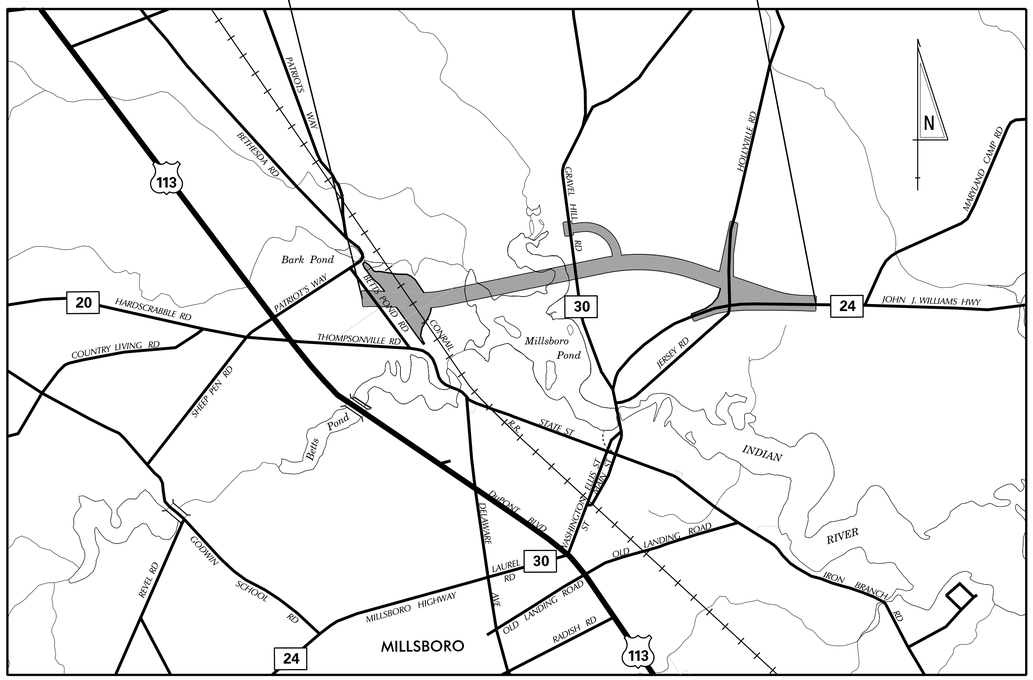
CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT NUMBER: T202112701
FEDERAL AID PROJECT NUMBER: ESTP-S113(26)

COUNTY: SUSSEX M.R. #: S24/S248/S255/S305

BEGIN CONTRACT STATION 1039+00.00

END CONTRACT STATION 1147+60.00



LOCATION MAP
NOT TO SCALE

DESIGN DESIGNATION

MRD #: TBD	ROAD NAME: NORTH MILLSBORO BYPASS		
FUNCTIONAL CLASS: MAJOR COLLECTOR		D.H.V. PROJECTED: 1,350	YEAR: 2050
TYPE OF CONSTRUCTION: NEW		DESIGN SPEED: 50 M.P.H.	
A.A.D.T. CURRENT: N/A	YEAR: N/A	TRUCKS: 9.3%	
A.A.D.T. PROJECTED: 11,200	YEAR: 2050	DIRECTION OF DISTRIBUTION: 58.4%	

DESIGN DESIGNATION

MRD #: S24	ROAD NAME: SR 24 (JOHN J. WILLIAMS HWY)		
FUNCTIONAL CLASS: MAJOR COLLECTOR		D.H.V. PROJECTED: 3,000	YEAR: 2050
TYPE OF CONSTRUCTION: RECONSTRUCTION		DESIGN SPEED: 50 M.P.H.	
A.A.D.T. CURRENT: 18,000	YEAR: 2015	TRUCKS: 6.4%	
A.A.D.T. PROJECTED: 24,700	YEAR: 2050	DIRECTION OF DISTRIBUTION: 58.4%	

DESIGN DESIGNATION

MRD #: S248	ROAD NAME: GRAVEL HILL ROAD		
FUNCTIONAL CLASS: MAJOR COLLECTOR		D.H.V. PROJECTED: 720	YEAR: 2050
TYPE OF CONSTRUCTION: RECONSTRUCTION		DESIGN SPEED: 50 M.P.H.	
A.A.D.T. CURRENT: 5,000	YEAR: 2015	TRUCKS: 10.3 %	
A.A.D.T. PROJECTED: 5,750	YEAR: 2050	DIRECTION OF DISTRIBUTION: 58.8 %	

DESIGN DESIGNATION

MRD #: S255	ROAD NAME: FOX RUN ROAD		
FUNCTIONAL CLASS: LOCAL		D.H.V. PROJECTED: 180	YEAR: 2050
TYPE OF CONSTRUCTION: RECONSTRUCTION		DESIGN SPEED: 30 M.P.H.	
A.A.D.T. CURRENT: 1,184	YEAR: 2015	TRUCKS: 2.0 %	
A.A.D.T. PROJECTED: 1,676	YEAR: 2050	DIRECTION OF DISTRIBUTION: 58 %	

DESIGN DESIGNATION

MRD #: S305	ROAD NAME: HOLLYVILLE ROAD		
FUNCTIONAL CLASS: LOCAL		D.H.V. PROJECTED: 560	YEAR: 2050
TYPE OF CONSTRUCTION: RECONSTRUCTION		DESIGN SPEED: 40 M.P.H.	
A.A.D.T. CURRENT: 3,300	YEAR: 2015	TRUCKS: 6.0 %	
A.A.D.T. PROJECTED: 4,500	YEAR: 2050	DIRECTION OF DISTRIBUTION: 58.8 %	

APPROVED DESIGN EXCEPTIONS

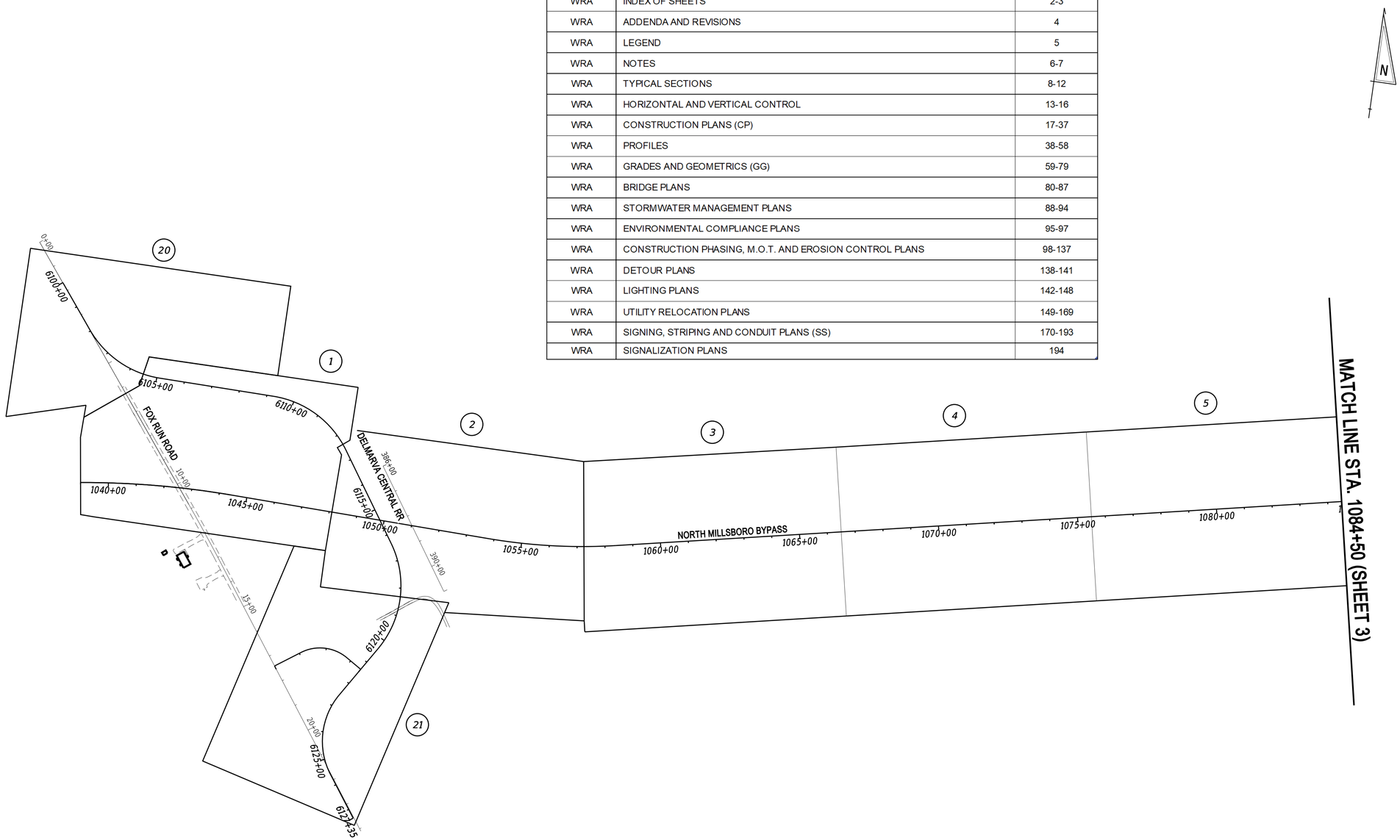
DESIGN PARAMETER	REQUIRED	PROVIDED	DATE

ASSOCIATED CONTRACTS

CONTRACT NO.	CONTRACT NAME
CS3	SR 24 JOHN J. WILLIAMS HIGHWAY, MILLSBORO TO WARWICK
CS3A	MAIN STREET MILLSBORO
145	US 113 WIDENING, SELBYVILLE TO GEORGETOWN
158	SR 30 GRAVEL HILL ROAD, ZOAR TO MILLSBORO
174	SR 20 HARDSCRABBLE ROAD, MILLSBORO TO BRYANS STORE
RM187	HOLLYVILLE ROAD
483	SR 24, MILLSBORO TO HARMON SCHOOL
845	US 113, DAGSBORO ROAD (SR 20) TO GEORGETOWN
1442	SUSSEX ROADS, S 334, S 326, S 082, S 328, S 318 & S 317
1490	SR 24 & SR 30, MILLSBORO TO SHAFT OX CORNER
1859	BRIDGE 514 ON SR 24 OVER MILLSBORO POND
1881	BETHESDA ROAD PAVEMENT REHAB
6401043	SR 20, MILLSBORO TO BRYANS STORE (S 074)
6403007	SHEEP PEN ROAD PAVEMENT REHAB
6405005	US 113, DAGSBORO TO ROAD 432 PHASE II
6503004	US 113, DAGSBORO TO SUSSEX 432
6710020	BRIDGE 514 APPROACH ON SR 24 OVER INDIAN RIVER AT MILLSBORO POND
9710903	US 113, NORTH OF DAGSBORO TO NORTH OF MILLSBORO
9710904	US 113, NORTH OF MILLSBORO TO S321
9907301	BRIDGE 526 & BRIDGE 527 ON S326 AT BETTS POND MILLSBORO
T202112702	US 113 AR SR 20 GRADE SEPARATED INTERSECTION

LAST REVISED: 11/26/2018
3/4/2022
6:13:03 PM
N:\32149-002\CADD\US 113 NM Bypass\TC01_NMBP.dgn

SECTION	SHEET DESCRIPTION	SHEET NO(S)
WRA	TITLE	1
WRA	INDEX OF SHEETS	2-3
WRA	ADDENDA AND REVISIONS	4
WRA	LEGEND	5
WRA	NOTES	6-7
WRA	TYPICAL SECTIONS	8-12
WRA	HORIZONTAL AND VERTICAL CONTROL	13-16
WRA	CONSTRUCTION PLANS (CP)	17-37
WRA	PROFILES	38-58
WRA	GRADES AND GEOMETRICS (GG)	59-79
WRA	BRIDGE PLANS	80-87
WRA	STORMWATER MANAGEMENT PLANS	88-94
WRA	ENVIRONMENTAL COMPLIANCE PLANS	95-97
WRA	CONSTRUCTION PHASING, M.O.T. AND EROSION CONTROL PLANS	98-137
WRA	DETOUR PLANS	138-141
WRA	LIGHTING PLANS	142-148
WRA	UTILITY RELOCATION PLANS	149-169
WRA	SIGNING, STRIPING AND CONDUIT PLANS (SS)	170-193
WRA	SIGNALIZATION PLANS	194



ADDENDA / REVISIONS

SCALE
0 200 400 600
FEET

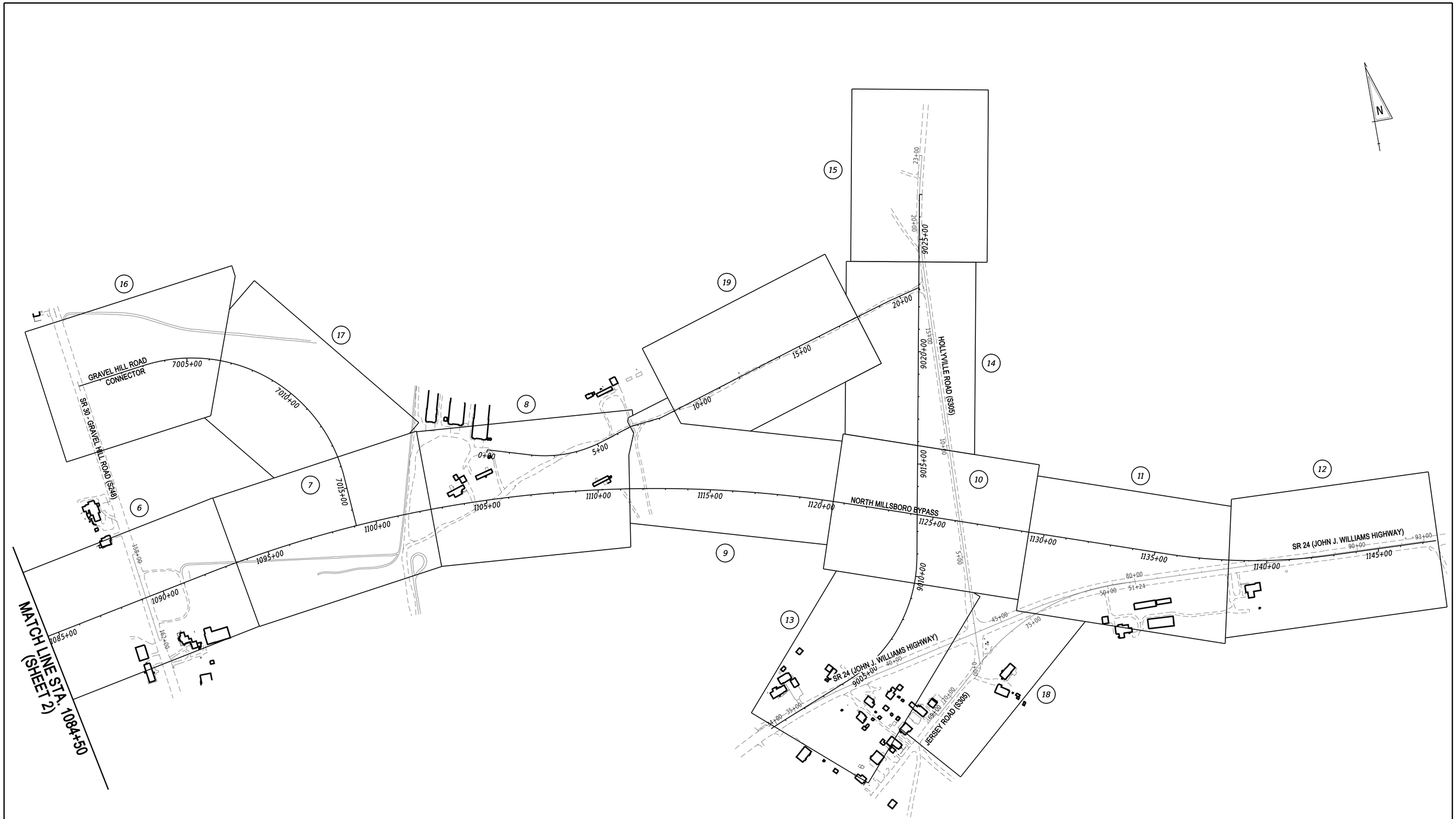
CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY	CHECKED BY: T. OLIVER	
SUSSEX		

INDEX OF SHEETS

SECTION
WRA
SHEET NO.
2

3/4/2022
6:13:04 PM
N:\32149-002\CADD\US 113 NM Bypass\IS01_NMBP.dgn



ADDENDA / REVISIONS	

SCALE
0 200 400 600
FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

INDEX OF SHEETS

SECTION
WRA
SHEET NO.
3

3/4/2022
6:13:05 PM
N:\32149-002\CADD\US 113 NM Bypass\IS02_NMBP.dgn

ADDENDUM PREPARED BY

Whitman, Requardt and Associates, LLP
Engineers • Architects • Environmental Planners Est. 1915

THIS SEAL APPLIES TO ALL SHEETS BEARING THE "WRA" SECTION DESIGNATION.

DATE

SEAL

REVISION PREPARED BY

Whitman, Requardt and Associates, LLP
Engineers • Architects • Environmental Planners Est. 1915

THIS SEAL APPLIES TO ALL SHEETS BEARING THE "WRA" SECTION DESIGNATION.

DATE

SEAL

3/4/2022
6:13:06 PM
N:\32149-002\CADD\US 113 NM Bypass\AR01_NMBP.dgn

ADDENDA / REVISIONS		NOT TO SCALE	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	ADDENDA AND REVISIONS	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: S. BEALL		SHEET NO. 4
					CHECKED BY: T. OLIVER		

MANMADE ROADSIDE FEATURES

FEATURE DESCRIPTION	EXISTING	PROPOSED	ID
BOLLARD - STEEL POLE			
BOLLARD - WOOD POST			
CURB, TYPE 1 AND TYPE 3	CURB, TYPE "X"		C XXX
CURB, TYPE 2			
CURB & GUTTER, TYPE 1	C&G, TYPE "X"		
CURB & GUTTER, TYPE 2			
CURB & GUTTER, TYPE 3			
CURB OPENING - SUMP / ON GRADE			C O
CURB OPENING WITH SIDEWALK			CO SW
FENCE - CHAINLINK OR STRANDED			F XXX
FENCE - STOCKADE OR SPLIT RAIL			
FLAG POLE	F.P.		
GUARDRAIL - STEEL BEAM, TYPE 1			GR XXX
GUARDRAIL - STEEL BEAM, TYPE 2			
GUARDRAIL - STEEL BEAM, TYPE 3			
GUARDRAIL - WIRE ROPE			
GUARDRAIL - END ANCHORAGE			
GUARDRAIL - END TREATMENT, TYPE 1			
GUARDRAIL - END TREATMENT, TYPE 2			
GUARDRAIL - END TREATMENT, TYPE 3			
GUARDRAIL - IMPACT ATTENUATOR			
LAMP AND POST - RESIDENTIAL	LAMP		
MAILBOX	MB	MB	
PARKING METER AND POST	P.M.		
PAVEMENT - FLEXIBLE			
PAVEMENT - RIGID			
PILE - BRIDGE			
PILLAR OR MISCELLANEOUS POST			
TRAFFIC SIGN AND POST			
WALL - BRICK OR BLOCK			
WALL - STONE			

DRAINAGE FEATURES

FEATURE DESCRIPTION	EXISTING	PROPOSED	ID
BIOFILTRATION SWALE		BFS	
DITCH OR STREAM CENTERLINE			
DIRECTIONAL STREAM FLOW ARROW			
DRAINAGE INLET	C.B. / D.I.		DI XXX
DRAINAGE JUNCTION BOX	J.B.		JB XXX
DRAINAGE MANHOLE	D		MH XXX
DRAINAGE PIPE AND FLOW ARROW	SIZE/TYPE LABEL		P XXX
DRAINAGE PIPE HEADWALL			
FLARED END SECTION			FES XXX
RIPRAP - AREA FEATURE			RR XXX
RIPRAP - LINEAR FEATURE			
SAFETY END SECTION			SES XXX
UNDERDRAIN			UD XXX
UNDERDRAIN OUTLET			UDO XXX

UTILITY FEATURES

FEATURE DESCRIPTION	EXISTING	PROPOSED
CABLE TV DISTRIBUTION BOX	TV	
ELECTRIC - DELMARVA POWER	DP-E (A)	DP-E
ELECTRIC MANHOLE	E	
ELECTRIC METER	EM	
ELECTRIC TRANSFORMER	E	E
GAS - CHESAPEAKE UTILITY	CU-G (A)	
GAS - EASTERN SHORE	ESNG-G (A)	
GAS MANHOLE	G	
GAS METER	G.M.	
GAS VALVE	G.V.	
GAS PUMP - SERVICE STATION	G.P.	
IRRIGATION - UNDERGROUND	IR(A)	IR
ITMS - UNDERGROUND	ITMS(A)	ITMS
LIGHTING - UNDERGROUND	LI(A)	LI
LUMINAIRE - POLE MOUNTED		
MANHOLE - UNDETERMINED OWNER	?	
RAILROAD TRACKS		
SANITARY - SUSSEX COUNTY	SC-S (A)	SC-S
SANITARY SEWER MANHOLE	S	
SANITARY SEWER VALVE	S.V.	
SANITARY SEWER CLEANOUT OR VENT	S.C.O.	
SEPTIC DRAIN FIELD	S.D.F.	
SIGNALIZATION - UNDERGROUND	SIG(A)	SIG
SIGNALIZATION - UNDERGROUND - DELDOT	EX-CON (A)	
SOIL BORING LOCATION		
TELEPHONE BOOTH	B	
TELEPHONE MANHOLE	T	
TELEPHONE - VERIZON	VER-C (A)	VER-C
TELEPHONE - VERIZON - FIBER OPTIC	VER-FO (A)	
TELEPHONE TEST POINT	T	
TRAFFIC - CONDUIT JUNCTION WELL	J.W.	
TRAFFIC - LIGHT POLE AND BASE		
TRAFFIC - PEDESTRIAN POLE & BASE		
TRAFFIC - SIGNAL CABINET & BASE		
TRAFFIC - SIGNAL POLE AND BASE		
UTILITY BOX	U	
UTILITY POLE GUY WIRE ANCHOR		
UTILITY POLE		
UTILITY TEST HOLE LOCATION		
WATER - TOWN OF GEORGETOWN	SC-W (A)	SC-W
WATER - TOWN OF MILLSBORO	TMB-W (A)	
WATER - FIRE HYDRANT	F.H.	F.H.
WATER METER	W.M.	
WATER VALVE	WV	W.V.
WELL HEAD	WELL	

NATURAL ROADSIDE FEATURES

FEATURE DESCRIPTION	EXISTING	PROPOSED
HEDGEROW OR THICKET		
MARSH BOUNDARY LINE		
TREE - CONIFEROUS		
TREE - DECIDUOUS		
TREE STUMP		
SHRUBBERY		
WETLAND BOUNDARY - DELINEATED	WL	
WOODS LINE BOUNDARY		

RIGHT-OF-WAY FEATURES

FEATURE DESCRIPTION	EXISTING	PROPOSED
DENIAL OF ACCESS	DA	DA
EASEMENT - OTHERS	EASEMENT TYPE	
PERMANENT EASEMENT	PE	PE
PROPERTY LINE		
PROPERTY MARKER - CONCRETE	C.M.	
PROPERTY MARKER - IRON PIPE	I.P.	
RIGHT-OF-WAY BASELINE	100+00	100+00
RIGHT-OF-WAY LINE		R/W
RIGHT-OF-WAY & DENIAL OF ACCESS	R/W-DA	R/W-DA
RIGHT-TO-ENTER		RTE
TEMPORARY CONSTRUCTION EASEMENT		TCE

SURVEY CONTROL & MONUMENTATION

FEATURE DESCRIPTION	EXISTING
POINT OF CURVATURE OR TANGENCY	
POINT OF INTERSECTING TANGENTS	
SURVEY BENCHMARK LOCATION	B.M.
SURVEY NGS POINT LOCATION	
SURVEY TIE POINT LOCATION	T.P.
SURVEY TRAVERSE POINT	

MISCELLANEOUS FEATURES

FEATURE DESCRIPTION	PROPOSED
BARRIER, DOUBLE-FACED, PERMANENT	
BARRIER, SINGLE-FACED, PERMANENT, TEST LEVEL 4 / TEST LEVEL 5	
BRICK PATTERNED SURFACE	
BUTT JOINT	
CLEAR ZONE	CZ
CONSTRUCTION BASELINE	100+00
LATERAL OFFSET	LO
LIMIT OF CONSTRUCTION	LOC
PAVEMENT PATCH	
PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH	
P.C.C. SIDEWALK - 4"	
P.C.C. SIDEWALK - 6" (USE 8" DEPTH FOR CHANNELIZATION ISLANDS.)	
TURF REINFORCEMENT MAT, TYPE 1	
INFILTRATION TRENCH	

IDENTIFIERS

FEATURE DESCRIPTION	ID
ABANDON BY CONTRACTOR	AB C
ABANDON BY OTHERS	AB O
ADJUST BY CONTRACTOR	A C
ADJUST BY OTHERS	A O
BEST MANAGEMENT PRACTICE	BMP XXXX
BUS STOP PAD / TYPE	BSP X
BUS STOP WITH SHELTER PAD / TYPE	BSSP X
CONCRETE SAFETY BARRIER	B XXX
CONVERT TO JUNCTION BOX	C/JB XXX
CONVERT TO DRAINAGE MANHOLE	CMH XXX
DO NOT DISTURB	DND
ENERGY DISSIPATOR	ED XXX
FILL WITH FLOWABLE FILL	FF C
LANDSCAPE PLANTINGS	LS XXX
PEDESTRIAN CONNECTION / TYPE	PC XX
PEDESTRIAN CONNECTION / TYPE WITHOUT DETECTABLE WARNING SYSTEM	PC-W XXX
RELOCATE BY CONTRACTOR	RL C
RELOCATE BY OTHERS	RL O
RELOCATE BY PROPERTY OWNER	RL PO
REMOVE BY CONTRACTOR	RM C
REMOVE BY OTHERS	RM O
REMOVE BY TRAFFIC CONTRACTOR	RM TC
RIGHT-OF-WAY MONUMENT	R XXX

PAVEMENT SECTION(S)

OVERLAY PAVEMENT - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS	
RECONSTRUCTED PAVEMENT - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS	
DRIVEWAY AND ENTRANCE PAVEMENT - SEE NOTES FOR MATERIALS AND DEPTHS	

ADDENDA / REVISIONS

NOT TO SCALE

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

LEGEND

SECTION: WRA
SHEET NO.: 5

3/4/2022
6:13:07 PM
N:\32149-002\CADD\US 113 NM Bypass\LG01_NMBP.dgn

GENERAL NOTES

1. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED AUGUST 2016 AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2018, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT.

2. ELECTRONIC DESIGN DATA FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR, INCLUDE:

( )	NONE
(X)	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
(X)	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
(X)	DESIGN FILE, IN .DGN FILE FORMAT, THAT CONTAINS 3D FEATURE LINES FOR THE PROPOSED DESIGN. 3D FEATURE LINES ARE FOR THE PROPOSED TOP SURFACE ELEVATION ONLY.

NOTE: THE DOCUMENT ENTITLED "RELEASE FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORM TO A CONTRACTOR" MUST BE SIGNED BY ALL PARTIES PRIOR TO THE DELIVERY OF ANY ELECTRONIC PROJECT FILES.

NOTE: THERE MAY BE SOME AREAS OF THE PROJECT NOT INCLUDED IN THE ELECTRONIC DESIGN DATA FILE(S). IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE DESIGN DATA FILE AND DETERMINE THE LIMITS OF THE PROJECT INCLUDED.

3. PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE CONTRACTOR, INCLUDE:

(X)	CROSS SECTIONS
(X)	RIGHT-OF-WAY PLANS (WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR)

PROJECT NOTES

SECTION 100

1. ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET BY THE CONTRACTOR, AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

2. THE CONTRACTOR WILL CONTACT THE DELAWARE TMC AT 302-659-4600 PRIOR TO ANY UNMANNED AERIAL VEHICLE (UAV) FLIGHTS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE THE FOLLOWING INFORMATION: THE REGISTRATION NUMBER OF THE UAV, THE FLIGHT TIME, LOCATION OF THE FLIGHT, THE PILOT'S NAME AND THE PILOT'S CONTACT NUMBER DURING THE FLIGHT.

SECTION 200

3. THE CONTRACTOR SHALL REMOVE AND RESET ALL MAILBOXES TO MAINTAIN MAIL SERVICE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL RELOCATE MAILBOXES AS REQUIRED BY THE PROPOSED GEOMETRICS AND AS DIRECTED BY THE ENGINEER. WHEN RELOCATING MAILBOXES IN CURBED SECTIONS, THE FACE OF THE MAILBOX SHALL BE FLUSH WITH THE BACK EDGE OF CURB. WHEN RELOCATING MAILBOXES IN OPEN SECTIONS, THE FACE OF THE MAILBOX SHALL SET BACK 8 INCHES FROM THE EDGE OF THE PAVED SHOULDER. THE BOTTOM OF THE MAILBOX SHALL BE POSITIONED IN ACCORDANCE WITH THE LATEST VERSION OF THE UNITED STATES POSTAL SERVICE GUIDELINES. MAILBOXES LOCATED AT DRIVEWAY ENTRANCES SHALL BE PLACED ON THE FAR SIDE OF THE DRIVEWAY IN THE DIRECTION OF TRAVEL. POSTS BEING RESET IN CONCRETE SIDEWALK SHALL BE PLACED IN AN APPROPRIATE SIZE PVC SLEEVE. ACCEPTABLE POST SHALL BE 4 INCH X 4 INCH WOOD POST OR 4 INCH DIAMETER WOOD POST. FOR RELOCATING MULTIPLE MAILBOXES TOGETHER ALL POST SHALL BE SEPARATED BY A DISTANCE OF NO LESS THAN 3/4 OF THEIR FULL HEIGHT ABOVE THE GROUND. MULTIPLE MAILBOXES ATTACHED TO A SINGLE HORIZONTAL BOARD SHALL NOT BE LOCATED INSIDE THE CLEARZONE. EACH MAIL BOX SHALL BE PLACED ON AN INDIVIDUAL POST MEETING THE CRITERIA ABOVE. ALL MAILBOXES SHALL BE SET NOT TO IMPEDE THE MINIMUM PAR (PEDESTRIAN ACCESS ROUTE) WIDTH AS DETERMINED BY THE CURRENT EDITION OF THE PEDESTRIAN ACCESSIBILITY STANDARDS FOR FACILITIES IN THE PUBLIC RIGHT OF WAY. IF MAILBOXES ARE NOT SET IN ACCORDANCE WITH THE ABOVE DIRECTIONS, RESETTING OF THE MAILBOXES WILL BE AT THE COST OF THE CONTRACTOR. COST FOR ALL WORK AND MATERIALS SHALL BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.

4. ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
   a. CONCRETE SUPPORT FOUNDATIONS FOR MISCELLANEOUS SMALL STRUCTURES NOT COVERED UNDER OTHER PAY ITEMS
   b. FENCES
   c. POLE BASES
   d. DRAINAGE STRUCTURES AND PIPES BEYOND THE LIMITS OF ROADWAY EXCAVATION

5. UNLESS OTHERWISE NOTED AS DO NOT DISTURB OR ADJUST BY CONTRACTOR/OTHERS, ALL EXISTING FEATURES, INCLUDING TREES, WITHIN THE PROPOSED LOC SHALL BE REMOVED BY THE CONTRACTOR AND PAID FOR UNDER THE RESPECTIVE BID ITEM. REMOVAL OF EXISTING STORM DRAIN PIPE SHALL BE PAID UNDER ITEM 202000 UNLESS NOTED WITH A FLOWABLE FILL IDENTIFIER, REMOVAL OF TREES AND SHRUBS SHALL BE PAID FOR UNDER 201000, AND REMOVAL OF ADDITIONAL EXISTING FEATURES SHALL BE PAID FOR UNDER ITEM 210000 AS NOTED IN SECTION 200 OF THE PROJECT NOTES.

SECTION 400

6. THE PAVEMENT SECTION FOR FLEXIBLE PAVEMENT RESIDENTIAL DRIVEWAYS SHALL BE 2" BITUMINOUS CONCRETE, TYPE 'C' OVER 8" GRADED AGGREGATE BASE COURSE, TYPE 'B', UNLESS OTHERWISE NOTED ON THE PLANS

SECTION 600

7. DRAINAGE INLET GRATES ADJACENT TO THE CURB OR EDGE PAVING, WITHIN THE PROJECT LIMITS, WHICH ARE NOT TYPE 1 OR TYPE 4, SHALL BE REPLACED WITH TYPE 1. INLET GRATES WITHIN THE PAVING, NOT ADJACENT TO THE CURB OR EDGE OF PAVING SHALL BE REPLACED WITH TYPE 3. THE ACTUAL LOCATIONS, THE NEED FOR ANY GRATE MODIFICATIONS OR FOR NEW FRAMES SHALL BE DETERMINED BY THE ENGINEER. ALL REPLACED GRATES/FRAMES SHALL BE DELIVERED TO THE NEAREST DISTRICT MAINTENANCE YARD WITH THE COST OF DELIVERY INCIDENTAL TO ITEM 602100 - REPLACING DRAINAGE INLET GRATE(S) & ITEM 602101 - REPLACING DRAINAGE INLET FRAME(S). FINAL PAYMENT FOR REPLACED GRATES/FRAMES SHALL NOT BE MADE UNTIL RECEIPT OF DELIVERED MATERIALS IS PRODUCED, SIGNED BY A DELDOT MAINTENANCE YARD SUPERVISOR.

8. STATION AND ELEVATION DATA GIVEN FOR DRAINAGE STRUCTURES ARE TO BE APPLIED TO THE CENTER OF THE GRATE FOR INLETS AND TO THE CENTER OF THE STRUCTURE FOR JUNCTION BOXES AND MANHOLES.

SECTION 700

9. IN AREAS WHERE PROPOSED CURB MEETS EXISTING CURB AND THE TWO CURB TYPES ARE NOT SIMILAR, THE PROPOSED CURB SHALL BE TRANSITIONED IN 10 LINEAR FEET, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE TRANSITIONED CURB WORK SHALL BE MEASURED AND PAID FOR UNDER THE PROPOSED CURB ITEM. SAW CUTTING OF THE EXISTING CURB SHALL BE INCIDENTAL TO THE PROPOSED CURB ITEM.

10. WHERE PROPOSED CONCRETE SIDEWALK IS CONSTRUCTED TO MEET EXISTING SIDEWALK, THE EXISTING SIDEWALK SHALL BE SAWCUT AT THE TIE-IN POINT OR MEET THE NEAREST EXISTING SIDEWALK JOINT. ALL SAW CUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER AND SHALL BE PAID FOR UNDER ITEM 762001 - SAW CUTTING, CONCRETE, FULL DEPTH.

11. PORTLAND CEMENT CONCRETE CHANNELIZING ISLANDS THAT ARE LESS THAN 75 SQ FT MAY BE POURED MONOLITHICALLY, OR AS DIRECTED BY THE ENGINEER.

12. ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT.

13. ALL RUMBLE STRIPS SHALL BE INSTALLED AFTER THE FINAL SURFACE COURSE HAS BEEN LAID AND SHALL NOT BE INSTALLED UNTIL TRAFFIC HAS BEEN SHIFTED INTO THE ULTIMATE CONFIGURATION. ITEM 760003 - BIKE FRIENDLY RUMBLE STRIPS, CONCRETE SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:

    NORTH MILLSBORO BYPASS FROM STA. 1039+00 TO STA. 1046+75
    NORTH MILLSBORO BYPASS FROM STA. 1054+00 TO STA. 1060+50
    NORTH MILLSBORO BYPASS FROM STA. 1072+50 TO STA. 1078+75
    NORTH MILLSBORO BYPASS FROM STA. 1092+25 TO STA. 1098+00
    NORTH MILLSBORO BYPASS FROM STA. 1100+00 TO STA. 1119+00
    NORTH MILLSBORO BYPASS FROM STA. 1130+00 TO STA. 1142+50

14. GUARDRAIL POST CAPS SHALL BE PLACED ON ALL GUARDRAIL POSTS INSTALLED ALONG THE PROPOSED SHARED USE PATH. THEY WILL BE PAID FOR IN ACCORDANCE WITH ITEM 721515 - GUARDRAIL POST CAP.

SECTION 900

15. THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOI IS KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S STORMWATER SECTION. A COPY OF THE GENERAL PERMIT OR THE NOI CAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.

MISCELLANEOUS

16. THE CONTRACTOR SHALL NOTIFY DART FIRST STATE AT DOT_DETOURS@DELAWARE.GOV AT LEAST 14 DAYS PRIOR TO THE START OF ANY DETOURS OR CONSTRUCTION, AND DOT_DTC_PROJECTDEVELOPMENT@DELAWARE.GOV AT SUCH TIME THE FACILITY IS COMPLETED AND OPERABLE FOR TRANSIT OPERATIONS. FOR EMERGENCY DETOUR INFORMATION ONLY, PLEASE CONTACT DTC'S CHIEF SCHEDULER AT 302-576-6019.

17. UNLESS OTHERWISE NOTED AS DO NOT DISTURB OR ADJUST BY CONTRACTOR/OTHERS, ALL EXISTING FEATURES, INCLUDING TREES, WITHIN THE PROPOSED LOC SHALL BE REMOVED BY THE CONTRACTOR AND PAID FOR UNDER THE RESPECTIVE BID ITEM. REMOVAL OF EXISTING STORM SEWER SHALL BE PAID FOR UNDER ITEM 202000, REMOVAL OF TREES AND SHRUBS SHALL BE PAID FOR UNDER201000, REMOVAL OF ADDITIONAL EXISTING FEATURES SHALL BE PAID FOR UNDER ITEM 211000, AS NOTED IN SECTION 200 OF THE PROJECT NOTES.

18. ALL DART SIGNS HAVE BEEN UPDATED TO A NEW DESIGN. THE DELDOT SIGN SHOP DOES NOT FABRICATE THE UPDATED SIGN OR ANY SUPPLEMENTAL PLAQUES TO ALLOW FOR ADDITIONAL ROUTE NUMBERS. ALL REQUEST FOR FABRICATION OF THESE SIGNS MUST BE MADE THROUGH DART TRANSIT AT (302) 576-6132.

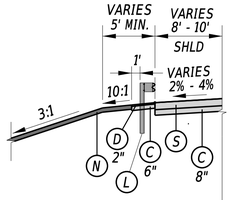
19. THE CONTRACTOR SHALL COORDINATE WITH THE CONTRACTOR FOR CONTRACT T202112702 - US 113 AT SR 20 GSI TO ESTABLISH STAGING AREAS, ACCESS, AND CONSTRUCTION PHASING TO ENSURE THAT BOTH PROJECTS CAN BE OPEN TO TRAFFIC BY MAY 2025.

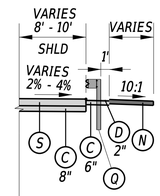
FOR INFORMATION ONLY
EARTHWORK SUMMARY

	SHT:1 NMBP 1039+00 TO Bridge 3-595	SHT:2 Bridge 3-595 TO Bridge 3-596	SHT:3 Bridge 3-596 TO Bridge 3-597	SHT:4 Bridge 3-597 TO End	SHT:5 Gravel Hill Road Connector	SHT:6 SR24	SHT: 7 Hollyville Rd	SHT: 8 Fox Run Rd	PROJECT TOTALS
EXCAVATION - ITEM 202000 (CY) [NEED = '-' / EXCESS = '+']									
EX01 : FROM CROSS SECTIONS / MODELS (+)	1,729	272	925	21,724	4,515	4,427	17,071	17,997	68,660
EX02 : BITUMINOUS PAVEMENT REMOVED IN FILL SECTIONS (+)	106	0	0	94	0	25	2	7	234
EX03 : TOPSOIL REMOVED UNDER FILL SECTIONS (+)	2,824	0	0	16,719	4,234	351	715	223	25,066
EX04 : TOPSOIL PLACED IN CUT SECTIONS (+) (Template includes topsoil depth)	0	0	0	0	0	0	0	0	0
EX05 : ROOT MAT REMOVED IN CUT SECTIONS (-) (Excluded from Inroads Normal Cut Qty)	0	0	0	0	0	0	0	0	0
EX06 : CURB AND/OR CURB AND GUTTER EXCAVATION (-) (Excluded from Inroads Normal Cut Qty)	0	0	0	0	0	0	0	0	0
EX07 : UNDERDRAIN EXCAVATION (-)	0	0	0	0	0	0	0	0	0
EX08 : ROCK EXCAVATION (-)	0	0	0	0	0	0	0	0	0
EX09 : REMOVAL OF PCC PAVEMENT, CURBS, SIDEWALK, ETC. (-)	0	0	0	0	0	0	0	0	0
EXTOTAL : TOTAL EXCAVATION	4,659	272	925	38,537	8,749	4,803	17,788	18,227	93,960
STORMWATER MANAGEMENT POND EXCAVATION - ITEM 271000 (CY) [NEED = '-' / EXCESS = '+']									
SWEX01 : FROM CROSS SECTIONS / MODELS (+)	1,985	0	0	24,671	0	0	0	0	26,656
SWEX02 : TOPSOIL REMOVED UNDER FILL SECTIONS (+)	0	0	0	0	0	0	0	0	0
SWEX03 : TOPSOIL PLACED IN CUT SECTIONS (+)	0	0	0	0	0	0	0	0	0
SWEX04 : ROOT MAT REMOVED (-)	0	0	0	0	0	0	0	0	0
SWEX05 : ROCK EXCAVATION (-)	0	0	0	0	0	0	0	0	0
SWEXTOTAL : TOTAL STORMWATER MANAGEMENT POND EXCAVATION	1,985	0	0	24,671	0	0	0	0	26,656
EXCAVATION AVAILABLE FOR EMBANKMENT (CY) [NEED = '-' / EXCESS = '+']									
EXTOTAL : TOTAL EXCAVATION (+) [ITEM 202000]	4,659	272	925	38,537	8,749	4,803	17,788	18,227	93,960
SWEXTOTAL : TOTAL STORMWATER MANAGEMENT POND EXCAVATION (+) [ITEM 910008]	1,261	0	0	24,671	0	0	0	0	25,932
AVEX01 : EXCAVATION AND BACKFILLING FOR STRUCTURES (+) [ITEM 207000]	0	0	0	0	0	0	0	0	0
AVEX02 : EXCAVATION FOR PIPE TRENCHES (+) [Item 601XXX]	0	0	0	0	0	0	0	0	0
AVEX03 : CHANNEL EXCAVATION (+) [ITEM 203000]	0	0	0	0	0	0	0	0	0
AVEX04 : POLE BASES EXCAVATION (+) [ITEM 834XXX]	0	0	0	0	0	0	0	0	0
AVEX05 : EXCAVATION FROM CURBS AND/OR CURB AND GUTTER (+)	0	0	0	0	0	0	0	0	0
AVEX06 : EXCAVATION FROM UNDERDRAINS (+) [ITEM 70900X]	0	0	0	0	0	0	0	0	0
AVEX07 : MISCELLANEOUS EXCAVATIONS (+)	0	0	0	0	0	0	0	0	0
AVEX08 : TOPSOIL REMOVED IN CUT AND/OR FILL SECTIONS (-)	3,965	0	0	30,419	8,144	1,286	7,338	5,899	57,051
AVEX09 : TOPSOIL REMOVED IN CUT AND/OR FILL SECTIONS FOR STORMWATER MANAGEMENT PONDS (-)	0	0	0	0	0	0	0	0	0
AVEX10: UNSUITABLE MATERIALS (-) (BITUMINOUS PAVT REMOVED IN CUT AND FILL)	145	0	0	1,695	0	669	4,673	944	8,126
AVEXTOTAL : TOTAL EXCAVATION AVAILABLE FOR EMBANKMENT	1,810	272	925	31,094	605	2,848	5,777	11,384	54,715
EMBANKMENT AND BORROW, TYPE 'F' REQUIRED (CY) [NEED = '-' / EXCESS = '+']									
EMRF01 : FROM CROSS SECTIONS / MODEL (+) [EMBANKMENT REQUIRED BELOW SUBGRADE OR CAPPING]	43,736	54,515	3,849	72,540	1,767	393	47	364	177,211
EMRF02 : TOPSOIL REMOVED UNDER FILL (+)	2,824	0	0	16,719	4,234	351	715	223	25,066
EMRF03 : ROOT MAT REMOVED UNDER FILL (+)	378	4,324	3,856	0	0	0	0	1,379	9,937
EMRF04 : UNSUITABLE MATERIAL REMOVED UNDER FILL (+)	0	0	0	0	0	0	0	0	0
EMRF05 : PCC REMOVED UNDER FILL (+)	0	0	0	0	0	0	0	0	0
EMRF06 : BITUMINOUS PAVEMENT REMOVED UNDER FILL (+)	106	0	0	94	0	25	2	7	234
EMRF07 : TOPSOIL TO BE PLACED IN FILL (+) (Inclded in template)	0	0	0	0	0	0	0	0	0
EMRF08 : SUBTOTAL OF EMBANKMENT AND BORROW, TYPE 'F' REQUIRED	47,044	58,839	7,705	89,353	6,001	769	764	1,973	212,448
EMRF09 : COMPACTION FACTOR APPLIED TO THE SUBTOTAL (%)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
EMRFTOTAL : TOTAL EMBANKMENT AND BORROW, TYPE 'F' REQUIRED	56,453	70,607	9,246	107,224	7,201	923	917	2,368	254,938
TOPSOIL SUMMARY (CY) [NEED = '-' / EXCESS = '+']									
TOP01 ; TOPSOIL SALVAGED FROM CUT SECTIONS (+)	1,140	0	0	13,701	3,910	936	6,413	5,825	31,925
TOP02 : TOPSOIL SALVAGED FROM FILL SECTIONS (+)	2,824	0	0	16,719	4,234	351	715	223	25,066
TOP03 : TOPSOIL SALVAGED FROM STORMWATER MANAGEMENT PONDS (+)	1,261	0	0	7,775	0	0	0	0	9,036
TOP04 : TOPSOIL REQUIRED (-) (calculate from plan view area)	0	0	0	0	0	0	0	0	0
TOPTOTAL : TOTAL TOPSOIL	5,225	0	0	38,195	8,144	1,287	7,128	6,048	66,027
MATERIAL BALANCE (CY) [NEED = '-' / EXCESS = '+']									
BORROW, TYPE 'A' (built into template: 12" depth under roadway pavement)	-1,485	-1,482	-1,519	-9,711	-2,728	-1,883	-2,264	-3,389	-24,461
BORROW, TYPE 'B'	0	0	0	0	0	0	0	0	0
BORROW, TYPE 'C'	0	0	0	0	0	0	0	0	0
BORROW, TYPE 'F'	-54,643	-70,335	-8,321	-76,130	-6,596	1,925	4,860	9,016	-200,223
TOPSOIL	0	0	0	0	0	0	0	0	0
UNSUITABLE MATERIAL (AVEX10)	145	0	0	1,695	0	669	4,673	944	8,126

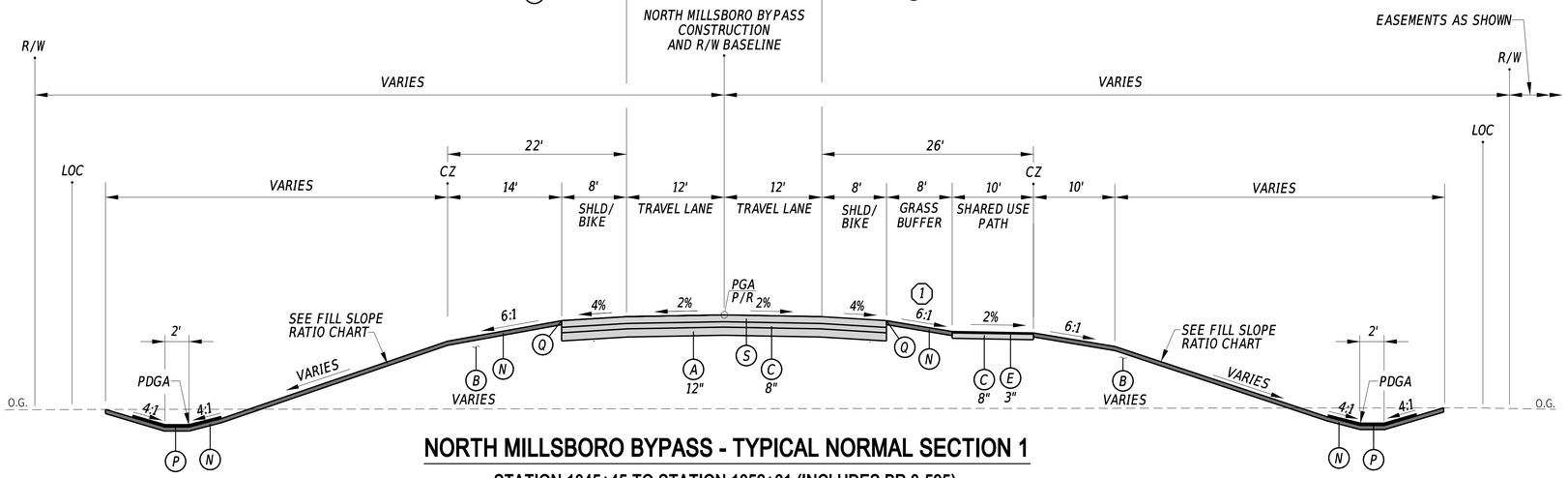
Notes:
1. Topsoil under embankment height >5' is not stripped.
2. Root Mat under embankment height >5' remains in place. Excavation and removal of root mat is paid under Clearing and Grubbing. Refill for removal in fill sections is included in EMRF03.
3. Fox Run Driveway Excav = 9591 SF x 0.83' = 7961 CF = 295 CY, TS in Cut = 252 CY, HM in Cut = 103 CY (Added to Fox RunRd Column)
4. Washington St Ext Excav = 2094' x 11' x 0.83' = 19,195 CF = 711 CY, TS in Cut = 186 CY (Added to Hollyville Column)
5. Removal of existing Fox Run Rd outside of template = 8916 SF x 1' Depth = 330 CY, HM in Cut = 330 CY (Added to Fox RunRd Column)
6. Removal of existing SR24 and Hollyville Road outside of template = 121,161 SF x 1' Depth = 4487 CY, HM in Cut = 4277 CY, TS in Cut = 210 CY (Added to Hollyville Column)

STATION 1047+73 TO STATION 1053+65
STATION 1061+43 TO STATION 1072+17
STATION 1079+66 TO STATION 1092+03





STATION 1047+10 TO STATION 1053+00
STATION 1060+62 TO STATION 1071+35
STATION 1078+85 TO STATION 1091+21



NORTH MILLSBORO BYPASS - TYPICAL NORMAL SECTION 1

STATION 1045+45 TO STATION 1052+61 (INCLUDES BR 3-595)
STATION 1059+61 TO STATION 1091+29 (INCLUDES BR 3-596 AND BR 3-597)

1 GRASS BUFFER SLOPE IS 25:1 FROM:
STATION 1073+50 TO STATION 1077+50

LEGEND

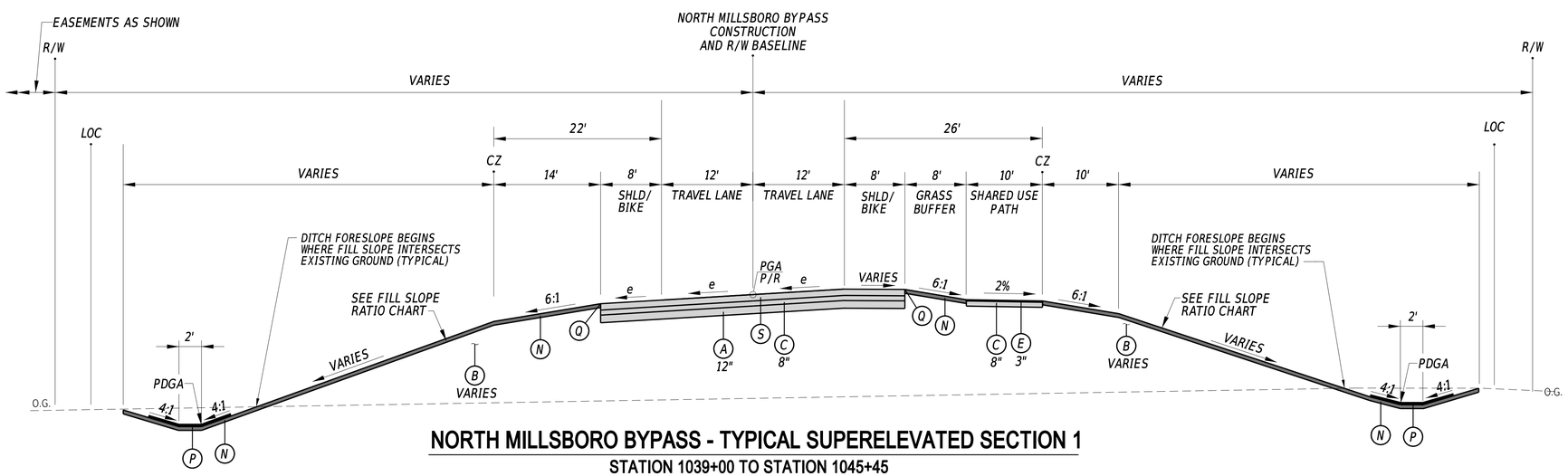
- (A) ITEM 209001 - BORROW, TYPE A
- (B) ITEM 209006 - BORROW, TYPE F
- (C) ITEM 301001 - GABC
- (D) ITEM 401014 - SUPERPAVE TYPE B, PG 64-22
- (E) ITEM 401005 - SUPERPAVE TYPE C, PG 64-22 (CARBONATE STONE)
- (L) ITEM 720021 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31
- (N) ITEM 908004 - TOPSOIL, 6" DEPTH OR ITEM 908010 - TOPSOILING, 6" DEPTH
  ITEM 908014 - PERMANENT GRASS SEEDING, DRY GROUND
- (P) ITEM 908020 - EROSION CONTROL BLANKET MULCH (8' ROLL WIDTH, MIN.)
- (Q) SAFETY EDGE (INCIDENTAL TO RESPECTIVE SUPERPAVE ITEMS)
- (R) ITEM 501001 - PORTLAND CEMENT CONCRETE PAVEMENT, 8"
- (S) ITEM 501004 - PORTLAND CEMENT CONCRETE PAVEMENT, 10"

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
GRADED AGGREGATE BASE COURSE	4"	8"

NOTES:

1. PGA - POINT OF GRADE APPLICATION
   PDGA - POINT OF DITCH GRADE APPLICATION
   P/R - POINT OF ROTATION
2. THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE. IN AREAS WHERE THE PGA IS LOCATED WITHIN THE RAISED MEDIAN, ITS VERTICAL LOCATION SHALL BE THE TOP OF ADJACENT PAVEMENT ELEVATION PROJECTED AT THE PROPOSED CROSS SLOPE TO THE CONSTRUCTION BASELINE.
3. EROSION CONTROL BLANKET IS REQUIRED ON ALL EMBANKMENT SLOPES STEEPER THAN 3:1.
4. MAXIMUM ALGEBRAIC DIFFERENCE OF CROSS SLOPES SHALL NOT EXCEED 8%.

FILL SLOPE RATIO CHART	
HEIGHT OF EMBANKMENT	SLOPE RATIO
0' TO 5'	6:1
5' TO 10'	4:1
>10'	3:1



NORTH MILLSBORO BYPASS - TYPICAL SUPERELEVATED SECTION 1

STATION 1039+00 TO STATION 1045+45
STATION 1052+61 TO STATION 1059+61

3/4/2022
6:13:12 PM
N:\32149-002\CADD\US 113 NM Bypass\TS01_NMBP.dgn

ADDENDA / REVISIONS	NOT TO SCALE	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	TYPICAL SECTIONS	SECTION WRA
			COUNTY SUSSEX	DESIGNED BY: S. BEALL		SHEET NO. 8
				CHECKED BY: T. OLIVER		

LEGEND

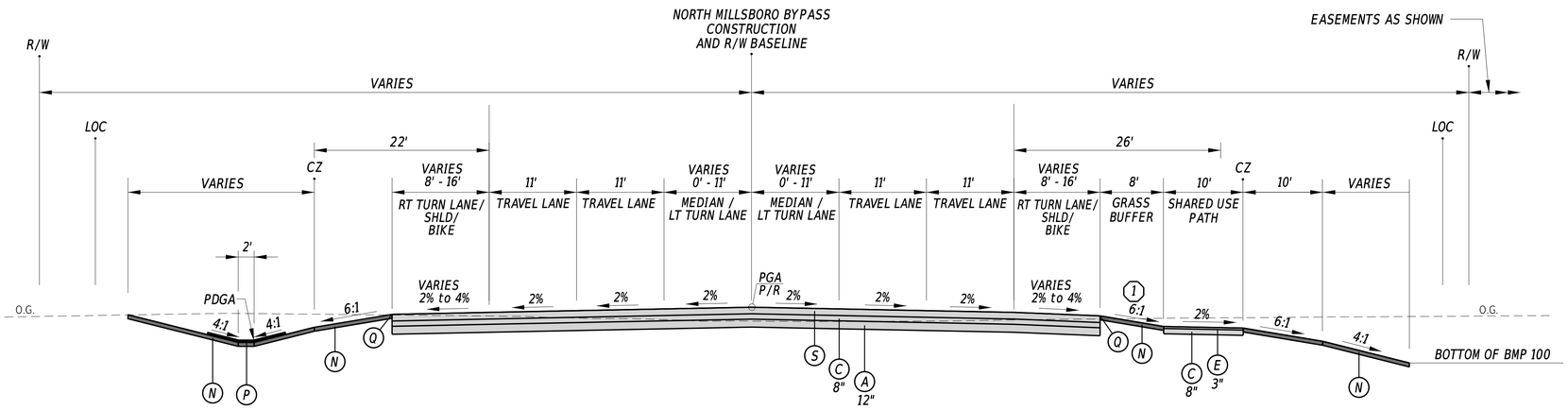
- (A) ITEM 209001 - BORROW, TYPE A
- (B) ITEM 209006 - BORROW, TYPE F
- (C) ITEM 301001 - GABC
- (D) ITEM 401014 - SUPERPAVE TYPE B, PG 64-22
- (E) ITEM 401005 - SUPERPAVE TYPE C, PG 64-22 (CARBONATE STONE)
- (L) ITEM 720021 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31
- (N) ITEM 908004 - TOPSOIL, 6" DEPTH OR ITEM 908010 - TOPSOILING, 6" DEPTH
  ITEM 908014 - PERMANENT GRASS SEEDING, DRY GROUND
- (P) ITEM 908020 - EROSION CONTROL BLANKET MULCH (8' ROLL WIDTH, MIN.)
- (Q) SAFETY EDGE (INCIDENTAL TO RESPECTIVE SUPERPAVE ITEMS)
- (R) ITEM 501001 - PORTLAND CEMENT CONCRETE PAVEMENT, 8"
- (S) ITEM 501004 - PORTLAND CEMENT CONCRETE PAVEMENT, 10"

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
GRADED AGGREGATE BASE COURSE	4"	8"

NOTES:

1. PGA - POINT OF GRADE APPLICATION
   PDGA - POINT OF DITCH GRADE APPLICATION
   P/R - POINT OF ROTATION
2. THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE. IN AREAS WHERE THE PGA IS LOCATED WITHIN THE RAISED MEDIAN, ITS VERTICAL LOCATION SHALL BE THE TOP OF ADJACENT PAVEMENT ELEVATION PROJECTED AT THE PROPOSED CROSS SLOPE TO THE CONSTRUCTION BASELINE.
3. EROSION CONTROL BLANKET IS REQUIRED ON ALL EMBANKMENT SLOPES STEEPER THAN 3:1.
4. MAXIMUM ALGEBRAIC DIFFERENCE OF CROSS SLOPES SHALL NOT EXCEED 8%.

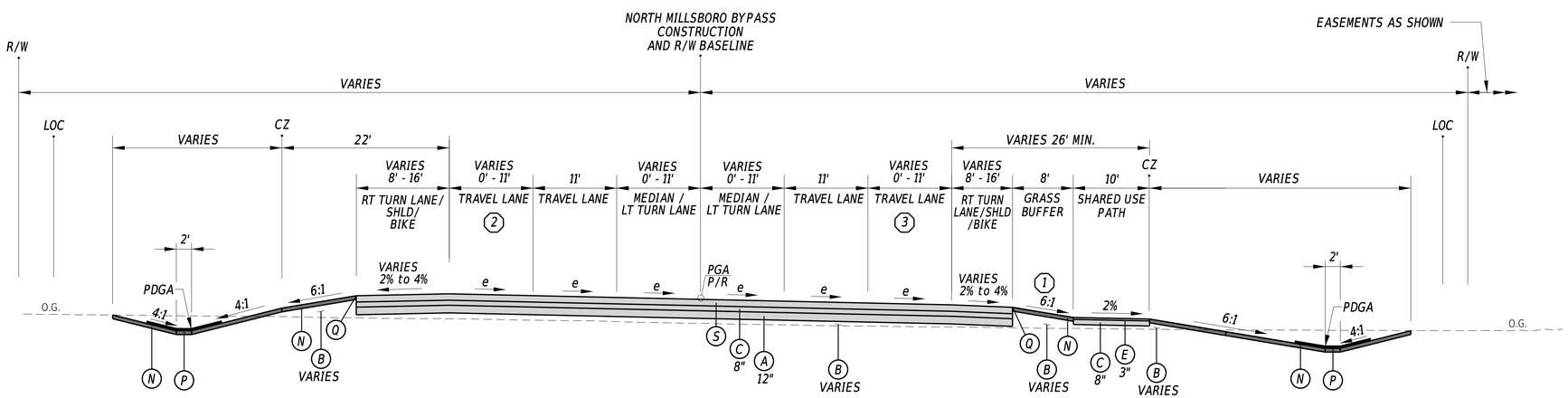
FILL SLOPE RATIO CHART	
HEIGHT OF EMBANKMENT	SLOPE RATIO
0' TO 5'	6:1
5' TO 10'	4:1
>10'	3:1



(1) GRASS BUFFER SLOPE IS 25:1 FROM:
STATION 1123+50 TO STATION 1127+50
STATION 1143+97 TO STATION 1147+60

NORTH MILLSBORO BYPASS - TYPICAL NORMAL SECTION 2

STATION 1121+93 TO STATION 1134+38
STATION 1143+97 TO STATION 1147+60



(1) GRASS BUFFER SLOPE IS 25:1 FROM:
STATION 1143+00 TO STATION 1143+97

(2) SECOND WESTBOUND LANE FROM STATION 1108+00 TO STATION 1136+00

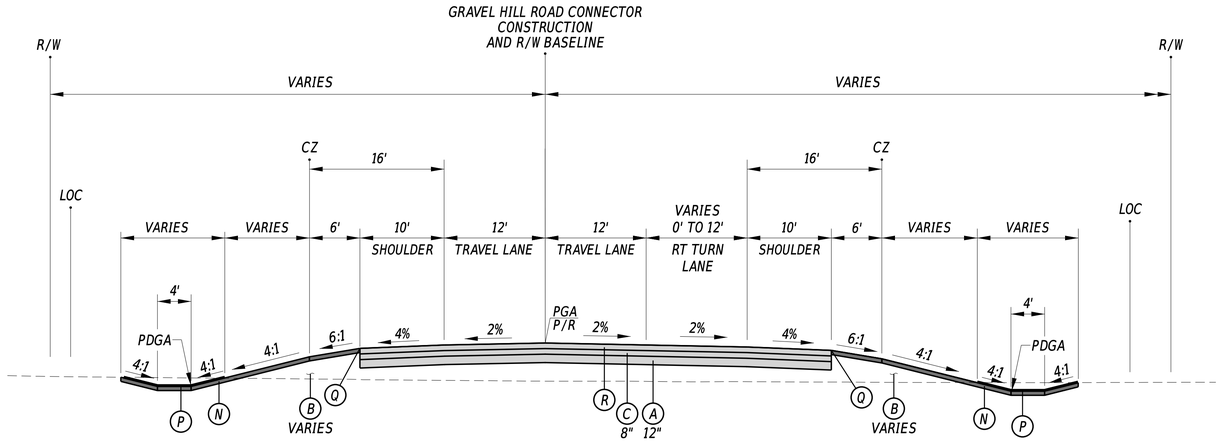
(3) SECOND EASTBOUND LANE FROM STATION 1109+00 TO STATION 1121+93

NORTH MILLSBORO BYPASS - TYPICAL SUPERELEVATED SECTION 2

STATION 1091+29 TO STATION 1121+93
STATION 1134+38 TO STATION 1143+97

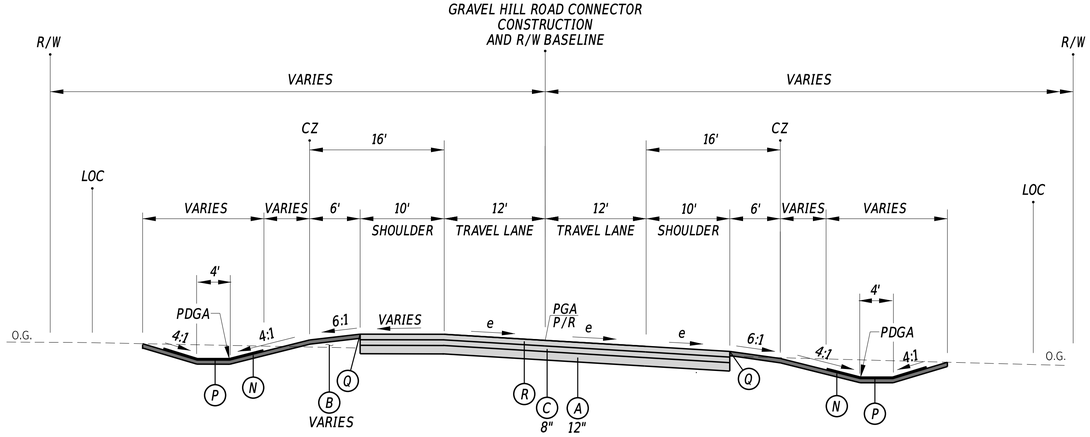
ADDENDA / REVISIONS	NOT TO SCALE	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	TYPICAL SECTIONS	SECTION WRA
			COUNTY SUSSEX	DESIGNED BY: S. BEALL		SHEET NO. 9
				CHECKED BY: T. OLIVER		

3/4/2022
10:59:17 PM
N:\32149-002\CADD\US 113 NM Bypass\TS02_NMBP.dgn



GRAVEL HILL ROAD CONNECTOR - TYPICAL NORMAL SECTION

STATION 7000+50 TO STATION 7001+99
STATION 7015+50 TO STATION 7016+50



GRAVEL HILL ROAD CONNECTOR - TYPICAL SUPERELEVATED SECTION

STATION 7001+99 TO STATION 7015+50

LEGEND

- (A) ITEM 209001 - BORROW, TYPE A
- (B) ITEM 209006 - BORROW, TYPE F
- (C) ITEM 301001 - GABC
- (D) ITEM 401014 - SUPERPAVE TYPE B, PG 64-22
- (E) ITEM 401005 - SUPERPAVE TYPE C, PG 64-22 (CARBONATE STONE)
- (L) ITEM 720021 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31
- (N) ITEM 908004 - TOPSOIL, 6" DEPTH OR ITEM 908010 - TOPSOILING, 6" DEPTH
  ITEM 908014 - PERMANENT GRASS SEEDING, DRY GROUND
- (P) ITEM 908020 - EROSION CONTROL BLANKET MULCH (8' ROLL WIDTH, MIN.)
- (Q) SAFETY EDGE (INCIDENTAL TO RESPECTIVE SUPERPAVE ITEMS)
- (R) ITEM 501001 - PORTLAND CEMENT CONCRETE PAVEMENT, 8"
- (S) ITEM 501004 - PORTLAND CEMENT CONCRETE PAVEMENT, 10"

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
GRADED AGGREGATE BASE COURSE	4"	8"

NOTES:

1. PGA - POINT OF GRADE APPLICATION
   PDGA - POINT OF DITCH GRADE APPLICATION
   P/R - POINT OF ROTATION
2. THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE. IN AREAS WHERE THE PGA IS LOCATED WITHIN THE RAISED MEDIAN, ITS VERTICAL LOCATION SHALL BE THE TOP OF ADJACENT PAVEMENT ELEVATION PROJECTED AT THE PROPOSED CROSS SLOPE TO THE CONSTRUCTION BASELINE.
3. EROSION CONTROL BLANKET IS REQUIRED ON ALL EMBANKMENT SLOPES STEEPER THAN 3:1.
4. MAXIMUM ALGEBRAIC DIFFERENCE OF CROSS SLOPES SHALL NOT EXCEED 8%.

FILL SLOPE RATIO CHART	
HEIGHT OF EMBANKMENT	SLOPE RATIO
0' TO 5'	6:1
5' TO 10'	4:1
>10'	3:1

3/4/2022
6:13:15 PM
N:\32149-002\CADD\US 113 NM Bypass\T503_NMBP.dgn

ADDENDA / REVISIONS	NOT TO SCALE	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	TYPICAL SECTIONS	SECTION WRA
			COUNTY SUSSEX	DESIGNED BY: S. BEALL		SHEET NO. 10
				CHECKED BY: T. OLIVER		

LEGEND

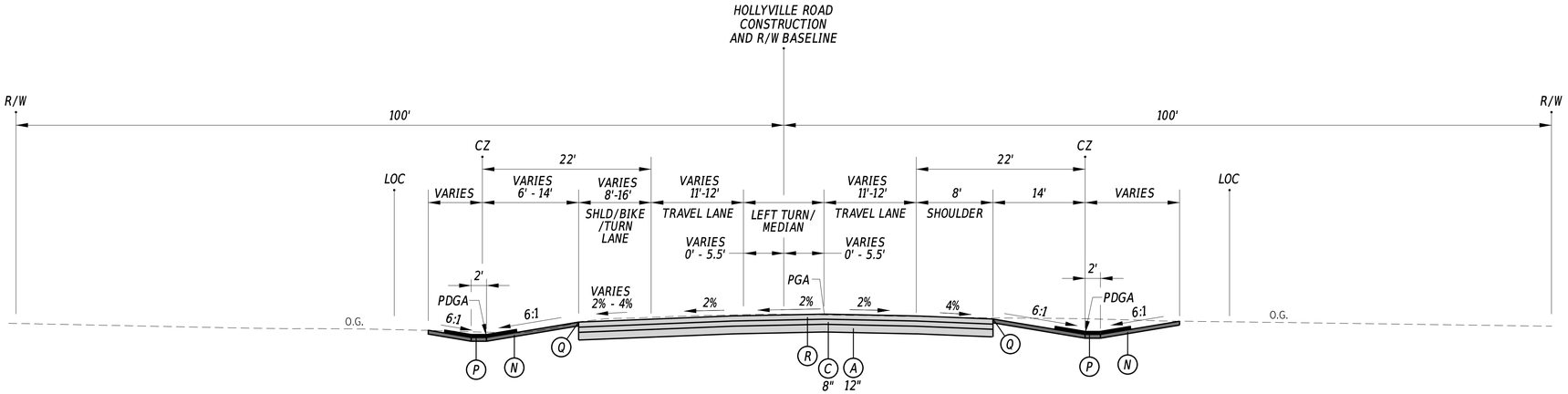
- (A) ITEM 209001 - BORROW, TYPE A
- (B) ITEM 209006 - BORROW, TYPE F
- (C) ITEM 301001 - GABC
- (D) ITEM 401014 - SUPERPAVE TYPE B, PG 64-22
- (E) ITEM 401005 - SUPERPAVE TYPE C, PG 64-22 (CARBONATE STONE)
- (L) ITEM 720021 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31
- (N) ITEM 908004 - TOPSOIL, 6" DEPTH OR ITEM 908010 - TOPSOILING, 6" DEPTH
  ITEM 908014 - PERMANENT GRASS SEEDING, DRY GROUND
- (P) ITEM 908020 - EROSION CONTROL BLANKET MULCH (8' ROLL WIDTH, MIN.)
- (Q) SAFETY EDGE (INCIDENTAL TO RESPECTIVE SUPERPAVE ITEMS)
- (R) ITEM 501001 - PORTLAND CEMENT CONCRETE PAVEMENT, 8"
- (S) ITEM 501004 - PORTLAND CEMENT CONCRETE PAVEMENT, 10"

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
GRADED AGGREGATE BASE COURSE	4"	8"

NOTES:

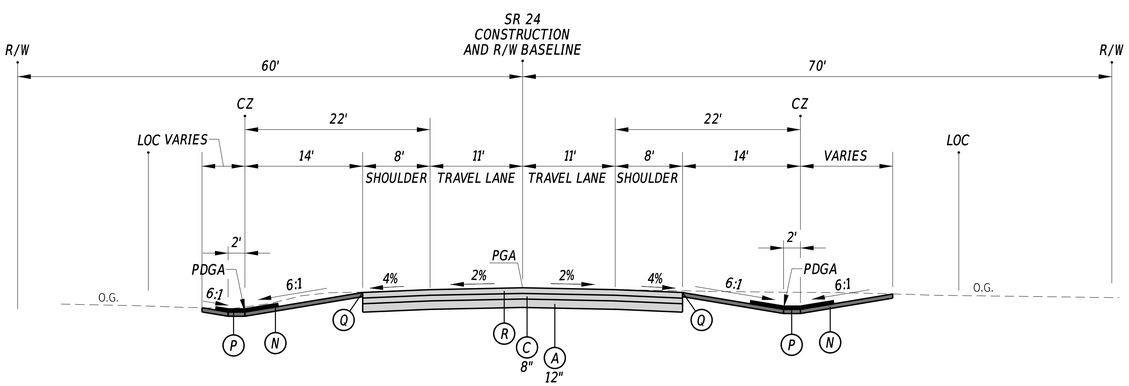
1. PGA - POINT OF GRADE APPLICATION
   PDGA - POINT OF DITCH GRADE APPLICATION
   P/R - POINT OF ROTATION
2. THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE. IN AREAS WHERE THE PGA IS LOCATED WITHIN THE RAISED MEDIAN, ITS VERTICAL LOCATION SHALL BE THE TOP OF ADJACENT PAVEMENT ELEVATION PROJECTED AT THE PROPOSED CROSS SLOPE TO THE CONSTRUCTION BASELINE.
3. EROSION CONTROL BLANKET IS REQUIRED ON ALL EMBANKMENT SLOPES STEEPER THAN 3:1.
4. MAXIMUM ALGEBRAIC DIFFERENCE OF CROSS SLOPES SHALL NOT EXCEED 8%.

FILL SLOPE RATIO CHART	
HEIGHT OF EMBANKMENT	SLOPE RATIO
0' TO 5'	6:1
5' TO 10'	4:1
>10'	3:1



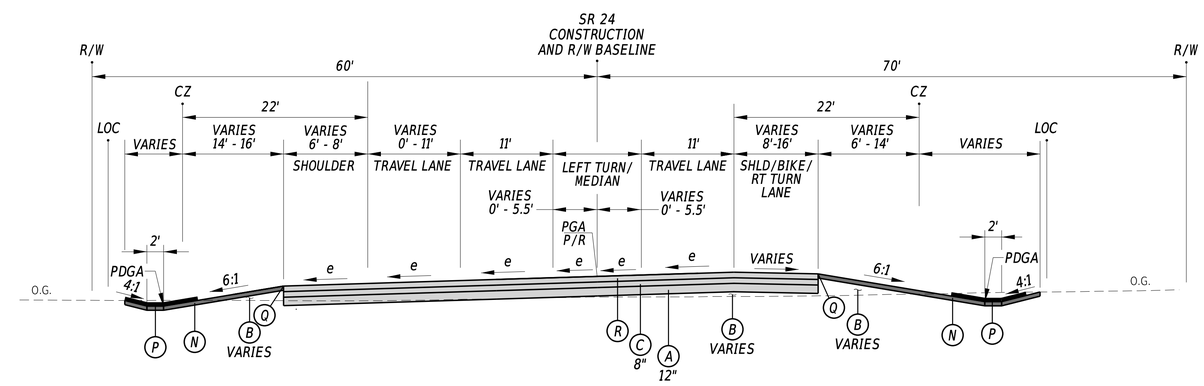
HOLLYVILLE ROAD TYPICAL SECTION

STATION 9013+05 TO STATION 9026+35



SR 24 - TYPICAL NORMAL SECTION

STATION 9000+50 TO STATION 9002+75

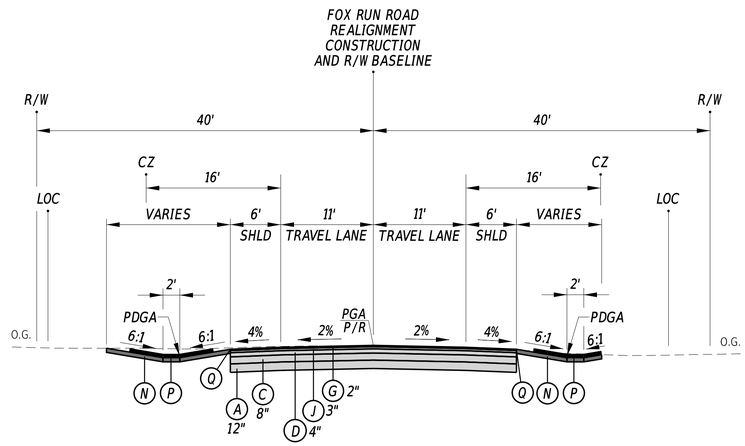


SR 24 - TYPICAL SUPERELEVATED SECTION

STATION 9002+75 TO STATION 9011+78

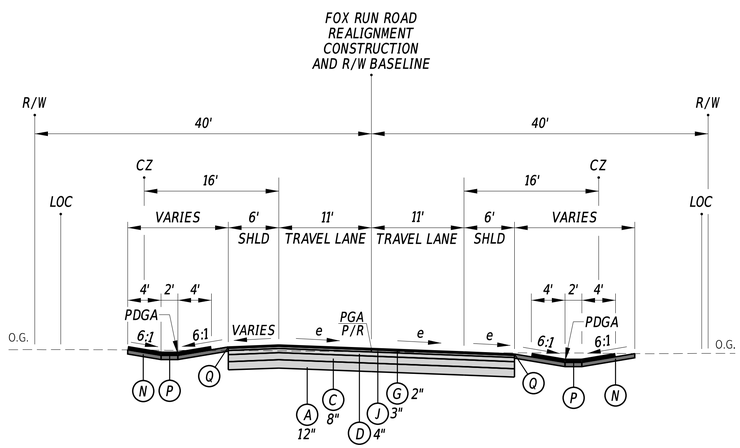
ADDENDA / REVISIONS	NOT TO SCALE	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	TYPICAL SECTIONS	SECTION WRA
			COUNTY SUSSEX	DESIGNED BY: S. BEALL		SHEET NO. 11
				CHECKED BY: T. OLIVER		

3/4/2022
10:19:12 PM
N:\32149-002\CADD\US 113 NM Bypass\TS04_NMBP.dgn



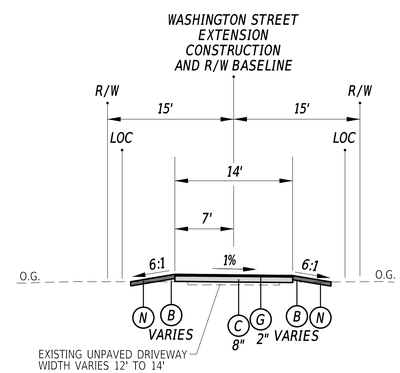
FOX RUN ROAD REALIGNMENT - TYPICAL NORMAL SECTION

STATION 6100+00 TO STATION 6101+00
STATION 6106+00 TO STATION 6108+50
STATION 6113+50 TO STATION 6115+50



FOX RUN ROAD REALIGNMENT - TYPICAL SUPERELEVATED SECTION

STATION 6101+00 TO STATION 6106+00
STATION 6108+50 TO STATION 6113+50
STATION 6115+50 TO STATION 6127+00



WASHINGTON STREET EXTENSION - TYPICAL NORMAL SECTION

STATION 0+00.00 TO STATION 20+68.00

LEGEND

- (A) ITEM 209001 - BORROW, TYPE A
- (B) ITEM 209006 - BORROW, TYPE F
- (C) ITEM 301001 - GABC
- (D) ITEM 401014 - SUPERPAVE TYPE B, PG 64-22
- (E) ITEM 401005 - SUPERPAVE TYPE C, PG 64-22 (CARBONATE STONE)
- (F) ITEM 401015 - SUPERPAVE TYPE B, PG 70-22
- (G) ITEM 401046 - SUPERPAVE TYPE C, PG 76-22 (NON-CARBONATE STONE)
- (H) ITEM 401036 - SUPERPAVE TYPE C, PG 64-22, WEDGE
- (J) ITEM 401016 - SUPERPAVE TYPE B, PG 76-22
- (K) ITEM 401045 - SUPERPAVE TYPE C, PG 70-22 (NON-CARBONATE STONE)
- (L) ITEM 720021 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31
- (M) ITEM 760010 - PAVEMENT MILLING, BITUMINOUS CONCRETE PAVEMENT
- (N) ITEM 908004 - TOPSOIL, 6" DEPTH OR ITEM 908010 - TOPSOILING, 6" DEPTH
  ITEM 908014 - PERMANENT GRASS SEEDING, DRY GROUND
- (P) ITEM 908020 - EROSION CONTROL BLANKET MULCH (8' ROLL WIDTH, MIN.)
- (Q) SAFETY EDGE (INCIDENTAL TO RESPECTIVE SUPERPAVE ITEMS)

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
BITUMINOUS CONCRETE, TYPE 'C' (4.75 MM MIX)	0.5"	1"
BITUMINOUS CONCRETE, TYPE 'C' (9.25 MM MIX)	1.25"	2"
BITUMINOUS CONCRETE, TYPE 'C' (12.5 MM MIX)	1.5"	2"
BITUMINOUS CONCRETE, TYPE 'B' (19 MM MIX), (76-22, 70-22)	2.25"	4"
BITUMINOUS CONCRETE, TYPE 'B' (19 MM MIX), (64-22)	2.25"	6"
GRADED AGGREGATE BASE COURSE	4"	8"

NOTES:

1. PGA - POINT OF GRADE APPLICATION
   PDGA - POINT OF DITCH GRADE APPLICATION
   P/R - POINT OF ROTATION
2. THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE. IN AREAS WHERE THE PGA IS LOCATED WITHIN THE RAISED MEDIAN, ITS VERTICAL LOCATION SHALL BE THE TOP OF ADJACENT PAVEMENT ELEVATION PROJECTED AT THE PROPOSED CROSS SLOPE TO THE CONSTRUCTION BASELINE.
3. EROSION CONTROL BLANKET IS REQUIRED ON ALL EMBANKMENT SLOPES STEEPER THAN 3:1.

FILL SLOPE RATIO CHART	
HEIGHT OF EMBANKMENT	SLOPE RATIO
0' TO 5'	6:1
5' TO 10'	4:1
>10'	3:1

ADDENDA / REVISIONS	NOT TO SCALE	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	TYPICAL SECTIONS	SECTION WRA
			COUNTY SUSSEX	DESIGNED BY: S. BEALL		SHEET NO. 12
				CHECKED BY: T. OLIVER		

3/4/2022
6:13:17 PM
N:\32149\002\CADD\US 113 NM Bypass\TS05_NMBP.dgn

CONSTRUCTION ALIGNMENT CONTROL FOX RUN ROAD (S326)

POINT NO.	STATION	OFFSET	NORTHING	EASTING
30050	0+00.00	0.00'	219970.5053	685858.3789
30056	5+00.00	0.00'	219574.7723	686163.9855
30057	10+00.00	0.00'	219179.0393	686469.5922
30058	15+00.00	0.00'	218777.1218	686766.9238
30059	20+00.00	0.00'	218370.7101	687058.1789

CONSTRUCTION ALIGNMENT CONTROL CONRAIL RAILROAD

POINT NO.	STATION	OFFSET	NORTHING	EASTING
30065	386+00.00	0.00'	219347.2480	687192.0339
30066	390+00.00	0.00'	219015.3669	687415.3161
30067	391+00.00	0.00'	218932.3966	687471.1366

CONSTRUCTION ALIGNMENT CONTROL GRAVEL HILL ROAD (S248)

POINT NO.	STATION	OFFSET	NORTHING	EASTING
30060	158+00.00	0.00'	219996.8159	691049.1364
30061	162+00.00	0.00'	219600.4470	691102.9104

CONSTRUCTION ALIGNMENT CONTROL JOHN J. WILLIAMS HWY (SR 24)

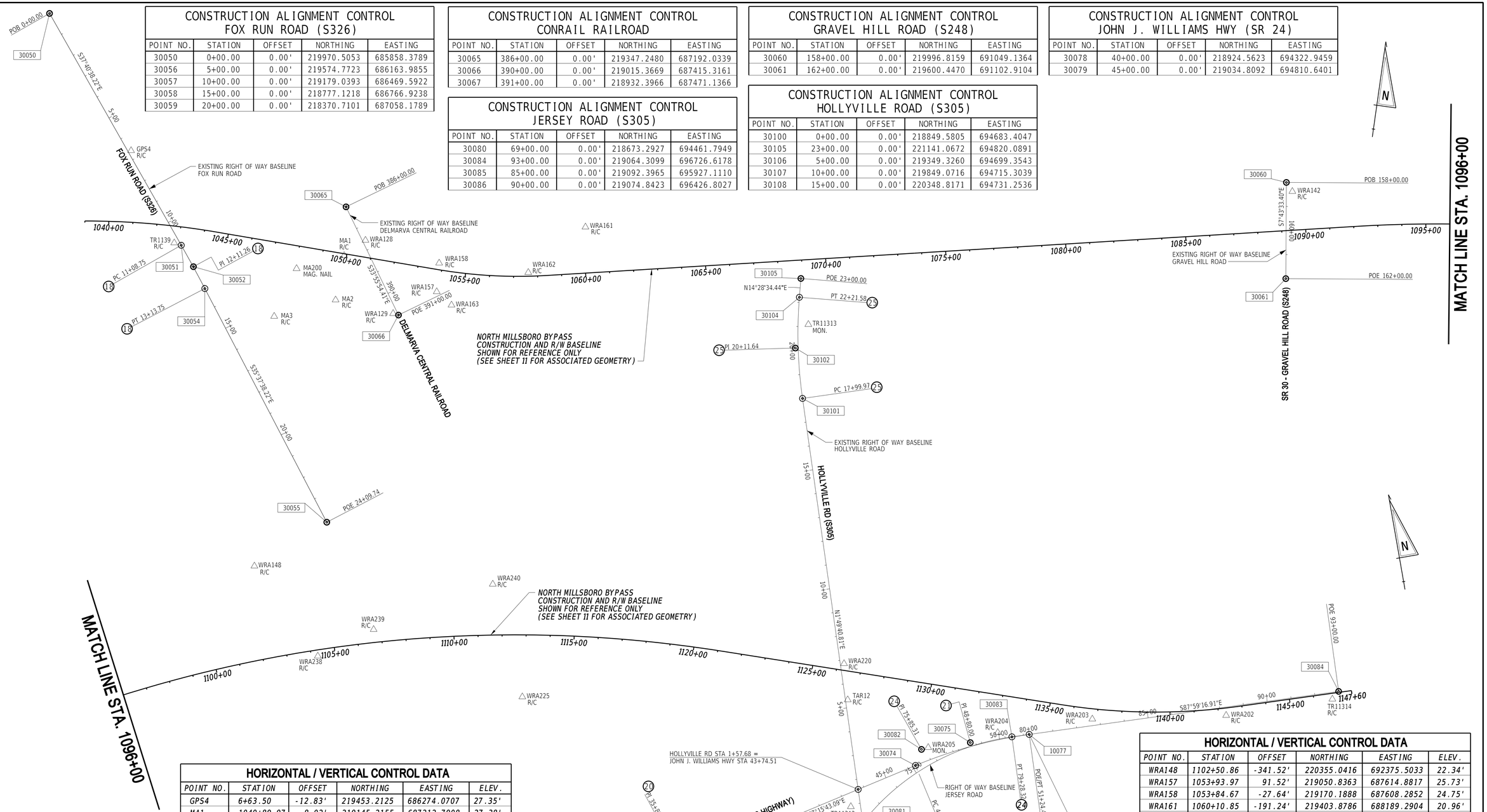
POINT NO.	STATION	OFFSET	NORTHING	EASTING
30078	40+00.00	0.00'	218924.5623	694322.9459
30079	45+00.00	0.00'	219034.8092	694810.6401

CONSTRUCTION ALIGNMENT CONTROL JERSEY ROAD (S305)

POINT NO.	STATION	OFFSET	NORTHING	EASTING
30080	69+00.00	0.00'	218673.2927	694461.7949
30084	93+00.00	0.00'	219064.3099	696726.6178
30085	85+00.00	0.00'	219092.3965	695927.1110
30086	90+00.00	0.00'	219074.8423	696426.8027

CONSTRUCTION ALIGNMENT CONTROL HOLLYVILLE ROAD (S305)

POINT NO.	STATION	OFFSET	NORTHING	EASTING
30100	0+00.00	0.00'	218849.5805	694683.4047
30105	23+00.00	0.00'	221141.0672	694820.0891
30106	5+00.00	0.00'	219349.3260	694699.3543
30107	10+00.00	0.00'	219849.0716	694715.3039
30108	15+00.00	0.00'	220348.8171	694731.2536



HORIZONTAL / VERTICAL CONTROL DATA

POINT NO.	STATION	OFFSET	NORTHING	EASTING	ELEV.
GPS4	6+63.50	-12.83'	219453.2125	686274.0707	27.35'
MA1	1049+89.97	8.02'	219145.2155	687212.7908	27.38'
MA2	1049+85.72	195.55'	218957.8690	687203.4617	25.15'
MA3	15+49.47	-202.19'	218854.6931	686960.0866	25.51'
MA200	1048+03.76	94.26'	219064.0480	687024.3058	28.77'
TR11314	92+69.66	28.28'	219037.1144	696695.3028	22.80'
TR11312	43+19.03	54.53'	218941.7143	694646.1501	24.08'
TR11313	17+29.68	14.56'	220577.9151	694753.1348	28.89'
TR1139	10+85.86	20.62'	219098.4791	686505.7563	27.83'
TAR12	5+32.67	9.29'	219381.6794	694709.6865	26.45'
WRA128	387+60.32	-12.03'	219220.9478	687291.5052	22.42'
WRA129	390+84.38	17.28'	218935.7065	687448.0779	23.28'
WRA142	158+37.35	-25.18'	219963.1883	691079.1094	24.38'

NOTE: NEGATIVE DENOTES LEFT OF BASELINE

HORIZONTAL / VERTICAL CONTROL DATA

POINT NO.	STATION	OFFSET	NORTHING	EASTING	ELEV.
WRA148	1102+50.86	-341.52'	220355.0416	692375.5033	22.34'
WRA157	1053+93.97	91.52'	219050.8363	687614.8817	25.73'
WRA158	1053+84.67	-27.64'	219170.1888	687608.2852	24.75'
WRA161	1060+10.85	-191.24'	219403.8786	688189.2904	20.96'
WRA162	1057+61.62	-15.42'	219183.3647	687980.5823	25.19'
WRA163	1054+59.13	137.58'	219004.4266	687683.5315	25.80'
WRA202	88+22.96	34.59'	219046.4847	696248.6546	19.51'
WRA203	82+69.66	-27.07'	219127.5343	695697.8603	22.12'
WRA204	49+97.92	-29.92'	219140.0732	695300.8801	23.41'
WRA205	47+08.62	-50.04'	219128.5454	695005.3472	24.84'
WRA206	71+74.14	21.24'	218838.3525	694681.7013	24.55'
WRA217	35+51.86	44.28'	218769.6307	693904.2418	22.51'
WRA220	6+83.97	15.62'	219532.7056	694720.7158	25.45'
WRA225	1113+14.56	296.65'	219627.0551	693379.2908	21.41'
WRA238	1104+32.67	76.14'	219940.9554	692570.8517	23.52'
WRA239	1106+80.04	-1.54'	220009.8388	692818.4832	21.33'
WRA240	1111+24.15	-232.63'	220183.2609	693300.0370	23.98'

DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83 / 2011 / EPOCH 2010.00).

VERTICAL - THIS PROJECT IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88 BASED ON MODELED GEOID 12A).

ADDENDA / REVISIONS

SCALE 0 200 400 600 FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

HORIZONTAL AND VERTICAL CONTROL EXISTING BASELINES

SECTION: WRA

SHEET NO. 13

3/4/2022
6:13:18 PM
N:\32149-002\CADD\US 113 NM Bypass\HV01_NMBP.dgn

CONSTRUCTION ALIGNMENT CONTROL
GRAVEL HILL ROAD CONNECTOR

POINT NO.	STATION	OFFSET	NORTHING	EASTING
37000	7000+00.00	0.00'	220776.7244	690943.2163
37005	7016+48.19	0.00'	219989.1914	692080.6095

CONSTRUCTION ALIGNMENT CONTROL
PROPOSED FOX RUN ROAD

POINT NO.	STATION	OFFSET	NORTHING	EASTING
36000	6100+00.00	0.00'	219838.4383	685961.0268
36017	6127+40.00	0.00'	218080.0223	687263.1752

CONSTRUCTION ALIGNMENT CONTROL
FOX RUN DRIVEWAY

POINT NO.	STATION	OFFSET	NORTHING	EASTING
36500	6500+00.00	0.00'	218581.7788	686906.9165
36505	6503+47.03	0.00'	218613.3765	687214.8484

CONSTRUCTION ALIGNMENT CONTROL
SR 24 (JOHN J. WILLIAMS HIGHWAY)

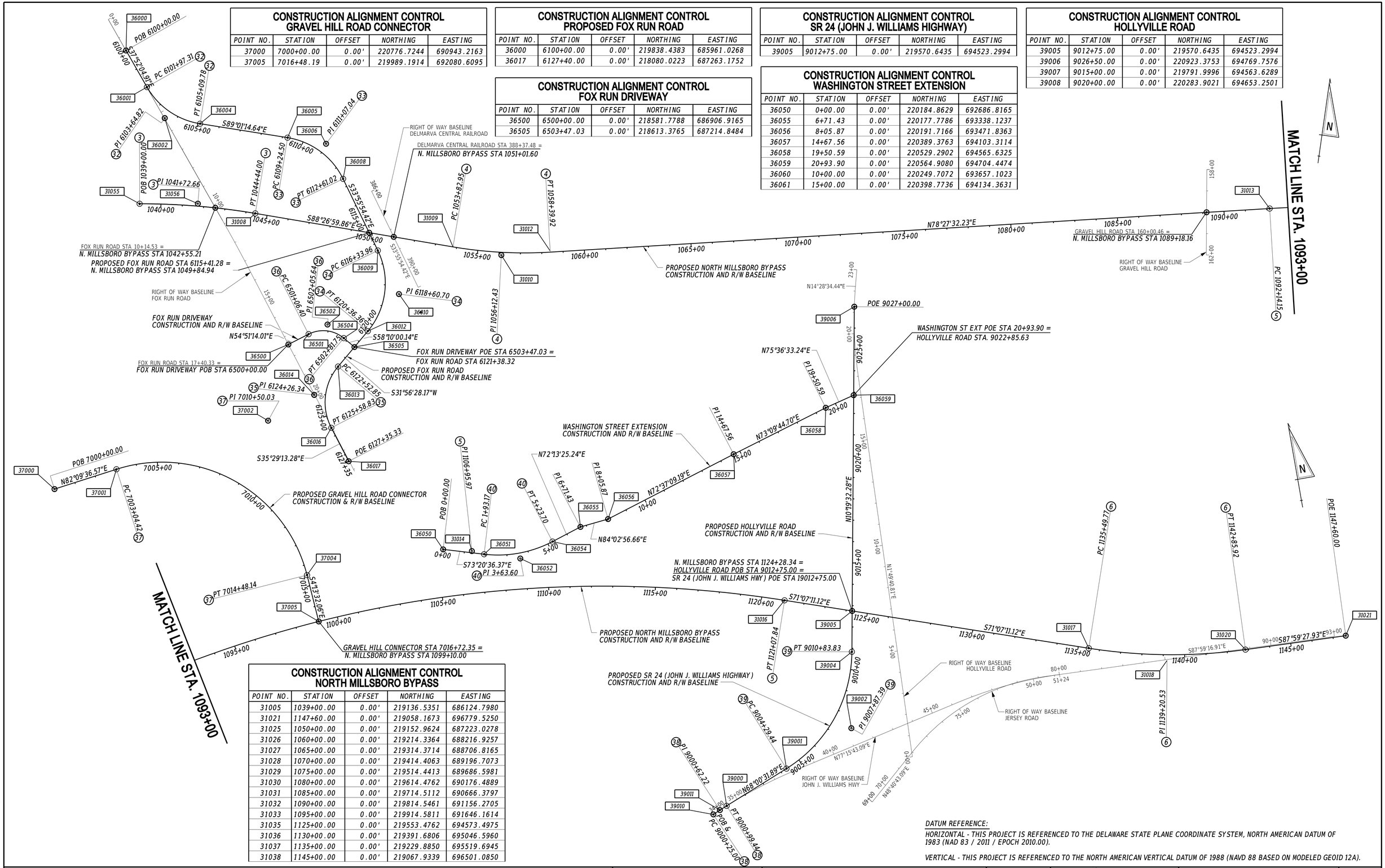
POINT NO.	STATION	OFFSET	NORTHING	EASTING
39005	9012+75.00	0.00'	219570.6435	694523.2994

CONSTRUCTION ALIGNMENT CONTROL
WASHINGTON STREET EXTENSION

POINT NO.	STATION	OFFSET	NORTHING	EASTING
36050	0+00.00	0.00'	220184.8629	692686.8165
36055	6+71.43	0.00'	220177.7786	693338.1237
36056	8+05.87	0.00'	220191.7166	693471.8363
36057	14+67.56	0.00'	220389.3763	694103.3114
36058	19+50.59	0.00'	220529.2902	694565.6325
36059	20+93.90	0.00'	220564.9080	694704.4474
36060	10+00.00	0.00'	220249.7072	693657.1023
36061	15+00.00	0.00'	220398.7736	694134.3631

CONSTRUCTION ALIGNMENT CONTROL
HOLLYVILLE ROAD

POINT NO.	STATION	OFFSET	NORTHING	EASTING
39005	9012+75.00	0.00'	219570.6435	694523.2994
39006	9026+50.00	0.00'	220923.3753	694769.7576
39007	9015+00.00	0.00'	219791.9996	694563.6289
39008	9020+00.00	0.00'	220283.9021	694653.2501



CONSTRUCTION ALIGNMENT CONTROL
NORTH MILLSBORO BYPASS

POINT NO.	STATION	OFFSET	NORTHING	EASTING
31005	1039+00.00	0.00'	219136.5351	686124.7980
31021	1147+60.00	0.00'	219058.1673	696779.5250
31025	1050+00.00	0.00'	219152.9624	687223.0278
31026	1060+00.00	0.00'	219214.3364	688216.9257
31027	1065+00.00	0.00'	219314.3714	688706.8165
31028	1070+00.00	0.00'	219414.4063	689196.7073
31029	1075+00.00	0.00'	219514.4413	689686.5981
31030	1080+00.00	0.00'	219614.4762	690176.4889
31031	1085+00.00	0.00'	219714.5112	690666.3797
31032	1090+00.00	0.00'	219814.5461	691156.2705
31033	1095+00.00	0.00'	219914.5811	691646.1614
31035	1125+00.00	0.00'	219553.4762	694573.4975
31036	1130+00.00	0.00'	219391.6806	695046.5960
31037	1135+00.00	0.00'	219229.8850	695519.6945
31038	1145+00.00	0.00'	219067.9339	696501.0850

DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83 / 2011 / EPOCH 2010.00).

VERTICAL - THIS PROJECT IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88 BASED ON MODELED GEOID 12A).

ADDENDA / REVISIONS

SCALE 0 200 400 600 FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

HORIZONTAL AND VERTICAL CONTROL PROPOSED BASELINES

SECTION: WRA

SHEET NO. 14

3/4/2022
6:13:19 PM
N:\32149-002\CADD\US 113 NM Bypass\HV02_NMBP.dgn

NORTH MILLSBORO BYPASS CIRCULAR CURVE NO. 3

Element: Circular	STATION	NORTHING	EASTING
PC (31055)	1039+00.00	219136.5351	686124.7980
PI (31056)	1041+72.66	219175.3776	686394.6729
CC (31007)		215969.1732	686580.6689
PT (31008)	1044+44.00	219168.0023	686667.2289
Radius:	3200.00		
Delta:	9°44'24.87" Right		
Degree of Curvature(Arc):	1°47'25.78"		
Length:	544.00		
Tangent:	272.66		
Chord:	543.34		
Middle Ordinate:	11.55		
External:	11.59		
Tangent Direction:	N 81°48'35.27" E		
Radial Direction:	S 8°11'24.73" E		
Chord Direction:	N 86°40'47.71" E		
Radial Direction:	S 1°33'00.14" W		
Tangent Direction:	S 88°26'59.86" E		

NORTH MILLSBORO BYPASS CIRCULAR CURVE NO. 4

Element: Circular	STATION	NORTHING	EASTING
PC (31009)	1053+82.95	219142.6036	687605.8389
PI (31010)	1056+12.43	219136.3961	687835.2367
CC (31011)		221141.8717	687659.9389
PT (31012)	1058+39.92	219182.3085	688060.0787
Radius:	2000.00		
Delta:	13°05'27.91" Left		
Degree of Curvature(Arc):	2°51'53.24"		
Length:	456.97		
Tangent:	229.48		
Chord:	455.97		
Middle Ordinate:	13.04		
External:	13.12		
Tangent Direction:	S 88°26'59.86" E		
Radial Direction:	S 1°33'00.14" W		
Chord Direction:	N 85°00'16.19" E		
Radial Direction:	S 11°32'27.77" E		
Tangent Direction:	N 78°27'32.23" E		

NORTH MILLSBORO BYPASS CIRCULAR CURVE NO. 5

Element: Circular	STATION	NORTHING	EASTING
PC (31013)	1092+14.15	219857.3909	691366.0898
PI (31014)	1106+95.97	220153.8584	692817.9494
CC (31015)		214517.5810	692456.4708
PT (31016)	1121+07.84	219674.3546	694220.0427
Radius:	5450.00		
Delta:	30°25'16.65" Right		
Degree of Curvature(Arc):	1°03'04.68"		
Length:	2893.69		
Tangent:	1481.82		
Chord:	2859.82		
Middle Ordinate:	190.93		
External:	197.86		
Tangent Direction:	N 78°27'32.23" E		
Radial Direction:	S 11°32'27.77" E		
Chord Direction:	S 86°19'49.45" E		
Radial Direction:	S 18°52'48.88" W		
Tangent Direction:	S 71°07'11.12" E		

NORTH MILLSBORO BYPASS CIRCULAR CURVE NO. 6

Element: Circular	STATION	NORTHING	EASTING
PC (31017)	1135+68.38	219207.7570	695584.3978
PI (31018)	1139+39.14	219087.7829	695935.2082
CC (31019)		221573.2495	696393.3758
PT (31020)	1143+04.53	219074.7860	696305.7386
Radius:	2500.00		
Delta:	16°52'16.81" Left		
Degree of Curvature(Arc):	2°17'30.59"		
Length:	736.15		
Tangent:	370.76		
Chord:	733.49		
Middle Ordinate:	27.05		
External:	27.34		
Tangent Direction:	S 71°07'11.12" E		
Radial Direction:	S 18°52'48.88" W		
Chord Direction:	S 79°33'19.53" E		
Radial Direction:	S 2°00'32.07" W		
Tangent Direction:	S 87°59'27.93" E		

FOX RUN ROAD CIRCULAR CURVE NO. 18

Element: Circular	STATION	NORTHING	EASTING
PC (30051)	11+08.75	219092.9674	686536.0616
PI (30052)	12+11.26	219011.8335	686598.7177
CC (30053)		215590.9733	682001.2958
PT (30054)	13+13.75	218928.5102	686658.4313
Radius:	5729.58		
Delta:	2°03'00.00" Right		
Degree of Curvature(Arc):	1°00'00.00"		
Length:	205.00		
Tangent:	102.51		
Chord:	204.99		
Middle Ordinate:	0.92		
External:	0.92		
Tangent Direction:	S 37°40'38.22" E		
Radial Direction:	S 52°19'21.78" W		
Chord Direction:	S 36°39'08.22" E		
Radial Direction:	S 54°22'21.78" W		
Tangent Direction:	S 35°37'38.22" E		

SR 24 CIRCULAR CURVE NO. 20

Element: Circular	STATION	NORTHING	EASTING
PC (30070)	33+50.00	218736.5891	693702.2454
PI (30071)	35+82.08	218832.0657	693913.7729
CC (30072)		216645.9401	694645.8960
PT (30073)	38+12.58	218883.2373	694140.1384
Radius:	2293.75		
Delta:	11°33'17.36" Right		
Degree of Curvature(Arc):	2°29'52.47"		
Length:	462.58		
Tangent:	232.08		
Chord:	461.80		
Middle Ordinate:	11.65		
External:	11.71		
Tangent Direction:	N 65°42'25.71" E		
Radial Direction:	S 24°17'34.29" E		
Chord Direction:	N 71°29'04.41" E		
Radial Direction:	S 12°44'16.93" E		
Tangent Direction:	N 77°15'43.07" E		

SR 24 CIRCULAR CURVE NO. 21

Element: Circular	STATION	NORTHING	EASTING
PC (30074)	46+32.80	219064.0907	694940.1717
PI (30075)	48+80.00	219118.5971	695181.2894
CC (30076)		217201.2235	695361.2864
PT (30077)	51+24.47	219109.9183	695428.3387
Radius:	1909.87		
Delta:	14°45'00.00" Right		
Degree of Curvature(Arc):	2°59'59.93"		
Length:	491.67		
Tangent:	247.20		
Chord:	490.31		
Middle Ordinate:	15.80		
External:	15.93		
Tangent Direction:	N 77°15'43.09" E		
Radial Direction:	S 12°44'16.91" E		
Chord Direction:	N 84°38'13.09" E		
Radial Direction:	S 2°00'43.09" W		
Tangent Direction:	S 87°59'16.91" E		

JERSEY ROAD CIRCULAR CURVE NO. 24

Element: Circular	STATION	NORTHING	EASTING
PC (30081)	72+05.77	218875.1871	694691.4336
PI (30082)	75+85.31	219125.7922	694976.4770
CC (30083)		218157.6899	695322.2444
PT (30084)	79+28.32	219112.4671	695355.7857
Radius:	955.37		
Delta:	43°20'00.00" Right		
Degree of Curvature(Arc):	5°59'50.13"		
Length:	722.55		
Tangent:	379.54		
Chord:	705.45		
Middle Ordinate:	67.50		
External:	72.63		
Tangent Direction:	N 48°40'43.09" E		
Radial Direction:	S 41°19'16.91" E		
Chord Direction:	N 70°20'43.09" E		
Radial Direction:	S 2°00'43.09" W		
Tangent Direction:	S 87°59'16.91" E		

HOLLYVILLE ROAD CIRCULAR CURVE NO. 25

Element: Circular	STATION	NORTHING	EASTING
PC (30101)	17+99.97	220648.6365	694740.8225
PI (30102)	20+11.64	220860.1929	694747.5744
CC (30103)		220587.7134	696649.7099
PT (30104)	22+21.58	221065.1370	694800.4859
Radius:	1909.86		
Delta:	12°38'53.63" Right		
Degree of Curvature(Arc):	3°00'00.00"		
Length:	421.61		
Tangent:	211.66		
Chord:	420.75		
Middle Ordinate:	11.62		
External:	11.69		
Tangent Direction:	N 1°49'40.81" E		
Radial Direction:	S 88°10'19.19" E		
Chord Direction:	N 8°09'07.63" E		
Radial Direction:	S 75°31'25.56" E		
Tangent Direction:	N 14°28'34.44" E		

PROPOSED FOX RUN ROAD CIRCULAR CURVE NO. 32

Element: Circular	STATION	NORTHING	EASTING
PC (36001)	6101+97.31	219682.6764	686082.1445
PI (36002)	6103+64.82	219550.4362	686184.9723
CC (36003)		219897.5221	686358.4439
PT (36004)	6105+09.78	219547.5733	686352.4622
Radius:	350.00		
Delta:	51°09'09.73" Left		
Degree of Curvature(Arc):	16°22'12.80"		
Length:	312.47		
Tangent:	167.51		
Chord:	302.20		
Middle Ordinate:	34.30		
External:	38.02		
Tangent Direction:	S 37°52'04.91" E		
Radial Direction:	S 52°07'55.09" W		
Chord Direction:	S 63°26'39.78" E		
Radial Direction:	S 0°58'45.36" W		
Tangent Direction:	S 89°01'14.64" E		

PROPOSED FOX RUN ROAD CIRCULAR CURVE NO. 33

Element: Circular	STATION	NORTHING	EASTING
PC (36005)	6109+24.50	219540.4856	686767.1142
PI (36006)	6111+07.04	219537.3658	686949.6315
CC (36007)		219190.5367	686761.1325
PT (36008)	6112+61.02	219385.9086	687051.5285
Radius:	350.00		
Delta:	55°05'20.2244" Right		
Degree of Curvature(Arc):	16°22'12.8018"		
Length:	336.52		
Tangent:	182.54		
Chord:	323.71		
Middle Ordinate:	39.67		
External:	44.74		
Tangent Direction:	S 89°01'14.6398" E		
Radial Direction:	S 0°58'45.3602" W		
Chord Direction:	S 61°28'34.5276" E		
Radial Direction:	S 56°04'05.5846" W		
Tangent Direction:	S 33°55'54.4154" E		

PROPOSED FOX RUN ROAD CIRCULAR CURVE NO. 34

Element: Circular	STATION	NORTHING	EASTING
PC (36009)	6116+33.96	219076.4750	687259.7085
PI (36010)	6118+60.70	218888.3471	687386.2767
CC (36011)		218881.1031	686969.3125
PT (36012)	6120+36.36	218695.9363	687266.3197
Radius:	350.00		
Delta:	65°52'22.5848" Right		
Degree of Curvature(Arc):	16°22'12.8018"		
Length:	402.39		
Tangent:	226.74		
Chord:	380.60		
Middle Ordinate:	56.25		
External:	67.03		
Tangent Direction:	S 33°55'54.4154" E		
Radial Direction:	S 56°04'05.5846" W		
Chord Direction:	S 0°59'43.1230" E		
Radial Direction:	N 58°03'31.8307" W		
Tangent Direction:	S 31°56'28.1693" W		

ADDENDA / REVISIONS

NOT TO SCALE

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY	CHECKED BY: T. OLIVER	
SUSSEX		

HORIZONTAL AND VERTICAL CONTROL

SECTION
WRA
SHEET NO.
15

3/4/2022
6:13:20 PM
N:\32149-002\CADD\US 113 NM Bypass\HV03_NMBP.dgn

PROPOSED FOX RUN ROAD CIRCULAR CURVE NO. 35

	STATION	NORTHING	EASTING
Element: Circular			
PC (36013)	6122+76.23	218512.2229	687151.7850
PI (36014)	6124+49.72	218365.0000	687060.0000
CC (36015)		218374.6704	687372.4189
PT (36016)	6125+82.21	218223.7356	687160.7146
Radius:	260.00		
Delta:	67°25'41.45" Left		
Degree of Curvature(Arc):	22°02'12.62"		
Length:	305.98		
Tangent:	173.49		
Chord:	288.63		
Middle Ordinate:	43.73		
External:	52.57		
Tangent Direction:	S 31°56'28.17" W		
Radial Direction:	N 58°03'31.83" W		
Chord Direction:	S 1°46'22.55" E		
Radial Direction:	S 54°30'46.72" W		
Tangent Direction:	S 35°29'13.28" E		

FOX RUN DRIVEWAY CIRCULAR CURVE NO. 36

	STATION	NORTHING	EASTING
Element: Circular			
PC (36501)	6501+06.40	218643.0269	686993.9148
PI (36502)	6502+05.64	218700.1581	687075.0654
CC (36503)		218520.3739	687080.2644
PT (36504)	6502+81.75	218647.8118	687159.3818
Radius:	150.00		
Delta:	66°58'45.85" Right		
Degree of Curvature(Arc):	38°11'49.87"		
Length:	175.35		
Tangent:	99.24		
Chord:	165.54		
Middle Ordinate:	24.90		
External:	29.86		
Tangent Direction:	N 54°51'14.01" E		
Radial Direction:	S 35°08'45.99" E		
Chord Direction:	N 88°20'36.93" E		
Radial Direction:	S 31°49'59.86" W		
Tangent Direction:	S 58°10'00.14" E		

GRAVEL HILL CONNECTOR CIRCULAR CURVE NO. 37

	STATION	NORTHING	EASTING
Element: Circular			
PC (37001)	7003+00.16	220817.6657	691240.5672
PI (37002)	7010+36.69	220918.1288	691970.2156
CC (37003)		220101.4230	691339.1846
PT (37004)	7014+49.25	220186.7432	692057.1327
Radius:	723.00		
Delta:	91°03'44.66" Right		
Degree of Curvature(Arc):	7°55'29.02"		
Length:	1149.09		
Tangent:	736.53		
Chord:	1031.91		
Middle Ordinate:	216.52		
External:	309.09		
Tangent Direction:	N 82°09'37.46" E		
Radial Direction:	S 7°50'22.54" E		
Chord Direction:	S 52°18'30.21" E		
Radial Direction:	S 83°13'22.13" W		
Tangent Direction:	S 6°46'37.87" E		

PROPOSED SR 24 CIRCULAR CURVE NO. 38

	STATION	NORTHING	EASTING
Element: Circular			
PC (39010)	9000+25.00	218743.8119	693718.4135
PI (39011)	9000+62.22	218758.8623	693752.4561
CC (39012)		216645.9400	694645.8959
PT (39013)	9000+99.44	218772.8010	693786.9709
Radius:	2293.75		
Delta:	1°51'33.79" Right		
Degree of Curvature(Arc):	2°29'52.47"		
Length:	74.44		
Tangent:	37.22		
Chord:	74.43		
Middle Ordinate:	0.30		
External:	0.30		
Tangent Direction:	N 66°08'58.11" E		
Radial Direction:	S 23°51'01.89" E		
Chord Direction:	N 67°04'45.10" E		
Radial Direction:	S 21°59'28.09" E		
Tangent Direction:	N 68°00'31.91" E		

PROPOSED SR 24 CIRCULAR CURVE NO. 39

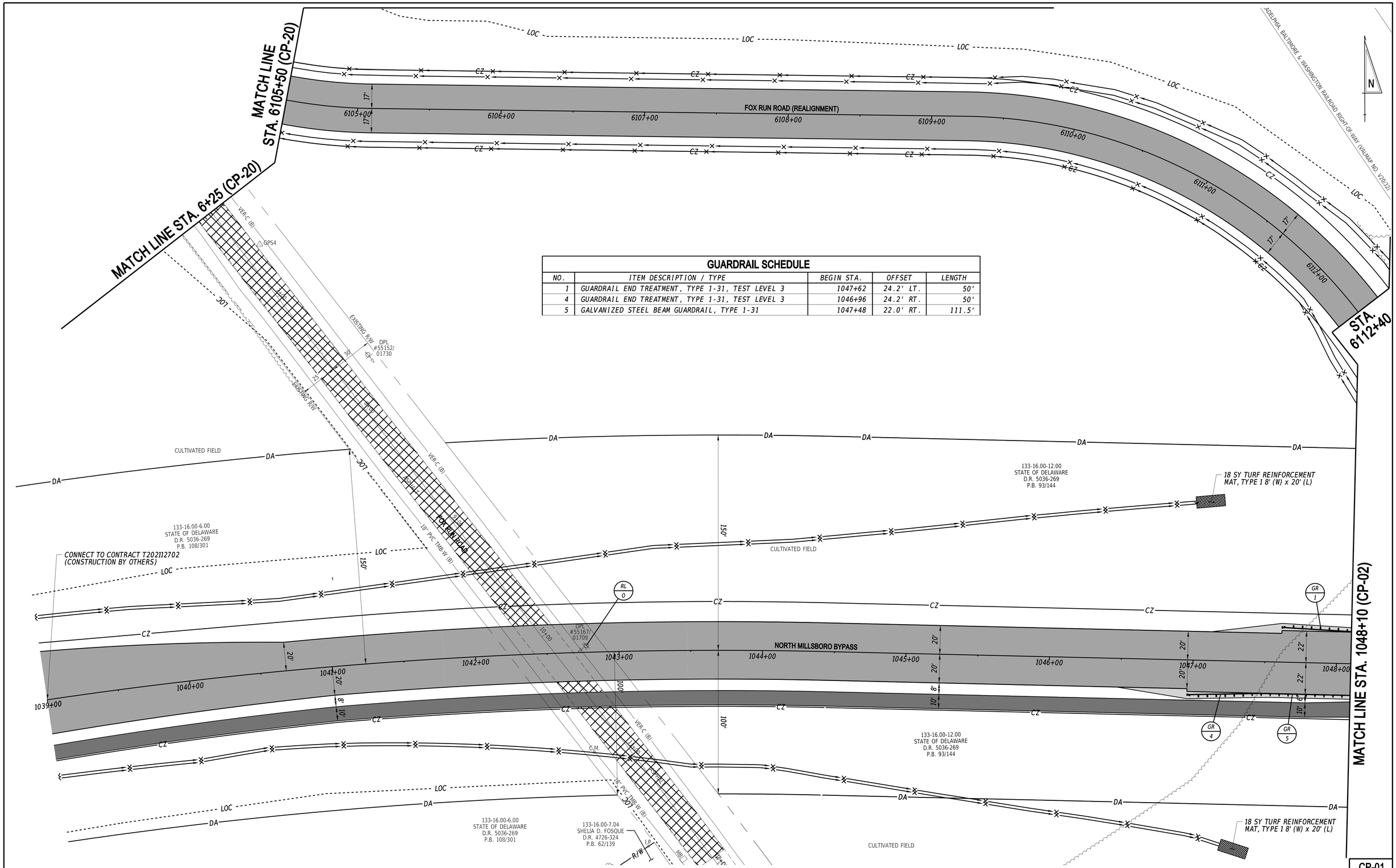
	STATION	NORTHING	EASTING
Element: Circular			
PC (39001)	9004+29.44	218896.3746	694092.9624
PI (39002)	9007+87.39	219030.4158	694424.8737
CC (39003)		219499.0818	693849.5613
PT (39004)	9010+83.83	219382.5742	694489.0345
Radius:	650.00		
Delta:	57°40'59.61" Left		
Degree of Curvature(Arc):	8°48'53.05"		
Length:	654.40		
Tangent:	357.96		
Chord:	627.11		
Middle Ordinate:	80.63		
External:	92.05		
Tangent Direction:	N 68°00'31.89" E		
Radial Direction:	S 21°59'28.11" E		
Chord Direction:	N 39°10'02.08" E		
Radial Direction:	S 79°40'27.72" E		
Tangent Direction:	N 10°19'32.28" E		

WASHINGTON STREET EXTENSION CIRCULAR CURVE NO. 40

	STATION	NORTHING	EASTING
Element: Circular			
PC (36051)	1+93.17	220129.4942	692871.8797
PI (36052)	3+63.60	220080.6441	693035.1551
CC (36053)		220656.4162	693029.5286
PT (36054)	5+23.70	220132.6756	693197.4446
Radius:	550.00		
Delta:	34°25'58.40" Left		
Degree of Curvature(Chord):	10°25'54.54"		
Length:	330.53		
Tangent:	170.43		
Chord:	325.58		
Middle Ordinate:	24.64		
External:	25.80		
Tangent Direction:	S 73°20'36.37" E		
Radial Direction:	S 16°39'23.63" W		
Chord Direction:	N 89°26'24.44" E		
Radial Direction:	S 17°46'34.76" E		
Tangent Direction:	N 72°13'25.24" E		

3/4/2022
6:13:21 PM
N:\32149-002\CADD\US 113 NM Bypass\HV04_NMBP.dgn

ADDENDA / REVISIONS	NOT TO SCALE	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	HORIZONTAL AND VERTICAL CONTROL	SECTION WRA
			COUNTY SUSSEX	DESIGNED BY: S. BEALL		SHEET NO.
				CHECKED BY: T. OLIVER		16



GUARDRAIL SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
1	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1047+62	24.2' LT.	50'
4	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1046+96	24.2' RT.	50'
5	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1047+48	22.0' RT.	111.5'

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

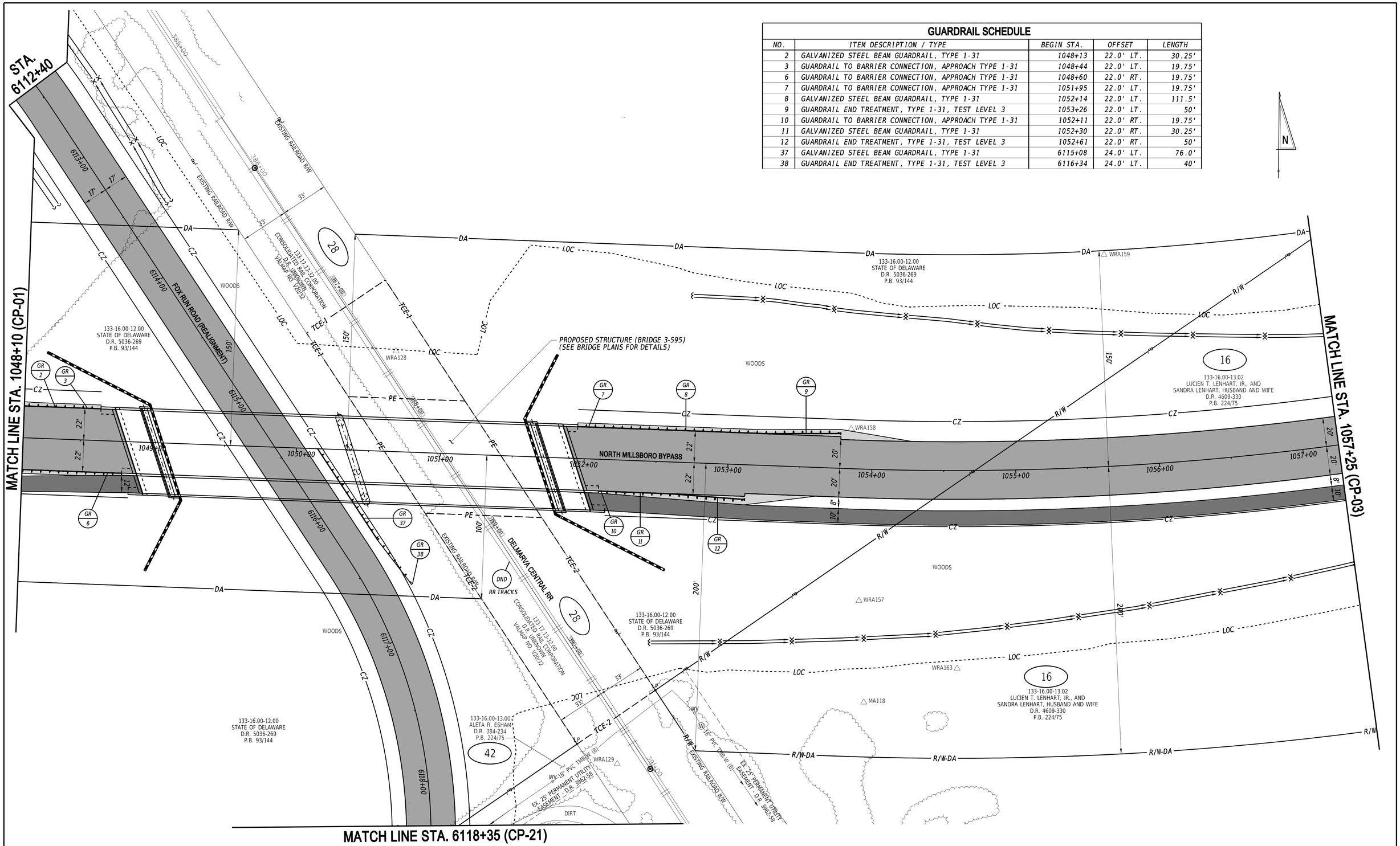
CONSTRUCTION PLAN

CP-01
SECTION
WRA
SHEET NO.
17

3/4/2022
6:13:23 PM
N:\32149-002\CADD\US 113 NM Bypass\CP01_NMBP.dgn

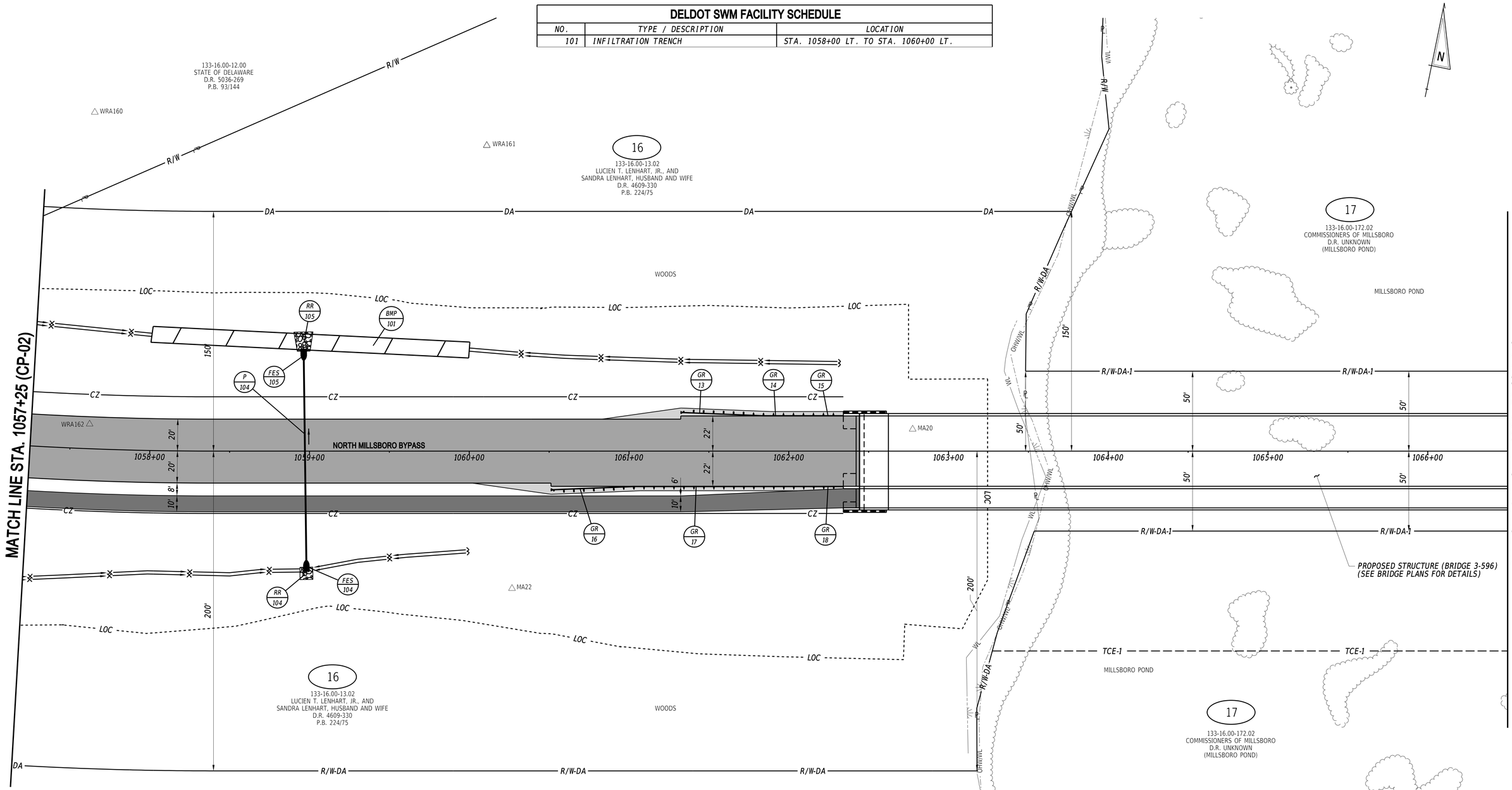
GUARDRAIL SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
2	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1048+13	22.0' LT.	30.25'
3	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1048+44	22.0' LT.	19.75'
6	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1048+60	22.0' RT.	19.75'
7	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1051+95	22.0' LT.	19.75'
8	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1052+14	22.0' LT.	111.5'
9	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1053+26	22.0' LT.	50'
10	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1052+11	22.0' RT.	19.75'
11	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1052+30	22.0' RT.	30.25'
12	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1052+61	22.0' RT.	50'
37	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	6115+08	24.0' LT.	76.0'
38	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	6116+34	24.0' LT.	40'



ADDENDA / REVISIONS	SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. 3-595	CONSTRUCTION PLAN	CP-02
			COUNTY SUSSEX	DESIGNED BY: S. BEALL		SECTION WRA
				CHECKED BY: T. OLIVER		SHEET NO. 18

3/4/2022
6:13:24 PM
N:\32149-002\CADD\US 113 NM Bypass\CP02_NMBP.dgn



DELDOT SWM FACILITY SCHEDULE

NO.	TYPE / DESCRIPTION	LOCATION
101	INFILTRATION TRENCH	STA. 1058+00 LT. TO STA. 1060+00 LT.

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
104	18" RCP	IV	135'	0.0191	22.50	19.92

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
104	18" RCP	0.0191	NO
105	18" RCP	0.0191	NO

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
104	R-4	7
105	R-4	14

GUARDRAIL SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
13	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1061+32	24.2' LT.	50'
14	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1061+84	22.0' LT.	30.25'
15	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1062+14	22.0' LT.	19.75'
16	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1060+51	24.2' RT.	50'
17	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1061+03	22.0' RT.	111.5'
18	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1062+14	22.0' RT.	19.75'

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	3-596
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

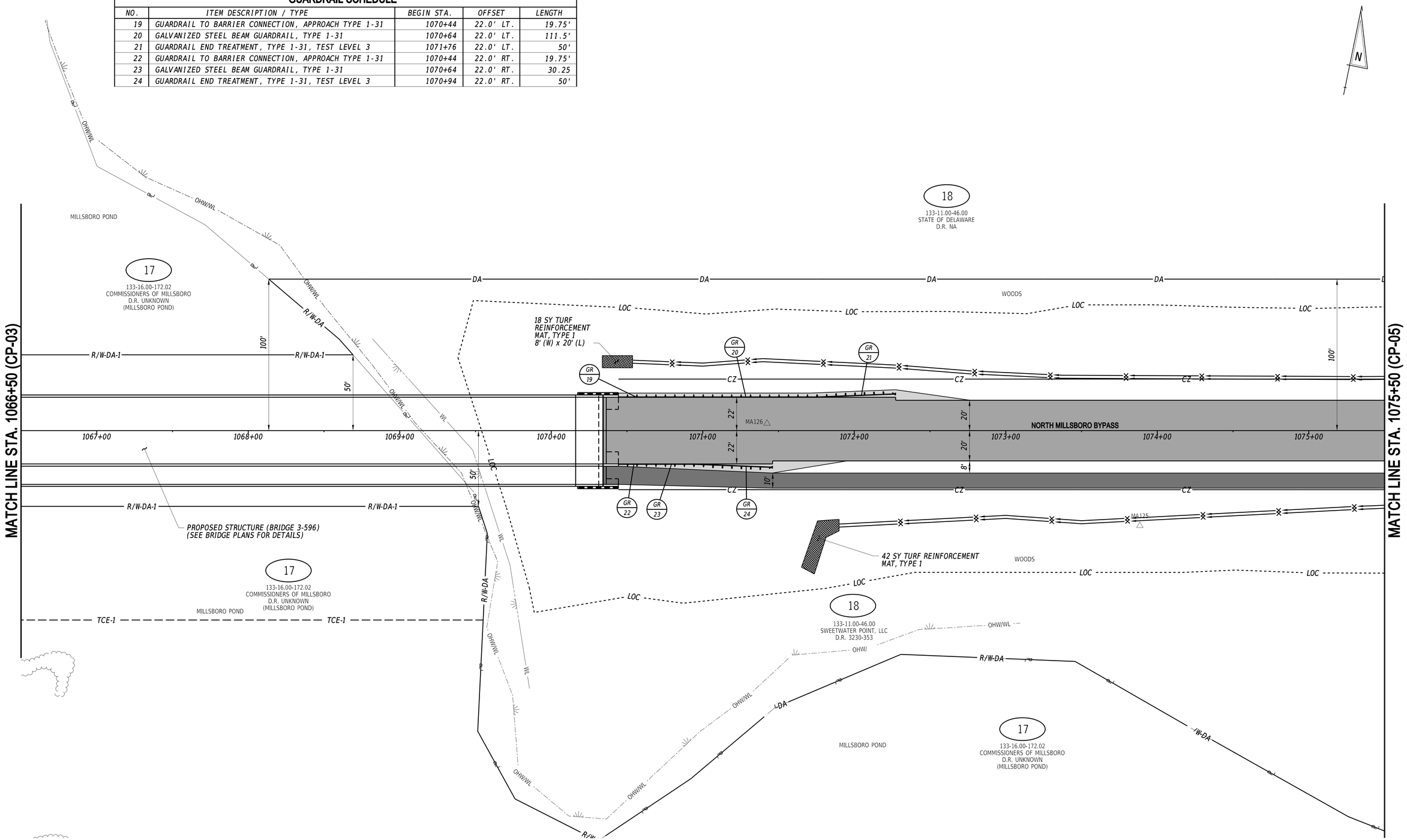
CONSTRUCTION PLAN

CP-03
SECTION
WRA
SHEET NO.
19

3/4/2022
6:13:25 PM
N:\32149-002\CADD\US 113 NM Bypass\CP03_NMBP.dgn

GUARDRAIL SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
19	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1070+44	22.0' LT.	19.75'
20	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1070+64	22.0' LT.	111.5'
21	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1071+76	22.0' LT.	50'
22	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1070+44	22.0' RT.	19.75'
23	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1070+64	22.0' RT.	30.25
24	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1070+94	22.0' RT.	50'



ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	3-596
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-04
SECTION
WRA
SHEET NO.
20

3/4/2022
6:13:26 PM
N:\32149-002\CADD\US 113 NM Bypass\CP04_NMBP.dgn

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
106	18" RCP	IV	73'	0.0050	21.25	20.82

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
106	18" RCP	0.0050	NO
107	18" RCP	0.0050	NO

RIPRAP SCHEDULE

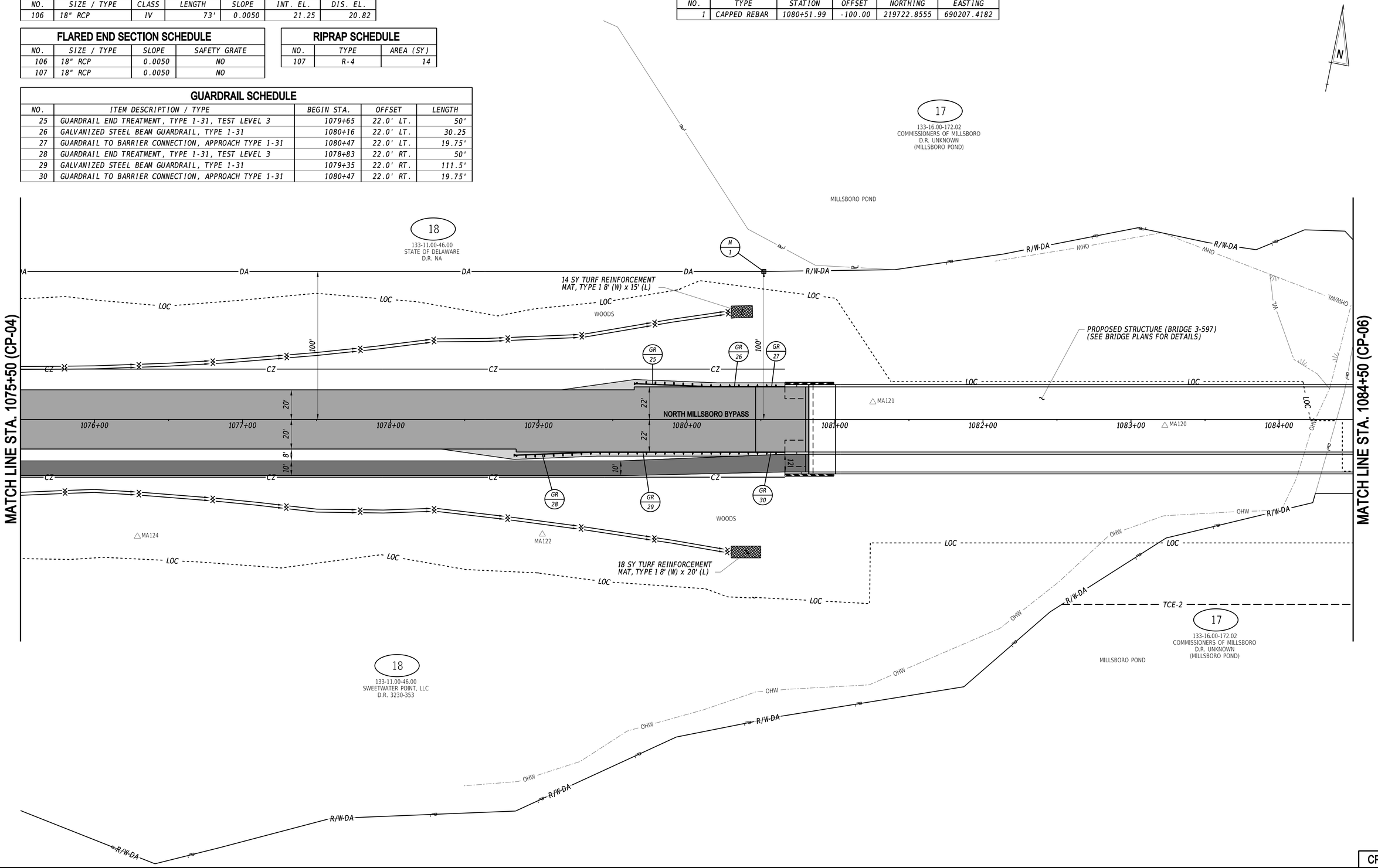
NO.	TYPE	AREA (SY)
107	R-4	14

GUARDRAIL SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
25	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1079+65	22.0' LT.	50'
26	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1080+16	22.0' LT.	30.25
27	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1080+47	22.0' LT.	19.75'
28	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1078+83	22.0' RT.	50'
29	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1079+35	22.0' RT.	111.5'
30	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1080+47	22.0' RT.	19.75'

RIGHT-OF-WAY MONUMENT SCHEDULE

NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
1	CAPPED REBAR	1080+51.99	-100.00	219722.8555	690207.4182



3/4/2022
6:13:33 PM
N:\32149-002\CADD\US 113 NM Bypass\CP05_NMBP.dgn

ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

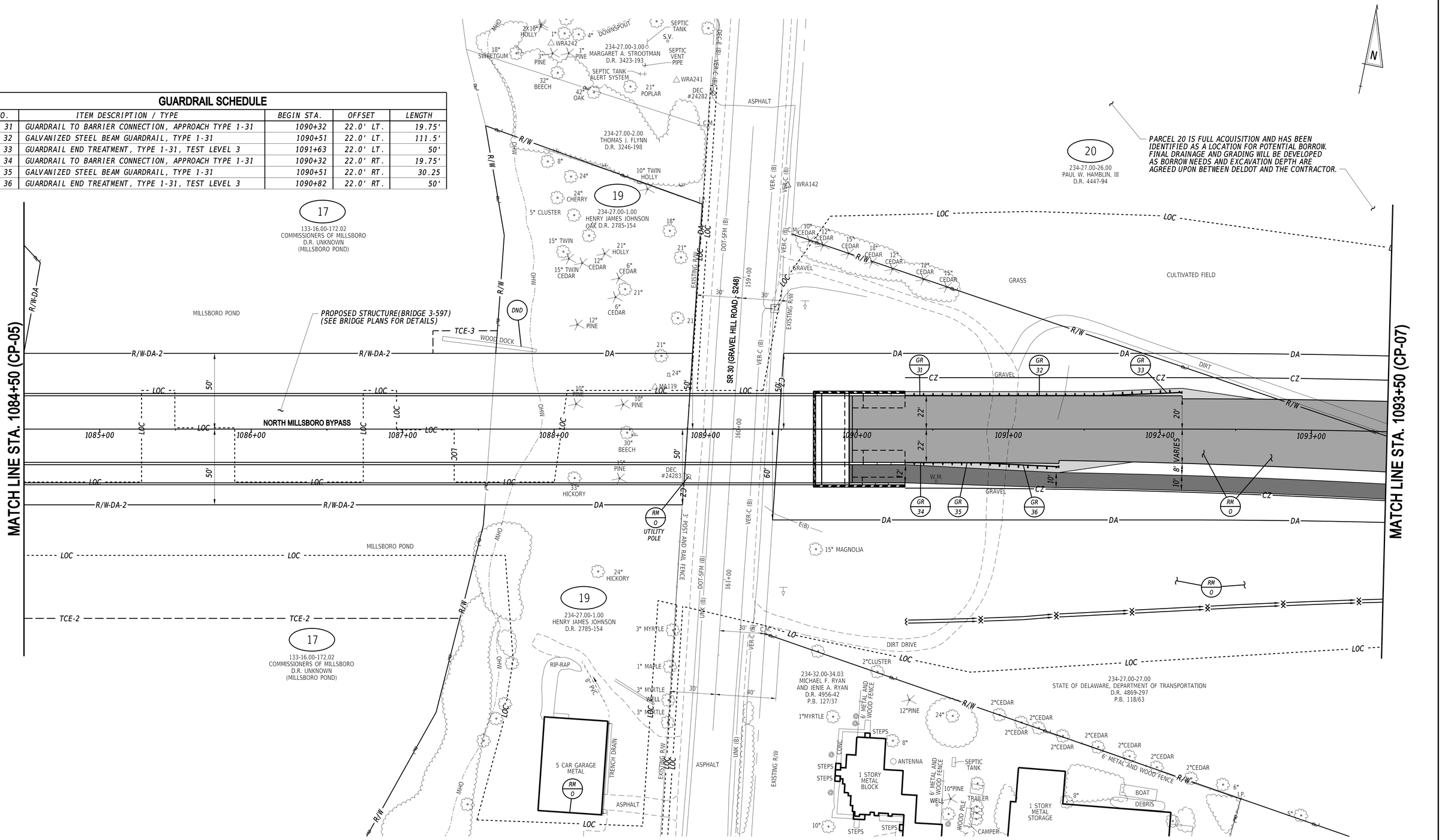
CONTRACT	BRIDGE NO.	3-597
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-05
SECTION
WRA
SHEET NO.
21

GUARDRAIL SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
31	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1090+32	22.0' LT.	19.75'
32	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1090+51	22.0' LT.	111.5'
33	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1091+63	22.0' LT.	50'
34	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	1090+32	22.0' RT.	19.75'
35	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1090+51	22.0' RT.	30.25
36	GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	1090+82	22.0' RT.	50'



ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	3-597
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

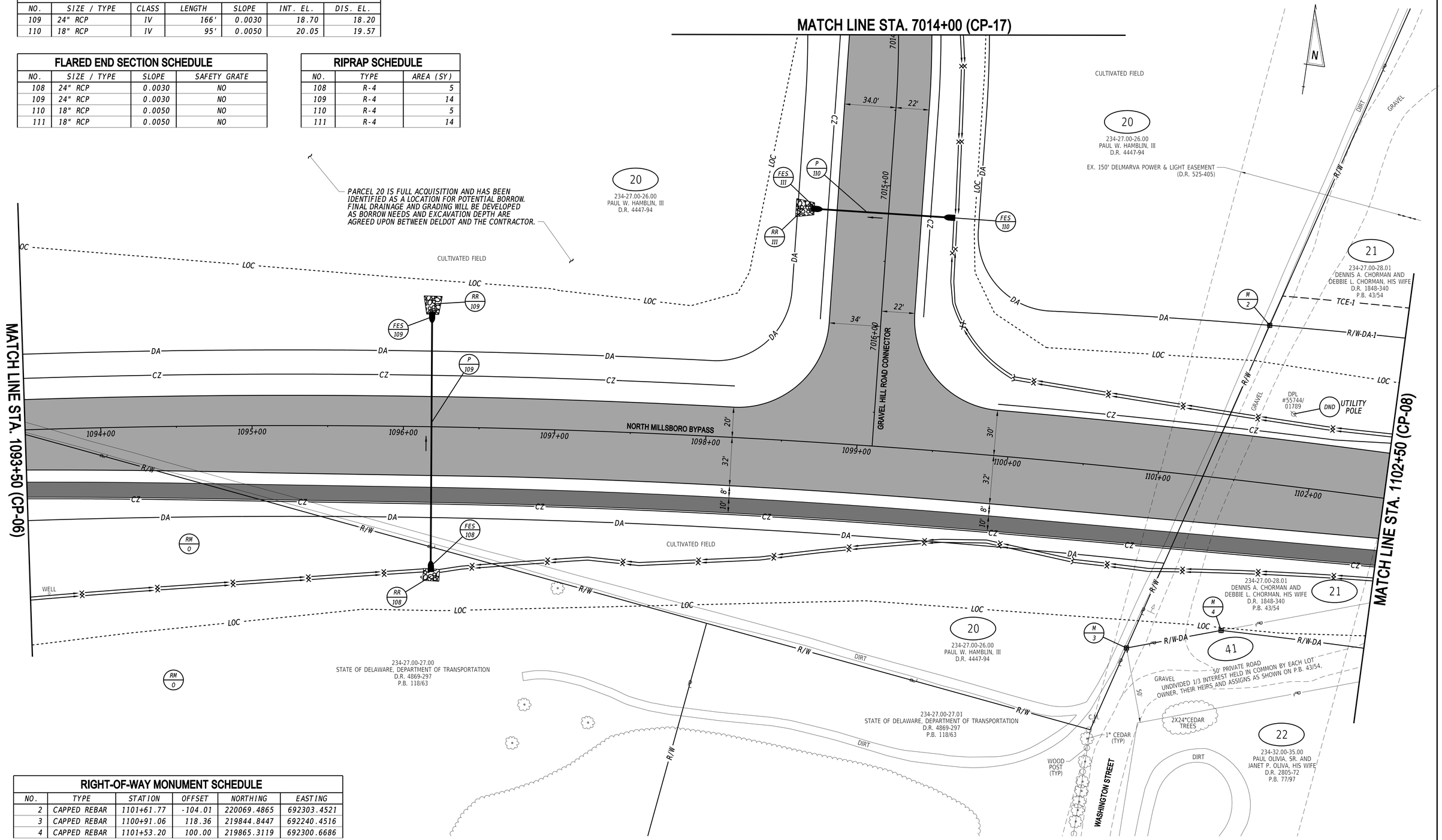
CP-06
SECTION
WRA
SHEET NO.
22

3/4/2022
6:13:34 PM
N:\32149-002\CADDUS 113 NM Bypass\CP06_NMBP.dgn

DRAINAGE PIPE SCHEDULE						
NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
109	24" RCP	IV	166'	0.0030	18.70	18.20
110	18" RCP	IV	95'	0.0050	20.05	19.57

FLARED END SECTION SCHEDULE			
NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
108	24" RCP	0.0030	NO
109	24" RCP	0.0030	NO
110	18" RCP	0.0050	NO
111	18" RCP	0.0050	NO

RIPRAP SCHEDULE		
NO.	TYPE	AREA (SY)
108	R-4	5
109	R-4	14
110	R-4	5
111	R-4	14



RIGHT-OF-WAY MONUMENT SCHEDULE					
NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
2	CAPPED REBAR	1101+61.77	-104.01	220069.4865	692303.4521
3	CAPPED REBAR	1100+91.06	118.36	219844.8447	692240.4516
4	CAPPED REBAR	1101+53.20	100.00	219865.3119	692300.6686

ADDENDA / REVISIONS

SCALE 0 30 60 90 FEET

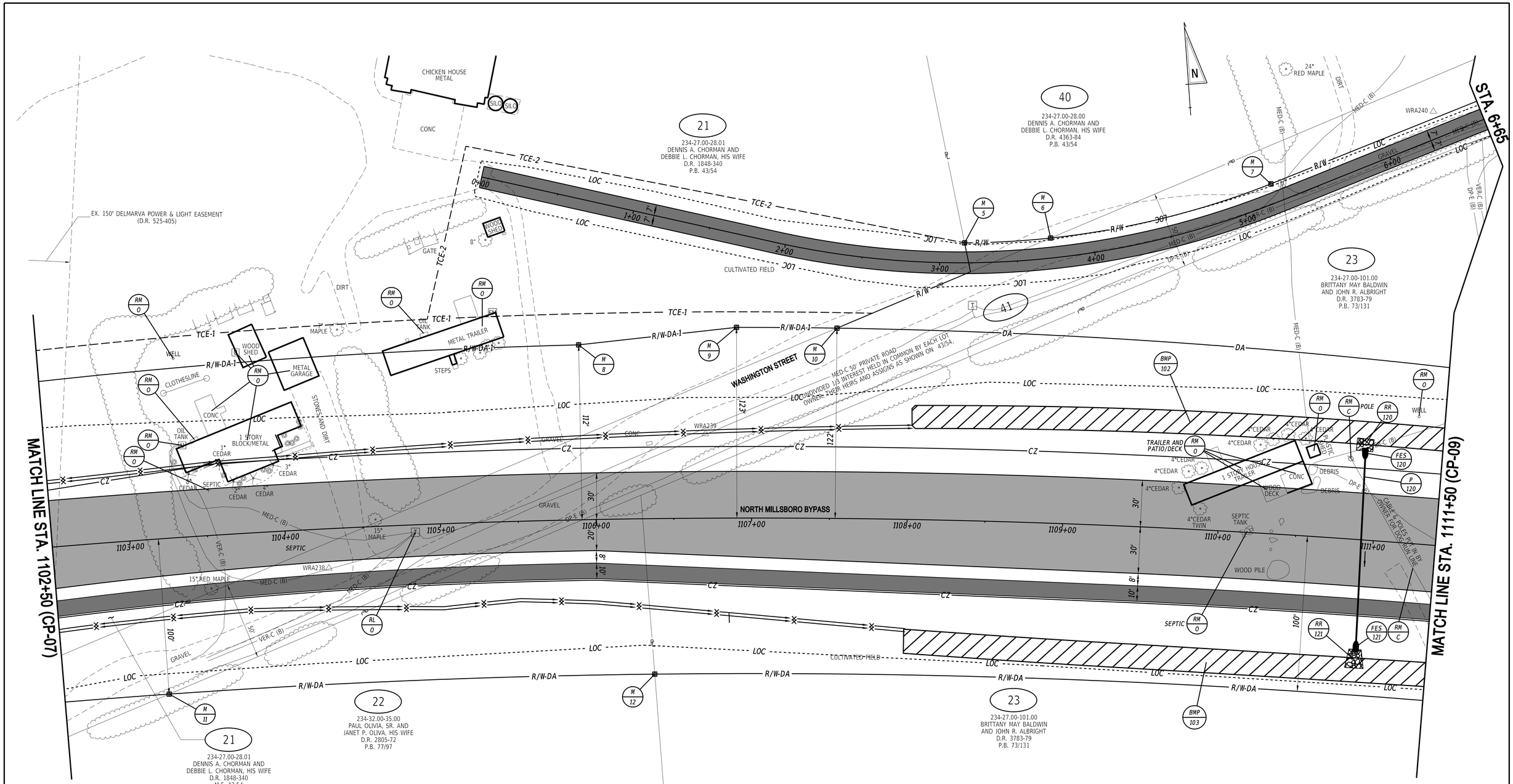
CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-07
SECTION WRA
SHEET NO. 23

3/4/2022
6:13:35 PM
N:\32149-002\CADD\US 113 NM Bypass\CP07_NMBP.dgn



RIGHT-OF-WAY MONUMENT SCHEDULE

NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
5	CAPPED REBAR	3+16.10	-12.82	220120.4533	692993.4537
6	CAPPED REBAR	3+72.83	-12.84	220119.6059	693048.8314
7	CAPPED REBAR	5+22.53	-12.50	220144.2290	693192.5376
8	CAPPED REBAR	0+84.29	91.80	220072.7578	692741.2528
9	CAPPED REBAR	1+80.89	58.73	220076.7502	692843.2878
10	CAPPED REBAR	2+40.07	47.35	220071.6269	692907.6715
11	CAPPED REBAR	1103+18.29	100.00	219867.5774	692462.7048
12	CAPPED REBAR	1106+36.59	100.00	219858.0916	692774.9788

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
120	18" RCP	0.0035	NO
121	18" RCP	0.0035	NO

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
120	18" RCP	IV	131'	0.0035	19.90	19.45

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
120	R-4	5
121	R-4	14

DELDOT SWM FACILITY SCHEDULE

NO.	TYPE / DESCRIPTION	LOCATION
102	INFILTRATION TRENCH	STA. 1108+00 LT. TO STA. 1114+50 LT.
103	INFILTRATION TRENCH	STA. 1108+00 RT. TO STA. 1114+50 RT.

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	T202112701
COUNTY	SUSSEX
BRIDGE NO.	N/A
DESIGNED BY:	S. BEALL
CHECKED BY:	T. OLIVER

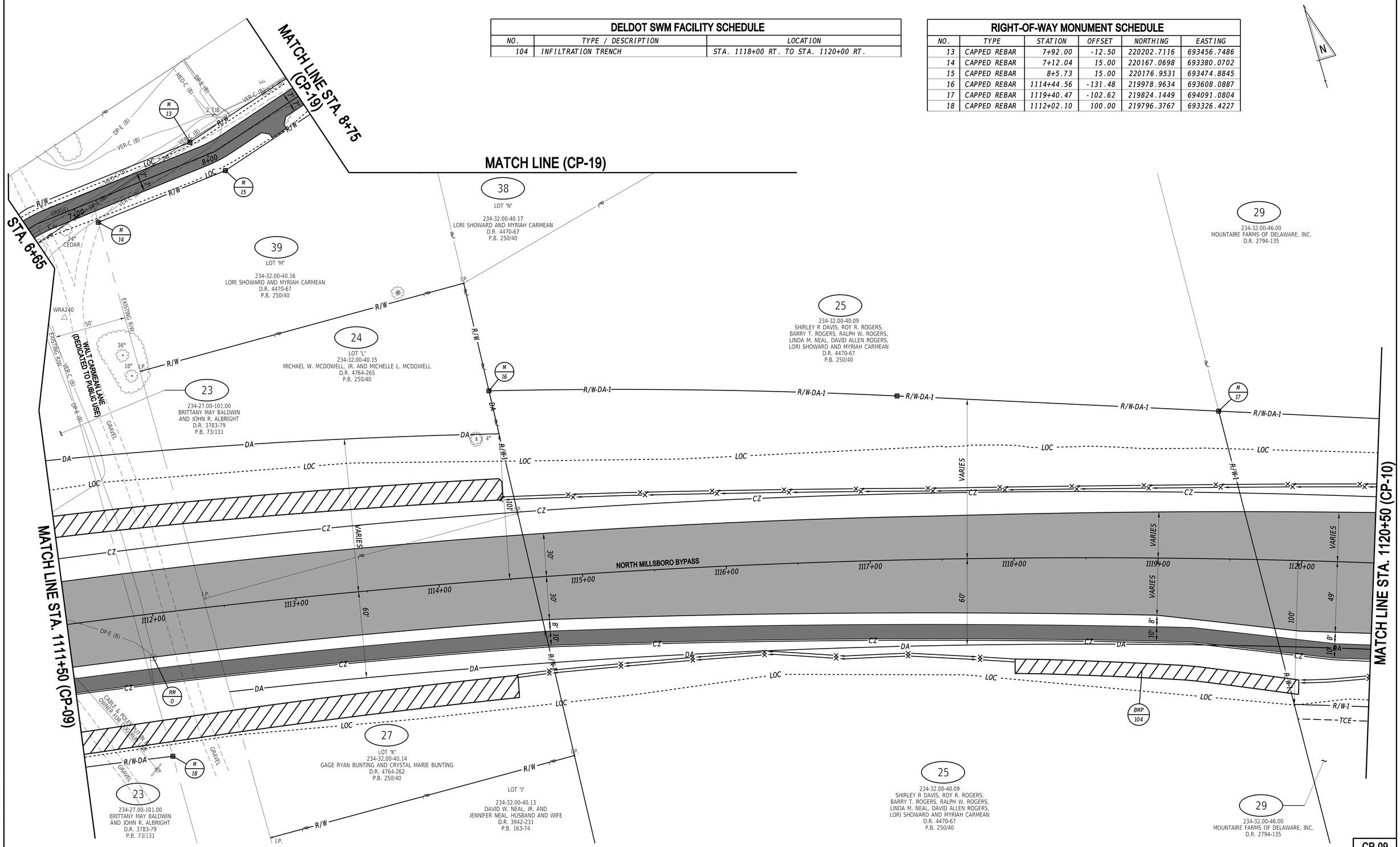
CONSTRUCTION PLAN

	CP-08
SECTION	WRA
SHEET NO.	24

3/4/2022
6:13:36 PM
N:\32149-002\CADD\US 113 NM Bypass\CP08_NMBP.dgn

DELDOT SWM FACILITY SCHEDULE		
NO.	TYPE / DESCRIPTION	LOCATION
104	INFILTRATION TRENCH	STA. 1118+00 RT. TO STA. 1120+00 RT.

RIGHT-OF-WAY MONUMENT SCHEDULE					
NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
13	CAPPED REBAR	7+92.00	-12.50	220202.7116	693456.7486
14	CAPPED REBAR	7+12.04	15.00	220167.0698	693380.0702
15	CAPPED REBAR	8+5.73	15.00	220176.9531	693474.8845
16	CAPPED REBAR	1114+44.56	-131.48	219978.9634	693608.0887
17	CAPPED REBAR	1119+40.47	-102.62	219824.1449	694091.0804
18	CAPPED REBAR	1112+02.10	100.00	219796.3767	693326.4227



ADDENDA / REVISIONS	

SCALE 0 30 60 90 FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-09
SECTION
WRA
SHEET NO.
25

3/4/2022
6:13:37 PM
N:\32149-002\CADDUS 113 NM Bypass\CP09_NMBP.dgn

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
132	18" RCP	IV	150'	0.0025	20.53	20.16
133	18" RCP	IV	160'	0.0025	20.15	19.75
134	18" RCP	IV	139	0.0031	20.43	20.00

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
132	18" RCP	0.0025	YES
133	18" RCP	0.0025	YES
134	18" RCP	0.0031	NO
135	18" RCP	0.0031	NO

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
131	R-4	4
133	R-4	13
134	R-4	4
135	R-4	13

MANHOLE SCHEDULE

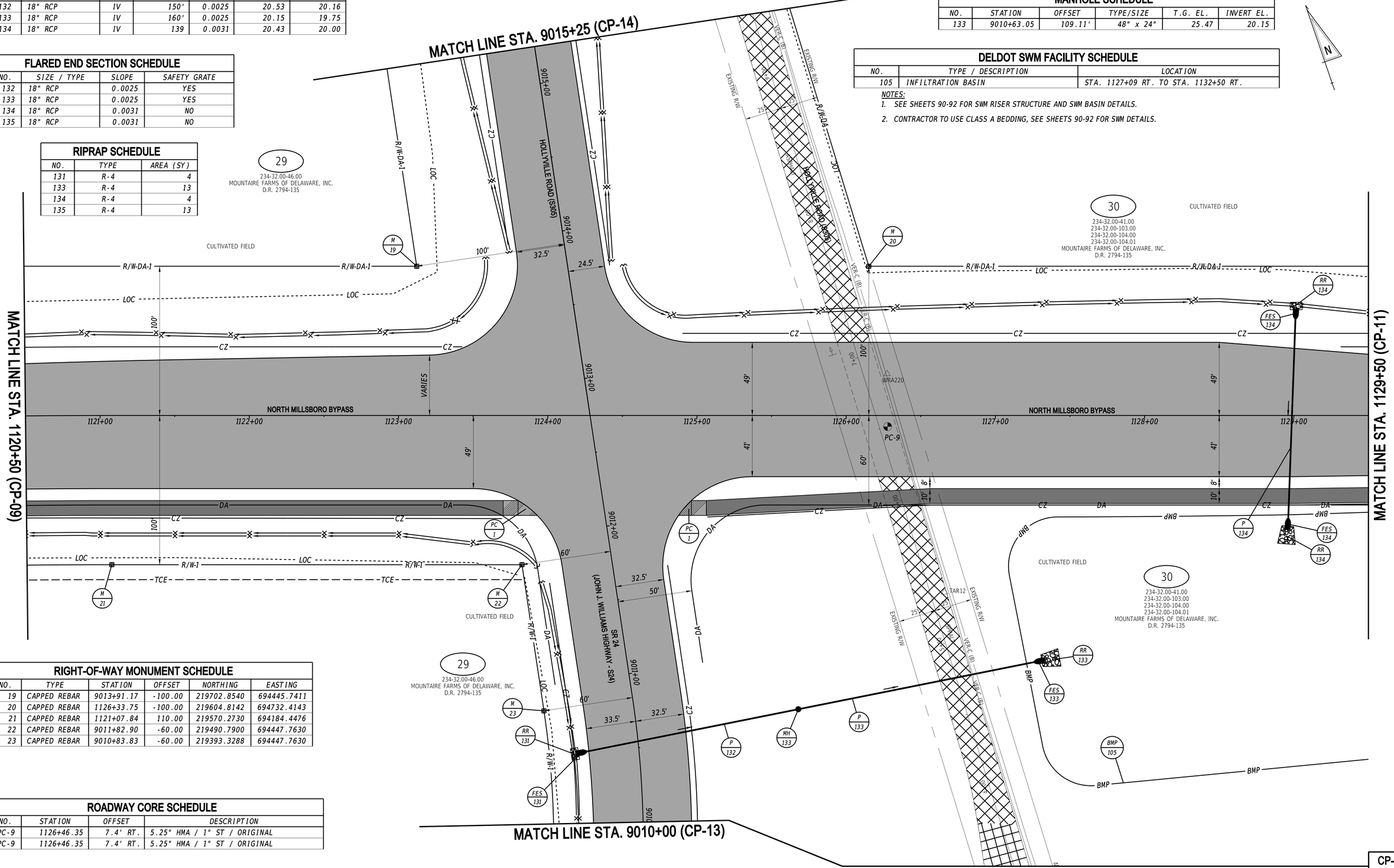
NO.	STATION	OFFSET	TYPE/SIZE	T.G. EL.	INVERT EL.
133	9010+63.05	109.11'	48" x 24"	25.47	20.15

DELDOT SWM FACILITY SCHEDULE

NO.	TYPE / DESCRIPTION	LOCATION
105	INFILTRATION BASIN	STA. 1127+09 RT. TO STA. 1132+50 RT.

NOTES:

1. SEE SHEETS 90-92 FOR SWM RISER STRUCTURE AND SWM BASIN DETAILS.
2. CONTRACTOR TO USE CLASS A BEDDING, SEE SHEETS 90-92 FOR SWM DETAILS.


MATCH LINE STA. 9015+25 (CP-14)
MATCH LINE STA. 9010+00 (CP-13)
MATCH LINE STA. 1120+50 (CP-09)
MATCH LINE STA. 1129+50 (CP-11)
N
29
234-32.00-46.00
MOUNTAIRE FARMS OF DELAWARE, INC.
D.R. 2794-135
30
234-32.00-41.00
234-32.00-103.00
234-32.00-104.00
234-32.00-104.01
MOUNTAIRE FARMS OF DELAWARE, INC.
D.R. 2794-135
CULTIVATED FIELD
HOLLYVILLE ROAD (S305)
SR 24
(JOHN J. WILLIAMS HIGHWAY - S24)
NORTH MILLSBORO BYPASS
EXISTING R/W
R/W-DA-1
R/W-1
LOC
CZ
DA
TCE
BMP
VERT. C. (B)
VERT. C. (A)
VERT. C. (C)
VERT. C. (D)
VERT. C. (E)
VERT. C. (F)
VERT. C. (G)
VERT. C. (H)
VERT. C. (I)
VERT. C. (J)
VERT. C. (K)
VERT. C. (L)
VERT. C. (M)
VERT. C. (N)
VERT. C. (O)
VERT. C. (P)
VERT. C. (Q)
VERT. C. (R)
VERT. C. (S)
VERT. C. (T)
VERT. C. (U)
VERT. C. (V)
VERT. C. (W)
VERT. C. (X)
VERT. C. (Y)
VERT. C. (Z)
VERT. C. (AA)
VERT. C. (AB)
VERT. C. (AC)
VERT. C. (AD)
VERT. C. (AE)
VERT. C. (AF)
VERT. C. (AG)
VERT. C. (AH)
VERT. C. (AI)
VERT. C. (AJ)
VERT. C. (AK)
VERT. C. (AL)
VERT. C. (AM)
VERT. C. (AN)
VERT. C. (AO)
VERT. C. (AP)
VERT. C. (AQ)
VERT. C. (AR)
VERT. C. (AS)
VERT. C. (AT)
VERT. C. (AU)
VERT. C. (AV)
VERT. C. (AW)
VERT. C. (AX)
VERT. C. (AY)
VERT. C. (AZ)
VERT. C. (BA)
VERT. C. (BB)
VERT. C. (BC)
VERT. C. (BD)
VERT. C. (BE)
VERT. C. (BF)
VERT. C. (BG)
VERT. C. (BH)
VERT. C. (BI)
VERT. C. (BJ)
VERT. C. (BK)
VERT. C. (BL)
VERT. C. (BM)
VERT. C. (BN)
VERT. C. (BO)
VERT. C. (BP)
VERT. C. (BQ)
VERT. C. (BR)
VERT. C. (BS)
VERT. C. (BT)
VERT. C. (BU)
VERT. C. (BV)
VERT. C. (BW)
VERT. C. (BX)
VERT. C. (BY)
VERT. C. (BZ)
VERT. C. (CA)
VERT. C. (CB)
VERT. C. (CC)
VERT. C. (CD)
VERT. C. (CE)
VERT. C. (CF)
VERT. C. (CG)
VERT. C. (CH)
VERT. C. (CI)
VERT. C. (CJ)
VERT. C. (CK)
VERT. C. (CL)
VERT. C. (CM)
VERT. C. (CN)
VERT. C. (CO)
VERT. C. (CP)
VERT. C. (CQ)
VERT. C. (CR)
VERT. C. (CS)
VERT. C. (CT)
VERT. C. (CU)
VERT. C. (CV)
VERT. C. (CW)
VERT. C. (CX)
VERT. C. (CY)
VERT. C. (CZ)
VERT. C. (DA)
VERT. C. (DB)
VERT. C. (DC)
VERT. C. (DD)
VERT. C. (DE)
VERT. C. (DF)
VERT. C. (DG)
VERT. C. (DH)
VERT. C. (DI)
VERT. C. (DJ)
VERT. C. (DK)
VERT. C. (DL)
VERT. C. (DM)
VERT. C. (DN)
VERT. C. (DO)
VERT. C. (DP)
VERT. C. (DQ)
VERT. C. (DR)
VERT. C. (DS)
VERT. C. (DT)
VERT. C. (DU)
VERT. C. (DV)
VERT. C. (DW)
VERT. C. (DX)
VERT. C. (DY)
VERT. C. (DZ)
VERT. C. (EA)
VERT. C. (EB)
VERT. C. (EC)
VERT. C. (ED)
VERT. C. (EE)
VERT. C. (EF)
VERT. C. (EG)
VERT. C. (EH)
VERT. C. (EI)
VERT. C. (EJ)
VERT. C. (EK)
VERT. C. (EL)
VERT. C. (EM)
VERT. C. (EN)
VERT. C. (EO)
VERT. C. (EP)
VERT. C. (EQ)
VERT. C. (ER)
VERT. C. (ES)
VERT. C. (ET)
VERT. C. (EU)
VERT. C. (EV)
VERT. C. (EW)
VERT. C. (EX)
VERT. C. (EY)
VERT. C. (EZ)
VERT. C. (FA)
VERT. C. (FB)
VERT. C. (FC)
VERT. C. (FD)
VERT. C. (FE)
VERT. C. (FF)
VERT. C. (FG)
VERT. C. (FH)
VERT. C. (FI)
VERT. C. (FJ)
VERT. C. (FK)
VERT. C. (FL)
VERT. C. (FM)
VERT. C. (FN)
VERT. C. (FO)
VERT. C. (FP)
VERT. C. (FQ)
VERT. C. (FR)
VERT. C. (FS)
VERT. C. (FT)
VERT. C. (FU)
VERT. C. (FV)
VERT. C. (FW)
VERT. C. (FX)
VERT. C. (FY)
VERT. C. (FZ)
VERT. C. (GA)
VERT. C. (GB)
VERT. C. (GC)
VERT. C. (GD)
VERT. C. (GE)
VERT. C. (GF)
VERT. C. (GG)
VERT. C. (GH)
VERT. C. (GI)
VERT. C. (GJ)
VERT. C. (GK)
VERT. C. (GL)
VERT. C. (GM)
VERT. C. (GN)
VERT. C. (GO)
VERT. C. (GP)
VERT. C. (GQ)
VERT. C. (GR)
VERT. C. (GS)
VERT. C. (GT)
VERT. C. (GU)
VERT. C. (GV)
VERT. C. (GW)
VERT. C. (GX)
VERT. C. (GY)
VERT. C. (GZ)
VERT. C. (HA)
VERT. C. (HB)
VERT. C. (HC)
VERT. C. (HD)
VERT. C. (HE)
VERT. C. (HF)
VERT. C. (HG)
VERT. C. (HH)
VERT. C. (HI)
VERT. C. (HJ)
VERT. C. (HK)
VERT. C. (HL)
VERT. C. (HM)
VERT. C. (HN)
VERT. C. (HO)
VERT. C. (HP)
VERT. C. (HQ)
VERT. C. (HR)
VERT. C. (HS)
VERT. C. (HT)
VERT. C. (HU)
VERT. C. (HV)
VERT. C. (HW)
VERT. C. (HX)
VERT. C. (HY)
VERT. C. (HZ)
VERT. C. (IA)
VERT. C. (IB)
VERT. C. (IC)
VERT. C. (ID)
VERT. C. (IE)
VERT. C. (IF)
VERT. C. (IG)
VERT. C. (IH)
VERT. C. (II)
VERT. C. (IJ)
VERT. C. (IK)
VERT. C. (IL)
VERT. C. (IM)
VERT. C. (IN)
VERT. C. (IO)
VERT. C. (IP)
VERT. C. (IQ)
VERT. C. (IR)
VERT. C. (IS)
VERT. C. (IT)
VERT. C. (IU)
VERT. C. (IV)
VERT. C. (IW)
VERT. C. (IX)
VERT. C. (IY)
VERT. C. (IZ)
VERT. C. (JA)
VERT. C. (JB)
VERT. C. (JC)
VERT. C. (JD)
VERT. C. (JE)
VERT. C. (JF)
VERT. C. (JG)
VERT. C. (JH)
VERT. C. (JI)
VERT. C. (JJ)
VERT. C. (JK)
VERT. C. (JL)
VERT. C. (JM)
VERT. C. (JN)
VERT. C. (JO)
VERT. C. (JP)
VERT. C. (JQ)
VERT. C. (JR)
VERT. C. (JS)
VERT. C. (JT)
VERT. C. (JU)
VERT. C. (JV)
VERT. C. (JW)
VERT. C. (JX)
VERT. C. (JY)
VERT. C. (JZ)
VERT. C. (KA)
VERT. C. (KB)
VERT. C. (KC)
VERT. C. (KD)
VERT. C. (KE)
VERT. C. (KF)
VERT. C. (KG)
VERT. C. (KH)
VERT. C. (KI)
VERT. C. (KJ)
VERT. C. (KK)
VERT. C. (KL)
VERT. C. (KM)
VERT. C. (KN)
VERT. C. (KO)
VERT. C. (KP)
VERT. C. (KQ)
VERT. C. (KR)
VERT. C. (KS)
VERT. C. (KT)
VERT. C. (KU)
VERT. C. (KV)
VERT. C. (KW)
VERT. C. (KX)
VERT. C. (KY)
VERT. C. (KZ)
VERT. C. (LA)
VERT. C. (LB)
VERT. C. (LC)
VERT. C. (LD)
VERT. C. (LE)
VERT. C. (LF)
VERT. C. (LG)
VERT. C. (LH)
VERT. C. (LI)
VERT. C. (LJ)
VERT. C. (LK)
VERT. C. (LL)
VERT. C. (LM)
VERT. C. (LN)
VERT. C. (LO)
VERT. C. (LP)
VERT. C. (LQ)
VERT. C. (LR)
VERT. C. (LS)
VERT. C. (LT)
VERT. C. (LU)
VERT. C. (LV)
VERT. C. (LW)
VERT. C. (LX)
VERT. C. (LY)
VERT. C. (LZ)
VERT. C. (MA)
VERT. C. (MB)
VERT. C. (MC)
VERT. C. (MD)
VERT. C. (ME)
VERT. C. (MF)
VERT. C. (MG)
VERT. C. (MH)
VERT. C. (MI)
VERT. C. (MJ)
VERT. C. (MK)
VERT. C. (ML)
VERT. C. (MM)
VERT. C. (MN)
VERT. C. (MO)
VERT. C. (MP)
VERT. C. (MQ)
VERT. C. (MR)
VERT. C. (MS)
VERT. C. (MT)
VERT. C. (MU)
VERT. C. (MV)
VERT. C. (MW)
VERT. C. (MX)
VERT. C. (MY)
VERT. C. (MZ)
VERT. C. (NA)
VERT. C. (NB)
VERT. C. (NC)
VERT. C. (ND)
VERT. C. (NE)
VERT. C. (NF)
VERT. C. (NG)
VERT. C. (NH)
VERT. C. (NI)
VERT. C. (NJ)
VERT. C. (NK)
VERT. C. (NL)
VERT. C. (NM)
VERT. C. (NN)
VERT. C. (NO)
VERT. C. (NP)
VERT. C. (NQ)
VERT. C. (NR)
VERT. C. (NS)
VERT. C. (NT)
VERT. C. (NU)
VERT. C. (NV)
VERT. C. (NW)
VERT. C. (NX)
VERT. C. (NY)
VERT. C. (NZ)
VERT. C. (OA)
VERT. C. (OB)
VERT. C. (OC)
VERT. C. (OD)
VERT. C. (OE)
VERT. C. (OF)
VERT. C. (OG)
VERT. C. (OH)
VERT. C. (OI)
VERT. C. (OJ)
VERT. C. (OK)
VERT. C. (OL)
VERT. C. (OM)
VERT. C. (ON)
VERT. C. (OO)
VERT. C. (OP)
VERT. C. (OQ)
VERT. C. (OR)
VERT. C. (OS)
VERT. C. (OT)
VERT. C. (OU)
VERT. C. (OV)
VERT. C. (OW)
VERT. C. (OX)
VERT. C. (OY)
VERT. C. (OZ)
VERT. C. (PA)
VERT. C. (PB)
VERT. C. (PC)
VERT. C. (PD)
VERT. C. (PE)
VERT. C. (PF)
VERT. C. (PG)
VERT. C. (PH)
VERT. C. (PI)
VERT. C. (PJ)
VERT. C. (PK)
VERT. C. (PL)
VERT. C. (PM)
VERT. C. (PN)
VERT. C. (PO)
VERT. C. (PP)
VERT. C. (PQ)
VERT. C. (PR)
VERT. C. (PS)
VERT. C. (PT)
VERT. C. (PU)
VERT. C. (PV)
VERT. C. (PW)
VERT. C. (PX)
VERT. C. (PY)
VERT. C. (PZ)
VERT. C. (QA)
VERT. C. (QB)
VERT. C. (QC)
VERT. C. (QD)
VERT. C. (QE)
VERT. C. (QF)
VERT. C. (QG)
VERT. C. (QH)
VERT. C. (QI)
VERT. C. (QJ)
VERT. C. (QK)
VERT. C. (QL)
VERT. C. (QM)
VERT. C. (QN)
VERT. C. (QO)
VERT. C. (QP)
VERT. C. (QQ)
VERT. C. (QR)
VERT. C. (QS)
VERT. C. (QT)
VERT. C. (QU)
VERT. C. (QV)
VERT. C. (QW)
VERT. C. (QX)
VERT. C. (QY)
VERT. C. (QZ)
VERT. C. (RA)
VERT. C. (RB)
VERT. C. (RC)
VERT. C. (RD)
VERT. C. (RE)
VERT. C. (RF)
VERT. C. (RG)
VERT. C. (RH)
VERT. C. (RI)
VERT. C. (RJ)
VERT. C. (RK)
VERT. C. (RL)
VERT. C. (RM)
VERT. C. (RN)
VERT. C. (RO)
VERT. C. (RP)
VERT. C. (RQ)
VERT. C. (RR)
VERT. C. (RS)
VERT. C. (RT)
VERT. C. (RU)
VERT. C. (RV)
VERT. C. (RW)
VERT. C. (RX)
VERT. C. (RY)
VERT. C. (RZ)
VERT. C. (SA)
VERT. C. (SB)
VERT. C. (SC)
VERT. C. (SD)
VERT. C. (SE)
VERT. C. (SF)
VERT. C. (SG)
VERT. C. (SH)
VERT. C. (SI)
VERT. C. (SJ)
VERT. C. (SK)
VERT. C. (SL)
VERT. C. (SM)
VERT. C. (SN)
VERT. C. (SO)
VERT. C. (SP)
VERT. C. (SQ)
VERT. C. (SR)
VERT. C. (SS)
VERT. C. (ST)
VERT. C. (SU)
VERT. C. (SV)
VERT. C. (SW)
VERT. C. (SX)
VERT. C. (SY)
VERT. C. (SZ)
VERT. C. (TA)
VERT. C. (TB)
VERT. C. (TC)
VERT. C. (TD)
VERT. C. (TE)
VERT. C. (TF)
VERT. C. (TG)
VERT. C. (TH)
VERT. C. (TI)
VERT. C. (TJ)
VERT. C. (TK)
VERT. C. (TL)
VERT. C. (TM)
VERT. C. (TN)
VERT. C. (TO)
VERT. C. (TP)
VERT. C. (TQ)
VERT. C. (TR)
VERT. C. (TS)
VERT. C. (TT)
VERT. C. (TU)
VERT. C. (TV)
VERT. C. (TW)
VERT. C. (TX)
VERT. C. (TY)
VERT. C. (TZ)
VERT. C. (UA)
VERT. C. (UB)
VERT. C. (UC)
VERT. C. (UD)
VERT. C. (UE)
VERT. C. (UF)
VERT. C. (UG)
VERT. C. (UH)
VERT. C. (UI)
VERT. C. (UJ)
VERT. C. (UK)
VERT. C. (UL)
VERT. C. (UM)
VERT. C. (UN)
VERT. C. (UO)
VERT. C. (UP)
VERT. C. (UQ)
VERT. C. (UR)
VERT. C. (US)
VERT. C. (UT)
VERT. C. (UU)
VERT. C. (UV)
VERT. C. (UW)
VERT. C. (UX)
VERT. C. (UY)
VERT. C. (UZ)
VERT. C. (VA)
VERT. C. (VB)
VERT. C. (VC)
VERT. C. (VD)
VERT. C. (VE)
VERT. C. (VF)
VERT. C. (VG)
VERT. C. (VH)
VERT. C. (VI)
VERT. C. (VJ)
VERT. C. (VK)
VERT. C. (VL)
VERT. C. (VM)
VERT. C. (VN)
VERT. C. (VO)
VERT. C. (VP)
VERT. C. (VQ)
VERT. C. (VR)
VERT. C. (VS)
VERT. C. (VT)
VERT. C. (VU)
VERT. C. (VV)
VERT. C. (VW)
VERT. C. (VX)
VERT. C. (VY)
VERT. C. (VZ)
VERT. C. (WA)
VERT. C. (WB)
VERT. C. (WC)
VERT. C. (WD)
VERT. C. (WE)
VERT. C. (WF)
VERT. C. (WG)
VERT. C. (WH)
VERT. C. (WI)
VERT. C. (WJ)
VERT. C. (WK)
VERT. C. (WL)
VERT. C. (WM)
VERT. C. (WN)
VERT. C. (WO)
VERT. C. (WP)
VERT. C. (WQ)
VERT. C. (WR)
VERT. C. (WS)
VERT. C. (WT)
VERT. C. (WU)
VERT. C. (WV)
VERT. C. (WW)
VERT. C. (WX)
VERT. C. (WY)
VERT. C. (WZ)
VERT. C. (XA)
VERT. C. (XB)
VERT. C. (XC)
VERT. C. (XD)
VERT. C. (XE)
VERT. C. (XF)
VERT. C. (XG)
VERT. C. (XH)
VERT. C. (XI)
VERT. C. (XJ)
VERT. C. (XK)
VERT. C. (XL)
VERT. C. (XM)
VERT. C. (XN)
VERT. C. (XO)
VERT. C. (XP)
VERT. C. (XQ)
VERT. C. (XR)
VERT. C. (XS)
VERT. C. (XT)
VERT. C. (XU)
VERT. C. (XV)
VERT. C. (XW)
VERT. C. (XX)
VERT. C. (XY)
VERT. C. (XZ)
VERT. C. (YA)
VERT. C. (YB)
VERT. C. (YC)
VERT. C. (YD)
VERT. C. (YE)
VERT. C. (YF)
VERT. C. (YG)
VERT. C. (YH)
VERT. C. (YI)
VERT. C. (YJ)
VERT. C. (YK)
VERT. C. (YL)
VERT. C. (YM)
VERT. C. (YN)
VERT. C. (YO)
VERT. C. (YP)
VERT. C. (YQ)
VERT. C. (YR)
VERT. C. (YS)
VERT. C. (YT)
VERT. C. (YU)
VERT. C. (YV)
VERT. C. (YW)
VERT. C. (YX)
VERT. C. (YY)
VERT. C. (YZ)
VERT. C. (ZA)
VERT. C. (ZB)
VERT. C. (ZC)
VERT. C. (ZD)
VERT. C. (ZE)
VERT. C. (ZF)
VERT. C. (ZG)
VERT. C. (ZH)
VERT. C. (ZI)
VERT. C. (ZJ)
VERT. C. (ZK)
VERT. C. (ZL)
VERT. C. (ZM)
VERT. C. (ZN)
VERT. C. (ZO)
VERT. C. (ZP)
VERT. C. (ZQ)
VERT. C. (ZR)
VERT. C. (ZS)
VERT. C. (ZT)
VERT. C. (ZU)
VERT. C. (ZV)
VERT. C. (ZW)
VERT. C. (ZX)
VERT. C. (ZY)
VERT. C. (ZZ)
VERT. C. (AA)
VERT. C. (AB)
VERT. C. (AC)
VERT. C. (AD)
VERT. C. (AE)
VERT. C. (AF)
VERT. C. (AG)
VERT. C. (AH)
VERT. C. (AI)
VERT. C. (AJ)
VERT. C. (AK)
VERT. C. (AL)
VERT. C. (AM)
VERT. C. (AN)
VERT. C. (AO)
VERT. C. (AP)
VERT. C. (AQ)
VERT. C. (AR)
VERT. C. (AS)
VERT. C. (AT)
VERT. C. (AU)
VERT. C. (AV)
VERT. C. (AW)
VERT. C. (AX)
VERT. C. (AY)
VERT. C. (AZ)
VERT. C. (BA)
VERT. C. (BB)
VERT. C. (BC)
VERT. C. (BD)
VERT. C. (BE)
VERT. C. (BF)
VERT. C. (BG)
VERT. C. (BH)
VERT. C. (BI)
VERT. C. (BJ)
VERT. C. (BK)
VERT. C. (BL)
VERT. C. (BM)
VERT. C. (BN)
VERT. C. (BO)
VERT. C. (BP)
VERT. C. (BQ)
VERT. C. (BR)
VERT. C. (BS)
VERT. C. (BT)
VERT. C. (BU)
VERT. C. (BV)
VERT. C. (BW)
VERT. C. (BX)
VERT. C. (BY)
VERT. C. (BZ)
VERT. C. (CA)
VERT. C. (CB)
VERT. C. (CC)
VERT. C. (CD)
VERT. C. (CE)
VERT. C. (CF)
VERT. C. (CG)
VERT. C. (CH)
VERT. C. (CI)
VERT. C. (CJ)
VERT. C. (CK)
VERT. C. (CL)
VERT. C. (CM)
VERT. C. (CN)
VERT. C. (CO)
VERT. C. (CP)
VERT. C. (CQ)
VERT. C. (CR)
VERT. C. (CS)
VERT. C. (CT)
VERT. C. (CU)
VERT. C. (CV)
VERT. C. (CW)
VERT. C. (CX)
VERT. C. (CY)
VERT. C. (CZ)
VERT. C. (DA)
VERT. C. (DB)
VERT. C. (DC)
VERT. C. (DD)
VERT. C. (DE)
VERT. C. (DF)
VERT. C. (DG)
VERT. C. (DH)
VERT. C. (DI)
VERT. C. (DJ)
VERT. C. (DK)
VERT. C. (DL)
VERT. C. (DM)
VERT. C. (DN)
VERT. C. (DO)
VERT. C. (DP)
VERT. C. (DQ)
VERT. C. (DR)
VERT. C. (DS)
VERT. C. (DT)
VERT. C. (DU)
VERT. C. (DV)
VERT. C. (DW)
VERT. C. (DX)
VERT. C. (DY)
VERT. C. (DZ)
VERT. C. (EA)
VERT. C. (EB)
VERT. C. (EC)
VERT. C. (ED)
VERT. C. (EE)
VERT. C. (EF)
VERT. C. (EG)
VERT. C. (EH)
VERT. C. (EI)
VERT. C. (EJ)
VERT. C. (EK)
VERT. C. (EL)
VERT. C. (EM)
VERT. C. (EN)
VERT. C. (EO)
VERT. C. (EP)
VERT. C. (EQ)
VERT. C. (ER)
VERT. C. (ES)
VERT. C. (ET)
VERT. C. (EU)
VERT. C. (EV)
VERT. C. (EW)
VERT. C. (EX)
VERT. C. (EY)
VERT. C. (EZ)
VERT. C. (FA)
VERT. C. (FB)
VERT. C. (FC)
VERT. C. (FD)
VERT. C. (FE)
VERT. C. (FF)
VERT. C. (FG)
VERT. C. (FH)
VERT. C. (FI)
VERT. C. (FJ)
VERT. C. (FK)
VERT. C. (FL)
VERT. C. (FM)
VERT. C. (FN)
VERT. C. (FO)
VERT. C. (FP)
VERT. C. (FQ)
VERT. C. (FR)
VERT. C. (FS)
VERT. C. (FT)
VERT. C. (FU)
VERT. C. (FV)
VERT. C. (FW)
VERT. C. (FX)
VERT. C. (FY)
VERT. C. (FZ)
VERT. C. (GA)
VERT. C. (GB)
VERT. C. (GC)
VERT. C. (GD)
VERT. C. (GE)
VERT. C. (GF)
VERT. C. (GG)
VERT. C. (GH)
VERT. C. (GI)
VERT. C. (GJ)
VERT. C. (GK)
VERT. C. (GL)
VERT. C. (GM)
VERT. C. (GN)
VERT. C. (GO)
VERT. C. (GP)
VERT. C. (GQ)
VERT. C. (GR)
VERT. C. (GS)
VERT. C. (GT)
VERT. C. (GU)
VERT. C. (GV)
VERT. C. (GW)
VERT. C. (GX)
VERT. C. (GY)
VERT. C. (GZ)
VERT. C. (HA)
VERT. C. (HB)
VERT. C. (HC)
VERT. C. (HD)
VERT. C. (HE)
VERT. C. (HF)
VERT. C. (HG)
VERT. C. (HH)
VERT. C. (HI)
VERT. C. (HJ)
VERT. C. (HK)
VERT. C. (HL)
VERT. C. (HM)
VERT. C. (HN)
VERT. C. (HO)
VERT. C. (HP)
VERT. C. (HQ)
VERT. C. (HR)
VERT. C. (HS)
VERT. C. (HT)
VERT. C. (HU)
VERT. C. (HV)
VERT. C. (HW)
VERT. C. (HX)
VERT. C. (HY)
VERT. C. (HZ)
VERT. C. (IA)
VERT. C. (IB)
VERT. C. (IC)
VERT. C. (ID)
VERT. C. (IE)
VERT. C. (IF)
VERT. C. (IG)
VERT. C. (IH)
VERT. C. (II)
VERT. C. (IJ)
VERT. C. (IK)
VERT. C. (IL)
VERT. C. (IM)
VERT. C. (IN)
VERT. C. (IO)
VERT. C. (IP)
VERT. C. (IQ)
VERT. C. (IR)
VERT. C. (IS)
VERT. C. (IT)
VERT. C. (IU)
VERT. C. (IV)
VERT. C. (IW)
VERT. C. (IX)
VERT. C. (IY)
VERT. C. (IZ)
VERT. C. (JA)
VERT. C. (JB)
VERT. C. (JC)
VERT. C. (JD)
VERT. C. (JE)
VERT. C. (JF)
VERT. C. (JG)
VERT. C. (JH)
VERT. C. (JI)
VERT. C. (JJ)
VERT. C. (JK)
VERT. C. (JL)
VERT. C. (JM)
VERT. C. (JN)
VERT. C. (JO)
VERT. C. (JP)
VERT. C. (JQ)
VERT. C. (JR)
VERT. C. (JS)
VERT. C. (JT)
VERT. C. (JU)
VERT. C. (JV)
VERT. C. (JW)
VERT. C. (JX)
VERT. C. (JY)
VERT. C. (JZ)
VERT. C. (KA)
VERT. C. (KB)
VERT. C. (KC)
VERT. C. (KD)
VERT. C. (KE)
VERT. C. (KF)
VERT. C. (KG)
VERT. C. (KH)
VERT. C. (KI)
VERT. C. (KJ)
VERT. C. (KK)
VERT. C. (KL)
VERT. C. (KM)
VERT. C. (KN)
VERT. C. (KO)
VERT. C. (KP)
VERT. C. (KQ)
VERT. C. (KR)
VERT. C. (KS)
VERT. C. (KT)
VERT. C. (KU)
VERT. C. (KV)
VERT. C. (KW)
VERT. C. (KX)
VERT. C. (KY)
VERT. C. (KZ)
VERT. C. (LA)
VERT. C. (LB)
VERT. C. (LC)
VERT. C. (LD)
VERT. C. (LE)
VERT. C. (LF)
VERT. C. (LG)
VERT. C. (LH)
VERT. C. (LI)
VERT. C. (LJ)
VERT. C. (LK)
VERT. C. (LL)
VERT. C. (LM)
VERT. C. (LN)
VERT. C. (LO)
VERT. C. (LP)
VERT. C. (LQ)
VERT. C. (LR)
VERT. C. (LS)
VERT. C. (LT)
VERT. C. (LU)
VERT. C. (LV)
VERT. C. (LW)
VERT. C. (LX)
VERT. C. (LY)
VERT. C. (LZ)
VERT. C. (MA)
VERT. C. (MB)
VERT. C. (MC)
VERT. C. (MD)
VERT. C. (ME)
VERT. C. (MF)
VERT. C. (MG)
VERT. C. (MH)
VERT. C. (MI)
VERT. C. (MJ)
VERT. C. (MK)
VERT. C. (ML)
VERT. C. (MM)
VERT. C. (MN)
VERT. C. (MO)
VERT. C. (MP)
VERT. C. (MQ)
VERT. C. (MR)
VERT. C. (MS)
VERT. C. (MT)
VERT. C. (MU)
VERT. C. (MV)
VERT. C. (MW)
VERT. C. (MX)
VERT. C. (MY)
VERT. C. (MZ)
VERT. C. (NA)
VERT. C. (NB)
VERT. C. (NC)
VERT. C. (ND)
VERT. C. (NE)
VERT. C. (NF)
VERT. C. (NG)
VERT. C. (NH)
VERT. C. (NI)
VERT. C. (NJ)
VERT. C. (NK)
VERT. C. (NL)
VERT. C. (NM)
VERT. C. (NN)
VERT. C. (NO)
VERT. C. (NP)
VERT. C. (NQ)
VERT. C. (NR)
VERT. C. (NS)
VERT. C. (NT)
VERT. C. (NU)
VERT. C. (NV)
VERT. C. (NW)
VERT. C. (NX)
VERT. C. (NY)
VERT. C. (NZ)
VERT. C. (OA)
VERT. C. (OB)
VERT. C. (OC)
VERT. C. (OD)
VERT. C. (OE)
VERT. C. (OF)
VERT. C. (OG)
VERT. C. (OH)
VERT. C. (OI)
VERT. C. (OJ)
VERT. C. (OK)
VERT. C. (OL)
VERT. C. (OM)
VERT. C. (ON)
VERT. C. (OO)
VERT. C. (OP)
VERT. C. (OQ)
VERT. C. (OR)
VERT. C. (OS)
VERT. C. (OT)
VERT. C. (OU)
VERT. C. (OV)
VERT. C. (OW)
VERT. C. (OX)
VERT. C. (OY)
VERT. C. (OZ)
VERT. C. (PA)
VERT. C. (PB)
VERT. C. (PC)
VERT. C. (PD)
VERT. C. (PE)
VERT. C. (PF)
VERT. C. (PG)
VERT. C. (PH)
VERT. C. (PI)
VERT. C. (PJ)
VERT. C. (PK)
VERT. C. (PL)
VERT. C. (PM)
VERT. C. (PN)
VERT. C. (PO)
VERT. C. (PP)
VERT. C. (PQ)
VERT. C. (PR)
VERT. C. (PS)
VERT. C. (PT)
VERT. C. (PU)
VERT. C. (PV)
VERT. C. (PW)
VERT. C. (PX)
VERT. C. (PY)
VERT. C. (PZ)
VERT. C. (QA)
VERT. C. (QB)
VERT. C. (QC)
VERT. C. (QD)
VERT. C. (QE)
VERT. C. (QF)
VERT. C. (QG)
VERT. C. (QH)
VERT. C. (QI)
VERT. C. (QJ)
VERT. C. (QK)
VERT. C. (QL)
VERT. C. (QM)
VERT. C. (QN)
VERT. C. (QO)
VERT. C. (QP)
VERT. C. (QQ)
VERT. C. (QR)
VERT. C. (QS)
VERT. C. (QT)
VERT. C. (QU)
VERT. C. (QV)
VERT. C. (QW)
VERT. C. (QX)
VERT. C. (QY)
VERT. C. (QZ)
VERT. C. (RA)
VERT. C. (RB)
VERT. C. (RC)
VERT. C. (RD)
VERT. C. (RE)
VERT. C. (RF)
VERT. C. (RG)
VERT. C. (RH)
VERT. C. (RI)
VERT. C. (RJ)
VERT. C. (RK)
VERT. C. (RL)
VERT. C. (RM)
VERT. C. (RN)
VERT. C. (RO)
VERT. C. (RP)
VERT. C. (RQ)
VERT. C. (RR)
VERT. C. (RS)
VERT. C. (RT)
VERT. C. (RU)
VERT. C. (RV)
VERT. C. (RW)
VERT. C. (RX)
VERT. C. (RY)
VERT. C. (RZ)
VERT. C. (SA)
VERT. C. (SB)
VERT. C. (SC)
VERT. C. (SD)
VERT. C. (SE)
VERT. C. (SF)
VERT. C. (SG)
VERT. C. (SH)
VERT. C. (SI)
VERT. C. (SJ)
VERT. C. (SK)
VERT. C. (SL)
VERT. C. (SM)
VERT. C. (SN)
VERT. C. (SO)
VERT. C. (SP)
VERT. C. (SQ)
VERT. C. (SR)
VERT. C. (SS)
VERT. C. (ST)
VERT. C. (SU)
VERT. C. (SV)
VERT. C. (SW)
VERT. C. (SX)
VERT. C. (SY)
VERT. C. (SZ)
VERT. C. (TA)
VERT. C. (TB)
VERT. C. (TC)
VERT. C. (TD)
VERT. C. (TE)
VERT. C. (TF)
VERT. C. (TG)
VERT. C. (TH)
VERT. C. (TI)
VERT. C. (TJ)
VERT. C. (TK)
VERT. C. (TL)
VERT. C. (TM)
VERT. C. (TN)
VERT. C. (TO)
VERT. C. (TP)
VERT. C. (TQ)
VERT. C. (TR)
VERT. C. (TS)
VERT. C. (TT)
VERT. C. (TU)
VERT. C. (TV)
VERT. C. (TW)
VERT. C. (TX)
VERT. C. (TY)
VERT. C. (TZ)
VERT. C. (UA)
VERT. C. (UB)
VERT. C. (UC)
VERT. C. (UD)
VERT. C. (UE)
VERT. C. (UF)
VERT. C. (UG)
VERT. C. (UH)
VERT. C. (UI)
VERT. C. (UJ)
VERT. C. (UK)
VERT. C. (UL)
VERT. C. (UM)
VERT. C. (UN)
VERT. C. (UO)
VERT. C. (UP)
VERT. C. (UQ)
VERT. C. (UR)
VERT. C. (US)
VERT. C. (UT)
VERT. C. (UU)
VERT. C. (UV)
VERT. C. (UW)
VERT. C. (UX)
VERT. C. (UY)
VERT. C. (UZ)
VERT. C. (VA)
VERT. C. (VB)
VERT. C. (VC)
VERT. C. (VD)
VERT. C. (VE)
VERT. C. (VF)
VERT. C. (VG)
VERT. C. (VH)
VERT. C. (VI)
VERT. C. (VJ)
VERT. C. (VK)
VERT. C. (VL)
VERT. C. (VM)
VERT. C. (VN)
VERT. C. (VO)
VERT. C. (VP)
VERT. C. (VQ)
VERT. C. (VR)
VERT. C. (VS)
VERT. C. (VT)
VERT. C. (VU)
VERT. C. (VV)
VERT. C. (VW)
VERT. C. (VX)
VERT. C. (VY)
VERT. C. (VZ)
VERT. C. (WA)
VERT. C. (WB)
VERT. C. (WC)
VERT. C. (WD)
VERT. C. (WE)
VERT. C. (WF)
VERT. C. (WG)
VERT. C. (WH)
VERT. C. (WI)
VERT. C. (WJ)
VERT. C. (WK)
VERT. C. (WL)
VERT. C. (WM)
VERT. C. (WN)
VERT. C. (WO)
VERT. C. (WP)
VERT. C. (WQ)
VERT. C. (WR)
VERT. C. (WS)
VERT. C. (WT)
VERT. C. (WU)
VERT. C. (WV)
VERT. C. (WW)
VERT. C. (WX)
VERT. C. (WY)
VERT. C. (WZ)
VERT. C. (XA)
VERT. C. (XB)
VERT. C. (XC)
VERT. C. (XD)
VERT. C. (XE)
VERT. C. (XF)
VERT. C. (XG)
VERT. C. (XH)
VERT. C. (XI)
VERT. C. (XJ)
VERT. C. (XK)
VERT. C. (XL)
VERT. C. (XM)
VERT. C. (XN)
VERT. C. (XO)
VERT. C. (XP)
VERT. C. (XQ)
VERT. C. (XR)
VERT. C. (XS)
VERT. C. (XT)
VERT. C. (XU)
VERT. C. (XV)
VERT. C. (XW)
VERT. C. (XX)
VERT. C. (XY)
VERT. C. (XZ)
VERT. C. (YA)
VERT. C. (YB)
VERT. C. (YC)
VERT. C. (YD)
VERT. C. (YE)
VERT. C. (YF)
VERT. C. (YG

DRAINAGE INLET SCHEDULE

NO.	STATION	OFFSET	BOX SIZE	GRATE	T.G. EL.	INV. EL.
136	1132+32.08	120' RT.	48" x 30"	2	25.06	21.31

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
136	24" RCP	IV	146'	0.0030	19.87	19.43

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
137	24" RCP	0.0030	NO
138	18" RCP	0.0030	NO

RIPRAP SCHEDULE

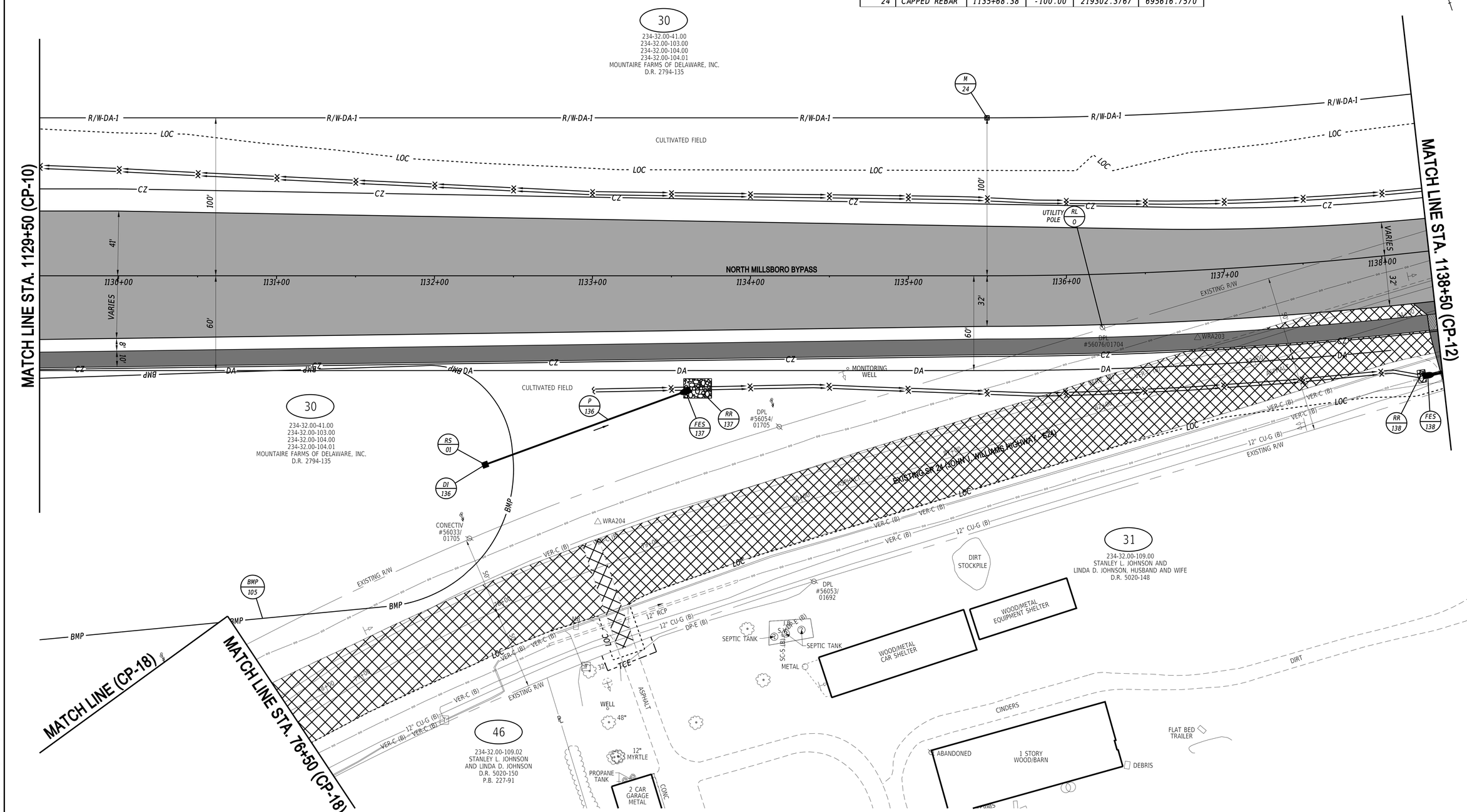
NO.	TYPE	AREA (SY)
137	R-4	25
138	R-4	5

NOTES:

1. SEE SHEETS XX-XX FOR SWM RISER STRUCTURE AND SWM BASIN DETAILS.
2. CONTRACTOR TO USE CLASS A BEDDING, SEE SHEETS XX-XX FOR SWM DETAILS.

RIGHT-OF-WAY MONUMENT SCHEDULE

NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
24	CAPPED REBAR	1135+68.38	-100.00	219302.3767	695616.7570



ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-11
SECTION
WRA
SHEET NO.
27

3/4/2022
6:13:39 PM
N:\32149-002\CADD\US 113 NM Bypass\CP11_NMBP.dgn

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
138	18" RCP	IV	204'	0.0046	18.00	17.06
140	18" RCP	IV	82'	0.0058	17.48	17.00
151	18" RCP	IV	12'	0.0046	17.06	17.00

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
139	18" RCP	0.0050	NO
140	18" RCP	0.0058	NO
141	18" RCP	0.0058	NO

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
139	R-4	14
140	R-4	5
141	R-4	14

ROADWAY CORE SCHEDULE

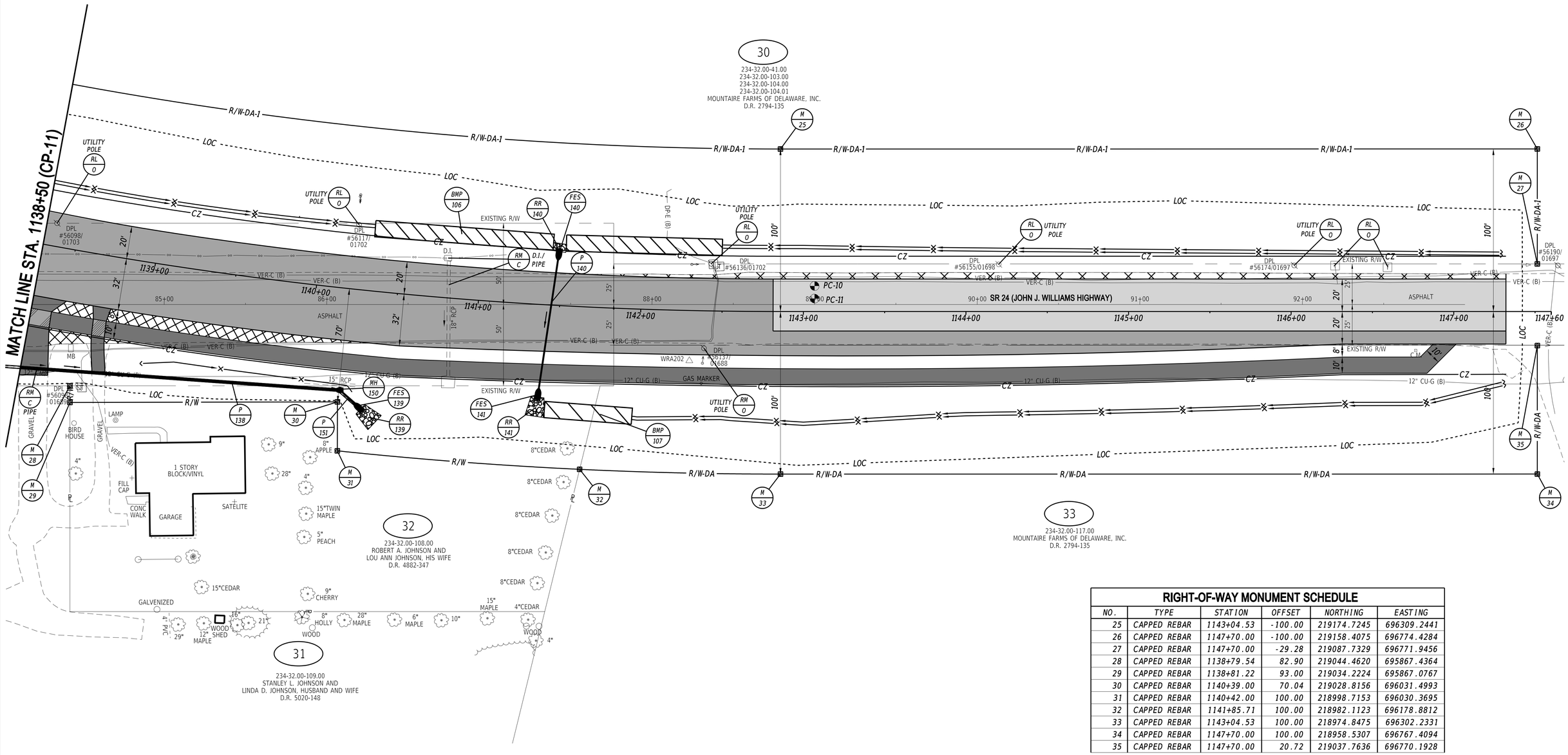
NO.	STATION	OFFSET	DESCRIPTION
PC-10	1143+06.91	15.7' LT.	8.5" HMA / 8.5" PCC / 6+" FILL
PC-11	1143+06.91	8.0' LT.	8" HMA / ORIGINAL

DELDOT SWM FACILITY SCHEDULE

NO.	TYPE / DESCRIPTION	LOCATION
106	INFILTRATION TRENCH	STA. 1140+30 LT. TO STA. 1142+50 LT.
107	INFILTRATION TRENCH	STA. 1141+50 RT. TO STA. 1142+00 RT.

MANHOLE SCHEDULE

NO.	STATION	OFFSET	TYPE/SIZE	T.G. EL.	INVERT EL.
150	1140+21.15	62.65 RT.	48" x 30"	20.50	17.06



RIGHT-OF-WAY MONUMENT SCHEDULE

NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
25	CAPPED REBAR	1143+04.53	-100.00	219174.7245	696309.2441
26	CAPPED REBAR	1147+70.00	-100.00	219158.4075	696774.4284
27	CAPPED REBAR	1147+70.00	-29.28	219087.7329	696771.9456
28	CAPPED REBAR	1138+79.54	82.90	219044.4620	695867.4364
29	CAPPED REBAR	1138+81.22	93.00	219034.2224	695867.0767
30	CAPPED REBAR	1140+39.00	70.04	219028.8156	696031.4993
31	CAPPED REBAR	1140+42.00	100.00	218998.7153	696030.3695
32	CAPPED REBAR	1141+85.71	100.00	218982.1123	696178.8812
33	CAPPED REBAR	1143+04.53	100.00	218974.8475	696302.2331
34	CAPPED REBAR	1147+70.00	100.00	218958.5307	696767.4094
35	CAPPED REBAR	1147+70.00	20.72	219037.7636	696770.1928

ADDENDA / REVISIONS

SCALE 0 30 60 90 FEET

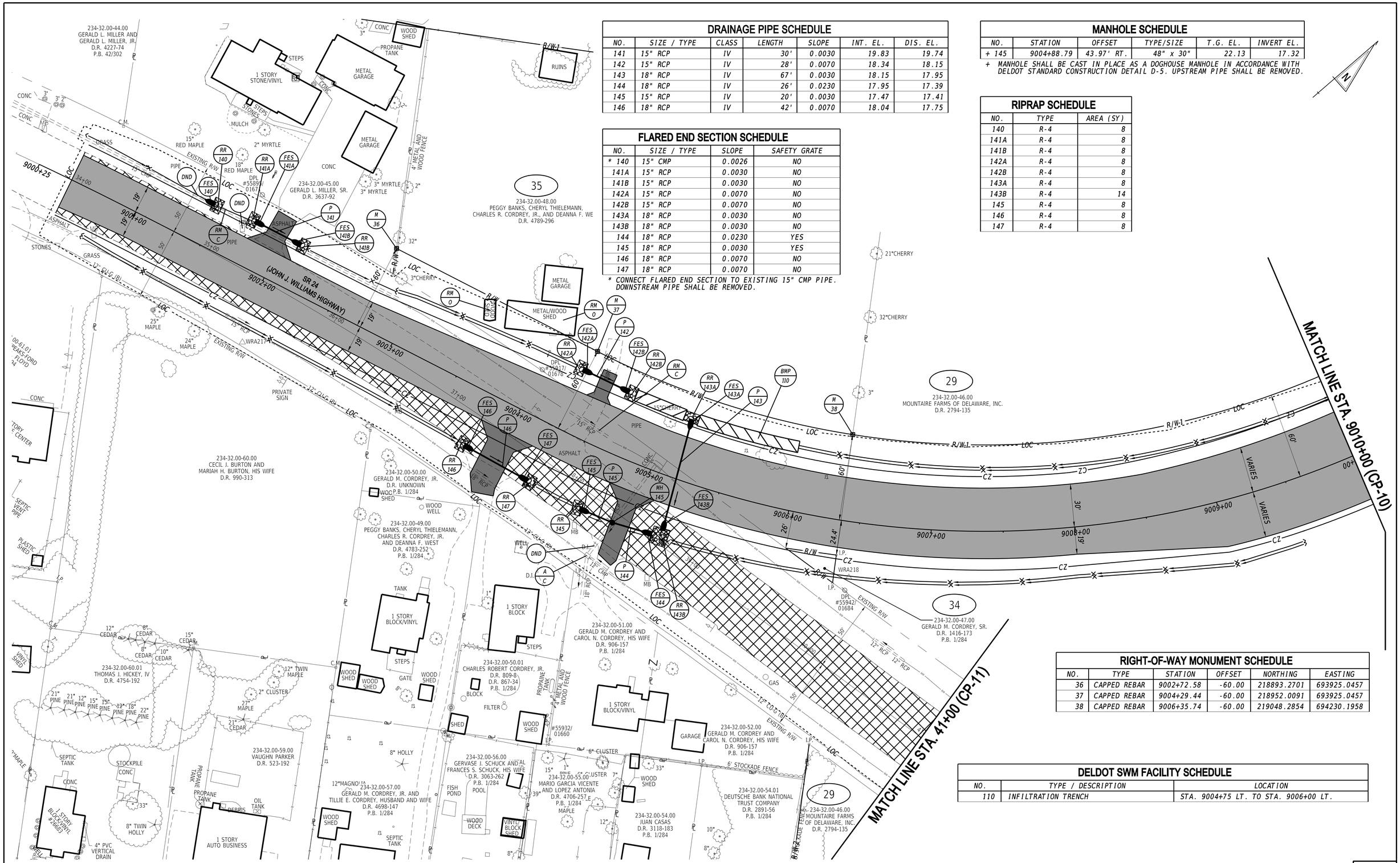
CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY	CHECKED BY: T. OLIVER	
SUSSEX		

CONSTRUCTION PLAN

CP-12
SECTION WRA
SHEET NO. 28

3/4/2022
6:13:40 PM
N:\32149-002\CADD\US 113 NM Bypass\CP12_NMBP.dgn



DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
141	15" RCP	IV	30'	0.0030	19.83	19.74
142	15" RCP	IV	28'	0.0070	18.34	18.15
143	18" RCP	IV	67'	0.0030	18.15	17.95
144	18" RCP	IV	26'	0.0230	17.95	17.39
145	15" RCP	IV	20'	0.0030	17.47	17.41
146	18" RCP	IV	42'	0.0070	18.04	17.75

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
* 140	15" CMP	0.0026	NO
141A	15" RCP	0.0030	NO
141B	15" RCP	0.0030	NO
142A	15" RCP	0.0070	NO
142B	15" RCP	0.0070	NO
143A	18" RCP	0.0030	NO
143B	18" RCP	0.0030	NO
144	18" RCP	0.0230	YES
145	18" RCP	0.0030	YES
146	18" RCP	0.0070	NO
147	18" RCP	0.0070	NO

* CONNECT FLARED END SECTION TO EXISTING 15" CMP PIPE. DOWNSTREAM PIPE SHALL BE REMOVED.

MANHOLE SCHEDULE

NO.	STATION	OFFSET	TYPE/SIZE	T.G. EL.	INVERT EL.
+ 145	9004+88.79	43.97' RT.	48" x 30"	22.13	17.32

\+ MANHOLE SHALL BE CAST IN PLACE AS A DOGHOUSE MANHOLE IN ACCORDANCE WITH DELDOT STANDARD CONSTRUCTION DETAIL D-5. UPSTREAM PIPE SHALL BE REMOVED.

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
140	R-4	8
141A	R-4	8
141B	R-4	8
142A	R-4	8
142B	R-4	8
143A	R-4	8
143B	R-4	14
145	R-4	8
146	R-4	8
147	R-4	8

RIGHT-OF-WAY MONUMENT SCHEDULE

NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
36	CAPPED REBAR	9002+72.58	-60.00	218893.2701	693925.0457
37	CAPPED REBAR	9004+29.44	-60.00	218952.0091	693925.0457
38	CAPPED REBAR	9006+35.74	-60.00	219048.2854	694230.1958

DELDOT SWM FACILITY SCHEDULE

NO.	TYPE / DESCRIPTION	LOCATION
110	INFILTRATION TRENCH	STA. 9004+75 LT. TO STA. 9006+00 LT.

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-13
SECTION
WRA
SHEET NO.
29

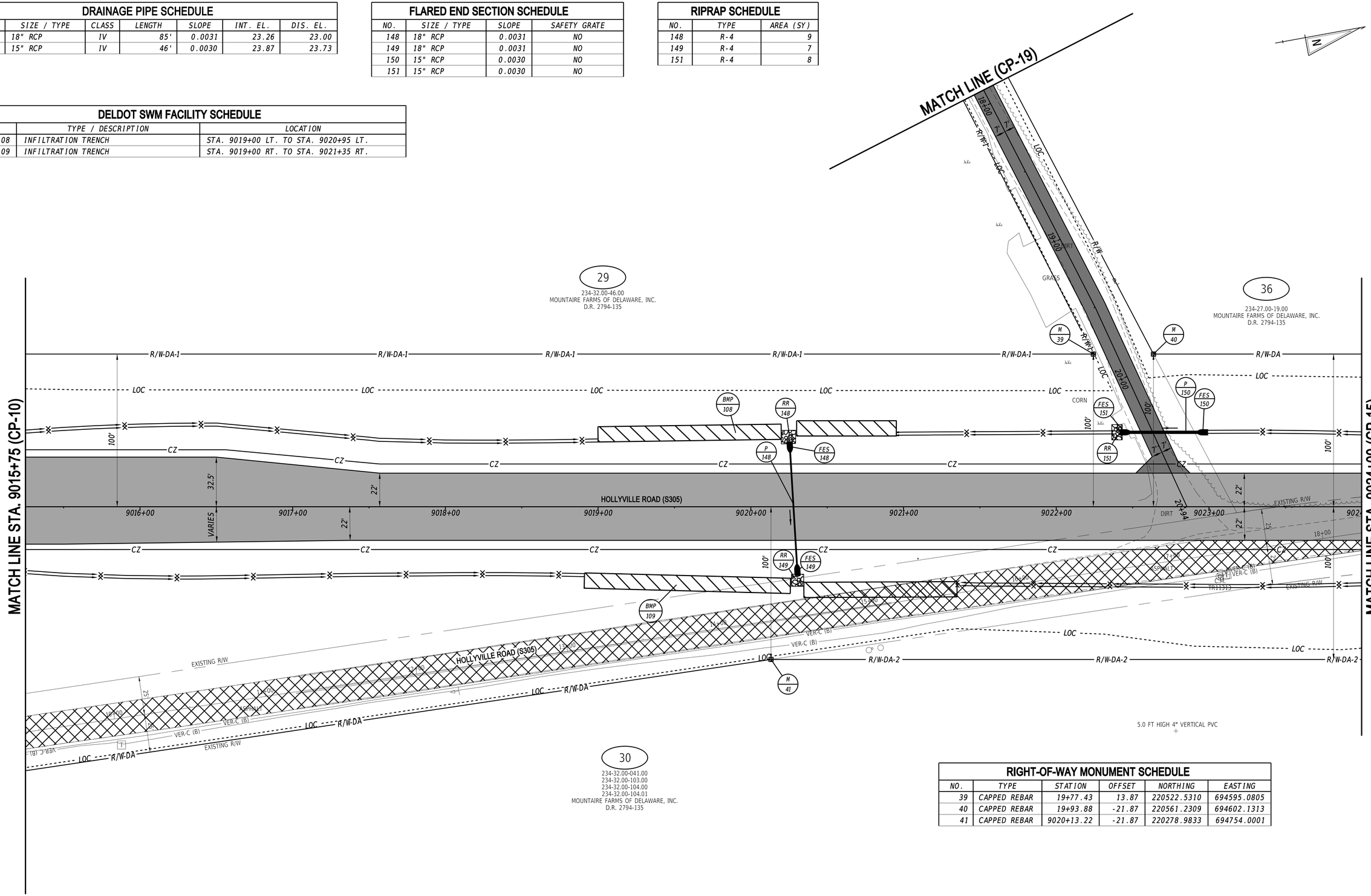
3/4/2022
6:13:41 PM
N:\32149\002\CADD\US 113 NM Bypass\CP13_NMBP.dgn

DRAINAGE PIPE SCHEDULE						
NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
148	18" RCP	IV	85'	0.0031	23.26	23.00
150	15" RCP	IV	46'	0.0030	23.87	23.73

FLARED END SECTION SCHEDULE			
NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
148	18" RCP	0.0031	NO
149	18" RCP	0.0031	NO
150	15" RCP	0.0030	NO
151	15" RCP	0.0030	NO

RIPRAP SCHEDULE		
NO.	TYPE	AREA (SY)
148	R-4	9
149	R-4	7
151	R-4	8

DELDOT SWM FACILITY SCHEDULE		
NO.	TYPE / DESCRIPTION	LOCATION
108	INFILTRATION TRENCH	STA. 9019+00 LT. TO STA. 9020+95 LT.
109	INFILTRATION TRENCH	STA. 9019+00 RT. TO STA. 9021+35 RT.



RIGHT-OF-WAY MONUMENT SCHEDULE					
NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
39	CAPPED REBAR	19+77.43	13.87	220522.5310	694595.0805
40	CAPPED REBAR	19+93.88	-21.87	220561.2309	694602.1313
41	CAPPED REBAR	9020+13.22	-21.87	220278.9833	694754.0001

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

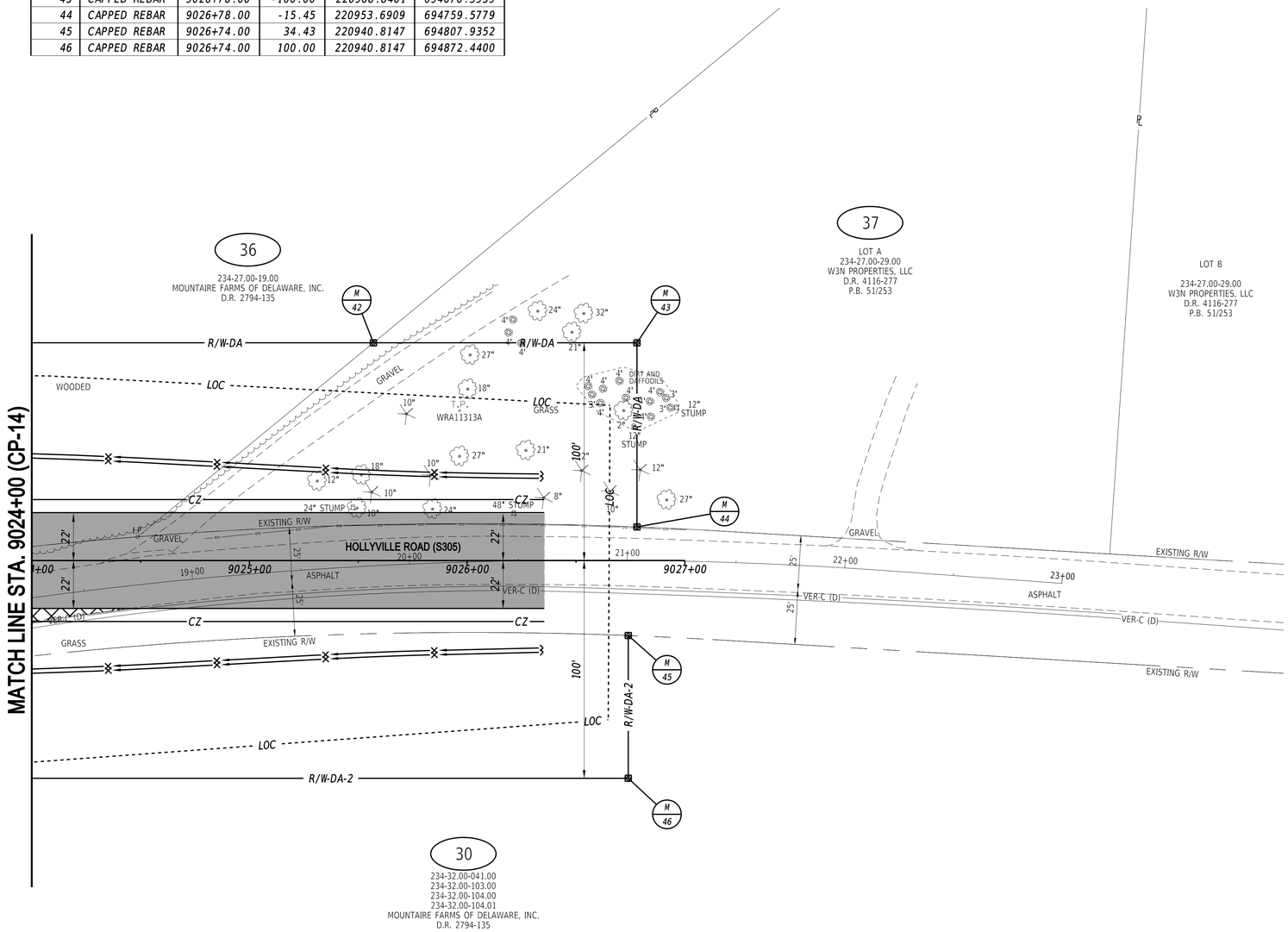
CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-14
SECTION
WRA
SHEET NO.
30

3/4/2022
6:13:42 PM
N:\32149-002\CADD\US 113 NM Bypass\CP14_NMBP.dgn

RIGHT-OF-WAY MONUMENT SCHEDULE					
NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
42	CAPPED REBAR	9025+56.93	-100.00	220849.7391	694654.6955
43	CAPPED REBAR	9026+78.00	-100.00	220968.8461	694676.3959
44	CAPPED REBAR	9026+78.00	-15.45	220953.6909	694759.5779
45	CAPPED REBAR	9026+74.00	34.43	220940.8147	694807.9352
46	CAPPED REBAR	9026+74.00	100.00	220940.8147	694872.4400



3/4/2022
6:13:43 PM
N:\32149-002\CADD\US 113 NM Bypass\CP15_NMBP.dgn

ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-15
SECTION
WRA
SHEET NO.
31

DRAINAGE PIPE SCHEDULE

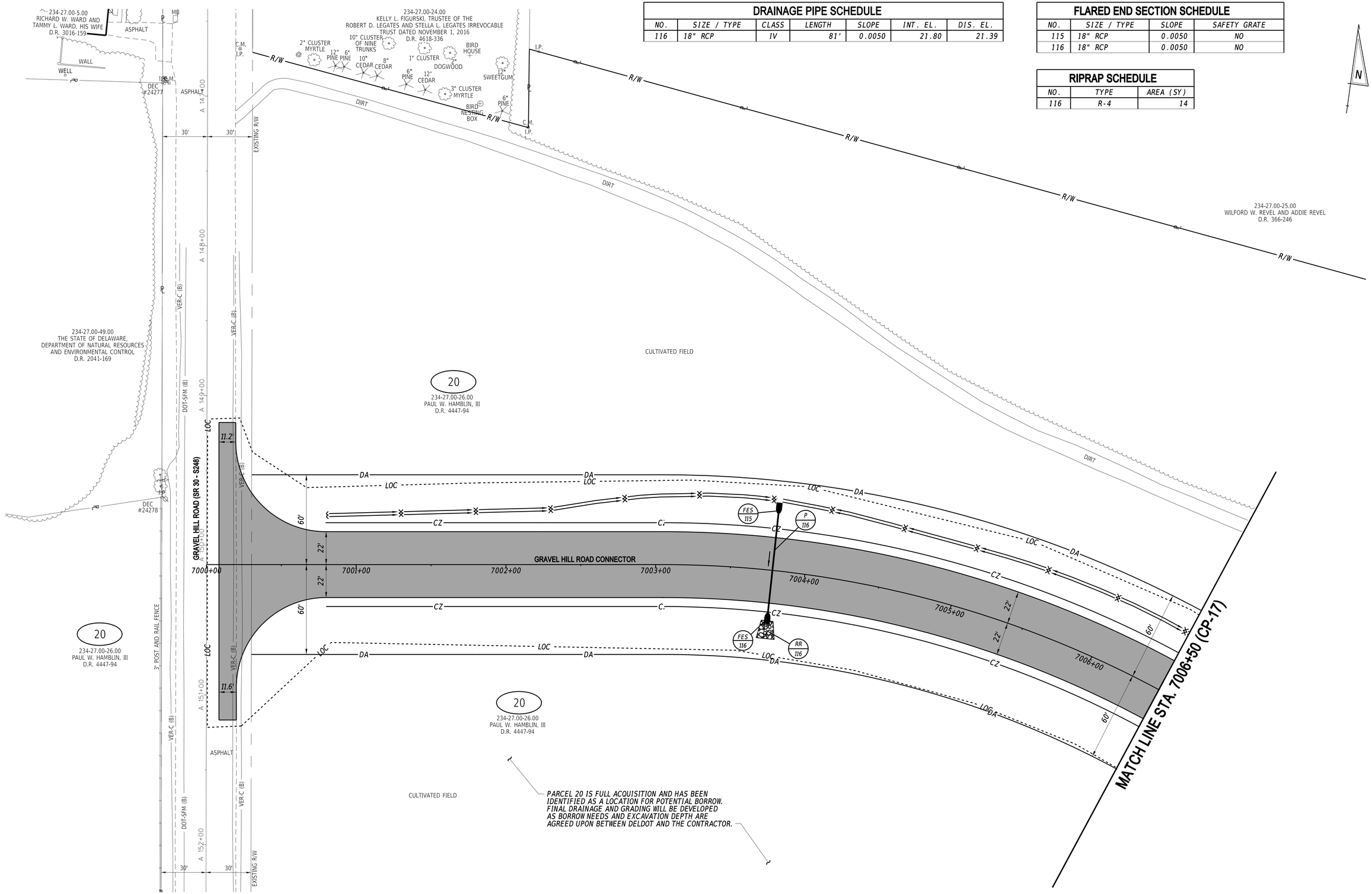
NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
116	18" RCP	IV	81'	0.0050	21.80	21.39

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
115	18" RCP	0.0050	NO
116	18" RCP	0.0050	NO

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
116	R-4	14



ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

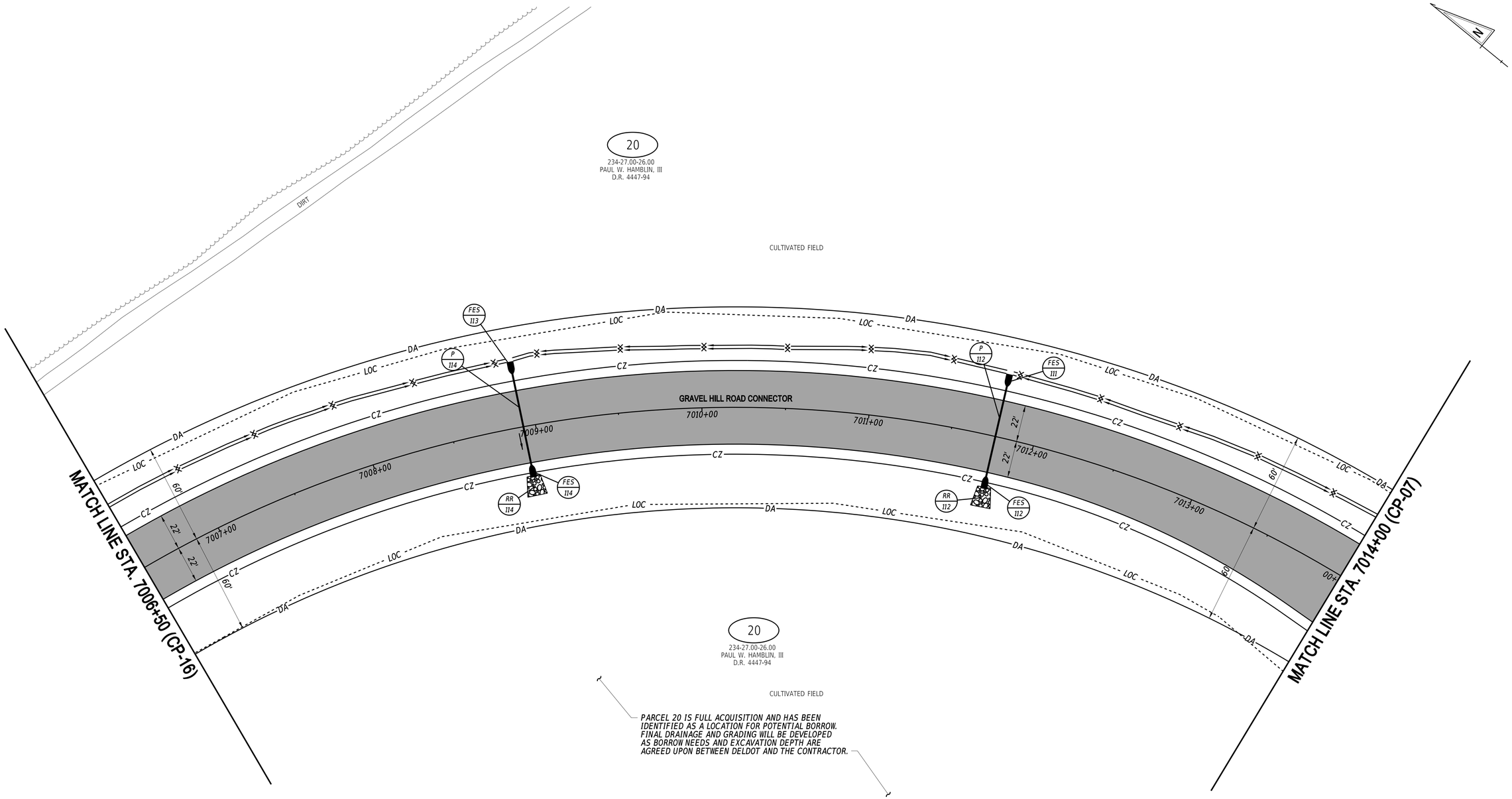
CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-16
SECTION
WRA
SHEET NO.
32

3/4/2022
6:13:44 PM
N:\32149-002\CADD\US 113 NM Bypass\CP16_NMBP.dgn



PARCEL 20 IS FULL ACQUISITION AND HAS BEEN IDENTIFIED AS A LOCATION FOR POTENTIAL BORROW. FINAL DRAINAGE AND GRADING WILL BE DEVELOPED AS BORROW NEEDS AND EXCAVATION DEPTH ARE AGREED UPON BETWEEN DELDOT AND THE CONTRACTOR.

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
112	18" RCP	IV	70'	0.0050	20.41	20.06
114	18" RCP	IV	70'	0.0050	20.72	20.37

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
111	18" RCP	0.0050	NO
112	18" RCP	0.0050	NO
113	18" RCP	0.0050	NO
114	18" RCP	0.0050	NO

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
112	R-4	14
114	R-4	14

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

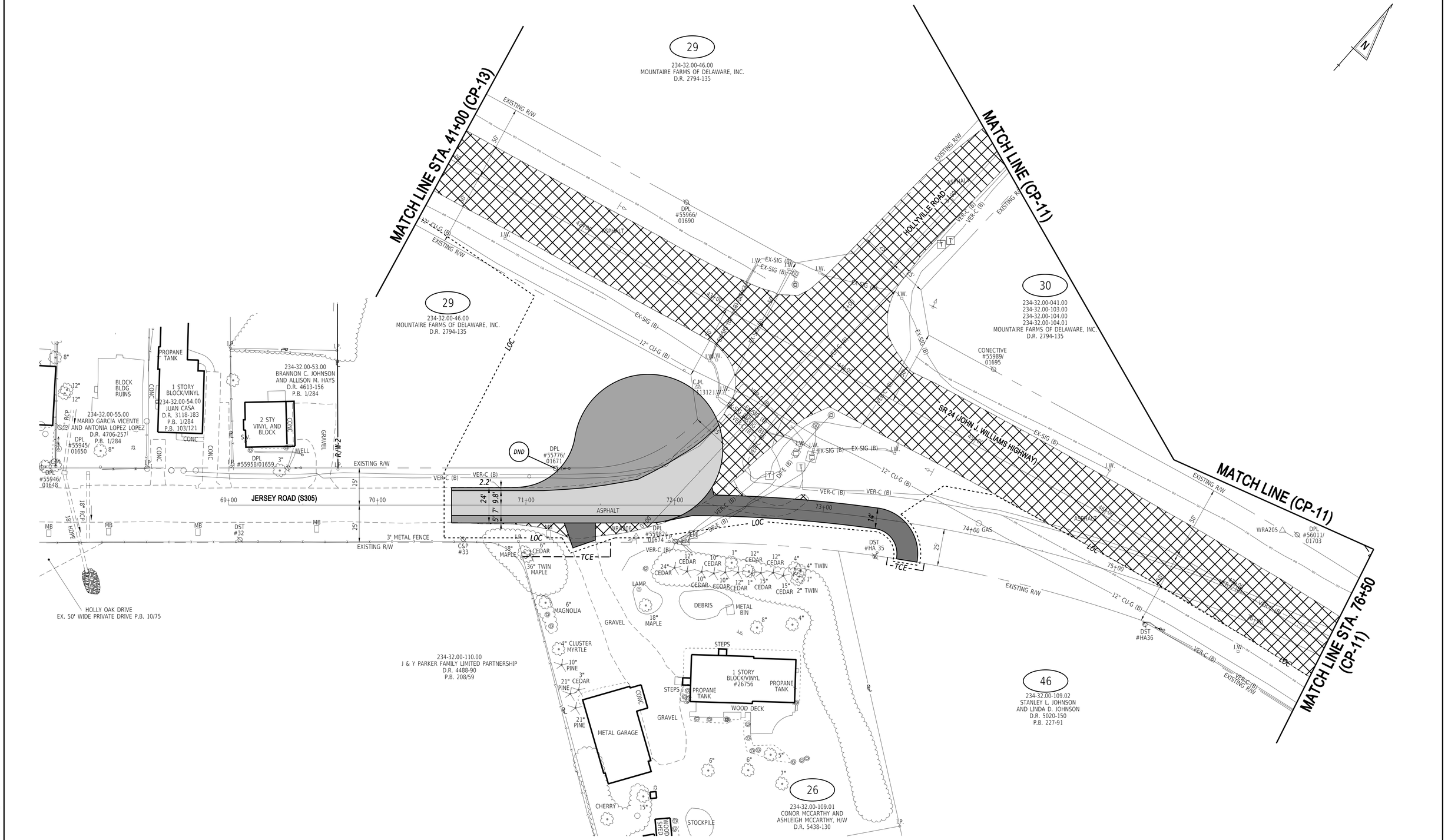
CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-17
SECTION
WRA
SHEET NO.
33

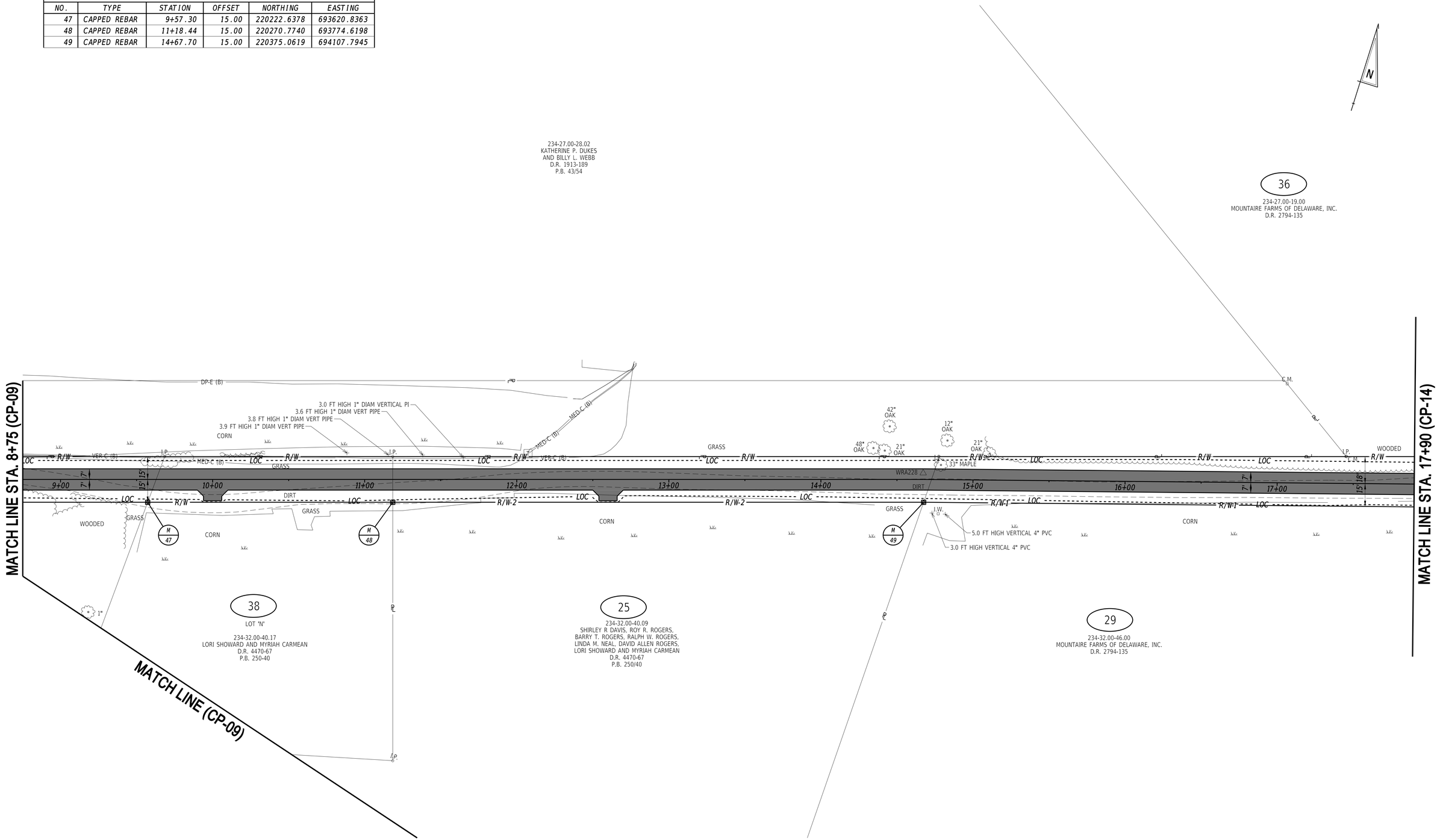
3/4/2022
6:13:45 PM
N:\32149-002\CADDUS 113 NM Bypass\CP17_NMBP.dgn



ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	CONSTRUCTION PLAN	CP-18
				COUNTY SUSSEX	DESIGNED BY: S. BEALL		SECTION WRA
					CHECKED BY: T. OLIVER		SHEET NO. 34

3/4/2022
6:13:46 PM
N:\32149-002\CADDUS 113 NM Bypass\CP18_NMBP.dgn

RIGHT-OF-WAY MONUMENT SCHEDULE					
NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
47	CAPPED REBAR	9+57.30	15.00	220222.6378	693620.8363
48	CAPPED REBAR	11+18.44	15.00	220270.7740	693774.6198
49	CAPPED REBAR	14+67.70	15.00	220375.0619	694107.7945



ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

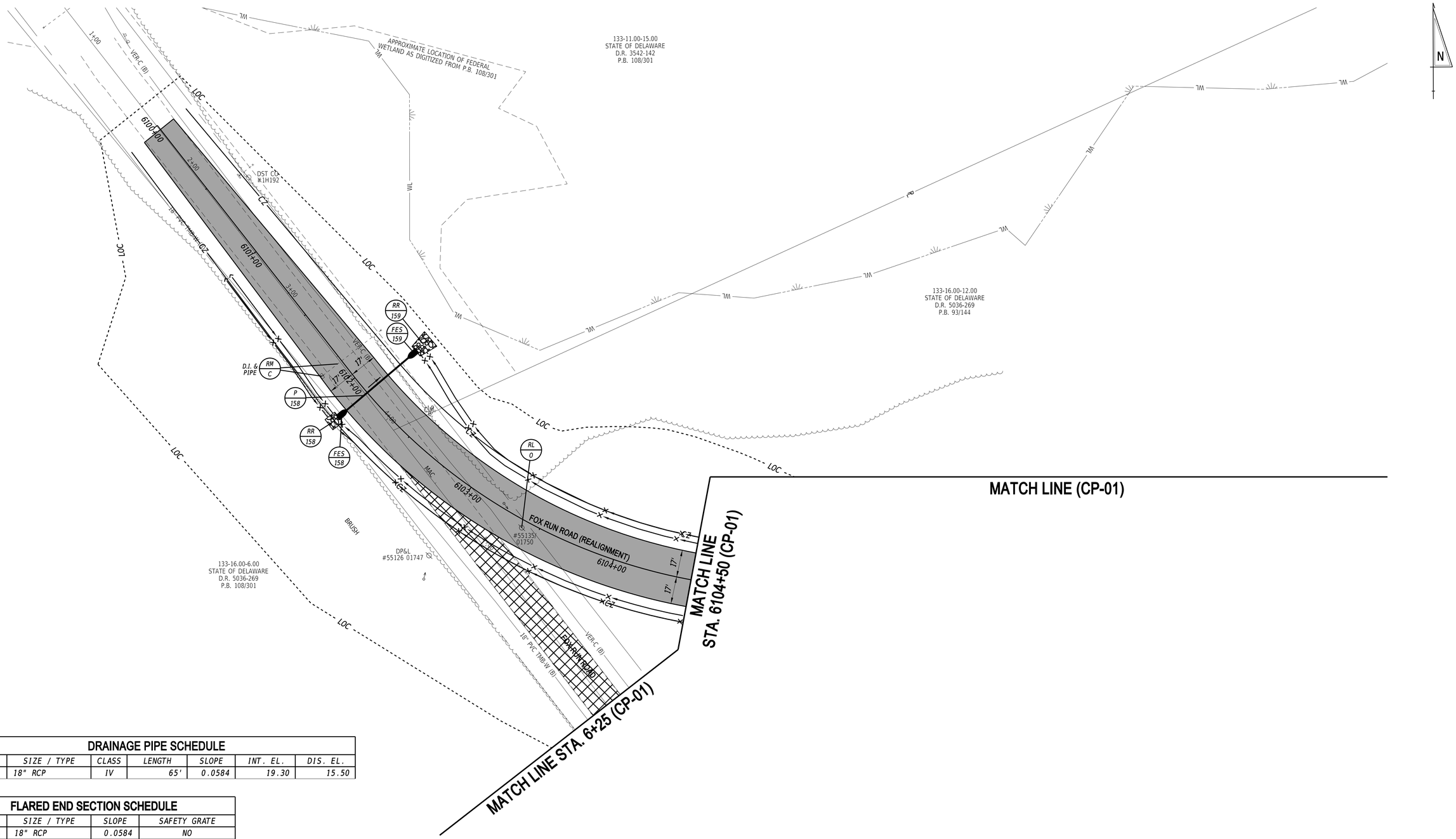
CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-19
SECTION
WRA
SHEET NO.
35

3/4/2022
6:13:47 PM
N:\32149-002\CADD\US 113 NM Bypass\CP19_NMBP.dgn



DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
158	18" RCP	IV	65'	0.0584	19.30	15.50

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
158	18" RCP	0.0584	NO
159	18" RCP	0.0584	NO

RIPRAP SCHEDULE

NO.	TYPE	AREA (SY)
159	R-4	14

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY	CHECKED BY: T. OLIVER	
SUSSEX		

CONSTRUCTION PLAN

CP-20
SECTION
WRA
SHEET NO.
36

3/4/2022
6:13:48 PM
N:\32149-002\CADD\US 113 NM Bypass\CP20_NMBP.dgn

RIGHT-OF-WAY MONUMENT SCHEDULE

NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
50	CAPPED REBAR	6125+44.89	-31.91	218252.4047	687179.8708
51	CAPPED REBAR	6125+52.94	-74.49	218270.4262	687218.9703
52	CAPPED REBAR	6118+35.35	-141.07	218889.3678	687460.3121

DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
160	18" RCP	IV	80'	0.0650	25.75	20.50
162	18" RCP	IV	89'	0.0225	22.00	20.01
164	24" RCP	IV	146'	0.0030	17.44	17.00
165	18" RCP	IV	65'	0.0030	16.55	16.35

DRAINAGE INLET SCHEDULE

NO.	STATION	OFFSET	BOX SIZE	GRATE	T.G. EL.	INV. EL.
165*	6124+38.38	30.91'	34" x 24"	2	22.25	16.55

* DRAINAGE INLET SHALL BE CAST IN PLACE AS A DOGHOUSE INLET IN ACCORDANCE WITH DELDOT STANDARD CONSTRUCTION DETAIL D-5.

FLARED END SECTION SCHEDULE

NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
160	18" RCP	0.0650	NO
161	18" RCP	0.0650	NO
162	18" RCP	0.0225	NO
163	18" RCP	0.0225	NO
164	24" RCP	0.0030	YES
165	18" RCP	0.0030	YES

RIPRAP SCHEDULE

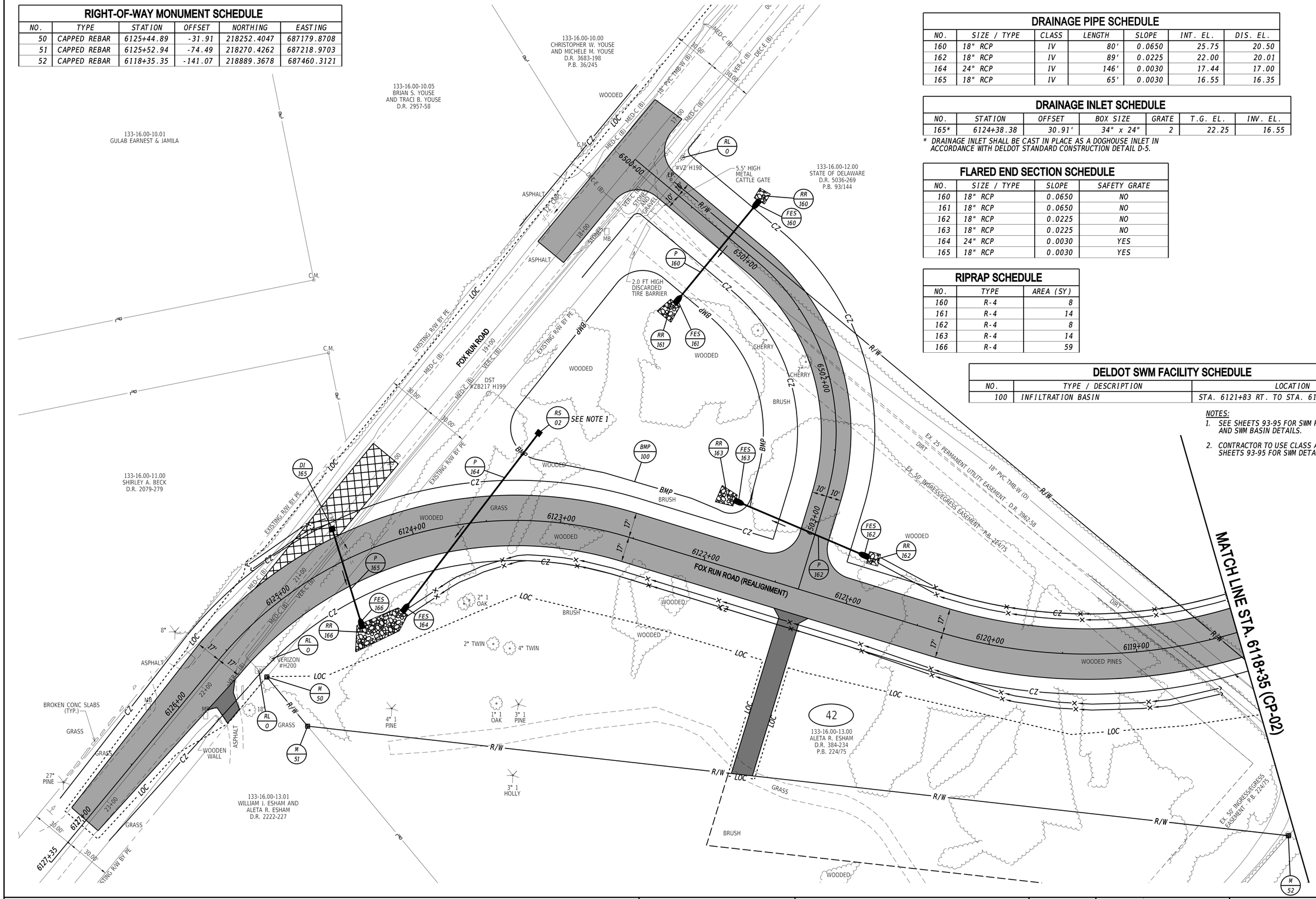
NO.	TYPE	AREA (SY)
160	R-4	8
161	R-4	14
162	R-4	8
163	R-4	14
166	R-4	59

DELDOT SWM FACILITY SCHEDULE

NO.	TYPE / DESCRIPTION	LOCATION
100	INFILTRATION BASIN	STA. 6121+83 RT. TO STA. 6123+33 RT.

NOTES:

1. SEE SHEETS 93-95 FOR SWM RISER STRUCTURE AND SWM BASIN DETAILS.
2. CONTRACTOR TO USE CLASS A BEDDING, SEE SHEETS 93-95 FOR SWM DETAILS.



ADDENDA / REVISIONS	

SCALE 0 30 60 90 FEET

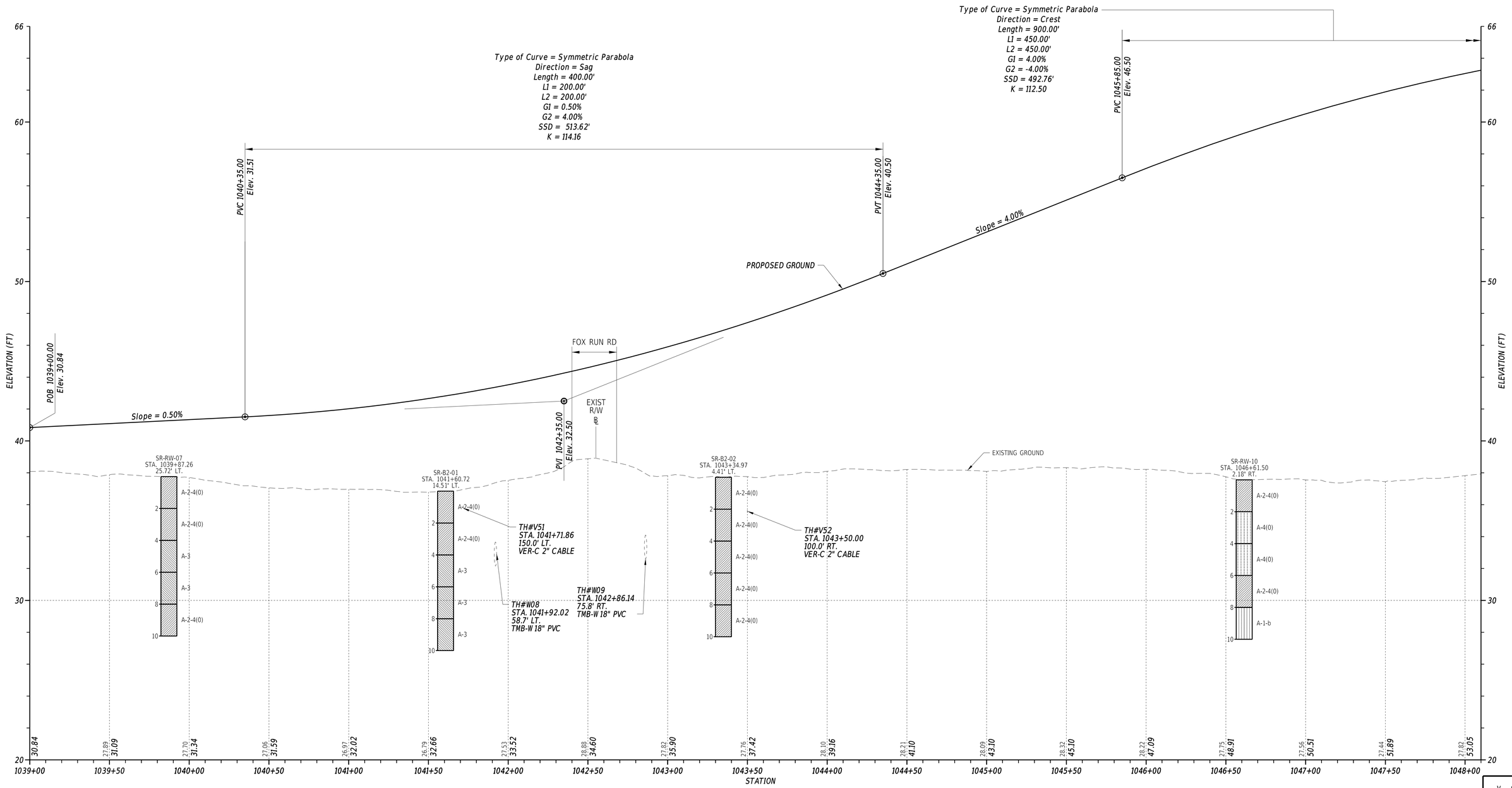
CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: S. BEALL	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

CONSTRUCTION PLAN

CP-21
SECTION
WRA
SHEET NO.
37

3/4/2022
6:13:49 PM
N:\32149-002\CADD\US 113 NM Bypass\CP21_NMBP.dgn

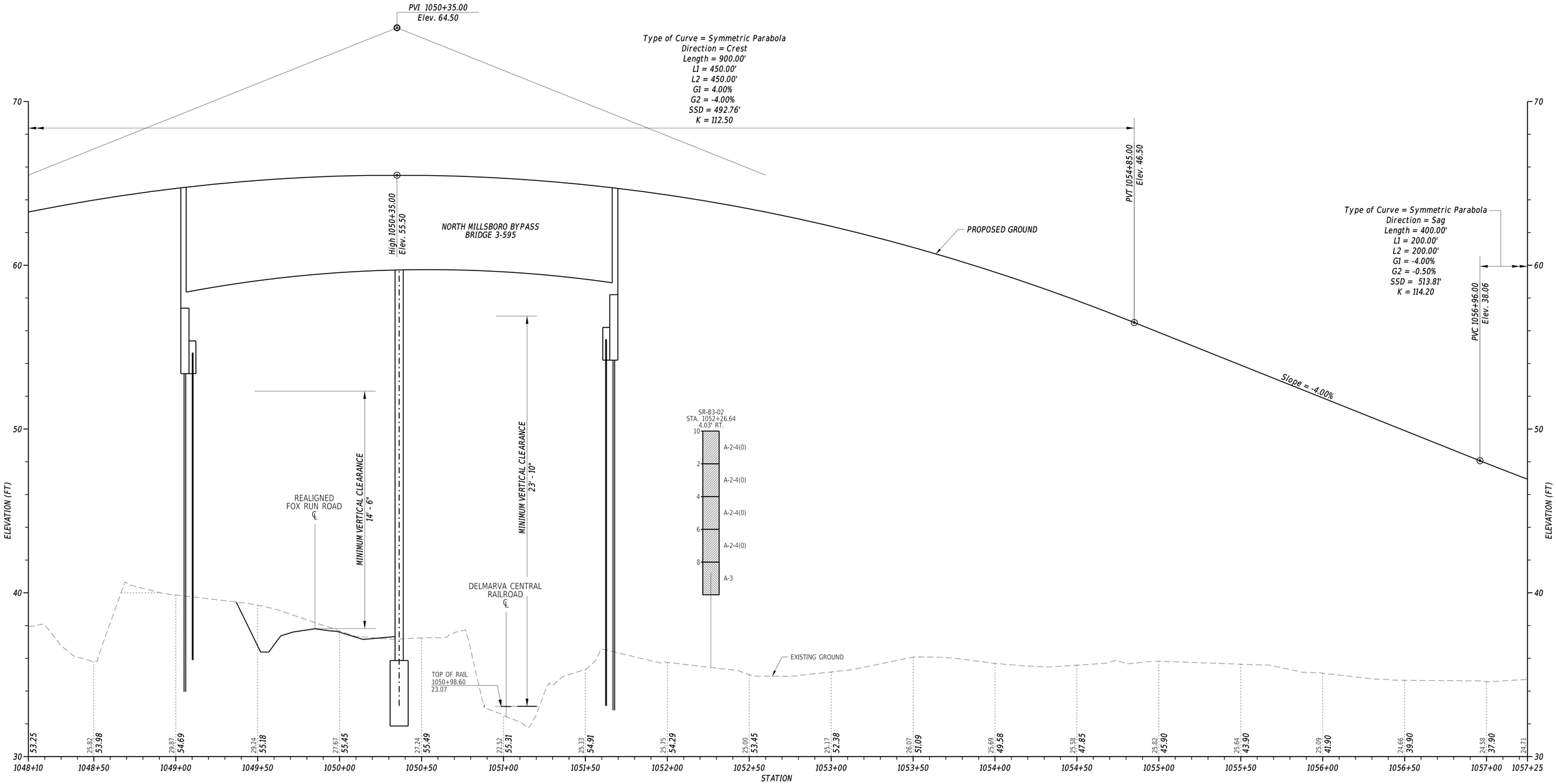


NORTH MILLSBORO BYPASS

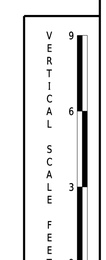
VERTICAL SCALE FEET 0 3 6 9

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 38
					CHECKED BY: T. OLIVER		

3/4/2022
6:13:50 PM
N:\32149-002\CADD\US 113 NM Bypass\PF01_NMBP.dgn

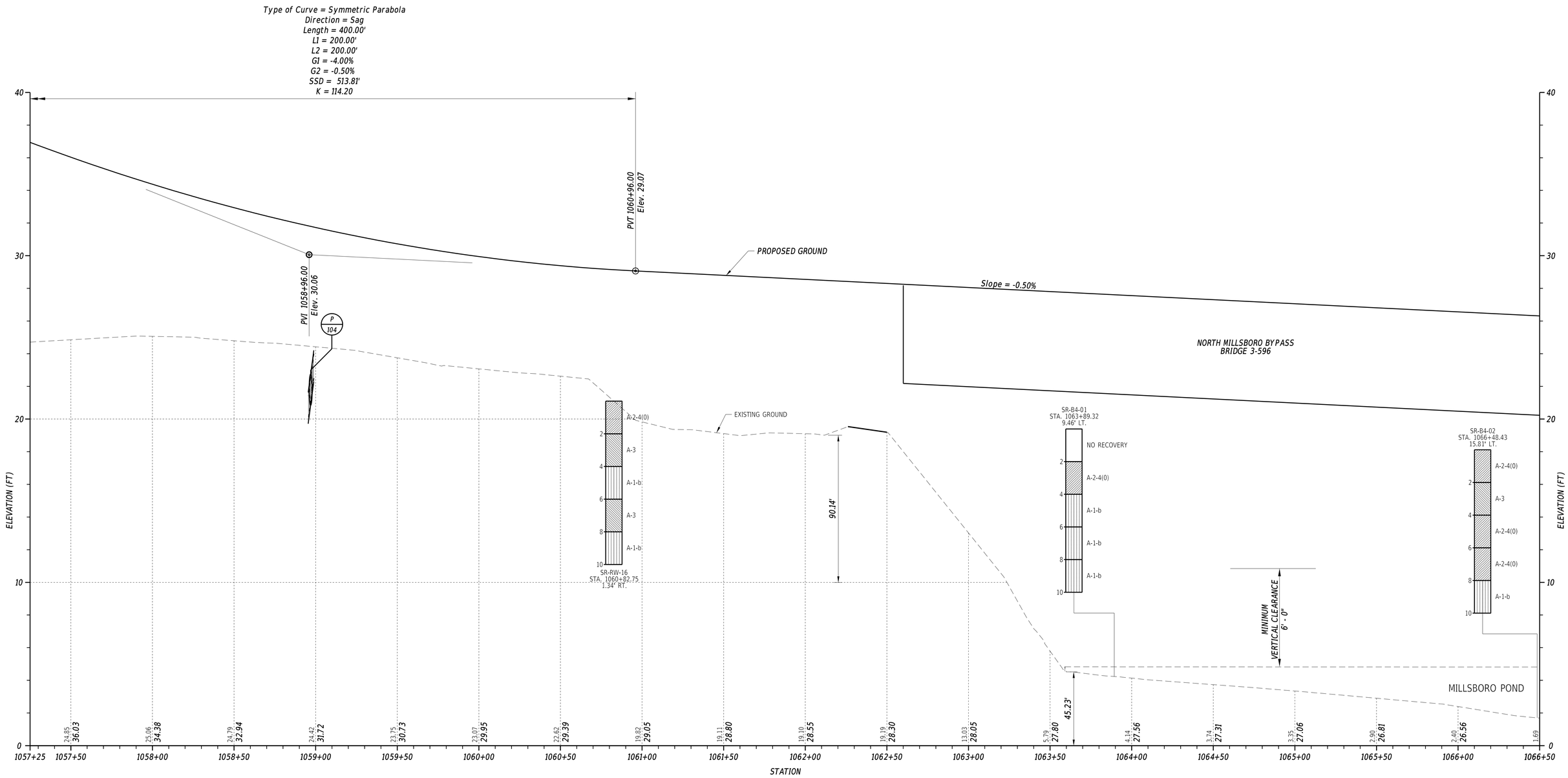


NORTH MILLSBORO BYPASS



ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. 3-595	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 39
					CHECKED BY: T. OLIVER		

3/4/2022
6:13:51 PM
N:\32149-002\CADD\US 113 NM Bypass\PF02_NMBP.dgn



NORTH MILLSBORO BYPASS

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS	

SCALE 0 30 60 90 FEET

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

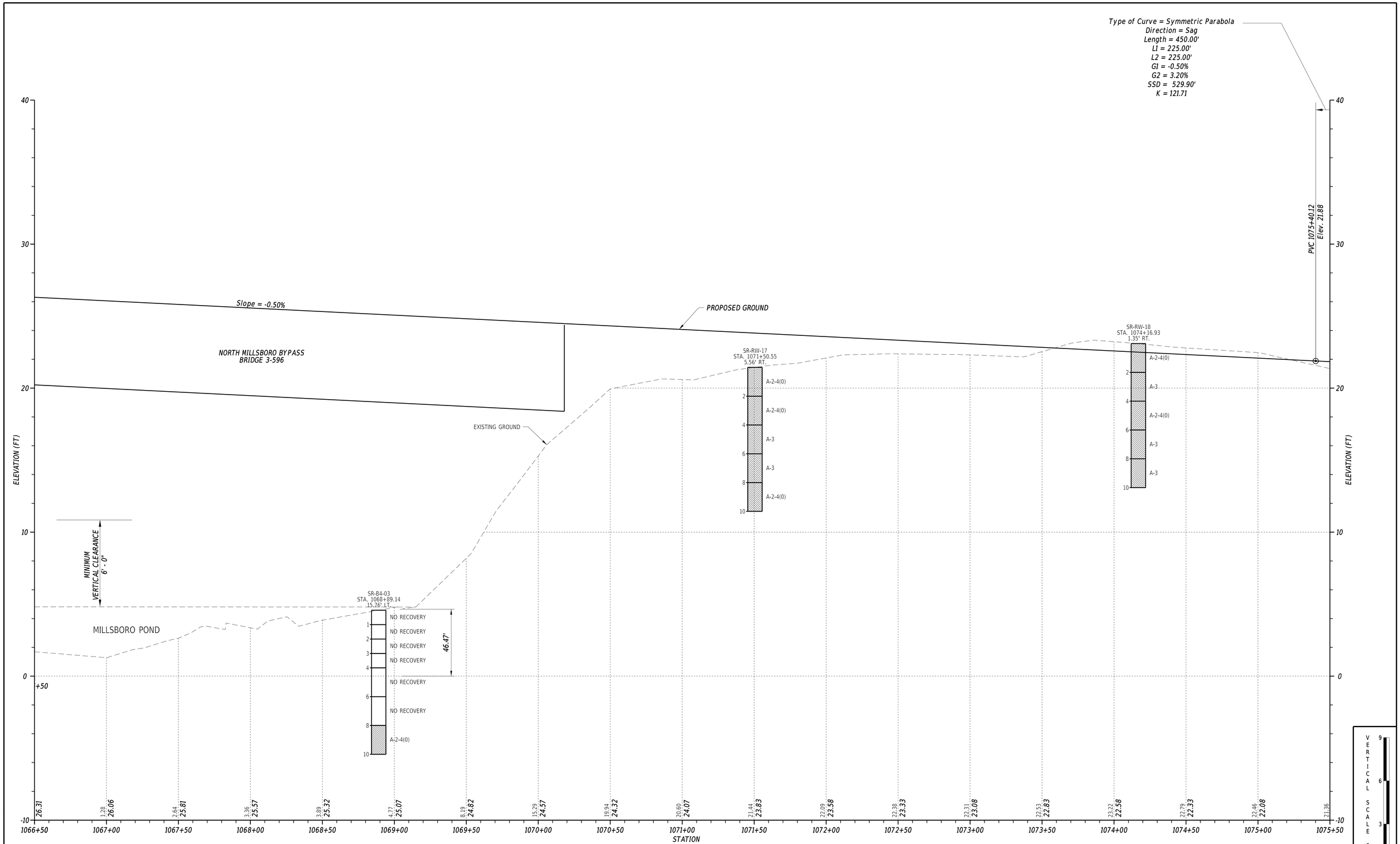
CONTRACT	BRIDGE NO.	3-596
T202112701	DESIGNED BY: M. FOX	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

PROFILE

SECTION WRA

SHEET NO. 40

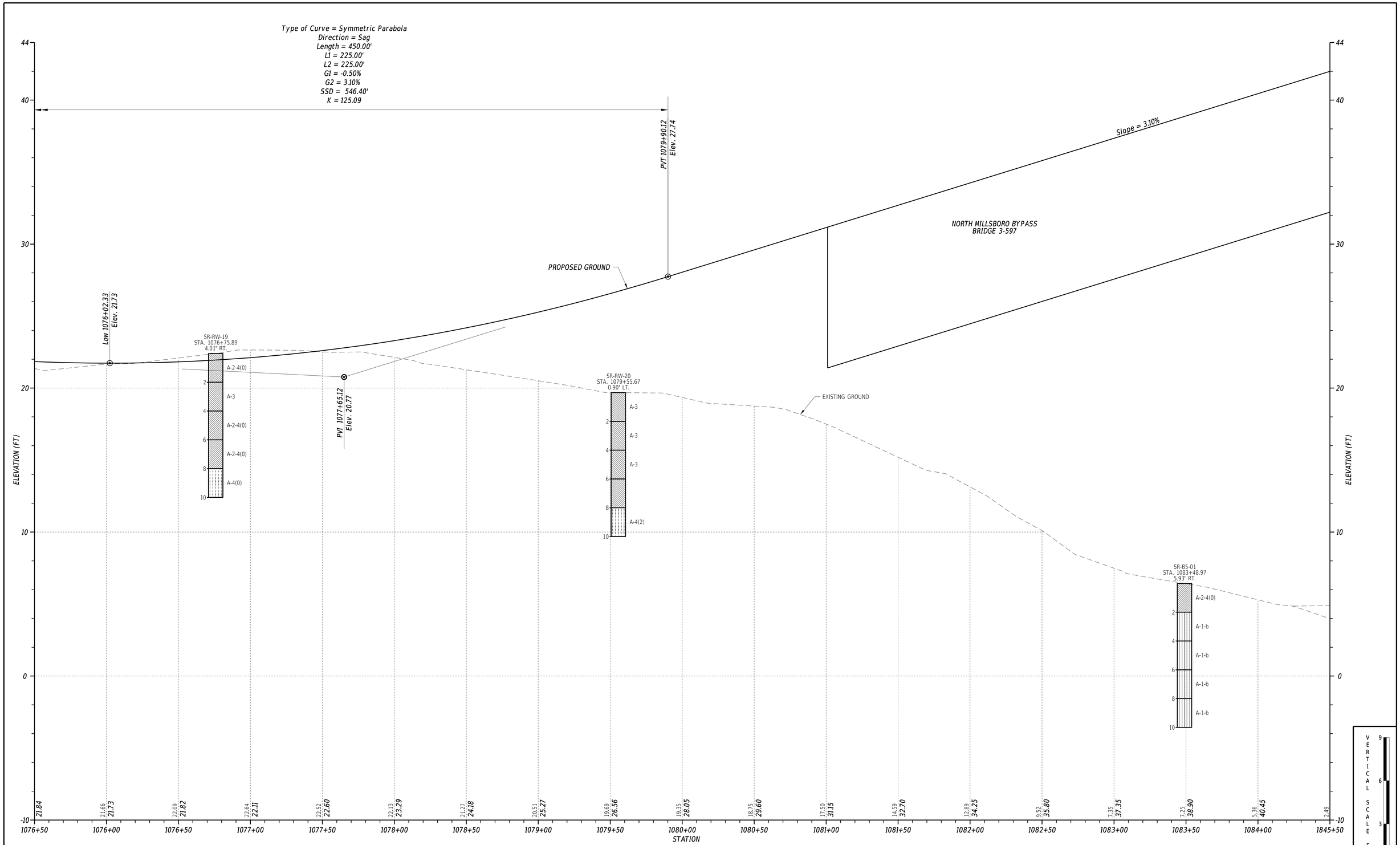
3/4/2022
6:13:52 PM
N:\32149-002\CADD\US 113 NM Bypass\PF03_NMBP.dgn



NORTH MILLSBORO BYPASS

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. 3-596	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 41
					CHECKED BY: T. OLIVER		

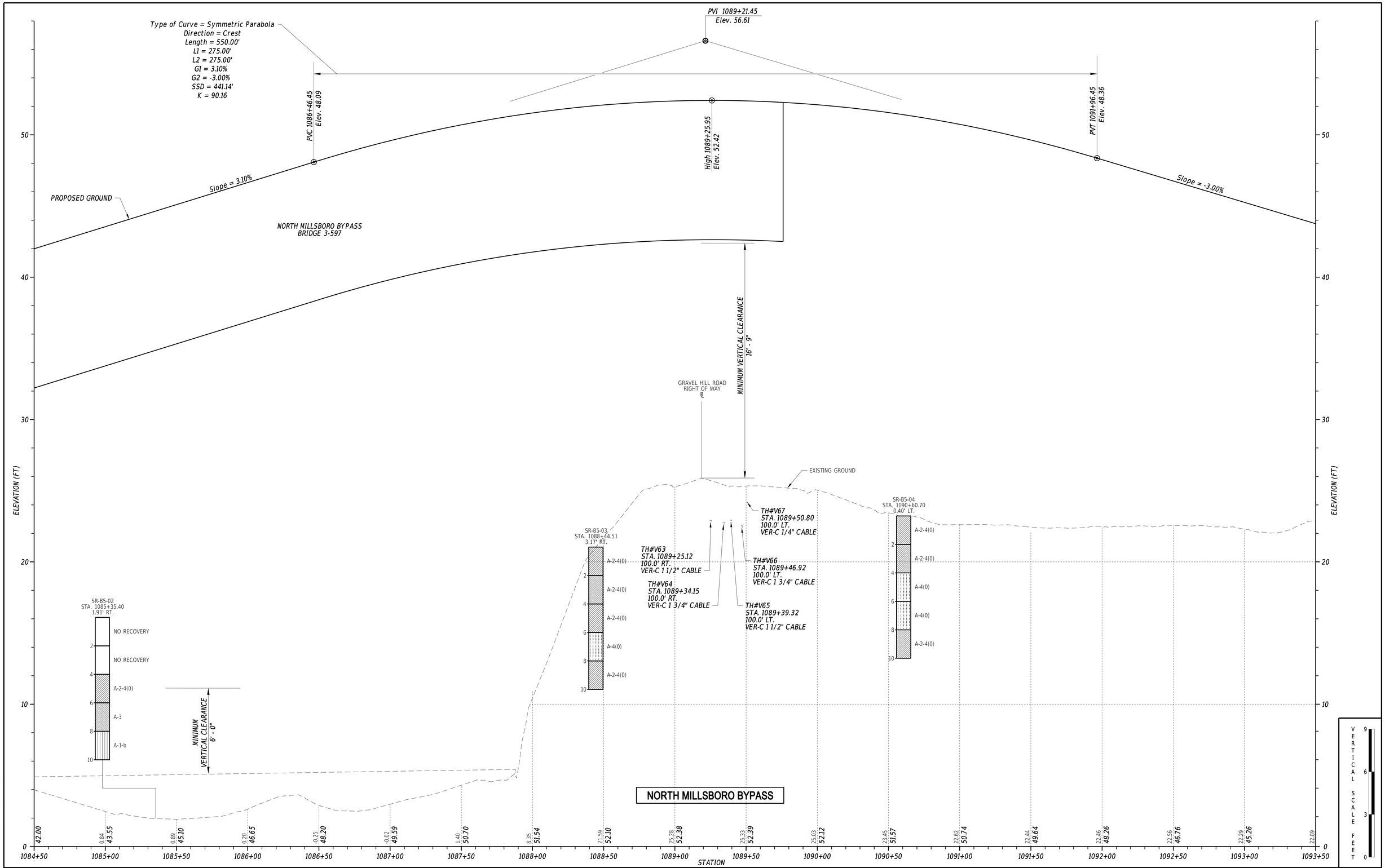
3/4/2022
6:13:53 PM
N:\32149-002\CADD\US 113 NM Bypass\PF04_NMBP.dgn



NORTH MILLSBORO BYPASS

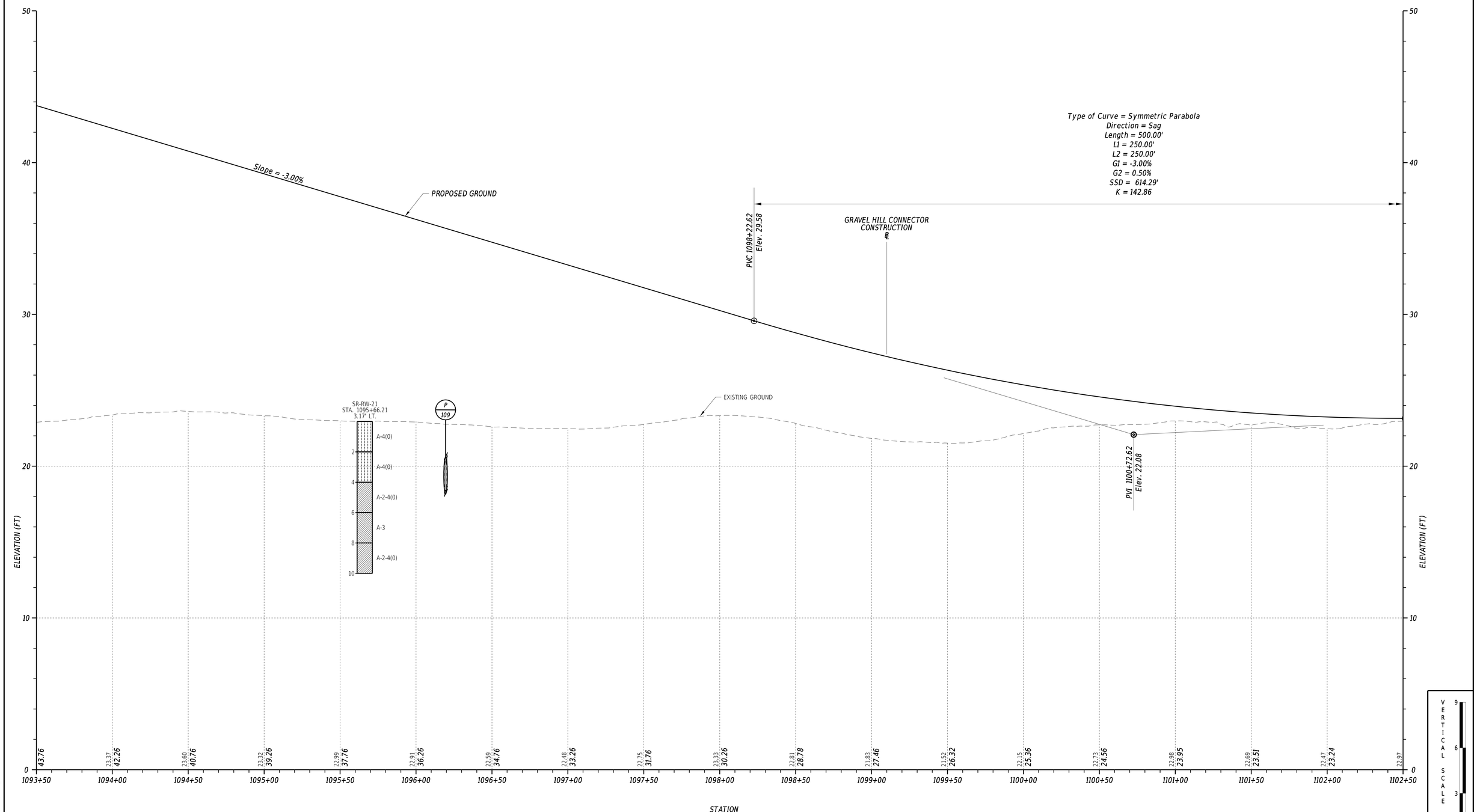
ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. 3-597	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 42
					CHECKED BY: T. OLIVER		

3/4/2022
6:13:54 PM
N:\32149-002\CADD\US 113 NM Bypass\PFDS_NMBP.dgn



ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. 3-597	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 43
					CHECKED BY: T. OLIVER		

3/4/2022
6:13:54 PM
N:\32149-002\CADD\US 113 NM Bypass\PF06_NMBP.dgn



NORTH MILLSBORO BYPASS

ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

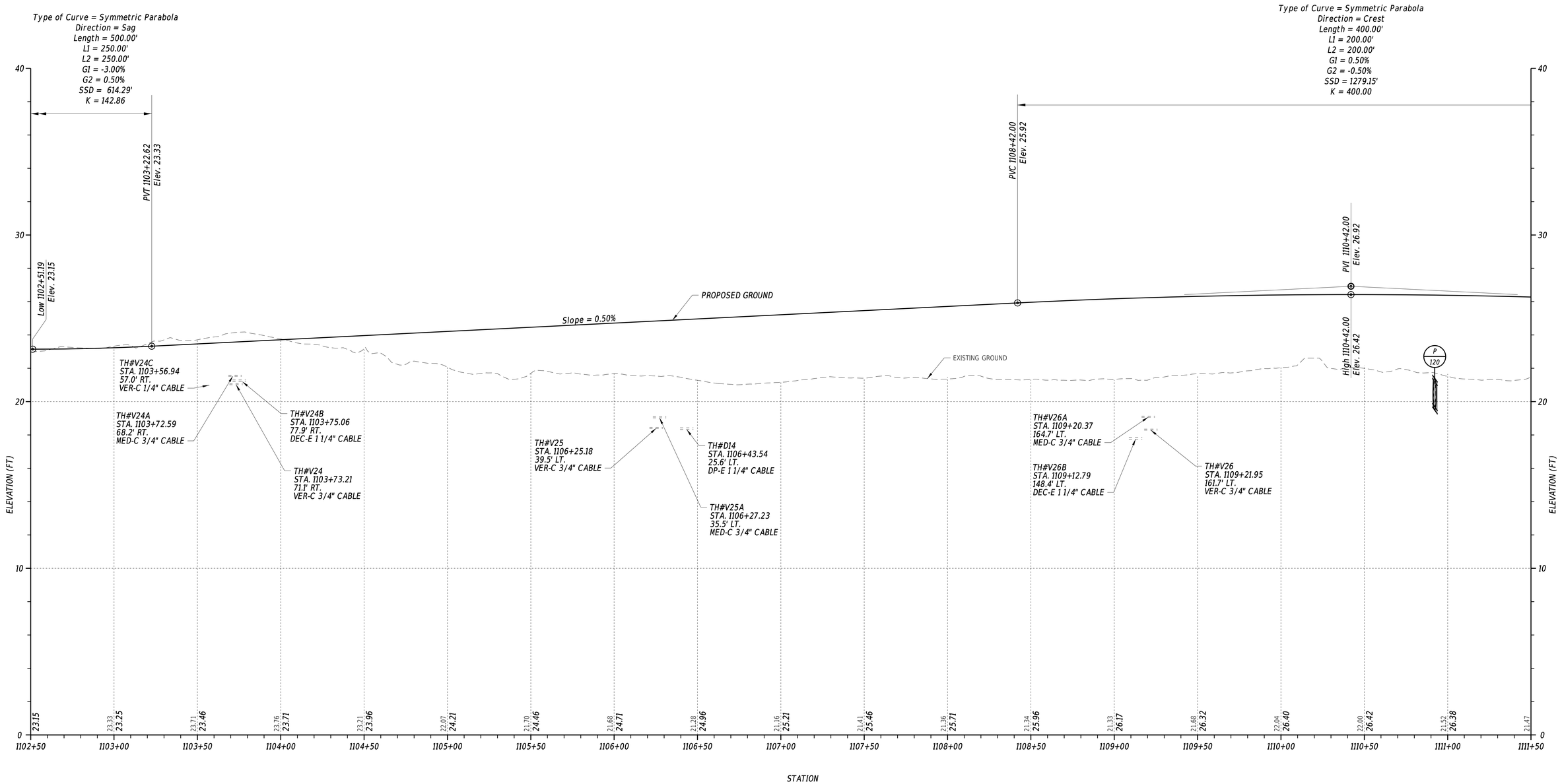
CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: M. FOX	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

PROFILE

SECTION
WRA
SHEET NO.
44

3/4/2022
6:13:55 PM
N:\32149\002\CADD\US 113 NM Bypass\PF07_NMBP.dgn



NORTH MILLSBORO BYPASS

VERTICAL SCALE FEET 9 6 3 0

3/4/2022
6:13:56 PM
N:\32149-002\CADDUS 113 NM Bypass\PF08_NMBP.dgn

ADDENDA / REVISIONS	

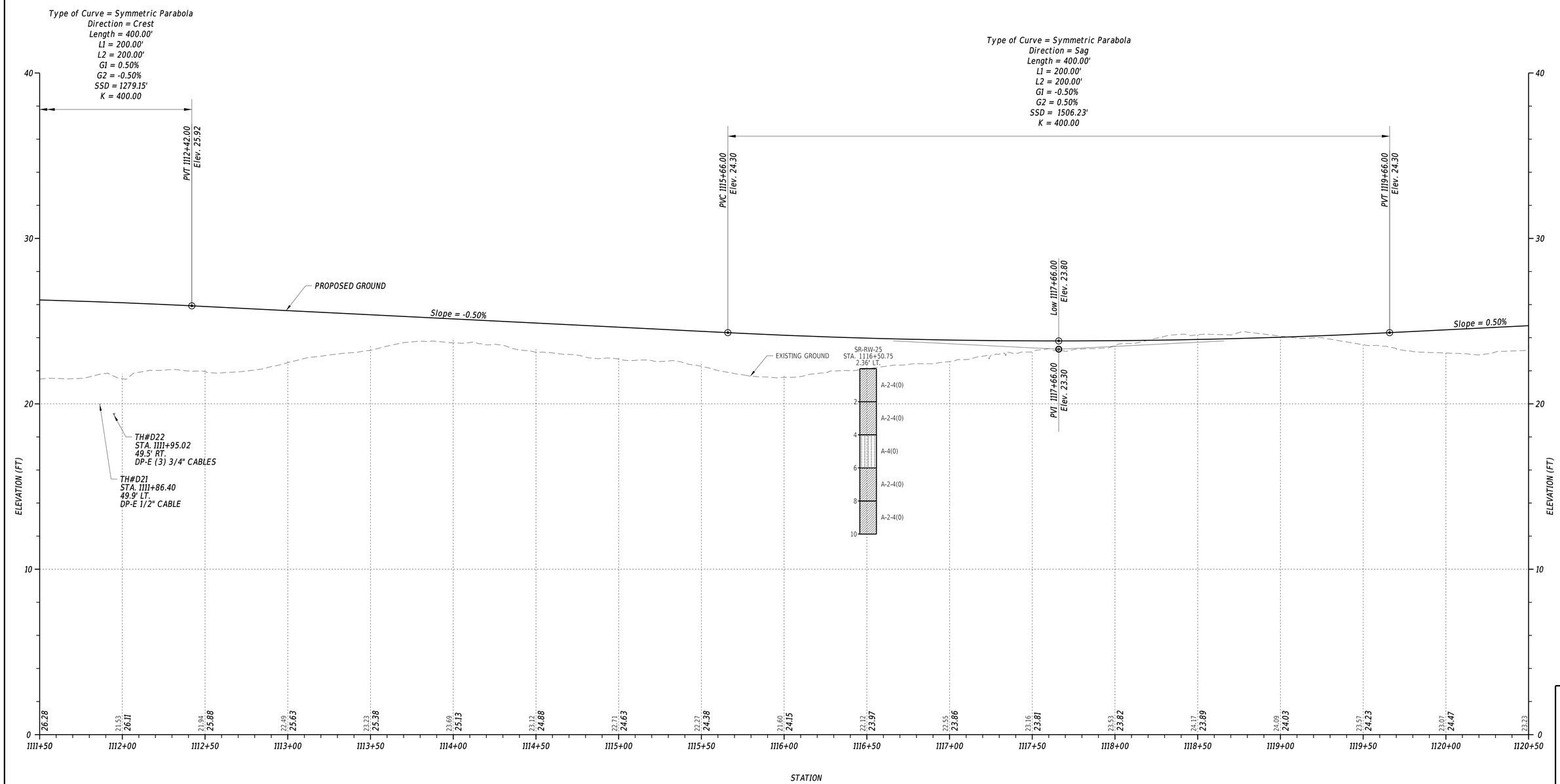
SCALE 0 30 60 90 FEET

CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: M. FOX	
COUNTY	CHECKED BY: T. OLIVER	
SUSSEX		

PROFILE

SECTION
WRA
SHEET NO.
45

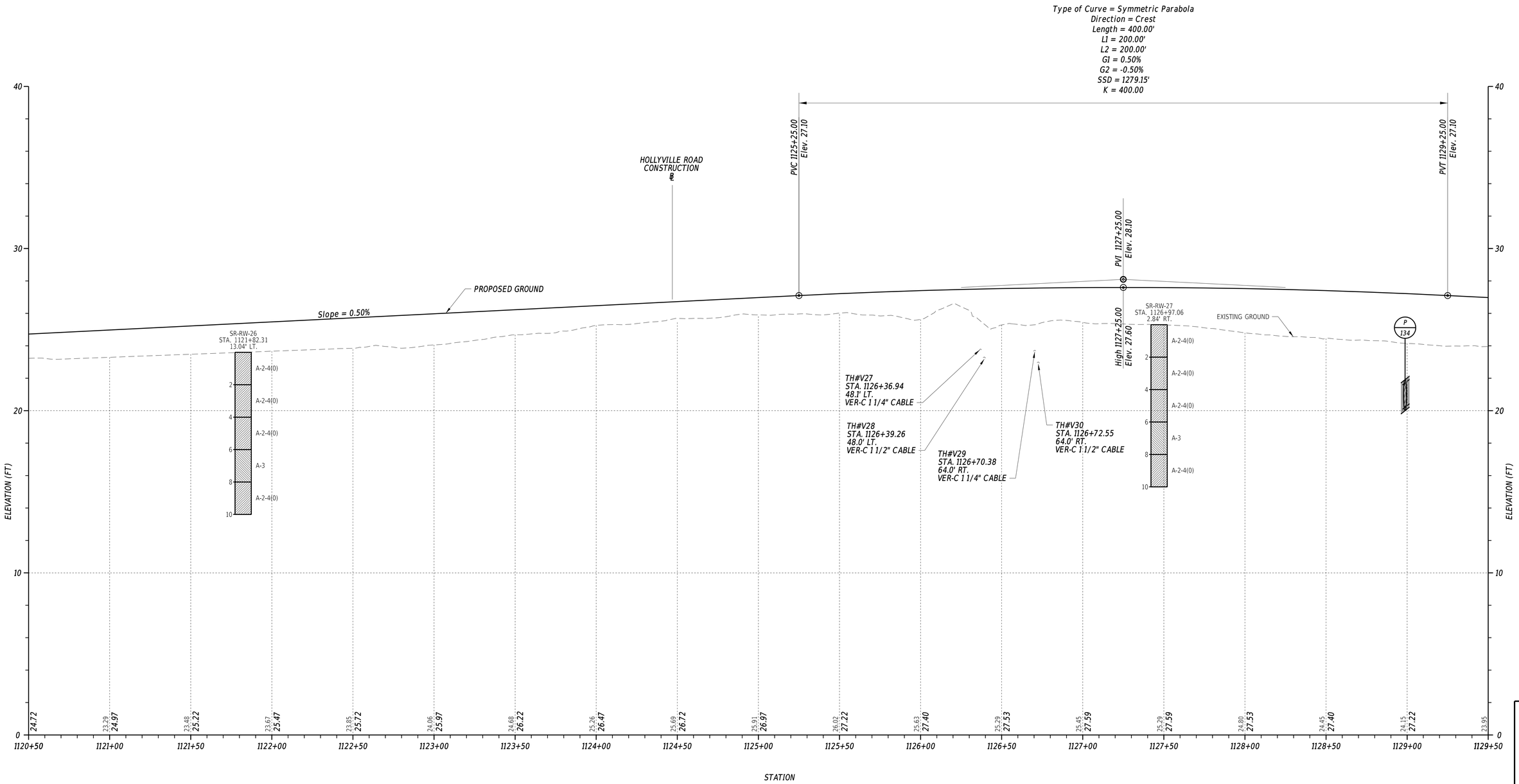


NORTH MILLSBORO BYPASS

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 46
					CHECKED BY: T. OLIVER		

3/4/2022
6:13:57 PM
N:\32149-002\CADD\US 113 NM Bypass\PF09_NMBP.dgn

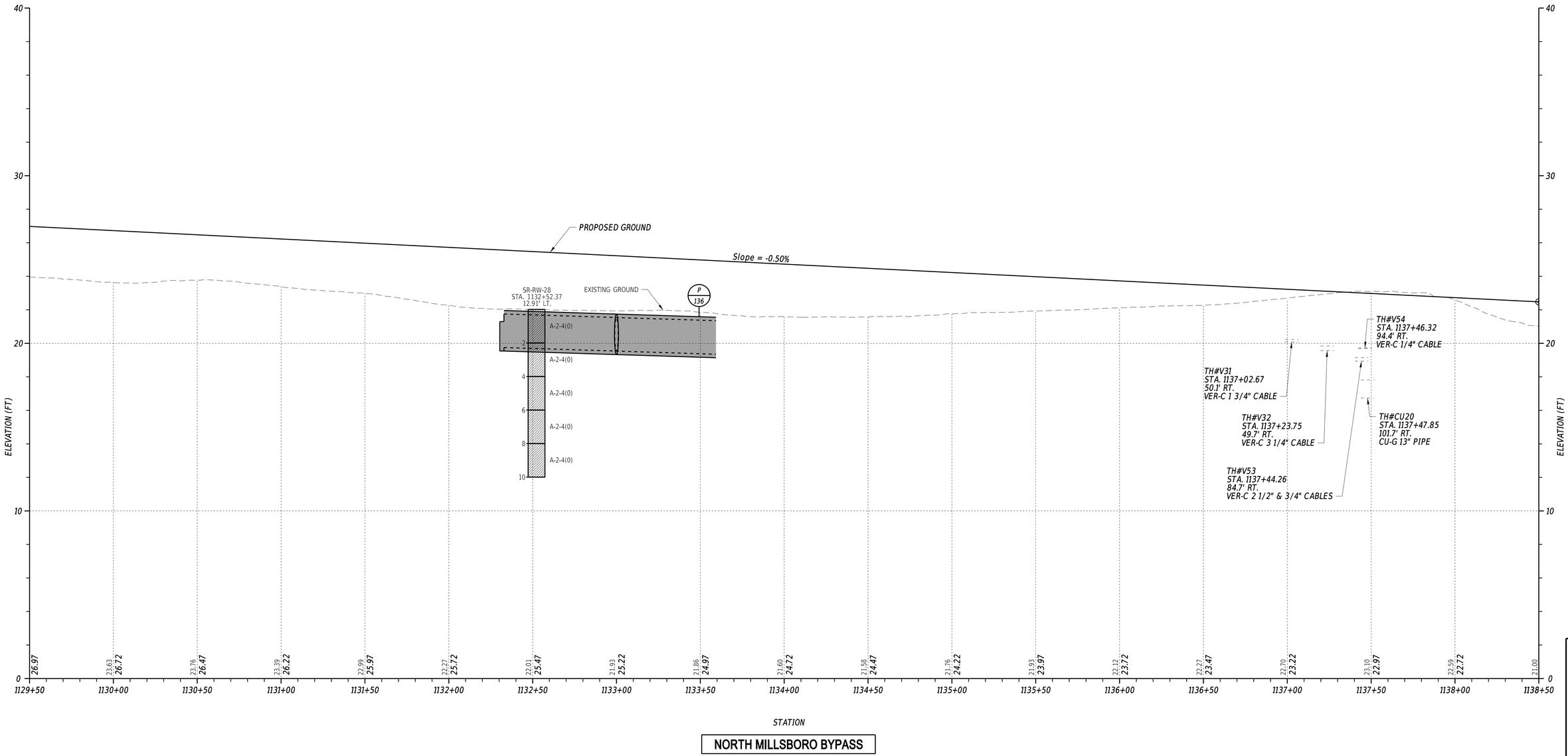


NORTH MILLSBORO BYPASS

VERTICAL SCALE FEET 9 6 3 0

3/4/2022
6:13:58 PM
N:\32149-002\CADD\US 113 NM Bypass\PF10_NMBP.dgn

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 47
					CHECKED BY: T. OLIVER		



NORTH MILLSBORO BYPASS

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS	

SCALE 0 30 60 90 FEET

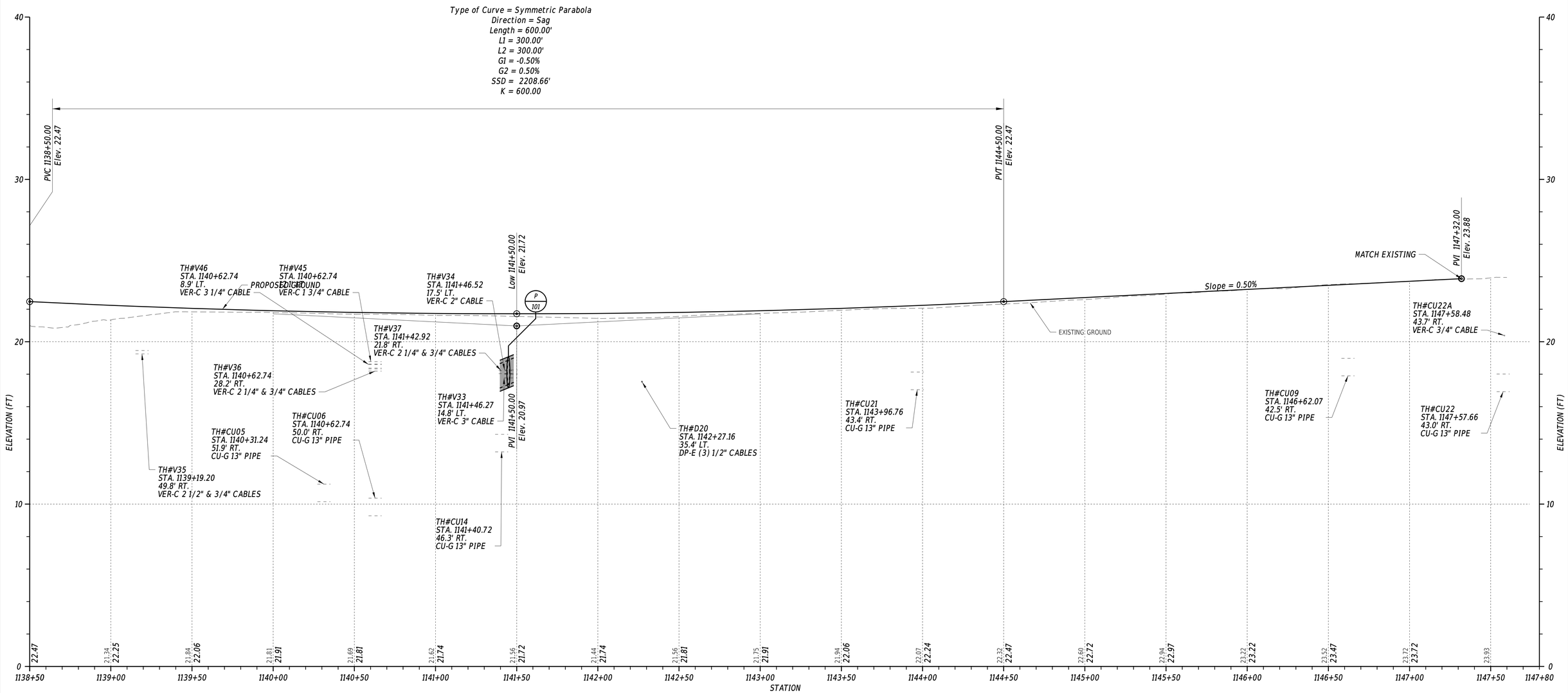
CM/GC,
NORTH MILLSBORO BYPASS,
US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: M. FOX	
COUNTY	CHECKED BY: T. OLIVER	
SUSSEX		

PROFILE

SECTION
WRA
SHEET NO.
48

3/4/2022
6:13:59 PM
N:\32149-002\CADD\US 113 NM Bypass\PF11_NMBP.dgn

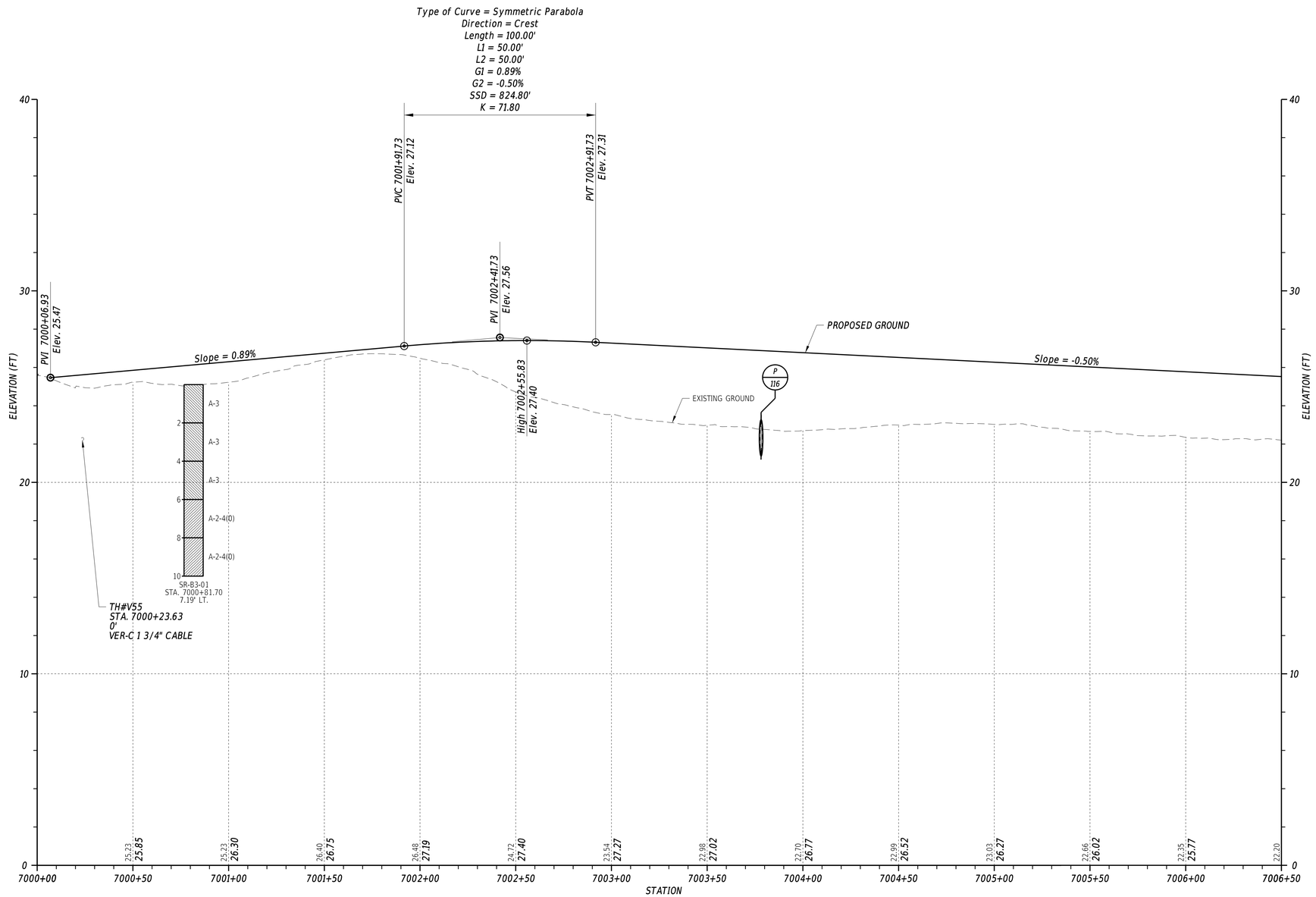


NORTH MILLSBORO BYPASS

VERTICAL SCALE FEET 0 3 6 9

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 49
					CHECKED BY: T. OLIVER		

3/4/2022
6:14:00 PM
N:\32149-002\CADD\US 113 NM Bypass\PF12_NMBP.dgn

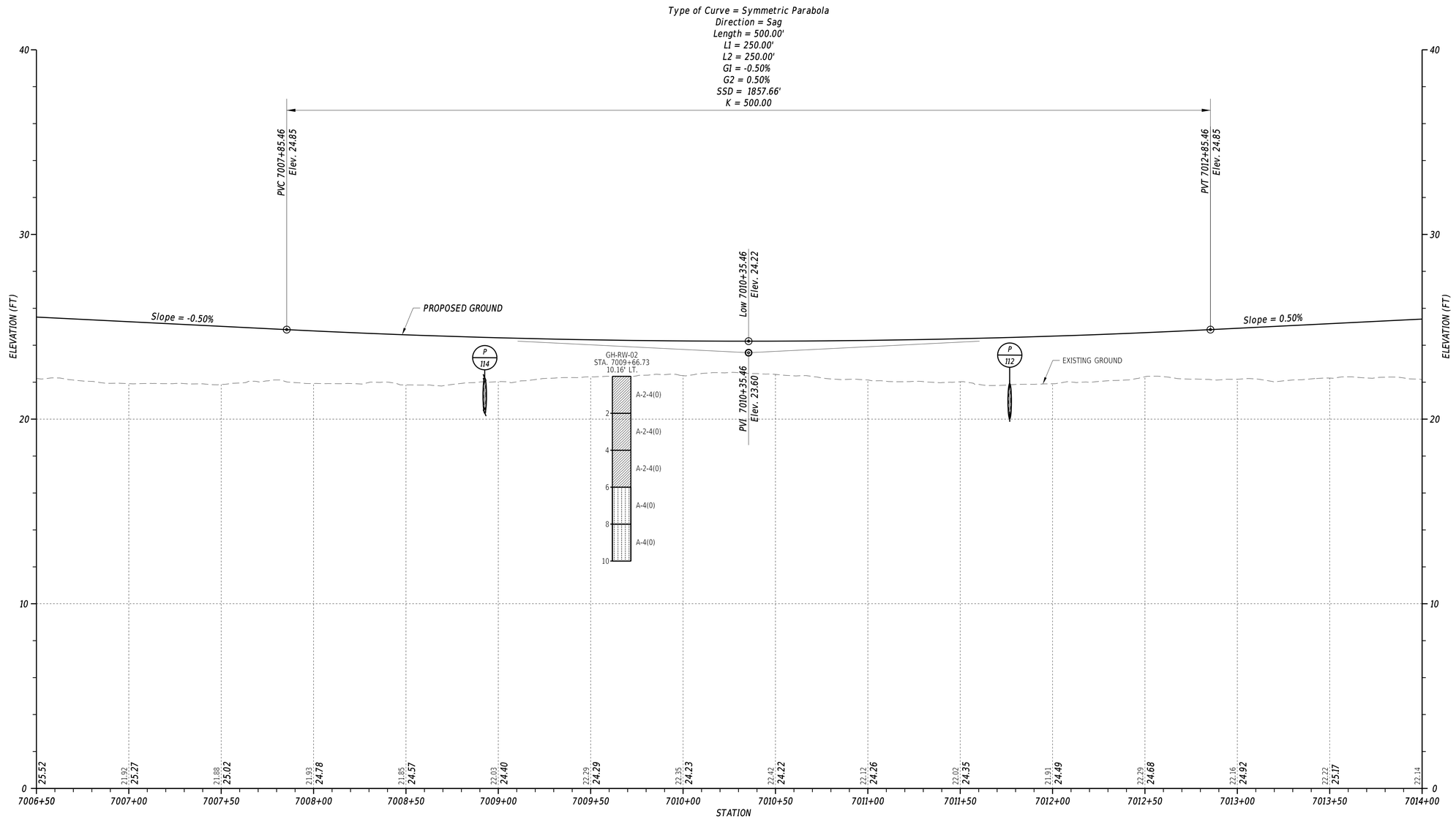


GRAVEL HILL ROAD CONNECTOR

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 50
					CHECKED BY: T. OLIVER		

3/4/2022
6:14:00 PM
N:\32149-002\CADD\US 113 NM Bypass\PF13_NMBP.dgn

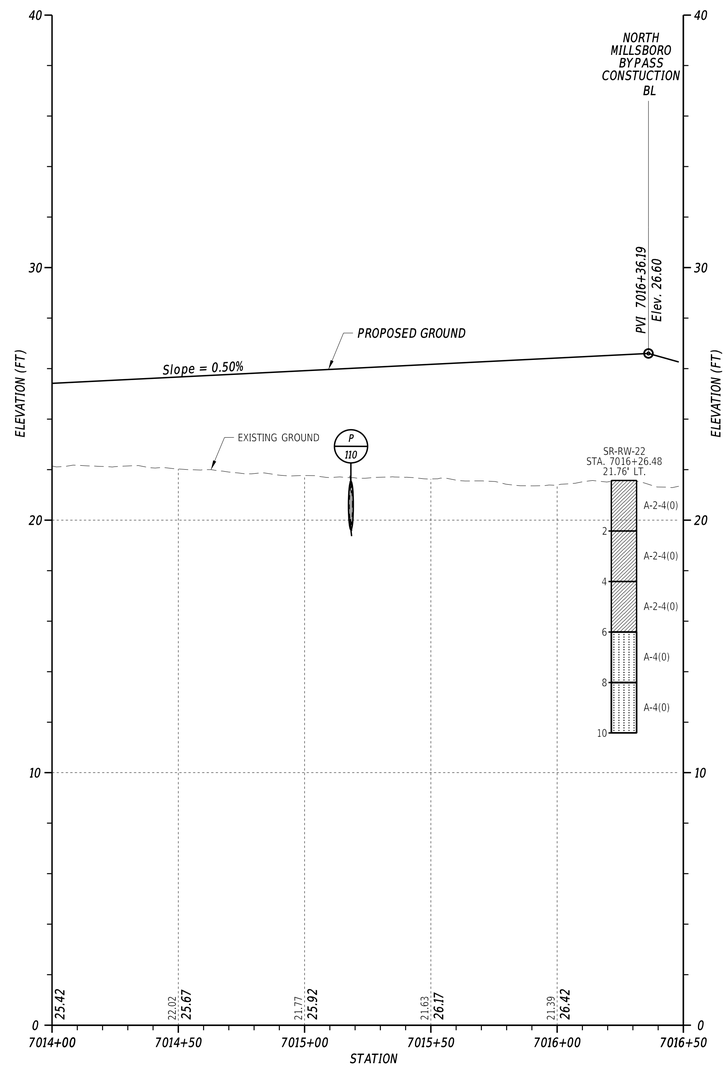


GRAVEL HILL ROAD CONNECTOR

VERTICAL SCALE FEET 0 3 6 9

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 51
					CHECKED BY: T. OLIVER		

3/4/2022
6:14:01 PM
N:\32149-002\CADD\US 113 NM Bypass\PF14_NMBP.dgn



GRAVEL HILL ROAD CONNECTOR

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS	

SCALE 0 30 60 90 FEET

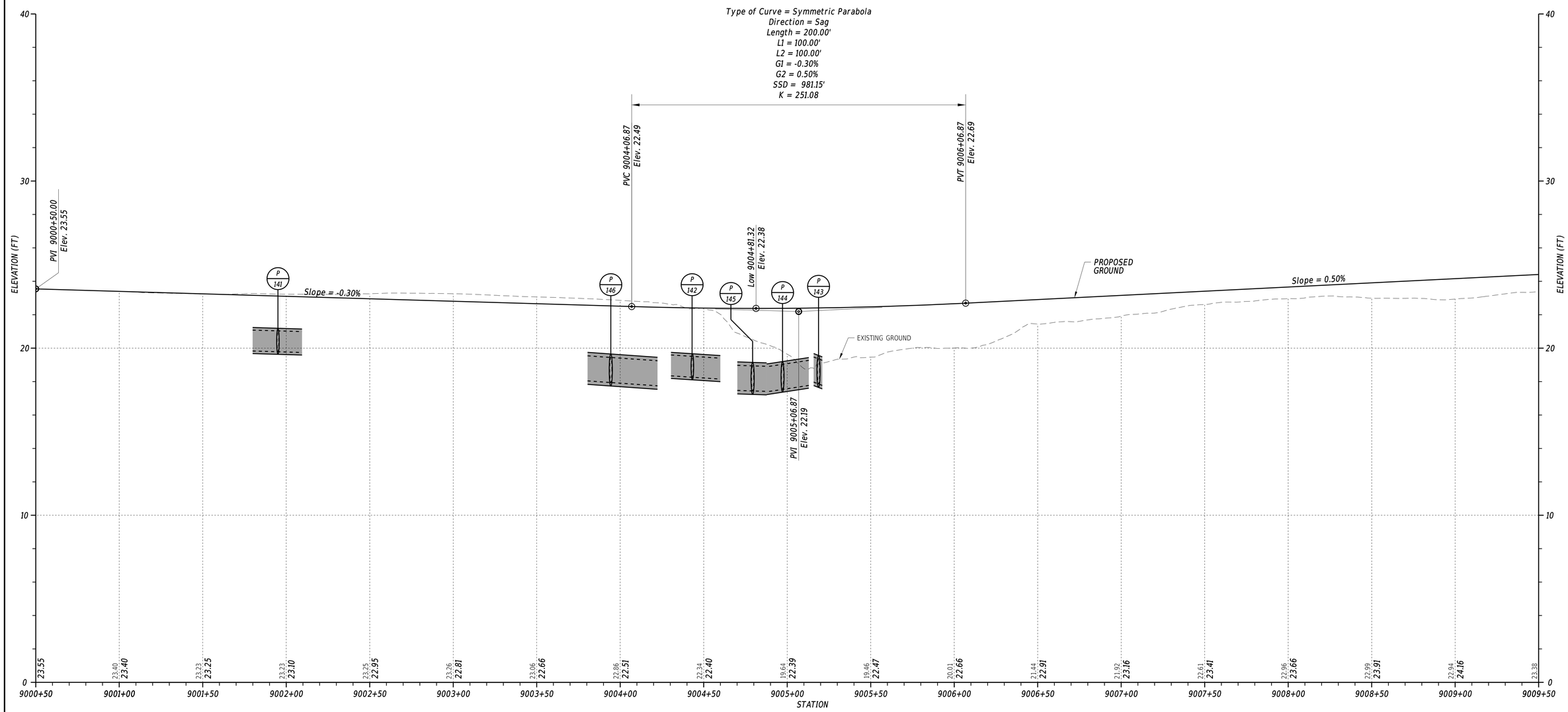
CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: M. FOX	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

PROFILE

SECTION
WRA
SHEET NO.
52

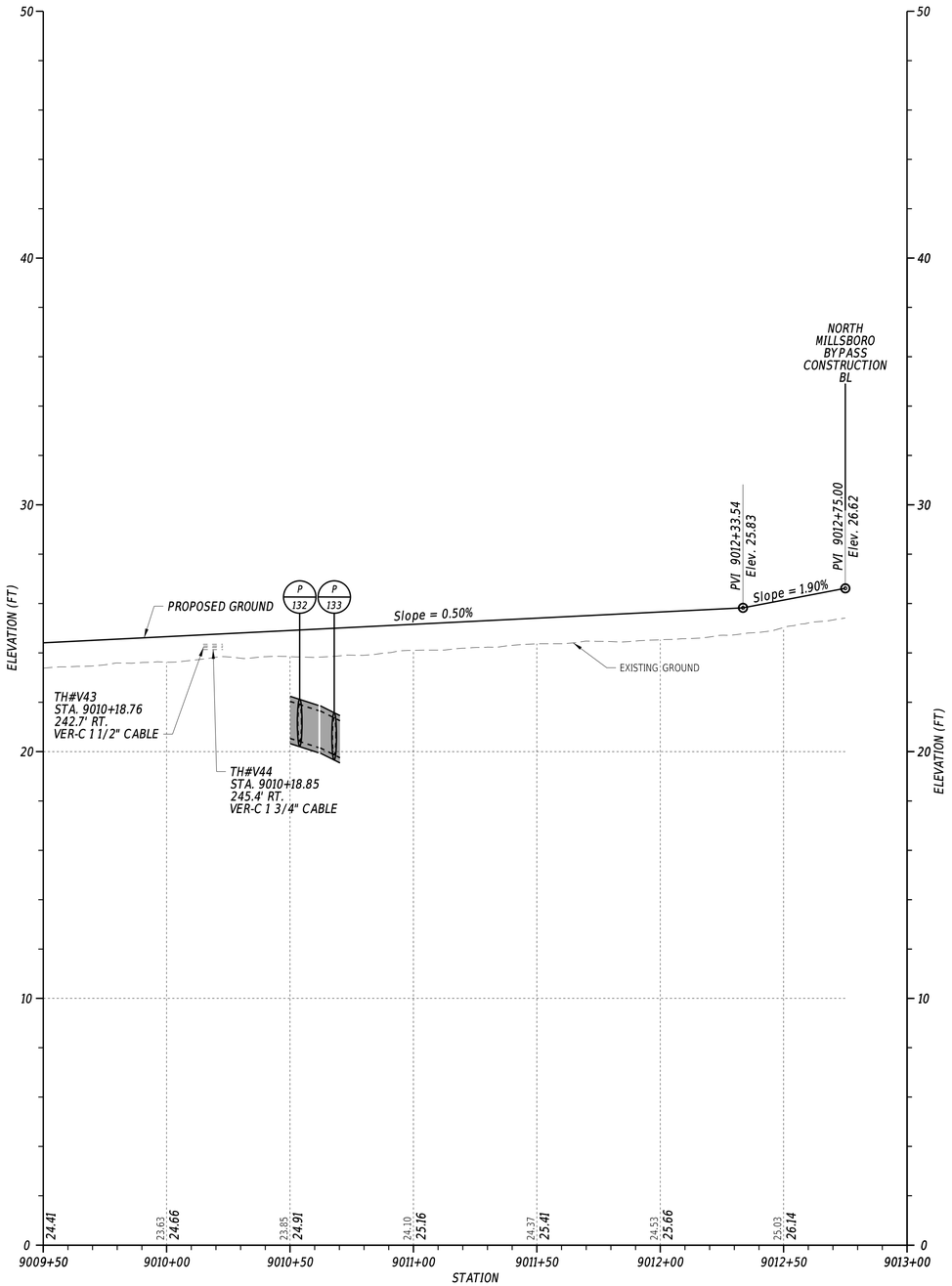
3/4/2022
6:14:02 PM
N:\32149-002\CADD\US 113 NM Bypass\PF15_NMBP.dgn



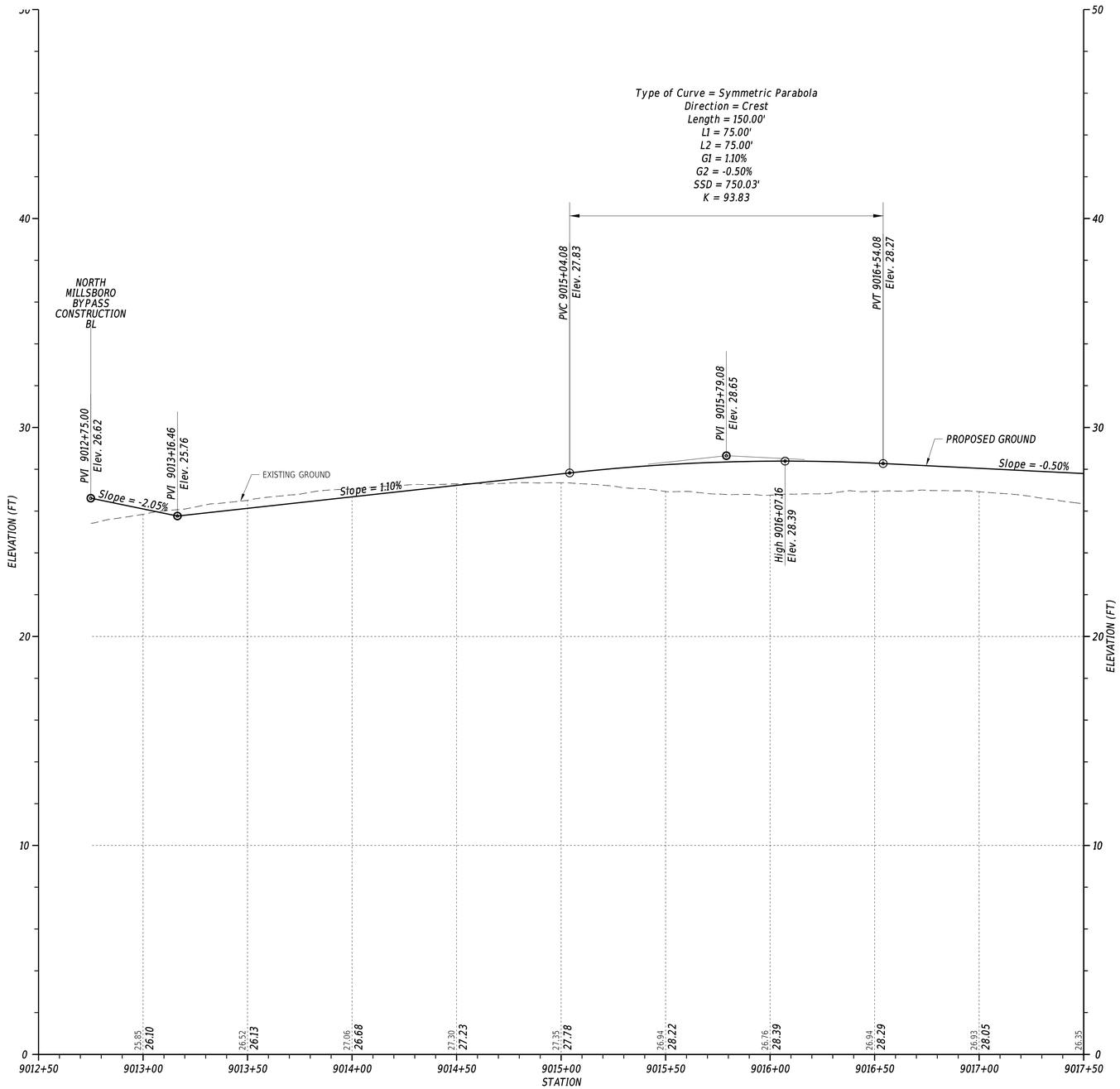
SR 24

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 53
					CHECKED BY: T. OLIVER		

3/4/2022
6:14:03 PM
N:\32149-002\CADDUS 113 NM Bypass\PF16_NMBP.dgn



SR 24



HOLLYVILLE ROAD

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS

SCALE 0 30 60 90 FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

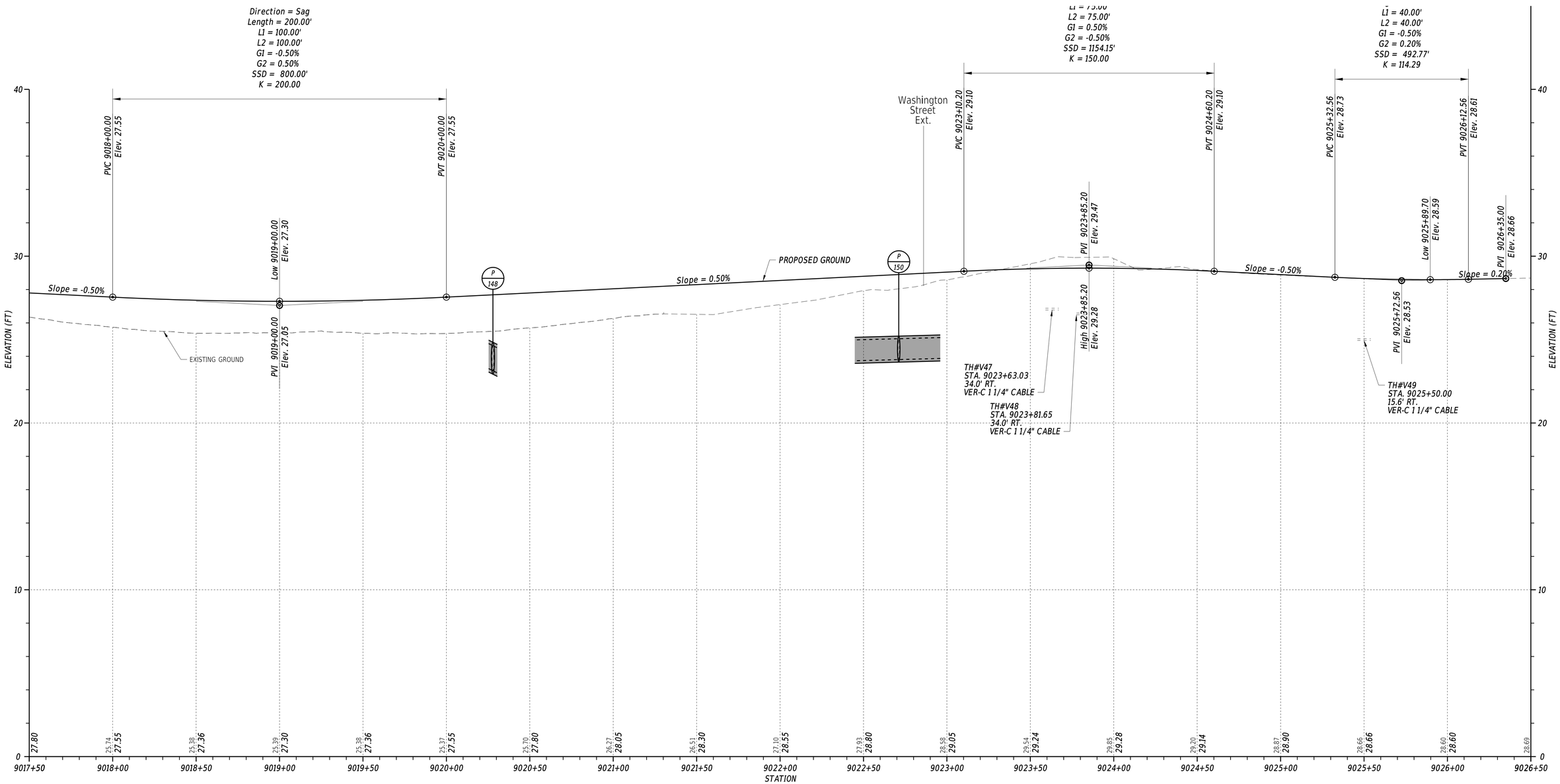
CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: M. FOX	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

PROFILE

SECTION WRA

SHEET NO. 54

3/4/2022
6:14:04 PM
N:\32149-002\CADD\US 113 NM Bypass\PF17_NMBP.dgn

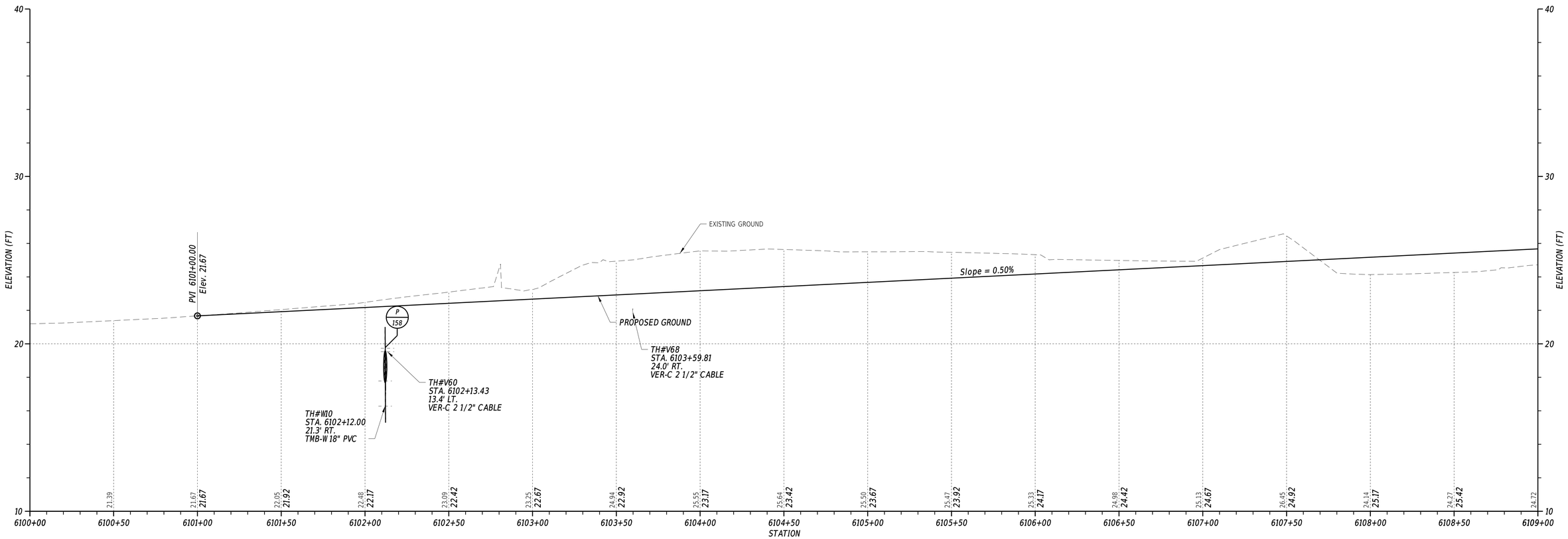


HOLLYVILLE ROAD

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 55
					CHECKED BY: T. OLIVER		

3/4/2022
6:14:05 PM
N:\32149-002\CADD\US 113 NM Bypass\PF18_NMBP.dgn



FOX RUN ROAD REALIGNMENT

VERTICAL SCALE FEET 0 3 6 9

ADDENDA / REVISIONS

SCALE 0 30 60 90 FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

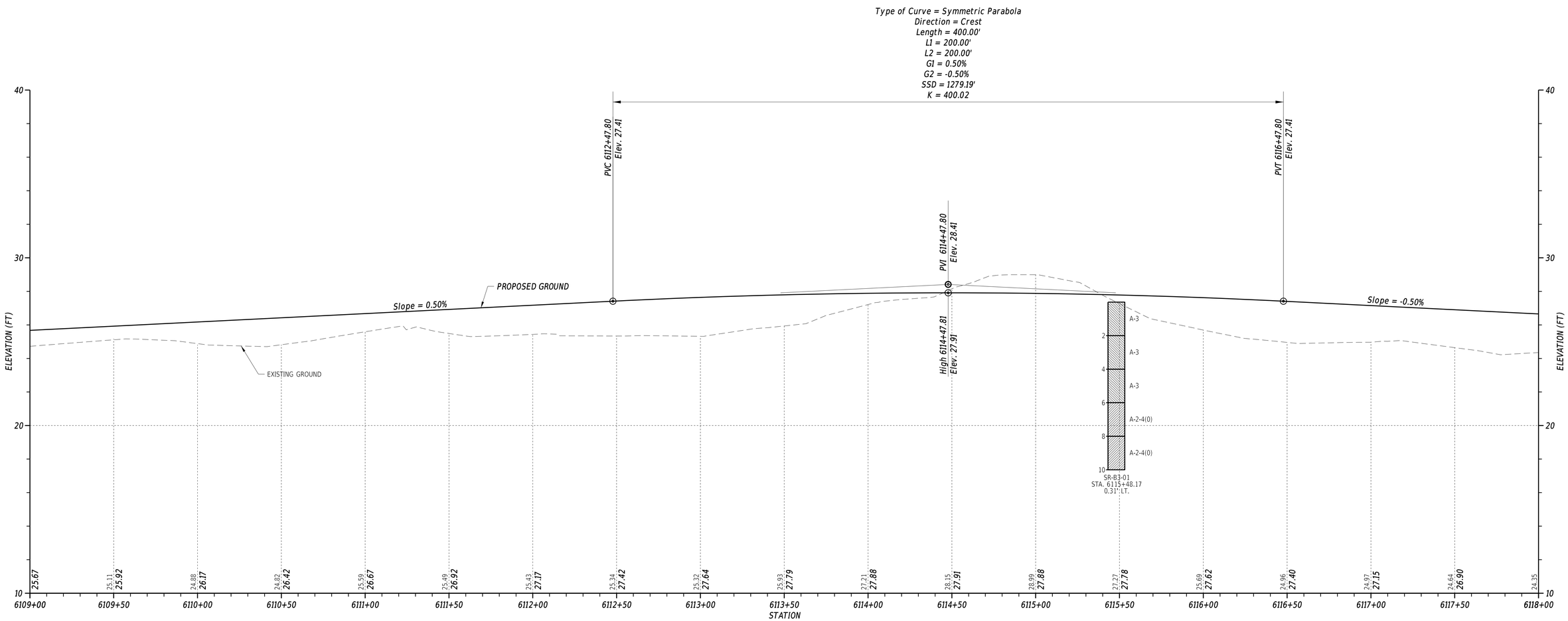
CONTRACT	BRIDGE NO.	N/A
T202112701	DESIGNED BY: M. FOX	
COUNTY		
SUSSEX	CHECKED BY: T. OLIVER	

PROFILE

SECTION: WRA

SHEET NO. 56

3/4/2022
6:14:06 PM
N:\32149-002\CADD\US 113 NM Bypass\PF19_NMBP.dgn

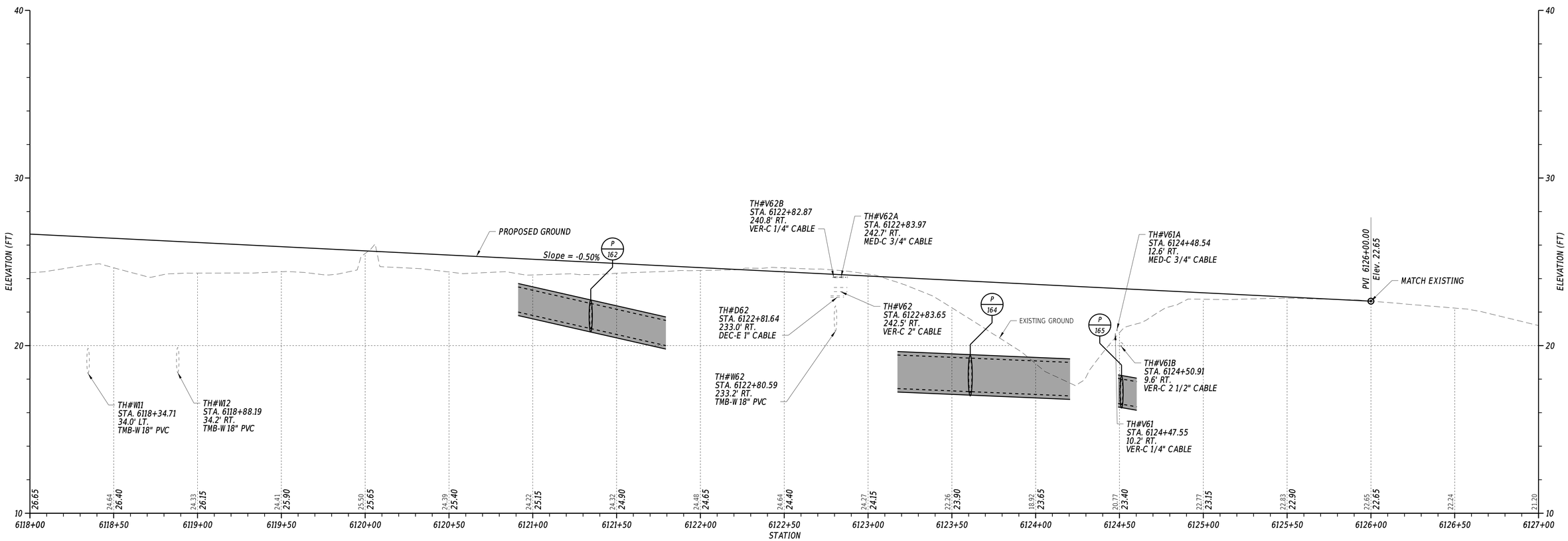


FOX RUN ROAD REALIGNMENT

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 57
					CHECKED BY: T. OLIVER		

3/4/2022
6:14:07 PM
N:\32149-002\CADD\US 113 NM Bypass\PF20_NMBP.dgn



FOX RUN ROAD REALIGNMENT

VERTICAL SCALE FEET 9 6 3 0

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24	CONTRACT T202112701	BRIDGE NO. N/A	PROFILE	SECTION WRA
				COUNTY SUSSEX	DESIGNED BY: M. FOX		SHEET NO. 58
					CHECKED BY: T. OLIVER		

3/4/2022
6:14:08 PM
N:\32149-002\CADD\US 113 NM Bypass\PF21_NMBP.dgn

ENVIRONMENTAL COMPLIANCE NOTES

1. GENERAL NOTES:

A. THE PURPOSE OF THESE SHEETS IS TO IDENTIFY THOSE ITEMS ASSOCIATED WITH ENVIRONMENTAL COMPLIANCE. IMPACT CALCULATIONS ARE FOR THE AGENCY PERMIT REPORTING PURPOSES ONLY AND ARE NOT TO BE USED FOR BIDDING PURPOSES.

B. IF A DEPARTURE FROM THE APPROVED PLANS (WHICH WOULD AFFECT ANY NATURAL AND/OR CULTURAL RESOURCES) IS NECESSARY, THE ENVIRONMENTAL STUDIES SECTION SHALL BE CONTACTED AT (302)760-2264 TO ALLOW FOR COORDINATION WITH THE APPROPRIATE RESOURCE AGENCIES AND APPROVAL.

C. USE OF THESE SHEETS DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL CONDITIONS SET FORTH IN THE ENVIRONMENTAL STATEMENT AND PERMITS.

2. NATURAL RESOURCES:

A. PERMIT REQUIREMENTS/APPROVALS*:

U.S. ARMY CORPS OF ENGINEERS (COE): INDIVIDUAL PERMIT**: PENDING

DNREC - WETLANDS & SUBAQUEOUS LANDS (WLSL): SUBAQUEOUS LANDS PERMIT **: PENDING

DNREC - WQC & CZM: PENDING

* THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING AND/OR OBTAINING THIS APPROVAL.

** THE CONTRACTOR MUST ENSURE THAT THESE PERMITS/APPROVALS ARE IN THEIR POSSESSION PRIOR TO BEGINNING CONSTRUCTION IN THE PERMITTED AREA(S) AND ENSURE IT IS DISPLAYED ON-SITE DURING THE ENTIRE CONSTRUCTION PERIOD.

B. CONSTRUCTION RESTRICTIONS:

FISHERIES:
GAMEFISH/SUNFISH - NO IN-WATER CONSTRUCTION APRIL 1 TO JULY 15
STATE-RARE FISH - NO IN-WATER CONSTRUCTION ACTIVITIES BETWEEN APRIL 1 AND MAY 30

ENDANGERED SPECIES:
NO LIGHTING SHALL BE INSTALLED ALONG THE PROPOSED ROADWAY BETWEEN STA. 1054+00 AND 1090+00
STRIPED MUD TURTLE - NO FOREST CLEARING BETWEEN SEPTEMBER 1 AND DECEMBER 31*

* SMART FENCE WILL BE INSTALLED IN AUGUST 2022 TO ALLOW FOR ADVANCE CLEARING WITHIN THE PROJECT LIMITS STARTING IN JANUARY 2023. THE SMART FENCE WILL SURROUND THE PROJECT AREA TO PREVENT TURTLES AND OTHER WILDLIFE FROM ENTERING THE CLEARING LIMITS.

MIGRATORY BIRDS:
FOREST NESTING BIRDS - NO FOREST CLEARING BETWEEN APRIL 1 AND JULY 31

3. CULTURAL RESOURCES:

A. PHASE I ARCHAEOLOGICAL SURVEY COMPLETED IN NOVEMBER 2021 IDENTIFIED TWO PRE-CONTACT SITES IN THE VICINITY OF THE MILLSBORO POND THAT ARE LIKELY TO CONTAIN HIGH ARCHAEOLOGICAL INTEGRITY AND ARE POTENTIALLY ELIGIBLE FOR THE NRHP. DELDOT IS PROCEEDING WITH A PHASE II INVESTIGATION TO ASSESS AREAS THAT ARE UNAVOIDABLE.

B. TRIBAL COORDINATION WITH THE SHPO AND FEDERAL AND STATE TRIBES IS ONGOING.

C. ANY STAGING AND STOCKPILE AREA(S) OUTSIDE THE PROJECT'S LOC THAT INDIVIDUALLY OR CUMULATIVELY ARE LARGER THAN 10,000 SQUARE FEET MUST BE APPROVED BY DELDOT'S ARCHAEOLOGIST AT DOT_ENVIRONMENTALSTUDIES@DELAWARE.GOV. SUBMIT ALL STAGING AND STOCKPILE AREAS OUTSIDE THE PROJECT'S LOC FOR APPROVAL. WITHIN 30 DAYS, DELDOT WILL:
a. APPROVE THE USE OF THE PROPOSED STAGING AND STOCKPILE AREA(S)
b. REJECT THE REQUEST, OR
c. PERFORM AN ARCHAEOLOGICAL SURVEY TO DETERMINE WHETHER TO APPROVE OR REJECT THE REQUEST, WHICH MAY TAKE UP TO 3 MONTHS
IF AN ARCHAEOLOGICAL SURVEY IS NECESSARY, DELDOT OR A CONSULTANT ON ITS BEHALF WILL UNDERTAKE THE SURVEY.

4. STREAM RESTORATION AND SLOPE RIPRAP TREATMENT (ADJACENT TO JURISDICTIONAL WATERWAYS):

A. FOLLOW THE SPECIAL PROVISION FOR ITEM 707500 - CHANNEL BED FILL IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFFSITE MATERIAL. IF SUFFICIENT SOURCES FOR CHANNEL BED FILL DO NOT EXIST ON-SITE, ANY NEW MATERIAL MUST CONFORM TO THE REQUIREMENTS OF ITEM 707500 - CHANNEL BED FILL. RECESS ALL RIPRAP IN THE CHANNEL BOTTOM (I.E. BELOW THE WATER LINE) ONE FOOT BELOW STREAM BED ELEVATION AND CHOKE WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH SPECIFIED MATERIAL. PAYMENT UNDER ITEM 209002 - BORROW, TYPE B. COVER THE RIPRAP WITH A MINIMUM OF 12" CHANNEL BED FILL. MATCH THE FINAL ELEVATIONS WITH EXISTING ELEVATIONS AT THE UPSTREAM AND DOWNSTREAM PROJECT LIMITS. THROUGH THE STRUCTURE, ELEVATIONS WILL BE AS NOTED ON THE PLANS. PAYMENT UNDER ITEM 707500 - CHANNEL BED FILL.

B. RESTORE OTHER AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SUMP PITS, STABILIZED OUTFALLS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) TO EXISTING CONDITIONS. FILL ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES WITH CHANNEL BED FILL. PAYMENT UNDER ITEM 707500 - CHANNEL BED FILL.

C. WHEN ALL EROSION AND SEDIMENT CONTROL MEASURES ARE REMOVED AND THE STREAM RETURNS TO ITS NATURAL FLOW CONDITIONS, THE FLOW MUST REMAIN ABOVE GROUND AND ABOVE THE RIPRAP (I.E. THE FLOW CANNOT BE "LOST" IN THE RIPRAP OR BENEATH THE STRUCTURE). IF THIS IS NOT ACHIEVED, THE CONTRACTOR WILL BE REQUIRED TO TAKE CORRECTIVE ACTION AT THE CONTRACTOR'S EXPENSE.

D. CHOKE ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, WITH DELAWARE #57 STONE. PLACE JUST ENOUGH CHOKE MATERIAL TO PREVENT THE LOSS OF CHANNEL BED FILL OR TOPSOIL (DEPENDING ON LOCATION AS INDICATED BELOW) THROUGH THE RIPRAP. AFTER PLACING DELAWARE #57 STONE, PERFORM A FINAL CHOKE OF CHANNEL BED FILL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. PLACE AN ADDITIONAL 6-INCH TOPSOIL LAYER ON TOP OF THE RIPRAP. SLOPE SEEDING WILL BE DONE WITH ITEM 908019 - STREAMBANK SEED MIX, SEEDING. FOLLOWING THE SEEDING OPERATION, INSTALL ITEM 908020 - EROSION CONTROL BLANKET (ECB) MULCH, OR OTHER BLANKET AS SHOWN ON THE PLANS. ECB AT TOE OF SLOPE CAN BE EITHER TRENCHED IN OR STAPLED AT 6" ON CENTER. COMPLETE ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING AND MULCHING PRIOR TO ANY RAIN EVENT. DELAWARE #57 STONE IS INCIDENTAL TO THE RIPRAP ITEM. ALL OTHER ITEMS WILL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

5. PROTECTION OF RESOURCES

A. KEEP CLEARING IN WETLAND AREAS TO A MINIMUM ABSOLUTELY NECESSARY FOR CONSTRUCTION ACCESS. SUPPORT ALL EQUIPMENT TRAVERSING WETLANDS AND SUBAQUEOUS LAND ON MATS. PAYMENT FOR MATS WILL BE MADE UNDER ITEM 621500 - TEMPORARY TIMBER MAT. IN WETLAND AREAS THAT ARE CLEARED, NO GRUBBING EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS AND RIPRAP PROTECTION IS PERMITTED. CUT VEGETATION FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT). RESTORE TEMPORARILY DISTURBED WETLAND AREAS TO GRADE AND SEED WITH ITEM 908017 - TEMPORARY GRASS SEEDING (ANNUAL RYEGRASS).

B. USE SILT FENCE OR CONSTRUCTION SAFETY FENCE ALONG THE LIMITS OF CONSTRUCTION IN ALL AREAS WHERE WATER/WETLANDS ARE BEING IMPACTED (AS SHOWN ON ENVIRONMENTAL COMPLIANCE SHEETS), AND ALSO IN ANY AREA WHERE WATER/WETLANDS EXIST WITHIN 20 FEET OF THE LIMIT OF CONSTRUCTION (AS SHOWN ON CONSTRUCTION PLAN SHEETS). ANY CONTRACTOR ACCESS BEYOND THE LIMIT OF CONSTRUCTION IS STRICTLY PROHIBITED.

C. USE SANDBAGS OR COMPOST FILTER LOG (CFL) TO SECURE SILT FENCE AT AREAS ADJACENT TO WOODED UPLANDS/ALL WETLANDS IN LIEU OF TRENCHING UNLESS PROPER EROSION AND SEDIMENT CONTROL CANNOT BE MAINTAINED. SANDBAGSAND CFL'S (AND CONTENTS) MUST BE REMOVED IN THEIR ENTIRETY WHEN NO LONGER NEEDED. SANDBAGS/CFL USED TO SECURE THE SILT FENCE IS INCIDENTAL TO ITEM 905001 - SILT FENCE. THE ENVIRONMENTAL STUDIES SECTION (TREVOR MCCOLLEY, 302- 760-2278) CAN PROVIDE FURTHER GUIDANCE REGARDING THIS METHOD OF INSTALLATION.

6. MITIGATION: NOT REQUIRED

7. PLANTING GUIDANCE (INFORMATION ONLY, WORK TO BE DONE BY OTHERS. THERE WILL BE NO PAYMENT FOR PLANTING ON THIS CONTRACT.) UPON FINAL ACCEPTANCE OF THE CONTRACT, NOTIFY THE ENVIRONMENTAL STUDIES SECTION (CHRISTIE BONNIWELL) AND ROADSIDE ENVIRONMENTAL (DARIN CALLAWAY) OF COMPLETION. PLANT APPROPRIATE TREES AND/OR SHRUBS IN A NATURALIZED PATTERN (MINIMUM 8', MAXIMUM 12' CENTERS) TO PROVIDE A VEGETATIVE BUFFER ALONG WATERWAYS WITHIN THE LOC. SPECIFIC PLANT SELECTION IS AT THE DISCRETION OF THE ROASIDE PLANTING MITIGATION FOR FOREST REMOVAL AS BEEN PREPARED. ENVIRONMENTAL ADMINISTRATOR OR APPOINTED DESIGNEE BUT MUST BE A NATIVE SPECIES APPROVED BY THE DELAWARE DEPARTMENT OF NATURAL RESOURCES. A PROPOSED PLANTING MITIGATION PLAN HAS BEEN PREPARED FOR THIS PROJECT.

PERMANENT OPEN WATER IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-01	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-02	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-03	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-04	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-05	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-06	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-07	BRIDGE PIER FOUNDATION	8.00	0.0002	0.5926	DNREC
O-08	BRIDGE (SHADE)	33,722.00	0.7741	N/A	DNREC
O-09	BRIDGE PIER FOUNDATION (FILL)	839.67	0.0193	62.1980	USACE/DNREC
O-10	BRIDGE PIER FOUNDATION (FILL)	803.48	0.0184	59.5170	USACE/DNREC
O-11	BRIDGE (SHADE)	6,542.65	0.1502	N/A	DNREC
O-12	BRIDGE (SHADE)	7,973.10	0.1830	N/A	DNREC
O-13	BRIDGE (SHADE)	5,652.76	0.1298	N/A	DNREC
TOTAL (USACE)		1643.15	0.0377	121.7150	USACE
TOTAL (DNREC)		55,733.66	1.2795	136.5300	DNREC

PERMANENT WETLAND IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
W-01	BRIDGE PIER FOUNDATION	0.13	0.000003	0.0096	USACE
W-02	BRIDGE PIER FOUNDATION	12.63	0.0003	0.9356	USACE
TOTAL		12.76	0.0003	0.9452	USACE

NOTE: PERMANENT USACE IMPACTS ARE CONSIDERED A LOSS.

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-03	TRESTEL (PILES)	501.87	0.0115	37.176	USACE/DNREC
OT-04	TRESTEL (SHADE)	16,066.60	0.3688	N/A	DNREC
TOTAL (USACE)		501.87	0.0115	37.176	USACE
TOTAL (DNREC)		16,568.47	0.3803	37.176	DNREC

NOTES:

WETLANDS DELINEATED BY WHITMAN, REQUARDT & ASSOCIATES IN JULY, AUGUST, SEPTEMBER, AND OCTOBER OF 2019 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS MANUAL AND THE 2012 ATLANTIC AND GULF COASTAL PLAIN REGIONAL SUPPLEMENT.

SHEETS PREPARED BY: WHITMAN, REQUARDT & ASSOCIATES, LLP
DATE: JANUARY 27, 2020
LAST UPDATED: MARCH 30, 2022

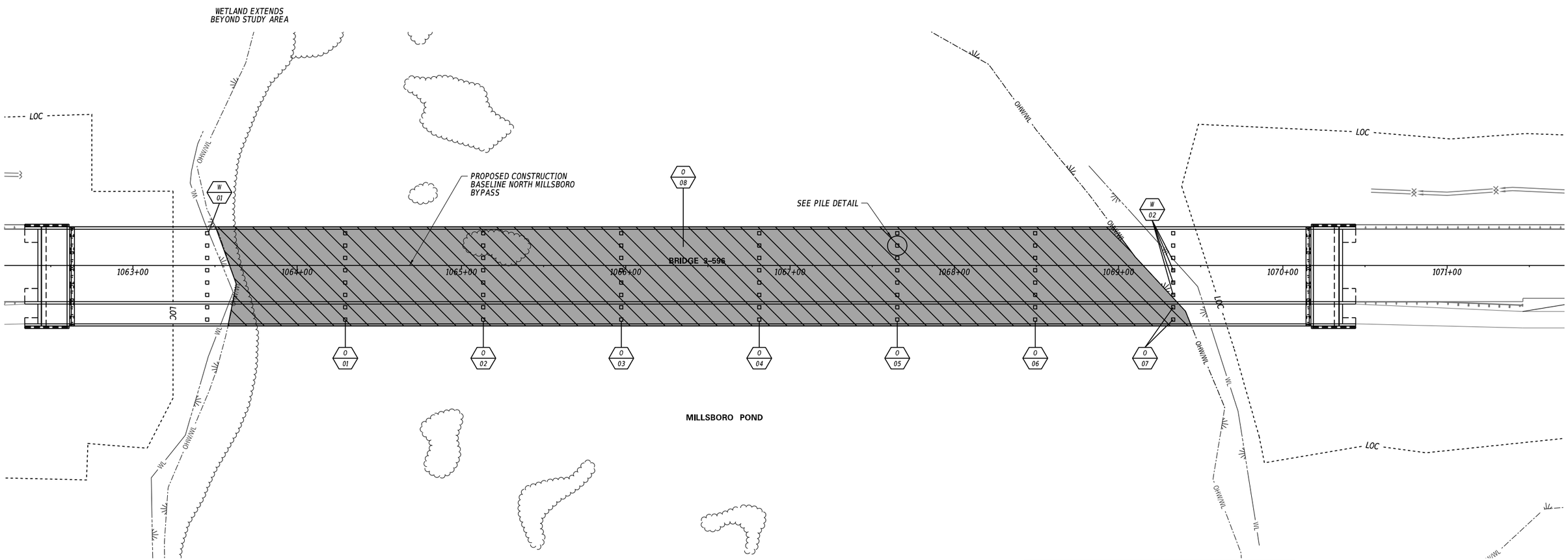
PERMANENT OPEN WATER IMPACT AREA SCHEDULE

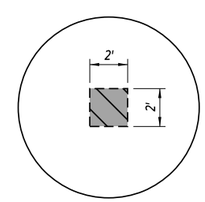
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-01	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-02	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-03	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-04	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-05	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-06	BRIDGE PIER FOUNDATION	32.00	0.0007	2.3704	DNREC
O-07	BRIDGE PIER FOUNDATION	8.00	0.0002	0.5926	DNREC
O-08	BRIDGE (SHADE)	33,722.00	0.7741	N/A	DNREC
TOTAL FOR THIS SHEET		33,922.00	0.7787	14.815	DNREC

PERMANENT WETLAND IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
W-01	BRIDGE PIER FOUNDATION	0.13	0.000003	0.0096	USACE
W-02	BRIDGE PIER FOUNDATION	12.63	0.0003	0.9356	USACE
TOTAL FOR THIS SHEET		12.76	0.0003	0.9452	USACE

NOTE:
1. PERMANENT USACE IMPACTS ON THIS SHEET ARE CONSIDERED A LOSS.





PILE DETAIL

NOT TO SCALE

LEGEND

	TEMPORARY IMPACT AREA
	PERMANENT IMPACT AREA
WL	WETLAND BOUNDARY
OHW	ORDINARY HIGH WATER
OHW/WL	ORDINARY HIGH WATER / WETLAND
LOC	LIMIT OF CONSTRUCTION

XX / 2X — IMPACT AREA TYPE ID. (SEE BELOW) / IMPACT AREA ID. AND/OR NUMBER

O = OPEN WATER IMPACT M = MARSH
W = WETLAND IMPACT
WT = TEMPORARY WETLAND IMPACT
OT = TEMPORARY OPEN WATER IMPACT

ADDENDA / REVISIONS	

SCALE 0 30 60 90 FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	3-596
T202112701	DESIGNED BY:	S. BEALL
COUNTY	CHECKED BY:	T. OLIVER
SUSSEX		

ENVIRONMENTAL COMPLIANCE PLAN

SECTION
WRA
SHEET NO.
96

3/31/2022
8:34:34 AM
N:\32149-002\CADD\US 113 NM Bypass\ECO2_NMBP.dgn

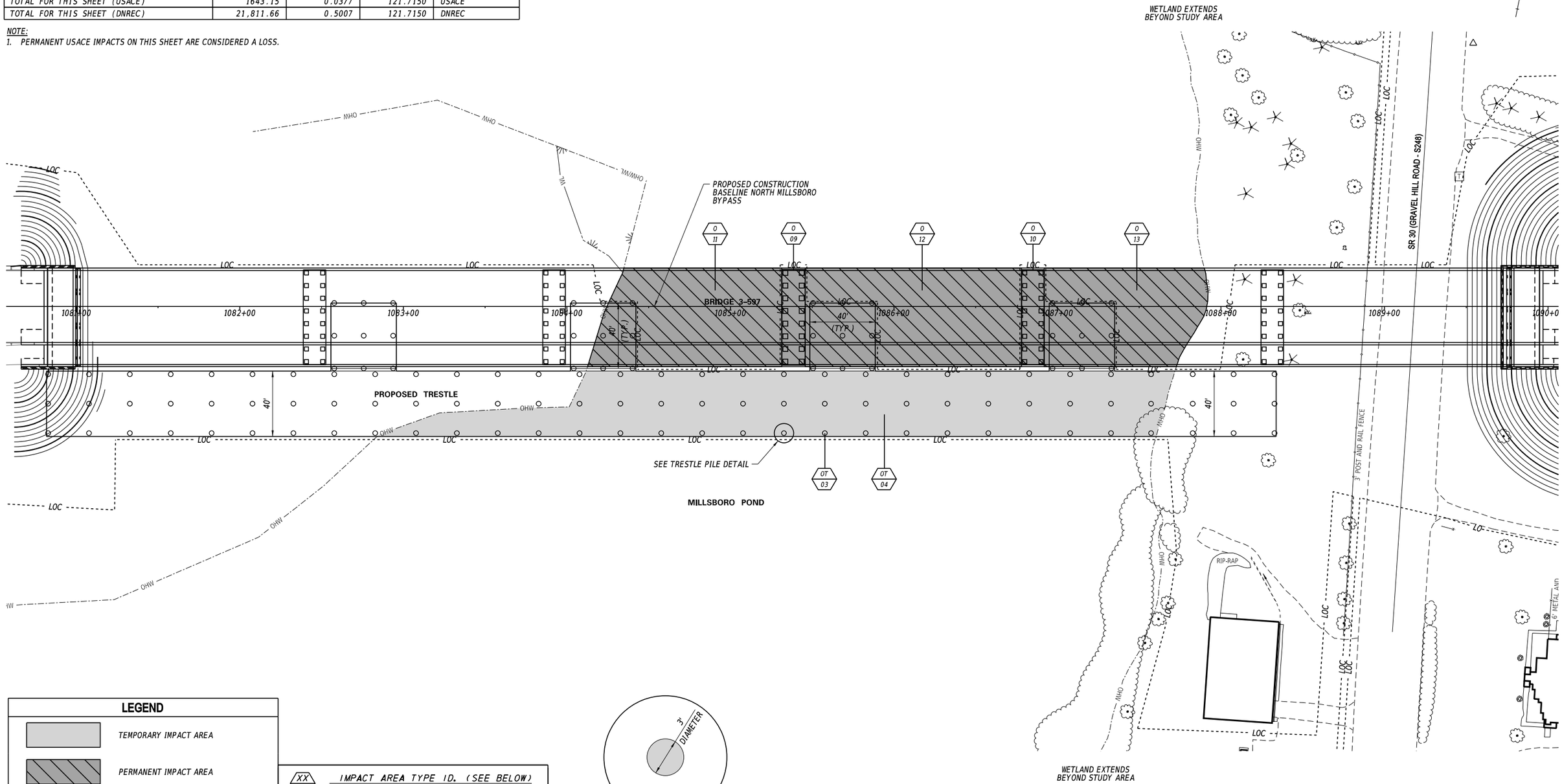
PERMANENT OPEN WATER IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-09	BRIDGE PIER FOUNDATION (FILL)	839.67	0.0193	62.1980	USACE/DNREC
O-10	BRIDGE PIER FOUNDATION (FILL)	803.48	0.0184	59.5170	USACE/DNREC
O-11	BRIDGE (SHADE)	6,542.65	0.1502	N/A	DNREC
O-12	BRIDGE (SHADE)	7,973.10	0.1830	N/A	DNREC
O-13	BRIDGE (SHADE)	5,652.76	0.1298	N/A	DNREC
TOTAL FOR THIS SHEET (USACE)		1643.15	0.0377	121.7150	USACE
TOTAL FOR THIS SHEET (DNREC)		21,811.66	0.5007	121.7150	DNREC

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-03	TRESTEL (PILES)	501.87	0.0115	37.176	USACE/DNREC
OT-04	TRESTEL (SHADE)	16,066.60	0.3688	N/A	DNREC
TOTAL FOR THIS SHEET (USACE)		501.87	0.0115	37.176	USACE
TOTAL FOR THIS SHEET (DNREC)		16,568.47	0.3803	37.176	DNREC

NOTE:
1. PERMANENT USACE IMPACTS ON THIS SHEET ARE CONSIDERED A LOSS.

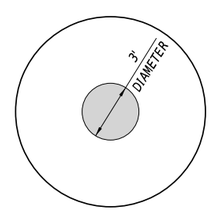


LEGEND

	TEMPORARY IMPACT AREA
	PERMANENT IMPACT AREA
WL	WETLAND BOUNDARY
OHW	ORDINARY HIGH WATER
OHW/WL	ORDINARY HIGH WATER / WETLAND
LOC	LIMIT OF CONSTRUCTION

XX / ?X — IMPACT AREA TYPE ID. (SEE BELOW) / IMPACT AREA ID. AND/OR NUMBER

O = OPEN WATER IMPACT M = MARSH
W = WETLAND IMPACT
WT = TEMPORARY WETLAND IMPACT
OT = TEMPORARY OPEN WATER IMPACT



TRESTLE PILE DETAIL

NOT TO SCALE

ADDENDA / REVISIONS	

SCALE 0 30 60 90 FEET

CM/GC, NORTH MILLSBORO BYPASS, US 113 TO SR 24

CONTRACT	BRIDGE NO.	3-597
T202112701	DESIGNED BY:	S. BEALL
COUNTY		
SUSSEX	CHECKED BY:	T. OLIVER

ENVIRONMENTAL COMPLIANCE PLAN

SECTION
WRA
SHEET NO.
97

3/31/2022
8:34:35 AM
N:\32149-002\CADD\US 113 NM Bypass\ECO3_NMBP.dgn