STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLAN LEGEND

Town, County, State
Property Lines
R/W Lines-Existing
R/W Lines-Proposed
Culvert-Existing
Culvert Proposed
Curbing — Existing — Proposed
Type 1
Type 3
Type 5
Outline of Bodies of Water
Ledge
Buildings
Trees — Conifer — Deciduous
Tree Line
Clearing Limit Line — CLL

Centerline-Existing
Centerline-Proposed — 10+00
Travelway-Existing
Travelway-Proposed
Railroad
Catch Basins — Existing — Proposed
Manholes — Existing — Proposed
Proposed Underdrain
Proposed Ditch
Existing Ditch
Utility Poles — Existing — Proposed
Fire Hydrants — Existing — Proposed
Existing Water Line — W
Existing San. Sewer
Existing San. Sewer Manhole
Guardrail-Existing
Guardrail-Proposed
Guardrail-Cable, Other

ARUNDEL
YORK COUNTY
RTE. 111 & HILL ROAD
FEDERAL AID PROJECT NO. STP-1723(900)X

INDEX OF SHEETS

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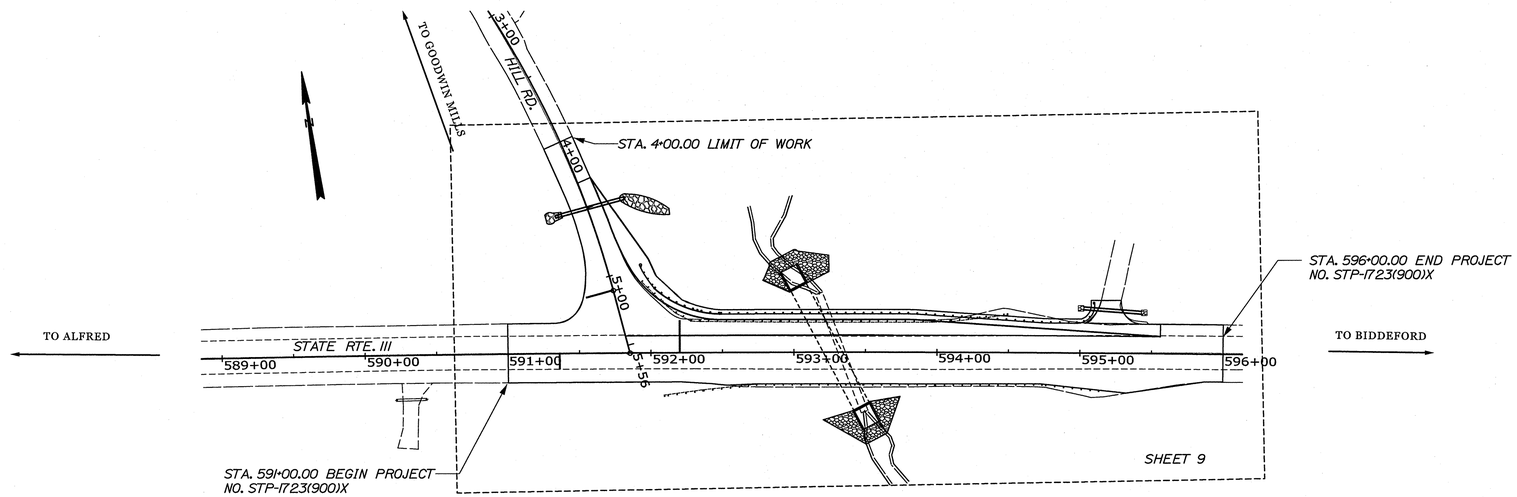


TRAFFIC DATA	SECTION 1 HILL RD	SECTION 2 RTE. 111 E/O HILL RD	SECTION 3 RTE. 111 W/O HILL RD	SECTION 4 TURN LANE
Current (2015) AADT	3400	18000	14610	1650
Future (2035) AADT	4760	25200	20450	2310
DHV - % of AADT	12%	9%	9%	17%
Design Hour Volume	549	2340	1801	384
% Heavy Trucks (AADT)	5%	7%	8%	4%
% Heavy Trucks (DHV)	2%	3%	4%	2%
Directional Distribution (DHV)	70%	60%	60%	100%
18 kip Equivalent P 2.0	86	918	858	72
18 kip Equivalent P 2.5	82	875	818	69
Design Speed (mph)	35	50	50	50
Functional Class:	LOCAL ROAD		PRIMARY ARTERIAL	

LAYOUT SCALE

50 0 50 100

Scale in Feet

PROJECT LOCATION:	INTERSECTION OF RTE. 111 & HILL ROAD
PROGRAM AREA:	HIGHWAY PROGRAM
OUTLINE OF WORK:	INTERSECTION IMPROVEMENTS WITH SIGNAL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED
COMMISSIONER: DATE 3/23/15
CHIEF ENGINEER: DATE 3-23-15

STATE OF MAINE — ATLEE MOUSSEAU — No. 10415 — LICENSED PROFESSIONAL ENGINEER

PROJECT INFORMATION	
PROGRAM	HIGHWAY
PROJECT MANAGER	ERNEST MARTIN
DESIGNER	NATASHA COLLINS
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

SIGNATURE 10415
P.E. NUMBER
2-9-15
DATE

ARUNDEL
RTE. 111 & HILL ROAD
TITLE SHEET

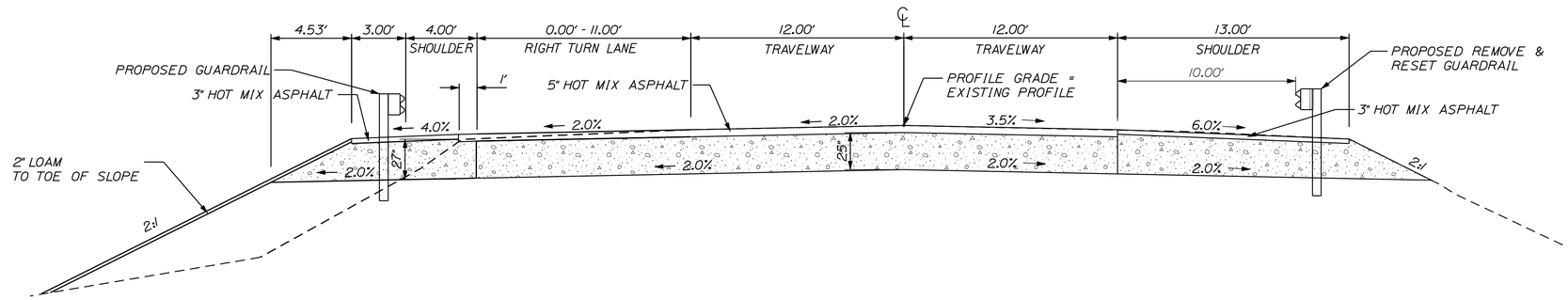
WIN 17239.00 STP-1723(900)X

SHEET NUMBER
1
OF 23

Filename: ...\00\HIGHWAY\MSTA\001_Title.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

TYPICAL SECTIONS

STATE ROUTE 111

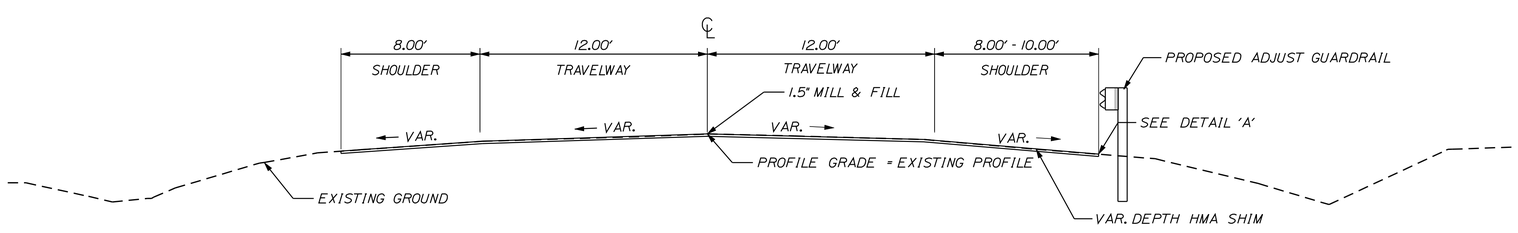


RTE. 111 LEFT SHOULDER W/ GUARDRAIL
A. S. C.-G. = 73.05 CU. YDS. / 100 L.F.
STA. TO STA.
592+20.00 to 595+00.00

RTE. 111 11'.00 RIGHT TURN LANE
A. S. C.-G. = 84.88 CU. YDS. / 100 L.F.
STA. TO STA.
592+50.00 TO 593+80.00 (11.00' WIDTH)
593+80.00 TO 595+46.00 (11.00' - 0.00')

RTE. 111 2-12.00' TRAVELWAYS
A. S. C.-G. = 185.20 CU. FT / 100 L.F.
STA. TO STA.
593+00.00 TO 593+50.00

RTE. 111 RIGHT SHOULDER W/ GUARDRAIL
A. S. C.-G. = 91.00 CU. FT / 100 L.F.
STA. TO STA.
593+00.00 to 593+50.00

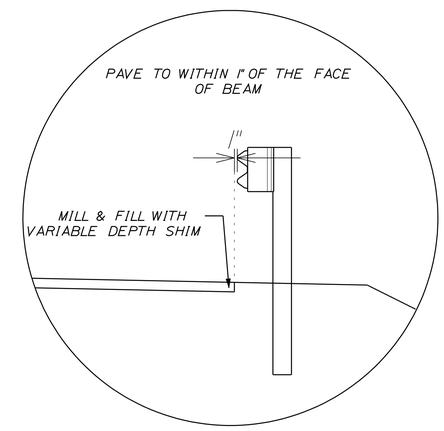


RTE. 111 HMA MILL & FILL LEFT SHOULDER
STA. TO STA.
591+00.00 to 591+50.00
595+50.00 to 596+00.00

RTE. 111 HMA MILL & FILL TRAVELWAY
STA. TO STA.
591+00.00 to 592+75.00
593+75.00 to 596+00.00

RTE. 111 HMA MILL & FILL RIGHT SHOULDER
STA. TO STA.
591+00.00 to 592+25.00 (8.0' WIDTH)
593+75.00 to 594+75.00 (10.0' WIDTH)
594+75.00 to 596+00.00 (VAR. WIDTH)

DETAIL A



NOTE:

1. THE PAVEMENT, BASE AND SUBBASE DEPTHS AS SHOWN ON THE PLANS ARE INTENDED TO BE NOMINAL.

2. WHEN SUPERELEVATION EXCEEDS THE SLOPE OF THE LOW SIDE SHOULDER, THE LOW SIDE SHOULDER SHALL HAVE THE SAME SLOPE AS THE TRAVELWAY.

3. CROWNS FOR BOTH NORMAL AND SUPERELEVATION SECTIONS FOR ALL COURSES OF SUBBASE AND PAVEMENT SHALL BE STRAIGHT.

4. THE GRAVEL QUANTITY CALCULATION IS BASED ON A 2" LOAM OR DIRTY BORROW DEPTH. THE ACTUAL DEPTH MAY VARY. SEE THE GENERAL NOTES.

5. THE ALGEBRAIC DIFFERENCE BETWEEN THE SHOULDER AND TRAVEWAY CROSS SLOPES "ROLLOVER" SHALL NOT EXCEED 8%.

6. THE STATIONING SHOWN UNDER EACH TYPICAL IS APPROXIMATE.

7. MILL 1.5" AT CENTERLINE WITH VARIABLE DEPTH MILLING TO MEET PROPOSED CROSS SLOPES AS SHOWN ON THE CROSS SECTIONS, AS DIRECTED BY RESIDENT.

8. PLACE VARIABLE DEPTH SHIM WHERE CROSS SLOPES REQUIRE MORE THAN 1.5" OF HOT MIX ASPHALT TO MATCH CROSS SLOPES ON THE CROSS SECTIONS.

NOT TO SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

PROJ. MANAGER	E. MARTIN	BY	DATE
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

TYPICAL SECTIONS- RTE. 111

SHEET NUMBER

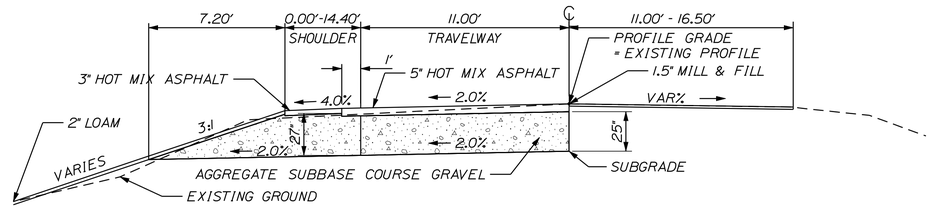
2

OF 23

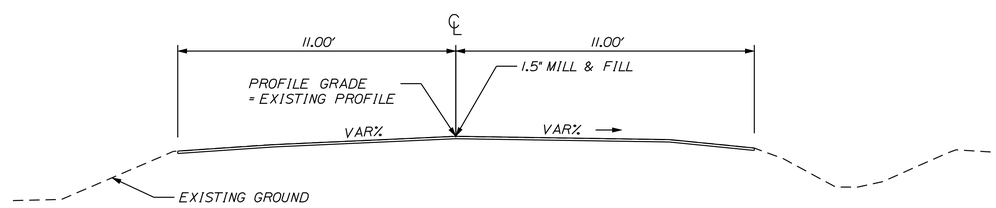
Filename: ...\highway\nsta\002_Typical.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

TYPICAL SECTIONS

HILL ROAD



HILL ROAD VARIABLE WIDTH SHOULDER WITHOUT GUARDRAIL
STA. TO STA. 4+31.00 to 4+97.00, LEFT



HILL ROAD MILL & FILL
STA. TO STA. 4+00.00 to 4+31.00, RIGHT

NOTE:

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8. PLACE VARIABLE DEPTH SHIM WHERE CROSS SLOPES REQUIRE MORE THAN 1.5" OF HOT MIX ASPHALT TO MATCH CROSS SLOPES ON THE CROSS SECTIONS.

NOT TO SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

PROJ. MANAGER	E. MARTIN	BY	DATE
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

TYPICAL SECTIONS- HILL ROAD

SHEET NUMBER

3

OF 23

Filename: ...\msta\003_Typical_Hill Road.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

ENGINEER'S ESTIMATE

ESTIMATED QUANTITIES			
Item No.	Description	Unit	Quantity
202.202	REMOVING PAVEMENT SURFACE	SY	2,350.00
203.200	COMMON EXCAVATION	CY	732.00
203.250	GRANULAR BORROW	CY	320.00
203.330	SPECIAL FILL	CY	110.00
203.350	CRUSHED STONE FILL	CY	80.00
206.061	STRUCTURAL EARTH EXCAVATION- DRAIN AND MINOR STRUCT, BELOW GRADE	CY	50.00
206.070	STRUCTURAL ROCK EXCAVATION- DRAIN AND MINOR STRUCT	CY	90.00
304.100	AGGREGATE SUBBASE COARSE- GRAVEL	CY	750.00
403.208	HOT MIX ASPHALT, 12.5 mm SURFACE	TON	280.00
403.209	HOT MIX ASPHALT, INCIDENTIALS	TON	5.00
403.211	HOT MIX ASPHALT, SHIM	TON	40.00
403.213	HOT MIX ASPHALT, 12.5 mm, BASE	TON	275.00
409.150	BITUMINOUS TACK COAT, APPLIED	GAL	200.00
508.130	MEMBRANE WATERPROOFING	SY	180.00
511.070	COFFERDAM: UPSTREAM	LS	1.00
511.070	COFFERDAM: DOWNSTREAM	LS	1.00
534.710	PRECAST CONCRETE BOX CULVERT	LS	1.00
603.190	24" CULV PIPE OPTION I	LF	40.00
603.199	24" CULV PIPE OPTION III	LF	52.00
606.230	GUARDRAIL TYPE 3C- SINGLE RAIL	LF	250.00
606.231	GUARDRAIL TYPE 3C- SINGLE RAIL, 15' RADIUS AND LESS	LF	25.00
606.232	GUARDRAIL TYPE 3C- SINGLE RAIL, OVER 15' RADIUS	LF	25.00
606.265	TERMINAL END, SINGLE RAIL GALV STEEL	EA	1.00
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	EA	4.00
606.362	GUARDRAIL ADJUSTED	LF	75.00
606.366	REMOVE & RESET GUARDRAIL, TYPE 3C	LF	100.00
606.790	GUARDRAIL 350 FLARED TERMINAL	EA	1.00
610.080	PLAIN RIPRAP	CY	250.00
610.160	HEAVY RIPRAP	CY	20.00
613.319	EROSION CONTROL BLANKET	SY	120.00
615.070	LOAM	CY	38.00
618.141	SEEDING METHOD #3	UNIT	6.00
619.120	MULCH	UNIT	6.00
620.580	EROSION CONTROL GEOTEXTILE	SY	300.00
626.110	PRECAST CONCRETE JUNCTION BOX	EA	1.00
626.210	METALLIC CONDUIT	LF	15.00
626.330	30" FOUNDATION	EA	2.00
626.350	CONTROLLER CABINET FOUNDATION	EA	1.00
627.733	4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	LF	2,000.00
627.750	WHITE OR YELLOW PAVEMENT & CURB MARKING	SF	100.00
627.780	4" TEMPORARY PAVEMENT MARKING LINE, WHITE OR YELLOW	LF	1,000.00
629.050	HAND LABOR, STRAIGHT TIME	HR	10.00
631.120	ALL PURPOSE EXCAVATOR (INCLUDES OPERATOR)	HR	10.00
631.172	TRUCK - LARGE (INCLUDES OPERATOR)	HR	10.00
631.220	FRONT END LOADER (INCLUDES OPERATOR)	HR	10.00
639.190	FIELD OFFICE, TYPE B	EA	1.00
643.800	TRAFFIC SIGNAL AT ROUTE 111 & HILL ROAD	LS	1.00
643.930	STRAIN POLE	EA	2.00
652.310	TYPE I BARRICADE	EA	5.00
652.311	TYPE II BARRICADE	EA	5.00
652.330	DRUMS	EA	15.00
652.340	CONES	EA	25.00
652.350	CONSTRUCTION SIGNS	SY	150.00
652.361	MAINT OF TRAFF CONTROL DEV	CD	155.00
652.380	FLAGGERS	HR	1,500.00
652.410	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.00
656.750	TEMPORARY SOIL EROSION & WATER POLLUTION CONTROL	LS	1.00
659.100	MOBILIZATION	LS	1.00

EARTHWORK SUMMARY

COMMON EXCAVATION FOR ESTIMATE			
COMMON EXCAVATION (from cross sections)	576		
EARTH FROM DRIVES, OLD ROAD, ETC.	42		
GRUBBING IN FILL	115		
TOTAL COMMON EXCAVATION			732
FILL FOR BORROW CALCULATIONS			
COMMON FILL (from cross sections)	207		
FILL FOR DRIVES	0		
GRUBBING IN FILL	115		
TOTAL FILL			322
ROCK EXCAVATION FOR ESTIMATE			
STRUCTURAL ROCK EXCAVATION (FOR BOX CULVERT)	90		
TOTAL ROCK EXCAVATION			90
AVAILABLE COMMON EXCAVATION FOR BORROW CALCULATIONS			
DEDUCTIONS:			
GRUBBING IN CUT	59		
GRUBBING IN FILL	115		
PAVEMENT SALVAGE (CUT & FILL)	54		
TOTAL DEDUCTIONS			228
TOTAL AVAILABLE COMMON EXCAVATION (total common ex - deductions)			
TOTAL AVAILABLE NON-ROCK EXCAVATION			504
COMPUTATION OF GRANULAR BORROW FOR ESTIMATE			
GRANULAR BORROW =	320		320
COMPUTATION OF COMMON EXCAVATION FOR ESTIMATE			
TOTAL AVAILABLE NON-ROCK EXCAVATION	504	x 0.90 =	454
TOTAL AVAILABLE ROCK EXCAVATION	90	x 1.30 =	117
TOTAL AVAILABLE EXCAVATION			571
SURPLUS MATERIAL = TOTAL AVAILABLE EXCAVATION - TOTAL FILL		=	**249**

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06\2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

ESTIMATED QUANTITIES &
EARTHWORK SUMMARY

SHEET NUMBER

4

OF 23

Filename: ...\HIGHWAY\MSTA\004_Estimate.dgn Division: HIGHWAY Username: natasha.m.collins Date:3/19/2015

DRAINAGE SUMMARY SHEET

STATION	CULVERT PIPE											CATCH BASIN				PIPE ARCH				MH	UNDERDRAIN						ELBOWS, TEES, WYES AND INLET GRATE UNITS	REMARKS
	RCP			CMP		OPTION I		OPTION III													TYPE B		TYPE C					
								SMOOTHLINED		CORRUGATED											TYPE B	OUTLET	SMOOTHLINED		CORRUGATED			
	SIZE	LENGTH	CLASS	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	A1-C	B1-C	E	F	SPAN	RISE	LENGTH	THICKNESS		LENGTH	LENGTH	SIZE	LENGTH	SIZE	LENGTH	DESCRIPTIONS	
CULVERTS																												
STA. 4+47.97, 22.84' RT TO STA. 4+52.29, 26.97' LT								24"	52.00'	24"	52.00'																	
BOX CULVERTS																												
STA. 592+96.49, 58.82' LT TO STA. 593+52.29, 47.41' RT																												8' x 12' x 124' BOX CULVERT
DRIVEWAY CULVERTS																												
STA. 595+20.71, 30' LT						24"	40.00'																					

CONSTRUCTION NOTES

Driveways

Station	Offset	Description		Opening Width (ft)
595+20.71	Lt	Residential	Paved	18'

Item No. 606.230- Guardrail Type 3C Single Rail

Station	to	Station	Offset	# of Pieces
592+50.00		595+00.00	Lt	20

Item No. 606.231- Guardrail Type 3C Single Rail- 15' Radius or Less

Station	to	Station	Offset	# of Pieces	Radius (ft)
595+00.00		595+10.00	Lt	2	15

Item No. 606.232- Guardrail Type 3C Single Rail- Over 15' Radius

Station	to	Station	Offset	# of Pieces	Radius (ft)
592+23.00		592+50.00	Lt	2	70

Item No. 606.265- Terminal End, Single Rail Galv Steel

Station	Offset	Quantity
595+10.00	Lt	1

Item No. 606.353- Reflectorized Flexible Guardrail Marker

Station	Offset	Quant.
591+93.07	Lt	2
595+10.00	Lt	2

Item No. 606.362- Guardrail Adjusted

Station	to	Station	Offset	Length (ft)
593+75.00		594+50.00	Lt	75

Item No. 606.366- Remove & Reset Guardrail, Type 3C

Station	to	Station	Offset	# of Pieces
592+75.00		593+75.00	Rt	8

Item No. 606.79- Guardrail 350 Flared Terminal

Station	Offset	Quant.
591+93.07	Lt	1

Item No. 610.08- Riprap

Station	Offset	Description
4+50.00	Lt	Culvert Outlet
4+50.00	Rt	Culvert Inlet
593+00.00	Rt	Slope
593+08.00	Lt	Bridge Outlet
593+50.00	Rt	Bridge Inlet
595+00.00	Lt	Driveway Pipe
595+50.00	Lt	Driveway Pipe

Item No. 613.319- Erosion Control Blanket

Station	to	Station	Offset
593+24.00		594+98.50	Lt

Item No. 620.58- Erosion Control Geotextile (Under all rock items)

Station	Offset	Description
4+50.00	Lt	Culvert Outlet
4+50.00	Rt	Culvert Inlet
593+00.00	Rt	Slope
593+08.00	Lt	Bridge Outlet
593+50.00	Rt	Bridge Inlet
595+00.00	Lt	Driveway Pipe
595+50.00	Lt	Driveway Pipe

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	06\2011
DESIGN-DETAILED	N. COLLINS	
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

DRAINAGE SHEET &
CONSTRUCTION NOTES

SHEET NUMBER
5
OF 23

Filename: ...\highway\msta\005_Drainage.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

GENERAL NOTES

1. THE UTILITIES INVOLVED IN THIS CONTRACT ARE AS FOLLOWS:
   CENTRAL MAINE POWER
   TIME WARNER CABLE
   NORTHERN NEW ENGLAND TELEPHONE (FAIRPOINT)

2. ALL PAVEMENT JOINTS BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENT WILL BE SAWCUT OR BY 'REMOVE PAVEMENT SURFACE' ITEM. ALL PAVEMENT JOINTS BETWEEN EXISTING AND PROPOSED PAVEMENT WILL BE CONSIDERED INCIDENTIAL TO THE CONTRACT.

3. CLEARING LIMITS SHALL BE 10' BEYOND AND PARALLEL TO THE CONSTRUCTION SLOPE LINES AS SHOWN ON THE PLANS UNLESS OTHERWISE AUTHORIZED BY THE RESIDENT.

4. ALL CLEARING SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO SEPARATE PAYMENT WILL BE MADE. THE ACTUAL LINES FOR CLEARING SHALL BE ESTABLISHED IN THE FIELD BY THE CONTRACTOR AS INDICATED ON THE PLANS AND APPROVED BY THE RESIDENT.

5. PRIOR TO REMOVING ANY PAVEMENT OR PLACING ANY SHIM PAVEMENT. THE ROADWAY WILL BE INSPECTED FOR POSSIBLE SUBSURFACE BOULDERS. WHICH WILL BE REMOVED AS DIRECTED BY THE RESIDENT. PAYMENT WILL BE MADE UNDER APPROPRIATE CONTRACT RENTAL ITEMS. BACKFILL WITH MATERIAL CONSISTENT WITH SURROUNDING MATERIAL UP TO SUBGRADE. PLACE AGGREGATE SUBBASE COURSE GRAVEL FROM SUB-GRADE TO FINISH GRAVEL GRADE AND COMPACT ALL MATERIAL. ANY MATERIAL AND EQUIPMENT USED TO BACKFILL HOLES AFTER REMOVAL OF BOULDERS WILL BE CONSIDERED INCIDENTAL TO THE CONTACT ITEMS.

6. WHERE DEEMED NECESSARY BY THE RESIDENT. UNSUITABLE EXCESS MATERIAL SHALL BE REMOVED FROM THE EDGES OF SHOULDERS AND PLACED IN DESIGNATED AREAS OR DISPOSED OF. PAYMENT WILL BE MADE UNDER THE APPROPRIATE CONTRACT ITEMS.

7. ALL INSLOPE AND DITCHES IN CUT AREAS SHALL BE GRADED AS SHOWN ON THE TYPICALS OR FLATTER, OR AS DIRECTED BY THE RESIDENT.

8. WHERE NO DITCHING OR INSLOPE EXCAVATION IS NEEDED. THE GRADING OF EXISTING MATERIAL OR THE ADDITION OF MATERIAL FOR 3 FEET BEYOND SHOULDER BREAK TO MATCH THE EXISTING SLOPE SHALL BE INCIDENTAL TO THE CONTRACT. ANY ADDITIONAL MATERIAL SHALL BE APPROVED BY THE RESIDENT.

9. THE CONTRACTOR SHALL PLAN AND CONDUCT THEIR WORK ACCORDINGLY SO THAT UPON FINAL COMPLETION OF THE PROJECT THERE IS NO DROP-OFF FROM THE EDGE OF SHOULDER PAVEMENT. ALL REMAINING OR DISTURBED MATERIAL ON SLOPES OR IN DITCHES ON THE PROJECT SHALL BE CAPABLE OF ATTAINING A GROWTH OF GRASS THAT IS ACCEPTABLE ACCORDING TO STANDARD SPECIFICATION 618.10. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

10. ALL WASTE MATERIAL NOT USED ON THE PROJECT SHALL BE DISPOSED OF OFF THE PROJECT IN WASTE AREAS APPROVED BY THE RESIDENT.

11. REQUIRED DITCH PROTECTION SHOWN ON THE PLANS OR IN THE CONSTRUCTION NOTES IS FOR ESTIMATING PURPOSES ONLY. THE ACTUAL TYPE AND LOCATION OF DITCH PROTECTION MAY BE ALTERED BY THE RESIDENT.

12. IF FOUNDATION MATERIAL IS REQUIRED UNDER CULVERTS, IT SHALL MEET THE REQUIREMENTS FOR GRANULAR BORROW - UNDERWATER BACKFILL AND WILL BE PAID FOR AS GRANULAR BORROW.

13. GRANULAR BORROW USED TO BACKFILL MUCK EXCAVATION OR IN LOW WET AREAS TO 1' ABOVE WATER LEVEL OR OLD GROUND SHALL MEET REQUIREMENTS FOR GRANULAR BORROW UNDERWATER BACKFILL.

14. EXISTING INSLOPES STEEPER THAN 2:1 IN PROPOSED FILL AREAS SHALL BE BENCHED AS DIRECTED BY THE RESIDENT.

15. RESIDENTIAL PAVED ENTRANCES SHALL BE CONSTRUCTED WITH: 2 INCHES HOT MIX ASPHALT AND 12 INCHES AGGREGATE SUBBASE COURSE GRAVEL.

16. ANY NECESSARY CLEANING OF EXISTING PAVEMENT PRIOR TO PAVING SHALL BE INCIDENTAL TO THE RELATED PAVING ITEMS.

17. THE FOLLOWING SHALL BE INCIDENTAL TO THE 603 ITEM(S):
- ANY CUTTING OF EXISTING CULVERTS AND OR CONNECTORS NECESSARY TO INSTALL NEW CULVERT REPLACEMENTS OR EXTENSIONS
- ALL PIPE EXCAVATION INCLUDING ANY CUTTING AND REMOVAL OF PAVEMENT
- ALL DITCHING AT PIPE ENDS
- FURNISHING, PLACING, GRADING, AND COMPACTING OF ANY NEW GRAVEL AND/OR FILL MATERIAL INCLUDING GRANULAR BORROW USED UNDER PIPES AND FOR TEMPORARY DETOURS TO MAINTAIN TRAFFIC DURING PIPE INSTALLATION (EXCAVATION IS ALSO INCIDENTAL).
- GRANULAR BORROW UNDER THE PIPE SHALL MEET THE REQUIREMENTS FOR UNDERWATER BACKFILL
- ANY NECESSARY CLEARING OF BRUSH AND NON-PAY TREES AT CULVERT ENDS

18. NO EXISTING DRAINAGE SHALL BE ABANDONED, REMOVED OR PLUGGED WITHOUT PRIOR APPROVAL OF THE RESIDENT.

19. INLETS AND OUTLETS OF ALL CULVERTS SHALL BE RIPRAPPED UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE RESIDENT.

20. THE CULVERT SIZES SHOWN ON THE PLANS AND CROSS SECTIONS ARE FOR SMOOTHLINED PIPES. FOR COMPARABLE CORRUGATED SIZES SEE THE DRAINAGE TABULATION.

21. EXISTING ABANDONED WATER MAINS BROKEN BY THE CONTRACTOR DURING CONSTRUCTION SHALL HAVE THE ENDS PLUGGED WITH BRICK AND MORTAR. COST FOR ALL LABOR AND MATERIAL WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO DIRECT PAYMENT WILL BE MADE.

22. GUARDRAIL END TREATMENTS SHALL BE INSTALLED CONCURRENTLY WITH THE PLACEMENT OF EACH SECTION OF BEAM GUARDRAIL.

23. HOLES CREATED BY GUARDRAIL REMOVAL WILL BE FILLED AND COMPACTED WITH APPROVED MATERIALS AS DIRECTED BY THE RESIDENT. PAYMENT TO BE CONSIDERED INCIDENTAL TO THE GUARDRAIL ITEMS.

24. TWO REFLECTORIZED FLEXIBLE G.R. MARKERS (ITEM 606.353) WILL BE INSTALLED AT EACH GUARDRAIL END. A DELINEATOR POST (ITEM 606.35) WILL BE INSTALLED AT EACH UNDERDRAIN OUTLET.

25. CONNECTIONS FOR PROPOSED GUARDRAIL TO EXISTING GUARDRAIL WILL BE CONSIDERED INCIDENTAL TO ITEM 606.366 REMOVE AND RESET GUARDRAIL, TYPE 3C

26. LOAM HAS BEEN ESTIMATED FOR DISTURBED LAWN AREAS. ACTUAL PLACEMENT OF THE LOAM SHALL BE AS NOTED ON THE PLANS OR DESIGNATED BY THE RESIDENT.

27. SEEDING METHOD NO. 3 SHALL BE UTILIZED ON ALL GUARDRAIL FILL SLOPES. ON LONG NON-GUARDRAIL BACKSLOPES, SEEDING METHOD NO. 3 MAY BE USED INSTEAD OF METHOD NO. 2 IF NOTED OR DIRECTED BY THE RESIDENT.

28. LOAM SHALL BE PLACED TO A NOMINAL DEPTH OF 2 INCHES IN LAWN AREAS AND 2 INCHES IN ALL OTHER AREAS UNLESS OTHERWISE NOTED OR DIRECTED.

29. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING ALL EXISTING MAILBOXES TO ENSURE THAT THE MAIL WILL BE DELIVERABLE. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK; IT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

30. THE CONTRACTOR IS RESPONSIBLE FOR THE CAREFUL SIDE STAKING OF EXISTING CENTERLINE AS PER STANDARD SPECIFICATION 105.6.2. SIDE STAKES SHALL BE PLACED SAFELY OUTSIDE OF THE CONSTRUCTION LIMITS AND THE EXISTING CENTERLINE GRADES SHALL BE TRANSFERRED TO THESE STAKES. THESE STAKES AND GRADES WILL BE USED TO LAYOUT CENTERLINE AND DETERMINE NEW CONSTRUCTION FINISH GRADES FROM DIFFERENTIAL ELEVATION SHEETS FURNISHED BY MAINEDOT. ALL LAYOUT, STAKES, AND GRADES WILL BE CHECKED AND MUST BE ACCEPTABLE TO THE RESIDENT.

31. ANY DAMAGE TO THE SLOPES CAUSED BY THE CONTRACTOR'S EQUIPMENT, PERSONNEL, OR OPERATION SHALL BE REPAIRED TO THE SATISFACTION OF THE RESIDENT. ALL WORK, EQUIPMENT, AND MATERIALS REQUIRED TO MAKE REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE.

32. A COPY OF THE SOILS REPORT FOR THIS PROJECT IS AVAILABLE AT HTTP://WWW.MAINE.GOV/MDOT/CONTRACTORS/

33. AREAS REQUIRING FILL ON THE PROJECT WILL COME FROM SUITABLE EXCAVATION FROM EXCAVATION AREAS.

34. ESTIMATED QUANTITIES FOR REQUIRED STRUCTURAL EARTH EXCAVATION, DRAINAGE AND MINOR STRUCTURES ARE INFORMATIONAL ONLY AND REPRESENT THE APPROXIMATE MINIMUM QUANTITY REQUIRED TO INSTALL DRAINAGE STRUCTURES. ADDITIONAL EXCAVATION FOR THE CONTRACTOR'S CONVENIENCE OR TO COMPLY WITH BACKSLOPING REQUIREMENTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCIDENTAL TO THE RELATED DRAINAGE ITEMS.

35. NO SEPARATE PAYMENT FOR SUPERINTENDENT OR FOREMAN WILL BE MADE FOR THE SUPERVISION OF EQUIPMENT BEING PAID FOR UNDER THE EQUIPMENT RENTAL ITEMS.

36. "UNDETERMINED LOCATIONS" SHALL BE DETERMINED BY THE RESIDENT.

37. STATIONS REFERENCED ARE APPROXIMATE.

38. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MAINE DEPARTMENT OF TRANSPORTATION'S BEST MANAGEMENT PRACTICES FOR EROSION CONTROL & SEDIMENT CONTROL, FEBRUARY, 2008.

39. GRUBBING IN FILL AREAS HAS BEEN SHOWN ON THE CROSS SECTIONS AND THE QUANTITIES NOTED. THESE LIMITS ARE APPROXIMATE AND HAVE BEEN USED FOR ESTIMATING PURPOSES ONLY. ACTUAL GRUBBING LIMITS MAY VARY BASED ON FIELD CONDITIONS AS DIRECTED BY THE RESIDENT. ESTIMATED GRUBBING DEPTHS ARE 12 INCHES IN ALL AREAS.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN
17239.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	E. MARTIN		
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

GENERAL NOTES

SHEET NUMBER
6
OF 23

Filename: ...\msta\006_GeneralNotes.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

GENERAL NOTES:

1. The Contractor shall meet all requirements of the utility companies when installing equipment on their poles. The Contractor shall be responsible for contacting the utility companies to determine their requirements.

2. The locations of all equipment shown are approximate. Final locations shall be determined in the field by the Construction Manager.

3. The cost of pole risers, overhead lane use signs, signal ahead signs, advanced detectors and loop detectors with leads-in shall be incidental to the cost of Item No. 643.80.

4. Advanced detection shall be via Wavetronix SmartSensor Advance detection with SafeArrival technology.

5. All signal heads shall be 3-sections with 12" R-Y-G indications and 5" backplates.

6. The Contractor shall provide and install a W3-3, 30" x 30", (signal ahead) signs on wood posts on each approach approximately 400' from the intersection. (Three required)

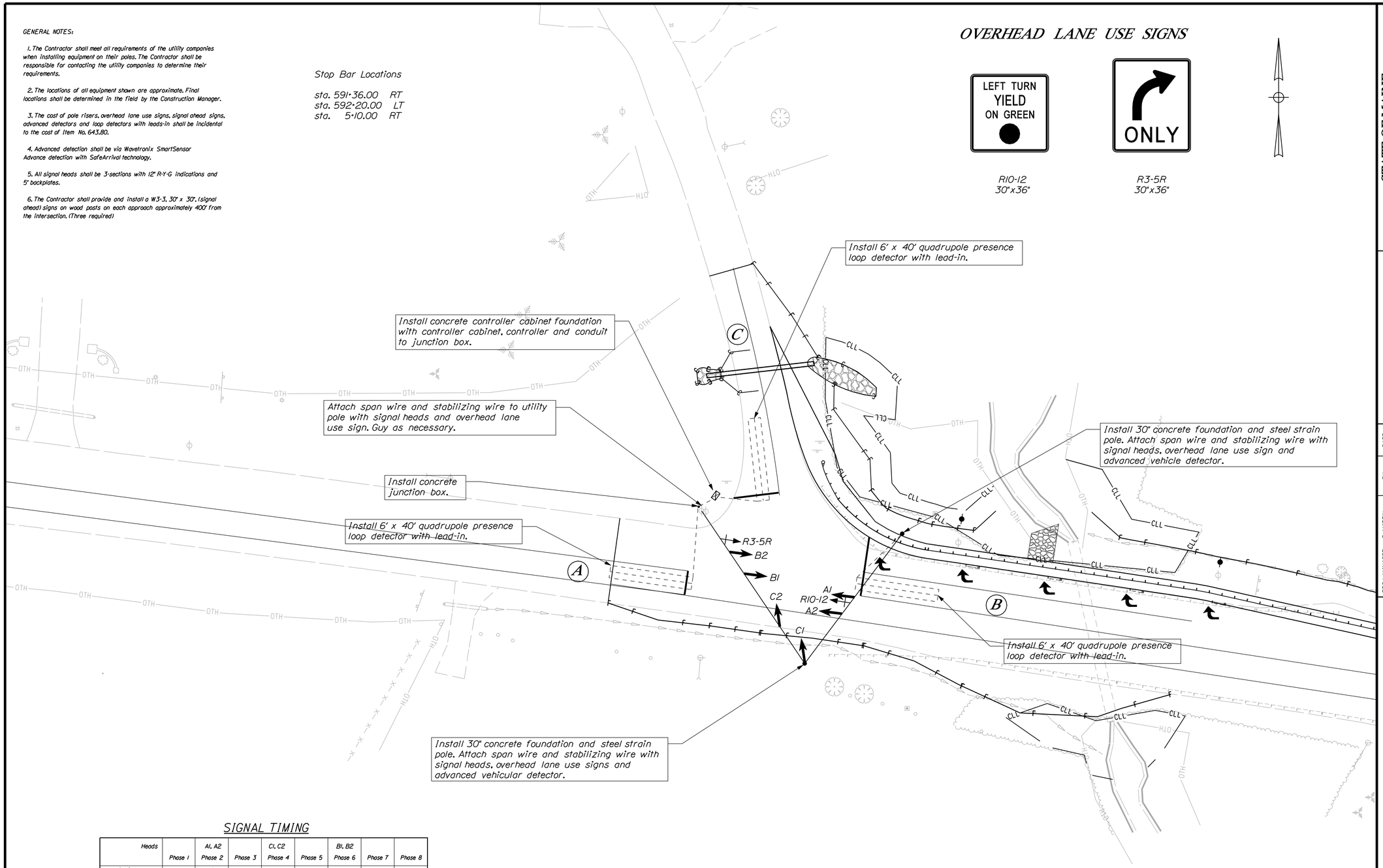
Stop Bar Locations

sta. 591+36.00 RT
sta. 592+20.00 LT
sta. 5+10.00 RT

OVERHEAD LANE USE SIGNS

R10-12
30"x36"

R3-5R
30"x36"



SIGNAL TIMING

Heads	Phase 1	A1, A2 Phase 2	Phase 3	C1, C2 Phase 4	Phase 5	B1, B2 Phase 6	Phase 7	Phase 8
Min Green		6		3		6		
Extension		4		3		4		
Max I		45		30		45		
Max II		-		-		-		
Veh Clear		3.6		3.0		3.6		
Red Clear		2.0		2.5		2.0		
Walk		-		-		-		
Ped Clear		-		-		-		
Recall		soft		off		soft		

PLAN

25 0 25 50

SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

TRAFFIC PLANS

PROJ. MANAGER	E. MARTIN		
DESIGN-DETAILED	TRAFFIC	BY	DATE
CHECKED-REVIEWED		MJD	JAN 2015
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
ROUTE 111 & HILL RD

TRAFFIC SIGNAL PLAN

SHEET NUMBER

7

OF 23

Filename: ...\00\TRAFFIC\MSTA\007_Plan.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

Filename: ...\msta\008_BORING LOGS1.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Intersection Alfred (RTE 111) and Hill Roads
Location: Arundel, Maine

Boring No.: HB-ARUN-101
WIN: 17239.00

Driller:	MaineDOT	Elevation (ft.)	97.1	Auger ID/OD:	5" Dia.
Operator:	Giguere/Giles	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	B. Wilder	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	3/1/11; 09:00-10:00	Drilling Method:	Solid Stem Auger	Core Barrel:	N/A
Boring Location:	592+63. 9.0 ft Lt. (Alfred Rd.)	Casing ID/OD:	N/A	Water Level*:	None Observed
Hammer Efficiency Factor: 0.84		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR/C = weight of rods or casing
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in. Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0							SSA	96.68	5" PAVEMENT. (0.42)	
									Brown, damp, fine to coarse SAND, some gravel, trace silt.	
									Layer of Old Pavement AT 2.5 ft bgs.	
								93.10	(4.00)	
5	10	24/17	5.00 - 7.00	32/33/20/14	53	74			Grey, damp, very dense silty SAND, little gravel.	G#266470 A-4, SM WC=8.6%
								88.60	(8.50)	
10	2D	24/16	10.00 - 12.00	WOH/6/6/11	12	17			Olive-grey, wet, very stiff SILT, some sand, trace gravel.	G#266471 A-4, ML WC=29.4%
								83.70	(13.40)	
15									Bottom of Exploration at 13.40 feet below ground surface. AUGER REFUSAL	
20										
25										

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: HB-ARUN-101

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Intersection Alfred (RTE 111) and Hill Roads
Location: Arundel, Maine

Boring No.: HB-ARUN-201
WIN: 17239.00

Driller:	MaineDOT	Elevation (ft.)	96.3	Auger ID/OD:	5" Dia.
Operator:	Giguere/Giles	Datum:	NAVD88	Sampler:	Standard Split Spoon
Logged By:	B. Wilder	Rig Type:	CME 45C	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	11/1/12; 08:30-12:00	Drilling Methods:	Cased Wash Boring	Core Barrel:	NQ-2
Boring Location:	593+11.1. 11.0 ft Lt. (Alfred Rd Strut.)	Casing ID/OD:	HW	Water Level*:	None Observed
Hammer Efficiency Factor: 0.756		Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR/C = weight of rods or casing
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in. Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0							SSA	95.55	9" PAVEMENT. (0.75)	
									Brown, damp, gravelly, fine to coarse SAND, trace silt.	
								92.30	(4.00)	
5	10	24/12	5.00 - 7.00	5/7/7/9	14	18	18		Brown, moist, medium dense, fine to coarse SAND, some silt, little gravel.	
							39			
							14			
							8	87.80	(8.50)	
							8			
10	2D		10.00 - 12.00				5		Grey, wet, very loose, silty, fine to medium SAND, little clay.	
							5			
							10			
							18			
15	R1	60/60	14.40 - 19.40	RQD = 80%			030 NQ-2	81.90	030 blows for 0.1 ft. Roller Coned ahead from 14.1 to 14.4 ft bgs. (14.40) Top of Bedrock at Elev. 81.9 ft. R1:Bedrock:Dark grey, fine grained, META-SANDSTONE with white calcite and quartz veins and significant mafic minerals or meta shale. Several sets of joints/ veins were noted: Sub-vertical 80-90 degrees mostly filled with quartz and calcite. The core did not break along this feature. 45-70 degrees, some vein quartz and calcite filling, most breaks occurred along this joint set. 3 of 7 are open 45-70 degrees. This joint dips at about 60 degrees off the previous joint in strike. Two sub-horizontal breaks were noted, this appears to be another joint set. Rock Mass Quality = Good R1:Core Times (min:sec) 14.4-15.4 ft (3:15) 15.4-16.4 ft (2:35) 16.4-17.4 ft (2:00) 17.4-18.4 ft (2:01) 18.4-19.4 ft (2:02) 100% Recovery	
								76.90	(19.40) Bottom of Exploration at 19.40 feet below ground surface.	
20										
25										

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: HB-ARUN-201

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Intersection Alfred (RTE 111) and Hill Roads
Location: Arundel, Maine

Boring No.: HB-ARUN-102
WIN: 17239.00

Driller:	MaineDOT	Elevation (ft.)	96.0	Auger ID/OD:	5" Dia.
Operator:	Giguere/Giles	Datum:	NAVD88	Sampler:	Off Flights
Logged By:	B. Wilder	Rig Type:	CME 45C	Hammer Wt./Fall:	N/A
Date Start/Finish:	3/1/11; 10:00-10:30	Drilling Method:	Solid Stem Auger	Core Barrel:	N/A
Boring Location:	6+73. 5.7 ft Lt. (Hill Rd.)	Casing ID/OD:	N/A	Water Level*:	None Observed

Definitions:
D = Split Spoon Sample S = Sample off Auger Flight
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
SSA = Solid Stem Auger
Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WOH = weight of 140lb. hammer
WOR = weight of rods WOC = weight of casing
Definitions:
WC = water content, percent ? = Similar or Equal too
LL = Liquid Limit
PL = Plastic Limit
PI = Plastic Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in. Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0	S1		0.38 - 1.10				95.63	4.5" PAVEMENT. (0.38)	
	S2		1.10 - 5.00				94.90	Brown, moist, fine to coarse SAND, some gravel, trace silt. (2.10)	GM266472 A-1-b, SM WC=9.7%
								Olive-grey, moist, fine to coarse SAND, some gravel, some silt.	GM266473 A-1-b, SM WC=8.1%
5							91.00	(6.00) Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL	
10									
15									
20									
25									

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: HB-ARUN-102

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

WIN 17239.00

HIGHWAY PLANS

PROJ. MANAGER	E. MARTIN	BY	DATE
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2	K.BRESKIN	T.WHITE	JULY 2014
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

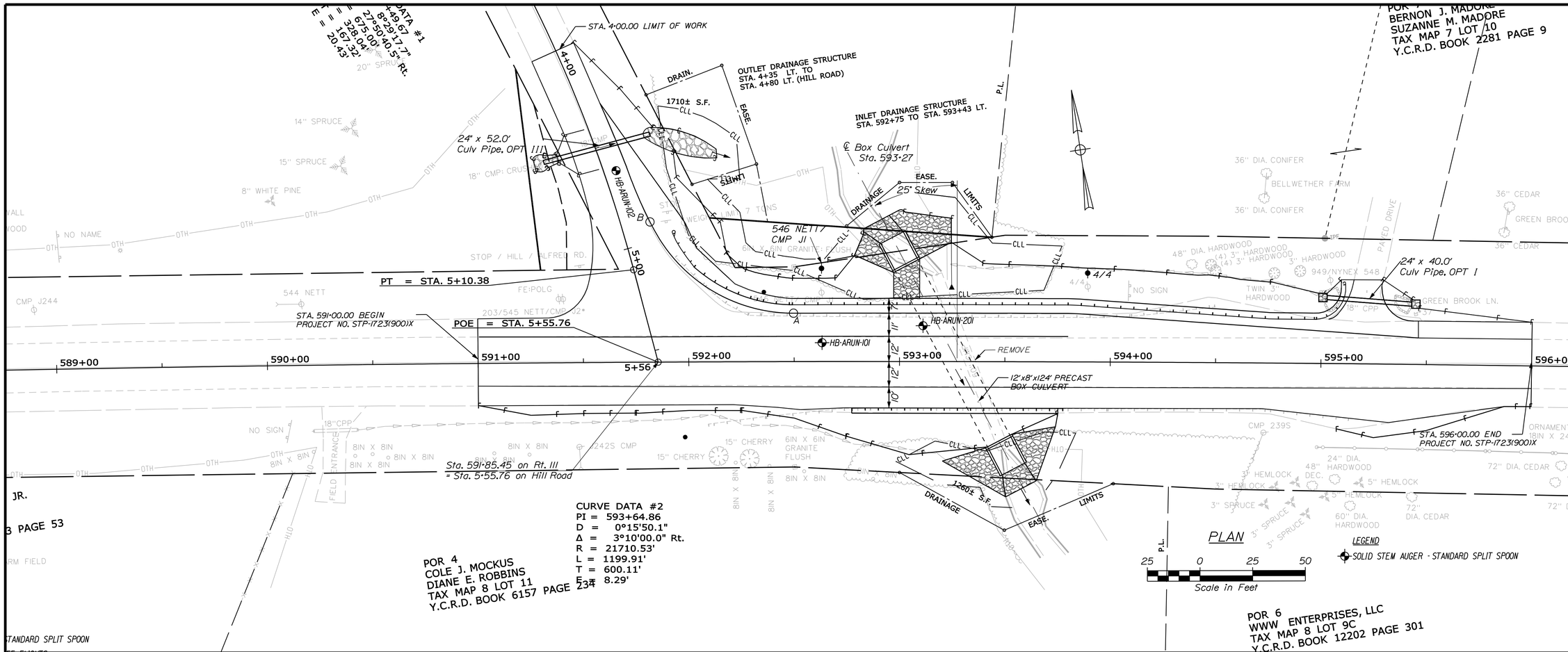
P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

BORING LOGS

SHEET NUMBER
8
OF 23



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D = 0°15'50.1"
Δ = 3°10'00.0" Rt.
R = 21710.53'
L = 1199.91'
T = 600.11'
E = 8.29'

Label	Station	Offset		Radius (ft)
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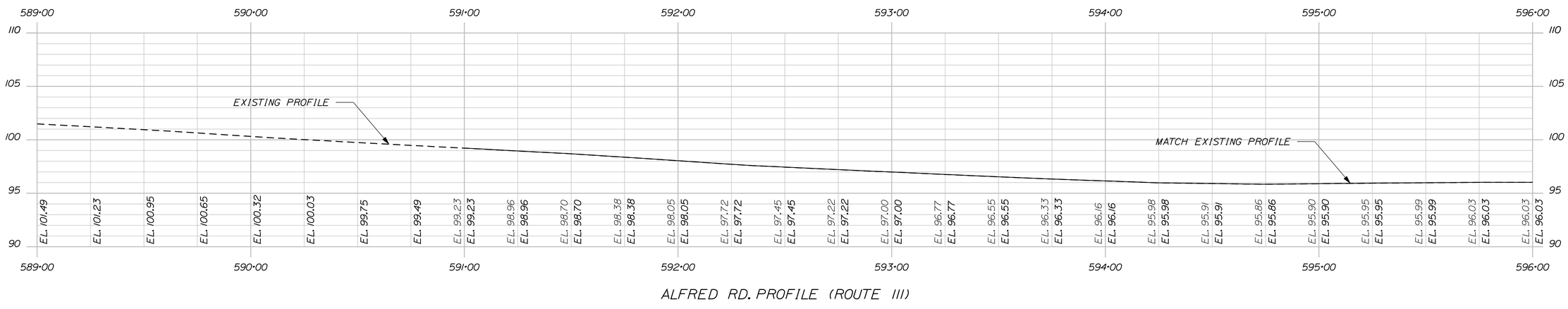
				70.0'
B	4+91.00	13.64'	Lt	



ALFRED RD. PROFILE (ROUTE III)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

WIN 17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06/2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

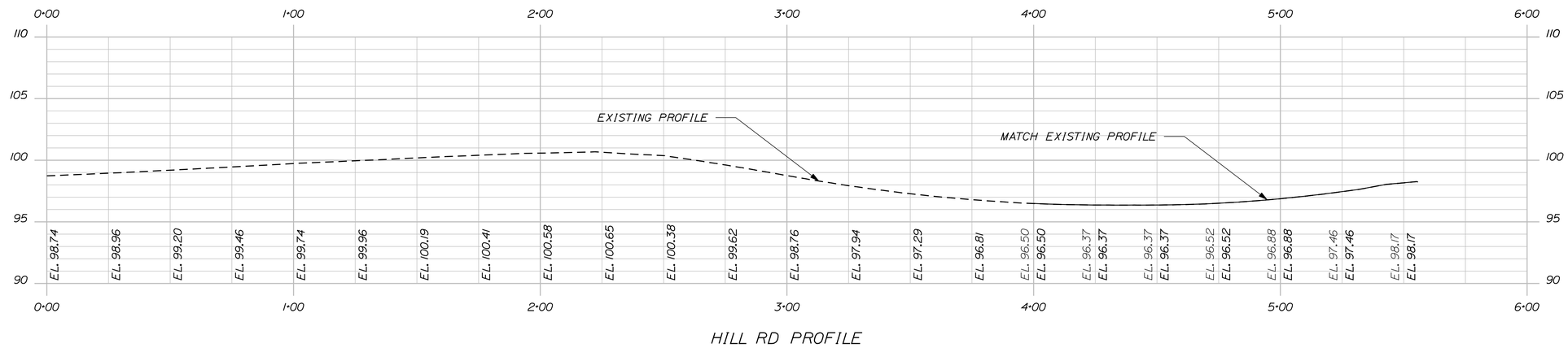
ARUNDEL
RTE. 111 & HILL ROAD

PLAN AND PROFILE

SHEET NUMBER
9
OF 23

STA. 589+00.00 TO STA. 596+00.00

Filename: ...\highway\msta\009_HDPlan1.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015



HILL RD PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

WIN
17239.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	E. MARTIN		
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

PROFILE

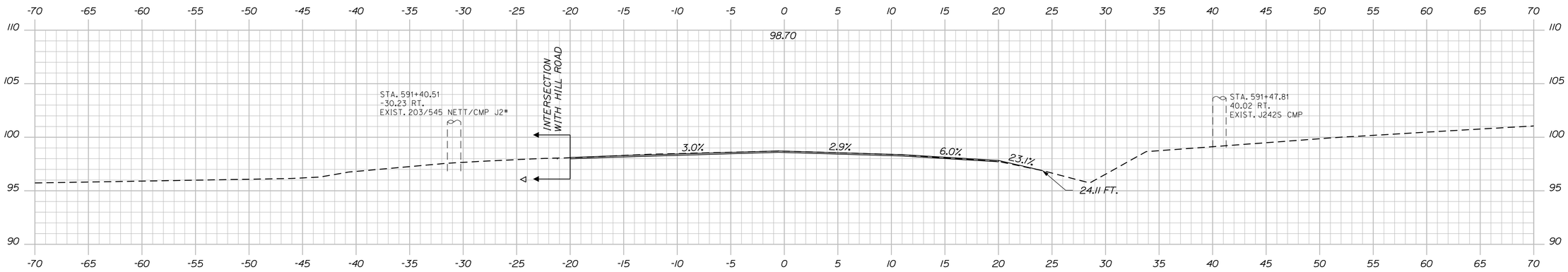
SHEET NUMBER

10

OF 23

STA. 0+00.00 TO STA. 5+55.76

Filename: ...\highway\msto\010_HDPlan2.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015



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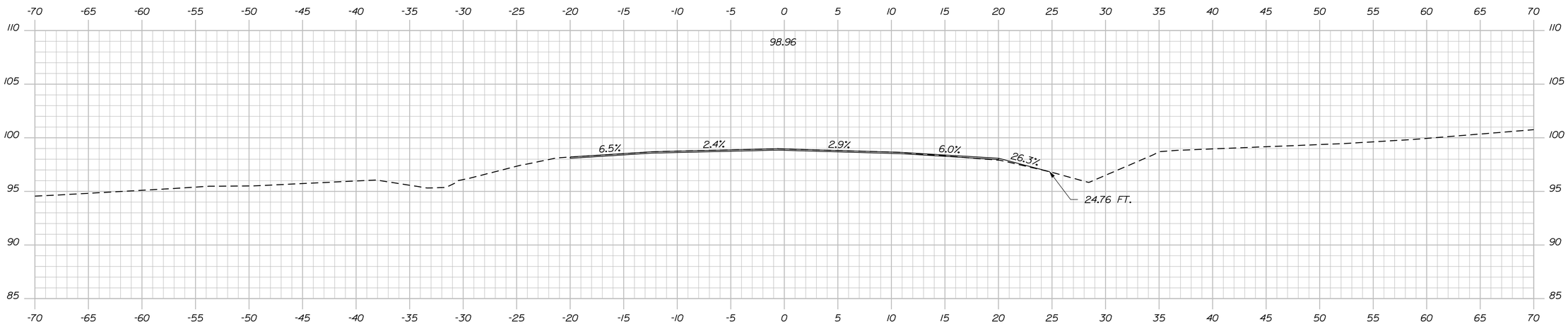

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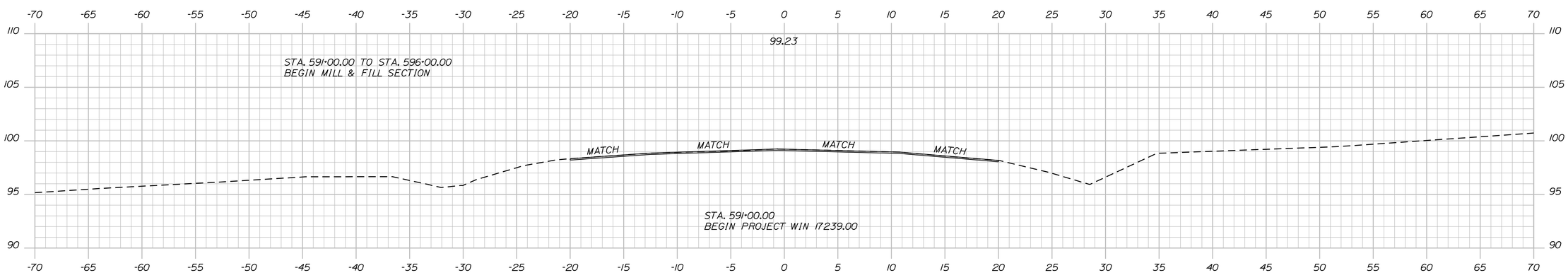


591+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06/2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

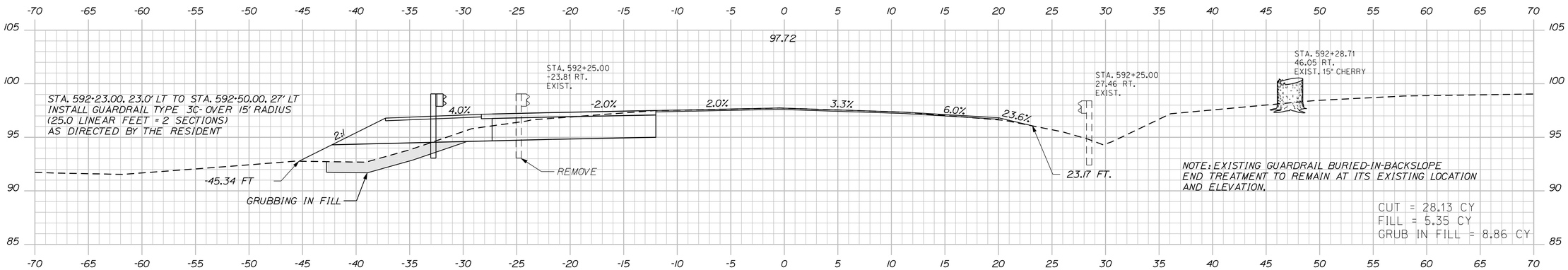
ARUNDEL
RTE. 111 & HILL ROAD

CROSS SECTIONS

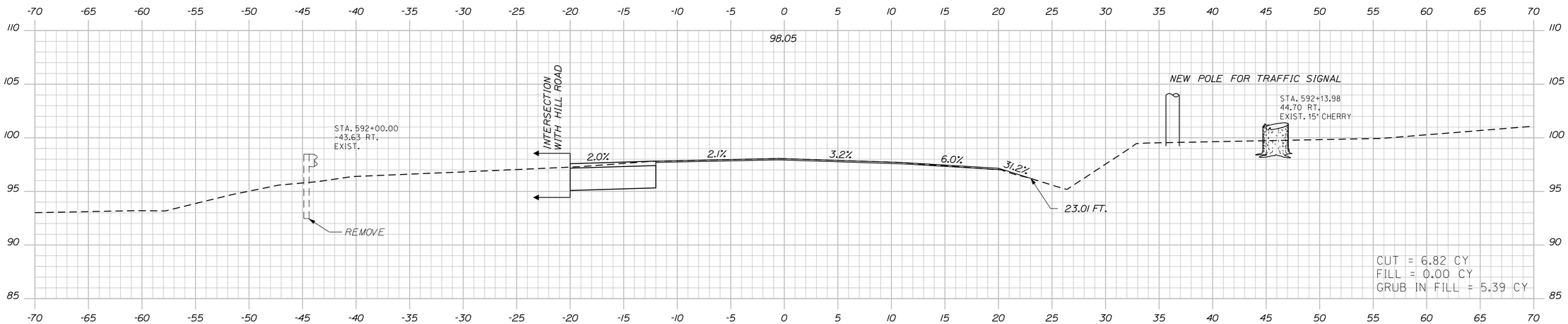
SHEET NUMBER
11
OF 23

Filename: ...\msla\011_XSECT_591+00_001.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

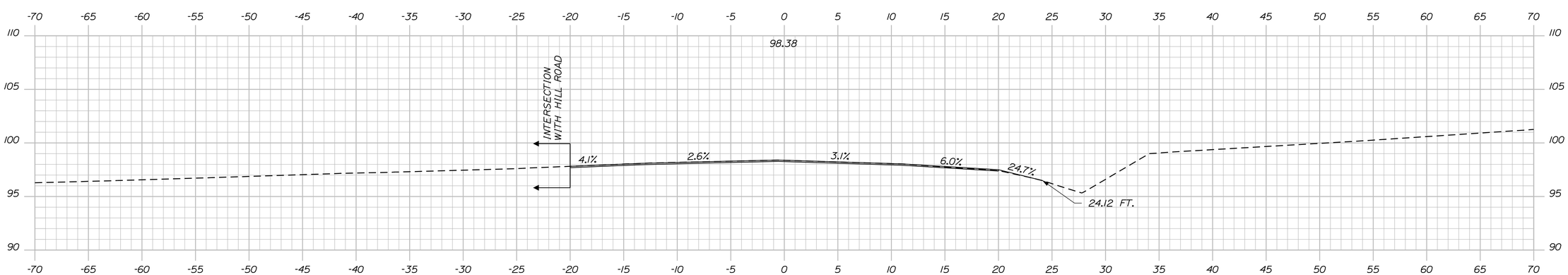
Sta. 591+00.00 to Sta. 591+50.00



592+25.00



592+00.00



591+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06/2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

CROSS SECTIONS

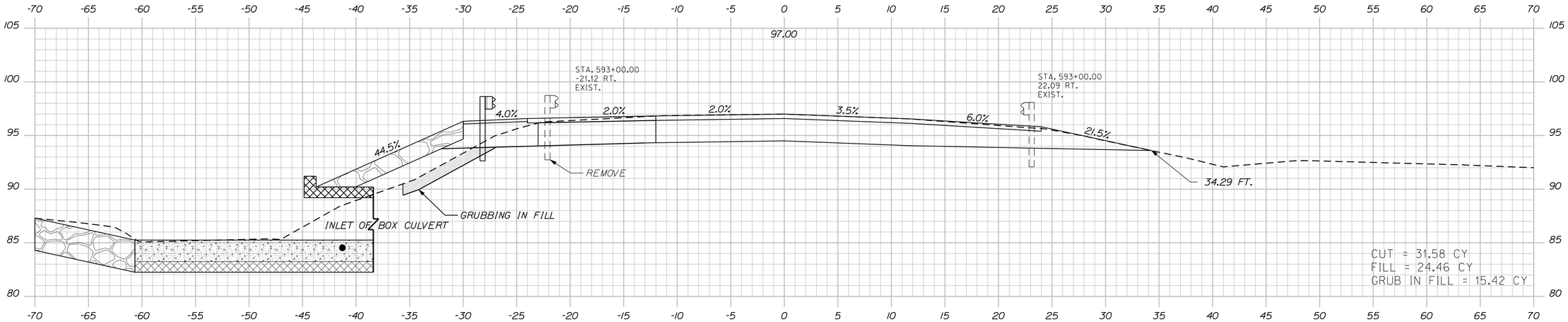
SHEET NUMBER

12

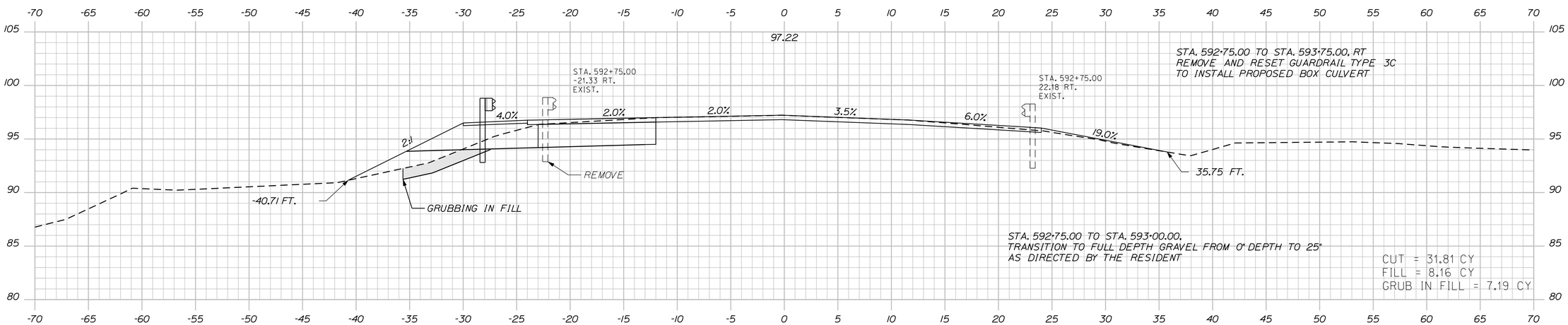
OF 23

Sta. 591+75.00 to Sta. 592+25.00

Filename: ...\msta\012_XSECT_591-75_002.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

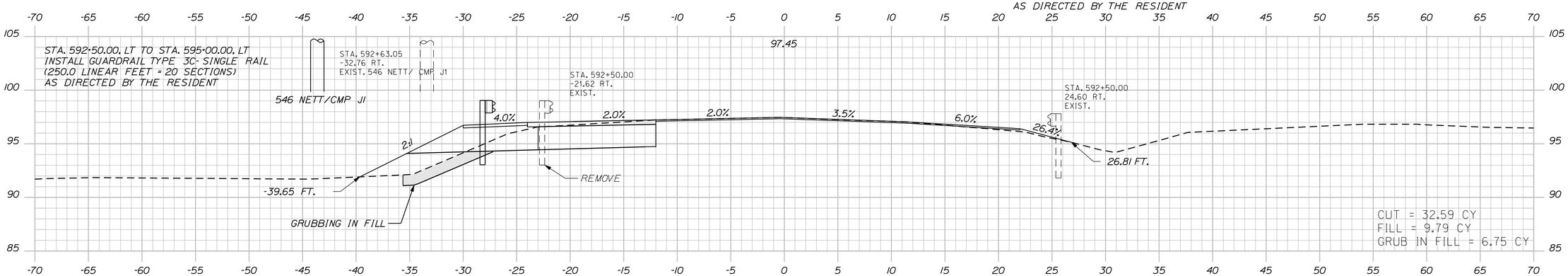


593+00.00



592+75.00

STA. 592+60.60 TO STA. 592+85.60, RT
ADJUST GUARDRAIL HEIGHT FROM EXISTING ELEVATION
TO THE STANDARD HEIGHT OF 30", TO BE PAID
FOR AS ITEM NO. 606.362, GUARDRAIL ADJUSTED
AS DIRECTED BY THE RESIDENT



592+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN
17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06\2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2	B. NICHOLS	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

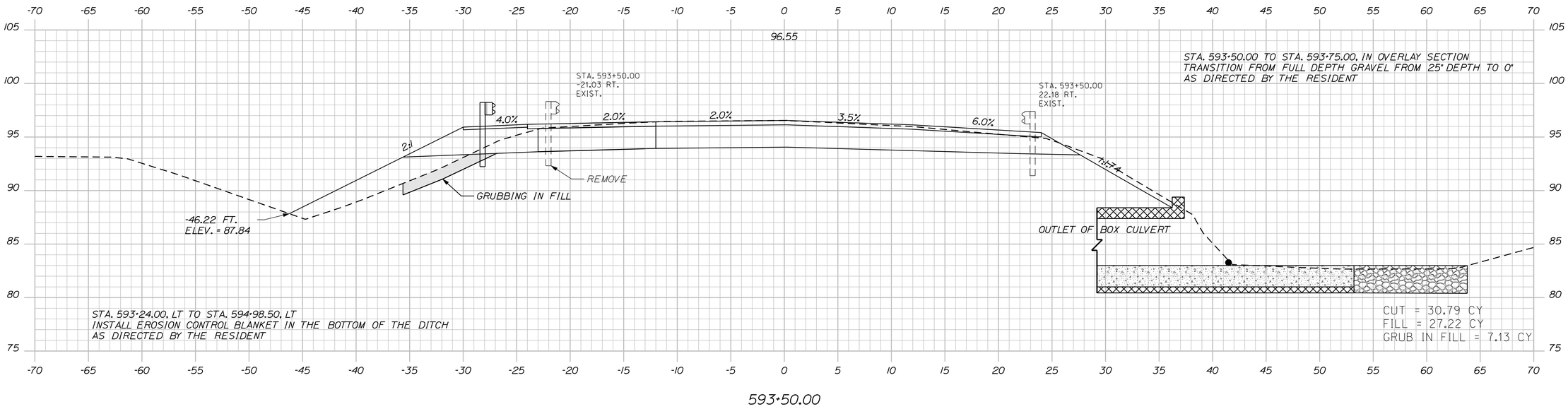
ARUNDEL
RTE. 111 & HILL ROAD

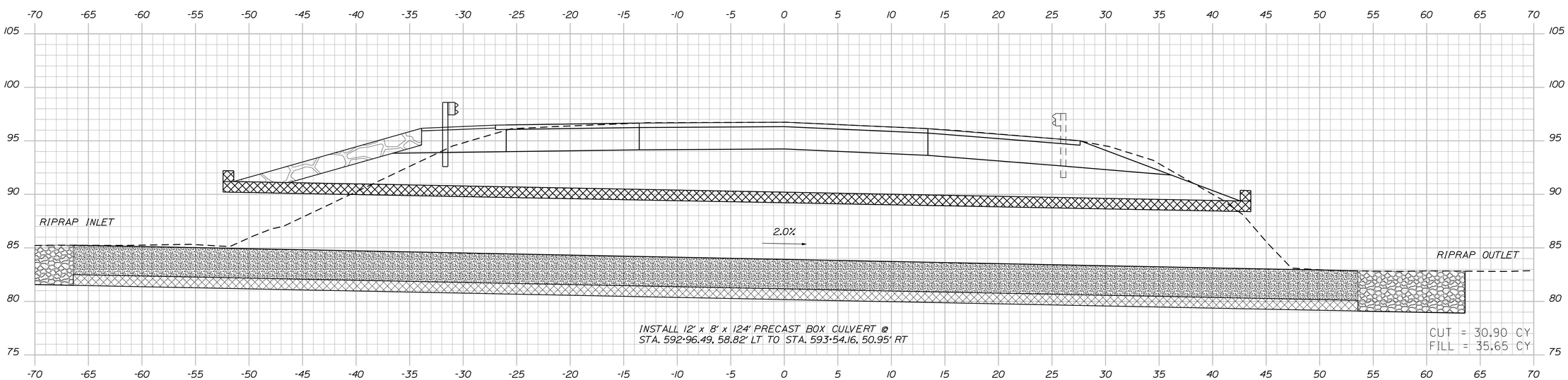
CROSS SECTIONS

SHEET NUMBER
13
OF 23

Filename: ...\msta\013_XSECT_592+50_003.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

Sta. 592+50.00 to Sta. 593+00.00





STA. 593+27.31 (332°16'19" SKEW)
INSTALL 12' SPAN X 8' RISE X 124' PRECAST CONCRETE BOX CULVERT
INLET ELEV. = 82.5'
OUTLET ELEV. = 80.1'
SEE BOX CULVERT SPECIAL DETAIL SHEET #22 & #23 FOR DETAILED INFORMATION AND NOTES

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	E. MARTIN		
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

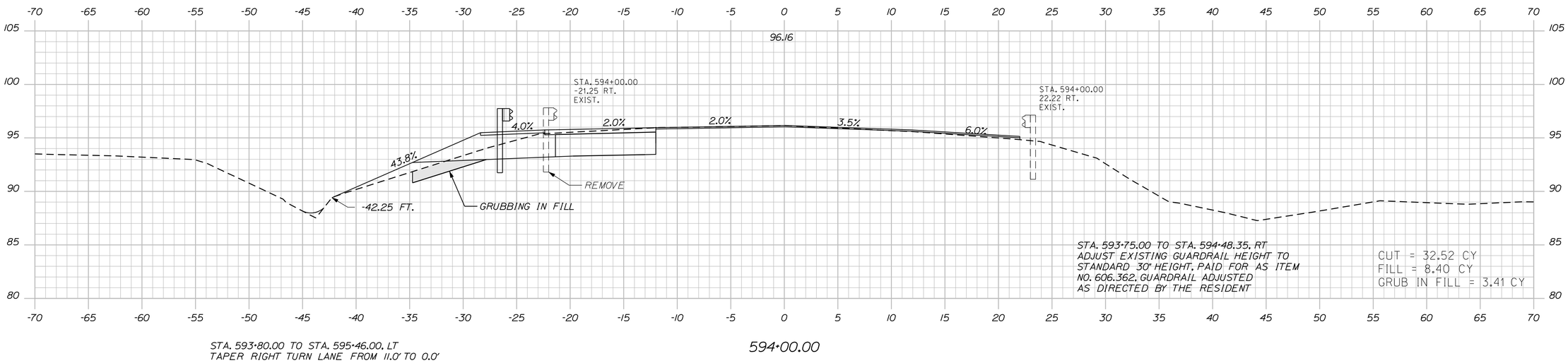
ARUNDEL
RTE. 111 & HILL ROAD

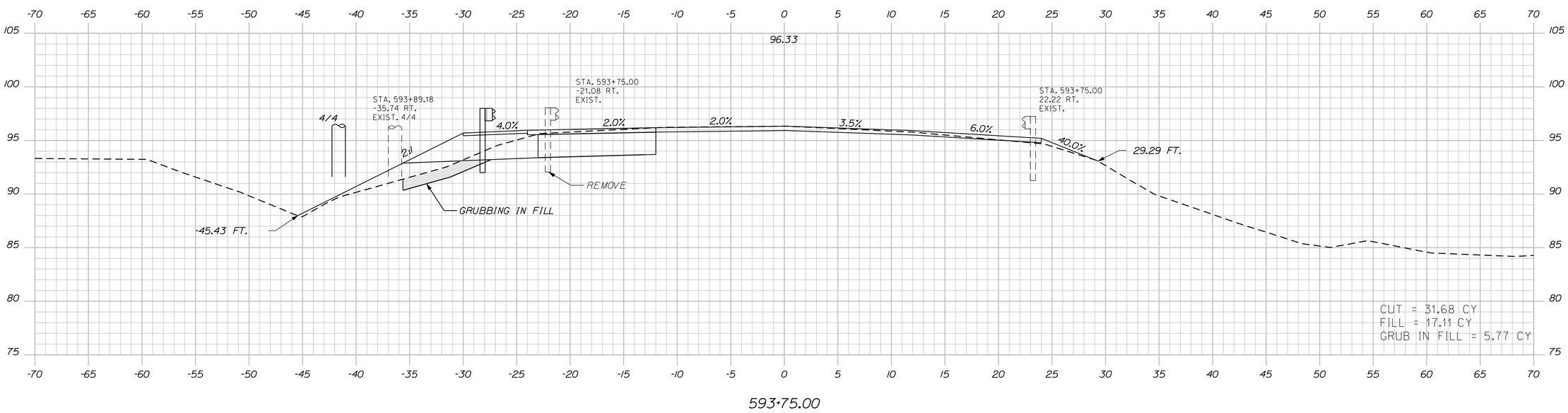
CROSS SECTIONS

SHEET NUMBER
14
OF 23

Sta. 593+25.00 to Sta. 593+50.00

Filename: ...\msta\014_XSECT_593+25_004.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN
17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06\2011
CHECKED-REVIEWED	WEO	
DESIGN2-DETAILED2	ED2	
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

CROSS SECTIONS

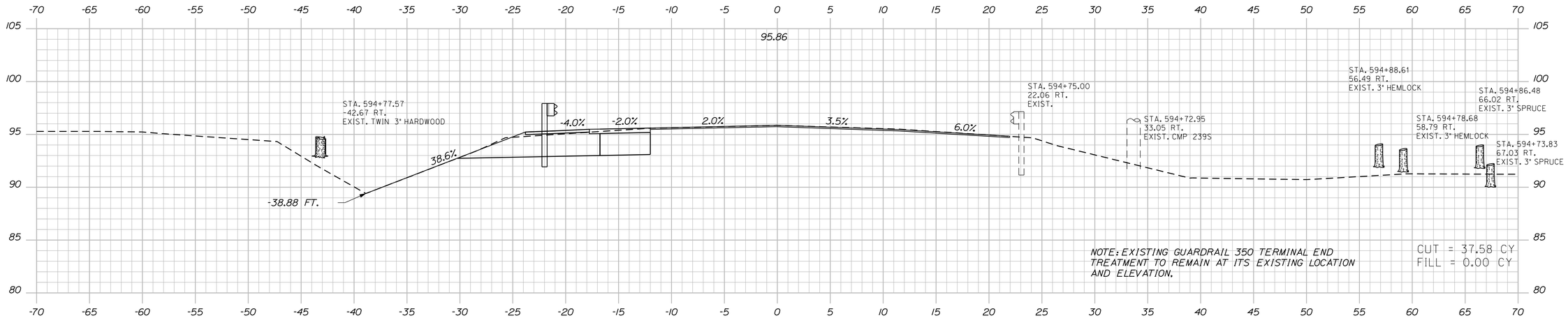
SHEET NUMBER

15

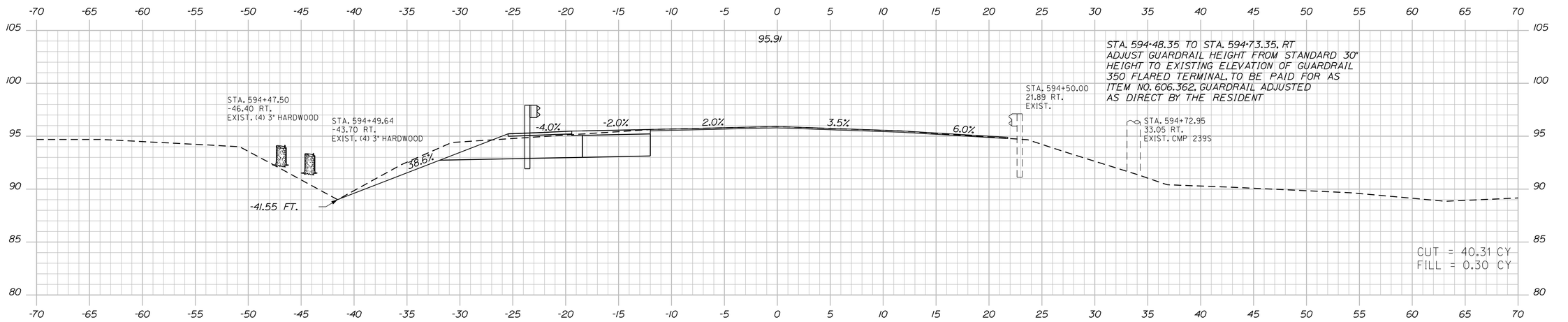
OF 23

Sta. 593+75.00 to Sta. 594+00.00

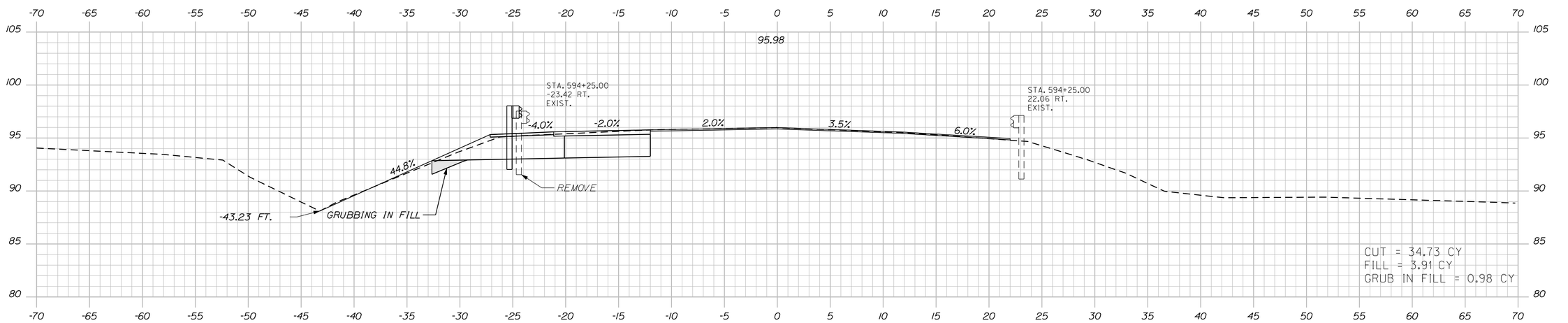
Filename: ...\msto\015_XSECT_593+75_005.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015



594+75.00



594+50.00



594+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06\2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

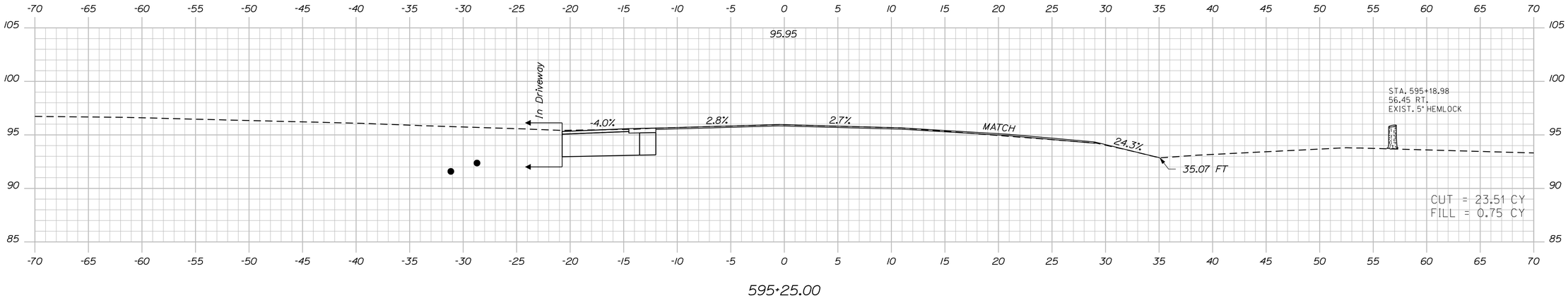
ARUNDEL
RTE. 111 & HILL ROAD

CROSS SECTIONS

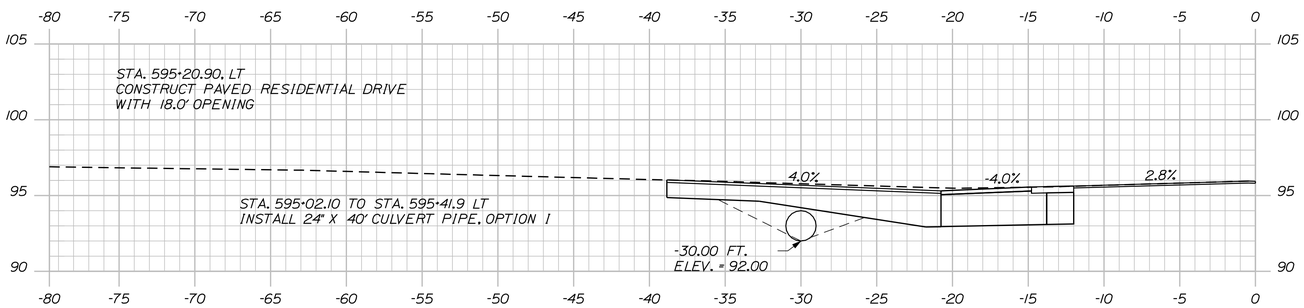
SHEET NUMBER
16
OF 23

Sta. 594+25.00 to Sta. 594+75.00

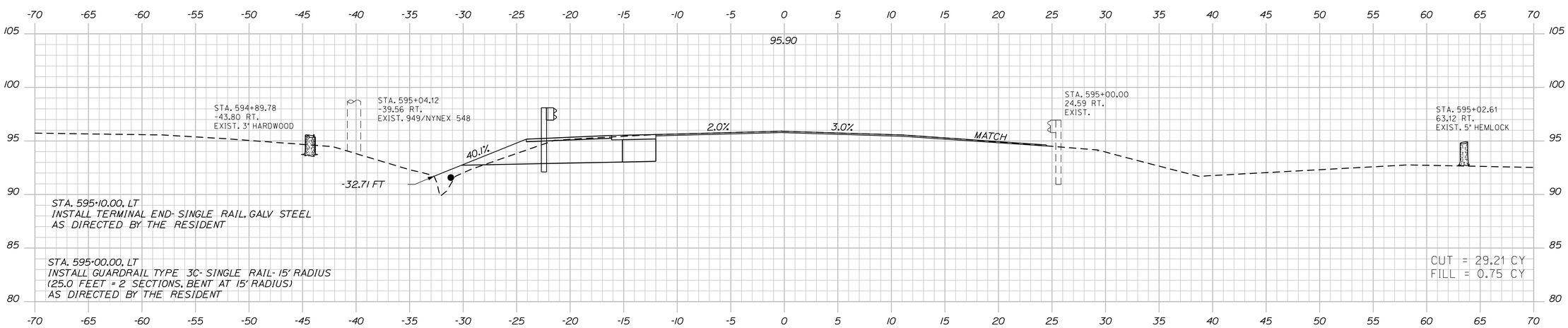
Filename: ...\msto\016_XSECT_594+25_006.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015



595+25.00



595+20.90



595+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN
17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06\2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

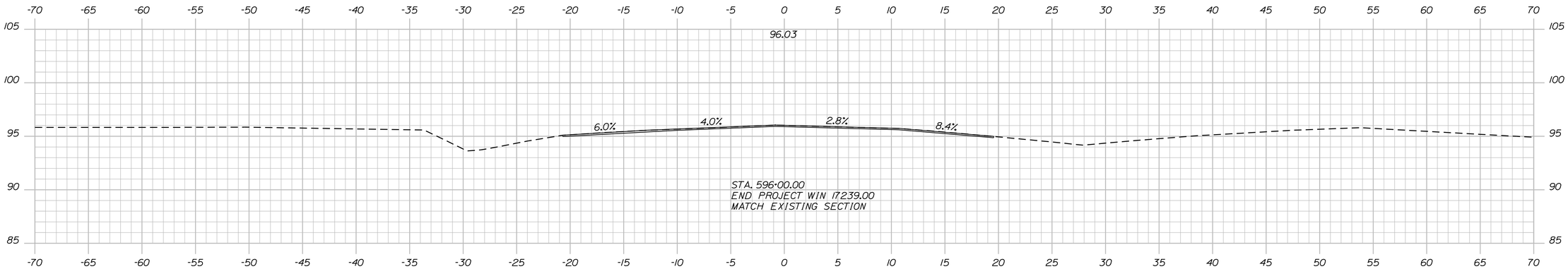
ARUNDEL
RTE. 111 & HILL ROAD

CROSS SECTIONS

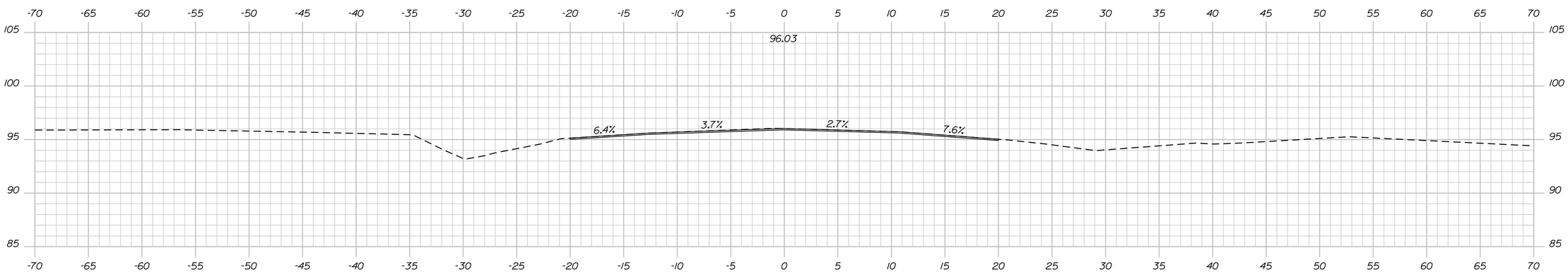
SHEET NUMBER
17
OF 23

Filename: ...\msta\017_XSECT_595+00_007.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

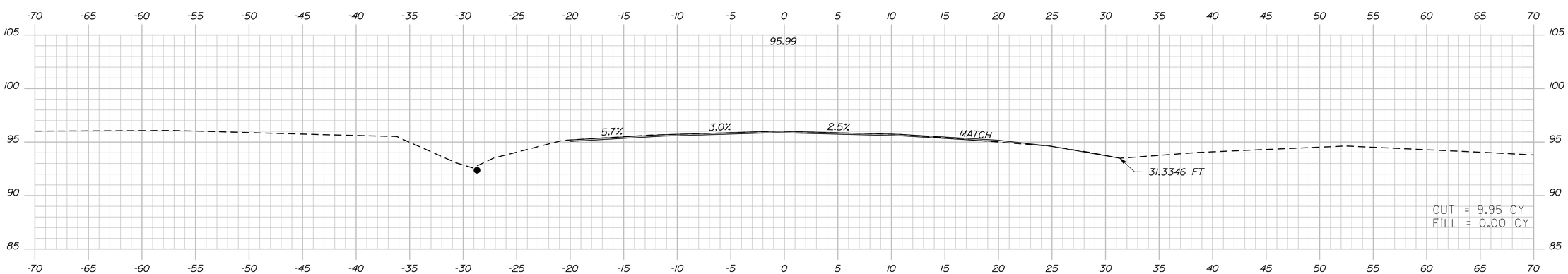
Sta. 595+00.00 to Sta. 595+25.00



596+00.00



595+75.00



595+50.00

Sta. 595+50.00 to Sta. 596+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	E. MARTIN		
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

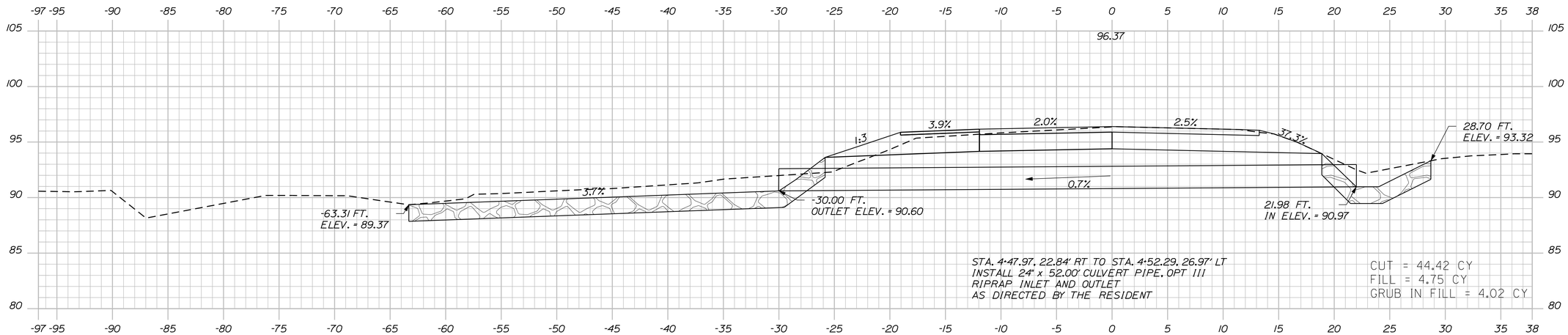
CROSS SECTIONS

SHEET NUMBER

18

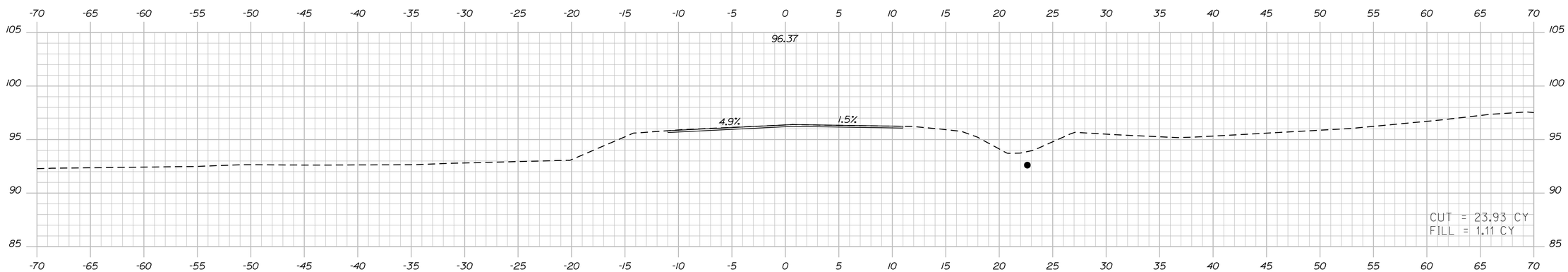
OF 23

Filename: ...\msta\018_XSECT_595+50_008.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

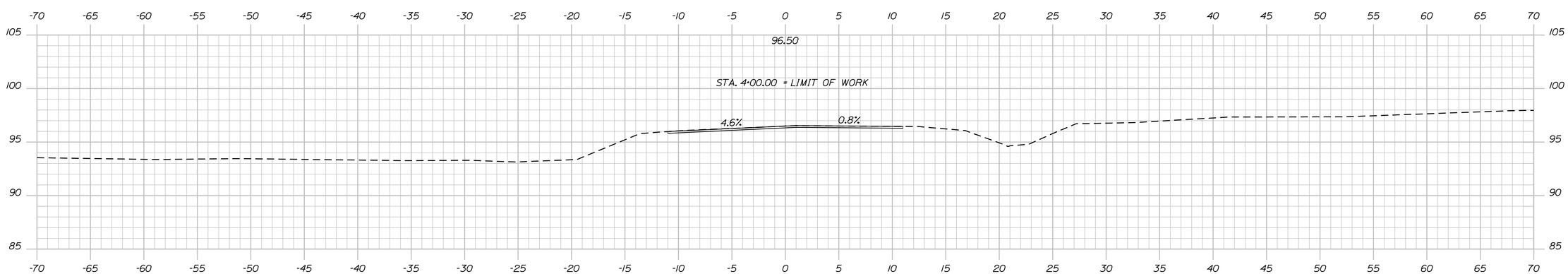


STA. 4+31.00, LT TO STA. 5+30.00, LT
CONSTRUCT FLARED AREA FOR GUARDRAIL END TREATMENT
AS DIRECTED BY THE RESIDENT

4+50.00



4+25.00



4+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN
17239.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E. MARTIN	
DESIGN-DETAILED	N. COLLINS	06\2011
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3	B. NICHOLS	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

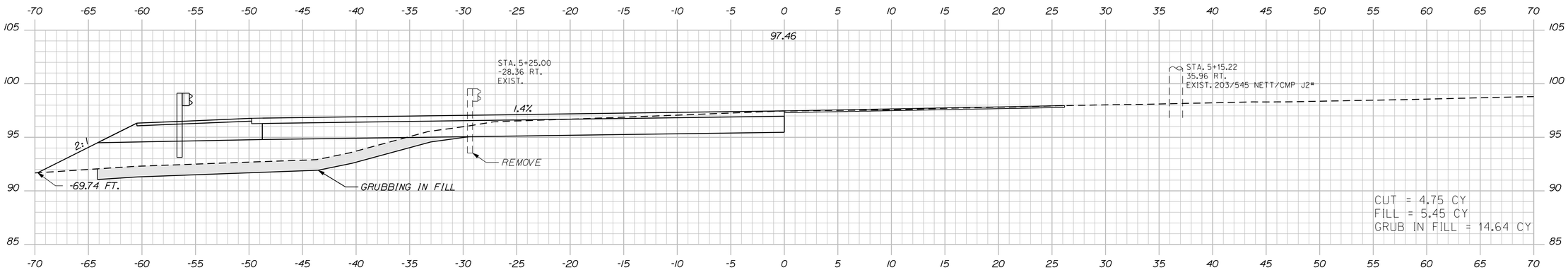
ARUNDEL
RTE. 111 & HILL ROAD

CROSS SECTIONS

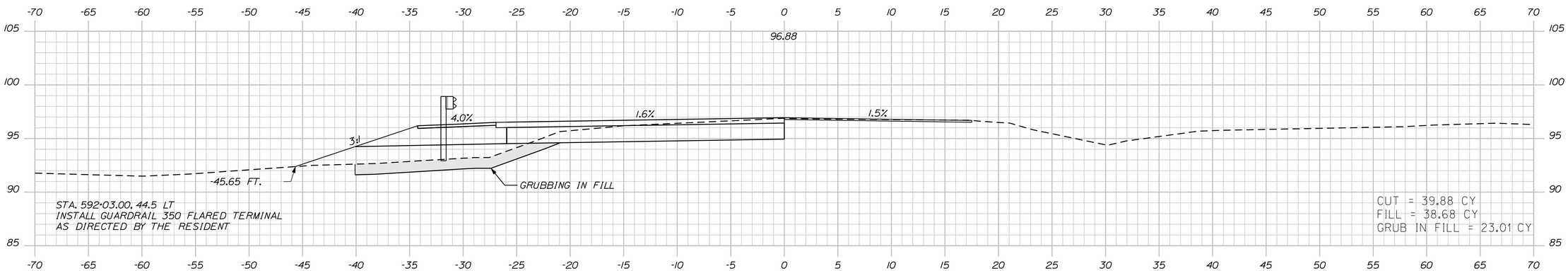
SHEET NUMBER
19
OF 23

Filename: ...\msta\019_XSECT_4+00_009.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

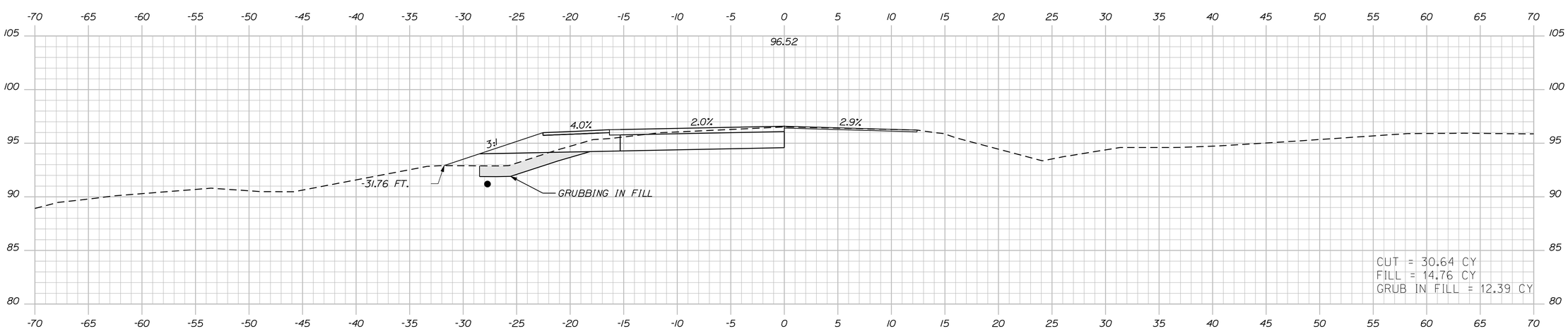
Sta. 4+00.00 to Sta. 4+50.00



5+25.00



5+00.00



4+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN
17239.00

HIGHWAY PLANS

PROJ. MANAGER	E. MARTIN	BY	DATE
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

ARUNDEL
RTE. 111 & HILL ROAD

CROSS SECTIONS

SHEET NUMBER
20
OF 23

Filename: ...\msla\020_XSECT_4+75_010.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015

Sta. 4+75.00 to Sta. 5+25.00

CONTROL INFORMATION

HORIZONTAL CONTROL - US STATE PLANE NAD83 (1996)
ZONE - MAINE 2000 WEST
VERTICAL DATUEM - NAVD 88
COMBINED SCALE FACTOR - 0.9999782

GRID
MAINE 2000 WEST ZONE

CURVE DATA #1
PI = 3+49.67
D = 8°29'17.7"
Δ = 27°50'40.5" Rt.
R = 675.00'
L = 328.04'
T = 167.32'
E = 20.43'

GORDON T. JAMES
PARCEL NO. (1)
LAND TAKEN = 793± S.F. (PRESC. EASE.)
LAND TAKEN = 975± S.F. (OTHER)
TOTAL LAND TAKEN = 1768± S.F.
TOTAL AREA = 4.40± AC. (TAX MAP)
REM. AREA = 4.36± AC.

CLIFTON E. TEMM, II
PARCEL NO. (3)
LAND TAKEN = 1709± S.F.
DRAIN. EASE. = 2785± S.F. (2)
TEMP. CONST. RIGHTS = 655± S.F. (1)
TOTAL AREA = 10.60± AC. (TAX MAP)
REM. AREA = 10.56± AC.

OUTLET DRAINAGE STRUCTURE
STA. 4+35 LT. TO
STA. 4+80 LT. (HILL ROAD)

INLET DRAINAGE STRUCTURE
STA. 592+75 TO STA. 593+43 LT.

CURVE DATA #2
PI = 593+64.86
D = 0°15'50.1"
Δ = 3°10'00.0" Rt.
R = 21710.53'
L = 1199.91'
T = 600.11'
E = 8.29'

OUTLET DRAINAGE STRUCTURE
STA. 593+00 TO STA. 594+00 RT.

COLE J. MOCKUS
DIANE C. ROBBINS
ITEM NO. (2)
DRAIN. EASE = 1260± S.F. (1)
TOTAL AREA = 60± AC. (TAX MAP)

EXISTING RIGHT OF WAY

ROUTE 111 (ALFRED ROAD)
1. MAINE STATE HIGHWAY COMMISSION
RIGHT OF WAY MAP
STATE HIGHWAY "U"
NORTH KENNEBUNK, YORK COUNTY
FEDERAL AID PROJECT NO. F 360 (1)
PLAN DATED JUNE 1948
SHEET 3 OF 9
STATE HIGHWAY COMMISSION FILE NO. 16-69
Y.C.R.D. PLAN BOOK 23 PAGE 14
2. YORK COUNTY COMMISSIONERS RECORDS
VOLUME 16 PAGE 110
1827 3 & 3.5 RODS WIDE (49.5' & 57.5')

HILL ROAD
1. YORK COUNTY COMMISSIONERS RECORDS
VOLUME 17 PAGE 324
1841 3 RODS WIDE (49.5')
2. PRESCRIPTIVE EASEMENT FOR HISTORY PURPOSES WITHIN LIMITS OF WROUGHT PORTION (L.O.W.P.)

STATE OF MAINE
REGISTRY OF DEEDS
COUNTY _____
RECEIVED _____, _____
at _____h_____m_____M and recorded in
Plan Book _____, Page _____
Attest: _____
REGISTER

To the best of my knowledge and belief the Highway Right of Way lines depicted hereon are based upon a survey conforming to the Standards of Practice promulgated by the Maine Board of Licensure for Professional Land Surveyors 02-360 CMR, Chapter 90; Exceptions: (1) No separate survey report, (2) Monumentation only as shown on plan. See sheet X of this plan set for coordinates. (3) Other boundary lines, including lines between abutters are approximate and for general reference purposes only.

WIN 17239.00

SYMBOLS
● IP or ● IPF (IRON PIPE or PIN FOUND)
□ S.T. (SEPTIC TANK)
⊠ (ROW MONUMENT)
&BM (TRAVERSE POINT)
○WELL (WELL)
GRADING LIMIT LINE
CONSTRUCTION LIMIT LINE
PROPERTY LINE - P.L. -
LIMITS OF WROUGHT PORTION (L.O.W.P.)
EXISTING RIGHT OF WAY
NEW RIGHT OF WAY
NEW ROW WITHIN EXIST. ROW
CONTROL OF ACCESS
WATER LINE
GAS LINE
ELECTRIC LINE
TELEPHONE LINE
SEWER LINE

ITEM	TECH	CHECKED
BASE MAP	J.C.C.	
EXIST. R/W	J.C.C.	
PROP. LINES	T.L.B.	
AREAS	T.L.B.	T.L.B.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016
ARUNDEL
RIGHT OF WAY MAP

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK	PAGE	COUNTY RECORD			
NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

DAVID BERNHARDT
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

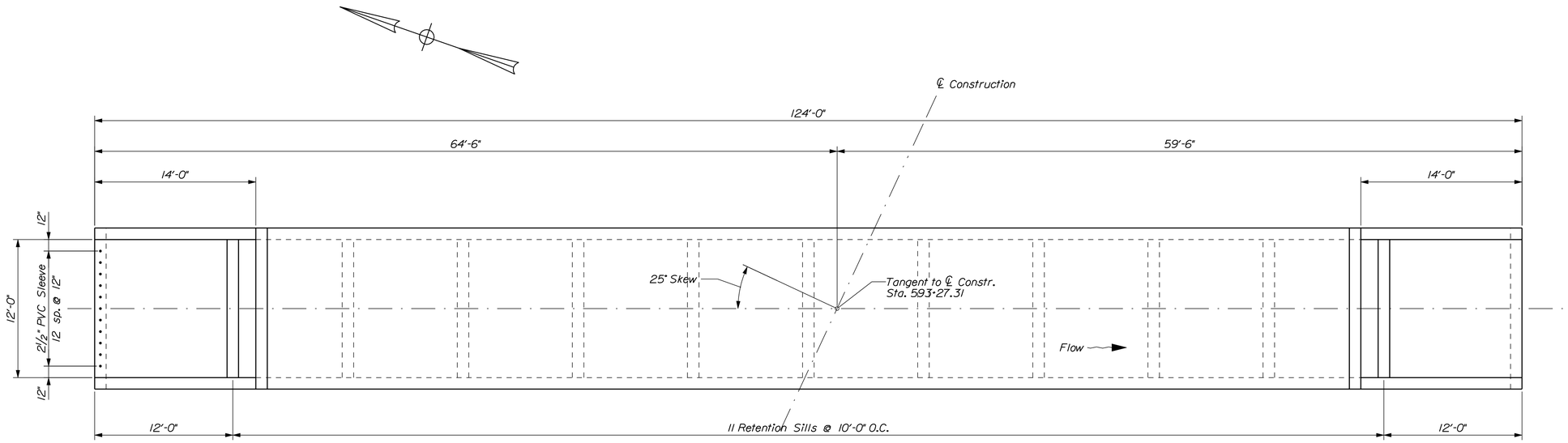
STATE OF MAINE
CHRISTOPHER W. KNIGHT
2257
PROFESSIONAL LAND SURVEYOR

STATE HIGHWAY "8"
ROUTE 111 & HILL ROAD
ARUNDEL YORK COUNTY
FEDERAL AID PROJECT NO. STP-1723(900)X

NOVEMBER 2014 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 16-459
SCALE 1" = 25' | SHEET 1 OF 1

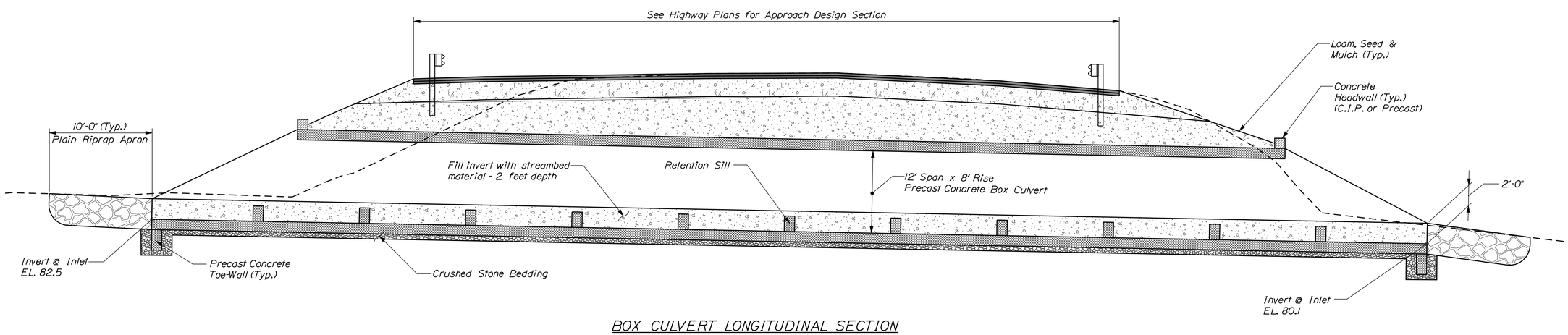
SHEET NUMBER
21
OF 23

Filename: ...\00\ROW\MSTA\001_RWPLAN1.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015



BOX CULVERT PLAN

Flow



BOX CULVERT LONGITUDINAL SECTION

Flow

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN 17239.00

BRIDGE PLANS

PROJ. MANAGER	E. MARTIN	BY	DATE
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2	K.BRESKIN	T.WHITE	JULY 2014
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

GREENBROOK BRIDGE
UN-NAMED STREAM
ARUNDEL YORK COUNTY

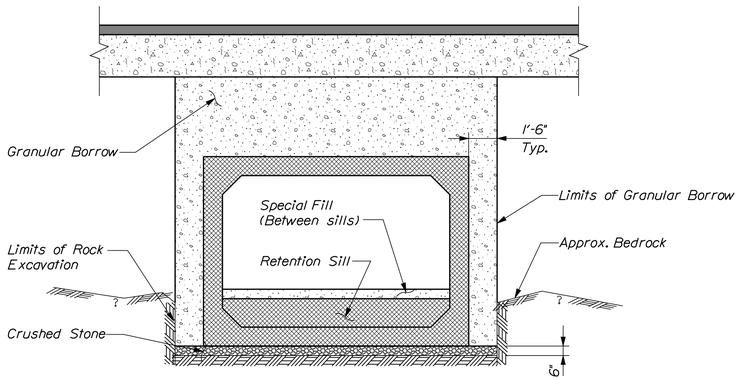
BOX CULVERT DETAILS

SHEET NUMBER

22

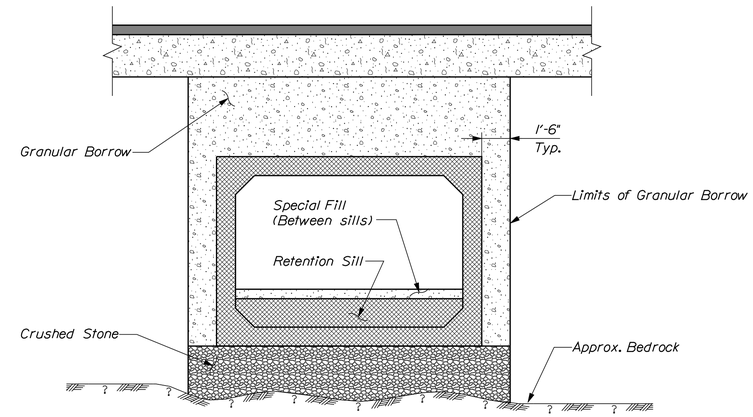
OF 23

Filename: ...\00\BRIDGE\MSTA\022_Box1.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015



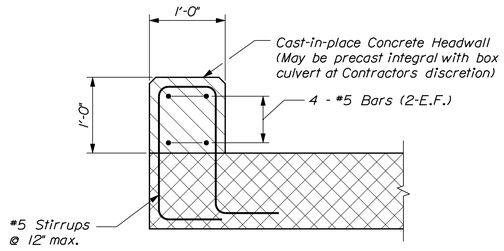
BOX CULVERT SECTION

Section shown where bedrock elevation is higher than box culvert grade

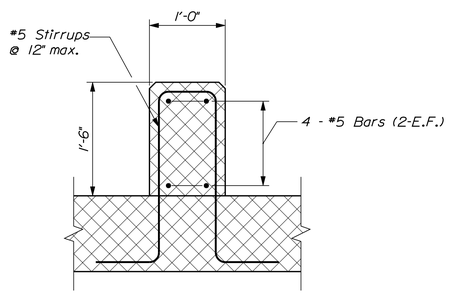


BOX CULVERT SECTION

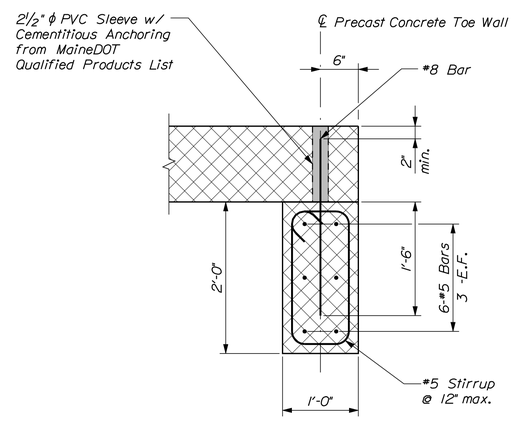
Section shown where bedrock elevation is lower than box culvert grade



HEADWALL SECTION



RETENTION SILL SECTION



PRECAST CONCRETE TOE WALL DETAIL

PRECAST CONCRETE BOX CULVERT NOTES

1. The precast units shall be designed to carry construction loadings with a minimum fill cover of 6 inches over the top of the units.

2. The construction, handling, and assembly of the precast units shall be in accordance with Special Provisions Section 534, Precast Structural Concrete, and with the manufacturer's specifications as applicable.

3. Install standard membrane waterproofing over the top and to 12 inches down the exterior sides of the precast units and 12" up insideface of headwall.

4. Payment for concrete headwalls and toe-walls, whether precast or cast-in-place will be included in Item No. 534.71, Precast Concrete Box Culvert.

5. Prior to casting headwalls and retention sills, roughen all corresponding contact surfaces of the box culvert.

HYDROLOGIC DATA

Drainage Area	1.44 sq mi
Design Discharge (Q50)	279.0 cfs
Ordinary High Water (Q1.1)	331.6 cfs
Check Discharge (Q100)	33.3 cfs
Headwater Elevation (Q50)	89.28 ft
Headwater Elevation (Q100)	89.89 ft
Discharge Velocity (Q50)	10.8 fps
Discharge Velocity (Q100)	11.4 fps
Headwater Elevation (Q1.1)	86.02 ft
Discharge Velocity (Q1.1)	4.88 fps
Headwater Elevation (Q25)	88.67 ft

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-1723(900)X

PIN
17239.00

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	E. MARTIN		
DESIGN-DETAILED	N. COLLINS		06\2011
CHECKED-REVIEWED			
DESIGN2-DETAILED2	K.BRESKIN	T.WHITE	JULY 2014
DESIGN3-DETAILED3	B. NICHOLS		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

GREENBROOK BRIDGE
UN-NAMED STREAM
ARUNDEL YORK COUNTY

BOX CULVERT DETAILS

SHEET NUMBER
23
OF 23

Filename: ...\00\bridge\msla\023_Box2.dgn Division: HIGHWAY Username: natasha.m.collins Date:2/9/2015