

THE STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION



CONSTRUCTION & RIGHT-OF-WAY PLANS FOR: BR 3-368 ON SYCAMORE ROAD OVER ELLIOTT POND BRANCH

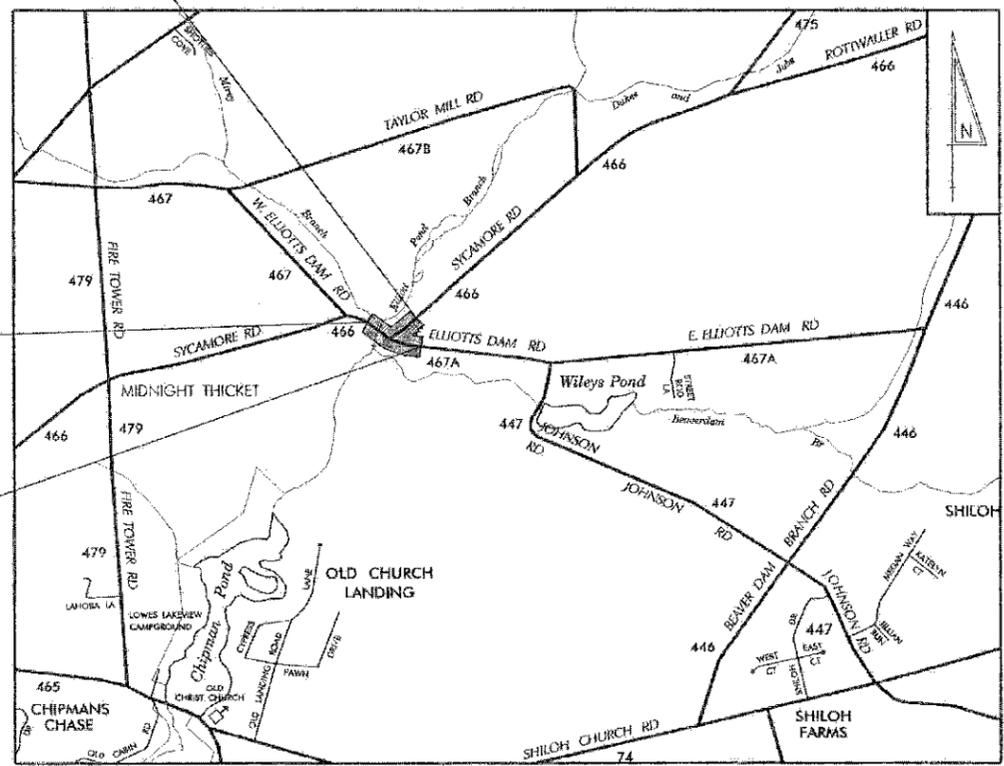
CONTRACT NUMBER: T201107306
FEDERAL AID PROJECT NUMBER: EBROS-S466(01)

COUNTY: SUSSEX M.R. #: 466

END
CONTRACT T201107306
STATION 4+00.00

BEGIN
CONTRACT T201107306
STATION 0+50.00

LIMIT OF CONSTRUCTION
CONTRACT T201107306
STATION A1+43.46



**U.S. CUSTOMARY
UNITS**

DESIGN DESIGNATION		
FUNCTIONAL CLASS: RURAL LOCAL ROAD	D.D.V. PROJECTED: 140	YEAR: 2040
TYPE OF CONSTRUCTION: BRIDGE REPLACEMENT	DESIGN SPEED: 40 M.P.H.	
A.A.D.T. CURRENT: 982	YEAR: 2008	TRUCKS: 14 %
A.A.D.T. PROJECTED: 1650	YEAR: 2040	DIRECTION OF DISTRIBUTION: 65 %
INDEX OF SHEETS		
SHEET NO.	TABLE OF CONTENTS	
1	TITLE SHEET	
2	LEGEND	
3	NOTES	
4	HORIZONTAL AND VERTICAL CONTROL	
5	CONSTRUCTION PLAN	
6	PROFILE	
7	BRIDGE PLAN, SECTION AND ELEVATION	
8	WINGWALL AND BRIDGE DETAIL SHEET	
9	ENVIRONMENTAL COMPLIANCE	
10	CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLAN	
11	DETOUR PLAN	
12	RIGHT-OF-WAY DATA SHEET	
13	RIGHT-OF-WAY METES AND BOUNDS AND TABULATION SHEET	

DISCLAIMER:

THIS PLAN SET IS INTENDED TO BE A GUIDELINE FOR PREPARING A SET OF PLANS INVOLVING THE CONSTRUCTION OF A PRECAST CONCRETE ARCH. IT IS NOT INTENDED TO BE A SET OF STANDARDS. THE DESIGN ENGINEER IS STILL RESPONSIBLE FOR PERFORMING THE DESIGN AND NECESSARY DOCUMENTATION USING HIS/HER ENGINEERING JUDGMENT AND EXPERTISE.

TOTAL SHEETS: 13			
APPROVED DESIGN EXCEPTIONS			
DESIGN PARAMETER	REQUIRED	PROVIDED	DATE

ADDENDA & REVISIONS	
DESCRIPTION	NAME & DATE

ASSOCIATED CONTRACTS	
CONTRACT NO.	CONTRACT NAME
591	CONTRACT NO. 591
1610	CONTRACT NO. 1610

RECOMMENDED

Robert Campbell 2/2/12
SQUAD MANAGER, CONSTRUCTION DATE

Bradford L. Salub 2/2/2012
GROUP ENGINEER, CONSTRUCTION DATE

ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS (CONSTRUCTION) DATE

RECOMMENDED

Vincent D. Davis
STORMWATER ENGINEER

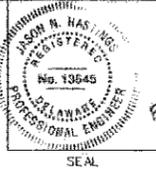
DATE 10 FEB 2012



RECOMMENDED

[Signature]
SQUAD MANAGER, TRANSPORTATION SOLUTIONS (PROJECT DEVELOPMENT OR BRIDGE DESIGN)

DATE 1 FEB 2012



RECOMMENDED

[Signature]
BRIDGE DESIGN ENGINEER

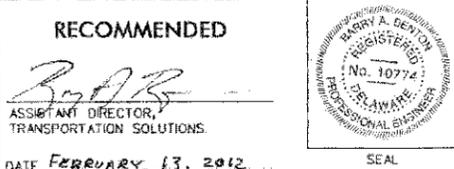
DATE 1 FEB 2012



RECOMMENDED

[Signature]
ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS

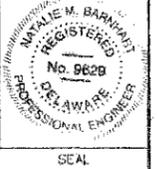
DATE FEBRUARY 13, 2012



APPROVED

Natalie Barnhart
CHIEF ENGINEER

DATE February 13, 2012



LAST REVISED: 3/7/2008
C:\SUSSEX\466\PROJECT\20107306\PLANSET\TC.DGN

EXISTING SYMBOLS

DRAINAGE	
	DITCH OR STREAM CENTERLINE
	DIRECTIONAL STREAM FLOW ARROW
	DRAINAGE INLET
	DRAINAGE JUNCTION BOX
	DRAINAGE MANHOLE
	DRAINAGE PIPE AND FLOW ARROW
	DRAINAGE PIPE HEADWALL
	RIPRAP - AREA FEATURE
	RIPRAP - LINEAR FEATURE

MANMADE ROADSIDE FEATURES	
	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
	CURB
	CURB AND GUTTER
	FENCE - CHAINLINK OR STRANDED
	FENCE - STOCKADE OR SPLIT RAIL
	FLAG POLE
	GUARDRAIL - STEEL BEAM
	GUARDRAIL - WIRE ROPE
	LAMP AND POST - RESIDENTIAL
	MAILBOX
	PARKING METER AND POST
	PAVEMENT - FLEXIBLE
	PAVEMENT - RIGID
	PILE - BRIDGE
	PILLAR OR MISCELLANEOUS POST
	TRAFFIC SIGN AND POST
	WALL - BRICK OR BLOCK
	WALL - STONE

NATURAL ROADSIDE FEATURES	
	GRASS LAWN
	HEDGEROW OR THICKET
	MARSH BOUNDARY LINE
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	SHRUBBERY
	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY

RIGHT-OF-WAY SYMBOLS	
	PROPERTY MARKER - CONCRETE MON.
	PROPERTY MARKER - IRON PIPE
	HISTORIC RIGHT-OF-WAY BASELINE
	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	EXISTING DENIAL OF ACCESS
	EXISTING R/W & DENIAL OF ACCESS

SURVEY CONTROL & MONUMENTATION	
	SURVEY BENCHMARK LOCATION
	SURVEY TIE POINT LOCATION
	SURVEY TRAVERSE POINT
	POINT OF CURVATURE OR TANGENCY
	POINT OF INTERSECTING TANGENTS

UTILITY	
	SOIL BORING LOCATION
	UTILITY TEST HOLE LOCATION
	CABLE TV DISTRIBUTION BOX
	ELECTRIC MANHOLE
	ELECTRIC METER
	ELECTRIC TRANSFORMER
	POLE MOUNTED LUMINAIRE
	GAS MANHOLE
	GAS METER
	GAS VALVE
	GAS PUMP - SERVICE STATION
	RAILROAD TRACKS
	SANITARY SEWER MANHOLE
	SANITARY SEWER VALVE
	SANITARY SEWER VENT OR CLEANOUT
	SEPTIC DRAIN FIELD
	TELEPHONE BOOTH
	TELEPHONE MANHOLE
	TELEPHONE TEST POINT
	TRAFFIC - CONDUIT JUNCTION WELL
	TRAFFIC - LIGHT POLE AND BASE
	TRAFFIC - PEDESTRIAN POLE & BASE
	TRAFFIC - SIGNAL CABINET & BASE
	TRAFFIC - SIGNAL POLE AND BASE
	UTILITY BOX
	UTILITY POLE GUY WIRE ANCHOR
	UTILITY POLE
	WATER - FIRE HYDRANT
	WATER METER
	WATER VALVE
	WELL HEAD
	MANHOLE - UNDETERMINED OWNER

UTILITY COMPANY FACILITIES	
	VERIZON
	DELAWARE ELECTRIC COOPERATIVE

PROPOSED SYMBOLS

CONSTRUCTION	
	CONCRETE SAFETY BARRIER - PERMANENT
	BIOFILTRATION SWALE
	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
	BRICK PATTERNED SURFACE
	BUTT JOINT
	CONSTRUCTION BASELINE
	CONSTRUCTION SAFETY FENCE
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB & GUTTER, TYPE 4
	CLEAR ZONE
	DRAINAGE INLET
	DITCH
	FENCE - METAL
	FENCE - WOOD
	FLARED END SECTION
	GUARDRAIL, TYPE 1
	GUARDRAIL, TYPE 2
	GUARDRAIL, TYPE 3
	GUARDRAIL END ANCHORAGE
	GUARDRAIL END TREATMENT, TYPE 1
	GUARDRAIL END TREATMENT, TYPE 2
	GUARDRAIL END TREATMENT, TYPE 3
	HORIZONTAL CLEARANCE
	IMPACT ATTENUATOR
	JUNCTION BOX - DRAINAGE
	LIMIT OF CONSTRUCTION
	MANHOLE
	PAVEMENT PATCH
	PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK @ 4"
	P.C.C. SIDEWALK @ 6"
	UNDERDRAIN
	UNDERDRAIN OUTLET

RIGHT-OF-WAY SYMBOLS	
	PROPOSED RIGHT-OF-WAY MONUMENT
	PROPOSED DENIAL OF ACCESS
	PROPOSED PERMANENT EASEMENT
	PROPOSED RIGHT-OF-WAY
	PROPOSED R/W & DENIAL OF ACCESS
	TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED RIGHT-OF-WAY BASELINE

IDENTIFIERS	
	ADJUST BY CONTRACTOR
	ADJUST BY OTHERS
	CONCRETE SAFETY BARRIER
	CURB OR CURB & GUTTER
	CONVERT TO JUNCTION BOX
	CONVERT TO DRAINAGE MANHOLE
	CURB OPENING
	CURB RAMP / TYPE
	CURB RAMP / TYPE - WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM
	CONSTRUCTION SAFETY FENCE
	DRAINAGE INLET
	DO NOT DISTURB
	ENERGY DISSIPATOR
	FENCE
	FLARED END SECTION
	FILL WITH FLOWABLE FILL
	FILTRATION STRUCTURE
	GUARDRAIL
	JUNCTION BOX
	MANHOLE
	MONUMENT - RIGHT-OF-WAY
	PIPE
	RELOCATE BY CONTRACTOR
	RELOCATE BY OTHERS
	REMOVE BY CONTRACTOR
	REMOVE BY OTHERS
	UNDERDRAIN / LENGTH
	UNDERDRAIN OUTLET PIPE

LANDSCAPING	
	LANDSCAPE PLANTINGS
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

TRAFFIC	
	ITMS CONDUIT
	SIGNAL CONDUIT
	CONDUIT JUNCTION WELL
	LUMINAIRE
	PAVEMENT MARKINGS
	PAVEMENT STRIPING
	TRAFFIC SIGN

PAVEMENT SECTION(S)	
	2" WMA SUPERPAVE, TYPE C
	2-1/4" WMA SUPERPAVE, TYPE B 8" GRADED AGGREGATE BASE COURSE, TYPE B
	N/A

LAST REVISED: 11/09/2010
Y:\SUSSEX\466\BRIDGE\T20107306\PLANS\LG.DGN

GENERAL NOTES

- THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED AUGUST 2001 AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2001, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT.
- THE CONTRACTOR SHALL GIVE TWO (2) WEEKS NOTICE TO THE PROPERTY OWNER WHEN ANY FIXTURE, SHRUB OR OTHER OBJECT MUST BE REMOVED FROM THE RIGHT OF WAY OR EASEMENT AREA. IF THE OWNER HAS NOT ATTEMPTED TO SALVAGE THIS PROPERTY, THE CONTRACTOR SHALL REMOVE IT WITHOUT OBLIGATION. COMPENSATION SHALL BE INCIDENTAL TO THE CONTRACT.
- THE ENDS OF ALL CURBS SHALL BE DEPRESSED FLUSH WITH THE PAVEMENT AT A RATIO OF TWELVE TO ONE (12:1) UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC SLEEVES (4" INSIDE MINIMUM DIAMETER, 6" INSIDE MAXIMUM DIAMETER) IN PROPOSED CONCRETE SIDEWALKS, ISLANDS, AND MEDIANS FOR FUTURE TRAFFIC SIGN POSTS AS DIRECTED BY THE ENGINEER. THE LOWER END OF THE SLEEVE SHALL SIT ON THE TOP OF THE SUBBASE MATERIAL. THE COST SHALL BE INCIDENTAL TO THE CONTRACT.
- STAGING AREAS - PROPER EROSION AND SEDIMENT CONTROL MEASURES AS DETERMINED BY THE ENGINEER SHALL BE INSTALLED IN ALL STAGING AREAS. ALL AREAS USED BY THE CONTRACTOR FOR STAGING OPERATIONS SHALL BE FULLY RESTORED BY THE CONTRACTOR UPON COMPLETION OF THE CONTRACT. IF THE STAGING AREA IS PAVED, IT SHALL BE RESTORED TO ITS ORIGINAL CONDITION. IF THE AREA IS UNPAVED, IT SHALL BE RE-GRADED, TOPSOILED, SEEDING AND MULCHED IN ACCORDANCE WITH DELAWARE STANDARD SPECIFICATIONS 732, 734 AND 735, FOR TOPSOIL, SEED AND MULCH RESPECTIVELY, TO THE SATISFACTION OF THE ENGINEER. THE SEED SHALL ADHERE TO THE SPECIFICATIONS OF SECTION 734 FOR PERMANENT GRASS SEEDING - DRY GROUND. ALL COSTS ASSOCIATED WITH RESTORATION OF THE STAGING AREA SHALL BE AT THE CONTRACTOR'S EXPENSE. IF THE ENGINEER DETERMINES THAT A SATISFACTORY STAND OF GRASS DOES NOT EXIST AT THE TIME OF FINAL INSPECTION, ALL COSTS ASSOCIATED WITH REESTABLISHING A SATISFACTORY STAND OF GRASS SHALL BE AT THE CONTRACTOR'S EXPENSE.
- SITE REVIEWER - AN EROSION CONTROL SITE REVIEWER SHALL BE A PERSON FROM THE CONTRACTOR'S STAFF ASSIGNED TO EROSION AND SEDIMENT CONTROL IMPLEMENTATION AND MAINTENANCE AND SHALL BE REQUIRED ON SPECIFIC PROJECTS. THE NAME AND DNREC CERTIFICATION NUMBER OF EACH SITE REVIEWER SO REQUIRED SHALL BE SUBMITTED TO THE DEPARTMENT. THE NAME OF THE DELAWARE REGISTERED PROFESSIONAL ENGINEER PROVIDING DIRECTION AND SUPERVISION OF THE SITE REVIEWER, AS REQUIRED IN SECTION 12.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, SHALL ALSO BE SUBMITTED TO THE DEPARTMENT. THE SITE REVIEWER REQUIREMENTS IN EFFECT ON THIS PROJECT SHALL BE MARKED WITH AN "X" BELOW:

EROSION POTENTIAL FOR THIS PROJECT	SITE REVIEWER REQUIREMENT
() INSIGNIFICANT	NONE
() MINOR	CONTRACTOR CERTIFICATION COURSE TRAINING ONLY, AS DEFINED IN SECTION 13 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
(X) MEDIUM	AT THE TIME OF BID OF THE CONTRACT, EITHER THE SUPERINTENDENT OR A SEPARATE INDIVIDUAL FROM THE CONTRACTOR'S STAFF SHALL BE A CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 12 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
() MAJOR	SUPERINTENDENT AND AN INDIVIDUAL FROM CONTRACTOR'S STAFF SHALL BE CCR. ONE INDIVIDUAL FROM THE CONTRACTOR'S STAFF MUST BE A CCR AT THE TIME OF BID OF THE CONTRACT. THE SUPERINTENDENT MUST BECOME A CCR WITHIN ONE YEAR AFTER THE AWARD OF CONTRACT.

- ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE CONTRACTOR INCLUDE:

()	NONE
()	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	RASTER FILES, IN .CAL FILE FORMAT, FOR ALL PLAN SHEETS.
()	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

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.

- AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR REQUIREMENT FOR THIS PROJECT.

(X)	THE CONTRACTOR SHALL NOT BE REQUIRED TO HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT.
()	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR.
()	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE ATSSA SUPERVISOR'S SOLE JOB SHALL BE SUPERVISION OF THE INSTALLATION, OPERATION AND MAINTENANCE OF TRAFFIC CONTROL DEVICES FOR THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT SHALL NOT BE THE ATSSA SUPERVISOR.

- THE DISTURBED AREA FOR THIS PROJECT IS 0.7713 ACRES.

PROJECT NOTES

SECTION 100

- 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.

SECTION 200

- ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
 - EXISTING CORRUGATED METAL PIPES
 - EXISTING SACK CONCRETE RIPRAP HEADWALLS
 - EXISTING GUARDRAIL AS SHOWN
 - EXISTING DRAINAGE PIPES AS SHOWN
- SHORING SHALL BE REQUIRED FOR ANY EXCAVATION EXCEEDING 5'-0" IN DEPTH. THE COST OF SHORING SHALL BE INCIDENTAL TO ITEM *207000 - EXCAVATION AND BACKFILL FOR STRUCTURES. IN LIEU OF SHORING, THE CONTRACTOR MAY USE A 2:1 CUT SLOPE. LIMITS OF PAYMENT FOR ITEM *207000 SHALL BE AS PER SECTION 207 OF THE STANDARD SPECIFICATIONS.

SECTION 600

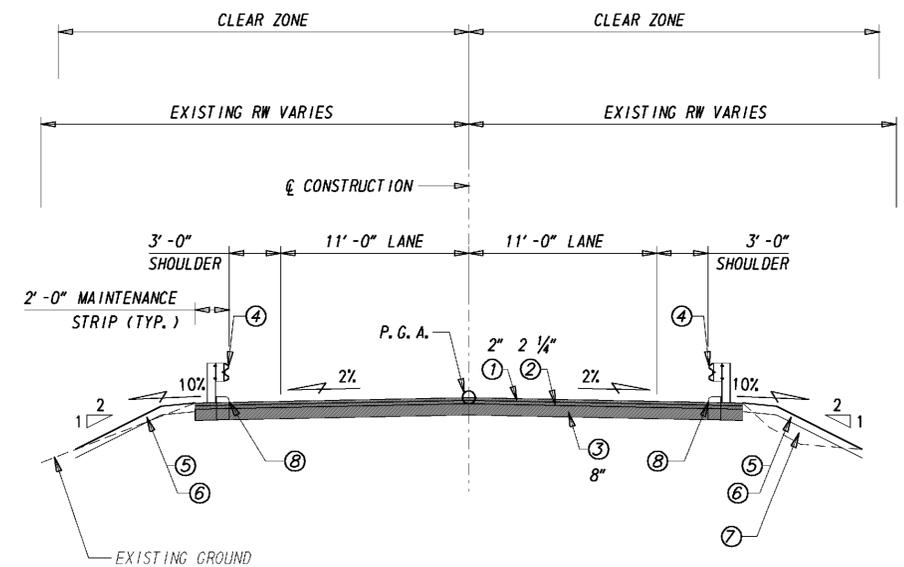
- PORTLAND CEMENT CONCRETE
STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED (f'c = 28 DAY COMPRESSIVE STRENGTH):
PRECAST CONCRETE - f'c = 5000 psi
MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
- BAR REINFORCEMENT
REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2", UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL REINFORCING STEEL SHALL BE PROTECTED WITH FUSION BONDED EPOXY. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963).
- CONSTRUCTION JOINTS
KEYED CONSTRUCTION JOINTS SHALL BE 2" X 4" OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A 3/4" V-NOTCH.

SECTION 700

- 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. PAYMENT FOR THIS WORK, INCLUDING SAW CUTTING EXISTING CURB SHALL BE INCIDENTAL TO THE PROPOSED CURB ITEM.
- 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. ALL HOT-MIX SAW CUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER. PAVEMENT SHALL MATCH EXISTING ELEVATIONS AT THE TIE-IN POINTS
- ALL GUARDRAIL LENGTHS ARE ROUNDED UP TO FULL SECTIONS OF GUARDRAIL. POST SPACING NOT TO EXCEED 6'-3". ALL GUARDRAIL SECTIONS ARE 27" GUARDRAIL
- PROPOSED STRIPING SHALL MATCH EXISTING STRIPING. PAYMENT SHALL BE UNDER THE RESPECTIVE PAY ITEM.

MISCELLANEOUS

- DESIGN CRITERIA
2010 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION (U.S. CUSTOMARY UNITS).
- LOADING
DEAD LOAD INCLUDES 25 PSF FOR FUTURE WEARING SURFACE. VEHICULAR LIVE LOAD IS HL-93.
- HYDRAULIC DATA
DRAINAGE AREA: 8.92 sq. miles DESIGN FREQUENCY: 25 years
DESIGN DISCHARGE: 638cfs 25-YEAR FLOOD ELEVATION: 20.99 ft
- SCOUR ANALYSIS
THE PROPOSED STRUCTURE HAS BEEN ANALYZED FOR THE EFFECTS OF SCOUR IN ACCORDANCE WITH HEC-18 - 'EVALUATING SCOUR AT BRIDGES' AND HEC-23 - 'BRIDGE SCOUR AND STREAM INSTABILITY COUNTERMEASURES.' SCOUR COUNTERMEASURES HAVE BEEN DESIGNED FOR THE LESSER OF THE OVERTOPPING FLOOD OR THE 500-YR FLOOD EVENT.
DESIGN EVENT: OT FLOW DESIGN VELOCITY: 15.20 ft/s
DESIGN DISCHARGE: 2200 cfs DESIGN DEPTH OF FLOW: 10.54 ft
- ENVIRONMENTAL COMPLIANCE
SEE ENVIRONMENTAL COMPLIANCE PLAN FOR FURTHER RESTRICTIONS/GUIDANCE ASSOCIATED WITH THIS PROJECT.



TYPICAL SECTION

3/8" = 1'-0"

LEGEND

- ITEM 401800 - WMA, SUPERPAVE TYPE C, PG 64-22, 115 GYRATIONS (CARBONATE STONE)
- ITEM 401809 - WMA, SUPERPAVE TYPE B, PG 64-22, 115 GYRATIONS
- ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'
- ITEM 720043 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-27
- ITEM 732002 - TOPSOIL, 6" DEPTH
- ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
- ITEM 209003 - BORROW, TYPE 'C'
- ITEM 701012 - PORTLAND CEMENT CONCRETE CURB, TYPE 1-4

HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP-4	5+04.23	15.90	210354.06	624568.89	29.54
TP-5	2+97.46	31.58	210321.86	624352.03	26.44
TP-6	1+77.04	93.24	210328.33	624200.18	22.43
TP-7	2+15.22	-20.14	210401.55	624294.98	24.88
TP-8	4+73.31	-23.19	210379.34	624526.24	27.72

- VERTICAL DATUM BASED ON NATIONAL GEODETIC SURVEY (N.A.V.D. 88)
 - HORIZONTAL DATUM BASED ON NATIONAL GEODETIC SURVEY (N.A.V.D. 83)
 - NEGATIVE OFFSET DENOTES LEFT OF BASELINE

CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
POB	0+00.00	0.00	210505.28	624106.77
PC	1+85.24	0.00	210400.63	624259.62
PCC2	2+72.59	0.00	210359.17	624336.32
PCC3	3+94.10	0.00	210343.27	624455.43
POE	5+89.66	0.00	210415.63	624634.78
POB-A	A0+00.00	0.00	210359.17	624336.32
PC-A	A1+46.68	0.00	210281.45	624460.72
POE-A	A2+18.59	0.00	210249.86	624525.18

CIRCULAR CURVE NO. 1

Element: Circular	STATION	NORTHING	EASTING
PC (10001)	1+85.24	210400.6323	624259.6196
PI (10002)	2+29.07	210375.8662	624295.7892
CC ()		210744.5777	624495.1273
PCC2 (10003)	2+72.59	210359.1658	624336.3194

Radius: 416.8480
 Delta: 12°00'23.0497" Left
 Degree of Curvature (Arc): 13°44'42.0165"
 Length: 87.3510
 Tangent: 43.8360
 Chord: 87.1913
 Middle Ordinate: 2.2860
 External: 2.2986
 Tangent Direction: S 55°35'58.6259" E
 Radial Direction: S 34°24'01.3741" W
 Chord Direction: S 61°36'10.1507" E
 Radial Direction: S 22°23'38.3244" W
 Tangent Direction: S 67°36'21.6756" E

CIRCULAR CURVE NO. 4

Element: Circular	STATION	NORTHING	EASTING
PC (10008)	A1+46.68	210281.4505	624460.7162
PI (10009)	A1+82.76	210262.3336	624491.3190
CC ()		210578.2929	624646.1471
POE (10010)	A2+18.59	210249.8624	624525.1783

Radius: 350.0000
 Delta: 11°46'19.7139" Left
 Degree of Curvature (Arc): 16°22'12.8018"
 Length: 71.9119
 Tangent: 36.0830
 Chord: 71.7855
 Middle Ordinate: 1.8453
 External: 1.8551
 Tangent Direction: S 58°00'28.4462" E
 Radial Direction: S 31°59'31.5538" W
 Chord Direction: S 63°53'38.3031" E
 Radial Direction: S 20°13'11.8400" W
 Tangent Direction: S 69°46'48.1600" E

CIRCULAR CURVE NO. 2

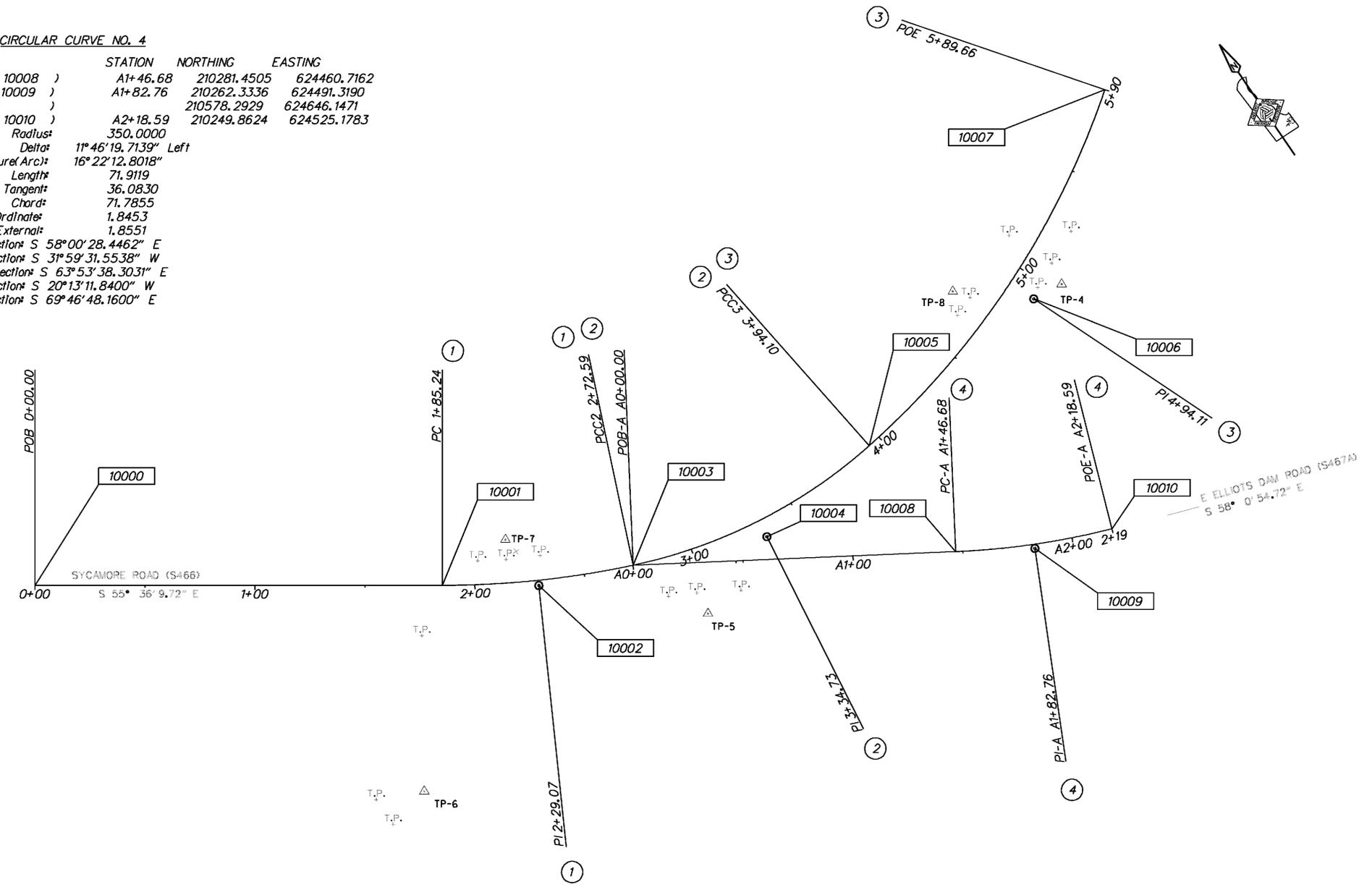
Element: Circular	STATION	NORTHING	EASTING
PCC2 (10003)	2+72.59	210359.1658	624336.3194
PI (10004)	3+34.73	210335.4861	624393.7748
CC ()		210576.6950	624425.9718
PCC3 (10005)	3+94.10	210343.2668	624455.4297

Radius: 235.2797
 Delta: 29°35'27.6910" Left
 Degree of Curvature (Arc): 24°21'07.9245"
 Length: 121.5127
 Tangent: 62.1439
 Chord: 120.1668
 Middle Ordinate: 7.8011
 External: 8.0686
 Tangent Direction: S 67°36'05.3451" E
 Radial Direction: S 22°23'54.6549" W
 Chord Direction: S 82°23'49.1906" E
 Radial Direction: S 7°11'33.0361" E
 Tangent Direction: N 82°48'26.9639" E

CIRCULAR CURVE NO. 3

Element: Circular	STATION	NORTHING	EASTING
PCC3 (10005)	3+94.10	210343.2668	624455.4297
PI (10006)	4+94.11	210355.7876	624554.6517
CC ()		210719.3742	624407.9688
PT (10007)	5+89.66	210415.6246	624634.7848

Radius: 379.0902
 Delta: 29°33'26.3549" Left
 Degree of Curvature (Arc): 15°06'50.4867"
 Length: 195.5622
 Tangent: 100.0089
 Chord: 193.4009
 Middle Ordinate: 12.5409
 External: 12.9700
 Tangent Direction: N 82°48'28.3642" E
 Radial Direction: S 7°11'31.6358" E
 Chord Direction: N 68°01'45.1867" E
 Radial Direction: S 36°44'57.9908" E
 Tangent Direction: N 53°15'02.0092" E

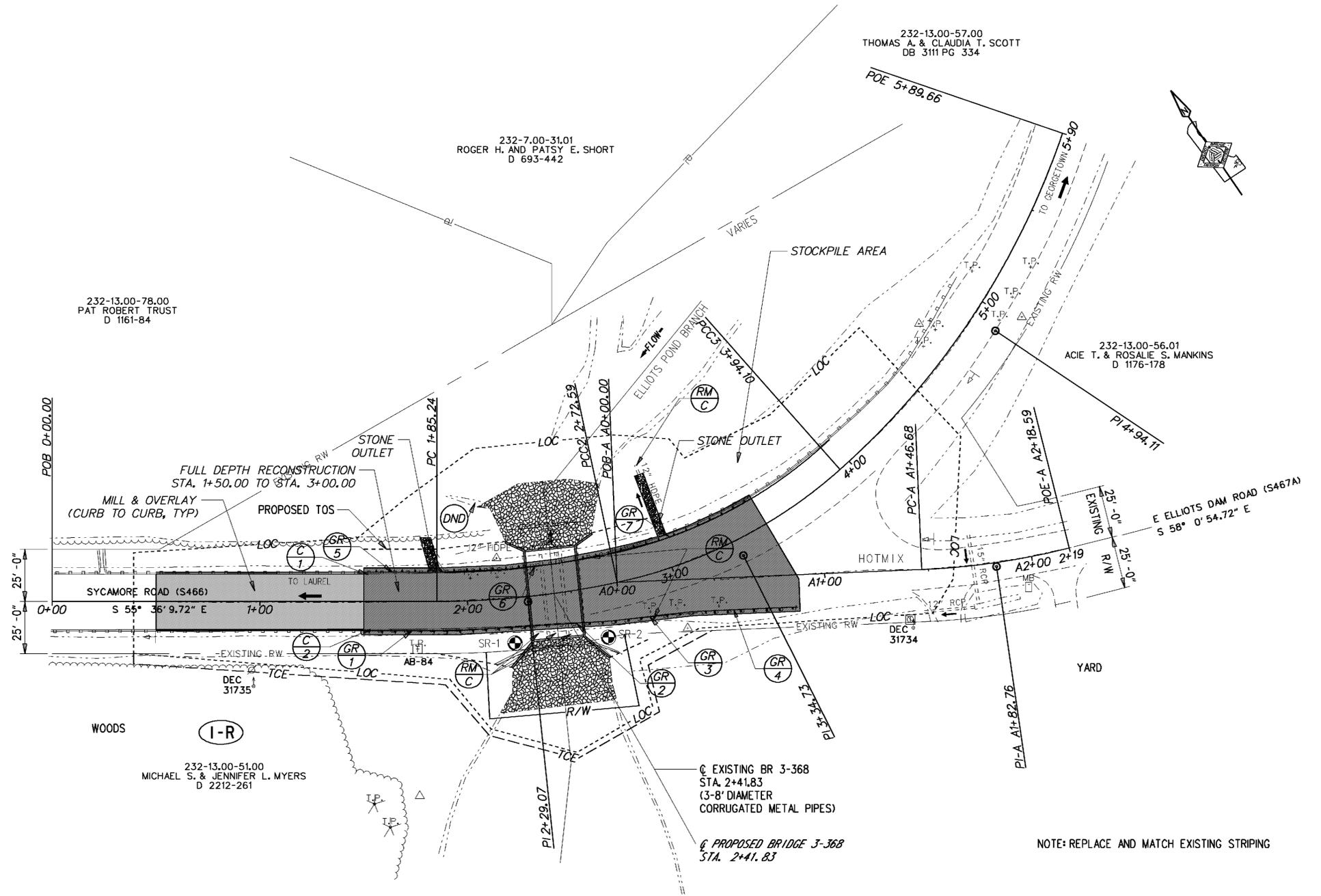


Y:\SUSSEX\466\BRIDGE\T201107306\PLANS\CP01.DGN

GUARDRAIL SCHEDULE				
NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
1	STEEL BEAM GUARDRAIL, TYPE 1-27	1+50.00	14.00	25.00
2	GUARDRAIL OVER CULVERT, TYPE 3-27	1+90.05	14.00	101.04
3	STEEL BEAM GUARDRAIL, TYPE 1-27	2+88.97	20.50	25.00
4	END TREATMENT, TYPE 1-27	1+50.00	23.31	50.00
5	STEEL BEAM GUARDRAIL, TYPE 1-27	1+50.00	-14.00	25.00
6	GUARDRAIL OVER CULVERT, TYPE 3-27	1+90.05	-14.00	101.04
7	STEEL BEAM GUARDRAIL, TYPE 1-27	2+95.25	-14.00	50.00

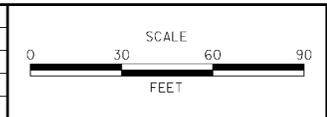
CURB SCHEDULE		
NO.	ITEM DESCRIPTION / TYPE	LENGTH
1	PORTLAND CEMENT CONCRETE CURB, TYPE 1-4	200.00
2	PORTLAND CEMENT CONCRETE CURB, TYPE 1-4	210.00

* SEE STANDARD CONSTRUCTION DETAILS FOR DEPRESSED CURB REQUIREMENTS WITHIN THE LIMITS OF THE GUARDRAIL END TREATMENT.



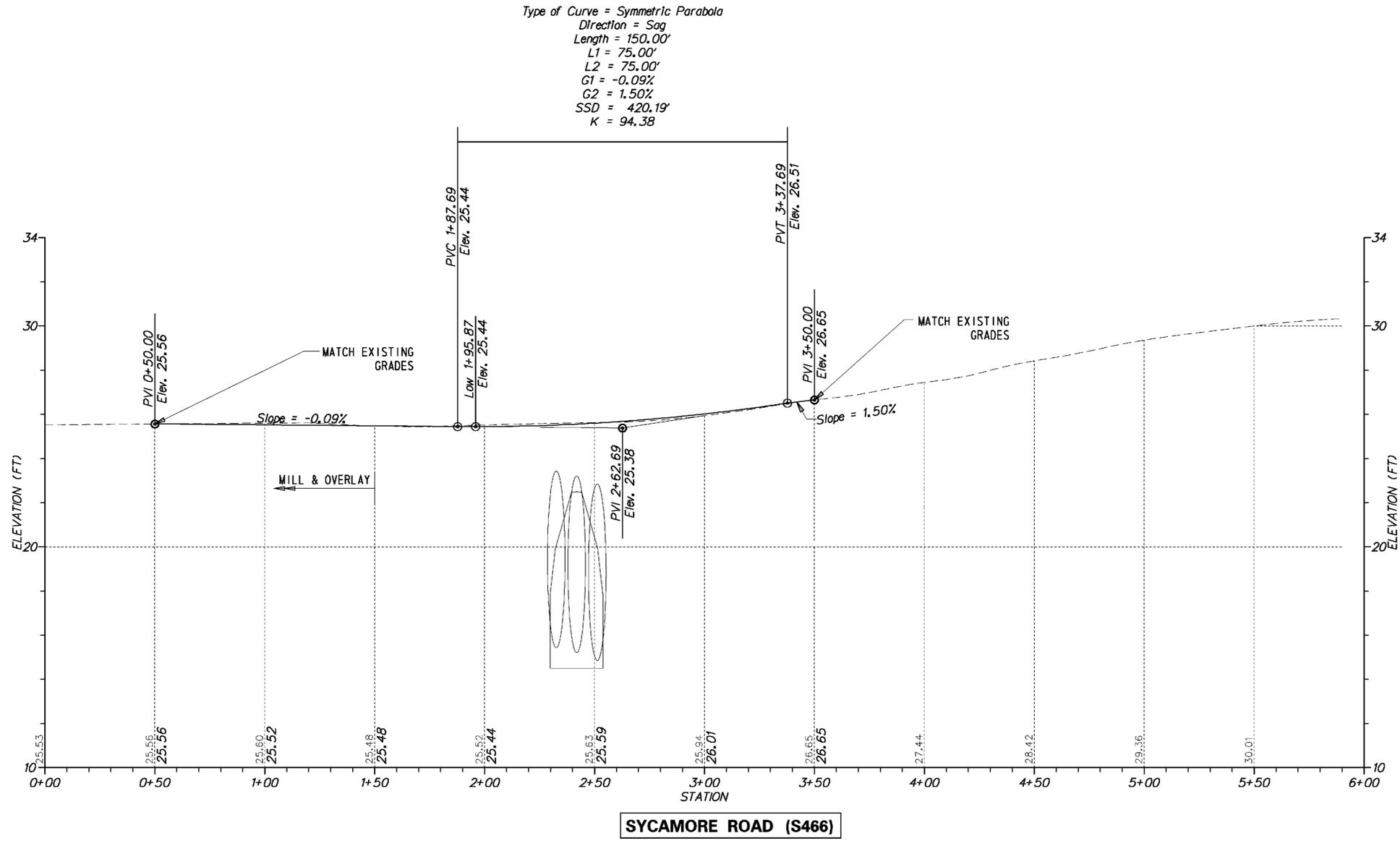
Y:\SUSSEX\466 BRIDGE\T201107306\PLANS\CP01.DGN

ADDENDUMS / REVISIONS	



CONTRACT	BRIDGE NO.	3-368
T201107306	DESIGNED BY:	JPN
COUNTY	CHECKED BY:	JNH
SUSSEX		

Y:\SUSSEX\466\BRIDGE\T201107306\PLANS\PF03.DGN



ADDENDUMS / REVISIONS	



**BR. 3-368 ON
 SYCAMORE ROAD OVER
 ELLIOT POND BRANCH**

CONTRACT	BRIDGE NO.	3-368
T201107306	DESIGNED BY:	JPN
COUNTY	CHECKED BY:	JNH
SUSSEX		

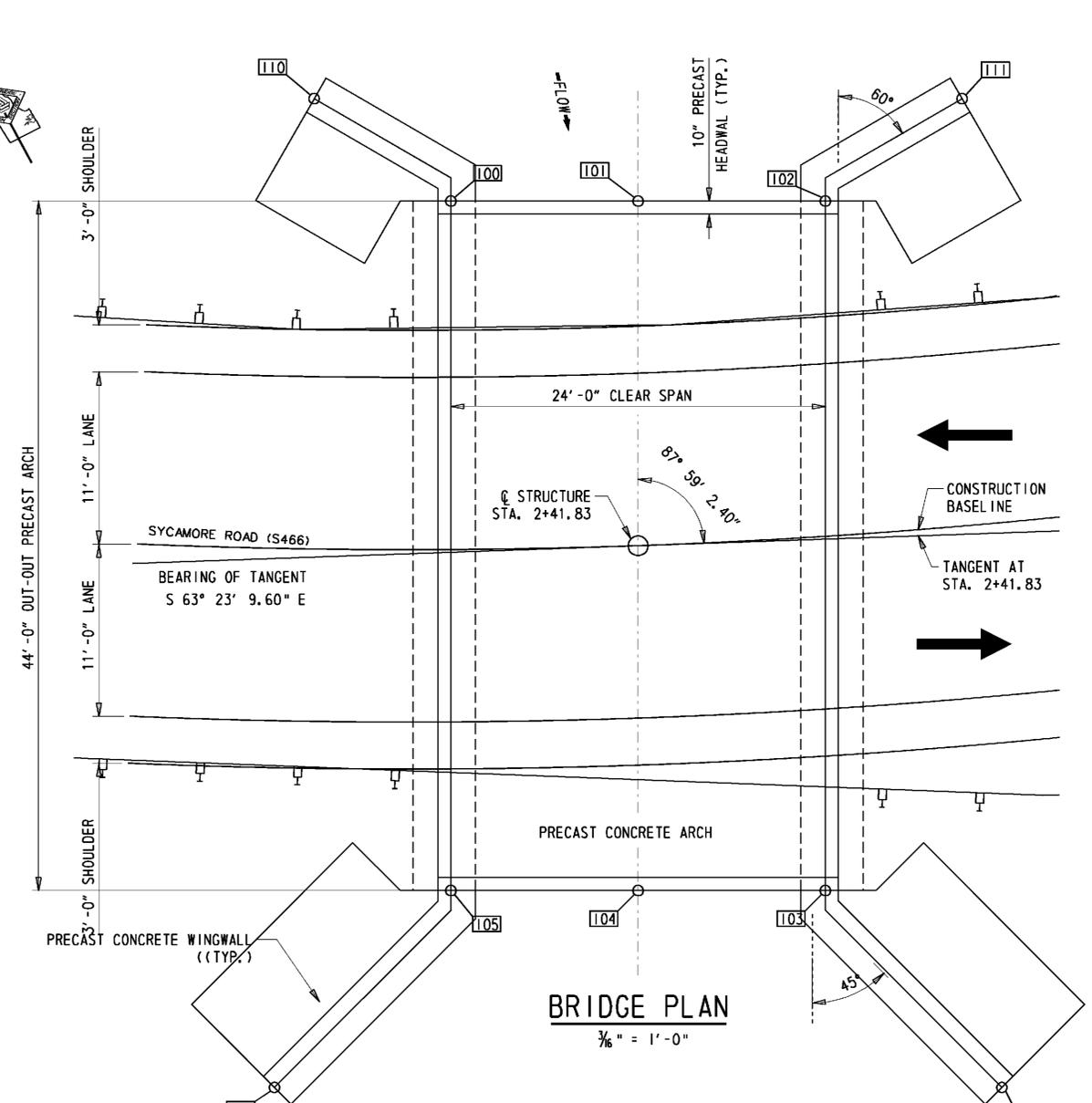
PROFILE



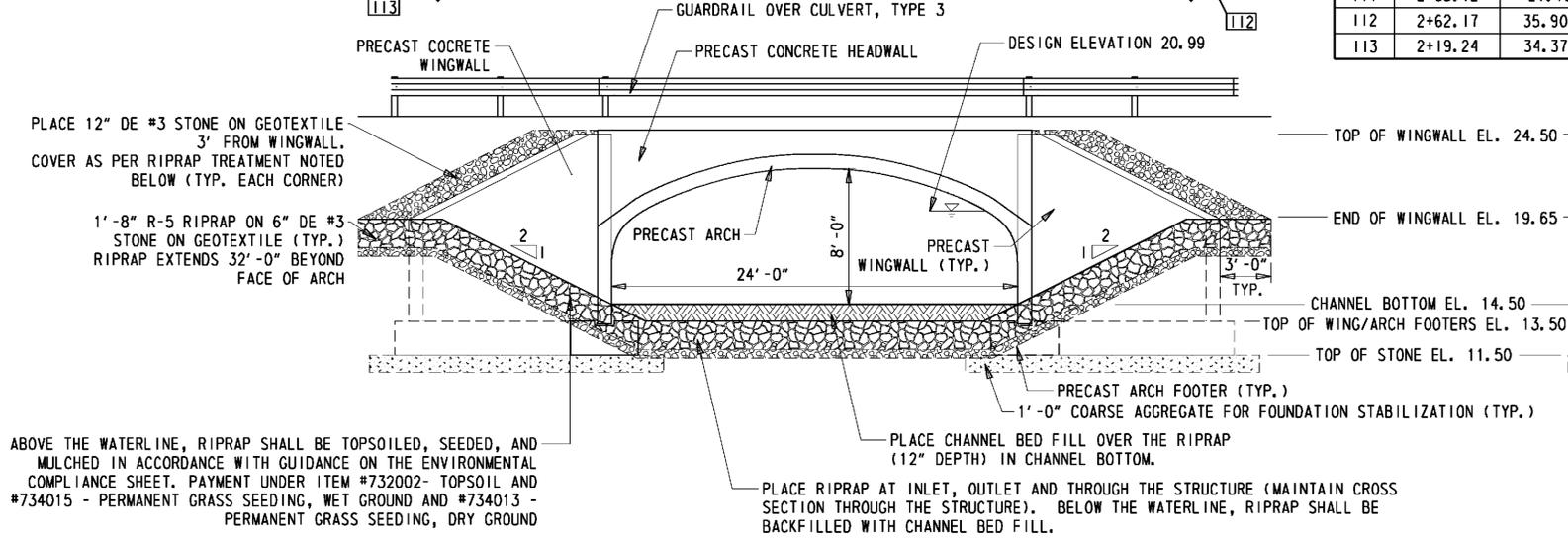
SHEET NO.	6
TOTAL SHTS.	13

NOTES FOR PRECAST ELEMENTS:

- DESIGN PLANS / WORKING DRAWINGS
INFORMATION PERTAINING TO THE PRECAST REINFORCED CONCRETE ARCH AND WINGWALL SECTIONS IS INTENDED TO SERVE AS AN INDICATION OF THE TYPE OF CONSTRUCTION ACCEPTABLE FOR USE. THE CONTRACTOR WILL BE REQUIRED TO PREPARE AND SUBMIT FOR APPROVAL. A COMPLETE SET OF DETAILED SHOP DRAWINGS FOR THE PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH. THE SHOP DRAWINGS SHALL INCLUDE:
 - AN OVERALL PLAN SHOWING ALL UNITS TOGETHER AND DETAILS OF EACH TYPE OF UNIT.
 - A PLAN VIEW OF REINFORCEMENT FOR ANY IRREGULAR SHAPED (SKEWED, CURVED, ETC.) SECTIONS.
 - REINFORCING BAR LIST
 - BILL OF MATERIALS INCLUDING ALL ACCESSORIES
 - METHOD AND SEQUENCE OF POST-TENSIONING
- PRECAST ELEMENTS, ACCESSORIES AND INSTALLATION
PAYMENT FOR ITEM 602737 - PRECAST CONCRETE CULVERT ARCH AND ITEM 602755 PRECAST CONCRETE WINGWALLS FOR PRECAST CONCRETE ARCH SHALL INCLUDE:
 - ALL PRECAST ELEMENTS FOR THE RESPECTIVE ITEM (ARCH, FOOTERS, TOEWALLS) UNDER ITEM 602737 AND WINGWALLS UNDER ITEM 602755 (WINGWALLS)).
 - ALL ASSOCIATED REINFORCEMENT.
 - ALL ACCESSORIES (INCLUDING, BUT NOT LIMITED TO, WEEP HOLES, CONCRETE FINISH, POST-TENSIONING TENDONS, CONNECTION PLATES, GROUT, JOINT WRAP, THREADED INSERTS) MENTIONED IN THE FOLLOWING NOTES UNLESS NOTED OTHERWISE.
 - DELIVERY AND INSTALLATION OF ALL PRECAST ELEMENTS AND ALL ACCESSORIES
- MISCELLANEOUS CONCRETE NOTES
 - ALL EXPOSED SURFACES SHALL BE PROTECTED WITH A WATER MISCELIBLE, PENETRATING SILANE SEALER SUCH AS ENVIROSEAL 20 BY BASF SUPERIOR OR APPROVED EQUAL.
 - ALL EXPOSED EDGES SHALL BE CHAMFERED $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.
- ARCH POST-TENSIONING
THE PRECAST ARCH SECTIONS SHALL BE POST-TENSIONED TOGETHER WITH A MINIMUM OF FOUR POST-TENSIONING TENDONS. THE CULVERT SHALL BE POST-TENSIONED SUCH THAT THE NEOPRENE GASKETS ARE COMPRESSED ALL AROUND AND THERE IS A $\frac{1}{2}$ " MAXIMUM GAP BETWEEN SECTIONS. MAXIMUM POST-TENSIONING FORCE SHALL BE 28,900 lbs. POST-TENSIONING DETAILS (PLACEMENT, SEQUENCE OF TENSIONING, etc.) SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS. ALL POCKETS FOR POST-TENSIONING DUCTS SHALL BE FILLED WITH NON-SHRINK GROUT.
- WINGWALL POST TENSIONING
 - THE PRECAST WINGWALL SECTIONS SHALL BE POST TENSIONED TOGETHER AND POSITIVELY CONNECTED TO THE BOX CULVERT WITH A MINIMUM OF TWO POST-TENSIONING TENDONS. POST-TENSIONING SHALL BE AS PER NOTE 5.
 - AT LOCATIONS WHERE POST TENSIONING OF THE WINGWALLS IS NOT FEASIBLE, A BOLTED CONNECTION MAY BE USED. BOLTED CONNECTION DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS.
- BOLTED CONNECTIONS
THE BOLTED CONNECTION MUST CONSIST OF A MINIMUM OF TWO 3'-0" WIDE x 2'-0" TALL x 1/4" THICK PLATES PER JOINT WITH AT LEAST FOUR 3/4" BOLTS PER PLATE. ANGLED PLATES SHALL HAVE 8 BOLTS. SLOTTED HOLES IN THE PLATE SHALL NOT BE PERMITTED. HOLES FOR ANCHOR BOLTS MAY BE FIELD DRILLED.
- JOINTS BETWEEN PRECAST SECTIONS
 - NEOPRENE GASKETS SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT. AFTER INSTALLATION, THE GASKETS SHALL BE COMPRESSED SUCH THAT GAPS ARE NOT VISIBLE.
 - ALL JOINTS BETWEEN PRECAST BOX CULVERT SECTIONS SHALL BE TONGUE AND GROOVE OR ALL JOINTS BETWEEN RIGID FRAME SECTIONS SHALL HAVE A SHEAR KEY ALL AROUND.
 - ALL WINGWALL TO WINGWALL AND WINGWALL TO BOX CULVERT (OR RIGID FRAME OR ARCH) JOINTS SHALL HAVE A SHEAR KEY.
 - THE LOCATIONS OF THE JOINTS IN THE ARCH SHALL BE DETERMINED BY THE PRECASTER AND SUBMITTED IN THE SHOP DRAWINGS FOR APPROVAL.
 - THE REINFORCEMENT SHALL HAVE 2" COVER AT THE END OF EACH SECTION AND MEET OR EXCEED THE MINIMUM AREA OF STEEL PER FOOT DENOTED IN THE PLANS.
 - ALL JOINT EXTERIORS SHALL BE COVERED WITH A MINIMUM 9" WIDE WRAP CENTERED ON THE JOINT AS PER THE SPECIAL PROVISION FOR ITS RESPECTIVE ITEM.
- FACTORED BEARING RESISTANCE
FACTORED BEARING RESISTANCE NOT TO EXCEED 4.0 TSF FOR ALL ELEMENTS.



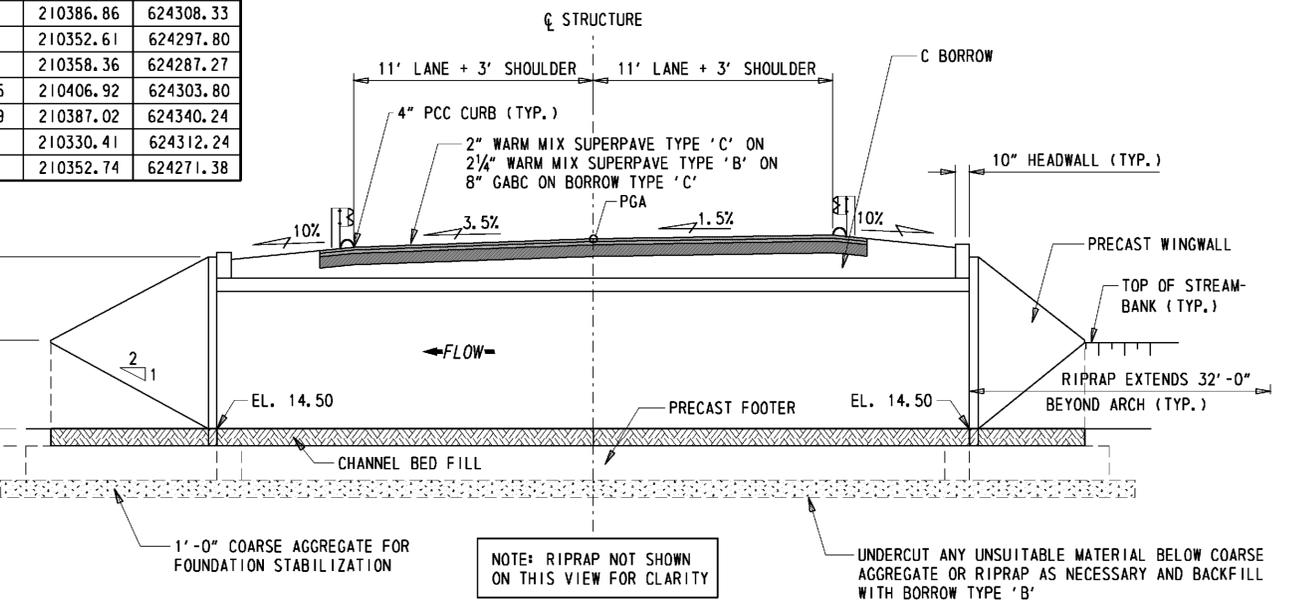
WORKING POINTS				
POINT	STATION	OFFSET	NORTHING	EASTING
100	2+29.98	-22.25	210396.98	624308.35
101	2+42.65	-21.99	210391.23	624318.89
102	2+55.29	-21.36	210385.48	624329.42
103	2+52.48	22.25	210386.86	624308.33
104	2+41.10	21.99	210352.61	624297.80
105	2+29.70	21.75	210358.36	624287.27
110	2+20.61	-28.75	210406.92	624303.80
111	2+65.12	-27.19	210387.02	624340.24
112	2+62.17	35.90	210330.41	624312.24
113	2+19.24	34.37	210352.74	624271.38



PLACE 12" DE #3 STONE ON GEOTEXTILE 3' FROM WINGWALL. COVER AS PER RIPRAP TREATMENT NOTED BELOW (TYP. EACH CORNER)

1'-8" R-5 RIPRAP ON 6" DE #3 STONE ON GEOTEXTILE (TYP.) RIPRAP EXTENDS 32'-0" BEYOND FACE OF ARCH

ABOVE THE WATERLINE, RIPRAP SHALL BE TOPSOILED, SEEDED, AND MULCHED IN ACCORDANCE WITH GUIDANCE ON THE ENVIRONMENTAL COMPLIANCE SHEET. PAYMENT UNDER ITEM #732002- TOPSOIL AND #734015 - PERMANENT GRASS SEEDING, WET GROUND AND #734013 - PERMANENT GRASS SEEDING, DRY GROUND

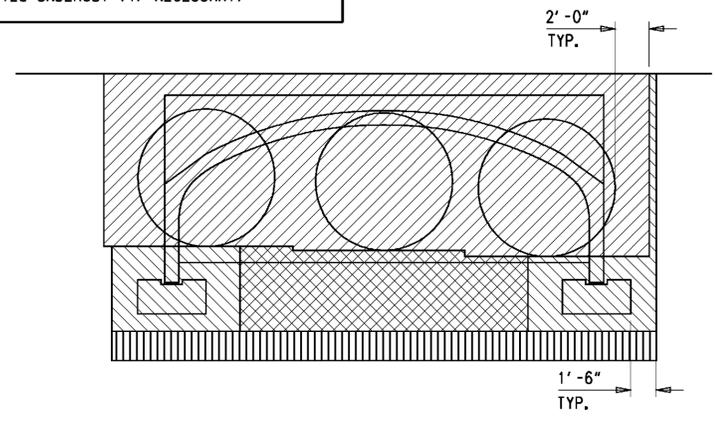


NOTE: RIPRAP NOT SHOWN ON THIS VIEW FOR CLARITY

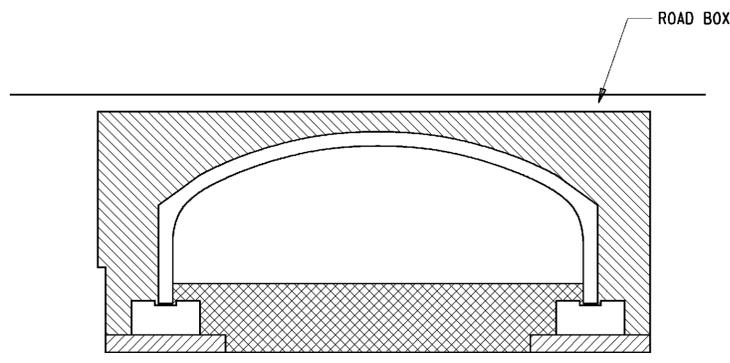
UNDERCUT ANY UNSUITABLE MATERIAL BELOW COARSE AGGREGATE OR RIPRAP AS NECESSARY AND BACKFILL WITH BORROW TYPE 'B'

Y:\SUSSEX\466\BRIDGE\T201107306\PLANS\PE01.DGN

- DENOTES 211000 REMOVAL
- DENOTES 207000 REMOVAL
- DENOTES RIPRAP/STONE REMOVAL (INCEDENTAL)
- DENOTES UNDERCUT (IF NECESSARY)



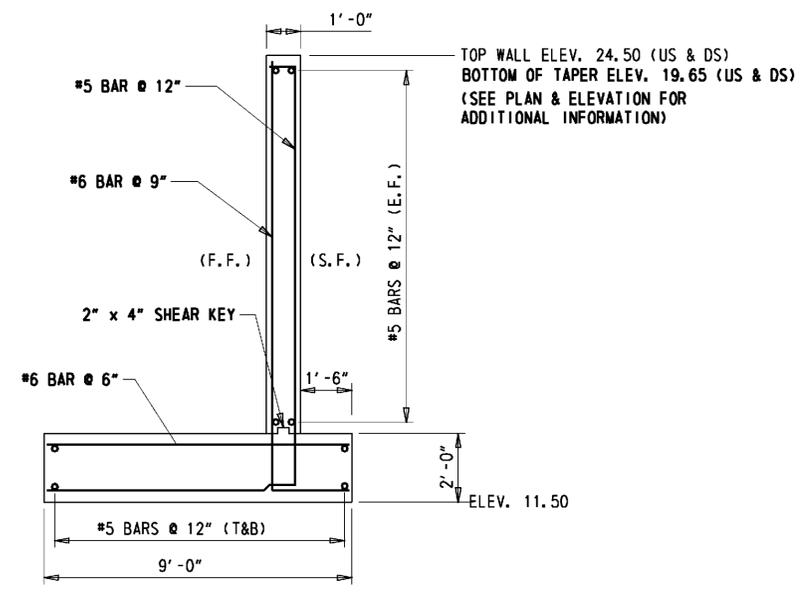
EXCAVATION PAYMENT ELEVATION
 $\frac{3}{16}'' = 1'-0''$



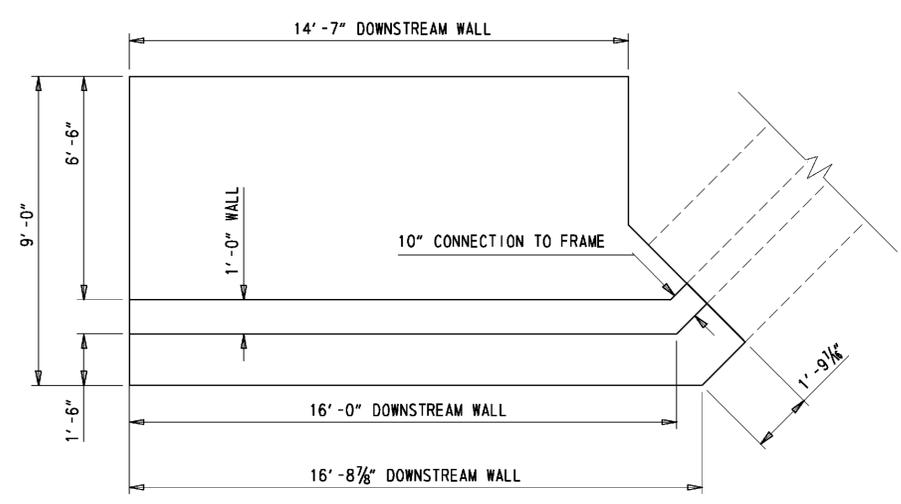
FILL PAYMENT ELEVATION
 $\frac{3}{16}'' = 1'-0''$

- DENOTES 209003 FILL
- DENOTES RIPRAP/STONE/CHANNEL FILL
- DENOTES COARSE AGGREGATE (608000) UNDER FOOTINGS

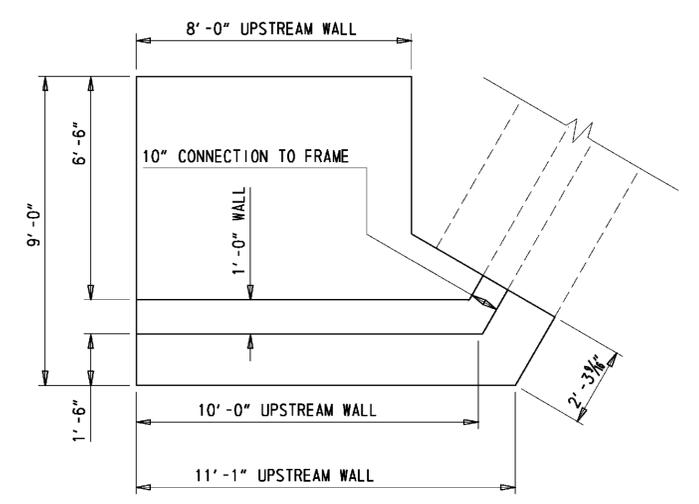
- F.F. - DENOTES FILL FACE
- S.F. - DENOTES STREAM FACE
- E.F. - DENOTES EACH FACE



PRECAST WINGWALL SECTION
 $\frac{3}{16}'' = 1'-0''$



DOWNSTREAM WINGWALL PLAN
 $\frac{3}{16}'' = 1'-0''$



UPSTREAM WINGWALL PLAN
 $\frac{3}{16}'' = 1'-0''$

Y:\SUSSEX\466\BRIDGE\T201107306\PLANS\FR01.DGN

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE AS NOTED	BR 3-368 ON SYCAMORE ROAD OVER ELLIOT POND BRANCH	CONTRACT	BRIDGE NO.	3-368	WINGWALL AND BRIDGE DETAILS	SHEET NO.	8
				DESIGNED BY: JPN	TOTAL SHTS.	13			
				COUNTY	CHECKED BY: JNH				
				SUSSEX					

ENVIRONMENTAL COMPLIANCE NOTES

1. GENERAL NOTES:

A. THE PURPOSE OF THIS SHEET 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 THIS SHEET DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL CONDITIONS SET FORTH IN THE ENVIRONMENTAL STATEMENT AND PERMITS.

2. NATURAL RESOURCE ISSUES:

A. PERMIT REQUIREMENTS/APPROVALS*:

U.S. ARMY CORPS OF ENGINEERS (COE): NWP #3(a) AND (c) (NO PCN)
 DNREC - WETLANDS & SUBAQUEOUS LANDS (W.S.L.): PROJECT CONSISTENT WITH DEL. CODE CH. 72 SECTION 7217(b) AS AMENDED BY SB186
 DNREC - WATER QUALITY (WQC) & COASTAL ZONE CONSISTENCY (CZM): WAIVED (PROJECT IS NOT LOCATED IN CLW)

* 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 - NONE
 ENDANGERED SPECIES - NONE
 MIGRATORY BIRDS - NONE

3. STREAM RESTORATION AND SLOPE RIPRAP TREATMENT

A. THE CONTRACTOR SHALL FOLLOW THE SPECIAL PROVISIONS OF ITEM #712531 - CHANNEL BED FILL IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFF-SITE MATERIAL. ALL RIPRAP IN THE CHANNEL BOTTOM (I.E. BELOW THE WATER LINE) SHALL BE RECESSED ONE FOOT BELOW STREAM BED ELEVATION AND CHOKED WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH MATERIAL. PAYMENT UNDER ITEM #209002 - BORROW TYPE 'B'. THE RIPRAP SHALL THEN BE COVERED WITH 12" CHANNEL BED FILL TO MATCH EXISTING ELEVATIONS. PAYMENT UNDER ITEM #712531 - CHANNEL BED FILL.

B. 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) SHALL BE RESTORED TO EXISTING CONDITIONS. ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE FILLED WITH CHANNEL BED FILL. PAYMENT UNDER ITEM #712531 - 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. ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, SHALL BE CHOKED WITH DELAWARE #57 STONE, FILLED WITH TOPSOIL, SEEDED AND MULCHED WITH SOIL RETENTION BLANKET MULCH, TYPE 3 (ITEM 735533). PLACE JUST ENOUGH CHOKE MATERIAL TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP, AND THEN FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. AN ADDITIONAL 4" TOPSOIL LAYER SHALL BE PLACED ON TOP OF THE RIPRAP. SEEDING SHALL BE PERMANENT GRASS SEEDING WET GROUND (ITEM NO. 734015) FROM STREAM BASE FLOW ELEVATION TO 2' UP THE SLOPE AND PERMANENT GRASS SEEDING DRY GROUND (ITEM NO. 734013) ON THE REMAINING SLOPE. ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING AND MULCHING, SHALL BE COMPLETED PRIOR TO ANY RAIN EVENT. PAYMENT FOR RIPRAP AND DELAWARE #57 STONE SHALL BE PAID FOR UNDER THE RIPRAP ITEM. ALL OTHER ITEMS SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

4. CULTURAL RESOURCES:

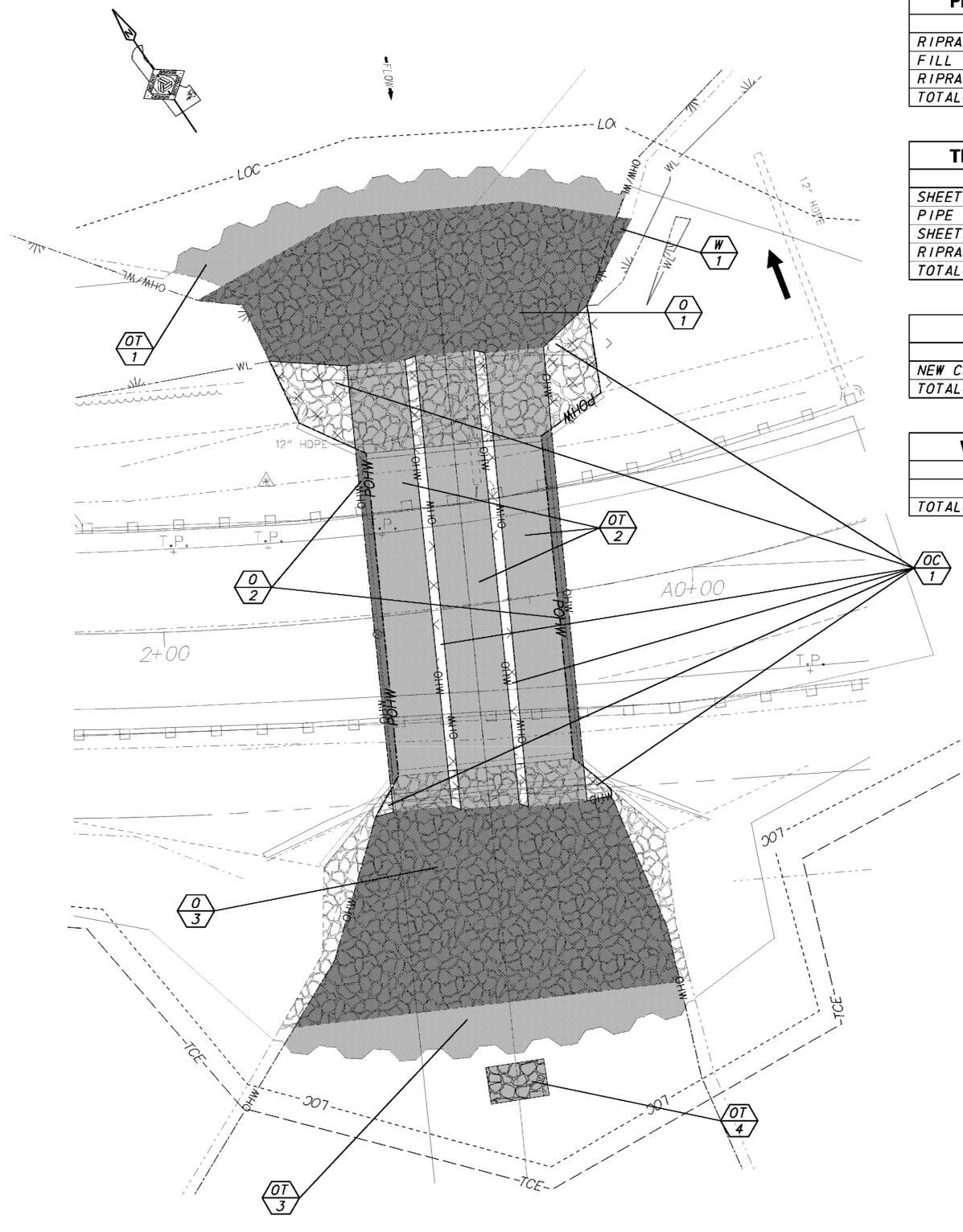
A. THERE IS POTENTIAL FOR MILL-RELATED REMAINS TO BE PRESENT THROUGHOUT THE SITE. SHOULD ANY SUCH REMAINS BE FOUND OR REVEALED DURING CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO CONTACT DELDOT ENVIRONMENTAL STUDIES, SO THAT THEY MAY BE DOCUMENTED. CONTACT DAVID CLARKE AT 302-760-2271.

5. CLEARING IN WETLAND AREAS:

A. CLEARING IN WETLAND AREAS SHALL BE KEPT TO A MINIMUM ABSOLUTELY NECESSARY FOR CONSTRUCTION ACCESS. IN WETLAND AREAS THAT ARE CLEARED, THERE SHALL BE NO GRUBBING EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS AND RIPRAP PROTECTION. VEGETATION SHALL BE CUT FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT).

6. WETLAND PLANTING:

A. NATURALIZE PLANTING OF RED MAPLES (1 1/2" TO 1 3/4" CAL. BB OR CONT.) ON 10' CENTER-SPACING (8' MIN AND 12' MAX) WITHIN DISTURBED WETLAND AREAS (ALL WETLAND AREAS WITHIN LOC, EXCLUDING AREA WITHIN THE TOS AND RIPRAP PROTECTION). 0 TO 15 RED MAPLE TREES (DEPENDING ON TOTAL WETLAND AREA GRUBBED) SHALL BE PLANTED IN DISTURBED WETLAND AREAS, AT 1 RED MAPLE TREE PER 100 SQUARE FEET (PAYMENT UNDER ITEM # 737523 PLANTING). TEMPORARY GRASS SEEDING - DRY GROUND, SHALL BE PLACED IN DISTURBED WETLAND AREAS (PAYMENT UNDER ITEM 734017 - TEMPORARY GRASS SEEDING, DRY GROUND)



PERMANENT IMPACT AREA SCHEDULE			
AREA	AREA (SF)	AREA (AC)	VOLUME (CY)
RIPRAP 'O-1'	816.39	0.0187	45.36
FILL 'O-2'	118.69	0.0027	18.46
RIPRAP 'O-3'	1118.03	0.0257	62.16
TOTAL:	2053.11	0.0471	125.98

TEMPORARY IMPACT AREA SCHEDULE			
AREA	AREA (SF)	AREA (AC)	VOLUME (CY)
SHEETPILE 'OT-1'	311.26	0.0071	34.58
PIPE 'OT-2'	1358.71	0.0312	402.58
SHEETPILE 'OT-3'	293.10	0.0067	32.57
RIPRAP 'OT-4'	40.00	0.0009	2.22
TOTAL:	2003.07	0.0459	471.95

CREATION AREA SCHEDULE			
AREA	AREA (SF)	AREA (AC)	VOLUME (CY)
NEW CULVERT 'OC-1'	238.21	0.0055	36.22
TOTAL:	238.21	0.0055	36.22

WETLAND IMPACT AREA SCHEDULE			
AREA	AREA (SF)	AREA (AC)	VOLUME (CY)
RIPRAP 'W-1'	12.92	0.0003	0.72
TOTAL:	12.92	0.0003	0.72

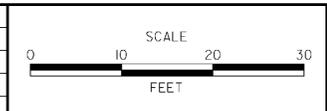
SHEET PREPARED BY: JOSEPH P. NATALE
 WETLANDS DELINEATED BY ERI IN JUNE 2011 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND REGIONAL SUPPLEMENT

LEGEND	
	CREATION AREA
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
--- OHW ---	ORDINARY HIGH WATER
--- POHW ---	PROPOSED ORDINARY HIGH WATER
--- OHW/WL ---	ORD. HIGH WATER / WETLAND
--- WL ---	WETLAND BOUNDARY
	IMPACT AREA TYPE ID. (SEE BELOW)
	IMPACT AREA ID. AND/OR NUMBER
T = TEMPORARY IMPACT C = CREATION AREA	
O = OPEN WATER IMPACT W = WETLAND IMPACT	

Y:\SUSSEX\466 BRIDGE\T201107306\PLANS\EC01.DGN

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS



BR. 3-368 ON SYCAMORE ROAD OVER ELLIOT POND BRANCH

CONTRACT	BRIDGE NO.	3-368
T201107306	DESIGNED BY:	JPN
COUNTY	CHECKED BY:	JNH
SUSSEX		

ENVIRONMENTAL COMPLIANCE PLAN

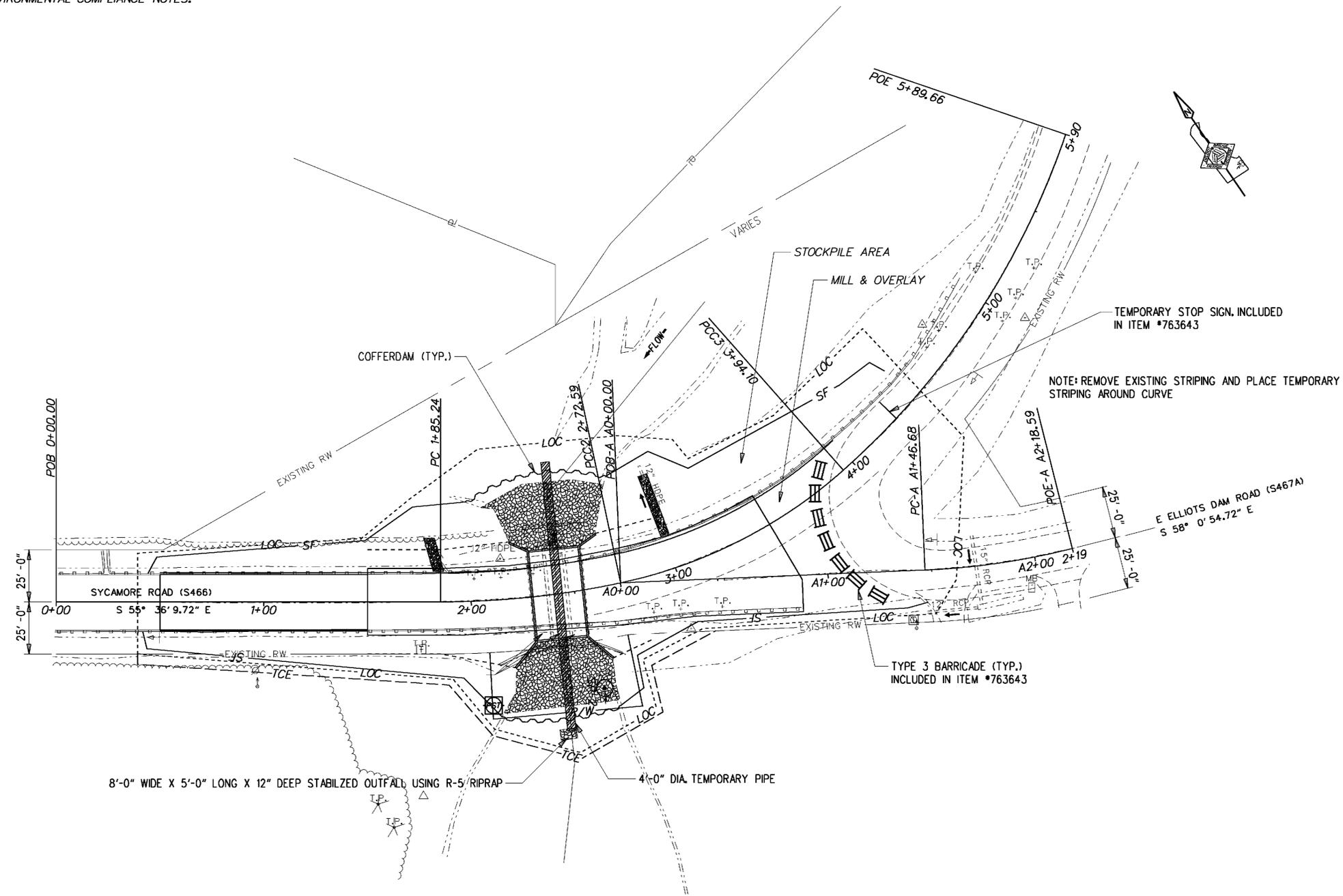
SHEET NO.	9
TOTAL SHTS.	13

SEQUENCE OF CONSTRUCTION:

1. PLACE ALL MAINTENANCE OF TRAFFIC DEVICES, AS SHOWN ON DETOUR PLAN.
2. PLACE SILT FENCE, EXCEPT CONNECTION TO SHEET PILING, AS SHOWN ON THE PLAN. INSTALL UPSTREAM SHEET PILING FIRST, AS TO NOT ALLOW UPSTREAM SUSPENDED SOLIDS TO FLOW INTO DOWNSTREAM POND AND STRUCTURE. CONSTRUCT SHEET PILES IN THE EXISTING CHANNEL AND CONNECT THE SILT FENCE TO THE SHEET PILING TO ENCLOSE THE WORK AREA. INSTALL STABILIZED OUTFALL USING R-5 RIPRAP. TO MAINTAIN STREAM FLOW, INSTALL 4'-0" DIA. OR GREATER (AS FEASIBLE) HDPE PIPE THROUGH THE EXISTING CENTER PIPE TO MAINTAIN FLOW THROUGH THE WORK AREA, OR A PUMP CAPABLE OF ACCOMMODATING 225 CFS. THE COFFERDAM SHALL BE INSTALLED AS PER ITEM 207500 - COFFERDAM. INSTALL SUMP PIT AND DEWATERING BAG FOR USE IN DEWATERING THE WORK AREA. SEE SECTION 111 OF THE STANDARD SPECIFICATIONS FOR MORE INFORMATION ON DEWATERING OPERATIONS.
3. SAWCUT AND REMOVE PAVING, GUARDRAIL AND EXISTING WEST AND EAST PIPES AND PORTIONS OF THE CENTER PIPE AS NECESSARY.
4. INSTALL THE PROPOSED PRECAST FOOTERS, ARCH AND WINGWALLS.
5. REMOVE ANY REMAINING PORTION OF THE EXISTING PIPES AND ADJUST THE TEMPORARY PIPE AS NECESSARY TO INSTALL RIPRAP, CHANNEL BED FILL ('B' BORROW) AND SLOPE STABILIZATION AS NOTED.
6. INSTALL PROPOSED PAVEMENT AND GUARDRAIL AND COMPLETE ANY OTHER REMAINING WORK.
7. REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES (INCLUDING RIPRAP USED AS STABILIZED OUTFALL). REMOVE DOWNSTREAM SHEET PILING FIRST, THEN UPSTREAM SHEET PILING, TAKING GREAT CARE NOT TO DISTURB SUSPENDED SOLIDS UPSTREAM. RESTORE THE STREAM TO EXISTING CONDITIONS AS OUTLINED IN THE ENVIRONMENTAL COMPLIANCE NOTES.
8. REMOVE ALL MAINTENANCE OF TRAFFIC DEVICES.

NOTE: USE CAUTION WHEN INSTALLING COFFERDAM. UPSTREAM CHANNEL BED HAS LARGE DEPOSITS OF SUSPENDED SOLIDS. IF PROPER CARE NOT TAKEN, THEY WILL MOBILIZE AND FLOW INTO THE STRUCTURE AND DOWNSTREAM POND.

EROSION & SEDIMENT CONTROL	
•	DEWATERING BAG
DWB	DEWATERING BASIN
ED	EARTH DIKE
□	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
PS	PORTABLE SEDIMENT TANK
SBD	SANDBAG DIKE
SB	SANDBAG DIVERSION
SCD	STONE CHECK DAM
SCE	STABILIZED CONSTRUCTION ENTRANCE
SF	SILT FENCE / LENGTH
SF	SILT FENCE
RSF	SILT FENCE - REINFORCED
SP-1	SUMP PIT, TYPE 1
SP-2	SUMP PIT, TYPE 2
ST	SEDIMENT TRAP
ST	SEDIMENT TRAP
ST	SEDIMENT TRAP WITH INLET AS OUTLET
ST	SEDIMENT TRAP PIPE OUTLET
SW	STILLING WELL
TSW	TEMPORARY SWALE
TS	TEMPORARY SLOPE DRAIN
T	TURBIDITY CURTAIN / LENGTH
T	TURBIDITY CURTAIN



Y:\SUSSEX\466\BRIDGE\T201107306\PLANS\CP01.DGN

CHANGEABLE MESSAGE BOARDS

PRIOR TO DETOUR
(10 DAYS PRIOR TO BEGINNING OF DETOUR)

CMS-1

SYCAMORE ROAD TO CLOSE

STARTING XXXXXX

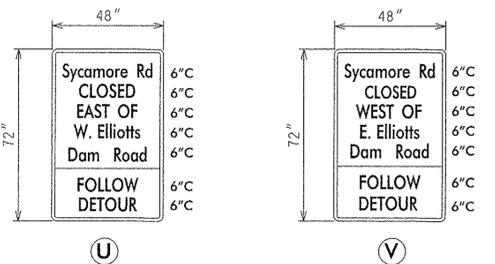
DURING DETOUR
(DISPLAY FOR 5 DAYS AFTER IMPLEMENTATION OF DETOUR)

CMS-1

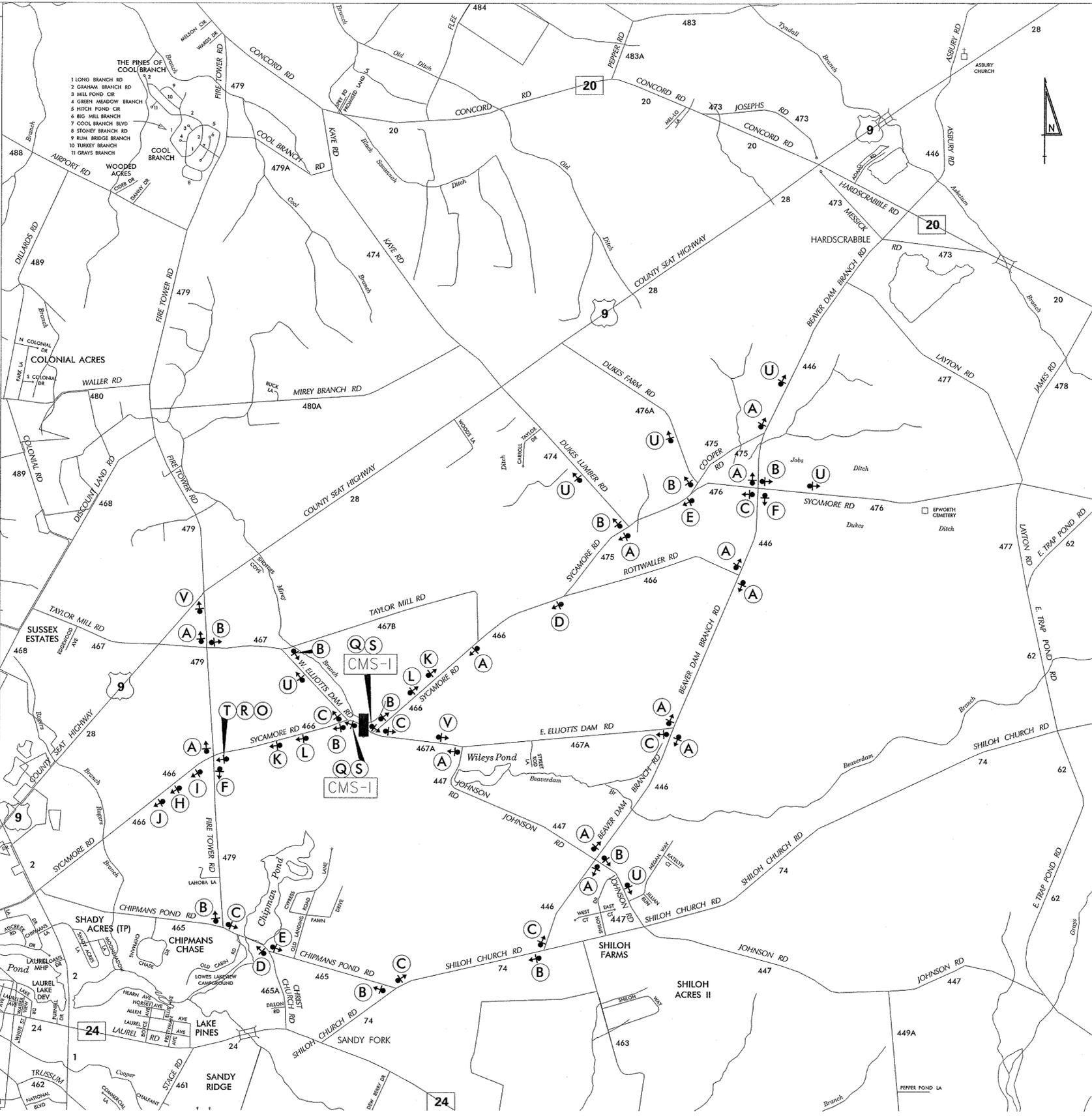
SYCAMORE ROAD CLOSED

FOLLOW DETOUR

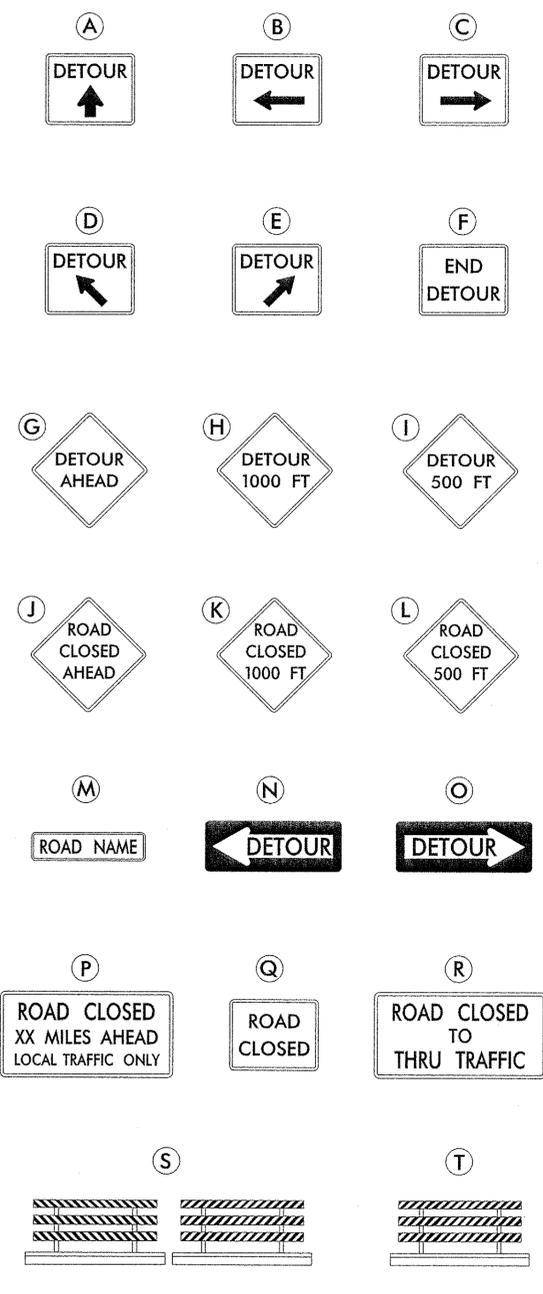
SPECIAL SIGNS



D/G FLOURESCENT ORANGE; BLACK LEGEND



LEGEND



GENERAL NOTES

- ALL DETOUR SIGNING INCLUDING TRAILBLAZERS, ARE TO BE SUPPLIED AND MAINTAINED BY THE GENERAL CONTRACTOR IN COMPLIANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- THE CONTRACTOR SHALL COMPLY WITH GUIDELINES IN "THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (DE-MUTCD PART 6)" FOR LIGHTS, BARRICADES AND SIGNS, AS PER LATEST REVISION.
- FIELD CONDITIONS MAY DICTATE CHANGES AT SOME TIME DURING THE LIFE OF THE CONTRACT. IN THE EVENT OF OMISSIONS OR CORRECTIONS, THE SIGNING PROVISIONS OF THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WILL PREVAIL.
- SIGNS J THROUGH L AND P THROUGH R, THE WORD (ROAD) SHOULD BE CHANGED TO RAMP, R/R OR BRIDGE WHERE APPLICABLE.
- WARNING SIGNS SHOULD BE MOUNTED ON BREAKAWAY POSTS AND HAVE RETROREFLECTIVE FLUORESCENT SHEETING.
- *S* BARRICADES SHALL COMPLETELY RUN THE FULL WIDTH OF ROADWAY.
- BARRICADES SHALL BE A MINIMUM OF 6 FEET WIDE UNLESS DIRECTED BY THE ENGINEER.

RECOMMENDED *Melan* DATE: 11-22-11

RECOMMENDED _____ DATE: _____

RECOMMENDED _____ DATE: _____

APPROVED CHIEF SAFETY OFFICER *Scott M. ...* DATE: 11-22-11

APPROVED TRAFFIC ENGINEER *Scott M. ...* DATE: 11-22-11



NOT TO SCALE

**BR 3-368 ON
SYCAMORE RD OVER
ELLIOTTS POND BRANCH**

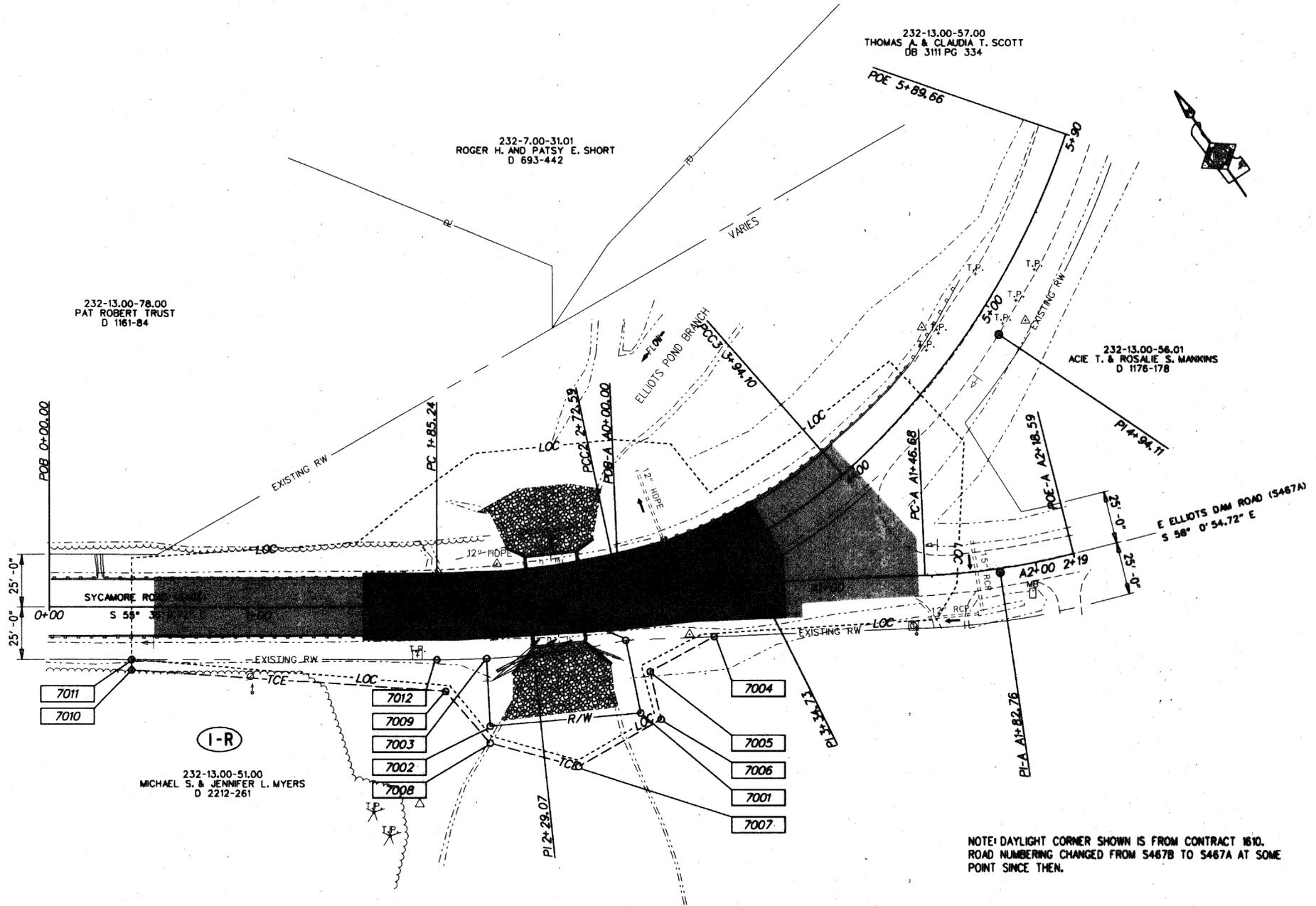
CONTRACT	ROAD NO.	S466
T201107306	DESIGNED BY: MFR	
COUNTY	CHECKED BY: ASW	
SUSSEX		

DETOUR PLAN
SYCAMORE RD AT
ELLIOTTS DAM RD

SHEET NO.	11
TOTAL SHTS.	13

C:\DOCUMENTS AND SETTINGS\MICHAEL.RIVERA\MY DOCUMENTS\MICRO STATION DGN\SYCAMORE RD OVER ELLIOT POND BRANCH.DGN

RECOMMENDED	
<i>Jude Crawford</i> TEAM SUPPORT SQUAD MANAGER	11/18 2011 DATE
<i>Hy - Dahl</i> TEAM SUPPORT ENGINEER	11/18 2011 DATE
<i>Robert B. McCleary</i> ASSISTANT DIRECTOR, DESIGN	11/18 2011 DATE
"AS-ACQUIRED" PLANS	
I Certify that all proposed Right-of-Way has been acquired in the name of THE STATE OF DELAWARE and that these plans accurately depict the nature and extent of THE REAL ESTATE SECTION acquisition under this project.	
_____ CHIEF, REAL ESTATE	20_____ DATE



Y:\SUSSEX\466\BRIDGE\T201107306\PLANS\CP01.DGN

 DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 30 60 90 FEET	BR. 3-368 ON SYCAMORE ROAD OVER ELLIOT POND BRANCH	CONTRACT T201107306	BRIDGE NO. 3-368	RIGHT-OF-WAY DATA SHEET RIGHT-OF-WAY SHEET 1 OF 2	SHEET NO. 12
					COUNTY SUSSEX		DESIGNED BY: JPN CHECKED BY: JNH

