

GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION



CONSTRUCTION & RIGHT-OF-WAY PLANS FOR:
**BR 3-224 ON S546 CONRAIL ROAD
OVER BUCKS BRANCH**

CONTRACT NUMBER: T201107304
FEDERAL AID PROJECT NUMBER: EBROS-S546(4)
COUNTY: SUSSEX M.R. #: 546

U.S. CUSTOMARY
UNITS

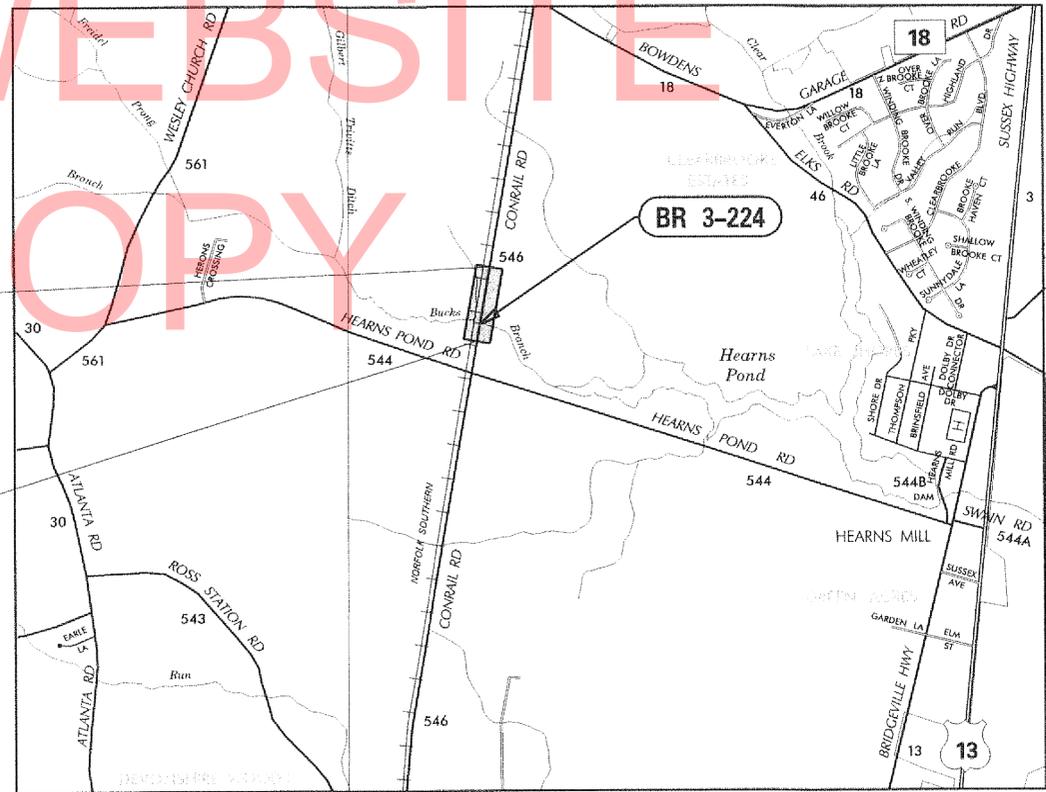
DESIGN DESIGNATION		
FUNCTIONAL CLASS: RURAL LOCAL ROAD	D.H.V. PROJECTED: 112	YEAR: 2040
TYPE OF CONSTRUCTION: PIPE REPLACEMENT	DESIGN SPEED: 55 M.P.H.	
A.A.D.T. CURRENT: 1342	YEAR: 2010	TRUCKS: 6 %
A.A.D.T. PROJECTED: 1850	YEAR: 2040	DIRECTION OF DISTRIBUTION: 55 %

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UNOFFICIAL
WEBSITE
COPY

END
CONTRACT T201107304
STATION 5+70

BEGIN
CONTRACT T201107304
STATION 1+50



RECOMMENDED

Robert Campbell 3/12/13
SQUAD MANAGER, CONSTRUCTION DATE

Bartholomew L. Salvo 3/12/2013
GROUP ENGINEER, CONSTRUCTION DATE

ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS (CONSTRUCTION) DATE

RECOMMENDED

Vincent W. Davis
STORMWATER ENGINEER

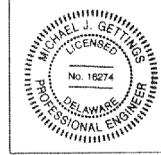
DATE 6 MAR 2013



RECOMMENDED

Michael Gettings
SQUAD MANAGER, BRIDGE DESIGN

DATE 3/1/13



RECOMMENDED

Douglas A. PCB
BRIDGE DESIGN ENGINEER

DATE 3/1/2013



RECOMMENDED

B. A. R.
ASSISTANT DIRECTOR, BRIDGE

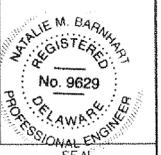
DATE MARCH 4, 2013



APPROVED

Natalie M. Barnhart
CHIEF ENGINEER

DATE 3/5/13



TOTAL SHEETS: 18

APPROVED DESIGN EXCEPTIONS			
DESIGN PARAMETER	REQUIRED	PROVIDED	DATE

ADDENDA & REVISIONS	
DESCRIPTION	NAME & DATE

ASSOCIATED CONTRACTS	
CONTRACT NO.	CONTRACT NAME
76-05-009	REPLACEMENT OF BRIDGE NO. 224 ON ROAD NO. 546

LAST REVISED: 03/01/2013
C:\SUSSEX\546\BRIDGE\T201107304\PLANS\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	
	CHESAPEAKE UTILITY GAS
	DELAWARE ELECTRIC COOPERATIVE
	VERIZON

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

PROPOSED SYMBOLS

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

EROSION & SEDIMENT CONTROL	
	DEWATERING BAG
	DEWATERING BASIN
	EARTH DIKE
	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
	PORTABLE SEDIMENT TANK
	SANDBAG DIKE
	SANDBAG DIVERSION
	STONE CHECK DAM
	STABILIZED CONSTRUCTION ENTRANCE
	SILT FENCE / LENGTH
	SILT FENCE
	SILT FENCE - REINFORCED
	SUMP PIT, TYPE 1
	SUMP PIT, TYPE 2
	SEDIMENT TRAP
	SEDIMENT TRAP
	SEDIMENT TRAP WITH INLET AS OUTLET
	SEDIMENT TRAP PIPE OUTLET
	STILLING WELL
	TEMPORARY SWALE
	TEMPORARY SLOPE DRAIN
	TURBIDITY CURTAIN / LENGTH
	TURBIDITY CURTAIN

LAST REVISED: 11/09/2010
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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:

(X)	NONE
()	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
()	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. PAYMENT FOR ATSSA SUPERVISOR IS INCIDENTAL TO ITEM 743000.
()	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. PAYMENT FOR ATSSA SUPERVISOR SHALL BE PAID FOR UNDER ITEM 743031.

- THE DISTURBED AREA FOR THIS PROJECT IS 0.739 ACRES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO THE CONSTRUCTION SITE POLLUTION PREVENTION SPECIFICATIONS AS DETAILED IN SECTION 3.6 OF THE "DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK". ALL COSTS ASSOCIATED WITH ADHERING TO THE STANDARDS SHALL BE INCIDENTAL TO THE OVERALL CONTRACT COSTS.
- THE EROSION AND SEDIMENT CONTROL PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY. THE EROSION AND SEDIMENT CONTROL PLANS ARE VALID FOR A THREE YEAR PERIOD, BEGINNING ON THE DATE THE STORMWATER ENGINEER SIGNED THE CONSTRUCTION TITLE SHEET. IF THE FINAL ACCEPTANCE OF THE PROJECT IS ANTICIPATED TO EXTEND BEYOND THE THREE YEARS, THE CONTRACTOR SHALL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE EROSION AND SEDIMENT CONTROL PLAN APPROVAL. DELDOT WILL REVIEW THE CURRENT EROSION AND SEDIMENT CONTROL PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

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:
 - REMOVAL OF THE EXISTING C.M.P.'S IN THEIR ENTIRETY AND PORTION OF HEADWALL SHOWN ON PLANS (35' X 7.5' CUT OUT SECTION). EXISTING WINGWALLS SHALL NOT BE DISTURBED.
 - REMOVAL OF ALL EXISTING GUARDRAIL.
 - REMOVAL OF EXISTING 18" DRAINAGE PIPE ON THE NORTHWEST CORNER OF THE BRIDGE.
- THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOI IS KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S TEAM SUPPORT SECTION. A COPY OF THE GENERAL PERMIT OR THE NOI CAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.
- THE CONTRACTOR SHALL REMOVE AND RESET ALL MAILBOXES TO MAINTAIN MAIL SERVICE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL RELOCATE MAILBOXES AS REQUIRED BY THE PROPOSED GEOMETRICS AND AS DIRECTED BY THE ENGINEER. WHEN RELOCATING MAILBOXES IN CURBED SECTIONS, THE FACE OF THE MAILBOX SHALL BE FLUSH WITH THE BACK EDGE OF CURB. WHEN RELOCATING MAILBOXES IN OPEN SECTIONS, THE FACE OF THE MAILBOX SHALL SET BACK 8 INCHES FROM THE EDGE OF THE PAVED SHOULDER. THE BOTTOM OF THE MAILBOX SHALL BE SET 46 INCHES ABOVE THE ROADWAY SURFACE. MAILBOXES LOCATED AT DRIVEWAY ENTRANCES SHALL BE PLACED ON THE FAR SIDE OF THE DRIVEWAY IN THE DIRECTION OF TRAVEL. POSTS BEING RESET IN CONCRETE SIDEWALK SHALL BE PLACED IN AN APPROPRIATE SIZE PVC SLEEVE. COST FOR ALL WORK AND MATERIALS SHALL BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.

SECTION 300

- THE CONTRACTOR MAY ELECT TO USE ANY OF THE FOLLOWING MATERIALS TO MEET THE REQUIREMENTS OF ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B':
 - CRUSHED STONE (PER STANDARD SPECIFICATION 821)
 - CRUSHED CONCRETE (PER STANDARD SPECIFICATION 821)
 - HOT-MIX MILLINGS (PER SPECIAL PROVISION 302514 MILLED HOT-MIX BASE COURSE)

THE CONTRACTOR WILL NOT BE ALLOWED TO MIX DIFFERENT MATERIALS (OR SIMILAR MATERIALS FROM DIFFERENT SOURCES) TO MEET THE REQUIREMENTS OF ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

ALL OF THE ABOVE LISTED MATERIALS ARE PERMITTED FOR USE ON THE JOB, PROVIDED THEY ARE SEPARATED INTO APPROVED AREAS. EACH AREA OF BASE COURSE MUST BE CONSTRUCTED USING MATERIALS FROM A SINGULAR SOURCE, FULL DEPTH, IN ORDER THAT PROPER TESTING MAY BE ACCOMPLISHED. THE CONTRACTOR AND ENGINEER SHALL AGREE ON THE LIMITS OF EACH SOURCE OF MATERIAL PRIOR TO PLACEMENT.

B. THE QUANTITY USED FOR BASE OF EACH OF THE ABOVE LISTED MATERIALS WILL BE THE CONTRACTOR'S CHOICE, WITH THE TOTAL BEING EQUAL TO THE ACTUAL QUANTITY USED UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

C. THE CONTRACTOR MAY ALSO ELECT TO RECYCLE MILLINGS FOR USE IN HOT-MIX AS PERMITTED BY THE STANDARD SPECIFICATIONS. THE CHOICE OF THE QUANTITY OF MILLINGS USED FOR THIS PURPOSE, OR FOR BASE COURSE, LIES WITH THE CONTRACTOR. ALL EXCESS MILLING MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.

D. HOT-MIX MILLINGS MAY BE GENERATED FROM THE FOLLOWING SOURCES:

- MATERIAL MILLED ON THIS CONTRACT AT THE CONTRACTOR'S CHOICE UNDER ITEM 202000.
- MILLED MATERIAL FURNISHED ON THE JOB FROM THE CONTRACTOR'S YARD OR OTHER OUTSIDE SOURCE.

 ALL MILLED MATERIALS SHALL MEET THE MATERIAL REQUIREMENTS OF ITEM 302514 - MILLED HOT-MIX BASE COURSE.

E. PAYMENT CLARIFICATION:

- SHOULD THE CONTRACTOR ELECT TO MILL PORTIONS OF HOT-MIX SHOWN ON THE PLANS TO BE REMOVED UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT THE COST OF MILLING THIS HOT-MIX WILL BE PAID AS ITEM 202000 - EXCAVATION AND EMBANKMENT. THE MILLINGS GENERATED MAY BE RECYCLED INTO HOT-MIX, UTILIZED FOR BASE COURSE, OR DISPOSED OF TO AN APPROVED SITE. HAULING COSTS FOR DISPOSAL AND/OR RECYCLING ARE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.

b. SHOULD THE CONTRACTOR ELECT TO TEMPORARILY STOCKPILE MILLINGS ON THE JOB SITE FOR LATER USE, ALL COSTS FOR STOCKPILING AND SUBSEQUENT REHANDLING SHALL BE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.

c. MILLINGS USED FOR BASE COURSE SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE. NO SEPARATE PAYMENT WILL BE MADE TO FURNISH MILLINGS FROM AN OUTSIDE SOURCE OR TRANSPORT MILLINGS WITHIN THE PROJECT LIMITS. MILLINGS USED FOR BASE COURSE WILL BE PAID FOR AT THE UNIT BID PRICE FOR ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

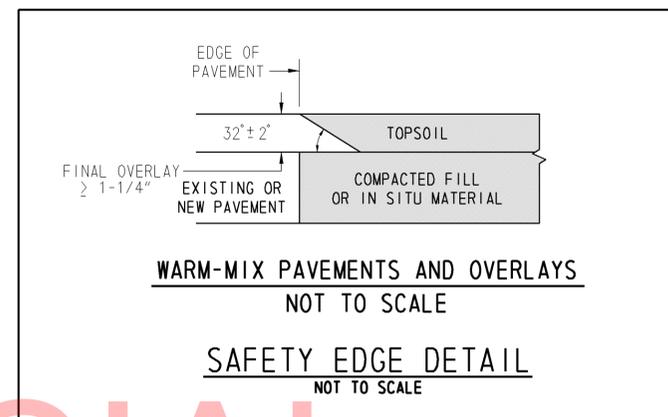
d. ALL COSTS TO UTILIZE MILLINGS IN RECYCLED HOT-MIX WILL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE HOT-MIX ITEM USING THE RECYCLED MATERIAL.

e. SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE IS PROVIDED TO SPECIFY THE MEANS OF LAY DOWN AND COMPACTION AS WELL AS THE MATERIAL REQUIREMENTS FOR MILLINGS USED AS BASE COURSE. ALL COSTS TO BRING THE MILLINGS INTO COMPLIANCE WITH THE REQUIREMENTS OF ITEM - 302514 MILLED HOT-MIX BASE COURSE ARE INCIDENTAL TO ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'. NO PAYMENT WILL BE MADE FOR ITEM 302514 - MILLED HOT-MIX BASE COURSE. THE QUANTITY OF MILLINGS USED FOR BASE COURSE WILL BE PAID FOR UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE.

PROJECT NOTES CONT.

SECTION 600

6. STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED:
(F'c = 28 DAY COMPRESSIVE STRENGTH)
CLASS A - HEADWALL (F'c = 4.5 KSI)
MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE ANY APPROVED CONCRETE ADDITIVES TO ACCELERATE THE CONCRETE CURING TIME FOR CAST-IN-PLACE CONCRETE SO THAT IT REACHES THE 28 DAY COMPRESSIVE STRENGTH BEFORE THE ROAD IS OPEN TO TRAFFIC. PAYMENT SHALL BE INCIDENTAL TO THE RESPECTIVE CONCRETE BID ITEM.
7. 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), AND IS DENOTED WITH A SUFFIX 'E' IN THE BAR MARKS.
8. LIMITS OF COURSE AGGREGATE FOR FOUNDATION STABILIZATION AND SUBFOUNDATION BACKFILL (ITEM #60B00) SHALL EXTEND 18" OUTSIDE OF THE NEAT LINE PERIMETER OF THE VERTICAL FACES OF THE PIPES.
9. WATER BASED ACRYLIC CONCRETE SEALER SHALL BE APPLIED TO ALL EXPOSED FACES OF THE CONCRETE HEAD WALL AND WINGWALLS. PAYMENT UNDER ITEM #602518 - WATER BASED ACRYLIC CONCRETE SEALER.
10. SPALL REPAIRS. THE CONTRACTOR SHALL REMOVE AND REPAIR ALL SPALLED AREAS OF CONCRETE ON THE EXISTING HEADWALL AND WINGWALLS THAT ARE TO REMAIN IN PLACE. ALL DETERIORATED CONCRETE SHALL BE REMOVED AND FORMED UP TO THE ORIGINAL SHAPE. WHERE THE REMOVAL IS 2" OR DEEPER, THE AREA SHALL BE PAID FOR UNDER ITEM #6025B6 - REHABILITATION OF CONCRETE STRUCTURES. WHERE THE REMOVAL IS LESS THAN 2", THE AREA SHALL BE REPAIRED WITH PATCH MORTAR AND PAID UNDER ITEM #602572 - REPAIRING EXISTING P.C.C. STRUCTURES.
11. THE DEPARTMENT AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES AND DRAINAGE STRUCTURES TO BE USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION PRIOR TO THE START OF CONSTRUCTION. EXISTING PIPES AND DRAINAGE STRUCTURES DAMAGED DUE TO CONTRACTOR OPERATIONS SHALL BE REPAIRED OR REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE. THE DEPARTMENT WILL VIDEO INSPECT NEW PIPE RUNS TO CONFIRM CONDITION PRIOR TO ACCEPTANCE. PIPE CLEANING PRIOR TO VIDEO INSPECTION AND MAINTENANCE OF TRAFFIC DURING THE VIDEO INSPECTION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO THE PIPE ITEM THAT IS BEING VIDEO INSPECTED.



SECTION 700

12. ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE FULL DEPTH SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT.
13. ALL GEOTEXTILES SHALL BE KEYED UNDER ADJACENT SOIL OR RIPRAP A MINIMUM OF 6" IN LENGTH TO PREVENT FREE EDGES
14. ALL MOT DEVICES, EXCEPT CHANGEABLE MESSAGE BOARDS, SHALL BE PAID FOR UNDER ITEM #763643 - MAINTENANCE OF TRAFFIC, ALL INCLUSIVE. CHANGEABLE MESSAGE BOARDS SHALL BE PAID FOR UNDER ITEM #743004 - FURNISH AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN.

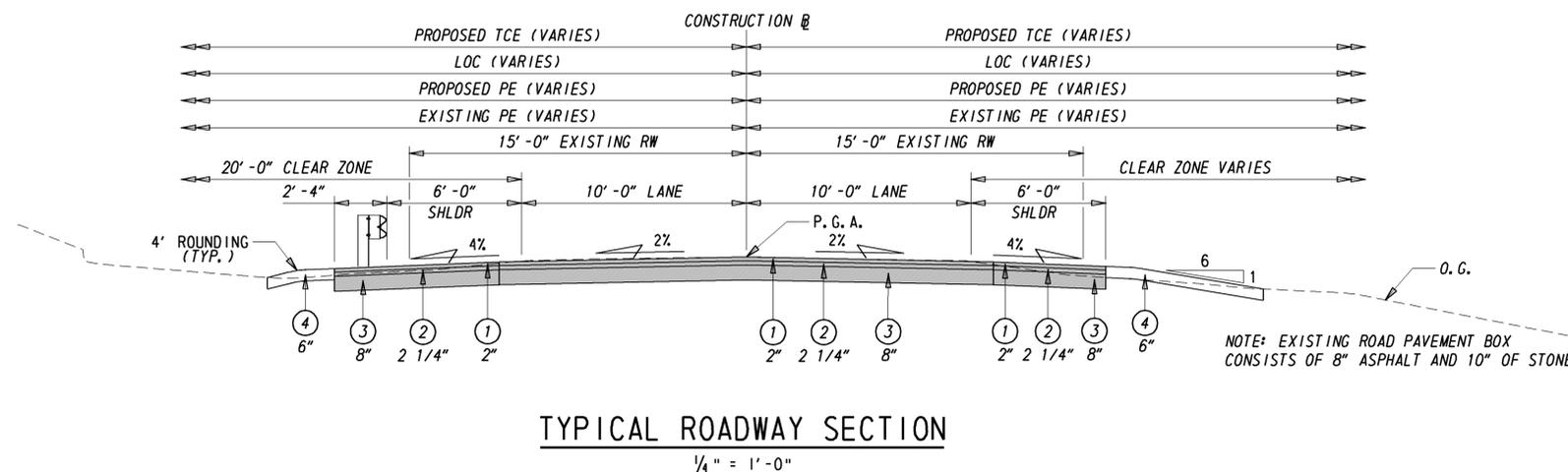
MISCELLANEOUS

15. THE CONTRACTOR SHALL CONTACT MICHAEL ELLER, THE CHIEF OF SCHEDULING FOR DART FIRST STATE, 14 DAYS PRIOR TO THE START OF CONSTRUCTION AT 302-576-6061.
16. DESIGN CRITERIA: 2010 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION U.S. CUSTOMARY UNITS, USING AASHTO HL93 FOR LIVE LOAD, AND 25 PSF FOR FUTURE WEARING SURFACE.
17. HYDRAULIC DATA
DRAINAGE AREA = 7.02 SQ. MILES
DESIGN FREQUENCY = 25 YEARS
DESIGN DISCHARGE = 559 CFS
25 YR FLOOD ELEVATION = 29.64 FT
PROPOSED OPENING = 3 X 29.42 SF
18. 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 WORST CASE OF THE OVERTOPPING FLOOD OR THE 500-YR FLOOD EVENT.
DESIGN EVENT = OVERTOPPING
DESIGN DISCHARGE = 830 CFS
DESIGN VELOCITY = 8.93 FT/SEC
DESIGN DEPTH OF FLOW = 6.20 FT
19. CROSS SECTIONS USED IN THE PREPARATION OF THIS CONTRACT WILL BE MADE AVAILABLE TO THE SUCCESSFUL BIDDER FOR INFORMATIONAL PURPOSES ONLY.
20. ENVIRONMENTAL COMPLIANCE: SEE ENVIRONMENTAL COMPLIANCE PLAN FOR FURTHER RESTRICTIONS/GUIDANCE ASSOCIATED WITH THIS PROJECT.
21. UTILITIES: THE EXISTING AERIAL LINES WILL REMAIN IN PLACE THROUGHOUT THE DURATION OF THE PROJECT.

THE GAS LINE WILL REMAIN IN PLACE DURING CONSTRUCTION OF THE PROJECT. THE LINE IS ANTICIPATED TO BE BELOW THE BOTTOM OF THE EXCAVATION. CARE MUST BE TAKEN BY THE CONTRACTOR NOT TO DAMAGE THE LINE DURING EXCAVATION.

SEE THE UTILITY STATEMENT FOR ADDITIONAL DETAILS ON UTILITIES.

TYP. SECTION LEGEND	
①	WMA, SUPERPAVE, TYPE C, 115 GYRATIONS, PG 64-22 (CARBONATE STONE). (ITEM #401800)
②	WMA, SUPERPAVE, TYPE B, 115 GYRATIONS, PG 64-22. (ITEM #401809)
③	GRADED AGGREGATE BASE COURSE TYPE B (ITEM #302007)
④	TOPSOIL (ITEM #732004), PERMANENT GRASS SEEDING DRY GROUND (ITEM #734013)



LAST REVISED: 5/5/2009
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	ADDENDUMS / REVISIONS		SCALE: AS NOTED	BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH	CONTRACT	BRIDGE NO.	NOTES & TYPICAL SECTION	SHEET NO.
					T201107304	3-224		4
					COUNTY	DESIGNED BY: KRL		TOTAL SHTS.
					SUSSEX	CHECKED BY: JKM		18



DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/91).

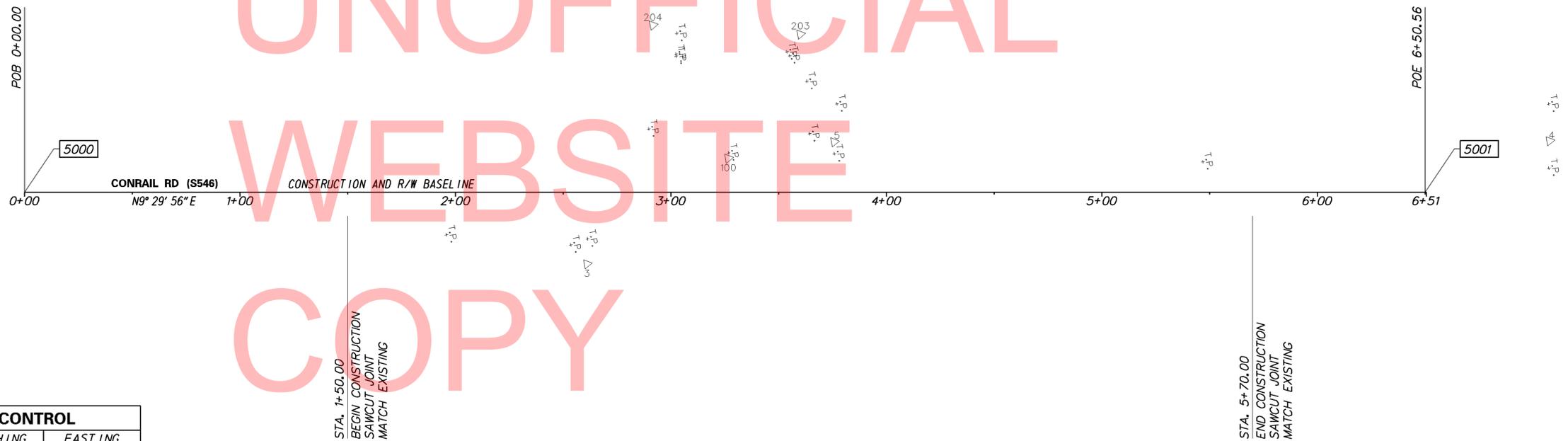
VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88 AND BASED ON THE FOLLOWING STATE OF DELAWARE

BENCHMARKS ESTABLISHED BY THE DELAWARE DEPARTMENT OF TRANSPORTATION:

GPS *BBR1, ELEVATION 30.9908

GPS *BBRA, ELEVATION 33.8188

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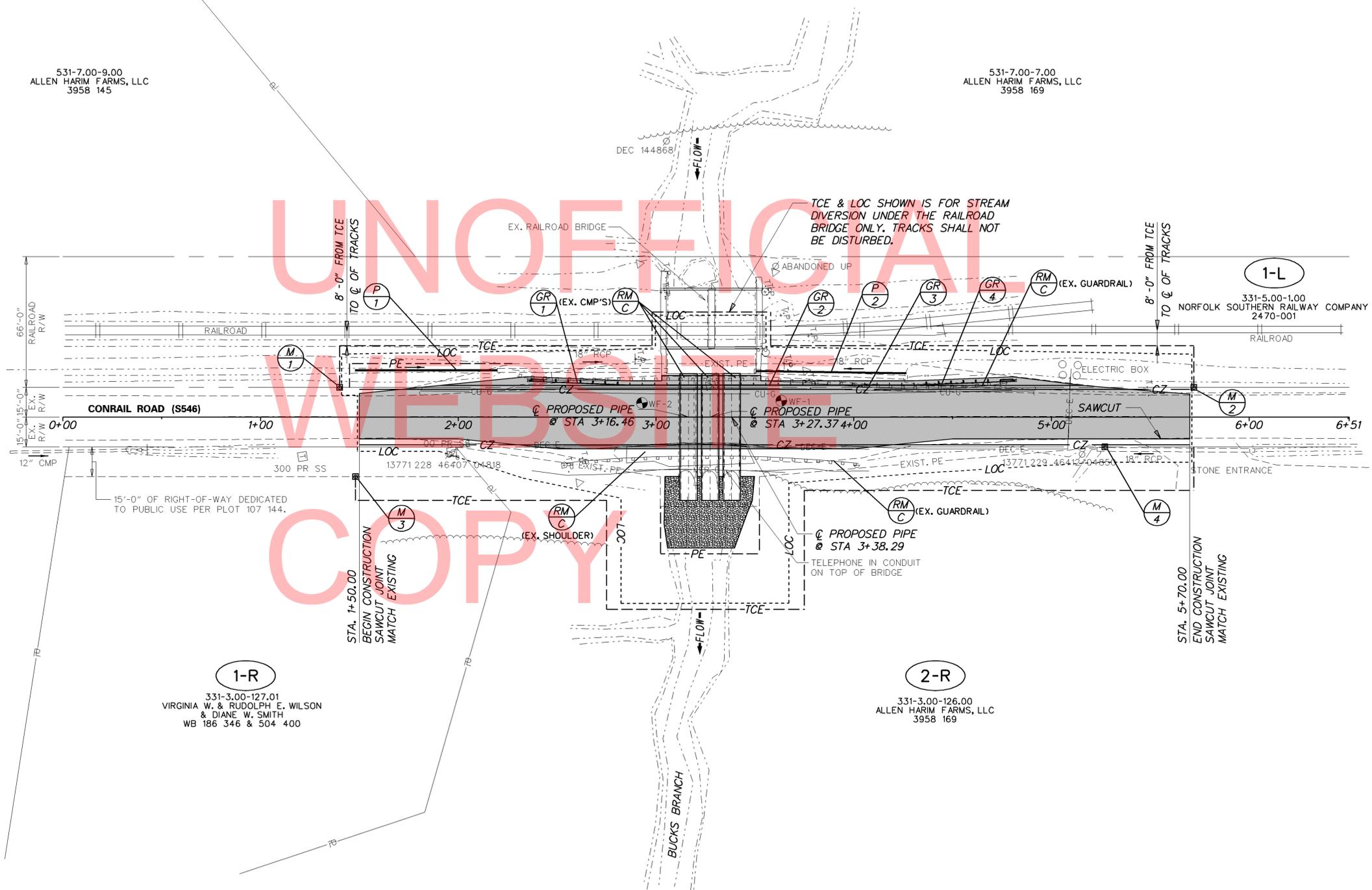


CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
5000	0+00.00	0.00	249712.4696	598704.3353
5001	6+50.56	0.00	250354.1125	598811.6958

HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP1	-	-	248540.6775	598530.5483	33.82
TP2	-	-	249487.2602	598686.6930	30.99
TP3	2+61.06	33.05	249964.4913	598780.0122	28.20
TP4	-	-	250414.5027	598797.6038	32.62
TP5	3+75.79	-23.37	250086.9610	598743.2981	30.36
TP6	-	-	249557.7679	598661.7322	31.01
TP7	-	-	249212.0500	598607.5891	31.58
100	3+26.65	-15.79	250037.2326	598742.6665	30.05
203	3+60.09	-73.21	250079.7013	598691.5581	30.64
204	2+91.64	-77.44	250012.8929	598676.0910	29.90

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 DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE FEET	BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH	CONTRACT	BRIDGE NO.	3-224	HORIZONTAL AND VERTICAL CONTROL	SHEET NO.
						DESIGNED BY: KRL		5
						CHECKED BY: JKM		TOTAL SHTS. 18
				COUNTY				
				SUSSEX				



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TCE & LOC SHOWN IS FOR STREAM DIVERSION UNDER THE RAILROAD BRIDGE ONLY. TRACKS SHALL NOT BE DISTURBED.

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INT. EL.	DIS. EL.
1	18" / R. C. P.	III	72.00	1.39%	28.09	*27.09
2	18" / R. C. P.	III	80.00	7.04%	29.05	23.70

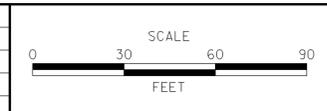
* MATCH EXISTING RCP

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
1	GUARDRAIL END TREAT. ATTENUATOR/1-31	2+36.46	18' - 16'	50.00'
2	GUARDRAIL OVER CULVERTS, TYPE 3-31	2+86.76	16.00'	75.00'
3	GUARDRAIL, TYPE 1-31	3+68.03	16.00'	62.50'
4	GUARDRAIL END TREAT. ATTENUATOR/1-31	4+30.51	16' - 18'	50.00'

NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
1	CAPPED REBAR	1+40.00	-15.00	249853.0254	598712.6448
2	CAPPED REBAR	5+72.00	-15.00	250279.1023	598783.9365
3	CAPPED REBAR	1+48.00	30.00	249853.4880	598758.3477
4	CAPPED REBAR	5+27.00	15.00	250229.7708	598806.0993



ADDENDUMS / REVISIONS	



BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH

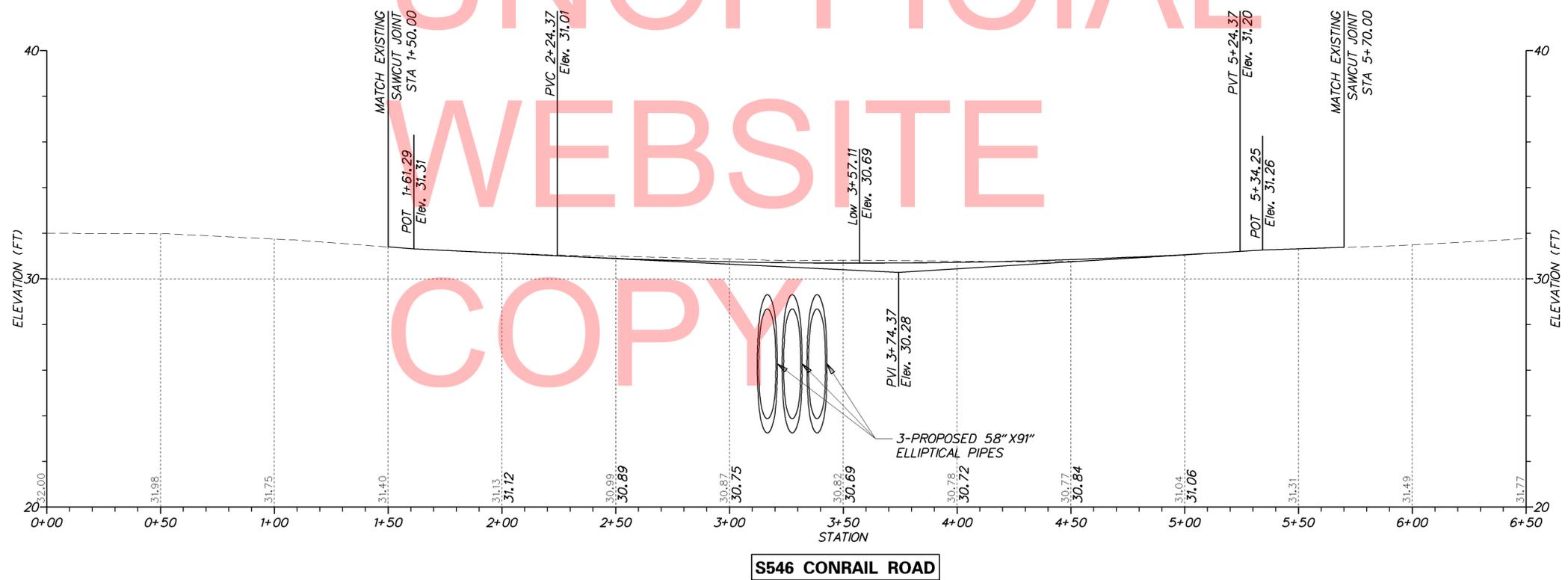
CONTRACT	BRIDGE NO.	3-224
T201107304	DESIGNED BY:	KRL
COUNTY	CHECKED BY:	JKM
SUSSEX		

CONSTRUCTION PLAN	SHEET NO.	6
	TOTAL SHTS.	18

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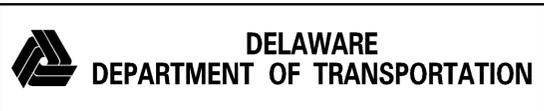
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Type of Curve = Symmetric Parabola
 Direction = Sag
 Length = 300.00'
 L1 = 150.00'
 L2 = 150.00'
 G1 = -0.48%
 G2 = 0.61%
 SSD = 1064.92'
 K = 274.77

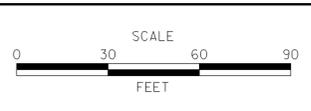


S546 CONRAIL ROAD

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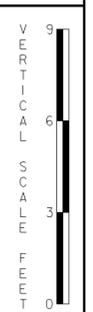
ADDENDUMS / REVISIONS	



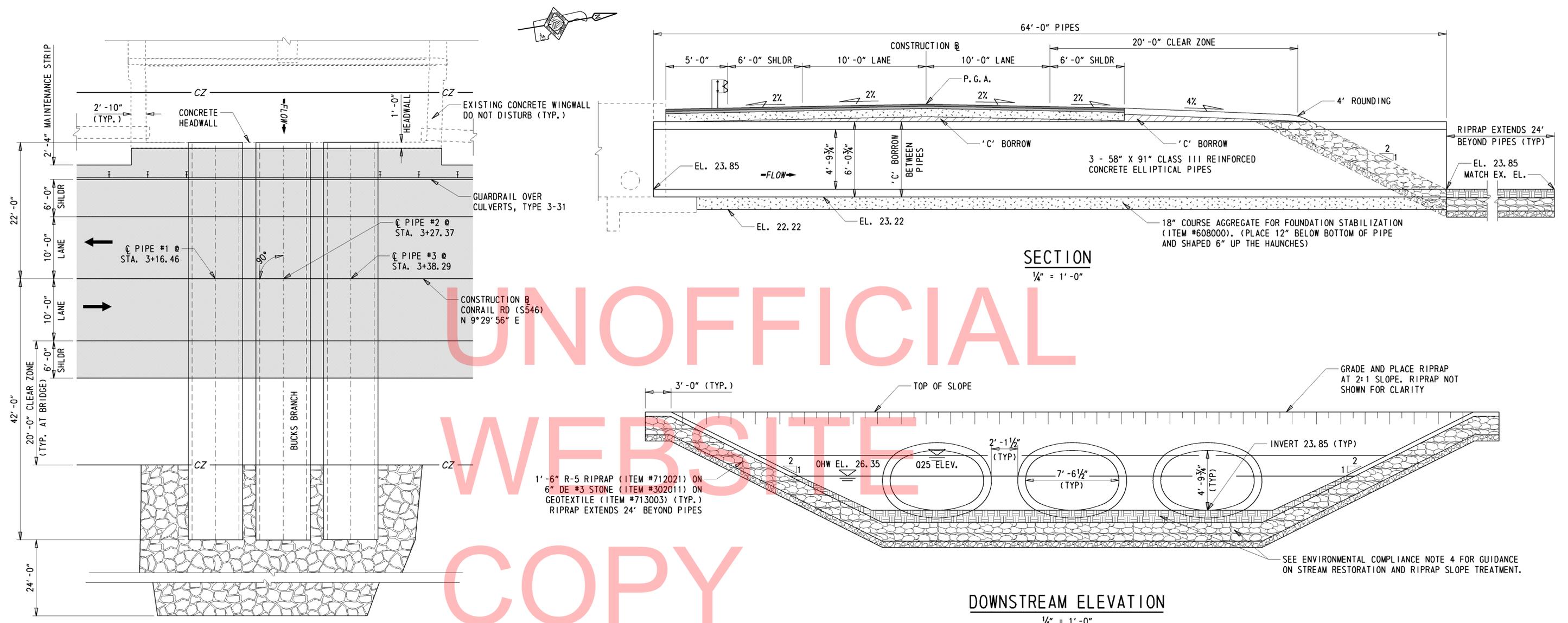
**BR 3-224 ON S546 CONRAIL ROAD
OVER BUCKS BRANCH**

CONTRACT	BRIDGE NO.	3-224
T201107304	DESIGNED BY:	KRL
COUNTY	CHECKED BY:	JKM
SUSSEX		

PROFILES	SHEET NO.	9
	TOTAL SHTS.	7
		18



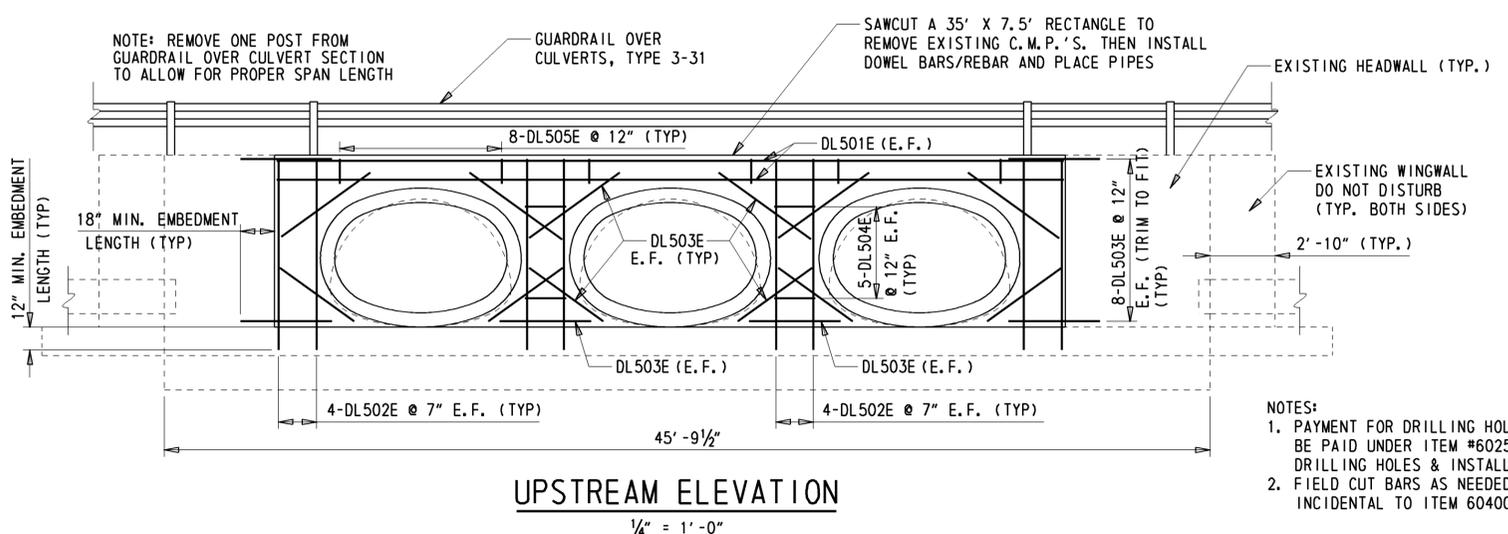
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PLAN
1/8" = 1'-0"

SECTION
1/4" = 1'-0"

DOWNSTREAM ELEVATION
1/4" = 1'-0"



UPSTREAM ELEVATION
1/4" = 1'-0"

- NOTES:**
1. ALL EXISTING C.M.P.'S SHALL BE REMOVED IN THEIR ENTIRETY BY SAWCUTTING A 35' X 7.5' RECTANGLE IN THE EXISTING HEADWALL. DESTRUCTIVE METHODS OF REMOVAL SUCH AS JACKHAMMERING OR CHIPPING SHALL NOT PERMITTED. DOWEL BARS SHALL THEN BE DRILLED AND INSTALLED IN ACCORDANCE WITH ITEM 602579 AND AS SHOWN IN THE UPSTREAM ELEVATION DETAIL.
 2. PROPOSED 58"X91" CLASS III REINFORCED CONCRETE ELLIPTICAL PIPES SHALL CONFORM TO AASHTO M 207/M 207. PIPES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS EQUAL TO 5000 PSI.
 3. AFTER PLACING PROPOSED PIPES, CONTRACTOR SHALL PLACE FORMWORK AND POUR CLASS 'A' CONCRETE AROUND THE GAPS BETWEEN THE EXISTING HEADWALL AND PROPOSED PIPES.
 4. FOR SECTIONS OF THE EXISTING HEADWALL AND WINGWALLS THAT ARE TO REMAIN IN PLACE, ALL REPAIRS DUE TO CRACKING OR SPALLING SHALL BE PAID FOR UNDER ITEMS 602572 AND 602586.

- NOTES:**
1. PAYMENT FOR DRILLING HOLES TO BE PAID UNDER ITEM #602579 - DRILLING HOLES & INSTALL DOWELS
 2. FIELD CUT BARS AS NEEDED. PAYMENT INCIDENTAL TO ITEM 604000.

BORING: WF # 1
 STATION: OFFSET: DATE DRILLED: 2/8/2011
 ELEVATION: NORTHING: 250069.74 EASTING: 598755.91

SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
	0.0		NO SAMPLING		
1	0.0	20	MOIST DENSE GRAY SILTY FINE SAND W/SOME COARSE SAND, TRACE OF FINE GRAVEL.	A-2-4(0)	
2	2.0	4	MOIST MEDIUM DENSE GRAY FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
3	4.0	3	WET LOOSE GRAY FINE TO COARSE SAND W/TRACE OF SILT AND FINE GRAVEL.	A-3	
4	6.0	4	WET MEDIUM DENSE GRAY FINE SAND W/SOME COARSE SAND AND SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
5	8.0	5	WET MEDIUM DENSE LIGHT BROWN FINE TO COARSE SAND W/TRACE OF SILT AND FINE GRAVEL.	A-3	
6	10.0	5	WET MEDIUM DENSE ORANGE FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
7	12.0	1	WET VERY LOOSE ORANGE FINE SAND W/SOME COARSE SAND AND SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
8	14.0	4	WET MEDIUM DENSE ORANGE FINE SAND W/SOME SILT, TRACE OF COARSE SAND AND FINE GRAVEL.	A-2-4(0)	
9	16.0	3	WET MEDIUM DENSE ORANGE FINE TO COARSE SAND W/SOME SILT AND FINE GRAVEL.	A-2-4(0)	
10	18.0	4	WET MEDIUM DENSE BROWN CLAYEY FINE SAND W/SOME SILT AND COARSE SAND, TRACE OF FINE GRAVEL.	A-2-4(0)	
11	23.0	10	WET MEDIUM DENSE ORANGE FINE SAND W/SOME COARSE SAND AND SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
12	28.0	11	WET VERY DENSE ORANGE COARSE SAND AND FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-B	
13	33.0	4	WET STIFF ORANGE CLAYEY SILT W/SOME FINE SAND.	A-4(6)	
14	38.0	4	WET STIFF GRAY CLAYEY SILT W/SOME FINE SAND, TRACE OF COARSE SAND.	A-4(3)	
15	43.0	W/H	WET LOOSE GRAY SILTY FINE TO COARSE SAND.	A-2-4(0)	
16	48.0	2	WET STIFF LIGHT BROWN SILT W/TRACE OF FINE SAND.	A-4(0)	
	53.0		END OF BORING		
	55.0				

BORING: WF # 2 CONT.
 STATION: OFFSET: DATE DRILLED: 2/8/2011
 ELEVATION: NORTHING: 250069.74 EASTING: 598755.91

SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
8	14.0	2			
	14.0	5	SATURATED LOOSE ORANGE FINE SAND W/SOME SILT, TRACE OF COARSE SAND AND FINE GRAVEL.	A-2-4(0)	
9	16.0	2	SATURATED MEDIUM DENSE ORANGE COARSE TO FINE SAND AND FINE GRAVEL W/SOME SILT.	A-1-B	
10	18.0	2	SATURATED LOOSE ORANGE SILTY FINE SAND W/TRACE OF COARSE SAND.	A-2-4(0)	
11	23.0	8	SATURATED MEDIUM DENSE ORANGE FINE TO COARSE SAND W/SOME FINE SAND AND FINE GRAVEL.	A-2-4(0)	
12	28.0	9	SATURATED MEDIUM DENSE ORANGE COARSE SAND W/SOME FINE SAND, TRACE OF FINE GRAVEL AND SILT.	A-1-B	
13	33.0	40	SATURATED VERY DENSE ORANGE FINE GRAVEL AND COARSE TO FINE SAND W/SOME SILT.	A-1-B	
14	38.0	8	SATURATED DENSE ORANGE FINE SAND W/SOME COARSE SAND, TRACE OF SILT AND FINE GRAVEL.	A-3	
15	43.0	2	SATURATED FIRM ORANGE CLAYEY SILT W/SOME FINE SAND.	A-4(7)	
	48.0		END OF BORING		
	50.0				

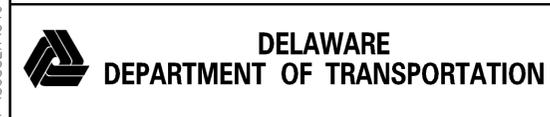
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BORING: WF # 2
 STATION: OFFSET: DATE DRILLED: 2/8/2011
 ELEVATION: NORTHING: 250006.84 EASTING: 598738.14

SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
	0.0		NO SAMPLING		
1	0.0	39	MOIST DENSE GRAY FINE GRAVEL AND FINE SAND W/SOME COARSE SAND AND SILT.	A-2-4(0)	
2	2.0	2	WET VERY LOOSE GRAY FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
3	4.0	4	SATURATED LOOSE GRAY FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
4	6.0	2	SATURATED LOOSE GRAY FINE SAND W/SOME COARSE SAND AND SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
5	8.0	1	SATURATED VERY LOOSE GRAY FINE SAND W/SOME SILT, TRACE OF COARSE SAND AND FINE GRAVEL.	A-2-4(0)	
6	10.0	1	SATURATED LOOSE BROWN FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
	12.0				

- NOTES:
- BORING LOGS CREATED BY THE DELAWARE DEPARTMENT OF TRANSPORTATION. SUBSURFACE EXPLORATION COMPLETED BY THE WALTON CORPORATION.
 - REFER TO CONSTRUCTION PLAN SHEET FOR APPROXIMATE BORING LOCATIONS. THE BORING LOGS ARE LABELED AS WF-1 AND WF-2.
 - SOIL SAMPLING: 2 IN. OUTSIDE DIA. SPLIT BARREL SAMPLER, DRIVEN WITH A 140 LB. HAMMER FALLING 30 IN.
 - ALL DEPTHS GIVEN ARE IN FEET.
 - THE INFORMATION SHOWN ON THIS SHEET IS BASED ON LIMITED INVESTIGATIONS, AND IS IN NO WAY WARRANTED TO BE INDICATIVE OF ACTUAL CONDITIONS WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION. SEE SECTION 102.05 OF THE STANDARD SPECIFICATIONS FOR MORE DETAILS.

ADDENDUMS / REVISIONS



BR 3-224 ON S546 CONRAIL
 ROAD OVER BUCKS BRANCH

CONTRACT	BRIDGE NO.	3-224
T201107304	DESIGNED BY:	KRL
COUNTY	CHECKED BY:	JKM
SUSSEX		

BORING LOG

SHEET NO.	10
TOTAL SHTS.	18

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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): NATIONWIDE PERMIT *3(A) AND (C) (NO PCN)
DNREC - WETLANDS & SUBAQUEOUS LANDS (WLSL): PROJECT CONSISTENT WITH DEL. CODE CH. 72, SECTION 7217(B), AS AMENDED BY SB 186
DNREC - WATER QUALITY (WQC) & COASTAL ZONE CONSISTENCY (CZM): ISSUED (PROJECT IS NOT LOCATED IN CRW)
- * THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING AND/OR OBTAINING THIS APPROVAL.

NOTE: THE ABSENCE OF ASTERISKS AFTER A PERMIT (COE, WLSL, WQC, CZM) INDICATES THAT COORDINATION HAS BEEN DONE WITH THAT AGENCY BUT NO WRITTEN AUTHORIZATION WAS REQUIRED. AS SUCH, NO PAPERWORK FROM THAT AGENCY SHOULD BE ANTICIPATED.

- B. CONSTRUCTION RESTRICTIONS:
FISHERIES - NESTING SUNFISH - IN ORDER TO AVOID ADVERSE EFFECT ON THIS SPECIES, SEDIMENTATION MUST BE MINIMIZED AS MUCH AS POSSIBLE DURING THE TYPICAL SPAWNING PERIOD OF APRIL 15 TO JUNE 30.

ENDANGERED SPECIES - NONE
MIGRATORY BIRDS - NONE

3. CULTURAL RESOURCE ISSUES:

A. NONE

4. 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. IF SUFFICIENT SOURCES FOR CHANNEL BED FILL DO NOT EXIST ON-SITE, ANY NEW MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ITEM #712531 - CHANNEL BED FILL. 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 A MINIMUM OF 12" CHANNEL BED FILL. FINAL CHANNEL ELEVATIONS SHALL MATCH EXISTING ELEVATIONS AT THE UPSTREAM AND DOWNSTREAM PROJECT LIMITS. THROUGH THE STRUCTURE, ELEVATIONS SHALL BE AS NOTED ON THE PLANS. 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, AND SEEDED. 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. SLOPE SEEDING SHALL BE WITH ITEM #734531 - STREAM BANK SEED MIX. FOLLOWING THE SEEDING OPERATION, ITEM #735535 - SOIL RETENTION BLANKET MULCH, TYPE 5 SHALL BE INSTALLED. ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING SHALL BE COMPLETED PRIOR TO ANY RAIN EVENT. PAYMENT FOR DELAWARE #57 STONE SHALL BE INCIDENTAL TO THE RIPRAP ITEM. ALL OTHER ITEMS SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

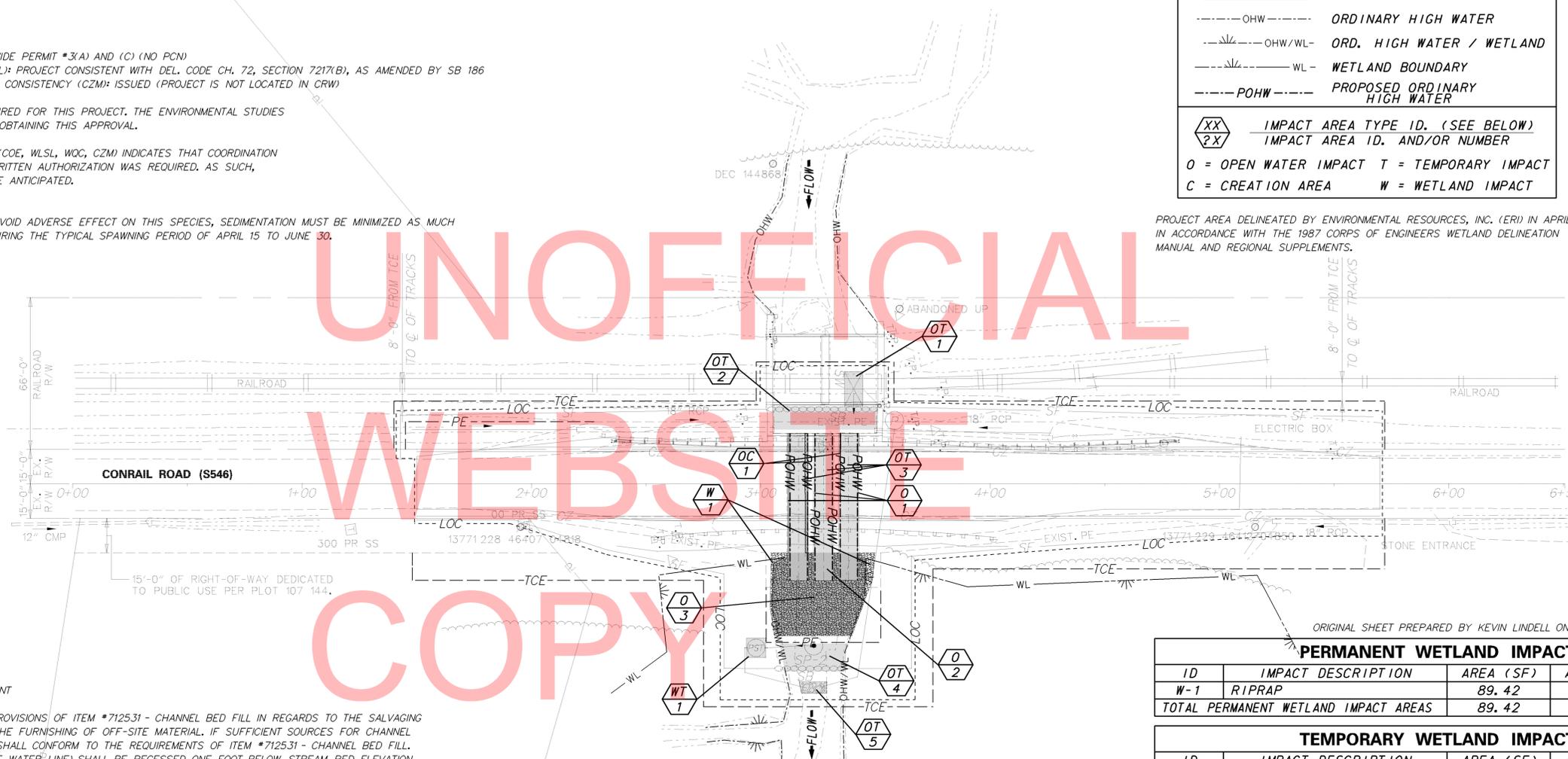
5. CLEARING IN WETLAND AREAS SHALL BE KEPT TO A MINIMUM ABSOLUTELY NECESSARY FOR CONSTRUCTION ACCESS. IN WETLAND AREAS THAT ARE CLEARED, THERE SHALL BE NO GRUBBING EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS AND RIPRAP PROTECTION. VEGETATION SHALL BE CUT FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT). TEMPORARILY DISTURBED WETLAND AREAS SHALL BE RESTORED TO GRADE AND SEEDED WITH TEMPORARY GRASS SEEDING - DRY GROUND, PAYMENT UNDER ITEM 734017. SILT FENCE AND/OR CONSTRUCTION SAFETY FENCE SHALL BE USED ALONG THE LIMITS OF CONSTRUCTION IN ALL AREAS WHERE WATER/WETLANDS EXIST (AS SHOWN ON THE EC SHEETS). CONTRACTOR ACCESS BEYOND THE LOC IS STRICTLY PROHIBITED.

LEGEND

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



PROJECT AREA DELINEATED BY ENVIRONMENTAL RESOURCES, INC. (ERI) IN APRIL 2012 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND REGIONAL SUPPLEMENTS.



ORIGINAL SHEET PREPARED BY KEVIN LINDELL ON 05/30/12. SHEET LAST UPDATED ON 11/7/12.

PERMANENT WETLAND IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
W-1	RIPRAP	89.42	0.0021	6.62	COE
TOTAL PERMANENT WETLAND IMPACT AREAS		89.42	0.0021	6.62	COE

TEMPORARY WETLAND IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
WT-1	PORTABLE SEDIMENT TANK	19.63	0.0005	3.64	COE
TOTAL TEMPORARY WETLAND IMPACT AREAS		19.63	0.0005	3.64	COE

OPEN WATER CREATION AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OC-1	PRO. PIPE FLOW AREA	51.15	0.0012	5.68	COE / DNREC
TOTAL OPEN WATER CREATION AREAS		51.15	0.0012	5.68	COE / DNREC

PERMANENT OPEN WATER IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-1	FILL OF EXISTING PIPES	101.67	0.0023	11.30	COE / DNREC
O-2	PIPE EXTENSION AND FILL	368.64	0.0085	40.96	COE / DNREC
O-3	DOWNSTREAM RIPRAP	997.00	0.0229	73.85	COE / DNREC
TOTAL PERMANENT OPEN WATER IMPACTS		1467.31	0.0337	126.11	COE / DNREC

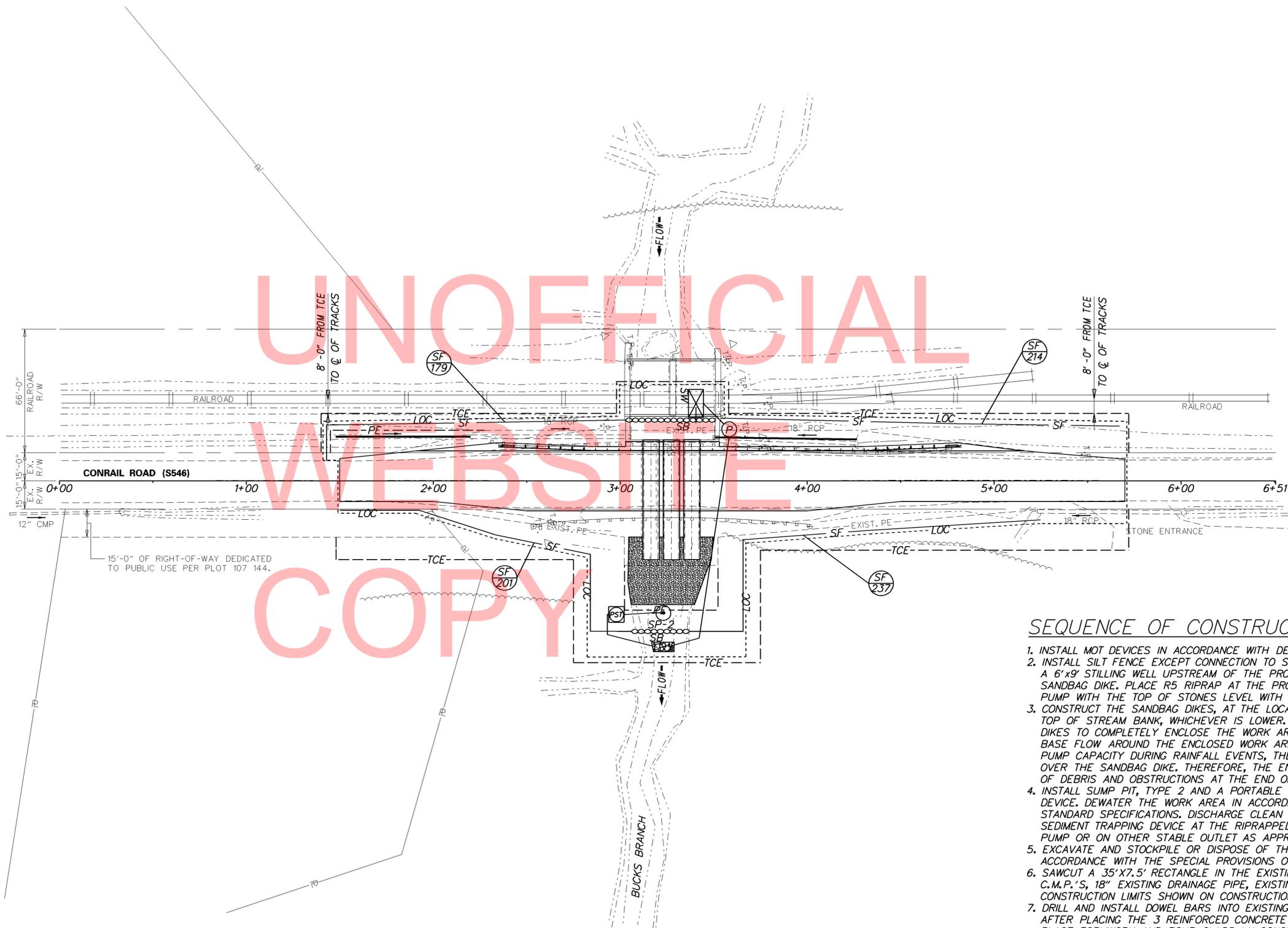
TEMPORARY OPEN WATER IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-1	STILLING WELL	54.00	0.0012	2.00	COE / DNREC
OT-2	UPSTREAM SANDBAGS	455.08	0.0104	40.89	COE / DNREC
OT-3	EX. PIPES TO PRO. PIPES	1124.22	0.0258	124.91	COE / DNREC
OT-4	DOWNSTREAM SANDBAGS	328.41	0.0075	26.67	COE / DNREC
OT-5	STABILIZED OUTFALL	57.35	0.0013	3.19	COE / DNREC
TOTAL TEMPORARY OPEN WATER IMPACTS		2019.06	0.0462	197.66	COE / DNREC

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<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	<p>SCALE 0 30 60 90 FEET</p>	<p>BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH</p>	<p>CONTRACT T201107304</p> <p>COUNTY SUSSEX</p>	<p>BRIDGE NO. 3-224</p> <p>DESIGNED BY: KRL</p> <p>CHECKED BY: JKM</p>	<p>ENVIRONMENTAL COMPLIANCE PLAN</p>	<p>SHEET NO. 11</p> <p>TOTAL SHTS. 18</p>	



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COPY

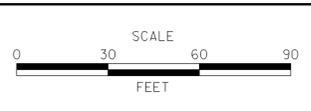
SEQUENCE OF CONSTRUCTION

1. INSTALL MOT DEVICES IN ACCORDANCE WITH DETOUR PLAN.
2. INSTALL SILT FENCE EXCEPT CONNECTION TO SANDBAG DIKES, THEN INSTALL A 6'x9' STILLING WELL UPSTREAM OF THE PROPOSED UPSTREAM SANDBAG DIKE. PLACE R5 RIPRAP AT THE PROPOSED DISCHARGE AREA OF THE PUMP WITH THE TOP OF STONES LEVEL WITH THE EXISTING STREAM BOTTOM.
3. CONSTRUCT THE SANDBAG DIKES, AT THE LOCATIONS SHOWN, 3 FEET HIGH OR TO TOP OF STREAM BANK, WHICHEVER IS LOWER. CONNECT SILT FENCE TO SANDBAG DIKES TO COMPLETELY ENCLOSE THE WORK AREA. USE PUMP TO DIVERT THE STREAM BASE FLOW AROUND THE ENCLOSED WORK AREA. WHEN THE FLOW IS HIGHER THAN PUMP CAPACITY DURING RAINFALL EVENTS, THE STREAM FLOW IS ALLOWED TO FLOW OVER THE SANDBAG DIKE. THEREFORE, THE ENCLOSED AREA SHALL BE KEPT CLEAR OF DEBRIS AND OBSTRUCTIONS AT THE END OF EACH WORKDAY.
4. INSTALL SUMP PIT, TYPE 2 AND A PORTABLE SEDIMENT TANK AS A SEDIMENT TRAPPING DEVICE. DEWATER THE WORK AREA IN ACCORDANCE WITH SECTION 111 OF DELDOT STANDARD SPECIFICATIONS. DISCHARGE CLEAN EFFLUENT FROM THE APPROVED SEDIMENT TRAPPING DEVICE AT THE RIPRAPPED DISCHARGE AREA FOR THE DIVERSION PUMP OR ON OTHER STABLE OUTLET AS APPROVED BY THE ENGINEER.
5. EXCAVATE AND STOCKPILE OR DISPOSE OF THE EXISTING STREAMBED MATERIAL IN ACCORDANCE WITH THE SPECIAL PROVISIONS OF ITEM #712531-CHANNEL BED FILL.
6. SAWCUT A 35'x7.5' RECTANGLE IN THE EXISTING HEADWALL AND REMOVE THE 3 EXISTING C.M.P.'S, 18" EXISTING DRAINAGE PIPE, EXISTING HOTMIX AND GUARDRAIL WITHIN THE CONSTRUCTION LIMITS SHOWN ON CONSTRUCTION PLAN SHEET.
7. DRILL AND INSTALL DOWEL BARS INTO EXISTING HEADWALL AS SHOWN ON SHEET #7. AFTER PLACING THE 3 REINFORCED CONCRETE ELLIPTICAL PIPES, CONTRACTOR SHALL PLACE FORMWORK AND POUR CLASS 'A' CONCRETE AROUND THE GAPS BETWEEN THE EXISTING HEADWALL AND PROPOSED PIPES. THEN INSTALL 18" DRAINAGE PIPES, RIPRAP AND CHANNEL BED FILL.
8. CONSTRUCT SLOPES, PLACE RIPRAP AND GUARDRAIL, AND COMPLETE ALL ROAD WORK.
9. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES WHEN THEY ARE NO LONGER NEEDED. STABILIZE ALL DISTURBED AREAS AND RESTORE THE STREAM TO THE EXISTING CONDITIONS AS OUTLINED ON THE ENVIRONMENTAL COMPLIANCE PLAN AND AS DIRECTED BY THE ENGINEER.
10. REMOVE ALL MOT DEVICES.

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	



BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH

CONTRACT	BRIDGE NO.	3-224
T201107304	DESIGNED BY:	KRL
COUNTY	CHECKED BY:	JKM
SUSSEX		

CONSTRUCTION SEQUENCE AND EROSION CONTROL PLAN

SHEET NO.	12
TOTAL SHTS.	18

CHANGEABLE MESSAGE BOARDS:

CMS-1 PRIOR TO DETOUR (10 DAYS PRIOR TO BEGINNING OF DETOUR)

BRIDGE AT BUCKS BRANCH **TO CLOSE STARTING XXXXXX**

CMS-1 DURING DETOUR (FOR 5 DAYS UPON IMPLEMENTATION OF DETOUR)

BRIDGE AT BUCKS BRANCH **CLOSED FOLLOW DETOUR**

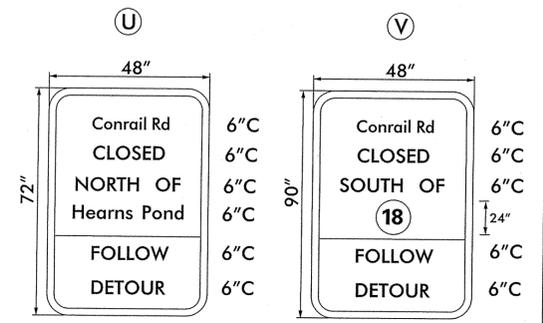
CMS-2 PRIOR TO DETOUR (10 DAYS PRIOR TO BEGINNING OF DETOUR)

XXXXXXXXXX **XXXXXXXXXX**
XXXXXXXXXX **XXXXXXXXXX**
XXXXXXXXXX **XXXXXXXXXX**

CMS-2 DURING DETOUR

XXXXXXXXXX **XXXXXXXXXX**
XXXXXXXXXX **XXXXXXXXXX**
XXXXXXXXXX **XXXXXXXXXX**

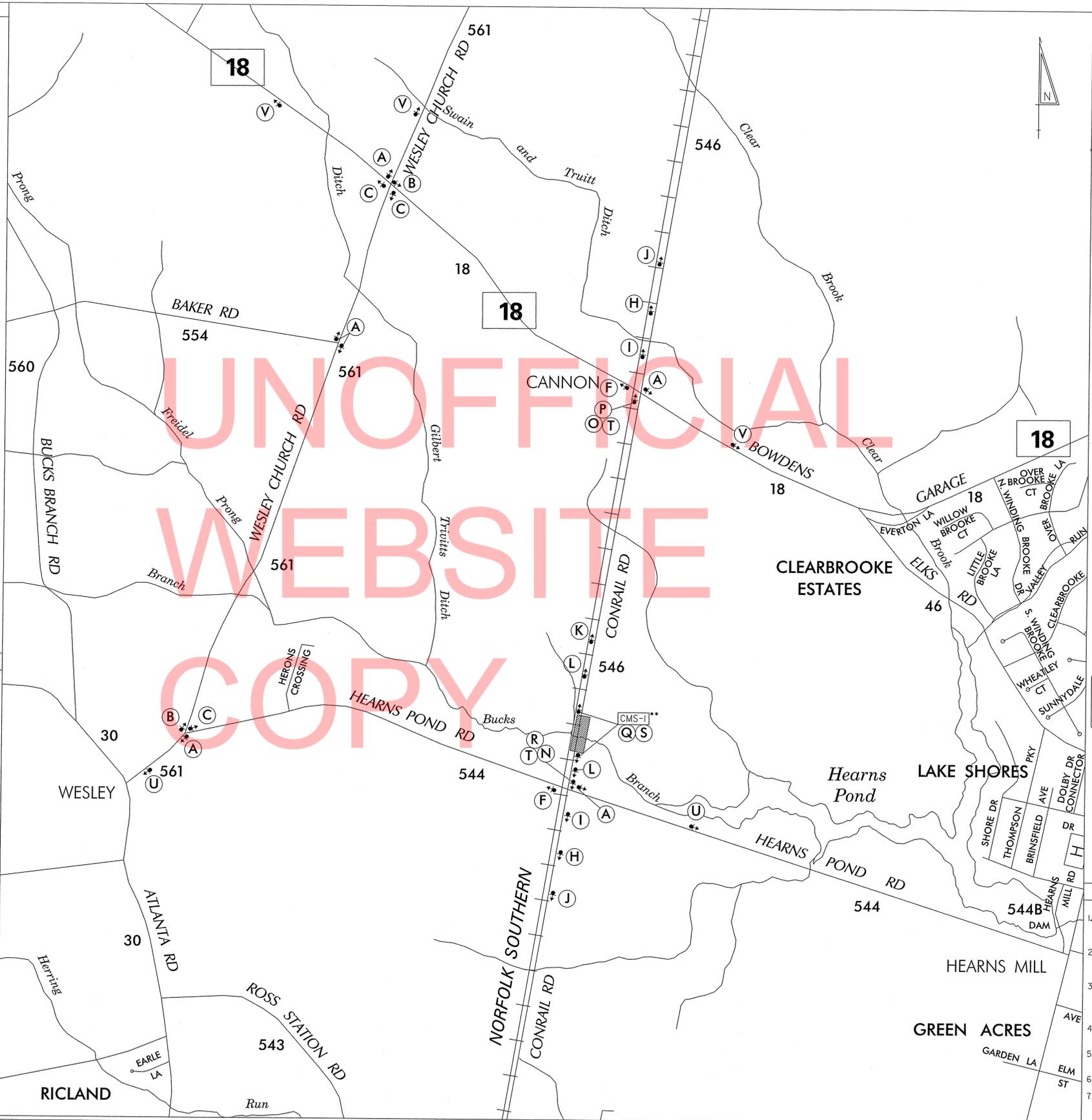
SPECIAL SIGNS:



D/G RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND; BLACK LEGEND
 ROUTE SHIELD: WHITE BACKGROUND, BLACK LEGEND

• SIGN SHALL BE MOUNTED ON TWO 4" x 6" WOOD POSTS. THE POSTS SHALL BE GROUND MOUNTED AND BREAKAWAY IN ACCORDANCE WITH NCHRP REPORT 350

•• PCMS 1 SHALL BE RELOCATED TO THE POINTS OF DIVERSION ALONG CONRAIL ROAD AT HEARNS POND RD AND SR 18 UPON IMPLEMENTATION OF DETOUR



LEGEND:

A DETOUR (up arrow)

B DETOUR (left arrow)

C DETOUR (right arrow)

D DETOUR (up-left arrow)

E DETOUR (up-right arrow)

F END DETOUR

G DETOUR AHEAD

H DETOUR 1000 FT

I DETOUR 500 FT

J ROAD CLOSED AHEAD

K ROAD CLOSED 1000 FT

L ROAD CLOSED 500 FT

M ROAD NAME

N DETOUR (left arrow)

O DETOUR (right arrow)

P ROAD CLOSED 0.90 MILES AHEAD LOCAL TRAFFIC ONLY

Q ROAD CLOSED

R ROAD CLOSED TO THRU TRAFFIC

S Barricade symbol

T Barricade symbol

GENERAL NOTES:

- ALL DETOUR SIGNING INCLUDING TRAILBLAZERS, ARE TO BE SUPPLIED AND MAINTAINED BY THE GENERAL CONTRACTOR IN COMPLIANCE TO THE DE 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.

Z:\SAFETY\DETOUR MAPS\BR3-224\BR3-224_DETOUTR.DGN

RECOMMENDED _____ DATE: _____ RECOMMENDED *[Signature]* DATE: 3-30-12 RECOMMENDED *[Signature]* DATE: 3-30-12 APPROVED CHIEF SAFETY OFFICER *[Signature]* DATE: 3-30-12 APPROVED TRAFFIC ENGINEER *[Signature]* DATE: 4/11/12

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUM REVISIONS

NOT TO SCALE

BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH

CONTRACT	PERMIT NO.	NA
T201107304	DESIGNED BY: SKG	
COUNTY	CHECKED BY: ASW	
SUSSEX		

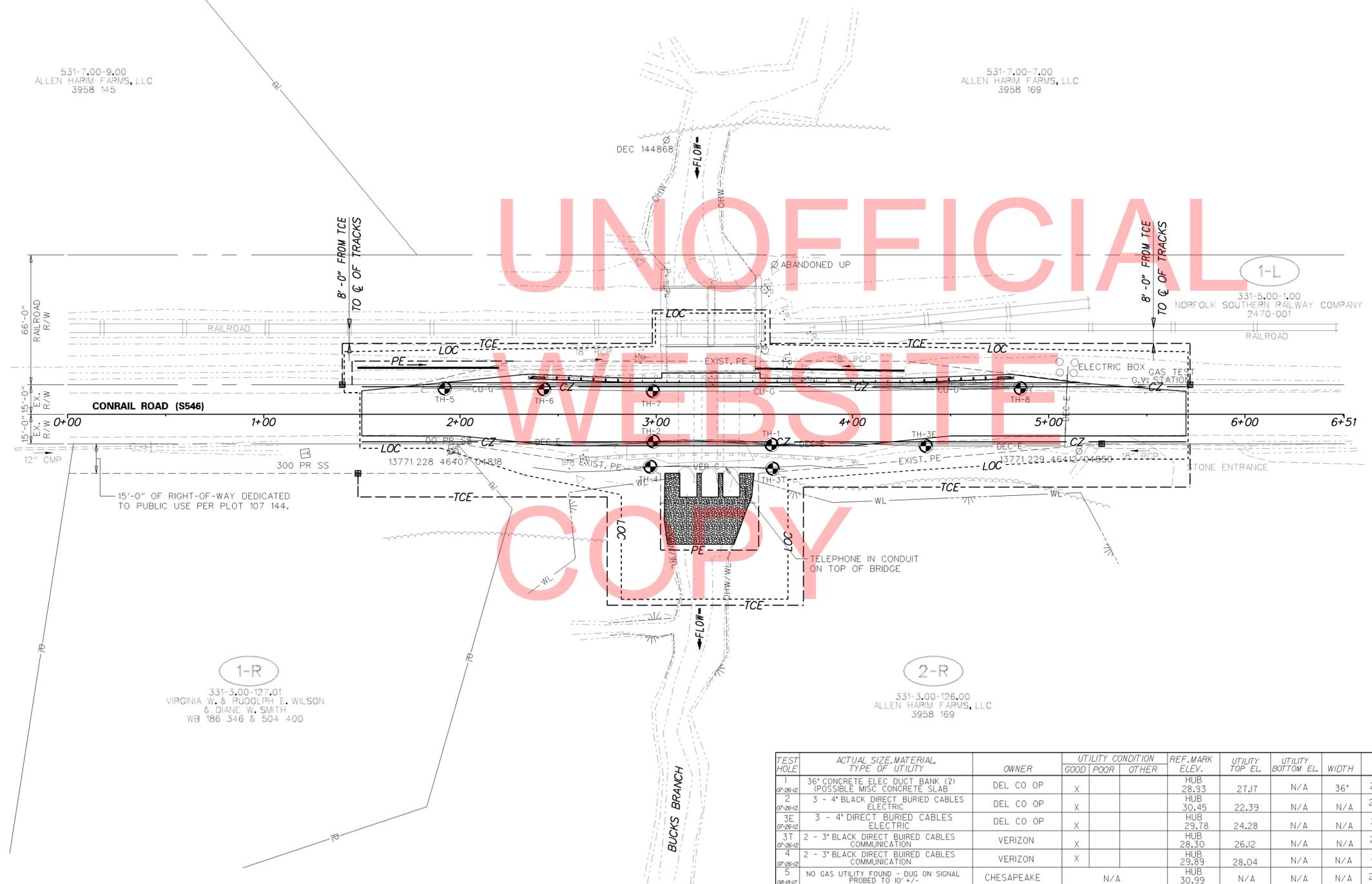
DETOUR PLAN CONRAIL ROAD

SHEET NO.	13
TOTAL SHTS.	18



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ASCE QUALITY LEVEL STANDARD DEFINITIONS:

QL "A" - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT (TEST HOLE) USING MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT.

QL "B" - INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.

QL "C" - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

QL "D" - INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

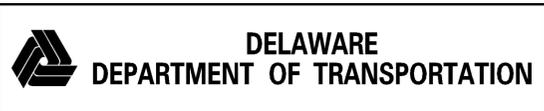
TEST HOLE	ACTUAL SIZE, MATERIAL TYPE OF UTILITY	OWNER	UTILITY CONDITION			REF. MARK ELEV.	UTILITY TOP EL.	UTILITY BOTTOM EL.	WIDTH	NORTHING	EASTING	SURFACE/DEPTH					GENERALIZED SOIL TYPE				
			GOOD	POOR	OTHER							ASPHALT	CONC.	SOIL	SELECT FILL	ROCK	SAND	CLAY	OTHER		
1 07-26-12	36" CONCRETE ELEC DUCT BANK (?) (POSSIBLE MISC CONCRETE SLAB)	DEL CO OP	X			HUB 28.93	27.17	N/A	36"	250063.813	598778.733	4"							X		
2 07-26-12	3 - 4" BLACK DIRECT BURIED CABLES ELECTRIC	DEL CO OP	X			HUB 30.45	22.39	N/A	N/A	250004.566	598767.112	4"							X		WATER @ 6' - 7'
3E 07-26-12	3 - 4" DIRECT BURIED CABLES ELECTRIC	DEL CO OP	X			HUB 29.78	24.28	N/A	N/A	250141.238	598792.385				X				X		WATER @ 6' - 7'
3T 07-26-12	2 - 3" BLACK DIRECT BURIED CABLES COMMUNICATION	VERIZON	X			HUB 28.30	26.12	N/A	N/A	250062.391	598790.863				X				X		
4 07-26-12	2 - 3" BLACK DIRECT BURIED CABLES COMMUNICATION	VERIZON	X			HUB 29.89	28.04	N/A	N/A	250001.021	598779.617				X				X		
5 08-18-12	NO GAS UTILITY FOUND - DUG ON SIGNAL PROBED TO 10' +/-	CHESAPEAKE			N/A	HUB 30.99	N/A	N/A	N/A	249904.209	598723.131				X				X		WATER @ 6' - 7'
6 08-18-12	NO GAS UTILITY FOUND - DUG ON SIGNAL PROBED TO 16.6' +/-	CHESAPEAKE			N/A	HUB 30.58	N/A	N/A	N/A	249954.074	598731.832	6"							X		WATER @ 6' - 7'
7 08-18-12	NO GAS UTILITY FOUND - DUG ON SIGNAL PROBED TO 20' +/-	CHESAPEAKE			N/A	HUB 30.55	N/A	N/A	N/A	250008.658	598741.966	6"							X		WATER @ 6' - 7'
8 09-18-12	8" BLACK PLS. WITH YELLOW STRIPE GAS (SEE NOTE)	CHESAPEAKE	X			PK NAIL 30.34	25.29	N/A	N/A	250193.659	598771.474				X				X		WATER @ 6' - 7'

NOTES: TH#2&3A TH#3B TH#4 TH#8 TRACER WIRE OBSERVED 1' +/- EAST OF ACTUAL PIPE.

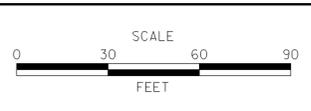
Checked By: WSR
Date: 08/20/12

William S. Richardson, P.L.S.
Underground Services, Inc.

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ADDENDUMS / REVISIONS	

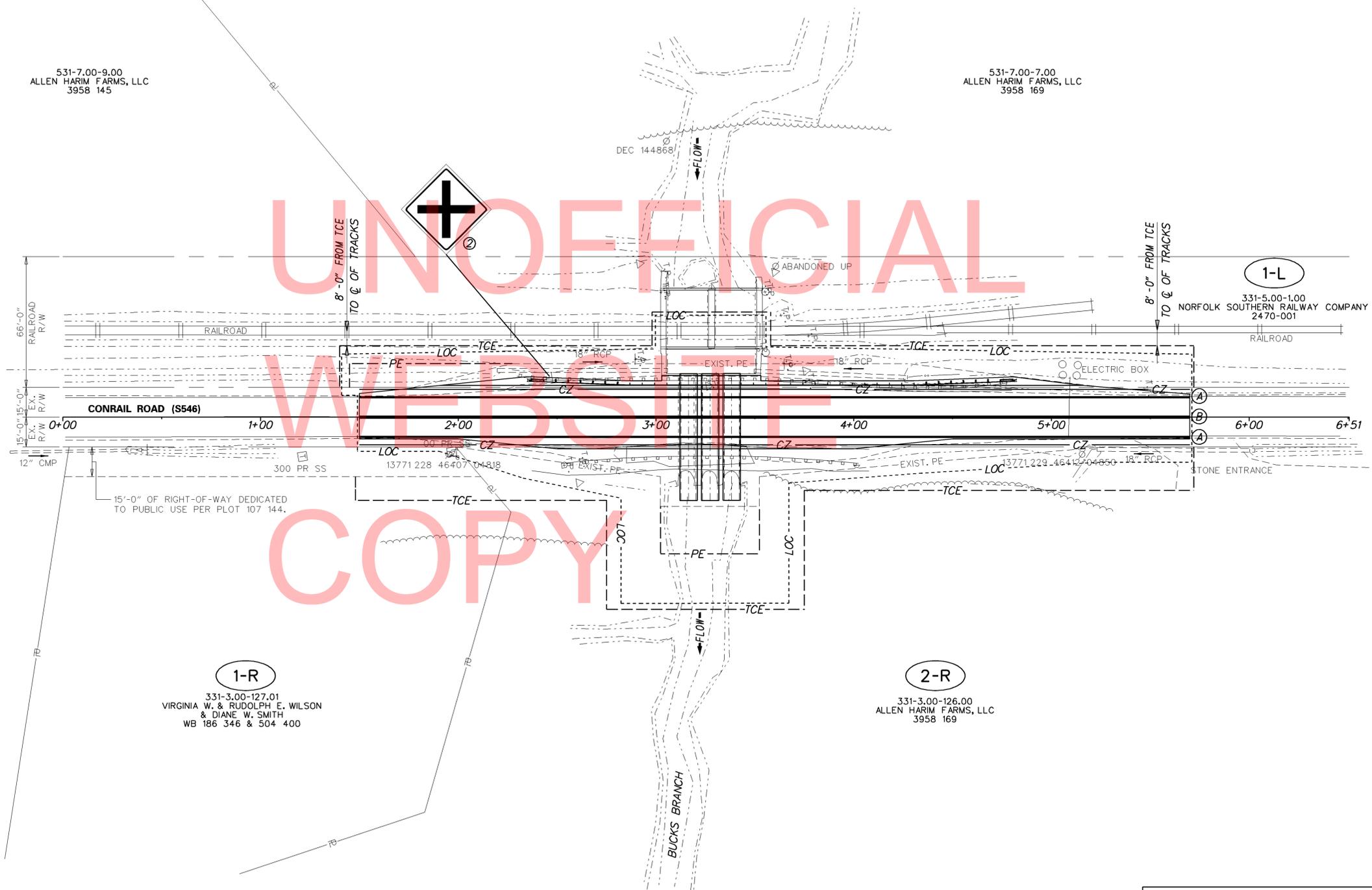


BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH

CONTRACT	BRIDGE NO.	3-224
T201107304	DESIGNED BY:	KRL
COUNTY	CHECKED BY:	JKM
SUSSEX		

UTILITY PLAN

SHEET NO.	14
TOTAL SHTS.	18



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SIGNING LEGEND	
①	REMOVE EXISTING SIGN
②	EXISTING SIGN TO REMAIN
③	PLACE NEW SIGN
④	RENEW EXISTING SIGN
⑤	REPOSITION EXISTING SIGN

PAVEMENT MARKINGS LEGEND		
SYMBOL	ITEM	QUANTITY
(A)	EPOXY RESIN PAINT PAVEMENT STRIPING, WHITE 5" SOLID (ITEM 748548)	840 LF
(B)	EPOXY RESIN PAINT PAVEMENT STRIPING, YELLOW 5" SOLID DOUBLE LINE (ITEM 748548)	840 LF

531-7.00-9.00
ALLEN HARIM FARMS, LLC
3958 145

531-7.00-7.00
ALLEN HARIM FARMS, LLC
3958 169

1-L
331-5.00-1.00
NORFOLK SOUTHERN RAILWAY COMPANY
2470-001

1-R
331-3.00-127.01
VIRGINIA W. & RUDOLPH E. WILSON
& DIANE W. SMITH
WB 186 346 & 504 400

2-R
331-3.00-126.00
ALLEN HARIM FARMS, LLC
3958 169

331-3.00-127.02
VIRGINIA W. & RUDOLPH E. WILSON
& DIANE W. SMITH
WB 186 346 & 504 400

ADDENDUMS / REVISIONS



**BR 3-224 ON S546 CONRAIL ROAD
OVER BUCKS BRANCH**

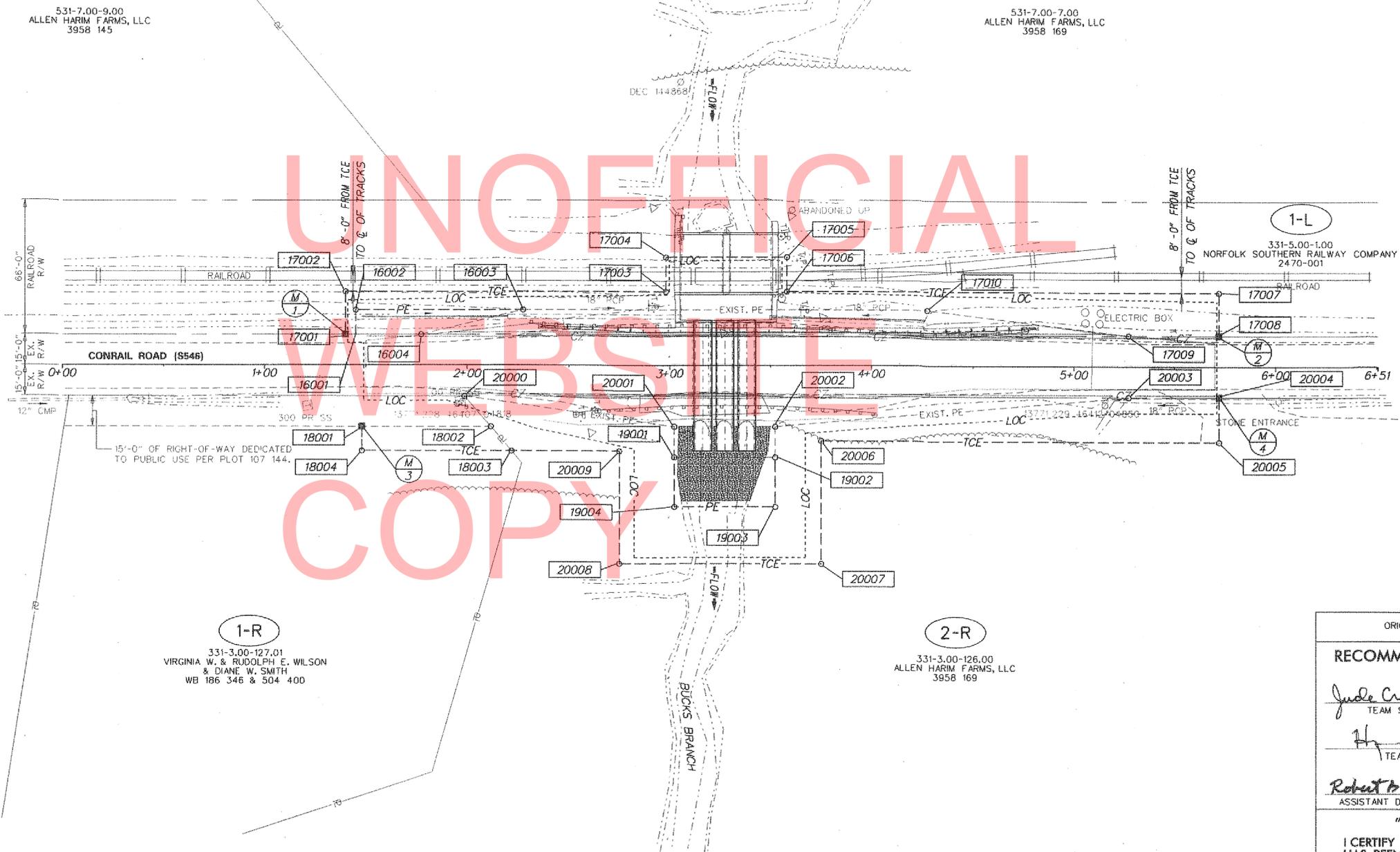
CONTRACT	BRIDGE NO.	3-224
T201107304	DESIGNED BY:	KRL
COUNTY	CHECKED BY:	JKM
SUSSEX		

**SIGNING, STRIPING
AND CONDUIT PLAN**

SHEET NO.	15
TOTAL SHTS.	18



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531-7.00-9.00
ALLEN HARIM FARMS, LLC
3958 145

531-7.00-7.00
ALLEN HARIM FARMS, LLC
3958 169

13771 227 46399 04785

331-3.00-127.02
VIRGINIA W. & RUDOLPH E. WILSON
& DIANE W. SMITH
WB 186 346 & 504 400

331-3.00-127.01
VIRGINIA W. & RUDOLPH E. WILSON
& DIANE W. SMITH
WB 186 346 & 504 400

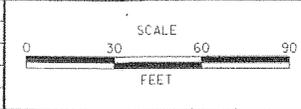
331-3.00-126.00
ALLEN HARIM FARMS, LLC
3958 169

ORIGINAL SIGNATURE DATE: NOV 30, 2012	
RECOMMENDED AS PER REVISION #1	
<i>Jude Crawford/Sheela David</i> TEAM SUPPORT SQUAD MANAGER	5/24/13 DATE
<i>Hyun Dull</i> TEAM SUPPORT ENGINEER	5.24.13 DATE
<i>Robert W. McCleary</i> ASSISTANT DIRECTOR, ENGINEERING SUPPORT	5/24/13 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	DATE

Y:\SUSSEX\546\BRIDGE\T201107304\PLANS\CP.DGN

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	
<input type="checkbox"/>	REMOVED TOP OF BANK AND TOE OF SLOPE LINES FROM ALL FOUR CORNERS OF THE STRUCTURE.
	K.L. 5/23/13



BR 3-224 ON S546 CONRAIL ROAD OVER BUCKS BRANCH

CONTRACT	T201107304
COUNTY	SUSSEX
BRIDGE NO.	3-224
DESIGNED BY:	KRL
CHECKED BY:	JKM

RIGHT-OF-WAY PLAN

SHEET NO.	16
TOTAL SHTS.	18

ASSESSMENT NUMBER	OWNERSHIP OF RECORD					TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)			
331-3.00-126.00	(2-R) ALLEN HARIM FARMS, LLC					TCE	3958 169	120.580			
ALIGNMENT NUMBER & DESCRIPTION: 5000 - CONRAIL RD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
20001	5000	3+02.29	30.00	250005.6611	598783.8095	S 80°30'04.28" E	15.0000				
19001	5000	3+02.29	45.00	250003.1857	598798.6039	S 80°30'04.28" E	24.0000				
19004	5000	3+02.29	69.00	249999.2251	598822.2748	N 9°29'55.72" E	50.0000				
19003	5000	3+52.29	69.00	250048.5395	598830.5262	N 80°30'04.28" W	24.0000				
19002	5000	3+52.29	45.00	250052.5002	598806.8552	N 80°30'04.28" W	15.0000				
20002	5000	3+52.29	30.00	250054.9756	598792.0609	N 4°35'58.98" E	175.6417				
20003	5000	5+27.29	15.00	250230.0516	598806.1463	N 9°29'55.72" E	44.7154				
20004	5000	5+72.00	15.00	250274.1538	598813.5255	S 80°30'04.28" E	22.0000				
20005	5000	5+72.00	37.00	250270.5232	598835.2239	S 9°29'55.72" W	197.0024				
20006	5000	3+75.00	37.00	250076.2220	598802.7132	S 80°30'04.28" E	60.0000				
20007	5000	3+75.00	97.00	250066.3203	598861.8905	S 9°29'55.72" W	100.0048				
20008	5000	2+75.00	97.00	249967.6866	598845.3870	N 80°30'04.28" W	55.0000				
20009	5000	2+75.00	42.00	249976.7631	598791.1411	S 9°29'55.72" W	53.3639				
18003	5000	2+21.63	42.00	249924.1309	598782.3346	S 59°07'12.91" W	35.4433				
20000	5000	1+98.67	15.00	249905.9401	598751.9156	N 17°44'09.38" E	104.6972				
20001	5000	3+02.29	30.00	250005.6611	598783.8095						

FIGURE 20001 AREA = 9495.6240 SQ. FT. (0.2180 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD					TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)			
331-3.00-126.00	(2-R) ALLEN HARIM FARMS, LLC					P/E	3958 169	120.580			
ALIGNMENT NUMBER & DESCRIPTION: 5000 - CONRAIL RD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
19001	5000	3+02.29	45.00	250003.1857	598798.6039	N 9°29'55.72" E	50.0000				
19002	5000	3+52.29	45.00	250052.5002	598806.8552	S 80°30'04.28" E	24.0000				
19003	5000	3+52.29	69.00	250048.5395	598830.5262	S 9°29'55.72" W	50.0000				
19004	5000	3+02.29	69.00	249999.2251	598822.2748	N 80°30'04.28" W	24.0000				
19001	5000	3+02.29	45.00	250003.1857	598798.6039						

FIGURE 19001 AREA = 1200.0000 SQ. FT. (0.0275 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD					TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)			
331-3.00-127.01	(1-R) VIRGINIA W. & RUDOLPH E. WILSON & DIANE W. SMITH					TCE	W 186 346	1.030			
ALIGNMENT NUMBER & DESCRIPTION: 5000 - CONRAIL RD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
18001	5000	1+48.00	30.00	249853.4880	598758.3477	N 9°29'55.72" E	63.4278				
18002	5000	2+11.43	30.00	249916.0461	598768.8150	N 59°07'12.91" E	15.7526				
18003	5000	2+21.63	42.00	249924.1309	598782.3346	S 9°29'55.72" W	73.6329				
18004	5000	1+48.00	42.00	249851.5077	598770.1832	N 80°30'04.28" W	12.0000				
18001	5000	1+48.00	30.00	249853.4880	598758.3477						

FIGURE 18001 AREA = 822.3641 SQ. FT. (0.0189 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD					TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)			
331-5.00-1.00	(1-L) NORFOLK SOUTHERN RAILWAY COMPANY					TCE	2470-001	8.470			
ALIGNMENT NUMBER & DESCRIPTION: 5000 - CONRAIL RD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
17001	5000	1+40.00	-15.00	249853.0254	598712.6448	N 80°30'04.28" W	21.0020				
17002	5000	1+40.00	-36.00	249856.4913	598691.9307	N 9°29'58.38" E	158.0000				
17003	5000	2+98.00	-36.00	250012.3247	598718.0070	N 80°30'04.28" W	17.0000				
17004	5000	2+98.00	-53.00	250015.1301	598701.2401	N 9°29'55.72" E	60.0000				
17005	5000	3+58.00	-53.00	250074.3075	598711.1417	S 80°30'04.28" E	17.0000				
17006	5000	3+58.00	-36.00	250071.5020	598727.9086	N 9°29'55.72" E	214.0000				
17007	5000	5+72.00	-36.00	250282.5679	598763.2244	S 80°30'04.28" E	21.0000				
17008	5000	5+72.00	-15.00	250279.1023	598783.9365	S 9°29'55.72" W	44.7130				
17009	5000	5+27.29	-15.00	250235.0024	598776.5576	S 16°20'29.70" W	100.7174				
17010	5000	4+27.29	-27.00	250138.3538	598748.2194	S 9°29'55.72" W	200.0000				
16003	5000	2+27.29	-27.00	249941.0960	598715.2140	S 9°29'55.72" W	82.2870				
16002	5000	1+45.00	-27.00	249859.9372	598701.6344	S 80°30'04.28" E	12.0000				
16001	5000	1+45.00	-15.00	249857.9569	598713.4699	S 9°29'55.72" W	5.0000				
17001	5000	1+40.00	-15.00	249853.0254	598712.6448						

FIGURE 17001 AREA = 6104.7169 SQ. FT. (0.1401 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD					TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)			
331-5.00-1.00	(1-L) NORFOLK SOUTHERN RAILWAY COMPANY					P/E	2470-001	8.470			
ALIGNMENT NUMBER & DESCRIPTION: 5000 - CONRAIL RD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
16001	5000	1+45.00	-15.00	249857.9569	598713.4699	N 80°30'04.28" W	12.0000				
16002	5000	1+45.00	-27.00	249859.9372	598701.6344	N 9°29'55.72" E	82.2870				
16003	5000	2+27.29	-27.00	249941.0960	598715.2140	S 3°59'48.92" E	51.4198				
16004	5000	1+77.29	-15.00	249889.8012	598718.7981	S 9°29'55.72" W	32.2870				
16001	5000	1+45.00	-15.00	249857.9569	598713.4699						

FIGURE 16001 AREA = 687.4441 SQ. FT. (0.0158 ACRES)

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LEGEND	
FEE	AREA OF ACQUISITION
RW	AREA OCCUPIED BY EXISTING RW
PE	PERMANENT EASEMENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
*	OFFSET IS LEFT OF BASELINE
**	CURVE TURNS TO THE LEFT

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ADDENDUMS / REVISIONS

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BR 3-224 ON S546 CONRAIL RD OVER BUCKS BRANCH

CONTRACT	BRIDGE NO.	3-224
T20107304	DESIGNED BY:	KRL
COUNTY	CHECKED BY:	JKM
SUSSEX		

RIGHT-OF-WAY DATA SHEET

SHEET NO.	17
TOTAL SHTS.	18

COUNTY ASSESSMENT PARCEL NUMBER	PLAN SHEET NUMBER	OWNERSHIP OF RECORD	TITLE SOURCE	PROPERTY AREA BEFORE ACQUISITION (ACRE) D=DEED C=CALCULATED A=ASSESSMENT	ACQUISITION CODE FEE, R/W, P/E, TCE	AREA TO BE ACQUIRED				PROPERTY AREA REMAINING (SQ. FEET /ACRES)	DEED RECORD OF ACQUISITION	REMARKS
						ACQUISITION (SQ. FEET /ACRES)	AREA OCCUPIED BY EXISTING RIGHT OF WAY (SQ. FEET /ACRES)	EASEMENT				
								PERMANENT (SQ. FEET /ACRES)	TEMPORARY (SQ. FEET /ACRES)			
331-3.00-126.00	15	(2-R) ALLEN HARIM FARMS, LLC	3958 169	A - 120.58	TCE P/E			1200.00 / 0.03	9495.624 / 0.22	5252464.80 / 120.58		
331-3.00-127.01	15	(1-R) VIRGINIA W. & RUDOLPH E. WILSON & DIANE W. SMITH	W 186 346	A - 1.03	TCE				822.3641 / 0.02	44866.80 / 1.03		
331-5.00-1.00	15	(1-L) NORFOLK SOUTHERN RAILWAY COMPANY	2470-001	C - 8.47	TCE P/E			687.4441 / 0.02	6104.7169 / 0.14	368940.00 / 8.47		

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ACQUISITION CODES
FEE - ACQUISITION P/E - PERMANENT EASEMENT
R/W - AREA OCCUPIED BY EXISTING R/W TCE - TEMPORARY EASEMENT



ADDENDUMS / REVISIONS

**BR 3-224 ON S546 CONRAIL
RD OVER BUCKS BRANCH**

CONTRACT T20107304	BRIDGE NO. 3-224
COUNTY SUSSEX	DESIGNED BY: KRL
	CHECKED BY: JKM

RIGHT-OF-WAY TABULATION SHEET	SHEET NO. 18
	TOTAL SHTS. 18