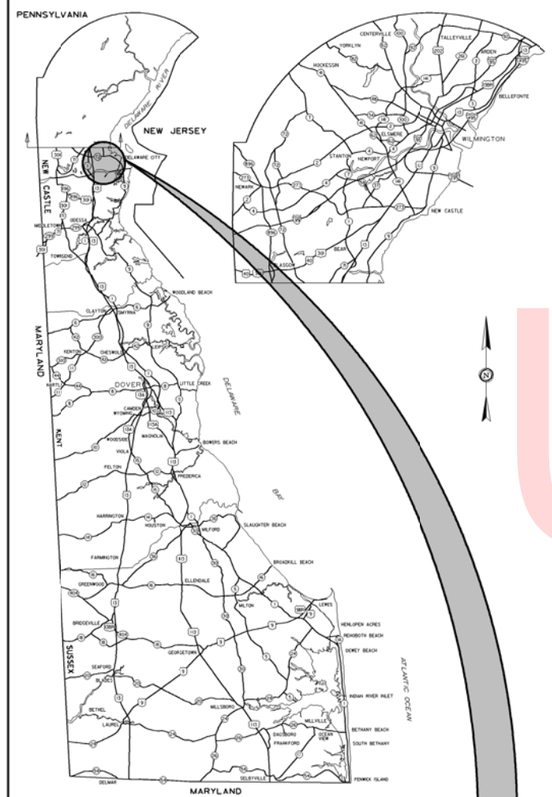


GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY UNITS

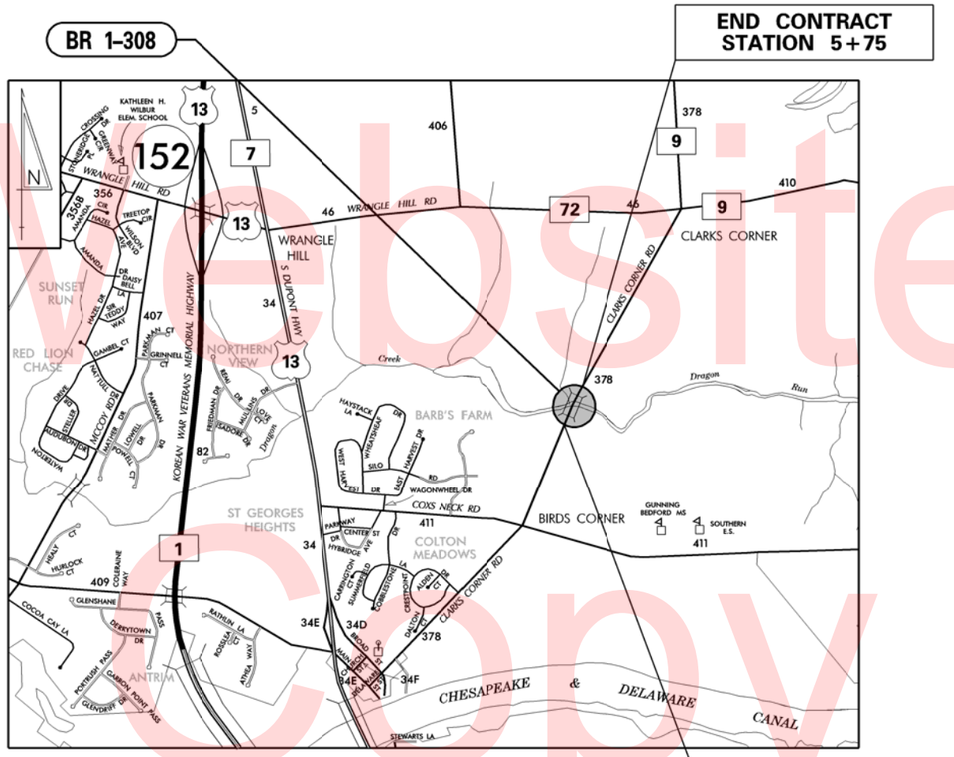
CONSTRUCTION & RIGHT-OF-WAY PLANS FOR:

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT NUMBER: T201507102

FEDERAL AID PROJECT NUMBER: EBROS-N378(08)

COUNTY: NEW CASTLE M.R. #: 378



DESIGN DESIGNATION

FUNCTIONAL CLASS: RURAL LOCAL ROAD	D.H.V. PROJECTED: 60	YEAR: 2040
TYPE OF CONSTRUCTION: BRIDGE REHABILITATION	DESIGN SPEED: 55 M.P.H.	
A.A.D.T. CURRENT: 763 YEAR: 2012	TRUCKS: 6%	
A.A.D.T. PROJECTED: 1000 YEAR: 2040	DIRECTION OF DISTRIBUTION: 60 %	

INDEX OF SHEETS

SHEET Nº	TABLE OF CONTENTS
1	TITLE SHEET
2	LEGEND
3	NOTES
4	TYPICAL SECTION
5	HORIZONTAL AND VERTICAL CONTROL
6	CONSTRUCTION PLAN
7	PROFILE
8	GRADES AND GEOMETRICS
9	BRIDGE PLAN, SECTION, AND ELEVATION
10	SHEETPILE ENCASEMENT & CHEEKWALL CONNECTION DETAILS
11	INTERIOR SOLID SLAB BEAM DETAILS
12	EXTERIOR SOLID SLAB BEAM DETAILS
13	FRAMING PLAN
14	BRIDGE RAILING DETAILS
15	SOIL BORINGS SHEET 1 OF 2
16	SOIL BORINGS SHEET 2 OF 2
17	ENVIRONMENTAL COMPLIANCE NOTES
18	ENVIRONMENTAL COMPLIANCE PLAN
19	CONSTRUCTION SEQUENCE & EROSION CONTROL PLAN
20	DETOUR PLAN
21	UTILITY RELOCATION PLAN
22	SIGNING, STRIPING, AND CONDUIT PLAN
23	RIGHT-OF-WAY PLAN SHEET 1 OF 2
24	RIGHT-OF-WAY DATA & TABULATION SHEET 2 OF 2

TOTAL SHEETS: 24

APPROVED DESIGN EXCEPTIONS

DESIGN PARAMETER	REQUIRED	PROVIDED	DATE

ADDENDA & REVISIONS

DESCRIPTION	NAME & DATE

ASSOCIATED CONTRACTS

CONTRACT NO.	CONTRACT NAME
68-09-009	REPLACEMENT OF BRIDGE NO. 308 - ROAD NO. 378

RECOMMENDED

SQUAD MANAGER, CONSTRUCTION — DATE 04/17/2017

GROUP ENGINEER, CONSTRUCTION — DATE 04/18/2017

ASSISTANT DIRECTOR, CONSTRUCTION — DATE 04/18/2017

RECOMMENDED

VINCENT W. DAVIS REGISTERED No. 12898 DELAWARE PROFESSIONAL ENGINEER

Vincent W. Davis

STORMWATER ENGINEER

DATE 04/07/2017 SEAL

RECOMMENDED

SQUAD MANAGER, BRIDGE DESIGN

DATE 04/06/2017

RECOMMENDED

CRAIG A. STEVENS LICENSE No. 15250 DELAWARE PROFESSIONAL ENGINEER

BRIDGE DESIGN ENGINEER

DATE 04/18/2017 SEAL

RECOMMENDED

JASON N. HASTINGS REGISTERED No. 13545 DELAWARE PROFESSIONAL ENGINEER

ASSISTANT DIRECTOR, BRIDGE

DATE 04/25/2017 SEAL

RECOMMENDED

BARRY A. BENTON REGISTERED No. 10774 DELAWARE PROFESSIONAL ENGINEER

CHIEF ENGINEER

DATE 04/25/2017 SEAL

APPROVED

ROBERT BRIAN McCLEARY REGISTERED No. 8567 DELAWARE PROFESSIONAL ENGINEER

SEAL

LAST REVISED: 03/03/2011
Y:\NEWCASTL\BRIDGE\T201507102\PLANS\TC.DGN

EXISTING SYMBOLS

DRAINAGE

	DITCH OR STREAM CENTERLINE
	DIRECTIONAL STREAM FLOW ARROW
C.B. / D.I.	DRAINAGE INLET
J.B.	DRAINAGE JUNCTION BOX
Ⓓ	DRAINAGE MANHOLE
SIZE/TYPE LABEL	DRAINAGE PIPE AND FLOW ARROW
	DRAINAGE PIPE HEADWALL
	RIPRAP - AREA FEATURE
	RIPRAP - LINEAR FEATURE

MANMADE ROADSIDE FEATURES

	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
(TYPE LABEL)	CURB
(TYPE LABEL)	CURB AND GUTTER
	FENCE - CHAINLINK OR STRANDED
	FENCE - STOCKADE OR SPLIT RAIL
FP	FLAG POLE
	GUARDRAIL - STEEL BEAM
	GUARDRAIL - WIRE ROPE
LAMP	LAMP AND POST - RESIDENTIAL
MB	MAILBOX
PM	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
WL	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY

RIGHT-OF-WAY SYMBOLS

C.M.	PROPERTY MARKER - CONCRETE MON.
I.P.	PROPERTY MARKER - IRON PIPE
100+00	HISTORIC RIGHT-OF-WAY BASELINE
	EXISTING RIGHT-OF-WAY
PP	EXISTING PROPERTY LINE
EASEMENT TYPE	EXISTING EASEMENT
DA	EXISTING DENIAL OF ACCESS
R/W-DA	EXISTING R/W & DENIAL OF ACCESS

SURVEY CONTROL & MONUMENTATION

B.M.	SURVEY BENCHMARK LOCATION
T.P.	SURVEY TIE POINT LOCATION
△	SURVEY TRAVERSE POINT
⊙	POINT OF CURVATURE OR TANGENCY
⊙	POINT OF INTERSECTING TANGENTS

UTILITY

	SOIL BORING LOCATION
	UTILITY TEST HOLE LOCATION
TV	CABLE TV DISTRIBUTION BOX
Ⓔ	ELECTRIC MANHOLE
EM	ELECTRIC METER
E	ELECTRIC TRANSFORMER
	POLE MOUNTED LUMINAIRE
Ⓖ	GAS MANHOLE
G.M.	GAS METER
G.V.	GAS VALVE
G.P.	GAS PUMP - SERVICE STATION
	RAILROAD TRACKS
Ⓢ	SANITARY SEWER MANHOLE
S.V.	SANITARY SEWER VALVE
VENT	SANITARY SEWER VENT OR CLEANOUT
S.D.F.	SEPTIC DRAIN FIELD
B	TELEPHONE BOOTH
Ⓣ	TELEPHONE MANHOLE
T	TELEPHONE TEST POINT
J.W.	TRAFFIC - CONDUIT JUNCTION WELL
◎	TRAFFIC - LIGHT POLE AND BASE
◎	TRAFFIC - PEDESTRIAN POLE & BASE
	TRAFFIC - SIGNAL CABINET & BASE
⊗	TRAFFIC - SIGNAL POLE AND BASE
U	UTILITY BOX
	UTILITY POLE GUY WIRE ANCHOR
	UTILITY POLE
F.H.	WATER - FIRE HYDRANT
W.M.	WATER METER
W.V.	WATER VALVE
WELL	WELL HEAD
?	MANHOLE - UNDETERMINED OWNER

UTILITY COMPANY FACILITIES

DP-E-OH	DELMARVA POWER - ELECTRIC

PROPOSED SYMBOLS

CONSTRUCTION

	CONCRETE SAFETY BARRIER - PERMANENT
BFS	BIOFILTRATION SWALE
	BRICK PATTERNED SURFACE
	BUTT JOINT
100+00	CONSTRUCTION BASELINE
CSF	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
CZ	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
	IMPACT ATTENUATOR
■	JUNCTION BOX - DRAINAGE
LO	LATERAL OFFSET
LOC	LIMIT OF CONSTRUCTION
MB	MAILBOX
●	MANHOLE
	PAVEMENT PATCH
	PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK - 4"
	P.C.C. SIDEWALK - 6" (USE 8" DEPTH FOR CHANNELIZATION ISLANDS.)
	UNDERDRAIN
	UNDERDRAIN OUTLET

RIGHT-OF-WAY SYMBOLS

▣	PROPOSED RIGHT-OF-WAY MONUMENT
DA	PROPOSED DENIAL OF ACCESS
PE	PROPOSED PERMANENT EASEMENT
R/W	PROPOSED RIGHT-OF-WAY
R/W-DA	PROPOSED R/W & DENIAL OF ACCESS
TCE	TEMPORARY CONSTRUCTION EASEMENT
100+00	PROPOSED RIGHT-OF-WAY BASELINE

IDENTIFIERS

A/C	ADJUST BY CONTRACTOR
A/O	ADJUST BY OTHERS
B	CONCRETE SAFETY BARRIER
C	CURB OR CURB & GUTTER
C/JB	CONVERT TO JUNCTION BOX
C/MH	CONVERT TO DRAINAGE MANHOLE
CO	CURB OPENING
CR	CURB RAMP / TYPE
CR-N	CURB RAMP / TYPE - WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM
CSF	CONSTRUCTION SAFETY FENCE
DI	DRAINAGE INLET
DND	DO NOT DISTURB
ED	ENERGY DISSIPATOR
F	FENCE
FES	FLARED END SECTION
FF/C	FILL WITH FLOWABLE FILL
FS	FILTRATION STRUCTURE
GR	GUARDRAIL
JB	JUNCTION BOX
MH	MANHOLE
M	MONUMENT - RIGHT-OF-WAY
P	PIPE
RL/C	RELOCATE BY CONTRACTOR
RL/O	RELOCATE BY OTHERS
RM/C	REMOVE BY CONTRACTOR
RM/O	REMOVE BY OTHERS
UD	UNDERDRAIN / LENGTH
UDO	UNDERDRAIN OUTLET PIPE

LANDSCAPING

LS	LANDSCAPE PLANTINGS
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

TRAFFIC

ITMS-CON	ITMS CONDUIT
SIG-CON	SIGNAL CONDUIT
■	CONDUIT JUNCTION WELL
	LUMINAIRE
	PAVEMENT MARKINGS
	PAVEMENT STRIPING
	TRAFFIC SIGN

PAVEMENT SECTION(S)

	2" BITUMINOUS CONCRETE SUPERPAVE TYPE C, PG 64-22, 160 GYRATIONS (CARBONATE STONE) 6" GRADED AGGREGATE BASE COURSE
	2" BITUMINOUS CONCRETE SUPERPAVE TYPE C, PG 64-22, 160 GYRATIONS (CARBONATE STONE) 2¼" BITUMINOUS CONCRETE SUPERPAVE TYPE B, PG 64-22, 160 GYRATIONS 8" GRADED AGGREGATE BASE COURSE

EROSION & SEDIMENT CONTROL

DWBAG	DEWATERING BAG
DWB	DEWATERING BASIN
ED	EARTH DIKE
	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
PST	PORTABLE SEDIMENT TANK
P	PUMP
SBD	SANDBAG DIKE
SB	SANDBAG DIVERSION
	STONE CHECK DAM
SCE	STABILIZED CONSTRUCTION ENTRANCE
SF	SILT FENCE / LENGTH
SF	SILT FENCE
RSF	SILT FENCE - REINFORCED
SP	SUMP PIT
ST	SEDIMENT TRAP
ST	SEDIMENT TRAP
ST	SEDIMENT TRAP WITH INLET AS OUTLET
ST	SEDIMENT TRAP PIPE OUTLET
SW	STILLING WELL
	TEMPORARY SWALE
TSD	TEMPORARY SLOPE DRAIN
T XXX	TURBIDITY CURTAIN / LENGTH
T	TURBIDITY CURTAIN

UTILITY COMPANY FACILITIES

DP-E-OH	DELMARVA POWER - ELECTRIC

LAST REVISED: 01/09/2014
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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

NOT TO SCALE

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO.	1-308
T201507102	DESIGNED BY: NED & GML	
COUNTY	CHECKED BY: CAS	
NEW CASTLE		

LEGEND

SHEET NO.
2
TOTAL SHTS.
24

GENERAL NOTES

1. 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.

2.

EROSION POTENTIAL FOR THIS PROJECT	CONTRACTOR ESC SUPERVISOR REQUIREMENT
( ) INSIGNIFICANT	NONE
( ) MINOR	CONTRACTOR TRAINING PROGRAM, AS DEFINED IN SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
(X) MAJOR	CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 6.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.

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

( )	NONE
( )	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	ALL PLAN SHEETS, IN PDF FORMAT.
( )	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.

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

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

5. 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.

6. THE DISTURBED AREA FOR THIS PROJECT IS 0.69 ACRES.

7. THE ADDITIONAL IMPERVIOUS AREA FOR THIS PROJECT IS 1982.25 SQ. FEET.

8. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS ARE VALID FOR A FIVE 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 FIVE YEARS, THE CONTRACTOR WILL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS. THE STORMWATER ENGINEER WILL REVIEW THE CURRENT SEDIMENT AND STORMWATER MANAGEMENT PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

PROJECT NOTES

SECTION 100

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

SECTION 200

2. ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
   - -EXISTING CONCRETE BOX BEAMS (CONTRACTOR SHALL CORE DRILL OUT THE EXISTING DOWELS BEFORE REMOVING THE BEAMS). THE CONTRACTOR WILL REPAIR ANY DAMAGE TO THE ABUTMENTS CAUSED BY THE REMOVAL OF THE SUPERSTRUCTURE. VOIDS IN THE ABUTMENTS CAUSED BY CORE DRILLING WILL BE FILLED WITH APPROVED NON-SHRINK GROUT (PAYMENT SHALL BE INCIDENTAL TO ITEM 211000).
   - -PARTIAL REMOVAL OF THE EXISTING SHEETPILE ENCASEMENT
   - -THE (4) EXISTING CHEEKWALLS ON TOP OF THE EXISTING ABUTMENT. THE CONTRACTOR WILL REPAIR ANY DAMAGE TO THE ABUTMENTS CAUSED BY THE REMOVAL OF THE CHEEKWALLS.
   - -EXISTING GUARDRAIL ON ALL FOUR CORNERS OF THE BRIDGE

SECTION 300

3. A. THE CONTRACTOR MAY ELECT TO USE ANY OF THE FOLLOWING MATERIALS TO MEET THE REQUIREMENTS OF ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B':
   - a. CRUSHED STONE (PER STANDARD SPECIFICATION 821)
   - b. CRUSHED CONCRETE (PER STANDARD SPECIFICATION 821)
   - c. 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:
   - a. MATERIAL MILLED ON THIS CONTRACT AT THE CONTRACTOR'S CHOICE UNDER ITEM 202000.
   - b. 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:
   - a. 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.

SECTION 600

4. PORTLAND CEMENT CONCRETE
   STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED (F'c = 28 DAY COMPRESSIVE STRENGTH)
   - -PRECAST ELEMENTS (F'c = 8000 psi)
   - -CLASS A (F'c = 4500 psi) - SHEETPILE ENCASEMENT AND WINGWALL CAP
   - -MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS.
   - -ALL EXPOSED EDGES SHALL BE CHAMFERED ¾" UNLESS OTHERWISE NOTED.
   - -ALL KEYED CONSTRUCTION JOINTS SHALL BE 2" x 4" UNLESS OTHERWISE NOTED.
   - -ALL NON-RIDING EXPOSED CONCRETE SURFACES (INCLUDING EXISTING CONCRETE ELEMENTS) SHALL BE COATED WITH SILICONE ACRYLIC CONCRETE SEALER (ITEM #602646). THE EXISTING ABUTMENTS SHALL BE COATED ON ALL EXPOSED FACES TO THE WATER LINE AT THE TIME OF SEALING APPLICATION. BOTH EXTERIOR BEAMS SHALL BE COATED ON THE TOP OF THE CURBS, THE EXTERIOR FACE OF THE BEAMS, AND THE BOTTOM FACE OF THE BEAM UP TO THE V-NOTCH DRIP EDGE. ALL EXPOSED FACES OF THE EXISTING AND PROPOSED CONCRETE SHEET PILE ENCASEMENT SHALL BE COATED AS WELL.
   - -THE TOPS OF THE EXISTING ABUTMENTS SHALL BE COATED WITH EPOXY PROTECTIVE COATING FOR CONCRETE (ITEM #602520).

5. 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) AND IS DENOTED WITH A SUFFIX 'E' IN THE BAR MARKS.

SECTION 700

6. 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.

SECTION 900

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

MISCELLANEOUS

8. DESIGN SPECIFICATIONS:
   (A) DELDOT BRIDGE DESIGN MANUAL, 2005 EDITION
   (B) AASHTO LRFD BRIDGE SPECIFICATIONS, 2012, 6TH EDITION, CUSTOMARY U.S. UNITS.
   (C) PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE DELDOT STANDARD SPECIFICATIONS, 2001.

9. LOADING:
   -DEAD LOADS INCLUDE 25 PSF FOR FUTURE WEARING SURFACE ON DECK SLAB
   -DESIGN LIVE LOADS INCLUDE HL-93 LOADING.

10. THE CONTRACTOR SHALL CONTACT WILLIAM LOTHARP, THE CHIEF OF SCHEDULING FOR DART FIRST STATE, 14 DAYS PRIOR TO THE START OF CONSTRUCTION AT 302-576-6006.

11. REFER TO THE TYPICAL SECTION AND BRIDGE PLAN, SECTION, AND ELEVATION SHEETS FOR THE LOCATION OF THE CLEAR ZONE AREA LIMITS.

12. ENVIRONMENTAL COMPLIANCE:
    REFER TO THE ENVIRONMENTAL COMPLIANCE PLAN FOR ANY RESTRICTIONS AND ADDITIONAL GUIDANCE THAT MAY BE ASSOCIATED TO THIS PROJECT.

13. UTILITIES:
    REFER TO THE 'UTILITY RELOCATION PLAN' FOR ADDITIONAL INFORMATION ON TYPES AND LOCATIONS OF ALL UTILITIES. ANY UTILITIES WHICH WILL CONFLICT WITH THE PROPOSED WORK SHOWN IN THESE PLANS, SHALL BE RELOCATED PRIOR TO THE COMMENCEMENT OF ANY PROPOSED BRIDGE OR ROAD WORK. FOR ADDITIONAL GUIDANCE, REFER TO THE 'UTILITY STATEMENT.

14. THE CONTRACTOR SHALL CONTACT MARK CRANMER, THE UTILITIES COMPLEX SUPERINTENDENT OF THE DELAWARE CITY REFINERY, AT (302) 836-6673 FOR QUESTIONS REGARDING THE SURFACE WATER PUMP LOCATED ON THE NORTHWEST CORNER OF THE BRIDGE.

15. AN ADDITIONAL SET OF TOP MOUNTED GUARDRAIL COMPONENTS (BASE PLATES, STEEL POSTS, W-BEAM, AND HARDWARE) IS TO BE ORDERED BY THE CONTRACTOR AND STORED AT THE CANAL DISTRICT MAINTENANCE YARD. THE CONTRACTOR SHALL CONTACT SONYA LAGRAND, THE M&O CANAL DISTRICT ENGINEER, AT (302) 326-4533 FOR COORDINATION OF THE DELIVERY OF THE EXTRA TOP MOUNTED GUARDRAIL COMPONENTS. PAYMENT FOR THE ADDITIONAL TOP MOUNTED GUARDRAIL SYSTEM SHALL BE INCLUDED IN ITEM #606001.

LOAD RATING SUMMARY

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TON)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD AFFECT
HL-93 TRUCK (INVENTORY)	1.50	N/A	SPAN 1: EXTERIOR BEAM	107	STRENGTH I
HL-93 TANDEM (INVENTORY)	1.45	N/A	SPAN 1: EXTERIOR BEAM	106	STRENGTH I
HL-93 TRUCK TRAIN (INVENTORY)	N/A	N/A	N/A	N/A	N/A
HS-20 (INVENTORY)	1.74	85.05	SPAN 1: EXTERIOR BEAM	107	STRENGTH I
HL-93 TRUCK (OPERATING)	1.91	N/A	SPAN 1: EXTERIOR BEAM	107	STRENGTH I
HL-93 TANDEM (OPERATING)	1.86	N/A	SPAN 1: EXTERIOR BEAM	106	STRENGTH I
HL-93 TRUCK TRAIN (OPERATING)	N/A	N/A	N/A	N/A	N/A
HS-20 (OPERATING)	2.23	80.38	SPAN 1: EXTERIOR BEAM	107	STRENGTH I
DE S220 & LEGAL-LANE (LEGAL)	2.59	51.88	SPAN 1: EXTERIOR BEAM	106	SERVICE III
DE S335 & LEGAL-LANE (LEGAL)	1.39	48.64	SPAN 1: EXTERIOR BEAM	105	SERVICE III
DE S437 & LEGAL-LANE (LEGAL)	1.32	48.24	SPAN 1: EXTERIOR BEAM	105	SERVICE III
DE T330 & LEGAL-LANE (LEGAL)	2.48	74.36	SPAN 1: EXTERIOR BEAM	105	SERVICE III
DE T435 & LEGAL-LANE (LEGAL)	1.96	68.46	SPAN 1: EXTERIOR BEAM	105	SERVICE III
DE T540 & LEGAL-LANE (LEGAL)	1.81	72.39	SPAN 1: EXTERIOR BEAM	105	SERVICE III

NOTE: LOAD RATING INCLUDES FUTURE WEARING SURFACE AS NOTED IN THE PLANS.

LAST REVISED: 08/08/2016
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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

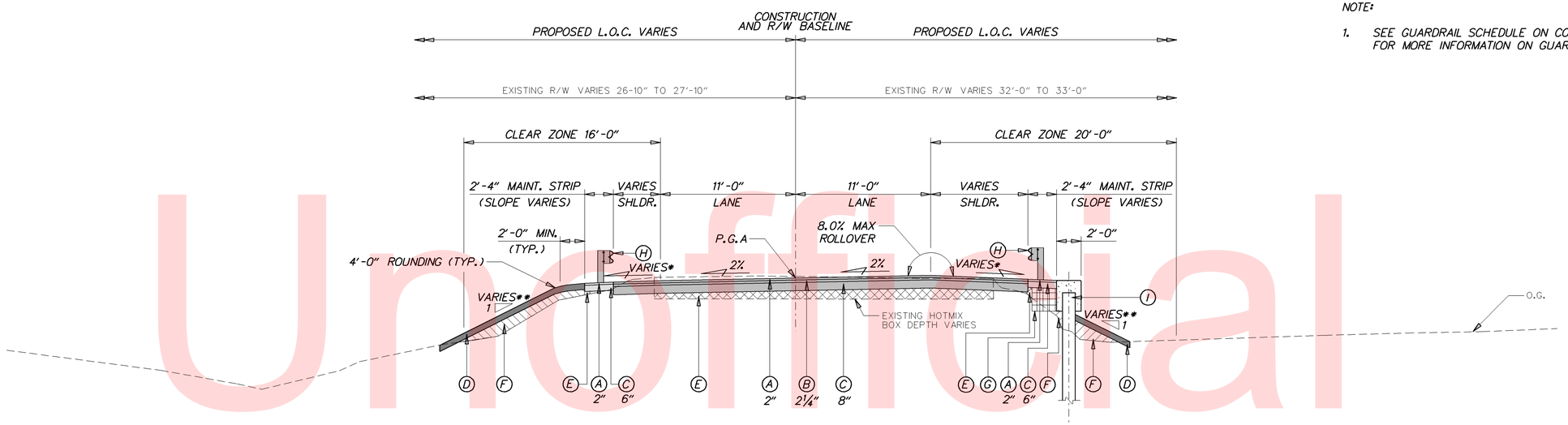
NOT TO SCALE

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO.	1-308
T201507102	DESIGNED BY: NED & GML	
COUNTY	CHECKED BY: CAS	
NEW CASTLE		

NOTES

SHEET NO.
3
TOTAL SHTS.
24



TYPICAL SECTION

FULL SUPERELEVATION
(STA. 2+03 - STA. 2+90 & STA. 3+27 - STA. 3+93)

NOTES:

* SEE GRADES AND GEOMETRICS SHEET FOR INFORMATION ON THE ROADWAY CROSS SLOPES AND SUPERELEVATION.

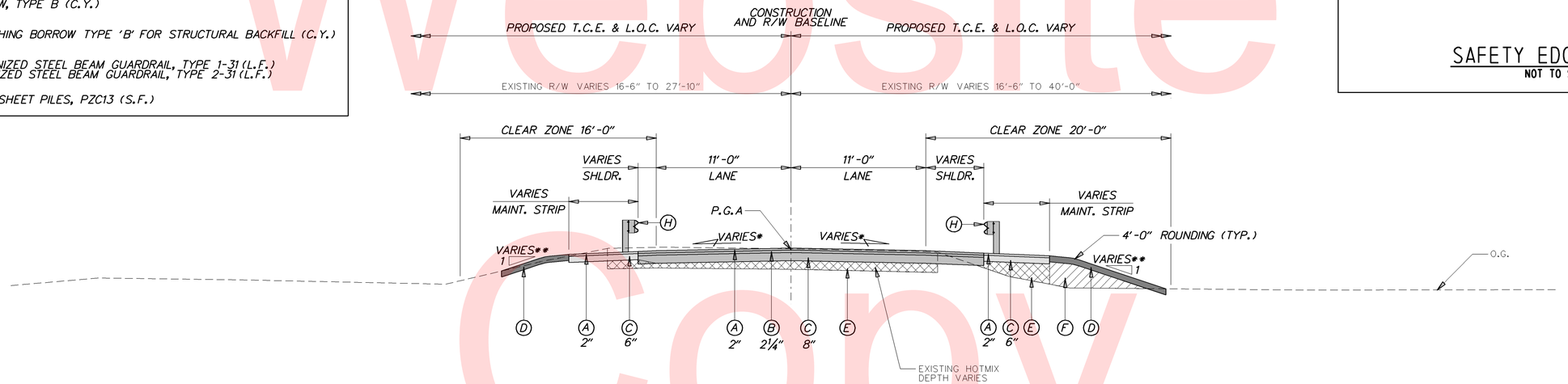
** REFER TO THE CROSS SECTIONS FOR INFORMATION ON SIDE SLOPES.

NOTE:

1. SEE GUARDRAIL SCHEDULE ON CONSTRUCTION PLAN SHEET FOR MORE INFORMATION ON GUARDRAIL TYPE AND LOCATION.

TYPICAL ROADWAY LEGEND

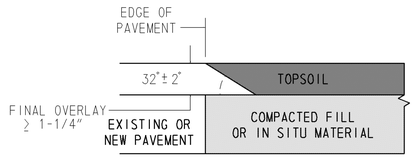
- (A) ITEM 401801 - BITUMINOUS CONCRETE, SUPERPAVE TYPE C, PG 64-22, 160 GYRATIONS (CARBONATE STONE) (TON)
- (B) ITEM 401810 - BITUMINOUS CONCRETE, SUPERPAVE TYPE B, PG 64-22, 160 GYRATIONS (TON)
- (C) ITEM 302007 - GABC, TYPE B (C.Y.)
- (D) ITEM 908004 - TOPSOIL, 6" DEPTH (S.Y.)
  ITEM 908019 - STREAMBANK SEED MIX, SEEDING (S.Y.)
  ITEM 908020 - EROSION CONTROL BLANKET MULCH (S.Y.)
- (E) ITEM 209001 - BORROW, TYPE A (C.Y.)
- (F) ITEM 209002 - BORROW, TYPE B (C.Y.)
- (G) ITEM 210002 - FURNISHING BORROW TYPE 'B' FOR STRUCTURAL BACKFILL (C.Y.)
- (H) ITEM 720050 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31 (L.F.)
  ITEM 720051 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 2-31 (L.F.)
- (I) ITEM 622015 - STEEL SHEET PILES, PZC13 (S.F.)



TYPICAL SECTION

TRANSITIONING CROSS SLOPES
(STA. 0+75 - STA. 2+03 & STA. 3+93 - STA. 5+75)

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
BITUMINOUS CONCRETE, TYPE 'C'	1.25"	2"
BITUMINOUS CONCRETE, TYPE 'B'	2.25"	4"
BITUMINOUS CONCRETE BASE COURSE	3"	6"
GRADED AGGREGATE BASE COURSE	-	8"



HOT-MIX PAVEMENTS AND OVERLAYS

NOT TO SCALE

SAFETY EDGE DETAIL

NOT TO SCALE

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 5 10 15 FEET	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN	CONTRACT T201507102	BRIDGE NO. 1-308	TYPICAL SECTION	SHEET NO. 4
				COUNTY NEW CASTLE	DESIGNED BY: NED & GML		TOTAL SHTS. 24
					CHECKED BY: CAS		

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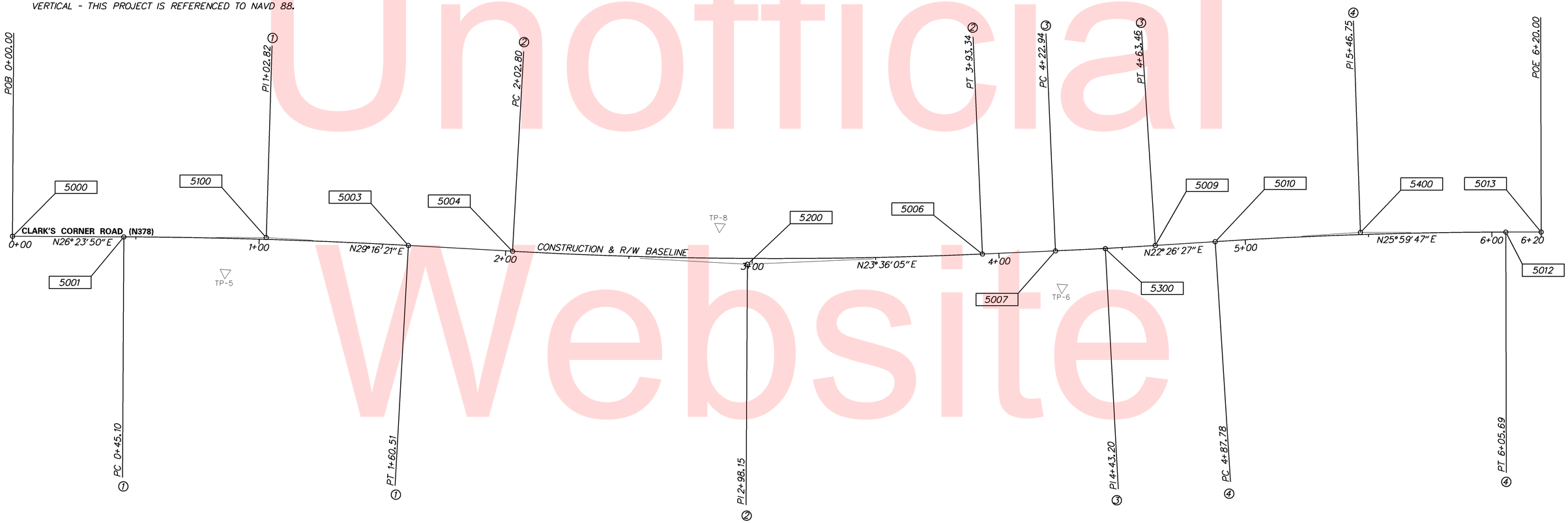
HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP-5	0+86.58	13.94	571719.5188	594076.3870	3.50
TP-6	4+25.01	14.97	572021.4737	594231.0056	3.63
TP-8	2+86.71	-12.77	571907.7076	594147.8182	5.18

CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
5000	0+00.00	0.00	571648.5580	594025.1918
5013	6+20.00	0.00	572205.7080	594296.2134

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.



CURVE INFORMATION ①			
	STATION	NORTHING	EASTING
Curve #1			
Element: Circular			
PC (5001)	0+45.10	571688.9547	594045.2425
PI (5100)	1+02.82	571740.6563	594070.9044
CC (5002)		570666.3889	596105.4268
PT (5003)	1+60.51	571791.0055	594099.1274
Radius:		2300.00	
Delta:		2°52'30.5036" Right	
Degree of Curvature(Arc):		2°29'28.0351"	
Length:		115.42	
Tangent:		57.72	
Chord:		115.40	
Middle Ordinate:		0.72	
External:		0.72	
Tangent Direction:		N 26°23'50.4829" E	
Radial Direction:		S 63°36'09.5171" E	
Chord Direction:		N 27°50'05.7347" E	
Radial Direction:		S 60°43'39.0135" E	
Tangent Direction:		N 29°16'20.9865" E	

CURVE INFORMATION ②			
	STATION	NORTHING	EASTING
Curve #2			
Element: Circular			
PC (5004)	2+02.80	571827.8927	594119.8042
PI (5200)	2+98.15	571911.0622	594166.4242
CC (5005)		572769.1480	592440.6188
PT (5006)	3+93.34	571998.4314	594204.5976
Radius:		1925.00	
Delta:		5°40'15.7631" Left	
Degree of Curvature(Arc):		2°58'35.0549"	
Length:		190.53	
Tangent:		95.34	
Chord:		190.46	
Middle Ordinate:		2.36	
External:		2.36	
Tangent Direction:		N 29°16'20.9865" E	
Radial Direction:		S 60°43'39.0135" E	
Chord Direction:		N 26°26'13.1049" E	
Radial Direction:		S 66°23'54.7766" E	
Tangent Direction:		N 23°36'05.2234" E	

CURVE INFORMATION ③			
	STATION	NORTHING	EASTING
Curve #3			
Element: Circular			
PC (5007)	4+22.94	572025.5611	594216.4510
PI (5300)	4+43.20	572044.1242	594224.5616
CC (5008)		572826.3056	592383.7459
PT (5009)	4+63.46	572062.8478	594232.2945
Radius:		2000.00	
Delta:		1°09'38.2863" Left	
Degree of Curvature(Arc):		2°51'53.2403"	
Length:		40.51	
Tangent:		20.26	
Chord:		40.51	
Middle Ordinate:		0.10	
External:		0.10	
Tangent Direction:		N 23°36'05.2234" E	
Radial Direction:		S 66°23'54.7766" E	
Chord Direction:		N 23°01'16.0802" E	
Radial Direction:		S 67°33'33.0629" E	
Tangent Direction:		N 22°26'26.9371" E	

CURVE INFORMATION ④			
	STATION	NORTHING	EASTING
Curve #4			
Element: Circular			
PC (5010)	4+87.78	572085.3327	594241.5809
PI (5400)	5+46.75	572139.8376	594264.0916
CC (5011)		571360.0478	595997.7021
PT (5012)	6+05.69	572192.8415	594289.9391
Radius:		1900.00	
Delta:		3°33'19.6073" Right	
Degree of Curvature(Arc):		3°00'56.0424"	
Length:		117.90	
Tangent:		58.97	
Chord:		117.88	
Middle Ordinate:		0.91	
External:		0.91	
Tangent Direction:		N 22°26'26.9371" E	
Radial Direction:		S 67°33'33.0629" E	
Chord Direction:		N 24°13'06.7408" E	
Radial Direction:		S 64°00'13.4556" E	
Tangent Direction:		N 25°59'46.5444" E	

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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE
0 20 40 60
FEET

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

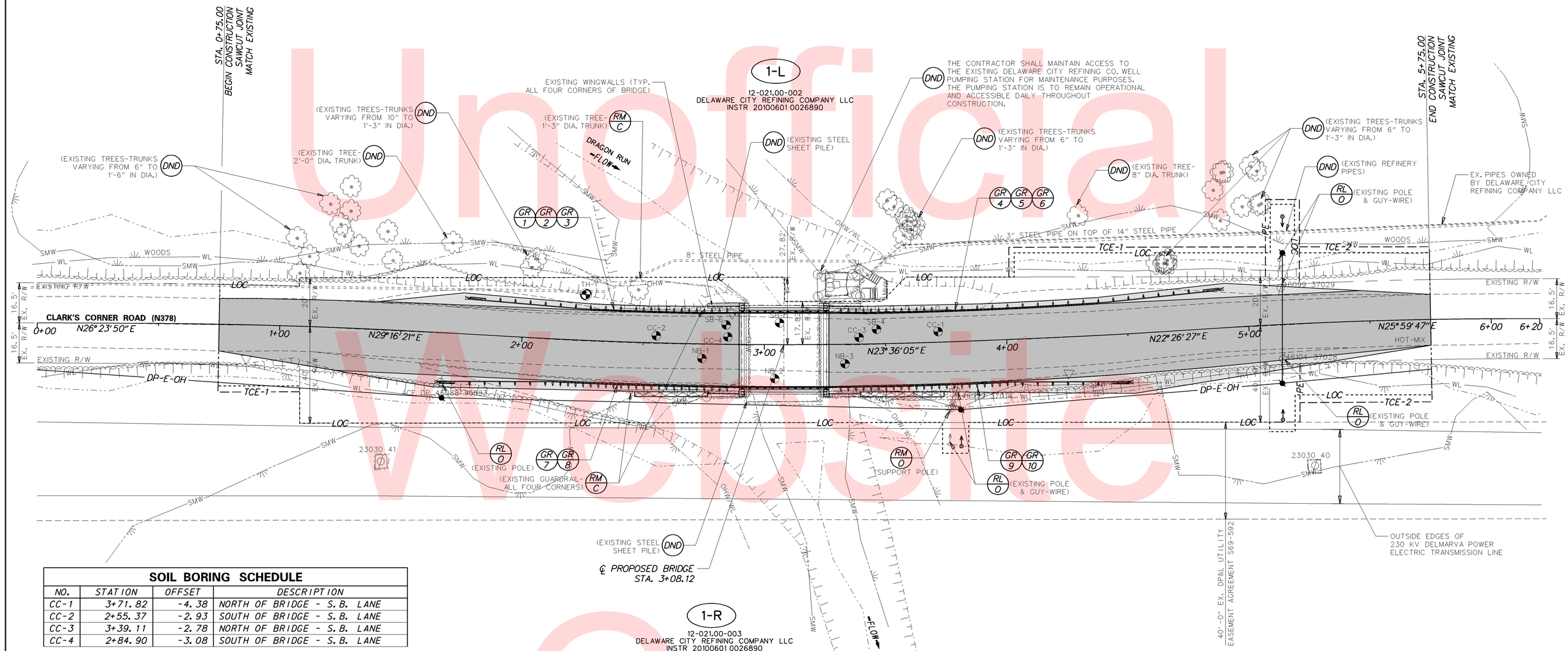
CONTRACT	BRIDGE NO.	1-308
T201507102	DESIGNED BY: NED & GML	
COUNTY	CHECKED BY: CAS	
NEW CASTLE		

HORIZONTAL AND VERTICAL CONTROL

SHEET NO.
5
TOTAL SHTS.
24

UTILITY TEST HOLE SCHEDULE

NO.	UTILITY	STATION	OFFSET	GRND EL.	COVER	O.D. & MATERIAL
TH-1	DELAWARE CITY REFINING COMPANY	2+25.57	-18.87	3.51	3.28	9" STEEL



SOIL BORING SCHEDULE

NO.	STATION	OFFSET	DESCRIPTION
CC-1	3+71.82	-4.38	NORTH OF BRIDGE - S.B. LANE
CC-2	2+55.37	-2.93	SOUTH OF BRIDGE - S.B. LANE
CC-3	3+39.11	-2.78	NORTH OF BRIDGE - S.B. LANE
CC-4	2+84.90	-3.08	SOUTH OF BRIDGE - S.B. LANE

PAVEMENT CORE SCHEDULE

NO.	STATION	OFFSET	LOCATION	PAVEMENT BOX
NB-1	2+74.38	6.00	34' SOUTH OF BR. CENTER/ 6' INTO N.B. LANE FROM ℄	20" HOT-MIX 12+" SELECT
NB-2	3+04.31	14.00	4' SOUTH OF BR. CENTER/ 14' INTO N.B. LANE FROM ℄	5.5" HOT-MIX PCC DECK
NB-3	3+33.18	8.00	25' NORTH OF BR. CENTER/ 8' INTO N.B. LANE FROM ℄	21" HOT-MIX 10+" SELECT
SB-4	3+46.40	-6.00	38' NORTH OF BR. CENTER/ 6' INTO S.B. LANE FROM ℄	8" HOT-MIX 11+" SELECT
SB-5	3+06.26	-9.00	2' SOUTH OF BR. CENTER/ 9' INTO S.B. LANE FROM ℄	4" HOT-MIX PCC DECK
SB-6	2+84.17	-8.00	24' SOUTH OF BR. CENTER/ 8' INTO S.B. LANE FROM ℄	8" HOT-MIX 7" SELECT

GUARDRAIL SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
1	END TREATMENT ATTENUATOR, TYPE 1-31	1+75.71	-14.30	50.00
2	STEEL BEAM GUARDRAIL, TYPE 1-31	2+24.71	-12.79	25.00
3	STEEL BEAM GUARDRAIL, TYPE 2-31	2+49.90	-12.79	37.50
4	STEEL BEAM GUARDRAIL, TYPE 2-31	3+28.56	-13.00	37.50
5	STEEL BEAM GUARDRAIL, TYPE 1-31	3+66.32	-12.84	75.00
6	END TREATMENT ATTENUATOR, TYPE 1-31	4+41.72	-13.34	50.00
7	END TREATMENT ATTENUATOR, TYPE 1-31	1+64.94	19.87	50.00
8	STEEL BEAM GUARDRAIL, TYPE 2-31	2+13.65	17.53	75.00
9	STEEL BEAM GUARDRAIL, TYPE 2-31	3+28.26	17.51	75.00
10	END TREATMENT ATTENUATOR, TYPE 1-31	4+02.68	17.48	50.00

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE
0 20 40 60
FEET

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO. 1-308
T201507102	DESIGNED BY: NED & GML
COUNTY	CHECKED BY: CAS
NEW CASTLE	

CONSTRUCTION PLAN

SHEET NO.
6
TOTAL SHTS.
24

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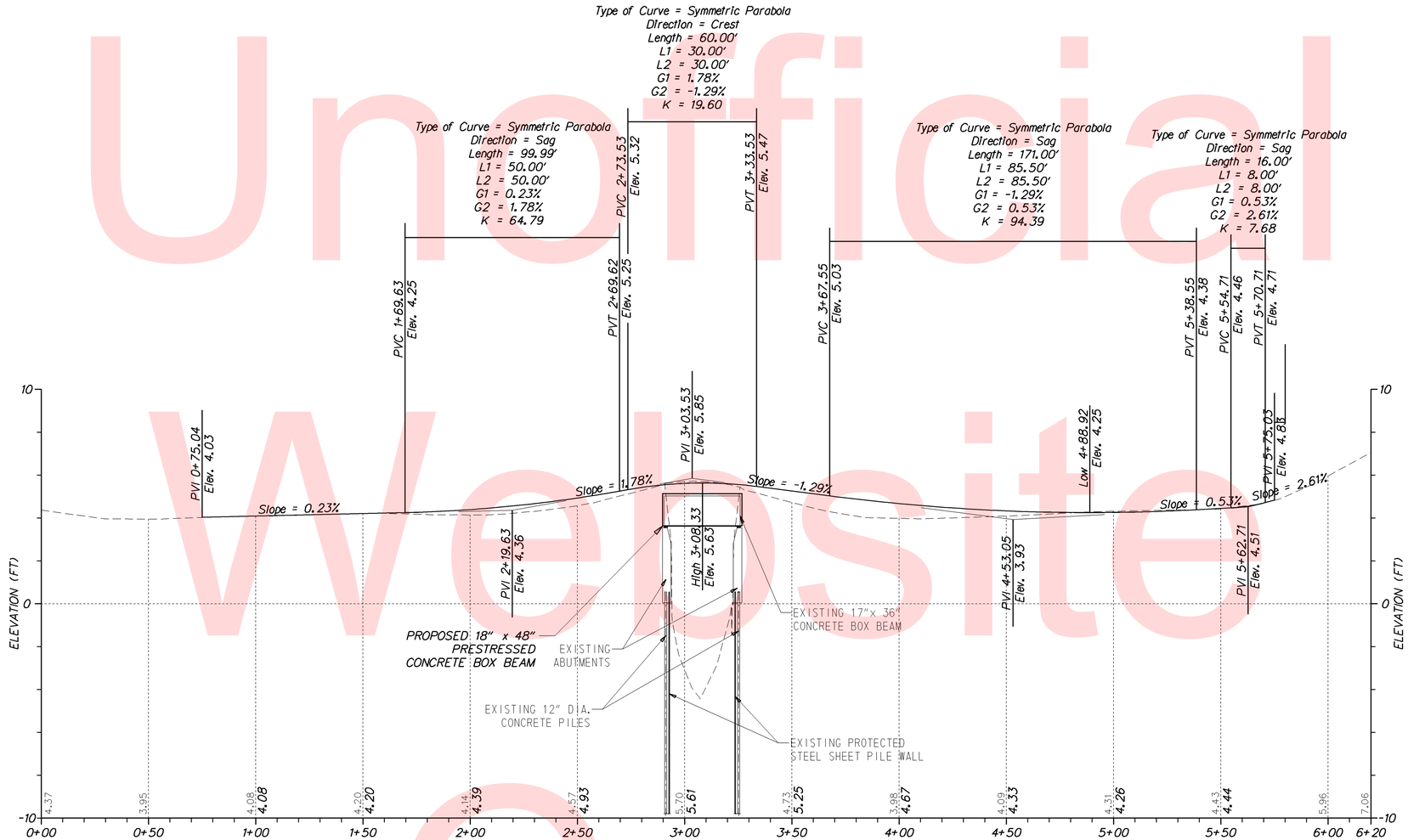

CLARK'S CORNER ROAD
MR#: 378

VERTICAL SCALE FEET
9 6 3 0

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 30 60 90 FEET	**BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN**	CONTRACT T201507102	BRIDGE NO. 1-308
				COUNTY NEW CASTLE	DESIGNED BY: NED & GML
					CHECKED BY: CAS
PROFILE	SHEET NO. 7	TOTAL SHTS. 24			

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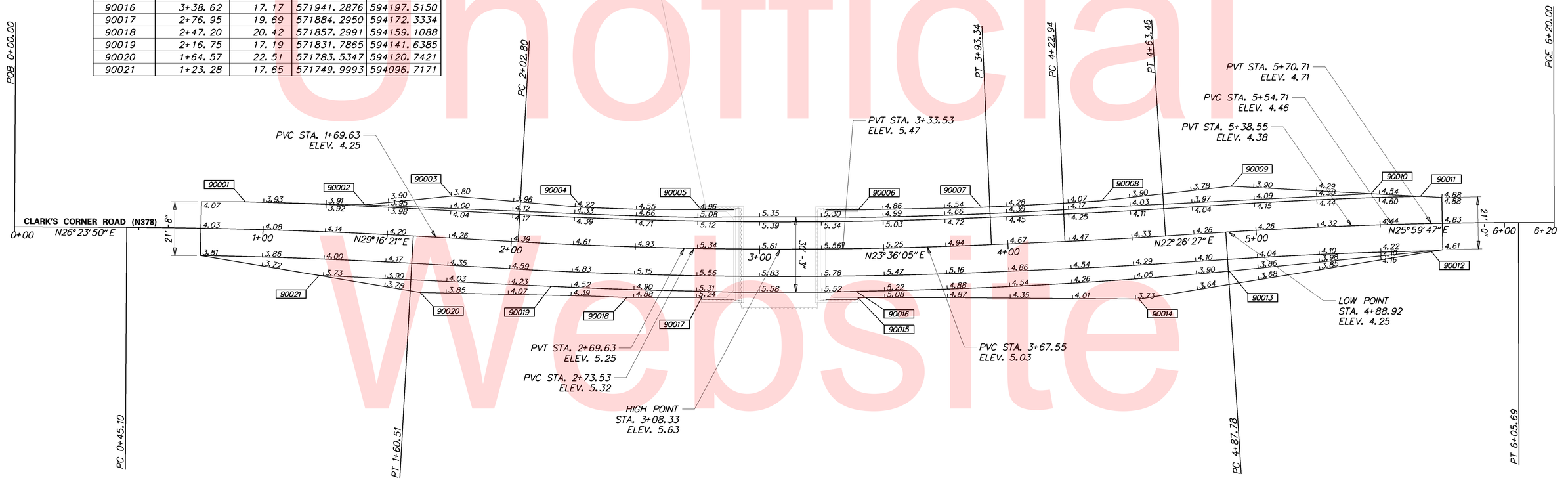
COORDINATE LIST

POINT NO.	STATION	OFFSET	NORTHING	EASTING
90001	0+92.55	-11.00	571736.3344	594057.0280
90002	1+40.53	-11.57	571779.1026	594079.2953
90003	1+75.28	-16.93	571812.1648	594091.5835
90004	2+27.85	-15.12	571857.0435	594118.6209
90005	2+76.35	-15.56	571899.8023	594140.6777
90006	3+39.86	-15.52	571956.3418	594168.4679
90007	3+89.97	-15.17	572001.4430	594189.3560
90008	4+38.55	-15.64	572046.0378	594208.2652
90009	4+91.04	-18.29	572095.3555	594225.9329
90010	5+46.74	-12.61	572144.6423	594253.4327
90011	5+66.40	-11.00	572161.9733	594263.1072
90012	5+70.18	11.01	572156.1429	594284.6625
90013	4+88.23	15.73	572079.7405	594256.2864
90014	4+51.45	24.71	572042.1954	594250.4609
90015	3+39.31	19.73	571940.8345	594200.1236
90016	3+38.62	17.17	571941.2876	594197.5150
90017	2+76.95	19.69	571884.2950	594172.3334
90018	2+47.20	20.42	571857.2991	594159.1088
90019	2+16.75	17.19	571831.7865	594141.6385
90020	1+64.57	22.51	571783.5347	594120.7421
90021	1+23.28	17.65	571749.9993	594096.7171



NORTHBOUND SUPERELEVATIONS

STATION RANGE	CROSS SLOPES TRAVEL LANE	STATION RANGE	CROSS SLOPES SHOULDER	STATION RANGE	CROSS SLOPES MAINT. STRIP
0+75 TO 1+08.30	-2%	0+75 TO 1+48.50	-4%	1+23.28 TO 2+27.00	-4%
1+08.30 TO 1+55.30	-2% TO 0%	1+48.50 TO 2+02.80	-4% TO -6%	2+27.00 TO 2+47.27	-4% TO -0.6%
1+55.30 TO 1+87.30	0% TO 1.33%	2+02.80 TO 2+47.27	-6% TO -4%	2+47.27 TO 2+89.47	-0.6% TO -4%
1+87.30 TO 2+02.80	1.33% TO 2%	2+47.27 TO 3+26.46	-4%	3+26.46 TO 3+55.00	-8.75% TO -4%
2+02.80 TO 2+89.79	2%	3+26.45 TO 3+93.30	-4% TO -5.3%	3+55.00 TO 3+73.44	-4% TO 0%
2+89.79 TO 3+26.45	2%	3+93.30 TO 4+66.00	-5.3% TO -4%	3+73.44 TO 3+93.30	0% TO -4%
3+26.45 TO 3+93.30	2%	4+66.00 TO 5+75.00	-4%	3+93.00 TO 5+75.00	-4%
3+93.30 TO 4+08.80	2% TO 1.33%	-	-	-	-
4+08.80 TO 4+40.80	1.33% TO 0%	-	-	-	-
4+40.80 TO 4+87.84	0% TO -2%	-	-	-	-
4+87.84 TO 5+75.00	-2%	-	-	-	-

NOTE: THE SUPERELEVATION TABLES SHOW THE SLOPES FOR THE NORTHBOUND AND SOUTHBOUND TRAVEL LANES, SHOULDERS, AND MAINTENANCE STRIPS. IF THE VALUE FOR THE SLOPE IS POSITIVE (+), IT MEANS THAT THE OUTER EDGE OF THE LANE IS HIGHER THAN THE CENTERLINE OF THE ROADWAY. IF THE VALUE FOR THE SLOPE IS NEGATIVE (-), IT MEANS THAT THE OUTER EDGE OF THE LANE IS LOWER THAN THE CENTERLINE OF THE ROADWAY.

SOUTHBOUND SUPERELEVATIONS

STATION RANGE	CROSS SLOPES TRAVEL LANE	STATION RANGE	CROSS SLOPES SHOULDER	STATION RANGE	CROSS SLOPES MAINT. STRIP
0+75 TO 1+08.30	0.5% TO -2%	0+92.55 TO 2+42.50	-4%	1+40.53 TO 2+89.47	-4%
1+08.30 TO 4+87.80	-2%	2+42.50 TO 2+89.47	-4% TO -2%	3+26.46 TO 5+75.00	-4%
4+87.80 TO 5+36.00	-2% TO 2%	2+89.47 TO 3+73.00	-2% TO -4%	-	-
5+36.00 TO 5+75.00	2% TO 0.5%	3+73.00 TO 5+75.00	-4%	-	-

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 20 40 60 FEET

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO. 1-308
T201507102	DESIGNED BY: NED & GML
COUNTY	CHECKED BY: CAS
NEW CASTLE	

GRADES AND GEOMETRICS

SHEET NO.	TOTAL SHTS.
8	24

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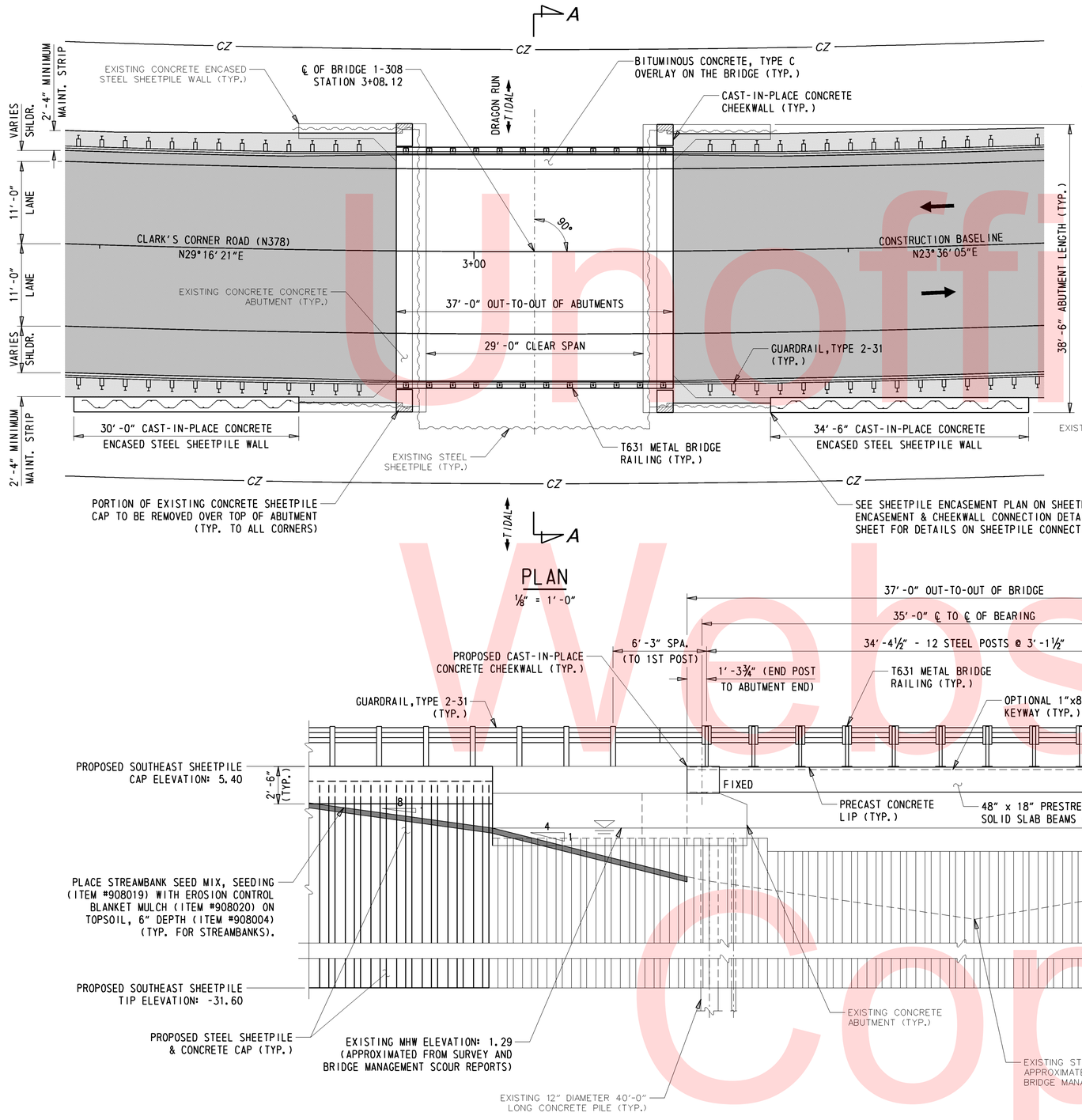
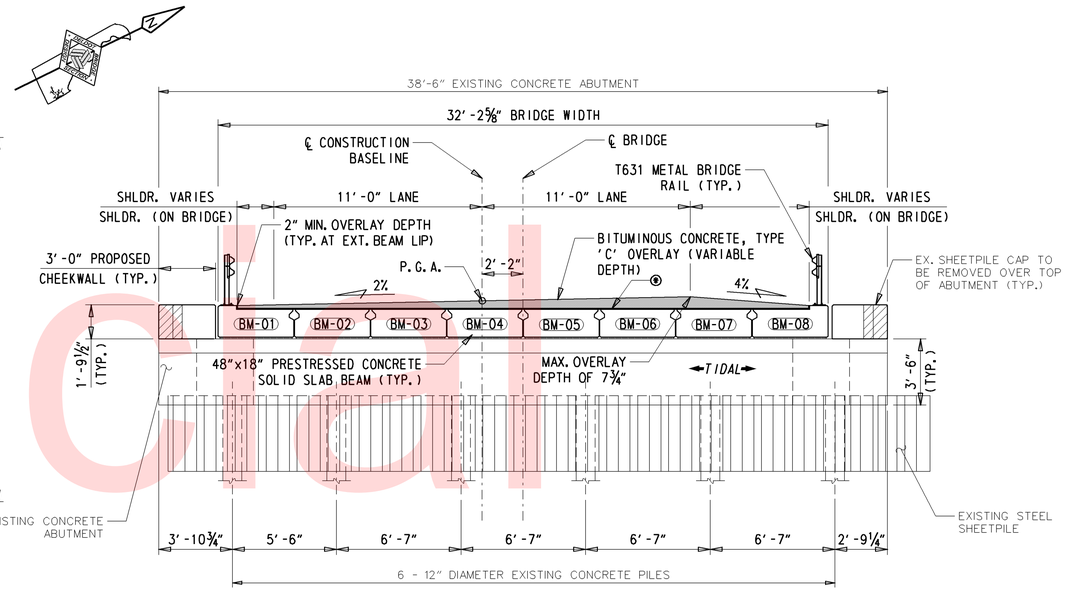
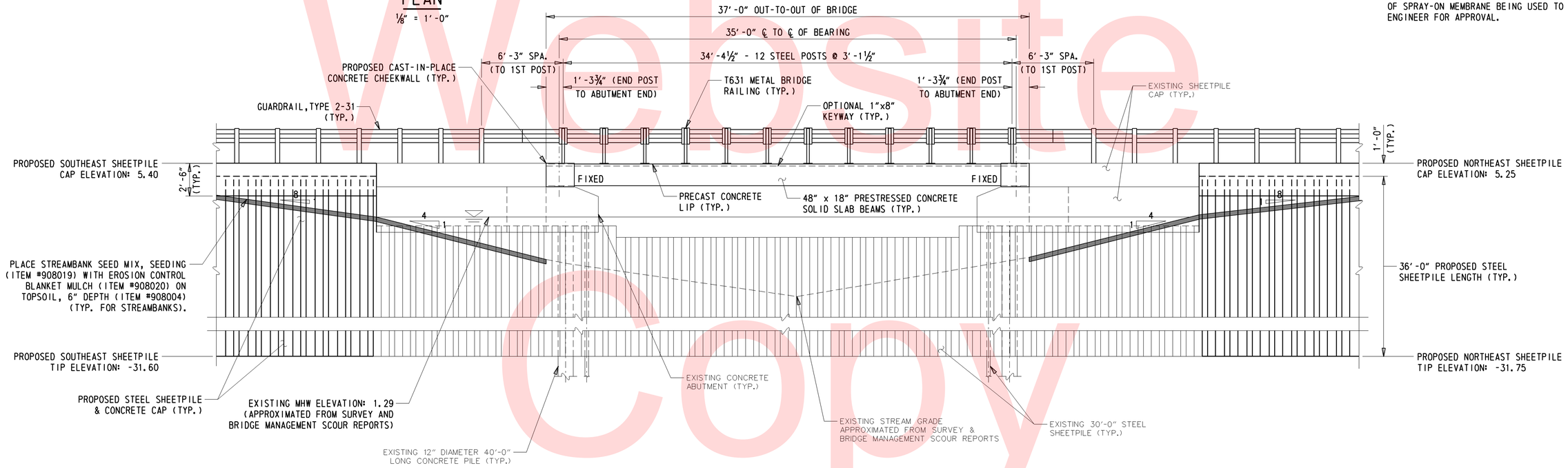


PLAN
1/8" = 1'-0"



BRIDGE SECTION
(SECTION A-A: NORTH ABUTMENT)
¼" = 1'-0"

* NOTE: THE CONTRACTOR SHALL APPLY A SPRAY-ON WATERPROOFING MEMBRANE (ITEM 602616) TO THE TOPS OF THE BEAMS AND THE INSIDE EDGES OF THE PRECAST CONCRETE LIPS BEFORE THE PLACEMENT OF THE BITUMINOUS CONCRETE PAVEMENT OVERLAY. THE CONTRACTOR SHALL SUBMIT THE TYPE OF SPRAY-ON MEMBRANE BEING USED TO THE ENGINEER FOR APPROVAL.



EAST BRIDGE ELEVATION
¼" = 1'-0"

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE AS NOTED	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN	CONTRACT T201507102 / COUNTY NEW CASTLE	BRIDGE NO. 1-308 / DESIGNED BY: NED & GML / CHECKED BY: CAS	BRIDGE PLAN, SECTION, AND ELEVATION	SHEET NO. 9 / TOTAL SHTS. 24

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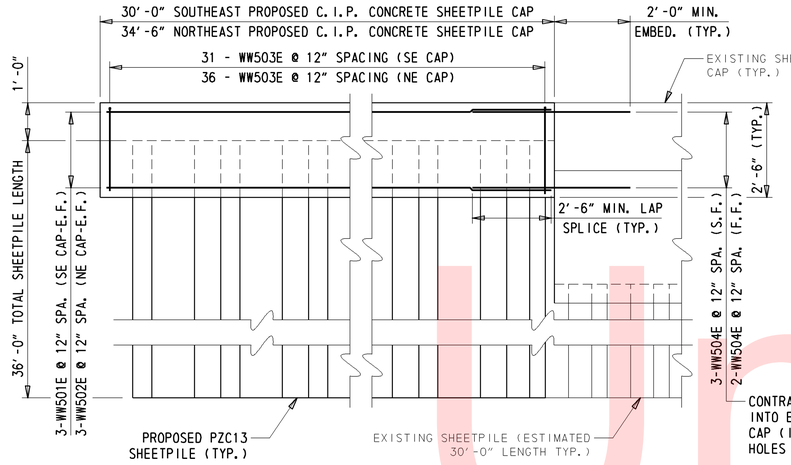
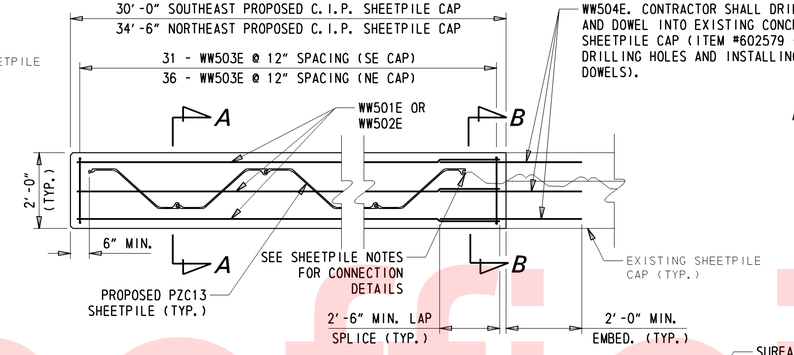


SHEETPILE CAP ELEVATION

½" = 1'-0"



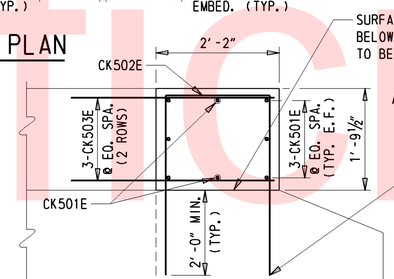
SHEETPILE CAP PLAN

½" = 1'-0"

NOTE: SOUTHEAST SHEETPILE CAP PLAN AND ELEVATION SHOWN. MIRROR FOR NORTHEAST SHEETPILE CAP PLAN AND ELEVATION.

CONTRACTOR SHALL DRILL AND DOWEL INTO EXISTING CONCRETE SHEETPILE CAP (ITEM #602579 - DRILLING HOLES AND INSTALLING DOWELS).

WW504E. CONTRACTOR SHALL DRILL AND DOWEL INTO EXISTING CONCRETE SHEETPILE CAP (ITEM #602579 - DRILLING HOLES AND INSTALLING DOWELS).

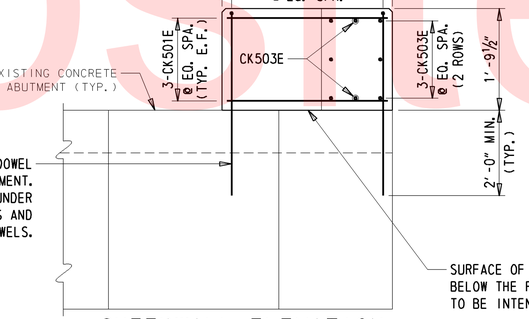


CHEEKWALL SECTION

SECTION C-C

¾" = 1'-0"

NOTE: EXISTING SHEETPILE AND CONCRETE PILES NOT SHOWN ON CHEEKWALL DETAILS FOR CLARITY.



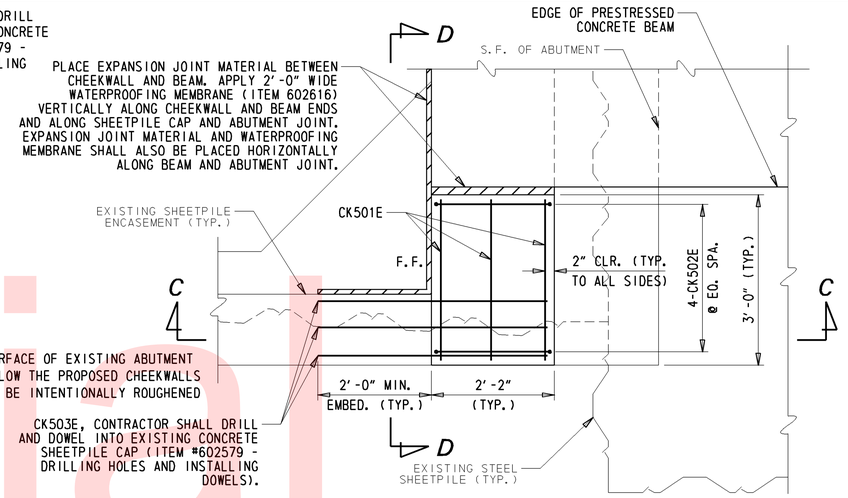
CONTRACTOR SHALL DRILL AND DOWEL INTO EXISTING CONCRETE SHEETPILE CAP (ITEM #602579 - DRILLING HOLES AND INSTALLING DOWELS).

CHEEKWALL ELEVATION

SECTION D-D

¾" = 1'-0"

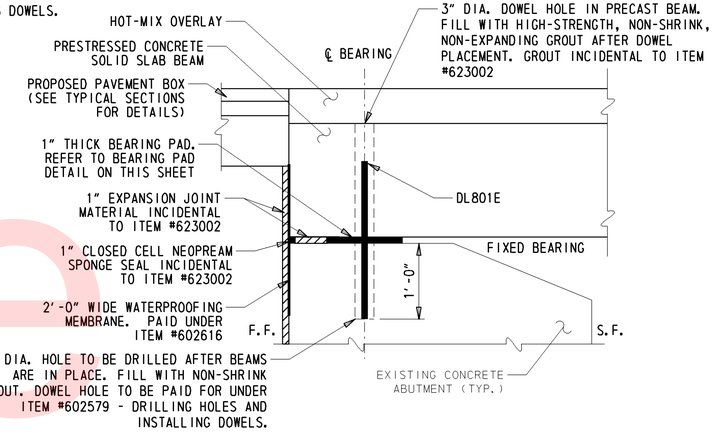
PLACE EXPANSION JOINT MATERIAL BETWEEN CHEEKWALL AND BEAM. APPLY 2'-0" WIDE WATERPROOFING MEMBRANE (ITEM 602616) VERTICALLY ALONG CHEEKWALL AND BEAM ENDS AND ALONG SHEETPILE CAP AND ABUTMENT JOINT. EXPANSION JOINT MATERIAL AND WATERPROOFING MEMBRANE SHALL ALSO BE PLACED HORIZONTALLY ALONG BEAM AND ABUTMENT JOINT.



CHEEKWALL PLAN

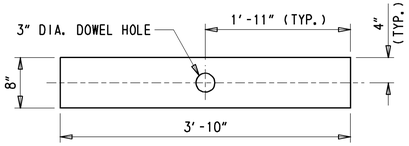
¾" = 1'-0"

CONTRACTOR SHALL DRILL AND DOWEL INTO EXISTING CONCRETE ABUTMENT. DOWEL HOLES TO BE PAID FOR UNDER ITEM #602579 - DRILLING HOLES AND INSTALLING DOWELS.



ABUTMENT/BEAM CONNECTION

1" = 1'-0"

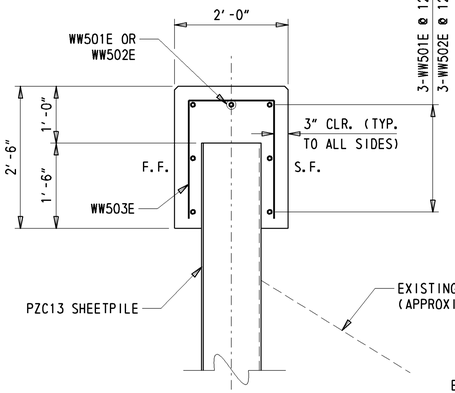


BEARING PAD DETAIL

1" = 1'-0"

LEGEND

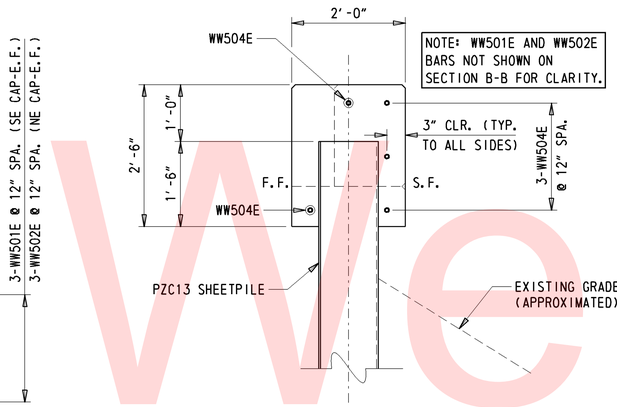
E.F. -	EACH FACE
F.F. -	FILL FACE
S.F. -	STREAM FACE



SHEETPILE CAP

SECTION A-A

¾" = 1'-0"



SHEETPILE CAP

SECTION B-B

¾" = 1'-0"

REINFORCING BAR LIST

STRAIGHT BARS

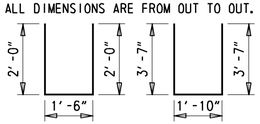
MARK	SIZE	QTY.	LENGTH
WW501E	5	7	29'-6"
WW502E	5	7	34'-0"
WW504E	5	10	4'-8"
CK501E	5	32	2'-8"
CK503E	5	32	4'-0"
DL801E	8	16	2'-1"

BENT BARS

MARK	SIZE	QTY.	LENGTH
WW503E	5	63	5'-6"
CK502E	5	16	9'-0"

BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



DIAGRAMS ARE NOT TO SCALE.

ELASTOMERIC BEARING NOTES:

1. 16 TOTAL ELASTOMERIC BEARINGS REQUIRED.
2. ALL BEARING PADS SHALL BE 1" THICK 50 DUROMETER ELASTOMERIC.
3. ELASTOMERIC BEARINGS SHALL BE GLUED TO THE ABUTMENT SEAT, WITH A RUBBER BONDING CEMENT IN SUCH A WAY THAT VISIBLE CONCRETE SURFACES WILL NOT BE STAINED.
4. ELASTOMERIC BEARING PADS SHALL BE IN PLACE A MINIMUM OF ONE DAY BEFORE SETTING BEAMS.
5. PAYMENT FOR PADS AND BONDING CEMENT SHALL BE INCIDENTALL TO ITEM #623002 - PRESTRESSED REINFORCED CONCRETE MEMBERS, BOX BEAMS.

SHEET PILE NOTES:

1. ALL SHEET PILE IS TO BE GALVANIZED.
2. PZC SHAPES ARE DEPICTED IN THESE DETAILS. SCZ SHAPES ARE ALSO ACCEPTABLE FOR USE. IF SCZ SHAPES ARE PROPOSED IN LIEU OF PZC SHAPES, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING THE ALTERNATE LAYOUT, CORNER PIECES, ETC FOR APPROVAL. THE SECTION MODULUS FOR THE ALTERNATE SHAPES SHALL BE HIGHER THAN SECTION MODULUS OF PZC13.
3. SHEET PILES SHALL BE DRIVEN TO ELEVATIONS SHOWN ON THE BRIDGE PLAN, SECTION, AND ELEVATION SHEET.
4. ALL STEEL SHEET PILES AND FABRICATED PIECES SHALL CONFORM TO ASTM A572 GRADE 50.
5. ALL CONNECTION UNITS SHALL BE COMPATIBLE WITH THE UNITS THEY CONNECT, PERTAINING TO THE ASTM DESIGNATIONS. FOR PAYMENT PURPOSES, THE CONNECTION UNITS SHALL BE TREATED AS THE ADJACENT UNITS OF SHEET PILING.
6. SHEET PILES SHALL BE ORDERED IMMEDIATELY UPON AWARD OF THE PROJECT.
7. HORIZONTAL FIELD SPLICING OF THE SHEETING SHALL BE REQUIRED IN ORDER TO MAINTAIN A MINIMUM DISTANCE OF 20'-0" FROM THE ADJACENT UTILITY TRANSMISSION LINE. THE CONTRACTOR SHALL SUBMIT A SHEETPILE SPLICING PLAN THAT IS STAMPED BY LICENSED PROFESSIONAL ENGINEER OF THE STATE OF DELAWARE TO DELDOT FOR VERIFICATION. THE SHEETPILE SPLICING PLAN SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING INFORMATION: WELDER CERTIFICATIONS, STRENGTH AND TYPE OF WELDS, WELDING PROCEDURE, SPLICE INSPECTION AND WELD VERIFICATION PLAN, EQUIPMENT USED FOR PLACEMENT AND DRIVING, SPLICE LOCATIONS, STORAGE AND MAINTENANCE OF WELDING EQUIPMENT AND ELECTRODES, SHEET PILE LENGTHS, AND HOW THE MEANS AND METHODS FOR PLACING AND DRIVING SHEETPILE WILL MAINTAIN THE SPECIFIED MINIMUM DISTANCE FROM THE UTILITY TRANSMISSION LINE.
8. SHEET PILING SHALL BE ORDERED IN THE FULL LENGTH SPECIFIED ON THE PLANS AND THEN CUT INTO LENGTHS SPECIFIED ON THE SHEETPILE SPLICING PLAN PROVIDED BY THE CONTRACTOR. THESE PIECES SHALL BE MATCH-MARKED SO THAT WHEN SPLICED TOGETHER, THE ORIGINAL 36'-0" PIECE IS RECONSTRUCTED AND MISMATCHING CROSS SECTIONS ARE LIMITED. ALL SPLICE CONNECTIONS ARE TO HAVE THE FULL STRENGTH OF THE SECTIONS THEY CONNECT AND REQUIRE THE APPROVAL OF THE ENGINEER.
9. ALL HORIZONTAL SHEET PILING SPLICES SHALL BE STAGGERED A MINIMUM OF 3'-0".
10. THE CONTRACTOR SHALL OVERLAP THE PROPOSED AND EXISTING SHEETPILE A MINIMUM DISTANCE OF 12". THE PROPOSED SHEETPILE SHALL BE OVERLAPPED ON THE FILL FACE OF THE EXISTING SHEETPILE WALLS.
11. IF THE EXISTING SHEETPILE IS NOT EXPOSED, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER FOR INFORMATION ON HOW TO PROCEED WITH THE SHEETPILE CONNECTION.
12. THE CONTRACTOR SHALL ENSURE NO FILL IS LOST THROUGH THE JOINT OF THE EXISTING AND PROPOSED SHEETPILE AND THE SHEETPILE SPLICES.

CONCRETE CHEEKWALL NOTES:

1. CHEEKWALLS TO BE CAST AFTER BEAMS HAVE BEEN SET ON THE ABUTMENT.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE AS NOTED	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO.	1-308	SHEETPILE ENCASEMENT & CHEEKWALL CONNECTION DETAILS	SHEET NO.
T201507102	DESIGNED BY: NED & GML			10
COUNTY	CHECKED BY: CAS			TOTAL SHTS.
NEW CASTLE				24

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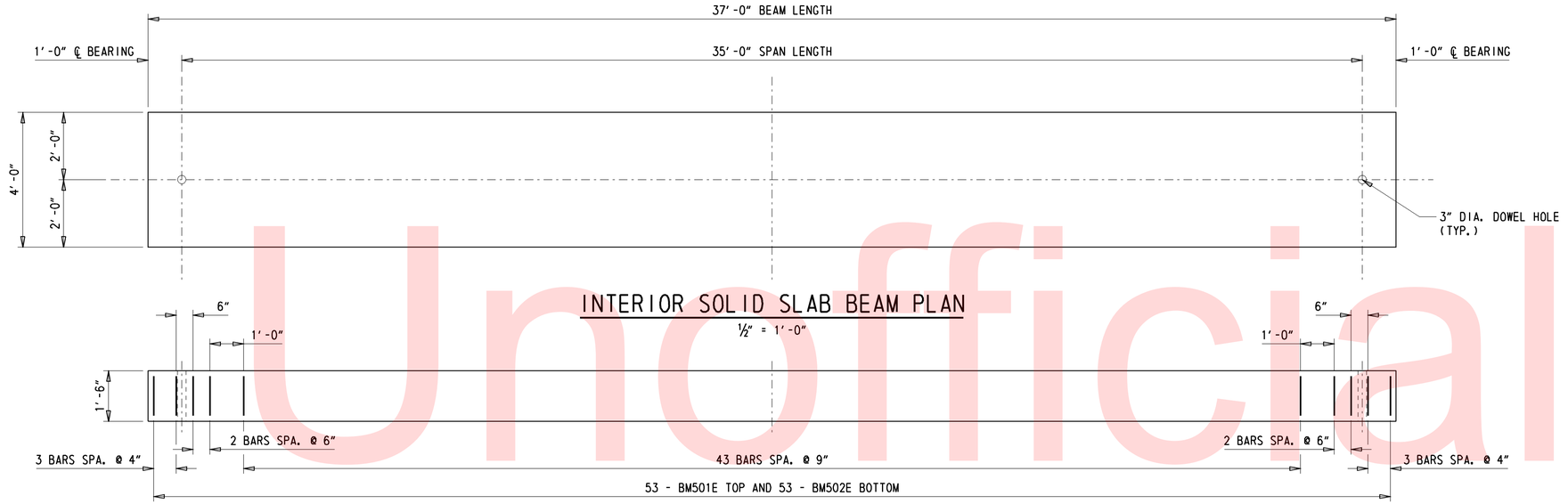
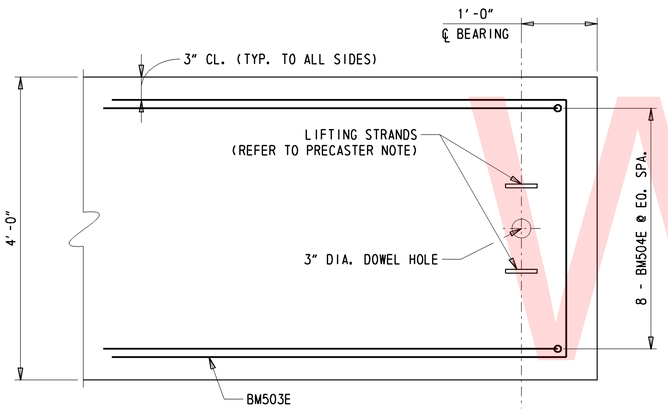


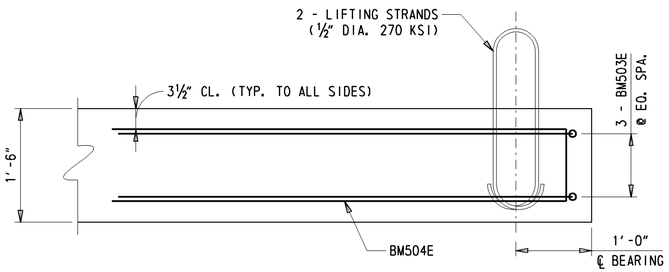
INTERIOR SOLID SLAB BEAM PLAN

½" = 1'-0"



TYPICAL INTERIOR SOLID SLAB BEAM END PLAN

1" = 1'-0"

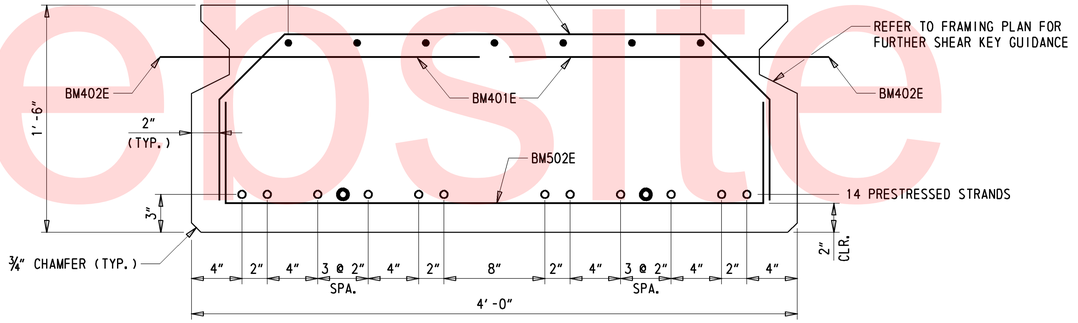


TYPICAL BEAM END ELEVATION FOR INTERIOR SOLID SLAB BEAM

1" = 1'-0"

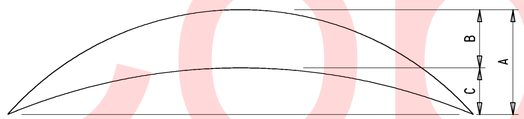
INTERIOR SOLID SLAB BEAM ELEVATION

½" = 1'-0"



TYPICAL INTERIOR SOLID SLAB BEAM SECTION

2" = 1'-0"



CAMBER DIAGRAM

A = ESTIMATED PRESTRESS CAMBER LESS DEFLECTION DUE TO DEAD LOAD OF BEAM TIMES CREEP = 0.672"
B = DEFLECTION DUE TO DEAD LOAD OF OVERLAY = 0.074"
C = A - B = NET CAMBER = 0.598"

- ○ 0.6" DIA., 270 KSI LOW RELAXATION PRESTRESSING STRAND (12 STRANDS TOTAL)
- ◉ 0.6" DIA., 270 KSI LOW RELAXATION PRESTRESSING STRAND TO BE DEBONDED FOR 5'-0" @ EACH END (2 STRANDS TOTAL)

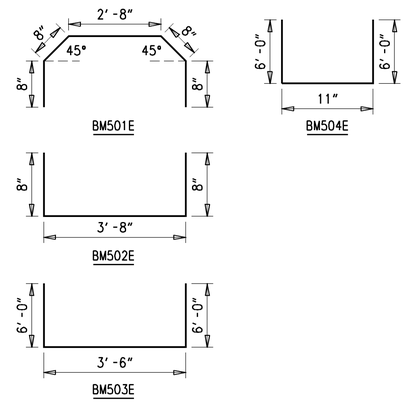
NOTE TO PRECASTER:
LIFTING STRANDS SHALL BE SPACED SO THAT THEY DO NOT INTERFERE WITH STRAND SPACING. THE PRECASTER SHALL INCLUDE DETAILS OF THE PLACEMENT OF THESE ITEMS IN THEIR SUBMITTED SHOP DRAWINGS.

REINFORCING BAR LIST

STRAIGHT BARS				BENT BARS			
MARK	SIZE	QTY.	LENGTH	MARK	SIZE	QTY.	LENGTH
BM401E	4	110	1'-6"	BM501E	5	53	5'-4"
BM402E	4	110	5½"	BM502E	5	53	5'-0"
BM701E	7	7	36'-8"	BM503E	5	6	15'-6"
				BM504E	5	16	12'-11"

BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



DIAGRAMS ARE NOT TO SCALE.

PRESTRESSED BEAM NOTES (48" x 18")

DESIGN PLANS - WORKING DRAWINGS

INFORMATION PERTAINING TO THE PRESTRESSED PRECAST REINFORCED CONCRETE SOLID SLAB BEAMS 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 PRESTRESSED PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH.

HANDLING

PRESTRESSED SOLID SLAB BEAMS SHALL BE HANDLED ONLY BY LIFTING STRANDS PROVIDED ESPECIALLY FOR THIS PURPOSE. THE APPROXIMATE DEAD WEIGHT OF EACH UNIT IS 16.12 TONS.

CONCRETE STRESSES

THE MINIMUM COMPRESSIVE STRENGTH AT TIME OF INITIAL PRESTRESS EQUALS 6400 PSI.
THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS EQUALS 8000 PSI.

BAR REINFORCEMENT

MATERIALS REQUIREMENT: AASHTO M31 - GRADE 60
ALL BAR REINFORCEMENT TO HAVE 2" MINIMUM COVER EXCEPT AS NOTED OR DETAILED.
ALL BAR REINFORCEMENT AND CHAIR SUPPORTS SHALL BE PROTECTED WITH FUSION BONDED EPOXY CONFORMING TO AASHTO M284.
PAYMENT FOR REINFORCING BARS IS INCIDENTAL TO ITEM #623002 - PRESTRESSED REINFORCED CONCRETE MEMBERS, BOX BEAMS.

STRAND

INITIAL PRESTRESS ON EACH 0.6" DIA. 270 KSI LOW RELAXATION STRAND EQUALS 43942 LBS MINIMUM ULTIMATE STRENGTH EQUALS 58590 LBS PER STRAND.

CONCRETE FINISH

TOP OF BEAMS ARE TO HAVE A HEAVY SCORED FINISH. THE BOTTOM, SIDES, AND ENDS THE OF BEAMS SHALL BE PROTECTED WITH A WATER MISCIBLE, PENETRATING ALKYL ALKOXY SILANE SEALER. TO CREATE AN EXPOSED COARSE AGGREGATE SURFACE, AN IN-FORM RETARDER SHALL BE APPLIED TO THE ENTIRE SURFACE AREA OF THE SHEAR KEYS. PAYMENT INCIDENTAL TO ITEM #623002 - PRESTRESSED REINFORCED CONCRETE MEMBERS, BOX BEAMS.

NOTE: 8 TOTAL BEAMS REQUIRED
6 INTERIOR BEAMS AND 2 FASCIA BEAMS
EXTERIOR BEAMS ARE TO INCLUDE FLUSH STREAM FACE, DRIP EDGE AND PRECAST CONCRETE LIP AND ANCHOR BOLT DETAIL

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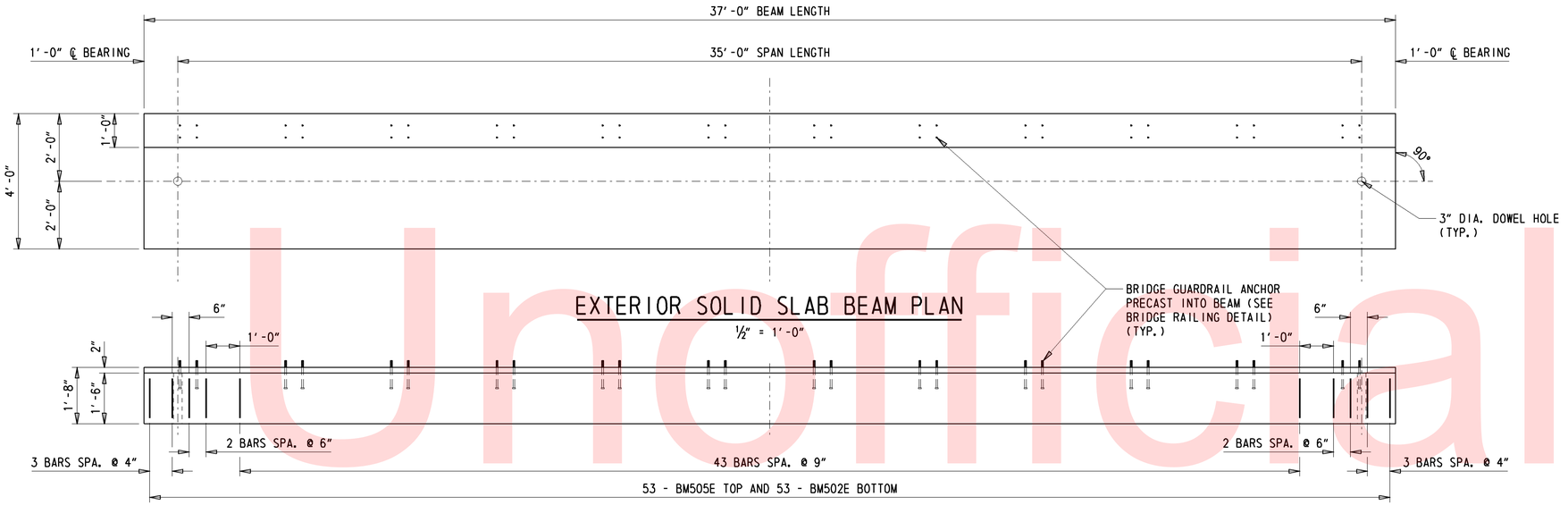
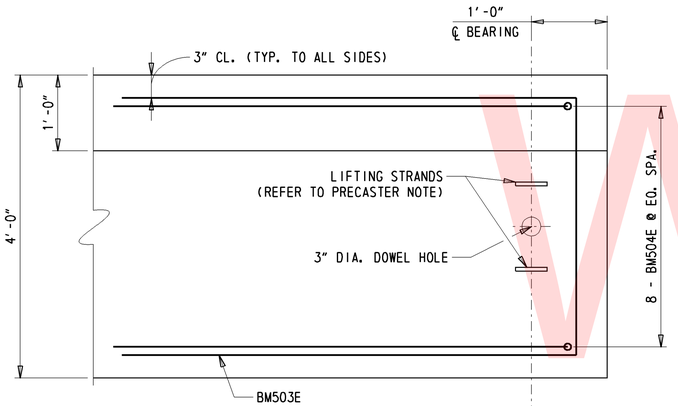
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE AS NOTED	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON BRANCH	CONTRACT T201507102	BRIDGE NO. 1-308	INTERIOR SOLID SLAB BEAM DETAILS
				COUNTY NEW CASTLE	DESIGNED BY: GML/NED	SHEET NO. 11
					CHECKED BY: CAS	TOTAL SHTS. 24



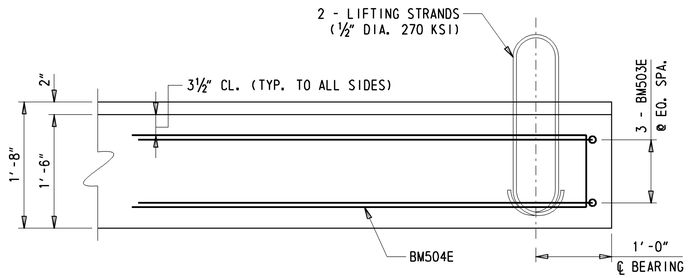
EXTERIOR SOLID SLAB BEAM PLAN

½" = 1'-0"



TYPICAL EXTERIOR SOLID SLAB BEAM END PLAN

1" = 1'-0"

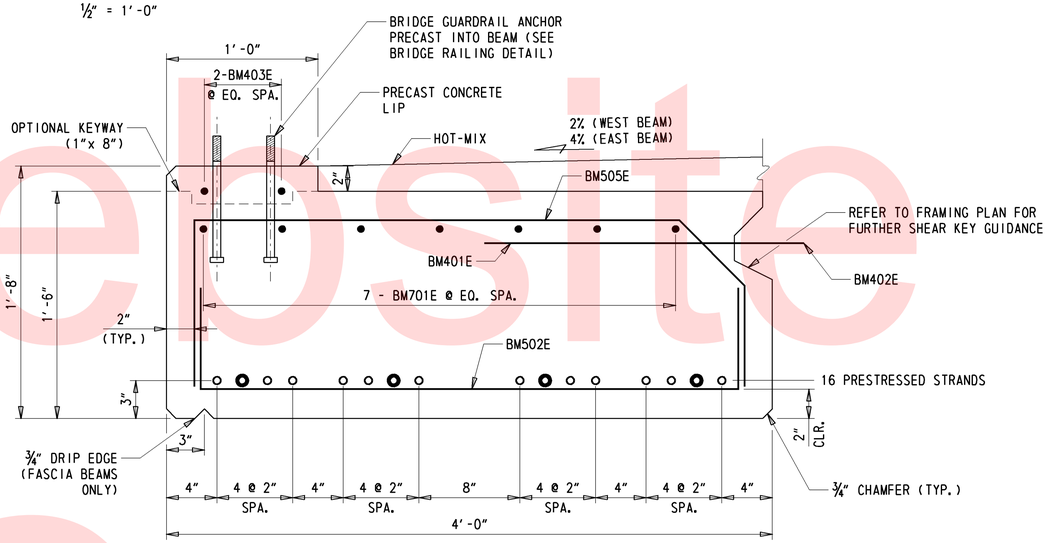


TYPICAL BEAM END ELEVATION FOR EXTERIOR SOLID SLAB BEAM

1" = 1'-0"

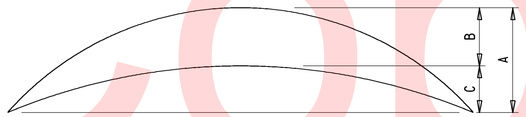
EXTERIOR SOLID SLAB BEAM ELEVATION

½" = 1'-0"



TYPICAL EXTERIOR SOLID SLAB BEAM SECTION

2" = 1'-0"



CAMBER DIAGRAM

A = ESTIMATED PRESTRESS CAMBER LESS DEFLECTION DUE TO DEAD LOAD OF BEAM TIMES CREEP = 0.638"
B = DEFLECTION DUE TO DEAD LOAD OF OVERLAY = 0.066"
C = A - B = NET CAMBER = 0.572"

- ○ 0.6" DIA., 270 KSI LOW RELAXATION PRESTRESSING STRAND (12 STRANDS TOTAL)
- ◉ 0.6" DIA., 270 KSI LOW RELAXATION PRESTRESSING STRAND TO BE DEBONDED FOR 5'-0" @ EACH END (4 STRANDS TOTAL)

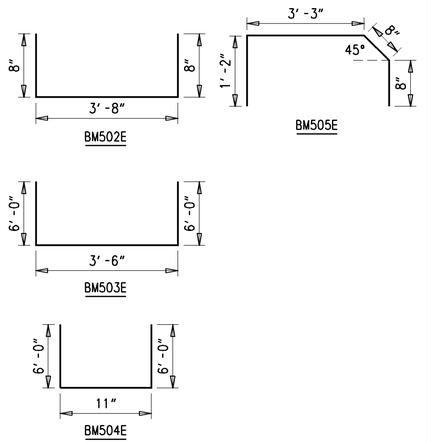
NOTE TO PRECASTER:
LIFTING STRANDS SHALL BE SPACED SO THAT THEY DO NOT INTERFERE WITH STRAND SPACING. THE PRECASTER SHALL INCLUDE DETAILS OF THE PLACEMENT OF THESE ITEMS IN THEIR SUBMITTED SHOP DRAWINGS.

REINFORCING BAR LIST

STRAIGHT BARS				BENT BARS			
MARK	SIZE	QTY.	LENGTH	MARK	SIZE	QTY.	LENGTH
BM401E	4	110	1'-6"	BM502E	5	53	5'-0"
BM402E	4	110	5½"	BM503E	5	6	15'-6"
BM403E	4	2	36'-8"	BM504E	5	16	12'-11"
BM701E	7	7	36'-8"	BM505E	5	53	5'-9"

BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



DIAGRAMS ARE NOT TO SCALE.

PRESTRESSED BEAM NOTES (48" x 24")

DESIGN PLANS - WORKING DRAWINGS

INFORMATION PERTAINING TO THE PRESTRESSED PRECAST REINFORCED CONCRETE SOLID SLAB BEAMS 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 PRESTRESSED PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH.

HANDLING

PRESTRESSED SOLID SLAB BEAMS SHALL BE HANDLED ONLY BY LIFTING STRANDS PROVIDED ESPECIALLY FOR THIS PURPOSE. THE APPROXIMATE DEAD WEIGHT OF EACH UNIT IS 16.83 TONS.

CONCRETE STRESSES

THE MINIMUM COMPRESSIVE STRENGTH AT TIME OF INITIAL PRESTRESS EQUALS 6400 PSI.
THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS EQUALS 8000 PSI.

BAR REINFORCEMENT

MATERIALS REQUIREMENT: AASHTO M31 - GRADE 60
ALL BAR REINFORCEMENT TO HAVE 2" MINIMUM COVER EXCEPT AS NOTED OR DETAILED.
ALL BAR REINFORCEMENT AND CHAIR SUPPORTS SHALL BE PROTECTED WITH FUSION BONDED EPOXY CONFORMING TO AASHTO M284.
PAYMENT FOR REINFORCING BARS IS INCIDENTAL TO ITEM #623002 - PRESTRESSED REINFORCED CONCRETE MEMBERS, BOX BEAMS.

STRAND

INITIAL PRESTRESS ON EACH 0.6" DIA. 270 KSI LOW RELAXATION STRAND EQUALS 43942 LBS MINIMUM ULTIMATE STRENGTH EQUALS 58590 LBS PER STRAND.

CONCRETE FINISH

TOP OF BEAMS ARE TO HAVE A HEAVY SCORED FINISH. THE BOTTOM, SIDES, AND ENDS THE OF BEAMS SHALL BE PROTECTED WITH A WATER MISCIBLE, PENETRATING ALKYL ALKOXY SILANE SEALER. TO CREATE AN EXPOSED COARSE AGGREGATE SURFACE, AN IN-FORM RETARDER SHALL BE APPLIED TO THE ENTIRE SURFACE AREA OF THE SHEAR KEYS. PAYMENT INCIDENTAL TO ITEM #623002 - PRESTRESSED REINFORCED CONCRETE MEMBERS, BOX BEAMS.

NOTE: 8 TOTAL BEAMS REQUIRED
6 INTERIOR BEAMS AND 2 FASCIA BEAMS
EXTERIOR BEAMS ARE TO INCLUDE FLUSH STREAM FACE, DRIP EDGE PRECAST CONCRETE LIP AND ANCHOR BOLT DETAIL

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

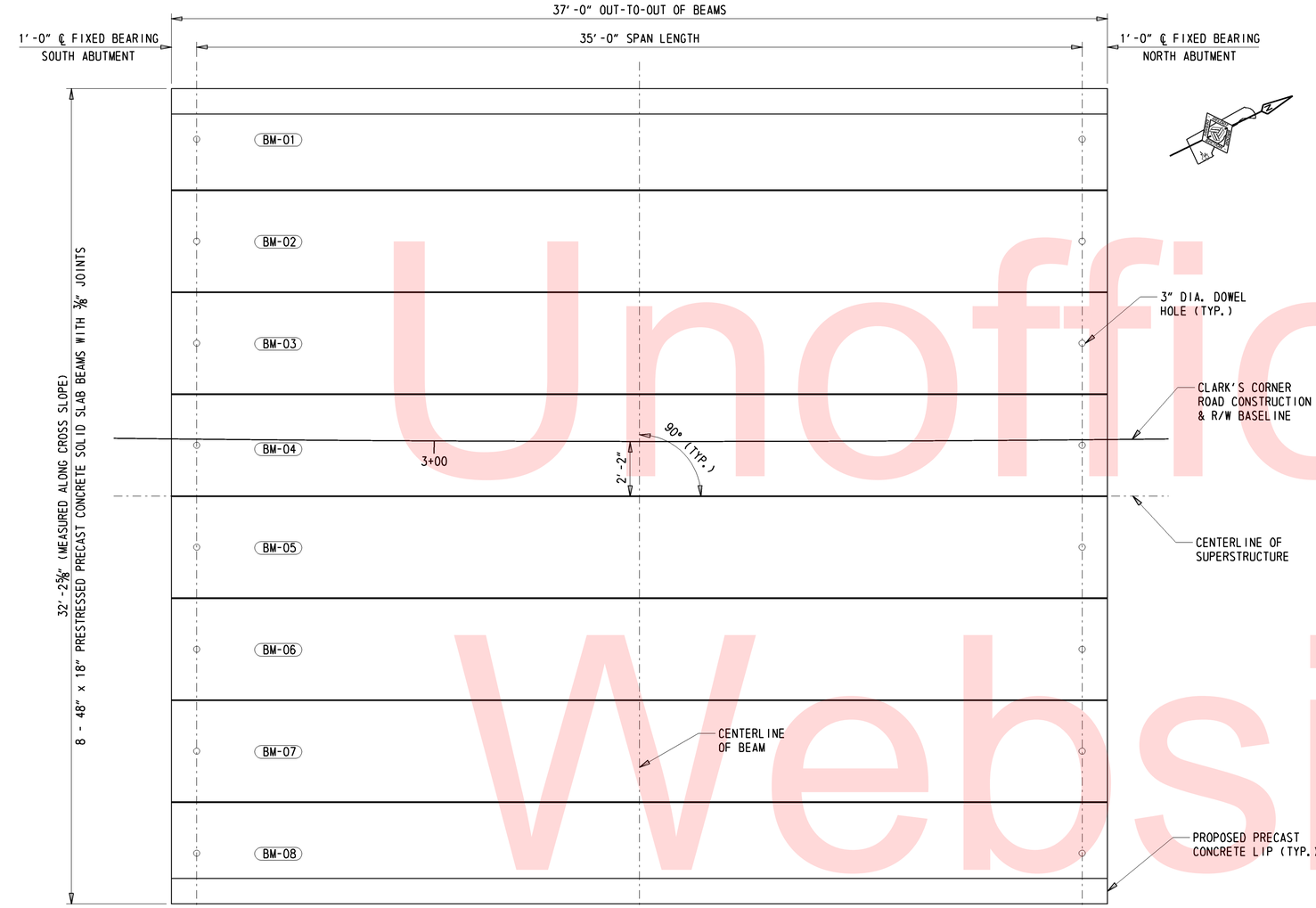
SCALE AS NOTED

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON BRANCH

CONTRACT	BRIDGE NO. 1-308
T201507102	DESIGNED BY: GML/NED
COUNTY	CHECKED BY: CAS
NEW CASTLE	

EXTERIOR SOLID SLAB BEAM DETAILS

SHEET NO. 12
TOTAL SHTS. 24



FRAMING PLAN

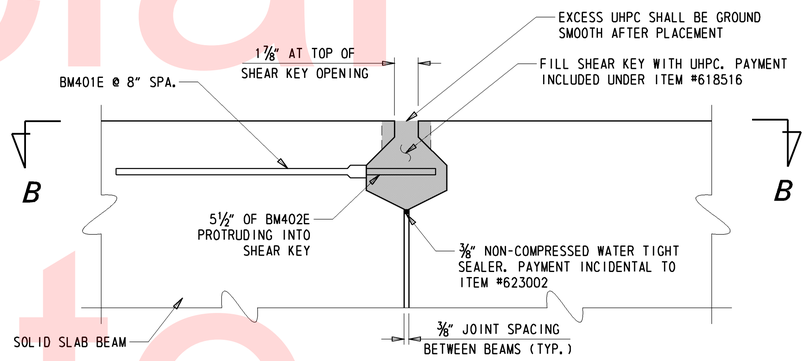
⅜" = 1'-0"

FRAMING PLAN NOTES:

1. FILL BEARING DOWEL HOLES WITH APPROVED HIGH STRENGTH, NON-SHRINK, NON-EXPANDING, NON-STAIN GROUT. PAYMENT INCLUDED UNDER ITEM #623002 - PRESTRESSED REINFORCED CONCRETE MEMBERS, BOX BEAMS.
2. FILL ALL SHEAR KEYWAYS AND CAVITIES WITH APPROVED ULTRA HIGH PERFORMANCE CONCRETE (UHPC). PAYMENT INCLUDED UNDER ITEM #618516 - ULTRA HIGH PERFORMANCE CONCRETE.
3. DO NOT MIX OR POUR UHPC WITHOUT A MANUFACTURING REPRESENATIVE ONSITE.
4. PLACING UHPC BETWEEN BEAM SECTIONS SHALL BE DONE WHEN AIR TEMPERATURE IS ABOVE 40°F OR AS PER THE MANUFACTURER'S RECOMMENDATION, WHICHEVER IS HIGHER. NO TRAFFIC OR EQUIPMENT SHALL BE PERMITTED ON THE BRIDGE UNTIL THE UHPC HAS A MINIMUM COMPRESSIVE STRENGTH OF 15 KSI OR UNLESS OTHERWISE NOTED BY THE ENGINEER.

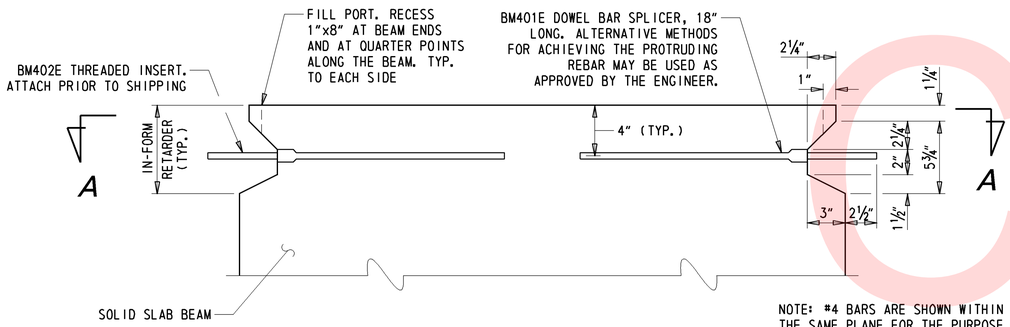
PRECAST SHEAR KEY NOTES:

1. TO CREATE AN EXPOSED COARSE AGGREGATE SURFACE, AN IN-FORM RETARDER SHALL BE APPLIED FROM THE TOP OF BEAM TO BOTTOM OF THE SHEAR KEY ALONG THE FULL LENGTH OF BEAM ON BOTH SIDES. NO STAINS FROM OIL, GREASE OR OTHER CONTAMINATES SHALL BE PRESENT WITHIN THE SHEAR KEY. OMIT THE SHEAR KEY DETAIL AND BM401E AND BM402E BARS ON THE STREAM FACE OF THE FASCIA BEAMS.
2. BM402E BARS SHALL BE INSTALLED PRIOR TO DELIVERING BEAMS TO THE CONSTRUCTION SITE. AN ALTERNATIVE METHOD TO THREADED BM402E BARS PROTRUDING INTO THE SHEAR KEY SPACE MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.
3. BARS SHALL BE STAGGERED ACCORDING TO THE DETAILS PROVIDED ON THIS SHEET TO FORM A NON CONTACT LAP SPLICE.
4. RECESS TOP OF SHEAR KEY 1"x8" FOR A FILL PORT, AT BEAM ENDS AND AT QUARTER POINTS ALONG THE BEAM.
5. VALUE ENGINEERING PROPOSALS ELIMINATING THE USE OF UHPC WILL NOT BE CONSIDERED.



SHEAR KEY DETAIL

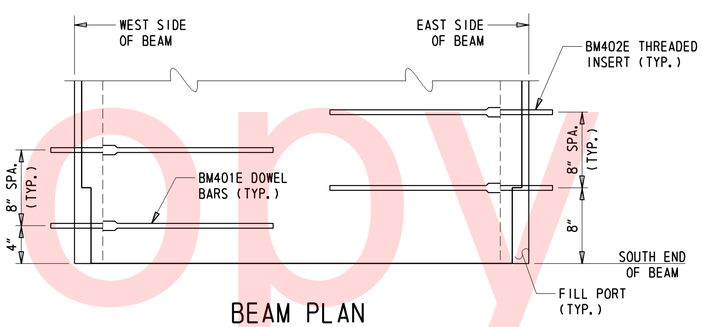
2" = 1'-0"



SHEAR KEY SECTION

2" = 1'-0"

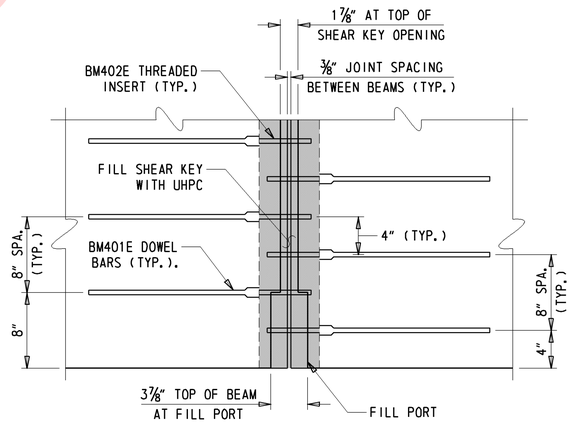
NOTE: #4 BARS ARE SHOWN WITHIN THE SAME PLANE FOR THE PURPOSE OF THIS DETAIL ONLY. REFER TO BEAM PLAN DETAIL ON THIS SHEET FOR #4 BAR SPACING.



BEAM PLAN

(SECTION A-A)

1½" = 1'-0"



NON CONTACT LAP SPLICE PLAN

(SECTION B-B)

1½" = 1'-0"

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE AS NOTED	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN	CONTRACT T201507102	BRIDGE NO. 1-308	FRAMING PLAN	SHEET NO. 13
				COUNTY NEW CASTLE	DESIGNED BY: NED/GML		TOTAL SHTS. 24
					CHECKED BY: CAS		

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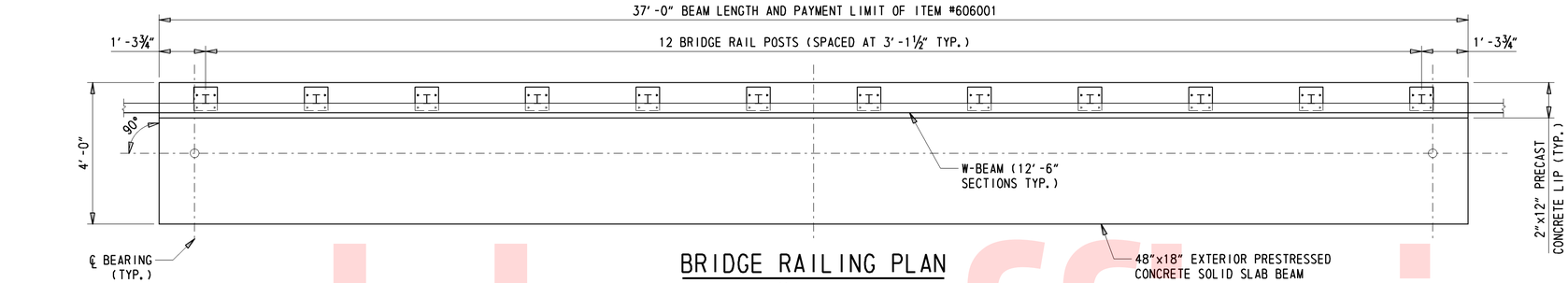
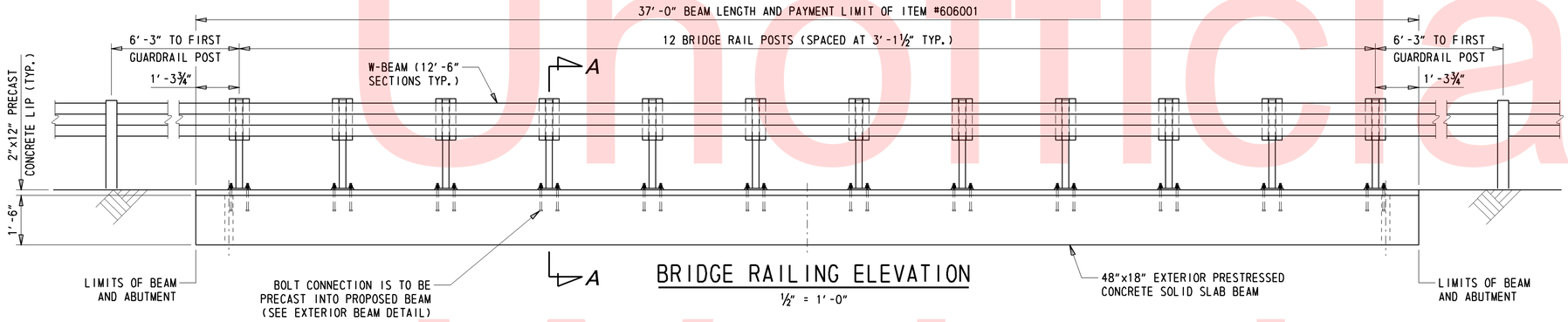


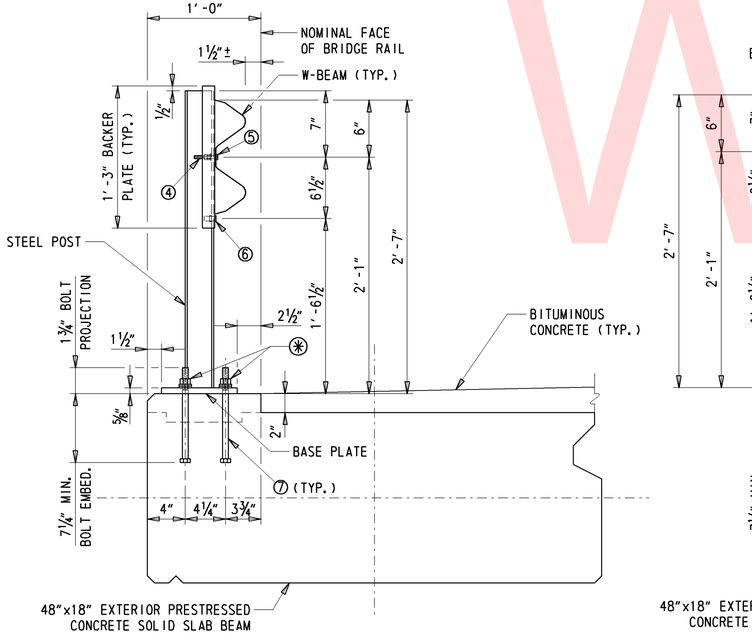
BRIDGE RAILING PLAN

½" = 1'-0"



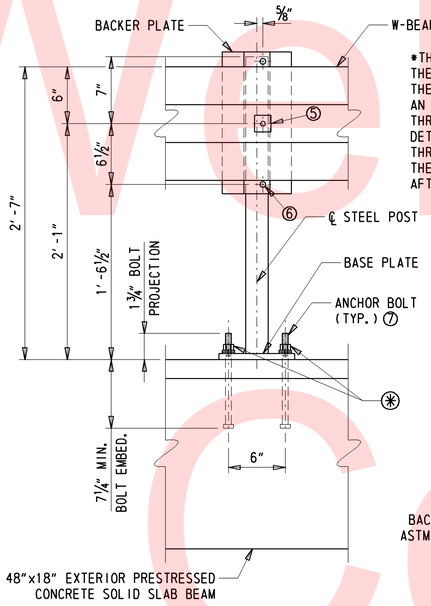
BRIDGE RAILING ELEVATION

½" = 1'-0"



TYPICAL BRIDGE RAILING SECTION ON SOLID SLAB BEAM (SECTION A-A)

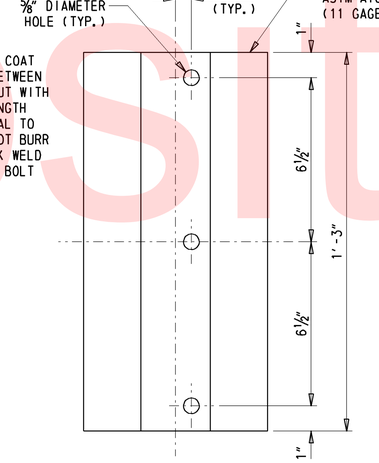
1½" = 1'-0"



*THE CONTRACTOR SHALL COAT THE CONTACT SURFACE BETWEEN THE ANCHOR BOLT AND NUT WITH AN APPROVED HIGH-STRENGTH THREAD LOCKING MATERIAL TO DETER TAMPERING. DO NOT BURR THREAD OF BOLT OR TACK WELD THE NUT TO THE ANCHOR BOLT AFTER TIGHTENING.

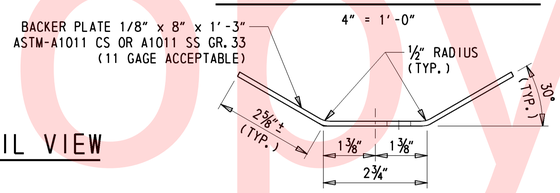
TYPICAL TRAFFIC SIDE RAIL VIEW

1½" = 1'-0"



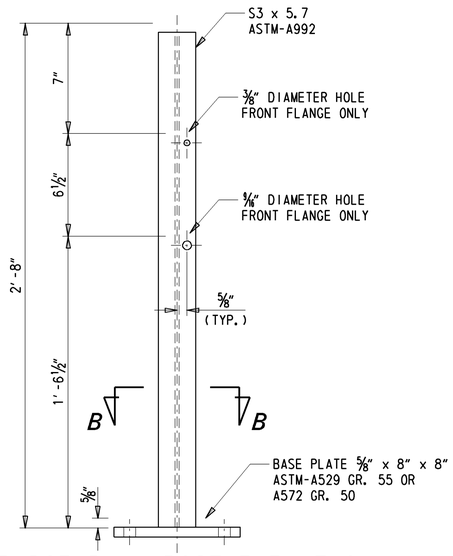
BACKER PLATE ELEVATION

4" = 1'-0"



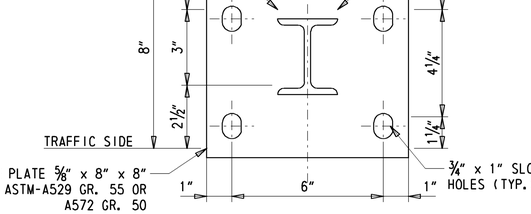
BACKER PLATE PLAN

6" = 1'-0"



BRIDGE RAIL POST ELEVATION

2½" = 1'-0"



BRIDGE RAIL POST SECTION (SECTION B-B)

4" = 1'-0"

GENERAL NOTES:

1. THIS RAILING HAS BEEN SUCCESSFULLY EVALUATED BY FULL-SCALE CRASH TEST TO MEET MASH TL-3 CRITERIA.
2. THIS RAILING IS DESIGNED TO DEFLECT APPROXIMATELY 4'-0" TO 4'-6" AS IT CONTAINS AND REDIRECTS THE ERRANT VEHICLE.
3. 74 LF OF BRIDGE GUARDRAIL IS TO BE INSTALLED ON THE BRIDGE DECK. AN ADDITIONAL 74 LF OF GUARDRAIL COMPONENTS (BASE PLATES, STEEL POSTS, W-BEAM, AND HARDWARE) SHALL BE ORDERED AND PAID FOR UNDER ITEM #606001 - METAL BRIDGE RAILING. SEE MISCELLANEOUS NOTE 15 ON THE PROJECT NOTES SHEET FOR DELIVERY DETAILS.

COMPONENT NOTES:

④ ⅞" DIA. X 2½" HEX HEAD BOLT ASTM-A307 WITH ONE REGULAR WASHER AND ONE REGULAR LOCK WASHER PLACED UNDER TWO HEX NUTS ASTM-A563. TIGHTEN THE FIRST HEX NUT BY HAND UNTIL THE TOP AND BOTTOM EDGES OF THE W-BEAM ENGAGE THE BACKER PLATE (BACKER PLATE SHOULD BE SNUG AGAINST THE POST). THEN TIGHTEN HEX NUT ONE REVOLUTION WITH WRENCH AND SECURE WITH THE SECOND HEX NUT.
⑤ PL ⅛" x 1¾" x 1¾" WITH ⅜" DIA. HOLE CENTERED IN PL, ASTM-A36. SQUARE GUARDRAIL WASHER.
⑥ ½" DIA. X 1¼" HEX HEAD BOLT ASTM-A307 WITH ONE HEX NUT ASTM-A563.
⑦ ⅝" DIA. HEAVY HEX HEAD ANCHOR BOLTS ASTM-A325 OR A449 WITH ONE HARDENED WASHER AND ONE REGULAR LOCK WASHER PLACED UNDER EACH HEAVY HEX NUT ASTM-A563.

CONSTRUCTION NOTES:

8. FACE OF BRIDGE RAIL POST MUST BE PLUMB UNLESS OTHERWISE APPROVED BY THE ENGINEER. POST MUST BE PERPENDICULAR TO ADJACENT ROADWAY GRADE. USE EPOXY MORTAR UNDER POST BASE PLATES IF GAP LARGER THAN ⅛" EXISTS.
9. FULLY ANCHORED GUARDRAIL MUST BE ATTACHED TO EACH END OF THE BRIDGE RAIL.
10. ROUND OR CHAMFER EXPOSED EDGES OF RAIL POST AND BACKER PLATE TO APPROXIMATELY ¼" BY GRINDING.
11. FABRICATOR MUST SUBMIT ERECTION AND SHOP DRAWINGS TO BE APPROVED BY THE ENGINEER.

MATERIAL NOTES:

12. ALL STEEL BRIDGE RAIL COMPONENTS SHALL BE GALVANIZED.
13. W-BEAM MUST MEET THE REQUIREMENTS FOR ITEM 720051 - GALVANIZED STEEL BEAM GUARDRAIL - TYPE 2-31 EXCEPT AS MODIFIED IN THE BRIDGE RAILING DETAILS. THE CONTRACTOR SHALL FURNISH 12'-6" (NOMINAL) LENGTHS OF GUARDRAIL. W-BEAM MUST HAVE SLOTTED HOLES AT 3'-1½" ON CENTER.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE AS NOTED	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON BRANCH	CONTRACT T201507102 / COUNTY NEW CASTLE / BRIDGE NO. 1-308 / DESIGNED BY: GML/NED / CHECKED BY: CAS	BRIDGE RAILING DETAILS	SHEET NO. 14 / TOTAL SHTS. 24

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BORING: CC-1 **DATE DRILLED:** 1/5/15
STATION: 3+71.82 **OFFSET:** -4.38 **ELEVATION:** **NORTHING:** 571980.561 **EASTING:** 594191.876
COMMENTS: N/A

NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0	50	MOIST VERY DENSE BROWN COARSE TO FINE SAND W/SOME FINE GRAVEL, TRACE OF SILT.	A-1-B	
	2.0				
2	2.0	4	MOIST LOOSE GRAY SILTY FINE TO COARSE SAND W/SOME FINE GRAVEL.	A-2-4(0)	
		2			
		7			
	4.0	7			
3	4.0	3	WET STIFF GRAY SILTY FINE TO COARSE SAND W/TRACE FINE GRAVEL.	A-4(0)	
		3			
		11			
	6.0	7			
4	6.0	3	WET LOOSE GRAY SILTY COARSE TO FINE SAND AND FINE GRAVEL.	A-2-4(0)	
		3			
		5			
	8.0	5			
5	8.0	3	WET MEDIUM DENSE GRAY COARSE TO FINE SAND W/SOME FINE GRAVEL AND SILT.	A-1-B	
	▽	6			
		8			
	10.0	6			
6	10.0		NO RECOVERY		
	12.0				
7	12.0	WR	SATURATED SOFT GRAY SILT W/SOME CLAY, TRACE OF FINE TO COARSE SAND.	A-4(4)	
		1			
		1			
	14.0	2			
8	14.0	2	SATURATED FIRM GRAY ORGANIC CLAYEY COARSE TO FINE SANDY SILT W/TRACE FINE GRAVEL.	A-5(0)	
		3			
		4			
	16.0	4			
U-1	16.0		SATURATED FIRM GRAY ORGANIC CLAYEY COARSE TO FINE SANDY SILT W/TRACE FINE GRAVEL.		
	18.0				
10	18.0	WR	NO RECOVERY		
		WH			
		WH			
	24.0	2			
11	24.0	1	SATURATED LOOSE GRAY ORGANIC SILTY FINE SAND W/SOME COARSE SAND, TRACE OF FINE GRAVEL.	A-2-4(0)	
		2			
		2			
	29.0	3			
12	29.0	2	SATURATED FIRM GRAY SILTY FINE GRAVELLY CLAY W/SOME FINE SAND AND ORGANIC MATTER, TRACE OF COARSE SAND.	A-6(5)	
		2			
		3			
	34.0	4			
13	34.0	2	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-7-6(19)	
		2			
		3			
	39.0	5			
14	39.0	2	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-6(9)	
		4			
		5			
	44.0	6			
15	44.0	4	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/TRACE FINE TO COARSE SAND.	A-6(12)	
		5			
		4			
	49.0	7			
16	49.0	4	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-7-6(14)	
		6			
		6			
	54.0	9			
17	54.0	3	SATURATED STIFF GRAY ORGANIC CLAYEY FINE SANDY SILT W/TRACE COARSE SAND AND FINE GRAVEL.	A-4(2)	
		6			
		7			
	59.0	9			
18	59.0	6	NO RECOVERY		
		6			
		9			
	64.0	9			
19	64.0	5	SATURATED STIFF GRAY ORGANIC SILTY FINE SANDY CLAY.	A-6(7)	
		6			
		8			
	69.0	12			
20	69.0	9	SATURATED VERY STIFF GRAY ORGANIC CLAYEY FINE SANDY SILT W/TRACE COARSE SAND.	A-4(5)	
		9			
		10			
	73.0	10			
	73.0		END BORING		
	75.0				

BORING: CC-2 **DATE DRILLED:** 1/7/15
STATION: 2+55.37 **OFFSET:** -2.93 **ELEVATION:** **NORTHING:** 571875.451 **EASTING:** 594142.284
COMMENTS: N/A

NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0	50	MOIST VERY DENSE BROWN COARSE SAND AND FINE GRAVEL W/SOME FINE SAND AND SILT.	A-1-B	
	2.0				
2	2.0	5	MOIST LOOSE BROWN SILTY FINE TO COARSE SAND W/SOME FINE GRAVEL.	A-2-4(0)	
		5			
		5			
	4.0	5			
3	4.0	3	WET STIFF BROWN FINE TO COARSE SANDY SILT W/SOME FINE GRAVEL AND CLAY.	A-4(0)	
		5			
		5			
	6.0	28			
4	6.0	4	WET FIRM BROWN SILT W/SOME COARSE TO FINE SAND AND FINE GRAVEL, TRACE OF CLAY.	A-4(0)	
		5			
		8			
	8.0	7			
5	8.0	1	WET MEDIUM DENSE BROWN COARSE TO FINE SAND W/TRACE FINE GRAVEL AND SILT.	A-1-B	
	▽	1			
		1			
	10.0	1			

BORING: CC-2 CONT.

NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
6	10.0	1	WET VERY LOOSE GRAY COARSE TO FINE SAND W/SOME ORGANIC MATTER AND SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
		2			
		3			
	12.0	5			
7	12.0	1	NO SIEVE ANALYSIS - INDICATION OF WET LOOSE GRAY COARSE TO FINE SAND W/SOME ORGANIC MATTER AND SILT, TRACE OF FINE GRAVEL.		
		2			
		3			
	14.0	5			
8	14.0	2	NO SIEVE ANALYSIS - INDICATION OF WET VERY LOOSE GRAY COARSE TO FINE SAND W/SOME ORGANIC MATTER AND SILT, TRACE OF FINE GRAVEL.		
		2			
		2			
	16.0	3			
9	16.0	2	SATURATED LOOSE GRAY SILTY FINE SAND W/SOME COARSE SAND AND FINE GRAVEL.	A-2-4(0)	
		3			
		3			
	18.0	5			
10	18.0	8	SATURATED MEDIUM DENSE GRAY FINE TO COARSE SAND W/SOME FINE GRAVEL AND SILT.	A-2-4(0)	
		7			
		6			
	24.0	5			
11	24.0	3	SATURATED LOOSE GRAY FINE TO COARSE SAND W/TRACE FINE GRAVEL AND SILT.	A-3	
		4			
		3			
	29.0	4			
12	29.0	2	SATURATED LOOSE GRAY FINE TO COARSE SAND W/TRACE FINE GRAVEL AND SILT.	A-6(10)	
		3			
		5			
	34.0	5			
13	34.0	2	SATURATED FIRM GRAY ORGANIC SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-7-6(15)	
		3			
		3			
	39.0	4			
14	39.0	3	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/TRACE FINE SAND.	A-7-6(20)	
		5			
		6			
	44.0	4			
15	44.0	4	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-7-6(17)	
		4			
		5			
	49.0	6			
16	49.0	6	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-7-6(18)	
		5			
		4			
	54.0	4			
17	54.0	5	SATURATED VERY STIFF GRAY ORGANIC CLAYEY FINE SANDY SILT W/TRACE COARSE SAND.	A-4(1)	
		7			
		9			
	59.0	9			
18	59.0	6	SATURATED VERY STIFF GRAY ORGANIC SILTY FINE SANDY CLAY W/TRACE COARSE SAND.	A-6(9)	
		7			
		9			
	64.0	10			
19	64.0	6	SATURATED STIFF GRAY CLAYEY FINE SANDY SILT W/SOME ORGANIC MATTER, TRACE OF COARSE SAND AND FINE GRAVEL.	A-4(2)	
		7			
		8			
	69.0	13			
20	69.0	5	SATURATED STIFF GRAY ORGANIC CLAYEY FINE SANDY SILT W/TRACE COARSE SAND.	A-4(5)	
		8			
		7			
	73.0	10			
	73.0		END BORING		
	75.0				

BORING: CC-3 CONT.

NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
10	18.0	WH	SATURATED SOFT GRAY ORGANIC SILTY CLAY W/TRACE COARSE TO FINE SAND.	A-7-5(18)	
		WH			
		WH			
	24.0	WH			
11	24.0	3	SATURATED MEDIUM DENSE GRAY SILTY FINE SAND W/SOME FINE GRAVEL, TRACE OF COARSE SAND.	A-2-4(0)	
		8			
		13			
	29.0	20			
12	29.0	2	SATURATED FIRM GRAY SILTY CLAY W/SOME FINE SAND, FINE GRAVEL AND ORGANIC MATTER, TRACE OF COARSE SAND.	A-6(6)	
		2			
		3			
	34.0	2			
13	34.0	1	SATURATED FIRM GRAY SILTY CLAY W/SOME FINE SAND AND ORGANIC MATTER.	A-7-6(18)	
		2			
		3			
	39.0	5			
14	39.0	1	SATURATED FIRM GRAY ORGANIC SILTY CLAY W/SOME FINE SAND.	A-7-6(16)	
		2			
		3			
	44.0	5			
15	44.0	1	NO RECOVERY		
		3			
		4			
	49.0	6			
16	49.0	3	SATURATED STIFF GRAY SILTY CLAY W/SOME ORGANIC MATTER AND FINE SAND.	A-7-6(19)	
		5			
		5			
	54.0	8			
17	54.0	5	SATURATED VERY STIFF GRAY ORGANIC FINE SANDY CLAY W/SOME SILT, TRACE OF COARSE SAND AND FINE GRAVEL.	A-6(3)	
		8			
		8			
	59.0	9			
18	59.0	4	SATURATED STIFF GRAY FINE SANDY CLAY W/SOME SILT AND ORGANIC MATTER, TRACE OF COARSE SAND AND FINE GRAVEL.	A-6(3)	
		6			
		8			
	64.0	9			
19	64.0	5	SATURATED STIFF GRAY CLAYEY FINE SANDY SILT W/SOME ORGANIC MATTER, TRACE OF COARSE SAND.	A-4(3)	
		7			
		7			
	69.0	9			
20	69.0	5	SATURATED STIFF GRAY ORGANIC CLAYEY FINE SANDY SILT W/TRACE COARSE SAND.	A-4(4)	
		6			
		7			
	73.0	7			
	73.0		END BORING		
	75.0				

BORING: CC-3 **DATE DRILLED:** 1/15/15
STATION: 3+39.11 **OFFSET:** -2.78 **ELEVATION:** **NORTHING:** 571950.238 **EASTING:** 594179.677
COMMENTS: N/A

NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0	3	MOIST LOOSE BROWN COARSE TO FINE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-1-B	
		4			
		5			
	2.0	6			
2	2.0	2	WET LOOSE BROWN COARSE TO FINE SAND W/SOME FINE GRAVEL, TRACE OF SILT.	A-1-B	
		3			
		4			
	4.0	6			
3	4.0	3	WET LOOSE BROWN FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
		3			
		6			
	6.0	7			
4	6.0	4	WET LOOSE BROWN COARSE TO FINE SAND AND FINE GRAVEL W/SOME SILT.	A-1-B	
		3			
		2			
	8.0	2			
5	8.0	2	WET LOOSE BROWN COARSE TO FINE SAND AND FINE GRAVEL W/TRACE SILT.	A-1-B	
	▽	3			
		4			
	10.0	7			
6	10.0	1	WET SOFT BROWN FINE SANDY SILT W/SOME COARSE SAND AND FINE GRAVEL, TRACE OF CLAY.	A-4(0)	
		2			
		1			
	12.0	2			
7	12.0	1	WET SOFT BROWN FINE SANDY SILT W/SOME COARSE SAND AND FINE GRAVEL, TRACE OF CLAY.	A-4(5)	
		1			
		2			
	14.0	1			
8	14.0	1	NO RECOVERY		
		1			
		1			
	16.0	1			
9	16.0	1	NO SIEVE ANALYSIS - INDICATION OF SATURATED SOFT GRAY SILTY CLAY.		
		3			
		1			
	18.0	2			

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

NOT TO SCALE

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO.	1-308
T201507102	DESIGNED BY: NED & GML	
COUNTY		
NEW CASTLE	CHECKED BY: CAS	

SOIL BORINGS SHEET 1 OF 2

SHEET NO.
15
TOTAL SHTS.
24

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BORING: CC-4			DATE DRILLED: 1/19/15		
STATION: 2+84.90	OFFSET: -3.08		ELEVATION:	NORTHING: 571901.726	EASTING: 594155.661
COMMENTS: N/A					

NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
			SAMPLE INFORMATION		
1	0.0		NO RECOVERY		
	0.0				
2	0.0	5	MOIST LOOSE BROWN COARSE TO FINE SAND W/SOME FINE GRAVEL, SILT.	A-1-B	
		3			
		4			
	2.0	5			
3	2.0	3	WET LOOSE BROWN COARSE TO FINE SAND W/SOME FINE GRAVEL, TRACE OF SILT.	A-1-B	
		3			
		4			
	4.0	4			
4	4.0	3	WET VERY LOOSE BROWN COARSE TO FINE SAND W/TRACE FINE GRAVEL AND SILT.	A-1-B	
		2			
		2			
	6.0	3			
5	6.0	3	WET LOOSE BROWN COARSE TO FINE SAND W/SOME FINE GRAVEL, TRACE OF SILT.	A-1-B	
		3			
		5			
	8.0	2			
6	8.0	2	WET LOOSE BROWN COARSE TO FINE SAND W/SOME FINE GRAVEL, TRACE OF SILT.	A-2-4(0)	
		3			
		5			
	10.0	4			
7	10.0	9	WET LOOSE BROWN FINE TO COARSE SAND W/SOME FINE GRAVEL, TRACE OF SILT.	A-3	
		4			
		3			
	12.0	3			
8	12.0	3	WET SOFT GRAY CLAYEY SILT W/SOME FINE TO COARSE SAND, TRACE OF FINE GRAVEL.	A-4(3)	
		2			
		2			
	14.0	2			
9	14.0	3	SATURATED FIRM GRAY ORGANIC SILT W/SOME FINE TO COARSE SAND.	A-5(7)	
		3			
		2			
	16.0	2			
U-1	16.0		SATURATED SOFT GRAY ORGANIC SILTY CLAY W/SOME FINE TO COARSE SAND.		
	18.0				
11	18.0	1	SATURATED SOFT GRAY ORGANIC SILTY CLAY W/SOME FINE TO COARSE SAND.	A-7-5(14)	
		1			
		1			
	20.0	1			
U-2	20.0				
	23.0				
U-3	23.0				
	28.0				
12	28.0	1	SATURATED VERY LOOSE GRAY ORGANIC SILTY FINE TO COARSE SAND W/TRACE FINE GRAVEL	A-2-4(0)	
		1			
		2			
	30.0	2			
13	30.0	15	SATURATED DENSE BROWN COARSE TO FINE SAND AND FINE GRAVEL W/TRACE SILT.	A-1-B	
		17			
		18			
	33.0	19			
14	33.0	3	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/SOME FINE SAND.	A-7-6(16)	
		5			
		5			
	38.0	2			
15	38.0	3	SATURATED FIRM GRAY ORGANIC SILTY CLAY W/SOME FINE SAND.	A-7-6(15)	
		3			
		5			
	43.0	6			
16	43.0	3	SATURATED FIRM GRAY ORGANIC SILTY FINE SANDY CLAY W/TRACE COARSE SAND.	A-7-6(14)	
		5			
		3			
	48.0	4			
17	48.0	3	SATURATED STIFF GRAY ORGANIC SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-7-6(16)	
		3			
		7			
	53.0	6			
18	53.0	6	SATURATED STIFF GRAY ORGANIC CLAYEY FINE SANDY SILT W/TRACE COARSE SAND.	A-4(1)	
		7			
		7			
	58.0	8			
19	58.0	3	SATURATED FIRM GRAY ORGANIC CLAYEY FINE SANDY SILT W/TRACE COARSE SAND.	A-4(4)	
		4			
		4			
	63.0	6			
20	63.0	5	SATURATED STIFF GRAY CLAYEY FINE SANDY SILT W/SOME ORGANIC MATTER, TRACE OF COARSE SAND.	A-4(0)	
		7			
		7			
	68.0	10			
21	68.0	5	SATURATED STIFF GRAY ORGANIC CLAYEY FINE SANDY SILT.	A-4(3)	
		5			
		7			
	73.0	9			
	73.0		END BORING		
	75.0				

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DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	NOT TO SCALE	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN	CONTRACT T201507102	BRIDGE NO. 1-308	SOIL BORINGS SHEET 2 OF 2	SHEET NO. 16
				COUNTY NEW CASTLE	DESIGNED BY: NED & GML		TOTAL SHTS. 24
					CHECKED BY: CAS		

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.

D. THE IDENTIFIED PERMANENT AND TEMPORARY IMPACTS TO JURISDICTIONAL RESOURCES SHOWN ON THE ENVIRONMENTAL COMPLIANCE SHEET ARE THE ONLY AUTHORIZED IMPACTS.

E. DRAGON RUN IS HISTORICALLY TIDAL BUT HAS A TIDE GATE AT ITS MOUTH, ALLOWING DISCHARGE TO THE DELAWARE RIVER ONLY AT LOW TIDE. THUS, THERE ARE NO TIDAL INFLUENCES ON DRAGON RUN. DNREC MAP #379.

2. NATURAL RESOURCE ISSUES:

A. PERMIT REQUIREMENTS/APPROVALS*:
USCG BRIDGE PERMIT - DRAGON RUN IS NON-JURISDICTIONAL PER LETTER DATED 5/4/16
U.S. ARMY CORPS OF ENGINEERS (COE): NWP #23**
DNREC - WETLANDS & SUBAQUEOUS LANDS (WLSL): WETLAND & SUBAQUEOUS LAND PERMITS**
DNREC - WATER QUALITY (WQC) & COASTAL ZONE CONSISTENCY (CZM): ISSUED
NCC DEPT. OF LAND USE - NONE (MX ACTIVITY)

* 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:
A VARIETY OF RESTRICTIONS EXIST AT THIS SITE AS FOLLOWS:
FISHERIES - NO IN WATER WORK FROM MARCH 1ST TO JUNE 30TH
ENDANGERED SPECIES -
BOG TURTLE - BOG TURTLE THIS PROJECT IS LOCATED BETWEEN TWO KNOWN BOG TURTLE HABITATS. AS SUCH, A QUALIFIED BOG TURTLE SURVEYOR (QBTS) IS REQUIRED TO INSPECT THE SITE PRIOR TO ACTIVITY, REGARDLESS OF THE TIME OF YEAR. IN ORDER TO MINIMIZE IMPACTS TO BOG TURTLES, IT IS RECOMMENDED THAT NO WORK OCCUR BETWEEN APRIL 1 NOVEMBER 29. IF IT IS NECESSARY TO PERFORM WORK DURING THAT TIME FRAME, A QBTS WILL NEED TO BE PRESENT EACH DAY TO CONDUCT A SWEEP THROUGH THE AREA TO REMOVE ANY BOG TURTLES. FOR IN-STREAM WORK THE QBTS WILL NEED TO SURVEY THE ENTIRE STREAM BOTTOM AND UNDER BANK AREAS. ADDITIONAL GUIDANCE IS LOCATED IN THE USFWS LETTER DATED 5/4/17. DELDOT IS RESPONSIBLE FOR OBTAINING THE QBTS. CONTACT CAROL SULLIVAN AT 302-760-2129 AT LEAST TWO WEEKS PRIOR TO ANY UTILITY WORK OR CONSTRUCTION IN ORDER TO ARRANGE A FIELD MEETING.
MUD SUNFISH - NO IN WATER WORK FROM MARCH 15TH - JUNE 30TH
MIGRATORY BIRDS - APRIL 15TH - AUGUST 1ST (INCLUSIVE) EITHER BEGIN WORK ON THE UNDERSIDE OF THE STRUCTURE PRIOR TO 4/15 (TO PREVENT BIRDS FROM NESTING) OR WAIT UNTIL AFTER 8/1 (AFTER HATCHLINGS HAVE LEFT) TO BEGIN WORK ON UNDERSIDE. IF NEITHER OF THESE OPTIONS IS PRACTICABLE, THEN DETERRENT NETTING OR SIMILAR DEVICE SHALL BE INSTALLED BY THE DEPARTMENT PRIOR TO 4/15.

3. CULTURAL RESOURCE ISSUES:

A. ANY STAGING AND STOCKPILE AREA(S) OUTSIDE THE PROJECT'S LOC THAT INDIVIDUALLY OR CUMULATIVELY ARE LARGER THAN 10,000 SQUARE FEET MUST BE APPROVED BY DELDOT'S ARCHAEOLOGIST. CONTACT THE AREA ENGINEER WHO WILL COORDINATE WITH DELDOT'S ARCHAEOLOGIST. WITHIN 30 DAYS, DELDOT WILL (1) APPROVE THE USE OF THE PROPOSED STAGING AND STOCKPILE AREA(S) (2) REJECT THE REQUEST; OR (3) PERFORM AN ARCHAEOLOGICAL SURVEY TO DETERMINE WHETHER TO APPROVE OR REJECT THE REQUEST, WHICH MAY TAKE UP TO 3 MONTHS. IF AN ARCHAEOLOGICAL SURVEY IS NECESSARY, DELDOT OR A CONSULTANT ON ITS BEHALF WILL UNDERTAKE THE SURVEY.

4. PROTECTION OF RESOURCES:

A. KEEP CLEARING IN WETLAND AREAS TO A MINIMUM ABSOLUTELY NECESSARY FOR CONSTRUCTION ACCESS. SUPPORT ALL EQUIPMENT TRAVERSING WETLANDS AND SUBAQUEOUS LAND ON MATS. PAYMENT FOR MATS WILL BE MADE UNDER ITEM #601520 - TEMPORARY TIMBER MAT. IN WETLAND AREAS THAT ARE CLEARED, NO GRUBBING EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS AND RIPRAP PROTECTION IS PERMITTED. CUT VEGETATION FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT). RESTORE TEMPORARILY DISTURBED WETLAND AREAS TO GRADE AND SEED WITH ITEM #908017 - TEMPORARY GRASS SEEDING (ANNUAL RYEGRASS).

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

C. USE SANDBAGS OR COMPOST FILTER LOG (CFL) TO SECURE SILT FENCE AT AREAS ADJACENT TO WOODED UPLANDS/ ALL WETLANDS IN LIEU OF TRENCHING UNLESS PROPER EROSION AND SEDIMENT CONTROL CANNOT BE MAINTAINED. SANDBAGS/CFL USED TO SECURE THE SILT FENCE IS INCIDENTAL TO ITEM #905001 - SILT FENCE. THE ENVIRONMENTAL STUDIES SECTION (CAROL SULLIVAN, 302-760-2129) CAN PROVIDE FURTHER GUIDANCE REGARDING THIS METHOD OF INSTALLATION.

4. PROTECTION OF RESOURCES CONTINUED...

D. IF IT IS NECESSARY TO REMOVE ANY OF THE TREES MARKED DO NOT DISTURB (DND), THE CONTRACTOR MUST COORDINATE AND OBTAIN APPROVAL WITH THE ENVIRONMENTAL STUDIES SECTION PRIOR TO REMOVAL.

E. CLEARLY MARK ALL TREES TO BE REMOVED WITH PAINT PRIOR TO THE EROSION AND SEDIMENT CONTROL MEETING.

5. STREAM RESTORATION:

A. RESTORE AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SUMP PITS, STABILIZED OUTFALLS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) TO EXISTING CONDITIONS. FILL ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES WITH APPROVED CHANNEL BED FILL AT THE CONTRACTOR'S EXPENSE.

B. PLACE A 6-INCH TOPSOIL LAYER (ITEM #908004) ON TOP OF THE STREAMBANKS AS SHOWN ON THE PLANS. SLOPE SEEDING WILL BE DONE WITH ITEM #908019 - STREAMBANK SEED MIX, SEEDING. FOLLOWING THE SEEDING OPERATION, INSTALL ITEM #908020 - EROSION CONTROL BLANKET (ECB) MULCH, OR OTHER BLANKET AS SHOWN ON THE PLANS. ECB AT TOE OF SLOPE CAN BE EITHER TRENCHED IN OR STAPLED AT 6" ON CENTER. COMPLETE ALL WORK, STARTING WITH THE PLACEMENT OF THE TOPSOIL THROUGH THE SEEDING AND MULCHING PRIOR TO ANY RAIN EVENT.

6. STAGING, STOCKPILING AND DISPOSAL:
NO STOCKPILING OR STORAGE OF EQUIPMENT, MATERIALS OR STRUCTURAL STEEL; NO STAGING AREA; AND NO INSTALLATION OF ANCILLARY FACILITIES SUCH AS CONCRETE OR ASPHALT PLANTS OR CONSTRUCTION TRAILERS SHALL BE PERMITTED ON ANY CULTURAL RESOURCE SITE OR WITHIN WETLANDS OR STREAMS OUTSIDE OF IDENTIFIED STORAGE AREAS APPROVED BY THE SHPO OR THE USACE. NO CONSTRUCTION MATERIALS, AGGREGATES, OR EARTH SHALL BE STOCKPILED OR STORED IN A MANNER THAT WOULD AFFECT WETLANDS OR STREAMS. STOCKPILES SHALL HAVE EROSION AND SEDIMENT CONTROLS APPROVED BY DELDOT.

ALL EXCESS EXCAVATED MATERIALS NOT USED IN CONSTRUCTION SHALL BE DISPOSED OF IN UPLAND, NON-WETLAND, NON-CULTURAL RESOURCE SITE(S). THE EXCAVATED MATERIAL SHALL BE PROPERLY CONTAINED AND STABILIZED TO PREVENT ITS ENTRY INTO ANY ADJACENT WETLANDS OR WATERWAYS. OUTSIDE OF ANY LOCATION DESIGNATED ON PLANS FOR DISPOSAL. THE CONTRACTOR SHALL SUBMIT THE PROPOSED DISPOSAL SITE LOCATION(S) TO THE ENGINEER. THE DEPARTMENT WILL NOT CONSIDER ANY DELAYS OR MONETARY CLAIMS OF ANY NATURE RESULTING FROM DELAYS IN APPROVAL OR REJECTION OF DISPOSAL SITES OR FROM THE CONTRACTOR'S FAILURE OR DIFFICULTY IN FINDING ACCEPTABLE DISPOSAL SITES TO MEET THE TIME FRAMES AND CAPACITIES REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PLANS, EROSION AND SEDIMENTATION CONTROL MEASURES, ETC. REQUIRED BY THE APPROPRIATE REGULATORY AGENCY FOR UTILIZING OFF-SITE SPOIL AREAS.

7. PLANTING GUIDANCE (INFORMATION ONLY, WORK TO BE DONE BY OTHERS. THERE WILL BE NO PAYMENT FOR PLANTING ON THIS CONTRACT.) UPON FINAL ACCEPTANCE OF THE CONTRACT, NOTIFY THE ENVIRONMENTAL STUDIES SECTION (CAROL SULLIVAN) AND ROADSIDE ENVIRONMENTAL (DARIN CALLAWAY) OF COMPLETION. WORK BY OTHERS TO INCLUDE PLANTING OF APPROPRIATE TREES AND/OR SHRUBS IN A NATURALIZED PATTERN (MINIMUM 8', MAXIMUM 12' CENTERS) IN TEMPORARILY DISTURBED WOODED WETLAND AREAS WITHIN THE LOC. FINAL PLANT COUNTS WILL BE BASED ON FIELD CONDITIONS AND DETERMINED BY THE ROADSIDE ENVIRONMENTAL ADMINISTRATOR OR APPOINTED DESIGNEE. SPECIFIC PLANT SELECTION IS ALSO AT THEIR DISCRETION BUT MUST BE A NATIVE SPECIES APPROVED BY THE DELAWARE DEPARTMENT OF NATURAL RESOURCES. ON THIS PROJECT, DNREC WSLS REQUIRES THAT A PLANTING PLAN BE SUBMITTED FOR APPROVAL PRIOR TO ACTUAL WORK.

8. MITIGATION: WILL BE REQUIRED FOR DNREC. COORDINATION ONGOING.

NOTE: WETLANDS DELINEATED BY TJ AUSTIN (CEI) ON 06/06/2016 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE ATLANTIC COASTAL PLAIN REGIONAL SUPPLEMENT.
SHEET PREPARED BY: NICHOLAS DEAN (DELDOT) ON 02-16-2016.
LAST UPDATED ON 05/16/2017.

E.C. SHEET 1 OF 2

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	NOT TO SCALE	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN	CONTRACT T201507102 / COUNTY NEW CASTLE	BRIDGE NO. 1-308 / DESIGNED BY: NED & GML / CHECKED BY: CAS	ENVIRONMENTAL COMPLIANCE NOTES	SHEET NO. 17 / TOTAL SHTS. 24

LAST REVISED: 08/08/2016
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LEGEND

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA
- WL – USACE WETLAND BOUNDARY
- SMW – STATE MAPPED WETLAND
- OHW/WL – ORD. HIGH WATER / WETLAND
- OHW – ORDINARY HIGH WATER

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

O = OPEN WATER IMPACT

T = TEMPORARY IMPACT T = TEMPORARY IMPACT

PEM = PALUSTRINE EMERGENT MARSH

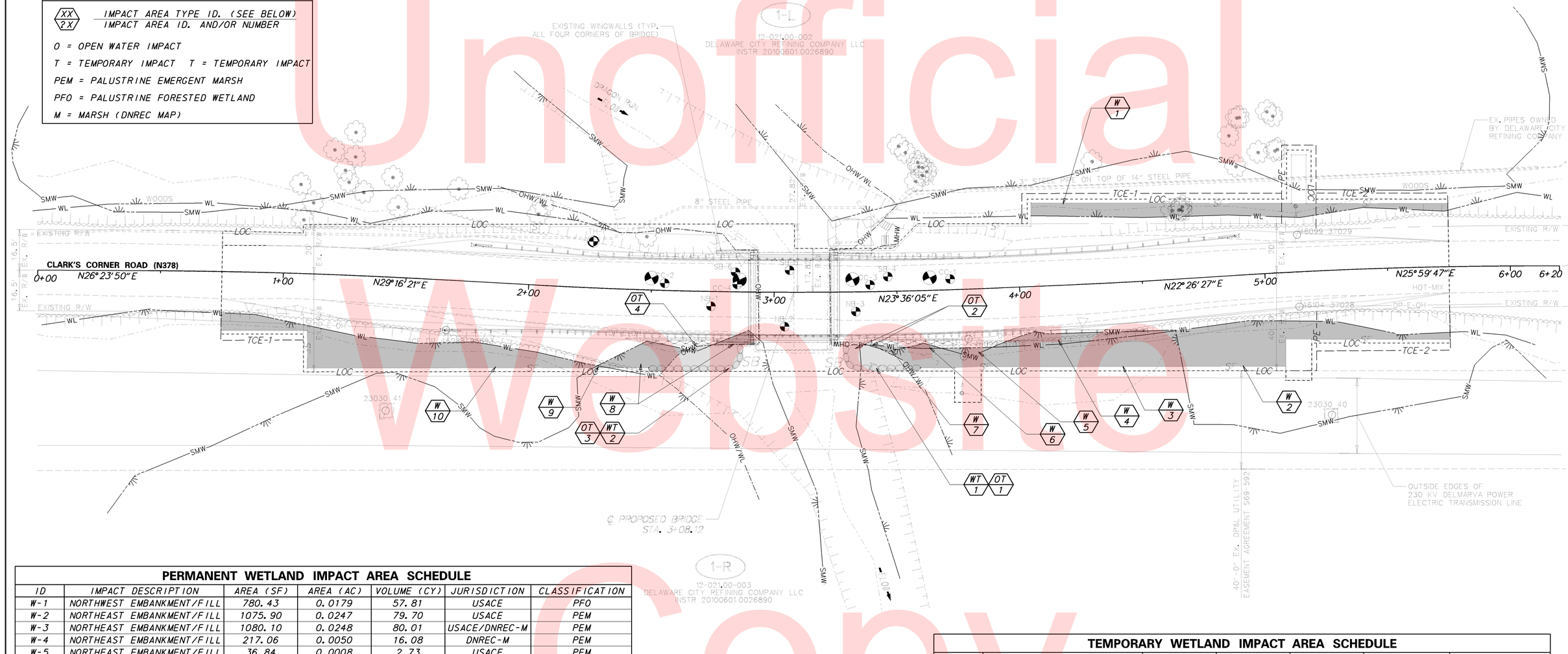
PFO = PALUSTRINE FORESTED WETLAND

M = MARSH (DNREC MAP)

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-1	NE SANDBAG DIKE/SUMP PIT	145.98	0.0034	27.03	USACE/DNREC
OT-2	NE SANDBAG DIKE/SUMP PIT	67.04	0.0015	8.69	USACE/DNREC
OT-3	SE SANDBAG DIKE/SUMP PIT	265.75	0.0061	34.45	USACE/DNREC
OT-4	SE SANDBAG DIKE/SUMP PIT	10.30	0.0002	1.34	USACE/DNREC

TOTAL USACE/DNREC IMPACTS = 0.0112 AC



PERMANENT WETLAND IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION	CLASSIFICATION
W-1	NORTHWEST EMBANKMENT/FILL	780.43	0.0179	57.81	USACE	PFO
W-2	NORTHEAST EMBANKMENT/FILL	1075.90	0.0247	79.70	USACE	PEM
W-3	NORTHEAST EMBANKMENT/FILL	1080.10	0.0248	80.01	USACE/DNREC-M	PEM
W-4	NORTHEAST EMBANKMENT/FILL	217.06	0.0050	16.08	DNREC-M	PEM
W-5	NORTHEAST EMBANKMENT/FILL	36.84	0.0008	2.73	USACE	PEM
W-6	NORTHEAST EMBANKMENT/FILL	15.16	0.0003	1.12	DNREC-M	PEM
W-7	NORTHEAST EMBANKMENT/FILL	14.66	0.0003	1.08	USACE	PEM
W-8	SOUTHEAST EMBANKMENT/FILL	240.24	0.0055	17.80	DNREC-M	PEM
W-9	SOUTHEAST EMBANKMENT/FILL	2.70	0.0001	0.20	USACE/DNREC-M	PEM
W-10	SOUTHEAST EMBANKMENT/FILL	1321.98	0.0303	97.92	USACE	PEM

TOTAL DNREC IMPACTS = 0.0357 AC (ALL M)
TOTAL USACE IMPACTS = 0.0989 AC
0.0179 AC (PFO)
0.0918 AC (PEM)

TEMPORARY WETLAND IMPACT AREA SCHEDULE

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION	CLASSIFICATION
WT-1	NE SANDBAG DIKE/SUMP PIT	67.04	0.0015	N/A	DNREC-M	PEM
WT-2	SE SANDBAG DIKE/SUMP PIT	265.75	0.0061	N/A	DNREC-M	PEM

TOTAL DNREC IMPACTS = 0.0076 AC
0.0076 AC (PEM)

E.C. SHEET 2 OF 2

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 20 40 60 FEET

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO. 1-308	ENVIRONMENTAL COMPLIANCE PLAN	SHEET NO. 18
T201507102	DESIGNED BY: NED & GML		TOTAL SHTS. 24
COUNTY NEW CASTLE	CHECKED BY: CAS		

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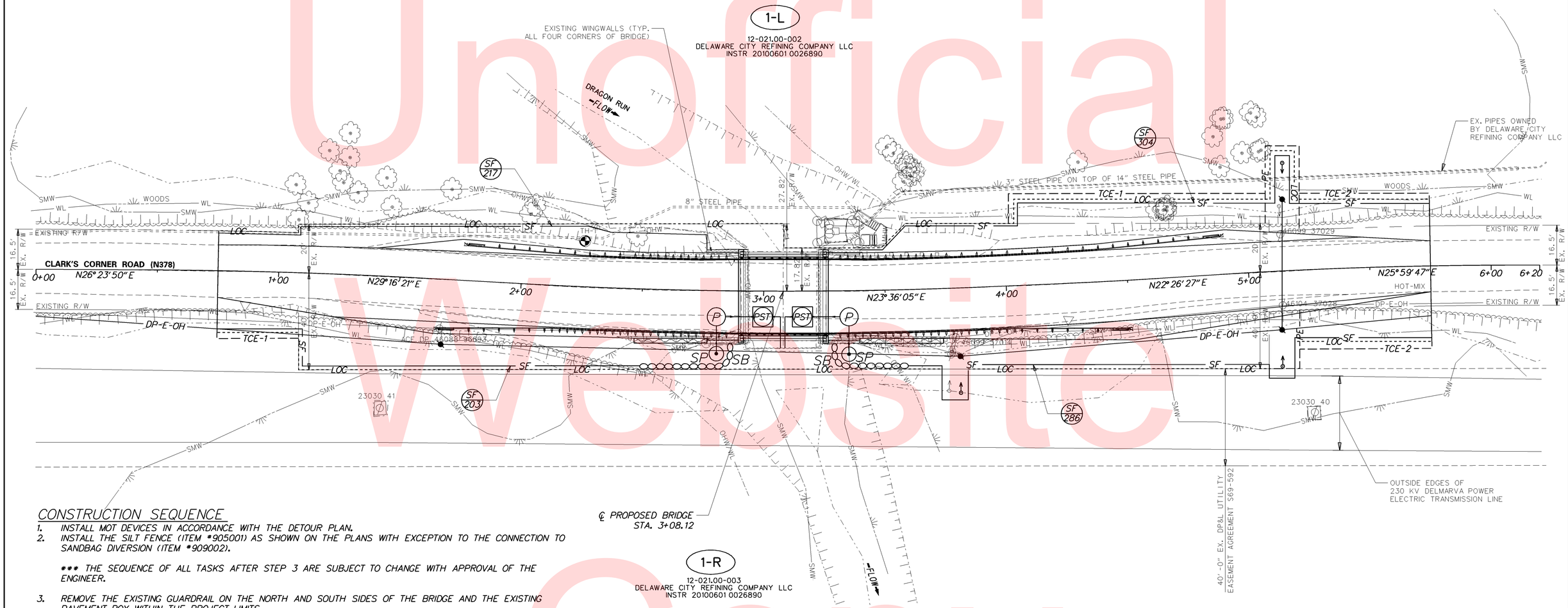

CONSTRUCTION SEQUENCE

1. INSTALL MOT DEVICES IN ACCORDANCE WITH THE DETOUR PLAN.
2. INSTALL THE SILT FENCE (ITEM *905001) AS SHOWN ON THE PLANS WITH EXCEPTION TO THE CONNECTION TO SANDBAG DIVERSION (ITEM *909002).

   *** THE SEQUENCE OF ALL TASKS AFTER STEP 3 ARE SUBJECT TO CHANGE WITH APPROVAL OF THE ENGINEER.

3. REMOVE THE EXISTING GUARDRAIL ON THE NORTH AND SOUTH SIDES OF THE BRIDGE AND THE EXISTING PAVEMENT BOX WITHIN THE PROJECT LIMITS.
4. REMOVE THE EXISTING CONCRETE BOX BEAMS. THE CONTRACTOR SHALL SUBMIT A WORK PLAN TO BE APPROVED BY THE PROJECT ENGINEER SHOWING A PLAN TO REMOVE THE EXISTING SUPERSTRUCTURE AND LIMIT DEBRIS FROM FALLING IN DRAGON RUN. ANY DEBRIS THAT FALLS INTO DRAGON RUN SHALL BE COLLECTED BY THE CONTRACTOR IMMEDIATELY.
5. PLACE PROPOSED PRECAST CONCRETE ADJACENT BOX BEAMS AND CONSTRUCT CHEEKWALLS.
6. INSTALL SANDBAG DIVERSION (ITEM *909002), SUMP PITS (ITEM *906003), AND PORTABLE SEDIMENT TANKS (ITEM *906001) AS SHOWN ON THE PLANS. THE SANDBAG DIVERSIONS SHALL HAVE A TOP ELEVATION 6" ABOVE THE WATER LINE. THE FLOW FROM THE PORTABLE SEDIMENT TANKS SHALL DISCHARGE ONTO A STABILIZED OUTFALL AS APPROVED BY THE ENGINEER.
7. DRIVE PROPOSED PERMANENT STEEL SHEETPILE ON EAST SIDE OF THE BRIDGE AND CONSTRUCT CONCRETE ENCASEMENT. SANDBAG DIVERSION, SUMP PITS, AND PORTABLE SEDIMENT TANKS MAY BE REMOVED ONCE THE FORMWORK FOR THE CONCRETE ENCASEMENT HAS BEEN REMOVED.
8. COMPLETE ALL ROAD WORK, INCLUDING, INSTALLATION OF PROPOSED PAVEMENT BOX, INSTALLATION OF PROPOSED GUARDRAIL, AND GRADING OF ROADSIDE SLOPES.
9. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER VEGETATION HAS STABILIZED ALL DISTURBED AREAS IN ACCORDANCE WITH THESE PLANS AND AS DIRECTED BY THE ENGINEER. REMOVE ALL MOT DEVICES AND REOPEN THE ROADWAY. REMOVAL OF MOT DEVICES MAY OCCUR PRIOR TO REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

SCALE 0 20 40 60 FEET

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO.	1-308
T201507102	DESIGNED BY: NED & GML	
COUNTY	CHECKED BY: CAS	
NEW CASTLE		

CONSTRUCTION SEQUENCE & EROSION CONTROL PLAN

SHEET NO.	
19	
TOTAL SHTS.	
24	

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PORTABLE CHANGEABLE MESSAGE SIGNS

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

PCMS-1

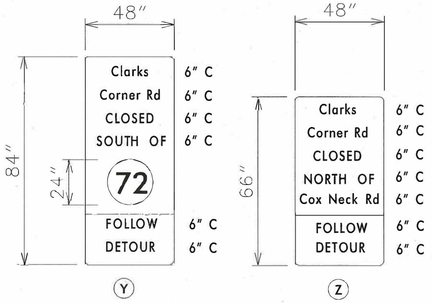
CLARKS CNR RD CLOSING	STARTING XX/XX/XX

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

PCMS-2

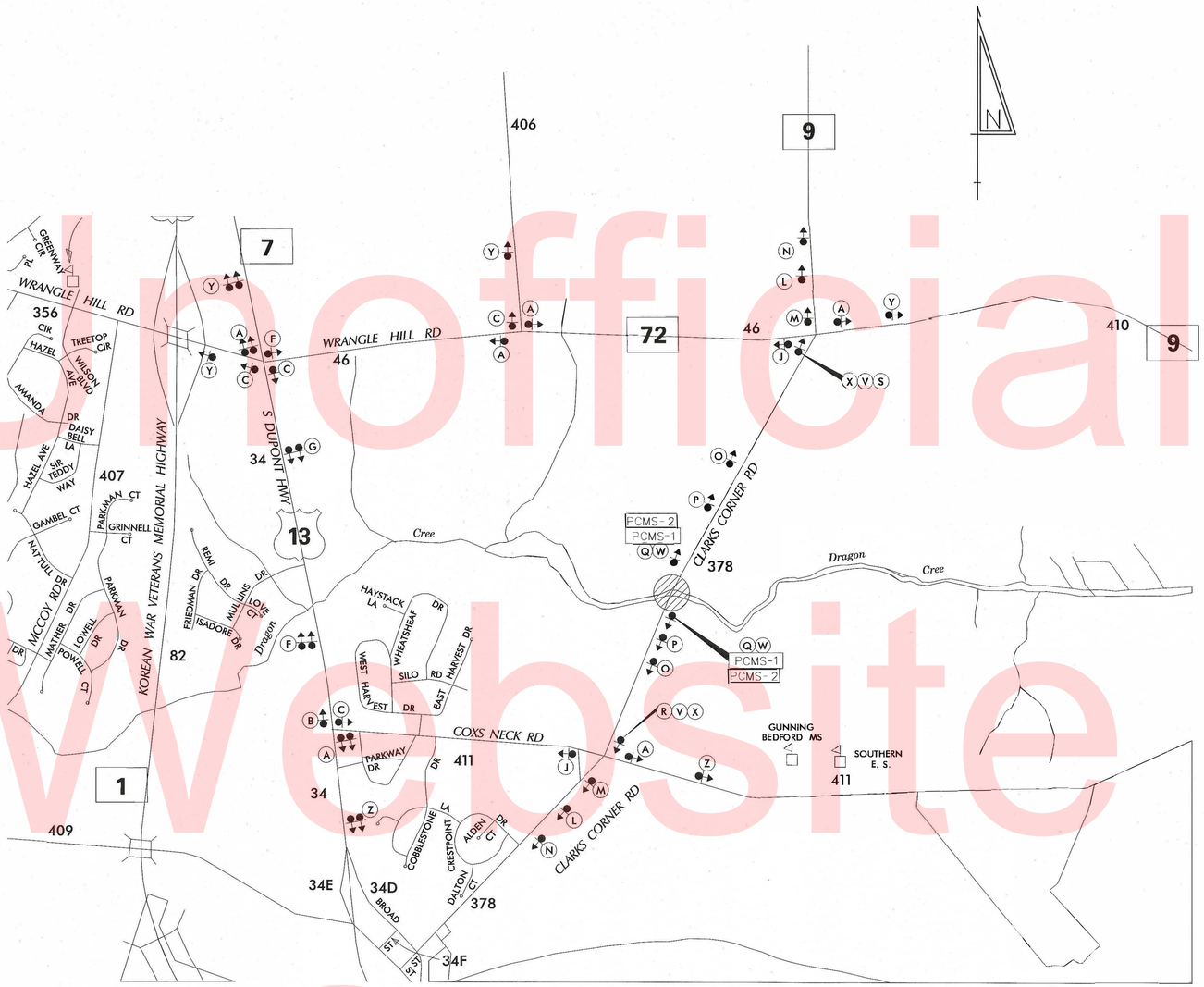
CLARKS CNR RD CLOSED	FOLLOW DETOUR

SPECIAL SIGNS

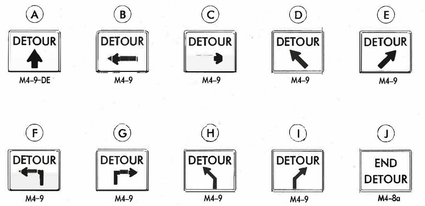


*D/G RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND; BLACK LEGEND

72 WHITE BACKGROUND; BLACK LEGEND



LEGEND



GENERAL NOTES

1. ALL DETOUR SIGNING, INCLUDING TRAILBLAZERS, ARE TO BE SUPPLIED AND MAINTAINED BY THE GENERAL CONTRACTOR IN COMPLIANCE WITH "THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (DE MUTCD.)
2. THE CONTRACTOR SHALL COMPLY WITH GUIDELINES IN "THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (DE MUTCD PART 6) FOR BARRICADES AND SIGNS (AS PER LATEST REVISION.)
3. DESIGN OF ALL SIGNS SHALL BE IN ACCORDANCE WITH THE FHWA STANDARD HIGHWAY SIGNS BOOK.
4. SIZES OF ALL SIGNS SHALL BE IN ACCORDANCE WITH "THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (DE MUTCD.) SIZE OF SIGN SHALL BE BASED ON TYPE OF ROADWAY ON WHICH THE SIGN IS INSTALLED.
5. SIGNS NO LONGER IN USE SHALL BE COMPLETELY COVERED WITH NO RETROREFLECTIVE MATERIAL SHOWING, OR SHALL BE REMOVED, AS DIRECTED BY THE ENGINEER.
6. 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" (DE MUTCD) WILL PREVAIL.
7. SIGNS "N" THROUGH "Q" AND "T" AND "V", THE WORD "ROAD" SHOULD BE CHANGED TO "RAMP", "RR XING", OR "BRIDGE" WHERE APPLICABLE.
8. WARNING SIGNS AND DETOUR TRAILBLAZERS SHALL BE MOUNTED ON BREAKAWAY POSTS AND HAVE RETROREFLECTIVE FLUORESCENT ORANGE SHEETING.
9. "W" BARRICADES SHALL COMPLETELY RUN THE FULL WIDTH OF THE ROADWAY.
10. BARRICADES SHALL BE A MINIMUM OF 6 FEET WIDE UNLESS DIRECTED BY THE ENGINEER.

W:\MSV8\CELLS\PROJDEV\SB.CEL

RECOMMENDED _____ DATE: 7/14/16

RECOMMENDED _____ DATE:

RECOMMENDED _____ DATE:

APPROVED CHIEF SAFETY OFFICER _____ DATE: 7-25-16

APPROVED TRAFFIC ENGINEER _____ DATE: 7/25/16

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUM / REVISIONS

NOT TO SCALE

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

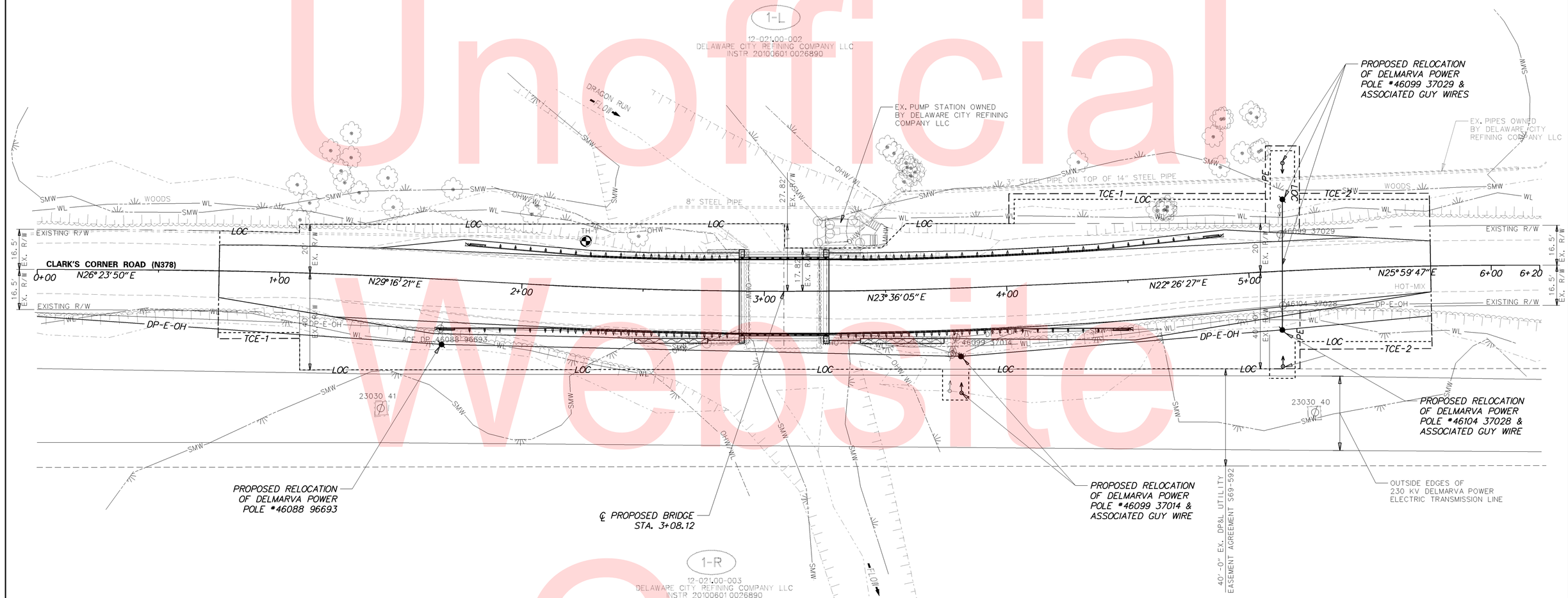
CONTRACT	ROAD NO.	N387
T201507102	DESIGNED BY: MF R	
COUNTY	CHECKED BY: AS W	
NEW CASTLE		

VEHICULAR DETOUR PLAN

Clark's Corner Rd.

SHEET NO.	TOTAL SHTS.
20	24

UTILITY TEST HOLE SCHEDULE						
NO.	UTILITY	STATION	OFFSET	GRND EL.	COVER	O.D. & MATERIAL
TH-1	DELAWARE CITY REFINING COMPANY	2+25.57	-18.87	3.51	3.28	9" STEEL



DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 20 40 60 FEET	BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN	CONTRACT T201507102	BRIDGE NO. 1-308	UTILITY RELOCATION PLAN	SHEET NO. 21
				COUNTY NEW CASTLE	DESIGNED BY: NED & GML		TOTAL SHTS. 24
					CHECKED BY: CAS		

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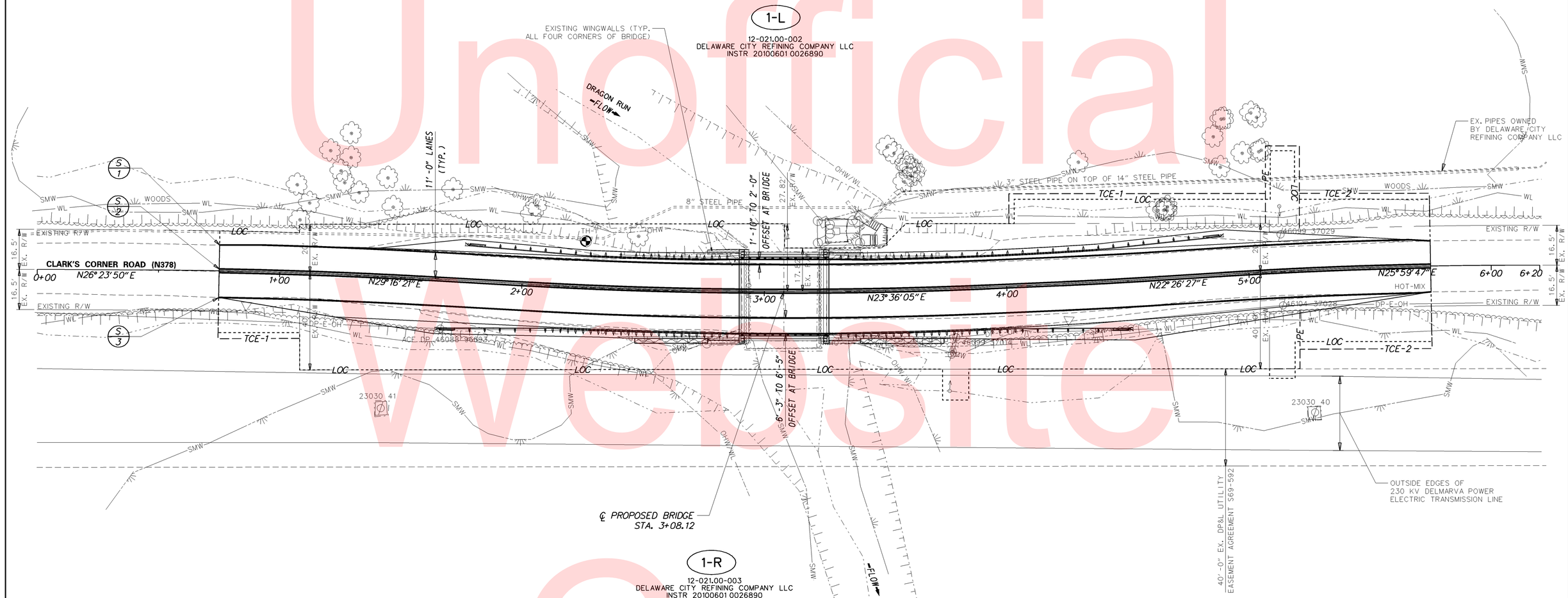

PAVEMENT MARKINGS LEGEND		
SYMBOL	ITEM	QUANTITY
①	EPOXY RESIN PAINT PAVEMENT STRIPING, WHITE 5" SOLID (ITEM 748548)	500 LF
②	EPOXY RESIN PAINT PAVEMENT STRIPING, YELLOW 5" SOLID DOUBLE LINE (ITEM 748548)	1000 LF
③	EPOXY RESIN PAINT PAVEMENT STRIPING, WHITE 5" SOLID (ITEM 748548)	500 LF

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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

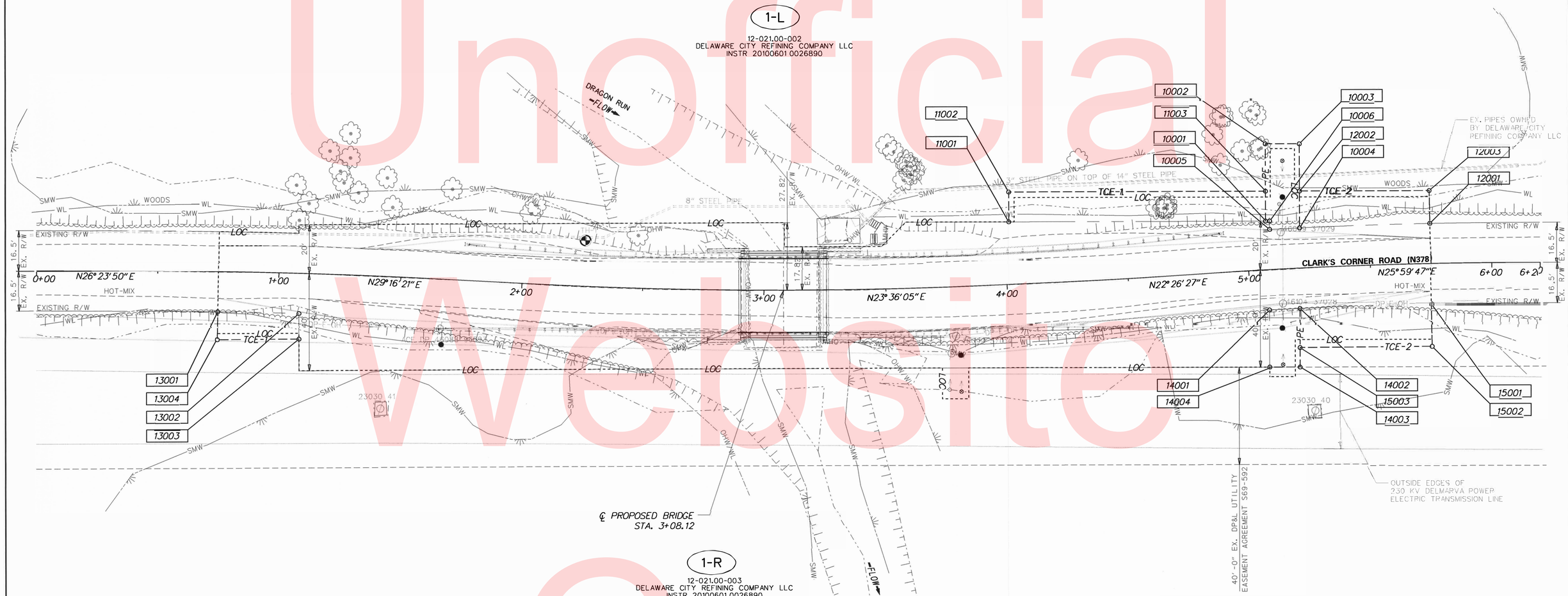
SCALE
0 20 40 60
FEET

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO. 1-308
T201507102	DESIGNED BY: NED & GML
COUNTY	CHECKED BY: CAS
NEW CASTLE	

SIGNING, STRIPING AND CONDUIT PLAN

SHEET NO.
22
TOTAL SHTS.
24



RECOMMENDED AS TO ENGINEERING NEED

MANAGER, ROW ENGINEERING	9/15/16 DATE
PROGRAM MANAGER, TEAM SUPPORT	9/15/16 DATE
TECHNICAL REVIEWER, TEAM SUPPORT	9/15/16 DATE

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE
0 20 40 60
FEET

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	T201507102	
COUNTY	NEW CASTLE	
BRIDGE NO.	1-308	
DESIGNED BY: NED & GML		
CHECKED BY: CAS		

RIGHT-OF-WAY PLAN SHEET 1 OF 2

SHEET NO.	23
TOTAL SHTS.	24

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ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)
12-021.00.002	(1-L) DELAWARE CITY REFINING COMPANY LLC	P/E	INSTR 20100601 0026890	539.560

ALIGNMENT NUMBER & DESCRIPTION: 5000 - CLARK'S CORNER ROAD

PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
10001	5000	5+07.92	-20.06	572111.7548	594230.9068	N 63°54'03.10" W	31.82				
10002	5000	5+09.57	-51.84	572125.7549	594202.3280	N 26°05'56.90" E	14.00				
10003	5000	5+23.18	-51.16	572138.3274	594208.4870	S 63°54'03.10" E	34.69				
10004	5000	5+21.63	-16.50	572123.0664	594239.6397			S 23°16'47.41" W	12.35	12.35	-1918.50
10005	5000	5+09.39	-16.50	572111.7253	594234.7602	N 63°54'29.61" W	3.48				
10006	5000	5+09.57	-19.97	572113.2538	594231.6389	S 26°01'57.48" W	1.67				
10001	5000	5+07.92	-20.06	572111.7548	594230.9068						

FIGURE 10000 AREA = 484.5380 SQ. FT. (0.0111 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)
12-021.00.002	(1-L) DELAWARE CITY REFINING COMPANY LLC	TCE-1	INSTR 20100601 0026890	539.560

ALIGNMENT NUMBER & DESCRIPTION: 5000 - CLARK'S CORNER ROAD

PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
11001	5000	4+02.00	-25.75	572016.6850	594184.4711	N 64°04'52.95" W	12.25				
11002	5000	4+02.50	-38.00	572022.0415	594173.4490	N 26°01'35.33" E	105.84				
11003	5000	5+08.56	-32.31	572117.1510	594219.8914	S 63°54'03.10" E	12.27				
10001	5000	5+07.92	-20.06	572111.7548	594230.9068	S 26°01'57.48" W	105.80				
11001	5000	4+02.00	-25.75	572016.6850	594184.4711						

FIGURE 11000 AREA = 1297.4358 SQ. FT. (0.0298 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)
12-021.00.002	(1-L) DELAWARE CITY REFINING COMPANY LLC	TCE-2	INSTR 20100601 0026890	539.560

ALIGNMENT NUMBER & DESCRIPTION: 5000 - CLARK'S CORNER ROAD

PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
12001	5000	5+75.00	-16.50	572172.1463	594261.7673			S 24°16'05.32" W	53.84	53.84	-1918.50
10004	5000	5+21.63	-16.50	572123.0664	594239.6397	N 63°54'03.10" W	15.15				
12002	5000	5+22.31	-31.64	572129.7313	594226.0345	N 26°01'35.33" E	53.57				
12003	5000	5+75.00	-30.00	572177.8668	594249.5392	S 64°55'44.59" E	13.50				
12001	5000	5+75.00	-16.50	572172.1463	594261.7673						

FIGURE 12000 AREA = 762.3648 SQ. FT. (0.0175 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)
12-021.00.003	(1-R) DELAWARE CITY REFINING COMPANY LLC	P/E	INSTR 20100601 0026890	869.980

ALIGNMENT NUMBER & DESCRIPTION: 5000 - CLARK'S CORNER ROAD

PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
14001	5000	5+07.68	16.50	572097.2245	594264.4591			N 23°13'42.54" E	12.54	12.54	1881.50
14002	5000	5+20.33	16.50	572108.7491	594269.4053	S 63°54'03.10" E	24.09				
14003	5000	5+19.18	40.56	572098.1528	594291.0358	S 26°01'57.39" W	12.50				
14004	5000	5+06.43	39.94	572086.9216	594285.5501	N 63°57'52.23" W	23.47				
14001	5000	5+07.68	16.50	572097.2245	594264.4591						

FIGURE 14000 AREA = 297.6331 SQ. FT. (0.0068 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)
12-021.00.003	(1-R) DELAWARE CITY REFINING COMPANY LLC	TCE-1	INSTR 20100601 0026890	869.980

ALIGNMENT NUMBER & DESCRIPTION: 5000 - CLARK'S CORNER ROAD

PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
13001	5000	0+75.00	16.50	571708.1286	594073.3915			N 27°32'24.83" E	33.50	33.50	2328.35
13002	5000	1+08.74	16.48	571737.8285	594088.8788	S 63°56'49.18" E	10.52				
13003	5000	1+09.10	27.00	571733.2085	594098.3291	S 25°51'57.23" W	33.70				
13004	5000	0+75.00	28.00	571702.8803	594083.6248	N 62°50'53.38" W	11.50				
13001	5000	0+75.00	16.50	571708.1286	594073.3915						

FIGURE 13000 AREA = 371.2213 SQ. FT. (0.0085 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)
12-021.00.003	(1-R) DELAWARE CITY REFINING COMPANY LLC	TCE-2	INSTR 20100601 0026890	869.980

ALIGNMENT NUMBER & DESCRIPTION: 5000 - CLARK'S CORNER ROAD

PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
14002	5000	5+20.33	16.50	572108.7491	594269.4053			N 24°14'40.60" E	54.19	54.19	1881.50
15001	5000	5+75.00	16.50	572158.1622	594291.6587	S 64°55'33.78" E	17.50				
15002	5000	5+75.00	34.00	572150.7465	594307.5083	S 25°45'22.33" W	54.48				
15003	5000	5+19.57	32.55	572101.6803	594283.8350	N 63°54'03.10" W	16.07				
14002	5000	5+20.33	16.50	572108.7491	594269.4053						

FIGURE 15000 AREA = 918.8265 SQ. FT. (0.0211 ACRES)

COUNTY ASSESSMENT PARCEL NUMBER	PLAN SHEET NUMBER	OWNERSHIP OF RECORD	TITLE SOURCE	PROPERTY AREA BEFORE ACQUISITION (ACRE) D=DEED C=CALCULATED A=ASSESMENT	ACQUISITION CODE FEE, R/W, P/E, TCE	AREA TO BE ACQUIRED				PROPERTY AREA REMAINING (SQ. FEET /ACRES)	DEED RECORD OF ACQUISTITION	REMARKS
						ACQUISITION (SQ. FEET /ACRES)	AREA OCCUPIED BY EXISTING RIGHT OF WAY (SQ. FEET /ACRES)	EASEMENT				
								PERMANENT (SQ. FEET /ACRES)	TEMPORARY (SQ. FEET /ACRES)			
12-021.00.002	6	(1-L) DELAWARE CITY REFINING COMPANY LLC	INSTR 20100601 0026890	D - 539.56	P/E			484.538 / 0.01				
					TCE-1				1297.4358 / 0.03			
					TCE-2				762.3648 / 0.02	23503230.00 / 539.56		
12-021.00.003	6	(1-R) DELAWARE CITY REFINING COMPANY LLC	INSTR 20100601 0026890	D - 869.98	P/E			297.6331 / 0.01				
					TCE-1				371.2213 / 0.01			
					TCE-2				918.8265 / 0.02	37896330.00 / 869.98		

LEGEND

FEE	AREA OF ACQUISITION
R/W	AREA OCCUPIED BY EXISTING R/W
P/E	PERMANENT EASEMENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
*	"-" OFFSET IS LEFT OF BASELINE
**	"-" CURVE TURNS TO THE LEFT

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

BR 1-308 ON N378 CLARK'S CORNER ROAD OVER DRAGON RUN

CONTRACT	BRIDGE NO.	1-308
T201507102	DESIGNED BY: NED & GML	
COUNTY	CHECKED BY: CAS	
NEW CASTLE		

RIGHT-OF-WAY DATA & TABULATION SHEET 2 OF 2

SHEET NO.
24
TOTAL SHTS.
24

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