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ADDENDA / REVISIONS

NOT TO SCALE

**BR 1-484 ON HARVEY  
STRAUGHN ROAD OVER  
BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

**INDEX OF SHEETS**

SECTION
BR
SHEET NO.
2

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ADDENDA / REVISIONS		NOT TO SCALE	BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH	CONTRACT	BRIDGE NO.	1-484	ADDENDA AND REVISIONS	SECTION
				T201707104	DESIGNED BY: MWGT	BR		
				COUNTY	CHECKED BY: NED	SHEET NO.		
				NEW CASTLE		3		

## EXISTING SYMBOLS

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

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

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

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

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

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

UTILITY COMPANY FACILITIES	
	DELMARVA POWER - COMMUNICATION - OVERHEAD
	DELMARVA POWER - ELECTRIC - OVERHEAD
	VERIZON - COMMUNICATION - OVERHEAD
	VERIZON - COMMUNICATION

(X) REPRESENTS ASCE DEFINED SUE QUALITY LEVEL

## PROPOSED SYMBOLS

CONSTRUCTION	
	CONCRETE SAFETY BARRIER - PERMANENT
	BIOFILTRATION SWALE
	BRICK PATTERNED SURFACE
	BUTT JOINT
	CLEAR ZONE
	CONSTRUCTION BASELINE
	CONSTRUCTION SAFETY FENCE
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB & GUTTER, TYPE 4
	CURB OPENING - SUMP / ON GRADE
	CURB OPENING WITH SIDEWALK
	DRAINAGE INLET
	DITCH
	FENCE - METAL / FENCE - WOOD
	FLARED END / SAFETY 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
	LATERAL OFFSET
	LIMIT OF CONSTRUCTION
	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
	PROPOSED DENIAL OF ACCESS
	PROPOSED PERMANENT EASEMENT
	PROPOSED RIGHT-OF-WAY
	PROPOSED R/W & DENIAL OF ACCESS
	RIGHT-TO-ENTER
	TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED RIGHT-OF-WAY BASELINE

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

LANDSCAPING	
	LANDSCAPE PLANTINGS
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

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

PAVEMENT SECTION(S)	
	2" SUPERPAVE, TYPE C, PG 64-22
	3" SUPERPAVE, TYPE B, PG 64-22
	8" GRADED AGGREGATE BASE COURSE, TYPE B
	6.5" PCC UNDERNEATH 7.5" OF HMA TO BE REMOVED UNDER ITEM #211001 - REMOVAL OF PCC PAVEMENT, CURB AND SIDEWALK

UTILITY COMPANY FACILITIES	
	VERIZON - COMMUNICATION

ADDENDA / REVISIONS

NOT TO SCALE

**BR 1-484 ON HARVEY  
STRAUGHN ROAD OVER  
BLACK STALLION DITCH**

CONTRACT  
T201707104  
COUNTY  
NEW CASTLE

BRIDGE NO. **1-484**  
DESIGNED BY: MWGT  
CHECKED BY: NED

LEGEND

SECTION  
BR  
SHEET NO.  
4

## GENERAL NOTES

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

- 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)

## PROJECT NOTES

### SECTION 100

- ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET BY THE CONTRACTOR, AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR WILL CONTACT THE DELAWARE TMC AT 302-659-4600 PRIOR TO ANY UNMANNED AIRCRAFT VEHICLE (UAV) FLIGHTS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE THE FOLLOWING INFORMATION: THE REGISTRATION NUMBER OF THE UAV, THE FLIGHT TIME, LOCATION OF THE FLIGHT, THE PILOT'S NAME AND THE PILOT'S CONTACT NUMBER DURING THE FLIGHT.

### SECTION 200

- ITEMS TO BE REMOVED UNDER ITEM #211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
  - REMOVAL OF TWO EXISTING CORRUGATED METAL PIPE ARCHES (71" x 47") IN THEIR ENTIRETY
  - REMOVAL OF EXISTING 15" CONCRETE DRAINAGE PIPE AND HEADWALLS
- SIGNING: TO AVOID DAMAGE, SIGNS WITHIN PROJECT LIMITS MAY BE REMOVED DURING CONSTRUCTION IF NEEDED, BUT MUST BE REPLACED TO MATCH EXISTING CONDITIONS BEFORE REOPENING THE ROADWAY. ALL WORK RELATED TO MOVING AND REINSTALLING THE SIGN SHALL BE INCIDENTAL TO ITEM #211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS, UNLESS OTHERWISE NOTED ON THE PLANS. IF THE SIGN IS DAMAGED DURING CONSTRUCTION, THE SIGN MUST BE REPLACED AT THE CONTRACTOR'S EXPENSE.

### SECTION 600

- PORTLAND CEMENT CONCRETE: USE PORTLAND CEMENT CONCRETE FOR PRECAST ELEMENTS AS FOLLOWS: (f'c = 28-DAY COMPRESSIVE STRENGTH)
  - PRECAST CONCRETE ELEMENTS - BOX CULVERT, TOEWALLS, HEADWALLS, AND WINGWALLS (f'c = 5000 PSI)
  - CHAMFER ALL EXPOSED EDGES 3/4" X 3/4" UNLESS OTHERWISE NOTED ON PLANS.

### SECTION 700

- SAWCUTTING:
  - ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT. ALL HOT-MIX SAWCUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE UNDER ITEM #762000 - SAW CUTTING, BITUMINOUS CONCRETE.
  - ALL P.C.C SAWCUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE UNDER ITEM #762001 - SAW CUTTING, CONCRETE, FULL DEPTH.

### SECTION 800

- MAINTENANCE OF TRAFFIC: MAINTENANCE OF TRAFFIC SHALL BE AS PER DETOUR PLAN. THE DETOUR SHALL REMAIN IN EFFECT UNTIL THE FINAL WARM MIX IS PLACED. ALL MOT ITEMS WITH THE EXCEPTION OF ITEM #811001 - FLAGGER, NEW CASTLE COUNTY, STATE AND ITEM #811013 - FLAGGER, NEW CASTLE COUNTY, STATE, OT, WILL BE INCLUDED IN ITEM #801500 - MAINTENANCE OF TRAFFIC, ALL INCLUSIVE.

### SECTION 900

- USE OF WELL POINTS: SOIL BORINGS HAVE IDENTIFIED POTENTIAL ISSUES WITH A HIGH WATER TABLE AND RUNNING SANDS, DESCRIBED AS MOIST GREY V. LOOSE SILTY COARSE SANDY FINE SAND TRACE OF FINE GRAVEL (A-2-4(0)) AT ELEVATION 45.5. IF NEEDED AND WITH APPROVAL OF THE ENGINEER, A WELL POINT SYSTEM SHALL BE USED TO LOWER GROUNDWATER ELEVATION. PAYMENT UNDER ITEM #906005 - WELL POINT SYSTEM.
- 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

- DESIGN SPECIFICATIONS:
  - (A) DELDOT BRIDGE DESIGN MANUAL, 2019 EDITION
  - (B) AASHTO LRFD BRIDGE SPECIFICATIONS, 2017, 8TH EDITION, CUSTOMARY U.S. UNITS.
  - (C) PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE DELDOT STANDARD SPECIFICATIONS, AUGUST 2016.
- LOADING: DESIGN LIVE LOADS INCLUDE HL-93 LOADING.
- HYDRAULIC DATA:
 

DRAINAGE AREA:	1.74 sq.miles	DESIGN FREQ.:	25 YEARS
DESIGN DISCHARGE:	353 cfs	100-YEAR DISCHARGE:	527 cfs
EXISTING 25-YEAR WSE:	56.51 ft	PROPOSED 25-YEAR WSE:	54.69 ft
EXISTING 25-YEAR VELOCITY:	9.78 fps	PROPOSED 25-YEAR VELOCITY:	7.64 fps
EXISTING 100-YEAR WSE:	56.95 ft	PROPOSED 100-YEAR WSE:	56.69 ft
EXISTING 100-YEAR VELOCITY:	9.39 fps	PROPOSED 100-YEAR VELOCITY:	11.74 fps
EXISTING WATERWAY OPENING:	37.5 sq.ft	PROPOSED WATERWAY OPENING:	48 sq.ft
- SCOUR ANALYSIS:
 

SCOUR DESIGN FREQUENCY:	100-YEAR
SCOUR DESIGN FLOOD DISCHARGE:	527 cfs
SCOUR DESIGN FLOOD VELOCITY:	11.74 fps
WATER SURFACE ELEVATION:	56.69 ft

SCOUR COUNTERMEASURES HAVE BEEN DESIGNED FOR THE SCOUR DESIGN FLOOD IN ACCORDANCE WITH HEC 14 - HYDRAULIC DESIGN OF ENERGY DISSIPATORS FOR CULVERTS AND CHANNELS.
- THE CONTRACTOR SHALL NOTIFY DART FIRST STATE AT DOT\_DETOURS@DELAWARE.GOV AT LEAST 14 DAYS PRIOR TO THE START OF ANY DETOURS OR CONSTRUCTION, AND DOT\_DTC\_PROJECTDEVELOPMENT@DELAWARE.GOV AT SUCH TIME THE FACILITY IS COMPLETED AND OPERABLE FOR TRANSIT OPERATIONS. FOR EMERGENCY DETOUR INFORMATION ONLY, PLEASE CONTACT DTC'S CHIEF SCHEDULER AT 302-576-6019.

ADDENDA / REVISIONS

NOT TO SCALE

**BR 1-484 ON HARVEY  
STRAUGHN ROAD OVER  
BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

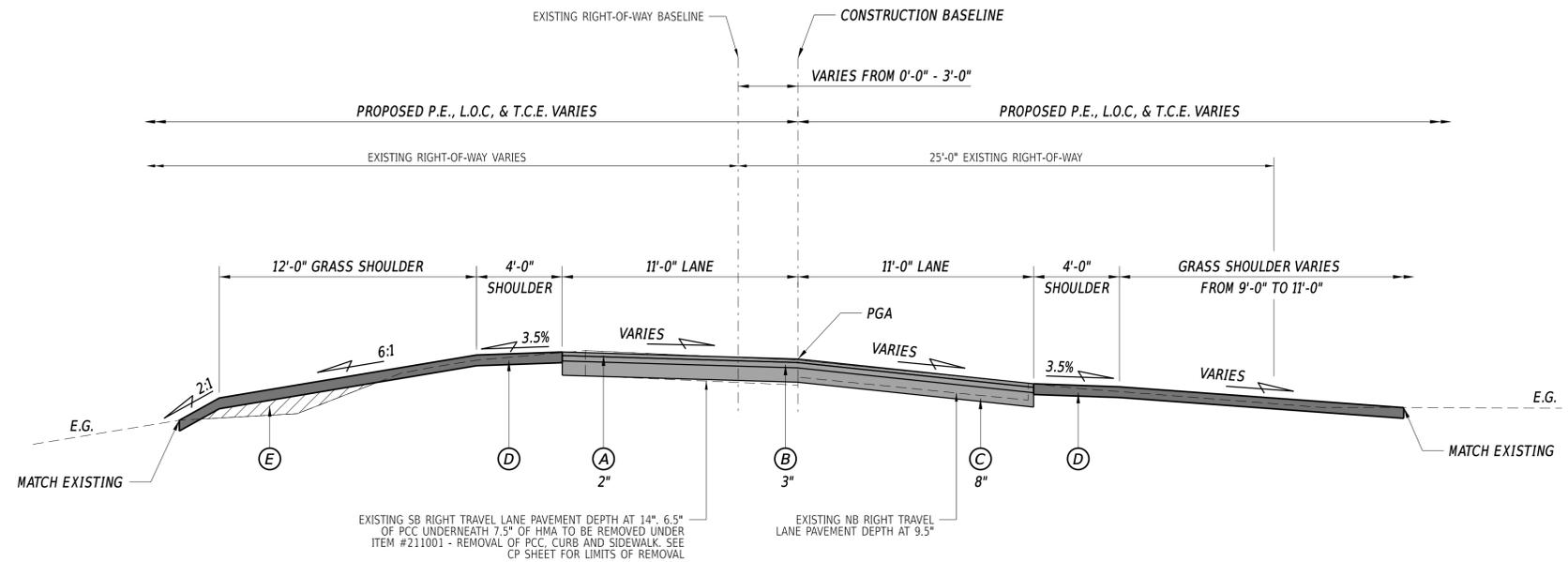
NOTES

SECTION	BR
SHEET NO.	5

**LEGEND**

- (A) ITEM 401005 - SUPERPAVE, TYPE C, PG 64-22 (CARBONATE STONE)
- (B) ITEM 401014 - SUPERPAVE, TYPE B, 64-22
- (C) ITEM 301001 - GRADED AGGREGATE BASE COURSE, TYPE B
- (D) ITEM 908004 - TOPSOIL 6" DEPTH  
ITEM 908019 - PERMANENT GRASS SEEDING, STREAMBANK  
ITEM 908020 - EROSION CONTROL BLANKET MULCH
- (E) ITEM 209006 - BORROW, TYPE F

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"



**TYPICAL PROPOSED ROADWAY SECTION**  
 (ROADWAY TRANSITION FROM NORMAL CROWN TO  
 EXISTING SUPERELEVATION STA. 11+00 - STA. 14+50)

**NOTES:**

1. TRAVEL LANES TO TRANSITION FROM 10'-0" WIDTH AT STA. 11+00 TO 11'-0" AT STA. 11+50.
2. TRAVEL LANES TO TRANSITION FROM 11'-0" WIDTH AT STA. 14+00 TO 10'-0" AT STA. 14+50.
3. SB LANE TO TRANSITION FROM -2% SLOPE AT STA. 11+00 TO 3.2% SLOPE AT STA. 14+50.
4. NB LANE TO TRANSITION FROM -1.2% SLOPE AT STA. 11+00 TO -9.5% SLOPE AT STA. 14+50.
5. NB GRASS SHOULDER VARIES FROM 4:1 TO 14:1.

ADDENDA / REVISIONS



**BR 1-484 ON HARVEY  
 STRAUGHN ROAD OVER  
 BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

**TYPICAL SECTIONS**

SECTION
BR
SHEET NO.
6

CONSTRUCTION CIRCULAR CURVE NO.1

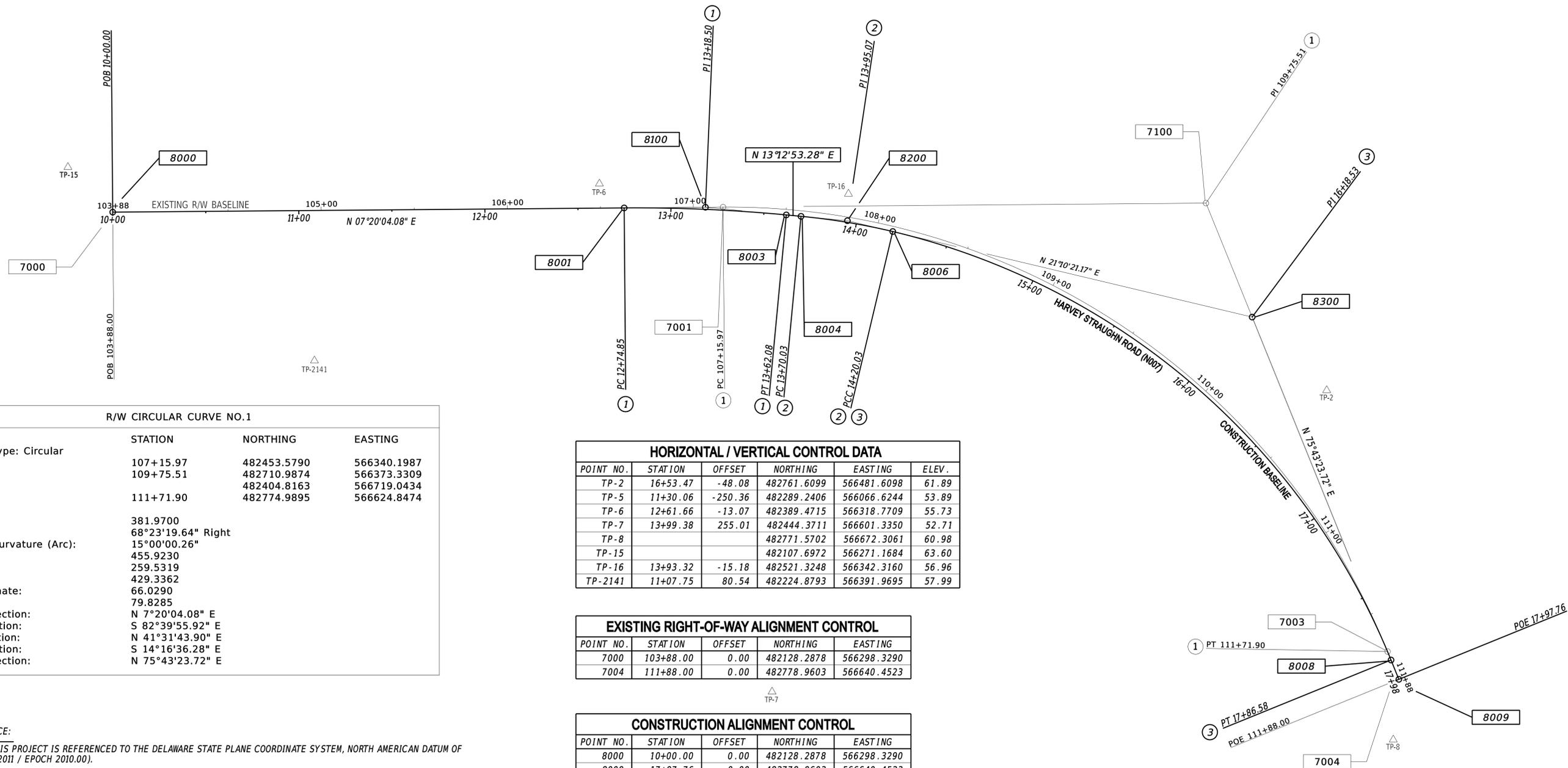
	STATION	NORTHING	EASTING
Curve Set Type: Circular			
PC (8001)	12+74.85	482400.8852	566333.4163
PI (8100)	13+18.50	482444.1845	566338.9895
CC (8002)		482292.3731	567176.4614
PT (8003)	13+62.08	482486.6851	566348.9695
Radius:	850.0000		
Delta:	5°52'49.20" Right		
Degree of Curvature (Arc):	6°44'26.45"		
Length:	87.2365		
Tangent:	43.6566		
Chord:	87.1982		
Middle Ordinate:	1.1189		
External:	1.1204		
Tangent Direction:	N 7°20'04.08" E		
Radial Direction:	S 82°39'55.92" E		
Chord Direction:	N 10°16'28.68" E		
Radial Direction:	S 76°47'06.72" E		
Tangent Direction:	N 13°12'53.28" E		

CONSTRUCTION CIRCULAR CURVE NO.2

	STATION	NORTHING	EASTING
Curve Set Type: Circular			
PC (8004)	13+70.03	482494.4212	566350.7861
PI (8200)	13+95.07	482518.7984	566356.5104
CC (8005)		482412.1244	566701.2533
PCC (8006)	14+20.03	482542.1484	566365.5544
Radius:	360.0000		
Delta:	7°57'27.89" Right		
Degree of Curvature (Arc):	15°54'55.78"		
Length:	50.0000		
Tangent:	25.0403		
Chord:	49.9598		
Middle Ordinate:	0.8677		
External:	0.8698		
Tangent Direction:	N 13°12'53.28" E		
Radial Direction:	S 76°47'06.72" E		
Chord Direction:	N 17°11'37.23" E		
Radial Direction:	S 68°49'38.83" E		
Tangent Direction:	N 21°10'21.17" E		

CONSTRUCTION CIRCULAR CURVE NO.3

	STATION	NORTHING	EASTING
Curve Set Type: Circular			
PCC (8006)	14+20.03	482542.1484	566365.5544
PI (8300)	16+18.53	482727.2524	566437.2495
CC (8007)		482403.0949	566724.5657
PT (8008)	17+86.58	482776.2046	566629.6225
Radius:	385.0000		
Delta:	54°33'02.55" Right		
Degree of Curvature (Arc):	14°52'55.27"		
Length:	366.5544		
Tangent:	198.5036		
Chord:	352.8658		
Middle Ordinate:	42.8064		
External:	48.1613		
Tangent Direction:	N 21°10'21.17" E		
Radial Direction:	S 68°49'38.83" E		
Chord Direction:	N 48°26'52.45" E		
Radial Direction:	S 14°16'36.28" E		
Tangent Direction:	N 75°43'23.72" E		



R/W CIRCULAR CURVE NO.1

	STATION	NORTHING	EASTING
Curve Set Type: Circular			
PC (7001)	107+15.97	482453.5790	566340.1987
PI (7100)	109+75.51	482710.9874	566373.3309
CC (7002)		482404.8163	566719.0434
PT (7003)	111+71.90	482774.9895	566624.8474
Radius:	381.9700		
Delta:	68°23'19.64" Right		
Degree of Curvature (Arc):	15°00'00.26"		
Length:	455.9230		
Tangent:	259.5319		
Chord:	429.3362		
Middle Ordinate:	66.0290		
External:	79.8285		
Tangent Direction:	N 7°20'04.08" E		
Radial Direction:	S 82°39'55.92" E		
Chord Direction:	N 41°31'43.90" E		
Radial Direction:	S 14°16'36.28" E		
Tangent Direction:	N 75°43'23.72" E		

HORIZONTAL / VERTICAL CONTROL DATA

POINT NO.	STATION	OFFSET	NORTHING	EASTING	ELEV.
TP-2	16+53.47	-48.08	482761.6099	566481.6098	61.89
TP-5	11+30.06	-250.36	482289.2406	566066.6244	53.89
TP-6	12+61.66	-13.07	482389.4715	566318.7709	55.73
TP-7	13+99.38	255.01	482444.3711	566601.3350	52.71
TP-8			482771.5702	566672.3061	60.98
TP-15			482107.6972	566271.1684	63.60
TP-16	13+93.32	-15.18	482521.3248	566342.3160	56.96
TP-2141	11+07.75	80.54	482224.8793	566391.9695	57.99

EXISTING RIGHT-OF-WAY ALIGNMENT CONTROL

POINT NO.	STATION	OFFSET	NORTHING	EASTING
7000	103+88.00	0.00	482128.2878	566298.3290
7004	111+88.00	0.00	482778.9603	566640.4523

CONSTRUCTION ALIGNMENT CONTROL

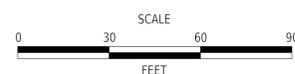
POINT NO.	STATION	OFFSET	NORTHING	EASTING
8000	10+00.00	0.00	482128.2878	566298.3290
8009	17+97.76	0.00	482778.9603	566640.4523

DATUM REFERENCE:

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

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

ADDENDA / REVISIONS

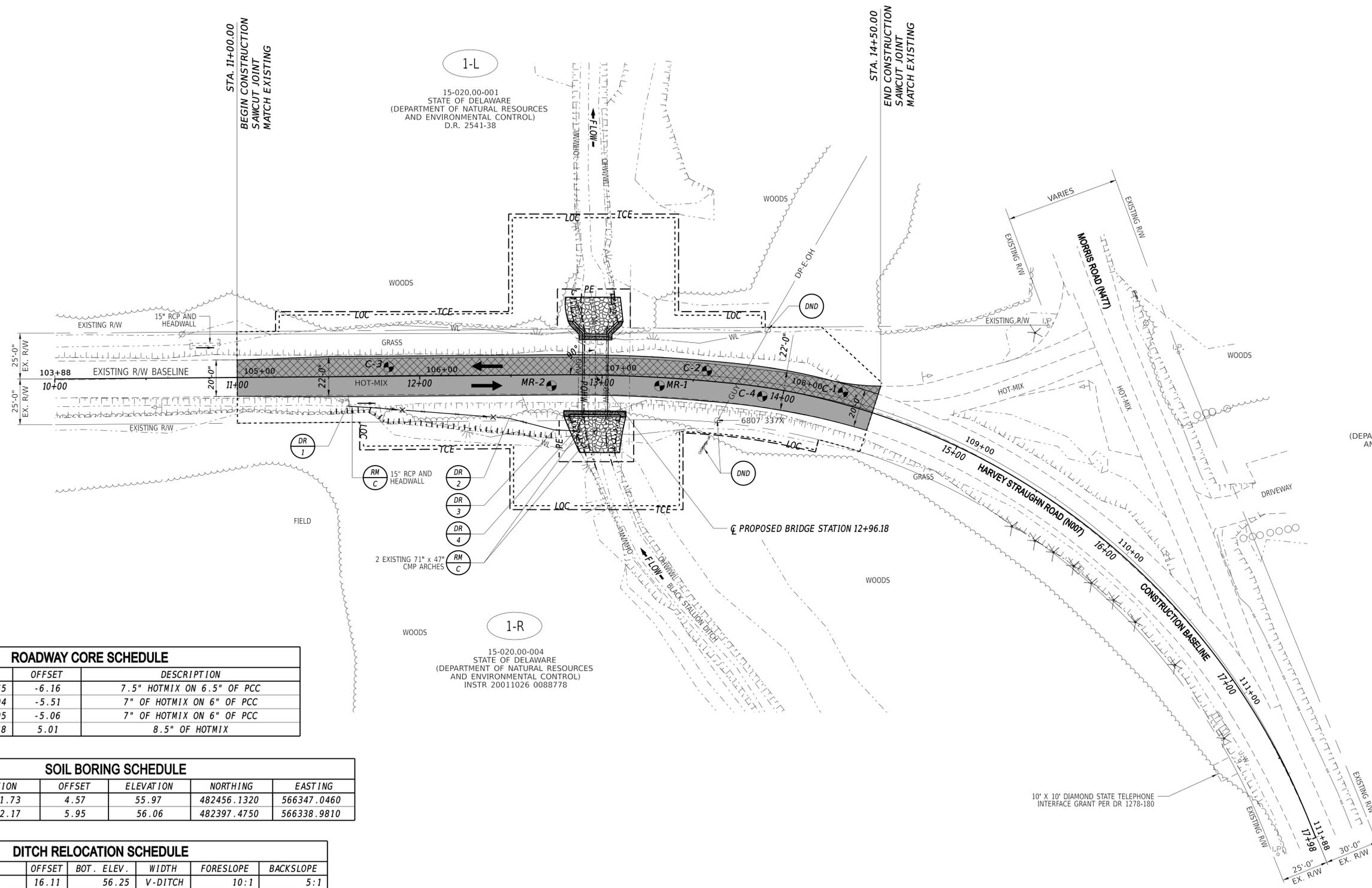


BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH

CONTRACT	BRIDGE NO.	1-484
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

HORIZONTAL AND VERTICAL CONTROL

SECTION	BR
SHEET NO.	7



1-L  
15-020.00-001  
STATE OF DELAWARE  
(DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL)  
D.R. 2541-38

1-R  
15-020.00-004  
STATE OF DELAWARE  
(DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL)  
INSTR 20011026 0088778

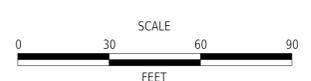
14-025.00-054  
STATE OF DELAWARE  
(DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL)  
D.R. 1565-133

ROADWAY CORE SCHEDULE			
NO.	STATION	OFFSET	DESCRIPTION
C-1	14+31.65	-6.16	7.5" HOTMIX ON 6.5" OF PCC
C-2	13+57.04	-5.51	7" OF HOTMIX ON 6" OF PCC
C-3	11+83.05	-5.06	7" OF HOTMIX ON 6" OF PCC
C-4	13+88.78	5.01	8.5" OF HOTMIX

SOIL BORING SCHEDULE					
NO.	STATION	OFFSET	ELEVATION	NORTHING	EASTING
MR-1	13+31.73	4.57	55.97	482456.1320	566347.0460
MR-2	12+72.17	5.95	56.06	482397.4750	566338.9810

DITCH RELOCATION SCHEDULE						
NO.	STATION	OFFSET	BOT. ELEV.	WIDTH	FORESLOPE	BACKSLOPE
DR-1	11+60.15	16.11	56.25	V-DITCH	10:1	5:1
DR-2	12+48.89	23.56	52.35	V-DITCH	3:1	5:1
DR-3	12+73.48	30.07	52.11	V-DITCH	4:1	4:1
DR-4	12+85.28	30.62	52.00	N/A	N/A	N/A

ADDENDA / REVISIONS



**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

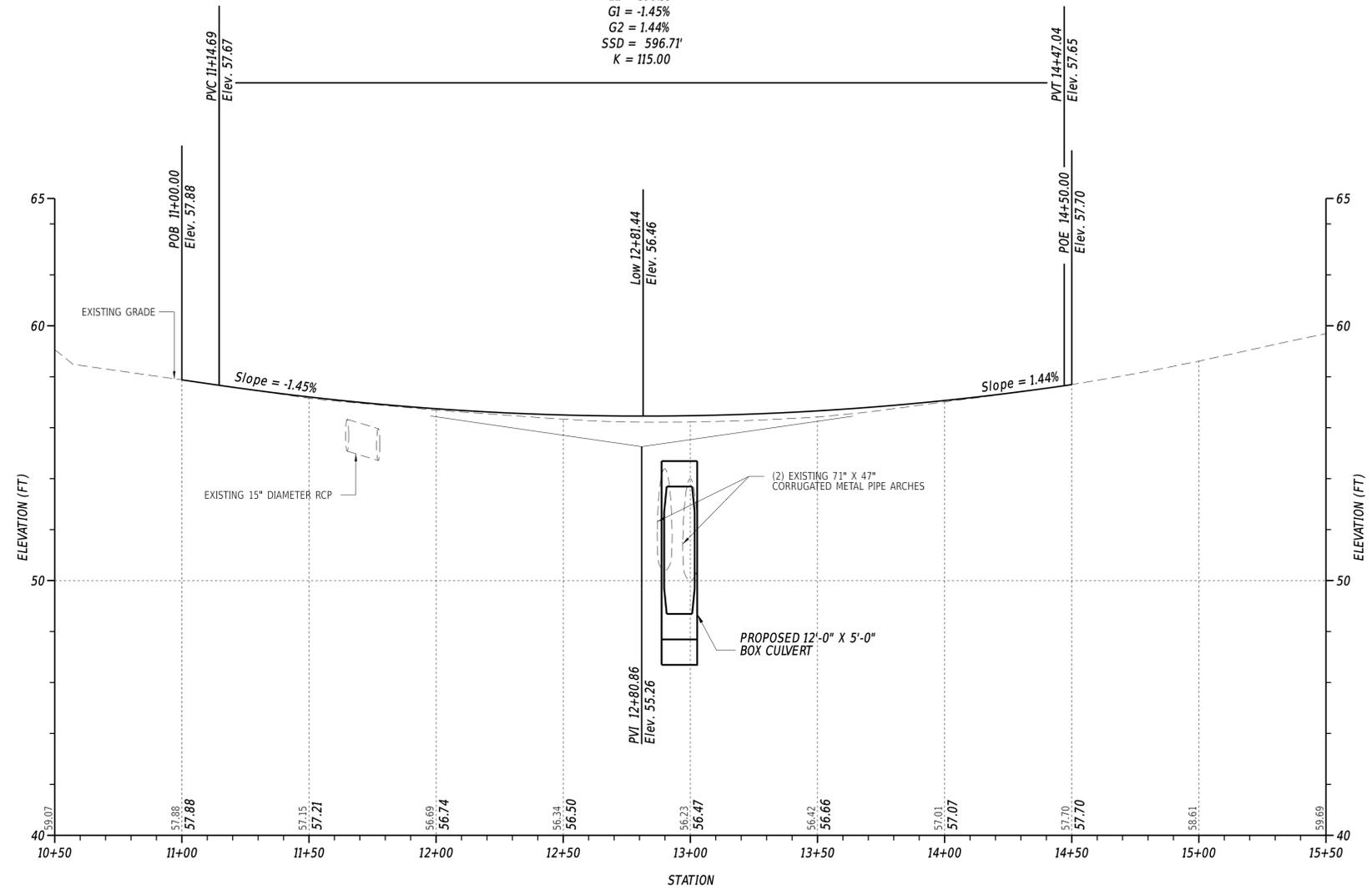
CONTRACT	T201707104	BRIDGE NO.	<b>1-484</b>
COUNTY	NEW CASTLE	DESIGNED BY:	MWGT
		CHECKED BY:	NED

**CONSTRUCTION PLAN**

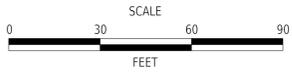
SECTION	BR
SHEET NO.	8

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Type of Curve = Symmetric Parabola  
 Direction = Sag  
 Length = 332.35'  
 L1 = 166.18'  
 L2 = 166.18'  
 G1 = -1.45%  
 G2 = 1.44%  
 SSD = 596.71'  
 K = 115.00



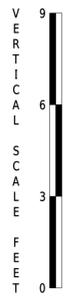
N007 - HARVEY STRAUGHN ROAD



BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH

CONTRACT	BRIDGE NO.	1-484
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

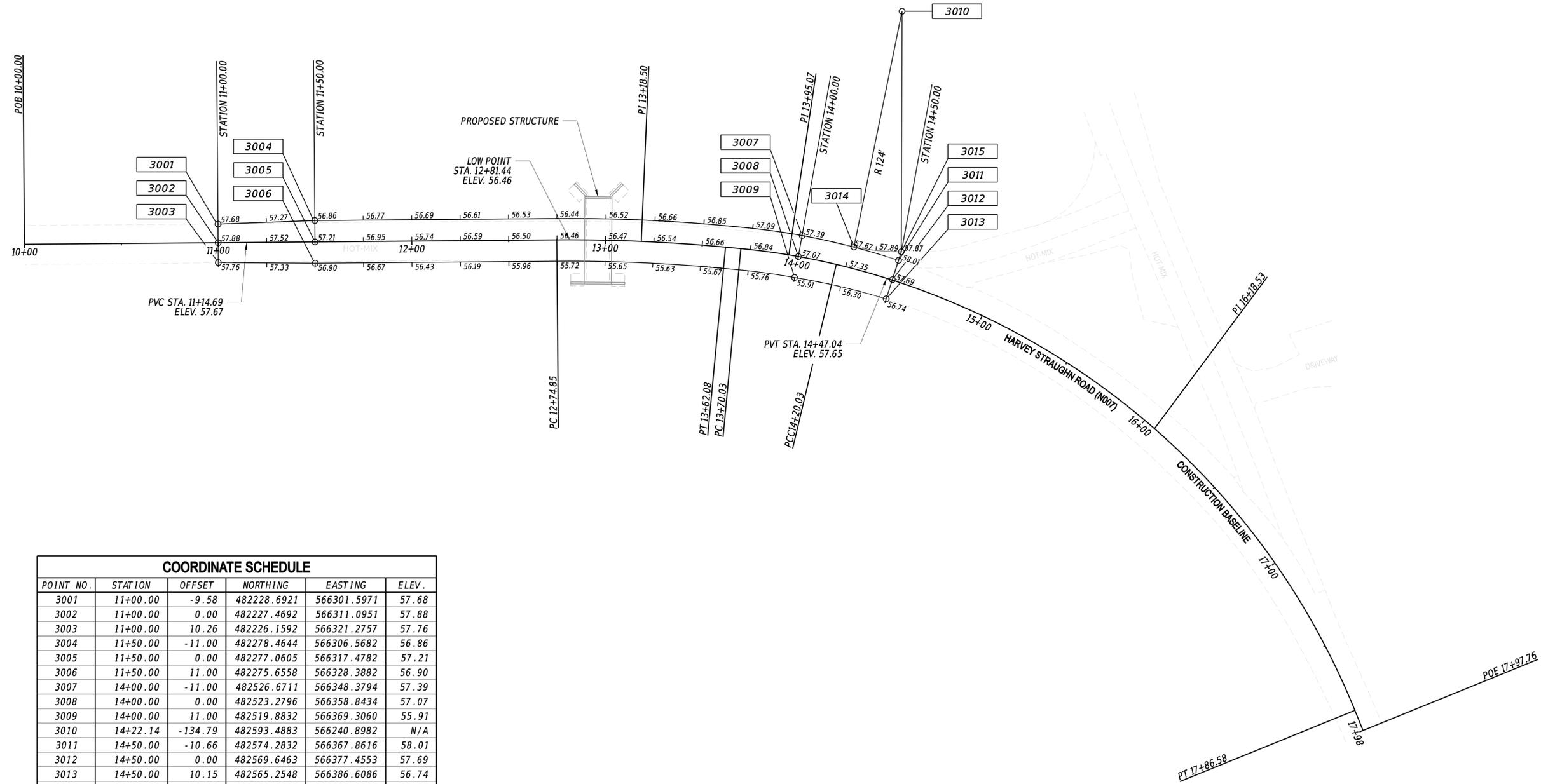
PROFILE



SECTION	BR
SHEET NO.	9

ADDENDA / REVISIONS

5:11/11/2020  
 18:52  
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**COORDINATE SCHEDULE**

POINT NO.	STATION	OFFSET	NORTHING	EASTING	ELEV.
3001	11+00.00	-9.58	482228.6921	566301.5971	57.68
3002	11+00.00	0.00	482227.4692	566311.0951	57.88
3003	11+00.00	10.26	482226.1592	566321.2757	57.76
3004	11+50.00	-11.00	482278.4644	566306.5682	56.86
3005	11+50.00	0.00	482277.0605	566317.4782	57.21
3006	11+50.00	11.00	482275.6558	566328.3882	56.90
3007	14+00.00	-11.00	482526.6711	566348.3794	57.39
3008	14+00.00	0.00	482523.2796	566358.8434	57.07
3009	14+00.00	11.00	482519.8832	566369.3060	55.91
3010	14+22.14	-134.79	482593.4883	566240.8982	N/A
3011	14+50.00	-10.66	482574.2832	566367.8616	58.01
3012	14+50.00	0.00	482569.6463	566377.4553	57.69
3013	14+50.00	10.15	482565.2548	566386.6086	56.74
3014	14+26.62	-10.92	482552.3897	566357.8726	57.77
3015	14+50.00	-15.28	482576.2559	566363.6800	57.87

ADDENDA / REVISIONS

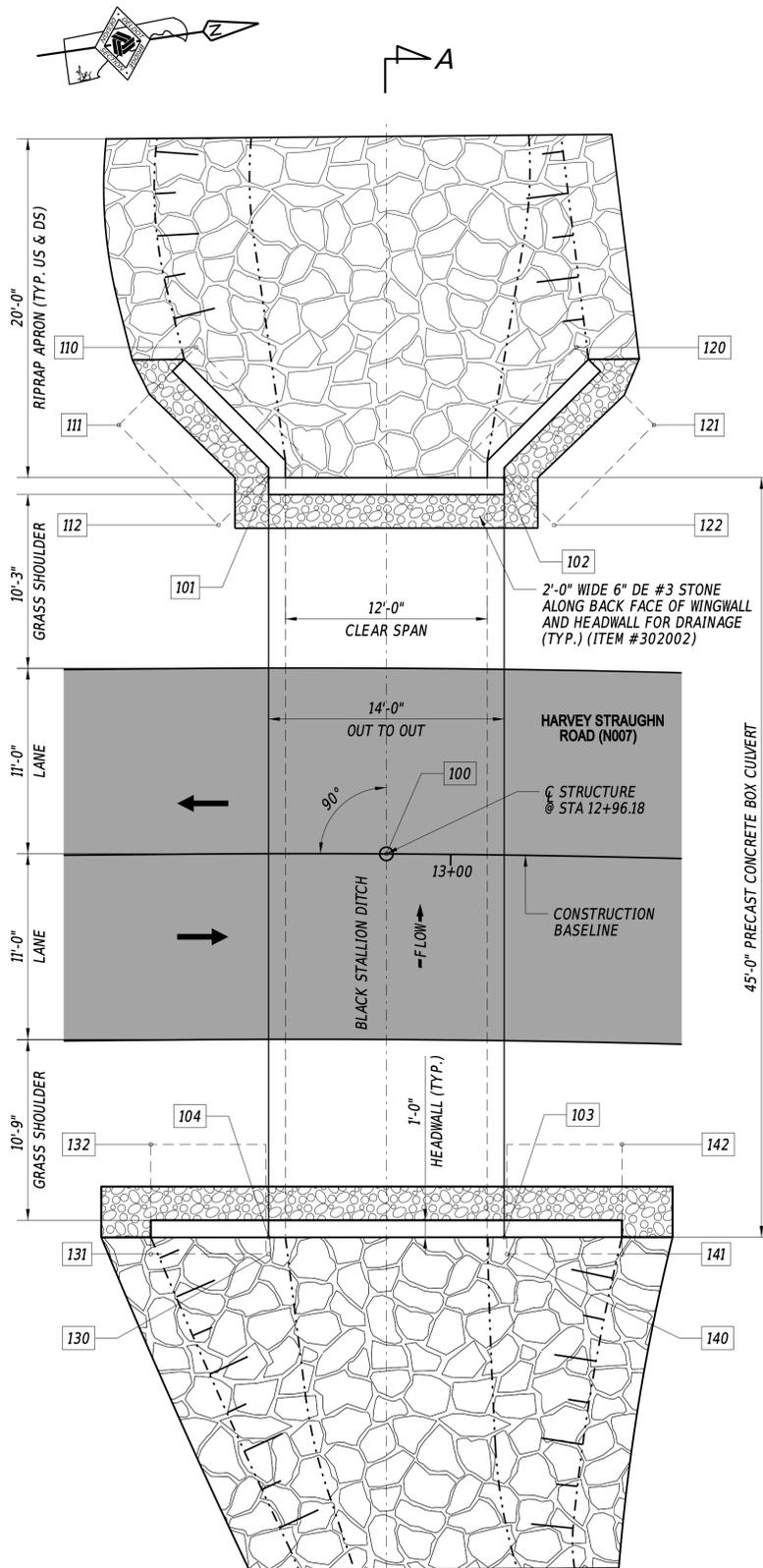


**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

**GRADES AND GEOMETRICS**

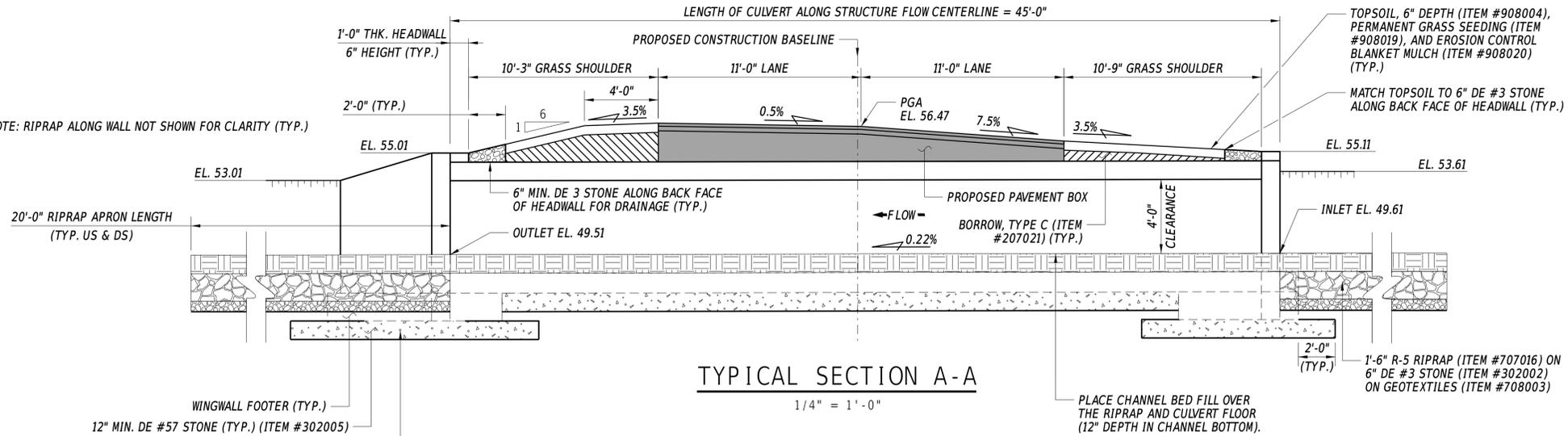
SECTION
BR
SHEET NO.
10



PLAN

3/16" = 1'-0"

NOTE: RIPRAP ALONG WALL NOT SHOWN FOR CLARITY (TYP.)



WINGWALL FOOTER (TYP.)  
12" MIN. DE #57 STONE (TYP.) (ITEM #302005)  
WRAP GEOTEXTILE (ITEM #708001). EXTEND MIN. 2 FEET UNDERNEATH STRUCTURAL ELEMENT (TYP. ALL AROUND)

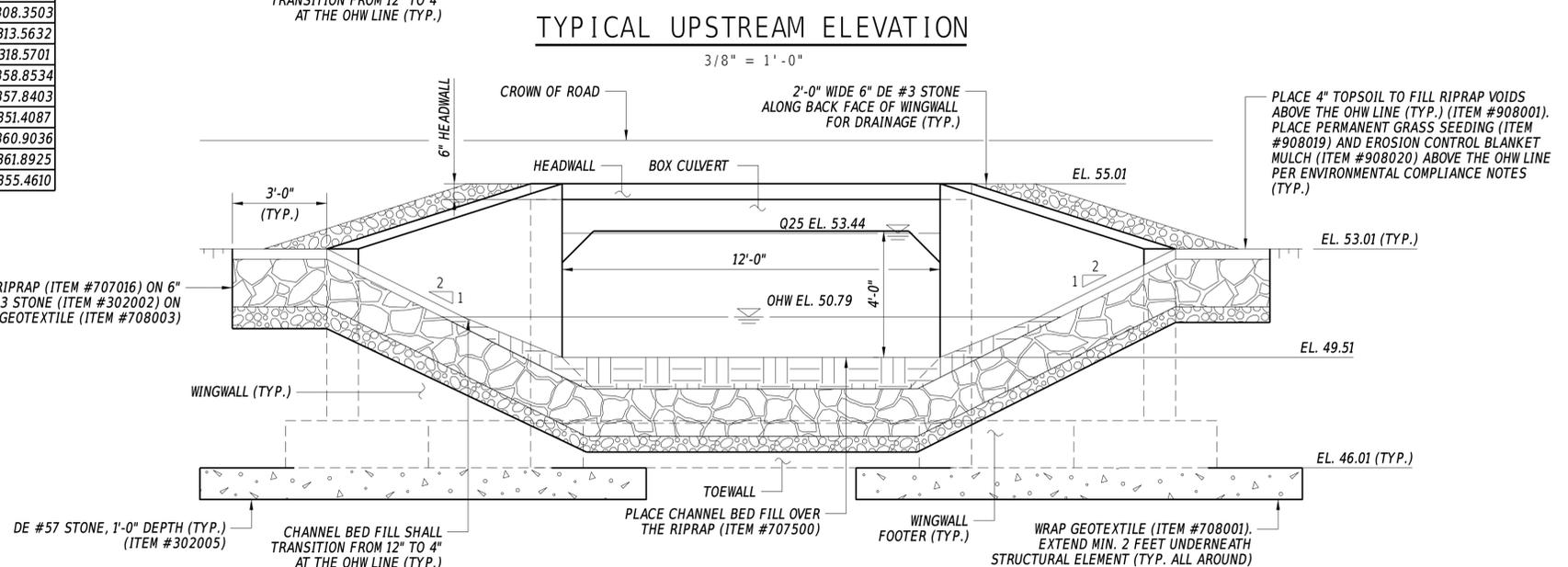
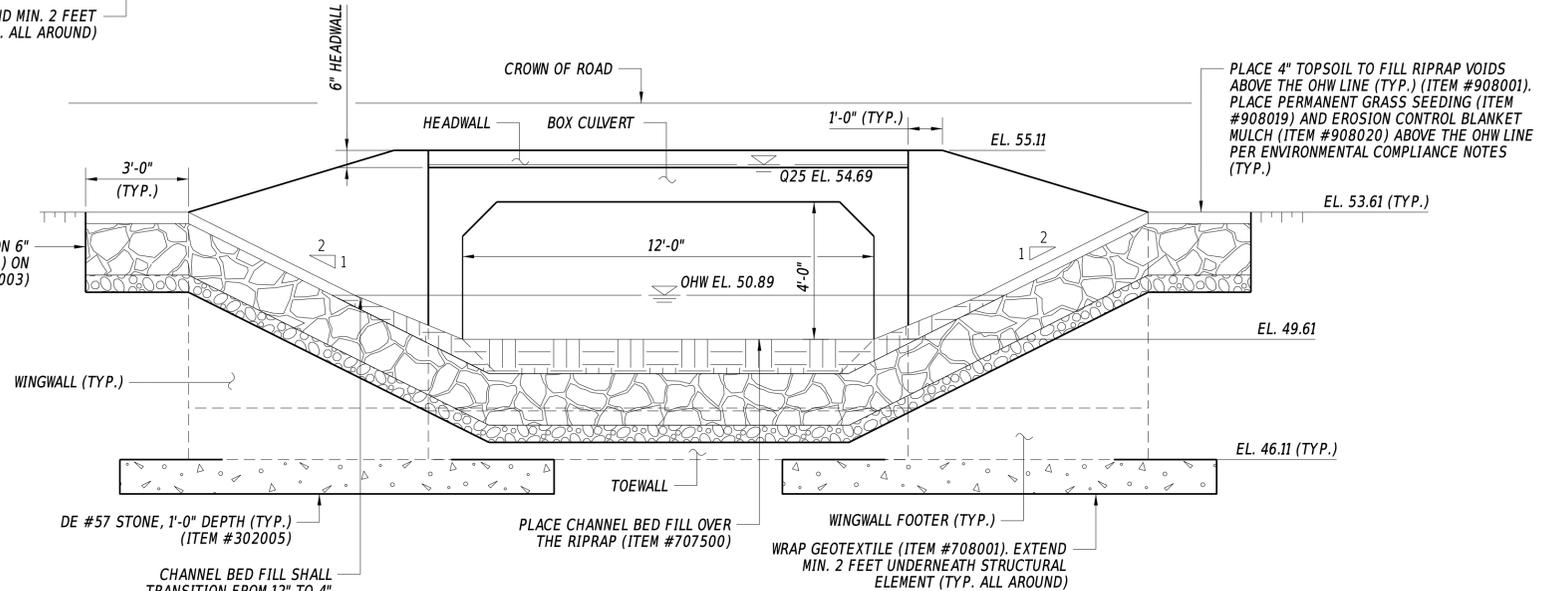
1'-6" R-5 RIPRAP (ITEM #707016) ON 6" DE #3 STONE (ITEM #302002) ON GEOTEXTILE (ITEM #708003)

STRUCTURAL WORKING POINTS

PT.	STATION	OFFSET	NORTHING	EASTING
100	12+96.18	0.00	482422.0055	566336.4046
101	12+89.19	-22.26	482418.3048	566313.3376
102	13+02.83	-22.37	482432.1575	566315.3638
103	13+03.55	22.62	482425.6450	566359.8900
104	12+89.17	22.74	482411.7923	566357.8639
110	12+85.03	-29.99	482415.1637	566305.0786
111	12+80.55	-25.43	482409.9508	566308.9612
112	12+86.28	-19.46	482414.9577	566315.6837
120	13+06.87	-30.16	482437.5324	566308.3503
121	13+11.42	-25.68	482441.4150	566313.5632
122	13+05.77	-19.62	482434.6925	566318.5701
130	12+89.17	23.74	482411.6476	566358.8534
131	12+81.97	23.71	482404.7213	566357.8403
132	12+82.03	17.21	482405.6620	566351.4087
140	13+03.74	23.62	482425.6651	566360.9036
141	13+10.77	23.48	482432.4265	566361.8925
142	13+10.60	16.98	482433.3672	566355.4610

1'-6" R-5 RIPRAP (ITEM #707016) ON 6" DE #3 STONE (ITEM #302002) ON GEOTEXTILE (ITEM #708003)

DE #57 STONE, 1'-0" DEPTH (TYP.) (ITEM #302005)



ADDENDA / REVISIONS

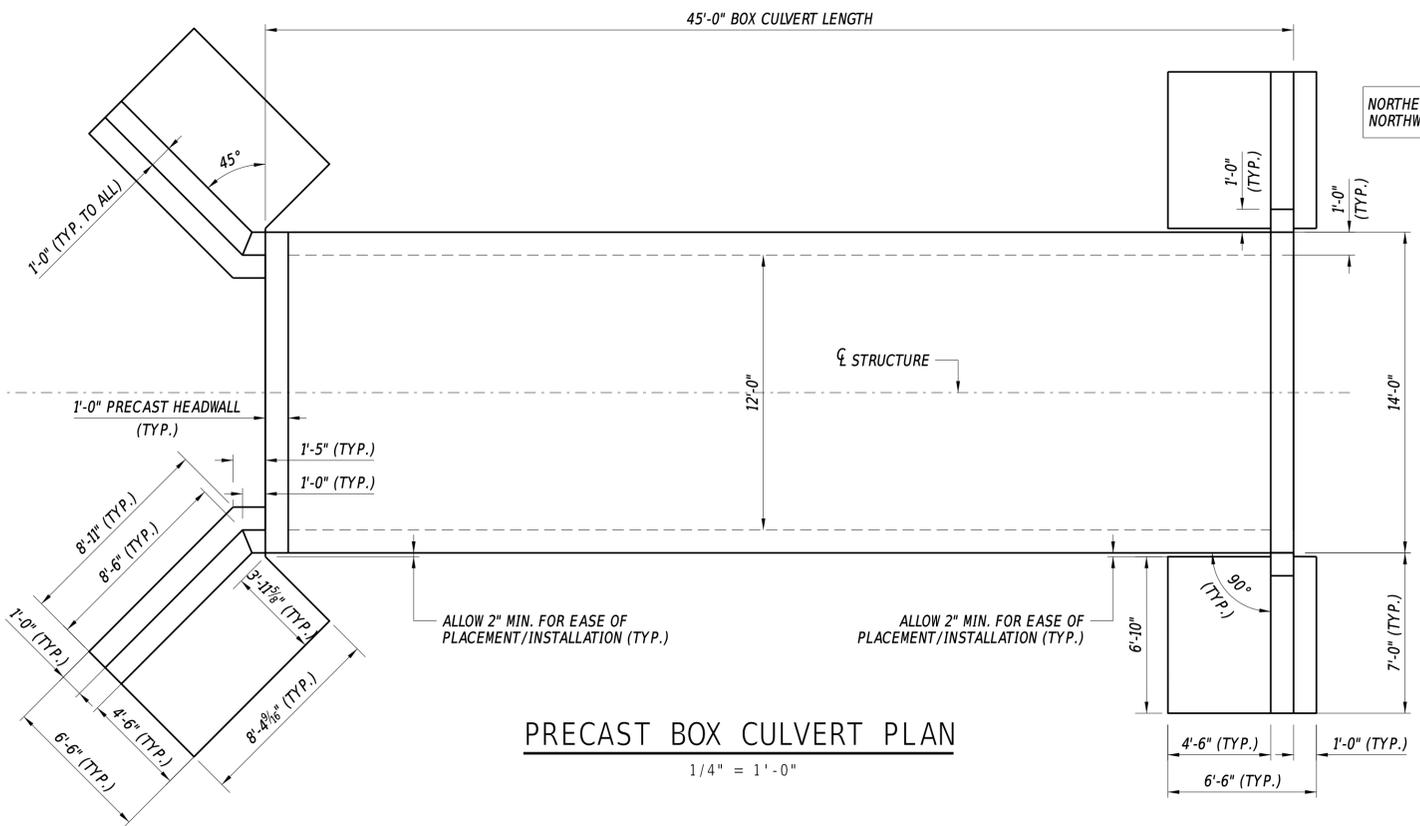
SCALE AS NOTED

BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH

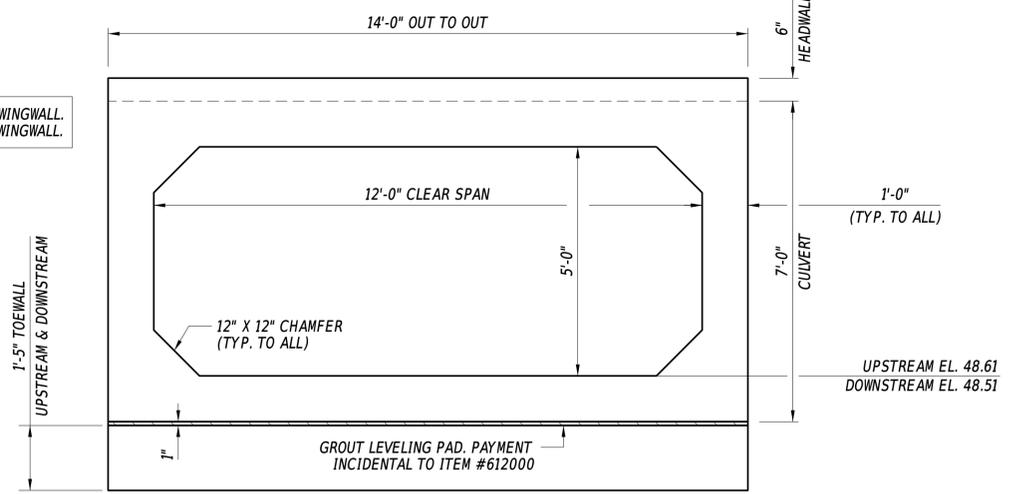
CONTRACT	BRIDGE NO.	1-484
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

BRIDGE PLAN, SECTION, AND ELEVATION

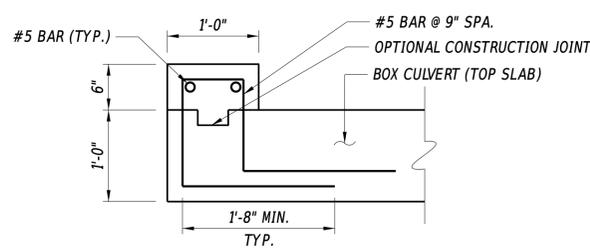
SECTION
BR
SHEET NO.
11



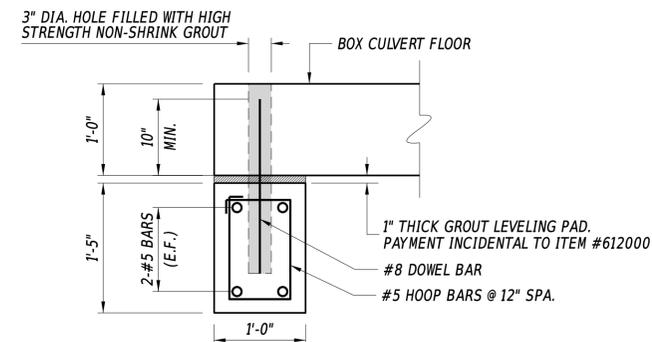
**PRECAST BOX CULVERT PLAN**  
1/4" = 1'-0"



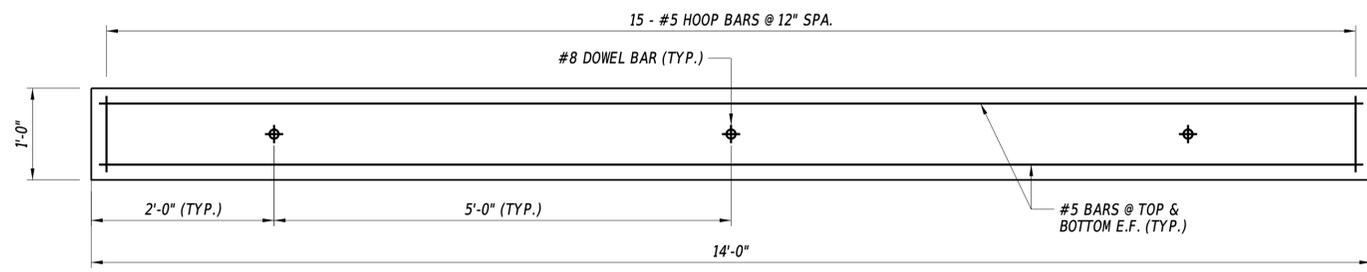
**PRECAST BOX CULVERT SECTION**  
1/2" = 1'-0"



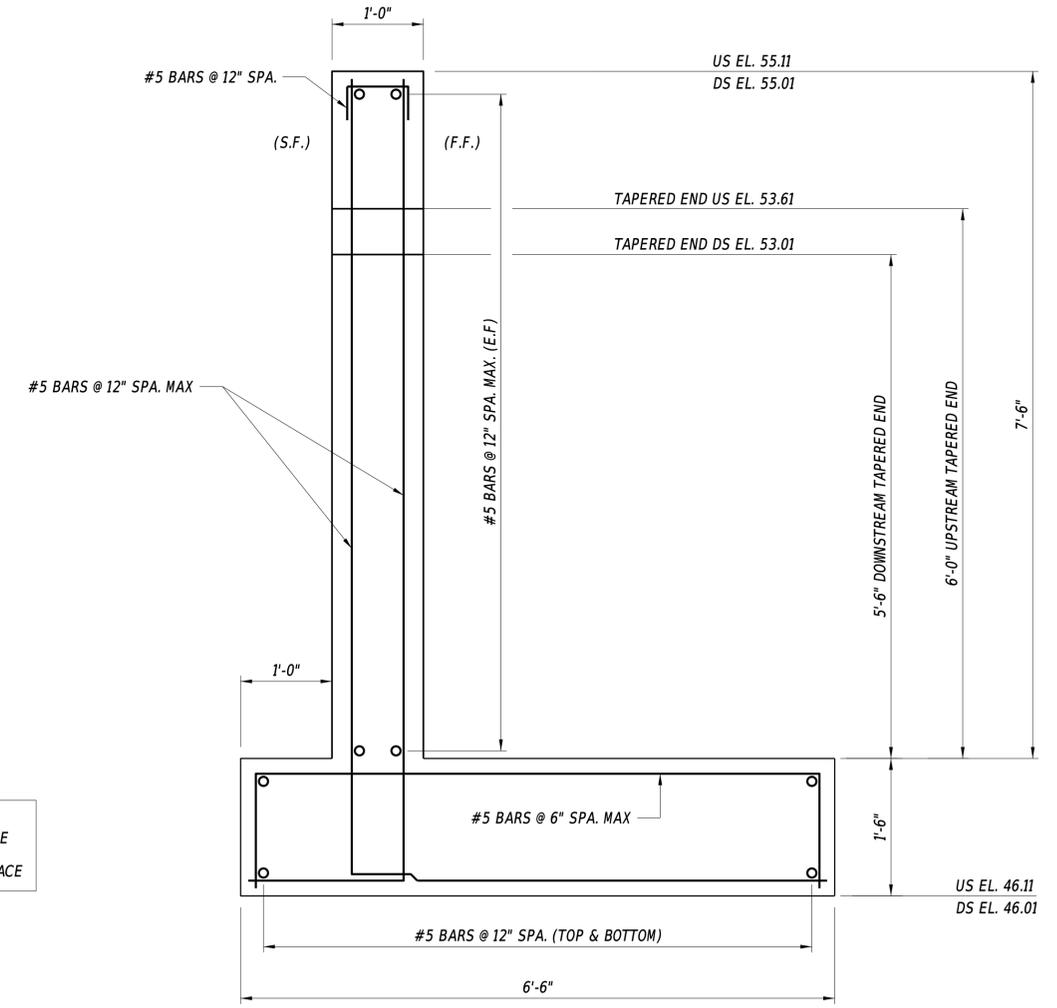
**PRECAST HEADWALL DETAIL**  
1" = 1'-0"



**PRECAST TOEWALL DETAIL**  
1" = 1'-0"



**PRECAST TOEWALL PLAN**  
1" = 1'-0"



**PRECAST WINGWALL DETAIL**  
1" = 1'-0"

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

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ADDENDA / REVISIONS		SCALE AS NOTED	BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH	CONTRACT	BRIDGE NO.	1-484	SECTION
				T201707104	DESIGNED BY:	MWGT	
			COUNTY	CHECKED BY:	NED	SHEET NO.	
			NEW CASTLE			12	

BORING: MR-1		DATE DRILLED: 9/18/2017			
STATION: 13+31.73	OFFSET: 4.57	ELEVATION: 55.97	NORTHING: 482456.1320	EASTING: 566347.0460	
COMMENTS: DRILLER: JASON LOGGED BY: RANDY FERGUSON					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS/6"	DESCRIPTION	CLASS/G.I.	REMARKS
1	0.0		MOIST GRAY FINE GRAVELLY COARSE SAND W/ SOME SILT AND FINE SAND	A-1-B	7" HOT MIX AND 2" STONE BASE
2	2.0	2	MOIST GRAY FIRM FINE SANDY SILT W/ SOME COARSE SAND TRACE OF FINE GRAVEL	A-4(0)	
3	4.0	1	SAT GRAY FIRM FINE SANDY CLAY SILT TRACE OF COARSE SAND AND FINE GRAVEL	A-6(6)	
4	6.0	2	WET GRAY SOFT FINE SANDY CLAYEY SILT W/ SOME COARSE SAND	A-4(1)	
5	8.0	1	MOIST GRAY V. LOOSE SILTY COARSE SANDY FINE SAND TRACE OF FINE GRAVEL	A-2-4(0)	WATER LEVEL EL. 47.22 US BOTTOM OF TOEWALL EL. 46.11 DS BOTTOM OF TOEWALL EL. 46.01
6	10.0	2	MOIST GRAY LOOSE FINE SANDY FINE GRAVELLY COARSE SAND TRACE OF SILT	A-1-B	
7	12.0	4	WET GRAY FIRM SILTY CLAY FINE GRAVEL TRACE OF FINE TO COARSE SAND	A-7-6(12)	OFFSET 5 FEET PUSHED SHELBY TUBE FROM 12 TO 14 FEET
8	14.0	2	WET GRAY FIRM CLAY SILT W/ SOME OF FINE GRAVEL TRACE OF FINE TO COARSE SAND	A-7-6(21)	
9	16.0	5	WET GRAY STIFF CLAY SILT TRACE OF FINE TO COARSE SAND	A-7-6(20)	
10	18.0	3	SAT GRAY FIRM CLAY SILT TRACE OF FINE SAND TO COARSE SAND	A-7-6(20)	
11	24.0	4	WET GRAY STIFF SILTY CLAY FINE GRAVEL W/ SOME COARSE SAND TRACE OF FINE SAND	A-7-6(4)	
12	29.0	2	SAT GRAY STIFF CLAY SILT TRACE OF FINE TO COARSE SAND	A-7-5(30)	
13	34.0	3	SAT GRAY STIFF CLAY SILT W/ SOME FINE TO COARSE SAND	A-7-5(16)	
14	39.0	3	SAT GRAY FIRM CLAY SILT W/ SOME FINE TO COARSE SAND	A-7-5(16)	
15	44.0	3	SAT GRAY STIFF CLAY SILT W/ SOME FINE TO COARSE SAND	A-7-6(16)	
16	48.0	4	SAT GRAY STIFF FINE SANDY CLAY SILT TRACE OF COARSE SAND	A-7-5(21)	
	50.0		END OF THE BORINGS		

BORING: MR-2		DATE DRILLED: 9/18/2017			
STATION: 12+72.17	OFFSET: 5.95	ELEVATION: 56.06	NORTHING: 482397.4750	EASTING: 566338.9810	
COMMENTS: DRILLER: JASON LOGGED BY: RANDY FERGUSON					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS/6"	DESCRIPTION	CLASS/G.I.	REMARKS
1	0.0		MOIST GRAY FINE GRAVELLY COARSE SAND W/ SOME SILT AND FINE SAND	A-1-B	7" HOT MIX AND 2" STONE BASE
2	2.0	3	WET GRAY SOFT FINE SANDY CLAYEY SILT W/ SOME COARSE SAND TRACE OF FINE GRAVEL	A-4(0)	WATER LEVEL EL. 53.29
3	4.0	3	SAT GRAY SOFT CLAY SILT W/ SOME FINE SAND TRACE OF COARSE SAND AND FINE GRAVEL	A-6(5)	
4	6.0	1	SAT GRAY SOFT FINE SANDY CLAY SILT TRACE OF COARSE SAND AND FINE GRAVEL	A-6(5)	
5	8.0	1	WET GRAY SOFT FINE SANDY CLAYEY SILT TRACE OF COARSE SAND AND FINE GRAVEL	A-4(2)	US BOTTOM OF TOEWALL EL. 46.11 DS BOTTOM OF TOEWALL EL. 46.01
6	10.0	3	SAT GRAY STIFF CLAY SILT TRACE OF FINE SAND TO COARSE SAND AND FINE GRAVEL	A-7-6(16)	OFFSET 5 FEET PUSHED SHELBY TUBE FROM 8 TO 10 FEET
7	12.0	4	SAT GRAY FIRM CLAY SILT TRACE OF FINE TO COARSE SAND AND FINE GRAVEL	A-7-6(19)	
8	14.0	4	SAT GRAY FIRM CLAY SILT TRACE OF FINE TO COARSE SAND	A-7-6(27)	
9	16.0	5	SAT GRAY STIFF CLAY SILT TRACE OF FINE TO COARSE SAND	A-7-6(22)	
10	18.0	2	SAT GRAY FIRM CLAY SILT TRACE OF FINE TO COARSE SAND	A-7-6(23)	
11	24.0	4	SAT GRAY STIFF CLAY SILT TRACE OF FINE SAND	A-7-6(24)	
12	29.0	5	SAT GRAY FIRM CLAY SILT W/ SOME COARSE SAND TRACE OF FINE SAND	A-7-6(15)	
13	34.0	3	SAT GRAY STIFF CLAY SILT W/ SOME FINE TO COARSE SAND	A-7-6(16)	
14	39.0	3	SAT GRAY STIFF SILT W/ SOME FINE TO COARSE SAND	A-5(0)	
15	44.0	5	SAT GRAY STIFF FINE SANDY CLAY SILT W/ SOME COARSE SAND	A-7-6(7)	
16	48.0	5	SAT GRAY STIFF CLAY SILT W/ SOME FINE TO COARSE SAND	A-7-5(21)	
	50.0		END OF THE BORINGS		

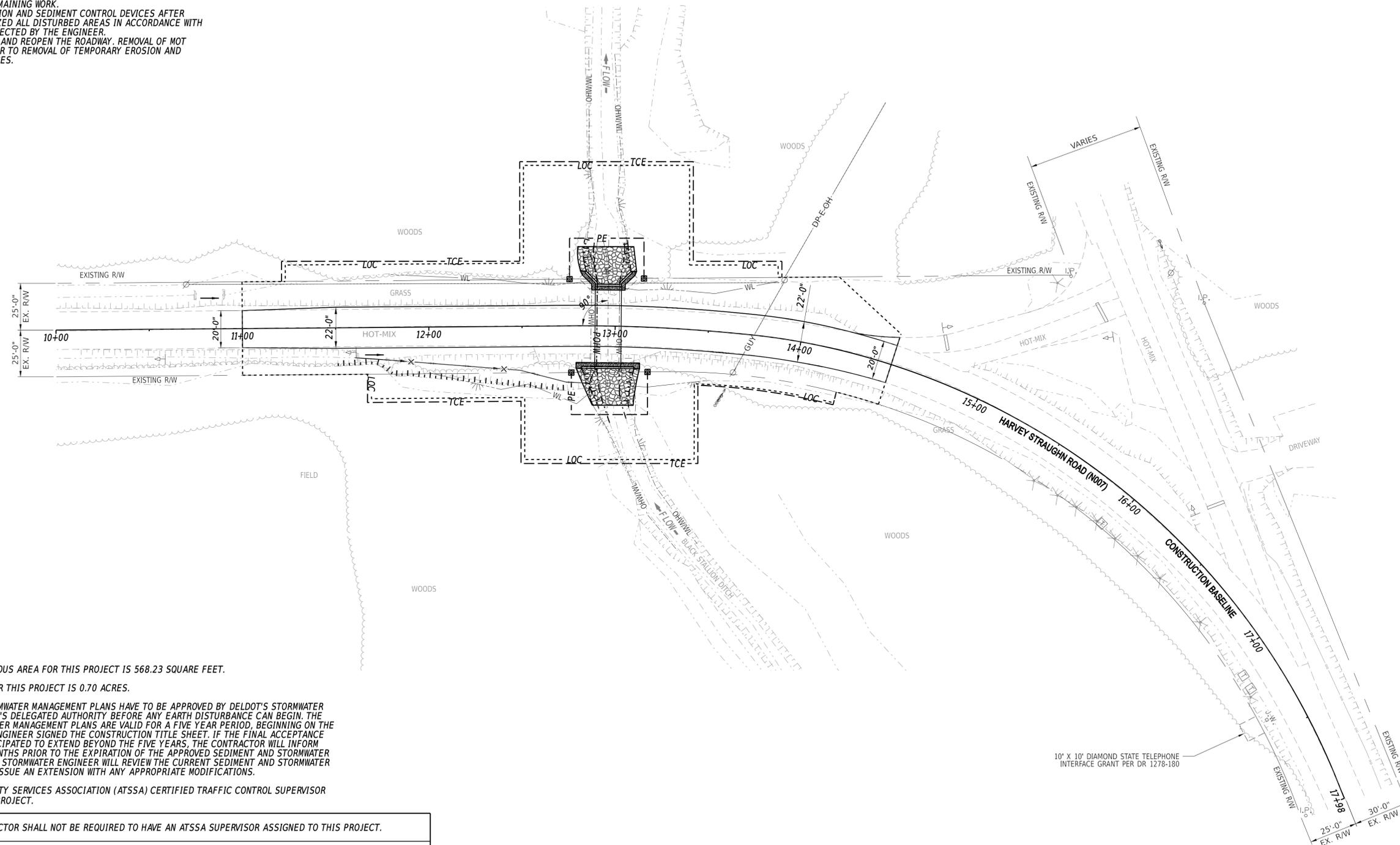
- NOTES:  
1. BORING LOGS CREATED BY THE DELAWARE DEPARTMENT OF TRANSPORTATION. SUBSURFACE EXPLORATION COMPLETED BY WALTON CORPORATION.  
2. REFER TO CONSTRUCTION SHEET (SHEET 8) FOR APPROXIMATE BORING LOCATIONS. THE BORING LOGS ARE LABELED AS MR-1 AND MR-2.  
3. SOIL SAMPLING: 2 IN. OUTSIDE DIA. SPLIT BARREL SAMPLER, DRIVEN WITH A 140 LB. HAMMER FALLING 30 IN.  
4. ALL DEPTHS ARE GIVEN IN FEET.

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ADDENDA / REVISIONS		NOT TO SCALE	BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH	CONTRACT	BRIDGE NO.	1-484	BORING LOGS	SECTION
				T201707104	DESIGNED BY:	MWGT		BR
				COUNTY	CHECKED BY:	NED		SHEET NO.
				NEW CASTLE				13

# GENERAL SEQUENCE OF CONSTRUCTION:

1. INSTALL MOT DEVICES IN ACCORDANCE WITH THE DETOUR PLAN.
2. INSTALL EROSION AND SEDIMENT CONTROL DEVICES, STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND DETAILED SEQUENCE OF CONSTRUCTION EROSION AND SEDIMENT CONTROL TO BE DEVELOPED BY AWARDED CONTRACTOR AS SPECIFIED IN ITEM #901500.
3. INSTALL STREAM DIVERSION.
4. REMOVE EXISTING 71" X 47" PIPES AND DRAINAGE PIPE, INSTALL PROPOSED PRECAST CULVERT, WINGWALLS AND DITCH IN ACCORDANCE WITH PLANS.
5. CONSTRUCT SLOPES, INSTALL RIPRAP (ITEM #707016), CHANNEL BED FILL (ITEM #707500), GEOTEXTILE STABILIZATION (ITEM #708001), TOPSOIL (ITEMS #908001 AND #908004), PERMANENT GRASS SEEDING, STREAMBANK (ITEM #908019), AND EROSION CONTROL BLANKET MULCH (ITEM #908020) AS SHOWN IN THE PLANS.
6. INSTALL PROPOSED PAVEMENT AND STRIPING AS SHOWN ON PLANS AND COMPLETE ANY OTHER REMAINING WORK.
7. 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.
8. REMOVE ALL MOT DEVICES AND REOPEN THE ROADWAY. REMOVAL OF MOT DEVICES MAY OCCUR PRIOR TO REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.



**NOTES:**

1. THE ADDITIONAL IMPERVIOUS AREA FOR THIS PROJECT IS 568.23 SQUARE FEET.
2. THE DISTURBED AREA FOR THIS PROJECT IS 0.70 ACRES.
3. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS HAVE TO BE APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY BEFORE ANY EARTH DISTURBANCE CAN BEGIN. 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.
4. AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR REQUIREMENT FOR THIS PROJECT.

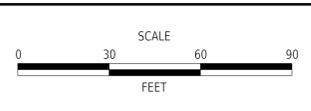
( X )	THE CONTRACTOR SHALL NOT BE REQUIRED TO HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT.
( )	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR IS INCIDENTAL TO ITEM 801000.

5. THE CONTRACTOR IS REQUIRED TO PROVIDE THEIR OWN EROSION AND SEDIMENT CONTROL SUPERVISOR FOR THIS PROJECT, WHO WILL BE ON SITE ON SITE DURING ALL EARTH DISTURBING ACTIVITIES AND BE A DNREC BLUE CARD HOLDER AS DEFINED IN SECTION 6.2 OF THE DSSR.

DELDOT STORMWATER ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
 \*I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THESE PLANS MEET THE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS AND THAT ALL CLEARING, GRADING, AND CONSTRUCTION WILL BE ACCOMPLISHED PURSUANT TO THE PLAN.\*

5: JUN-2020 10:42 Y:\NEWCASTLE\1007\Bridges\1701707\1041500\_CADD\530\_PLANS\_DGN\DGNs\CP01.dgn

ADDENDA / REVISIONS



**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	T201707104
COUNTY	NEW CASTLE
BRIDGE NO.	<b>1-484</b>
DESIGNED BY:	MWGT
CHECKED BY:	NED

<b>CONSTRUCTION SEQUENCE AND EROSION CONTROL PLAN</b>	
SECTION	BR
SHEET NO.	14

**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, CONTACT THE ENVIRONMENTAL STUDIES SECTION AT DOT\_ENVIRONMENTALSTUDIES@DELAWARE.GOV OR (302)760-2264 TO ALLOW FOR COORDINATION WITH THE APPROPRIATE RESOURCE AGENCIES AND APPROVAL.
  - C. USE OF THIS SHEET DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL CONDITIONS SET FORTH IN THE ENVIRONMENTAL STATEMENT AND PERMITS.
2. NATURAL RESOURCE ISSUES:
  - A. PERMIT REQUIREMENTS/APPROVALS \*:
    - U.S. ARMY CORPS OF ENGINEERS (COE): NWP #3 (A) AND (C) (NO PCN)
    - DNREC - WETLANDS & SUBAQUEOUS LANDS (WLSL): PROJECT IS CONSISTENT WITH DEL. CODE CH.72, SECTION 7217, SPECIAL EXEMPTION (B)
    - DNREC - WATER QUALITY (WQC) & COASTAL ZONE CONSISTENCY (CZM): PROJECT IS NOT LOCATED IN CRITICAL RESOURCE WATERS
    - NCC DEPT. OF LAND USE (NCC): NCC FLOODPLAIN
  - \* THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING AND/OR OBTAINING THESE APPROVALS.
  - \*\* THE CONTRACTOR MUST ENSURE THAT THESE PERMITS/APPROVALS ARE IN THEIR POSSESSION PRIOR TO BEGINNING CONSTRUCTION IN THE PERMITTED AREA(S) AND ENSURE THEY ARE DISPLAYED ON-SITE DURING THE ENTIRE CONSTRUCTION PERIOD.
  - B. CONSTRUCTION RESTRICTIONS:
    - FISHERIES - DIADROMOUS FISH MIGRATIONS/SPAWNING. NO IN-WATER WORK MARCH 1 - JUNE 30 (INCLUSIVE)
    - ENDANGERED SPECIES - NONE
    - MIGRATORY BIRDS - NONE
3. CULTURAL RESOURCE ISSUES:
  - A. BASED ON CURRENT COORDINATION, THE PROJECT IS CLEAR FOR CULTURAL RESOURCES AND EXEMPT FROM SHPO REVIEW UNDER STIPULATION III.B.1 OF DELDOT'S PROGRAMMATIC AGREEMENT WITH FEDERAL HIGHWAYS ADMINISTRATION (FHWA) AND DELAWARE STATE HISTORIC PRESERVATION OFFICE (SHPO).
  - B. THERE ARE NO CULTURAL RESOURCE CONCERNS AS LONG AS THE PROJECT SCOPE IS NOT MODIFIED AND ALL STAGING AND STOCKPILING REMAIN WITHIN THE EXISTING ROADWAY FOOTPRINT. SHOULD IT BE NECESSARY TO ADD ADDITIONAL ACCESS LOCATIONS, OTHER STOCKPILING/STAGING AREAS, OR OTHERWISE ALTER THE SCOPE OF THE PROJECT, DELDOT ENVIRONMENTAL STUDIES STAFF WILL NEED TO REVIEW THESE CHANGES FOR POTENTIAL CULTURAL RESOURCES CONCERNS.
4. STREAM RESTORATION AND RIPRAP TREATMENT:
  - A. FOLLOW THE SPECIAL PROVISION FOR ITEM 707500 - CHANNEL BED FILL IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFFSITE MATERIAL. IF SUFFICIENT SOURCES FOR CHANNEL BED FILL DO NOT EXIST ON-SITE, ANY NEW MATERIAL MUST CONFORM TO THE REQUIREMENTS OF ITEM 707500 - CHANNEL BED FILL. RECESS ALL RIPRAP IN THE CHANNEL BOTTOM (I.E. BELOW THE WATER LINE) ONE FOOT BELOW STREAM BED ELEVATION AND CHOKE WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH SPECIFIED MATERIAL. PAYMENT UNDER ITEM 209002 - BORROW, TYPE B. COVER THE RIPRAP WITH A MINIMUM OF 12" CHANNEL BED FILL. MATCH THE FINAL CHANNEL ELEVATIONS WITH EXISTING ELEVATIONS AT THE UPSTREAM AND DOWNSTREAM PROJECT LIMITS. THROUGH THE STRUCTURE, ELEVATIONS WILL BE AS NOTED ON THE PLANS. PAYMENT UNDER ITEM 707500 - CHANNEL BED FILL.
  - B. RESTORE OTHER AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SUMP PITS, STABILIZED OUTFALLS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) TO EXISTING CONDITIONS. FILL ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES WITH CHANNEL BED FILL. PAYMENT UNDER ITEM 707500 - CHANNEL BED FILL.
  - C. WHEN ALL EROSION AND SEDIMENT CONTROL MEASURES ARE REMOVED AND THE STREAM RETURNS TO ITS NATURAL FLOW CONDITIONS, THE FLOW MUST REMAIN ABOVE GROUND AND ABOVE THE RIPRAP (I.E. THE FLOW CANNOT BE "LOST" IN THE RIPRAP OR BENEATH THE STRUCTURE). IF THIS IS NOT ACHIEVED, THE CONTRACTOR WILL BE REQUIRED TO TAKE CORRECTIVE ACTION AT THE CONTRACTOR'S EXPENSE.
  - D. CHOKE ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, WITH DELAWARE #57 STONE. PLACE JUST ENOUGH CHOKE MATERIAL TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP, AND THEN FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. PLACE AN ADDITIONAL 4-INCH TOPSOIL LAYER ON TOP OF THE RIPRAP. SLOPE SEEDING WILL BE DONE WITH ITEM 908019 - PERMANENT GRASS SEEDING, STREAMBANK. FOLLOWING THE SEEDING OPERATION, INSTALL ITEM 908020 - EROSION CONTROL BLANKET (ECB) MULCH, OR OTHER BLANKET AS SHOWN ON THE PLANS. ECB AT TOE OF SLOPE CAN BE EITHER TRENCHED IN OR STAPLED AT 6" ON CENTER. COMPLETE ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING AND MULCHING PRIOR TO ANY RAIN EVENT. DELAWARE #57 STONE IS INCIDENTAL TO THE RIPRAP ITEM. ALL OTHER ITEMS WILL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.
  - E. THE TOPSOIL/SEED/MULCH CAN BE PLACED BEFORE OR AFTER THE REMOVAL OF THE STREAM DIVERSION. IF THE PLACEMENT OCCURS AFTER STREAM DIVERSION REMOVAL, USE A TURBIDITY CURTAIN TO MINIMIZE IN-STREAM SEDIMENTATION. PAYMENT WILL BE INCIDENTAL TO ITEM 909005 - STREAM DIVERSION.
5. PROTECTION OF RESOURCES:
  - A. KEEP CLEARING IN WETLAND AREAS TO A MINIMUM ABSOLUTELY NECESSARY FOR CONSTRUCTION ACCESS. SUPPORT ALL EQUIPMENT TRAVERSING WETLANDS AND SUBAQUEOUS LAND ON MATS. PAYMENT FOR MATS WILL BE MADE UNDER ITEM 621500 - TEMPORARY TIMBER MAT. IN WETLAND AREAS THAT ARE CLEARED, NO GRUBBING EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS AND RIPRAP PROTECTION IS PERMITTED. CUT VEGETATION FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT). RESTORE TEMPORARILY DISTURBED WETLAND AREAS TO GRADE AND SEED (PAYMENT FOR THIS ITEM WILL BE MADE THORUGH ITEM 901503 - EROSION AND SEDIMENT CONTROL PRACTICE BUT FOLLOW THE SPECIFICATION FOR ITEM 908017 - TEMPORARY GRASS SEEDING).
  - 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. REMOVE SANDBAGS AND CFLS (AND CONTENTS) IN THEIR ENTIRETY WHEN NO LONGER NEEDED. PAYMENT FOR SANDBAGS/CFLS USED TO SECURE THE SILT FENCE IS MADE THOROUGH ITEM 901503 - EROSION AND SEDIMENT CONTROL PRACTICE BUT FOLLOW THE SPECIFICATION FOR ITEM 905001 - SILT FENCE. THE ENVIRONMENTAL STUDIES SECTION (TREVOR MCCOLLEY, 302-760-2278) CAN PROVIDE FURTHER GUIDANCE REGARDING THIS METHOD OF INSTALLATION.
  - D. CLEARLY MARK ALL TREES TO BE REMOVED WITH PAINT PRIOR TO THE EROSION AND SEDIMENT CONTROL MEETING.

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ADDENDA / REVISIONS		<b>NOT TO SCALE</b>	<b>BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH</b>	CONTRACT	BRIDGE NO.	<b>1-484</b>	<b>ENVIRONMENTAL COMPLIANCE NOTES</b>	SECTION
				T201707104	DESIGNED BY:	MWGT		BR
				COUNTY	CHECKED BY:	NED		SHEET NO.
				NEW CASTLE				15

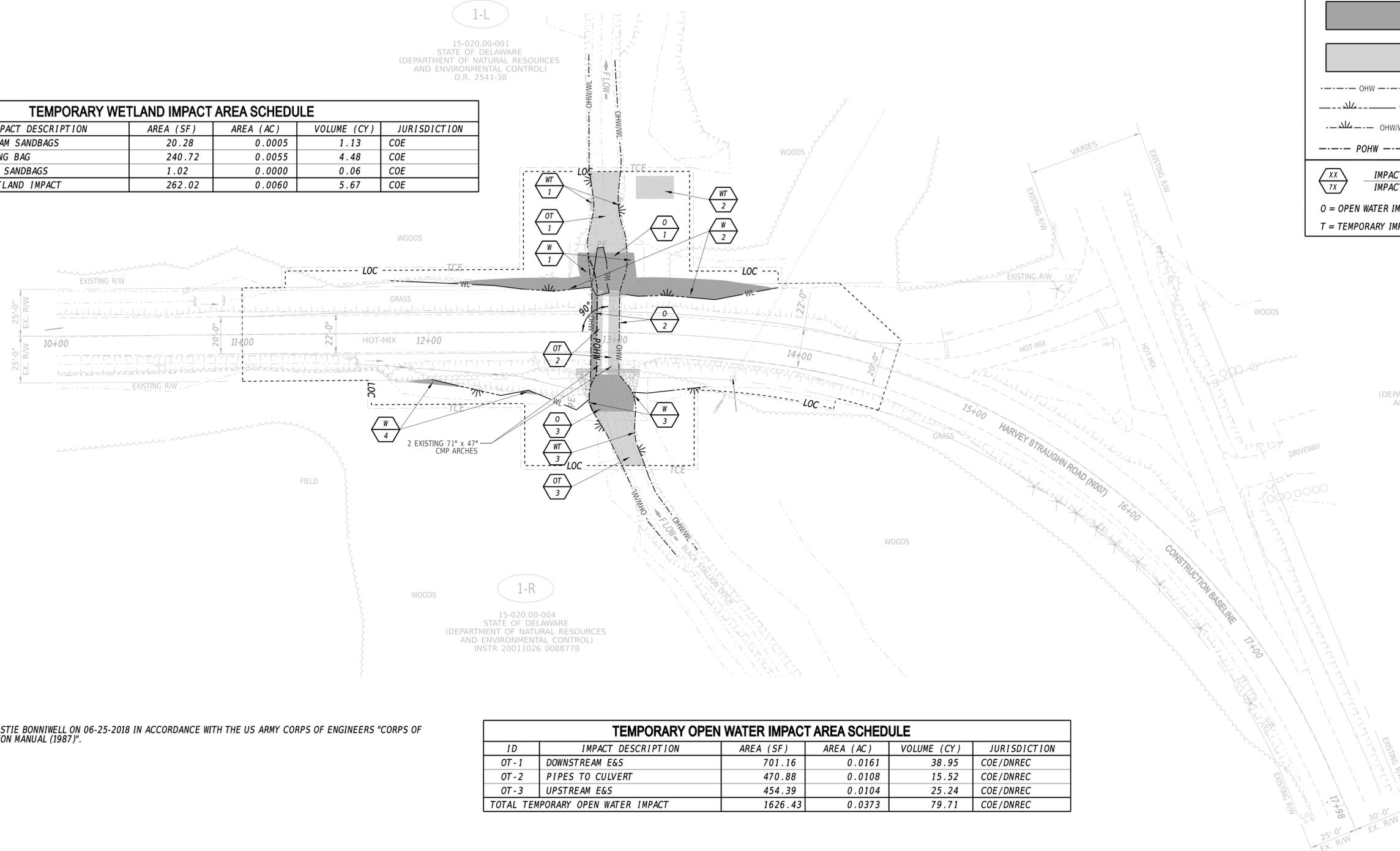


PERMANENT WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
W-1	DOWNSTREAM RIPRAP	410.20	0.0094	22.79	COE
W-2	DOWNSTREAM SLOPES	940.09	0.0216	17.41	COE
W-3	UPSTREAM RIPRAP	6.76	0.0027	0.38	COE
W-4	DITCH	54.89	0.0013	4.07	COE
TOTAL PERMANENT WETLAND IMPACT		1411.94	0.0350	44.65	COE

PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-1	DOWNSTREAM RIPRAP	193.52	0.0044	10.75	COE/DNREC
O-2	PIPES TO CULVERT	155.52	0.0036	5.13	COE/DNREC
O-3	UPSTREAM RIPRAP	421.53	0.0097	23.42	COE/DNREC
TOTAL PERMANENT OPEN WATER IMPACT		770.57	0.0177	39.30	COE/DNREC

TEMPORARY WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
WT-1	DOWNSTREAM SANDBAGS	20.28	0.0005	1.13	COE
WT-2	DEWATERING BAG	240.72	0.0055	4.48	COE
WT-3	UPSTREAM SANDBAGS	1.02	0.0000	0.06	COE
TOTAL TEMPORARY WETLAND IMPACT		262.02	0.0060	5.67	COE

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



TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-1	DOWNSTREAM E&S	701.16	0.0161	38.95	COE/DNREC
OT-2	PIPES TO CULVERT	470.88	0.0108	15.52	COE/DNREC
OT-3	UPSTREAM E&S	454.39	0.0104	25.24	COE/DNREC
TOTAL TEMPORARY OPEN WATER IMPACT		1626.43	0.0373	79.71	COE/DNREC

WETLANDS DELINEATED BY CHRISTIE BONNIWELL ON 06-25-2018 IN ACCORDANCE WITH THE US ARMY CORPS OF ENGINEERS "CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (1987)".

ADDENDA / REVISIONS



**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

**ENVIRONMENTAL COMPLIANCE PLAN**

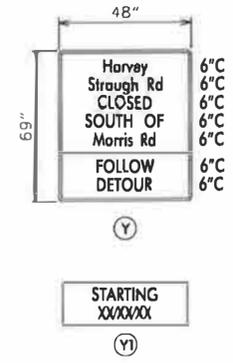
SECTION	BR
SHEET NO.	16

**PORTABLE CHANGEABLE MESSAGE SIGNS**

**LEGEND**

<b>(A)</b> DETOUR M4-9-DE	<b>(B)</b> DETOUR M4-7	<b>(C)</b> DETOUR M4-9	<b>(D)</b> DETOUR M4-9	<b>(E)</b> DETOUR M4-9
<b>(F)</b> DETOUR M4-9	<b>(G)</b> DETOUR M4-9	<b>(H)</b> DETOUR M4-9	<b>(I)</b> DETOUR M4-9	<b>(J)</b> END DETOUR M4-8a
<b>(K)</b> DETOUR AHEAD W70-2	<b>(L)</b> DETOUR 1000 FT W70-2	<b>(M)</b> DETOUR 500 FT W70-2		
<b>(N)</b> ROAD CLOSED AHEAD W70-3	<b>(O)</b> ROAD CLOSED 1000 FT W70-3	<b>(P)</b> ROAD CLOSED 500 FT W70-3		
<b>(Q)</b> ROAD CLOSED R11-2	<b>(R)</b> DETOUR M4-10(J)	<b>(S)</b> DETOUR M4-10(J)		
<b>(T)</b> ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY R11-3a	<b>(U)</b> BRIDGE OUT 1 MILE AHEAD LOCAL TRAFFIC ONLY R11-3b	<b>(V)</b> ROAD CLOSED TO THRU TRAFFIC R11-4		
<b>(W)</b> BARRICADE		<b>(X)</b> BARRICADE		

**SPECIAL SIGNS**



SPECIAL SIGNS TO BE RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND; BLACK LEGEND

1. (Y) AND (Y1) SIGN TO BE POSTED 10 DAYS PRIOR TO IMPLEMENTATION OF DETOUR AT THE CLOSURE POINTS. (Y1) PLAQUE TO COMPLETELY COVER "FOLLOW DETOUR" SIGNAGE.

2. REMOVE (Y1) PLAQUE AT IMPLEMENTATION OF DETOUR.

(Y) TO LOCATIONS ALONG THE DETOUR ROUTE FOR THE DURATION OF THE DETOUR.

PREPARED BY  
DELDOT - TRANSPORTATION SOLUTIONS  
TRAFFIC SAFETY

*Mark S. Buckalew*  
DATE: 12/20/18



ADDENDA / REVISIONS



**GENERAL NOTES**

- 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.)
- 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.)
- DESIGN OF ALL SIGNS SHALL BE IN ACCORDANCE WITH THE FHWA STANDARD HIGHWAY SIGNS BOOK.
- 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.
- SIGNS NO LONGER IN USE SHALL BE COMPLETELY COVERED WITH NO RETROREFLECTIVE MATERIAL SHOWING, OR SHALL BE REMOVED, AS DIRECTED BY THE ENGINEER.
- 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.
- SIGNS "N" THROUGH "Q" AND "T" AND "V". THE WORD "ROAD" SHOULD BE CHANGED TO "RAMP", "RR XING", OR "BRIDGE" WHERE APPLICABLE.
- WARNING SIGNS AND DETOUR TRAILBLAZERS SHALL BE MOUNTED ON BREAKAWAY POSTS AND HAVE RETROREFLECTIVE FLUORESCENT ORANGE SHEETING.
- "W" BARRICADES SHALL COMPLETELY RUN THE FULL WIDTH OF THE ROADWAY.
- BARRICADES SHALL BE A MINIMUM OF 6 FEET WIDE UNLESS DIRECTED BY THE ENGINEER.

NOT TO SCALE

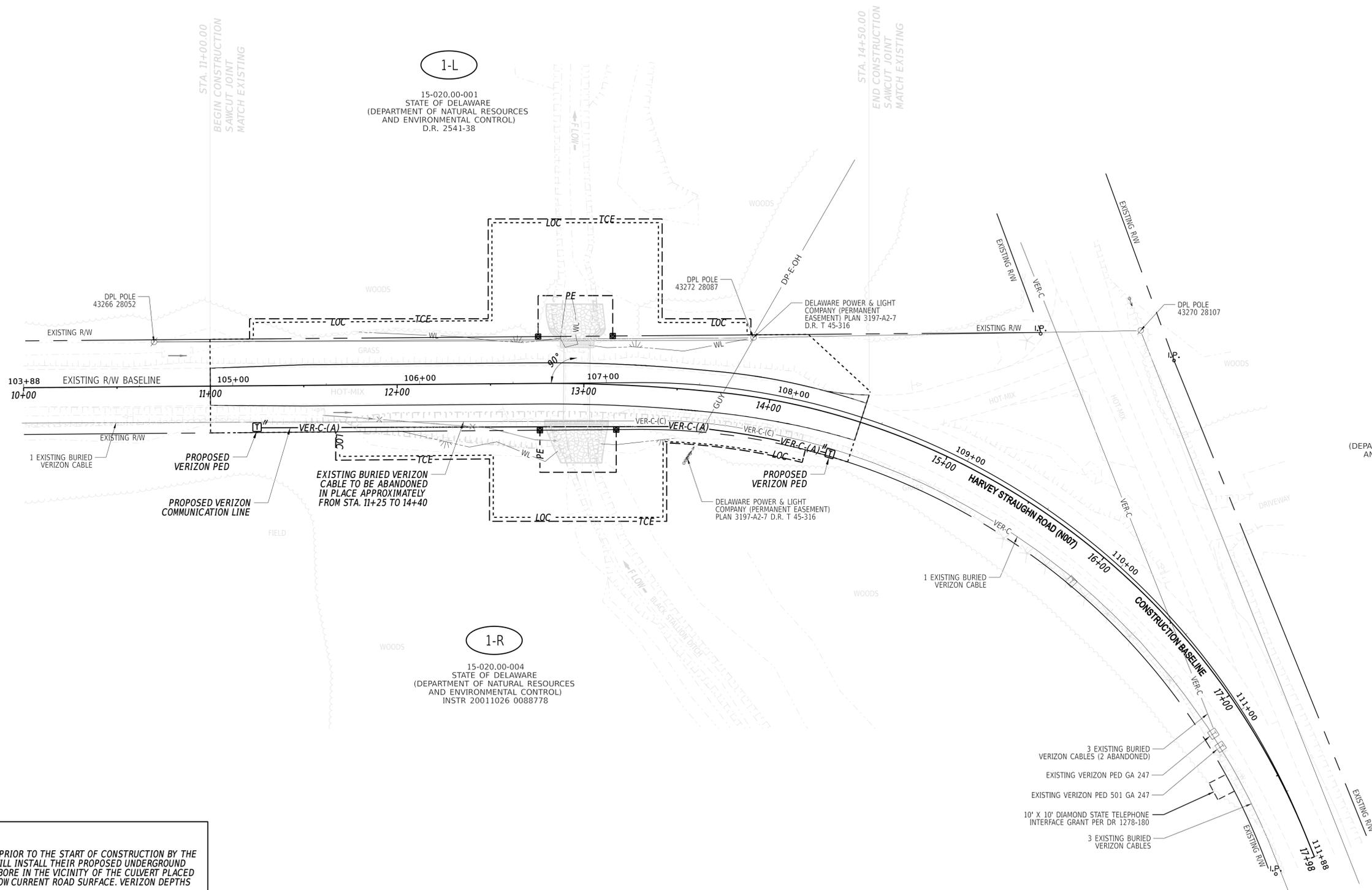
**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	ROAD NO.	N007
T2017071D4	DESIGNED BY: EM	
COUNTY	CHECKED BY: MB	
NCC		

**DETOUR PLAN - VEHICULAR HARVEY STRAUGHN ROAD**

SECTION	TS
SHEET NO.	17

LAST REVISED: 9/26/2018



1-L

15-020.00-001  
STATE OF DELAWARE  
(DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL)  
D.R. 2541-38

1-R

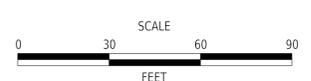
15-020.00-004  
STATE OF DELAWARE  
(DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL)  
INSTR 20011026 0088778

14-025.00-054  
STATE OF DELAWARE  
(DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL)  
D.R. 1565-133

**NOTES:**

- IT IS ENVISIONED THAT, PRIOR TO THE START OF CONSTRUCTION BY THE CONTRACTOR, VERIZON WILL INSTALL THEIR PROPOSED UNDERGROUND CABLE BY DIRECTIONAL BORE IN THE VICINITY OF THE CULVERT PLACED AT A MINIMUM OF 16' BELOW CURRENT ROAD SURFACE. VERIZON DEPTHS ARE APPROXIMATE.
- AFTER HARVEY STRAUGHN ROAD IS CLOSED, BUT BEFORE THE ROAD WAY IS EXCAVATED, DELMARVA PROPOSES TO REMOVE THE PHASE AND NEUTRAL CONDUCTORS TEMPORARILY ON THE SINGLE-PHASE 25KV CIRCUIT AND INSTALL DEAD-ENDS ON EACH SIDE OF THE CREEK IN-BETWEEN POLE 43266/28052 AND POLE 43272/28087.

ADDENDA / REVISIONS



**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

**UTILITY RELOCATION PLAN**

SECTION
BR
SHEET NO.
18

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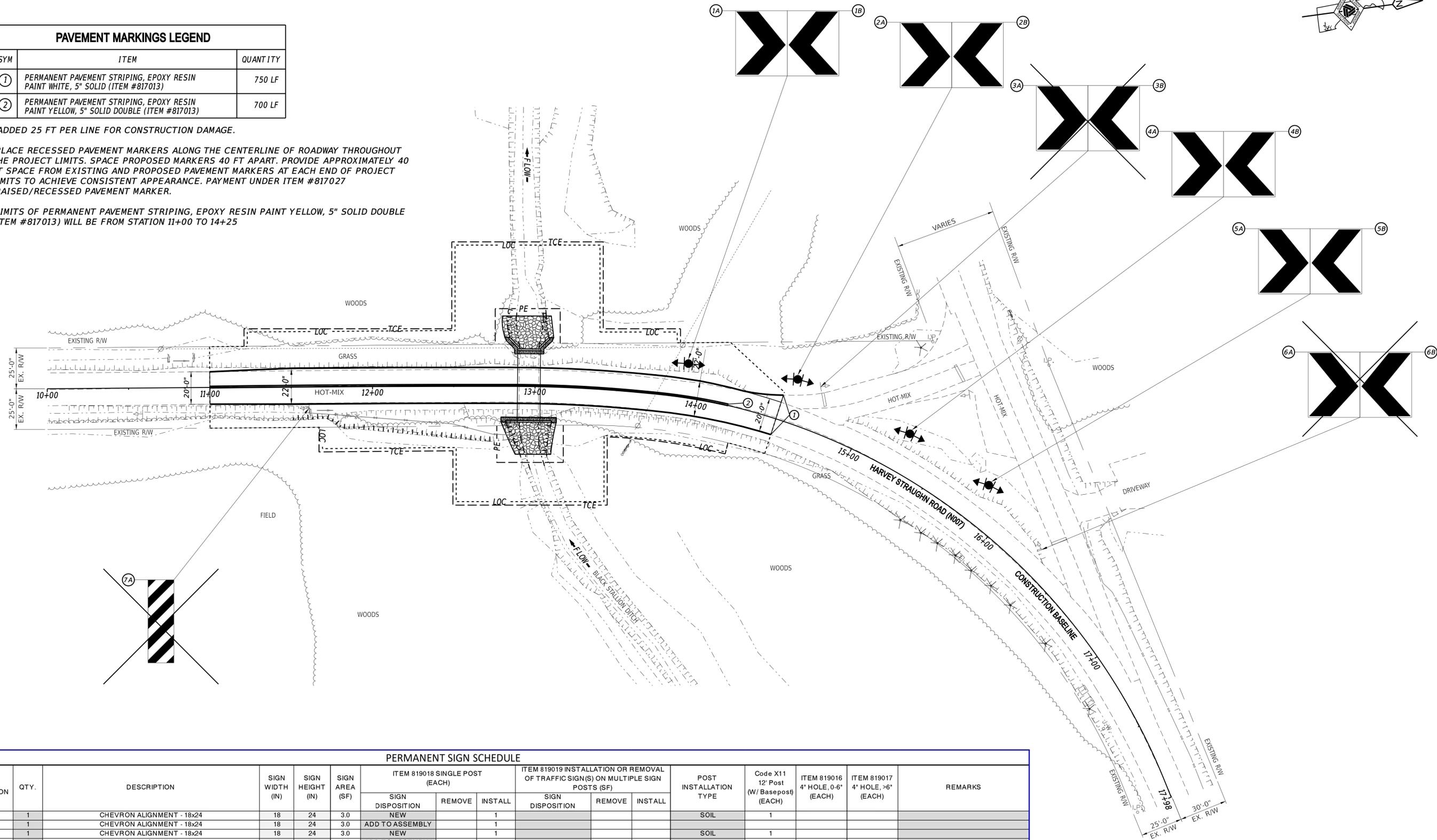


PAVEMENT MARKINGS LEGEND		
SYM	ITEM	QUANTITY
①	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT WHITE, 5" SOLID (ITEM #817013)	750 LF
②	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT YELLOW, 5" SOLID DOUBLE (ITEM #817013)	700 LF

\*ADDED 25 FT PER LINE FOR CONSTRUCTION DAMAGE.

\*\*PLACE RECESSED PAVEMENT MARKERS ALONG THE CENTERLINE OF ROADWAY THROUGHOUT THE PROJECT LIMITS. SPACE PROPOSED MARKERS 40 FT APART. PROVIDE APPROXIMATELY 40 FT SPACE FROM EXISTING AND PROPOSED PAVEMENT MARKERS AT EACH END OF PROJECT LIMITS TO ACHIEVE CONSISTENT APPEARANCE. PAYMENT UNDER ITEM #817027 -RAISED/RECESSED PAVEMENT MARKER.

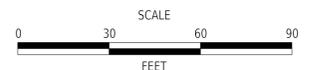
\*\*\*LIMITS OF PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT YELLOW, 5" SOLID DOUBLE (ITEM #817013) WILL BE FROM STATION 11+00 TO 14+25



PERMANENT SIGN SCHEDULE

SHEET NO.	PLAN IDENTIFIER	SIGN DESIGNATION	QTY.	DESCRIPTION	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SF)	ITEM 819018 SINGLE POST (EACH)			ITEM 819019 INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON MULTIPLE SIGN POSTS (SF)			POST INSTALLATION TYPE	Code X11 12' Post (W/ Basepost) (EACH)	ITEM 819016 4" HOLE, 0-6" (EACH)	ITEM 819017 4" HOLE, >6" (EACH)	REMARKS
								SIGN DISPOSITION	REMOVE	INSTALL	SIGN DISPOSITION	REMOVE	INSTALL					
19	1A	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	NEW		1				SOIL	1			
19	1B	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	ADD TO ASSEMBLY		1								
19	2A	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	NEW		1				SOIL	1			
19	2B	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	ADD TO ASSEMBLY		1								
19	3A	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	REMOVE	1									Remove sign from assembly
19	3B	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	REMOVE	1									Remove sign from assembly
19	4A	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	NEW		1				SOIL	1			
19	4B	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	ADD TO ASSEMBLY		1								
19	5A	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	NEW		1				SOIL	1			
19	5B	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	ADD TO ASSEMBLY		1								
19	6A	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	REMOVE	1									Remove sign from assembly
19	6B	W1-8(18)	1	CHEVRON ALIGNMENT - 18x24	18	24	3.0	REMOVE	1									Remove sign from assembly
19	7A	OM3-R(B)	1	TYPE 3 OBJECT MARKER (Bike path)	5	18		REMOVE	1									Remove sign and post assembly

ADDENDA / REVISIONS



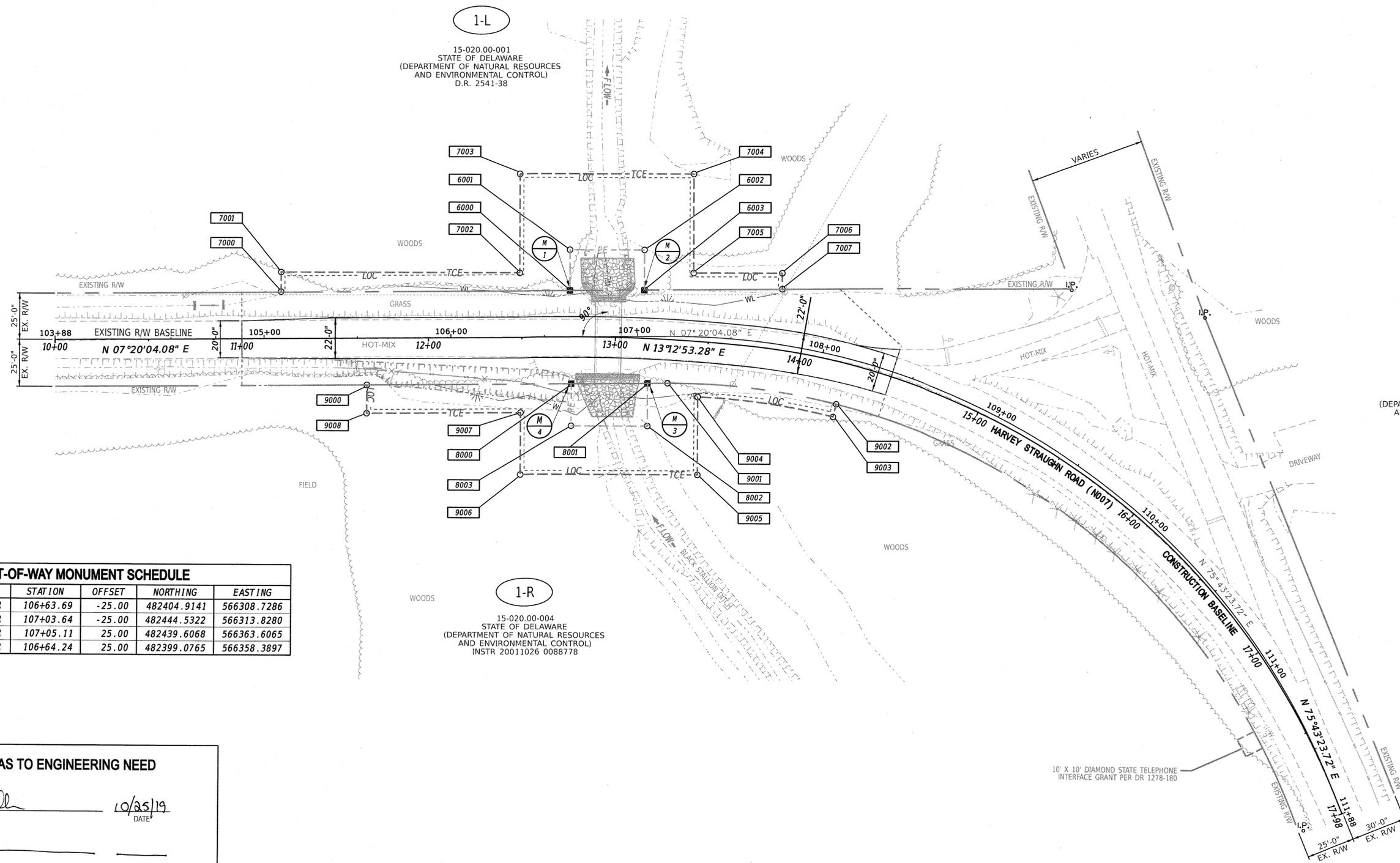
**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

**SIGNING AND STRIPING PLAN**

SECTION	BR
SHEET NO.	19

5: JUN-2020  
 18:41  
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1-L  
 15-020.00-001  
 STATE OF DELAWARE  
 (DEPARTMENT OF NATURAL RESOURCES  
 AND ENVIRONMENTAL CONTROL)  
 D.R. 2541-38

1-R  
 15-020.00-004  
 STATE OF DELAWARE  
 (DEPARTMENT OF NATURAL RESOURCES  
 AND ENVIRONMENTAL CONTROL)  
 INSTR 20011026 0088778

14-025.00-054  
 STATE OF DELAWARE  
 (DEPARTMENT OF NATURAL RESOURCES  
 AND ENVIRONMENTAL CONTROL)  
 D.R. 1565-133

RIGHT-OF-WAY MONUMENT SCHEDULE					
NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
M-1	CAPPED REBAR	106+63.69	-25.00	482404.9141	566308.7286
M-2	CAPPED REBAR	107+03.64	-25.00	482444.5322	566313.8280
M-3	CAPPED REBAR	107+05.11	25.00	482439.6068	566363.6065
M-4	CAPPED REBAR	106+64.24	25.00	482399.0765	566358.3897

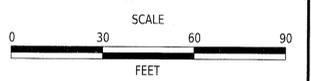
**RECOMMENDED AS TO ENGINEERING NEED**

*Shelby Chandler* 10/25/19  
 MANAGER, ROW ENGINEERING DATE

PROGRAM MANAGER, TEAM SUPPORT DATE

*Kelly A. K...* 10/24/19  
 TECHNICAL REVIEWER, TEAM SUPPORT DATE

ADDENDA / REVISIONS



**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NEB
NEW CASTLE		

<b>RIGHT-OF-WAY PLAN</b>	SECTION	BR
	SHEET NO.	20

23-OCT-2019 09:11 T:\NEWCASTLE\007\Bridges\T201707104\1500\_CADD\1500\_PLANS\_DGN\DNS\CR01.dgn

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
15-020.00-001	(1-L) STATE OF DELAWARE (DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL)	P/E	D.R. 2541-38	9.505							
ALIGNMENT NUMBER & DESCRIPTION: 1000 - ROW BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6000	1000	106+63.69	-25.00	482404.9141	566308.7286	N 82°11'36.30" W	21.90				
6001	1000	106+63.87	-46.90	482407.8887	566287.0319	N 7°48'23.70" E	39.94				
6002	1000	107+03.81	-46.57	482447.4621	566292.4574	S 82°11'36.30" E	21.57				
6003	1000	107+03.64	-25.00	482444.5322	566313.8280	S 7°20'04.08" W	39.94				
6000	1000	106+63.69	-25.00	482404.9141	566308.7286						

FIGURE 1-L PE AREA = 868.1785 SQ. FT. (0.0199 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
15-020.00-001	(1-L) STATE OF DELAWARE (DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL)	TCE	D.R. 2541-38	9.505							
ALIGNMENT NUMBER & DESCRIPTION: 1000 - ROW BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
7000	1000	105+09.21	-25.00	482251.6938	566289.0069	N 82°11'36.30" W	10.82				
7001	1000	105+09.30	-35.82	482253.1642	566278.2823	N 7°48'23.70" E	127.74				
7002	1000	106+37.03	-34.77	482379.7173	566295.6327	N 82°11'36.30" W	53.33				
7003	1000	106+37.47	-88.10	482386.9606	566242.8004	N 7°48'23.70" E	93.15				
7004	1000	107+27.89	-87.56	482479.2508	566255.4534	S 82°11'36.30" E	53.33				
7005	1000	107+29.01	-34.25	482472.0075	566308.2857	N 7°48'23.70" E	47.50				
7006	1000	107+72.27	-38.17	482519.0629	566314.7370	S 82°11'36.30" E	8.61				
7007	1000	107+73.38	-29.64	482517.8929	566323.2706	S 7°20'04.08" W	73.97				
6003	1000	107+03.64	-25.00	482444.5322	566313.8280	N 82°11'36.30" W	21.57				
6002	1000	107+03.81	-46.57	482447.4621	566292.4574	S 7°48'23.70" W	39.94				
6001	1000	106+63.87	-46.90	482407.8887	566287.0319	S 82°11'36.30" E	21.90				
6000	1000	106+63.69	-25.00	482404.9141	566308.7286	S 7°20'04.08" W	154.48				
7000	1000	105+09.21	-25.00	482251.6938	566289.0069						

FIGURE 1-L TCE AREA = 6707.8775 SQ. FT. (0.1540 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
15-020.00-004	(1-R) STATE OF DELAWARE (DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL)	P/E	INSTR 20011026 0088778	130.390							
ALIGNMENT NUMBER & DESCRIPTION: 1000 - ROW BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
8000	1000	106+64.24	25.00	482399.0765	566358.3897	N 7°20'04.08" E	40.86				
8001	1000	107+05.11	25.00	482439.6068	566363.6065	S 82°11'36.30" E	22.80				
8002	1000	107+04.92	47.81	482436.5088	566386.2026	S 7°48'23.70" W	40.86				
8003	1000	106+64.06	47.47	482396.0243	566380.6522	N 82°11'36.30" W	22.47				
8000	1000	106+64.24	25.00	482399.0765	566358.3897						

FIGURE 1-R PE AREA = 925.1162 SQ. FT. (0.0212 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
15-020.00-004	(1-R) STATE OF DELAWARE (DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL)	TCE	INSTR 20011026 0088778	130.390							
ALIGNMENT NUMBER & DESCRIPTION: 1000 - ROW BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
9000	1000	105+54.95	25.00	482290.6786	566344.4373	N 7°20'04.08" E	109.29				
8000	1000	106+64.24	25.00	482399.0765	566358.3897	S 82°11'36.30" E	22.47				
8003	1000	106+64.06	47.47	482396.0243	566380.6522	N 7°48'23.70" E	40.86				
8002	1000	107+04.92	47.81	482436.5088	566386.2026	N 82°11'36.30" W	22.80				
8001	1000	107+05.11	25.00	482439.6068	566363.6065	N 7°20'04.08" E	10.87				
9001	1000	107+15.97	25.00	482450.3875	566364.9942			N 14°39'38.20" E	91.04	91.29	356.97
9002	1000	108+13.66	25.00	482538.4630	566388.0356	S 68°05'15.73" E	7.00				
9003	1000	108+13.67	32.00	482535.8507	566394.5299			S 15°58'38.36" W	73.30	73.43	-349.97
9004	1000	107+33.52	32.00	482465.3858	566374.3546	S 82°11'36.30" E	41.85				
9005	1000	107+35.48	73.81	482459.7019	566415.8127	S 7°48'23.70" W	94.86				
9006	1000	106+36.84	73.43	482365.7178	566402.9275	N 82°11'36.30" W	33.32				
9007	1000	106+37.11	40.12	482370.2432	566369.9188	S 7°20'04.08" W	82.34				
9008	1000	105+54.77	40.12	482288.5727	566359.4067	N 81°59'31.97" W	15.12				
9000	1000	105+54.95	25.00	482290.6786	566344.4373						

FIGURE 1-R TCE AREA = 5468.9251 SQ. FT. (0.1255 ACRES)

COUNTY ASSESSMENT PARCEL NUMBER	PLAN SHEET NUMBER	OWNERSHIP OF RECORD	TITLE SOURCE	PROPERTY AREA BEFORE ACQUISITION (ACRE) D=DEED C=CALCULATED A=ASSESSMENT	ACQUISITION CODE FEE, R/W, P/E, TCE	AREA TO BE ACQUIRED				PROPERTY AREA REMAINING (SQ. FEET/ACRES)	DEED RECORD OF ACQUISITION	REMARKS
						ACQUISITION (SQ. FEET/ACRES)	AREA OCCUPIED BY EXISTING RIGHT OF WAY (SQ. FEET/ACRES)	EASEMENT				
								PERMANENT (SQ. FEET/ACRES)	TEMPORARY (SQ. FEET/ACRES)			
15-020.00-001	8	(1-L) STATE OF DELAWARE (DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL)	D.R. 2541-38	D - 9.51	P/E			868.1785 / 0.02				
					TCE				6707.8775 / 0.15	414041 / 9.51		
15-020.00-004	8	(1-R) STATE OF DELAWARE (DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL)	INSTR 20011026 0088778	D - 130.39	P/E			925.1162 / 0.02				
					TCE				5468.9251 / 0.13	5679717 / 130.39		

**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

ADDENDA / REVISIONS

NOT TO SCALE

**BR 1-484 ON HARVEY STRAUGHN ROAD OVER BLACK STALLION DITCH**

CONTRACT	BRIDGE NO.	<b>1-484</b>
T201707104	DESIGNED BY:	MWGT
COUNTY	CHECKED BY:	NED
NEW CASTLE		

**RIGHT-OF-WAY DATA AND TABULATION SHEET**

SECTION	BR
SHEET NO.	21

30-APR-2020 09:47 Y:\NEWCASTL1007\Bridges\1701707104\500\_CADD\530\_PLANS\_DGN\DWG\BR1.dgn