

**PLAN - SWM FACILITY NO. 700 WET POND**  
STATION 605+00 RT TO 608+00 RT

POND DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (CFS)	FACILITY DISCHARGE (CFS)	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
1 YEAR (QUALITY)	7.08	1.01	54.89	0.64
10 - YEAR	21.16	9.05	55.65	1.26
100 - YEAR	45.46	26.84	56.55	2.10

**NOTES:**

- HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378
- DRAINAGE AREA TO FACILITY: 15.53 ACRES
- MANAGEMENT PROVIDED BY FACILITY: WATER QUALITY BY EXTENDED DETENTION OF RUNOFF FROM THE 1-YEAR STORM. WATER QUANTITY FOR 10 AND 100 YEAR STORMS

**(X) PRINCIPAL SPILLWAY BASELINE**

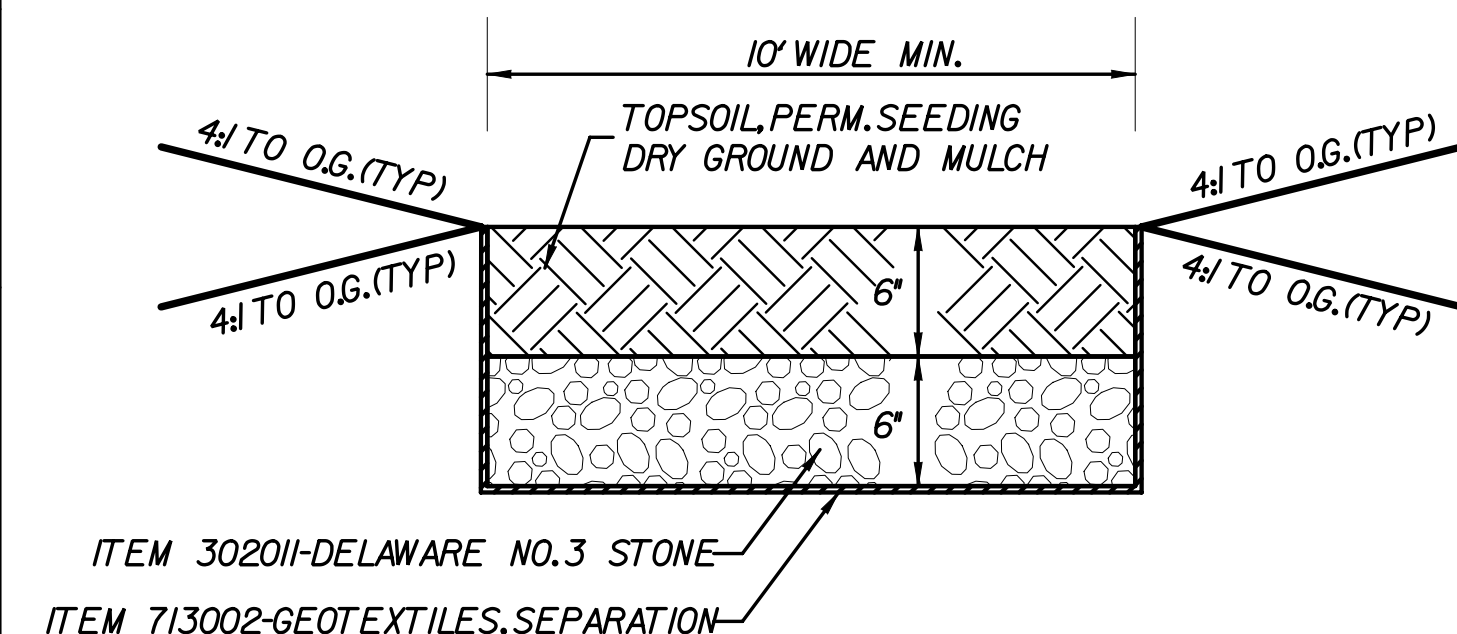
POINT NO.	STATION	NORTHING	EASTING
1 POB	0+00.00	543398.8953	573179.2177
2 PI	2+81.24	543136.0707	573079.1179
3 POE	3+34.37	543083.8545	573088.9035

**(X) POND EMBANKMENT BASELINE**

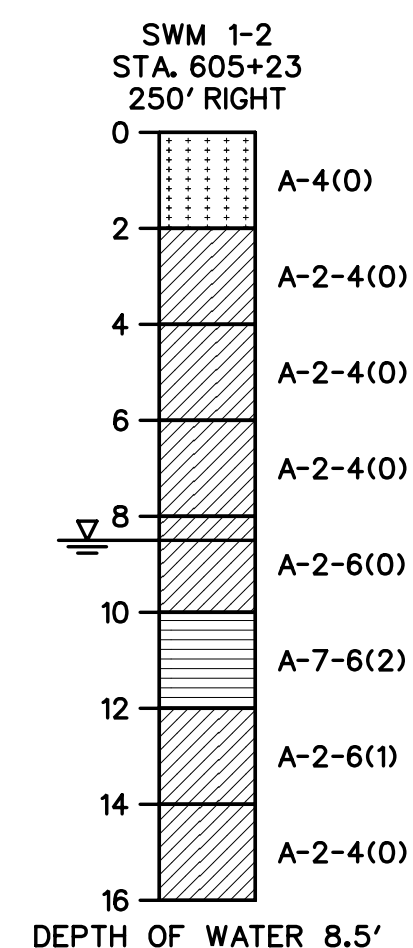
POINT NO.	STATION	NORTHING	EASTING
10 POB	10+00.00	543363.9471	573199.2110
11 PC	11+48.92	543215.5066	573211.1079
PI	12+56.90	543107.8643	573219.7350
RADIUS = 120.00'			
12 PT	13+24.78	543087.9732	573113.5953
13 PC	13+74.83	543078.7529	573064.3958
PI	14+13.90	543071.5562	573025.9937
RADIUS = 40.00'			
14 PT	14+36.73	543109.7785	573017.8963
15 PC	15+62.28	543232.6057	572991.8754
PI	16+04.25	543273.6638	572983.1773
RADIUS = 65.00'			
16 PT	16+36.81	543298.4877	573017.0179
17 PC	17+91.76	543390.1349	573141.9534

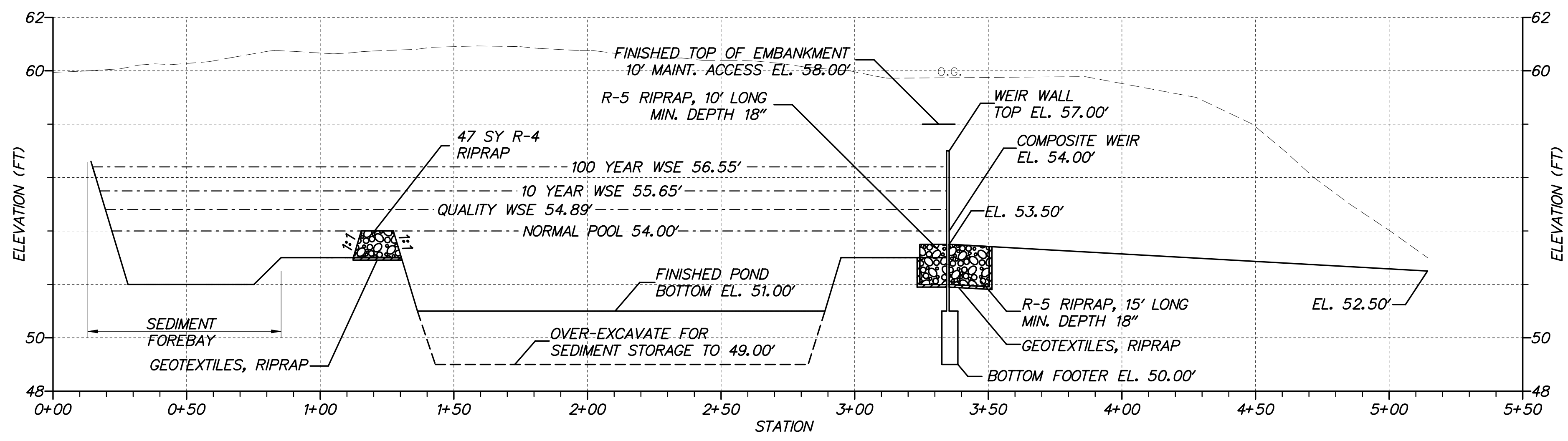
**NOTES:**

- THE POND BETWEEN ELEVATIONS 51.0' AND 55.0' SHALL RECEIVE PERMANENT SEEDING, WET GROUND (ITEM 734015). THE REMAINDER OF THE EMBANKMENT AREA SHALL RECEIVE PERMANENT SEEDING, DRY GROUND (ITEM 734013).
- SIDE SLOPE ABOVE ELEVATION 53.0' SHALL BE TOPSOILED AND MULCHED.

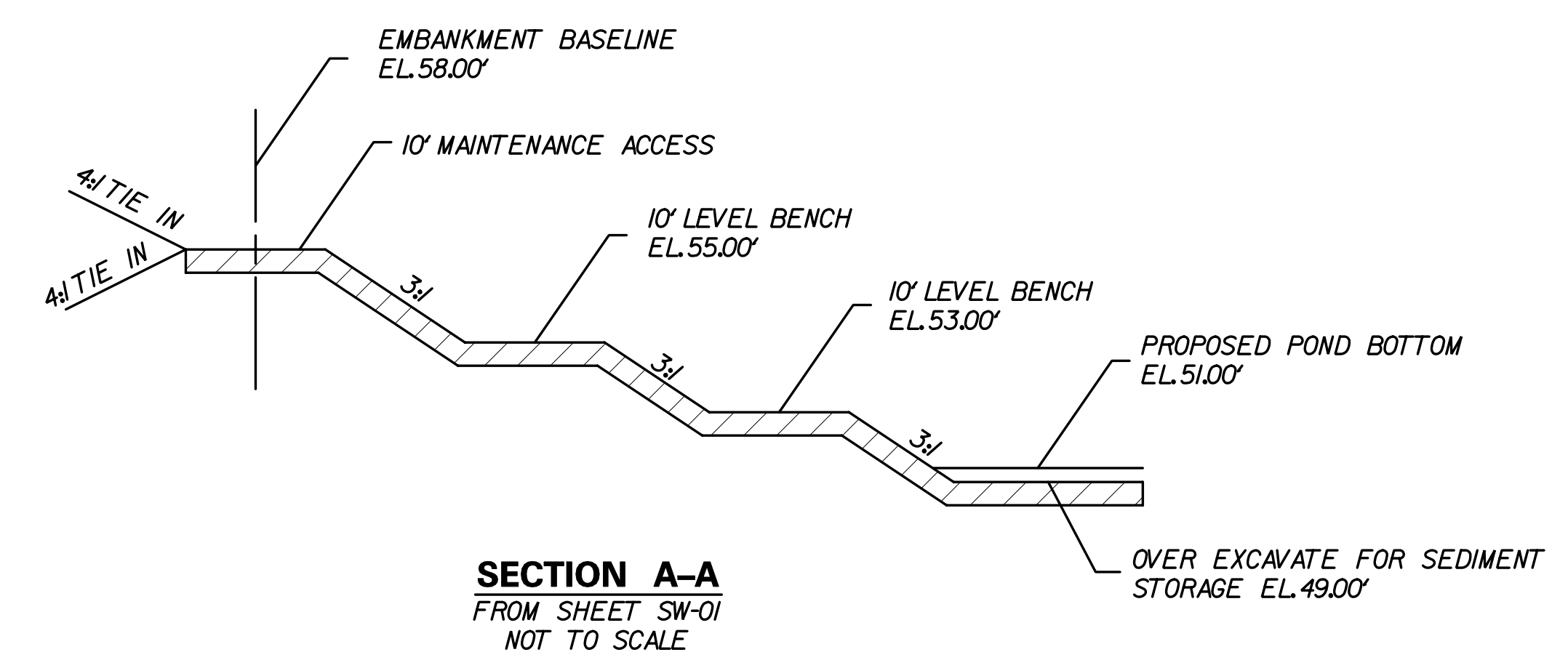


**POND MAINTENANCE ACCESS**  
NOT TO SCALE

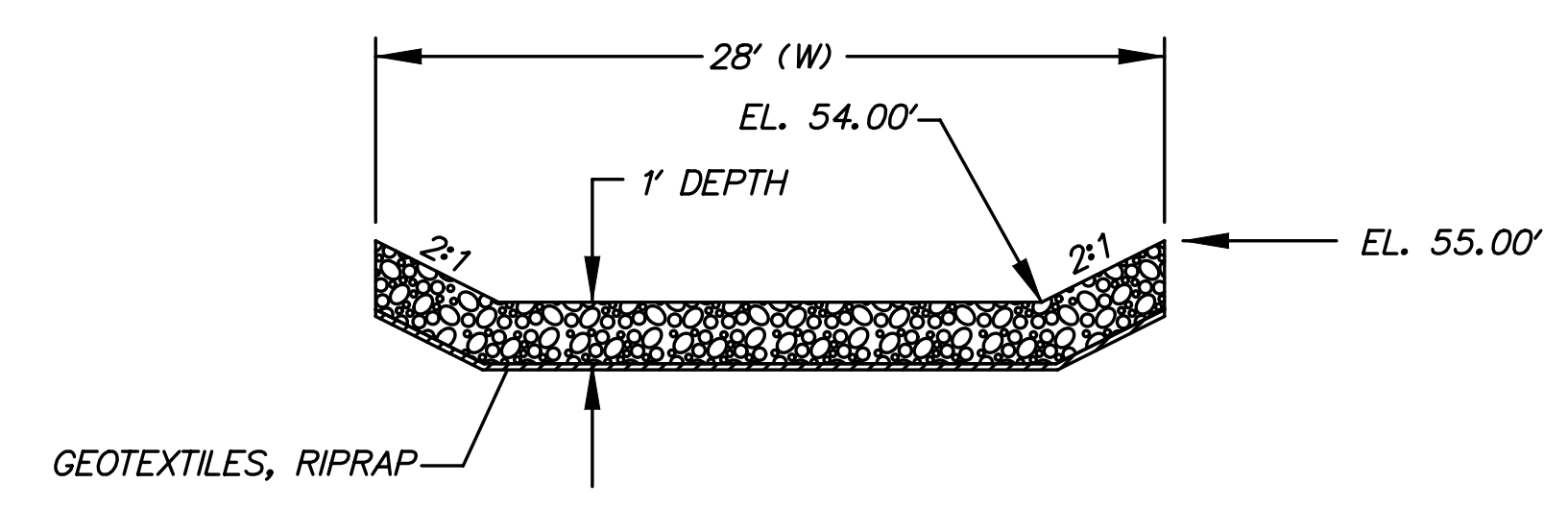




**SPILLWAY PROFILE SWM FACILITY NO. 700**



**SECTION A-A**  
FROM SHEET SW-01  
NOT TO SCALE



**SECTION B-B**  
FROM SHEET SW-01  
NOT TO SCALE

**POND CONSTRUCTION SEQUENCE AND NOTES - SWM FACILITY NO.700**

THE STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS:

- SECTION 271 - STORMWATER MANAGEMENT POND  
SECTION 272 - POND OUTLET STRUCTURE, CONCRETE
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
  2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
  3. INSTALL PERIMETER SEDIMENT CONTROLS AS SHOWN IN CONSTRUCTION PHASING SHEETS.
  4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION.
  5. EXCAVATE PARTIAL EMBANKMENT AS NEEDED TO CONSTRUCT AND INSTALL POND OUTLET STRUCTURE. BLOCK POND OUTLET STRUCTURE WEIR FROM ELEVATION 54.0' TO ELEVATION 56.0'. INSTALL SKIMMER DEWATERING DEVICE AND SET DISCHARGE ELEVATION TO 54.4'. DEWATER FOUNDATION AS NEEDED TO CONSTRUCT POND OUTLET STRUCTURE IN ACCORDANCE WITH SECTION III - DEWATERING OPERATIONS AND USE SUMP PIT TYPE I FOR PUMPING. REFER TO SKIMMER DEWATERING DEVICE TABLE BELOW FOR SPECIFIC DETAILS.
  6. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT AND BASIN TO THE LINES, GRADES AND DETAILS AS SHOWN IN THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL OVER EXCAVATE POND BOTTOM TO ELEVATION 49.0' FOR SEDIMENT STORAGE DURING CONSTRUCTION.
  7. STABILIZE ALL BARE AREAS.

**MAINTENANCE OF POND AS A SEDIMENT BASIN**

1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.
2. CONTRACTOR SHALL CLEARLY MARK THE CLEANOUT ELEVATION ON A STAKE DRIVEN INTO THE GROUND AT A LOCATION CLEARLY VISIBLE FROM THE EMBANKMENT. SEDIMENT SHALL BE REMOVED WHEN CLEANOUT ELEVATION IS REACHED AND DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER.
3. CLEANOUT ELEVATION FOR SWM FACILITY NO.700 IS 53.00'.

**CONVERSION TO PERMANENT STORMWATER MANAGEMENT POND**

1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.
2. REMOVE ACCUMULATED SEDIMENT TO ELEVATION 51.0' AND DISPOSE SEDIMENT AT A LOCATION APPROVED BY THE ENGINEER.
3. COMPLETE STABILIZATION OF ALL BARE AREAS. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.

**AS-BUILT DRAWINGS OF STORMWATER MANAGEMENT FACILITIES**

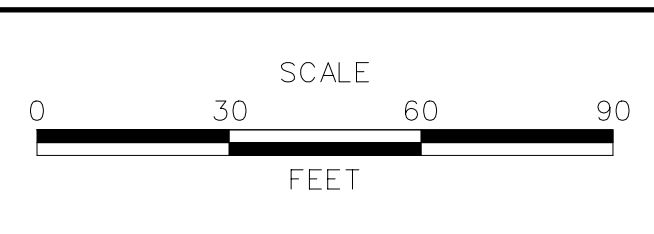
1. THE CONTRACTOR SHALL PROVIDE 'AS-BUILT' DRAWINGS OF ALL STORMWATER MANAGEMENT FACILITIES, SUCH AS PONDS, BIOFILTRATION SWALES, BIORETENTION AREAS, ETC. THE 'AS-BUILT' DRAWINGS SHALL SHOW THE ACTUAL FINISHED GROUND CONTOURS, OUTLET STRUCTURE DIMENSIONS AND ELEVATIONS, ETC., AS THEY EXIST AT THE COMPLETION OF THE PROJECT. THESE DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER OR LAND SURVEYOR.

SKIMMER DEWATERING DEVICE SCHEDULE				
BASIN NO.	SKIMMER INV.(FT)	ORIFICE SIZE (IN)	BLOCK WEIR FROM-TO EL.(FT)	BASIN CLEANOUT EL.(FT)
700	54.40	4.00	54.00 - 56.00	53.00

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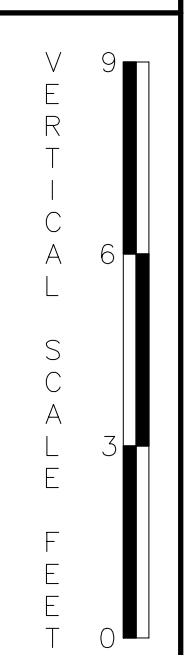
ADDENDUMS / REVISIONS



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: JJK
	CHECKED BY: MAA

**STORMWATER  
MANAGEMENT PLAN**

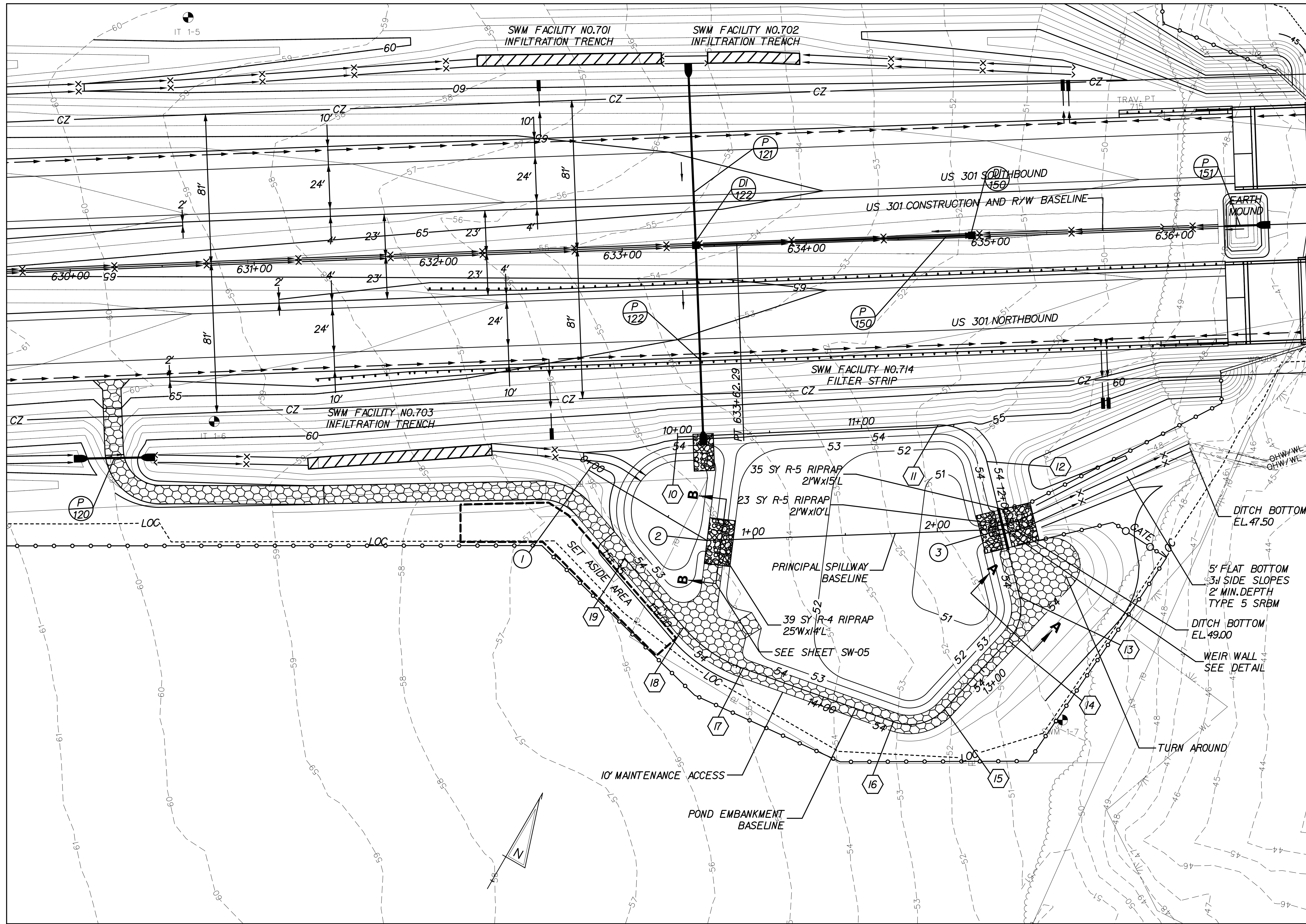


SW-02

SHEET NO. 154
TOTAL SHTS. 240







**PLAN - SWM FACILITY NO. 704 DRY POND**  
STATION 633+00 RT TO 636+00 RT

POND DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (CFS)	FACILITY DISCHARGE (CFS)	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
10 - YEAR	10.33	5.88	52.01	0.18
100 - YEAR	24.23	13.50	52.79	0.46

- NOTES:**
- HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378
  - DRAINAGE AREA TO FACILITY: 5.67 ACRES
  - MANAGEMENT PROVIDED BY FACILITY: WATER QUANTITY FOR 10 AND 100 YEAR STORMS

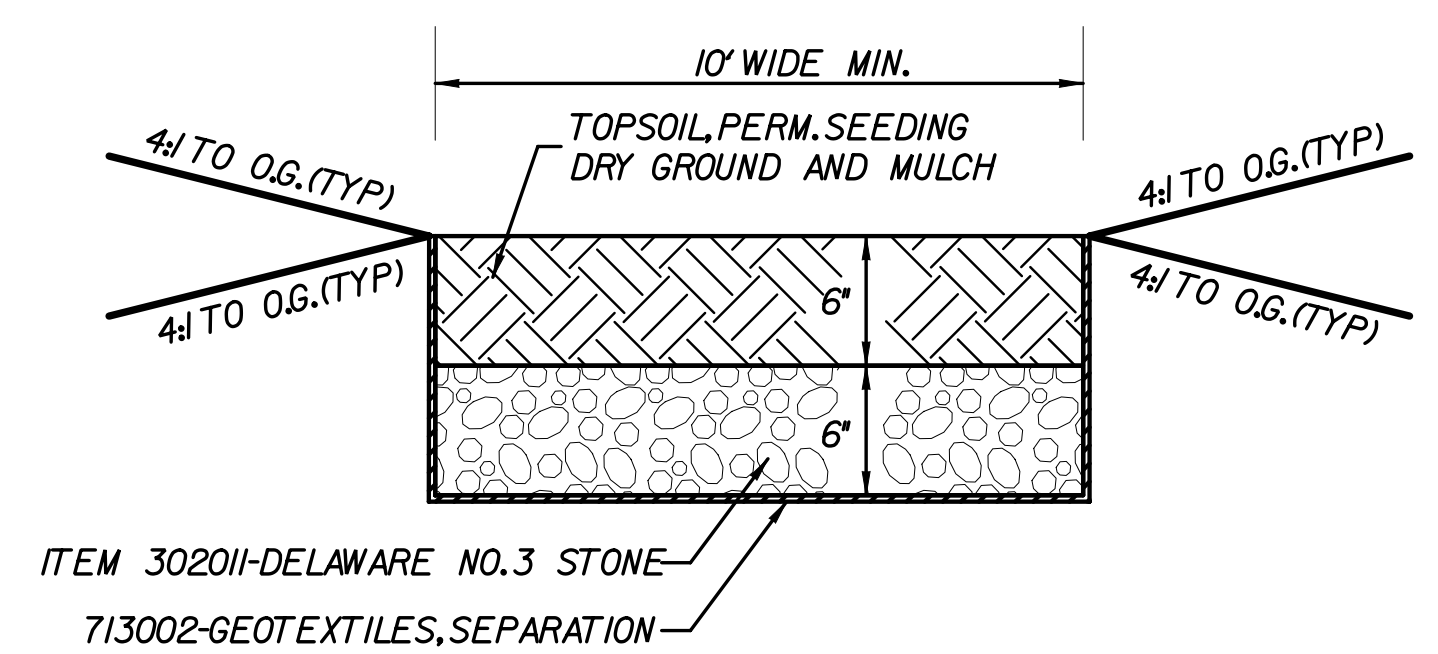
**(X) PRINCIPAL SPILLWAY BASELINE**

POINT NO.	STATION	NORTHING	EASTING
1 POB	0+00.00	544798.8776	575289.2918
2 PI	0+74.83	544797.8930	575364.1158
3 POE	2+35.27	544883.3061	575499.9346

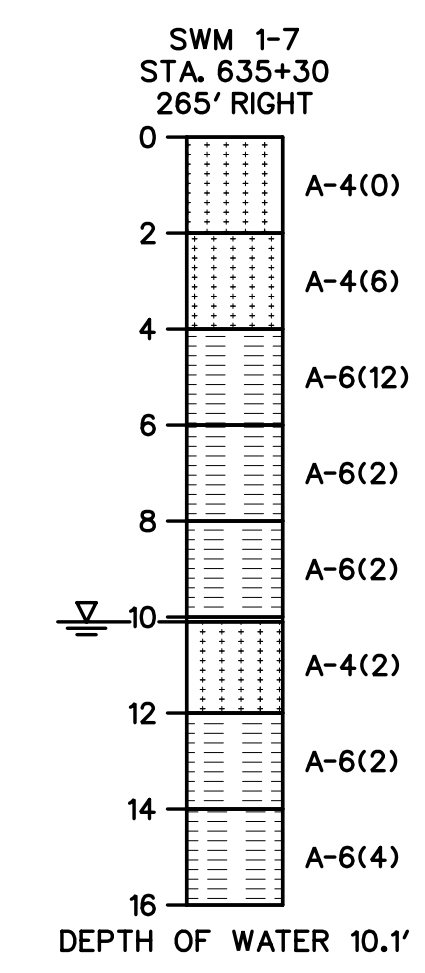
**(X) POND EMBANKMENT BASELINE**

POINT NO.	STATION	NORTHING	EASTING
10 POB	10+00.00	544838.5852	575322.1531
11 PC	11+41.60	544914.9372	575441.4055
PI	11+63.03	544926.4939	575459.4556
RADIUS = 26.00'			
12 PT	11+77.45	544910.9805	575474.2440
13 PC	12+52.96	544856.3217	575526.3489
PI	12+66.91	544846.2300	575535.9691
RADIUS = 26.00'			
14 PT	12+78.56	544832.6328	575532.8862
15 PC	13+29.40	544783.0515	575521.6446
PI	13+46.54	544766.3358	575517.8546
RADIUS = 26.00'			
16 PT	13+59.71	544763.2308	575500.9983
17 PC	14+46.24	544747.5551	575415.9002
PI	14+66.64	544743.8590	575395.8349
RADIUS = 76.00'			
18 PT	14+86.10	544750.7089	575376.6163
19 POE	15+35.28	544767.2200	575330.2919

- NOTES:**
- THE POND BOTTOM AND EMBANKMENT SHALL RECEIVE PERMANENT SEEDING, DRY GROUND (ITEM 734013).
  - EMBANKMENT SLOPE SHALL BE TOPSOILED AND MULCHED.

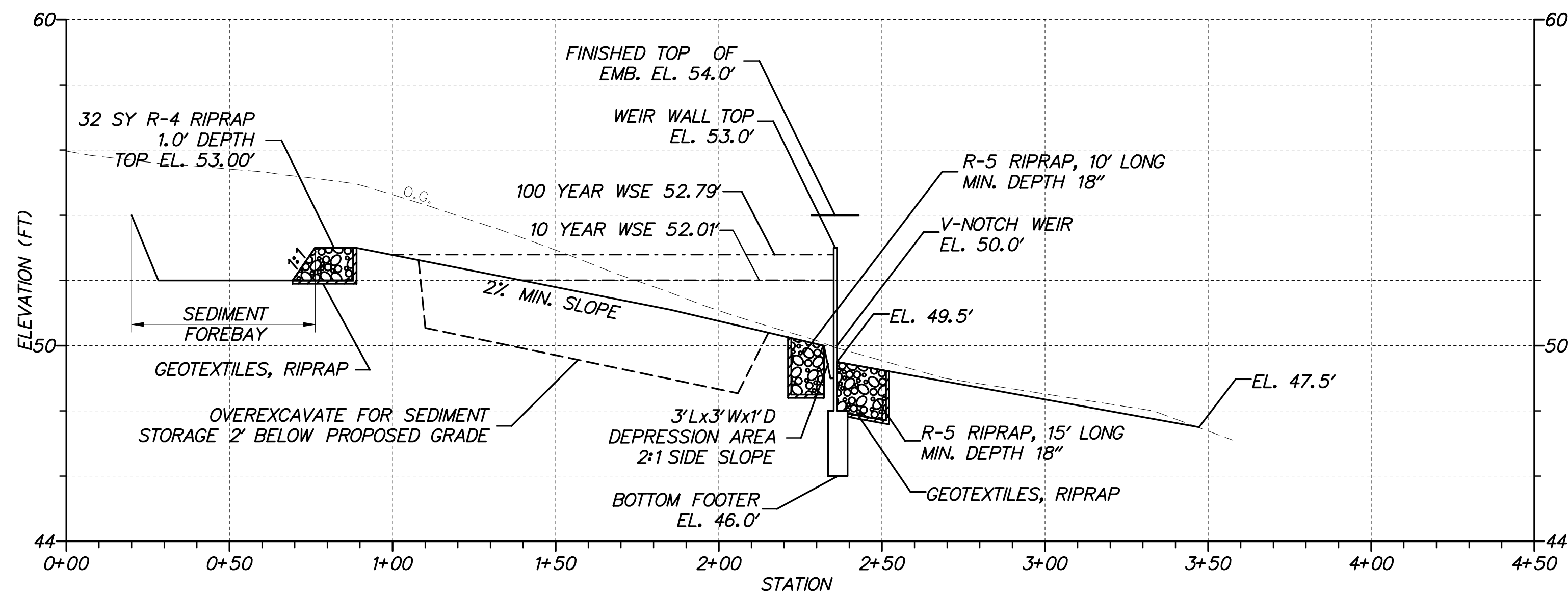


**POND MAINTENANCE ACCESS**  
NOT TO SCALE

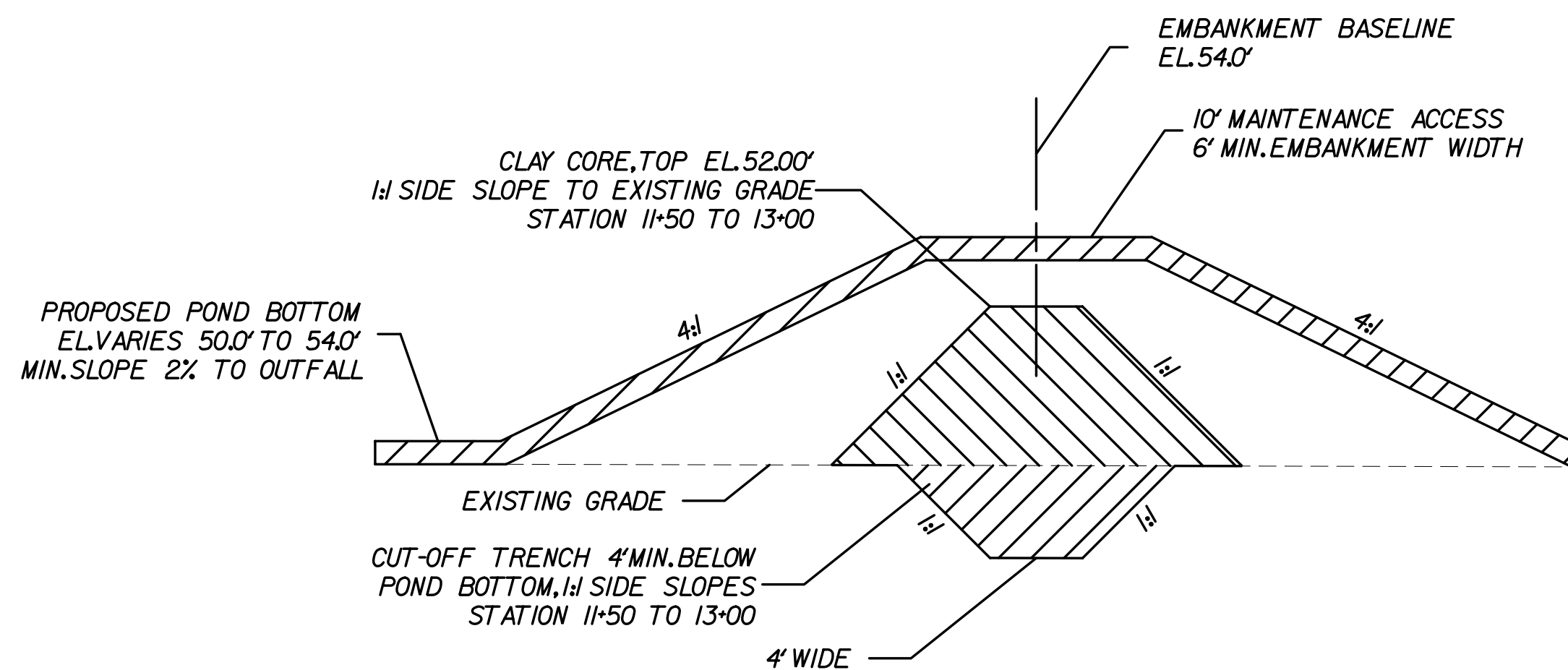


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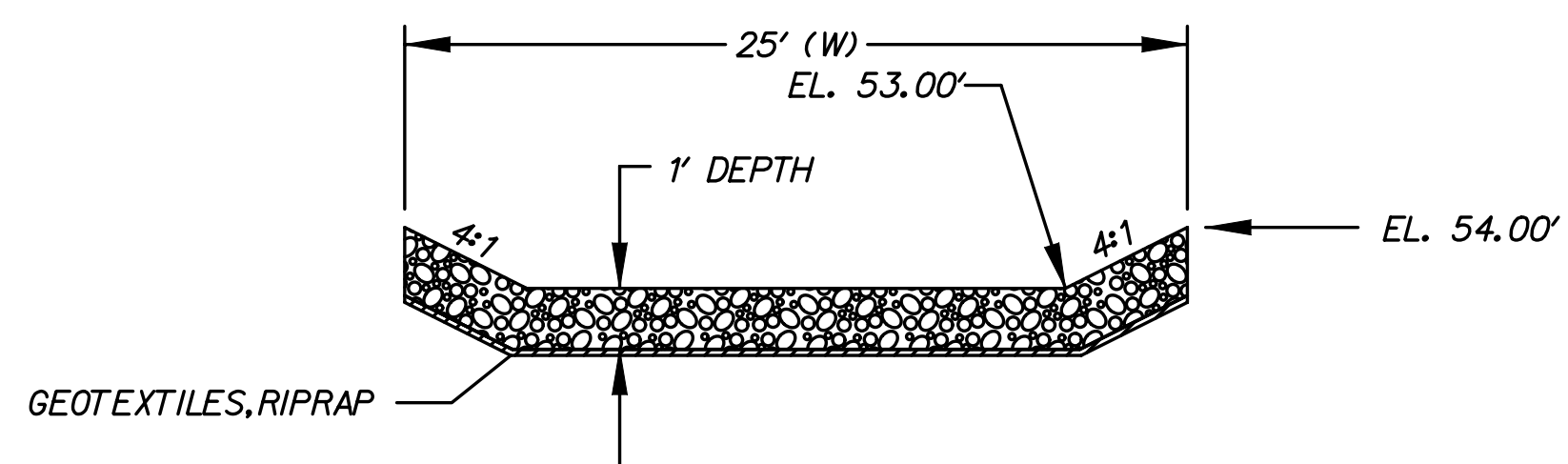




**SPILLWAY PROFILE SWM FACILITY NO. 704**



**SECTION A-A**  
FROM SHEET SW-04  
NOT TO SCALE



**SECTION B-B**  
FROM SHEET SW-04  
NOT TO SCALE

**POND CONSTRUCTION SEQUENCE AND NOTES - SWM FACILITY NO.704**

THE STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS:

SECTION 271 - STORMWATER MANAGEMENT POND  
SECTION 272 - POND OUTLET STRUCTURE, CONCRETE

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
3. INSTALL PERIMETER SEDIMENT CONTROLS AS SHOWN IN CONSTRUCTION PHASING SHEETS.
4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION.
5. EXCAVATE PARTIAL EMBANKMENT AS NEEDED TO CONSTRUCT AND INSTALL POND OUTLET STRUCTURE. BLOCK POND OUTLET STRUCTURE WEIR FROM ELEVATION 50.0' TO ELEVATION 53.0'. INSTALL SKIMMER DEWATERING DEVICE AND SET DISCHARGE ELEVATION TO 50.42'. DEWATER FOUNDATION AS NEEDED TO CONSTRUCT POND OUTLET STRUCTURE IN ACCORDANCE WITH SECTION III - DEWATERING OPERATIONS AND USE SUMP PIT TYPE I FOR PUMPING.
6. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT AND BASIN TO THE LINES, GRADES AND DETAILS AS SHOWN IN THE CONSTRUCTION PLANS.
7. STABILIZE ALL BARE AREAS.

**MAINTENANCE OF POND AS A SEDIMENT BASIN**

1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.
2. CONTRACTOR SHALL CLEARLY MARK THE CLEANOUT ELEVATION ON A STAKE DRIVEN INTO THE GROUND AT A LOCATION CLEARLY VISIBLE FROM THE EMBANKMENT. SEDIMENT SHALL BE REMOVED WHEN CLEANOUT ELEVATION IS REACHED AND DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER.
3. CLEANOUT ELEVATION IN FOREBAY OF SWM FACILITY NO.704 IS 53.00'.

**CONVERSION TO PERMANENT STORMWATER MANAGEMENT POND**

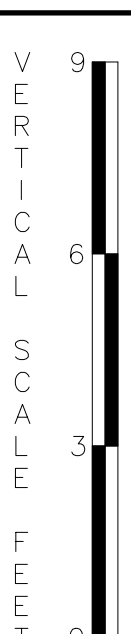
1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.
2. REMOVE ACCUMULATED SEDIMENT TO THE ELEVATIONS SHOWN ON THE PLAN AND DISPOSE SEDIMENT AT A LOCATION APPROVED BY THE ENGINEER. THE FINISHED POND BOTTOM SHALL BE SLOPED AT A MINIMUM OF 2% TO THE OUTLET.
3. COMPLETE STABILIZATION OF ALL BARE AREAS. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.

**AS-BUILT DRAWINGS OF STORMWATER MANAGEMENT FACILITIES**

1. THE CONTRACTOR SHALL PROVIDE 'AS-BUILT' DRAWINGS OF ALL STORMWATER MANAGEMENT FACILITIES, SUCH AS PONDS, BIOFILTRATION SWALES, BIORETENTION AREAS, ETC. THE 'AS-BUILT' DRAWINGS SHALL SHOW THE ACTUAL FINISHED GROUND CONTOURS, OUTLET STRUCTURE DIMENSIONS AND ELEVATIONS, ETC., AS THEY EXIST AT THE COMPLETION OF THE PROJECT. THESE DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER OR LAND SURVEYOR.

SKIMMER DEWATERING DEVICE SCHEDULE				
BASIN NO.	SKIMMER INV.(FT)	ORIFICE SIZE (IN)	BLOCK WEIR FROM-TO EL.(FT)	BASIN CLEANOUT EL.(FT)
704	50.42	2.00	50.00 - 53.00	53.00 (SEE NOTE)

NOTE: CLEANOUT ELEVATION IS FOR SEDIMENT BASIN FOREBAY. POND SHALL BE CLEANED OUT WHEN THE SEDIMENT EXCEEDS THE 2' OVEREXCAVATED SECTION ALONG THE 2% SLOPE.

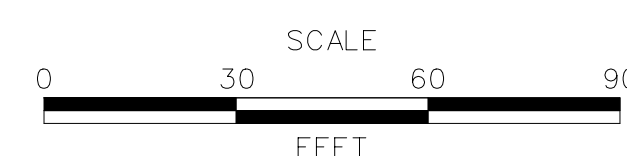


SW-05

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ADDENDUMS / REVISIONS



US 301,  
NORFOLK SOUTHERN RR TO SR 896

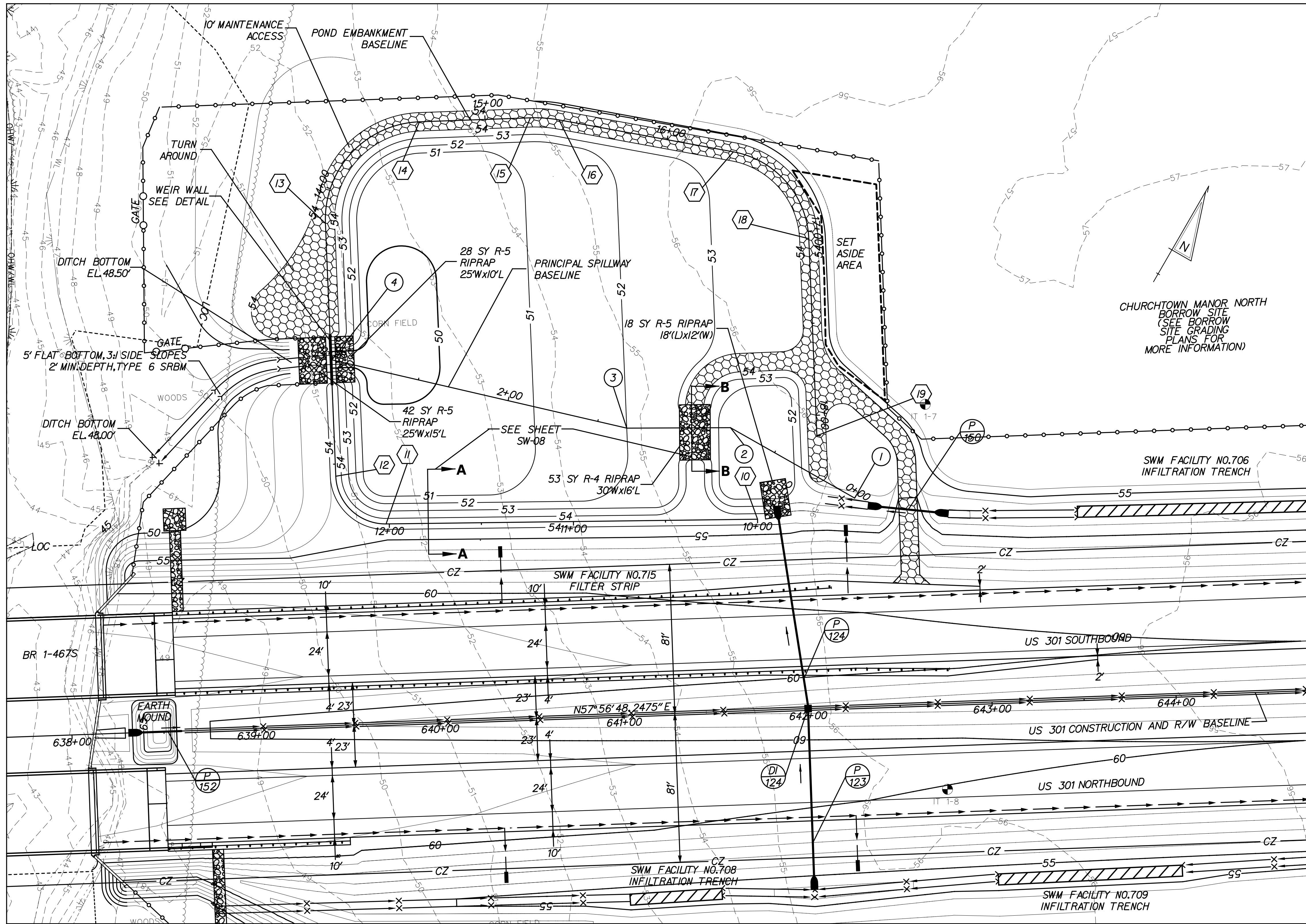
CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: JJK
NEW CASTLE	CHECKED BY: MAA

**STORMWATER  
MANAGEMENT PLAN**

SHEET NO.
157
TOTAL SHTS.
240







**PLAN - SWM FACILITY NO. 705 DRY POND**  
STATION 638+50 LT TO 642+00 LT

POND DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (CFS)	FACILITY DISCHARGE (CFS)	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
10 - YEAR	14.67	5.44	51.82	0.66
100 - YEAR	32.46	14.03	52.84	1.45

- NOTES:**
- HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378
  - DRAINAGE AREA TO FACILITY: 11.04 ACRES
  - MANAGEMENT PROVIDED BY FACILITY: WATER QUANTITY FOR 10 AND 100 YEAR STORMS

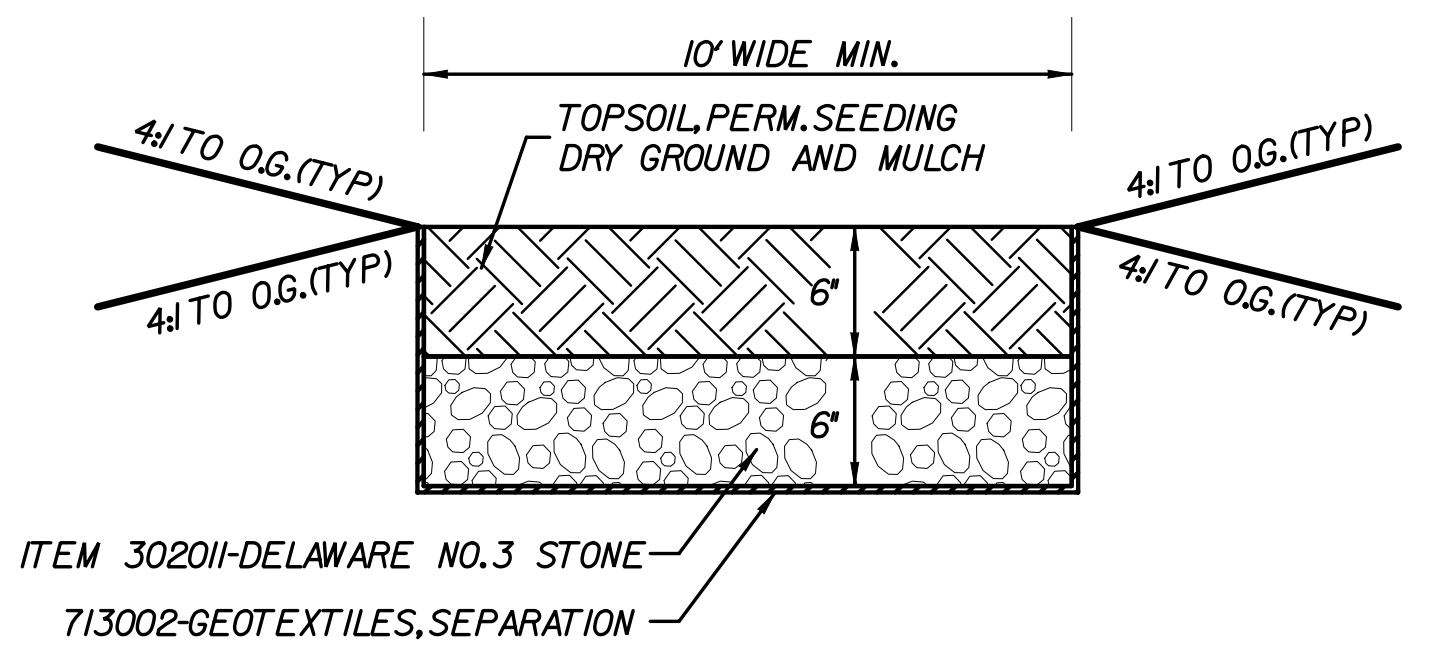
**(X) PRINCIPAL SPILLWAY BASELINE**

POINT NO.	STATION	NORTHING	EASTING
1 POB	0+00.00	545501.7462	575972.2701
2 PI	0+77.53	545501.1234	575894.7463
3 PI	1+33.86	545472.7475	575846.0860
4 POE	2+98.20	545424.7859	575688.8992

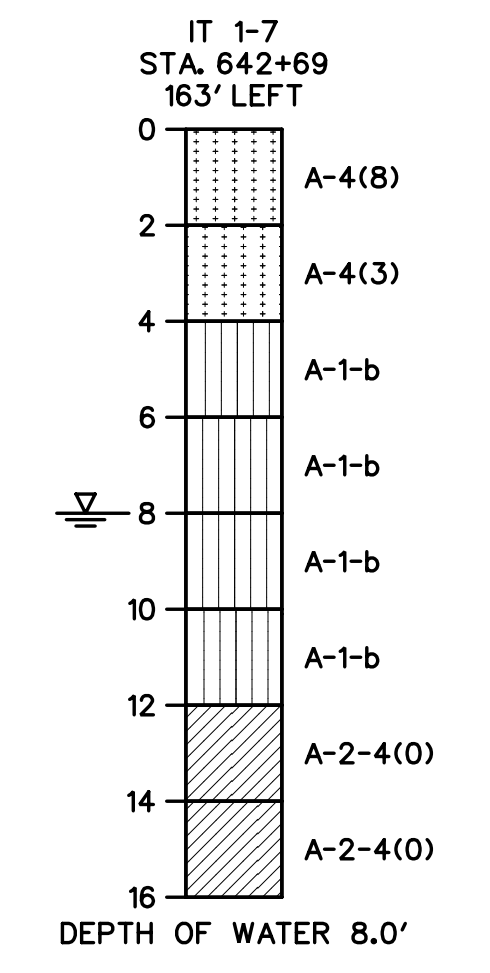
**(X) POND EMBANKMENT BASELINE**

POINT NO.	STATION	NORTHING	EASTING
10 POB	10+00.00	545465.4321	575932.3289
11 PC	12+01.75	545362.3495	575758.9057
PI	12+27.99	545348.9384	575736.3432
RADIUS = 27.00'			
12 PT	12+43.39	545371.1127	575722.2998
13 PC	13+80.85	545487.2392	575648.7543
PI	14+34.12	545532.2450	575620.2512
RADIUS = 53.00'			
14 PT	14+64.38	545560.5170	575665.4025
15 PC	15+24.67	545592.5182	575716.5092
PI	15+32.52	545596.6809	575723.1572
RADIUS = 72.00'			
16 PT	15+40.30	545599.3145	575730.5456
17 PC	16+36.57	545631.6395	575821.2312
PI	16+76.54	545645.0583	575858.8768
RADIUS = 50.00'			
18 PT	17+04.01	545611.2943	575880.2603
19 POE	18+11.09	545520.8239	575937.5572

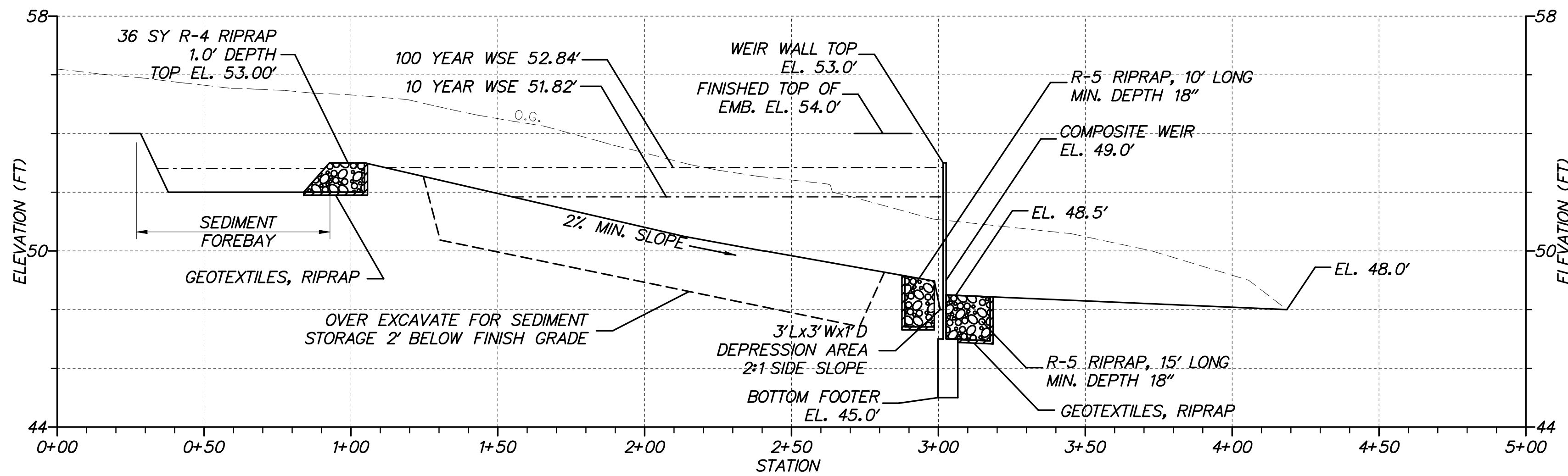
- NOTES:**
- THE POND BOTTOM AND EMBANKMENT SHALL RECEIVE PERMANENT SEEDING, DRY GROUND (ITEM 734013).
  - EMBANKMENT SLOPE SHALL BE TOPSOILED AND MULCHED.



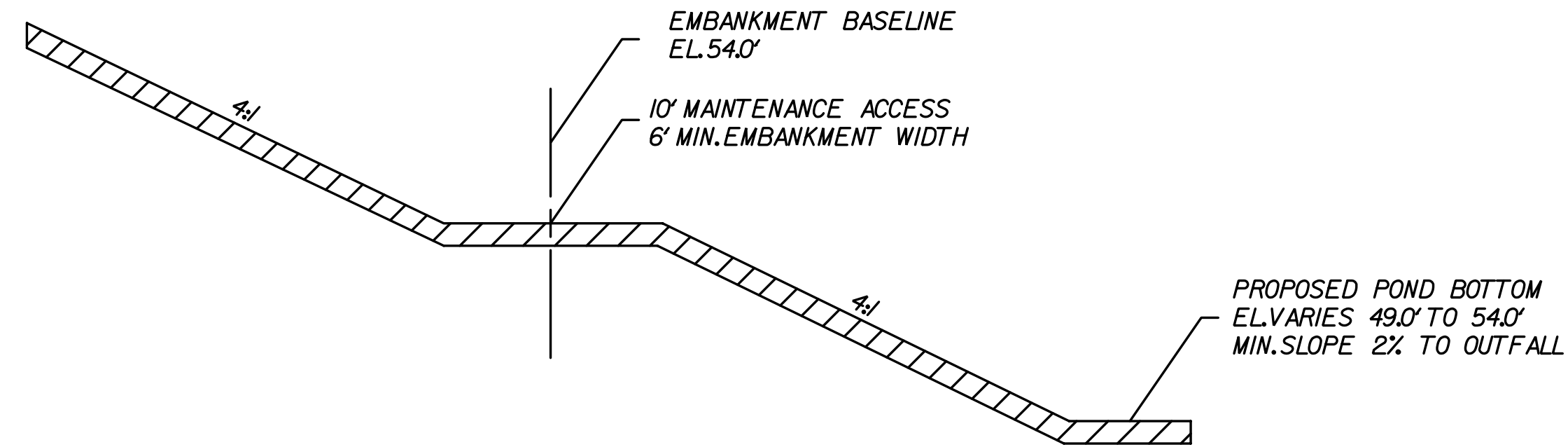
**POND MAINTENANCE ACCESS**  
NOT TO SCALE



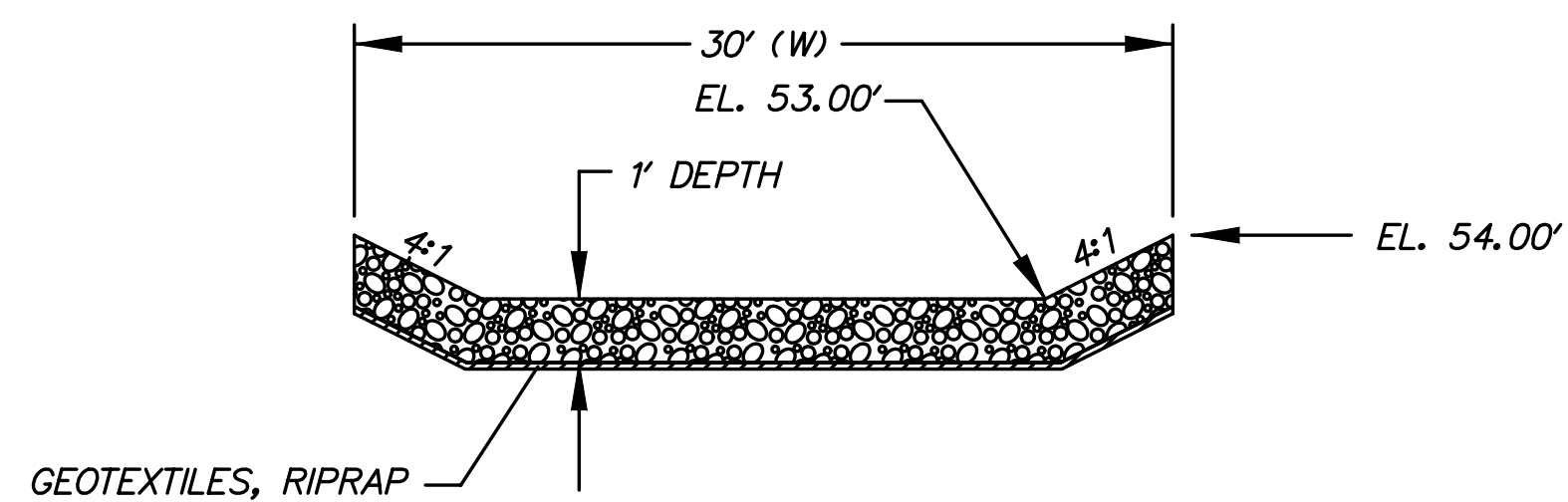
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**SPILLWAY PROFILE SWM FACILITY NO. 705**



**SECTION A-A**  
FROM SHEET SW-07  
NOT TO SCALE



**SECTION B-B**  
FROM SHEET SW-07  
NOT TO SCALE

POND CONSTRUCTION SEQUENCE AND NOTES - SWM FACILITY NO.705

THE STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS:

SECTION 271 - STORMWATER MANAGEMENT POND  
SECTION 272 - POND OUTLET STRUCTURE, CONCRETE

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
3. INSTALL PERIMETER SEDIMENT CONTROLS AS SHOWN IN CONSTRUCTION PHASING SHEETS.
4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION.
5. EXCAVATE PARTIAL EMBANKMENT AS NEEDED TO CONSTRUCT AND INSTALL POND OUTLET STRUCTURE. BLOCK POND OUTLET STRUCTURE WEIR FROM ELEVATION 49.0' TO ELEVATION 53.0'. INSTALL SKIMMER DEWATERING DEVICE AND SET DISCHARGE ELEVATION TO 49.5'. DEWATER FOUNDATION AS NEEDED TO CONSTRUCT POND OUTLET STRUCTURE IN ACCORDANCE WITH SECTION III - DEWATERING OPERATIONS AND USE SUMP PIT TYPE I FOR PUMPING.
6. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT AND BASIN TO THE LINES, GRADES AND DETAILS AS SHOWN IN THE CONSTRUCTION PLANS.
7. STABILIZE ALL BARE AREAS.

MAINTENANCE OF POND AS A SEDIMENT BASIN

1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.
2. CONTRACTOR SHALL CLEARLY MARK THE CLEANOUT ELEVATION ON A STAKE DRIVEN INTO THE GROUND AT A LOCATION CLEARLY VISIBLE FROM THE EMBANKMENT. SEDIMENT SHALL BE REMOVED WHEN CLEANOUT ELEVATION IS REACHED AND DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER.
3. CLEANOUT ELEVATION IN FOREBAY OF SWM FACILITY NO.705 IS 53.00'.

CONVERSION TO PERMANENT STORMWATER MANAGEMENT POND

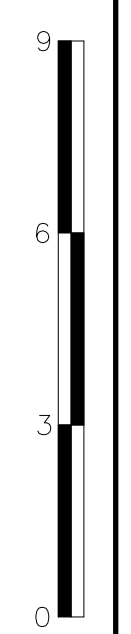
1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.
2. REMOVE ACCUMULATED SEDIMENT TO THE ELEVATIONS SHOWN ON THE PLAN AND DISPOSE SEDIMENT AT A LOCATION APPROVED BY THE ENGINEER. THE FINISHED POND BOTTOM SHALL BE SLOPED AT A MINIMUM OF 2% TO THE OUTFALL.
3. COMPLETE STABILIZATION OF ALL BARE AREAS. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.

AS-BUILT DRAWINGS OF STORMWATER MANAGEMENT FACILITIES

1. THE CONTRACTOR SHALL PROVIDE 'AS-BUILT' DRAWINGS OF ALL STORMWATER MANAGEMENT FACILITIES, SUCH AS PONDS, BIOFILTRATION SWALES, BIORETENTION AREAS, ETC. THE 'AS-BUILT' DRAWINGS SHALL SHOW THE ACTUAL FINISHED GROUND CONTOURS, OUTLET STRUCTURE DIMENSIONS AND ELEVATIONS, ETC., AS THEY EXIST AT THE COMPLETION OF THE PROJECT. THESE DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER OR LAND SURVEYOR.

SKIMMER DEWATERING DEVICE SCHEDULE				
BASIN NO.	SKIMMER INV.(FT)	ORIFICE SIZE (IN)	BLOCK WEIR FROM-TO EL.(FT)	BASIN CLEANOUT EL.(FT)
705	49.50	3.00	49.00 - 53.00	53.00 (SEE NOTE)

NOTE: CLEANOUT ELEVATION IS FOR SEDIMENT BASIN FOREBAY. POND SHALL BE CLEANED OUT WHEN THE SEDIMENT EXCEEDS THE 2' OVEREXCAVATED SECTION ALONG THE 2% SLOPE.



SW-08

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ADDENDUMS / REVISIONS



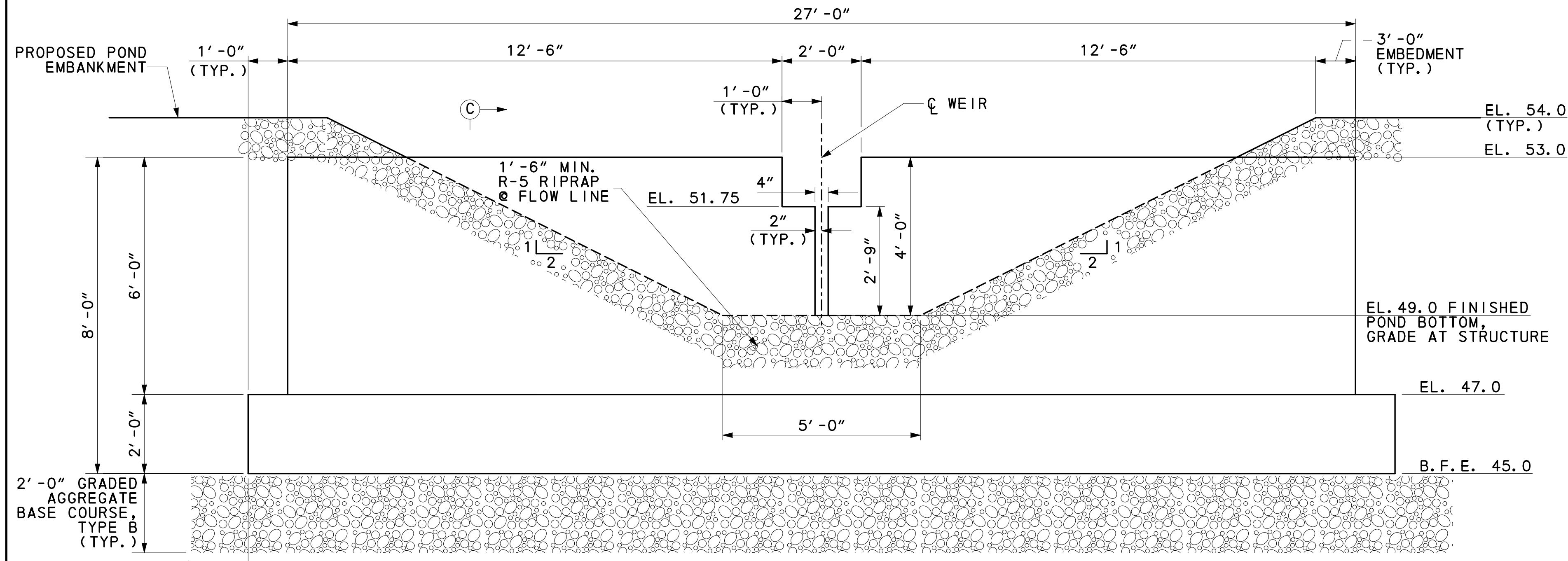
US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: JJK
NEW CASTLE	CHECKED BY: MAA

**STORMWATER  
MANAGEMENT PLAN**

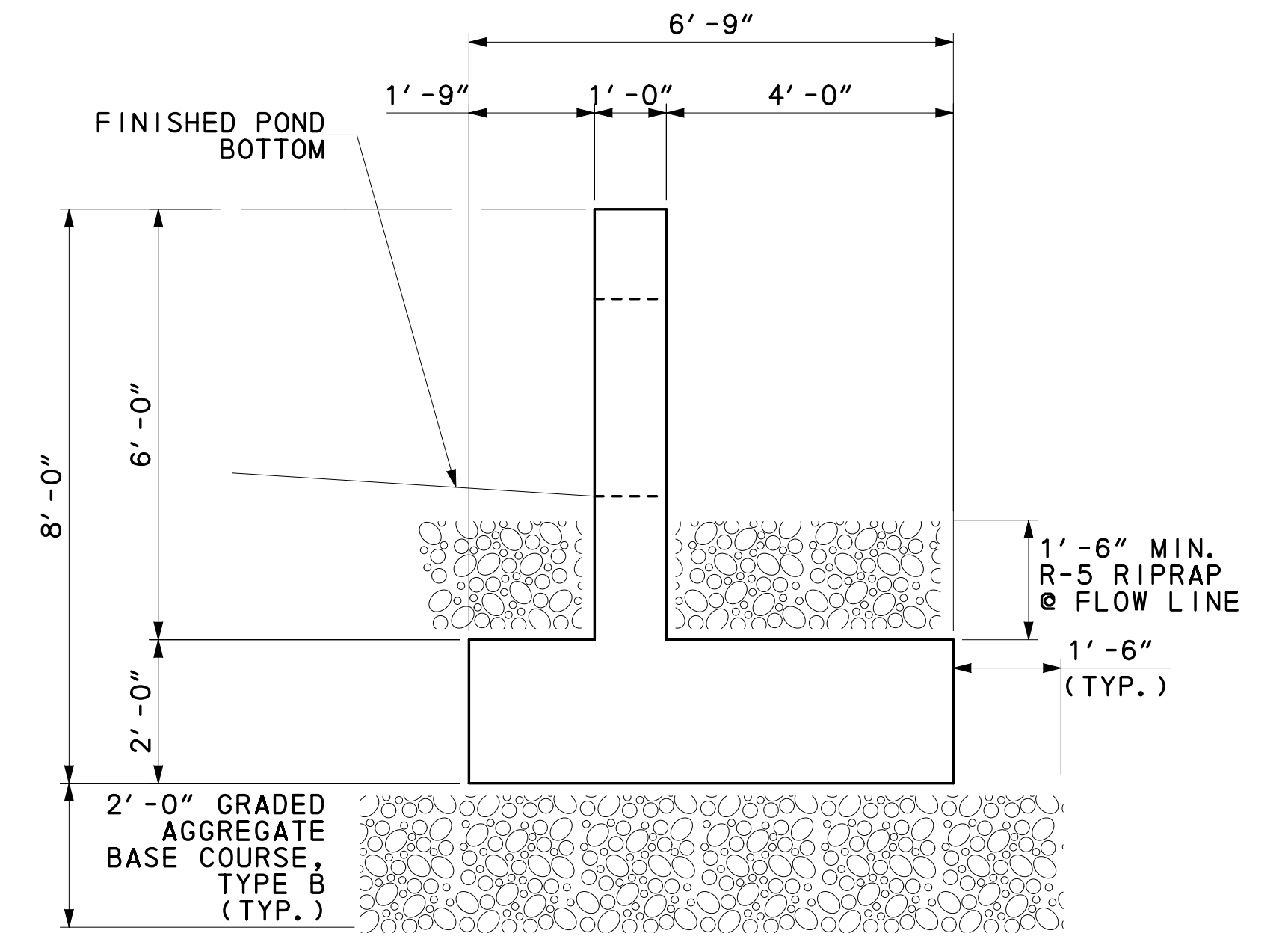
SHEET NO.
160
TOTAL SHTS.
240



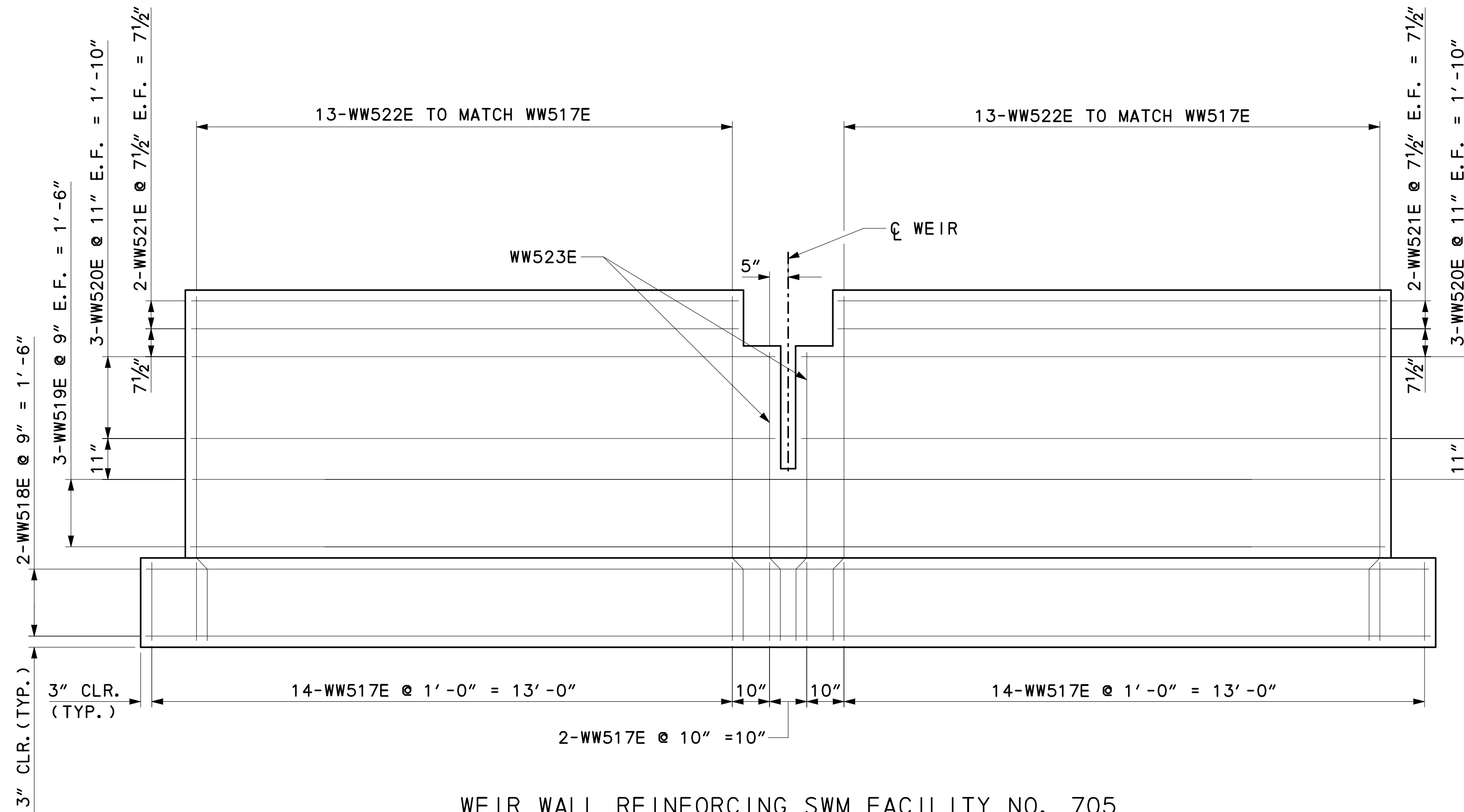


**WEIR WALL ELEVATION SWM FACILITY NO. 705**  
NOT TO SCALE

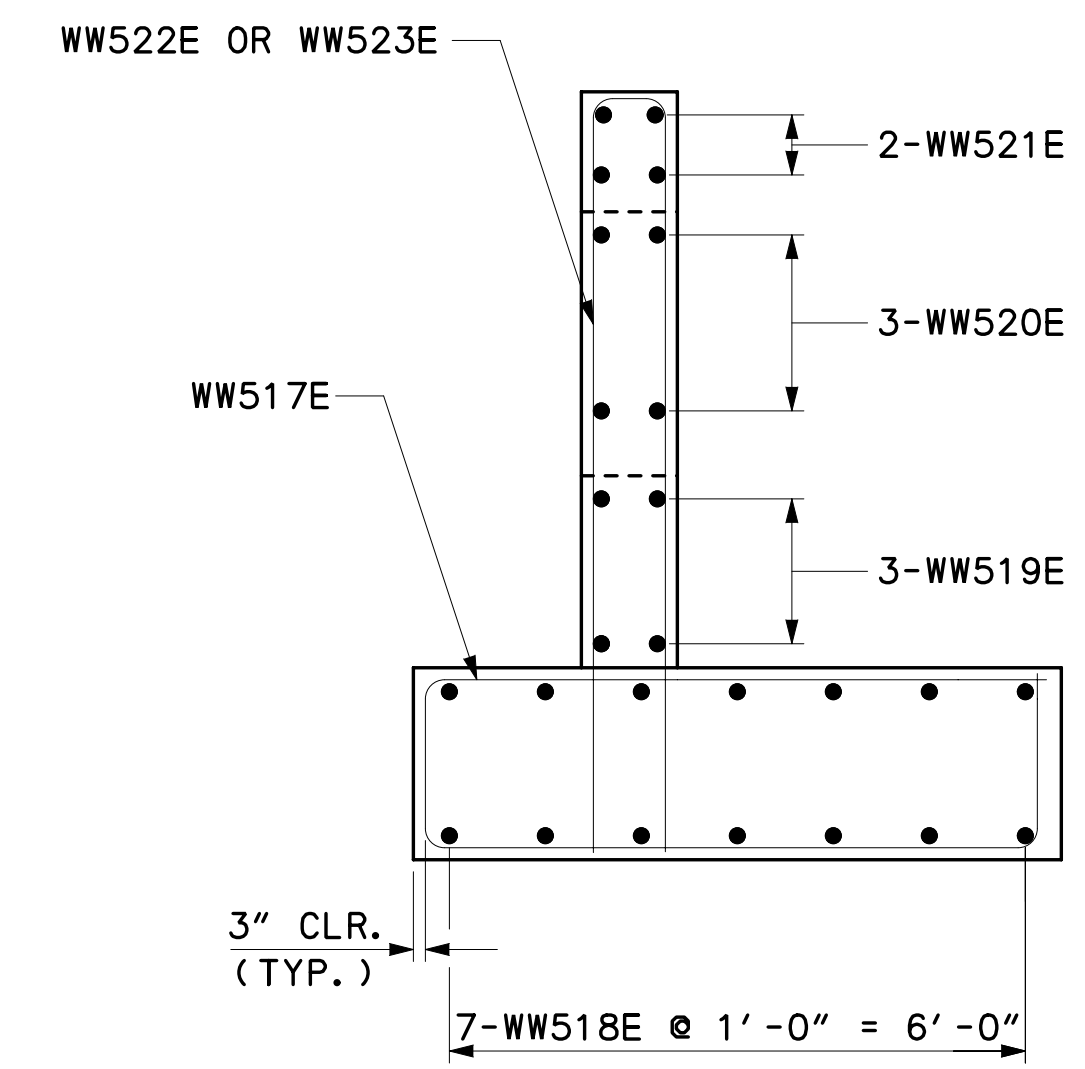
NOTE: 1. WEIR WALLS AND FOUNDATION SHALL BE CAST IN PLACE.  
2. OUTLET STRUCTURE FOR SWM FACILITY NO. 705 PAID UNDER ITEM 272002 - POND OUTLET STRUCTURE, CONCRETE #3.



**SECTION C-C**  
NOT TO SCALE

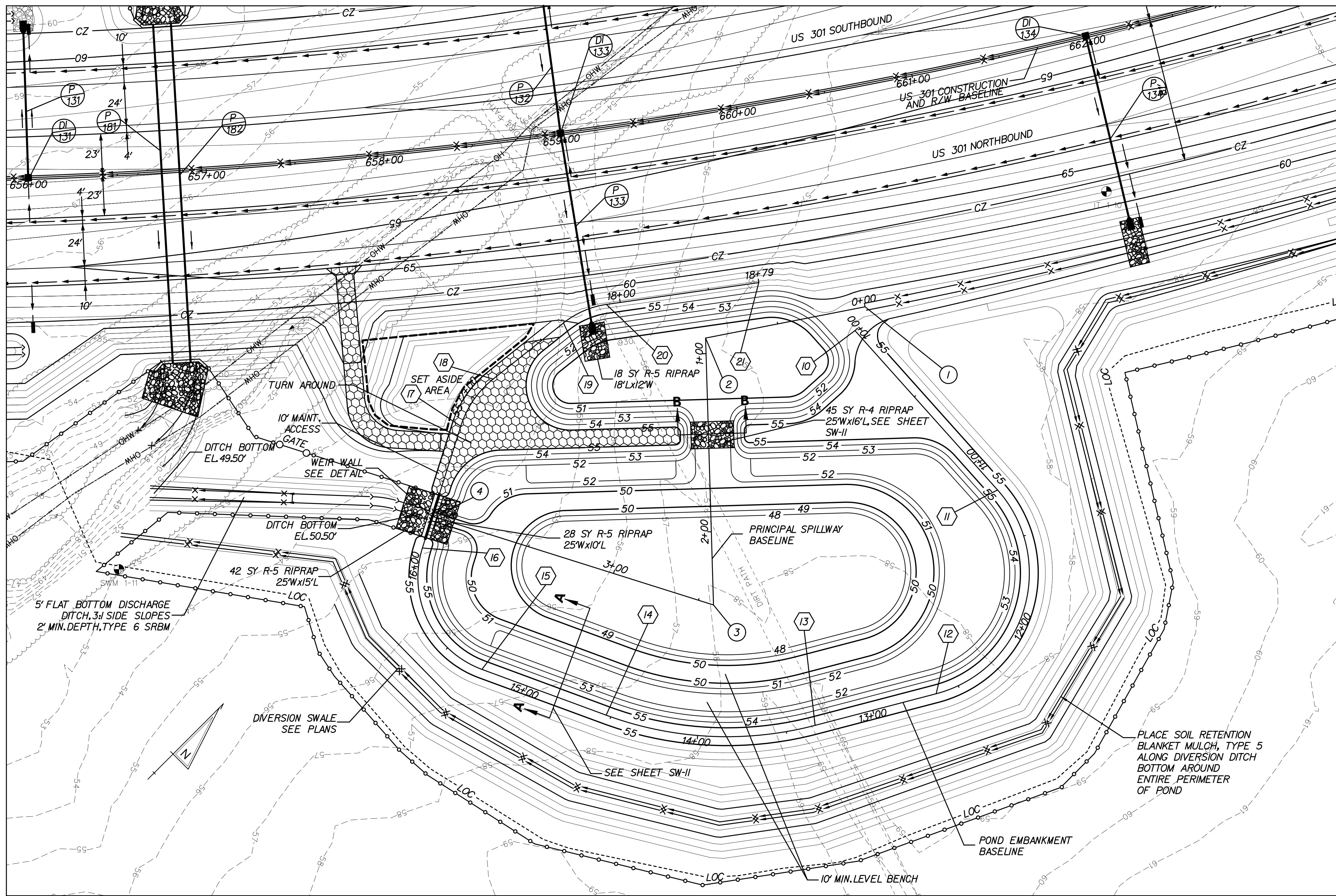


**WEIR WALL REINFORCING SWM FACILITY NO. 705**  
NOT TO SCALE



**REINFORCING SECTION**  
NOT TO SCALE

T:\PROJECTS\US301\WEIR\LATEST DRAWINGS 10-12-SW09.DGN



**PLAN - SWM FACILITY NO. 711 WET POND**  
STATION 656+50 RT TO 661+50 RT

POND DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (CFS)	FACILITY DISCHARGE (CFS)	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
1 YEAR (QUALITY)	6.82	0.51	51.76	0.65
10 - YEAR	21.94	3.93	52.64	1.59
100 - YEAR	48.56	18.42	53.66	2.75

**NOTES:**

- HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378
- DRAINAGE AREA TO FACILITY: 15.21 ACRES
- MANAGEMENT PROVIDED BY FACILITY: WATER QUALITY BY EXTENDED DETENTION OF RUNOFF FROM THE 1 YEAR STORM. WATER QUANTITY FOR 10 AND 100 YEAR STORMS

**(X) PRINCIPAL SPILLWAY BASELINE**

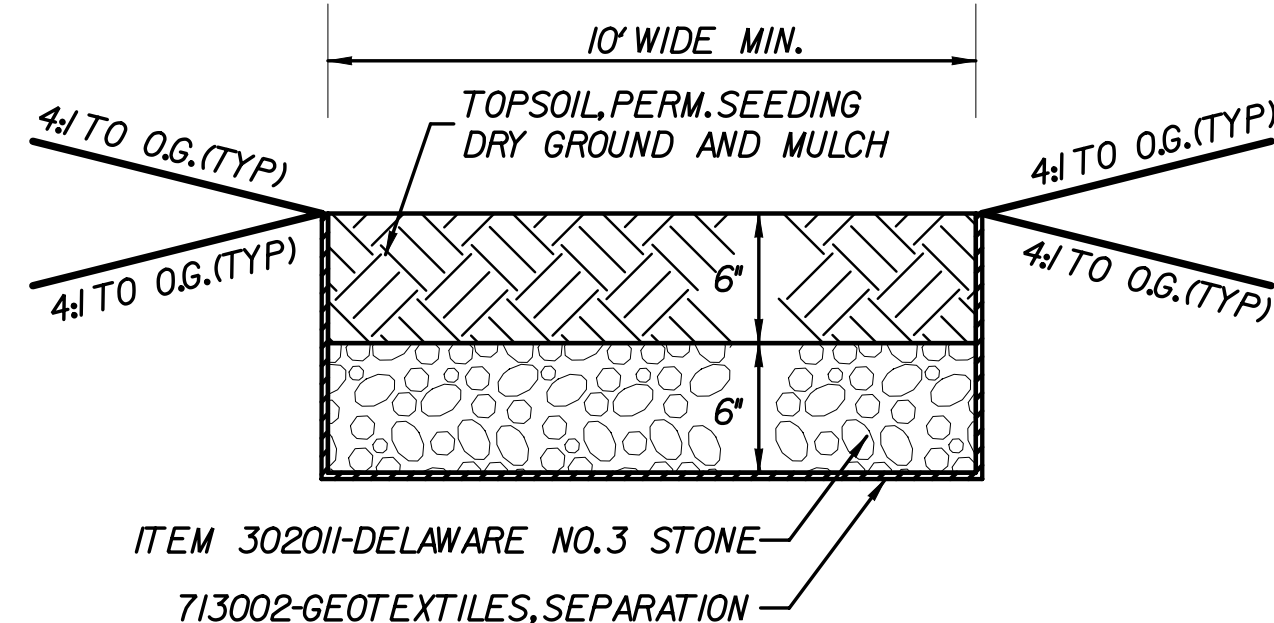
POINT NO.	STATION	NORTHING	EASTING
1 POB	0+00.00	546494.4049	577516.9823
2 PI	0+91.25	546418.6803	577466.0732
3 PI	2+41.15	546315.8692	577575.1673
4 POE	4+06.14	546239.6504	577428.8387

**(X) POND EMBANKMENT BASELINE**

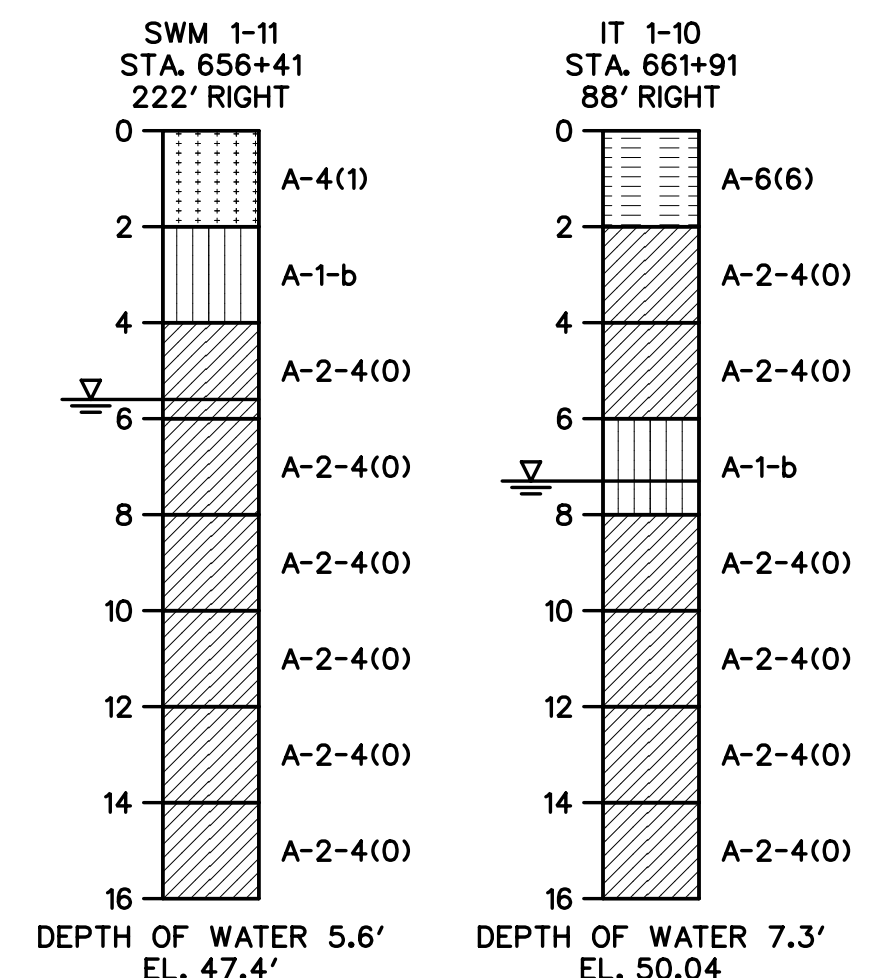
POINT NO.	STATION	NORTHING	EASTING
10 POB	10+00.00	546480.9520	577522.4079
11 PC	11+20.06	546474.2921	577642.2863
PI	12+34.70	546467.9333	577756.7454
RADIUS = 70.00'			
12 PT	12+63.23	546369.0188	577698.8036
13 PC	13+33.47	546308.4112	577663.3010
PI	13+95.02	546255.2961	577632.1874
RADIUS = 196.00'			
14 PT	14+52.76	546229.5074	577576.2927
15 PC	15+27.07	546198.3754	577508.8167
PI	15+79.49	546176.4125	577461.2141
RADIUS = 55.00'			
16 PT	16+10.83	546222.9081	577436.9957
17 PC	16+82.51	546286.4838	577403.8805
PI	16+99.29	546301.3692	577396.1271
RADIUS = 55.00'			
18 PT	17+15.09	546318.0473	577398.0055
19 PC	17+65.61	546368.2496	577403.6595
PI	17+79.21	546381.7609	577405.1812
RADIUS = 50.00'			
20 PT	17+92.16	546392.6409	577413.3358
21 POE	18+78.61	546461.8184	577465.1845

**NOTES:**

- THE POND BETWEEN ELEVATIONS 48.0' AND 52.0' SHALL RECEIVE PERMANENT SEEDING, WET GROUND (ITEM 734015). THE REMAINDER OF THE EMBANKMENT AREA SHALL RECEIVE PERMANENT SEEDING, DRY GROUND (ITEM 734013).
- SIDE SLOPE ABOVE ELEVATION 50.0' SHALL BE TOPSOILED AND MULCHED.

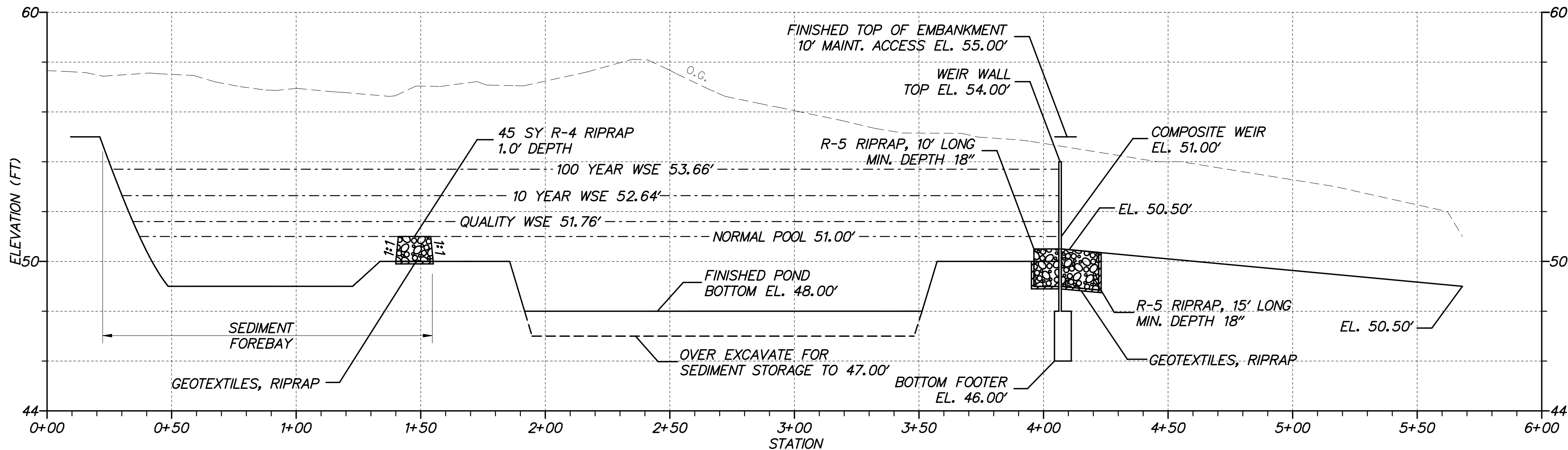


**POND MAINTENANCE ACCESS**  
NOT TO SCALE

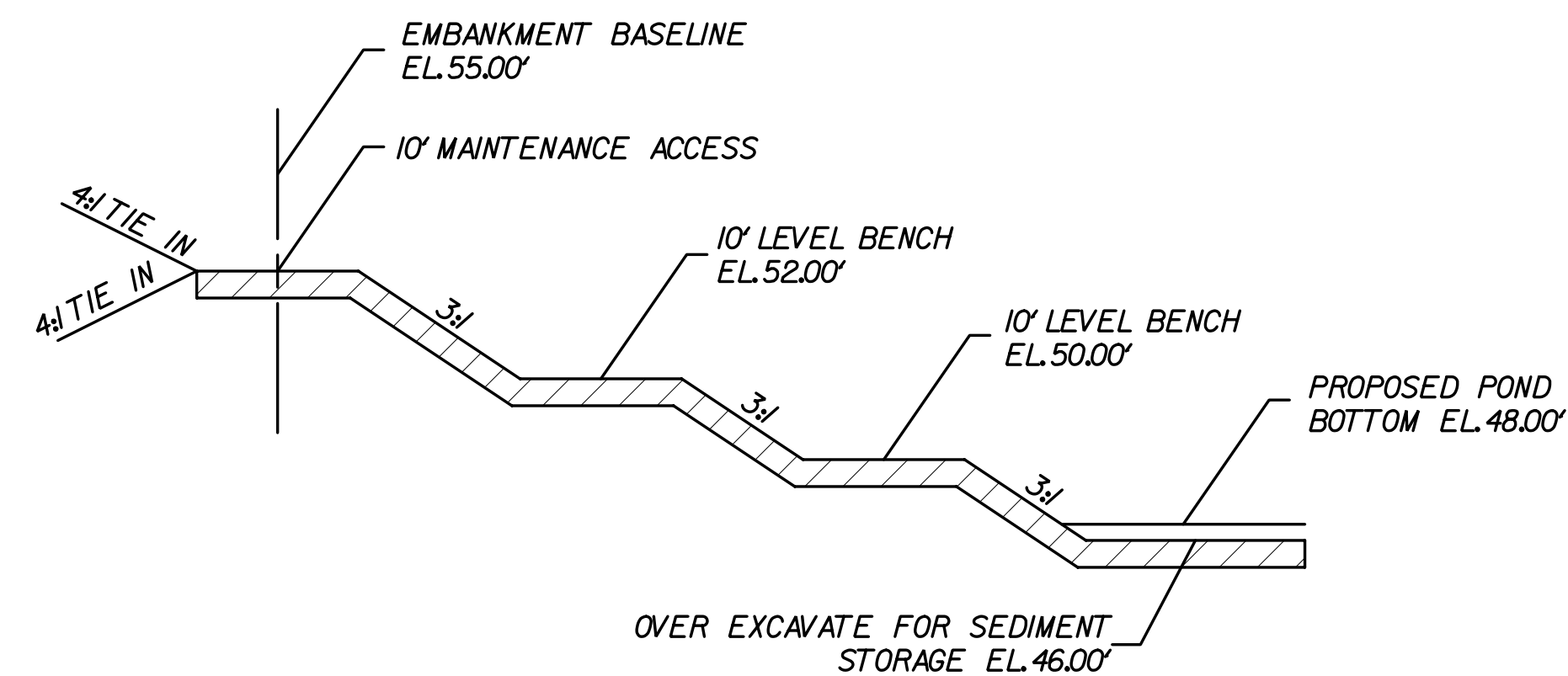


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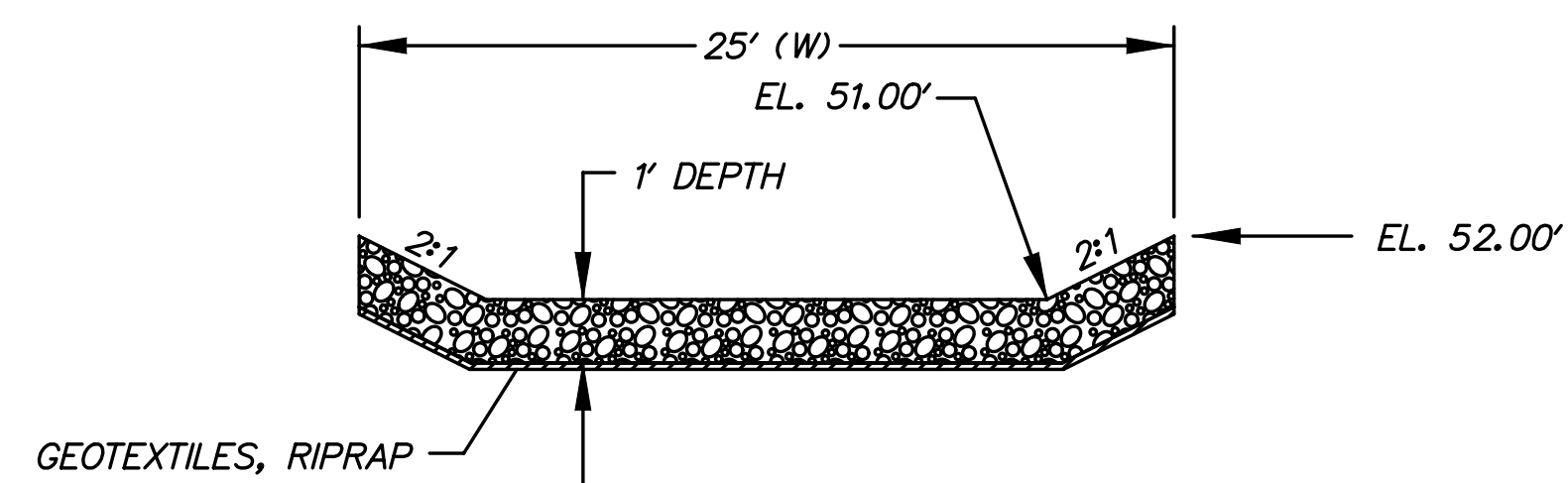




**SPILLWAY PROFILE SWM FACILITY NO. 711**



**SECTION A-A**  
FROM SHEET SW-10  
NOT TO SCALE



**SECTION B-B**  
FROM SHEET SW-10  
NOT TO SCALE

SKIMMER DEWATERING DEVICE SCHEDULE				
BASIN NO.	SKIMMER INV.(FT)	ORIFICE SIZE (IN)	BLOCK WEIR FROM-TO EL.(FT)	BASIN CLEANOUT EL.(FT)
711	51.40	4.00	51.00 - 53.00	50.00

POND CONSTRUCTION SEQUENCE AND NOTES - SWM FACILITY NO.711

THE STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS:

SECTION 271 - STORMWATER MANAGEMENT POND  
SECTION 272 - POND OUTLET STRUCTURE, CONCRETE

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
3. INSTALL PERIMETER SEDIMENT CONTROLS AS SHOWN IN CONSTRUCTION PHASING SHEETS.
4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION.
5. EXCAVATE PARTIAL EMBANKMENT AS NEEDED TO CONSTRUCT AND INSTALL POND OUTLET STRUCTURE. BLOCK POND OUTLET STRUCTURE WEIR FROM ELEVATION 51.0' TO ELEVATION 53.0'. INSTALL SKIMMER DEWATERING DEVICE AND SET DISCHARGE ELEVATION TO 51.4'. DEWATER FOUNDATION AS NEEDED TO CONSTRUCT POND OUTLET STRUCTURE IN ACCORDANCE WITH SECTION III - DEWATERING OPERATIONS AND USE SUMP PIT TYPE I FOR PUMPING.
6. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT AND BASIN TO THE LINES, GRADES AND DETAILS AS SHOWN IN THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL OVER EXCAVATE POND BOTTOM TO ELEVATION 46.0' FOR SEDIMENT STORAGE DURING CONSTRUCTION.
7. STABILIZE ALL BARE AREAS.

MAINTENANCE OF POND AS A SEDIMENT BASIN

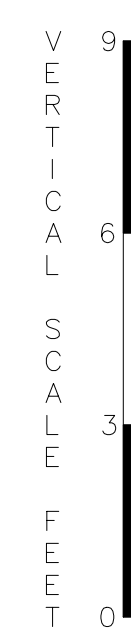
1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.
2. CONTRACTOR SHALL CLEARLY MARK THE CLEANOUT ELEVATION ON A STAKE DRIVEN INTO THE GROUND AT A LOCATION CLEARLY VISIBLE FROM THE EMBANKMENT. SEDIMENT SHALL BE REMOVED WHEN CLEANOUT ELEVATION IS REACHED AND DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER.
3. CLEANOUT ELEVATION FOR SWM FACILITY NO.711 IS 50.00'.

CONVERSION TO PERMANENT STORMWATER MANAGEMENT POND

1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.
2. REMOVE ACCUMULATED SEDIMENT TO ELEVATION 58.0' AND DISPOSE SEDIMENT AT A LOCATION APPROVED BY THE ENGINEER.
3. COMPLETE STABILIZATION OF ALL BARE AREAS. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.

AS-BUILT DRAWINGS OF STORMWATER MANAGEMENT FACILITIES

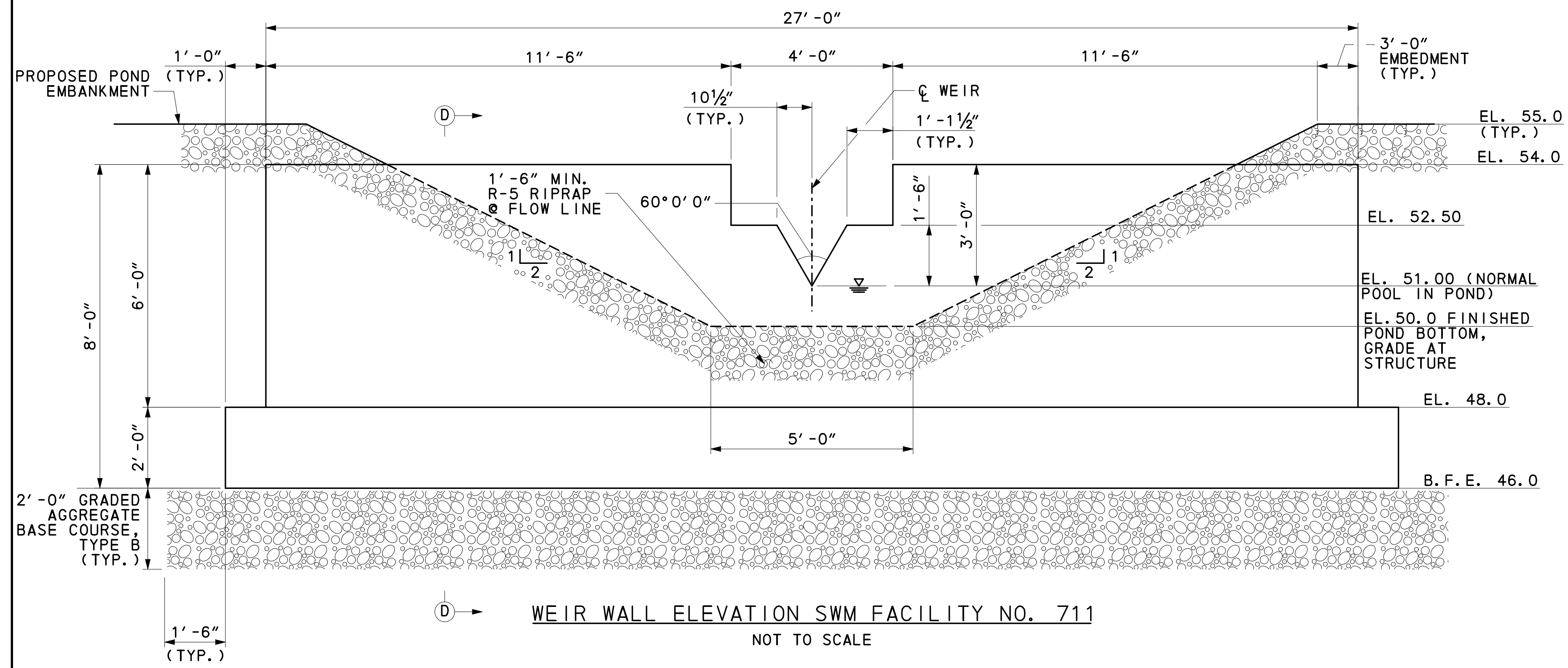
1. THE CONTRACTOR SHALL PROVIDE 'AS-BUILT' DRAWINGS OF ALL STORMWATER MANAGEMENT FACILITIES, SUCH AS PONDS, BIOFILTRATION SWALES, BIORETENTION AREAS, ETC. THE 'AS-BUILT' DRAWINGS SHALL SHOW THE ACTUAL FINISHED GROUND CONTOURS, OUTLET STRUCTURE DIMENSIONS AND ELEVATIONS, ETC., AS THEY EXIST AT THE COMPLETION OF THE PROJECT. THESE DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER OR LAND SURVEYOR.



SW-11

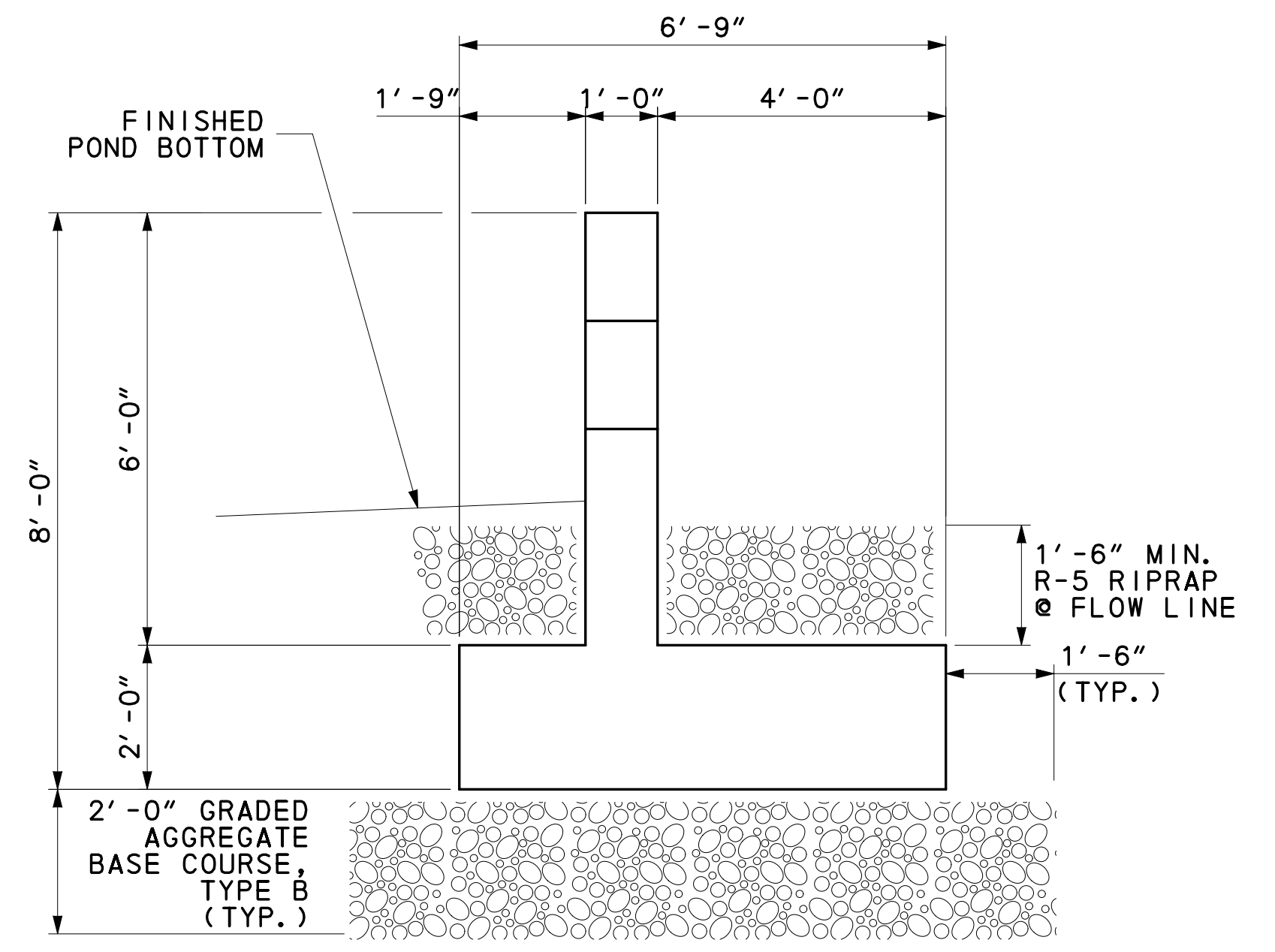
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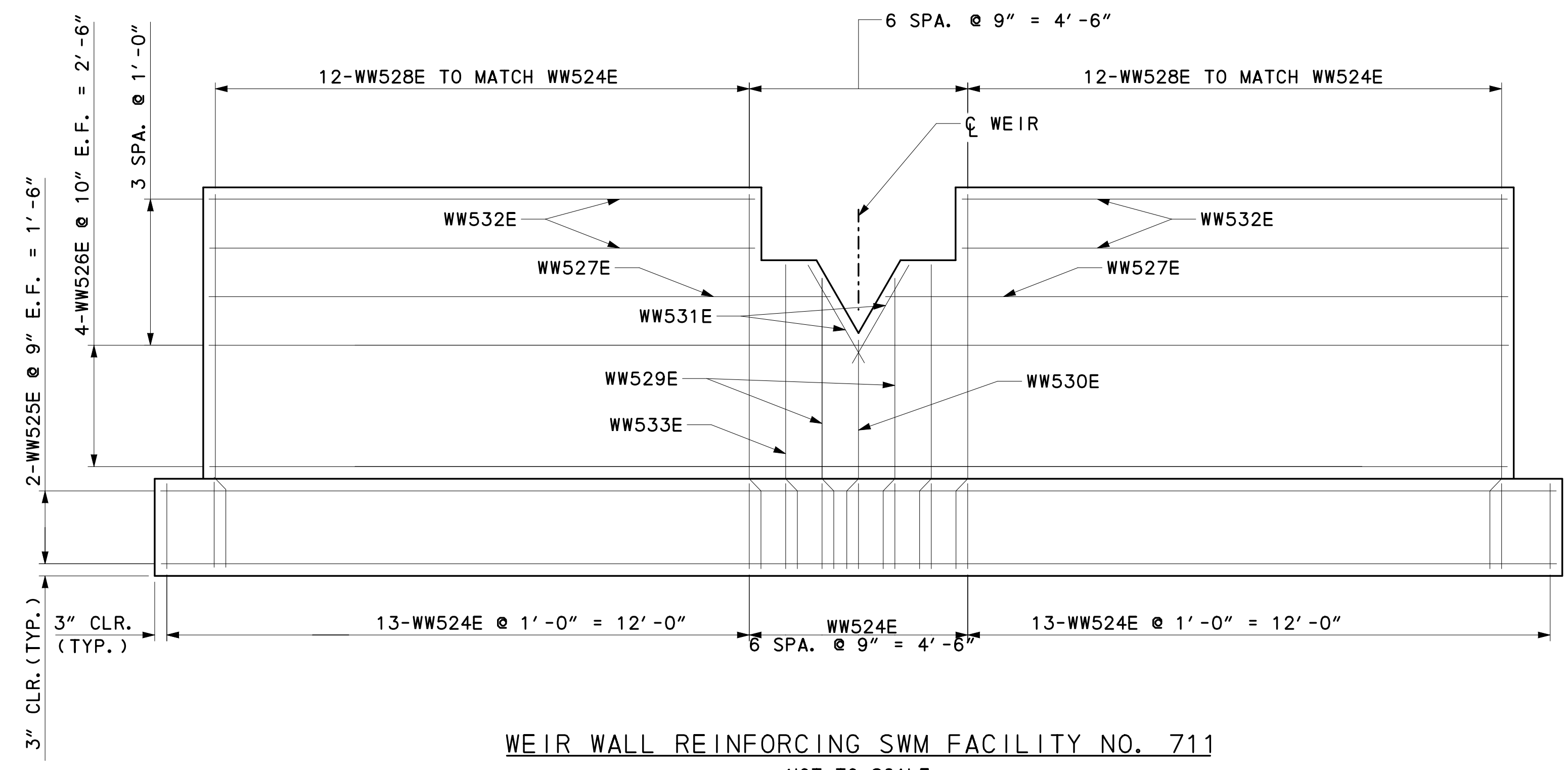


**WEIR WALL ELEVATION SWM FACILITY NO. 711**  
NOT TO SCALE

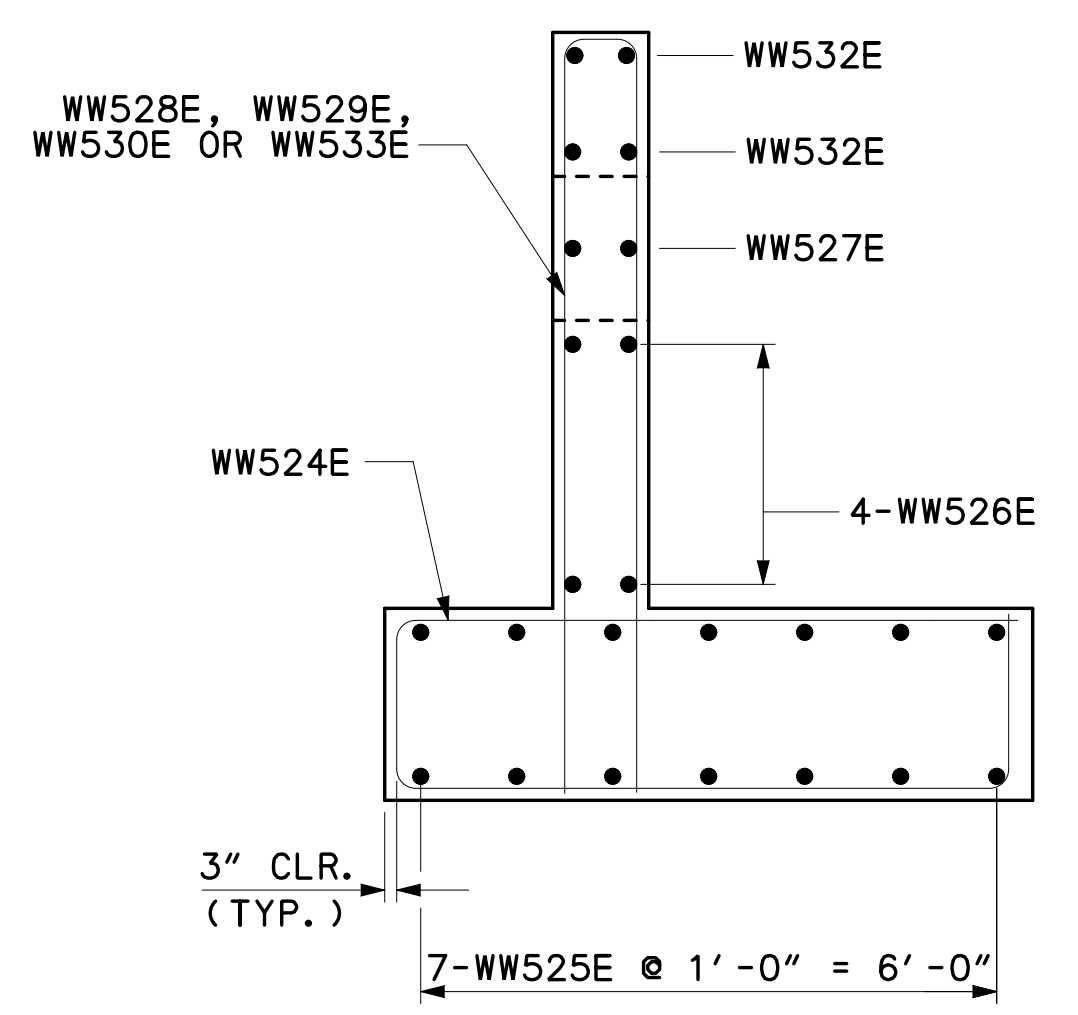
NOTE: 1. WEIR WALLS AND FOUNDATION SHALL BE CAST IN PLACE.  
2. OUTLET STRUCTURE FOR SWM FACILITY NO. 711 PAID UNDER ITEM 272003 - POND OUTLET STRUCTURE, CONCRETE #4.



**SECTION D-D**  
NOT TO SCALE



**WEIR WALL REINFORCING SWM FACILITY NO. 711**  
NOT TO SCALE



**REINFORCING SECTION**  
NOT TO SCALE



ADDENDUMS / REVISIONS	

NOT TO SCALE

US 301,  
NORFOLK SOUTHERN RR TO SR 896

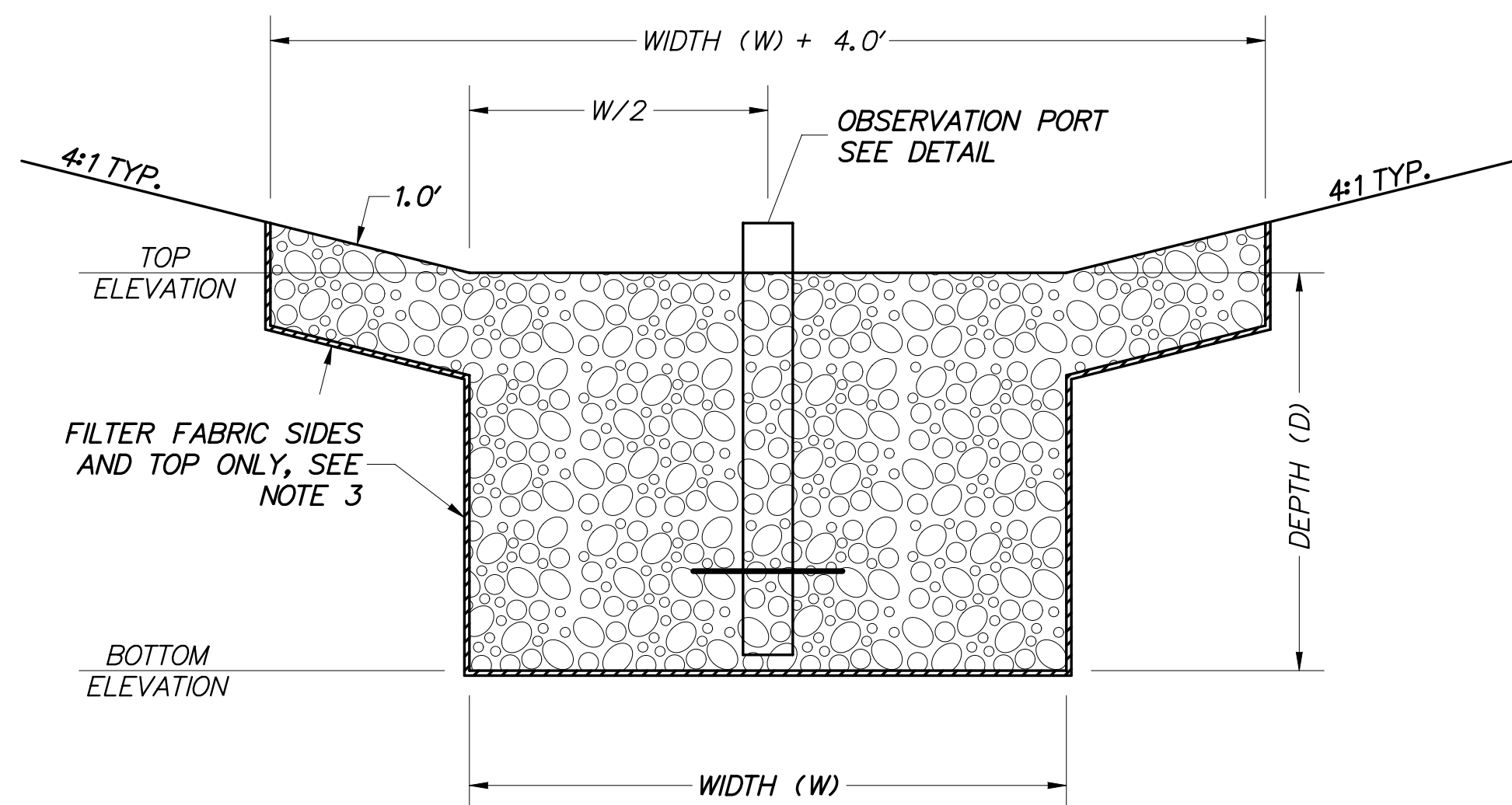
CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: JJK
	CHECKED BY: MAA

STORMWATER  
MANAGEMENT PLAN

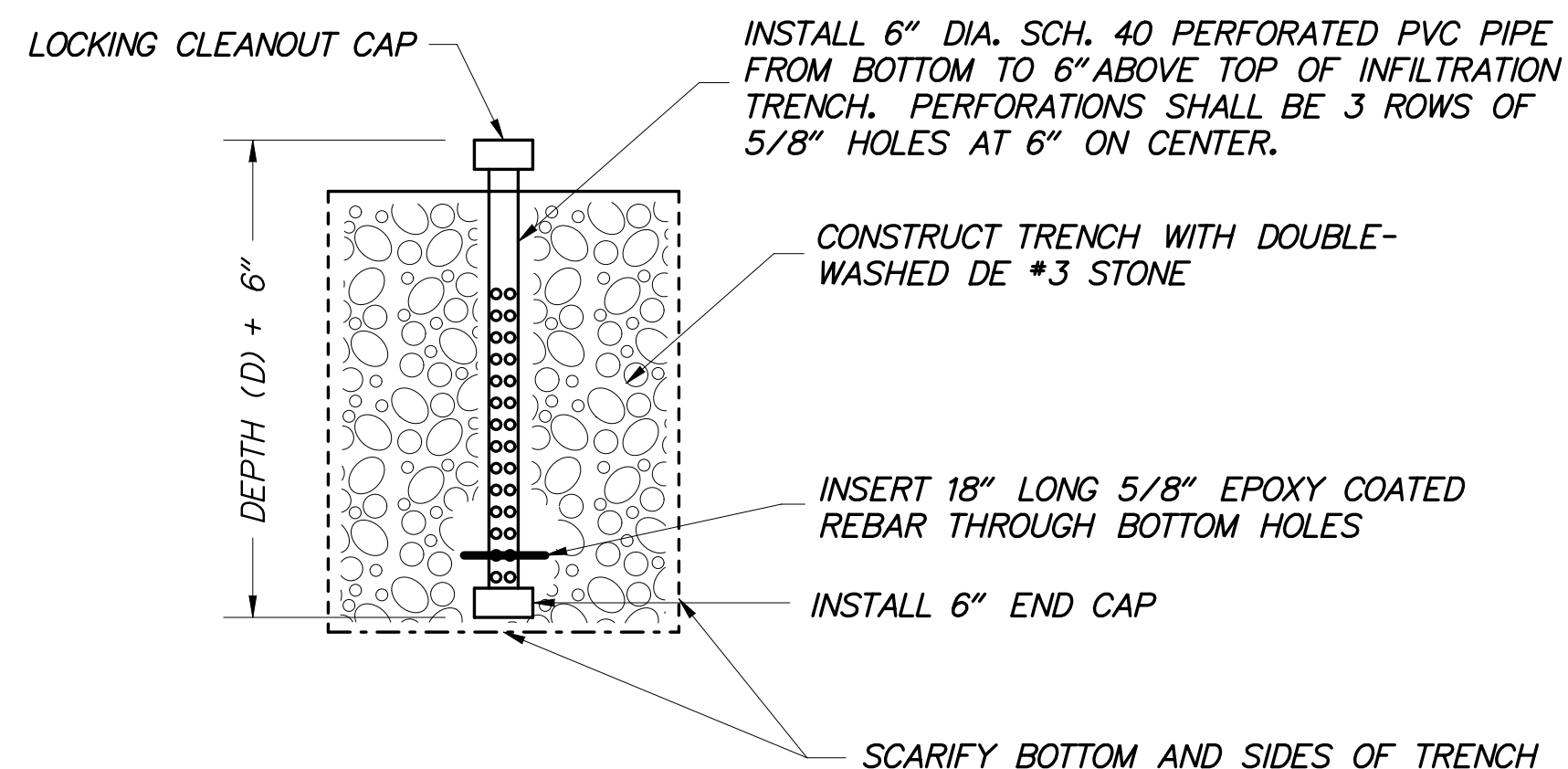
SW-12
SHEET NO. 164
TOTAL SHTS. 240







**INFILTRATION TRENCH DETAIL**



**OBSERVATION PORT DETAIL**

SWM FACILITY NO.	STATION FROM	STATION TO	LENGTH FT.	WIDTH FT.	DEPTH FT.	TOP ELEVATION FT.	BOTTOM ELEVATION FT.	GROUND WATER EL. FT.	MEASURED RATE IN/HR	DESIGN RATE IN/HR
701	632+25LT	633+25LT	100.00	6.00	3.00	57.00	54.00	49.40	10.00+	5.00
702	633+50LT	634+00LT	50.00	6.00	3.00	57.00	54.00	49.40	10.00+	5.00
703	631+25RT	632+25RT	100.00	6.00	3.00	57.00	54.00	47.80	10.00+	5.00
706	643+50LT	645+00LT	150.00	6.00	2.00	53.33	51.33	48.18	3.70	1.85
707	650+00LT	651+50LT	150.00	6.00	4.00	54.83	51.83	48.18	3.70	1.85
708	641+00RT	641+50RT	50.00	6.00	3.00	54.36	51.46	47.36	4.50	2.25
709	643+00RT	644+00RT	100.00	6.00	4.00	54.24	50.24	47.36	4.50	2.25
710	648+50RT	649+50RT	100.00	6.00	3.00	55.81	52.81	47.36	4.50	2.25

**NOTES:**

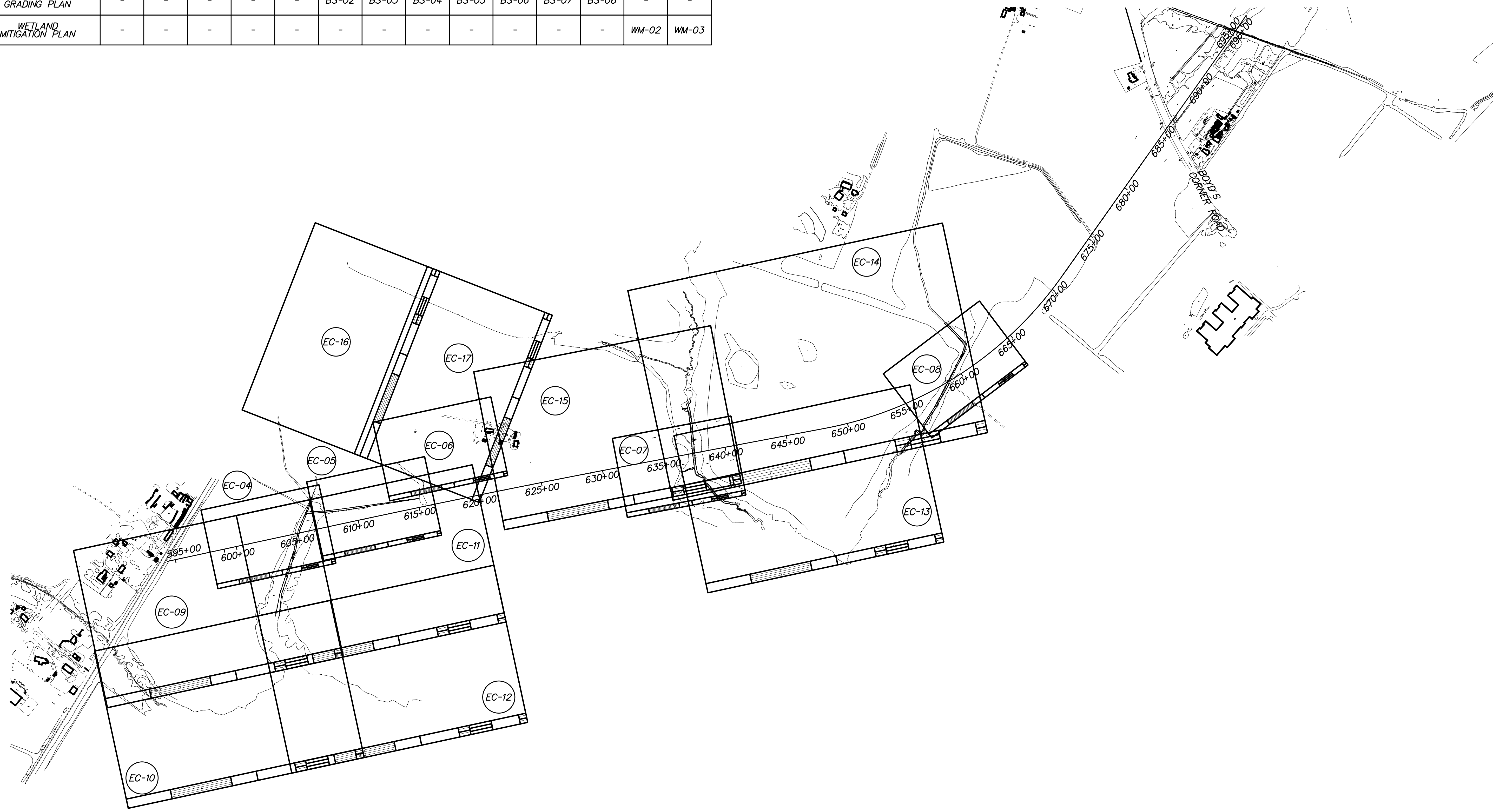
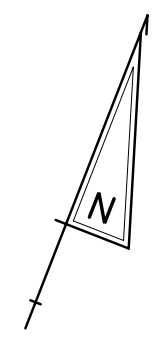
- FOOTPRINT OF OF PROPOSED INFILTRATION TRENCH PLUS 10 FEET IN ALL DIRECTIONS SHALL BE MARKED IN THE FIELD WITH CONSTRUCTION SAFETY FENCE (ITEM NO. 727014) AT THE BEGINNING OF CONSTRUCTION. THIS AREA SHALL BE OFF LIMITS TO CONSTRUCTION EQUIPMENT UNTIL WORK ON INFILTRATION TRENCHES BEGIN.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE CAUTION NOT TO DISTURB AND COMPACT ANY IN SITU SOIL LAYER BELOW THE PROPOSED GRADE AND WITHIN THE FOOTPRINT OF THE INFILTRATION TRENCH. THE SIDES AND BOTTOM OF THE TRENCH SHALL BE SCARIFIED PRIOR TO PLACEMENT OF THE GEOTEXTILE MATERIAL AND BACKFILLING WITH STONE.
- FILTER FABRIC SHALL BE PLACED ALONG ALL SIDES OF THE INFILTRATION TRENCH AND EXTEND OVER THE ENTIRE TOP OF THE INFILTRATION TRENCH DURING CONSTRUCTION. ONCE THE ENTIRE DRAINAGE AREA HAS BEEN STABILIZED WITH A GOOD STAND OF GRASS, THE CONTRACTOR SHALL CUT THE FILTER FABRIC AT GROUND LEVEL AND EXPOSE THE TOP SURFACE OF THE THE TRENCH. ANY BARE AREAS SHALL BE IMMEDIATELY SEEDED AND MULCHED WITH SRBM, TYPE 5. FILTER FABRIC MATERIAL SHALL CONFORM TO SECTION 827.04 OF THE STANDARD SPECIFICATIONS.
- STONE BACKFILL FOR THE INFILTRATION TRENCH SHALL BE DE NO. 3 STONE. THE DE NO.3 STONE SHALL BE CLEAN, DOUBLE WASHED CRUSHED AGGREGATE FREE OF ROCK DUST, FINES, AND SOIL PARTICLES. STONES SHALL NOT BE CRUSHED LIMESTONE AGGREGATES. STONE BACKFILL MATERIALS DETERMINED TO BE CONTAMINATED SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.
- AN OBSERVATION PORT SHALL BE INSTALLED AT THE DOWNSTREAM END OF EACH INFILTRATION TRENCH AT A DISTANCE OF 5' FROM THE END OF THE TRENCH. SEE DETAIL.

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PLAN SHEET INDEX CROSS REFERENCE

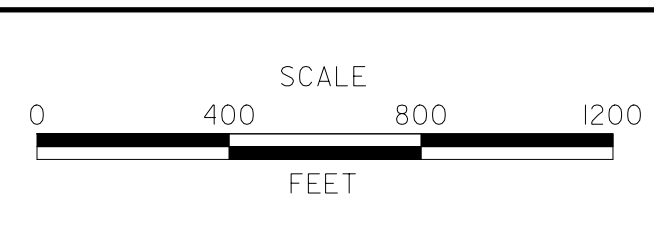
ENVIRONMENTAL COMPLIANCE	EC-04 170	EC-05 171	EC-06 172	EC-07 173	EC-08 174	EC-09 175	EC-10 176	EC-11 177	EC-12 178	EC-13 179	EC-14 180	EC-15 181	EC-16 182	EC-17 183
CONSTRUCTION PLAN	CP-02	CP-03	CP-04 CP-05	CP-07	CP-12	-	-	-	-	-	-	-	-	-
BORROW SITE GRADING PLAN	-	-	-	-	-	BS-02	BS-03	BS-04	BS-05	BS-06	BS-07	BS-08	-	-
WETLAND MITIGATION PLAN	-	-	-	-	-	-	-	-	-	-	-	-	WM-02	WM-03



\$FILES \$DATES



ADDENDUMS / REVISIONS	



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

**ENVIRONMENTAL  
COMPLIANCE INDEX**

<b>EC-01</b>
SHEET NO. 167
TOTAL SHTS. 240

# ENVIRONMENTAL COMPLIANCE NOTES

## 1. GENERAL NOTES:

A. THE PURPOSE OF THESE ENVIRONMENTAL COMPLIANCE SHEETS IS TO IDENTIFY THOSE ITEMS ASSOCIATED WITH ENVIRONMENTAL COMPLIANCE. IMPACT CALCULATIONS ARE FOR AGENCY REPORTING PURPOSES ONLY AND ARE NOT TO BE USED FOR BIDDING PURPOSES.

B. AN ENVIRONMENTAL MONITOR WILL BE RESPONSIBLE FOR REVIEWING ENVIRONMENTAL COMPLIANCE. CONTACT INFORMATION FOR THE PROJECT'S ENVIRONMENTAL MONITOR WILL BE PROVIDED AT THE PRE-CONSTRUCTION MEETINGS AND MAY ALSO BE OBTAINED BY CALLING THE DELDOT ENVIRONMENTAL STUDIES SECTION AT (302) 760-2264. THE PRESENCE OF THE DEPARTMENT'S ENVIRONMENTAL MONITOR DOES NOT ALLEVIATE OR NULLIFY ANY OF THE CONTRACTOR'S OBLIGATIONS TO FULLY COMPLY WITH ALL ENVIRONMENTAL PERMITS AND/OR REGULATIONS.

C. IF A DEPARTURE FROM THE APPROVED PLANS IS NECESSARY, THE CONTRACTOR SHALL CONTACT THE ENGINEER AND ENVIRONMENTAL MONITOR IMMEDIATELY. THE ENVIRONMENTAL MONITOR SHALL COORDINATE WITH THE APPROPRIATE RESOURCE AGENCIES INCLUDING BUT NOT LIMITED TO THE ARMY CORPS OF ENGINEERS (USACE), DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL (DNREC), STATE HISTORIC PRESERVATION OFFICE (SHPO), AND MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE). WORK SHALL NOT PROCEED UNTIL ALL THE NECESSARY APPROVALS, PERMITS OR MODIFICATIONS ARE OBTAINED. THIS RESOURCE AGENCY APPROVAL IS IN ADDITION TO ANY APPROVAL THAT NEEDS TO BE DERIVED FROM THE ENGINEER. THE ENVIRONMENTAL MONITOR CANNOT APPROVE ANY CHANGE INDEPENDENT FROM THE ENGINEER. APPROVAL MAY TAKE A SIGNIFICANT AMOUNT OF TIME TO COMPLETE AND ALL CHANGES MAY NOT BE APPROVED. THE CONTRACTOR SHALL HAVE NO CLAIM AGAINST THE DEPARTMENT FOR COSTS OR DELAYS ASSOCIATED WITH RESOURCE AGENCY APPROVAL OR REJECTION OF CHANGES OR DEVIATIONS FROM THESE PLANS.

D. USE OF THESE SHEETS DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL CONDITIONS SET FORTH IN THE ENVIRONMENTAL STATEMENT AND PERMITS.

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

## 2. NATURAL AND CULTURAL RESOURCE ISSUES:

### A. PERMIT REQUIREMENTS / APPROVALS:

USACE - INDIVIDUAL PERMIT - CENAP-OP-R-2006-6071-1 (PROVISIONAL PENDING WO CERTIFICATION); PROVISIONAL APPROVAL AUGUST 18, 2009; EXPIRES DECEMBER 31, 2019\*\*  
 DNREC SUBAQUEOUS LANDS PERMIT - PENDING\*\*  
 DNREC WATER QUALITY CERTIFICATION - PENDING\*\*  
 DELAWARE COASTAL ZONE MANAGEMENT FEDERAL CONSISTENCY CERTIFICATION - SEPTEMBER 14, 2007; NO EXPIRATION\*\*  
 NEW CASTLE COUNTY FLOODPLAIN APPROVAL - PENDING\*\*

\* THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING/OBTAINING THESE PERMITS/APPROVALS.

\*\* THE CONTRACTOR MUST ENSURE THAT THESE PERMITS/APPROVALS ARE IN THEIR POSSESSION PRIOR TO THE BEGINNING OF CONSTRUCTION AND ENSURE THESE PERMITS/APPROVALS ARE DISPLAYED ON-SITE DURING THE ENTIRE CONSTRUCTION PERIOD.

### B. CONSTRUCTION RESTRICTIONS:

ENDANGERED SPECIES: NONE

FISHERIES: NONE

MIGRATORY BIRDS: NONE

### C. PROTECTION OF RESOURCES:

I. ITEM 727552 - RESOURCE PROTECTION FENCE (WITH ASSOCIATED SIGNAGE) SHALL BE USED ALONG THE LIMIT OF CONSTRUCTION (LOC) AND OTHER AREAS SHOWN ON THE PLANS WHERE WETLANDS, WATERS OR CULTURAL RESOURCES EXIST. RESOURCE PROTECTION FENCE SHALL BE INSTALLED IMMEDIATELY AFTER STAKEOUT OF LOC AND PRIOR TO INSTALLATION OF EROSION AND SEDIMENT CONTROLS. THE CONTRACTOR SHALL STAKEOUT THE LOCATION OF THE RESOURCE PROTECTION FENCE AND THE ENVIRONMENTAL MONITOR WILL BE RESPONSIBLE FOR CONFIRMING OR ADJUSTING THE FENCING LOCATIONS PRIOR TO CONSTRUCTION. IMPROPERLY PLACED FENCE SHALL BE RE-INSTALLED AT CONTRACTOR EXPENSE. ANY ADDITIONAL RESOURCE PROTECTION FENCE AS REQUESTED BY THE ENVIRONMENTAL MONITOR AND CONFIRMED BY THE ENGINEER SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE. RESOURCE PROTECTION FENCE SIGNAGE SHALL BE PROVIDED BY DELDOT AND INSTALLED BY THE CONTRACTOR ALONG THE FENCE NO GREATER THAN 100 FEET APART AND WITH A MINIMUM OF 2 SIGNS PER CONTINUOUS FENCE RUN AS INDICATED IN THE SPECIAL PROVISIONS. RESOURCE PROTECTION FENCE SHALL BE PAID FOR UNDER ITEM 727552 - RESOURCE PROTECTION FENCE.

II. THE PURPOSE OF ITEM 727552 - RESOURCE PROTECTION FENCE IS TO PREVENT IMPACTS TO SENSITIVE RESOURCES DURING CONSTRUCTION. ACCESS INTO THESE AREAS IS STRICTLY PROHIBITED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL EMPLOYEES UNDERSTAND AND COMPLY WITH THE PURPOSE OF THE RESOURCE PROTECTION FENCE.

III. THE INSTALLATION OF THE RIGHT-OF-WAY FENCE AND RESOURCE PROTECTION FENCE ARE THE ONLY CONSTRUCTION ACTIVITIES THAT ARE AUTHORIZED TO OCCUR OUTSIDE OF THE LOC.

IV. RESOURCE PROTECTION FENCE SHALL BE INSTALLED BY HAND AS PER THE DETAILS AND SPECIFICATIONS OF ITEM 727552 - RESOURCE PROTECTION FENCE. THERE SHALL BE NO GRUBBING FOR THE INSTALLATION OF RESOURCE PROTECTION FENCE. RIGHT-OF-WAY FENCE SHALL BE INSTALLED BY HAND IN SENSITIVE AREAS, INCLUDING WETLANDS, FORESTS, AND CULTURAL RESOURCE AREAS PROTECTED BY RESOURCE PROTECTION FENCE. THERE SHALL BE NO GRUBBING FOR THE INSTALLATION OF RIGHT-OF-WAY FENCE IN SENSITIVE AREAS. WHERE CLEARING IS NECESSARY FOR FENCE INSTALLATION, VEGETATION SHALL BE CUT FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT). ENVIRONMENTAL IMPACTS SHALL BE MINIMIZED DURING THE INSTALLATION OF THE RESOURCE PROTECTION FENCE AND RIGHT-OF-WAY FENCE AND THE REMOVAL OF THE RESOURCE PROTECTION FENCE. ACCESS AND INSTALLATION/REMOVAL OF RESOURCE PROTECTION FENCE AND INSTALLATION OF RIGHT-OF-WAY FENCE SHALL BE COORDINATED WITH THE ENVIRONMENTAL MONITOR.

### D. STREAM RESTORATION AND SLOPE RIPRAP TREATMENT:

I. THE CONTRACTOR SHALL FOLLOW THE SPECIAL PROVISIONS OF ITEM 712531 - CHANNEL BED FILL, IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFF-SITE MATERIAL. IF A SEPARATE SPECIAL PROVISION OR MATERIAL GRADATION HAS BEEN DETAILED ON THE PLANS FOR A SPECIFIC CHANNEL LOCATION, THAT SPECIFICATION OR GRADATION SHALL BE UTILIZED FOR CHANNEL BED FILL AT THE INDICATED LOCATION(S). PIPES WITH DIAMETERS >= 60" SHALL BE RECESSED A MINIMUM OF 12" BELOW THE STREAMBED ELEVATION. PIPES < 60" SHALL BE RECESSED A MINIMUM OF 4" OR 20% OF THE DIAMETER OF THE PIPE, WHICHEVER IS GREATER. BOX CULVERTS SHALL BE RECESSED 12" BELOW THE STREAMBED ELEVATION. ALL RIPRAP SHALL BE PLACED SUCH THAT THE TOP OF THE RIPRAP IS PLACED TO MATCH THE INVERT ELEVATION OF THE PIPE OR CULVERT AND CHOKED WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH MATERIAL. PAYMENT UNDER ITEM 209002 - BORROW TYPE 'B'. THE RIPRAP SHALL THEN BE COVERED WITH CHANNEL BED FILL TO MATCH EXISTING UPTREAM/DOWNSTREAM CHANNEL BED ELEVATIONS. PAYMENT UNDER ITEM 712531 - CHANNEL BED FILL.

PIPES AND RIPRAP SHALL BE RECESSED IN STREAMS LOCATED AT THE FOLLOWING CROSSINGS:  
 UNNAMED TRIBUTARY TO SPRING MILL BRANCH - STA 605+00  
 UNNAMED TRIBUTARY TO DRAWYER CREEK - STA 659+00

II. OTHER AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SUMP PITS, STABILIZED OUTFALLS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) SHALL BE RESTORED TO PREDISTURBANCE CONDITIONS. ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE FILLED WITH CHANNEL BED FILL. PAYMENT UNDER ITEM 712531 - CHANNEL BED FILL.

III. 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.

IV. ALL RIPRAP ON THE STREAM BANK, ABOVE THE ORDINARY HIGH WATER MARK, SHALL BE PLACED AS DESCRIBED BELOW:

CHOKE THE RIPRAP WITH ENOUGH ITEM 302012 - DELAWARE \*57 STONE TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP AS APPROVED BY THE ENGINEER. FILL THE REMAINING VOIDS WITH TOPSOIL SO THAT THE RIPRAP IS BARELY VISIBLE. REGARDLESS OF DEPTH, THIS SHALL BE PAID FOR UNDER ITEM 733001 - TOPSOILING, 4" DEPTH. APPLY AN ADDITIONAL 4 INCH LAYER OF TOPSOIL (ITEM 733001 - TOPSOILING, 4" DEPTH). SEED WITH ITEM 734531 - STREAMBANK SEED MIX FROM ABOVE THE ORDINARY HIGH WATER MARK TO THE TOP OF THE SLOPE. IMMEDIATELY FOLLOWING THE SEEDING, INSTALL ITEM 735535 - SOIL RETENTION BLANKET MULCH, TYPE 5. ALL WORK, STARTING WITH TOPSOIL PLACEMENT THROUGH SEEDING AND MULCHING, SHALL BE COMPLETED PRIOR TO ANY RAIN EVENT. RIPRAP AND ALL OTHER ITEMS SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

STREAMBANK RIPRAP SHALL BE TREATED AS DESCRIBED ABOVE IN STREAMS LOCATED AT THE FOLLOWING CROSSINGS:

UNNAMED TRIBUTARY TO SPRING MILL BRANCH - STA 605+00  
 UNNAMED TRIBUTARY TO DRAWYER CREEK - STA 659+00

V. THE CHANNEL AND STREAM BANK SEGMENTS ENTERING AND EXITING THE BRIDGES, PIPES AND CULVERTS SHALL NOT BE WIDENED BEYOND THE DIMENSIONS SHOWN ON THE PLANS. THE CHANNEL WIDTHS, CHANNEL BANKS AND SIDE-SLOPES SHALL NOT BE WIDENED OR RE-CONTOURED TO ACCOMMODATE EASIER CONSTRUCTION OR ACCESS.

### E. STAGING, STOCKPILING AND DISPOSAL:

I. 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.

II. ALL EXCESS EXCAVATED MATERIALS NOT USED IN HIGHWAY OR COMPENSATORY MITIGATION SITE 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, NO DISPOSAL/WASTING OPERATION SHALL COMMENCE UNTIL WRITTEN APPROVAL OF THE DISPOSAL SITE(S) IS OBTAINED BY THE ENGINEER FROM THE USACE AND THE SHPO. THE CONTRACTOR SHALL SUBMIT THE PROPOSED DISPOSAL SITE LOCATION(S) TO THE ENGINEER. THE ENGINEER WILL SUBMIT THE PROPOSED DISPOSAL SITE INFORMATION TO THE SHPO AND USACE FOR APPROVAL. 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 SPOILS AREAS.

### F. MINIMIZATION AND RESTORATION OF TEMPORARY IMPACTS:

ALL TEMPORARY IMPACTS SHOWN ON THESE SHEETS SHALL BE RESTORED AS SPECIFIED IN THE MISCELLANEOUS PROJECT NOTES TO PREDISTURBANCE GRADE AND CONDITION AND STABILIZED. THE AREA SHALL BE PLANTED AS SHOWN IN THE MOT SHEETS AND NOTED ON THESE EC SHEETS. STREAMS SHALL BE RESTORED TO PREDISTURBANCE PATTERN AND PROFILE.

WETLANDS DELINEATED BY RUMMEL KLEPPER & KAHL, LLP. IN JUNE 2005 THROUGH DECEMBER 2010 IN ACCORDANCE WITH THE 1987 USACE WETLAND DELINEATION MANUAL AND APPLICABLE REGIONAL SUPPLEMENTS.

PRELIMINARY JURISDICTIONAL DETERMINATION AUGUST 18, 2009. WETLAND IDENTIFIERS CORRESPOND TO THE US 301 WETLAND DELINEATION REPORT.

SHEET PREPARED BY: MCCORMICK TAYLOR, INC.  
 DATE: MARCH 10, 2010

SHEETS LAST UPDATED: APRIL 13, 2012

ALL IDENTIFIED WATER/WETLANDS ON THESE ENVIRONMENTAL COMPLIANCE SHEETS ARE USACE JURISDICTIONAL AND/OR DNREC JURISDICTIONAL.

### G. CULTURAL RESOURCES:

IF ANY UNANTICIPATED DISCOVERIES OF ARCHAEOLOGICAL OR HUMAN REMAINS OCCUR DURING CONSTRUCTION, ALL WORK SHALL BE IMMEDIATELY SUSPENDED IN THE AREA OF THE DISCOVERY AND THE ENVIRONMENTAL MONITOR SHALL BE CONTACTED. THE ENVIRONMENTAL MONITOR WILL CONTACT DELDOT CULTURAL RESOURCES, SHPO AND USACE TO COMMENCE THE NECESSARY FEDERAL AND STATE COORDINATION. WORK SHALL NOT RESUME UNTIL APPROPRIATE RESOURCE AGENCY COORDINATION, INVESTIGATION AND/OR RECOVERY IS COMPLETE.

### H. SOIL AND EARTH DISTURBANCE:

I. ITEM 251001 - REINFORCED SILT FENCE SHALL BE USED DUE TO THE HIGH PROBABILITY OF OVERBANK FLOODING, IN THE FOLLOWING LOCATIONS:

DRAWYER CREEK- STA 635+00 TO 640+00

II. THERE SHALL BE NO GRUBBING UNDER BRIDGES EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS, SLOPE PROTECTION AND UTILITIES. BRIDGE LOCATIONS ARE AS FOLLOWS:

DRAWYER CREEK - STA 638+00

### I. FLOODPLAIN:

NEW RIPRAP PLACED IN THE FLOODPLAIN BENEATH BRIDGES SHALL BE BURIED.

RIPRAP FLOODPLAIN LOCATIONS ARE AS FOLLOWS:

DRAWYER CREEK - STA 638+00

\$DATES

\$FILES

 <b>DELAWARE</b> <b>DEPARTMENT OF TRANSPORTATION</b>	ADDENDUMS / REVISIONS		<b>NOT TO SCALE</b>	<b>US 301,</b> <b>NORFOLK SOUTHERN RR TO SR 896</b>	CONTRACT	BRIDGE NO.	<b>ENVIRONMENTAL</b> <b>COMPLIANCE</b> <b>NOTES</b>	SHEET NO.
	T200911301				REL	168		
	COUNTY	CHECKED BY:			LMM	TOTAL SHTS.		
	NEW CASTLE					240		

EC-02

PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
4-01	RIPRAP	275.69	0.0063	10.21	USACE/DNREC
4-02	FILL	959.68	0.0220	35.54	USACE
4-03	FILL	2,738.96	0.0629	101.44	USACE/DNREC
4-04	RIPRAP	322.03	0.0074	11.93	USACE/DNREC
5-01	FILL	7,089.90	0.1628	262.59	USACE
7-01	SHADING	745.94	0.0171	N/A	DNREC
7-02	SHADING	740.29	0.0170	N/A	DNREC
8-01	FILL	7,322.34	0.1681	271.20	USACE/DNREC
8-02	RIPRAP	35.18	0.0008	1.30	USACE/DNREC
8-03	RIPRAP	114.80	0.0026	4.25	USACE/DNREC
TOTAL USACE FOR THIS SHEET		18,858.58	0.4329	698.47	USACE
TOTAL DNREC FOR THIS SHEET		12,295.22	0.2823	400.33	DNREC

PERMANENT WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
4-W1	FILL	9,421.28	0.2163	N/A	USACE
4-W2	FILL	13,942.62	0.3201	N/A	USACE
4-W3	EXCAVATION	1,565.07	0.0359	N/A	USACE
4-W4	RIPRAP	260.05	0.0060	N/A	USACE
5-W1	FILL	4,355.00	0.1000	N/A	USACE
5-W2	EXCAVATION	324.41	0.0074	N/A	USACE
7-W1	SHADING	4,575.89	0.1050	N/A	USACE
7-W2	SHADING	4,382.01	0.1006	N/A	USACE
7-W3	FILL	300.51	0.0069	N/A	USACE
8-W1	EXCAVATION	223.28	0.0051	N/A	USACE
14-W1	EXCAVATION	19,700.65	0.4523	N/A	USACE
14-W2	EXCAVATION	4,500.76	0.1033	N/A	USACE
TOTAL PERMANENT WETLAND IMPACTS		63,551.53	1.4589	N/A	

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
4-OT1	E&S AREA	578.81	0.0133	21.44	USACE/DNREC
4-OT2	E&S AREA	395.69	0.0091	14.66	USACE/DNREC
7-OT1	TEMPORARY ACCESS	603.44	0.0139	22.35	USACE/DNREC
7-OT2	TEMPORARY ACCESS	745.94	0.0171	27.63	USACE
7-OT3	TEMPORARY ACCESS	658.02	0.0151	24.37	USACE/DNREC
7-OT4	TEMPORARY ACCESS	740.29	0.0170	27.42	USACE
7-OT5	TEMPORARY ACCESS	166.36	0.0038	6.16	USACE/DNREC
7-OT6	TEMPORARY ACCESS	82.64	0.0019	3.06	USACE/DNREC
8-OT1	E&S AREA	534.27	0.0123	19.79	USACE/DNREC
8-OT2	E&S AREA	788.75	0.0181	29.21	USACE/DNREC
TOTAL USACE FOR THIS SHEET		5,294.21	0.1216	196.09	USACE
TOTAL DNREC FOR THIS SHEET		3,807.98	0.0875	141.04	DNREC

TEMPORARY WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
7-WT1	TEMPORARY ACCESS	5,763.90	0.1323	N/A	USACE
7-WT2	TEMPORARY ACCESS	3,616.13	0.0830	N/A	USACE
7-WT3	TEMPORARY ACCESS	1,217.13	0.0279	N/A	USACE
TOTAL TEMPORARY WETLAND IMPACTS		10,597.16	0.2433	N/A	

\$FILES \$DATES



**LEGEND**

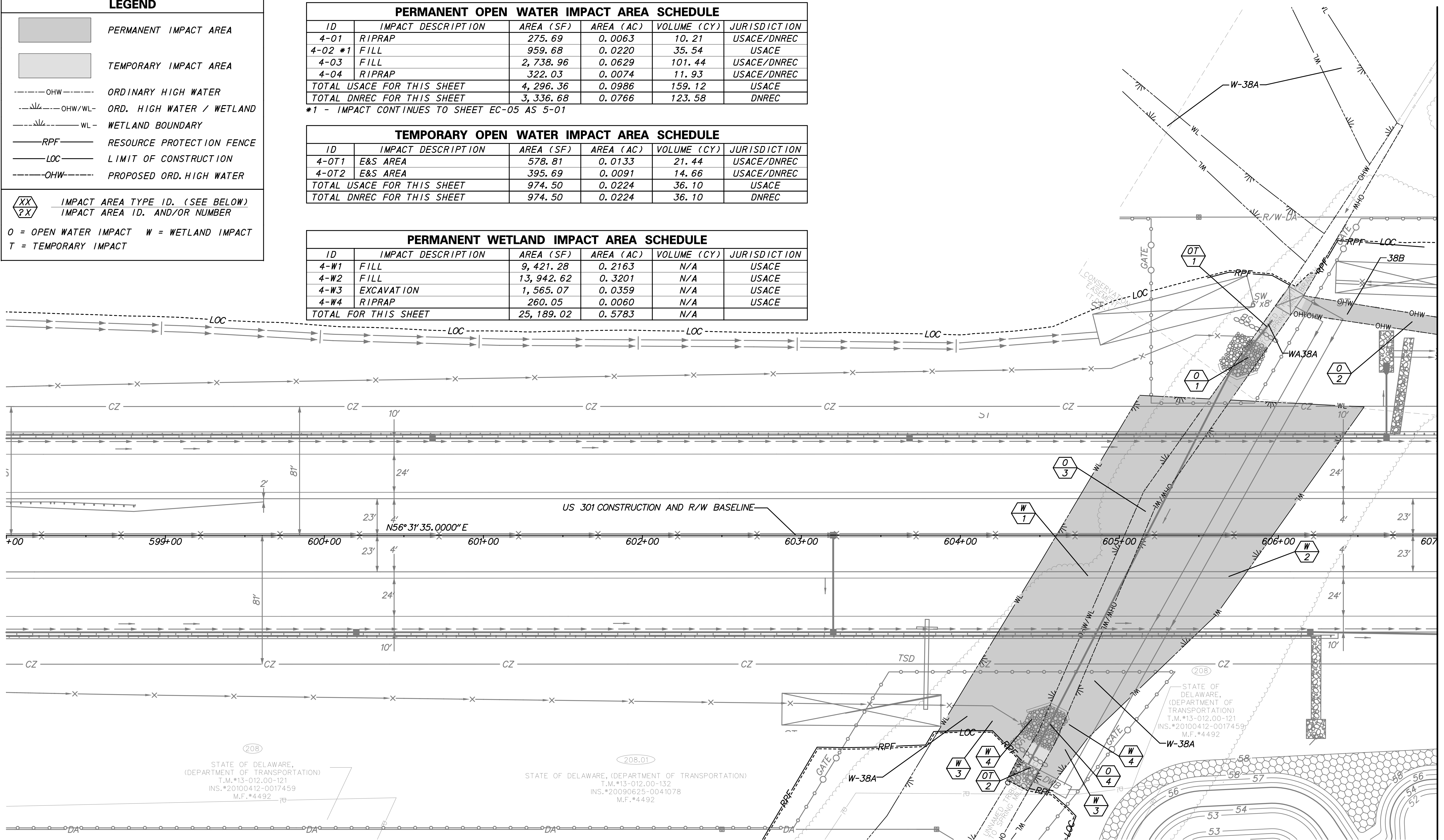
- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA
- OHW----- ORDINARY HIGH WATER
- W/L--- ORD. HIGH WATER / WETLAND
- WL--- WETLAND BOUNDARY
- RPF--- RESOURCE PROTECTION FENCE
- LOC--- LIMIT OF CONSTRUCTION
- OHW--- PROPOSED ORD. HIGH WATER
- XX IMPACT AREA TYPE ID. (SEE BELOW)
- 2X IMPACT AREA ID. AND/OR NUMBER
- O = OPEN WATER IMPACT W = WETLAND IMPACT
- T = TEMPORARY IMPACT

PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
4-01	RIPRAP	275.69	0.0063	10.21	USACE/DNREC
4-02 *1	FILL	959.68	0.0220	35.54	USACE
4-03	FILL	2,738.96	0.0629	101.44	USACE/DNREC
4-04	RIPRAP	322.03	0.0074	11.93	USACE/DNREC
TOTAL USACE FOR THIS SHEET		4,296.36	0.0986	159.12	USACE
TOTAL DNREC FOR THIS SHEET		3,336.68	0.0766	123.58	DNREC

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
4-OT1	E&S AREA	578.81	0.0133	21.44	USACE/DNREC
4-OT2	E&S AREA	395.69	0.0091	14.66	USACE/DNREC
TOTAL USACE FOR THIS SHEET		974.50	0.0224	36.10	USACE
TOTAL DNREC FOR THIS SHEET		974.50	0.0224	36.10	DNREC

PERMANENT WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
4-W1	FILL	9,421.28	0.2163	N/A	USACE
4-W2	FILL	13,942.62	0.3201	N/A	USACE
4-W3	EXCAVATION	1,565.07	0.0359	N/A	USACE
4-W4	RIPRAP	260.05	0.0060	N/A	USACE
TOTAL FOR THIS SHEET		25,189.02	0.5783	N/A	

\*1 - IMPACT CONTINUES TO SHEET EC-05 AS 5-01



MATCH LINE STA. 607+00

\$DATES  
\$FILES

STATE OF DELAWARE,  
(DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-121  
INS.#20100412-0017459  
M.F.#4492

STATE OF DELAWARE, (DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-132  
INS.#20090625-0041078  
M.F.#4492

STATE OF DELAWARE,  
(DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-121  
INS.#20100412-0017459  
M.F.#4492



ADDENDUMS / REVISIONS	



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

**ENVIRONMENTAL  
COMPLIANCE PLAN**

EC-04
SHEET NO. 170
TOTAL SHTS. 240

PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
5-01*1	FILL	7,089.90	0.1628	262.59	USACE
TOTAL USACE FOR THIS SHEET		7,089.90	0.1628	262.59	USACE
TOTAL DNREC FOR THIS SHEET		N/A	N/A	N/A	DNREC

\*1 - CONTINUES FROM SHEET EC-04 AS 4-02

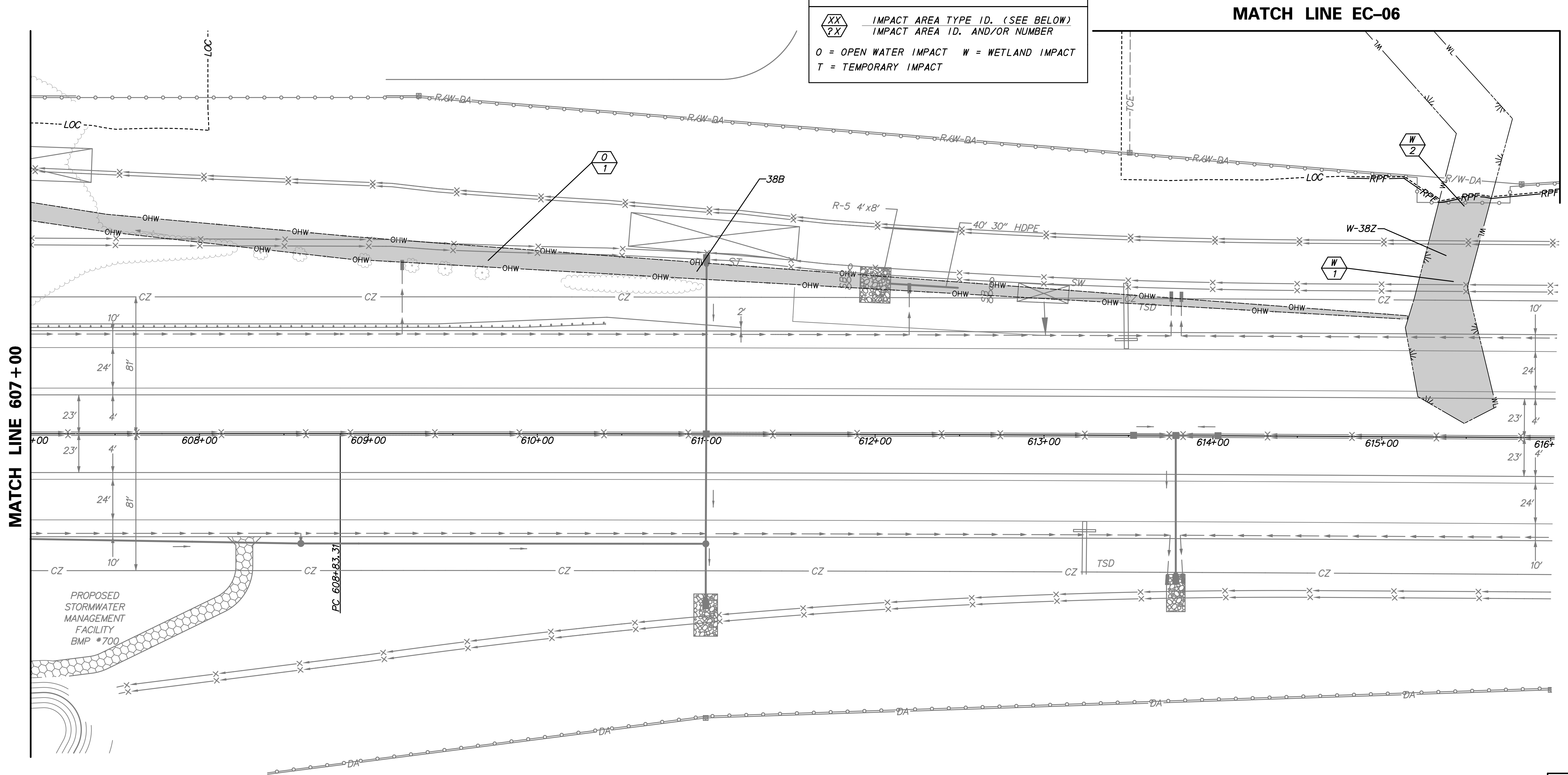
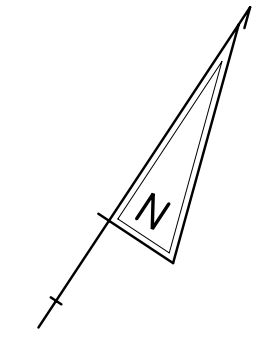
PERMANENT WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
5-W1	FILL	4,355.00	0.1000	N/A	USACE
5-W2	EXCAVATION	324.41	0.0074	N/A	USACE
TOTAL FOR THIS SHEET		4,679.41	0.1074	N/A	

**LEGEND**

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA
- ORDINARY HIGH WATER
- ORD. HIGH WATER / WETLAND
- WETLAND BOUNDARY
- RESOURCE PROTECTION FENCE
- LIMIT OF CONSTRUCTION
- PROPOSED ORD. HIGH WATER

IMPACT AREA TYPE ID. (SEE BELOW)  
 IMPACT AREA ID. AND/OR NUMBER

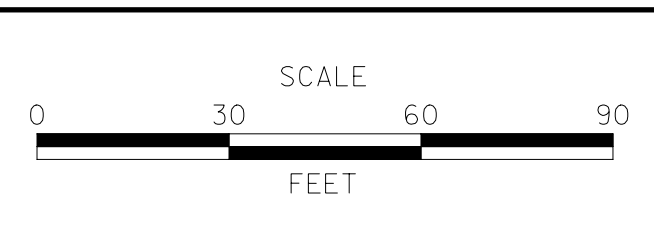
O = OPEN WATER IMPACT    W = WETLAND IMPACT  
T = TEMPORARY IMPACT



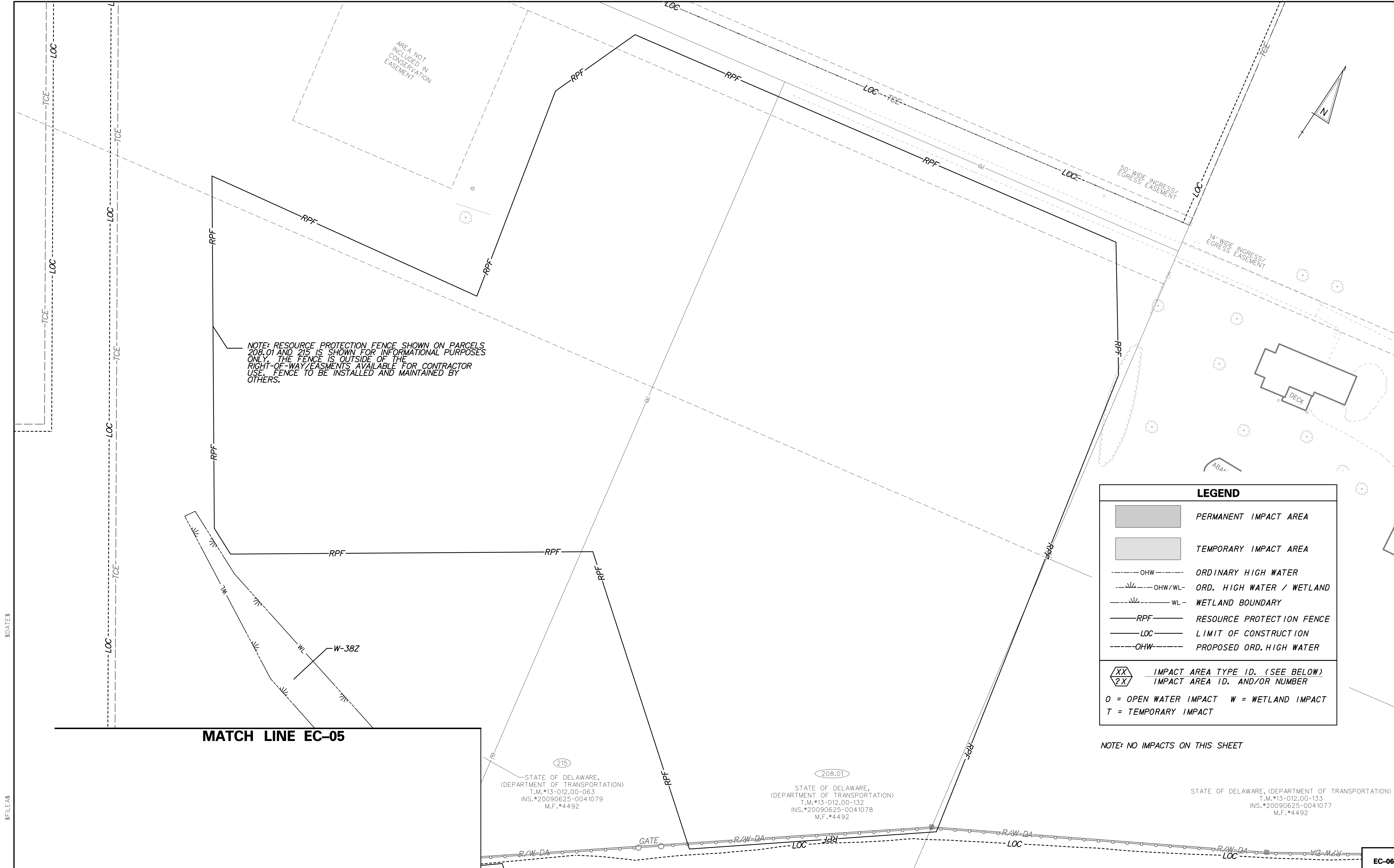
**MATCH LINE EC-06**

SDATES \$FILES

ADDENDUMS / REVISIONS	



CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM



NOTE: RESOURCE PROTECTION FENCE SHOWN ON PARCELS 208.01 AND 215 IS SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE FENCE IS OUTSIDE OF THE RIGHT-OF-WAY/EASEMENTS AVAILABLE FOR CONTRACTOR USE. FENCE TO BE INSTALLED AND MAINTAINED BY OTHERS.

**LEGEND**

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA
- OHW --- ORDINARY HIGH WATER
- - - OHW/WL - - - ORD. HIGH WATER / WETLAND
- - - WL - - - WETLAND BOUNDARY
- RPF — RESOURCE PROTECTION FENCE
- LOC — LIMIT OF CONSTRUCTION
- - - OHW - - - PROPOSED ORD. HIGH WATER

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

O = OPEN WATER IMPACT    W = WETLAND IMPACT  
 T = TEMPORARY IMPACT

NOTE: NO IMPACTS ON THIS SHEET

**MATCH LINE EC-05**

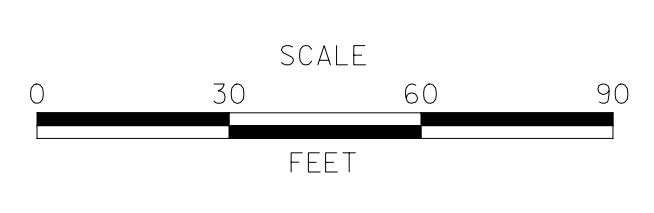
215  
STATE OF DELAWARE,  
(DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-063  
INS.#20090625-0041079  
M.F.#4492

208.01  
STATE OF DELAWARE,  
(DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-132  
INS.#20090625-0041078  
M.F.#4492

STATE OF DELAWARE, (DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-133  
INS.#20090625-0041077  
M.F.#4492



ADDENDUMS / REVISIONS



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

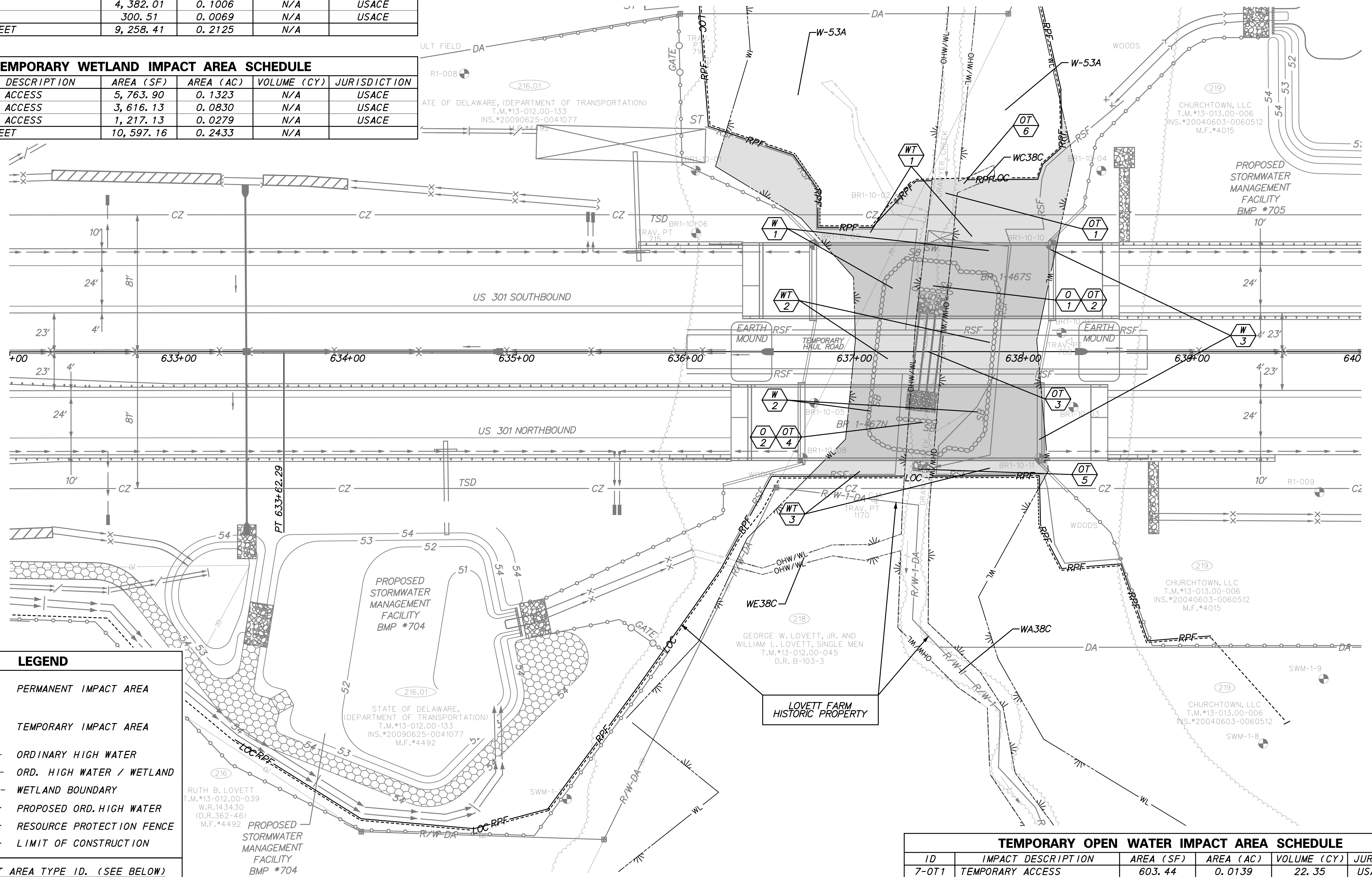
**ENVIRONMENTAL  
COMPLIANCE PLAN**

<b>EC-06</b>
SHEET NO. 172
TOTAL SHTS. 240



PERMANENT WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
7-W1	SHADING	4,575.89	0.1050	N/A	USACE
7-W2	SHADING	4,382.01	0.1006	N/A	USACE
7-W3	FILL	300.51	0.0069	N/A	USACE
TOTAL FOR THIS SHEET		9,258.41	0.2125	N/A	

TEMPORARY WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
7-WT1	TEMPORARY ACCESS	5,763.90	0.1323	N/A	USACE
7-WT2	TEMPORARY ACCESS	3,616.13	0.0830	N/A	USACE
7-WT3	TEMPORARY ACCESS	1,217.13	0.0279	N/A </td <td>USACE</td>	USACE
TOTAL FOR THIS SHEET		10,597.16	0.2433	N/A	



**LEGEND**

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA
- OHW --- ORDINARY HIGH WATER
- OHW/WL --- ORD. HIGH WATER / WETLAND
- WL --- WETLAND BOUNDARY
- OHW --- PROPOSED ORD. HIGH WATER
- RPF --- RESOURCE PROTECTION FENCE
- LOC --- LIMIT OF CONSTRUCTION

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

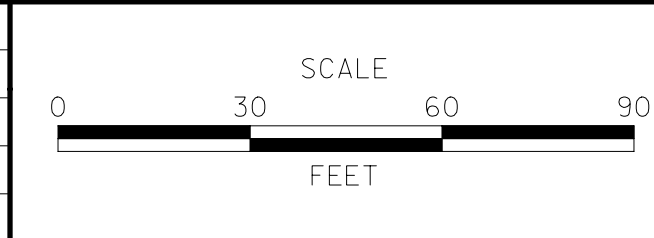
O = OPEN WATER IMPACT    W = WETLAND IMPACT  
 T = TEMPORARY IMPACT

PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
7-01	SHADING	745.94	0.0171	N/A	DNREC
7-02	SHADING	740.29	0.0170	N/A	DNREC
TOTAL USACE FOR THIS SHEET		N/A	N/A	N/A	USACE
TOTAL DNREC FOR THIS SHEET		1,486.22	0.0341	N/A	DNREC

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
7-OT1	TEMPORARY ACCESS	603.44	0.0139	22.35	USACE/DNREC
7-OT2	TEMPORARY ACCESS	745.94	0.0171	27.63	USACE
7-OT3	TEMPORARY ACCESS	658.02	0.0151	24.37	USACE/DNREC
7-OT4	TEMPORARY ACCESS	740.29	0.0170	27.42	USACE
7-OT5	TEMPORARY ACCESS	166.36	0.0038	6.16	USACE/DNREC
7-OT6	TEMPORARY ACCESS	82.64	0.0019	3.06	USACE/DNREC
TOTAL USACE FOR THIS SHEET		2,996.69	0.0688	110.99	USACE
TOTAL DNREC FOR THIS SHEET		1,510.46	0.0347	55.94	DNREC



ADDENDUMS / REVISIONS	



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

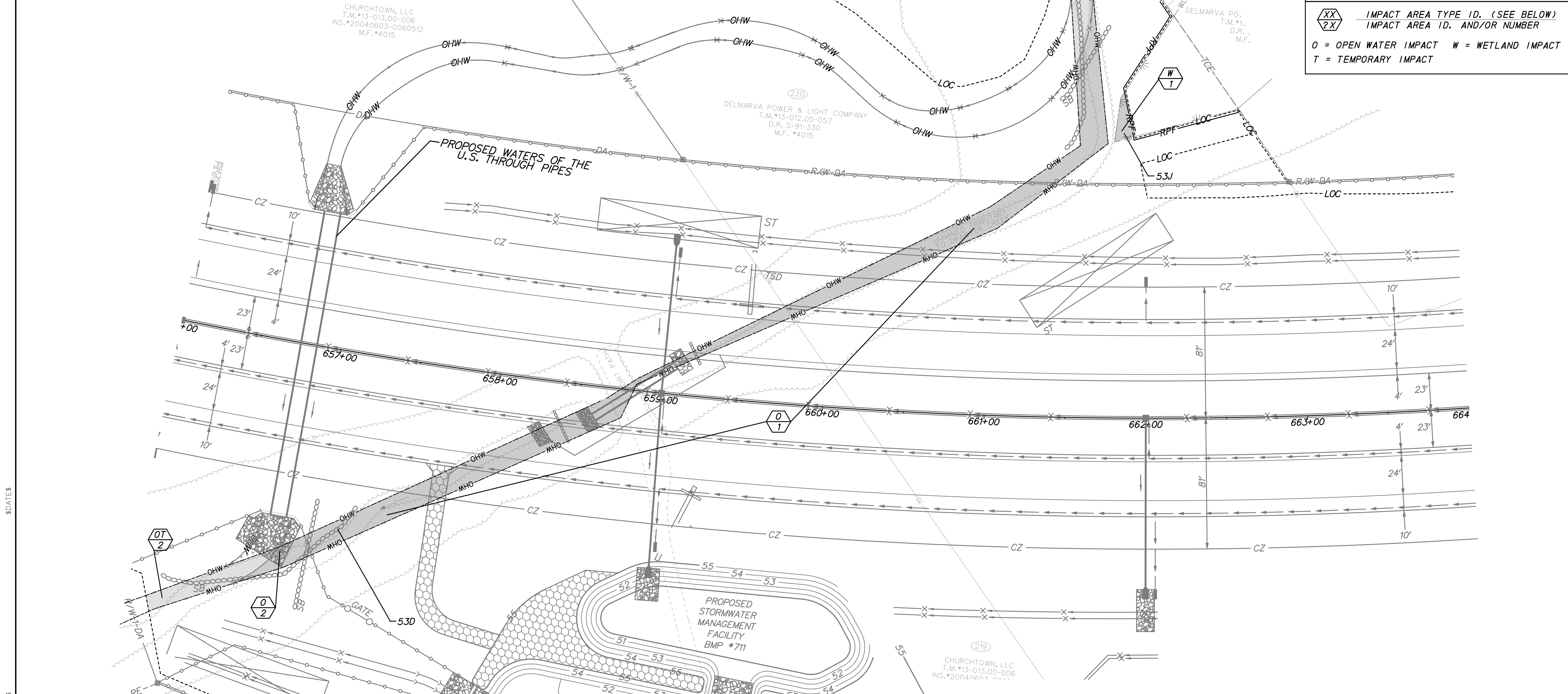
**ENVIRONMENTAL  
COMPLIANCE PLAN**

EC-07
SHEET NO. 173
TOTAL SHTS. 240

PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
8-01	FILL	7,322.34	0.1681	271.20	USACE/DNREC
8-02	RIPRAP	35.18	0.0008	1.30	USACE/DNREC
8-03	RIPRAP	114.80	0.0026	4.25	USACE/DNREC
TOTAL USACE FOR THIS SHEET		7,472.32	0.1715	276.75	USACE
TOTAL DNREC FOR THIS SHEET		7,472.32	0.1715	276.75	DNREC

TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
8-OT1	E&S AREA	534.27	0.0123	19.79	USACE/DNREC
8-OT2	E&S AREA	788.75	0.0181	29.21	USACE/DNREC
TOTAL USACE FOR THIS SHEET		1,323.02	0.0304	49.00	USACE
TOTAL DNREC FOR THIS SHEET		1,323.02	0.0304	49.00	DNREC

LEGEND	
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
	OHW - ORDINARY HIGH WATER
	OHW/WL - ORD. HIGH WATER / WETLAND
	WL - WETLAND BOUNDARY
	RPF - RESOURCE PROTECTION FENCE
	LOC - LIMIT OF CONSTRUCTION
	OHW - PROPOSED ORD. HIGH WATER
	IMPACT AREA TYPE ID. (SEE BELOW)
	IMPACT AREA ID. AND/OR NUMBER
O = OPEN WATER IMPACT W = WETLAND IMPACT T = TEMPORARY IMPACT	

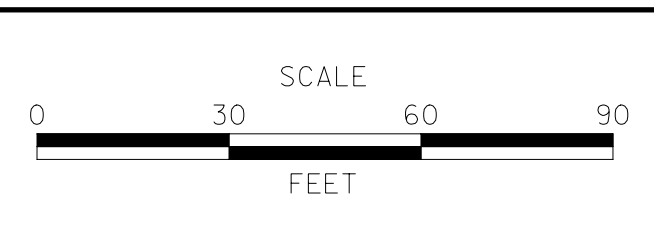


PERMANENT WETLAND IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
8-W1	EXCAVATION	223.28	0.0051	N/A	USACE
TOTAL FOR THIS SHEET		223.28	0.0051	N/A	

\$FILES \$DATES



ADDENDUMS / REVISIONS



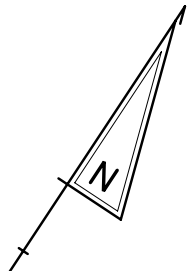
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

**ENVIRONMENTAL  
COMPLIANCE PLAN**

EC-08
SHEET NO. 174
TOTAL SHTS. 240





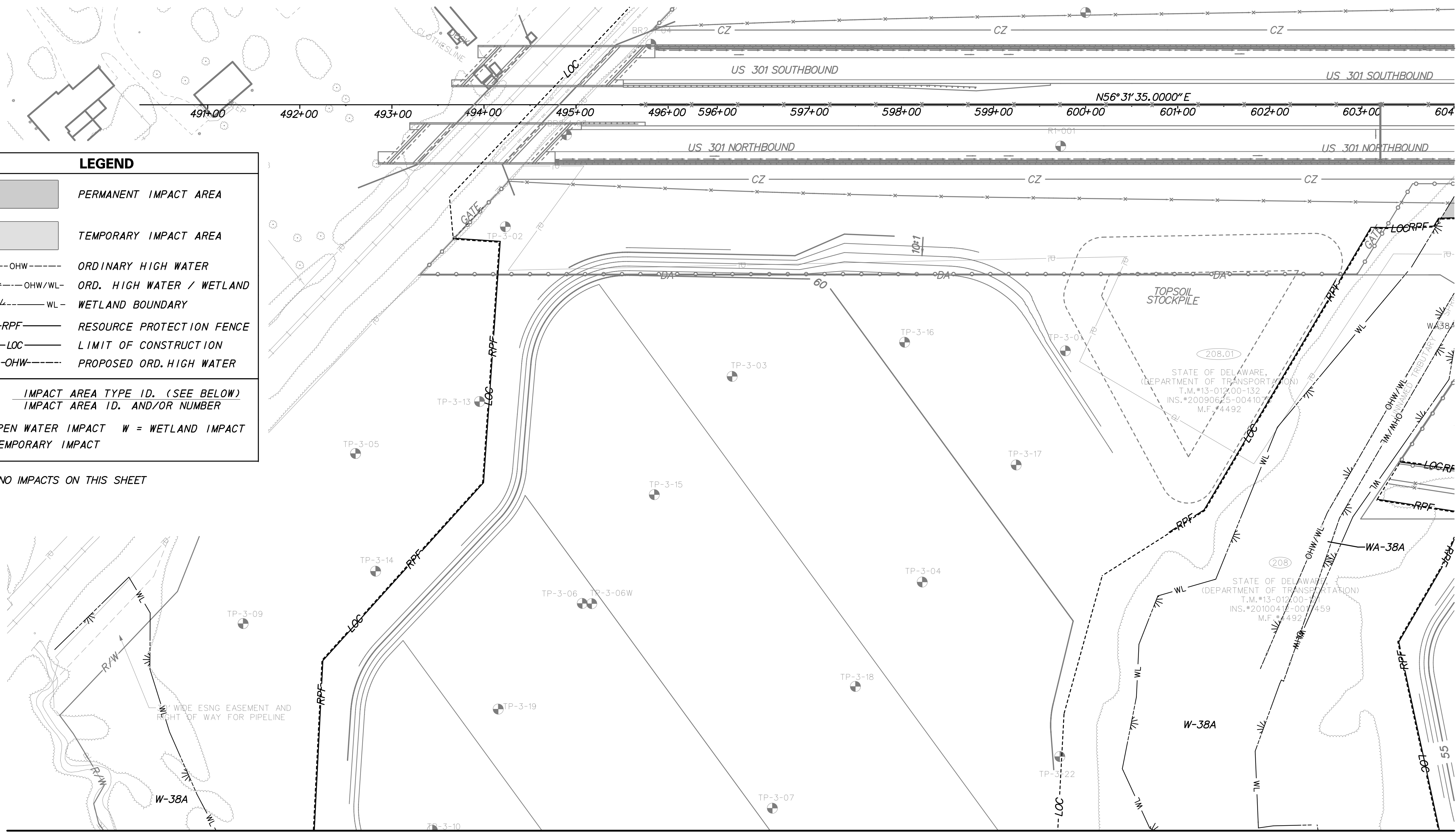
**LEGEND**

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA
- OHW --- ORDINARY HIGH WATER
- - - OHW/WL - ORD. HIGH WATER / WETLAND
- - - WL - WETLAND BOUNDARY
- RPF — RESOURCE PROTECTION FENCE
- LOC — LIMIT OF CONSTRUCTION
- - - OHW - - - PROPOSED ORD. HIGH WATER

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

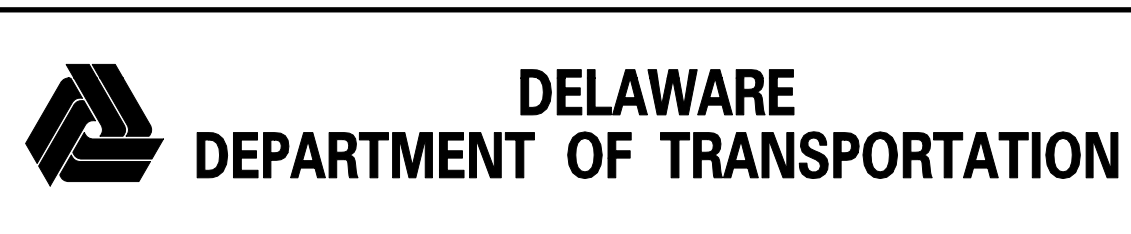
O = OPEN WATER IMPACT    W = WETLAND IMPACT  
 T = TEMPORARY IMPACT

NOTE: NO IMPACTS ON THIS SHEET

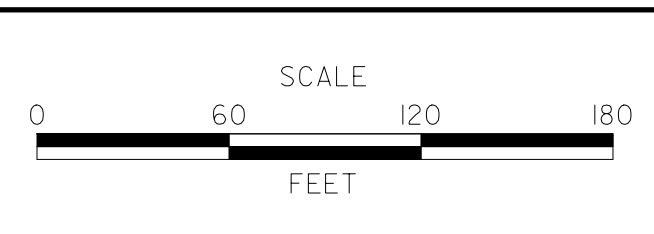


MATCH LINE A - EC-10

\$DATES  
\$FILES



ADDENDUMS / REVISIONS	

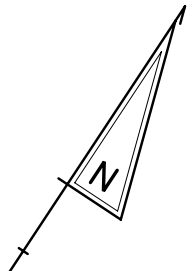


**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.		
COUNTY NEW CASTLE	DESIGNED BY:	REL	
	CHECKED BY:	LMM	

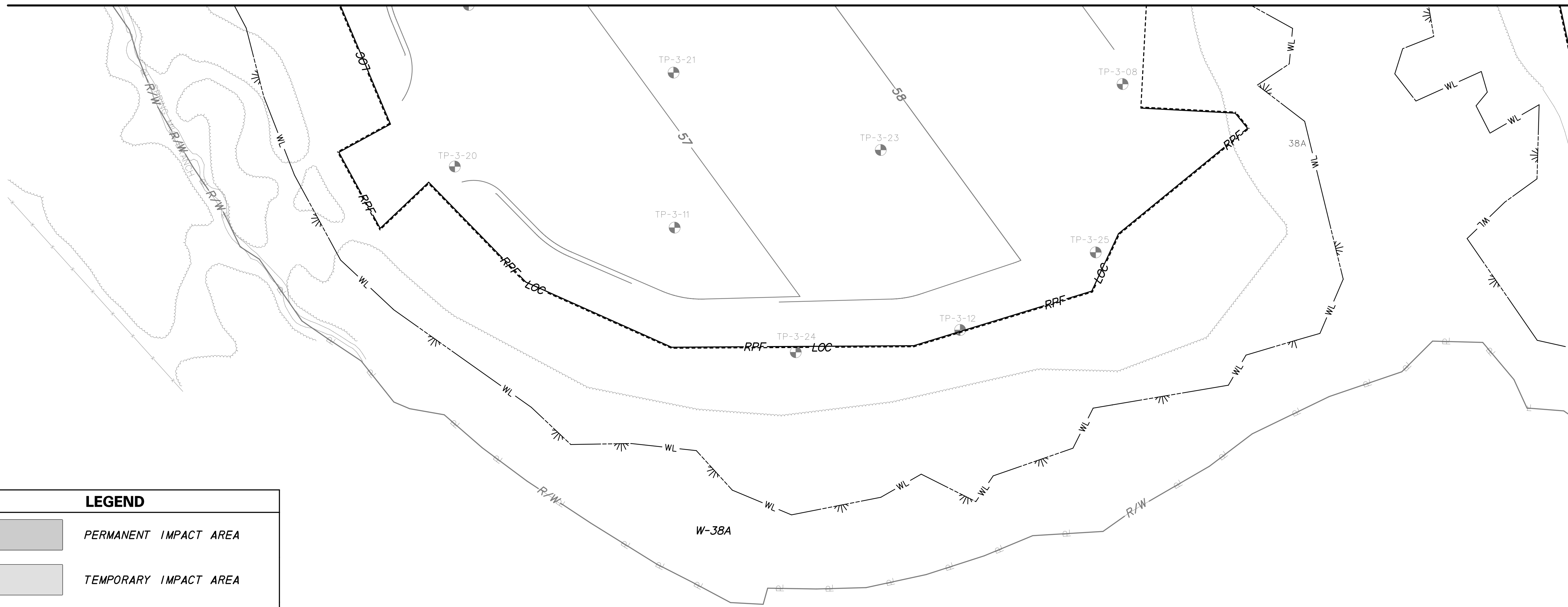
**ENVIRONMENTAL  
COMPLIANCE PLAN**

<b>EC-09</b>
SHEET NO. 175
TOTAL SHTS. 240



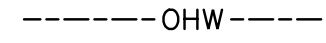
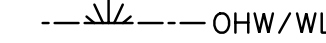
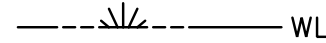


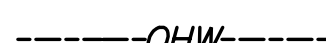



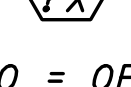
MATCH LINE A - EC-09

MATCH LINE B - EC-12



**LEGEND**

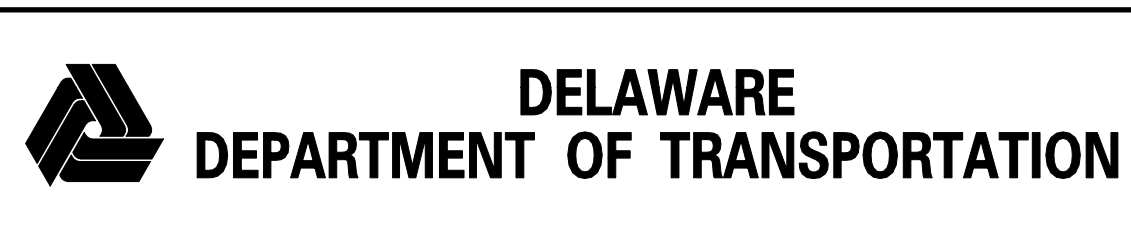
-  PERMANENT IMPACT AREA
-  TEMPORARY IMPACT AREA
-  OHW ORDINARY HIGH WATER
-  OHW/WL ORD. HIGH WATER / WETLAND
-  WL WETLAND BOUNDARY
-  RPF RESOURCE PROTECTION FENCE
-  LOC LIMIT OF CONSTRUCTION
-  OHW PROPOSED ORD. HIGH WATER

 IMPACT AREA TYPE ID. (SEE BELOW)  
 IMPACT AREA ID. AND/OR NUMBER

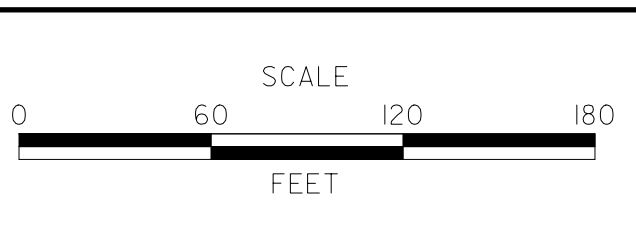
O = OPEN WATER IMPACT    W = WETLAND IMPACT  
 T = TEMPORARY IMPACT

NOTE: NO IMPACTS ON THIS SHEET

\$DATES  
\$FILES



ADDENDUMS / REVISIONS	

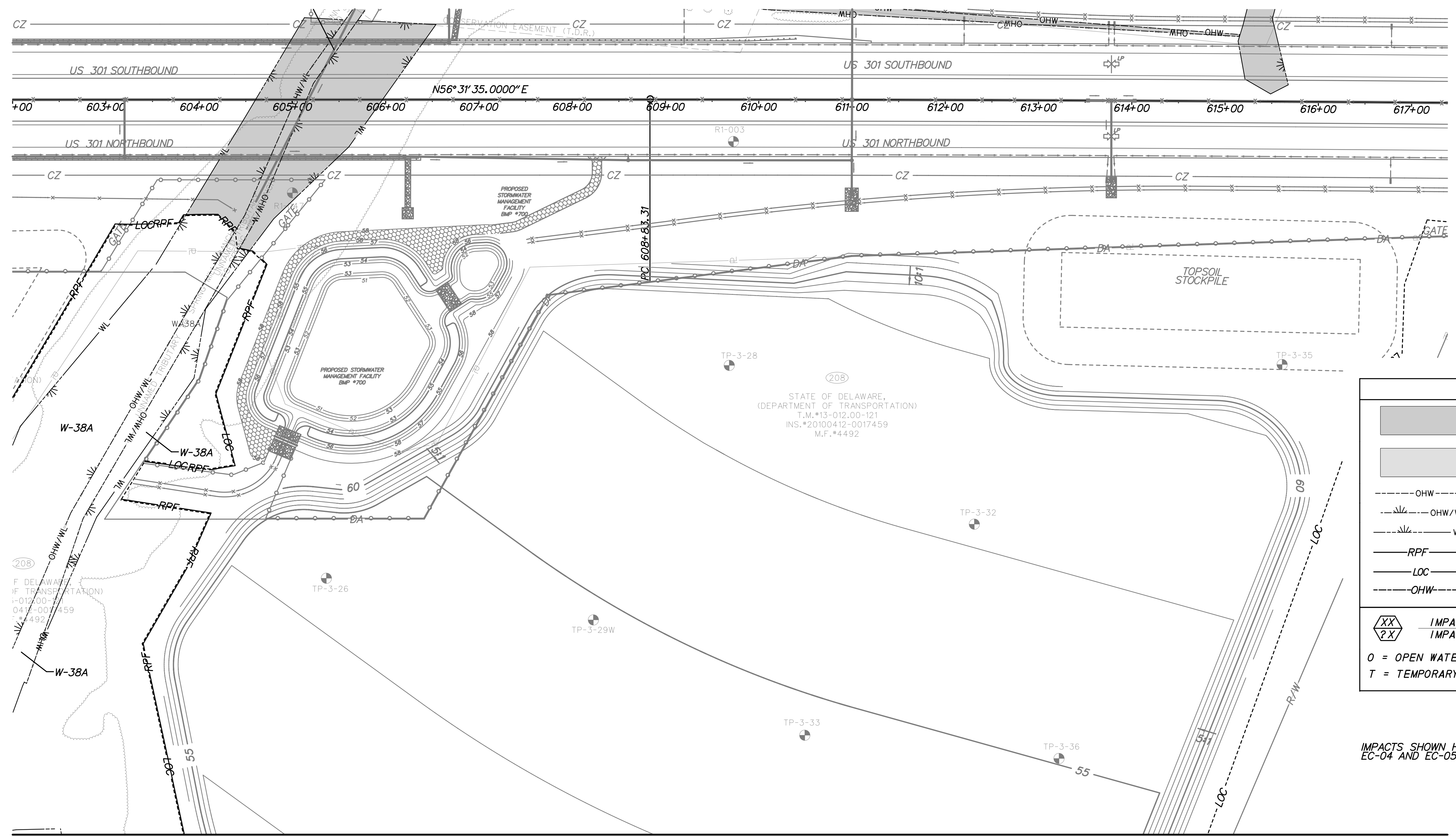
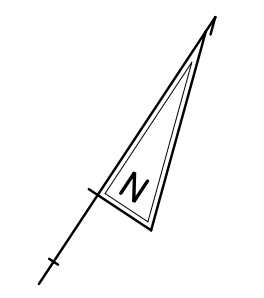


**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

**ENVIRONMENTAL  
COMPLIANCE PLAN**

EC-10
SHEET NO. 176
TOTAL SHTS. 240



LEGEND	
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
	ORDINARY HIGH WATER
	ORD. HIGH WATER / WETLAND
	WETLAND BOUNDARY
	RESOURCE PROTECTION FENCE
	LIMIT OF CONSTRUCTION
	PROPOSED ORD. HIGH WATER
	IMPACT AREA TYPE ID. (SEE BELOW)
	IMPACT AREA ID. AND/OR NUMBER
O = OPEN WATER IMPACT W = WETLAND IMPACT	
T = TEMPORARY IMPACT	

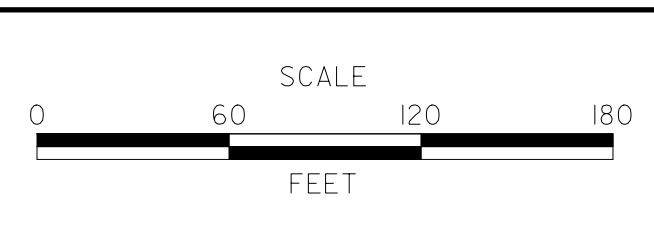
IMPACTS SHOWN HAVE BEEN CALCULATED ON EC-04 AND EC-05.

MATCH LINE A - EC-12

\$DATES \$FILES



ADDENDUMS / REVISIONS



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

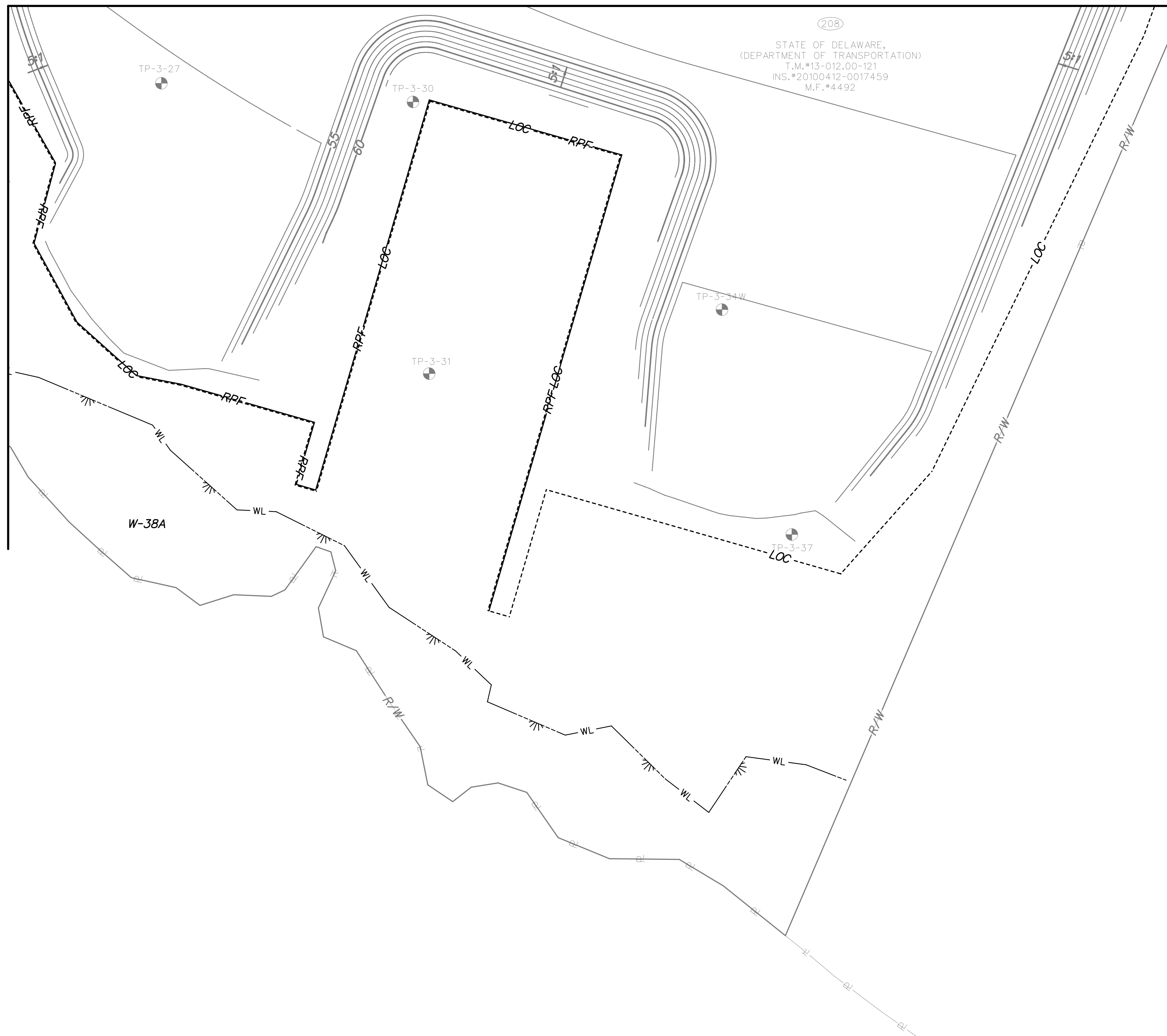
**ENVIRONMENTAL  
COMPLIANCE PLANS**

<b>EC-11</b>
SHEET NO. 177
TOTAL SHTS. 240

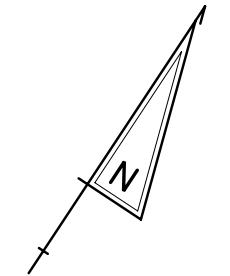


MATCH LINE A - EC-11

MATCH LINE B - EC-10



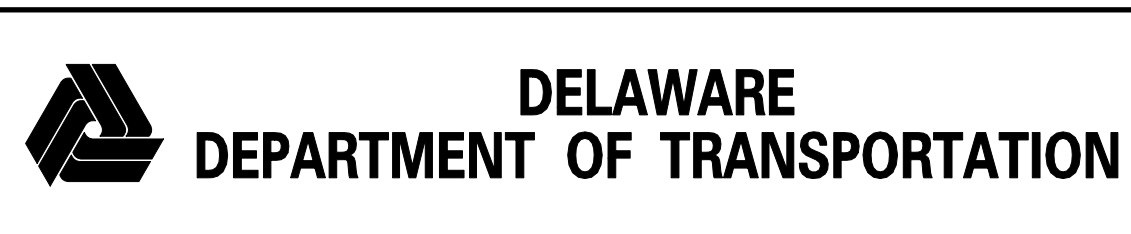
(208)  
STATE OF DELAWARE,  
(DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-121  
INS.#20100412-0017459  
M.F.#4492



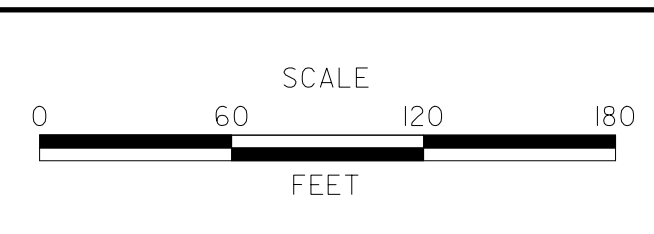
LEGEND	
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
-----OHW-----	ORDINARY HIGH WATER
--- ---OHW/WL---	ORD. HIGH WATER / WETLAND
--- ---WL---	WETLAND BOUNDARY
——RPF——	RESOURCE PROTECTION FENCE
——LOC——	LIMIT OF CONSTRUCTION
-----OHW-----	PROPOSED ORD. HIGH WATER
	IMPACT AREA TYPE ID. (SEE BELOW)
	IMPACT AREA ID. AND/OR NUMBER
O = OPEN WATER IMPACT W = WETLAND IMPACT	
T = TEMPORARY IMPACT	

NOTE: NO IMPACTS ON THIS SHEET

\$FILES \$DATES



ADDENDUMS / REVISIONS	

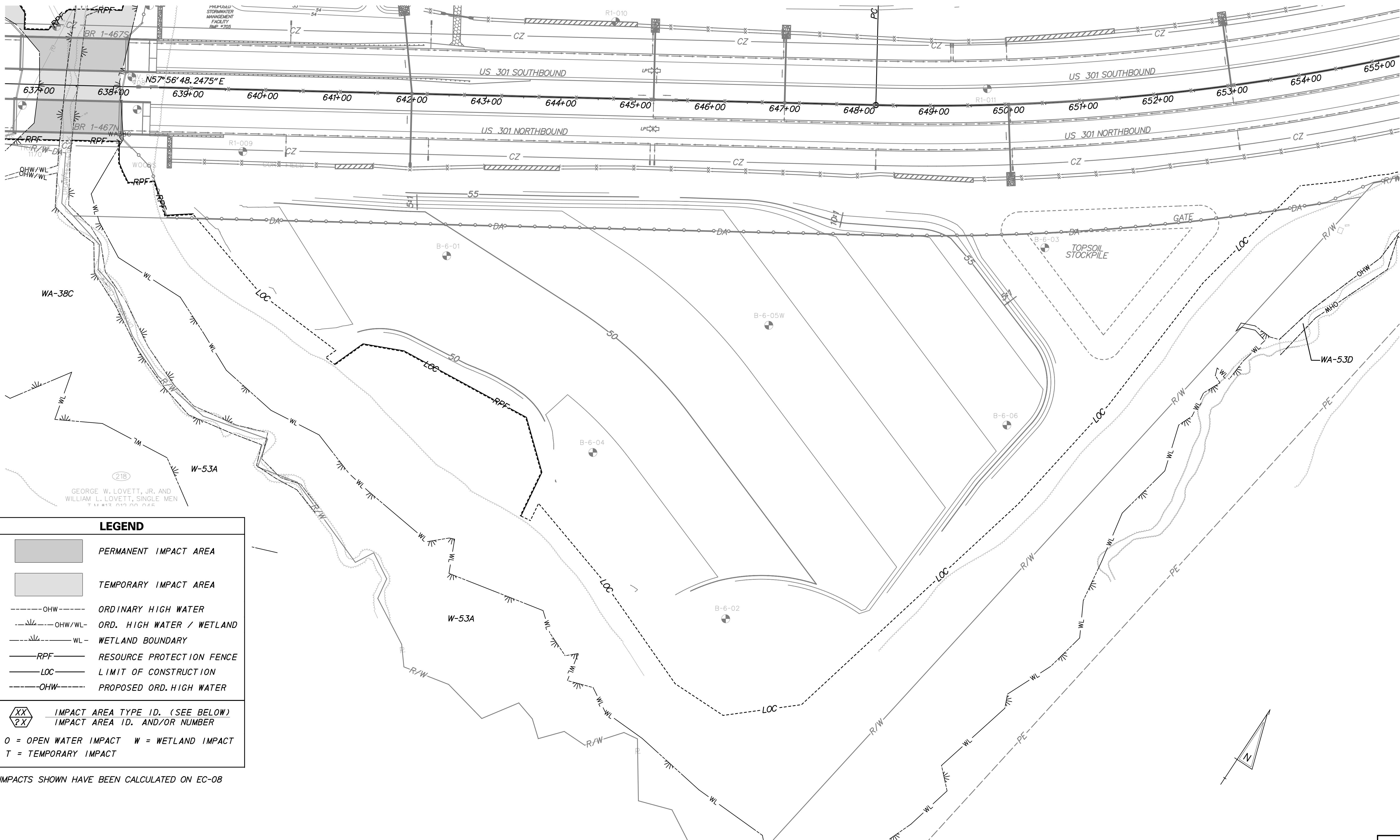


**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: REL
NEW CASTLE	CHECKED BY: LMM

**ENVIRONMENTAL  
COMPLIANCE PLAN**

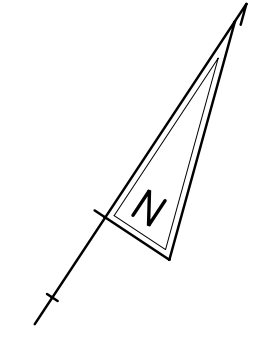
<b>EC-12</b>
SHEET NO. 178
TOTAL SHTS. 240



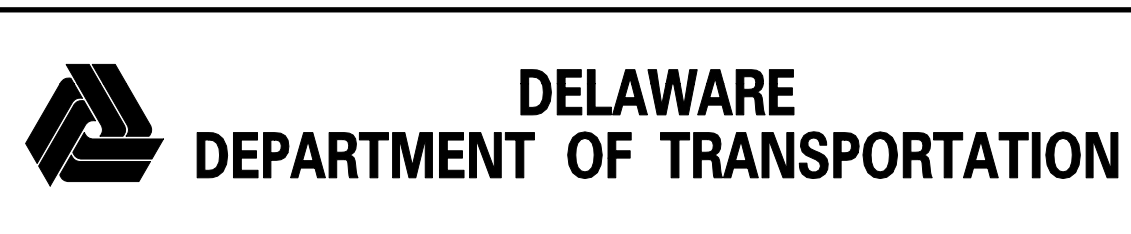
GEORGE W. LOVETT, JR. AND  
WILLIAM L. LOVETT, SINGLE MEN  
T.M.#13 033 00 045

LEGEND	
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
	ORDINARY HIGH WATER
	ORD. HIGH WATER / WETLAND
	WETLAND BOUNDARY
	RESOURCE PROTECTION FENCE
	LIMIT OF CONSTRUCTION
	PROPOSED ORD. HIGH WATER
	IMPACT AREA TYPE ID. (SEE BELOW)
	IMPACT AREA ID. AND/OR NUMBER
O = OPEN WATER IMPACT W = WETLAND IMPACT	
T = TEMPORARY IMPACT	

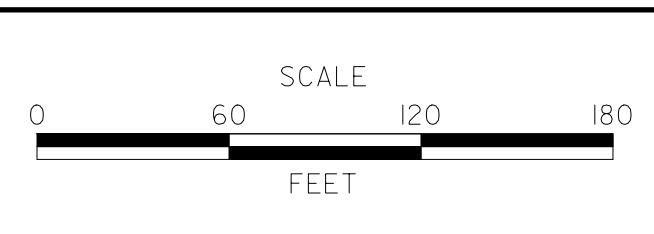
IMPACTS SHOWN HAVE BEEN CALCULATED ON EC-08



\$DATES \$FILES



ADDENDUMS / REVISIONS



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

**ENVIRONMENTAL  
COMPLIANCE PLANS**

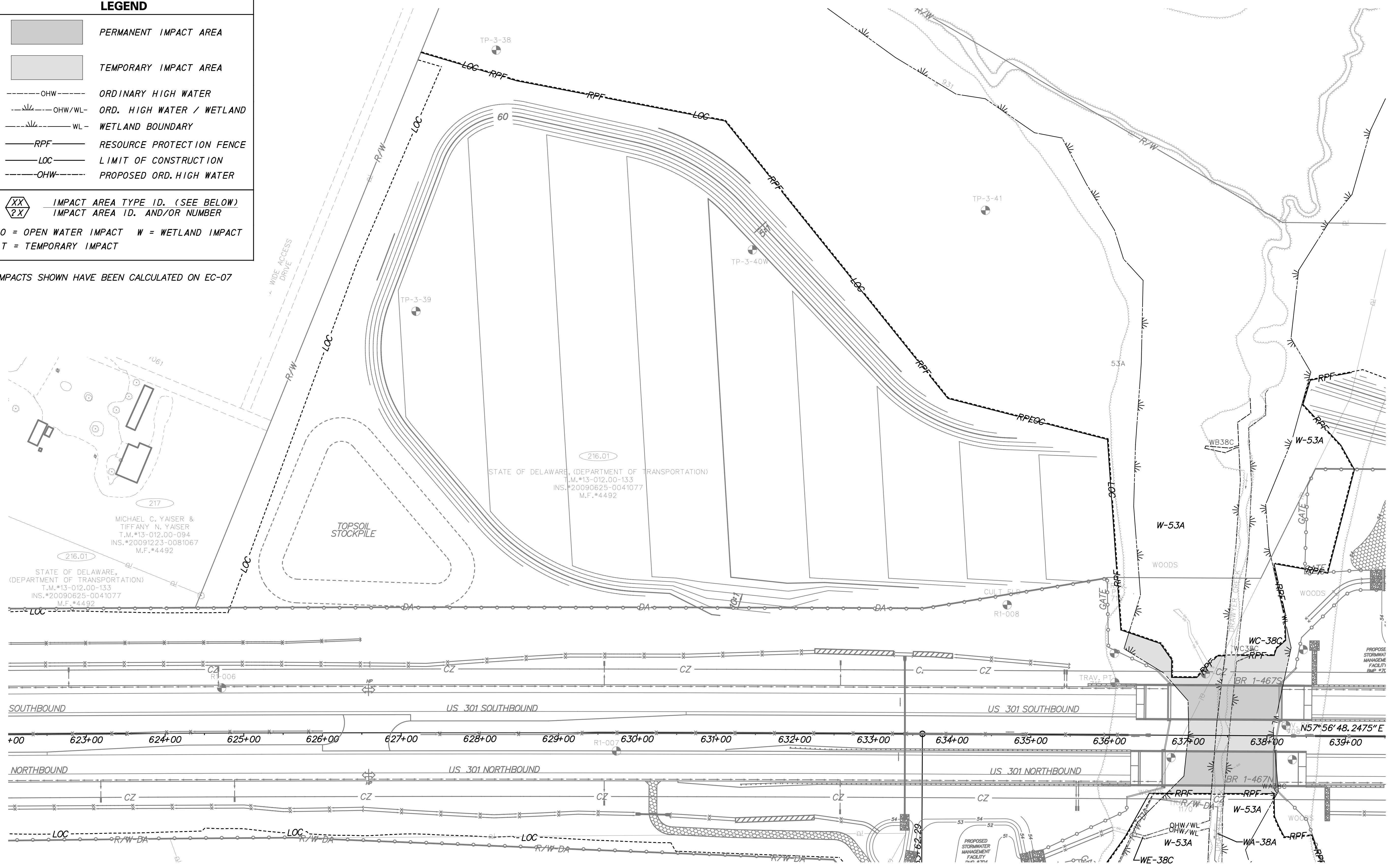
EC-13
SHEET NO. 179
TOTAL SHTS. 240



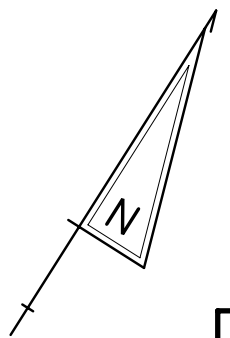


LEGEND	
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
	ORDINARY HIGH WATER
	ORD. HIGH WATER / WETLAND
	WETLAND BOUNDARY
	RESOURCE PROTECTION FENCE
	LIMIT OF CONSTRUCTION
	PROPOSED ORD. HIGH WATER
	IMPACT AREA TYPE ID. (SEE BELOW)
	IMPACT AREA ID. AND/OR NUMBER
O = OPEN WATER IMPACT W = WETLAND IMPACT	
T = TEMPORARY IMPACT	

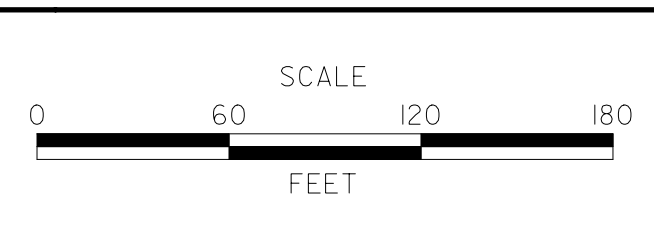
IMPACTS SHOWN HAVE BEEN CALCULATED ON EC-07



\$FILES \$DATES



ADDENDUMS / REVISIONS



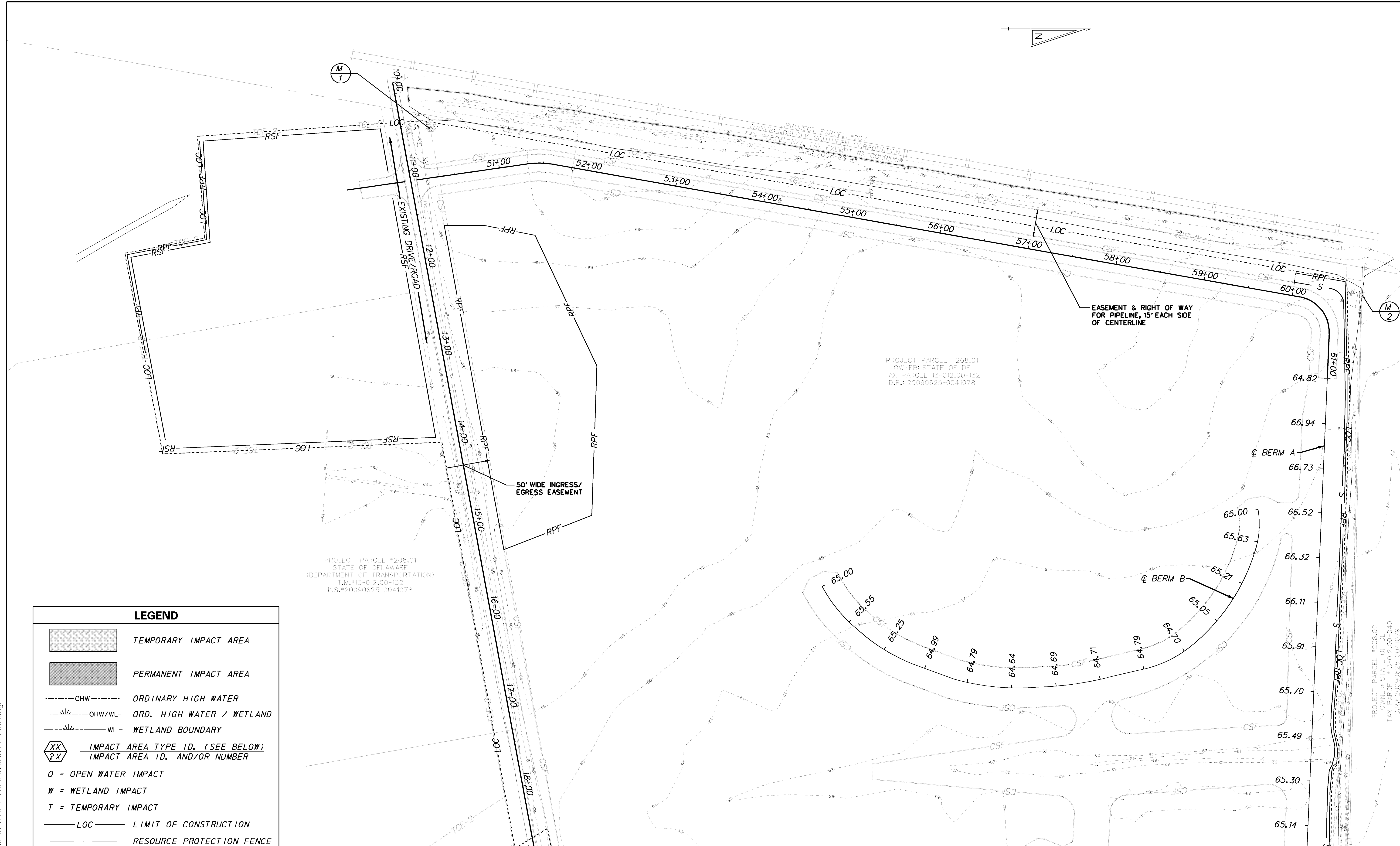
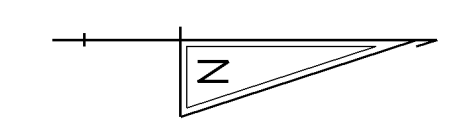
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: REL
	CHECKED BY: LMM

**ENVIRONMENTAL  
COMPLIANCE PLAN**

EC-15
SHEET NO. 181
TOTAL SHTS. 240





PROJECT PARCEL #208.01  
STATE OF DELAWARE  
(DEPARTMENT OF TRANSPORTATION)  
T.M.#13-012.00-132  
INS.#20090625-0041078

PROJECT PARCEL 208.01  
OWNER: STATE OF DE  
TAX PARCEL 13-012.00-132  
D.P.# 20090625-0041078

PROJECT PARCEL #208.02  
OWNER: STATE OF DE  
TAX PARCEL #13-012.00-049  
D.P.# 20090625-0041078

LEGEND	
	TEMPORARY IMPACT AREA
	PERMANENT IMPACT AREA
	OHW - ORDINARY HIGH WATER
	OHW/WL - ORD. HIGH WATER / WETLAND
	WL - WETLAND BOUNDARY
	IMPACT AREA TYPE ID. (SEE BELOW) IMPACT AREA ID. AND/OR NUMBER
O	OPEN WATER IMPACT
W	WETLAND IMPACT
T	TEMPORARY IMPACT
	LOC - LIMIT OF CONSTRUCTION
	RESOURCE PROTECTION FENCE

NOTE: NO IMPACTS ON THIS SHEET

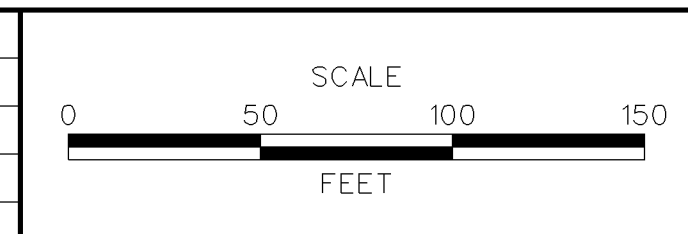
MATCH LINE - EC-17

EC-16

3/6/2012 9:34:11 AM  
\\rkm\2008\2008\08013\_de301\CADD\2911301\Plans\ec16\_pleas.dgn



ADDENDUMS / REVISIONS



US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT	BRIDGE NO.	X
T200911301	DESIGNED BY: WMM	
COUNTY	CHECKED BY: JTR	
NEW CASTLE		

Prepared by: <b>RUMMEL, KLEPPER &amp; KAHL, LLP</b>		SHEET NO.
PLEASANTON ENVIRONMENTAL COMPLIANCE PLAN		182
		TOTAL SHTS. 240



MATCH LINE - EC-16

PROJECT PARCEL #215  
OWNER: STATE OF DE  
(DEPARTMENT OF TRANSPORTATION)  
TAX PARCEL 13-012.00-063  
D.R.: 20090625-0041079

AREA NOT INCLUDED IN CONSERVATION EASEMENT

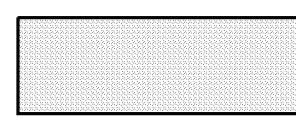
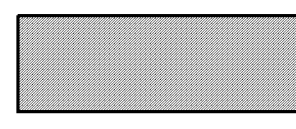
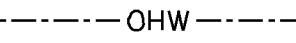
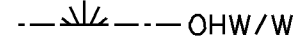
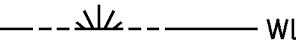
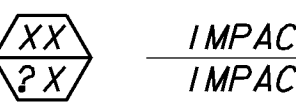
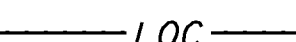

PROJECT PARCEL 208.01  
OWNER: STATE OF DE  
TAX PARCEL 13-012.00-181  
D.R.: 20090625-0041078

PROJECT PARCEL #208.02  
OWNER: STATE OF DE  
TAX PARCEL #13-012.00-049  
D.R.: 20090625-0041079

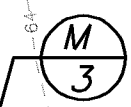
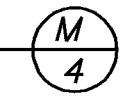
50' WIDE INGRESS/EGRESS EASEMENT

PROJECT PARCEL #217  
OWNER: OAKRIDGE HOLDINGS OF DELAWARE, LLC  
TAX PARCEL 13-012.00-094  
D.R.: 20050314-0024078

**LEGEND**

-  TEMPORARY IMPACT AREA
-  PERMANENT IMPACT AREA
-  OHW - ORDINARY HIGH WATER
-  OHW/WL - ORD. HIGH WATER / WETLAND
-  WL - WETLAND BOUNDARY
-  **XX** / **?X** - IMPACT AREA TYPE ID. (SEE BELOW) / IMPACT AREA ID. AND/OR NUMBER
- O** = OPEN WATER IMPACT
- W** = WETLAND IMPACT
- T** = TEMPORARY IMPACT
-  - LOC - LIMIT OF CONSTRUCTION
-  - RPF - RESOURCE PROTECTION FENCE

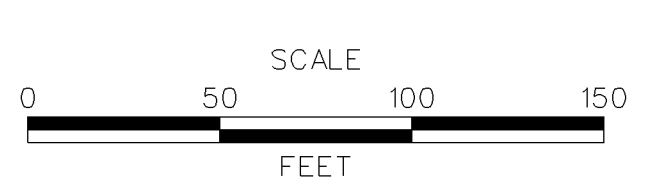
NOTE: NO IMPACTS ON THIS SHEET



3/5/2012 10:24:07 AM \\N\kkm\2008\2008\2008\CADD\2911301\Plans\ec17-plans.dgn



ADDENDUMS / REVISIONS



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT	BRIDGE NO.	<b>X</b>
T200911301	DESIGNED BY: WMM	
COUNTY	CHECKED BY: JTR	
NEW CASTLE		

Prepared by:  
**RUMMEL, KLEPPER & KAHL, LLP**

**PLEASANTON ENVIRONMENTAL COMPLIANCE PLAN**

SHEET NO.	183
TOTAL SHTS.	240

EC-17

MOT GENERAL NOTES

1. MAINTENANCE OF TRAFFIC DURING LANE CLOSURES AND LANE SHIFTS SHALL CONFORM TO TA-10 OF THE DELAWARE MUTCD.
2. ON ALL INTERSECTING STREETS APPROACHING THE WORK AREA, "ROAD WORK 1,500 FT." "ROAD WORK 1,000 FT." AND "ROAD WORK 500 FT." PERMANENT SIGNS SHALL BE PLACED AS SHOWN ON THESE PLANS OR AS DIRECTED BY THE ENGINEER. AN "END ROAD WORK" SIGN SHALL BE PLACED ACROSS THE STREET FROM THE "ROAD WORK 500 FT." SIGN, VISIBLE TO TRAFFIC OPERATING IN THE WORK ZONE.
3. GRADING AND MAINTAINING BASE COURSE THAT IS BEING USED AS A DRIVEWAY, ACCESS RAMP, ETC. SHALL BE INCIDENTAL TO ITEM 743000 - MAINTENANCE OF TRAFFIC. EXCESS BASE COURSE MATERIAL SHALL BE PUSHED AHEAD AND USED IN THE NEXT SEGMENT AND SHALL BE INCIDENTAL TO THE PARTICULAR BASE COURSE PAY ITEM. NO PAYMENT SHALL BE MADE FOR TEMPORARY ROADWAY MATERIAL (TRM) USED TO PROTECT EDGE DROP-OFFS, UNLESS THE MATERIAL IS EVENTUALLY UTILIZED AS PART OF A PERMANENT ROADWAY AT WHICH TIME THE MATERIAL WOULD BE PAID FOR UNDER THE RESPECTIVE CONTRACT MATERIAL ITEM. CONSTRUCTION OF A PLANNED RUNAROUND OR DETOUR WOULD BE ELIGIBLE FOR PAYMENT AS SPECIFIED IN THE CONTRACT.
4. THIS PROJECT IS CONSIDERED A SIGNIFICANT PROJECT AS DEFINED BY DELDOT'S WORK ZONE MOBILITY PROCEDURES AND GUIDELINES. A TYPE B TRANSPORTATION MANAGEMENT PLAN (TMP) HAS BEEN PREPARED AND IS AVAILABLE FOR VIEWING BY CONTACTING THE DEPARTMENT'S SAFETY PROGRAMS MANAGER AT (302)659-4060. ALL MONITORING REQUIREMENTS OF THE TMP SHALL BE CONDUCTED BY DELDOT FORCES UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MODIFICATIONS TO THE TMP SHALL BE COMPLETED BY THE CONTRACTOR IF CHANGES TO THE TIME RESTRICTIONS OR THE TRAFFIC CONTROL PLAN ARE DESIRED. THE MODIFIED TMP SHALL BE PREPARED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF DELAWARE.
5. A TYPE II TRUCK MOUNTED ATTENUATOR (TMA) SHALL BE REQUIRED ON THIS PROJECT DURING THE FOLLOWING PAVEMENT OPERATIONS: TEMPORARY/PERMANENT PAVEMENT MARKINGS, ROADSIDE SPRAYING, PATCHING, MILLING, SWEEPING, TEMPORARY TRAFFIC BARRIER PLACEMENT OR AS DIRECTED BY THE ENGINEER. THE ROLL AHEAD DISTANCE SHALL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS. THE TMA SHALL CONFORM TO THE REQUIREMENTS OF SECTION 6F.82 OF THE DELAWARE MUTCD.
6. FLAGGING OPERATIONS (ALTERNATING ONE-WAY OPERATIONS) ALONG BOYDS CORNER ROAD WITHIN THE VICINITY OF THE STAGING AREA ACCESS POINT SHALL BE PERMITTED FROM 9:00 AM - 3:00 PM AND FROM 6:00 PM - 6:00 AM.
7. WHEN CONSTRUCTION ACTIVITIES REQUIRE TEMPORARY ROADWAY CLOSURES CONCURRENT WITH FLAGGING OPERATIONS, THE TEMPORARY ROADWAY CLOSURES SHALL BE NO MORE THAN 30 SECONDS AND SHALL ONLY BE PERMITTED FROM 9:00 AM - 2:00 PM AND FROM 7:00 PM - 6:00 AM.
8. CONSTRUCTION ENTRANCES SHALL BE CLOSED WITH TYPE III BARRICADES WHEN NOT IN USE. TYPE III BARRICADES SHALL EXTEND COMPLETELY ACROSS THE ROADWAY.
9. FOR NIGHT-TIME CLOSURES OF ANY ROAD OR RAMP, PROVIDE ONE TRAFFIC OFFICER AT EACH CLOSER POINT SHOWN IN THE APPLICABLE DETOUR PLANS. TRAFFIC OFFICER SHALL BE PLACED BEHIND THE CLOSURE BARRICADE WITH THE FRONT OF VEHICLE FACING APPROACHING TRAFFIC AND ALL EMERGENCY LIGHTS SHALL BE ACTIVATED. TRAFFIC OFFICER SHALL PROVIDE A REPORT TO THE CONTRACTOR AT THE END OF THE DAY'S ACTIVITY IDENTIFYING THE NUMBER OF VEHICLES THAT ATTEMPTED TO NOT FOLLOW THE DETOUR.
10. THE CONTRACTOR SHALL PROVIDE THREE TRAFFIC OFFICERS FOR A FOUR-HOUR PERIOD TWICE PER MONTH TO PERFORM SPEED ENFORCEMENT ALONG ROADWAYS WITHIN PROJECT LIMITS. AT THE END OF THE DAY'S ENFORCEMENT ACTIVITY, THE TRAFFIC OFFICERS SHALL PROVIDE A REPORT TO THE CONTRACTOR IDENTIFYING THE NUMBER OF VEHICLES STOPPED, NUMBER AND TYPE OF CITATIONS GIVEN AND THE RANGE OF SPEEDS OF THOSE VEHICLES STOPPED. ENFORCEMENT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
11. THE CONTRACTOR SHALL PROVIDE ONE TRAFFIC OFFICER FOR NIGHTTIME MOBILE PAVEMENT MARKING OPERATIONS ON SR 1, US 13 OR US 301.
12. THE CONTRACTOR SHALL PROVIDE ONE TRAFFIC OFFICER FOR MAJOR PHASE CHANGE TRAFFIC SWITCHES ON EXISTING US 301, US 13 OR SR 1.
13. THE CONTRACTOR SHALL PROVIDE TWO TRAFFIC OFFICERS FOR ANY ROLLING ROAD BLOCK OPERATION IN ACCORDANCE WITH TA-35H.
14. SEE PROJECT DETOUR PLANS FOR ADDITIONAL TRAFFIC OFFICER REQUIREMENTS.
15. THE CONTRACTOR SHALL PROVIDE ONE TRAFFIC OFFICER FOR ANY OPERATION WHERE AN EXISTING SIGNALIZED INTERSECTION IS PLACED IN FLASH-MODE. THE TRAFFIC OFFICER IS THE ONLY INDIVIDUAL THAT CAN PLACE A TRAFFIC SIGNAL IN FLASH-MODE AND THE TRAFFIC OFFICER MUST STAY ON LOCATION UNTIL THE SIGNAL IS PLACED BACK IN STOP-AND-GO OPERATION IN ACCORDANCE WITH DELDOT'S TEMPORARY TRAFFIC CONTROL WITHIN INTERSECTIONS MEMORANDUM (WWW.MUTCD.DELDOT.GOV).
16. ADDITIONAL USAGE OF TRAFFIC OFFICERS OUTSIDE OF THE ABOVE REQUIREMENTS SHALL BE APPROVED BY THE ENGINEER IN CONSULTATION WITH THE TRAFFIC SAFETY SECTION.

SUGGESTED OVERALL CONSTRUCTION SEQUENCE

PHASE 1 CONSTRUCT PROJECT ACCESS, CROSS CULVERTS AND STORMWATER MANAGEMENT FACILITIES:

1. CONSTRUCT TEMPORARY ACCESS POINT ON BOYDS CORNER ROAD WHERE SHOWN.
2. INSTALL ALL RESOURCE PROTECTION FENCE BETWEEN BOYDS CORNER ROAD AND STATION 659+00 AS SHOWN.
3. INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROLS BETWEEN BOYDS CORNER ROAD AND STA. 659+00 AS SHOWN.
4. CONSTRUCT "CLEAN WATER" DIVERSION DITCH STA. 685+00 TO STA. 680+00.
5. CONSTRUCT GENERAL STAGING AREA WHERE SHOWN, APPROXIMATE STA. 679+00 RIGHT OF BASELINE.
6. CLEAR AND GRUB BETWEEN BOYDS CORNER ROAD AND STA. 659+00. STABILIZE DISTURBED AREA WITH TEMPORARY SEED AND MULCH.
7. CONSTRUCT STORMWATER MANAGEMENT FACILITY AT STA 660+00 RIGHT OF CONSTRUCTION BASELINE.
8. CONSTRUCT TEMPORARY ACCESS ROAD BETWEEN BOYDS CORNER ROAD AND STA. 659+00.
9. INSTALL TEMPORARY STREAM CROSSING PIPE CULVERT AT STA. 659+00 AS SHOWN.
10. INSTALL ALL RESOURCE PROTECTION FENCE BETWEEN STATION 659+00 AND 637+50 AS SHOWN.
11. INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROLS BETWEEN STA. 659+00 AND STA. 637+50 AS SHOWN.
12. CONSTRUCT STORMWATER MANAGEMENT FACILITY AT STA 640+00 LEFT OF CONSTRUCTION BASELINE.
13. CLEAR AND GRUB BETWEEN STA. 659+00 AND STA. 637+50. STABILIZE DISTURBED AREA WITH TEMPORARY SEED AND MULCH.
14. INSTALL PIPE CULVERT AT STA. 656+75 AND CONSTRUCT RELOCATED CHANNEL. DIVERT STREAM TO RELOCATED CHANNEL AND NEW PIPE CULVERT.
15. REMOVE TEMPORARY STREAM CROSSING PIPE CULVERT AT STA. 659+00 AND BACKFILL EXISTING STREAM.
16. CONSTRUCT TEMPORARY ACCESS ROAD BETWEEN STA. 659+00 AND STA. 637+50.
17. BEGIN PHASE 2 SECTOR A CONSTRUCTION (SEE BELOW).
18. INSTALL TEMPORARY STREAM CROSSING PIPE CULVERT AT STA. 637+50 AS SHOWN.
19. INSTALL ALL RESOURCE PROTECTION FENCE BETWEEN STA 637+50 AND 605+00 AS SHOWN.
20. INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROLS BETWEEN STA. 637+50 AND STA. 605+00 AS SHOWN.
21. CONSTRUCT "CLEAN WATER" DIVERSION DITCH STA. 626+50 TO STA. 606+25.
22. CONSTRUCT STORMWATER MANAGEMENT FACILITY AT STA. 606+00 RIGHT OF CONSTRUCTION BASELINE.
23. CLEAR AND GRUB BETWEEN STA. 637+50 AND STA. 605+00. STABILIZE DISTURBED AREA WITH TEMPORARY SEED AND MULCH.
24. CONSTRUCT TEMPORARY ACCESS ROAD BETWEEN STA. 637+50 AND STA. 605+00.
25. CONSTRUCT PIPE CULVERT AT STA. 605+17.10.
26. INSTALL ALL RESOURCE PROTECTION FENCE BETWEEN STA. 605+00 AND 594+50 AS SHOWN.
27. INSTALL PERIMETER SEDIMENT AND EROSION CONTROLS BETWEEN STA. 605+00 AND STA. 594+50 AS SHOWN.
28. CONSTRUCT STORMWATER MANAGEMENT FACILITY AT STA. 634+00 RIGHT OF CONSTRUCTION BASELINE.

29. CLEAR AND GRUB BETWEEN STA. 605+00 AND STA. 594+50. STABILIZE DISTURBED AREA WITH TEMPORARY SEED AND MULCH.
30. CONSTRUCT TEMPORARY ACCESS ROAD BETWEEN STA. 605+00 AND STA. 594+50.
31. BEGIN PHASE 2 SECTOR B CONSTRUCTION (SEE BELOW).

PHASE 2 SECTOR A MAIN LINE CONSTRUCTION: SR 896 TO BR 1-467 N & S:

1. STRIP AND STOCKPILE TOPSOIL FOR CHURCHTOWN NORTH AND SOUTH BORROW SITES AS NECESSARY.
2. STRIP AND STOCKPILE TOPSOIL FROM STA. STA.659+00 TO BOYDS CORNER ROAD AS NECESSARY.
3. INSTALL LONGITUDINAL DRAINAGE DITCHES STA. 659+00 TO STA. 674+00.
4. BEGIN CONSTRUCTION OF BR 1-467 N & S.
5. PLACE EMBANKMENT TO TYPE A CAP FROM STA. 659+00 TO STA. 682+00.
6. STRIP AND STOCKPILE TOPSOIL FROM STA. 637+50 TO STA.659+00 AS NECESSARY.
7. INSTALL LONGITUDINAL DRAINAGE DITCHES STA. 642+00 TO STA. 656+00.
8. PLACE EMBANKMENT TO TYPE A CAP FROM STA. 642+00 TO STA. 659+00.
9. PLACE CLOSED DRAINAGE STA. 637+50 TO STA. 682+00.
10. REMOVE TEMPORARY STREAM CROSSING PIPE CULVERT AT STA. 637+50 WHEN BR 1-467 N & S STRUCTURE IS COMPLETE.
11. PLACE TYPE A CAP, UNDERDRAINS, BASE, PAVEMENT, GUARDRAIL AND OTHER APPURTENANCES.

PHASE 2 SECTOR B MAIN LINE CONSTRUCTION BR 1-468 N & S TO BR 1-467 N & S:

1. STRIP AND STOCKPILE TOPSOIL FOR PLEASANTON BORROW SITES AS NECESSARY.
2. STRIP AND STOCKPILE TOPSOIL FROM STA. 594+00 TO STA. 637+50 AS NECESSARY.
3. INSTALL LONGITUDINAL DRAINAGE DITCHES AND PIPES STA. 596+00 TO STA. 605+00 LEFT OF CONSTRUCTION BASELINE.
4. INSTALL LONGITUDINAL DRAINAGE DITCHES AND PIPES STA. 607+00 TO STA. 626+00.
5. INSTALL LONGITUDINAL DRAINAGE DITCHES AND PIPES STA. 626+00 TO STA. 636+00.
6. BEGIN BR 1-468 N & S CONSTRUCTION
7. PLACE EMBANKMENT STA. 594+00 TO STA. 637+50 TO TYPE A CAP.
8. PLACE CLOSED DRAINAGE STA. 594+00 TO STA. 637+50.
9. PLACE TYPE A CAP, UNDERDRAINS, BASE, PAVEMENT, GUARDRAIL AND OTHER APPURTENANCES.

BR. 1-468 N&S ABUTMENT 2 (AB 2)

CONSTRUCTION - CONTRACTOR COORDINATION

CONTRACT A: CONTRACT T200911301: US 301, NORFOLK SOUTHERN RR TO SR 896  
 CONTRACT C: CONTRACT T200911303: US 301, LEVELS ROAD TO NORFOLK SOUTHERN RR

1. AB 2 WILL BE CONSTRUCTED PARTIALLY UNDER CONTRACT A AND PARTIALLY CONDER CONTRACT C (SEE BRIDGE SHEET FOR DETAILS)
2. CONTRACT A MUST COMPLETE THE WORK SPECIFIED IN THE CONTRACT A PLANS FOR AB 2 WITHIN THE TIME PERIOD SPECIFIED IN THE CONTRACT PROSPECTIVE BIDDERS NOTE FOR CONTRACT A.
3. CONTRACT A WILL PROVIDE AND ALLOW CONTRACT C TO ACCESS THE AB 2 WORK AREA FROM SR 896 THROUGH THE CONTRACT IC PROJECT SITE LIMITS, FOR THE TIME PERIOD SPECIFIED IN THE CONTRACT PROSPECTIVE BIDDERS NOTE FOR CONTRACT A. ACCESS WILL BE ALLOWED FOR ALL CONTRACT C PERSONNEL, MATERIAL AND EQUIPMENT DELIVERIES REQUIRED TO CONSTRUCT AB 2. CONTRACT A AND CONTRACT C SHALL COORDINATE TO PROVIDE REASONABLE ACCESS FOR EACH OTHER'S OPERATIONS. NOTE THAT TEMPORARY STREAM CROSSINGS BETWEEN SR 896 AND AB 2 ARE ONE-LANE WIDE.
4. CONTRACT C WILL NOT BE ALLOWED TO ACCESS CONTRACT A PROJECT LIMITS BEYOND THE TIME PERIOD SPECIFIED IN THE CONTRACT PROSPECTIVE BIDDERS NOTE FOR CONTRACT A. SHOULD WORK UNDER CONTRACT C NOT BE COMPLETED AT AB 2 WITHIN THIS TIME FRAME, CONTRACT C SHALL ACCESS AB 2 FROM SUMMIT BRIDGE ROAD THROUGH THE LIMITS OF CONTRACT C AND CONTRACT C SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH USING THIS ACCESS POINT TO COMPLETE AB 2, INCLUDING FLAGGERS FOR NSRR.

STAGING/STOCKPILE AREA COORDINATION NOTES

CONTRACT A: CONTRACT T200911301: US 301, NORFOLK SOUTHERN RR TO SR 896  
 CONTRACT B: CONTRACT T200911308: US 301, SR 896 TO SR 1

TRAFFIC CONTROL

1. CONTRACT A SHALL FURNISH, INSTALL AND MAINTAIN TEMPORARY TRAFFIC CONTROL DEVICES UNTIL CONTRACT B HAULING OPERATIONS BEGIN.
2. CONTRACT A SHALL REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES PRIOR TO THE BEGINNING OF HAULING OPERATIONS FOR CONTRACT B.
3. CONTRACT B SHALL FURNISH, INSTALL AND MAINTAIN ALL TEMPORARY TRAFFIC CONTROL DEVICES ONCE HAULING OPERATIONS FOR CONTRACT B BEGIN.
4. THE START DATE OF HAULING OPERATIONS FOR CONTRACT B SHALL BE COORDINATED WITH THE ENGINEER.
5. PAYMENT FOR WORK NOTED ABOVE SHALL BE MADE UNDER THE RESPECTIVE CONTRACT ITEMS.

EROSION AND SEDIMENT CONTROL

1. CONTRACT A SHALL INSTALL ALL PERIMETER E&S CONTROL DEVICES AROUND THE CONTRACT A/CONTRACT B STAGING/STOCKPILE AREAS.
  2. ADDITIONAL E&S CONTROL DEVICES PLACED WITHIN CONTRACT A/CONTRACT B STAGING/STOCKPILE AREAS WILL BE FURNISHED, INSTALLED, MAINTAINED AND REMOVED BY THE RESPECTIVE CONTRACT.
  3. AT THE CONCLUSION OF CONTRACT A, CONTRACT B WILL ASSUME THE MAINTENANCE, REMOVAL AND DISPOSAL RESPONSIBILITIES FOR ALL REMAINING PERIMETER E&S CONTROL DEVICES.
  4. AT THE CONCLUSION OF CONTRACT A, CONTRACT A SHALL RESTORE ITS STAGING/STOCKPILING AREA AS DIRECTED BY THE ENGINEER.
- AT THE CONCLUSION OF CONTRACT A, CONTRACT B MAY ASSUME USE OF CONTRACT A STAGING/STOCKPILING AREA.
6. THE END DATE FOR CONTRACT A SHALL BE COORDINATED WITH THE ENGINEER.
  7. PAYMENT FOR THE WORK NOTED ABOVE SHALL BE MADE UNDER THE RESPECTIVE CONTRACT ITEMS.

TEMPORARY CONSTRUCTION ENTRANCE

1. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED AND MAINTAINED BY CONTRACT A UNTIL THE END OF CONTRACT A.
2. MAINTENANCE, REMOVAL AND RESTORATION OF TEMPORARY CONSTRUCTION ENTRANCE WILL BE ASSUMED BY CONTRACT B AT THE END OF CONTRACT A.
3. PAYMENT FOR THE WORK NOTED ABOVE SHALL BE MADE UNDER THE RESPECTIVE ITEMS.

ADVANCE NOTIFICATION REQUIREMENTS

AT LEAST TEN (10) CALENDAR DAYS BEFORE A ROAD CLOSURE OR MAJOR CHANGE IN THE ROADWAY CONFIGURATION OR TRAVEL PATTERN, THE CONTRACTOR SHALL USE AN ADVANCE WARNING SIGN OR PORTABLE CHANGEABLE MESSAGE SIGN TO WARN MOTORISTS OF THE PENDING CHANGES. THIS SIGN SHALL REMAIN IN PLACE AT LEAST TEN (10) BUT NO MORE THAN FOURTEEN (14) CALENDAR DAYS BEFORE A MAJOR CHANGE IN THE ROADWAY CONFIGURATION OR TRAVEL PATTERN.

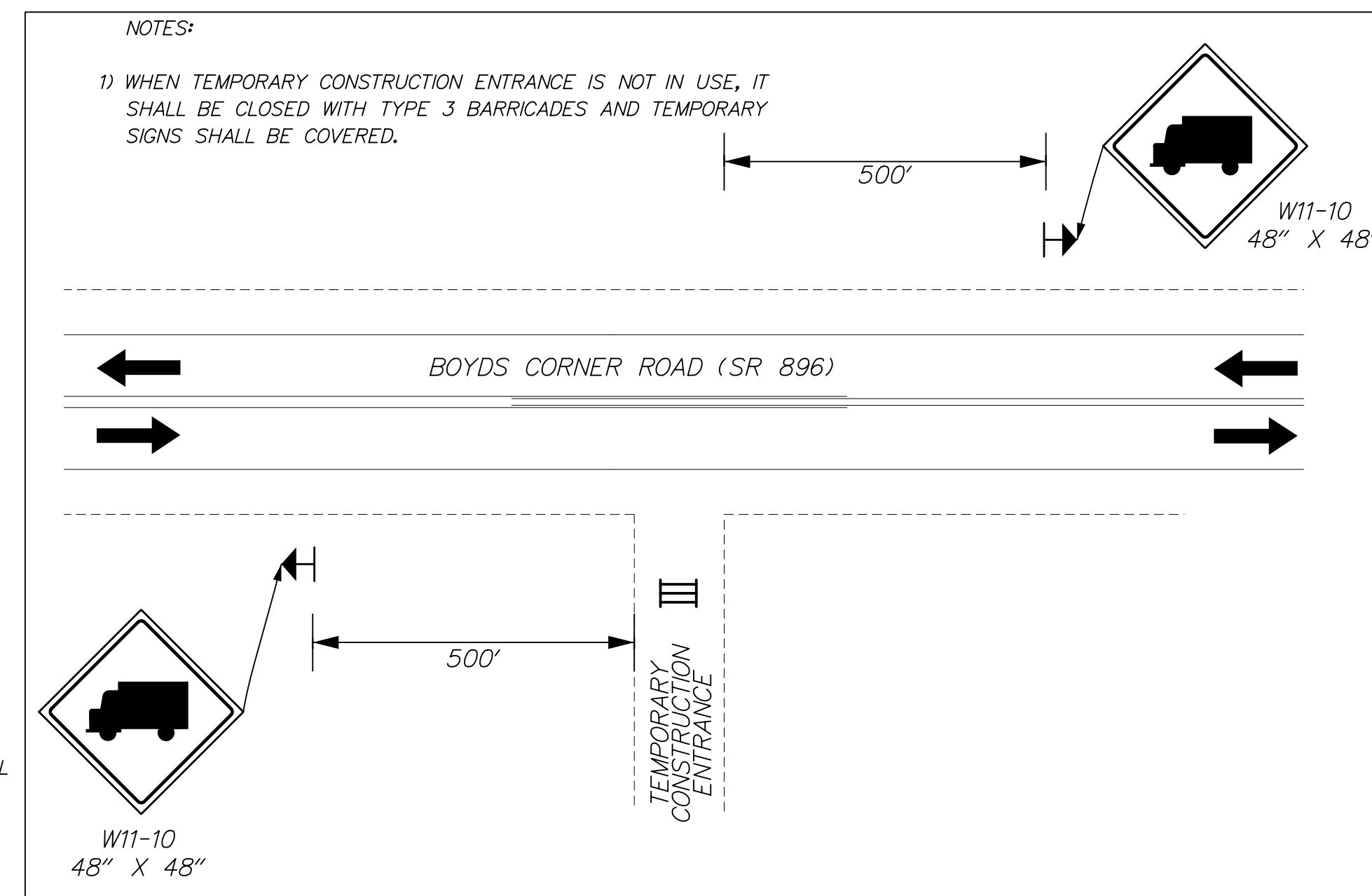
THE CONTRACTOR IS REQUIRED TO SUBMIT REQUESTS FOR TRAFFIC RESTRICTIONS TO THE GEC AND DELDOT IN ACCORDANCE WITH THE TABLE BELOW:

ADVANCE NOTIFICATION		
TYPE OF RESTRICTION	MINIMUM ADVANCE NOTICE	MAXIMUM ADVANCE NOTICE
1*	30 DAYS	45 DAYS
2*, 3*, 4*	10 DAYS	14 DAYS

\* TYPE 1: PLANNED AND ACCEPTABLE CLOSURES OF AN ARTERIAL OR LOCAL STREET, TRAFFIC SWITCHES, NEW RAMP OPENINGS, OR CHANGED TRAFFIC PATTERNS.  
 TYPE 2: A LANE(S) CLOSURE THAT WOULD HAVE SIGNIFICANT IMPACT ON TRAFFIC, SUCH AS TEMPORARILY STOPPING TRAFFIC COMPLETELY (TRAFFIC DRAGS), CLOSING 2 OR MORE LANES, CLOSING AN EXIT OR ENTRANCE RAMP AT FREEWAY INTERCHANGES, OR FLAGGING OPERATIONS.  
 TYPE 3: A LANE CLOSURE THAT WOULD HAVE MINOR OR NO IMPACT ON THE FLOW OF TRAFFIC, SUCH AS CLOSING ONE LANE ON A THREE-LANE FREEWAY DURING OFF-PEAK HOURS.  
 TYPE 4: A LANE CLOSURE THAT WOULD CLOSE A SHOULDER (RIGHT OR LEFT)

FOR TYPE 1 CLOSURES, THE CONTRACTOR SHALL MAKE PROVISIONS IN THE TEMPORARY TRAFFIC CONTROL PLAN FOR LOCAL TRAFFIC TO ACCESS PROPERTIES AND BUSINESSES AT ALL TIMES ON THE CLOSED ARTERIAL OR LOCAL STREET.

TYPE 1 AND 2 CLOSURES WILL REQUIRE EXTENSIVE MEDIA AND STAKEHOLDER NOTIFICATION EFFORT AND COORDINATION AMONG VARIOUS LOCAL AND STATE AGENCIES.

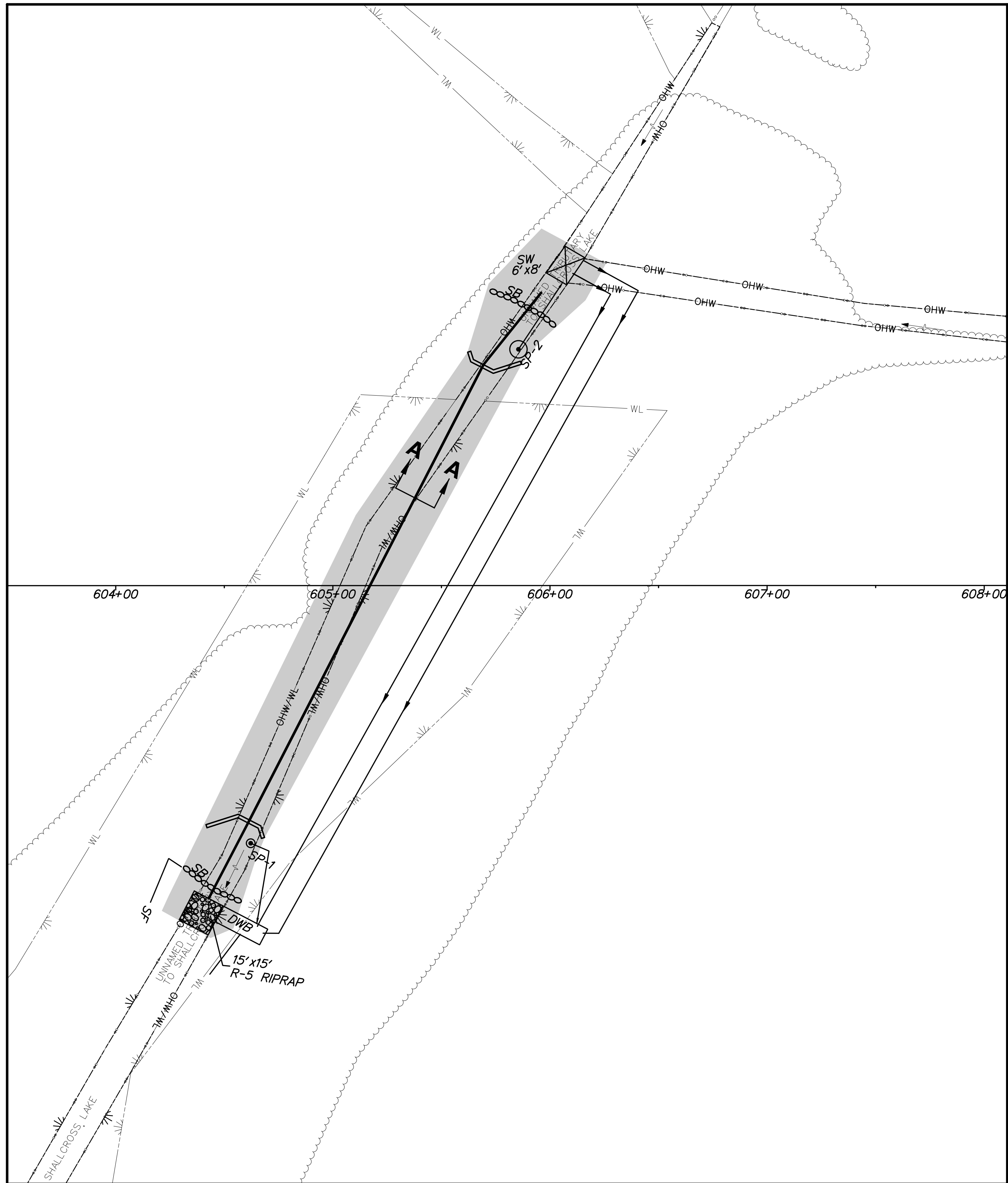


**TEMPORARY CONSTRUCTION ENTRANCE TRAFFIC CONTROL**

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<p><b>DELAWARE DEPARTMENT OF TRANSPORTATION</b></p>	ADDENDUMS / REVISIONS		<p><b>NOT TO SCALE</b></p>	<p><b>US 301, NORFOLK SOUTHERN RR TO SR 896</b></p>	CONTRACT	BRIDGE NO.	<p><b>CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLAN</b></p>	SHEET NO.
	T200911301				DESIGNED BY:	WJD		184
	COUNTY				CHECKED BY:	MAA		TOTAL SHTS.
	NEW CASTLE							240

CS-01



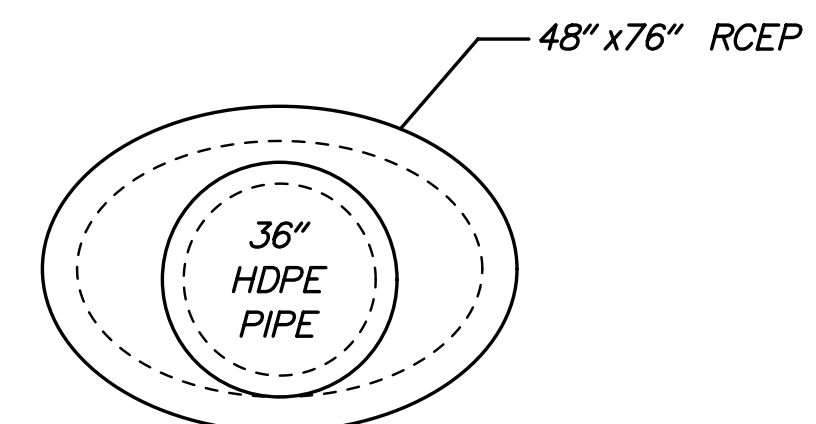
**FIGURE 1**

**PROPOSED CONSTRUCTION SEQUENCE  
STREAM CROSSING STA 605+50**

- A. INSTALL DEWATERING BASIN, STILLING WELL AND RIPRAP OUTFALL. MAINTAIN STREAM FLOW USING PUMP AROUND.
- B. INSTALL SANDBAG DIVERSION AS SHOWN.
- C. PLACE 48" x 76" RCEP.
- D. INSTALL 36" HDPE STREAM DIVERSION PIPE THROUGH RCEP AND ADD SANDBAG DIVERSIONS.
- E. INSTALL SUMP PITS, CONSTRUCT HEADWALLS AND PLACE RIPRAP UPSTREAM AND DOWNSTREAM OF HEADWALLS.
- F. REMOVE 36" HDPE PIPE AND SANDBAG DIVERSION.
- G. REMOVE STILLING WELL, DEWATERING BASIN, SUMP PITS AND RIPRAP. BACKFILL WITH PREVIOUSLY EXCAVATED STREAM BACKFILL MATERIAL. BACKFILLING TO BE INCIDENTAL TO ITEM 715507-TEMPORARY DRAINAGE PIPE, 36".

**HYDRAULIC DATA**

2 YEAR DESIGN DISCHARGE = 36 cfs  
2 YEAR HEADWATER ELEVATION = 57.25'



**SECTION A-A**  
NOT TO SCALE

QUANTITIES			
ITEM NO.	NAME	UNITS	QUANTITY
262000	STILLING WELL	C.Y.	1
263000	SUMP PIT, TYPE 1	EACH	1
263001	SUMP PIT, TYPE 2	EACH	1
264000	DEWATERING BASIN	EACH	1
266001	SANDBAG DIVERSION	C.Y.	66
302011	DELAWARE NO. 3 STONE	TON	6
712006	RIPRAP, R5	S.Y.	25
713003	GEOTEXTILE RIPRAP	S.Y.	25
715507	TEMPORARY DRAINAGE PIPE, 36"	L.F.	320
734552	WET GROUND EROSION CONTROL SEEDING - FLATS	S.Y.	197

NOTE: SEE PROJECT NOTES AND ENVIRONMENTAL COMPLIANCE NOTES FOR ADDITIONAL DETAILS.

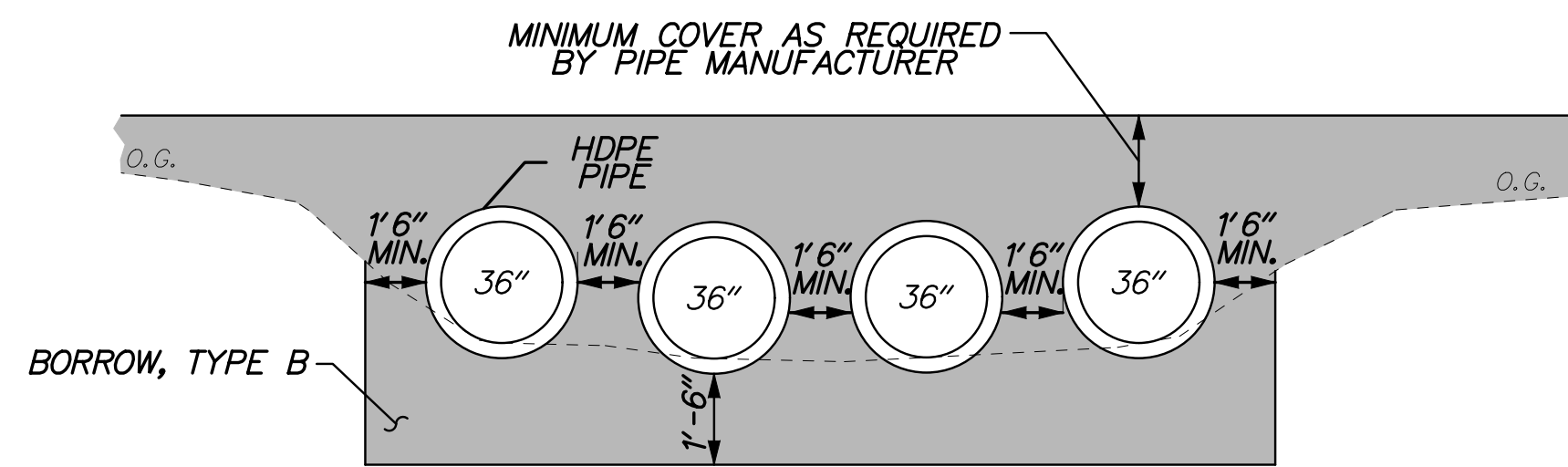
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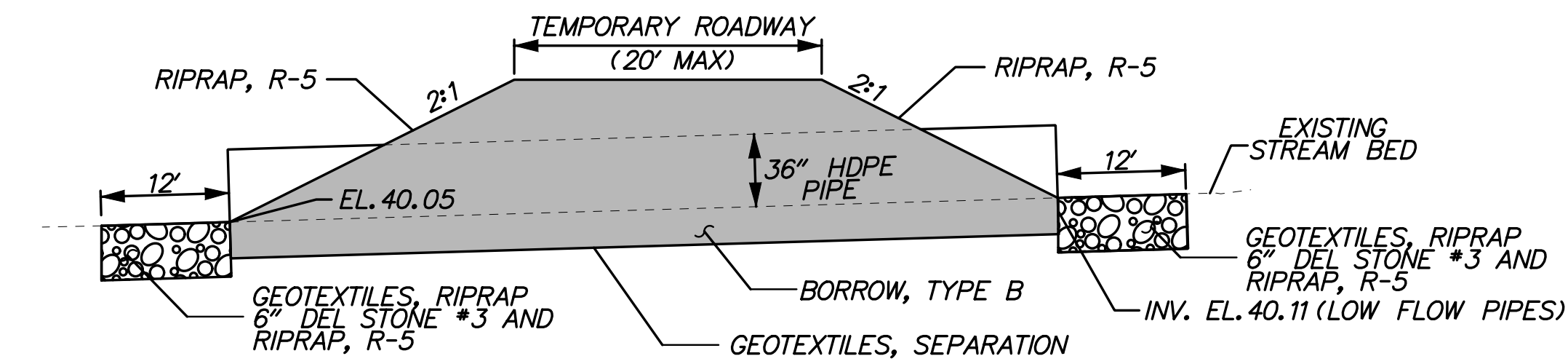
PROPOSED CONSTRUCTION SEQUENCE  
 TEMPORARY STREAM CROSSING STA 637+50

HYDRAULIC DATA

2 YEAR DESIGN DISCHARGE = 178 cfs  
 2 YEAR HEADWATER ELEVATION = 44.70'



SECTION A-A  
 NOT TO SCALE



SECTION B-B  
 NOT TO SCALE

1. CONSTRUCT STREAM DIVERSION (FIG. 1):
  - A. INSTALL STILLING WELL AND RIPRAP OUTFALL.
  - B. MAINTAIN STREAM FLOW BY PUMP AROUND.
  - C. INSTALL SANDBAG DIVERSION AS SHOWN.
  - D. INSTALL SUMP PIT, PORTABLE SEDIMENT TANK, TEMPORARY HDPE PIPES AND RIPRAP AT INLET AND OUTLET. STOCKPILE EXCAVATED STREAM BED MATERIAL FOR USE AS CHANNEL BED BACKFILL AFTER REMOVAL OF TEMPORARY STREAM CROSSING.
2. CONSTRUCT TEMPORARY ROADWAY (FIG. 2):
  - A. REMOVE SANDBAG DIVERSION AND SUMP PIT. LEAVE STILLING WELL AND RIPRAP OUTFALL FOR USE DURING STEP 3.
  - B. MAINTAIN STREAM FLOW BY TEMPORARY HDPE PIPE CULVERTS.
  - C. CONSTRUCT TEMPORARY ROADWAY.
3. REMOVE TEMPORARY STREAM CROSSING (FIG. 3):
  - A. SHIFT ALL STREAM CROSSING OPERATIONS TO COMPLETED BR 1-467 NORTHBOUND AND SOUTHBOUND.
  - B. INSTALL SANDBAG DIVERSION AS SHOWN.
  - C. MAINTAIN STREAM FLOW BY PUMP AROUND USING PREVIOUSLY INSTALLED STILLING WELL AND RIPRAP OUTFALL. RESTORE STILLING WELL TO ORIGINAL DIMENSIONS AS DIRECTED BY THE ENGINEER WITH PAYMENT UNDER ITEM 250000-SEDIMENT REMOVAL.
  - D. REMOVE TEMPORARY HDPE PIPE CULVERTS AND RIPRAP.
  - E. BACKFILL WITH STOCKPILED CHANNEL BED MATERIAL. TOPSOIL, SEED AND MULCH.
  - F. REMOVE SANDBAG DIVERSION, STILLING WELL AND RIPRAP OUTFALL.
  - G. COMPLETE REMOVAL OF UN-NEEDED TEMPORARY ROADWAY, TOPSOIL, SEED, AND MULCH.

QUANTITIES			
ITEM NO.	NAME	UNITS	QUANTITY
202555	SUBSOIL TILLAGE	S.Y.	1766
209002	BORROW, TYPE B	C.Y.	75
251001	REINFORCED SILT FENCE	L.F.	1343
262000	STILLING WELL	C.Y.	3
263000	SUMP PIT, TYPE 1	EACH	1
266001	SANDBAG DIVERSION	C.Y.	490
270000	PORTABLE SEDIMENT TANK	EACH	1
302011	DELAWARE NO. 3 STONE	TON	6
712006	RIPRAP, R5	S.Y.	61
713002	GEOTEXTILE, SEPARATION	S.Y.	1000
713003	GEOTEXTILE RIPRAP	S.Y.	70
715507	TEMPORARY PIPE, 36"	L.F.	180
734552	WET GROUND EROSION CONTROL SEEDING - FLATS	S.F.	2539
734018	PERMANENT GRASS SEEDING, DRY GROUND	S.F.	2539

NOTE: SEE PROJECT NOTES AND ENVIRONMENTAL COMPLIANCE NOTES FOR ADDITIONAL DETAILS.

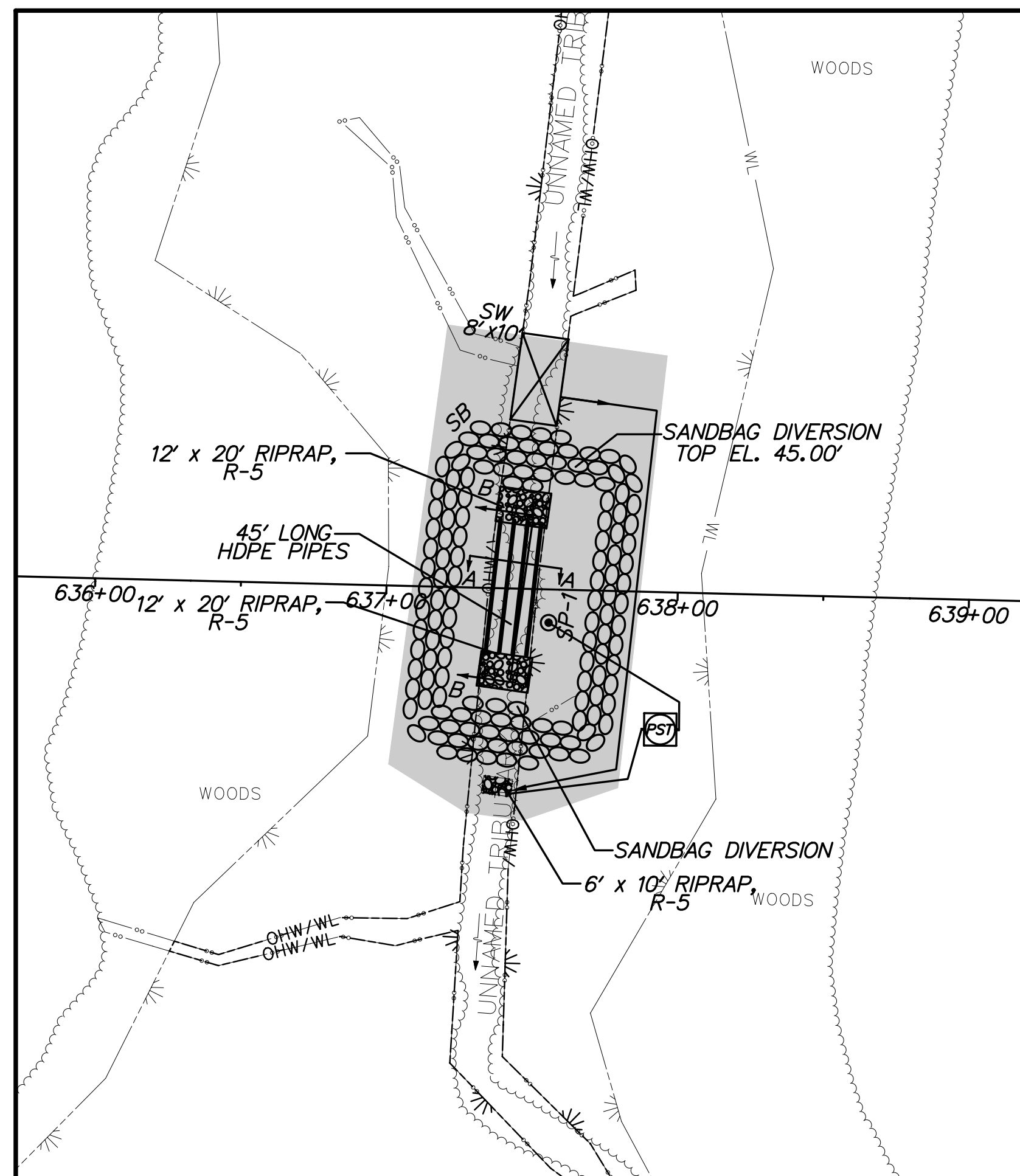


FIGURE 1

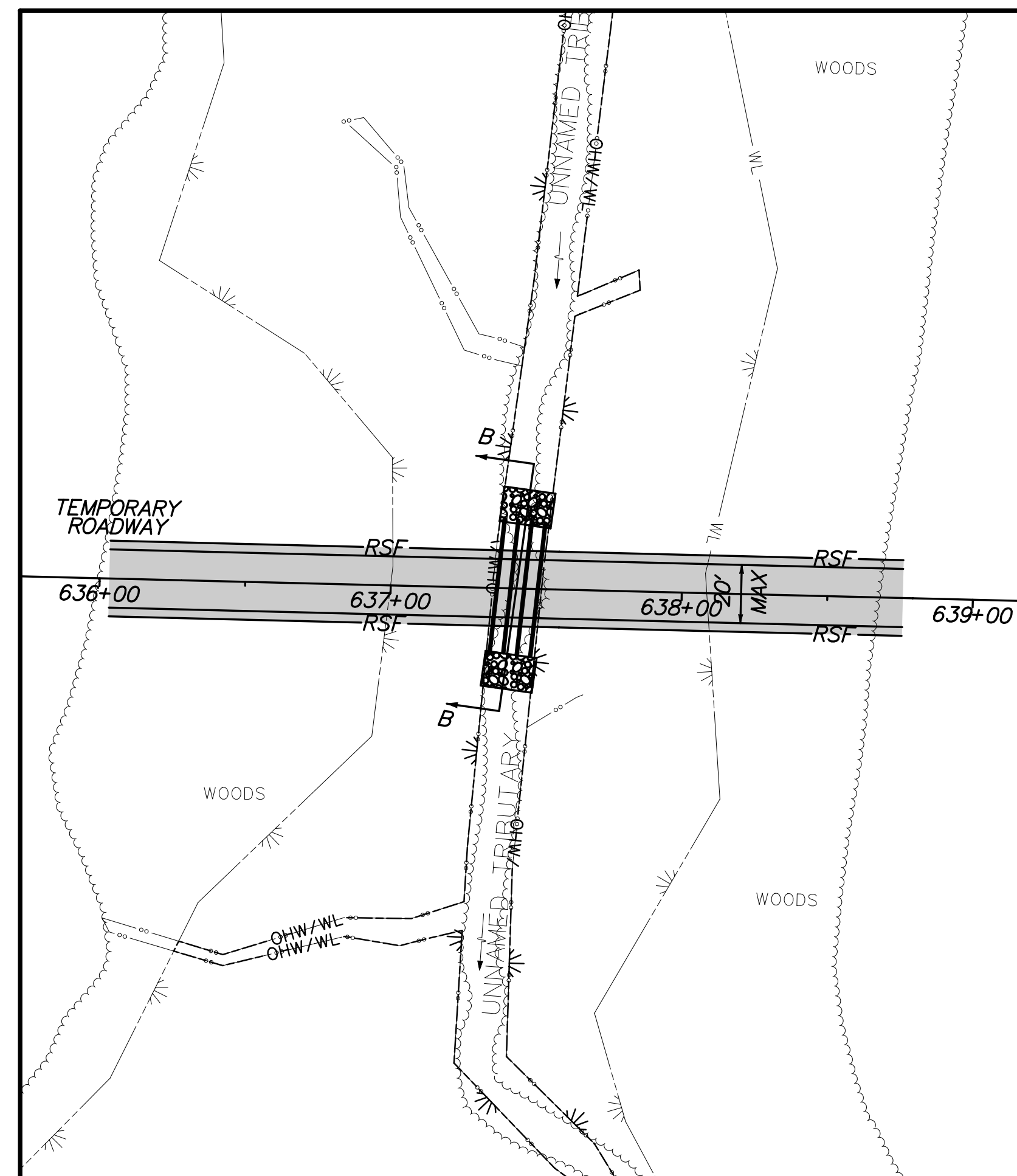


FIGURE 2

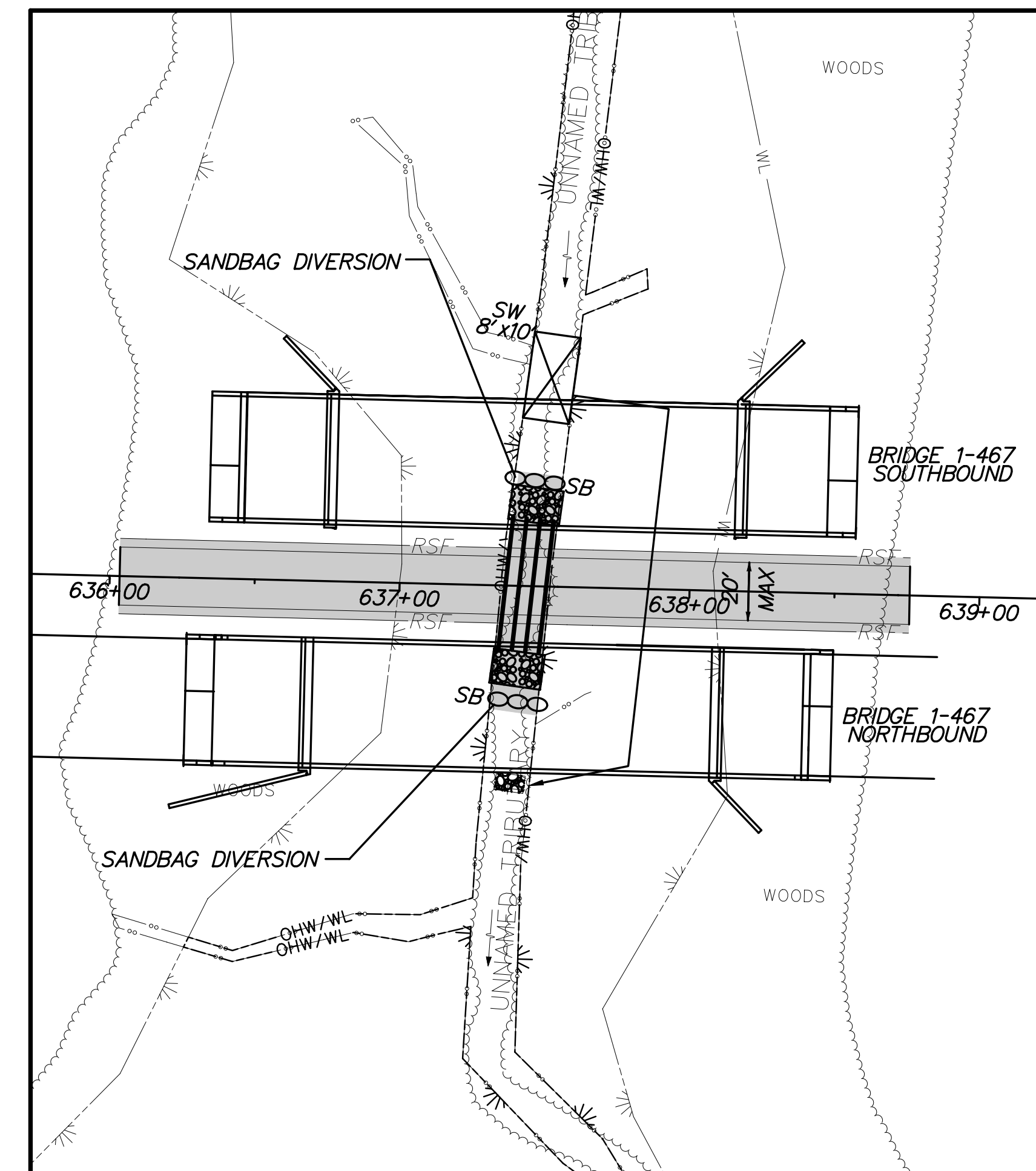
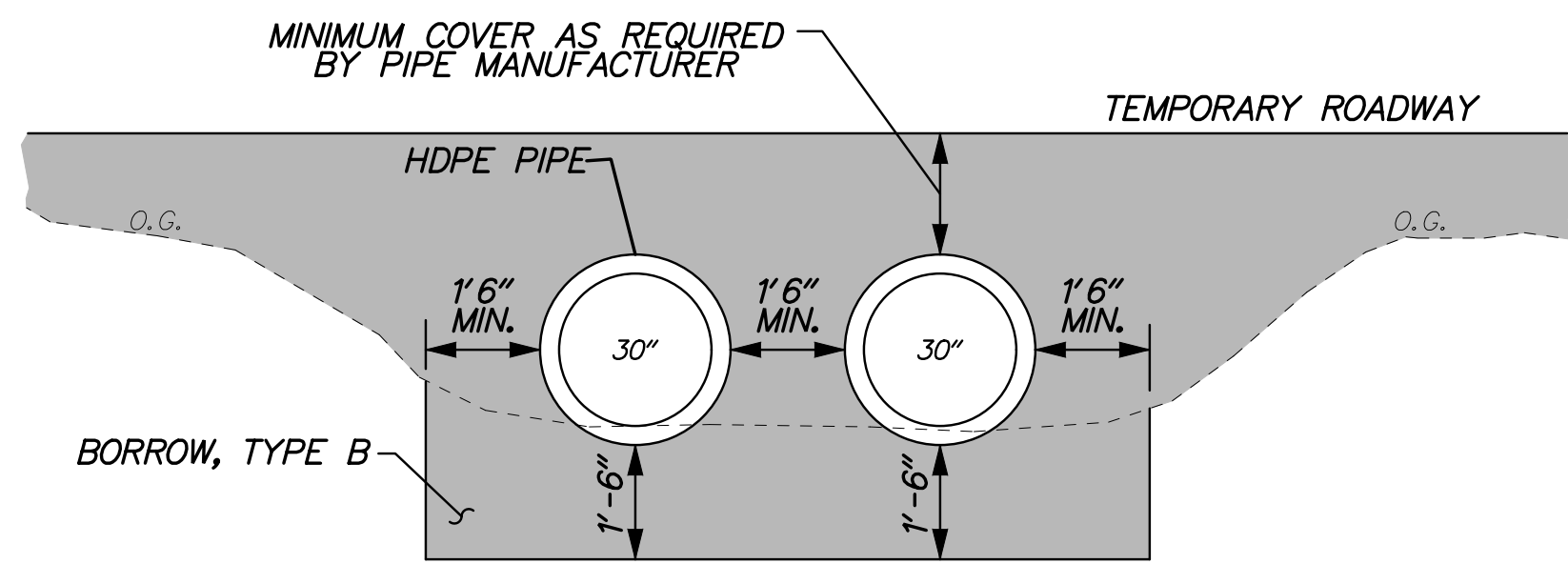
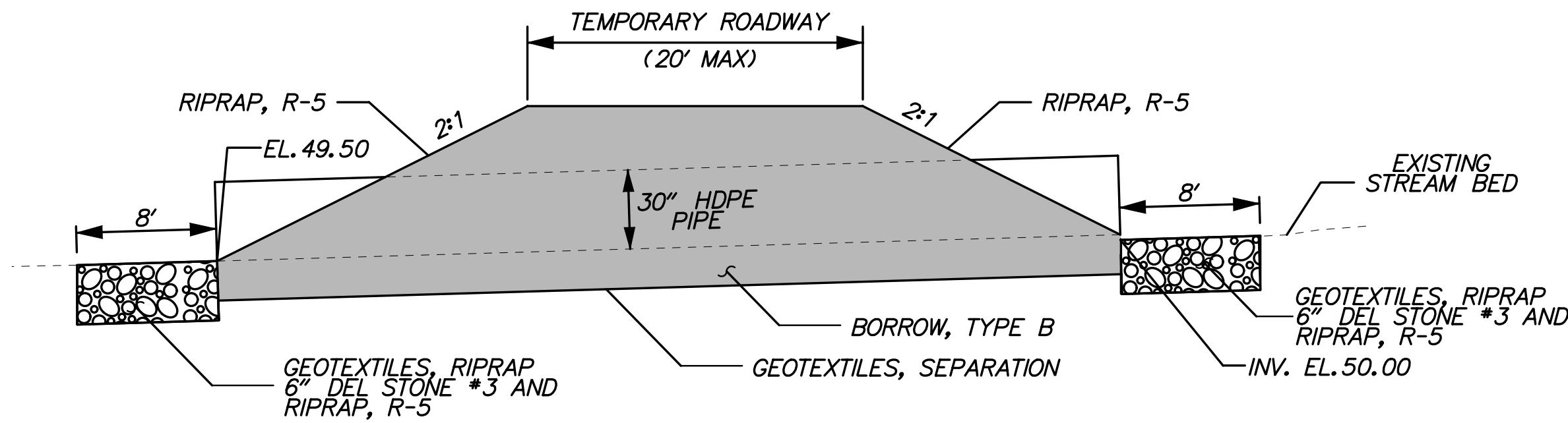


FIGURE 3

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**SECTION A-A**  
NOT TO SCALE



**SECTION B-B**  
NOT TO SCALE

QUANTITIES			
ITEM NO.	NAME	UNITS	QUANTITY
209002	BORROW, TYPE B	C.Y.	100
251001	REINFORCED SILT FENCE	L.F.	400
262000	STILLING WELL	C.Y.	2
263000	SUMP PIT, TYPE 1	EACH	3
264000	DEWATERING BASIN	EACH	1
266001	SANDBAG DIVERSION	C.Y.	292
302011	DELAWARE NO. 3 STONE	TON	14
712006	RIPRAP, R5	S.Y.	22
713002	GEOTEXTILES, SEPARATION	S.Y.	400
713003	GEOTEXTILES, RIPRAP	S.Y.	27
715502	TEMPORARY DRAINAGE PIPE, 30"	L.F.	120
734552	WET GROUND EROSION CONTROL SEEDING - FLATS	S.Y.	88

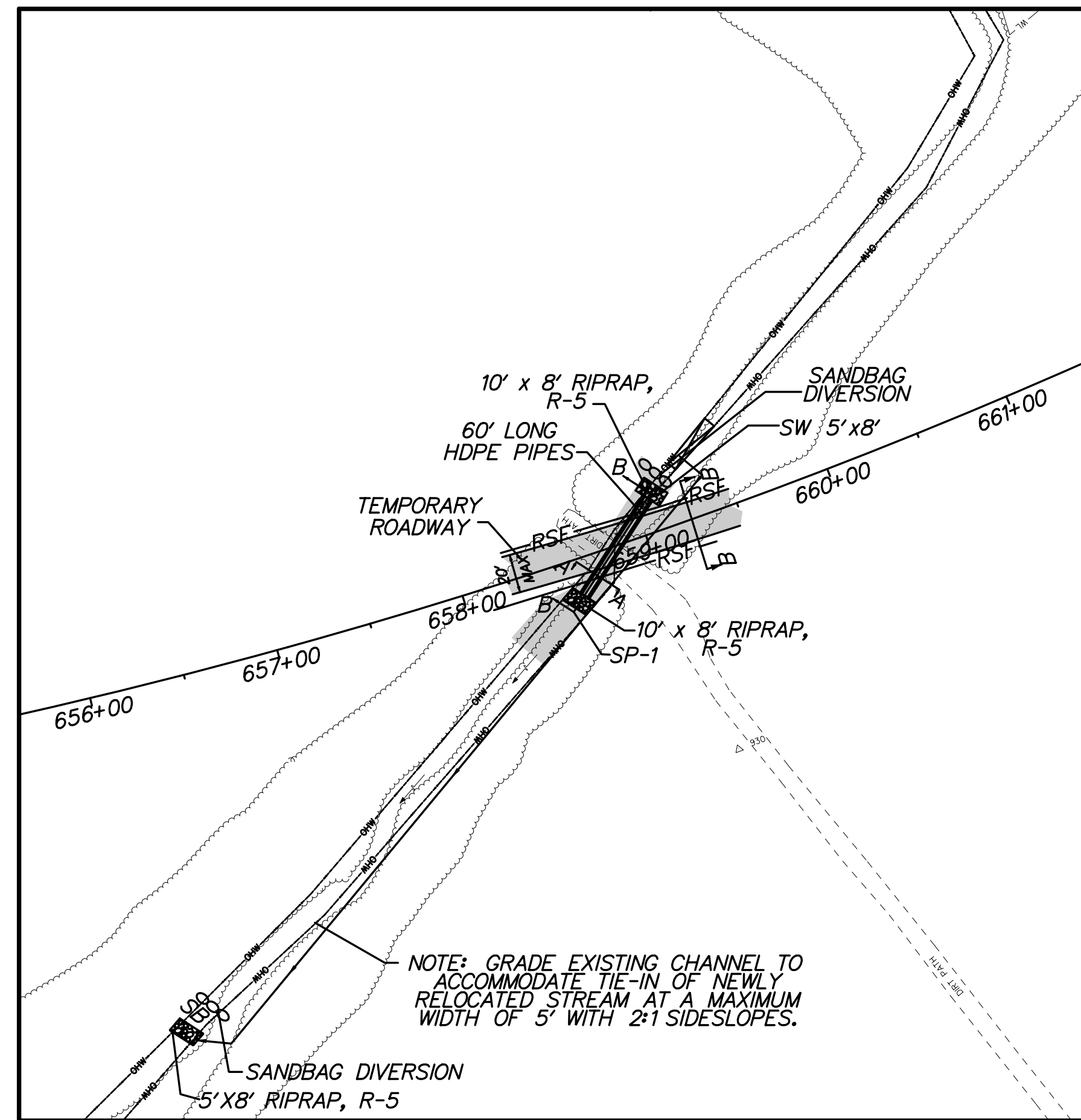
NOTE: SEE PROJECT NOTES AND ENVIRONMENTAL COMPLIANCE NOTES FOR ADDITIONAL DETAILS.

**PROPOSED CONSTRUCTION SEQUENCE**  
**TEMPORARY STREAM CROSSING STA 658+53**

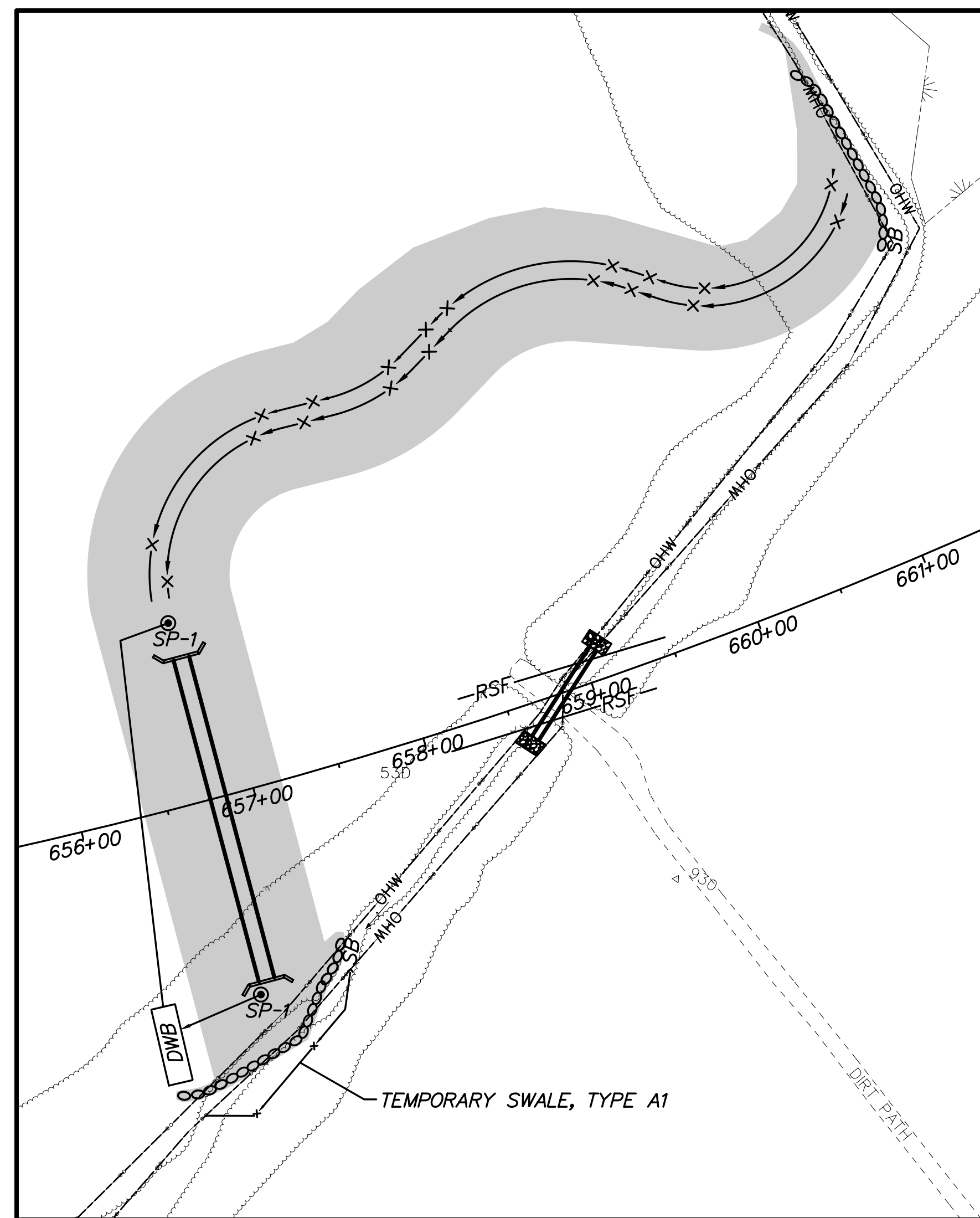
- CONSTRUCT TEMPORARY STREAM CROSSING (FIG. 1):
  - INSTALL STILLING WELL AND RIPRAP OUTFALL. MAINTAIN STREAM FLOW BY PUMP AROUND.
  - INSTALL SANDBAG DIVERSION AS SHOWN. GRADE EXISTING CHANNEL TO ACCOMMODATE TIE-IN OF NEWLY RELOCATED STREAM AT A MAXIMUM WIDTH OF 5' WITH 2:1 SIDESLOPES..
  - INSTALL TEMPORARY HDPE PIPES, RIPRAP AND TEMPORARY ACCESS ROAD AND REMOVE PUMP AROUND OPERATION.
- CONSTRUCT NEW DUAL PIPE CULVERT AT STA. 656+75 AND RELOCATE STREAM (FIG. 2):
  - INSTALL SANDBAG DIVERSION AS SHOWN.
  - INSTALL SUMP PITS AND DEWATERING BASIN. SUMP PITS AND DEWATERING BASIN TO BE PLACED AT A LOCATION OUTSIDE OF THE LIMITS OF THE PERMANENT RIPRAP.
  - CONSTRUCT DUAL CULVERT, PLACE PERMANENT RIPRAP AT CULVERT INLET AND OUTLET, AND CONSTRUCT STREAM RELOCATION.
  - REMOVE SUMP PITS AND DEWATERING BASIN.
- DIVERT STREAM FLOW TO NEW CULVERT AND CHANNEL (FIG. 3):
  - INSTALL SANDBAG DIVERSION AS SHOWN.
  - REMOVE TEMPORARY STREAM CROSSING AND BACKFILL ABANDONED STREAM CHANNEL.

**HYDRAULIC DATA**

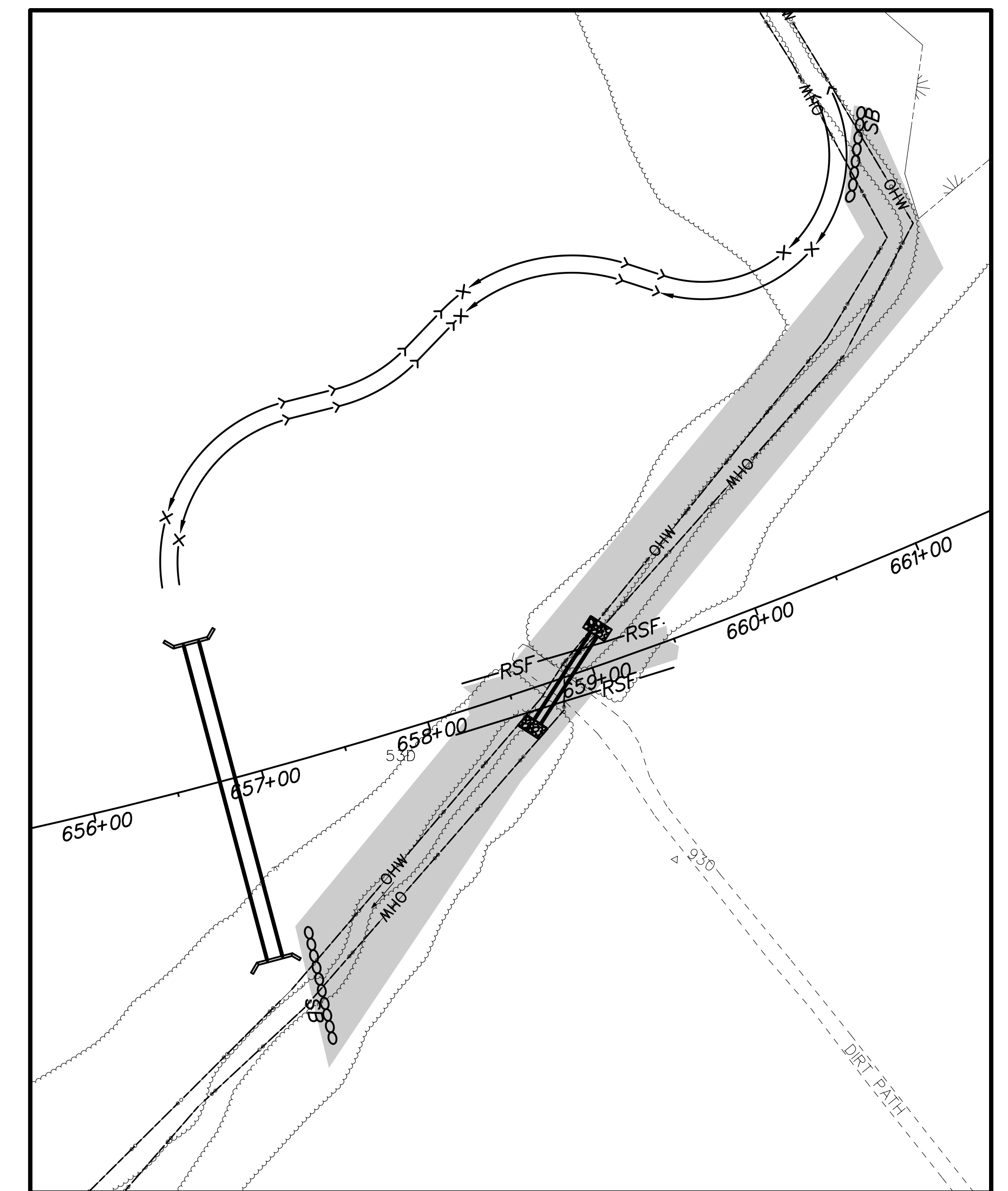
2 YEAR DESIGN DISCHARGE = 59 cfs  
2 YEAR HEADWATER ELEVATION = 53.55'



**FIGURE 1**

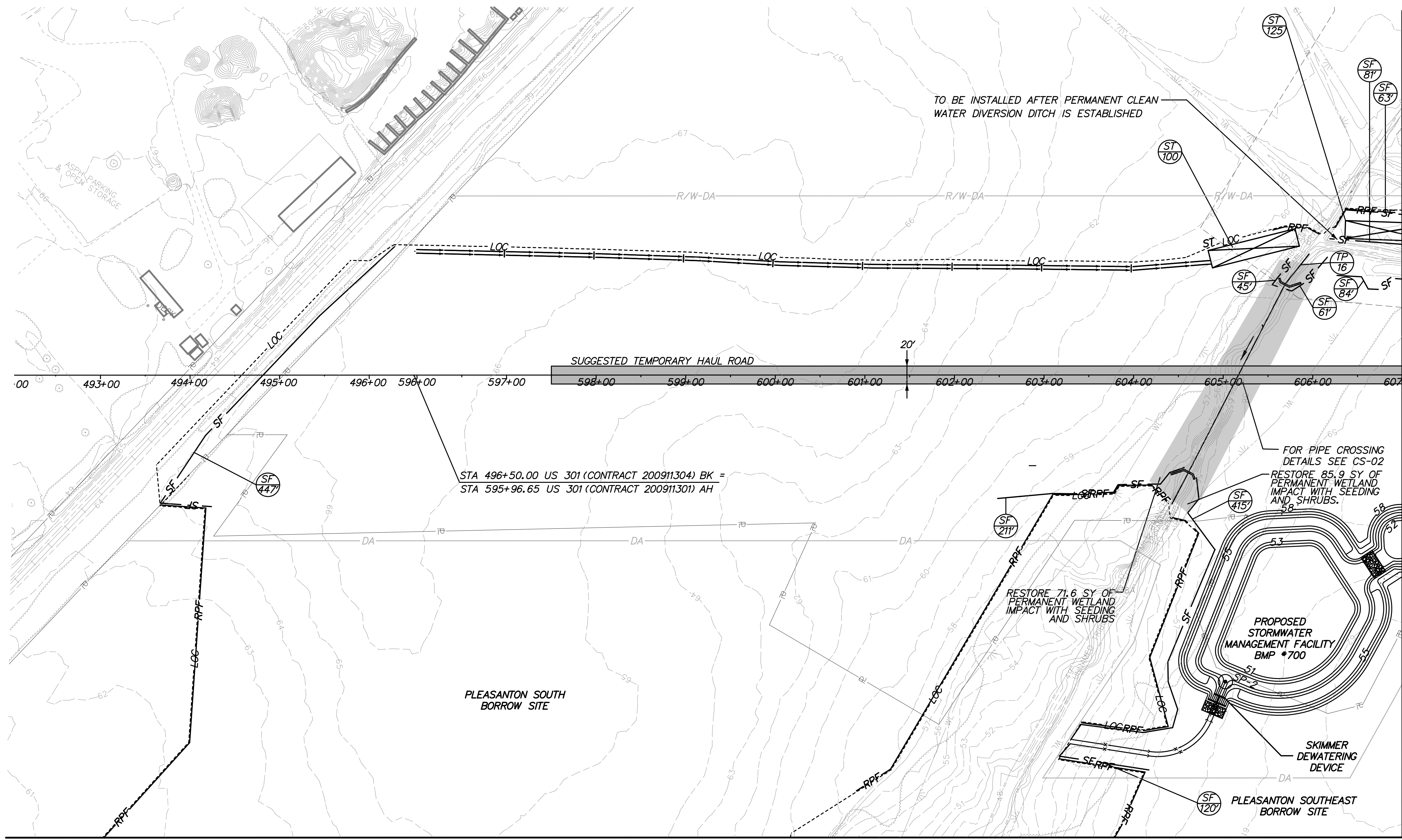
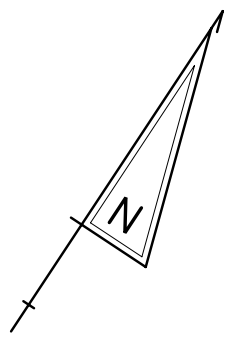


**FIGURE 2**



**FIGURE 3**





MATCH LINE STA. 607+00

**MATCH LINE SHEET CS-06**

TEMPORARY PIPE (TP)				
NO.	STATION-OFFSET	SIZE/TYPE	L. F.	REMARKS
TP 16	*605+17 00'	36" HDPE	320	@ US 301

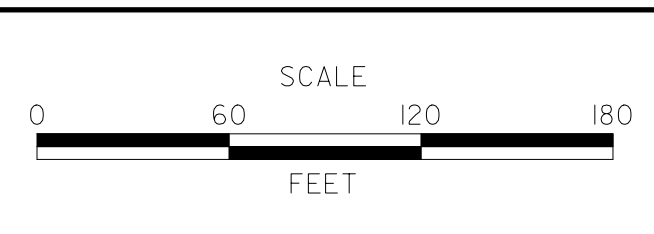
\*NOTE: TP 16 TO BE INSTALLED INSIDE PIPE 180, SEE DETAILS

SEDIMENT TRAP SCHEDULE									
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.
100	2.85AC	110.00'	30.00'	4.00'	SCD	58.50'	56.50'	6.00'	60.00'
125	3.05AC	135.00'	25.00'	4.00'	SCD	58.50'	56.50'	6.00'	60.00'

\$FILES \$DATES



ADDENDUMS / REVISIONS	



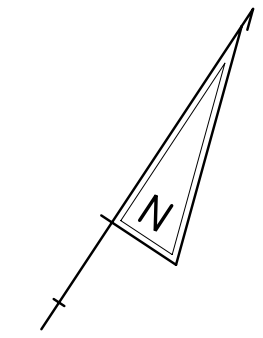
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: WJD
NEW CASTLE	CHECKED BY: MAA

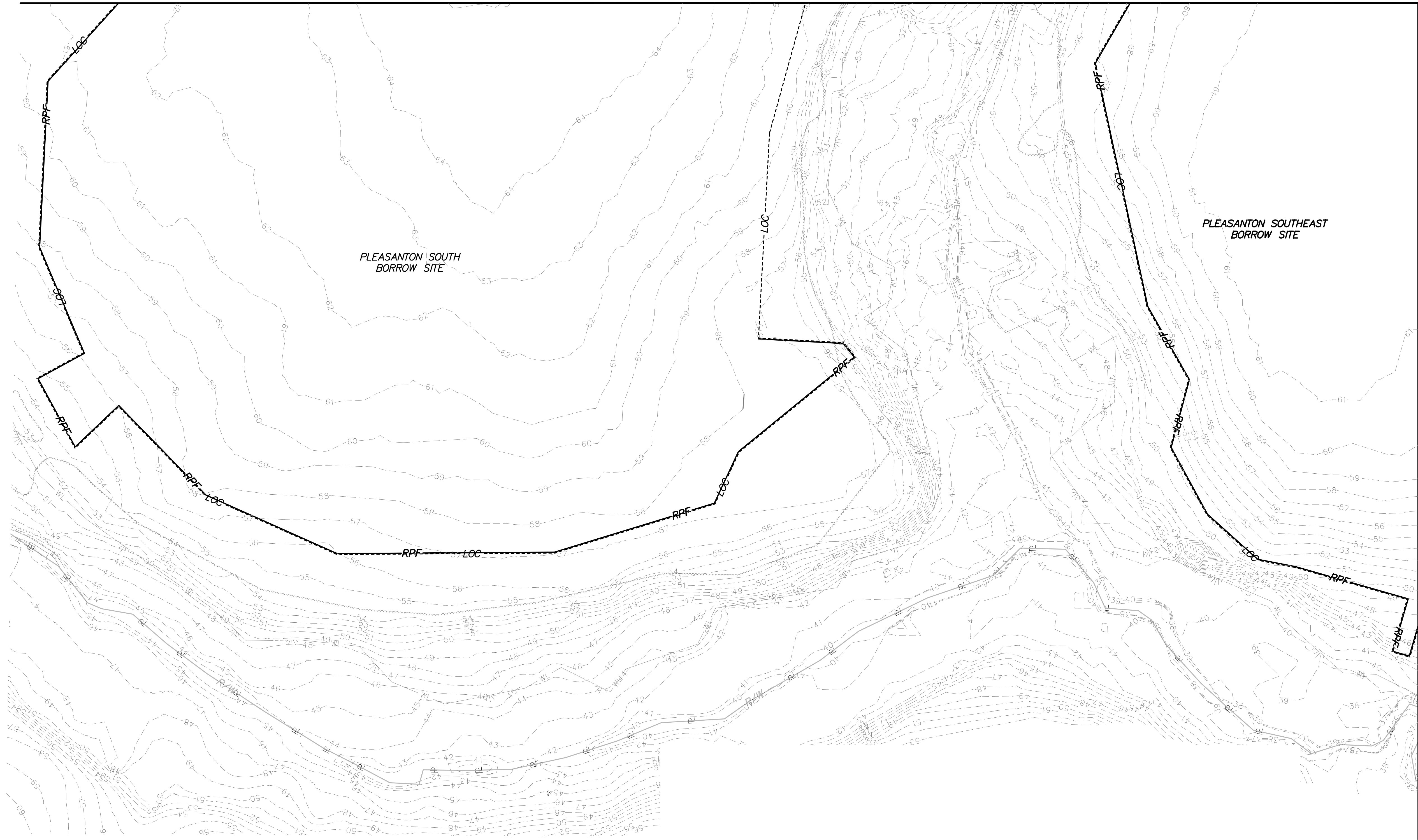
**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

CS-05
SHEET NO.
188
TOTAL SHTS.
240





MATCH LINE SHEET CS-05

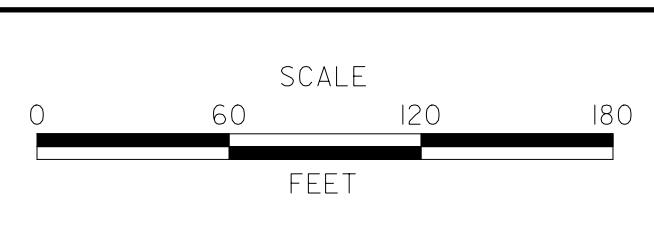


\$FILES \$DATES

MATCH LINE SHEET CS-08



ADDENDUMS / REVISIONS	



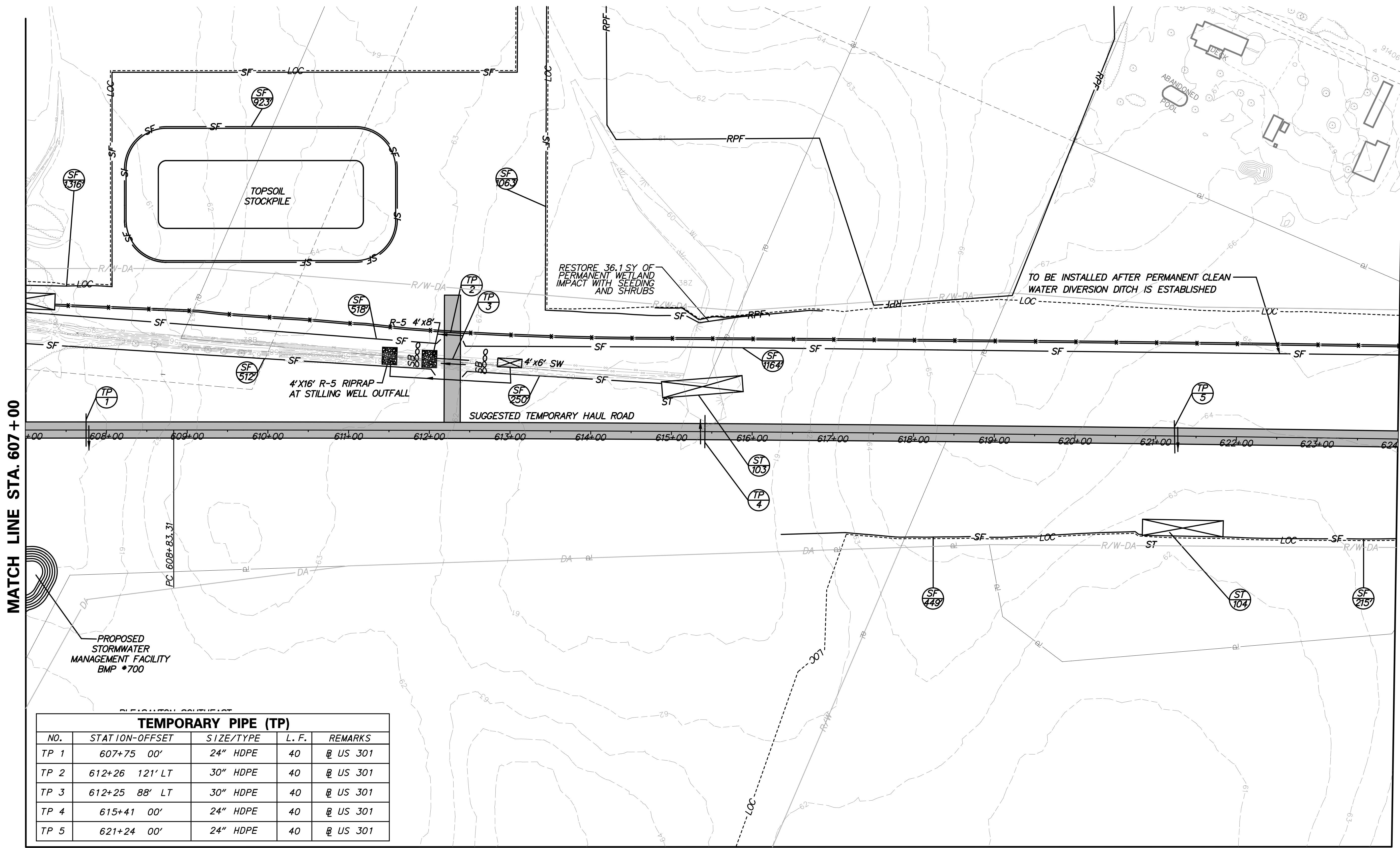
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

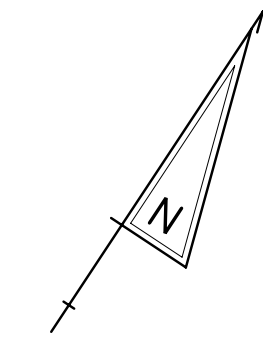
<b>CS-06</b>
SHEET NO. 189
TOTAL SHTS. 240

\$FILES \$DATES



MATCH LINE STA. 607 + 00

MATCH LINE STA. 624 + 00



**TEMPORARY PIPE (TP)**

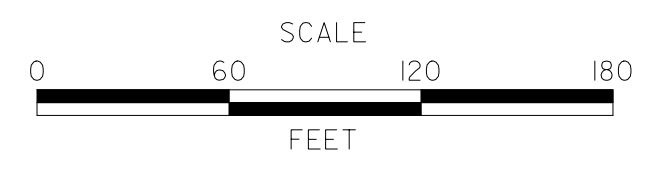
NO.	STATION-OFFSET	SIZE/TYPE	L. F.	REMARKS
TP 1	607+75 00'	24" HDPE	40	@ US 301
TP 2	612+26 121' LT	30" HDPE	40	@ US 301
TP 3	612+25 88' LT	30" HDPE	40	@ US 301
TP 4	615+41 00'	24" HDPE	40	@ US 301
TP 5	621+24 00'	24" HDPE	40	@ US 301

**SEDIMENT TRAP SCHEDULE**

NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.
103	2.82AC	100.00'	35.00'	4.00'	SCD	59.00'	57.00'	6.00'	60.50'
104	3.02AC	100.00'	35.00'	4.00'	SCD	62.50'	60.50'	6.00'	64.00'

**MATCH LINE SHEET CS-08**

ADDENDUMS / REVISIONS



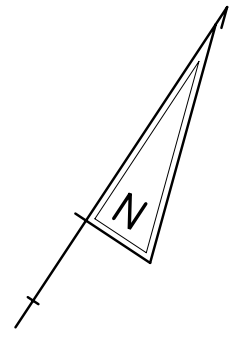
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**



<b>CS-07</b>
SHEET NO. 190
TOTAL SHTS. 240



MATCH LINE SHEET CS-07

MATCH LINE SHEET CS-06



\$DATES  
\$FILES



ADDENDUMS / REVISIONS



US 301,  
NORFOLK SOUTHERN RR TO SR 896

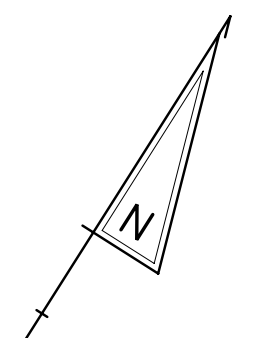
CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: WJD
NEW CASTLE	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

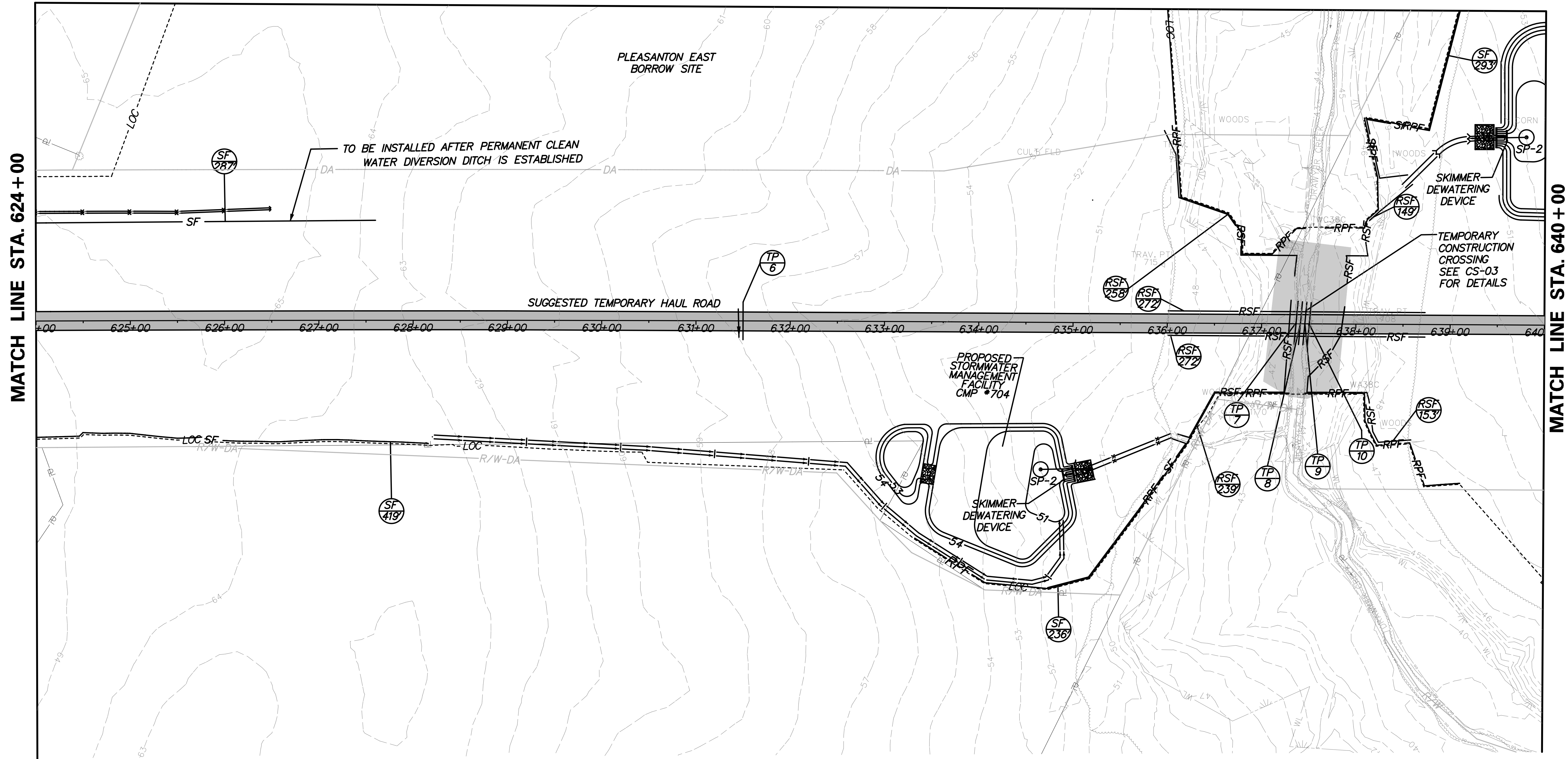
<b>CS-08</b>
SHEET NO.
191
TOTAL SHTS.
240



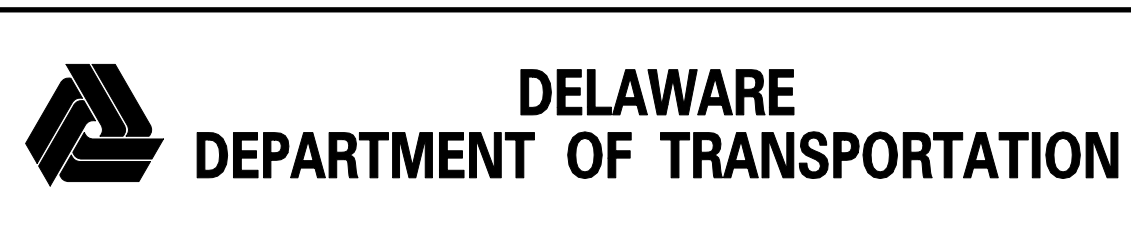
TEMPORARY PIPE (TP)				
NO.	STATION-OFFSET	SIZE/TYPE	L. F.	REMARKS
TP 6	631+50 00'	24" HDPE	40	@ US 301
TP 7	637+37 00'	36" HDPE	45	@ US 301
TP 8	637+41 00'	36" HDPE	45	@ US 301
TP 9	637+46 00'	36" HDPE	45	@ US 301
TP 10	637+51 00'	36" HDPE	45	@ US 301



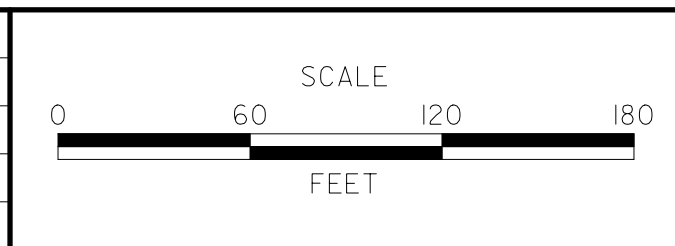
MATCH LINE SHEET CS-10



SFILES \$DATES



ADDENDUMS / REVISIONS	

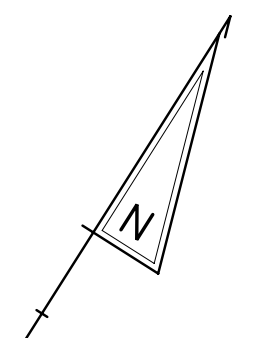


US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: WJD
NEW CASTLE	CHECKED BY: MAA

CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1

CS-09
SHEET NO.
192
TOTAL SHTS.
240



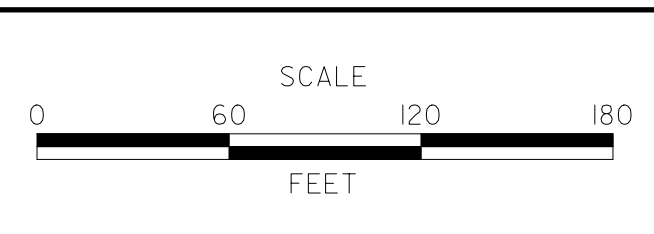
MATCH LINE SHEET CS-12

MATCH LINE SHEET CS-09

\$DATES  
\$FILES



ADDENDUMS / REVISIONS	



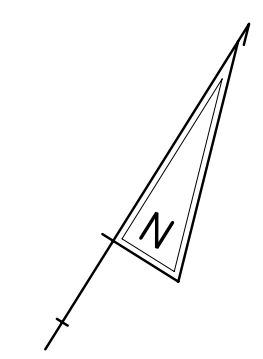
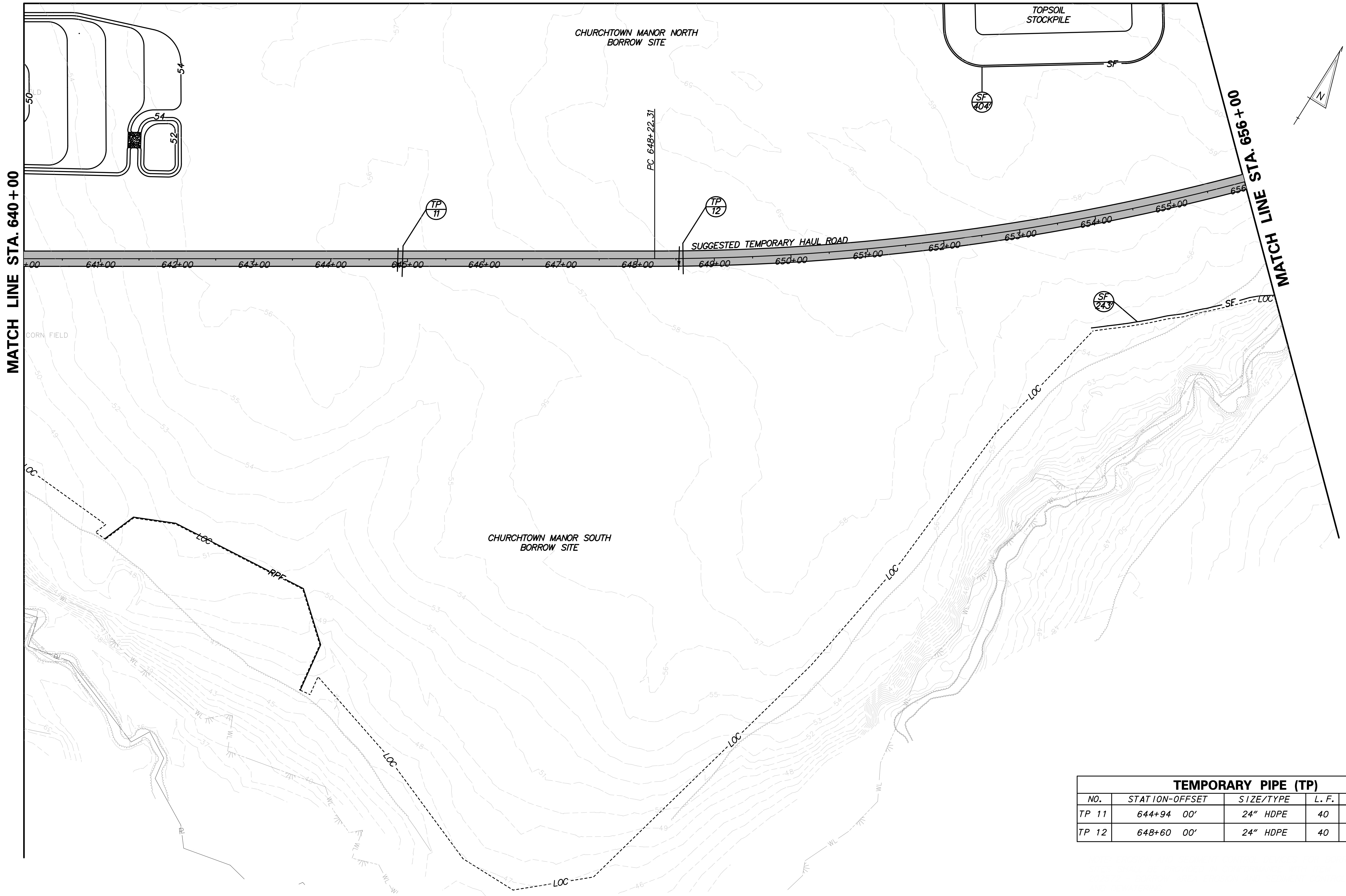
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

<b>CS-10</b>
SHEET NO. 193
TOTAL SHTS. 240

MATCH LINE SHEET CS-12

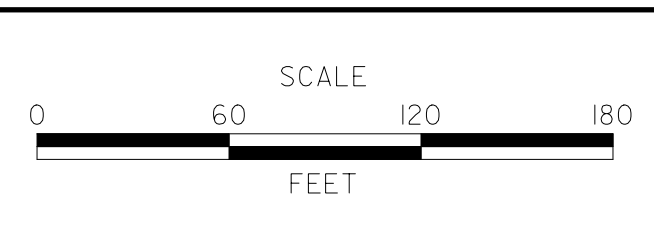


TEMPORARY PIPE (TP)				
NO.	STATION-OFFSET	SIZE/TYPE	L. F.	REMARKS
TP 11	644+94 00'	24" HDPE	40	@ US 301
TP 12	648+60 00'	24" HDPE	40	@ US 301

\$FILES \$DATES



ADDENDUMS / REVISIONS



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

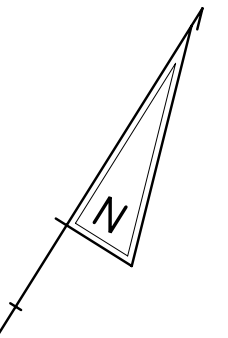
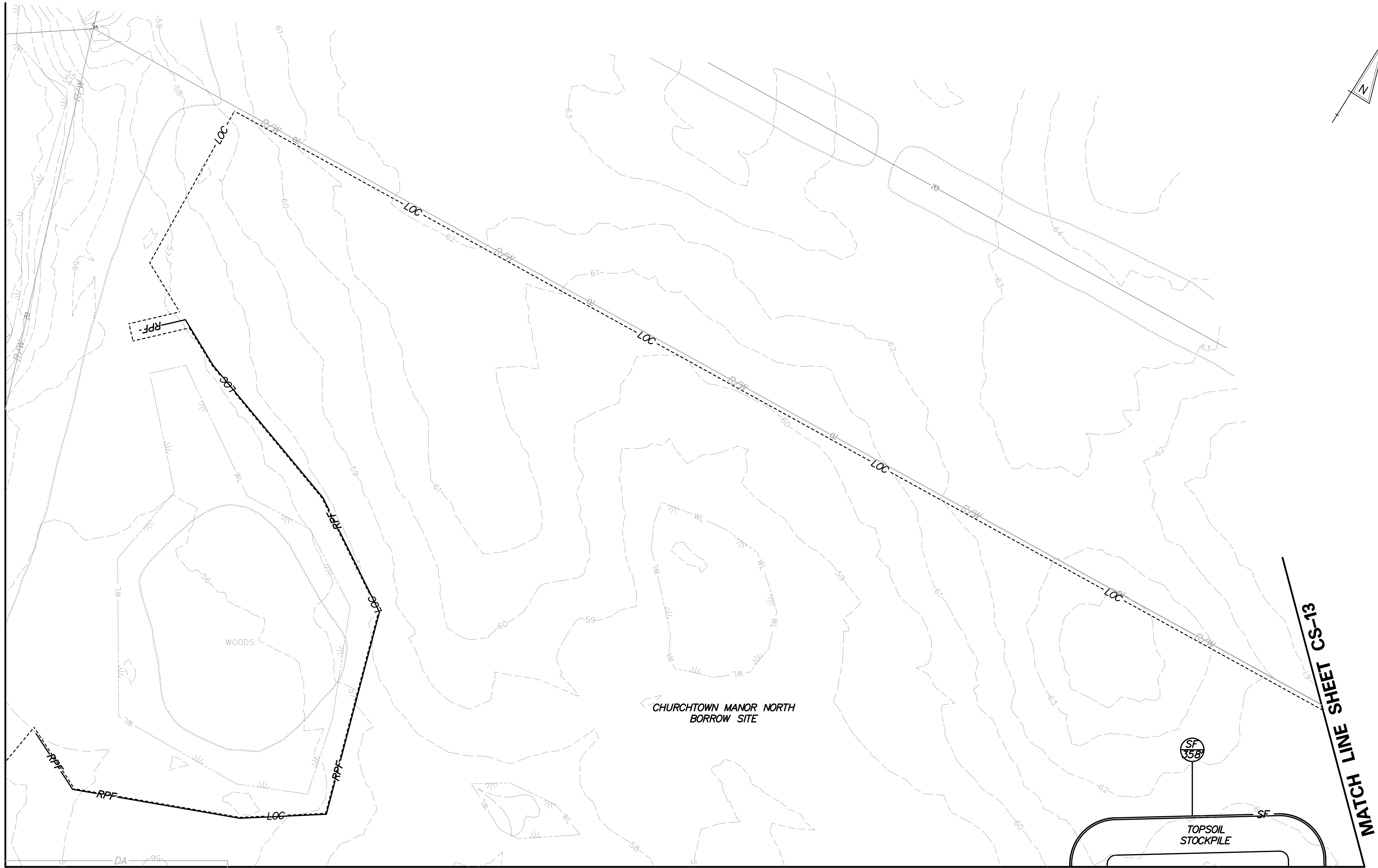
**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

<b>CS-11</b>
SHEET NO. 194
TOTAL SHTS. 240



\$DATES  
\$FILES

MATCH LINE SHEET CS-10



MATCH LINE SHEET CS-11

MATCH LINE SHEET CS-13



ADDENDUMS / REVISIONS

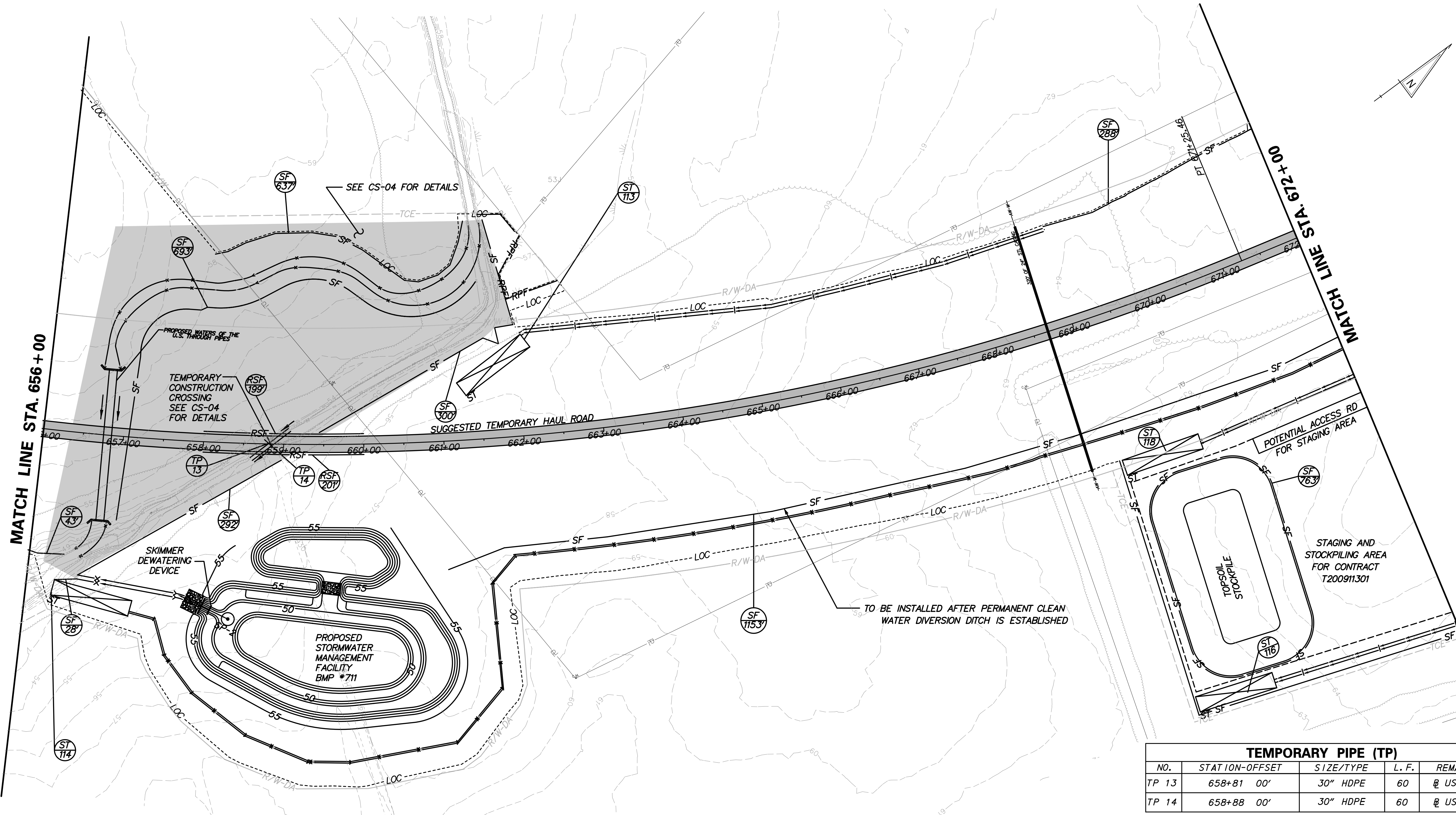



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

<b>CS-12</b>
SHEET NO. 195
TOTAL SHTS. 240



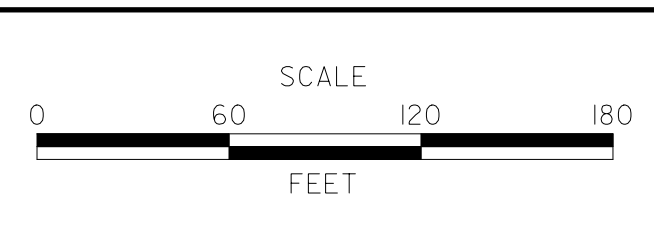
TEMPORARY PIPE (TP)				
NO.	STATION-OFFSET	SIZE/TYPE	L. F.	REMARKS
TP 13	658+81 00'	30" HDPE	60	@ US 301
TP 14	658+88 00'	30" HDPE	60	@ US 301

SEDIMENT TRAP SCHEDULE										
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.	
113	2.12AC	80.00'	30.00'	4.00'	SCD	56.00'	54.00'	5.00'	57.50'	
114	2.98AC	110.00'	30.00'	4.00'	SCD	62.50'	60.50'	6.00'	64.00'	
116	3.84AC	100.00'	30.00'	4.00'	SCD	62.50'	60.50'	6.00'	64.00'	
118	2.73AC	85.00'	35.00'	4.00'	SCD	63.00'	61.00'	6.00'	64.50'	

\$FILES \$DATES



ADDENDUMS / REVISIONS	



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

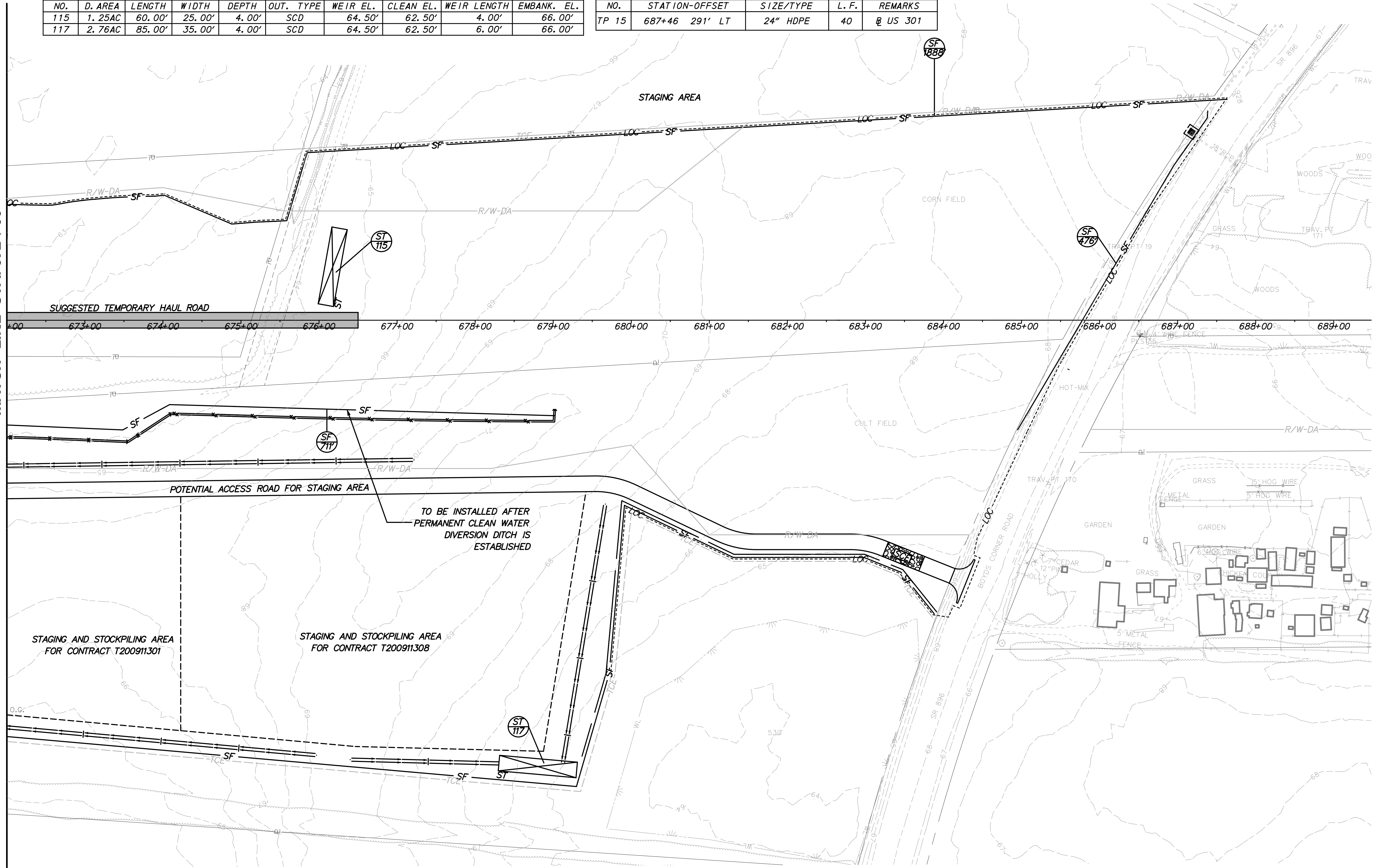
**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

CS-13
SHEET NO. 196
TOTAL SHTS. 240

SEDIMENT TRAP SCHEDULE									
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.
115	1.25AC	60.00'	25.00'	4.00'	SCD	64.50'	62.50'	4.00'	66.00'
117	2.76AC	85.00'	35.00'	4.00'	SCD	64.50'	62.50'	6.00'	66.00'

TEMPORARY PIPE (TP)				
NO.	STATION-OFFSET	SIZE/TYPE	L. F.	REMARKS
TP 15	687+46 291' LT	24" HDPE	40	@ US 301

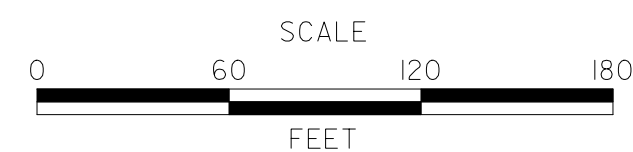
MATCH LINE STA. 672+00



\$FILES \$DATES



ADDENDUMS / REVISIONS



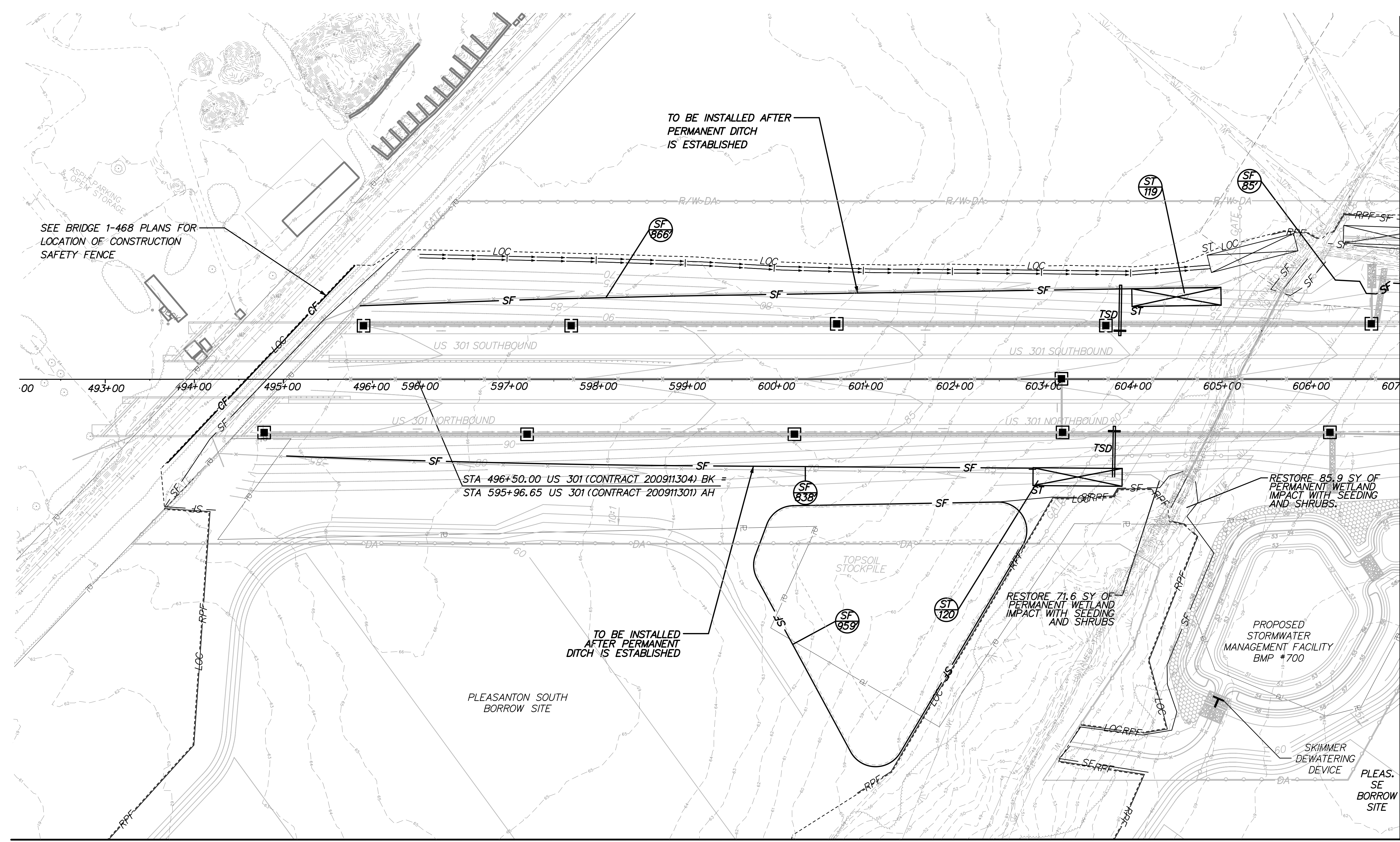
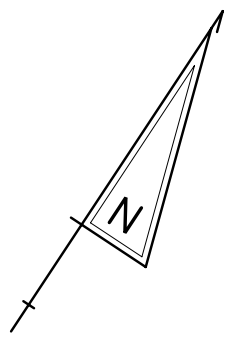
US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: WJD
NEW CASTLE	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 1**

CS-14
SHEET NO.
197
TOTAL SHTS.
240





MATCH LINE STA. 607+00

MATCH LINE SHEET CS-16

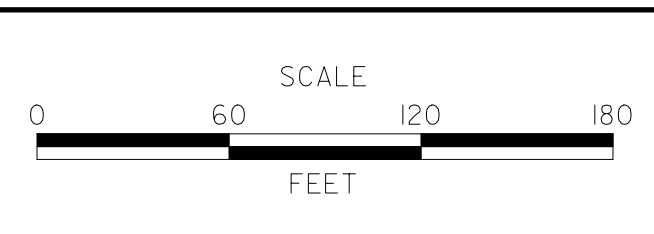
NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

SEDIMENT TRAP SCHEDULE									
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.
119	2.30AC	102.00'	25.00'	4.00'	SCD	59.00'	57.00'	5.00'	60.50'
120	2.28AC	102.00'	25.00'	4.00'	SCD	57.50'	55.50'	5.00'	59.00'

\$FILES \$DATES



ADDENDUMS / REVISIONS	

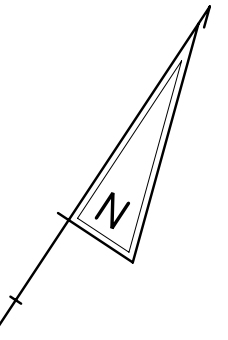


**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

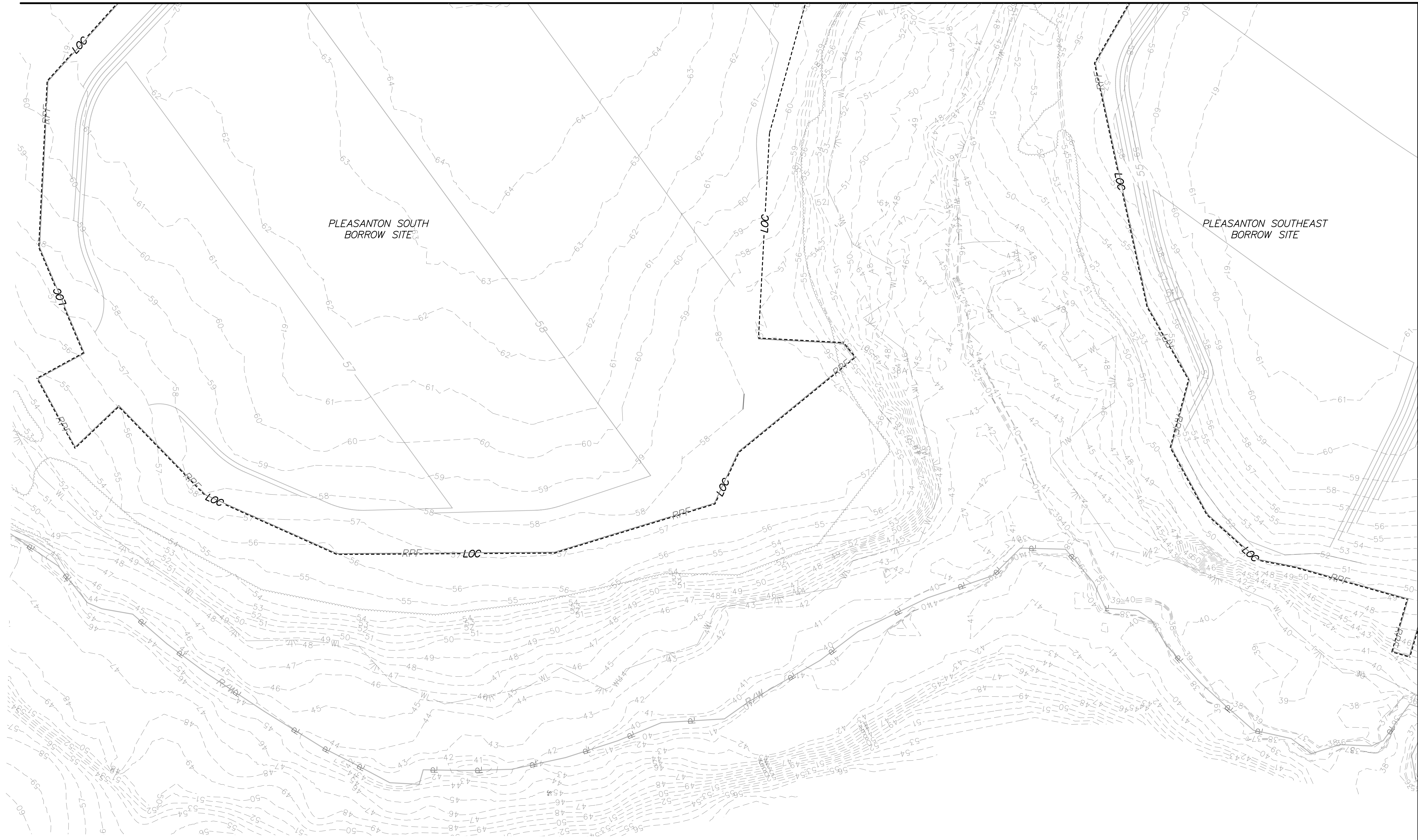
CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2**

CS-15
SHEET NO. 198
TOTAL SHTS. 240



### MATCH LINE SHEET CS-014



\$FILES \$DATES

MATCH LINE SHEET CS-18

*NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.*



**DELAWARE  
DEPARTMENT OF TRANSPORTATION**

ADDENDUMS / REVISIONS

NO.	DATE	DESCRIPTION



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

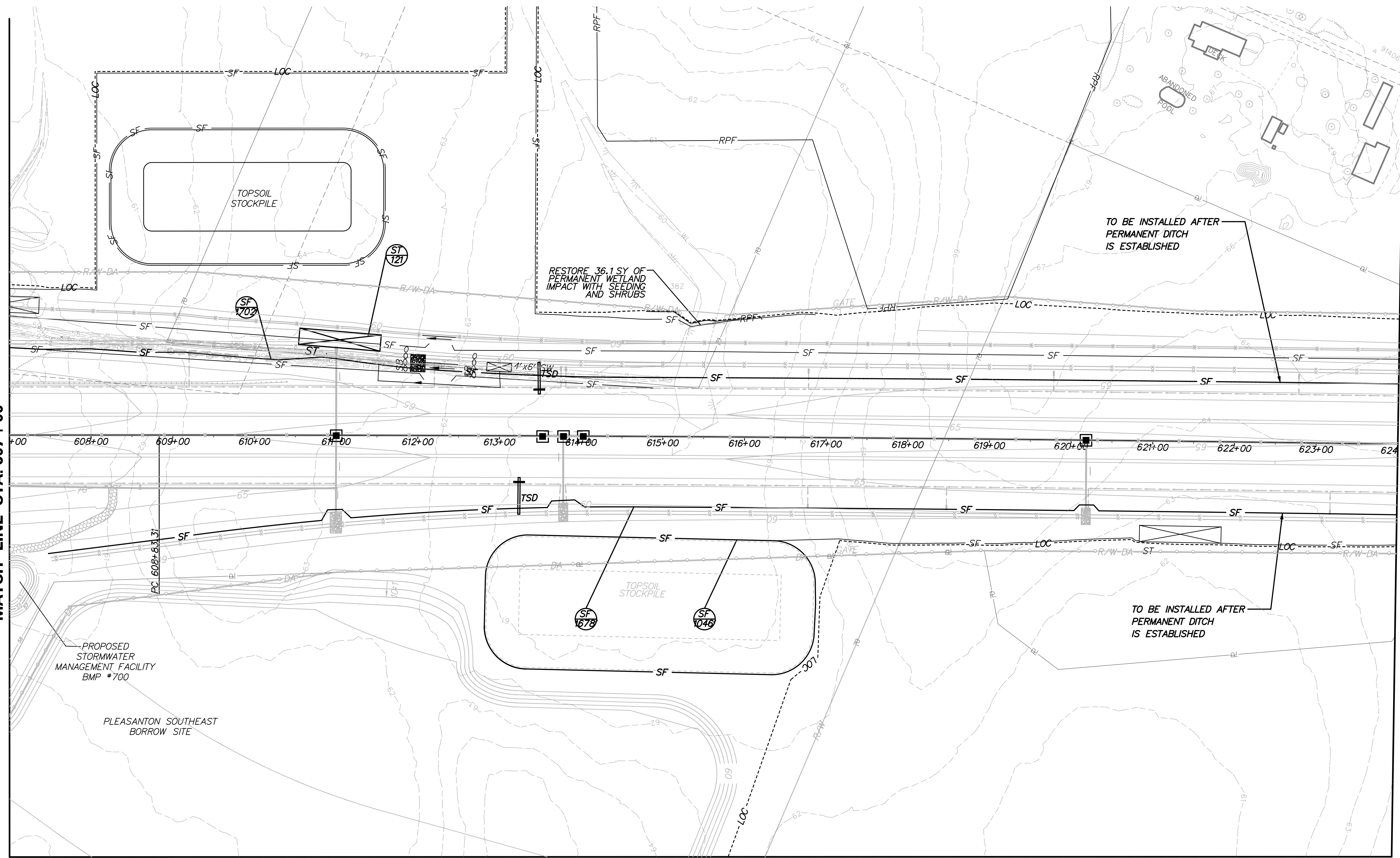
**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2**

<b>CS-16</b>
SHEET NO. 199
TOTAL SHTS. 240



MATCH LINE STA. 607 + 00

MATCH LINE STA. 624 + 00



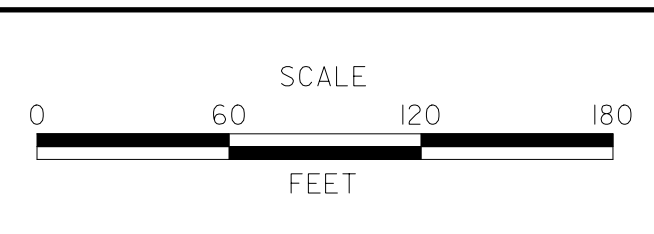
MATCH LINE SHEET CS-18

NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

SEDIMENT TRAP SCHEDULE									
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.
121	5.14AC	150.00'	25.00'	4.00'	SCD	58.50'	56.50'	12.00'	60.00'



ADDENDUMS / REVISIONS



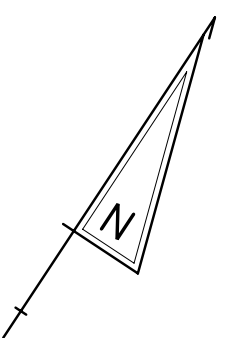
US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2

CS-17
SHEET NO. 200
TOTAL SHTS. 240





MATCH LINE SHEET CS-17

MATCH LINE SHEET CS-04



NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

\$DATES  
\$FILES



ADDENDUMS / REVISIONS



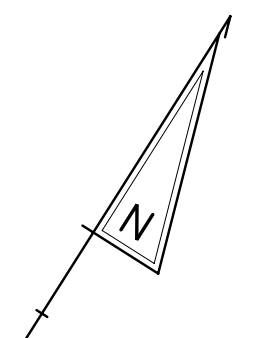
US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: WJD
NEW CASTLE	CHECKED BY: MAA

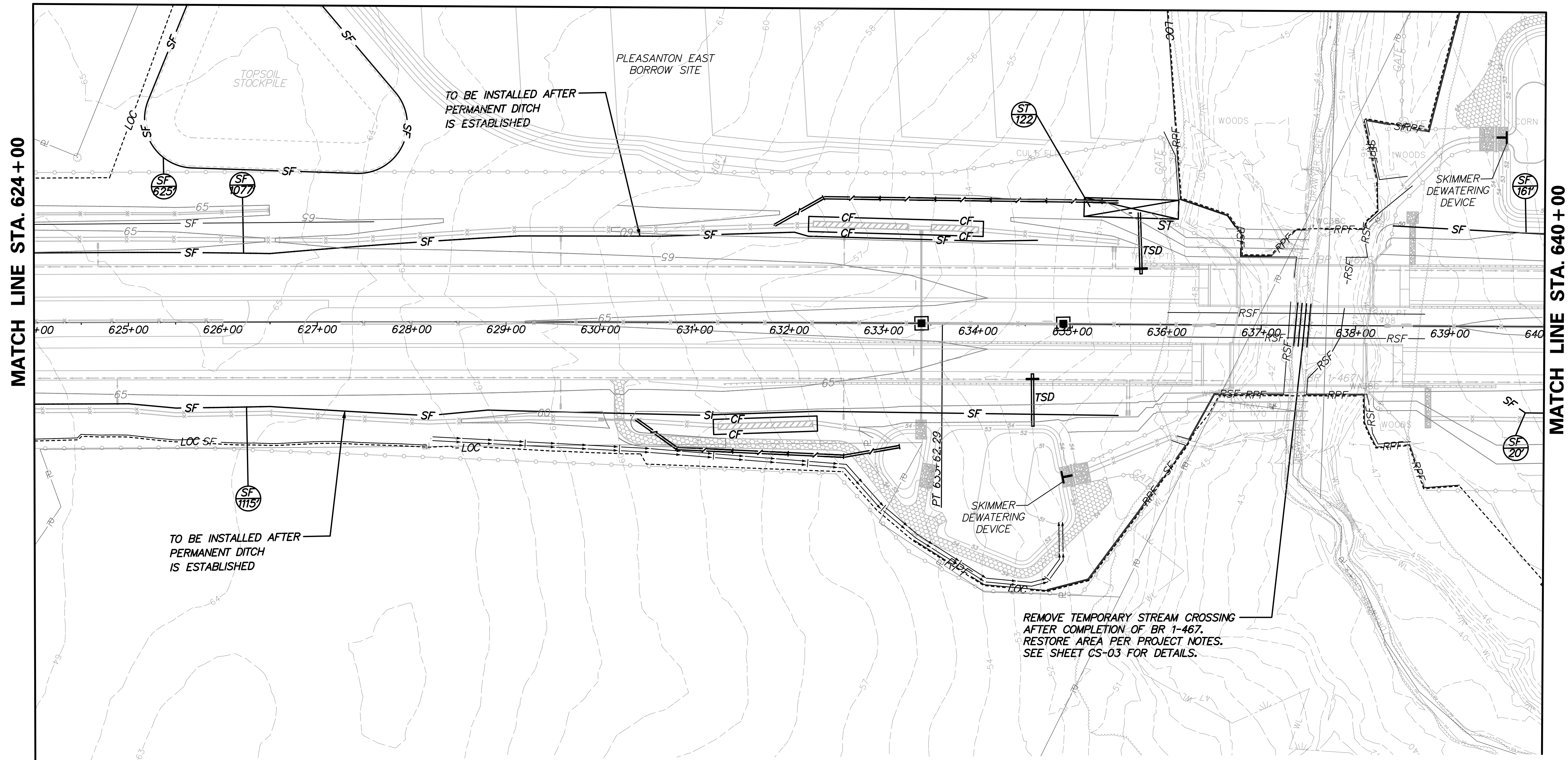
CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2

CS-18
SHEET NO. 201
TOTAL SHTS. 240

SEDIMENT TRAP SCHEDULE									
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.
122	2.56AC	115.00'	25.00'	4.00'	SCD	49.00'	47.00'	6.00'	50.50'



MATCH LINE SHEET CS-20



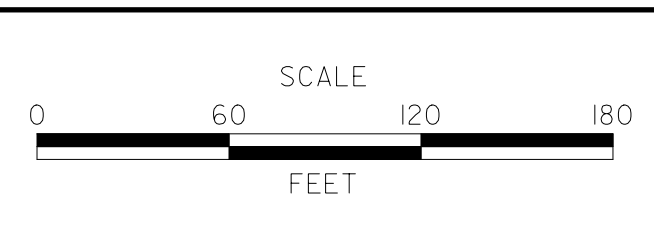
REMOVE TEMPORARY STREAM CROSSING AFTER COMPLETION OF BR 1-467. RESTORE AREA PER PROJECT NOTES. SEE SHEET CS-03 FOR DETAILS.

NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

\$FILES \$DATES



ADDENDUMS / REVISIONS

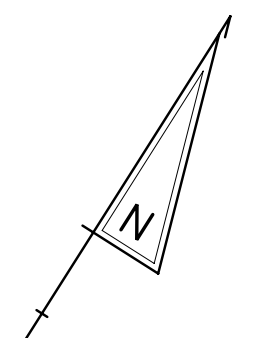


US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT	BRIDGE NO.
T200911301	
COUNTY	DESIGNED BY: WJD
NEW CASTLE	CHECKED BY: MAA

CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2

CS-19
SHEET NO.
202
TOTAL SHTS.
240



MATCH LINE SHEET CS-22

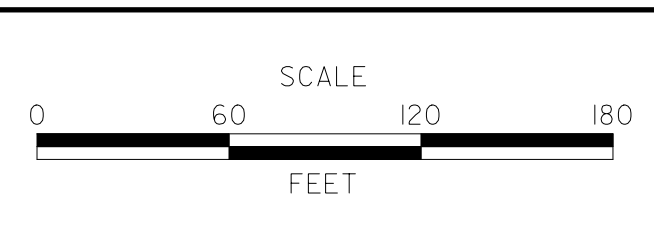
MATCH LINE SHEET CS-19

NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

\$DATES  
\$FILES



ADDENDUMS / REVISIONS	



**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

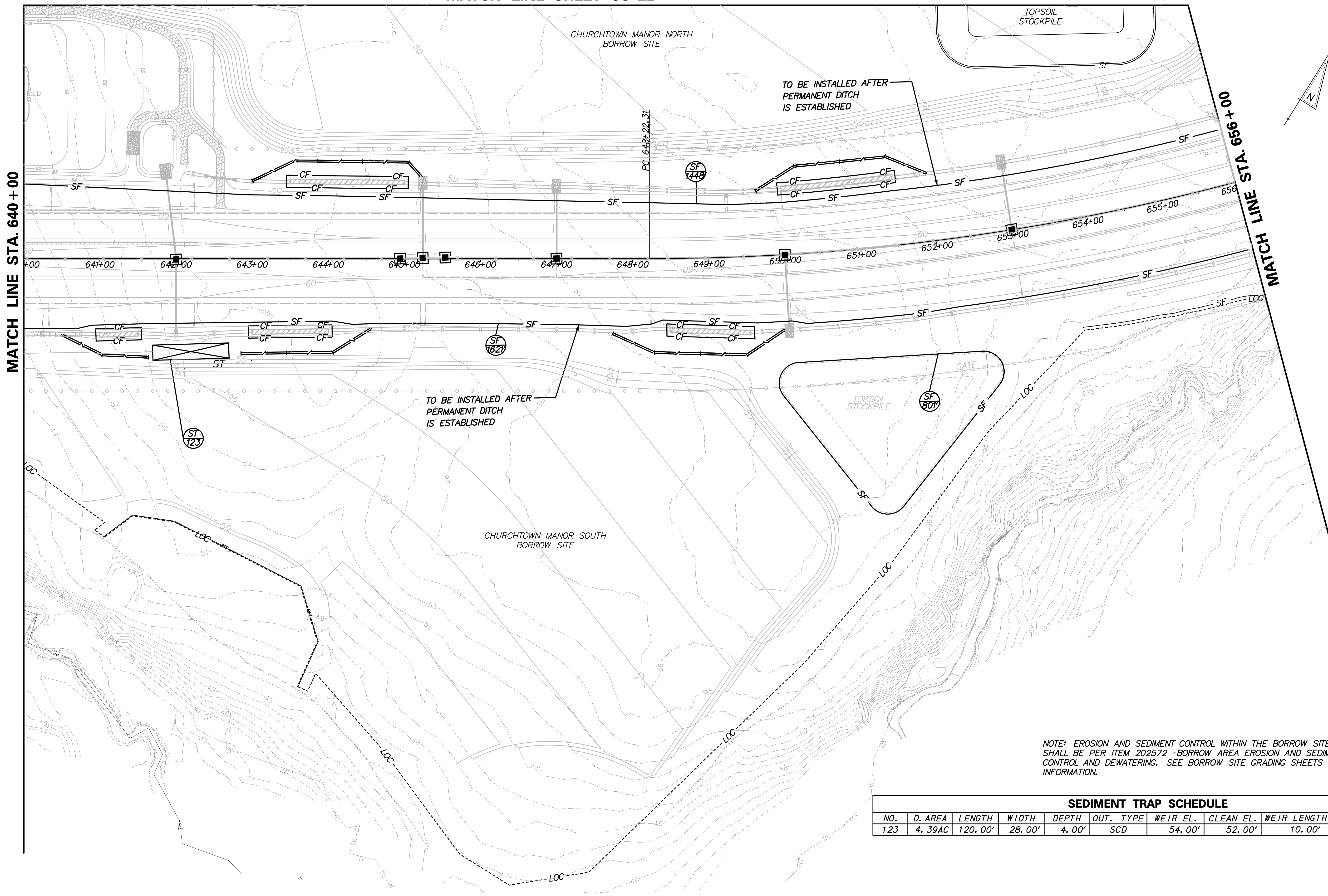
CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2**

<b>CS-20</b>
SHEET NO. 203
TOTAL SHTS. 240



MATCH LINE SHEET CS-22



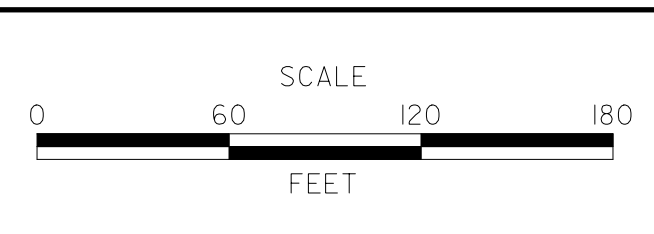
NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

SEDIMENT TRAP SCHEDULE									
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.
123	4.39AC	120.00'	28.00'	4.00'	SCD	54.00'	52.00'	10.00'	55.50'

\$FILES \$DATES



ADDENDUMS / REVISIONS



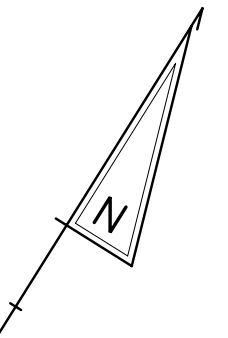
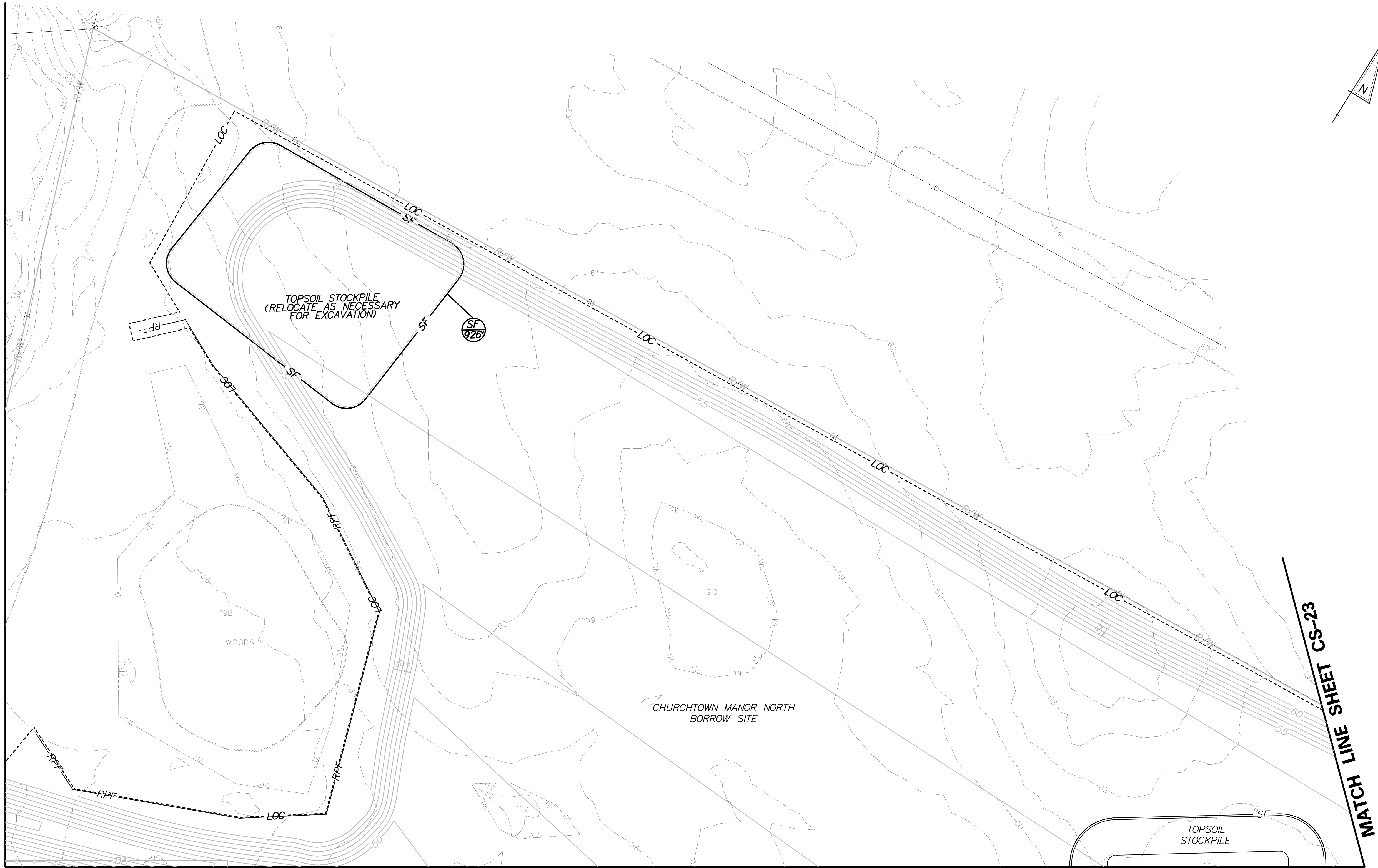
US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2

CS-21
SHEET NO. 204
TOTAL SHTS. 240

MATCH LINE SHEET CS-20

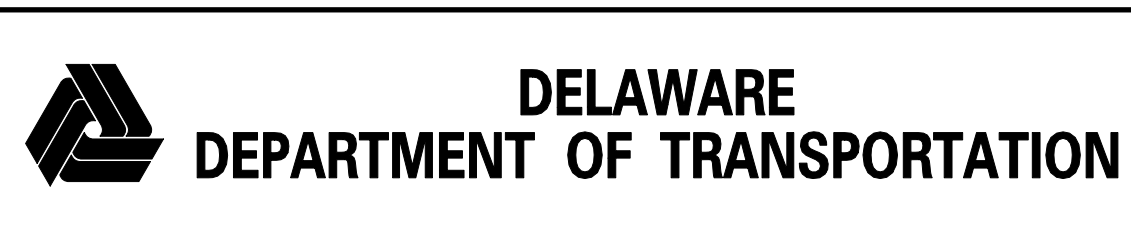


MATCH LINE SHEET CS-21

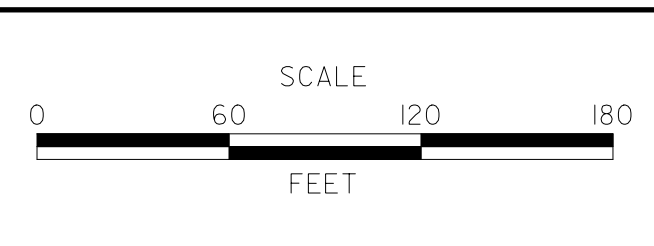
MATCH LINE SHEET CS-23

NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

\$DATES  
\$FILES



ADDENDUMS / REVISIONS	



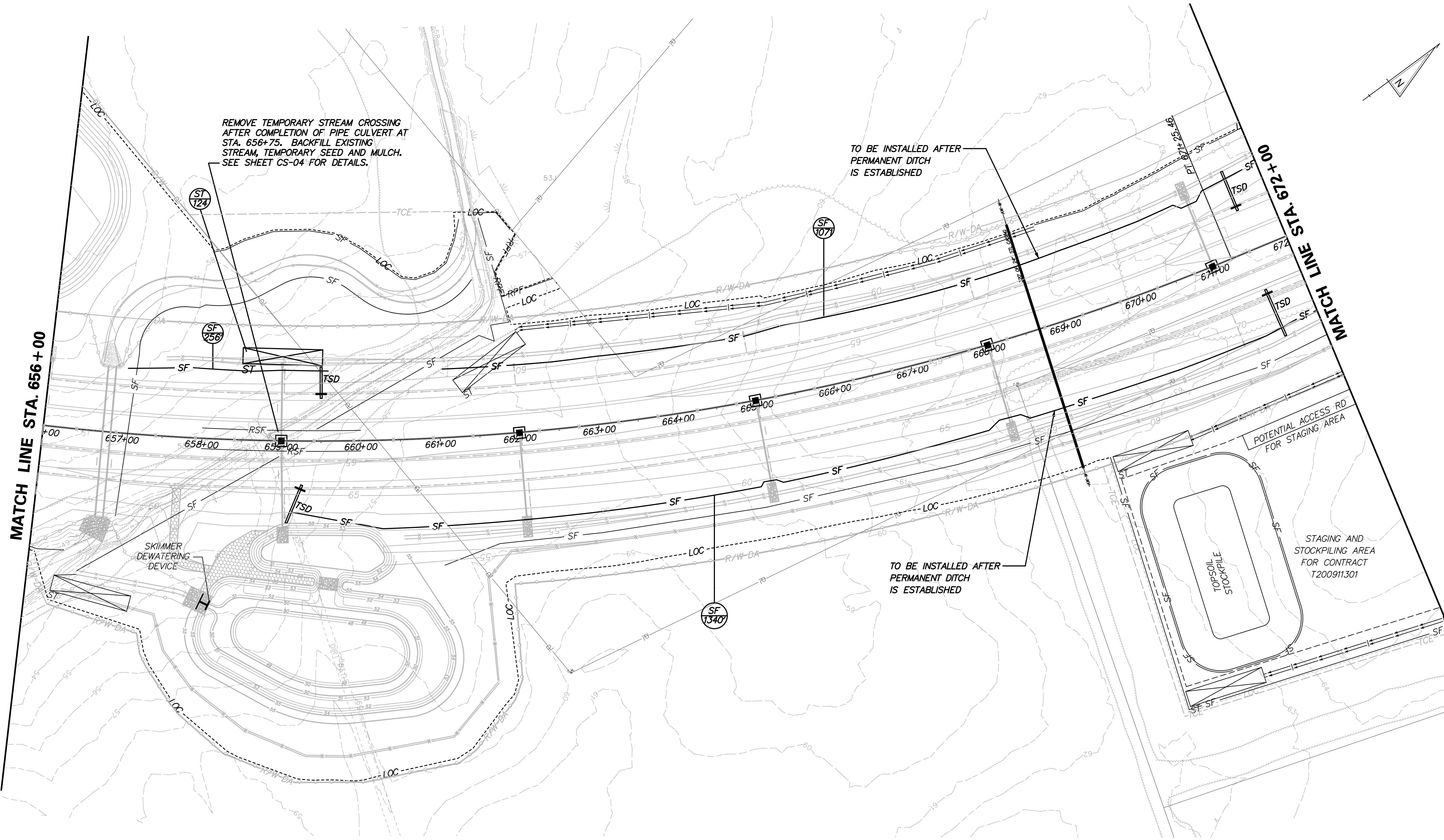
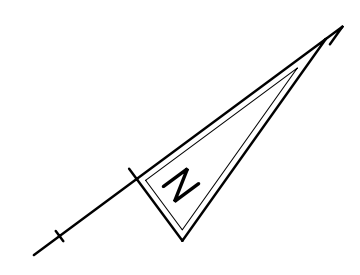
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2**

<b>CS-22</b>
SHEET NO. 205
TOTAL SHTS. 240





MATCH LINE STA. 656 + 00

MATCH LINE STA. 672 + 00

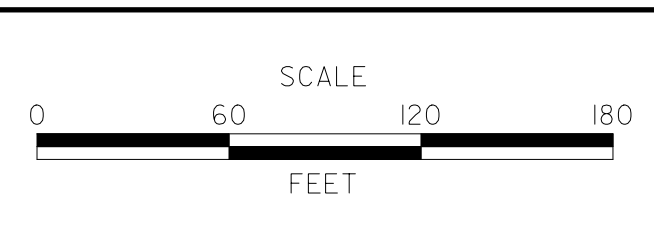
SEDIMENT TRAP SCHEDULE										
NO.	D. AREA	LENGTH	WIDTH	DEPTH	OUT. TYPE	WEIR EL.	CLEAN EL.	WEIR LENGTH	EMBANK. EL.	
124	6.56AC	150.00'	45.00'	4.00'	SCD	54.00'	52.00'	16.00'	55.50'	

NOTE: EROSION AND SEDIMENT CONTROL WITHIN THE BORROW SITES SHALL BE PER ITEM 202572 -BORROW AREA EROSION AND SEDIMENT CONTROL AND DEWATERING. SEE BORROW SITE GRADING SHEETS FOR MORE INFORMATION.

\$FILES \$DATES



ADDENDUMS / REVISIONS	



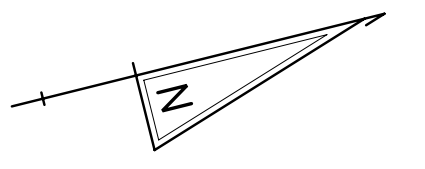
**US 301,  
NORFOLK SOUTHERN RR TO SR 896**

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

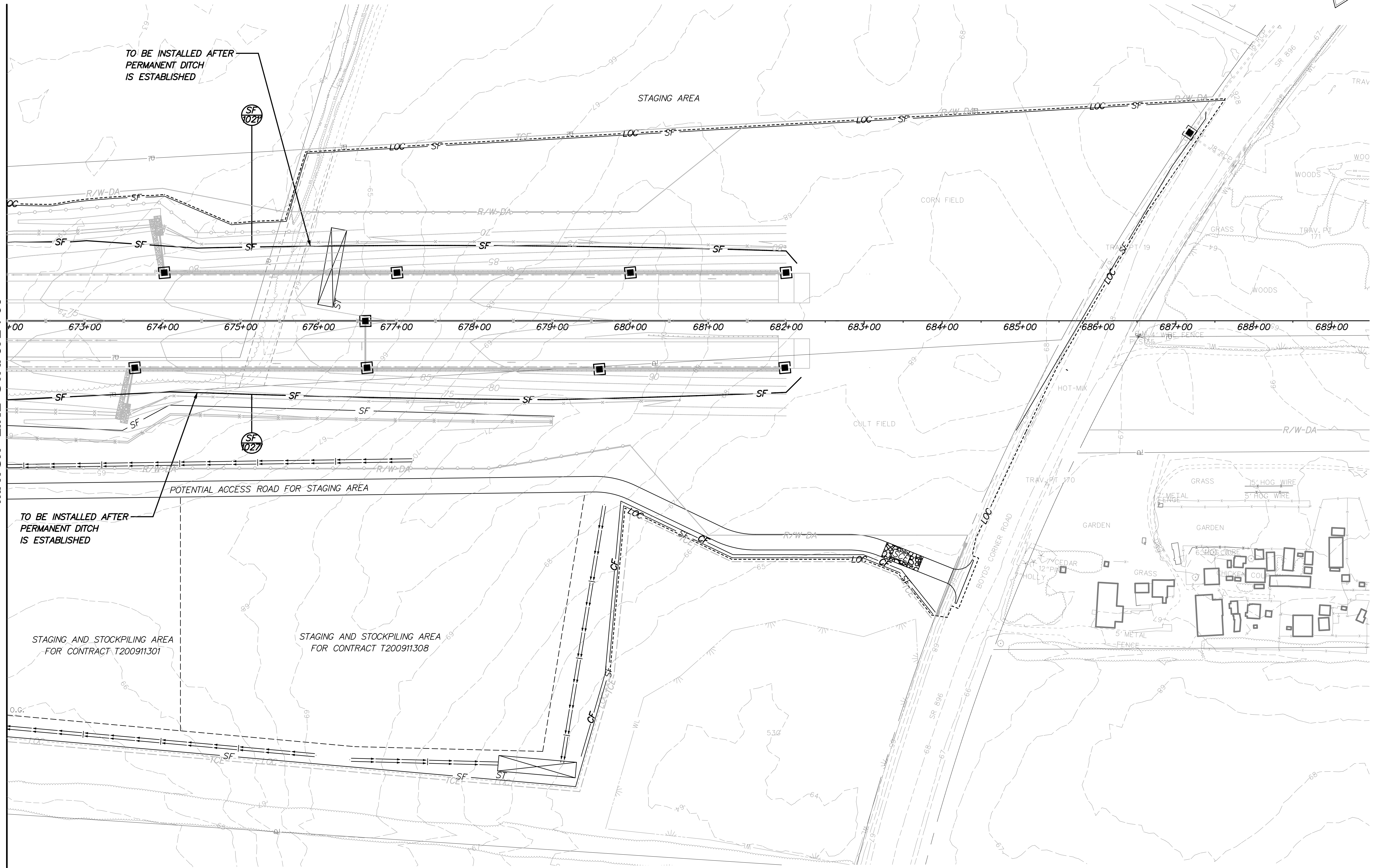
**CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2**

CS-23
SHEET NO. 206
TOTAL SHTS. 240





MATCH LINE STA. 672 + 00



\$FILES \$DATES



DELAWARE  
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS



US 301,  
NORFOLK SOUTHERN RR TO SR 896

CONTRACT T200911301	BRIDGE NO.
COUNTY NEW CASTLE	DESIGNED BY: WJD
	CHECKED BY: MAA

CONSTRUCTION PHASING,  
M.O.T., AND EROSION  
CONTROL PLAN - PHASE 2

CS-24
SHEET NO. 207
TOTAL SHTS. 240