

THE STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION



**LIMIT OF WORK
CONTRACT T200911303
SR 1 – STA. 1791+00
TO STA. 171+00**

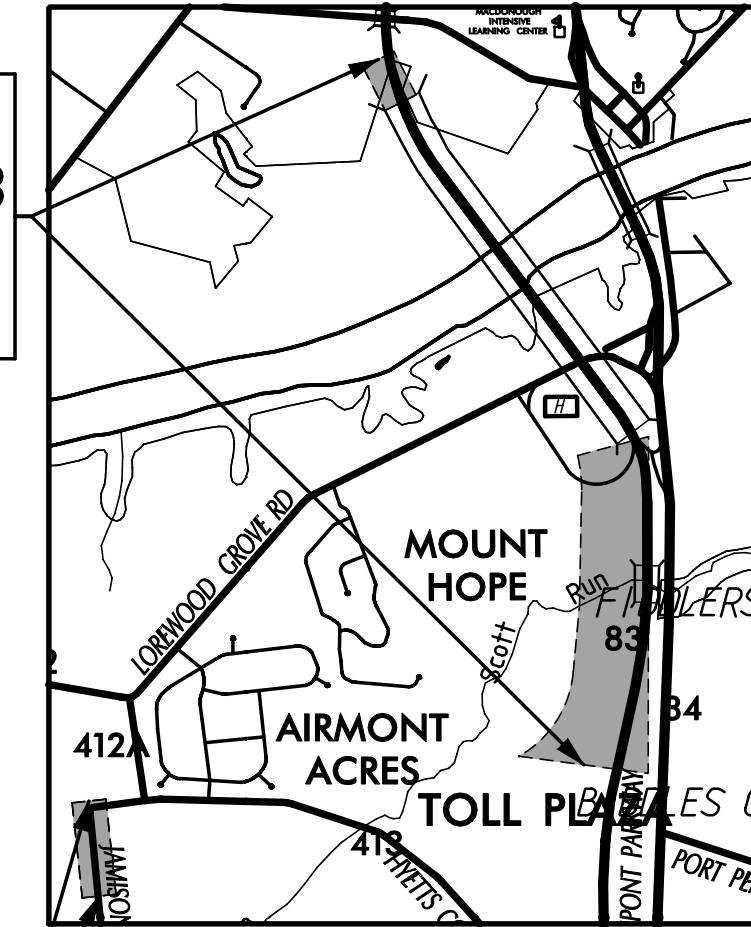
CONSTRUCTION PLANS FOR:

US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONSTRUCTION CONTRACT NUMBER: T200911303
FEDERAL AID PROJECT NUMBER:

COUNTY: NEW CASTLE M.R. #: 84

U.S. CUSTOMARY
UNITS



**LIMIT OF WORK
CONTRACT T200911303
JAMISON CORNER ROAD
STA. 117+00 TO STA. 126+00**

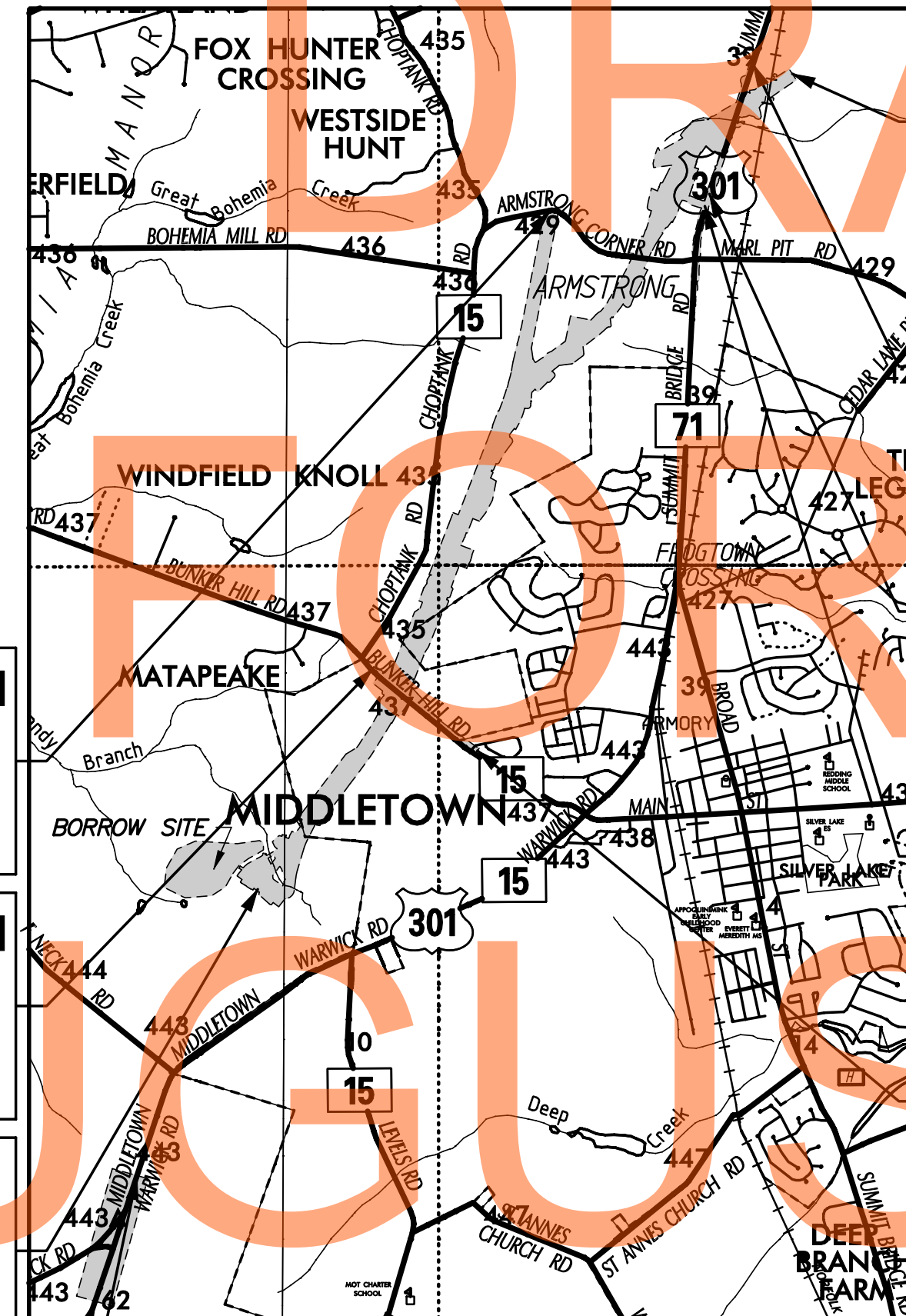
PREPARED BY
THE CONSULTING FIRM OF
**WHITMAN, REQUARDT &
ASSOCIATES, LLP**
PLAN SHEETS
1175-1183

PREPARED BY
THE CONSULTING FIRM OF
**RUMMEL, KLEPPER
& KAHL, LLP**
PLAN SHEETS
2, 20, 802-827, 833-837

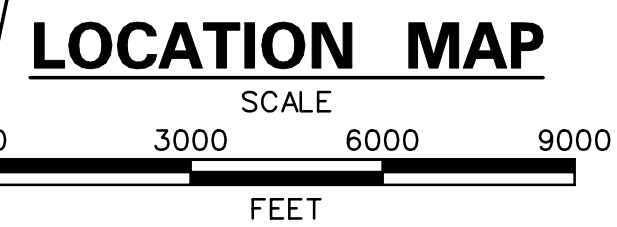
PREPARED BY
THE CONSULTING FIRM OF
**JACOBS ENGINEERING
GROUP**
PLAN SHEETS
1113-1174

PREPARED BY
THE CONSULTING FIRM OF
URBAN ENGINEERS, INC.
PLAN SHEETS
1242-1252

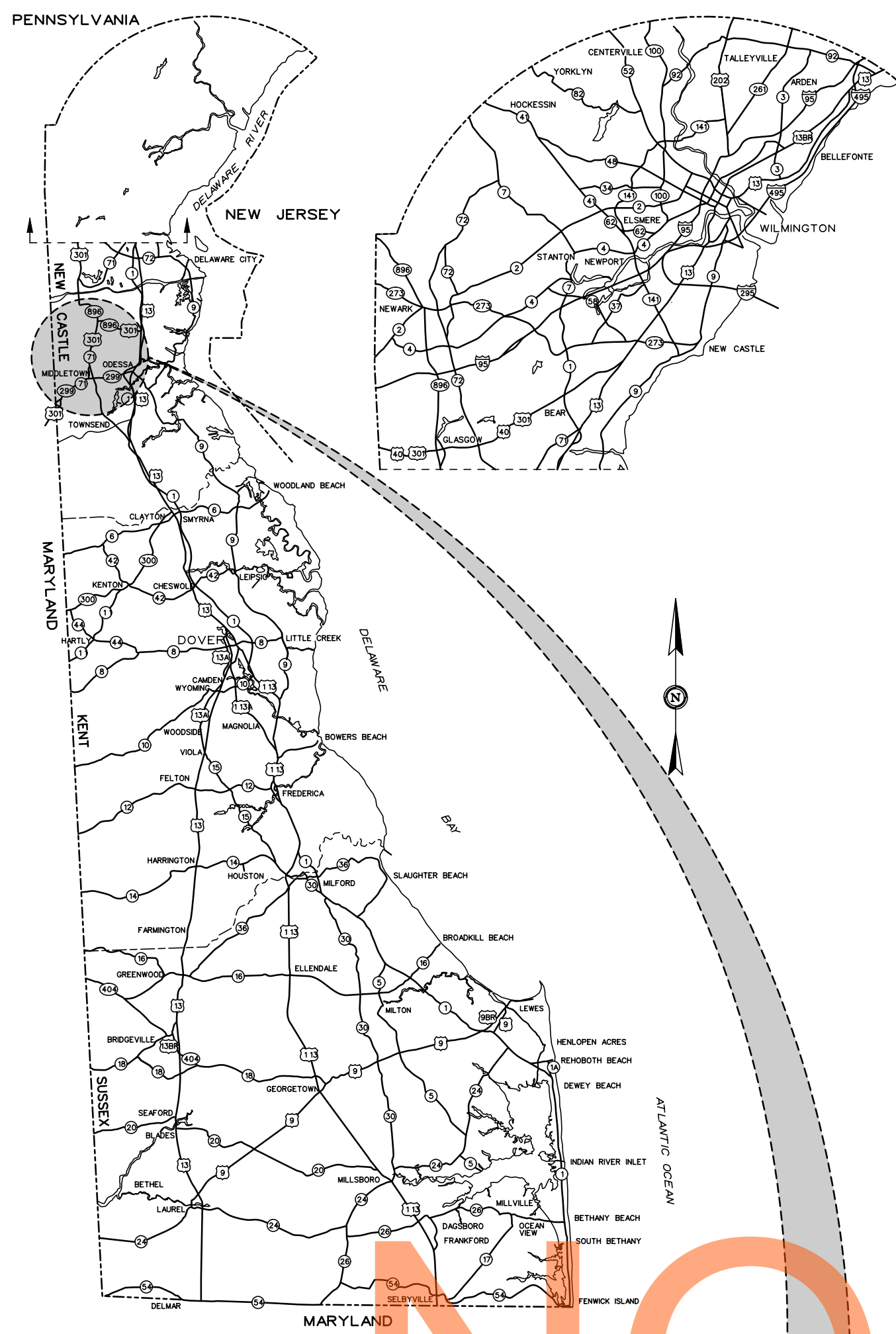
PREPARED BY
THE CONSULTING FIRM OF
CENTURY ENGINEERING, INC.
PLAN SHEETS
1253-1256



PREPARED BY
THE CONSULTING FIRM OF
GANNETT FLEMING, INC.
PLAN SHEETS
1184-1241



RECOMMENDED _____ DATE _____
RECOMMENDED _____ DATE _____



GENERAL LOCATION OF CONTRACT

PREPARED BY
THE CONSULTING FIRM OF
AECOM
1700 MARKET STREET, SUITE 1600
PHILADELPHIA, PA 19103
(215) 735-0832

RECOMMENDED _____ DATE _____

RECOMMENDED

SQUAD MANAGER, CONSTRUCTION _____ DATE _____

GROUP ENGINEER, CONSTRUCTION _____ DATE _____

ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS
(CONSTRUCTION) _____ DATE _____

RECOMMENDED

STORMWATER ENGINEER _____

DATE _____ SEAL _____

LIMIT OF CONSTRUCTION
CONTRACT T200911303
SPUR ROAD
STATION 132+81.00

LIMIT OF CONSTRUCTION
CONTRACT T200911303
BUNKER HILL ROAD
STATION 10+10.00

BEGIN
CONTRACT T200911303
US 301
STATION 258+00.00

LIMIT OF CONSTRUCTION
CONTRACT T200911303
STATION 166+70

LIMIT OF CONSTRUCTION
CONTRACT T200911303
STATION 193+58

RECOMMENDED

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

DATE _____ SEAL _____

RECOMMENDED

BRIDGE DESIGN ENGINEER _____

DATE _____ SEAL _____

RECOMMENDED

GROUP ENGINEER, PROJECT DEVELOPMENT _____

DATE _____ SEAL _____

RECOMMENDED

ASSISTANT DIRECTOR,
TRANSPORTATION SOLUTIONS

DATE _____ SEAL _____

DESIGN DESIGNATION

US 301 MAINLINE		
FUNCTIONAL CLASS: RURAL PRINCIPAL ARTERIAL	D.H.V. PROJECTED: 4,560	YEAR: 2030
TYPE OF CONSTRUCTION: NEW	DESIGN SPEED: 70 M.P.H.	
A.A.D.T. CURRENT: N/A	YEAR: 2009	TRUCKS: 9 %
A.A.D.T. PROJECTED: 57,000	YEAR: 2030	DIRECTION OF DISTRIBUTION: 57 %
INTERCHANGE RAMPS		
FUNCTIONAL CLASS: N/A	D.H.V. PROJECTED: N/A	YEAR: 2030
TYPE OF CONSTRUCTION: NEW	DESIGN SPEED: 50 M.P.H.	
A.A.D.T. CURRENT: N/A	YEAR: 2009	TRUCKS: N/A
A.A.D.T. PROJECTED: N/A	YEAR: 2030	DIRECTION OF DISTRIBUTION: N/A
BUNKER HILL ROAD		
FUNCTIONAL CLASS: MAJOR COLLECTOR	D.H.V. PROJECTED: 690	YEAR: 2030
TYPE OF CONSTRUCTION: NEW	DESIGN SPEED: 40 M.P.H.	
A.A.D.T. CURRENT: 1,375	YEAR: 2009	TRUCKS: 1%
A.A.D.T. PROJECTED: 6,900	YEAR: 2030	DIRECTION OF DISTRIBUTION: 61%

INDEX OF SHEETS

SHEET NO	TITLE
1	TITLE
2 - 5	PLAN SHEET INDEX
6-7	LEGEND
8-10	NOTES
11-20	EARTHWORK SUMMARY
21-55	TYPICAL SECTIONS
56-67	HORIZONTAL AND VERTICAL CONTROL
68-132	CONSTRUCTION PLANS
133-187	PROFILES
188-235	GRADES AND GEOMETRICS
236-264	CONSTRUCTION DETAILS
265-304	BRIDGE 1-468, US 301 MAINLINE OVER NORFOLK SOUTHERN RR
305-355	BRIDGE 1-470, US 301 MAINLINE OVER SUMMIT BRIDGE ROAD
356-390	BRIDGE 1-472, US 301 MAINLINE OVER ARMSTRONG CORNER ROAD
391-440	BRIDGE 1-475, BUNKER HILL ROAD OVER US301 MAINLINE
441-522	BRIDGE 1-477, US 301 MAINLINE OVER TRIBUTARY TO SANDY BRANCH
523-560	BRIDGE 1-479, RAMP F OVER SANDY BRANCH
561-631	BRIDGE 1-480, US 301 MAINLINE OVER SANDY BRANCH
632-666	BRIDGE 1-507, US 301 MAINLINE OVER CONNECTOR ROAD
667-681	I-508 A, US 301 MAINLINE OVER DRAWYERS DITCH
682-685	I-508 B, RAMP C OVER SANDY BRANCH
686-801	STORMWATER MANAGEMENT PLANS AND DETAILS
802-826	BORROW SITE/WETLAND MITIGATION PLANS
827-858	ENVIRONMENTAL COMPLIANCE PLANS
859-861	STREAM RELOCATION AND RESTORATION
862-968	CONSTRUCTION PHASING, M.O.T. AND EROSION CONTROL PLANS
969-999	LANDSCAPING PLANS
1000-1031	LIGHTING PLANS
1032-1034	UTILITY RELOCATION PLANS
1035-1112	SIGNING, STRIPING AND CONDUIT PLANS
1113-1174	MARYLAND STATE LINE TO LEVELS ROAD
1175-1183	US 301 & SRI INTERCHANGE
1184-1241	TOLL PLAZA PLANS
1242-1252	SPUR ROAD STOCKPILE PLANS
1253-1256	MIDDLETOWN ELECTRIC RELOCATION PLANS
TOTAL SHEETS: 1256	

APPROVED DESIGN EXCEPTIONS

DESIGN PARAMETER	REQUIRED	PROVIDED	DATE

ADDENDA & REVISIONS

DESCRIPTION	NAME & DATE

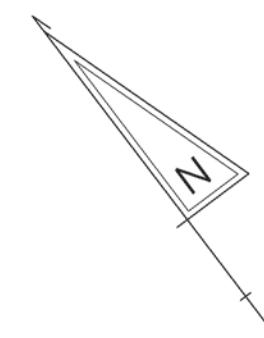
ASSOCIATED CONTRACTS

CONTRACT NO.	CONTRACT NAME
T200911301	US 301, NORFOLK SOUTHERN RR TO SR 896
T200811301	US 301 MARYLAND STATE LINE TO LEVELS ROAD
T200911304	US 301 BRIDGE OVER NORFOLK SOUTHERN RAILROAD
T200911307	US 301 SPUR RD, US 301 TO CHURCHTOWN ROAD
T201011301	SUMMIT BRIDGE ROAD AND ARMSTRONG CORNER ROAD INTERSECTION IMPROVEMENTS
608	ARMSTRONGS-ODESSA
1160	MIDDLETOWN TO SUMMIT BRIDGE
22-120-01	CHOPTANK ROAD SR15 FROM N437 TO N433

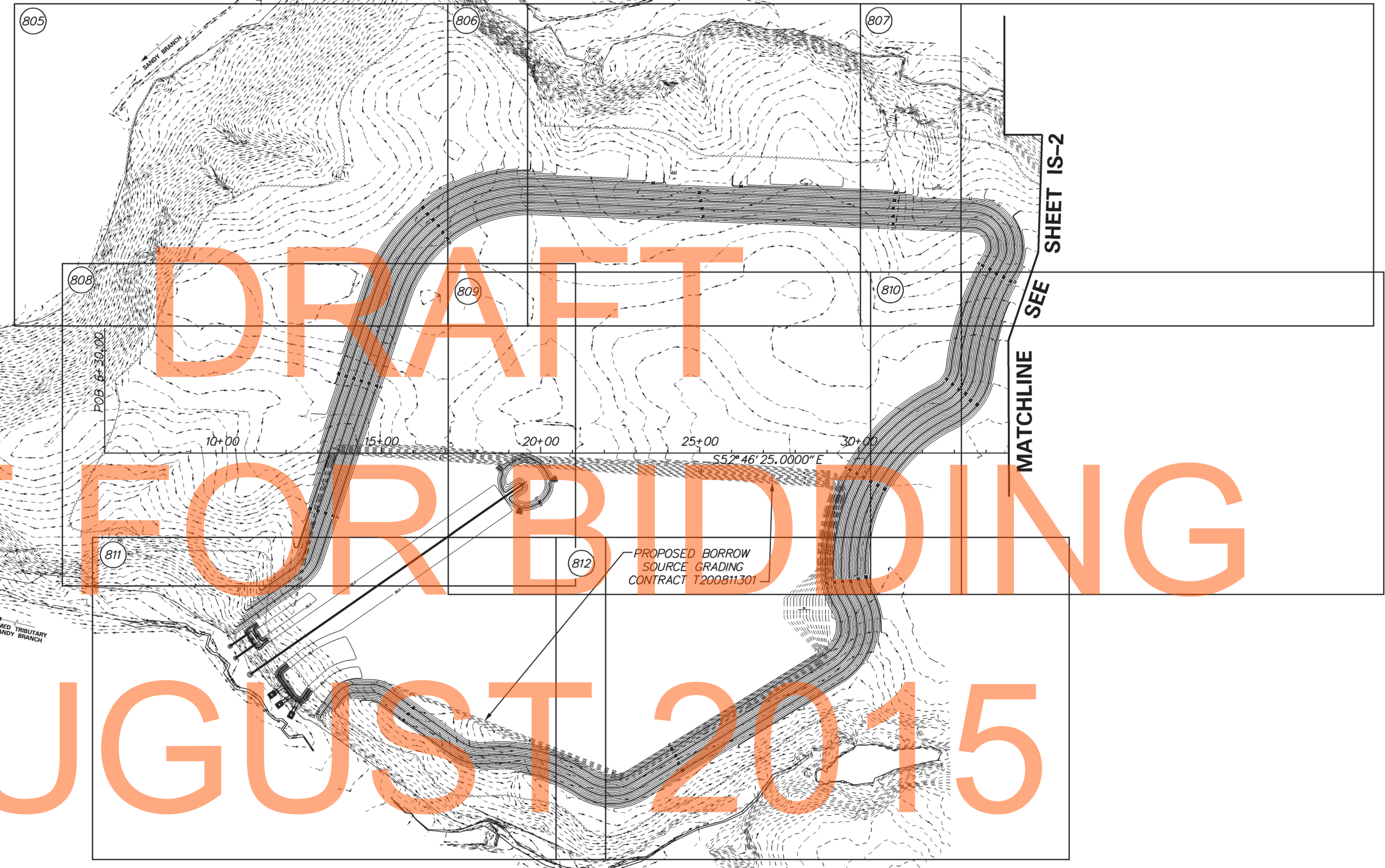
APPROVED

CHIEF ENGINEER _____

DATE _____ SEAL _____



DRAFT
NOT FOR BIDDING
AUGUST 2015



PLAN SHEET INDEX CROSS REFERENCE

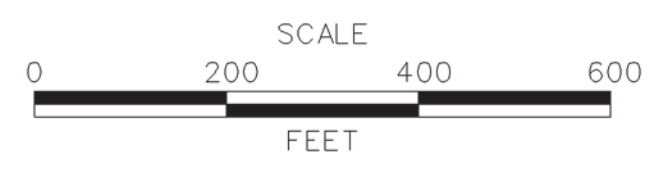
BORROW SITE GRADING PLAN SHEET NO.	805	806	807	808	809	810	811	812
ENVIRONMENTAL COMPLIANCE SHEET NO.	833/ EC-7	834/ EC-8	835/ EC-9	N/A	N/A	N/A	836/ EC-10	837/ EC-11

PLAN SHEET INDEX

IS-1
SHEET NO.
2
TOTAL SHTS.
1256



ADDENDUMS / REVISIONS



**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.
T200911303	
COUNTY	DESIGNED BY: MRS
NEW CASTLE	CHECKED BY: JTR

**BORROW SITE /
WETLAND MITIGATION
PLANS**

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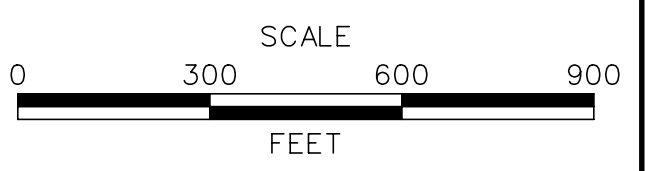
PLAN SHEET INDEX CROSS REFERENCE

CONSTRUCTION PLAN	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	128	130	131	132
PROFILES	134 & 135	135 & 136	136 & 160	161	160 & 161	162	162 & 163	-	136 & 137	137 & 138	138 & 139	139, 140 & 168	140, 141 & 168	168	141 & 142	-	142 & 143	-	143	-	143 & 144	-	144 & 145	164	165	166	167
GRADES AND GEOMETRICS	188	189	190	191	192	193	194	-	195	196	197	198	199	-	200	-	201	-	202	-	203	-	204	232 & 233	234	235	236
STORMWATER MANAGEMENT	686 & 691	697	709	686	-	691	697	703	709	709	-	716	716 & 721	-	721	-	-	-	726	-	726	731	731	-	-	-	-
ENVIRONMENTAL COMPLIANCE	-	838	839	-	840	-	841	842	843	-	-	-	-	-	-	-	-	-	-	-	844	844	845	-	-	858	-
CONSTRUCTION PHASING, M.O.T. AND E&S	866, 887 & 909	866, 887 & 909	869, 890 & 912	867, 888 & 910	867, 888 & 910	868, 889 & 911	868, 889 & 911	869, 890 & 912	869, 870, 890, 891, 912 & 913	870, 891 & 913	870, 891 & 913	870, 871, 891, 892, 913 & 914	871, 892 & 914	871 & 892	871, 872, 892, 893, 914 & 915	872, 893 & 915	872, 893 & 915	872, 893 & 915	872, 873, 893, 894, 915 & 916	874, 895 & 917	873, 874, 894, 895, 916 & 917	874, 895 & 917	873, 874, 875, 894, 895, 896, 916, 917 & 918	943, 945, 947, 949, & 951	943, 945, 947, 949, & 951	944, 946, 948, 950, & 952	944, 946, 948, 950, & 952
LANDSCAPING PLAN	-	-	-	-	-	-	-	-	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	-	-	-	-
LIGHTING PLAN	-	1001	1002	1003	1004	1005	1006	-	1007	1008	-	-	-	-	-	-	-	-	-	-	-	-	1010	1009	-	-	-
SIGNING, STRIPING AND CONDUIT PLAN	1035	1036	1037	1038	1039	1040	1041	-	1042	1043	1044	1045	1046	-	1047	-	1048	-	1049	-	1050	-	1051	1076	1077	1078	1079



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ADDENDUMS / REVISIONS	



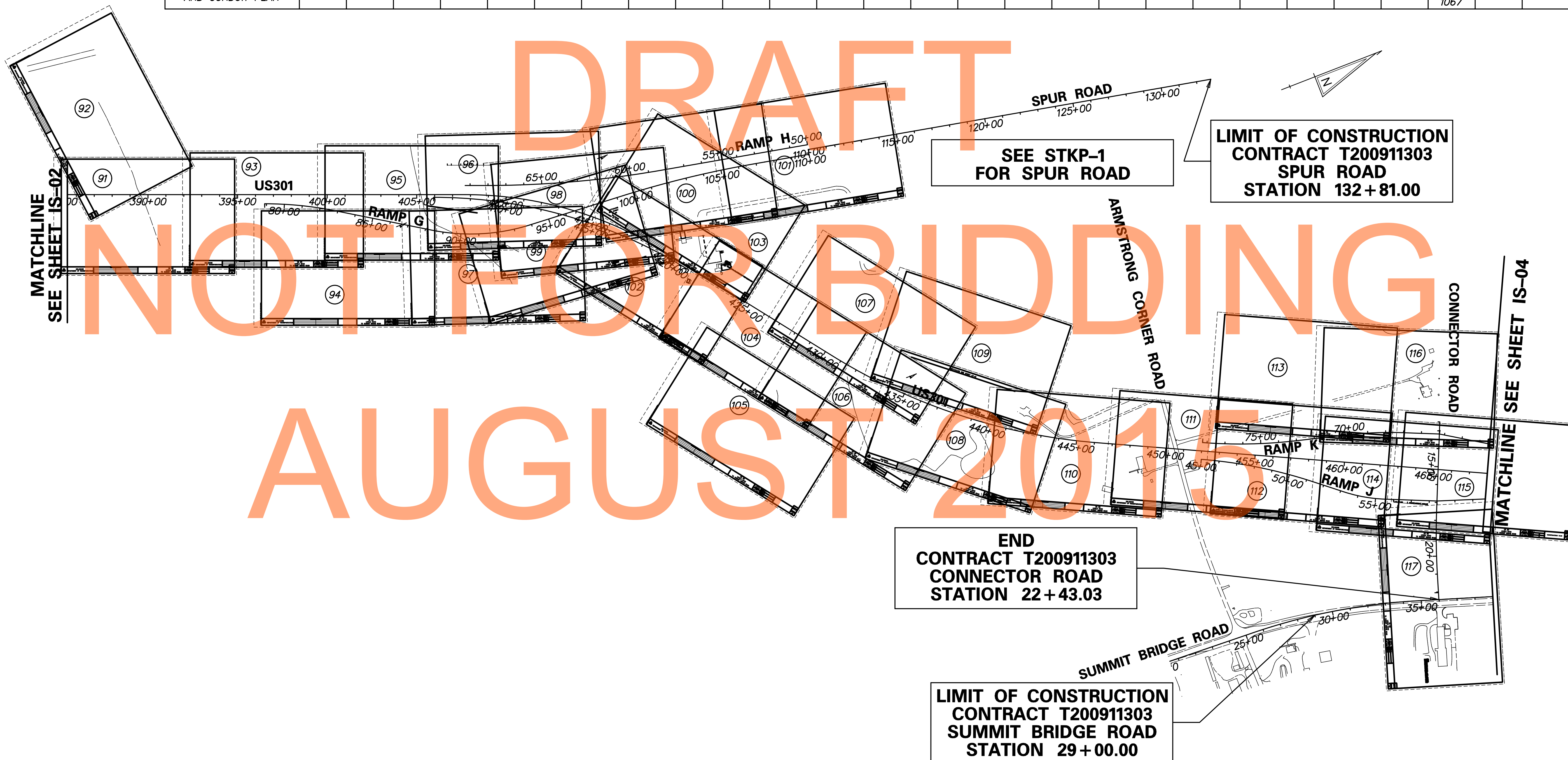
US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	T200911303
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	MS
CHECKED BY:	JF

PLAN SHEET INDEX

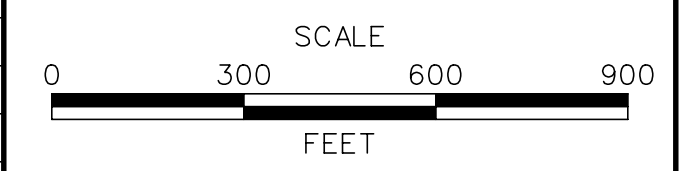
IS-02
SHEET NO.
3
TOTAL SHTS.
1256

PLAN SHEET INDEX CROSS REFERENCE																												
CONSTRUCTION PLAN	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	
PROFILES	145 & 146	-	146, 147 & 170	-	147, 148, 170 & 171	148, 169 & 177	171	148, 149, 169 & 177	171 & 172	172, 173 & 176	173, 174 & 175	149, 150 & 169	-	150 & 151	-	151	-	151 & 152	-	152 & 153	153 & 154	154, 178, 179 & 180	-	154, 155, 178, 180 & 181	155, 182, 184, 185 & 187	-	182	
GRADES AND GEOMETRICS	205	-	206	-	207	208	208	209	209	210	-	211	-	212	-	213	-	214	-	215	216	217	218	219	221	220	224	
STORMWATER MANAGEMENT	-	-	736	736	736	-	757	762 & 768	762 & 757	743 & 762	743	751	743	763	763	763	-	769	-	769	-	-	-	776	776	776	-	
ENVIRONMENTAL COMPLIANCE	-	-	846	-	847	-	-	-	-	-	-	-	-	-	848	849	-	-	850	-	851	-	852	853	-	-	854	-
CONSTRUCTION PHASING, M.O.T. AND E&S	875, 896 & 918	875, 896 & 918	875, 876, 896, 897, 918 & 919	876, 897 & 919	876, 897 & 919	876, 897 & 919	876, 897 & 919	876, 897, 898, 919 & 920	877, 898 & 920	878, 899 & 921	878, 899 & 921	877, 898 & 920	877, 898 & 920	877, 898 & 920	877, 898 & 920	877, 898 & 920	877, 879, 898, 900, 920 & 922	877, 879, 898, 900, 920 & 922	879, 900 & 922	879, 900 & 922	879, 880, 900, 901, 922 & 923	880, 901 & 923	880, 901 & 923	880, 901 & 923	880, 881, 901, 902, 923 & 924	881, 902 & 924	882, 903 & 925	884, 905 & 927
LANDSCAPING PLAN	-	-	984	985	986	987	-	-	-	-	-	988	-	989	990	991	-	992	-	993	994	-	-	-	995	996	-	
LIGHTING PLAN	1010	-	1011	-	1012	1013	-	1014	-	-	-	-	-	-	-	-	-	-	1015	-	1015	1016	1017	-	-	1018	-	1020
SIGNING, STRIPING AND CONDUIT PLAN	1052	1053	1054	-	1055	1056	-	1057	-	-	-	1058	-	1059	-	1060	-	1061	-	1062	1063	1064	-	1065	1066 & 1067	-	1068	



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ADDENDUMS / REVISIONS



US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	T200911303
COUNTY	NEW CASTLE
BRIDGE NO.	
DESIGNED BY:	MS
CHECKED BY:	JF

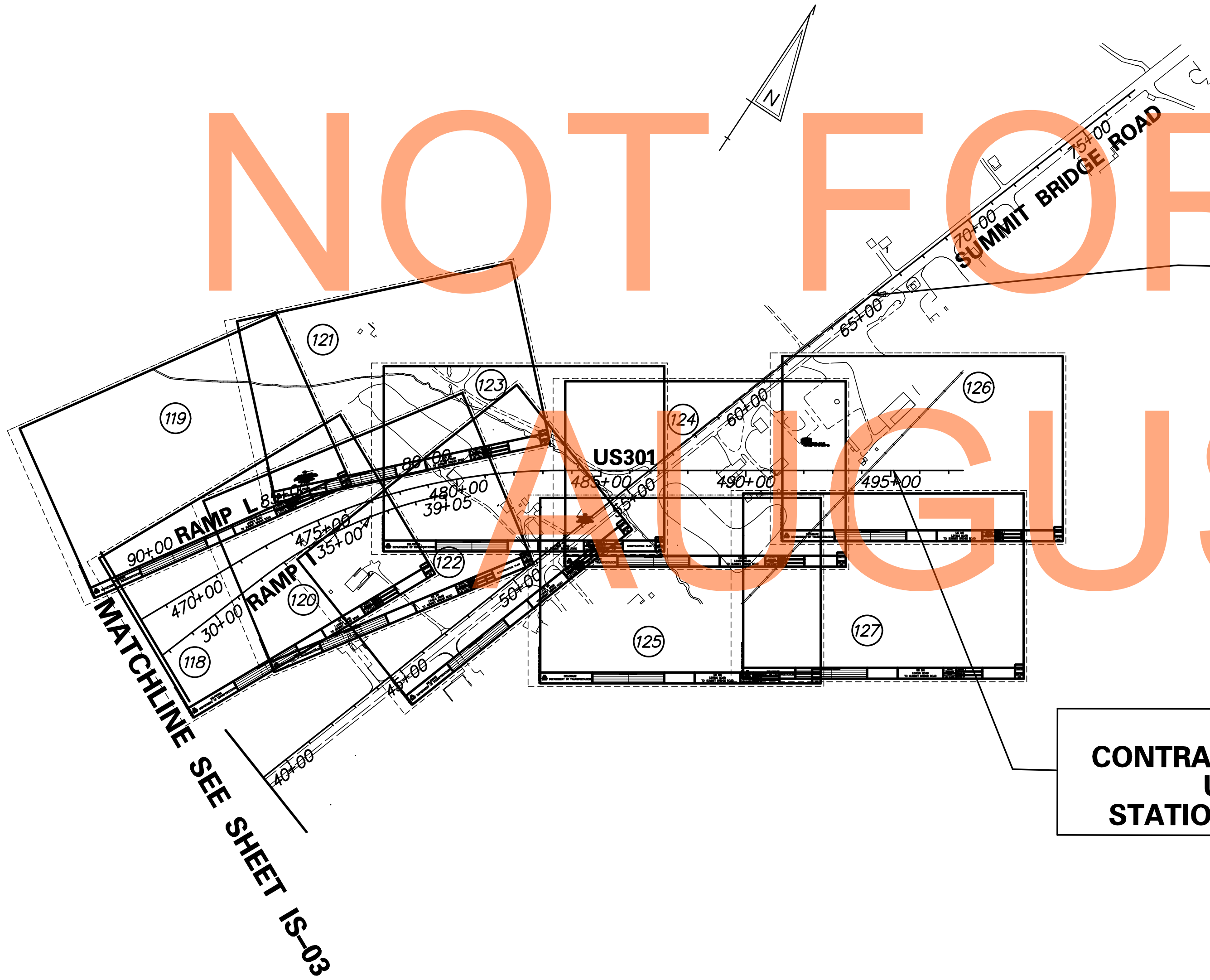
PLAN SHEET INDEX

IS-03
SHEET NO.
4
TOTAL SHTS.
1256

PLAN SHEET INDEX CROSS REFERENCE										
CONSTRUCTION PLAN	(118)	(119)	(120)	(121)	(122)	(123)	(124)	(125)	(126)	(127)
PROFILES	155, 156, 183, 184 & 185	-	156, 157, 183, 185 & 186	-	-	157, 183 & 186	158	-	158 & 159	-
GRADES AND GEOMETRICS	225	226	226	226	-	227	228	-	229	230
STORMWATER MANAGEMENT	-	-	781	781	788	781 & 788	796	796	-	796
ENVIRONMENTAL COMPLIANCE	-	-	-	-	-	855	856	857	-	-
CONSTRUCTION PHASING, M.O.T. AND E&S	881, 902 & 924	881, 882, 902, 903, 924 & 925	881, 902 & 924	883, 904 & 926	884, 905 & 927	883, 904 & 926	883, 904 & 926	883, 904 & 926	883, 904 & 926	883, 904 & 926
LANDSCAPING PLAN	-	-	997	-	998	-	-	-	-	-
LIGHTING PLAN	1021	-	1022	-	-	1023	1024	-	-	-
SIGNING, STRIPING AND CONDUIT PLAN	1071	-	1072	-	-	1073	1074	-	1075	-

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NOT FOR BIDDING



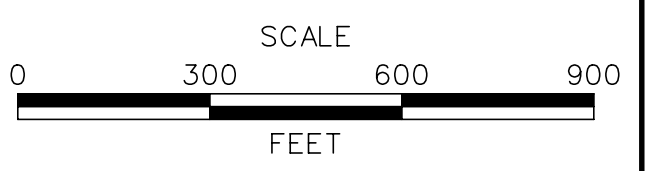
LIMIT OF CONSTRUCTION
CONTRACT T200911303
SUMMIT BRIDGE ROAD
STATION 65 + 80.00

END
CONTRACT T200911303
US 301
STATION 495 + 10.00

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ADDENDUMS / REVISIONS	



US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.
T200911303	
COUNTY	DESIGNED BY: MS
NEW CASTLE	CHECKED BY: JF

PLAN SHEET INDEX

IS-04
SHEET NO.
5
TOTAL SHTS.
1256

EXISTING SYMBOLS

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

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

NATURAL ROADSIDE FEATURES	
	GRASS LAWN
	HEDGEROW OR THICKET
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	SHRUBBERY
	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY
	ORDINARY HIGH WATER
	ORDINARY HIGH WATER/WETLAND BOUNDARY

SURVEY CONTROL & MONUMENTATION	
	SURVEY BENCHMARK LOCATION
	SURVEY TIE POINT LOCATION
	SURVEY TRAVERSE POINT
	POINT OF CURVATURE OR TANGENCY
	POINT OF INTERSECTING TANGENTS
	PROPERTY MARKER - CONCRETE MON.
	PROPERTY MARKER - IRON PIPE

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

UTILITY COMPANY FACILITIES	
	AT&T FIBER OPTIC CABLE
	CHESAPEAKE UTILITY GAS
	DELMARVA POWER ELECTRIC
	DELMARVA POWER ELECTRIC-OVERHEAD
	EASTERN SHORE NATURAL GAS GASLINE
	TOWN OF MIDDLETOWN SEWER
	TOWN OF MIDDLETOWN WATER
	VERIZON CABLE

MISCELLANEOUS	
	HISTORIC AREA

DRAFT

NOT FOR BIDDING

AUGUST 2015

LAST REVISED: 3/12/2008
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PROPOSED SYMBOLS

CONSTRUCTION	
	CONCRETE SAFETY BARRIER - PERMANENT
	BIOFILTRATION SWALE
	BUTT JOINT
	CONSTRUCTION BASELINE
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB & GUTTER, TYPE 4
	CLEAR ZONE
	DRAINAGE INLET
	DITCH
	FENCE - METAL
	FENCE - WOOD
	FLARED END SECTION
	GUARDRAIL, TYPES 1 & 3
	GUARDRAIL, TYPE 2
	GUARDRAIL END TREATMENT - PARALLEL
	GUARDRAIL END TREATMENT - PARABOLIC
	HORIZONTAL CLEARANCE
	JUNCTION BOX - DRAINAGE
	LIMIT OF CONSTRUCTION
	MANHOLE
	PAVEMENT PATCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK @ 4"
	P.C.C. SIDEWALK @ 6"
	UNDERDRAIN
	UNDERDRAIN OUTLET

CONSTRUCTION PHASING SYMBOLS	
	BARRICADE, TYPE 3
	CONCRETE SAFETY BARRIER - PORTABLE
	CONSTRUCTION WARNING SIGN LOCATION
	CONSTRUCTION WARNING SIGN
	CRASH CUSHION ARRAY
	DRUM - TRAFFIC CONTROL
	PHASING TRAFFIC FLOW ARROW

LANDSCAPING	
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

PROPOSED UTILITIES	
	ARTESIAN WATER LINE
	AT&T FIBER OPTIC CABLE UG
	CHESAPEAKE UTILITIES GASLINE
	DELMARVA POWER ELECTRIC LINE OH
	DELMARVA POWER ELECTRIC LINE UG
	VERIZON ELECTRIC LINE OH
	VERIZON ELECTRIC LINE UG
	PROPOSED TOWN OF MIDDLETOWN ELECTRIC
	PROPOSED ATLANTIC BROADBAND CABLE
	PROPOSED EASTERN SHORE NATURAL GAS

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

PAVEMENT SECTION(S)	
	OVERLAY PAVEMENT - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS
	RECONSTRUCTED PAVEMENT - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS
	DRIVEWAY AND ENTRANCE PAVEMENT - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS

IDENTIFIERS	
	ADJUST BY CONTRACTOR
	ADJUST BY OTHERS
	CONCRETE SAFETY BARRIER
	CURB OR CURB & GUTTER
	CONVERT TO JUNCTION BOX
	CONVERT TO DRAINAGE MANHOLE
	CURB OPENING
	CURB RAMP / TYPE
	CURB RAMP / TYPE - WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM
	DRAINAGE INLET
	DO NOT DISTURB
	FLARED END SECTION
	FILTRATION STRUCTURE
	GUARDRAIL
	JUNCTION BOX
	LANDSCAPE PLANTINGS
	MANHOLE
	MONUMENT - RIGHT-OF-WAY
	PIPE
	RELOCATE BY CONTRACTOR
	RELOCATE BY OTHERS
	REMOVE BY CONTRACTOR
	REMOVE BY OTHERS
	SEDIMENT TRAP
	SILT FENCE
	UNDERDRAIN

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

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

MISCELLANEOUS	
	CABINET
	RESOURCE PROTECTION FENCE
	TOP OF EARTH BERM
	STORMWATER MANAGEMENT AREA
	LIMIT OF CONSTRUCTION - BASIN
	BASIN MAINTENANCE ACCESS ROAD
	STONE BASIN MAINTENANCE ACCESS ROAD
	HAUL ROAD
	TEMPORARY TOPSOIL STOCKPILE OR STAGING AREA
	HEADWATER ELEVATION LINE
	UNDERDRAIN OUTLET
	RESOURCE PROTECTION FENCE
	RIPRAP
	EROSION CONTROL BLANKET
	CULVERT INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	STONE CHECK DAM
	HEADWALL
	LUMINAIRE BY OTHERS
	CANTILEVER SIGN
	DUAL POST TRAFFIC SIGN BREAK-A-WAY
	TRIPLE POST TRAFFIC SIGN BREAK-A-WAY
	LIGHTING STANDARD IDENTIFIER (BY OTHERS AND PROPOSED)
	LIGHTING SERVICE RUN IDENTIFIER (BY OTHERS AND PROPOSED)
	JUNCTION WELL & TYPE (EXISTING AND PROPOSED)
	STRUCTURE MOUNTED JUNCTION BOX & TYPE (EXISTING AND PROPOSED)
	UNDERPASS WALL LIGHTER (EXISTING AND PROPOSED)
	PROPOSED METERED SERVICE PEDESTAL
	PROPOSED WALL LIGHTER - TYPE 'WP' FIXTURES ON BRIDGE WALL
	PROPOSED LIGHTING CONTROL CABINET
	PROPOSED LIGHTING CONDUIT BY OTHERS ITMS/TOOL BOOTH POWER CONDUIT
	LIGHTING CONDUIT (BY OTHERS)
	PROPOSED TOLL BOOTH LIGHTING CONDUIT
	PROPOSED GROUND ROD
	PROPOSED JUNCTION WELL
	PROPOSED STRUCTURE MOUNTED JUNCTION BOX
	ABANDON
	FUTURE POWER POLE (BY OTHERS)
	FUTURE POLE MOUNTED TRANSFORMER (BY OTHERS)
	CONSTRUCTION SAFETY FENCE
	CONSTRUCTED RIFFLE
	IMBRICATED ROCK
	CONSTRUCTION SAFETY FENCE
	DRAINAGE AREA
	PROPOSED ORDINARY HIGH WATER

LAST REVISED: 3/12/2008
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PROJECT NOTES (CONT'D)

E. PAYMENT CLARIFICATION:

- a. SHOULD THE CONTRACTOR ELECT TO MILL PORTIONS OF HOT-MIX SHOWN ON THE PLANS TO BE REMOVED UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT THE COST OF MILLING THIS HOT-MIX WILL BE PAID AS ITEM 202000 - EXCAVATION AND EMBANKMENT. THE MILLINGS GENERATED MAY BE RECYCLED INTO HOT-MIX, UTILIZED FOR BASE COURSE, OR DISPOSED OF TO AN APPROVED SITE. HAULING COSTS FOR DISPOSAL AND/OR RECYCLING ARE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.
- b. MILLINGS GENERATED UNDER ITEM 760502 - PAVEMENT MILLINGS, TAPER CUT MAY BE RECYCLED INTO HOT-MIX, UTILIZED FOR BASE COURSE OR DISPOSED OF BY THE CONTRACTOR TO AN APPROVED SITE. NO SEPARATE PAYMENT WILL BE MADE FOR TRANSPORTING MILLINGS ON SITE OR TO AN APPROVED DISPOSAL SITE.
- c. SHOULD THE CONTRACTOR ELECT TO TEMPORARILY STOCKPILE MILLINGS ON THE JOB SITE FOR LATER USE, ALL COSTS FOR STOCKPILING AND SUBSEQUENT REHANDLING SHALL BE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.
- d. MILLINGS USED FOR BASE COURSE SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE. NO SEPARATE PAYMENT WILL BE MADE TO FURNISH MILLINGS FROM AN OUTSIDE SOURCE OR TRANSPORT MILLINGS WITHIN THE PROJECT LIMITS. MILLINGS USED FOR BASE COURSE WILL BE PAID IN PLACE AT THE UNIT BID PRICE FOR ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.
- e. ALL COSTS TO UTILIZE MILLINGS IN RECYCLED HOT-MIX WILL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE HOT-MIX ITEM USING THE RECYCLED MATERIAL.
- f. SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE IS PROVIDED TO SPECIFY THE MEANS OF LAY DOWN AND COMPACTION AS WELL AS THE MATERIAL REQUIREMENTS FOR MILLINGS USED AS BASE COURSE. ALL COSTS TO BRING THE MILLINGS INTO COMPLIANCE WITH THE REQUIREMENTS OF ITEM - 302514 MILLED HOT-MIX BASE COURSE ARE INCIDENTAL TO ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'. NO PAYMENT WILL BE MADE FOR ITEM 302514 - MILLED HOT-MIX BASE COURSE. THE QUANTITY OF MILLINGS USED FOR BASE COURSE WILL BE PAID FOR UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE.

SECTION 400

19. MEASURES FOR MAINTAINING PUBLIC TRAFFIC, SUCH AS TEMPORARY ROADS, DETOURS, RUN-AROUNDS, ETC, SHALL BE CONSTRUCTED UTILIZING THE APPLICABLE STANDARD BID ITEMS, NOT TEMPORARY ROADWAY MATERIAL (TRM). TRM IS INTENDED FOR MAINTAINING INGRESS AND EGRESS TO PROPERTIES OR BUSINESSES AS WELL AS MAINTENANCE OF EXISTING PUBLIC ROADWAYS. TRM SHALL ALSO BE USED TO MAINTAIN DETOUR ROADS, ETC. AFTER THEIR INITIAL CONSTRUCTION.
20. PRIOR TO PLACEMENT OF ANY SECTION OF PCC PAVEMENT, THE UNDERLYING BASE COURSES OF SOIL CEMENT AND PERMEABLE TREATED BASE SHALL BE COMPLETED TO THEIR FULL WIDTH (OUTSIDE OF SHOULDER TO OUTSIDE OF SHOULDER) AND THE UNDERDRAIN AND UNDERDRAIN OUTLETS INSTALLED FOR THE ENTIRE SECTION OF PAVING BEING CONSIDERED BY THE CONTRACTOR.
21. THE CONTRACTOR SHALL SCHEDULE HIS WORK SO THAT ALL PERMEABLE TREATED BASE (PTB) PLACED DURING ANY ONE CONSTRUCTION SEASON IS COVERED WITH PCC OR HOT MIX PAVEMENT, AS APPLICABLE, BY THE END OF THE CONSTRUCTION SEASON. ANY PTB WHICH HAS NOT BEEN PAVED OVER AT THE END OF THE SEASON MUST BE ENTIRELY COVERED WITH POLYETHYLENE SHEETING, PROPERLY ANCHORED AND OVERLAPPED AT LEAST EIGHTEEN INCHES FOR THE WINTER AND UNTIL PAVING OPERATIONS RESUME. NO CONSTRUCTION TRAFFIC OF ANY KIND WILL BE PERMITTED TO TRAVERSE OVER PTB AT ANY TIME, EITHER UNCOVERED OR COVERED WITH POLYETHYLENE, EXCEPT FOR NECESSARY EQUIPMENT UTILIZED DURING PAVING OPERATIONS. THE COST OF FURNISHING, INSTALLING AND MAINTAINING THE POLYETHYLENE SHEETING SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE PTB.
22. EXCEPT FOR NECESSARY EQUIPMENT UTILIZED DURING PAVING OPERATIONS, NO CONSTRUCTION TRAFFIC OF ANY KIND SHALL BE PERMITTED TO RUN ON THE SOIL CEMENT BASE COURSE.

SECTION 600

23. THE DEPARTMENT AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES AND DRAINAGE STRUCTURES TO BE USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION PRIOR TO THE START OF CONSTRUCTION. EXISTING PIPES AND DRAINAGE STRUCTURES DAMAGED DUE TO CONTRACTOR OPERATIONS SHALL BE REPAIRED OR REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE. THE DEPARTMENT WILL VIDEO INSPECT NEW PIPE RUNS TO CONFIRM CONDITION PRIOR TO ACCEPTANCE. PIPE CLEANING PRIOR TO VIDEO INSPECTION AND MAINTENANCE OF TRAFFIC DURING THE VIDEO INSPECTION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO THE PIPE ITEM THAT IS BEING VIDEO INSPECTED.
24. ITEM 602002 P.C.C. MASONRY, CLASS B SHALL BE USED TO CONSTRUCT MISCELLANEOUS TYPES OF STRUCTURES SUCH AS PAIDS, BOLLARDS, ENCASEMENTS, ETC. AS DIRECTED BY THE ENGINEER UNLESS THE WORK IS TO BE PAID OTHERWISE AS INDICATED IN THE CONTRACT DOCUMENTS. THESE MISCELLANEOUS TYPES OF STRUCTURES ARE ANTICIPATED TO INVOLVE LESS THAN FIVE CUBIC YARDS PER SITE. THE VOLUME MEASURED FOR PAYMENT SHALL BE THE VOLUME OF P.C.C. MASONRY ACTUALLY PLACED TO CONSTRUCT THE MISCELLANEOUS STRUCTURE WITHIN THE LIMITS APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH FURNISHING ALL LABOR, EQUIPMENT, TOLLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK INCLUDING CONCRETE, REINFORCING STEEL, EXCAVATION, BACKFILL, BACKFILLING, ETC. SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 602002 - P.C.C. MASONRY, CLASS B.

SECTION 700

26. STATION AND ELEVATION DATA GIVEN FOR DRAINAGE STRUCTURES ARE TO BE APPLIED TO THE CENTER OF THE GRATE FOR INLETS AND TO THE CENTER OF THE STRUCTURE FOR JUNCTION BOXES AND MANHOLES.
27. DRAINAGE INLET GRATES ADJACENT TO THE ROAD, WITHIN THE PROJECT LIMITS, WHICH ARE NOT TYPE 1, SHALL BE REPLACED. THE ACTUAL LOCATIONS, THE NEED FOR ANY GRATE MODIFICATIONS OR FOR NEW FRAMES SHALL BE DETERMINED BY THE ENGINEER. ALL REPLACED GRATES/FRAMES SHALL BE DELIVERED TO THE NEAREST DISTRICT MAINTENANCE YARD WITH THE COST OF DELIVERY INCIDENTAL TO ITEM 708500 - REPLACING CATCH BASIN GRATES. FINAL PAYMENT FOR REPLACED GRATES/FRAMES SHALL NOT BE MADE UNTIL RECEIPT OF DELIVERED MATERIALS IS PRODUCED, SIGNED BY A DELDOT MAINTENANCE YARD SUPERVISOR.
28. THE NEW CASTLE COUNTY DEPARTMENT OF PUBLIC WORKS SHALL SUPPLY AND THE STATE'S CONTRACTOR SHALL INSTALL NEW SELF SEALING MANHOLE FRAMES AND COVERS ON ALL COUNTY SEWER MANHOLES THAT ARE NOT BEING RELOCATED, WITHIN THE PROJECT LIMITS IN ACCORDANCE WITH THE COUNTY'S STANDARD SPECIFICATIONS. THE EXISTING MANHOLE FRAMES AND COVERS THAT ARE REMOVED SHALL BECOME THE PROPERTY OF THE STATE'S CONTRACTOR. PAYMENT SHALL BE INCIDENTAL TO ITEM 710506 - ADJUST AND REPAIR EXISTING SANITARY SEWER MANHOLE.
29. ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT.

30. ALL UNDERDRAIN OUTLETS, CATCH BASINS, PIPES, CONDUITS, JUNCTION WELLS, ETC. IN GUARDRAIL AREAS OR NEAR OTHER CONSTRUCTION YET TO BE PERFORMED SHALL BE VISIBLY MARKED BY THE CONTRACTOR AT THE TIME OF INSTALLATION IN ORDER TO AVOID FUTURE DAMAGE DURING DRIVING OF THE GUARDRAIL POSTS OR PERFORMANCE OF OTHER CONSTRUCTION. THE LOCATION OF GUARDRAIL POSTS AND OTHER CONSTRUCTION SHALL BE STAKED IN THE FIELD PRIOR TO PLACING THESE ITEMS. THE LOCATION OF THESE ITEMS SHALL BE ADJUSTED TO AVOID CONFLICTS WITH THE GUARDRAIL OR OTHER CONSTRUCTION. ALTERATIONS TO THE GUARDRAIL POST SPACING WILL NOT BE ALLOWED. ANY WORK REQUIRED TO RELOCATE THESE ITEMS DUE TO CONFLICTS WITH GUARDRAIL OR OTHER CONSTRUCTION SHALL BE PERFORMED TO THE SATISFACTION OF THE ENGINEER AND SHALL BE AT THE CONTRACTOR'S EXPENSE, INCLUDING ANY REMOVAL AND REPLACEMENT OF PAVEMENT.
31. DELDOT OR ITS REPRESENTATIVE SHALL FURNISH AND INSTALL RIGHT-OF-WAY MONUMENTS AFTER THE COMPLETION OF THE PROJECT. LOCATIONS OF RIGHT-OF-WAY MONUMENTS ARE PROVIDED ON THE PLANS FOR INFORMATION ONLY.
32. THE COST OF ANY FLOODLIGHTING NECESSARY DUE TO WORK BY THE CONTRACTOR ON ANY ITEM OCCURRING AFTER DARK SHALL BE INCIDENTAL TO THE BID PRICE OF THE ITEM BEING CONSTRUCTED AFTER DARK. DURING NIGHT WORK, ALL PERSONS WITHIN THE WORK ZONE SHALL HAVE SAFETY WEAR IN ACCORDANCE WITH THE DEMUTCD.
33. ITEM 727000 - RIGHT-OF-WAY FENCE SHALL BE INSTALLED BY HAND IN SENSITIVE AREAS. SENSITIVE AREAS INCLUDE WOODS, WETLANDS, STREAMS, CULTURAL RESOURCE AREAS AND OTHER AREAS AS SHOWN ON THE PLANS AND AS DETERMINED BY THE ENGINEER. THERE SHALL BE NO VEHICLE ACCESS AND GRUBBING FOR THE PURPOSES OF INSTALLING RIGHT-OF-WAY FENCE IN SENSITIVE AREAS. CLEARING OF VEGETATION FOR THE PURPOSE OF INSTALLING RIGHT-OF-WAY FENCE SHALL BE KEPT TO A MINIMUM IN SENSITIVE AREAS. IF REMOVAL OF VEGETATION CANNOT BE AVOIDED, THE VEGETATION SHALL BE CUT FLUSH WITH THE GROUND SURFACE (I.E., NO DISTURBANCE OF THE ROOT MAT). HAND-MIXED CONCRETE SHALL BE USED FOR CONCRETE FOOTINGS IN SENSITIVE AREAS. POST SPACING SHALL BE ADJUSTED AS APPROVED BY THE ENGINEER TO COMPLY WITH THE MINIMUM AND MAXIMUM CLEARANCE OF THE BOTTOM OF THE FABRIC. NO EXCAVATION OR BACKFILLING OF THE EXISTING GROUND SHALL BE CONDUCTED TO COMPLY WITH THE MINIMUM AND MAXIMUM CLEARANCE OF THE BOTTOM OF FABRIC OVER GROUND IN SENSITIVE AREAS. EXCAVATIONS FOR POSTS AND FOOTERS WITHIN SENSITIVE AREAS THAT WILL BE USED FOR BACKFILLING OF THE POSTS AND FOOTERS SHALL BE PLACED ON PLASTIC AND ANY EXCESS EXCAVATIONS SHALL BE REMOVED AND DISPOSED OF IN NON-SENSITIVE AREAS AS APPROVED BY THE ENGINEER.
34. IN AREAS WHERE PROPOSED CURB MEETS EXISTING CURB AND THE TWO CURB TYPES ARE NOT SIMILAR, THE PROPOSED CURB SHALL BE TRANSITIONED IN 10 LINEAR FEET, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS WORK, INCLUDING SAW CUTTING EXISTING CURB SHALL BE INCIDENTAL TO THE PROPOSED CURB ITEM.
35. WHERE PROPOSED CONCRETE SIDEWALK IS CONSTRUCTED TO MEET EXISTING SIDEWALK, THE EXISTING SIDEWALK SHALL BE SAWCUT AT THE TIE-IN POINT OR MEET THE NEAREST EXISTING SIDEWALK JOINT. ALL SAW CUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER AND SHALL BE PAID FOR UNDER ITEM 762002 - SAWCUTTING, CONCRETE, FULL DEPTH.

SECTION 900

36. THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOIS KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S STORMWATER SECTION. A COPY OF THE GENERAL PERMIT OR THE NOICAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.
37. SEDIMENT BASIN CONSTRUCTION AND MAINTENANCE:
 - A. CLEARING AND GRUBBING OF SEDIMENT BASIN POND AREAS IS TO BE INCLUDED IN THE LUMP SUM PRICE FOR ITEM 201000.
 - B. ALL EXCAVATION AND EMBANKMENT REQUIRED FOR CONSTRUCTION OF SEDIMENT BASINS WILL BE PERFORMED, MEASURED AND PAID FOR UNDER ITEM 202000, EXCAVATION AND EMBANKMENT.
 - C. REMOVAL OF SEDIMENT FROM THE SEDIMENT BASIN SHALL BE PERFORMED WHEN THE CLEANOUT ELEVATION IS REACHED AS NOTED ON THE PLANS.
 - D. SEDIMENT REMOVAL FROM THE SEDIMENT BASIN SHALL BE MEASURED FOR PAYMENT UNDER ITEM 202000. ONLY REMOVAL OF SEDIMENT FROM A SEDIMENT BASIN SHALL BE MEASURED FOR PAYMENT UNDER ITEM 202000.
 - E. REMOVAL OF SEDIMENT FROM ALL OTHER EROSION AND SEDIMENT CONTROL DEVICES AND REMOVAL OF SEDIMENT THAT HAS BYPASSED OR OTHERWISE NOT BEEN TRAPPED BY ANY SEDIMENT CONTROL DEVICE SHALL BE INCLUDED IN THE PAYMENT FOR THE SEDIMENT CONTROL ITEM PER SECTION 900.

MISCELLANEOUS

38. THE CONTRACTOR SHALL FOLLOW ALL STATE AND LOCAL ORDINANCES CONCERNING NOISE DURING THE DURATION OF THE CONSTRUCTION ACTIVITIES.
39. THE CONTRACTOR SHALL CONTACT MICHAEL ELLER, THE CHIEF OF SCHEDULING FOR DART FIRST STATE, 14 DAYS PRIOR TO THE START OF CONSTRUCTION AT 302-576-6061.
40. REFER TO THE CONSTRUCTION PLAN SHEETS FOR THE LOCATION OF THE CLEAR ZONE AREA LIMITS.
41. ANY CHANGES TO OR DEVIATIONS FROM THESE PLANS REQUESTED BY THE CONTRACTOR MUST BE REVIEWED AND APPROVED BY THE ENGINEER AND ENVIRONMENTAL MONITOR PRIOR TO CONDUCTING ANY WORK. 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 THE APPROVAL OR REJECTION OF REQUESTED CHANGES OR DEVIATIONS FROM THESE PLANS.
42. RESTORATION OF TEMPORARY IMPACTS
 - A. PRIOR TO PERFORMING ANY WORK ASSOCIATED WITH TEMPORARY IMPACTS TO DELINEATED WETLANDS, THE CONTRACTOR SHALL STAKE THE LIMITS OF TEMPORARY DISTURBANCE WITHIN THE WETLANDS AND ALLOW 14 CALENDAR DAYS FOR DELDOT TO OBTAIN EXISTING TOPOGRAPHY SURVEY WITHIN THE TEMPORARY DISTURBANCE. THIS EXISTING SURFACE SHALL BE PROVIDED TO AND ACCEPTED BY THE CONTRACTOR BEFORE ANY WORK IS PERFORMED WITHIN THE WETLANDS. THE CONTRACTOR SHALL HAVE 5 CALENDAR DAYS TO RESPOND TO THE EXISTING SURFACE INFORMATION OR OTHERWISE IT SHALL BE CONSIDERED ACCEPTED. THE EXISTING SURFACE PLAN SHALL BE PROVIDED IN BOTH DIGITAL AND PAPER COPIES CONFORMING TO DELDOT CAD STANDARDS AT THE SAME SCALE AS THE CONTRACT PLANS.
 - B. UPON MUTUAL ACCEPTANCE OF THE EXISTING SURFACE TOPOGRAPHY PLAN, THE CONTRACTOR SHALL INSTALL THE NECESSARY EROSION AND SEDIMENT CONTROL DEVICES AND RESOURCE PROTECTION FENCE AS SHOWN ON THE PLANS AND DIRECTED BY THE ENGINEER. THE AREA OF THE TEMPORARY DISTURBANCE MAY BE CLEARED OF VEGETATION AS NECESSARY. VEGETATION SHALL NOT BE GRUBBED, AND SHALL BE CUT FLUSH WITH THE GROUND (I.E., NO DISTURBANCE OF THE ROOT MAT).

- C. INSTALL THE TEMPORARY ACCESS ROAD OR OTHER NEEDED TEMPORARY DISTURBANCE AS SHOWN ON THE PLANS OR APPROVED BY THE ENGINEER. GEOTEXTILE SHALL BE PLACED ON TOP OF THE EXISTING GROUND TO PROVIDE SEPARATION BETWEEN THE EXISTING GROUND AND ANY PLACED MATERIALS.
- D. WHEN THE CONTRACTOR HAS COMPLETED THE WORK REQUIRING THE TEMPORARY WETLAND DISTURBANCE, ALL MATERIALS THAT WERE PLACED BY THE CONTRACTOR SHALL BE REMOVED IN THEIR ENTIRETY. ONCE ALL MATERIALS HAVE BEEN REMOVED, THE CONTRACTOR SHALL ALLOW 14 CALENDAR DAYS FOR DELDOT TO OBTAIN EXISTING SURFACE ELEVATIONS OF THE DISTURBED AREA FOLLOWING THE SAME PROCEDURE DESCRIBED ABOVE FOR OBTAINING ORIGINAL ELEVATIONS. THESE EXISTING SURFACE ELEVATIONS SHALL BE PROVIDED TO THE CONTRACTOR AND INCLUDE A PLAN SHOWING THE ELEVATION DIFFERENCES BETWEEN THE ORIGINAL AND EXISTING SURFACES.
- E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THE TEMPORARY DISTURBED AREA TO ORIGINAL ELEVATIONS WITH A GRADING TOLERANCE OF PLUS OR MINUS 0.1 FEET. RESTORATION OF THE DISTURBED AREA SHALL BE ACCOMPLISHED IN THE FOLLOWING MANNER:
 - I. TILL THE GROUND WITHIN THE DISTURBED AREA TO LOOSEN UP THE SOILS DUE TO COMPACTION DURING CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS OF ITEM 202555 SUBSOIL TILLAGE. MINIMUM VERTICAL TILLAGE DEPTH SHALL BE 24 INCHES AS MEASURED BY FIELD PERFORMANCE.
 - II. PLACE TOPSOIL TO FILL DEPRESSIONS TO THE ORIGINAL GROUND ELEVATIONS. TOPSOIL SHALL BE THE TOP 9 INCHES OF SOIL OBTAINED FROM AN ACTIVE OR RECENTLY (LESS THAN 2 YEARS) FALLOW OR ABANDONED CROP PRODUCING FARM FIELD OR A SANDY LOAM WITH A MINIMUM OF 4% ORGANIC MATTER.
 - III. DISK THE FINAL TOPSOIL SURFACE WITHIN THE DISTURBED AREA TO PREPARE THE AREA FOR SEED. USE A MINIMUM OF 3 PASSES OF A DISK USING LOW GROUND PRESSURE EQUIPMENT TO A MINIMUM DEPTH OF 4 INCHES.
 - IV. WHEN THE CONTRACTOR BELIEVES THAT RESTORATION OF THE ORIGINAL ELEVATIONS HAS BEEN ACHIEVED, 7 CALENDAR DAYS SHALL BE ALLOWED FOR THE AREA TO AGAIN BE SURVEYED BY DELDOT UNDER THE SAME CONDITIONS DESCRIBED ABOVE AND THE SURVEY PLAN OF THE RESTORED ELEVATIONS WILL BE PROVIDED TO THE CONTRACTOR. DELDOT SHALL ADVISE THE CONTRACTOR IF ADDITIONAL RESTORATION WORK IS REQUIRED AND THE CONTRACTOR SHALL ADDRESS THOSE AREAS AND ALLOW FOR 7 CALENDAR DAYS FOR NEW SURVEY INFORMATION TO BE OBTAINED UNTIL THE RESTORATION IS APPROVED BY DELDOT.
- F. UPON ACCEPTANCE OF THE RESTORED ELEVATIONS, THE CONTRACTOR SHALL APPLY WET GROUND EROSION CONTROL SEEDING - FLATS AND STRAW MULCH TO THE AREA WITHIN THE DISTURBED WETLANDS. SEEDING SHALL CONFORM TO ITEM 734553 - WETLAND MITIGATION GRASS SEEDING- FLATS. STRAW MULCH SHALL CONFORM TO SECTION 735.
- G. THE RESTORED AREAS WITHIN THE LIMITS OF THE DELINEATED WETLANDS SHALL BE PLANTED IN ACCORDANCE WITH 737523. SMOOTH ALDER SHALL BE PLANTED 10 FOOT ON CENTER ON SLOPES FLATTER THAN 5:1 AND SOUTHERN ARROWWOOD SHALL BE PLANTED 10 FOOT ON CENTER ON SLOPES STEEPER THAN 5:1. PLANTS SHALL BE INSTALLED DURING THE FIRST AVAILABLE PLANTING WINDOW PER THE STANDARD SPECIFICATIONS.
- H. UPON FINAL ACCEPTANCE OF THE PLANTING, THE CONTRACTOR SHALL REMOVE THE RESOURCE PROTECTION FENCING AND THE EROSION AND SEDIMENT CONTROL MEASURES.
- I. ALL COSTS FOR INSTALLING, REMOVING AND RESTORING THE TEMPORARY WETLAND ACCESS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 202508 - WETLAND ACCESS ROAD WITH THE EXCEPTION OF:
 - I. RESOURCE PROTECTION FENCE SHALL BE PAID UNDER ITEM 727552.
 - II. PLANTING SHALL BE PAID UNDER ITEM 737523 AND REINFORCED SILT FENCE, WHICH SHALL BE PAID UNDER ITEM 251001.
43. RESTORATION OF PERMANENT IMPACTS
 - A. PERMANENT IMPACTS TO CLEARED AND GRUBBED WETLANDS THAT HAVE NOT BEEN GRADED SHALL BE RESTORED WITH SEEDING AND SHRUB PLANTING AS INDICATED ON THE PLANS. SEEDING AND PLANTING SHALL BE CONDUCTED BETWEEN THE LIMITS OF GRADING AND THE LOC IN LOCATIONS DESIGNATED ON THE PLANS.
 - B. SEEDING SHALL VARY BASED ON SLOPE TO BE SEED. ON SLOPES 5:1 OR FLATTER, SEEDING SHALL BE PAID FOR AND CONDUCTED UNDER ITEM 734552 - WET GROUND EROSION CONTROL GRASS SEEDING - FLATS. ON SLOPES GREATER THAN 5:1 SEEDING SHALL BE PAID FOR AND CONDUCTED UNDER ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND.
 - C. SHRUBS SHALL BE PLANTED IN THE PERMANENT IMPACT RESTORATION AREA. THE SHRUB PLANTING WILL VARY BASED ON SLOPE OF THE PLANTED AREA. ON SLOPES 5:1 OR FLATTER, SHRUB PLANTING SHALL CONSIST OF CONTAINERIZED 3 TO 5 FOOT TALL SMOOTH ALDER (ALNUS SERRULATA) LOCATED 10 FOOT ON CENTER. ON SLOPES GREATER THAN 5:1 SHRUB PLANTING SHALL CONSIST OF CONTAINERIZED 3 TO 5 FOOT TALL SOUTHERN ARROWWOOD (VIBURNUM DENTATUM) LOCATED 10 FOOT ON CENTER. PERMANENT IMPACT RESTORATION SHRUB PLANTING SHALL BE PAID FOR AND CONDUCTED UNDER ITEM 737523 - PLANTING.
44. STREAM BOTTOM AND SLOPE RIPRAP TREATMENT
 - A. RIPRAP IN STREAMS IN THE FOLLOWING LOCATIONS SHALL BE TREATED AS SPECIFIED IN THE ENVIRONMENTAL COMPLIANCE NOTES:
 1. BRIDGE I-480, US 301 MAINLINE OVER SANDY BRANCH
 2. BRIDGE I-477, US 301 MAINLINE OVER TRIBUTARY TO SANDY BRANCH
 3. BRIDGE I-479, RAMP F OVER SANDY BRANCH
 4. I-508B, RAMP C OVER SANDY BRANCH
 5. RR-822 AT RAMP K STATION 75+60
 6. RR-825 AT RAMP K STATION 67+50
 7. I-508A, US 301 MAINLINE OVER DRAWYERS DITCH



RIGHT-OF-WAY MONUMENT SCHEDULE US 301

NO.	STATION	OFFSET	NORTHING	EASTING
M20	316+00.00	-165.00	528084.9331	562552.0756
M22	317+38.07	-165.00	528194.8696	562635.6017
M227	317+50.00	215.72	527974.0480	562945.9696
M24	319+00.00	-180.00	528332.8830	562721.6216
M23	321+00.00	205.00	528259.2300	563149.1780
M212	323+00.00	-180.00	528651.3836	562963.6079
M26	326+00.00	205.00	528657.3557	563451.6610
M25	326+50.00	-180.00	528930.0716	563175.3460
M27	328+50.00	-150.00	529071.1729	563320.2267
M30	330+62.56	205.00	529025.6640	563731.4897
M28	330+62.56	-150.00	529240.4269	563448.8204
M31	335+40.00	205.00	529425.3921	564015.5902
M32	335+50.00	-150.00	529629.9062	563725.2461
M35	338+23.64	205.00	529671.1497	564172.1286
M34	338+50.00	-150.00	529878.2409	563882.5812
M213	341+00.00	236.75	529900.5825	564343.2939
M38	341+80.00	-150.00	530158.4310	564044.0252
M37	343+20.00	-215.00	530309.5296	564051.1708
M40	343+75.00	-265.00	530379.8101	564031.2938
M33	344+50.00	292.60	530194.4167	564562.5050
M41	346+50.00	-265.00	530617.9272	564148.2023
M48	348+50.00	270.00	530579.7713	564718.0642
M44	349+75.00	-395.00	530954.6249	564154.9972
M63	351+53.38	270.00	530870.3081	564837.8894
M61	352+80.00	-335.00	531207.6313	564319.9400
M62	352+80.00	-185.00	531153.2564	564459.7376
M65	356+00.00	270.00	531286.5542	564999.7901
M66	357+50.00	-185.00	531591.2890	564630.1122
M68	361+00.00	270.00	531752.5463	565181.0396
M67	362+50.00	-185.00	532057.2810	564811.3617
M69	366+00.00	-270.00	532414.2879	564859.0178
M70	366+00.00	-185.00	532383.4754	564938.2364
M72	366+01.56	270.00	532219.9904	565362.8540
M71	368+50.00	-270.00	532647.2834	564949.6424
M64	368+69.87	451.88	532404.1250	565629.6288
M74	371+90.00	-270.00	532964.1585	565072.8923
M75	371+90.00	-155.00	532922.4711	565180.0704
M73	372+50.00	709.55	532664.9900	566007.5711
M77	373+50.00	680.00	532768.9018	566016.2770
M78	375+20.00	430.00	533017.9639	565844.9059
M76	376+50.00	-155.00	533351.1838	565346.8200
M80	380+00.00	180.00	533555.9410	565785.9094
M81	381+50.00	-155.00	533817.1758	565528.0696
M82	385+00.00	180.00	534021.9326	565967.1588
M83	386+50.00	-155.00	534283.1679	565709.3192
M84	390+00.00	180.00	534487.9246	566148.4084
M85	391+50.00	-155.00	534749.1599	565890.5688
M86	393+50.00	180.00	534814.1191	566275.2831
M87	396+50.00	-155.00	535215.1520	566071.8183
M88	397+00.00	180.00	535140.3140	566402.1560
M93	401+50.00	-155.00	535681.1441	566253.0679
M94	404+19.21	-155.00	535932.0447	566350.6567
M95	404+20.73	-146.75	535930.4686	566358.8956
M96	404+70.98	-160.00	535982.1060	566364.7634
M97	407+70.04	-160.00	536260.8256	566473.1726
M98	409+00.00	-160.00	536389.5213	566527.8712
M106	413+19.88	330.00	536488.3269	567152.1459
M112	419+00.00	330.00	536837.9376	567491.7624
M113	419+35.89	288.50	536889.4961	567490.8460
M116	419+60.00	-170.00	537270.4562	567234.5834
M114	420+00.00	200.00	536998.7561	567488.9041
M117	423+25.58	200.00	537194.4099	567749.1357
M118	424+50.00	-170.00	537564.9185	567626.2362
M119	425+19.95	315.00	537219.2976	567973.6035
M120	427+50.00	-170.00	537745.2015	567866.0236
M121	427+60.00	457.03	537250.0341	568250.8240
M122	429+20.00	200.00	537551.6241	568224.2523

RIGHT-OF-WAY MONUMENT SCHEDULE US 301

NO.	STATION	OFFSET	NORTHING	EASTING
M124	429+30.00	-170.00	537853.3714	568009.8961
M123	430+45.13	200.00	537626.8184	568324.2653
M219	430+45.13	-170.00	537922.5562	568101.9162
M125	433+00.00	200.00	537797.4435	568533.8447
M126	435+50.00	-170.00	538238.4272	568461.2066
M129	436+01.68	200.00	538019.5598	568764.0003
M130	436+48.87	150.00	538090.0000	568761.3101
M133	440+09.58	-170.00	538570.5724	568742.9565
M134	440+25.00	150.00	538394.0643	569010.3153
M135	440+25.00	310.00	538299.9066	569139.6766
M132	440+29.63	-185.00	538594.7406	568742.0335
M136	443+00.00	-185.00	538807.2006	568883.3097
M137	445+00.00	185.00	538798.8480	569303.6575
M138	445+00.00	310.00	538740.5449	569414.2276
M141	446+18.37	-185.00	539071.1777	569026.7037
M142	446+18.37	185.00	538910.4491	569359.9699
M144	449+72.22	-185.00	539389.8924	569180.4144
M143	449+82.27	185.00	539238.2159	569518.0462
M127	450+27.43	-120.07	539411.4187	569262.8843
M146	450+85.52	130.25	539354.9966	569513.5862
M131	451+79.33	150.00	539430.9215	569572.1265
M176	475+75.00	-300.00	541813.0544	570257.8807
M181	478+00.00	-300.00	542014.7224	570417.1472
M185	480+50.00	-300.00	542217.4053	570618.2122
M186	482+15.00	-190.00	542250.0242	570830.1979
M187	483+56.49	-190.00	542339.3804	570955.9292
M193	485+11.55	320.00	541999.4879	571366.5555
M189	486+00.00	-190.00	542473.6863	571159.0465
M188	487+86.50	-190.00	542576.5498	571314.6119
M194	489+00.00	320.00	542213.7408	571690.5804
M195	489+00.00	395.00	542151.1803	571731.9469
M196	490+07.25	395.00	542210.3367	571821.4119
M197	490+12.51	400.00	542209.0671	571828.5572
M200	494+44.47	-170.00	542922.7746	571874.4856
M201	494+96.19	-108.82	542900.2697	571951.3658

RIGHT-OF-WAY MONUMENT SCHEDULE BUNKER HILL ROAD

NO.	STATION	OFFSET	NORTHING	EASTING
M42	10+35.41	-102.02	531089.9049	564025.8747
M228	10+49.00	84.95	530953.0089	563897.8042
M49	10+62.97	85.00	530942.7130	563907.2493
M43	12+96.35	85.00	530774.6027	564084.8402
M36	21+40.00	100.00	530251.4190	564748.3461
M50	21+50.00	-120.84	530417.8451	564893.8483
M46	22+07.86	89.00	530217.9249	564807.7054
M39	23+99.32	-100.00	530242.3060	565075.6915
M51	25+50.00	70.00	530015.2315	565082.1288
M52	25+50.00	68.00	530017.5321	565084.0543
M214	26+07.35	70.00	529978.4217	565126.1087
M54	26+07.35	-60.00	530078.1119	565209.5464
M53	26+07.35	-100.00	530108.7859	565235.2196
M56	27+00.00	-40.42	530004.3301	565268.0123
M55	27+00.00	-60.00	530019.4823	565280.4058
M57	29+69.78	-60.00	529853.3690	565490.4518
M58	29+69.84	-42.87	529839.7217	565480.0987
M47	30+50.00	70.00	529701.2689	565476.0160
M59	32+10.96	-60.00	529710.7862	565682.7667
M45	35+50.00	70.00	529407.3326	565882.1803
M215	36+56.17	70.00	529344.8036	565969.1642
M216	36+75.96	89.51	529317.9633	565973.0699
M217	37+06.59	89.74	529299.9008	565997.8008
M218	37+09.03	-60.00	529420.0619	566087.1923

RIGHT-OF-WAY MONUMENT SCHEDULE RAMP G

NO.	STATION	OFFSET	NORTHING	EASTING
M89	80+16.97	200.00	535174.2978	566495.4429
M90	82+86.44	200.00	535386.7648	566611.9990
M91	86+60.00	200.00	535701.4434	566813.3087
M92	86+60.00	125.00	535741.8604	566750.1307
M100	88+36.63	125.00	535890.6594	566845.3221
M102	92+50.00	125.00	536315.4700	567015.5384
M103	92+50.00	240.00	536293.3898	567128.3988
M105	93+89.39	240.00	536461.6543	567150.3701

RIGHT-OF-WAY MONUMENT SCHEDULE RAMP H

NO.	STATION	OFFSET	NORTHING	EASTING
M111	54+98.63	-202.00	537555.7276	567155.1525
M110	57+19.20	-280.66	537323.9894	567188.8703
M107	60+61.68	143.37	537078.3507	566702.3685
M108	60+61.68	100.00	537068.0887	566744.5045
M104	64+00.00	100.00	536747.6691	566656.3180
M99	67+50.00	100.00	536422.2977	566545.2514

RIGHT-OF-WAY MONUMENT SCHEDULE RAMP I

NO.	STATION	OFFSET	NORTHING	EASTING
M157	25+92.35	105.00	540691.5126	570312.1928
M171	28+86.93	105.00	540970.3448	570407.2182
M175	31+79.02	92.02	541251.0069	570489.1548
M174	31+81.51	105.00	541249.1769	570502.2436
M177	33+88.90	78.12	541441.3972	570550.4046
M183	35+75.00	115.00	541575.0816	570667.7198
M184	35+99.85	194.96	541549.7304	570746.7533
M182	36+00.00	160.00	541569.3053	570717.7912

RIGHT-OF-WAY MONUMENT SCHEDULE RAMP J

NO.	STATION	OFFSET	NORTHING	EASTING
M148	45+00.00	103.00	539451.4235	569582.0147
M151	48+00.00	103.00	539703.6372	569721.6244
M153	51+36.54	103.00	539965.9023	569910.7467
M154	53+18.57	103.00	540106.5506	570026.3038
M155	55+52.77	103.00	540330.5467	570162.7756
M156	57+33.46	103.00	540496.4964	570234.2371

RIGHT-OF-WAY MONUMENT SCHEDULE RAMP K

NO.	STATION	OFFSET	NORTHING	EASTING
M164	65+00.00	100.00	540825.6056	569747.2746
M162	65+00.00	230.00	540794.3603	569592.2787
M163	65+90.00	100.00	540742.9441	569711.6787
M161	67+06.92	230.00	540686.9768	569546.0370
M159	68+55.00	230.00	540533.0490	569486.4045
M158	70+15.00	195.00	540354.5846	569469.0964
M160	70+15.00	90.00	540327.7807	569570.6176
M152	73+14.46	90.00	540038.2433	569494.1732
M149	75+50.00	125.00	539832.9104	569393.5256
M150	75+50.00	90.00	539821.0290	569426.4472
M128	78+25.07	125.00	539591.3008	

TOTAL EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION	
a. From Cross Sections	2,786,142 C.Y.
1. Roadway	57,674 C.Y.
2. Borrow Site	2,714,079 C.Y.
3. Longitudinal Ditches	14,388 C.Y.
b. Plus Topsoil Removed in Fill	146,596 C.Y.
c. Plus Topsoil Placed in Cut	168,859 C.Y.
d. Plus Bituminous Pavement Removed under Fill	2,433 C.Y.
e. Less Rootmat Removed in Cut	1,662 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	76 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	248,874 C.Y.
i. = Total Item 202000, Excavation and Embankment	3,351,166 C.Y.

2. STORMWATER MANAGEMENT POND EXCAVATION	
a. From Cross Sections	220,108 C.Y.
1. Excavation For Sediment Basins	86,349 C.Y.
2. Excavation For Final SWM Basins	133,759 C.Y.
b. Plus Topsoil Removed under Fill	24,902 C.Y.
c. Plus topsoil Placed in Cut	11,417 C.Y.
d. Less Rootmat Removed in Cut	7,553 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Stormwater Management Pond Excavation	248,874 C.Y.

3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F	
a. Total Item 202000, Excavation and Embankment	3,351,166 C.Y.
b. Plus Excavation and Backfilling for Structures	20,460 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	5,152 C.Y.
d. Plus Channel Excavation	1,900 C.Y.
e. Plus Excavation from installation of underdrains	6,184 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	276,719 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	141,907 C.Y.
j. Less Excavation Performed in Final Phase Construction	152,909 C.Y.
k. = Total Excavation Available for Embankment, Type F	2,813,327 C.Y.

3a. FINAL PHASE EMBANKMENT, REQUIRED	
a. Basin Embankment Required	61,096 C.Y.
b. Plus Topsoil Removed Under Fill	24,902 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	10,178 C.Y.
d. Less Topsoil Placed on Fill Slopes	18,995 C.Y.
e. = Subtotal Basin Embankment Required	77,181 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	15,436 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	92,618 C.Y.
h. Less Excavation Performed in Final Phase Construction	152,909 C.Y.
i. = Total Adjusted Final Phase Embankment Required (+ = Need, - = Excess)	-60,291 C.Y.

4. BORROW TYPE A, REQUIRED	
a. Borrow, Type A for Capping	104,234 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	22,867 C.Y.
c. = Subtotal Borrow, Type A Capping Required	81,367 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	16,273 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	97,640 C.Y.
f. Less Excavation Available for Borrow Type A	97,640 C.Y.
g. = Total Borrow, Type A Required	0 C.Y.

5. BORROW TYPE D, REQUIRED	
a. Borrow, Type D for Soil Cement Base Course	36,889 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20 +/-)	7,378 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	44,267 C.Y.
d. Less Excavation Available for Borrow Type D	44,267 C.Y.
e. = Total Borrow, Type D Required	0 C.Y.

6. BORROW TYPE B, REQUIRED	
a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	26,415 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	5,283 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	31,698 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	31,698 C.Y.

7. EMBANKMENT AND BORROW, TYPE F, REQUIRED	
a. Embankment Required Below Capping (From Cross-Sections)	2,167,607 C.Y.
b. Plus Topsoil Removed under Fill	146,596 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	105,192 C.Y.
e. Plus PCC and bituminous pavement removed under fill	2,509 C.Y.
f. Less Topsoil Placed on Fill Slopes	68,113 C.Y.
g. = Subtotal Embankment Required Below Capping	2,324,613 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	29,178 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	2,324,613 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	464,923 C.Y.
m. = Subtotal Adjusted Embankment Required	2,789,536 C.Y.
n. Less Total Excavation Available for Borrow, Type F	2,813,327 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	-23,791 C.Y.

8. BORROW TYPE C, REQUIRED	
a. Furnishing Borrow, Type C	6,678 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	1,336 C.Y.
c. = Subtotal Adjusted Borrow, Type C	8,014 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	8,014 C.Y.

9. CLAY BORROW	
a. Clay Borrow for SWM Basin Clay Core	4,465 C.Y.
b. = Subtotal Adjusted Clay Borrow	4,465 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	4,465 C.Y.

10. TOPSOIL SUMMARY (SEE NOTE 1)	
a. Topsoil Salvaged from Cut and Fill	220,832 C.Y.
b. Plus Topsoil from Stormwater Management Pond	95,331 C.Y.
c. = Subtotal Topsoil Available	316,163 C.Y.
d. Less Topsoil placed on Fill Slopes	109,976 C.Y.
e. Less Topsoil placed on Cut Slopes	180,276 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	25,912 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	25,912 C.Y.

PROPOSAL QUANTITIES	
ITEM NO. 202000 EXCAVATION AND EMBANKMENT	3,351,166 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	20,460 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	5,152 C.Y.
ITEM NO. 209002 BORROW, TYPE B	31,698 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	8,014 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	4,465 C.Y.

NOTES:

1. THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

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ADDENDUMS / REVISIONS	

NOT TO SCALE

**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	
T20091303	DESIGNED BY:	AM JW
COUNTY	CHECKED BY:	DB SF
NEW CASTLE		

**EARTHWORK
SUMMARY**

EW-01
SHEET NO.
11
TOTAL SHTS.
1256

ZONE 1 EARTHWORK QUANTITIES																	
LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT				TOP SOIL PLACED (C.Y.)					REMARKS
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)	BORROW TYPE D	CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1	
ROADWAY																	
STA 298+00 to STA 347+50	3,298	933	24,368	84	5,037			254,239		20,862	6,350	38	3,723		8,930	232	
RAMP C	5,295	1,623	2,189		940			26,853		2,787	1,032	622	750		1,040		
RAMP F	3,200	813	1,706		1,002		1,828	9,668		2,461	951	449	583		699		
CONTRACT T200811301	19,150															Final Phase	
DITCH																	
DITCHES	1,263	647		294								493					
BASIN																	
BASIN 1A	14,324	1,589	691	0	0				0			707			613	Final Phase	
BASIN 1B	22,532	2,082	856	0	0				1,515			398			899	Final Phase	
BASIN 1C	7,550	1,090	604	73	52				157			764			342	Final Phase	
BASIN 2A	6,107	1,006	288	91	521				0			406			247	Final Phase	
BASIN 2B	28,030	3,134	4,177	358	373				21,860			1,969			3,215	Final Phase	
BASIN 3									3,380			446			1,366	Final Phase	
SED BASINS																	
SED BASIN 3	2,483	509	1,996														
Total	113,232	13,427	36,875	900	7,925	0	1,828	290,761	26,912	26,110	8,333	6,294	5,057	0	17,350	232	

ZONE 1 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION

a. From Cross Sections	32,206 C.Y.
1. Roadway	30,943 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	1,263 C.Y.
b. Plus Topsoil Removed in Fill	28,264 C.Y.
c. Plus Topsoil Placed in Cut	1,603 C.Y.
d. Plus Bituminous Pavement Removed under Fill	0 C.Y.
e. Less Rootmat Removed in Cut	378 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	93,806 C.Y.
i. = Total Item 202000, Excavation and Embankment	155,500 C.Y.

2. STORMWATER MANAGEMENT POND EXCAVATION

a. From Cross Sections	81,026 C.Y.
1. Excavation For Sediment Basins	2,483 C.Y.
2. Excavation For Final SWM Basins	78,543 C.Y.
b. Plus Topsoil Removed under Fill	8,611 C.Y.
c. Plus topsoil Placed in Cut	4,691 C.Y.
d. Less Rootmat Removed in Cut	522 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Stormwater Management Pond Excavation	93,806 C.Y.

3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F

a. Total Item 202000, Excavation and Embankment	155,500 C.Y.
b. Plus Excavation and Backfilling for Structures	5,188 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	248 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	1,448 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	50,301 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	97,693 C.Y.
k. = Total Excavation Available for Embankment, Type F	14,390 C.Y.

3a. FINAL PHASE EMBANKMENT, REQUIRED

a. Basin Embankment Required	26,912 C.Y.
b. Plus Topsoil Removed Under Fill	8,611 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	946 C.Y.
d. Less Topsoil Placed on Fill Slopes	6,681 C.Y.
e. = Subtotal Basin Embankment Required	29,787 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	5,957 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	35,745 C.Y.
h. Less Excavation Performed in Final Phase Construction	97,693 C.Y.
i. = Total Adjusted Final Phase Embankment Required	-61,948 C.Y.
(+ = Need, - = Excess)	

4. BORROW TYPE A, REQUIRED

a. Borrow, Type A for Capping	26,110 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	5,057 C.Y.
c. = Subtotal Borrow, Type A Capping Required	21,053 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	4,211 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	25,264 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	25,264 C.Y.

5. BORROW TYPE D, REQUIRED

a. Borrow, Type D for Soil Cement Base Course	8,333 C.Y.
b. Plus Borrow D x Adjustment Factor (0.20 +/-)	1,667 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	10,000 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	10,000 C.Y.

6. BORROW TYPE B, REQUIRED

a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	6,979 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	1,396 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	8,375 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	8,375 C.Y.

7. EMBANKMENT AND BORROW, TYPE F, REQUIRED

a. Embankment Required Below Capping (From Cross-Sections)	290,761 C.Y.
b. Plus Topsoil Removed under Fill	28,264 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	1,828 C.Y.
e. Plus PCC and bituminous pavement removed under fill	0 C.Y.
f. Less Topsoil Placed on Fill Slopes	10,901 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	4,269 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	305,683 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	61,137 C.Y.
m. = Subtotal Adjusted Embankment Required	366,820 C.Y.
n. Less Total Excavation Available for Borrow, Type F	14,390 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	352,429 C.Y.

8. BORROW TYPE C, REQUIRED

a. Furnishing Borrow, Type C	5,056 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	1,011 C.Y.
c. = Subtotal Adjusted Borrow, Type C	6,067 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	6,067 C.Y.

9. CLAY BORROW

a. Clay Borrow for SWM Basin Clay Core	732 C.Y.
b. = Subtotal Adjusted Clay Borrow	732 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	732 C.Y.

10. TOPSOIL SUMMARY (SEE NOTE 1)

a. Topsoil Salvaged from Cut and Fill	32,280 C.Y.
b. Plus Topsoil from Stormwater Management Pond	18,022 C.Y.
c. = Subtotal Topsoil Available	50,301 C.Y.
d. Less Topsoil placed on Fill Slopes	22,639 C.Y.
e. Less Topsoil placed on Cut Slopes	6,294 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	21,369 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	21,369 C.Y.

PROPOSAL QUANTITIES

ITEM NO. 202000 EXCAVATION AND EMBANKMENT	155,500 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	5,188 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	248 C.Y.
ITEM NO. 209002 BORROW, TYPE B	8,375 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	6,067 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	732 C.Y.

NOTES:

1. THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

NOT TO SCALE

US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	
T200911303	DESIGNED BY:	AM JW
COUNTY	CHECKED BY:	DB SF
NEW CASTLE		

EARTHWORK SUMMARY

EW-02

SHEET NO.

12

TOTAL SHTS.

1256

ZONE 2 EARTHWORK QUANTITIES

LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)					REMARKS
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1	
ROADWAY																	
STA 347+50 to STA 400+00	815	0	36,083	0	5,231			60,095	462,455		26,237	7,696		4,379		14,705	2,327
DITCH																	
DITCHES	7,898	2,426		204								1,871					
BASIN																	
BASIN 4	5,903	1,252	869							2,172		422				578	Final Phase
BASIN 5	2,388	929	1,159							1,510		182				861	Final Phase
BASIN 6	1,904	991	1,607	2,202	2,222					2,698		222				979	Final Phase
BASIN 7 (Partial)	0			1,175	1,374					2,005		207				501	
GREAT DEPRESSION	39,152	6,174	1,692	0	580					410		788				1,189	
SED BASINS																	
BASIN 7 (Partial)	2,812	535	673														
Total	60,872	12,306	42,083	3,581	9,407	0	60,095	462,455	8,796	26,237	7,696	3,692	4,379	0	18,811	2,327	

ZONE 2 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION	
a. From Cross Sections	8,713 C.Y.
1. Roadway	815 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	7,898 C.Y.
b. Plus Topsoil Removed in Fill	36,083 C.Y.
c. Plus Topsoil Placed in Cut	1,871 C.Y.
d. Plus Bituminous Pavement Removed under Fill	0 C.Y.
e. Less Rootmat Removed in Cut	204 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	56,603 C.Y.
i. = Total Item 202000, Excavation and Embankment	103,066 C.Y.
2. STORMWATER MANAGEMENT PONDS	
a. From Cross Sections	52,158 C.Y.
1. Excavation For Sediment Basins	2,812 C.Y.
2. Excavation For Final SWM Basins	49,347 C.Y.
b. Plus Topsoil Removed under Fill	6,000 C.Y.
c. Plus topsoil Placed in Cut	1,821 C.Y.
d. Less Rootmat Removed in Cut	3,377 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	56,603 C.Y.
3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F	
a. Total Item 202000, Excavation and Embankment	103,066 C.Y.
b. Plus Excavation and Backfilling for Structures	3,954 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	884 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	1,262 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	54,390 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	49,347 C.Y.
k. = Total Excavation Available for Embankment, Type F	5,429 C.Y.
3a. FINAL PHASE EMBANKMENT, REQUIRED	
a. Basin Embankment Required	8,796 C.Y.
b. Plus Topsoil Removed Under Fill	6,000 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	4,176 C.Y.
d. Less Topsoil Placed on Fill Slopes	4,107 C.Y.
e. = Subtotal Basin Embankment Required	14,864 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	2,973 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	17,837 C.Y.
h. Less Excavation Performed in Final Phase Construction	49,347 C.Y.
i. = Total Adjusted Final Phase Embankment Required	-31,509 C.Y.
	(+ = Need, - = Excess)

4. BORROW TYPE A, REQUIRED	
a. Borrow, Type A for Capping	26,237 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	4,379 C.Y.
c. = Subtotal Borrow, Type A Capping Required	21,858 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20+/-)	4,372 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	26,230 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	26,230 C.Y.
5. BORROW TYPE D, REQUIRED	
a. Borrow, Type D for Soil Cement Base Course	7,696 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20+/-)	1,539 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	9,235 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	9,235 C.Y.
6. BORROW TYPE B, REQUIRED	
a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	5,231 C.Y.
b. Plus Backfill x Adjustment Factor (0.20+/-)	1,046 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	6,277 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	6,277 C.Y.
7. EMBANKMENT AND BORROW, TYPE F, REQUIRED	
a. Embankment Required Below Capping (From Cross-Sections)	462,455 C.Y.
b. Plus Topsoil Removed under Fill	36,083 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	60,095 C.Y.
e. Plus PCC and bituminous pavement removed under fill	0 C.Y.
f. Less Topsoil Placed on Fill Slopes	17,031 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	0 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	541,602 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20+/-)	108,320 C.Y.
m. = Subtotal Adjusted Embankment Required	649,922 C.Y.
n. Less Total Excavation Available for Borrow, Type F	5,429 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	644,493 C.Y.

8. BORROW TYPE C, REQUIRED	
a. Furnishing Borrow, Type C	443 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20+/-)	89 C.Y.
c. = Subtotal Adjusted Borrow, Type C	532 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	532 C.Y.
9. CLAY BORROW	
a. Clay Borrow for SWM Basin Clay Core	551 C.Y.
b. = Subtotal Adjusted Clay Borrow	551 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	551 C.Y.
10. TOPSOIL SUMMARY (SEE NOTE 1)	
a. Topsoil Salvaged from Cut and Fill	38,509 C.Y.
b. Plus Topsoil from Stormwater Management Pond	15,881 C.Y.
c. = Subtotal Topsoil Available	54,390 C.Y.
d. Less Topsoil placed on Fill Slopes	25,517 C.Y.
e. Less Topsoil placed on Cut Slopes	3,692 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	25,181 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	25,181 C.Y.
PROPOSAL QUANTITIES	
ITEM NO. 202000 EXCAVATION AND EMBANKMENT	103,066 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	3,954 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	884 C.Y.
ITEM NO. 209002 BORROW, TYPE B	6,277 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	532 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	551 C.Y.

NOTES:

1. THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

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ZONE 3 EARTHWORK QUANTITIES

LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)					REMARKS
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1	
ROADWAY																	
STA 400+00 to STA 420+00	20	0	11,124	0	1,331			97,878		9,706	2,999		2,102		3,329	169	
DITCH																	
DITCHES	918	514											385				
BASIN																	
BASIN 7 (Partial)	0			1,175	1,374					2,005			207		501	Final Phase	
BASIN 9A	5,375	1,384	2,126							4,171			490		1,603	Final Phase	
BASIN 9B	494	219	1,195							4,959			68		907	Final Phase	
BASIN 9C	0									3,607			236		807	Final Phase	
SED BASINS																	
SED BASIN 7 (Partial)	2,812	535	673														
SED BASIN 9C	694	317	536														
Total	10,312	2,969	15,654	1,175	2,704	0	0	97,878	14,742	9,706	2,999	1,386	2,102	0	7,147	169	

ZONE 3 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION	
a. From Cross Sections	937 C.Y.
1. Roadway	20 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	918 C.Y.
b. Plus Topsoil Removed in Fill	11,124 C.Y.
c. Plus Topsoil Placed in Cut	385 C.Y.
d. Plus Bituminous Pavement Removed under Fill	0 C.Y.
e. Less Rootmat Removed in Cut	0 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	13,730 C.Y.
i. = Total Item 202000, Excavation and Embankment	26,177 C.Y.
2. STORMWATER MANAGEMENT PONDS	
a. From Cross Sections	9,375 C.Y.
1. Excavation For Sediment Basins	3,506 C.Y.
2. Excavation For Final SWM Basins	5,869 C.Y.
b. Plus Topsoil Removed under Fill	4,530 C.Y.
c. Plus topsoil Placed in Cut	1,000 C.Y.
d. Less Rootmat Removed in Cut	1,175 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	13,730 C.Y.
3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F	
a. Total Item 202000, Excavation and Embankment	26,177 C.Y.
b. Plus Excavation and Backfilling for Structures	1,392 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	1,500 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	636 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	18,623 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	5,869 C.Y.
k. = Total Excavation Available for Embankment, Type F	5,213 C.Y.
3a. FINAL PHASE EMBANKMENT, REQUIRED	
a. Basin Embankment Required	14,742 C.Y.
b. Plus Topsoil Removed Under Fill	4,530 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	1,374 C.Y.
d. Less Topsoil Placed on Fill Slopes	3,818 C.Y.
e. = Subtotal Basin Embankment Required	16,828 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	3,366 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	20,194 C.Y.
h. Less Excavation Performed in Final Phase Construction	5,869 C.Y.
i. = Total Adjusted Final Phase Embankment Required	14,325 C.Y.
(+ = Need, - = Excess)	

4. BORROW TYPE A, REQUIRED	
a. Borrow, Type A for Capping	9,706 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	2,102 C.Y.
c. = Subtotal Borrow, Type A Capping Required	7,604 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	1,521 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	9,125 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	9,125 C.Y.
5. BORROW TYPE D, REQUIRED	
a. Borrow, Type D for Soil Cement Base Course	2,999 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20 +/-)	600 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	3,598 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	3,598 C.Y.
6. BORROW TYPE B, REQUIRED	
a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	1,331 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	266 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	1,597 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	1,597 C.Y.
7. EMBANKMENT AND BORROW, TYPE F, REQUIRED	
a. Embankment Required Below Capping (From Cross-Sections)	97,878 C.Y.
b. Plus Topsoil Removed under Fill	11,124 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	0 C.Y.
e. Plus PCC and bituminous pavement removed under fill	0 C.Y.
f. Less Topsoil Placed on Fill Slopes	3,498 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	0 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	105,505 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	21,101 C.Y.
m. = Subtotal Adjusted Embankment Required	126,605 C.Y.
n. Less Total Excavation Available for Borrow, Type F	5,213 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	121,393 C.Y.

8. BORROW TYPE C, REQUIRED	
a. Furnishing Borrow, Type C	330 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	66 C.Y.
c. = Subtotal Adjusted Borrow, Type C	396 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	396 C.Y.
9. CLAY BORROW	
a. Clay Borrow for SWM Basin Clay Core	551 C.Y.
b. = Subtotal Adjusted Clay Borrow	551 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	551 C.Y.
10. TOPSOIL SUMMARY (SEE NOTE 1)	
a. Topsoil Salvaged from Cut and Fill	11,638 C.Y.
b. Plus Topsoil from Stormwater Management Pond	6,985 C.Y.
c. = Subtotal Topsoil Available	18,623 C.Y.
d. Less Topsoil placed on Fill Slopes	9,418 C.Y.
e. Less Topsoil placed on Cut Slopes	1,386 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	7,820 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	7,820 C.Y.
PROPOSAL QUANTITIES	
ITEM NO. 202000 EXCAVATION AND EMBANKMENT	26,177 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	1,392 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	1,500 C.Y.
ITEM NO. 209002 BORROW, TYPE B	1,597 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	396 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	551 C.Y.

NOTES:

1. THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

ADDENDUMS / REVISIONS

NOT TO SCALE

**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	
T20091303	DESIGNED BY:	AM JW
COUNTY	CHECKED BY:	DB SF
NEW CASTLE		

**EARTHWORK
SUMMARY**

EW-04
SHEET NO.
14
TOTAL SHTS.
1256



ZONE 4 EARTHWORK QUANTITIES																	
LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)					REMARKS
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1	
ROADWAY																	
STA 420+00 to STA 450+50	1,784	0	16,594	0	5,972		23,872	244,284		13,452	4,407		2,533		3,304	2,981	
RAMP G (79+00 TO 99+50)	0		5,407					99,455		820		5	3,432				
RAMP H (66+00 TO 69+00)	0		654					5,546		404		5	336				
SPUR ROAD STOCKPILE	1,370		20,267					315,162							15,115		
DITCH																	
DITCHES	4,330	1,407		386								1,108					
BASIN																	
BASIN 10	0			117	1,030				1,494			625			824	Final Phase	
BASIN 11	0			1,805	1,289				2,479			397			814	Final Phase	
SED BASINS																	
SED BASIN 10	12,589	1,793	1,069														
SED BASIN 11	3,956	1,039	1,200														
Total	24,029	4,238	45,191	2,308	8,291	0	23,872	664,447	3,973	14,676	4,407	2,141	6,301	0	20,056	2,981	

ZONE 4 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION	
a. From Cross Sections	7,484 C.Y.
1. Roadway	3,154 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	4,330 C.Y.
b. Plus Topsoil Removed in Fill	42,922 C.Y.
c. Plus Topsoil Placed in Cut	1,118 C.Y.
d. Plus Bituminous Pavement Removed under Fill	0 C.Y.
e. Less Rootmat Removed in Cut	386 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	17,915 C.Y.
i. = Total Item 202000, Excavation and Embankment	69,053 C.Y.
2. STORMWATER MANAGEMENT PONDS	
a. From Cross Sections	16,545 C.Y.
1. Excavation For Sediment Basins	16,545 C.Y.
2. Excavation For Final SWM Basins	0 C.Y.
b. Plus Topsoil Removed under Fill	2,270 C.Y.
c. Plus topsoil Placed in Cut	1,023 C.Y.
d. Less Rootmat Removed in Cut	1,922 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	17,915 C.Y.
3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F	
a. Total Item 202000, Excavation and Embankment	69,053 C.Y.
b. Plus Excavation and Backfilling for Structures	3,879 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	537 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	887 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	49,430 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	0 C.Y.
k. = Total Excavation Available for Embankment, Type F	24,926 C.Y.
3a. FINAL PHASE EMBANKMENT, REQUIRED	
a. Basin Embankment Required	3,973 C.Y.
b. Plus Topsoil Removed Under Fill	2,270 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	2,319 C.Y.
d. Less Topsoil Placed on Fill Slopes	1,637 C.Y.
e. = Subtotal Basin Embankment Required	6,925 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	1,385 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	8,310 C.Y.
h. Less Excavation Performed in Final Phase Construction	0 C.Y.
i. = Total Adjusted Final Phase Embankment Required	8,310 C.Y.
(+ = Need, - = Excess)	

4. BORROW TYPE A, REQUIRED	
a. Borrow, Type A for Capping	14,676 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	6,301 C.Y.
c. = Subtotal Borrow, Type A Capping Required	8,375 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	1,675 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	10,050 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	10,050 C.Y.
5. BORROW TYPE D, REQUIRED	
a. Borrow, Type D for Soil Cement Base Course	4,407 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20 +/-)	881 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	5,288 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	5,288 C.Y.
6. BORROW TYPE B, REQUIRED	
a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	5,972 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	1,194 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	7,167 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	7,167 C.Y.
7. EMBANKMENT AND BORROW, TYPE F, REQUIRED	
a. Embankment Required Below Capping (From Cross-Sections)	664,447 C.Y.
b. Plus Topsoil Removed under Fill	42,922 C.Y.
c. Plus Rootmat removed under fill (not back filled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	23,872 C.Y.
e. Plus PCC and bituminous pavement removed under fill	0 C.Y.
f. Less Topsoil Placed on Fill Slopes	21,400 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	1,926 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	707,915 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	141,583 C.Y.
m. = Subtotal Adjusted Embankment Required	849,498 C.Y.
n. Less Total Excavation Available for Borrow, Type F	24,926 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	824,572 C.Y.

8. BORROW TYPE C, REQUIRED	
a. Furnishing Borrow, Type C	348 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	70 C.Y.
c. = Subtotal Adjusted Borrow, Type C	418 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	418 C.Y.
9. CLAY BORROW	
a. Clay Borrow for SWM Basin Clay Core	1,291 C.Y.
b. = Subtotal Adjusted Clay Borrow	1,291 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	1,291 C.Y.
10. TOPSOIL SUMMARY (SEE NOTE 1)	
a. Topsoil Salvaged from Cut and Fill	44,329 C.Y.
b. Plus Topsoil from Stormwater Management Pond	5,101 C.Y.
c. = Subtotal Topsoil Available	49,430 C.Y.
d. Less Topsoil placed on Fill Slopes	29,338 C.Y.
e. Less Topsoil placed on Cut Slopes	2,141 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	17,951 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	17,951 C.Y.
PROPOSAL QUANTITIES	
ITEM NO. 202000 EXCAVATION AND EMBANKMENT	69,053 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	3,879 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	537 C.Y.
ITEM NO. 209002 BORROW, TYPE B	7,167 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	418 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	1,291 C.Y.

NOTES:
1. THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

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ZONE 5 EARTHWORK QUANTITIES																											
LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)					REMARKS										
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1											
ROADWAY																											
STA 450+50 to STA 486+50	17	0	12,437	0	3,417						19,397	329,090		14,786	4,537		2,720			182					1,851		
RAMP I	2,507		678	2,516								22,757		1,892	734		444								844	424	
RAMP J	611		306	3,517								57,153		1,588	582		444								1,393	625	
RAMP K	47		119	3,351								50,936		1,515	531		472								1,238	623	
RAMP L	2,770		593	3,152		1,257						45,460		2,123	823		500								1,115	733	
CONNECTOR RD	9,398		3,272	0	585	21						376		949	0		431								357		
DITCH																											
DITCHES	-977		212		108												2,128										
BASIN																											
BASIN 15	0				0	237								1,597			469									874	Final Phase
BASIN 18	0				112	692								1,810			369									893	Final Phase
BASIN 20	0				381	0								0			1,777								201	Final Phase	
SED BASINS																											
SED BASIN 15	5,035		1,031	1,163																							
SED BASIN 18	4,162		785	1,206																							
SED BASIN 20	48,229		3,946	89																							
Total	71,800		10,944	27,429	1,186	5,625	0	19,397	505,771	3,407	22,854	7,207	5,173	4,581	0	7,098										4,257	

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ZONE 5 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION

a. From Cross Sections	14,374 C.Y.
1. Roadway	15,350 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	-977 C.Y.
b. Plus Topsoil Removed in Fill	24,972 C.Y.
c. Plus Topsoil Placed in Cut	2,559 C.Y.
d. Plus Bituminous Pavement Removed under Fill	0 C.Y.
e. Less Rootmat Removed in Cut	693 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	62,004 C.Y.
i. = Total Item 202000, Excavation and Embankment	103,215 C.Y.

2. STORMWATER MANAGEMENT PONDS

a. From Cross Sections	57,426 C.Y.
1. Excavation For Sediment Basins	57,426 C.Y.
2. Excavation For Final SWM Basins	0 C.Y.
b. Plus Topsoil Removed under Fill	2,457 C.Y.
c. Plus topsoil Placed in Cut	2,614 C.Y.
d. Less Rootmat Removed in Cut	493 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	62,004 C.Y.

3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F

a. Total Item 202000, Excavation and Embankment	103,215 C.Y.
b. Plus Excavation and Backfilling for Structures	4,165 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	1,694 C.Y.
d. Plus Channel Excavation	1,900 C.Y.
e. Plus Excavation from installation of underdrains	1,544 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	38,373 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	0 C.Y.
k. = Total Excavation Available for Embankment, Type F	74,145 C.Y.

3a. FINAL PHASE EMBANKMENT, REQUIRED

a. Basin Embankment Required	3,407 C.Y.
b. Plus Topsoil Removed Under Fill	2,457 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	929 C.Y.
d. Less Topsoil Placed on Fill Slopes	1,969 C.Y.
e. = Subtotal Basin Embankment Required	4,825 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	965 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	5,790 C.Y.
h. Less Excavation Performed in Final Phase Construction	0 C.Y.
i. = Total Adjusted Final Phase Embankment Required	5,790 C.Y.
(+= Need, -= Excess)	

4. BORROW TYPE A, REQUIRED

a. Borrow, Type A for Capping	22,854 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	4,581 C.Y.
c. = Subtotal Borrow, Type A Capping Required	18,273 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	3,655 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	21,928 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	21,928 C.Y.

5. BORROW TYPE D, REQUIRED

a. Borrow, Type D for Soil Cement Base Course	7,207 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20 +/-)	1,441 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	8,648 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	8,648 C.Y.

6. BORROW TYPE B, REQUIRED

a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	4,695 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	939 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	5,634 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	5,634 C.Y.

7. EMBANKMENT AND BORROW, TYPE F, REQUIRED

a. Embankment Required Below Capping (From Cross-Sections)	505,771 C.Y.
b. Plus Topsoil Removed under Fill	24,972 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	19,397 C.Y.
e. Plus PCC and bituminous pavement removed under fill	0 C.Y.
f. Less Topsoil Placed on Fill Slopes	9,387 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	12,818 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	527,935 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	105,587 C.Y.
m. = Subtotal Adjusted Embankment Required	633,522 C.Y.
n. Less Total Excavation Available for Borrow, Type F	74,145 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	559,378 C.Y.

8. BORROW TYPE C, REQUIRED

a. Furnishing Borrow, Type C	334 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	67 C.Y.
c. = Subtotal Adjusted Borrow, Type C	401 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	401 C.Y.

9. CLAY BORROW

a. Clay Borrow for SWM Basin Clay Core	559 C.Y.
b. = Subtotal Adjusted Clay Borrow	559 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow Required	559 C.Y.

10. TOPSOIL SUMMARY (SEE NOTE 1)

a. Topsoil Salvaged from Cut and Fill	30,153 C.Y.
b. Plus Topsoil from Stormwater Management Pond	8,220 C.Y.
c. = Subtotal Topsoil Available	38,373 C.Y.
d. Less Topsoil placed on Fill Slopes	15,937 C.Y.
e. Less Topsoil placed on Cut Slopes	5,173 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	17,263 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	17,263 C.Y.

PROPOSAL QUANTITIES

ITEM NO. 202000 EXCAVATION AND EMBANKMENT	103,215 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	4,165 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	1,694 C.Y.
ITEM NO. 209002 BORROW, TYPE B	5,634 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	401 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	559 C.Y.

NOTES:

- THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

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ADDENDUMS / REVISIONS

NOT TO SCALE

**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.		
T20091303			
COUNTY	DESIGNED BY:	AM	JW
NEW CASTLE	CHECKED BY:	DB	SF

**EARTHWORK
SUMMARY**

EW-06
SHEET NO.
16
TOTAL SHTS.
1256

ZONE 6 EARTHWORK QUANTITIES																
LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)				REMARKS
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	
ROADWAY																
STA 486+50 to STA 494+50	7	0	3,231	0	2,206			98,412		2,469	676		448		1,531	
DITCH																
DITCHES	956	343										257				
BASIN																
BASIN 21	0			64	435				3,266			267		784	Final Phase	
SED BASINS																
SED BASIN 21	3,578	644	1,035													
Total	4,541	987	4,266	64	2,641	0	0	98,412	3,266	2,469	676	524	448	0	784	1,531

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ZONE 6 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION	
a. From Cross Sections	963 C.Y.
1. Roadway	7 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	956 C.Y.
b. Plus Topsoil Removed in Fill	3,231 C.Y.
c. Plus Topsoil Placed in Cut	257 C.Y.
d. Plus Bituminous Pavement Removed under Fill	0 C.Y.
e. Less Rootmat Removed in Cut	0 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	4,816 C.Y.
i. = Total Item 202000, Excavation and Embankment	9,267 C.Y.

2. STORMWATER MANAGEMENT PONDS	
a. From Cross Sections	3,578 C.Y.
1. Excavation For Sediment Basins	3,578 C.Y.
2. Excavation For Final SWM Basins	0 C.Y.
b. Plus Topsoil Removed under Fill	1,035 C.Y.
c. Plus topsoil Placed in Cut	267 C.Y.
d. Less Rootmat Removed in Cut	64 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	4,816 C.Y.

3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F	
a. Total Item 202000, Excavation and Embankment	9,267 C.Y.
b. Plus Excavation and Backfilling for Structures	1,808 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	289 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	102 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	5,253 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	0 C.Y.
k. = Total Excavation Available for Embankment, Type F	6,213 C.Y.

3a. FINAL PHASE EMBANKMENT, REQUIRED	
a. Basin Embankment Required	3,266 C.Y.
b. Plus Topsoil Removed Under Fill	1,035 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	435 C.Y.
d. Less Topsoil Placed on Fill Slopes	784 C.Y.
e. = Subtotal Basin Embankment Required	3,952 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	790 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	4,742 C.Y.
h. Less Excavation Performed in Final Phase Construction	0 C.Y.
i. = Total Adjusted Final Phase Embankment Required	4,742 C.Y.
(+ = Need, - = Excess)	

4. BORROW TYPE A, REQUIRED	
a. Borrow, Type A for Capping	2,469 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	448 C.Y.
c. = Subtotal Borrow, Type A Capping Required	2,021 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20+/-)	404 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	2,425 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	2,425 C.Y.

5. BORROW TYPE D, REQUIRED	
a. Borrow, Type D for Soil Cement Base Course	676 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20+/-)	135 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	812 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	812 C.Y.

6. BORROW TYPE B, REQUIRED	
a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	2,206 C.Y.
b. Plus Backfill x Adjustment Factor (0.20+/-)	441 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	2,647 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	2,647 C.Y.

7. EMBANKMENT AND BORROW, TYPE F, REQUIRED	
a. Embankment Required Below Capping (From Cross-Sections)	98,412 C.Y.
b. Plus Topsoil Removed under Fill	3,231 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	0 C.Y.
e. Plus PCC and bituminous pavement removed under fill	0 C.Y.
f. Less Topsoil Placed on Fill Slopes	1,531 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	10,166 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	89,947 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20+/-)	17,989 C.Y.
m. = Subtotal Adjusted Embankment Required	107,936 C.Y.
n. Less Total Excavation Available for Borrow, Type F	6,213 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	101,723 C.Y.

8. BORROW TYPE C, REQUIRED	
a. Furnishing Borrow, Type C	89 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20+/-)	18 C.Y.
c. = Subtotal Adjusted Borrow, Type C	107 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	107 C.Y.

9. CLAY BORROW	
a. Clay Borrow for SWM Basin Clay Core	782 C.Y.
b. = Subtotal Adjusted Clay Borrow	782 C.Y.
c. Less Excavation Available for Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	782 C.Y.

10. TOPSOIL SUMMARY (SEE NOTE 1)	
a. Topsoil Salvaged from Cut and Fill	3,574 C.Y.
b. Plus Topsoil from Stormwater Management Pond	1,679 C.Y.
c. = Subtotal Topsoil Available	5,253 C.Y.
d. Less Topsoil placed on Fill Slopes	2,763 C.Y.
e. Less Topsoil placed on Cut Slopes	524 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	1,966 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	1,966 C.Y.

PROPOSAL QUANTITIES		
ITEM NO. 202000	EXCAVATION AND EMBANKMENT	9,267 C.Y.
ITEM NO. 207000	EXCAVATION AND BACKFILL FOR STRUCTURES	1,808 C.Y.
ITEM NO. 208000	EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	289 C.Y.
ITEM NO. 209002	BORROW, TYPE B	2,647 C.Y.
ITEM NO. 210000	FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	107 C.Y.
ITEM NO. 274000	CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	782 C.Y.

NOTES:

- THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

P:\CADD\260049040 US301\CIVIL\PLANS\2A\CP\AET\EW-07.DGN

ADDENDUMS / REVISIONS

NOT TO SCALE

US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	
T20091303	DESIGNED BY:	AM JW
COUNTY	CHECKED BY:	DB SF
NEW CASTLE		

EARTHWORK SUMMARY

EW-07
SHEET NO.
17
TOTAL SHTS.
1256

ZONE 7 EARTHWORK QUANTITIES

LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)					REMARKS
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1	
ROADWAY																	
SUMMIT BRIDGE ROAD WIDENING	112	436		0				1,074		0	5,571					166	
DITCH																	
BASIN																	
SED BASINS																	

ZONE 7 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION

a. From Cross Sections	112 C.Y.
1. Roadway	112 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	0 C.Y.
b. Plus Topsoil Removed in Fill	0 C.Y.
c. Plus Topsoil Placed in Cut	0 C.Y.
d. Plus Bituminous Pavement Removed under Fill	825 C.Y.
e. Less Rootmat Removed in Cut	0 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	0 C.Y.
i. = Total Item 202000, Excavation and Embankment	937 C.Y.

2. STORMWATER MANAGEMENT PONDS

a. From Cross Sections	0 C.Y.
1. Excavation For Sediment Basins	0 C.Y.
2. Excavation For Final SWM Basins	0 C.Y.
b. Plus Topsoil Removed under Fill	0 C.Y.
c. Plus topsoil Placed in Cut	0 C.Y.
d. Less Rootmat Removed in Cut	0 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	0 C.Y.

3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F

a. Total Item 202000, Excavation and Embankment	937 C.Y.
b. Plus Excavation and Backfilling for Structures	0 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	0 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	0 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	436 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	0 C.Y.
k. = Total Excavation Available for Embankment, Type F	501 C.Y.

3a. FINAL PHASE EMBANKMENT, REQUIRED

a. Basin Embankment Required	0 C.Y.
b. Plus Topsoil Removed Under Fill	0 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	0 C.Y.
d. Less Topsoil Placed on Fill Slopes	0 C.Y.
e. = Subtotal Basin Embankment Required	0 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	0 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	0 C.Y.
h. Less Excavation Performed in Final Phase Construction	0 C.Y.
i. = Total Adjusted Final Phase Embankment Required	0 C.Y.

(+ = Need, - = Excess)

4. BORROW TYPE A, REQUIRED

a. Borrow, Type A for Capping	0 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	0 C.Y.
c. = Subtotal Borrow, Type A Capping Required	0 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	0 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	0 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	0 C.Y.

5. BORROW TYPE D, REQUIRED

a. Borrow, Type D for Soil Cement Base Course	5,571 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20 +/-)	1,114 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	6,685 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	6,685 C.Y.

6. BORROW TYPE B, REQUIRED

a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	0 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	0 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	0 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	0 C.Y.

7. EMBANKMENT AND BORROW, TYPE F, REQUIRED

a. Embankment Required Below Capping (From Cross-Sections)	1,074 C.Y.
b. Plus Topsoil Removed under Fill	0 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	0 C.Y.
e. Plus PCC and bituminous pavement removed under fill	825 C.Y.
f. Less Topsoil Placed on Fill Slopes	166 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	0 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	1,733 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	347 C.Y.
m. = Subtotal Adjusted Embankment Required	2,080 C.Y.
n. Less Total Excavation Available for Borrow, Type F	501 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	1,579 C.Y.

8. BORROW TYPE C, REQUIRED

a. Furnishing Borrow, Type C	0 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	0 C.Y.
c. = Subtotal Adjusted Borrow, Type C	0 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	0 C.Y.

9. CLAY BORROW

a. Clay Borrow for SWM Basin Clay Core	0 C.Y.
b. = Subtotal Adjusted Clay Borrow	0 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	0 C.Y.

10. TOPSOIL SUMMARY (SEE NOTE 1)

a. Topsoil Salvaged from Cut and Fill	436 C.Y.
b. Plus Topsoil from Stormwater Management Pond	0 C.Y.
c. = Subtotal Topsoil Available	436 C.Y.
d. Less Topsoil placed on Fill Slopes	166 C.Y.
e. Less Topsoil placed on Cut Slopes	0 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	270 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	270 C.Y.

PROPOSAL QUANTITIES

ITEM NO. 202000	EXCAVATION AND EMBANKMENT	937 C.Y.
ITEM NO. 207000	EXCAVATION AND BACKFILL FOR STRUCTURES	0 C.Y.
ITEM NO. 208000	EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	0 C.Y.
ITEM NO. 209002	BORROW, TYPE B	0 C.Y.
ITEM NO. 210000	FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	0 C.Y.
ITEM NO. 274000	CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	0 C.Y.

NOTES:

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ZONE 8 EARTHWORK QUANTITIES

LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)					REMARKS
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1	
ROADWAY																	
TEMPORARY BUNKER HILL ROAD	3,328	1,111						1480		0						1,437	
BUNKER HILL ROAD	3,945	2,136						45,329		2,182						2,762	
DITCH																	
BASIN																	
SED BASINS																	

ZONE 8 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION	
a. From Cross Sections	7,273 C.Y.
1. Roadway	7,273 C.Y.
2. Borrow Site	0 C.Y.
3. Longitudinal Ditches	0 C.Y.
b. Plus Topsoil Removed in Fill	0 C.Y.
c. Plus Topsoil Placed in Cut	0 C.Y.
d. Plus Bituminous Pavement Removed under Fill	1,608 C.Y.
e. Less Rootmat Removed in Cut	0 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	76 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	0 C.Y.
i. = Total Item 202000, Excavation and Embankment	8,805 C.Y.

2. STORMWATER MANAGEMENT PONDS	
a. From Cross Sections	0 C.Y.
1. Excavation For Sediment Basins	0 C.Y.
2. Excavation For Final SWM Basins	0 C.Y.
b. Plus Topsoil Removed under Fill	0 C.Y.
c. Plus topsoil Placed in Cut	0 C.Y.
d. Less Rootmat Removed in Cut	0 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	0 C.Y.

3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F	
a. Total Item 202000, Excavation and Embankment	8,805 C.Y.
b. Plus Excavation and Backfilling for Structures	75 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	0 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	305 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	3,247 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	0 C.Y.
k. = Total Excavation Available for Embankment, Type F	5,938 C.Y.

3a. FINAL PHASE EMBANKMENT, REQUIRED	
a. Basin Embankment Required	0 C.Y.
b. Plus Topsoil Removed Under Fill	0 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	0 C.Y.
d. Less Topsoil Placed on Fill Slopes	0 C.Y.
e. = Subtotal Basin Embankment Required	0 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	0 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	0 C.Y.
h. Less Excavation Performed in Final Phase Construction	0 C.Y.
i. = Total Adjusted Final Phase Embankment Required	0 C.Y.
(+= Need, -= Excess)	

4. BORROW TYPE A, REQUIRED	
a. Borrow, Type A for Capping	2,182 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	0 C.Y.
c. = Subtotal Borrow, Type A Capping Required	2,182 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	436 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	2,618 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	2,618 C.Y.

5. BORROW TYPE D, REQUIRED	
a. Borrow, Type D for SY Soil Cement Base Course	0 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20 +/-)	0 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	0 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	0 C.Y.

6. BORROW TYPE B, REQUIRED	
a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	0 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	0 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	0 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	0 C.Y.

7. EMBANKMENT AND BORROW, TYPE F, REQUIRED	
a. Embankment Required Below Capping (From Cross-Sections)	46,809 C.Y.
b. Plus Topsoil Removed under Fill	0 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	0 C.Y.
e. Plus PCC and bituminous pavement removed under fill	1,684 C.Y.
f. Less Topsoil Placed on Fill Slopes	4,199 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	0 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	44,294 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	8,859 C.Y.
m. = Subtotal Adjusted Embankment Required	53,153 C.Y.
n. Less Total Excavation Available for Borrow, Type F	5,938 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	47,215 C.Y.

8. BORROW TYPE C, REQUIRED	
a. Furnishing Borrow, Type C	78 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	16 C.Y.
c. = Subtotal Adjusted Borrow, Type C	94 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	94 C.Y.

9. CLAY BORROW	
a. Clay Borrow for SWM Basin Clay Core	0 C.Y.
b. = Subtotal Adjusted Clay Borrow	0 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	0 C.Y.

10. TOPSOIL SUMMARY (SEE NOTE 1)	
a. Topsoil Salvaged from Cut and Fill	3,247 C.Y.
b. Plus Topsoil from Stormwater Management Pond	0 C.Y.
c. = Subtotal Topsoil Available	3,247 C.Y.
d. Less Topsoil placed on Fill Slopes	4,199 C.Y.
e. Less Topsoil placed on Cut Slopes	0 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	-952 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	-952 C.Y.

PROPOSAL QUANTITIES	
ITEM NO. 202000 EXCAVATION AND EMBANKMENT	8,805 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	75 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	0 C.Y.
ITEM NO. 209002 BORROW, TYPE B	0 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	94 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	0 C.Y.

NOTES:

- THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

ADDENDUMS / REVISIONS

NOT TO SCALE

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	
T20091303	DESIGNED BY:	AM JW
COUNTY	CHECKED BY:	DB SF
NEW CASTLE		

EARTHWORK
SUMMARY

EW-09

SHEET NO.

19

TOTAL SHTS.

1256

ZONE 9 EARTHWORK QUANTITIES

LOCATION	EXCAVATION (C.Y.)	TOP SOIL REMOVED		ROOT MAT		OVEREXCAVATION		EMBANKMENT			BORROW TYPE D	TOP SOIL PLACED (C.Y.)					REMARKS	
		CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	BELOW CAPPING TYPE F	BASIN	CAPPING (TYPE A)		CUT	FILL TYPE A	FILL TYPE B	FILL TYPE F <3:1	FILL TYPE F >3:1		
LEVELS BORROW SITE	2,714,079	56,666										161,066						
DITCH																		
BASIN																		
SED BASINS																		
CONTRACT T200811301		39,444																stockpiled on site

ZONE 9 EARTHWORK SUMMARY (FOR INFORMATION ONLY)

1. EXCAVATION

a. From Cross Sections	2,714,079 C.Y.
1. Roadway	0 C.Y.
2. Borrow Site	2,714,079 C.Y.
3. Longitudinal Ditches	0 C.Y.
b. Plus Topsoil Removed in Fill	0 C.Y.
c. Plus Topsoil Placed in Cut	161,066 C.Y.
d. Plus Bituminous Pavement Removed under Fill	0 C.Y.
e. Less Rootmat Removed in Cut	0 C.Y.
f. Less Removal of Existing PCC Pavement, etc.	0 C.Y.
g. Less Rock Excavation	0 C.Y.
h. Plus Stormwater Management Pond Excavation	0 C.Y.
i. = Total Item 202000, Excavation and Embankment	2,875,145 C.Y.

2. STORMWATER MANAGEMENT PONDS

a. From Cross Sections	0 C.Y.
1. Excavation For Sediment Basins	0 C.Y.
2. Excavation For Final SWM Basins	0 C.Y.
b. Plus Topsoil Removed under Fill	0 C.Y.
c. Plus topsoil Placed in Cut	0 C.Y.
d. Less Rootmat Removed in Cut	0 C.Y.
e. Less Rock Excavation	0 C.Y.
f. = Total Item 271000, Stormwater Management Pond	0 C.Y.

3. EXCAVATION AVAILABLE FOR EMBANKMENT, TYPE F

a. Total Item 202000, Excavation and Embankment	2,875,145 C.Y.
b. Plus Excavation and Backfilling for Structures	0 C.Y.
c. Plus Excavation and Backfilling for Pipe Trenches	0 C.Y.
d. Plus Channel Excavation	0 C.Y.
e. Plus Excavation from installation of underdrains	0 C.Y.
f. Plus Stockpiled Material from previous phases	0 C.Y.
g. Less Topsoil Removed in Cut and Fill	56,666 C.Y.
h. Less Unsuitable Excavation	0 C.Y.
i. Less Materials Used for Borrow Type A and Borrow Type D	0 C.Y.
j. Less Excavation Performed in Final Phase Construction	0 C.Y.
k. = Total Excavation Available for Embankment, Type F	2,818,479 C.Y.

3a. FINAL PHASE EMBANKMENT, REQUIRED

a. Basin Embankment Required	0 C.Y.
b. Plus Topsoil Removed Under Fill	0 C.Y.
c. Plus Rootmat Removed Under Fill (not Backfilled with Borrow B)	0 C.Y.
d. Less Topsoil Placed on Fill Slopes	0 C.Y.
e. = Subtotal Basin Embankment Required	0 C.Y.
f. = Plus Embankment Required Adjustment Factor (0.2 +/-)	0 C.Y.
g. = Subtotal Adjusted Basin Embankment Required	0 C.Y.
h. Less Excavation Performed in Final Phase Construction	0 C.Y.
i. = Total Adjusted Final Phase Embankment Required	0 C.Y.

(+ = Need, - = Excess)

4. BORROW TYPE A, REQUIRED

a. Borrow, Type A for Capping	0 C.Y.
b. Less Topsoil Placed on Fill Slopes Type A	0 C.Y.
c. = Subtotal Borrow, Type A Capping Required	0 C.Y.
d. Plus Capping Required x Adjustment Factor (0.20 +/-)	0 C.Y.
e. = Subtotal Adjusted Borrow, Type A Capping Required	0 C.Y.
f. Less Excavation Available for Borrow Type A	0 C.Y.
g. = Total Borrow, Type A Required	0 C.Y.

5. BORROW TYPE D, REQUIRED

a. Borrow, Type D for Soil Cement Base Course	0 C.Y.
b. Plus Capping Required x Adjustment Factor (0.20 +/-)	0 C.Y.
c. = Subtotal Adjusted Borrow, Type D Required	0 C.Y.
d. Less Excavation Available for Borrow Type D	0 C.Y.
e. = Total Borrow, Type D Required	0 C.Y.

6. BORROW TYPE B, REQUIRED

a. Backfill for Unstable Subgrades after Rootmat Removed Under Fill	0 C.Y.
b. Plus Backfill x Adjustment Factor (0.20 +/-)	0 C.Y.
c. = Subtotal Adjusted Borrow, Type B Required	0 C.Y.
d. Less Excavation Available for Borrow Type B	0 C.Y.
e. = Total Item 209002, Borrow, Type B Required	0 C.Y.

7. EMBANKMENT AND BORROW, TYPE F, REQUIRED

a. Embankment Required Below Capping (From Cross-Sections)	0 C.Y.
b. Plus Topsoil Removed under Fill	0 C.Y.
c. Plus Rootmat removed under fill (not backfilled with Borrow, Type B)	0 C.Y.
d. Plus Undercut material removed under fill	0 C.Y.
e. Plus PCC and bituminous pavement removed under fill	0 C.Y.
f. Less Topsoil Placed on Fill Slopes	0 C.Y.
g. Plus Embankment required for Sediment Basins/Traps	0 C.Y.
h. Less Excess Topsoil to be placed in outer embankments	0 C.Y.
i. Less MSE Wall or Other Retaining Wall & Backfill	0 C.Y.
j. Less Borrow, Type B placed above original ground	0 C.Y.
k. = Subtotal Embankment Required Below Capping	0 C.Y.
l. Plus Embankment Required x Adjustment Factor (0.20 +/-)	0 C.Y.
m. = Subtotal Adjusted Embankment Required.	0 C.Y.
n. Less Total Excavation Available for Borrow, Type F	2,818,479 C.Y.
o. = Total Adjusted Borrow, Type F Required (+ = Need, - = Excess)	-2,818,479 C.Y.

8. BORROW TYPE C, REQUIRED

a. Furnishing Borrow, Type C	0 C.Y.
b. = Plus Borrow, Type C x Adjustment Factor (0.20 +/-)	0 C.Y.
c. = Subtotal Adjusted Borrow, Type C	0 C.Y.
d. Less Excavation Available for Borrow Type C	0 C.Y.
e. = Total Item 210000, Furnishing Borrow, Type C Required	0 C.Y.

9. CLAY BORROW

a. Clay Borrow for SWM Basin Clay Core	0 C.Y.
b. = Subtotal Adjusted Clay Borrow	0 C.Y.
c. Less Excavation Available for Clay Borrow	0 C.Y.
d. = Total Item 274000, Clay Borrow, Required	0 C.Y.

10. TOPSOIL SUMMARY (SEE NOTE 1)

a. Topsoil Salvaged from Cut and Fill	56,666 C.Y.
b. Plus Topsoil from Stormwater Management Pond	39,444 C.Y.
c. = Subtotal Topsoil Available	96,110 C.Y.
d. Less Topsoil placed on Fill Slopes	0 C.Y.
e. Less Topsoil placed on Cut Slopes	161,066 C.Y.
f. = Subtotal, Excess Topsoil (+) or Topsoil Need (-)	-64,956 C.Y.
g. = Less Excess Topsoil placed in Berms	0 C.Y.
h. = Less Excess Topsoil placed in Outer Embankment	0 C.Y.
i. = Total Excess Topsoil	-64,956 C.Y.

PROPOSAL QUANTITIES

ITEM NO. 202000 EXCAVATION AND EMBANKMENT	2,875,145 C.Y.
ITEM NO. 207000 EXCAVATION AND BACKFILL FOR STRUCTURES	0 C.Y.
ITEM NO. 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	0 C.Y.
ITEM NO. 209002 BORROW, TYPE B	0 C.Y.
ITEM NO. 210000 FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	0 C.Y.
ITEM NO. 274000 CLAY BORROW, STORMWATER MANAGEMENT POND, TYPE I	0 C.Y.

NOTES:

- THE USE OF THE EXISTING TOPSOIL STOCKPILE IS PAID UNDER THE RESPECTIVE TOPSOIL ITEM.

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ADDENDUMS / REVISIONS

NOT TO SCALE

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	
T200911303	DESIGNED BY:	AM JW
COUNTY	CHECKED BY:	DB SF
NEW CASTLE		

EARTHWORK
SUMMARY

EW-10
SHEET NO.
20
TOTAL SHTS.
1256