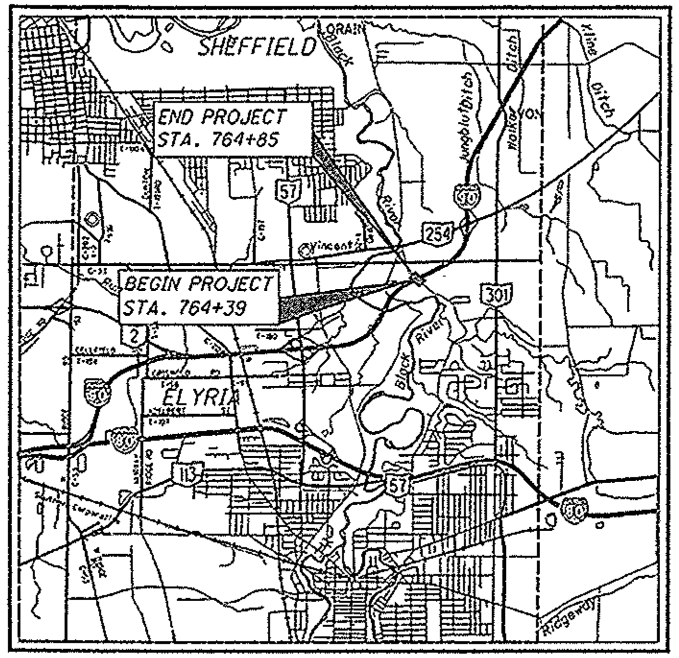
LOR - IR-90-14.78
100589 PID - 19585
Dist 3 12/16/2010

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

LOR-90-14.78

CITY OF ELYRIA
LORAIN COUNTY



LOCATION MAP

LATITUDE: 41°-52'-02" LONGITUDE: 82°-05'-21"

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED ▬
INTERSTATE & DIVIDED HIGHWAY ═
UNDIVIDED STATE & FEDERAL ROUTES ▬
OTHER ROADS ═

DESIGN DESIGNATION

	IR-90	GULF RD.
CURRENT ADT (2008)	56700	8330
DESIGN YEAR ADT (2028)	61260	9090
DESIGN HOURLY VOLUME (2028)	6126	909
DIRECTIONAL DISTRIBUTION	0.60	0.51
TRUCKS (24 HOUR B&C)	0.13	0.02
DESIGN SPEED	70	45
LEGAL SPEED	65	35
DESIGN FUNCTIONAL CLASSIFICATION:	INTERSTATE	LOCAL
NHS PROJECT	YES	NO

DESIGN EXCEPTIONS

NONE

INDEX OF SHEETS:

PROJECT DESCRIPTION

REPLACEMENT OF THE EXISTING 4-SPAN GULF ROAD STRUCTURE OVER I-90 WITH A NEW 4-SPAN STRUCTURE, RAISING THE PROFILE OF GULF ROAD, PROVIDING A MINIMUM OF 16.5' OF VERTICAL CLEARANCE ABOVE I-90. ASSOCIATED ROAD WORK ON GULF ROAD.

PROJECT EARTH DISTURBED AREA:	1.8 ACRES
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA:	0.5 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	4.9 ACRES

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2010 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF GULF ROAD AND THAT DETOURS WILL BE PROVIDED AS INDICATED IN THE PLANS.

C:\Documents and Settings\tbirnbri\Desktop\19585

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:
OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF PRODUCTION
1980 WEST BROAD STREET
COLUMBUS, OHIO 43223

ENGINEERS SEAL:	ENGINEERS SEAL:
STRUCTURE	ROADWAY
STATE OF OHIO TEDDY A. ANTONIOS E-54493 REGISTERED PROFESSIONAL ENGINEER	STATE OF OHIO THOMAS KARL BIRNBRICH E-59359 REGISTERED PROFESSIONAL ENGINEER
SIGNED: [illegible]	SIGNED: [illegible]
DATE: 8/25/2010	DATE: 08-25-2010

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	10/19/07	F-3.3	7/28/00	BR-2-98	7/19/02	TC-65.10	1/21/05		
BP-4.1	7/16/04			CSD-1-96	7/19/02	TC-65.11	1/21/05		
BP-5.1	7/28/00	GR-1.1	7/16/04	SICD-1-96	7/19/02	TC-73.10	1/19/01		
		GR-2.1	1/16/04	VPF-1-90	7/19/02				
CB-2.2	7/15/05	GR-3.1	10/16/09						
		GR-4.1	4/18/03	MT-101.60	4/17/09				
HW-1.1	1/21/05	GR-4.2	1/19/07	MT-101.70	1/16/09				
HW-2.2	7/30/07	GR-5.1	4/16/10	MT-105.10	1/16/09				
		GR-5.3	4/16/10						
DM-1.2	10/21/05	GR-6.2	4/16/10	TC-41.20	1/19/01				
DM-1.4	4/21/06			TC-41.30	1/19/07				
		RM-4.3	10/16/09	TC-42.10	1/19/07				
WQ-1.3	10/17/08	RM-4.5	10/16/09	TC-42.20	7/16/04				
		RM-4.6	4/16/10	TC-52.10	1/19/07				
F-2.1	7/28/00			TC-52.20	1/19/07				
F-3.1	4/16/10	AS-1-81	7/19/02	TC-61.30	4/16/10				

SUPPLEMENTAL SPECIFICATIONS	
800	10/15/10
802	1/16/09
832	5/5/09
835	4/18/08
898	7/21/06

SPECIAL PROVISIONS

APPROVED [illegible], P.E.
DATE 9/16/10 DISTRICT DEPUTY DIRECTOR

APPROVED [illegible]
DATE 9-25-10 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E080698

PID NO. 19585

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

LOR-90-14.78

BEGIN WORK
STA. 127+50.00

BEGIN WORK
STA. 761+65

BEGIN PROJECT
STA. 764+39
SLM 14.78
EA080698

END PROJECT
STA. 764+85
SLM 14.79
EA080698

END WORK
STA. 767+45

℄ SURVEY & CONST. GULF ROAD

℄ SURVEY & CONST. IR-90

POT Sta. 128+00.00

POT Sta. 135+00.49

OVERHEAD ELECTRIC
STA. 131+67.75
ELEV.= 731.23

END WORK
STA. 136+20.00

Ex R/W

Ex LA-R/W

42" Conc.

36" Conc.

4" SANITARY

12" WATER

N 47° 22' 23" W

N 61° 36' 37" E

EQUATION:
PC Sta. 137+61.99 Bk =
Sta 137+50.49 AH

PT Sta. 139+32.00

125 126 127 128 129 130 131 132 133 134 135 136 137 138 139

761 762 763 764 765 766 767 768 769

CURVE DATA

P.I. STA. 138+49.30
Δ = 32° 18' 30" (RT)
Dc = 18° 59' 59"
R = 301.56'
T = 87.35'
L = 170.05'
E = 12.40'

BENCH MARKS	℄ MONUMENTS
BM#1: ELEV. 694.13 5/8" IRON PIN W/ ODOT TRAV. CAP STA. 128+93.97, 17.97' RT. GULF RD.	MONUMENT BOX STA. 128+00.00, ℄ GULF RD.
BM#2: ELEV. 687.75 MAGSPIKE SET IN DRIVEWAY APRON STA. 135+14.53, 17.77' LT. GULF RD.	MONUMENT BOX STA. 135+00.49, ℄ GULF RD.

HORIZONTAL SCALE IN FEET
0 25 50 100

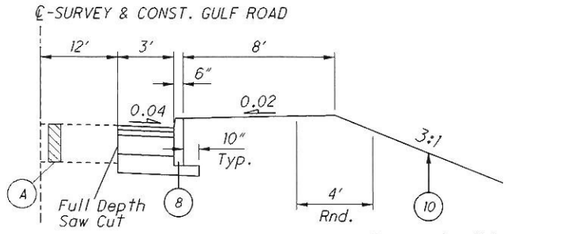
CALCULATED
CHECKED

SCHEMTIC PLAN
GULF ROAD AT I-90

LOR-90-14.78

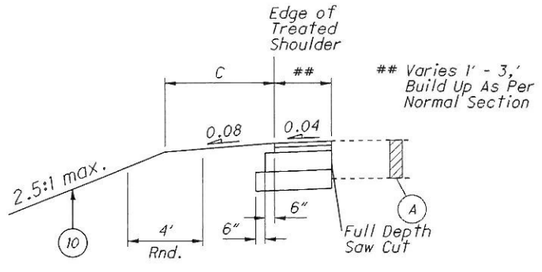
2
51

I:\pr\project\LOR\19585\roadway\sheets\19585GB001.dgn 02-MAR-2010 8:27AM tbirnbri

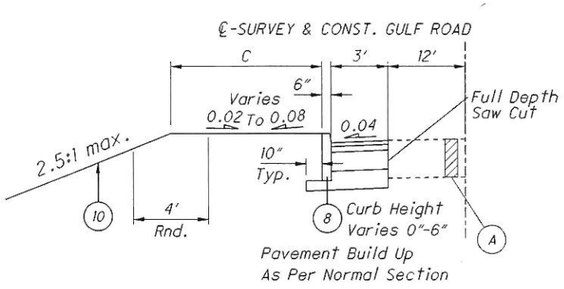


PAVEMENT/CURBED SECTION:
STA. 127+59.00 TO STA. 128+50.00 RT

Pavement Build Up As Per Normal Section



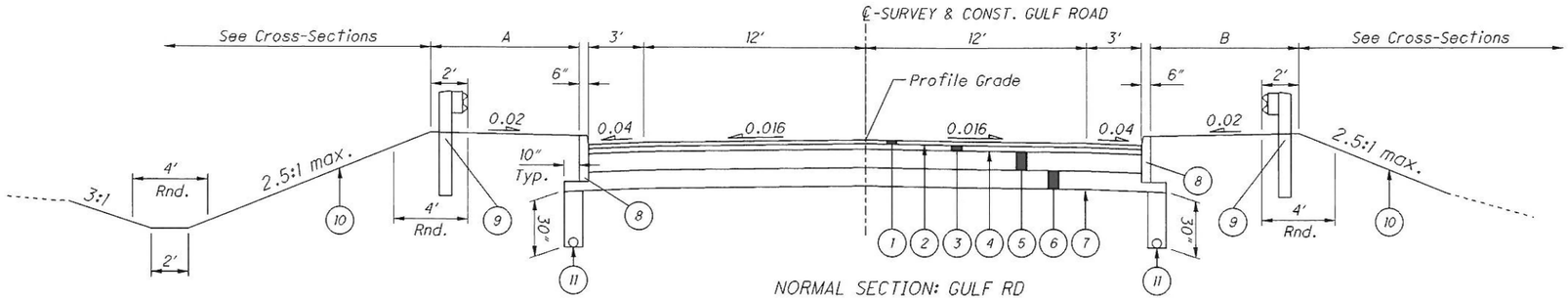
SHOULDER TRANSITION SECTION:
STA. 128+15.00 TO STA. 128+40.00 LT
STA. 136+10.00 TO STA. 136+25.00 LT (NO PAVEMENT)
STA. 136+10.00 TO STA. 136+35.00 RT (NO PAVEMENT)



PAVEMENT/CURBED SHOULDER TRANSITION SECTION:
STA. 128+40.00 TO STA. 128+50.00 LT
STA. 136+00.00 TO STA. 136+10.00 RT & LT

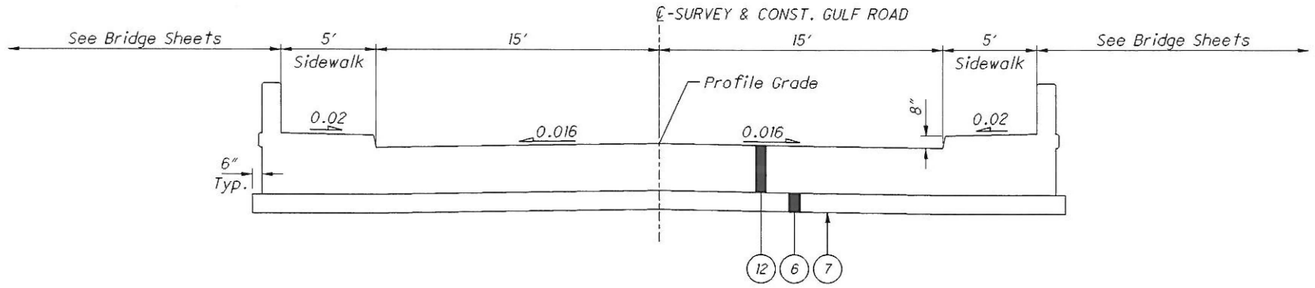
GRADED SHOULDER TRANSITION TABLE

STA. TO STA.	SIDE	C
128+15.00 TO 128+40.00	LT	VARIES 2.0′ - 6.29′
128+40.00 TO 128+50.00	LT	VARIES 6.29′ - 8.0′
136+00.00 TO 136+10.00	LT	VARIES 8.0′ - 5.60′
136+10.00 TO 136+25.00	LT	VARIES 5.60′ - 2.0′
136+00.00 TO 136+10.00	RT	VARIES 8.0′ - 6.29′
136+10.00 TO 136+35.00	RT	VARIES 6.29′ - 2.0′

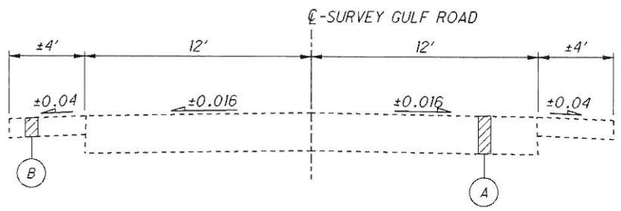


NORMAL SECTION: GULF RD
SECTION APPLIES : ℄ - STA. 128+50.00 TO STA. 130+03.03
℄ - STA. 133+61.14 TO STA. 136+00.00

STA. TO STA.	A	LENGTH	STA. TO STA.	B	LENGTH
128+50.00 TO 129+41.54	8.0′	91.54	128+50.00 TO 129+31.21	8.0′	81.21
129+41.54 TO 129+66.54	VARIES 8.0′ - 6.5′	25.00	129+31.21 TO 129+56.21	VARIES 8.0′ - 6.5′	25.00
129+66.54 TO 130+08.39	6.5′	41.85	129+56.21 TO 129+97.86	6.5′	41.65
133+66.31 TO 134+07.95	6.5′	41.64	133+55.98 TO 133+97.62	6.5′	41.64
134+07.95 TO 134+32.95	VARIES 6.5′ - 8.0′	25.00	133+97.62 TO 134+22.62	VARIES 6.5′ - 8.0′	25.00
134+32.95 TO 136+00.00	8.0′	167.05	134+22.62 TO 136+00.00	8.0′	177.38



APPROACH SLAB SECTION: GULF RD
SECTION APPLIES : ℄ - STA. 130+03.03 TO STA. 130+28.03
℄ - STA. 133+36.14 TO STA. 133+61.14



EXISTING SECTION: GULF RD
SECTION APPLIES : ℄ - STA. 128+50.00 BK
℄ - STA. 136+00.00 AH

LEGEND

(1) ITEM 442 - 1.25″ ASPHALT CONCRETE SURFACE COURSE, 9.5 MM, TYPE A (448), AS PER PLAN
(2) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (@ 0.075 GAL/SQ YD)
(3) ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448), AS PER PLAN
(4) ITEM 407 - TACK COAT (@ 0.075 GAL/SQ YD)
(5) ITEM 301 - 6″ ASPHALT CONCRETE BASE, PG64-22
(6) ITEM 304 - 6″ AGGREGATE BASE
(7) ITEM 204 - SUBGRADE COMPACTION
(8) ITEM 609 - CURB, TYPE 6
(9) ITEM 606 - GUARDRAIL, TYPE 5
(10) ITEM 659 - SEEDING AND MULCHING
(11) ITEM 605 - 6″ SHALLOW PIPE UNDERDRAINS
(12) ITEM 898 - CONCRETE APPROACH SLAB (T=15″), AS PER PLAN
(A) ±8″ EXISTING ASPHALT AND 8″ AGGREGATE BASE
(B) ±6″ EXISTING AGGREGATE

TYPICAL SECTIONS

LOR-90-14.78

I:\pr\project\LOR\19585\roadway\sheets\19585GY001.dgn 02-MAR-2010 8:27AM tbrnbri

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

OHIO EDISON TRANSMISSION
CARLOS A. MUNOZ
76 SOUTH MAIN STREET
AKRON, OHIO 44308
330-384-4835

TIME WARNER CABLE
DAVID SOBOTKA
576 TERNES AVENUE
ELYRIA, OH 44035
440-366-0417 EXT. 625

OHIO EDISON COMPANY
DOUG LINN
6326 LAKE AVENUE
ELYRIA, OHIO 44035
440-326-3268

JOHN SCHNEIDER (WATER, SANITARY)
131 COURT STREET, SUITE 303
ELYRIA, OHIO 44035
440-326-1444

WINDSTREAM
RANDY ENTLER
560 TERNES AVENUE
ELYRIA, OHIO 44035
440-329-4247

COLUMBIA GAS OF OHIO
DAN SUREN
7080 FRY ROAD
MIDDLEBURG HTS., OHIO 44130
440-891-2428

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS AS SET FORTH IN 203.05. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF 203.05.

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, SOIL ANALYSIS TEST	2 EACH
659, TOPSOIL	283 CU. YD.
659, SEEDING AND MULCHING	2553 SQ. YD.
659, REPAIR SEEDING AND MULCHING	128 SQ. YD.
659, INTER-SEEDING	128 SQ. YD.
659, COMMERCIAL FERTILIZER	0.36 TON
659, LIME	0.53 ACRES
659, WATER	17 M. GAL.

APPLY SEEDING AND MULCHING TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

ELEVATION DATUM

ALL ELEVATIONS ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND THE GEOID03 GEOID. HORIZONTAL POSITIONS ARE BASED ON THE OHIO STATE PLANE NORTH ZONE, A LAMBERT CONFORMAL CONIC MAP PROJECTION, THE NORTH AMERICAN DATUM OF 1983 ADJUSTED TO THE NATIONAL SPATIAL REFERENCE SYSTEM OF 2007 (NAD 83 (NSRS 2007)), AND THE GRS80 ELLIPSOID.

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

204, PROOF ROLLING	2 HOUR

ITEM SPECIAL - PIPE CLEANOUT

THIS WORK CONSISTS OF REMOVING SEDIMENT AND DEBRIS FROM THE EXISTING DRAINAGE CONDUITS SPECIFIED IN THE PLANS. DISPOSE OFF ALL MATERIAL AS PER 105.16 AND 105.17. CLEAN OUT ALL SEWERS TO THE SATISFACTION OF THE ENGINEER.

CLEANOUT OF THE PIPE WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM SPECIAL - PIPE CLEANOUT. THIS PRICE INCLUDES THE COST FOR ALL MATERIAL, EQUIPMENT, LABOR AND INCIDENTALS REQUIRED TO COMPLETE THE CLEANOUT.

ITEM 209 - DITCH CLEANOUT, AS PER PLAN

THIS WORK CONSISTS OF REESTABLISHING POSITIVE FLOW INTO AND OUT THE 42" CULVERT UNDER GULF RD. @ STA. 129+90. REMOVE SEDIMENT, VEGETATION, SMALL TREES AND DEBRIS ALONG THE 4' DITCH BOTTOM AND SIDESLOPES FOR A TOTAL WIDTH OF 15'.

CLEANOUT OF THE DITCH WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 209 - DITCH CLEANOUT, AS PER PLAN. THIS PRICE INCLUDES THE COST FOR ALL MATERIAL, EQUIPMENT, LABOR, AND INCIDENTALS REQUIRED TO COMPLETE THE WORK.

SEE PLAN AND PROFILE SHT. 23 FOR WORK LIMITS.

THE FOLLOWING QUANTITY IS PROVIDED FOR THE CLEANOUT.

209, DITCH CLEANOUT, AS PER PLAN	100 FT

MEDIAN AND/OR CURBING ON APPROACH SLABS

WITHIN THE LIMITS OF THE APPROACH SLAB, TRANSITION THE SHAPE OF THE MEDIAN AND/OR CURBING ON APPROACH SLABS FROM THE STANDARD SECTION ON THE APPROACHES TO THE SECTION USED ON THE BRIDGE.

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTIAN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS AS SET FORTH IN 203.05. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF 203.05.

INDIANA BATS

THIS PROJECT IS WITHIN THE KNOWN SUMMER BREEDING RANGE OF THE FEDERAL ENDANGERED INDIANA BAT. UNAVOIDABLE CUTTING OF TREES DEFINED AS POTENTIAL HABITAT FOR THE INDIANA BAT (I.E. LIVING OR STANDING DEAD TREES OR SNAGS WITH EXFOLIATING, PEELING OR LOOSE BARK, SPLIT TRUNKS AND/OR BRANCHES, OR CAVITIES) WILL BE PERFORMED ONLY BEFORE APRIL 15 OR AFTER SEPTEMBER 15 WHEN THE SPECIES WOULD NOT BE USING SUCH HABITAT.

PRIOR TO BRIDGE REMOVAL OR MAINTENANCE, FROM APRIL 15TH TO SEPTEMBER 15TH, THE UNDERSIDE OF THE BRIDGE WILL BE INSPECTED FOR THE PRESENCE OF BATS. IF ANY ARE FOUND, U.S. FISH & WILDLIFE SERVICES WILL BE CONTACTED PRIOR TO BRIDGE REMOVAL.

RIGHT OF WAY FENCE REPLACEMENT

QUANTITIES HAVE BEEN ADDED TO THE PLAN FOR THE REMOVAL AND REPLACEMENT OF THE RIGHT OF WAY FENCING ABUTING THE STRUCTURE. REMOVE AND REPLACE THE FENCE AT EXISTING LOCATIONS AS DETERMINED BY THE ENGINEER.

MEASUREMENTS OF THE FINAL QUANTITIES WILL BE IN ACCORDANCE WITH ITEM 607.

202, FENCE REMOVED	160 FT
607, FENCE, TYPE 47	160 FT

ITEM SPECIAL - MAILBOX SUPPORT

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4" BY 4" SQUARE OR 4½" DIAMETER ROUND, AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2" I.D. O.D., AND CONFORM TO AASHTO M 181.

HARDWARE (PLATES, SCREWS, BOLTS, ETC.) SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.10. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR ITEM SPECIAL

ITEM 606 - ANCHOR ASSEMBLY, TYPE E-98

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS, OR AN APPROVED EQUAL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE AT WWW.DOT.STATE.OH.US/DRRC/ UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS:

1) THE ET-2000 (1997) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE LENGTH OF THE ET-2000 (1997) SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF TWO 25'-0" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./ REV. DATE	ODOT APPROVAL DATE
SSS265M	ET-2000 (1997) PLAN, ELEVATION AND SECTIONS	6/20/97	3/6/98
SS142	ET2000 PLUS 50'-0" PLAN, ELEVATION AND SECTION 25'-0" RAIL, SLEEVE W/PL POSTS 1-4	4/12/00	7/31/00

2) THE SKT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO, 44224, (TELEPHONE: 330-346-0721).

THE LENGTH OF THE SKT-350 SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF FOUR 12'-6" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./ REV. DATE	ODOT APPROVAL DATE
SS141	ET2000 PLUS PLAN, ELEVATION AND SECTION 25'-0" RAIL, HBA POSTS 1-4	2/29/00	7/31/00
SS158	ET2000 PLUS 50'-0" WITH 12'-6" PANELS AND HBA POSTS 1-4 PLAN, ELEVATION AND SECTION	5/22/00	7/31/00

2) THE SKT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO, 44224, (TELEPHONE: 330-346-0721).

THE LENGTH OF THE SKT-350 SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF FOUR 12'-6" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./ REV. DATE	ODOT APPROVAL DATE
SKT-4M	SEQUENTIAL KINKING TERMINAL (SKT-350) ASSEMBLY WITH 4 FOUNDATION TUBES	12/11/97	3/6/98

THE FACE OF THE TYPE E-98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 18" X 18", OR 12" X 18" IF APPLIED TO A RECTANGULAR ET-2000 "PLUS" EXTRUDER HEAD.

REFER TO THE MANUFACTURER'S INSTRUCTION REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4-INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27-3/4-INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4-INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E-98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CALCULATED TKB
CHECKED MDC

GENERAL NOTES

LOR-90-14.78

I:\pr\project\LOR\19585\roadway\sheets\19585GN001.dgn 02-MAR-2010 8:27AM tbirnbri

ITEM 614, MAINTAINING TRAFFIC

GULF RD:

CLOSE THE ROADWAY AT STRUCTURE MED-90-1478 REROUTING TRAFFIC USING THE DETOUR AS SHOWN IN THE PLAN.

I-90:

MAINTAIN A MINIMUM OF 2 LANES OF TRAFFIC IN EACH DIRECTION AT ALL TIMES BY USE OF THE EXISTING PAVEMENT EXCEPT FOR BRIEF INTERVALS REQUIRING LEO (WITH PATROL CAR) FOR OVER-HEAD BRIDGE WORK.

BEFORE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF PERSONS WHO CAN BE CONTACTED 24 HOURS A DAY BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ALL INTERESTED POLICE AGENCIES. THESE PERSONS SHALL BE RESPONSIBLE FOR PLACING NECESSARY TRAFFIC CONTROL DEVICES IN A MANNER WHICH IS SAFE FOR THE TRAVELLING PUBLIC.

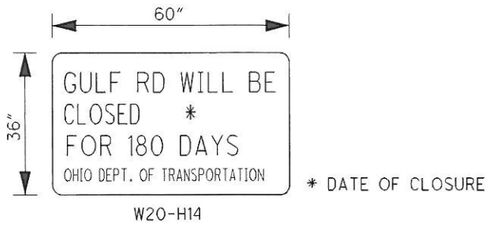
THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE LOCATIONS SHOWN IN THE PLAN DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

NOTICE OF CLOSURE SIGNS

NOTICE OF CLOSURE SIGNS, AS DETAILED IN THESE PLANS, SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. THE SIGNS SHOULD BE ERECTED AT THE POINT OF CLOSURE.

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS INCLUDING SUPPORTS.



THE CONTRACTOR SHALL NOTIFY THE CITY OF ELYRIA AND THE ODOT DISTRICT 3 ROADWAY SERVICE MANAGER AT LEAST 14 DAYS IN ADVANCE OF CLOSING THE ROAD SO THAT EMERGENCY AGENCIES, NEWS PAPERS, SCHOOLS, ETC. CAN BE NOTIFIED.

DETOUR SIGNING

THE DETOUR SIGNS SHALL BE POSTED AT LEAST 7 DAYS IN ADVANCE PRIOR TO CLOSING THE ROAD.

PROVIDE, MAINTAIN AND SUBSEQUENTLY REMOVE ALL DETOUR SIGNS AND SUPPORTS. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS FOR DETOUR SIGNING SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614 - DETOUR SIGNING.

ITEM 614, BARRIER REFLECTORS AND/OR OBJECT MARKERS

BARRIER REFLECTORS AND/OR OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO CMS 626, EXCEPT THAT THE SPACING SHALL BE 50 FEET. AN ESTIMATED QUANTITY OF 46 EACH OF ITEM 614 BARRIER REFLECTOR, TYPE B AND 46 EACH OF ITEM 614 OBJECT MARKER, ONE-WAY HAVE BEEN PROVIDED AND CARRIED TO THE GENERAL SUMMARY.

PORTABLE CONCRETE BARRIER

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR THE PLACEMENT OF PORTABLE CONCRETE BARRIER AT THE LOCATIONS SHOW ON THE MAINTENANCE OF TRAFFIC PLAN SHEETS.

ITEM 614, WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) 4 EACH

ITEM 622, PORTABLE CONCRETE BARRIER, 32" 1880 FT

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 5 M. GAL

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENT OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.
- WHEN CONSTRUCTION VEHICLES ARE ENTERING/EXITING THE ZONE DIRECTLY FROM/INTO AN OPEN LANE OF TRAFFIC. IF A LANE HAS BEEN CLOSED TO PROVIDE AN ACCELERATION/DECELERATION LANE FOR THE VEHICLE, THE LEO WILL NOT BE REQUIRED.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 60 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

CALCULATED TKB CHECKED MDC

MAINTENANCE OF TRAFFIC GENERAL NOTES

LOR-90-14.78

I:\pr\project\LOR\19585\roadway\sheets\19585MN001.dgn 21-APR-2010 1:35PM tbrinbri

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS UNIDIRECTIONAL

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ONE OF THE FOLLOWING IMPACT ATTENUATORS:

1. THE QUADGUARD CZ, (24 INCHES WIDE SIX-BAY) WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

   THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9". INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: OSCZCVR-T4
DRAWING NAME: QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES
REVISION DATE: 5/13/99 REV. J
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-10
DRAWING NAME: QUADGUARD SYSTEM CONCRETE PAD, CZ, QG
REVISION DATE: 11/19/97 REV. D
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-16
DRAWING NAME: QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG
REVISION DATE: 7/30/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 354051Z
DRAWING NAME: QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24, 30, 36
REVISION DATE: 5/17/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-18
DRAWING NAME: TRANSITION ASSEMBLY, 4 OFFSET, QG
REVISION DATE: 6/25/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35400260
DRAWING NAME: QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY
REVISION DATE: 11/19/97 REV. C
ODOT APPROVAL DATE: 8/27/99

2. THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

   THE TRACC IS 21'-0" LONG AND 2'-7" WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: SS450
DRAWING NAME: CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS
REVISION DATE: 3/12/99 REV. 1
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS455
DRAWING NAME: TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE: 2/18/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS461
DRAWING NAME: TRACC TRANSITION TO CONCRETE SAFETY SHAPE BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE: 6/30/99 REV. 1
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS462
DRAWING NAME: TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS
REVISION DATE: 6/30/99
ODOT APPROVAL DATE: 8/27/99

3. THE BARRIER SYSTEMS, INC. TAU-II IMPACT ATTENUATOR, DISTRIBUTED BY ROAD SYSTEMS INC., SALES SUPPORT, 2183 ELM TRACE, AUSTINTOWN, OH 44515, (TELEPHONE 330-799-9291)

   THE TAU-II FOR THIS NOTE IS A PARALLEL 8-BAY UNIT (24' LONG AND 35" WIDE). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIEDIN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: A040416
DRAWING NAME: UNIVERSAL TAU-II PARTS LIST
REVISION DATE: 4/22/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040420
DRAWING NAME: UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNT BACKSTOP
REVISION DATE: 4/28/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040105
DRAWING NAME: UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A04020)
REVISION DATE: 1/07/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: B040239
DRAWING NAME: APPLICATION, FLUSH MOUNT BACKSTOP (TYPICAL FOR PARALLEL 60 MPH UNIT)
REVISION DATE: 4/21/04
ODOT APPROVAL DATE: 10/16/04

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY

I:\pr\project\LOR\19585\roadway\sheets\19585MN002.dgn 02-MAR-2010 8:27AM tbirnbri

1 DETOUR AHEAD W20-2-36

2 ROAD CLOSED R11-2-48
ON GATES / BARRICADES AS PER MT-101.60

3 BRIDGE OUT 1/3 MILES AHEAD R11-3B-60
LOCAL TRAFFIC ONLY
DETOUR M4-10L-48
ON BARRICADES AS PER MT-101.60

4 BRIDGE OUT 3/4 MILES AHEAD R11-3B-60
LOCAL TRAFFIC ONLY
DETOUR M4-10R-48
ON BARRICADES AS PER MT-101.60

5 DETOUR M4-8-24
GULF RD D3-1-24
SOUTH M3-3-24
M6-1R-24

6 DETOUR M4-8-24
GULF RD D3-1-24
SOUTH M3-3-24
M6-1L-24

7 DETOUR M4-8-24
GULF RD D3-1-24
SOUTH M3-3-24
M5-1R-24

8 DETOUR M4-8-24
GULF RD D3-1-24
SOUTH M3-3-24
M5-1L-24

9 DETOUR M4-8-24
GULF RD D3-1-24
SOUTH M3-3-24
M6-3-24

10 DETOUR M4-8-24
GULF RD D3-1-24
NORTH M3-1-24
M6-1L-24

11 DETOUR M4-8-24
GULF RD D3-1-24
NORTH M3-1-24
M5-1L-24

12 DETOUR M4-8-24
GULF RD D3-1-24
NORTH M3-1-24
M6-3-24

13 DETOUR M4-8-24
GULF RD D3-1-24
NORTH M3-1-24
M5-1R-24

CALCULATED | CHECKED

GULF ROAD DETOUR PLAN

LOR-90-14,78

I:\pr\project\LOR\19585\roadway\sheets\19585MD001.dgn 02-MAR-2010 8:27AM tbrnbri

Drum

Portable Concrete Barrier (PCB)

Direction of Traffic

Section A-A

CALCULATED

CHECKED

MAINTENANCE OF TRAFFIC DETAILS
EASTBOUND I-90 PCB PLACEMENT

LOR-90-14.78

8
51

I:\pr\project\LOR\19585\roadway\sheets\19585MP001.dgn 02-MAR-2010 8:27AM tbirnbri

Drum

Portable Concrete Barrier (PCB)

Direction of Traffic

END ROAD WORK

G20-2-48
Sta. 763+95

℄-Const. Gulf Rd.

A

+94

+24

132

N 47°

A

763 764 765 766 ℄-Const. I.R. 90 767

N 61° 36' 37" E

MATCH LINE STA. 768+00 - I.R. 90

℄-Const. I.R. 90

12' 12'

2' 2' 2' 2' 14'

38'

7'

Pier

PCB

PCB

Pier

4'

10'

Ex. Edge Line

Ex. Lane Line

Ex. Edge Line

Temp. Sheeting

Section A-A

Work Zone Impact Attenuator (Unidirectional)

+54

65' Drum Spacing (Typ.)

+03

+04

+54

Work Zone Impact Attenuator (Unidirectional)

MATCH LINE STA. 768+00 - I.R. 90

768 769 770 771 ℄-Const. I.R. 90 772 773

SHOULDER CLOSED AHEAD

W20-3-48
Sta. 779+00

ROAD WORK AHEAD

W20-1-48
Sta. 794+00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED

CHECKED

MAINTENANCE OF TRAFFIC DETAILS
WESTBOUND I-90 PCB PLACEMENT

LOR-90-14.78

9
51

L:\pr\project\LOR\19585\roadway\sheets\19585MP002.dgn 02-MAR-2010 8:27AM tbrnbri

SHEET NUMBER														ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
		4			12	13		22		24			OFFICE CALCS.						
																		ROADWAY	
		LUMP												201	11000	LUMP		CLEARING AND GRUBBING	
					1									202	20010	1	EACH	HEADWALL REMOVED	
					66									202	35100	66	FT	PIPE REMOVED, 24" AND UNDER	
					8									202	35200	8	FT	PIPE REMOVED, OVER 24"	
					1117									202	38000	1117	FT	GUARDRAIL REMOVED	
					100									202	38300	100	FT	GUARDRAIL REMOVED, BARRIER DESIGN	
					1									202	53100	1	EACH	MAILBOX REMOVED	
					108									SPECIAL	20270100	108	FT	PIPE CLEANOUT	
		160												202	75000	160	FT	FENCE REMOVED	
								889						203	10000	889	CU YD	EXCAVATION	
								1624						203	20000	1624	CU. YD	EMBANKMENT	
										119			1678	204	10000	1797	SQ YD	SUBGRADE COMPACTION	
		2												204	45000	2	HOUR	PROOF ROLLING	
		100												209	10001	100	FT	DITCH CLEANOUT, AS PER PLAN	4
					863									606	13000	863	FT	GUARDRAIL, TYPE 5	
					5									606	22010	5	EACH	ANCHOR ASSEMBLY, TYPE E-98	
					2									606	25000	2	EACH	ANCHOR ASSEMBLY, TYPE A	
					3									606	26500	3	EACH	ANCHOR ASSEMBLY, TYPE T	
					6									606	35000	6	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1	
		160												607	15000	160	FT	FENCE, TYPE 47	
					943									609	26000	943	FT	CURB, TYPE 6	
					44									622	24000	44	FT	CONCRETE BARRIER, TYPE D	
					2									622	25000	2	EACH	CONCRETE BARRIER END SECTION, TYPE D	
					2									622	25050	2	EACH	CONCRETE BARRIER, END ANCHOR, REINFORCED, TYPE D	
					1									SPECIAL	69050100	1	EACH	MAILBOX SUPPORT SYSTEM, SINGLE	
																		EROSION CONTROL	
						1.66								601	32200	1.66	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
		2												659	00100	2	EACH	SOIL ANALYSIS TEST	
		283												659	00300	283	CU YD	TOPSOIL	
		2553												659	10000	2553	SQ YD	SEEDING AND MULCHING	
		128												659	14000	128	SQ YD	REPAIR SEEDING AND MULCHING	
		128												659	15000	128	SQ YD	INTER-SEEDING	
		0.36												659	20000	0.36	TON	COMMERCIAL FERTILIZER	
		0.53												659	31000	0.53	ACRE	LIME	
		17												659	35000	17	M GAL	WATER	
														832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
														832	30000	11000	EACH	EROSION CONTROL	
						16								835	10000	16	FT	EXFILTRATION TRENCH, TYPE A	
																		DRAINAGE	
						9.16								602	20000	9.16	CU YD	CONCRETE MASONRY	
						60								603	00100	60	FT	4" CONDUIT, TYPE B	
						58								603	04400	58	FT	12" CONDUIT, TYPE B	
						41								603	04600	41	FT	12" CONDUIT, TYPE C	
						70								603	04900	70	FT	12" CONDUIT, TYPE D	
						19								603	19200	19	FT	42" CONDUIT, TYPE A, 706.02	
						4								604	00800	4	EACH	CATCH BASIN, NO. 3A	
						764								605	11100	764	FT	6" SHALLOW PIPE UNDERDRAINS	

CALCULATED TKB
CHECKED MDC

GENERAL SUMMARY

LOR-90-14.78

i:\pr\project\LOR\19585\Roadway\Sheets\Addendum2\19585GG001.dgn 15-DEC-2010 12:24PM tbirnbri

SHEET NUMBER													OFFICE CALCS.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
			5				24		25										
																		PAVEMENT	
													226	301	46000	226	CU YD	ASPHALT CONCRETE BASE, PG64-22	
							20						280	304	20000	300	CU YD	AGGREGATE BASE	
													102	407	10000	102	GALLON	TACK COAT	
													102	407	14000	102	GALLON	TACK COAT FOR INTERMEDIATE COURSE	
													66	442	10501	66	CU YD	ASPHALT CONCRETE SURFACE COURSE, 9.5 MM, TYPE A (448), AS PER PLAN	4
													47	442	20201	47	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448), AS PER PLAN	4
							7							448	48020	7	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)	
																		TRAFFIC CONTROL	
									11					621	00100	11	EACH	RPM	
									11					621	54000	11	EACH	RAISED PAVEMENT MARKER REMOVED	
									16					626	00100	16	EACH	BARRIER REFLECTOR	
									14					630	03100	14	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
									6.25					630	80100	6.25	SQ FT	SIGN, FLAT SHEET	
									1					630	84900	1	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
									1					630	86002	1	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
									0.35					644	00100	0.35	MILE	EDGE LINE	
									0.16					644	00300	0.16	MILE	CENTER LINE	
																		STRUCTURES OVER 20' SPAN	
																		SEE SHEET 29	
																		MAINTENANCE OF TRAFFIC	
			LUMP											614	11000	LUMP		MAINTAINING TRAFFIC	
			60											614	11110	60	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
			4											614	12336	4	EACH	WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)	
			LUMP											614	12420	LUMP		DETOUR SIGNING	
			46											614	13100	46	EACH	BARRIER REFLECTOR	
			46											614	13350	46	EACH	OBJECT MARKER, ONE WAY	
			5											616	10000	5	M GAL	WATER	
			1880											622	40020	1880	FT	PORTABLE CONCRETE BARRIER, 32"	
														619	16010	6	MONTH	FIELD OFFICE, TYPE B	
														623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
														624	10000	LUMP		MOBILIZATION	

CALCULATED TKB
CHECKED MDC

GENERAL SUMMARY

LOR-90-14.78

I:\pr\project\LOR\19585\Roadway\Sheets\Addendum2\19585GG002.dgn 15-DEC-2010 12:24PM tbirnbri

REF NO.	SHEET NO.	STATION TO STATION		SIDE	202 HEADWALL REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT	202 PIPE REMOVED, 24" AND OVER FT	202 GUARDRAIL REMOVED FT	202 GUARDRAIL REMOVED, BARRIER DESIGN FT	202 MAILBOX REMOVED EACH	SPECIAL PIPE CLEANOUT FT	606 GUARDRAIL, TYPE 5 FT	606 ANCHOR ASSEMBLY, TYPE E-98 EACH	606 ANCHOR ASSEMBLY, TYPE A EACH	606 ANCHOR ASSEMBLY, TYPE T EACH	606 BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	609 CURB, TYPE 6 FT	622 CONCRETE BARRIER, TYPE D FT	SPECIAL MAILBOX SUPPORT SYSTEM, SINGLE EACH	622 CONCRETE BARRIER END SECTION, TYPE D EACH	622 CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D EACH
		GULF RD.																			
R1	15,16	128+87	130+18	RT				131													
R2	16	129+00	130+39	LT				131													
R3	16	130+10		LT	1		8														
R4	16,17	133+33	134+64	RT				131													
R5	16,17	133+46	134+77	LT				131													
R6	17	134+70		LT						1											
R7	17	134+73	135+39	LT		66															
C1	15,16	127+62.00	129+97.86	RT													245.3				
C2	15,16	128+40.00	130+08.19	LT													168.2				
C3	16,17	133+55.98	136+10.00	RT													254.0				
C4	16,17	133+66.81	136+10.00	LT													243.2				
C5	17	134+69.03	134+77.71	LT													14.2				
C6	17	135+10.63	135+22.27	LT													18.1				
GR1	15,16	128+35.29	130+10.29	LT								137.5	1			1					
GR2	15,16	128+62.46	129+99.96	RT								100.0	1			1					
GR3	16,17	133+53.87	134+72.62	RT								81.25	1			1					
GR4	16,17	133+64.20	134+80.50	LT								119.25			1	1					
PC1	16	129+90		LT,RT							108										
MB1	17	134+68		LT															1		
			I.R. 90																		
R8	23	763+25	765+90	LT,RT				330	100												
R9	23	763+86	765+26	RT				140													
R10	23	763+98	765+21	LT				123													
GR5	23	763+28.52	764+90.79	RT								125		1	1						
GR6	23	763+34.84	764+59.84	RT								87.5	1			1					
GR7	23	764+31.78	765+94.05	LT								125		1	1						
GR8	23	764+62.72	765+87.72	LT								87.5	1			1					
B1	23	764+13.83	764+64.83	LT														22		1	1
B2	23	764+57.74	765+08.74	RT														22		1	1
TOTALS CARRIED TO GENERAL SUMMARY					1	66	8	1117	100	1	108	863	5	2	3	6	943	44	1	2	2

CALCULATED TKB
CHECKED MDC

SUBSUMMARY

LOR-90-14.78

I:\pr_project\LOR\19585\Roadway\19585GS001.dgn 10-DEC-2010 10:17AM ssimmons

REF NO.	SHEET NO.	STATION TO STATION		SIDE	601 ROCK CHANNEL PROTECTION, TYPE C WITH FILTER (CU YD)		602 CONCRETE MASONRY (CU YD)	603 4" CONDUIT, TYPE B (FT)	603 12" CONDUIT, TYPE B (FT)	603 12" CONDUIT, TYPE C (FT)	603 12" CONDUIT, TYPE D (FT)	603 42" CONDUIT, TYPE A, 706.02, D-LOAD (FT)	604 CATCH BASIN, NO. 3A (EACH)		605 6" SHALLOW PIPE UNDERDRAINS (FT)		835 EXFILTRATION TRENCH, TYPE A (FT)				
		GULF RD.																			
D1	15	128+55		LT			0.21			22											
D2	15	128+55		LT,RT					29				1								
D3	15	128+55		RT									1								
D4	16	129+70		RT			1.44														
D5	16	130+10		LT			7.30					19									
D6	17	134+72	135+42	LT							70										
D7	17	135+95		LT			0.21			19											
D8	17	135+95		LT,RT					29				1								
D9	17	135+95		RT									1								
EC1	15	128+55		LT	0.83																
EC2	17	135+95		LT	0.83																
UD1	15,16	128+55	130+08	LT											153						
UD2	15,16	128+55	129+98	RT											143						
UD3	16,17	133+56	135+95	RT											239						
UD4	16,17	133+66	135+95	LT											229						
BMP1	15	128+70		LT				15									4				
BMP2	15	128+70		RT				15									4				
BMP3	17	135+80		LT				15									4				
BMP4	17	135+80		RT				15									4				
TOTALS CARRIED TO GENERAL SUMMARY					1.66		9.16	60	58	41	70	19	4	2	764		16				

CALCULATED TKB
CHECKED MDC

EROSION CONTROL - SUBSUMMARY

DRAINAGE

LOR-90-14.78

13
51

I:\pr\project\LOR\19585\roadway\sheets\19585DS001.dgn 02-MAR-2010 8:27AM tburnbri

PROJECT DATA

Total Area (Right-Of-Way) .....6.50 Acres	Runoff Coefficient for Pre-Construction Site.....0.73
Project Earth Distrubed Area.....1.80 Acres	Runoff Coefficient for Post Construction Site.....0.74
Contractor Earth Distrubed Area.....0.50 Acres	Soil and Water Conservation Map.....Soil Survey of Lorain County, Ohio
NOI Earth Disturbing Activities.....4.90 Acres	Immediate Receiving Waters.....Black River
Impervious (Paved) Area for Pre-Construction Site.....0.58 Acres	Subsequent Receiving Water.....Lake Erie
Impervious (Paved) Area for Post Construction Site.....0.68 Acres	

LATITUDE: 41°24'54" LONGITUDE: 82°05'36"

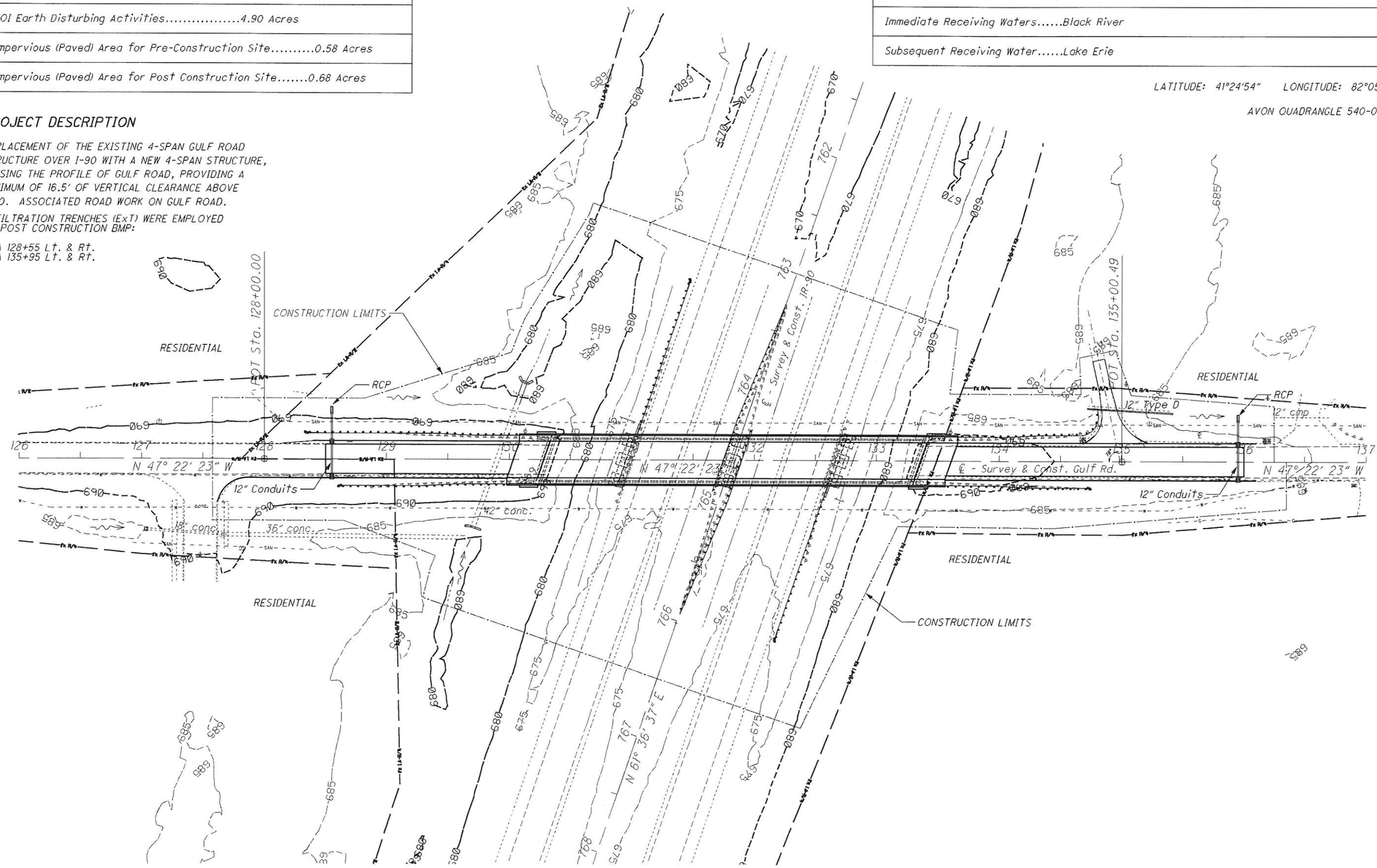
AVON QUADRANGLE 540-05 NE

PROJECT DESCRIPTION

REPLACEMENT OF THE EXISTING 4-SPAN GULF ROAD STRUCTURE OVER I-90 WITH A NEW 4-SPAN STRUCTURE, RAISING THE PROFILE OF GULF ROAD, PROVIDING A MINIMUM OF 16.5' OF VERTICAL CLEARANCE ABOVE I-90. ASSOCIATED ROAD WORK ON GULF ROAD.

EXFILTRATION TRENCHES (ExT) WERE EMPLOYED AS POST CONSTRUCTION BMP:

STA 128+55 Lt. & Rt.
STA 135+95 Lt. & Rt.



HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED MLC
CHECKED MDC

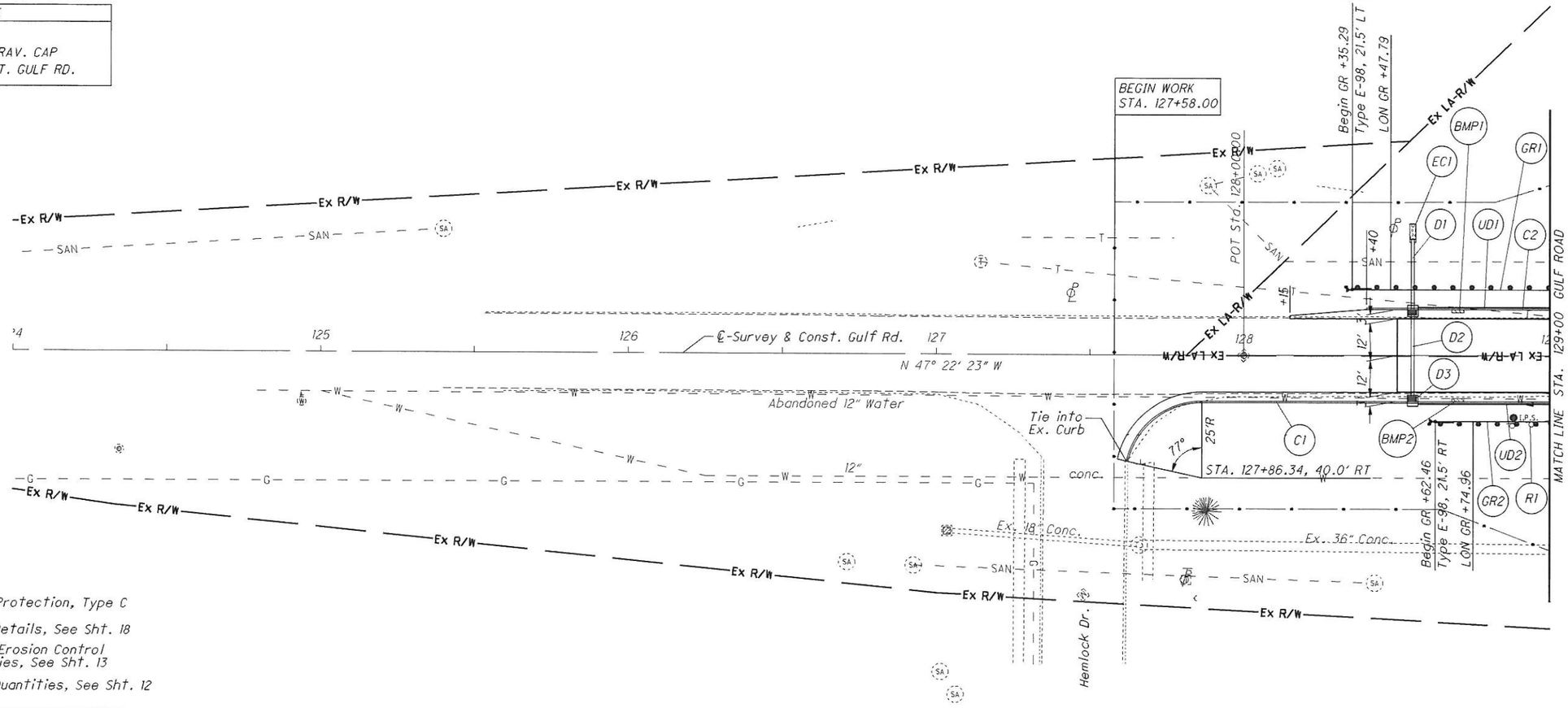
PROJECT SITE PLAN
STA. 126+00 TO STA. 137+00

LOR-90-14.78

14
51

I:\pr\project\LOR\19585\roadway\sheets\19585DE001.dgn 02-MAR-2010 8:27AM tbrabri

BENCH MARK
BM#1: ELEV. 694.13
5/8" IRON PIN W/ ODOT TRAV. CAP
STA. 128+93.97, 17.97' RT. GULF RD.



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED
CHECKED

PLAN AND PROFILE
STA. 125+00.00 TO STA. 129+00.00

LOR-90-14.78

15
51

L:\pr\project\LOR\19585\roadway\sheets\19585GP001.dgn 02-MAR-2010 8:27AM tbirnbri

BENCH MARK

BM#1: ELEV. 694.13
5/8" IRON PIN W/ ODOT TRAV. CAP
STA. 128+93.97, 17.97' RT. GULF RD.

BENCH MARK

BM#2: ELEV. 687.75
MAGSPIKE SET IN DRIVEWAY APRON
STA. 135+14.53, 17.77' LT. GULF RD.

GULF ROAD

MATCH LINE STA. 129+00

MATCH LINE STA. 134+00

℄-Survey & Const. Gulf Rd

N 47° 22' 23" W

℄-Survey & Const. IR-90

Ex. San MH Rebuilt To Grade By Others

Begin Taper +41.54, 21.5' LT

End Taper +66.54, 20.0' LT

End GR +10.29 BTA Type I

HW-1.1

Ex. Light Pole To Be Removed By Others

END APPROACH SLAB STA. 130+28.03

Aband. 12" Water

Begin Taper +31.21, 21.5' RT

End Taper +56.21, 20.0' RT

End GR +99.96 BTA Type I

Ex. 42" Conc.

Ex. 36" Conc.

HW Extension

Ex LA-R/W

Ex R/W

Begin GR +64.20 BTA Type I

BEGIN APPROACH SLAB STA. 133+36.14

Begin GR +53.87 BTA Type I

Begin Taper +97.62, 20.0' RT

For Drainage Details, See Sht. 20
For Drainage, Erosion Control & BMP Quantities, See Sht. 13
For Roadway Quantities, See Sht. 12

P.V.I. STA 131+81.58 ELEV = 698.46'
SSD = 433' 350.00' VC K = 84

+1.25 %

-2.94 %

6 Conduit Tele. Bank

12" water

Ex. 36" Conc.

Ex. 42" Conc.

4" Sanitary FM

17'-5"

16'-10"

694.95 695.26 695.57 695.88 696.19 696.49 696.71 696.85 696.92 696.92 696.84 696.68 696.45 696.15 695.77 695.32 694.79 694.19 693.51 692.78 692.05

694.65 694.79 694.79 684.14 673.92 673.27 672.87 673.90 676.51 691.74 690.91

700 695 690 685 680 675 670

129+00 130+00 131+00 132+00 133+00 134+00

HORIZONTAL SCALE IN FEET

CALCULATED | CHECKED

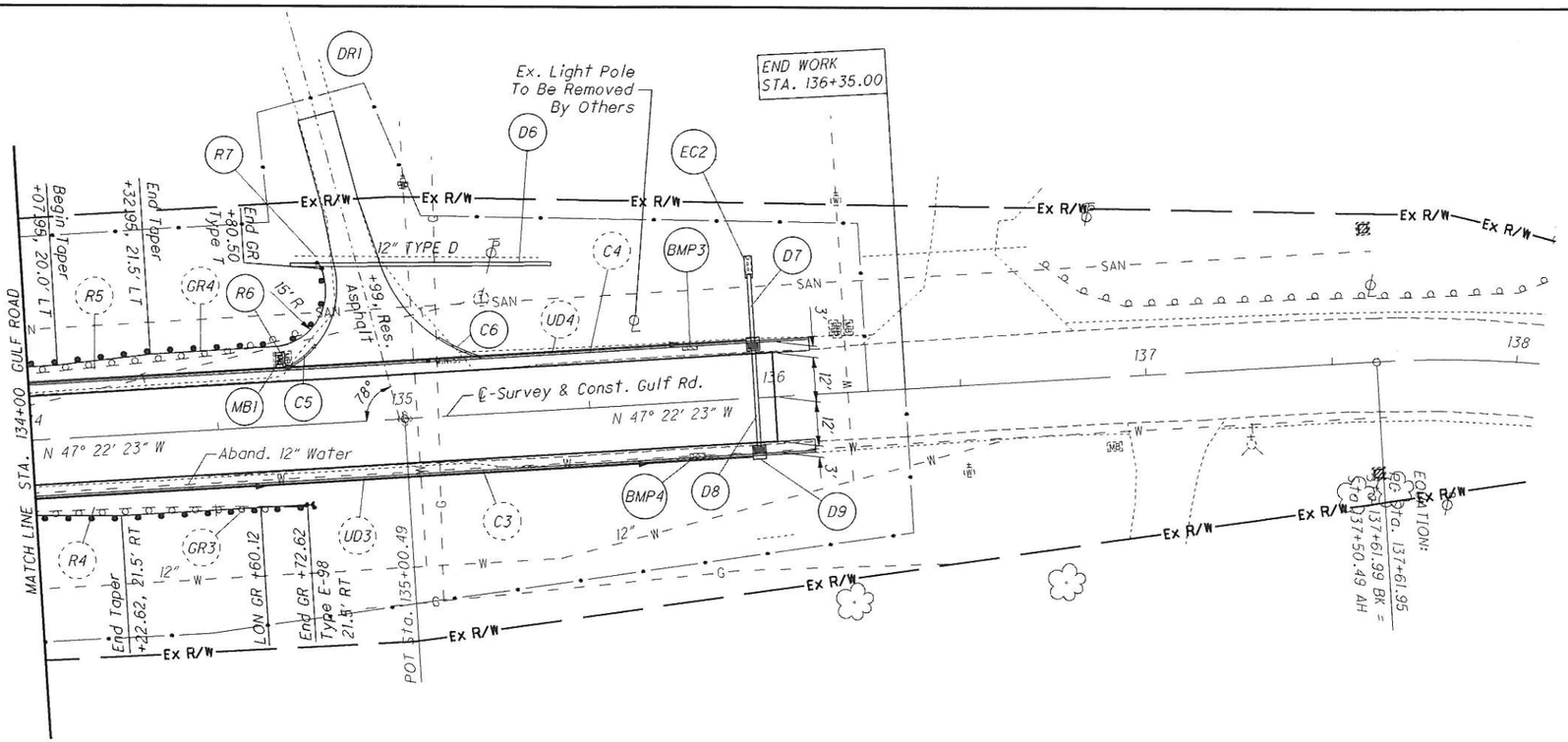
PLAN AND PROFILE
STA. 129+00.00 TO STA. 134+00.00

LOR-90-14.78

16
51

L:\pr\project\LOR\19585\roadway\sheets\19585GP002.dgn 02-MAR-2010 8:27AM tbirnbri

BENCH MARK
BM#2: ELEV. 687.75
MAGSPIKE SET IN DRIVEWAY APRON
STA. 135+14.53, 17.77' LT. GULF RD.



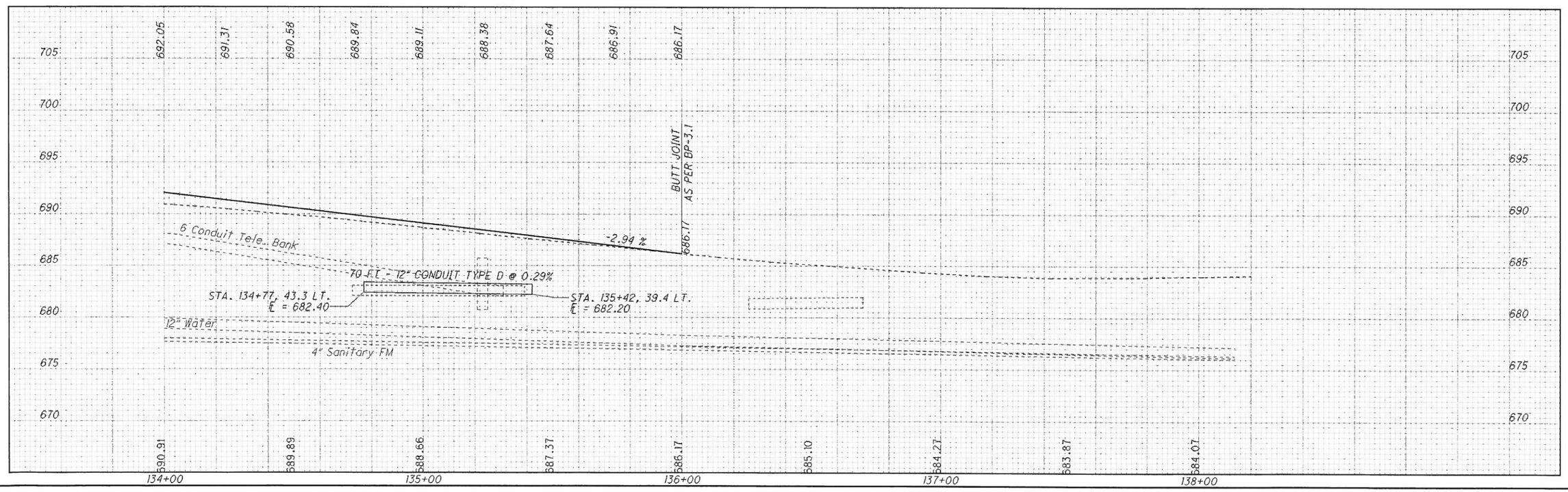
Rock Channel Protection, Type C

For Drainage Details, See Sht. 22

For Drainage, Erosion Control & BMP Quantities, See Sht. 13

For Roadway Quantities, See Sht. 12

For Driveway Details & Quantities, See Sht. 24



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED

CHECKED

PLAN AND PROFILE
STA. 134+00.00 TO STA. 138+00.00

LOR-90-14.78

17
51

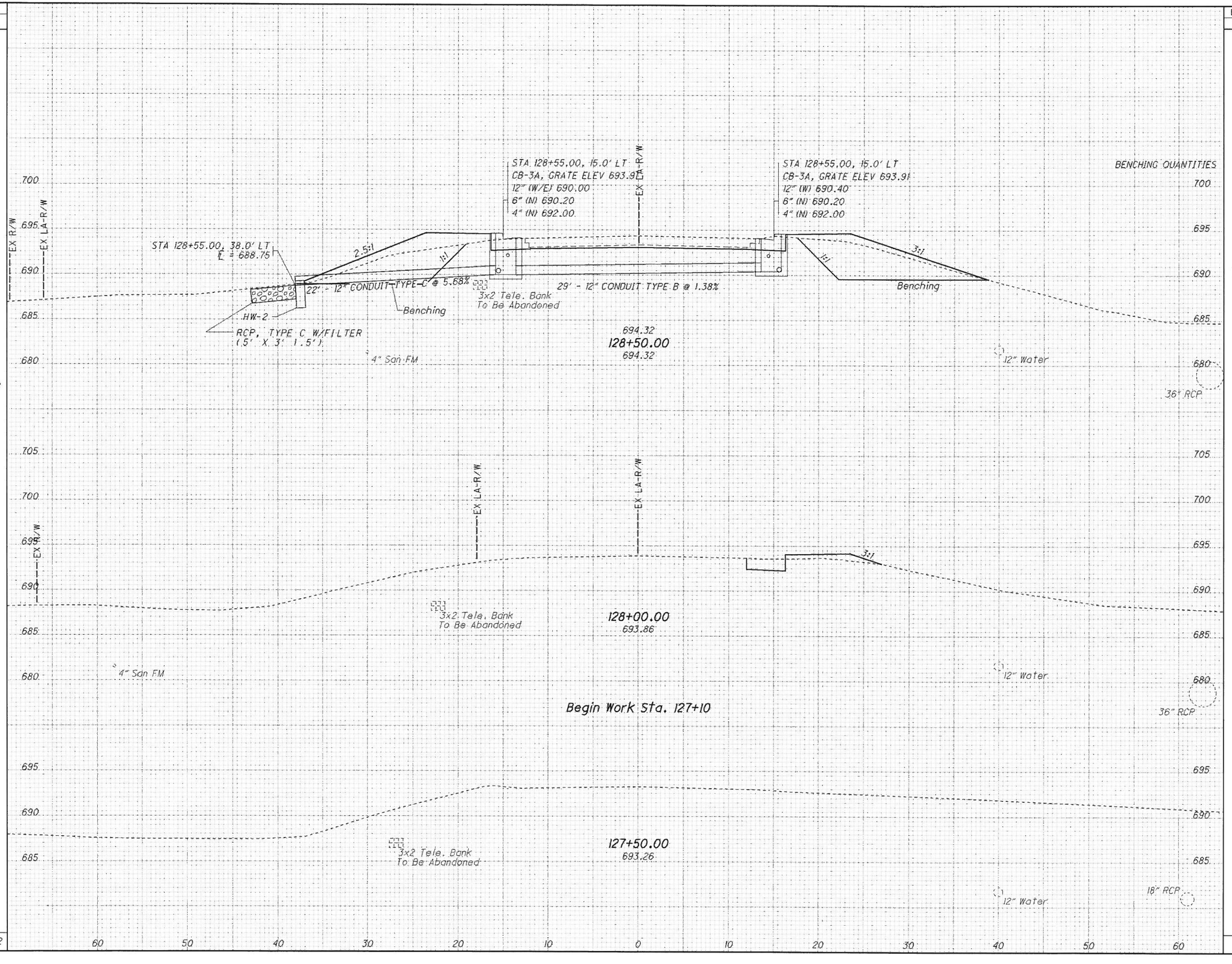
I:\pr\project\LOR\19585\roadway\sheets\19585GP003.dgn 02-MAR-2010 8:27AM tbirnbri

SEEDING	
END WIDTH	SQ. YDS.
49	178
15	74
	252

END AREA	
CUT	FILL
40	33
5	5

VOLUME	
CUT	FILL
120	120
42	36
8	7
170	163

CALCULATED TKB
CHECKED MDC

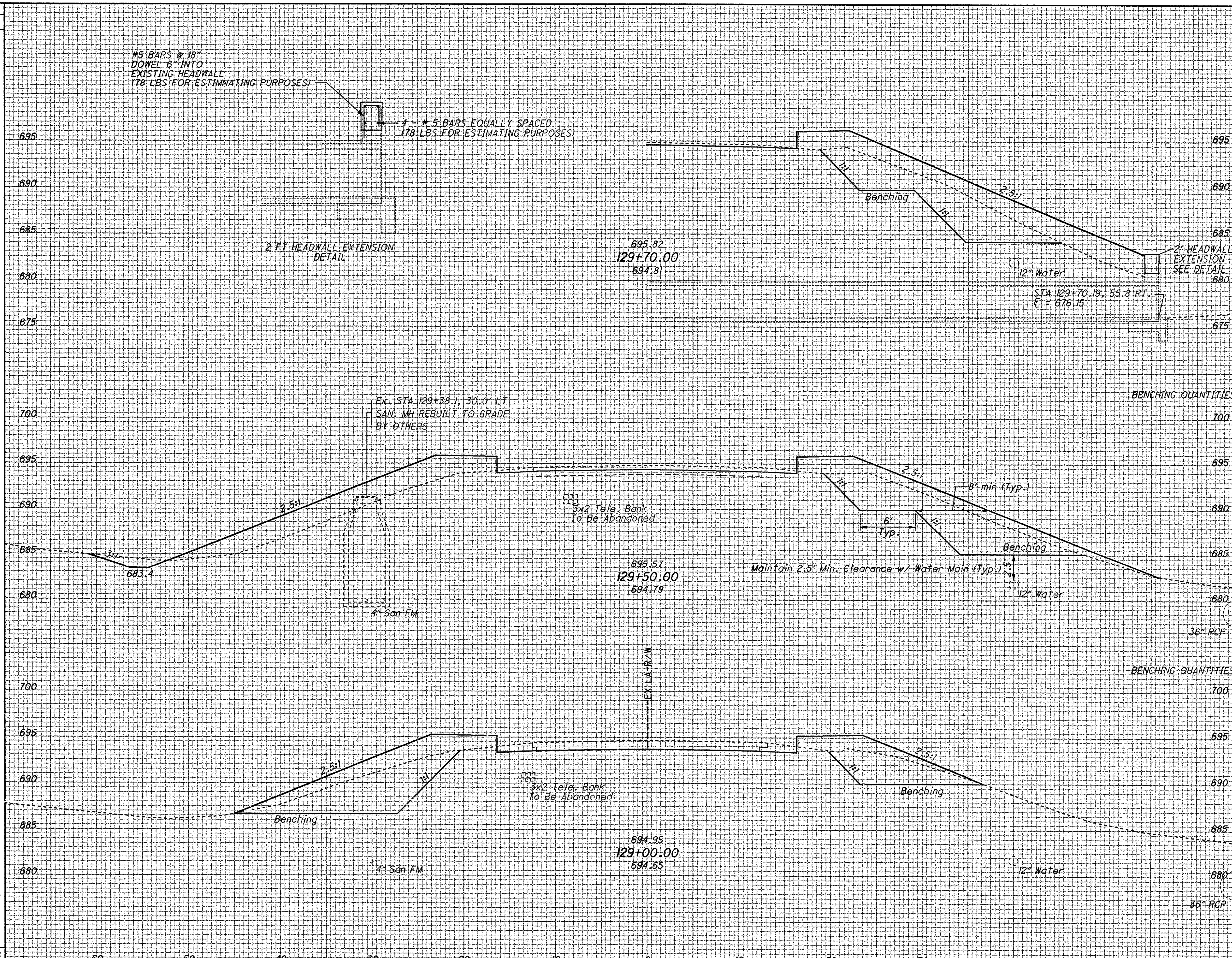


CROSS SECTIONS
STA. 127+50 TO STA. 128+50.00

LOR-90-14.78

18
51

I:\pr\project\LOR\19585\roadway\sheets\19585XS001.dgn 22-APR-2010 7:11AM tbrnbri



SEEDING	
END WIDTH	SQ. YDS.
93	
	417
55	
	289
	706

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		160	160
20	118		
		45	166
		103	103
29	61		
		64	87
		372	516

CALCULATED	CHECKED
TKB	MDC

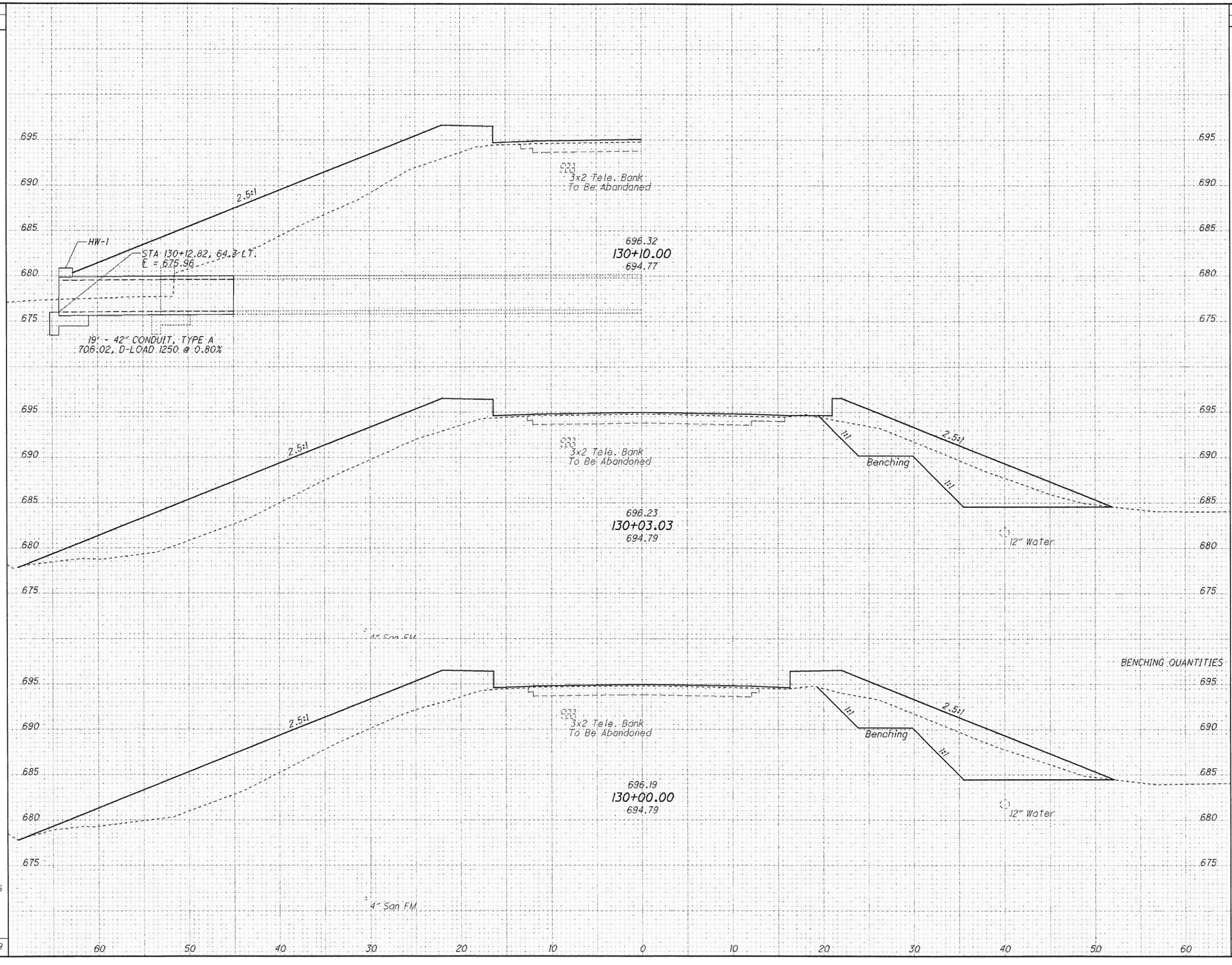
CROSS SECTIONS
STA. 129+00.00 TO STA. 129+70.00

LOR-90-14.78

19/51

i:\pr\mcozzoli\19585XS001.dgn 09-DEC-2010 2:22PM mcozzoli

SEEDING	
END WIDTH	SQ. YDS.
93	
	33
98	
	156
	189



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	234		
		0	26
		18	18
0	221		
		18	314
		36	258

CALCULATED TKB
CHECKED MDC

CROSS SECTIONS
STA. 130+00.00 TO STA. 130+10.00

LOR-90-14.78

20
51

I:\pr\project\LOR\19585\roadway\sheets\19585XS001.dgn 22-APR-2010 7:11AM tburnbri

SEEDING END WIDTH	SEEDING SQ. YDS.
	(99)
63	
	350
63	
	268
60	
	58
	577

695 690 685 680

72.59' EOP
52.88' 10' V.C. 6.64' 3.07' 12.27'
84.9' LT MEET EX.
8.00% 6.13%
Deduct For Drive
12" CONDUIT TYPE D
3x2 Tele. Bank To Be Abandoned
Skewed Along Drive ℄
Residencial Drive DR 1
689.14
134+99.00
688.68
Deduct For Drive
80 70 60 50 40 30 20 10 0

EX R/W
3:1
682.6
2.5:1
3x2 Tele. Bank To Be Abandoned
4" San FM
690.58
134+50.00
689.89
1:1
Benching
2.5:1
12" Water
EX. R/W
BENCHING QUANTITIES
60 50 40 30 20 10 0 10 20 30 40 50 60

EX R/W
3:1
683.4
2.5:1
3x2 Tele. Bank To Be Abandoned
692.05
134+00.00
690.91
1:1
Benching
2.5:1
12" Water
4" San FM
EX R/W

Ex. STA 133+68.3, 30.0' LT
SAN. MH REBUILT TO GRADE
BY OTHERS.

EX L-A-R/W
2.5:1
3x2 Tele. Bank To Be Abandoned
693.19
133+61.14
691.56
1:1
Benching
2.5:1
12" Water
4" San FM
EX R/W
BENCHING QUANTITIES

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			(23)
22	76		
		23	148
		91	91
3	84		
		2	147
		64	64
0	120		
		142	427

CALCULATED TKB
CHECKED MDC

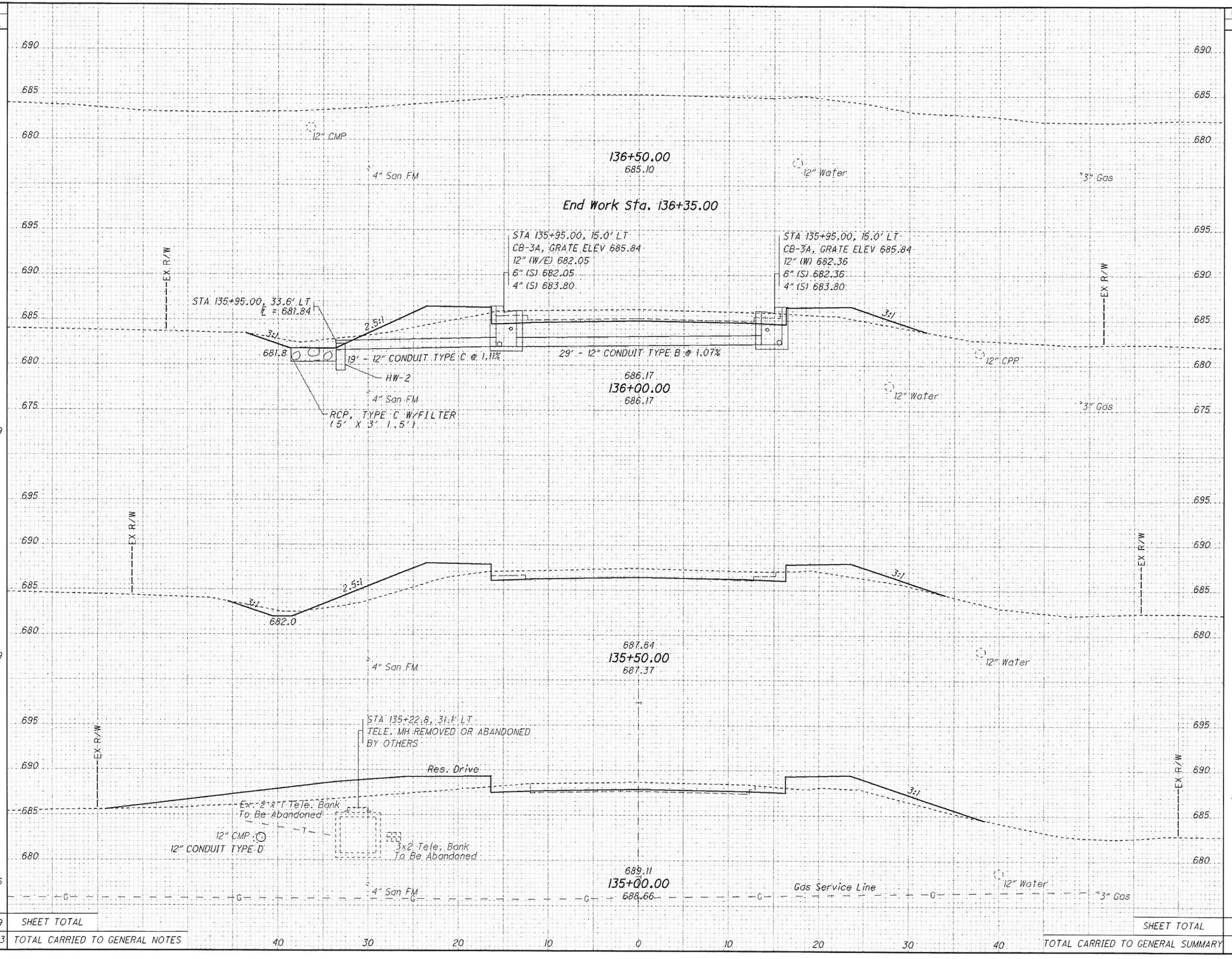
CROSS SECTIONS
STA. 133+51.14 TO STA. 134+99.00

LOR-90-14.78

21
51

\\pr\project\LOR\19585\roadway\sheets\19585XS001.dgn 22-APR-2010 7:12AM tbirnbri

SEEDING END WIDTH	SEEDING SQ. YDS.
42	56
	239
44	239
41	295
	829 SHEET TOTAL
	2553 TOTAL CARRIED TO GENERAL NOTES



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		6	12
42	32		
		68	69
31	43		
		52	74
25	37		
		43	105
		169	260
		889	1624

SHEET TOTAL

TOTAL CARRIED TO GENERAL SUMMARY

CALCULATED TKB

CHECKED MDC

CROSS SECTIONS

STA. 135+00.00 TO STA. 136+50.00

LOR-90-14.78

22
51

\\pr\project\LOR\19585\roadway\sheets\19585XS001.dgn 22-APR-2010 7:12AM ubrnbri

For Roadway Quantities, See Sht. 12

Ex LA-R/W

Overhead Electric Transmission Line

BEGIN WORK STA. 763+00

BEGIN PROJECT STA. 764+39 SLM 14.78 E080698

END PROJECT STA. 764+85 SLM 14.79 E080698

END WORK STA. 766+50

Begin GR +62.72 BTA Type 1

LON GR +75.22

End GR +87.72 Type E-98

B1

R10

GR8

Begin GR +31.78 Type T

℄-Survey & Const. Gulf Rd.

Begin Taper +94.28

End GR +94.05 Type A

West Bound Lanes

R8

GR7

762 ℄-Survey & Const. I-90 763 764 766 767

14:1

N 61° 36' 37" E

Begin GR +28.52 Type A

GR5

End Taper +28.28

End GR +90.79 Type T

N 47° 22' 23" W

R9

East Bound Lanes

Begin GR +34.84 Type E-98

LON GR +47.34

GR6

B2

End GR +59.84 BTA Type 1

Sta. 764+00

Sta. 764+50

Sta. 765+85

Sta. 766+35

Sta. 767+40

Ditch Cleanout, APP See General Notes

Ditch Cleanout, APP See General Notes

Ex LA-R/W

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED

CHECKED

PLAN VIEW I-90 STA. 762+00 TO STA. 767+00

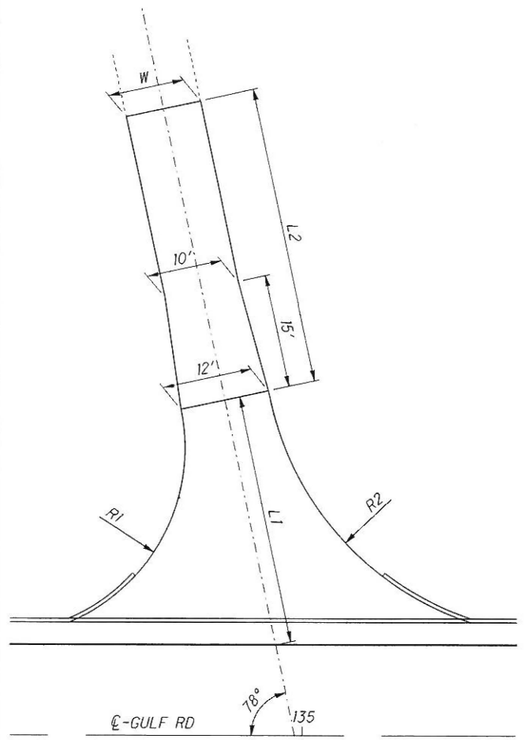
LOR-90-14.78

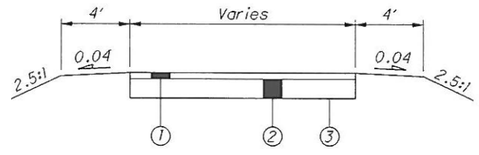
23
51

I:\pr\project\LOR\19585\roadway\sheets\19585GP004.dgn 02-MAR-2010 8:28AM tbirnbri

SHEET NO.	REFERENCE NO.	STATION	SIDE	DRIVE TYPE	DRIVE ANGLE	APRON LENGTH "L1"	DRIVEWAY LENGTH "L2"	WIDTH "W"	R1 (LEFT SIDE RADII OF DRIVE LOOKING FROM ℄)	R2 (RIGHT SIDE RADII OF DRIVE LOOKING FROM ℄)	CADD GENERATED SURFACE AREA	204 SUBGRADE COMPACTION	304 AGGREGATE BASE	448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)						
					DEG.	FT.	FT.	FT.	FT.	FT.	SQ. FT.	SQ YD	CU YD	CU YD						
17	DR1	134+99	LT	RES.	78	33.1	39.5	10	25	40	1070	119	20	7						
TOTALS CARRIED TO GENERAL SUMMARY												99	17	6						

DRIVEWAY @ 134+99 PLAN VIEW





Legend

1. Item 448 - 2" Aspholt Concrete Surface Course, Type 1, PG64-22 (Driveways)
2. Item 304 - 6" Aggregate Base
3. Item 204 - Subgrade Compaction

NOTE: Driveway Earthwork and Seeding Included in Roadway Quantities

CALCULATED TKB
CHECKED MDC

DRIVEWAY DETAILS & SUBSUMMARY

LOR-90-14.78

I:\pr\project\LOR\19585\roadway\sheets\19585GD001.dgn 02-MAR-2010 8:28AM tbirnbri

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	621 RPM EACH	621 RAISED PAVEMENT MARKER REMOVED EACH	626 BARRIER REFLECTOR EACH		630 GROUND MOUNTED SUPPORT, NO. 3 POST FT	630 SIGN, FLAT SHEET SQ FT	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH		644 EDGE LINE FT	644 CENTER LINE FT			
26	RPM1	GULF RD.	128+50 TO 136+00	℄			11	11												
26	BR1	GULF RD.	128+35 TO 130+10	LT					4											
26	BR2	GULF RD.	128+62 TO 130+00	RT					4											
26	BR3	GULF RD.	133+54 TO 134+72	RT					4											
26	BR4	GULF RD.	133+64 TO 134+80	LT					4											
26	S1	GULF RD.	134+98	RT									1	1						
26	S2	GULF RD.	134+98	RT	W1-27-30	30 x 30					14	6.25								
26	EL1	GULF RD.	127+00 TO 136+20	LT												920				
26	EL2	GULF RD.	127+00 TO 136+20	RT												920				
26	CL1	GULF RD.	127+75 TO 136+20	℄													845			
TOTALS CARRIED TO GENERAL SUMMARY							11	11	16		14	6.25	1	1		1840 FT= 0.35 MI.	845 FT= 0.16 MI.			

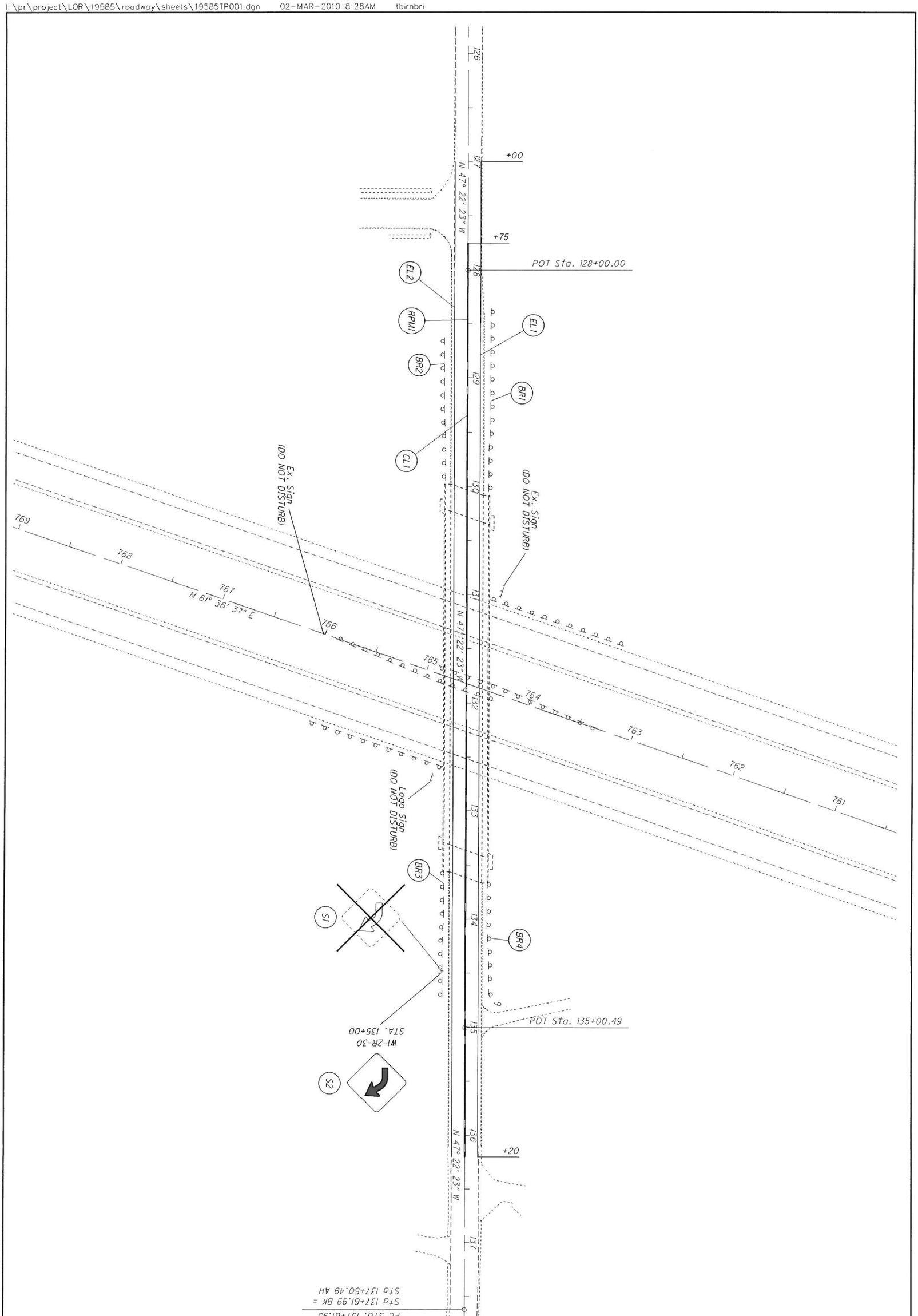
CALCULATED TKB
CHECKED MDC

TRAFFIC CONTROL SUBSUMMARY

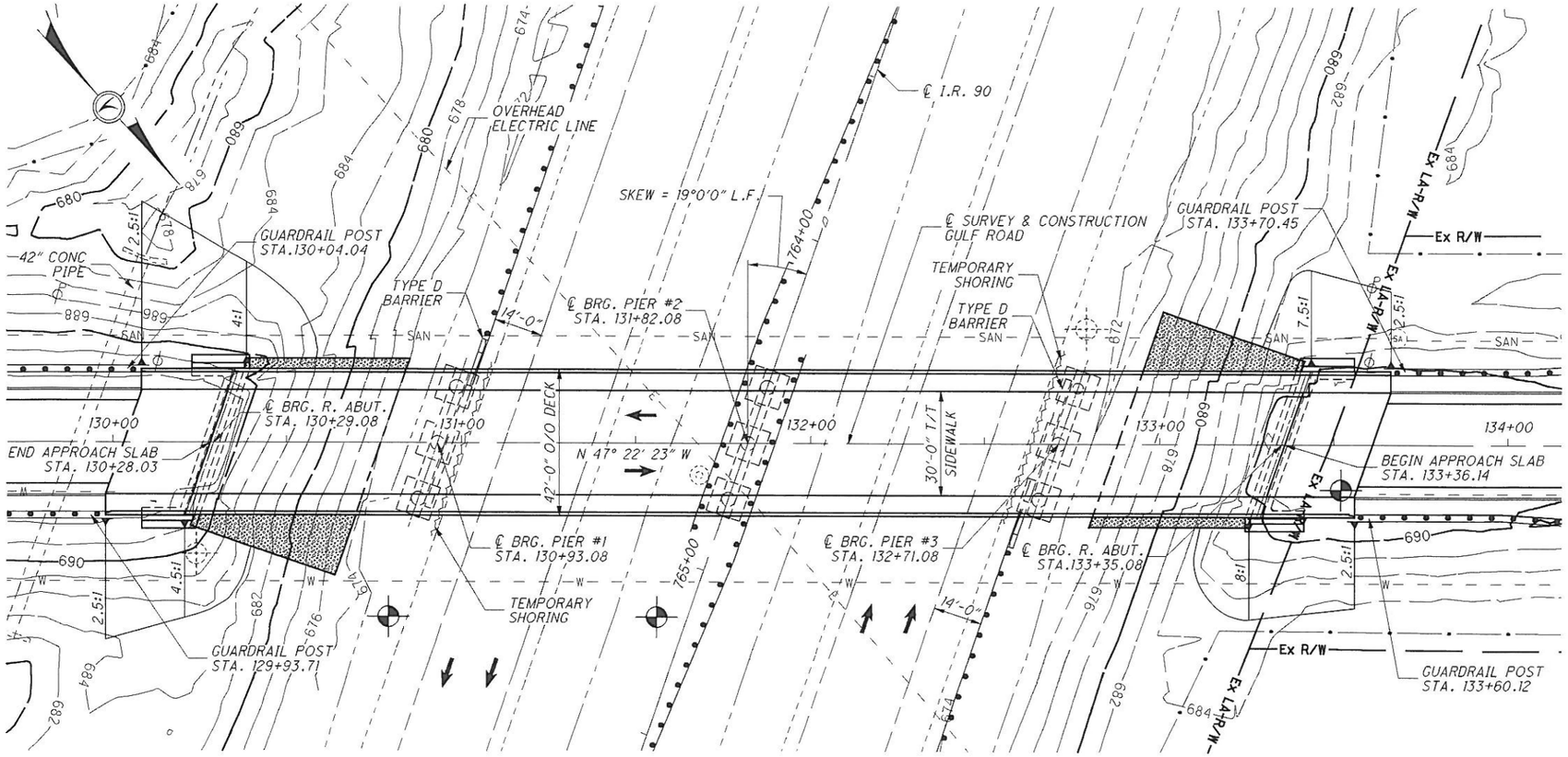
LOR-90-14.78

25
51

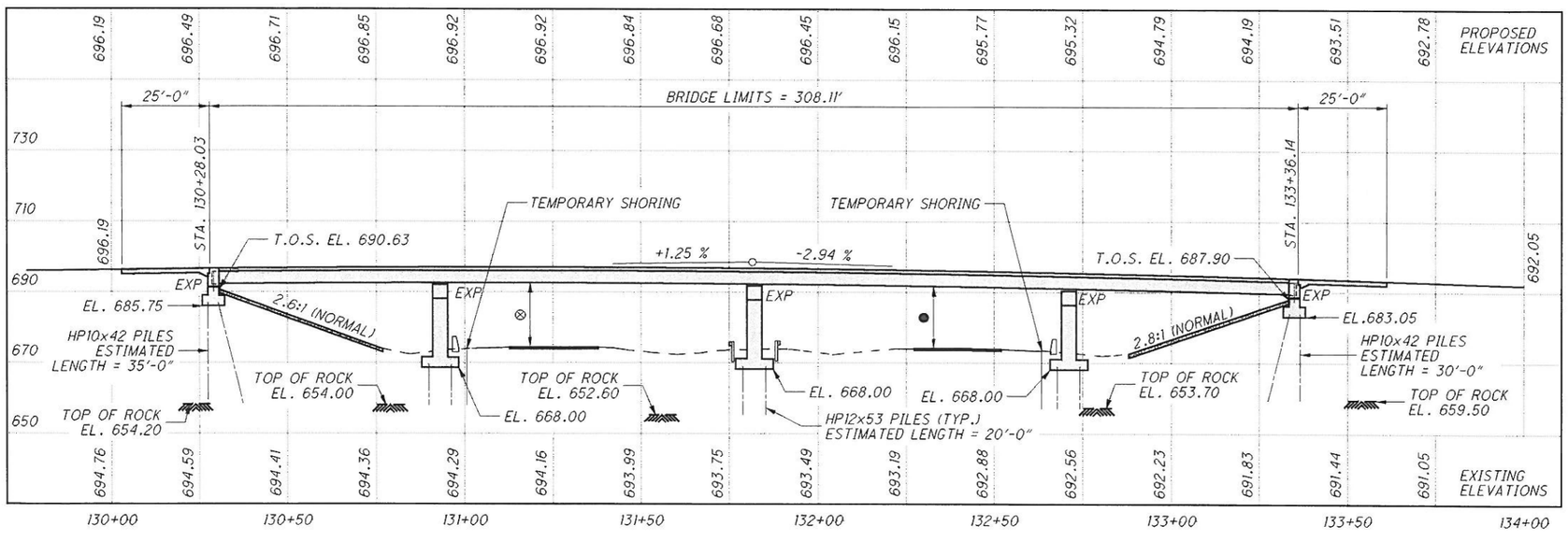
\\prj\project\LOR\19585\roadway\sheets\195851S001.dgn 02-MAR-2010 8:28AM tbrnbri



26/51	LOR-90-14.78	TRAFFIC CONTROL PLAN I-90 & GULF ROAD	CALCULATED CHECKED	0 40 20 80 HORIZONTAL SCALE IN FEET



PLAN



PROFILE ALONG ℄ SURVEY & CONSTRUCTION GULF ROAD

NOTES

FOR BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEETS.

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

FOR THE LOCATION OF THE EXISTING STRUCTURE SEE SOIL BORING SHEETS.

DESIGN TRAFFIC:
2010 ADT = 8330 2010 ADTT = 167
2030 ADT = 9090 2030 ADTT = 182
DIRECTIONAL DISTRIBUTION = 0.51

LEGEND

- BORING LOCATION
- HISTORICAL BORING LOCATION
- EXP - EXPANSION
- T.O.S. - TOP OF SLOPE
- ● - 16'-6" REQUIRED MINIMUM VERTICAL CLEARANCE 16'-10" ACTUAL VERTICAL CLEARANCE
- ⊗ - 17'-5" ACTUAL VERTICAL CLEARANCE

VERTICAL CURVE DATA

LENGTH = 350.00'
PVI STA = 131+81.58
PVI EL = 698.46
g1 = +1.25% g2 = -2.94%

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.
SPANS: 60'-6"; 2 @ 86'-6"; 60'-6" C/C BEARINGS
ROADWAY: 30'-0" F/F SAFETY CURB
LOADING: CF400 (57)
SKEW: 18°-59'-20" L.F.
WEARING SURFACE: ASPHALT - 1" THICK
APPROACH SLABS: AS-1-54 (25' LONG, MODIFIED)
ALIGNMENT: TANGENT
CROWN: 3/16" /FT
STRUCTURAL FILE NUMBER: 4704770
DATE BUILT: 1970
DISPOSITION: ENTIRE STRUCTURE TO BE REMOVED

PROPOSED STRUCTURE

TYPE: 4-SPAN CONTINOUS A572/A709 STEEL BEAM WITH COMPOSITE REINFORCED CONCRETE DECK ON CAP & COLUMN PIERS AND SEMI-INTEGRAL ABUTMENTS
SPANS: 64'-0", 89'-0", 89'-0", 64'-0" C/C BEARINGS
ROADWAY: 30'-0" TOE/TOE SIDEWALK
SIDEWALK: 5'-0"
LOADING: HL-93
FUTURE WEARING SURFACE: 60 PSF
SKEW: 19° L.F.
WEARING SURFACE: MONOLITHIC CONCRETE
APPROACH SLABS: 25' LONG (AS-1-81)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE N 41°-24'-54"
LONGITUDE W 82°-05'-36"

DESIGN AGENCY: ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION
DATE: 3/26/09
REVIEWED: MRB
STRUCTURE FILE NUMBER: 4704789
DRAWN: CWW
REVISED:
DESIGNED: CWW
CHECKED: TAA

LORAIN COUNTY
STA. 130+28.03
STA. 133+36.14

SITE PLAN
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

1 / 25
27 / 51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CSP001.dgn 23-FEB-2010 2:24PM mblythe

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-81 REVISED 7/19/02

BR-2-98 REVISED 7/19/02

GSD-1-96 REVISED 7/19/02

SICD-1-96 REVISED 7/19/02

VPF-1-90 REVISED 7/19/02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

898 DATED 7/21/2006

DESIGN SPECIFICATIONS

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2007, AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

LOAD MODIFIER FOR OPERATIONAL IMPORTANCE

OPERATIONAL IMPORTANCE: A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING

DESIGN LOADING: DESIGN LOADING: HL-93

FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/SQ.FT.

DESIGN DATA

CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE)

CONCRETE CLASS QSC1 - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)

REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI

STEEL H-PILES - ASTM A572 - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
2.5" CONCRETE COVER

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

REMOVE THE ENTIRE EXISTING SPREAD FOOTINGS TO AVOID INTERFERING WITH PLACEMENT OF THE PROPOSED STRUCTURE.

THE REMOVAL OF THE ABANDONED ATTACHED UTILITY CONDUIT TO BE INCLUDED IN THIS ITEM FOR PAYMENT.

PILES TO BEDROCK

PILES TO BEDROCK: DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED BY PENETRATING WEAK BEDROCK FOR SEVERAL INCHES TO A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR BY CONTACTING STRONG BEDROCK AND THE PILE RECEIVING AT LEAST 20 BLOWS. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL. INSTEAD OF DRIVING TO REFUSAL, THE CONTRACTOR MAY PERFORM DYNAMIC LOAD TESTING ACCORDING TO C&MS 523 TO ESTABLISH A DRIVING CRITERIA FOR EACH PILE TYPE AND CAPACITY. ESTABLISH THE DRIVING CRITERIA TO ACHIEVE AN ULTIMATE BEARING VALUE THAT IS 1.5 TIMES THE TOTAL FACTORED LOAD GIVEN BELOW FOR THE PILES. PAYMENT FOR DYNAMIC LOAD TESTING PERFORMED AT THE CONTRACTOR'S OPTION IS INCLUDED IN THE UNIT PRICE PAY ITEM FOR PILES DRIVEN.

THE TOTAL FACTORED LOAD IS 310 KIPS PER PILE FOR THE HP10x42 ABUTMENT PILES. THE TOTAL FACTORED LOAD IS 380 KIPS PER PILE FOR THE HP12x53 PIER PILES.

REAR ABUTMENT PILES:
19 PILES 35 FEET LONG, ORDER LENGTH
FORWARD ABUTMENT PILES:
19 PILES 30 FEET LONG, ORDER LENGTH
PIER PILES:
45 PILES 25 FEET LONG, ORDER LENGTH

BATTERED PILES

BATTERED PILES: THE BLOW COUNT FOR BATTERED PILES SHALL BE THE BLOW COUNT DETERMINED FOR VERTICAL PILES OF THE SAME ULTIMATE BEARING VALUE DIVIDED BY AN EFFICIENCY FACTOR (D). COMPUTE THE EFFICIENCY FACTOR (D) AS FOLLOWS:

$$D = \frac{1-UG}{\sqrt{1+G^2}}$$

U = COEFFICIENT OF FRICTION, WHICH IS ESTIMATED AT 0.05 FOR DOUBLE-ACTING AIR OPERATED OR DIESEL HAMMERS; 0.1 FOR SINGLE-ACTING AIR OPERATED OR DIESEL HAMMERS; AND 0.2 FOR DROP HAMMERS.
G = RATE OF BATTER (1/3, 1/4, ETC.)

UTILITY LINES

REFER TO THE PROJECT UTILITY NOTE FOR DE-ENERGIZING OF THE AERIAL TRANSMISSION LINE.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN: THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

DECK PLACEMENT DESIGN ASSUMPTIONS:

DECK PLACEMENT DESIGN ASSUMPTIONS:
THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 1.1 KIPS FOR A TOTAL MACHINE LOAD OF 8.9 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 IN.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), AS PER PLAN

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), AS PER PLAN FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898, QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE, CURBS, REINFORCING STEEL, JOINT FILLERS, JOINT SEALERS, JOINT SEALS, AND WATERPROOFING. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS. THE DEPARTMENT WILL INITIALLY PAY THE FULL BID PRICE TO THE CONTRACTOR UPON COMPLETING THE WORK. THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), THE CONCRETE QUANTITIES OF THE PARAPET AND SIDEWALK ON BOTH THE BRIDGE DECK AND THE APPROACH SLABS ARE INCLUDED FOR PAYMENT.

CONCRETE PARAPETS

CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1¼" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. PLACE THE SAWCUTS AT A MINIMUM OF 6 FEET AND A MAXIMUM OF 10 FEET CENTERS. USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF ¼ INCH. SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM ½ INCH OF THE INSIDE AND OUTSIDE FACE UNSEALED TO ALLOW WATER TO ESCAPE.

ITEM 516 SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN

ITEM 516 SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1¼" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED,SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY-DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM	REQUIREMENT
THICKNESS, INCHES	D751	0.094 +/- 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM	D751	700 X 700 (LONG. X TRANS.)
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS, MINIMUM	D751	9
BURST STRENGTH, PSI, MINIMUM	D751	1400
HEAT AGING, 70 HR, 212 OF, 180O BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR, -40 DEG. F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
MRB	MRB	RCD	3/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TAA		4704789	

GENERAL NOTES
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF

LOR-90-14.78
PID No. 19585

2/25

28/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CGN001.dgn 23-FEB-2010 2:24PM mblythe

ITEM SPECIAL - STRUCTURE MISC.: PRECONSTRUCTION CONDITION SURVEY

BEFORE PILE DRIVING BEGINS, CONDUCT A CONDITION SURVEY OF ANY EXISTING BUILDINGS, STRUCTURES, OR UTILITIES WITHIN 400 FEET OF THE PILE DRIVING WORK. THE PURPOSE OF THE SURVEY IS TO DOCUMENT THE CONDITION OF THE BUILDINGS, STRUCTURES, OR UTILITIES PRIOR TO PILE DRIVING, SO THAT ANY CLAIMS OF DAMAGE CAUSED BY THE PILE DRIVING CAN BE VERIFIED.

RETAIN AN EXPERIENCED VIBRATION SPECIALIST TO PERFORM OR SUPERVISE THE CONDITION SURVEY. USE A VIBRATION SPECIALIST THAT MEETS THE QUALIFICATION REQUIREMENTS LISTED BELOW FOR VIBRATION MONITORING.

RECORD THE CONDITION OF EXISTING STRUCTURES AND BUILDING MATERIALS, USING WRITTEN TEXT, PHOTOGRAPHS, AND VIDEO RECORDINGS. INSPECT INTERIOR WALLS, CEILINGS, AND FLOORS THAT ARE ACCESSIBLE. INSPECT THE EXTERIOR OF THE BUILDING THAT IS VISIBLE FROM GROUND LEVEL. ALSO RECORD THE LOCATION, SIZE, AND TYPE OF ALL CRACKS AND OTHER STRUCTURAL DEFIENCIES.

IF OWNERS OR OCCUPANTS FAIL TO ALLOW ACCESS TO THE PROPERTY FOR THE PRECONSTRUCTION CONDITION SURVEY, SEND A CERTIFIED LETTER TO THE OWNER OR OCCUPANT. DOCUMENT THE NOTIFICATION EFFORT AND THE CERTIFIED LETTER IN THE REPORT.

SUBMIT A REPORT TO THE ENGINEER THAT SUMMARIZES THE PRECONSTRUCTION CONDITION OF THE BUILDINGS, STRUCTURES, AND UTILITIES, AND THAT IDENTIFIES AREAS OF CONCERN. SUBMIT THREE COPIES OF THE REPORT.

THE DEPARTMENT WILL PAY FOR THIS ITEM AT THE CONTRACT LUMP SUM PRICE FOR ITEM SPECIAL - STRUCTURE MISC.: PRECONSTRUCTION CONDITION SURVEY.

ITEM SPECIAL - STRUCTURE MISC.: VIBRATION MONITORING

MONITOR GROUND VIBRATIONS CAUSED BY PILE DRIVING SO THAT THE PILE DRIVING WORK CAN BE CONTROLLED IN ORDER TO MINIMIZE THE POTENTIAL DAMAGE TO EXISTING STRUCTURES.

RETAIN AN EXPERIENCED VIBRATION SPECIALIST TO ESTABLISH THE ACCEPTABLE VIBRATION LIMITS AND TO PERFORM THE VIBRATION MONITORING. USE A VIBRATION SPECIALIST THAT IS AN EXPERT IN THE INTERPRETATION OF VIBRATION DATA AND WHO MEETS ONE OF THE FOLLOWING CRITERIA: 1) IS A REGISTERED ENGINEER WITH AT LEAST TWO YEARS OF PROVEN EXPERIENCE IN MONITORING VIBRATIONS ON SIMILAR CONSTRUCTION PROJECTS, OR 2) HAS AT LEAST FIVE YEARS OF PROVEN EXPERIENCE IN MONITORING VIBRATIONS ON SIMILAR CONSTRUCTION PROJECTS. DO NOT USE A VIBRATION SPECIALIST THAT IS AN EMPLOYEE OF THE CONTRACTOR.

SUBMIT A RESUME OF THE CREDENTIALS OF THE PROPOSED VIBRATION SPECIALIST AT OR BEFORE THE PRECONSTRUCTION CONFERENCE. INCLUDE IN THE RESUME A LIST OF CONSTRUCTION PROJECTS ON WHICH THE VIBRATION SPECIALIST WAS RESPONSIBLY IN CHARGE OF MONITORING THE VIBRATIONS. LIST A DESCRIPTION OF THE PROJECTS, WITH DETAILS OF THE VIBRATION INTERPRETATIONS MADE ON THE PROJECT. LIST THE NAMES AND TELEPHONE NUMBERS OF PROJECT OWNERS WITH SUFFICIENT KNOWLEDGE OF THE PROJECTS TO VERIFY THE SUBMITTED INFORMATION. OBTAIN APPROVAL OF THE VIBRATION SPECIALIST BEFORE BEGINNING ANY PILE WORK. ALLOW 30 DAYS FOR THE REVIEW OF THIS DOCUMENTATION.

USE SEISMOGRAPHS CAPABLE OF CONTINUOUSLY RECORDING THE PEAK PARTICLE VELOCITY FOR THREE MUTUALLY PERPENDICULAR COMPONENTS OF VIBRATION, AND PROVIDING A PERMANENT RECORD OF THE ENTIRE VIBRATION EVENT. USE A SUFFICIENT NUMBER OF SEISMOGRAPHS TO PROVIDE REDUNDANCY IN CASE ONE DEVICE SHOULD FAIL. SUBMIT A PLAN OF THE PROPOSED SEISMOGRAPH LOCATIONS TO THE ENGINEER FOR REVIEW.

THE VIBRATION SPECIALIST SHALL PERFORM THE FOLLOWING:

1. MEASURE THE AMBIENT GROUND VIBRATIONS NEAR EXISTING STRUCTURES BEFORE PILE DRIVING BEGINS.
2. ESTABLISH VIBRATIONS LIMITS TO MINIMIZE POTENTIAL DAMAGE TO EXISTING STRUCTURES AND EXPLAIN WHY THEY ARE BEING USED TO THE ENGINEER BEFORE DRIVING PILES NEAR EXISTING STRUCTURES.
3. MONITOR GROUND VIBRATIONS DURING PILE DRIVING.
4. IMMEDIATELY INFORM THE CONTRACTOR AND ENGINEER IF THE VIBRATION LIMITS ARE REACHED OR EXCEEDED.
5. FURNISH THE DATA RECORDED AND INCLUDE THE FOLLOWING:
   - A. IDENTIFICATION OF SEISMOGRAPH
   - B. DISTANCE AND DIRECTION OF SEISMOGRAPH FROM PILE DRIVING.
   - C. START TIME AND DURATION OF PILE DRIVING.
   - D. LIST OF PILES DRIVEN DURING EACH MONITORING INTERVAL.

THE CONTRACTOR SHALL IMMEDIATELY SUSPEND ALL PILE DRIVING IF THE VIBRATION LIMITS ARE REACHED OR EXCEEDED. EVALUATE ALTERNATIVE CONSTRUCTION PROCEDURES, SUCH AS PREBORED HOLES, TO REDUCE THE VIBRATIONS.

SUBMIT A FINAL REPORT WHICH CONTAINS ALL MEASUREMENTS, INTERPRETATIONS, AND RECOMMENDATIONS TO THE ENGINEER. SUBMIT THREE COPIES OF THE REPORT.

THE DEPARTMENT WILL PAY FOR THIS ITEM AT THE CONTRACT LUMP SUM PRICE FOR ITEM SPECIAL - STRUCTURE MISC.: VIBRATION MONITORING. THE DEPARTMENT WILL PAY THE FINAL TWENTY PERCENT AFTER THE ENGINEER RECEIVES THE FINAL REPORT.

THE DEPARTMENT WILL PAY ACCORDING TO CMS 109.05 FOR ALTERNATIVE CONSTRUCTION PROCEDURES THAT THE ENGINEER DETERMINES ARE NECESSARY TO REDUCE VIBRATIONS.

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CGN002.dgn 23-FEB-2010 2:24PM mblythe

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
MRB	MRB	MRV	2/23/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TAA		4704789	

GENERAL NOTES (CONTINUED)
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF

LOR-90-14.78
PID No. 19585

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIERS	SUPER.	GEN.	SHEET #
202	11003	LUMP		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	2/25
202	22900	200	SQ YD	APPROACH SLAB REMOVED			200		
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING				LUMP	
503	21300	LUMP		UNCLASSIFIED EXCAVATION				LUMP	
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00100	1425	FT	STEEL PILES HP10X42, FURNISHED	1425				
507	00150	1235	FT	STEEL PILES HP10X42, DRIVEN	1235				
507	00200	1125	FT	STEEL PILES HP12X53, FURNISHED		1125			
507	00250	900	FT	STEEL PILES HP12X53, DRIVEN		900			
509	10000	176550	POUND	EPOXY COATED REINFORCING STEEL	16228	39055	121267		
512	10100	1595	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	76	308	1211		
513	10040	LUMP		STRUCTURAL STEEL MEMBERS, LEVEL 2				LUMP	
513	20000	4860	EACH	WELDED STUD SHEAR CONNECTORS			4860		
514	00300	LUMP		FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT				LUMP	
514	00400	LUMP		FIELD PAINTING STRUCTURAL STEEL, FINISH COAT				LUMP	
516	13600	30	SQ FT	1" PREFORMED EXPANSION JOINT FILLER			30		
516	13900	125	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	125				
516	14021	110	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	110				2/25
516	44200	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), (BEARING: 18"x22"x3.65", LOAD PLATE: 20"x24"x2")		10			
516	44201	5	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, (BEARING: 18"x22"x3.65", LOAD PLATE: 20"x24"xBEVEL")		5			24/25
516	44201	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN, (BEARING: 14"x18"x3.65", LOAD PLATE: 16"x20"x1.5")	10				23/25
518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC				LUMP	
518	40000	90	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	90				
518	40012	69	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE	69				
SPECIAL	53000200	LUMP		STRUCTURE MISC.: PRECONSTRUCTION CONDITION SURVEY				LUMP	3/25
SPECIAL	53000200	LUMP		STRUCTURE MISC.: VIBRATION MONITORING				LUMP	3/25
601	20000	600	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION	600				
607	39310	600	FT	VANDAL PROTECTION FENCE, 8' STRAIGHT, COATED FABRIC			600		
898	10201	422	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			422		2/25
898	10705	234	SQ YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=15"), AS PER PLAN			234		2/25
898	11001	190	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			190		2/25
898	20100	149	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		149			
898	20150	44	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT)	44				
898	20300	219	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)	102	117			

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED MRB
DRAWN MRB
CHECKED RCD
REVIEWED CJW
DATE 3/26/09
REVISED
STRUCTURE FILE NUMBER 4704789

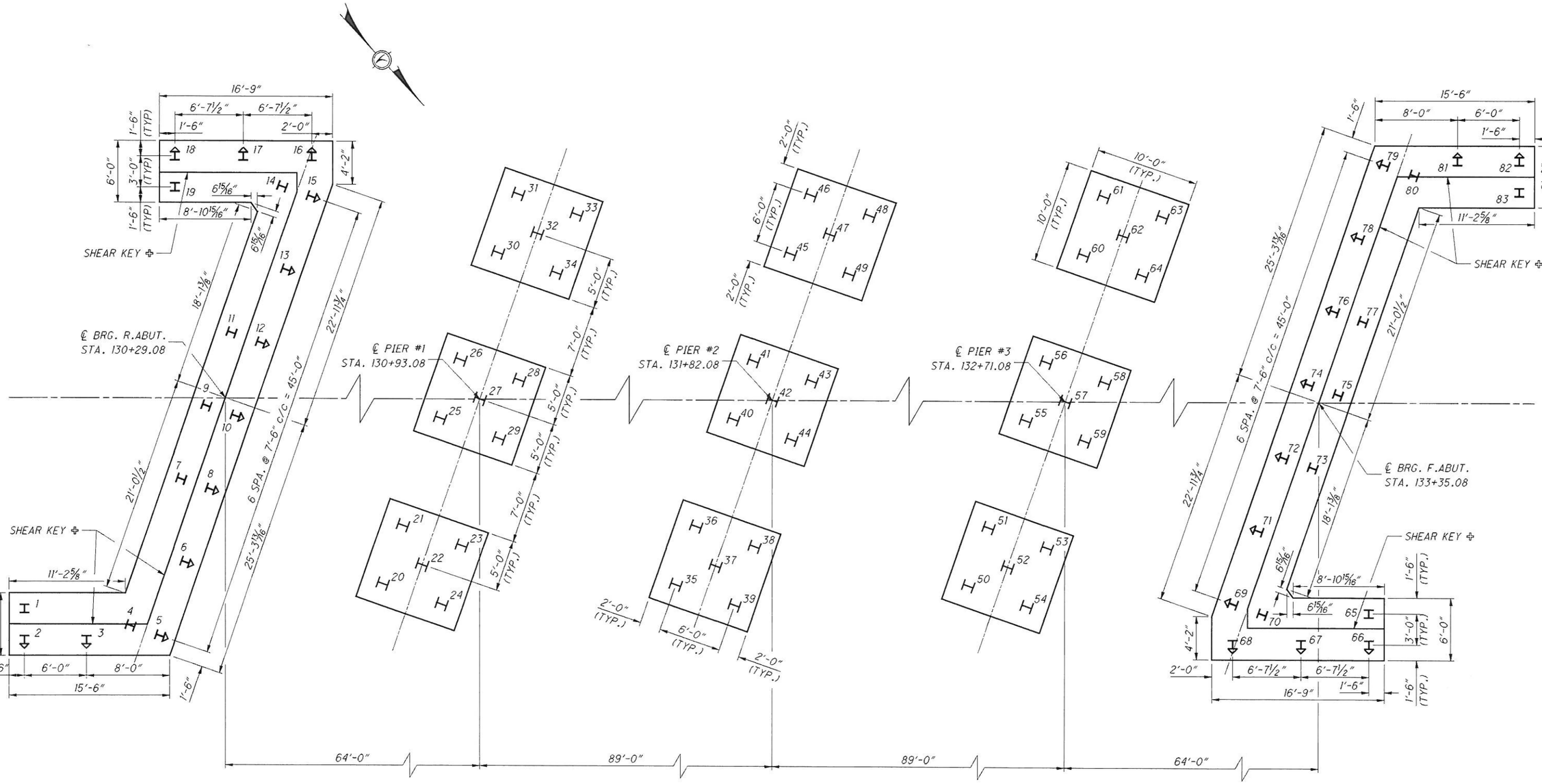
ESTIMATED QUANTITIES
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF

LOR-90-14.78
PID No. 19585

4/25

30/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CEQ00.dgn 23-FEB-2010 2:24PM mblythe



NOTES & LEGEND

ALL ABUTMENT PILES ARE HP10x42
ALL PIER PILES ARE HP12x53

H - PILE TO BE DRIVEN STRAIGHT
H (batter) - PILE TO BE DRIVEN AT A 4:1 BATTER

⌖ - FOR SHEAR KEY DETAILS, SEE SHEET 10/25.

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

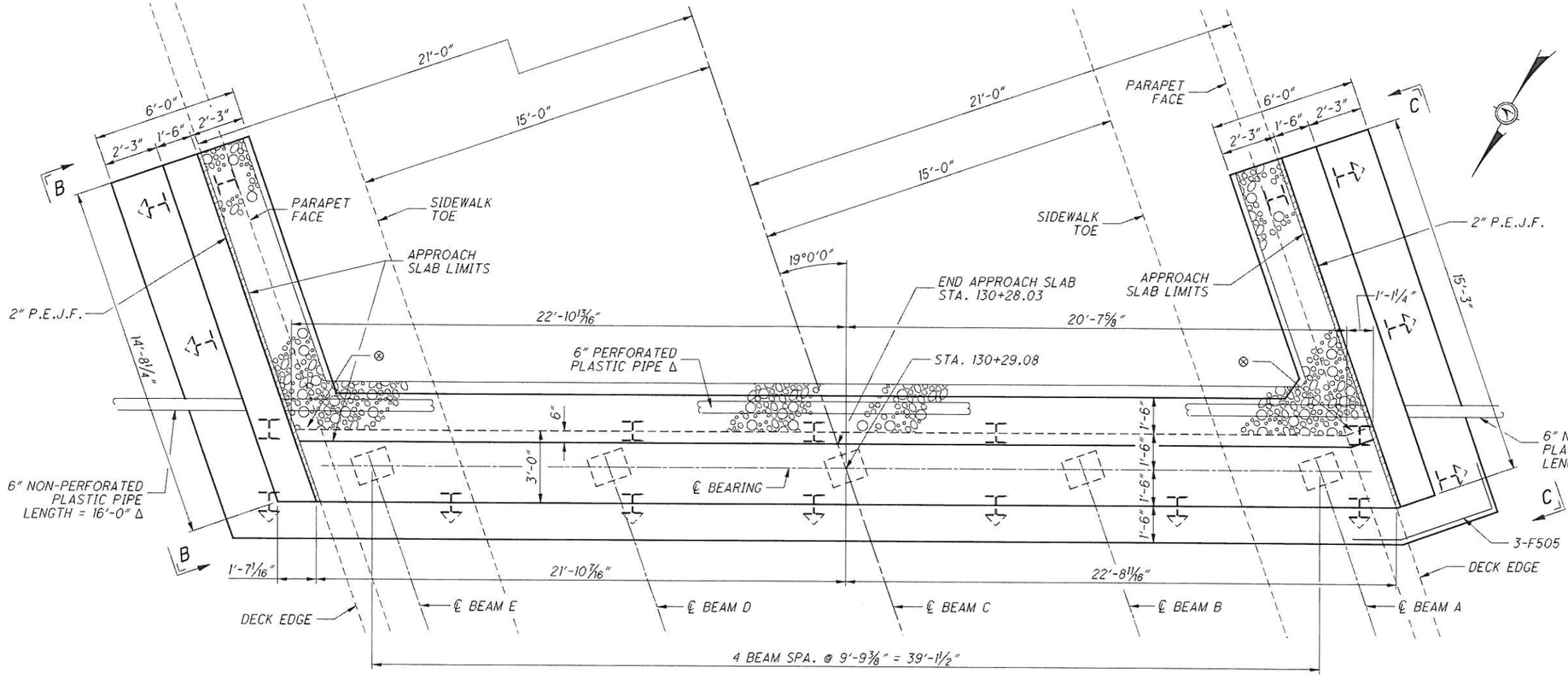
DESIGNED MRB | DRAWN MRB | REVIEWED TAA | DATE 3/18/09
CHECKED RCD | REVISED | STRUCTURE FILE NUMBER 4704789

FOUNDATION PLAN
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

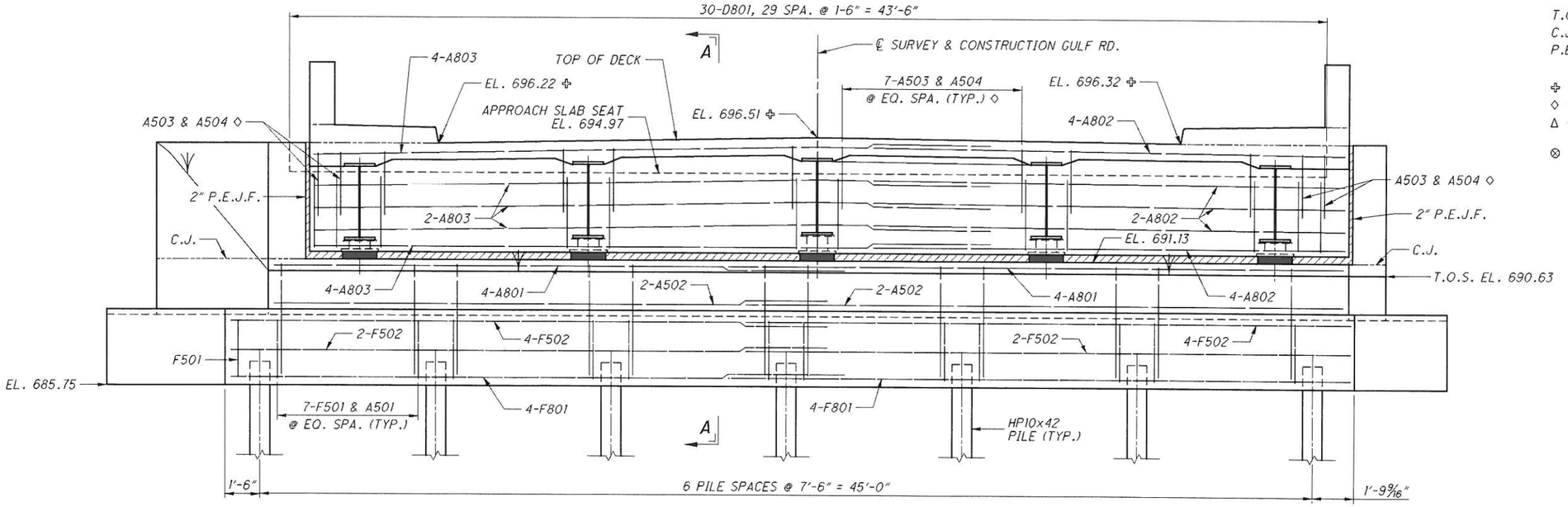
LOR-90-14.78
PID No. 19585

5/25
31/51

I:\pr\project\LOR\19585\bridge\LOR090_1478RC\sheets\090_1478CFP001.dgn 23-FEB-2010 2:24PM mblythe



PLAN



ELEVATION

NOTES & LEGEND

FOR SECTION A-A SEE SHEET 10/25
FOR WINGWALL VIEWS SEE SHEET 7/25
FOR FOUNDATION PLAN SEE SHEET 5/25

MINIMUM #5 BAR LAP LENGTH = 2'-6"
MINIMUM #8 BAR LAP LENGTH = 5'-0"

T.O.S. - TOP OF SLOPE
C.J. - CONSTRUCTION JOINT
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER

✣ - ELEVATIONS MEASURED ALONG BRIDGE LIMITS
◇ - A503 & A504 TO BE PLACED ALONG SKEW
Δ - DRAINAGE PIPE SLOPED ⅛" /FT AWAY FROM ℄ GULF RD
⊗ - VERTICAL NEOPRENE SHEETING TO EXTEND FROM THE BEAM SEAT TO THE BOTTOM OF THE APPROACH SLAB.

DESIGN AGENCY: ODOT CENTRAL OFFICE, OFFICE OF PRODUCTION
DESIGNED: MRB | DRAWN: MRB | CHECKED: TAA | REVISED:
REVIEWED: RCD | DATE: 3/16/09
STRUCTURE FILE NUMBER: 4704789

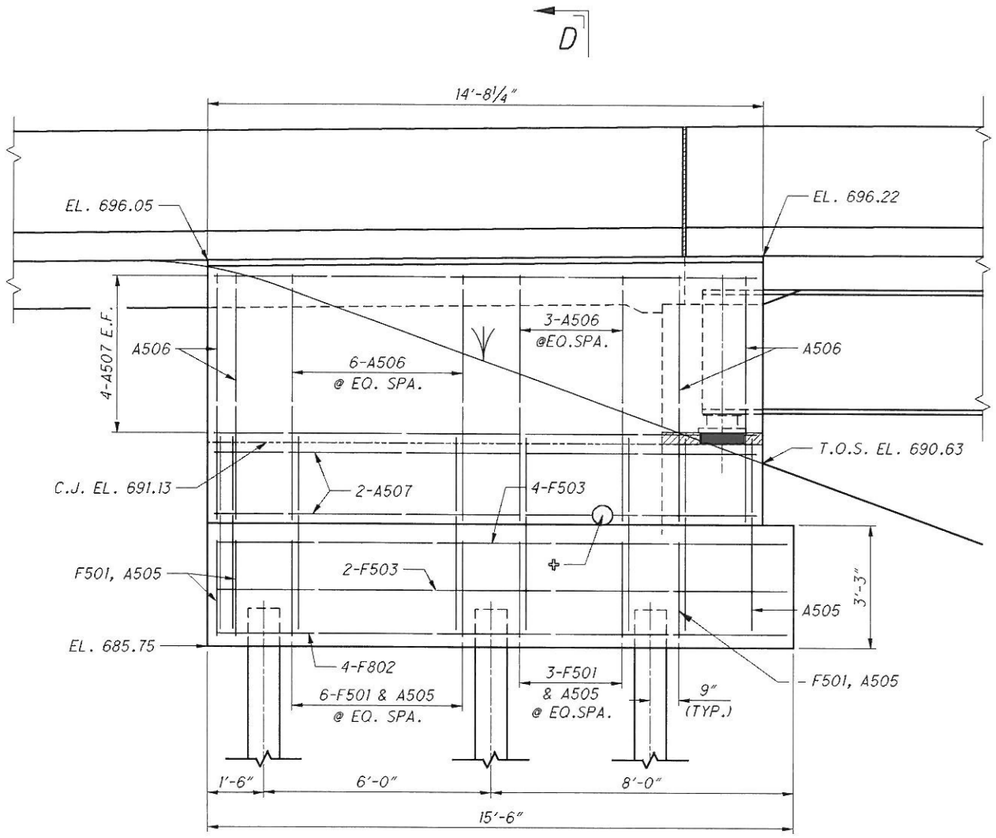
REAR ABUTMENT DETAILS

BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

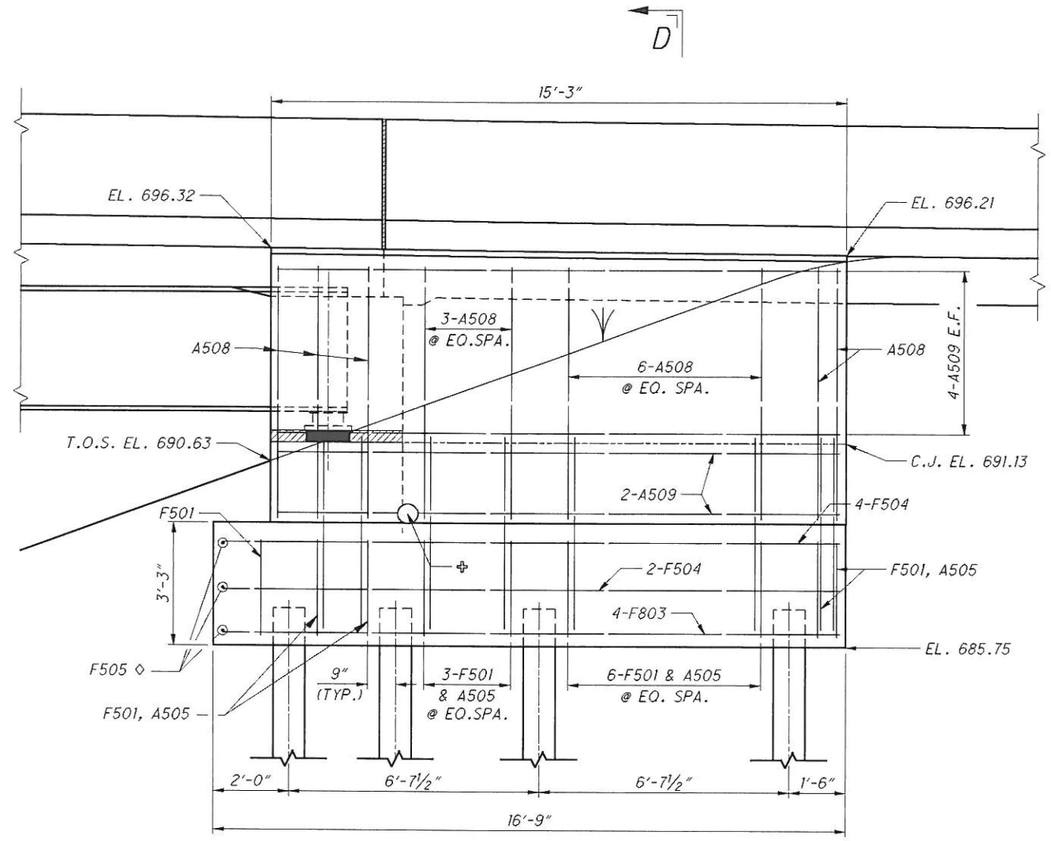
LOR-90-14.78
PID No. 19585

6/25
32/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CAR001.dgn 23-FEB-2010 2:25PM mblythe



VIEW B-B



VIEW C-C

NOTES & LEGEND

FOR ABUTMENT DETAILS SEE SHEET 6/25
FOR SECTION D-D SEE SHEET 10/25
FOR FOUNDATION PLAN SEE SHEET 5/25

E.F. - EACH FACE
T.O.S. - TOP OF SLOPE
C.J. - CONSTRUCTION JOINT

⌖ - 6" NON-PERFORATED PLASTIC PIPE TO EXTEND THROUGH WINGWALLS

◊ - FOR MORE DETAILS SEE SHEET 6/25

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
MRB	MRB	RCD	3/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TAA		4704789	

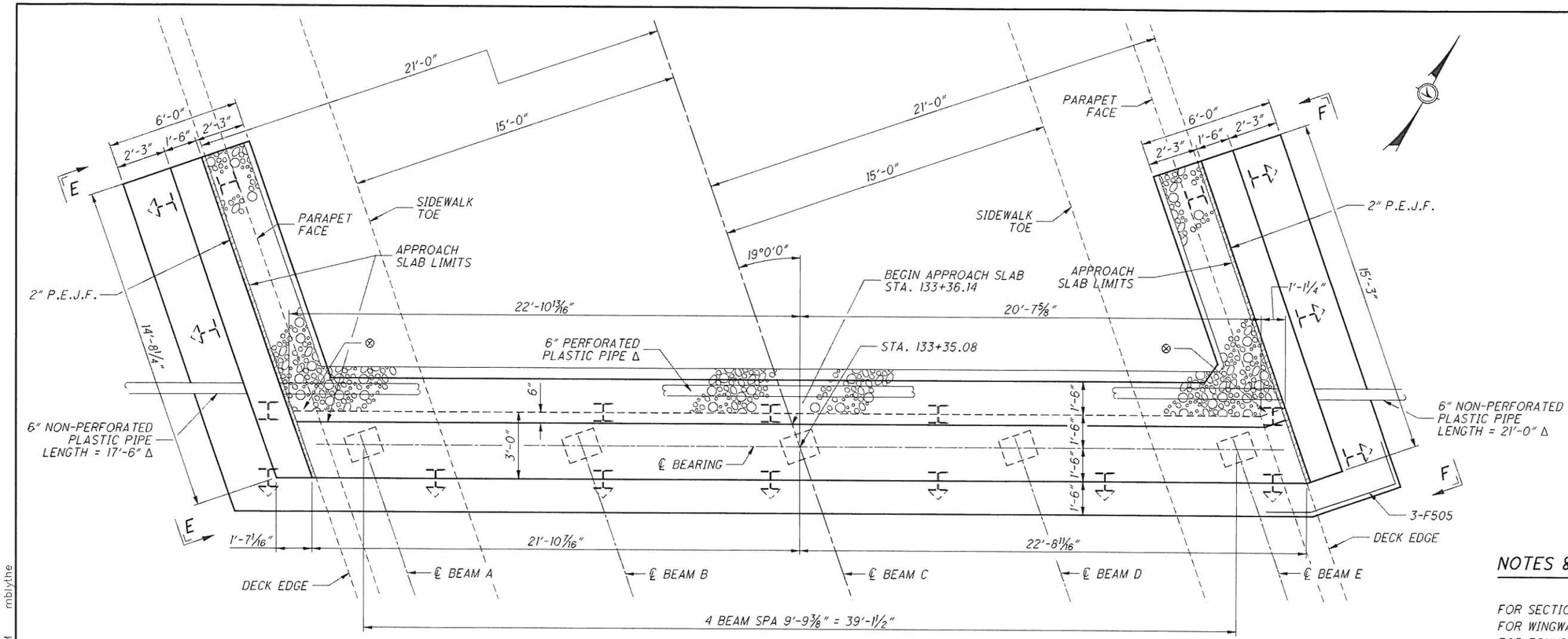
REAR ABUTMENT WINGWALL DETAILS
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

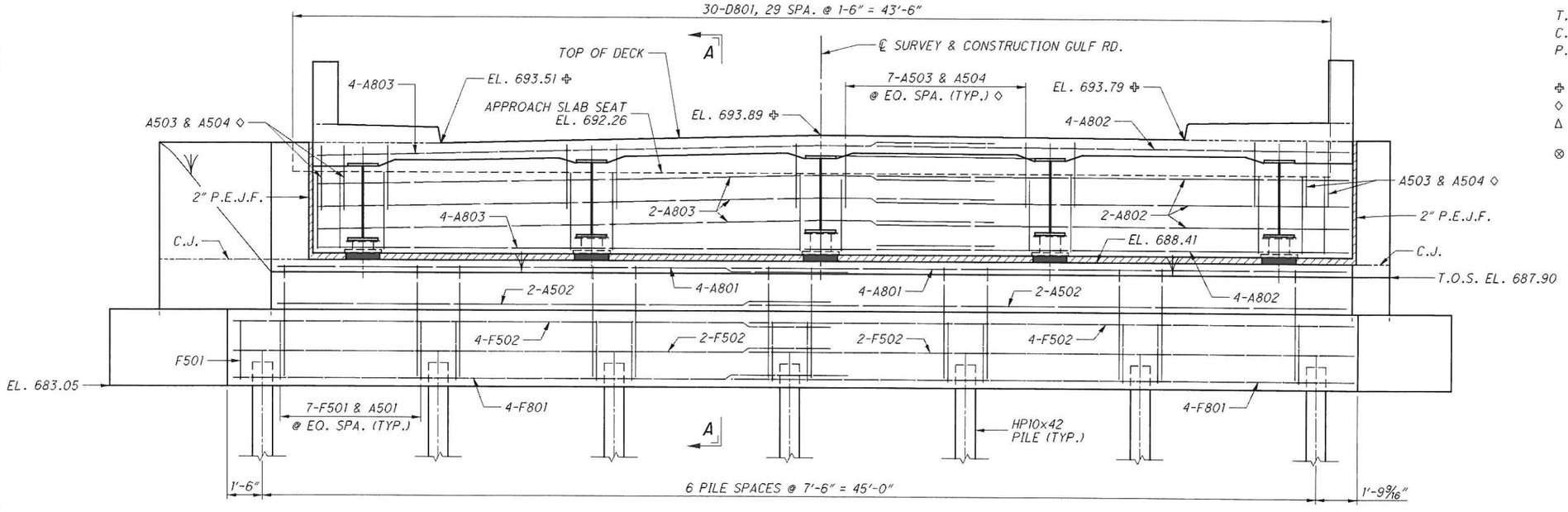
7/25

33
51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CAR002.dgn 23-FEB-2010 2:25PM mblythe



PLAN



ELEVATION

NOTES & LEGEND

FOR SECTION A-A SEE SHEET 10/25
FOR WINGWALL VIEWS SEE SHEET 9/25
FOR FOUNDATION PLAN SEE SHEET 5/25

MINIMUM #5 BAR LAP LENGTH = 2'-6"
MINIMUM #8 BAR LAP LENGTH = 5'-0"

T.O.S. - TOP OF SLOPE
C.J. - CONSTRUCTION JOINT
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER

✠ - ELEVATIONS MEASURED ALONG BRIDGE LIMITS
◇ - A503 & A504 TO BE PLACED ALONG SKEW
Δ - DRAINAGE PIPE SLOPED ⅛" /FT AWAY FROM ℄ GULF RD
⊗ - VERTICAL NEOPRENE SHEETING TO EXTEND FROM THE BEAM SEAT TO THE BOTTOM OF THE APPROACH SLAB.

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED MRB | DRAWN MRB | REVIEWED RCD | DATE 3/16/09
CHECKED TAA | REVISED | STRUCTURE FILE NUMBER 4704789

FORWARD ABUTMENT DETAILS

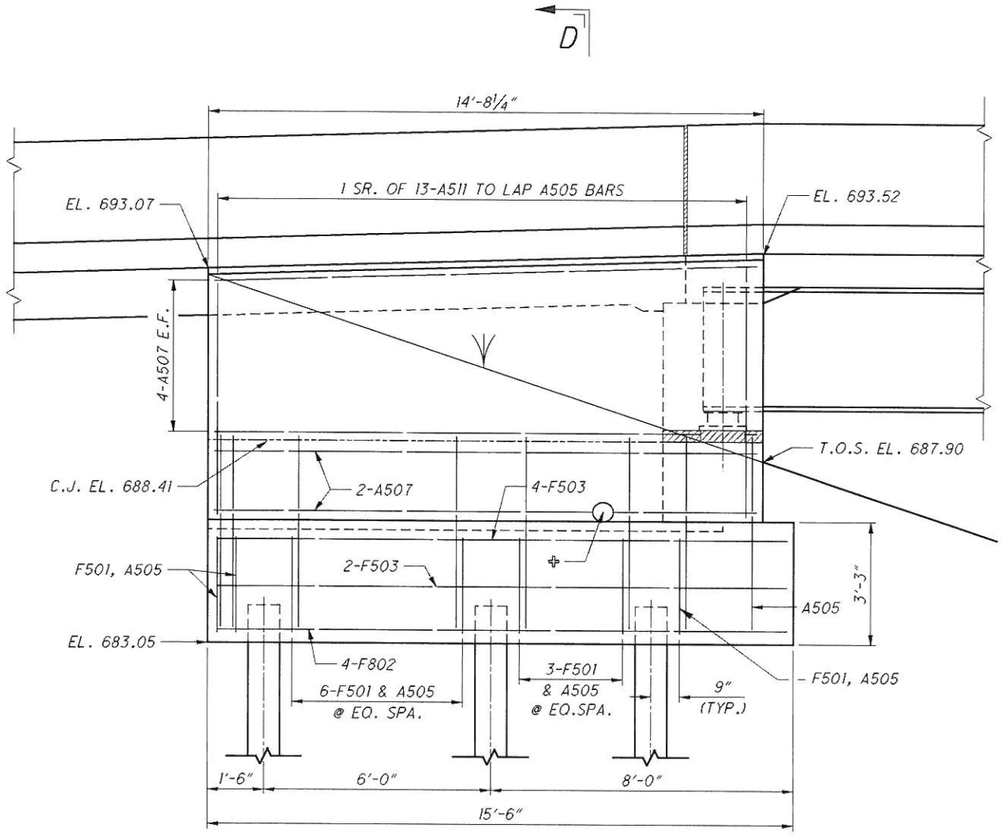
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

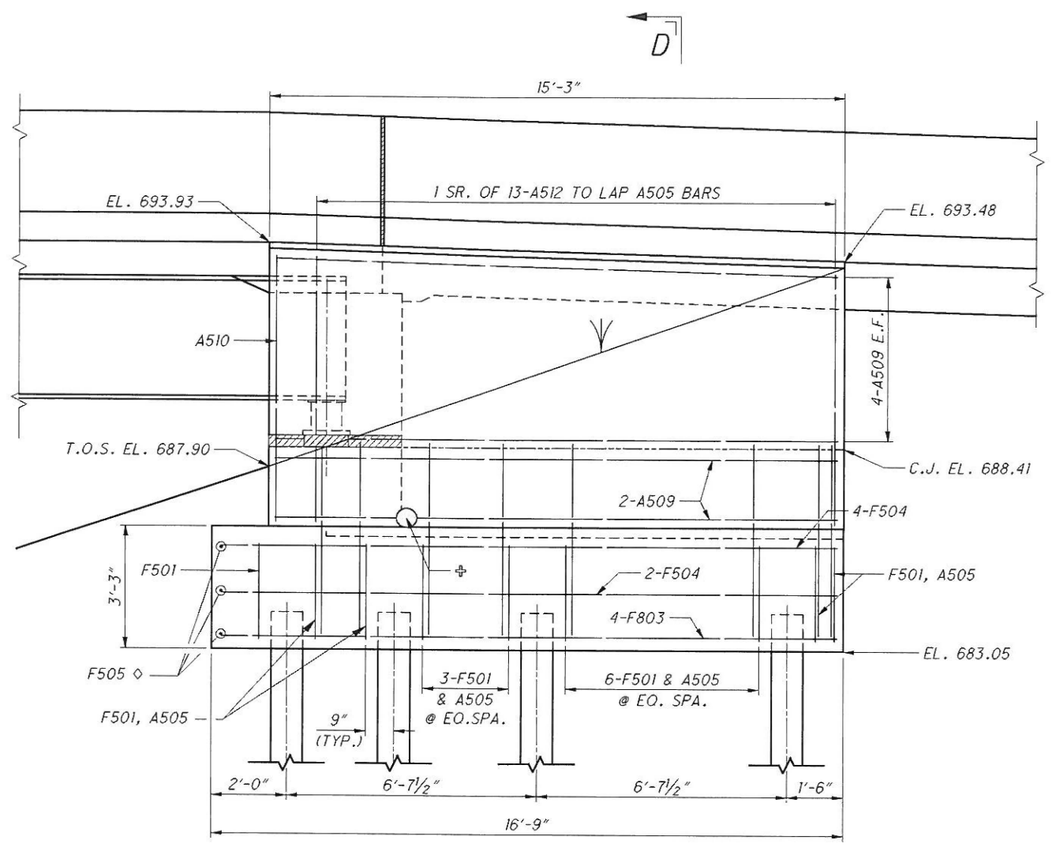
8/25

34/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CAF001.dgn 23-FEB-2010 2:25PM mblythe



VIEW E-E



VIEW F-F

NOTES & LEGEND

FOR ABUTMENT DETAILS SEE SHEET 8/25
FOR SECTION D-D SEE SHEET 10/25
FOR FOUNDATION PLAN SEE SHEET 5/25

E.F. - EACH FACE
T.O.S. - TOP OF SLOPE
C.J. - CONSTRUCTION JOINT

✣ - 6" NON-PERFORATED PLASTIC PIPE TO EXTEND THROUGH WINGWALLS

◇ - FOR MORE DETAILS SEE SHEET 8/25

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
MRB	MRB	RCD	3/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TAA		4704789	

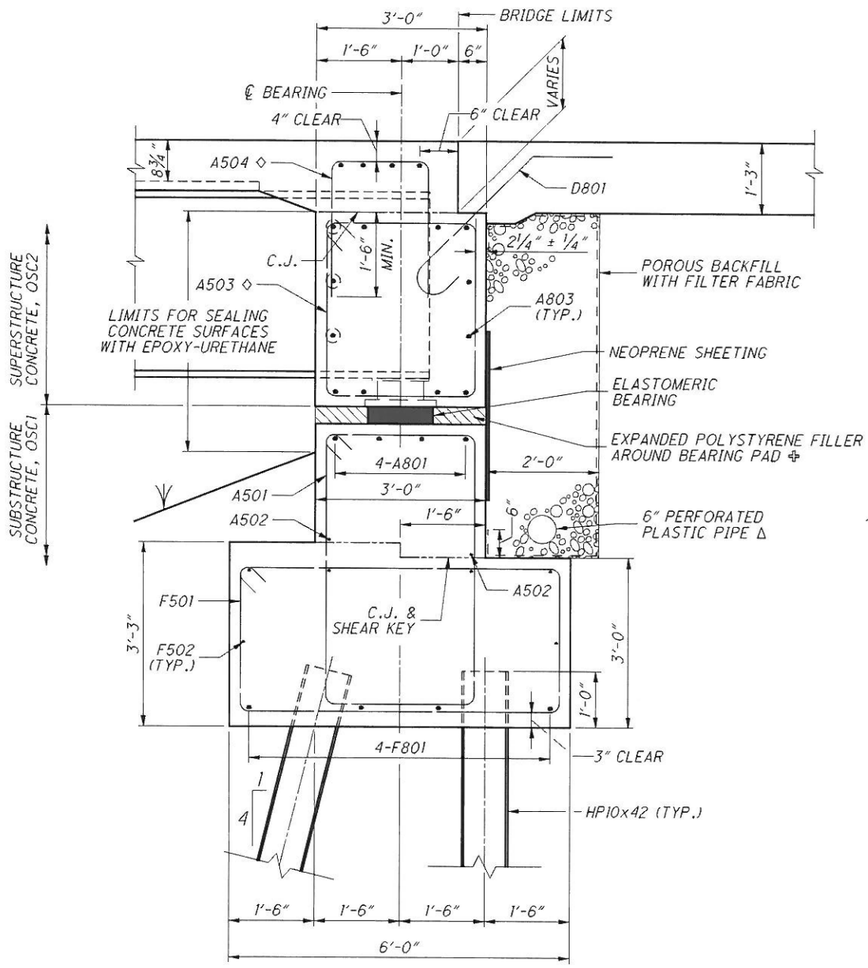
FORWARD ABUTMENT WINGWALL DETAILS
BRIDGE NO. LOR-90-14.78
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

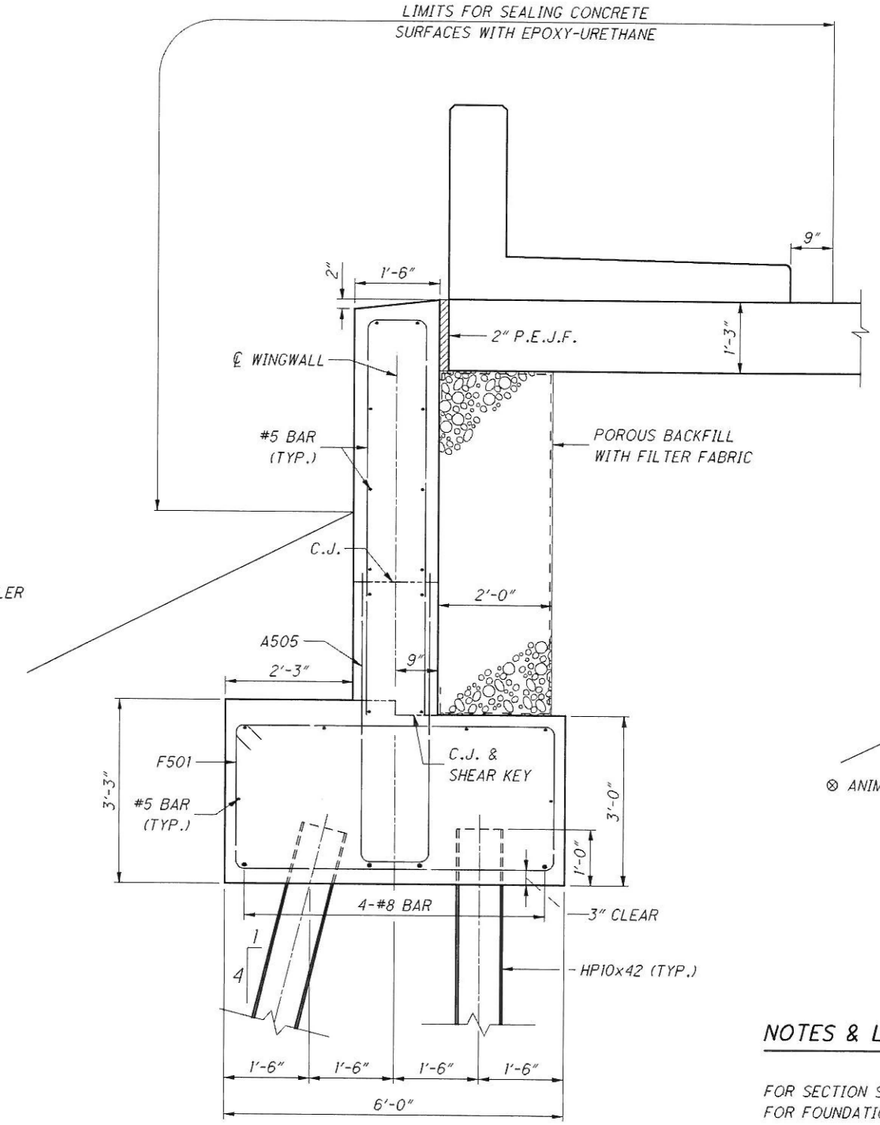
9/25

35/51

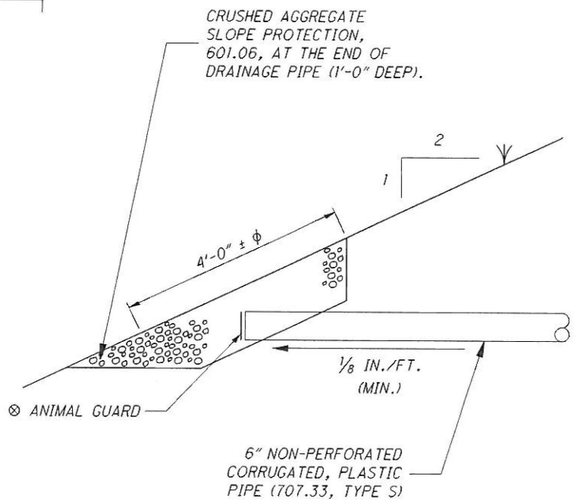
I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CAF002.dgn 23-FEB-2010 2:25PM mblythe



SECTION A-A



SECTION D-D



PIPE OUTLET DETAIL

NOTES & LEGEND

FOR SECTION SEE SHEETS 6/25 - 9/25
FOR FOUNDATION PLAN SEE SHEET 5/25

ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE:
PLACE THE CONCRETE ENCASING THE STRUCTURAL STEEL MEMBERS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE.

C.J. - CONSTRUCTION JOINT
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER

◇ - A503 & A504 TO BE PLACED ALONG SKEW

Δ - DRAINAGE PIPE SLOPED ⅛" /FT AWAY FROM ℄ GULF RD

✠ - TO BE INCLUDED WITH SUPERSTRUCTURE CONCRETE FOR PAYMENT. CONSIDERED AS INCIDENTAL TO ITEM.

⊗ - TO BE INCLUDED IN ITEM 518 - 6" NON-PERFORATED CORRUGATED PLASTIC PIPE FOR PAYMENT

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

REVIEWED RCD
DATE 3/16/09
STRUCTURE FILE NUMBER 4704789

DRAWN MRB
REVISED

DESIGNED MRB
CHECKED TAA

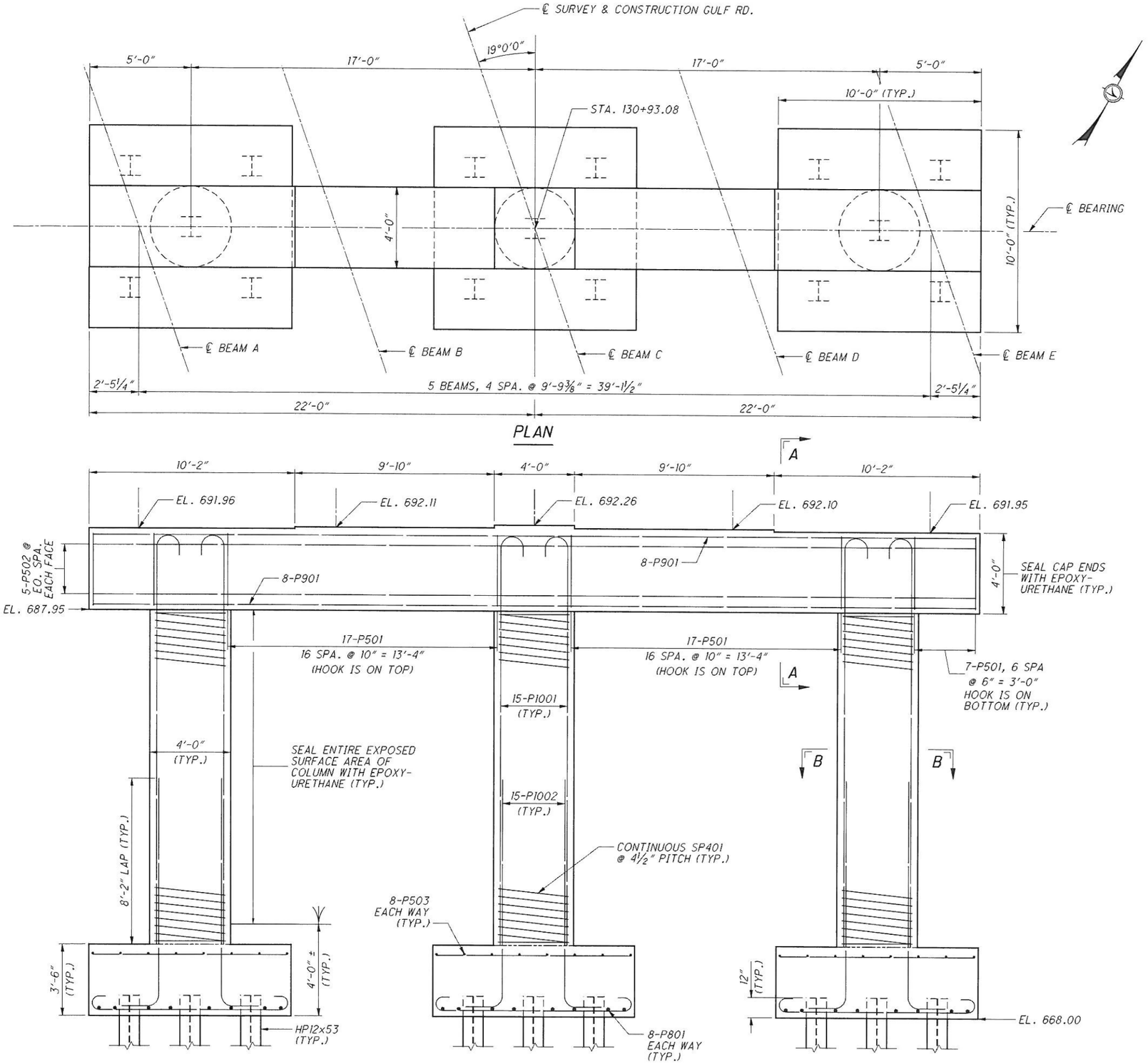
MISCELLANEOUS DETAILS
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

10/25

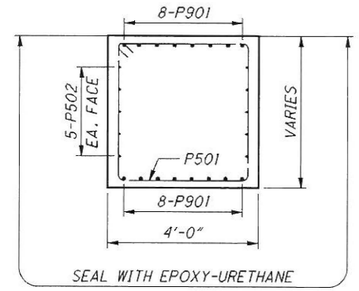
36/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CMD001.dgn 23-FEB-2010 2:25PM mblythe

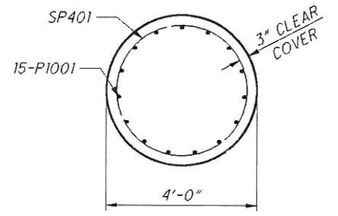


PLAN

ELEVATION



SECTION A-A



SECTION B-B

NOTES

FOR FOUNDATION PLAN SEE SHEET 5/25

DESIGN AGENCY: ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
MRB	MRB	RCD	3/18/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TAA		4704789	

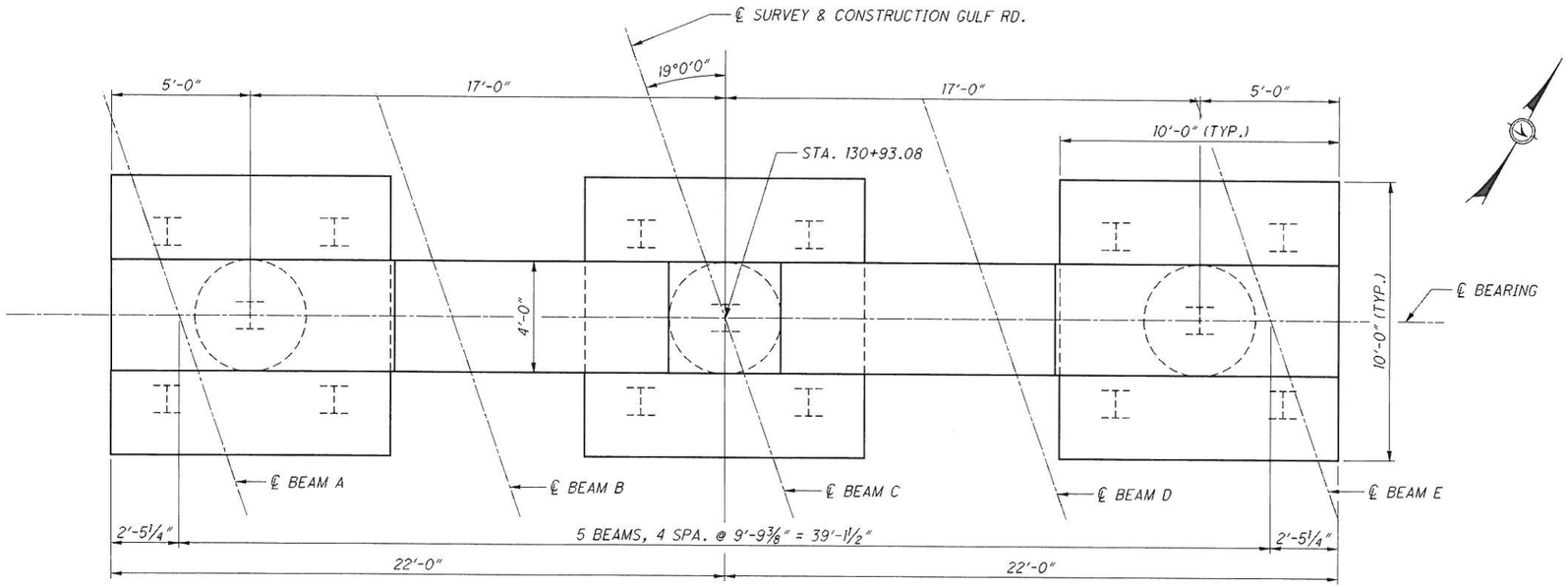
PIER #1 DETAILS
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

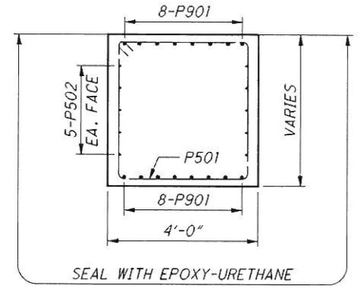
11/25

37/51

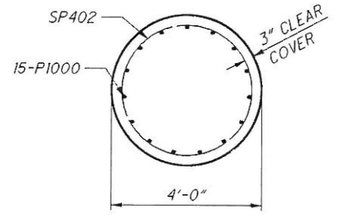
I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CPI001.dgn 23-FEB-2010 2:25PM mblythe



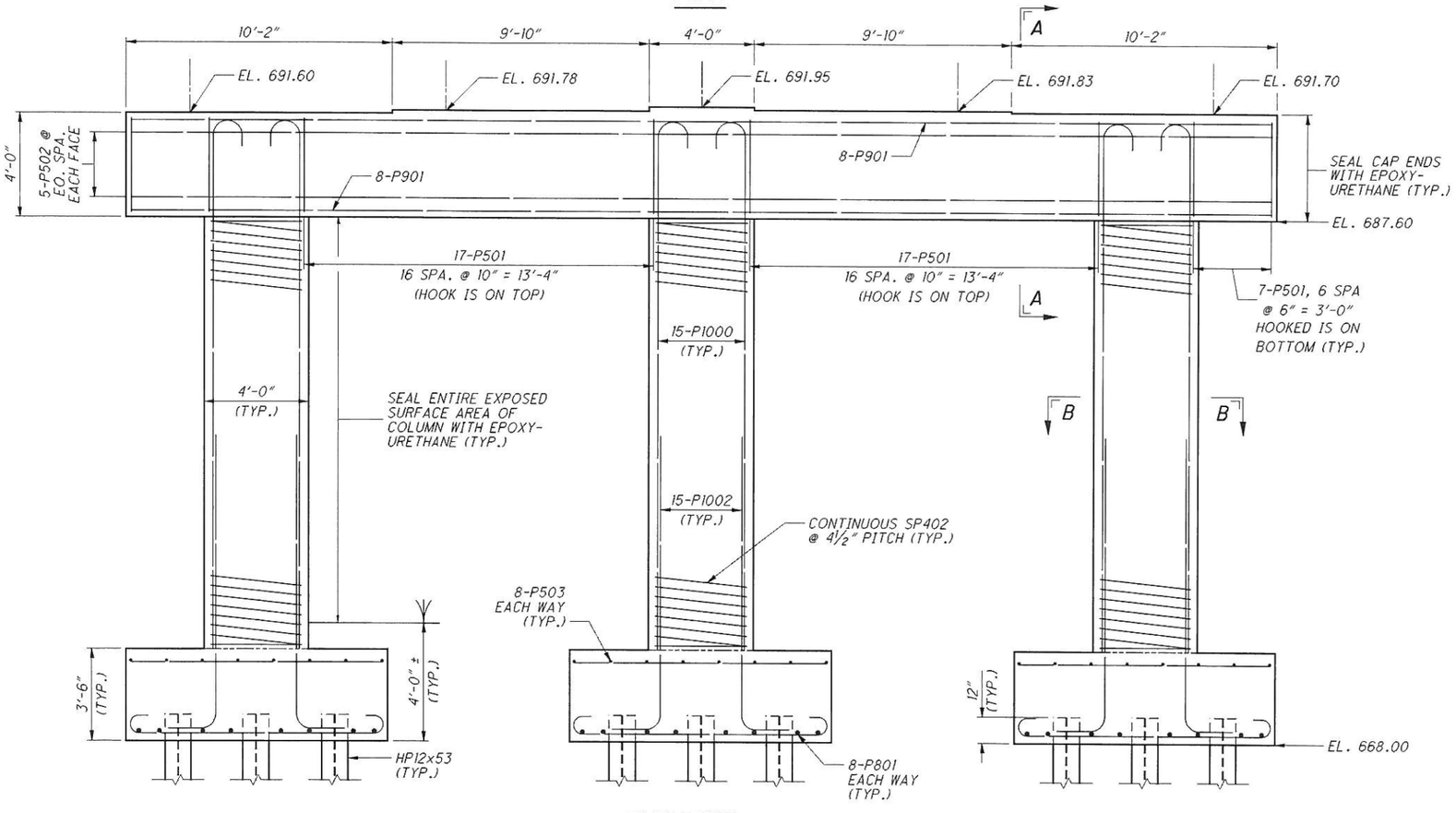
PLAN



SECTION A-A



SECTION B-B



ELEVATION

NOTES

FOR FOUNDATION PLAN SEE SHEET 5/25

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED MRB
DRAWN MRB
REVIEWED RCD
DATE 3/18/09
CHECKED TAA
REVISED
STRUCTURE FILE NUMBER 4704789

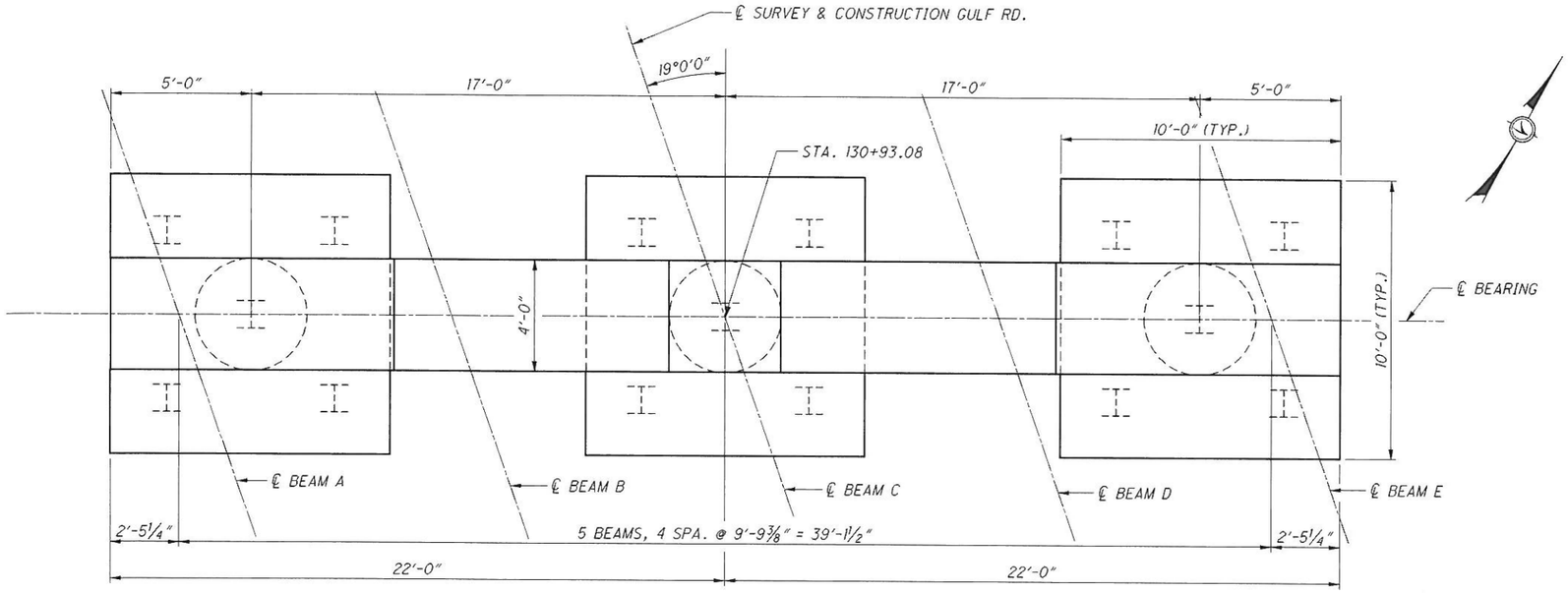
PIER #2 DETAILS
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

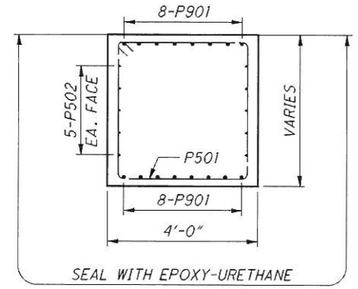
12/25

38/51

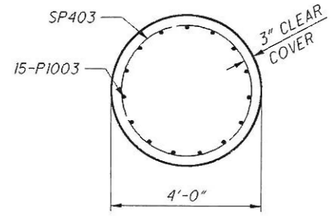
I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CPI002.dgn 23-FEB-2010 2:25PM mblythe



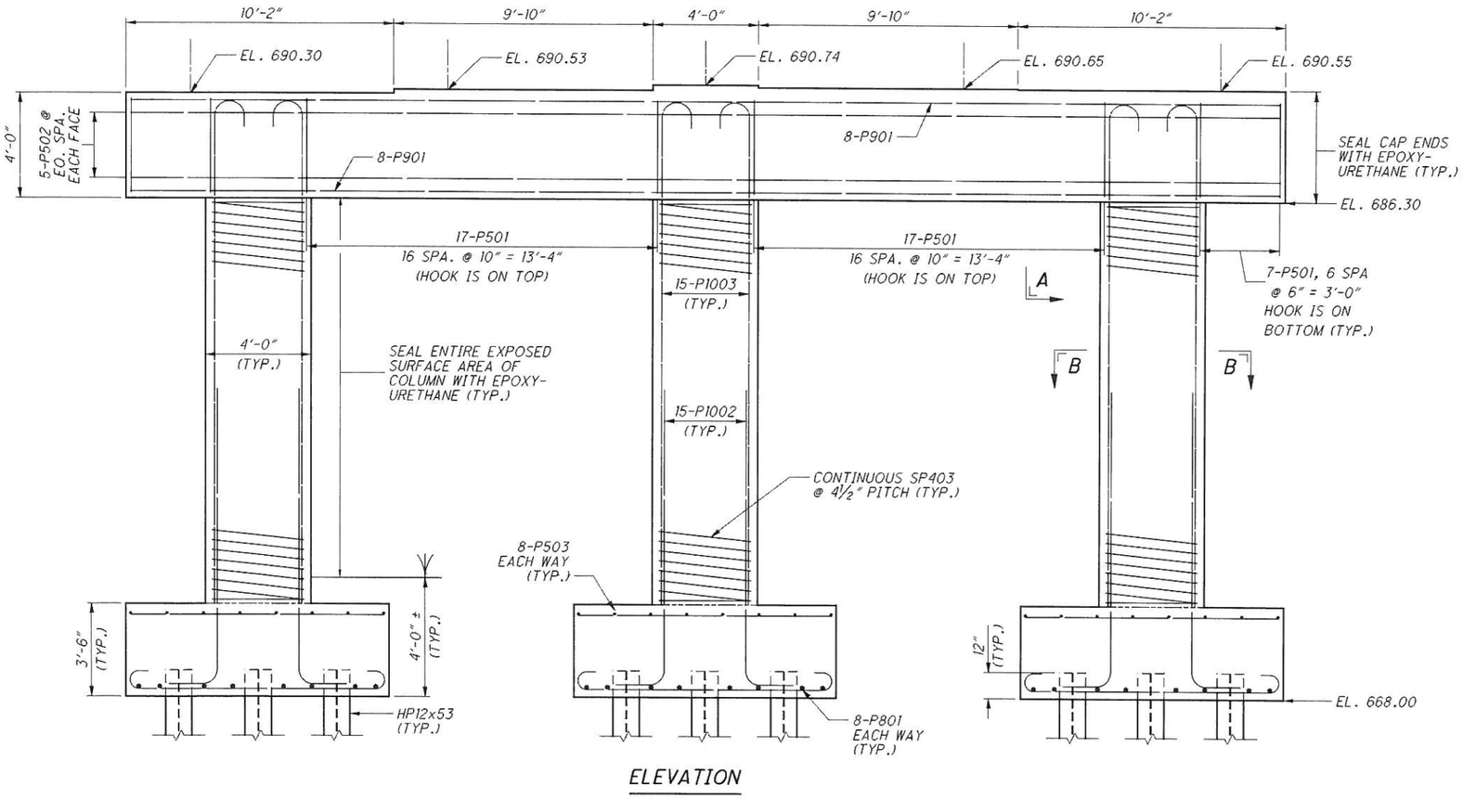
PLAN



SECTION A-A



SECTION B-B



ELEVATION

NOTES

FOR FOUNDATION PLAN SEE SHEET 5/25

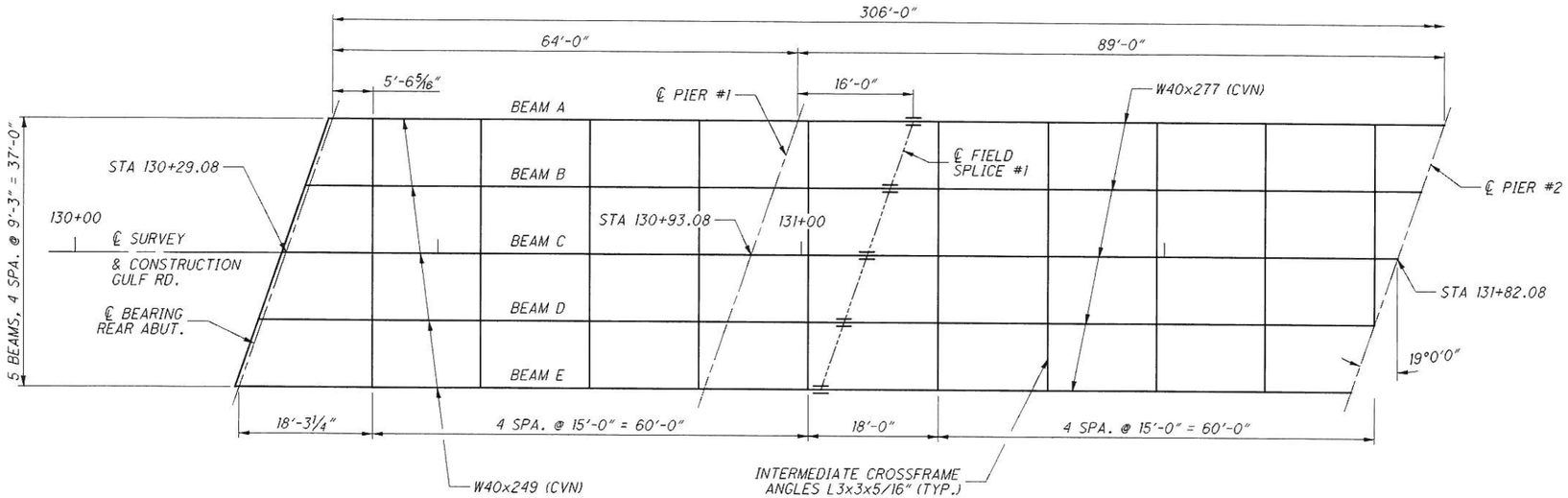
DESIGN AGENCY: ODOT CENTRAL OFFICE, OFFICE OF PRODUCTION
DESIGNED: MRB
DRAWN: MRB
REVIEWED: RCD
CHECKED: TAA
DATE: 3/18/09
REVISED:
STRUCTURE FILE NUMBER: 4704789

PIER #3 DETAILS
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

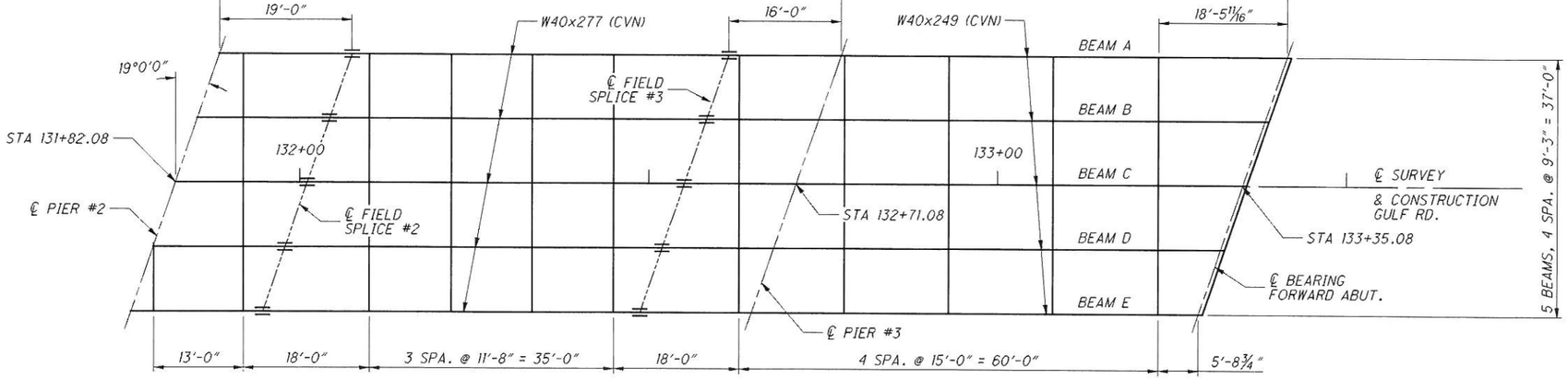
13/25
39/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CPI003.dgn 23-FEB-2010 2:25PM mblythe



FRAMING PLAN

REAR ABUTMENT TO PIER #2



FRAMING PLAN

PIER #2 TO FORWARD ABUTMENT

NOTES

FOR NOTES SEE SHEETS 15/25

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED MRB | DRAWN MRB | REVIEWED RCD | DATE 3/18/09
CHECKED TAA | REVISED | STRUCTURE FILE NUMBER 4704789

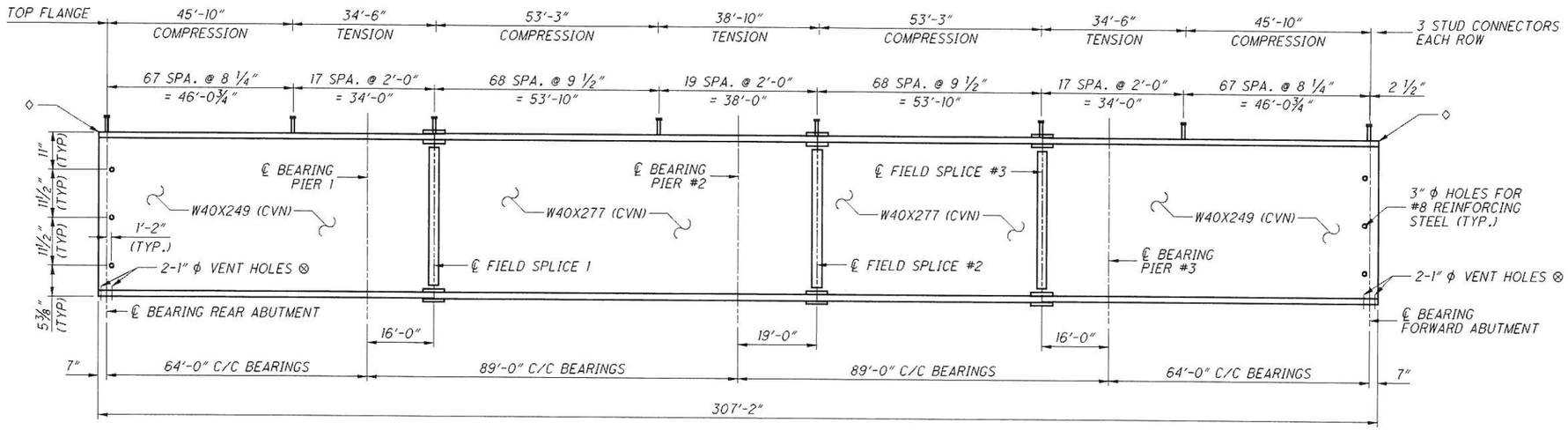
SUPERSTRUCTURE DETAILS
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

14/25

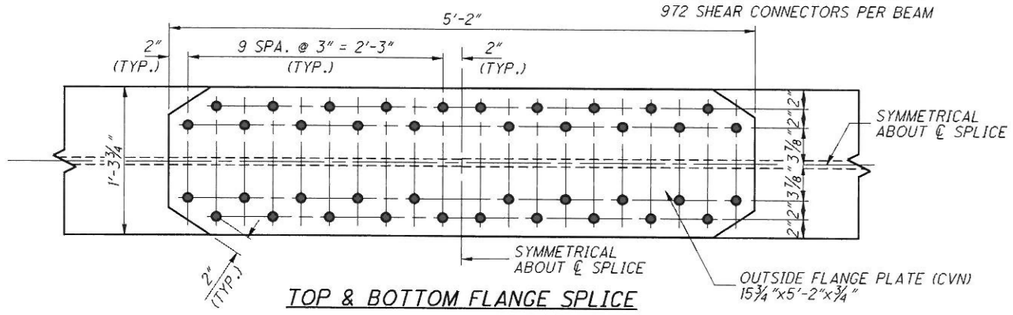
40/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CSD001.dgn 23-FEB-2010 2:25PM mblythe



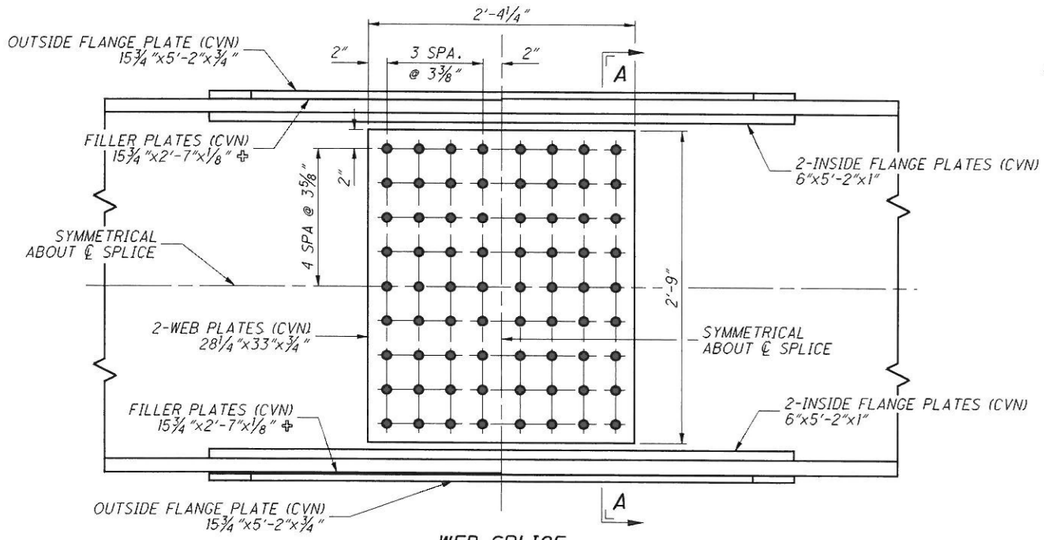
BEAM ELEVATION

(EXAGGERATED VERTICAL SCALE)
972 SHEAR CONNECTORS PER BEAM



TOP & BOTTOM FLANGE SPLICE

(40 BOLTS PER FLANGE)



WEB SPLICE

(72 WEB BOLTS)

NOTES & LEGEND

WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.

CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

3" ϕ HOLES DRILLED INTO PROPOSED BEAMS SHALL BE PAID UNDER ITEM 513 STRUCTURAL STEEL. THIS PAYMENT IS INCIDENTAL TO THE PAY ITEM

HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A325 UNLESS OTHERWISE NOTED.

ALL BEAM LENGTH DIMENSIONS ARE @ 60° F.

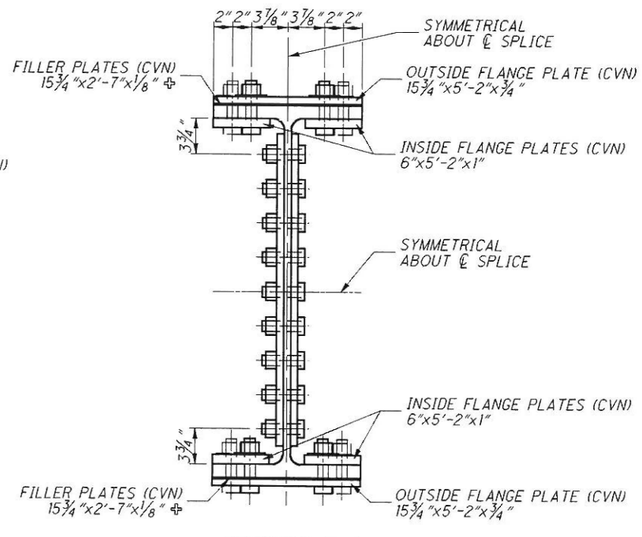
ALL STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 50.

LATERAL AND LONGITUDINAL SPACING OF WELDED STUD CONNECTORS MAY BE ALTERED AT FIELD SPLICE LOCATIONS TO AVOID INTERFERENCE WITH FLANGE SPLICE BOLTS PROVIDED THAT AT LEAST THE NUMBER OF STUDS SPECIFIED IN THE BEAM ELEVATION ARE PROVIDED.

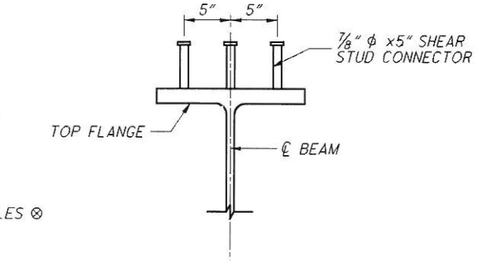
⊗ - 1" ϕ HOLES DRILLED INTO PROPOSED BEAM FLANGES SHALL BE PAID UNDER ITEM 513 STRUCTURAL STEEL. THIS PAYMENT IS INCIDENTAL TO THE PAY ITEM. FOR DETAILS SEE SHEET 23|25.

✣ - FILLER PLATES ONLY REQUIRED FOR FIELD SPLICES 1 & 3

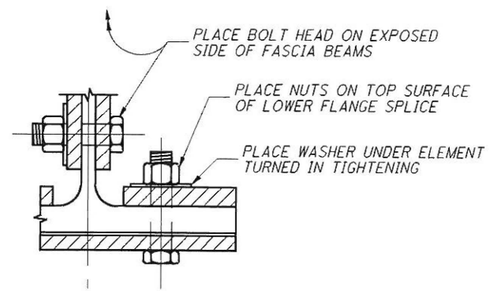
◇ - THE TOP BEAM FLANGE NEED NOT BE CLIPPED AT THE ABUTMENTS AS IS SHOWN IN SICD-1-96



SECTION A-A



SHEAR CONNECTOR DETAIL



PARTIAL SECTION

DESIGN AGENCY: ODOT CENTRAL OFFICE, OFFICE OF PRODUCTION
DESIGNED: TAA | DRAWN: MRB | REVIEWED: RCD | DATE: 3/18/09
CHECKED: MRB | REVISED: | STRUCTURE FILE NUMBER: 4704789

SUPERSTRUCTURE DETAILS

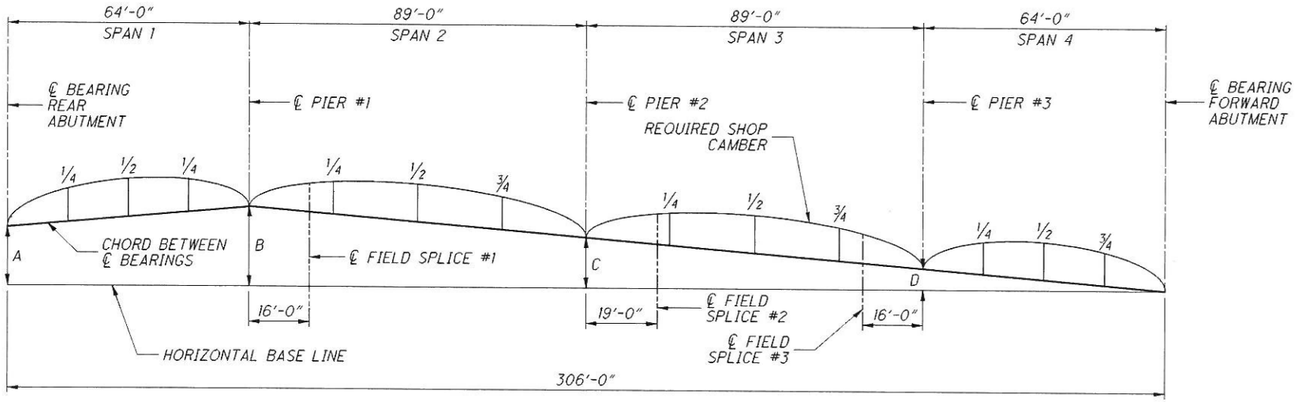
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

15 / 25

41 / 51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CSD002.dgn 23-FEB-2010 2:25PM mblythe



BLOCKING AND CAMBER DIAGRAM

(STEEL IN UNLOADED POSITION)

BLOCKING HEIGHTS					
	BEAM A	BEAM B	BEAM C	BEAM D	BEAM E
A	2'-10"	2'-8 5/8"	2'-7 1/4"	2'-5 3/4"	2'-4 7/16"
B	3'-2"	3'-0 13/16"	2'-11 7/8"	2'-10 11/16"	2'-9 3/4"
C	2'-9 3/4"	2'-8 3/4"	2'-8"	2'-7 5/16"	2'-6 13/16"
D	1'-6 1/4"	1'-5 7/8"	1'-5 5/8"	1'-5 1/4"	1'-5 3/16"

BEAM A-E DEFLECTION AND CAMBER, INCHES															
LOCATION OF POINT	SPAN 1			SPAN 2				SPAN 3					SPAN 4		
	1/4	1/2	3/4	SPLICE #1	1/4	1/2	3/4	SPLICE #2	1/4	1/2	3/4	SPLICE #3	1/4	1/2	3/4
BEAM DEFLECTION	1/16	1/16	0	1/16	1/8	1/8	1/16	1/16	1/16	1/8	1/8	1/16	0	1/16	1/16
REMAINING NON-COMPOSITE DL DEFLECTION	3/16	1/4	1/16	3/16	5/16	1/2	1/4	1/4	1/4	1/2	5/16	3/16	1/16	1/4	3/16
COMPOSITE DL DEFLECTION ✣	3/16	3/16	1/16	3/16	1/4	7/16	1/4	3/16	1/4	7/16	1/4	3/16	1/16	3/16	3/16
VERTICAL CURVE CORRECTION	9/16	3/4	9/16	7/8	1 1/8	1 9/16	1 5/16	1 3/16	1 5/16	1 9/16	1 1/8	7/8	9/16	3/4	9/16
SHOP CAMBER	1	1 1/4	1 1/16	1 5/16	1 13/16	2 5/8	1 7/8	1 11/16	1 7/8	2 5/8	1 13/16	1 5/16	1 1/16	1 1/4	1

NOTES & LEGEND

FOR ADDITIONAL NOTES SEE SHEETS 15/25

DL - DEAD LOAD

✣ - COMPOSITE DEAD LOAD DEFLECTION IS THE DEFLECTION CAUSED BY THE WEIGHT OF THE PARAPETS, FENCES & SIDEWALKS.

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

REVIEWED RCD | DATE 3/18/09 | STRUCTURE FILE NUMBER 4704789
DRAWN MRB | REVISED
DESIGNED MRB | CHECKED TAA

SUPERSTRUCTURE DETAILS
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

16/25
42/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CSD003.dgn 23-FEB-2010 2:25PM mblythe

SCREED ELEVATIONS

LOCATION	LEFT EDGE OF DECK		BEAM A		LEFT TOE OF S.W.		BEAM B		BEAM C / P.G.		BEAM D		RIGHT TOE OF S.W.		BEAM E		RIGHT EDGE OF DECK	
	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
BEGIN A.S.	130+08.19	696.05	NA		130+08.19	696.05	NA		130+03.02	696.23	NA		129+97.86	695.92	NA		129+97.86	695.92
℄ R.ABUT.	130+36.31	696.35	130+35.45	696.34	130+34.24	696.33	130+32.27	696.41	130+29.08	696.52	130+25.89	696.34	130+23.92	696.23	130+22.71	696.22	130+21.85	696.21
1/4 SPAN	130+52.31	696.51	130+51.45	696.50	130+50.24	696.49	130+48.27	696.57	130+45.08	696.70	130+41.89	696.52	130+39.92	696.41	130+38.71	696.40	130+37.85	696.40
1/2 SPAN	130+68.31	696.61	130+67.45	696.61	130+66.24	696.60	130+64.27	696.68	130+61.08	696.81	130+57.89	696.64	130+55.92	696.54	130+54.71	696.53	130+53.85	696.52
3/4 SPAN	130+84.31	696.66	130+83.45	696.65	130+82.24	696.65	130+80.27	696.73	130+77.08	696.87	130+73.89	696.71	130+71.92	696.61	130+70.71	696.60	130+69.85	696.60
PIER #1	131+00.31	696.68	130+99.45	696.68	130+98.24	696.68	130+96.27	696.76	130+93.08	696.91	130+89.89	696.75	130+87.92	696.65	130+86.71	696.65	130+85.85	696.65
℄ F.S.#1	131+16.31	696.72	131+15.45	696.72	131+14.24	696.72	131+12.27	696.81	131+09.08	696.96	131+05.89	696.81	131+03.92	696.71	131+02.71	696.71	131+01.85	696.71
1/4 SPAN	131+22.56	696.73	131+21.70	696.73	131+20.49	696.73	131+18.52	696.82	131+15.33	696.97	131+12.14	696.83	131+10.17	696.73	131+08.96	696.73	131+08.10	696.73
1/2 SPAN	131+44.81	696.70	131+43.95	696.70	131+42.74	696.70	131+40.77	696.80	131+37.58	696.96	131+34.39	696.82	131+32.42	696.74	131+31.21	696.74	131+30.35	696.74
3/4 SPAN	131+67.06	696.54	131+66.20	696.55	131+64.99	696.55	131+63.02	696.66	131+59.83	696.83	131+56.64	696.70	131+54.67	696.61	131+53.46	696.62	131+52.60	696.62
PIER #2	131+89.31	696.32	131+88.45	696.33	131+87.24	696.34	131+85.27	696.45	131+82.08	696.62	131+78.89	696.50	131+76.92	696.42	131+75.71	696.43	131+74.85	696.44
℄ F.S.#2	132+08.31	696.15	132+07.45	696.16	132+06.24	696.18	132+04.27	696.29	132+01.08	696.47	131+97.89	696.36	131+95.92	696.29	131+94.71	696.30	131+93.85	696.31
1/4 SPAN	132+11.56	696.12	132+10.70	696.13	132+09.49	696.15	132+07.52	696.26	132+04.33	696.45	132+01.14	696.33	131+99.17	696.26	131+97.96	696.28	131+97.10	696.28
1/2 SPAN	132+33.81	695.86	132+32.95	695.87	132+31.74	695.89	132+29.77	696.01	132+26.58	696.20	132+23.39	696.10	132+21.42	696.03	132+20.21	696.05	132+19.35	696.06
3/4 SPAN	132+56.06	695.47	132+55.20	695.49	132+53.99	695.51	132+52.02	695.64	132+48.83	695.84	132+45.64	695.74	132+43.67	695.68	132+42.46	695.70	132+41.60	695.71
℄ F.S.#3	132+62.31	695.35	132+61.45	695.36	132+60.24	695.38	132+58.27	695.51	132+55.08	695.72	132+51.89	695.62	132+49.92	695.56	132+48.71	695.58	132+47.85	695.60
PIER #3	132+78.31	695.01	132+77.45	695.03	132+76.24	695.05	132+74.27	695.18	132+71.08	695.39	132+67.89	695.30	132+65.92	695.25	132+64.71	695.27	132+63.85	695.29
1/4 SPAN	132+94.31	694.69	132+93.45	694.71	132+92.24	694.73	132+90.27	694.87	132+87.08	695.08	132+83.89	695.00	132+81.92	694.95	132+80.71	694.97	132+79.85	694.99
1/2 SPAN	133+10.31	694.34	133+09.45	694.36	133+08.24	694.39	133+06.27	694.53	133+03.08	694.75	132+99.89	694.67	132+97.92	694.63	132+96.71	694.65	132+95.85	694.67
3/4 SPAN	133+26.31	693.94	133+25.45	693.96	133+24.24	693.99	133+22.27	694.14	133+19.08	694.36	133+15.89	694.30	133+13.92	694.25	133+12.71	694.28	133+11.85	694.30
℄ F.ABUT.	133+42.31	693.48	133+41.45	693.51	133+40.24	693.54	133+38.27	693.69	133+35.08	693.92	133+31.89	693.86	133+29.92	693.82	133+28.71	693.85	133+27.85	693.87
END A.S.	133+65.30	692.81	NA		133+65.30	692.81	NA		133+60.14	693.21	NA		133+54.97	693.12	NA		133+54.97	693.12

DEFLECTION USED FOR SCREED ELEVATIONS, INCHES

LOCATION OF POINT	SPAN 1			SPAN 2				SPAN 3					SPAN 4		
	1/4	1/2	3/4	SPLICE #1	1/4	1/2	3/4	SPLICE #2	1/4	1/2	3/4	SPLICE #3	1/4	1/2	3/4
SLAB & COMPOSITE D.L. DEFLECTION	3/8	3/8	1/8	3/8	9/16	15/16	1/2	7/16	1/2	15/16	9/16	3/8	1/8	3/8	3/8

NOTES & LEGEND

SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.

FOR ADDITIONAL NOTES SEE SHEETS 16/25

P.G. - PROFILE GRADE
S.W. - SIDEWALK
A.S. - APPROACH SLAB
F.S. - FIELD SPLICE
R. - REAR
F. - FORWARD
D.L. - DEAD LOAD

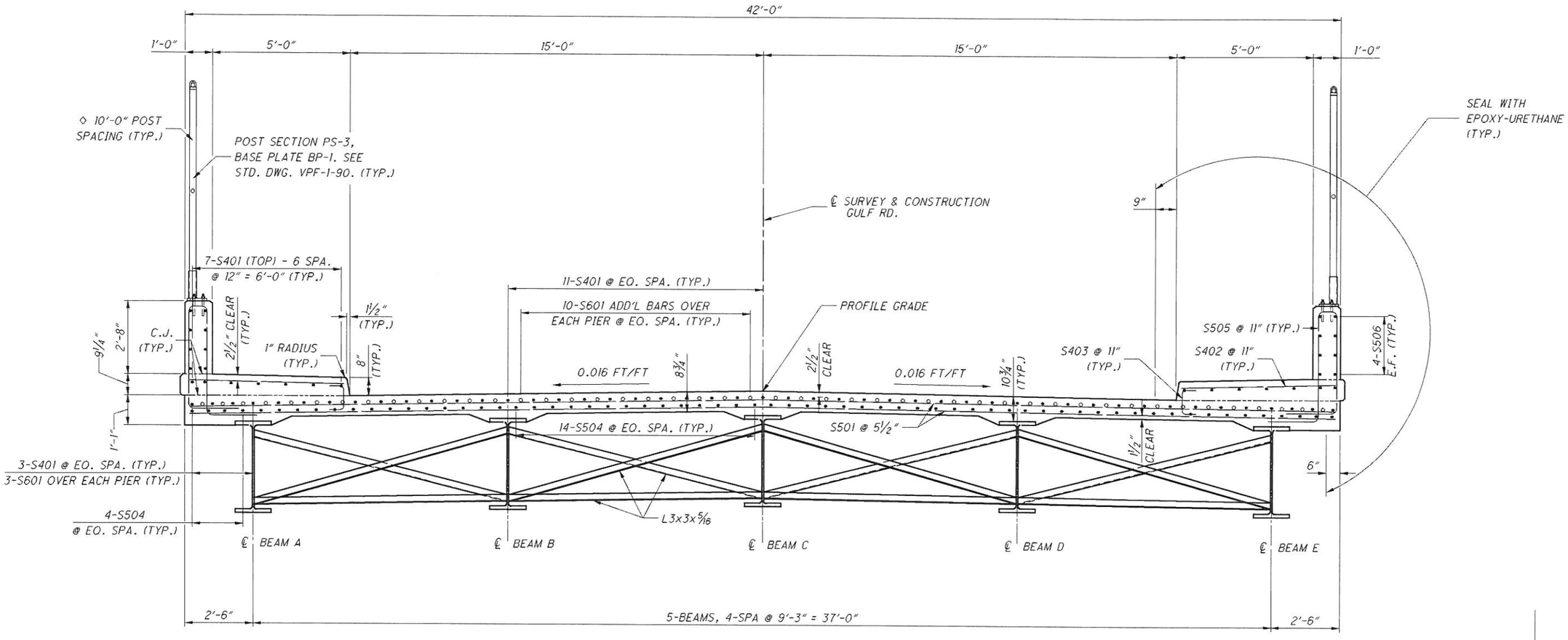
DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED TAA
DRAWN MRB
REVIEWED RCD
DATE 3/18/09
CHECKED MRB
REVISED
STRUCTURE FILE NUMBER 4704789

SUPERSTRUCTURE DETAILS
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CSD004.dgn 23-FEB-2010 2:25PM mblythe



TRANSVERSE SECTION

NOTES & LEGEND

DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM/GIRDER FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM/GIRDER FLANGE IS +/- 3 INCHES.

THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM/GIRDER, FROM THE SURFACE OF THE DECK TO THE TOP OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS.

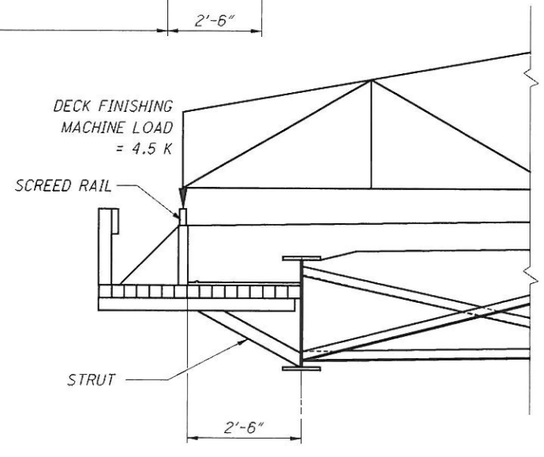
FOR CROSS-FRAME CONNECTION DETAILS SEE STD DWG GSD-1-96.

REINFORCING STEEL MAY BE FIELD OR SHOP BENT TO ACCOMODATE THE CROWN OF THE DECK. PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL

CONSTRUCTION LOADING: THE TOTAL, UNFACTORED WEIGHT OF FORMWORK ON THE OVERHANG INCLUDING FALSEWORK, EDGEFORM, AND RAILING WAS ASSUMED TO BE 0.146 KIPS/FT. THE TOTAL WEIGHT OF THE DECK FINISHING MACHINE WAS ASSUMED TO BE 6.3 KIPS. IF THE CONTRACTOR USES FORMWORK LOADS THAT EXCEED THESE ASSUMPTIONS, THE CONTRACTOR SHALL REANALYZE THE GIRDERS AND SUBMIT THE CALCULATIONS TO THE ENGINEER FOR APPROVAL.

C.J. - CONSTRUCTION JOINT
E.F. - EACH FACE

◇ - FOR MORE DETAILS SEE SHEET 21/25



CONSTRUCTION LOADING

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED TAA | DRAWN CWW | REVIEWED RCD | DATE 3/18/09
CHECKED MRB | REVISED | STRUCTURE FILE NUMBER 4704789

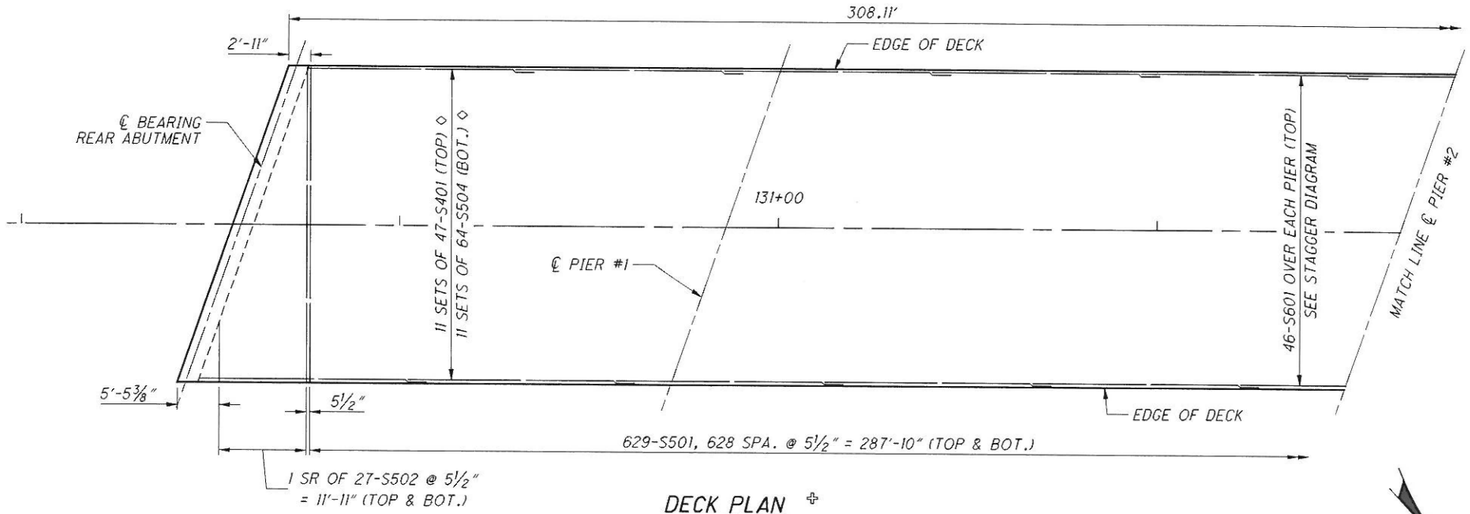
TRANSVERSE SECTION
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

18/25

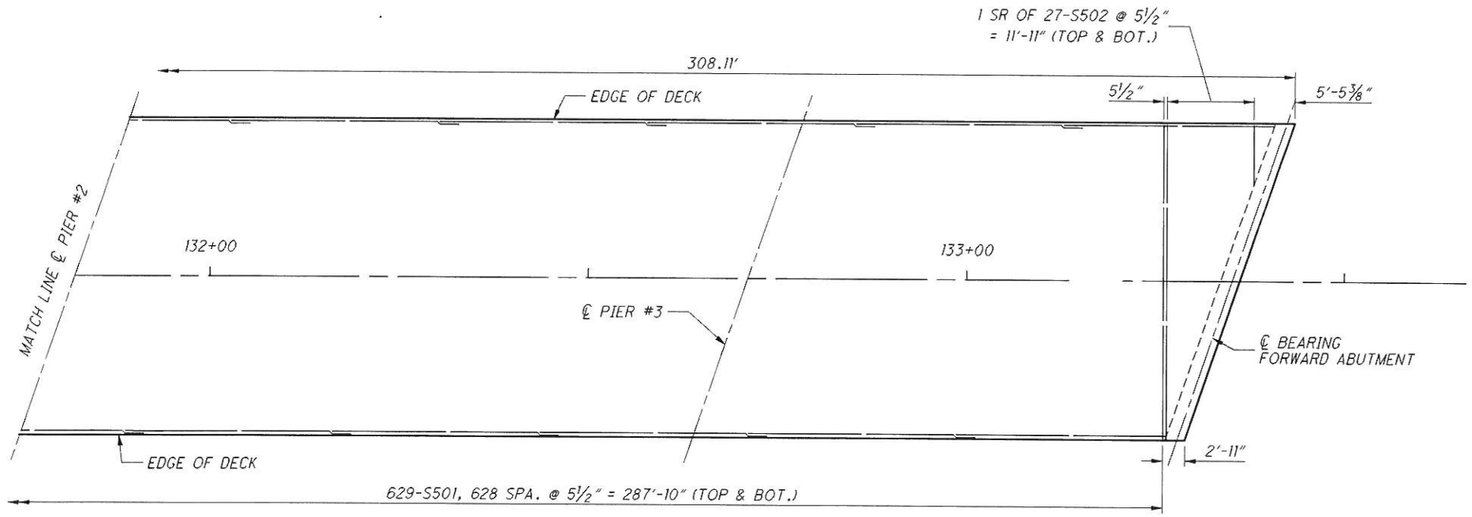
44/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CTS001.dgn 23-FEB-2010 2:25PM mblythe



DECK PLAN ✣

REAR ABUTMENT TO PIER #2



DECK PLAN ✣

PIER #2 TO FORWARD ABUTMENT

NOTES & LEGEND

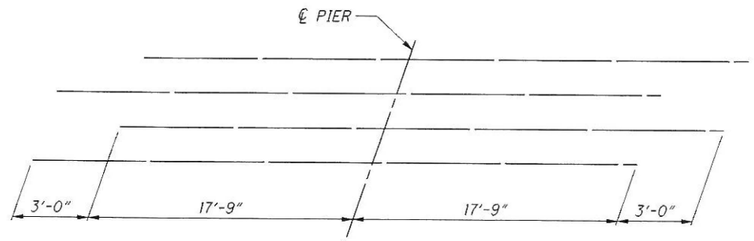
THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM/GIRDER, FROM THE SURFACE OF THE DECK TO THE TOP OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS.

ALL REINFORCING STEEL IS TO BE EPOXY COATED.

#4 BAR MINIMUM LAP = 2'-0"
#5 BAR MINIMUM LAP = 2'-6"

✣ - SIDEWALK AND PARAPET REINFORCING NOT SHOWN FOR CLARITY. FOR REINFORCING CALL OUT, SEE SHEETS 20/25 - 22/25.

◇ - S401 & S504 TO TERMINATE AT EACH ABUTMENT FACE.



STAGGER OF S601 BARS OVER PIERS

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

DESIGNED TAA | DRAWN CWW | REVIEWED RCD | DATE 3/18/09
CHECKED MRB | REVISED | STRUCTURE FILE NUMBER 4704789

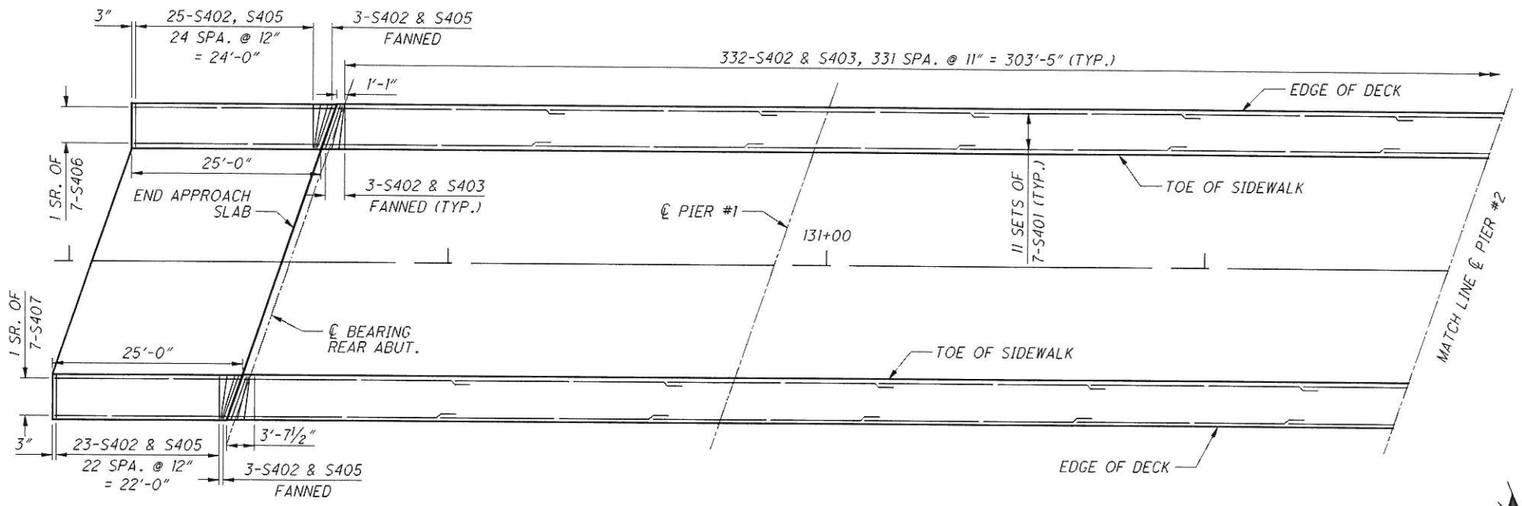
DECK PLAN
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

19 / 25

45 / 51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CDP001.dgn 23-FEB-2010 2:25PM mblythe



SIDEWALK PLAN ✣

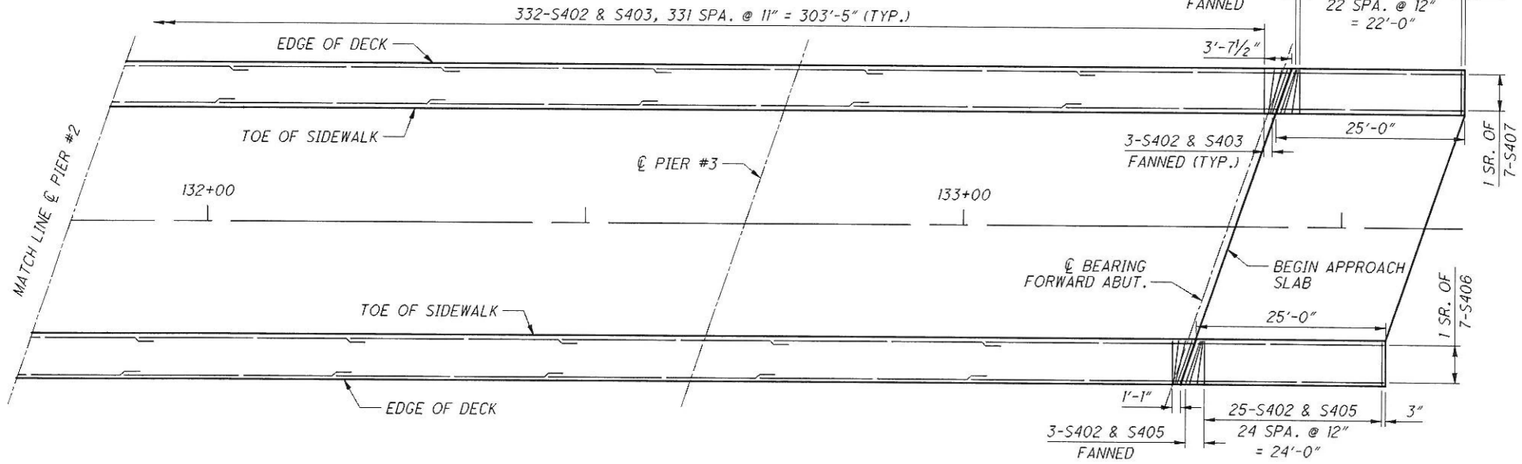
REAR ABUTMENT TO PIER #2

NOTES & LEGEND

ALL REINFORCING STEEL IS TO BE EPOXY COATED.

#4 BAR MINIMUM LAP = 2'-0"

✣ - DECK AND PARAPET REINFORCING NOT SHOWN FOR CLARITY. FOR REINFORCING CALL OUT, SEE SHEETS 19/25 , 21/25 & 22/25.



SIDEWALK PLAN ✣

PIER #2 TO FORWARD ABUTMENT

DESIGN AGENCY: ODOT CENTRAL OFFICE, OFFICE OF PRODUCTION
DESIGNED: TAA | DRAWN: MRB | REVIEWED: RCD | DATE: 3/18/09
CHECKED: MRB | REVISED: | STRUCTURE FILE NUMBER: 4704789

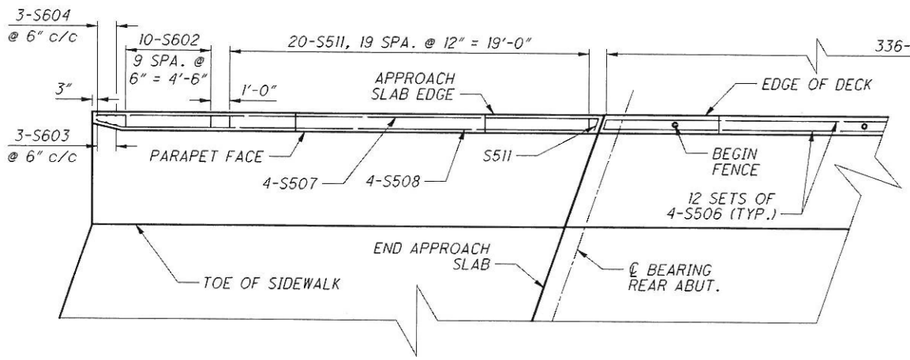
SIDEWALK PLAN
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

20/25

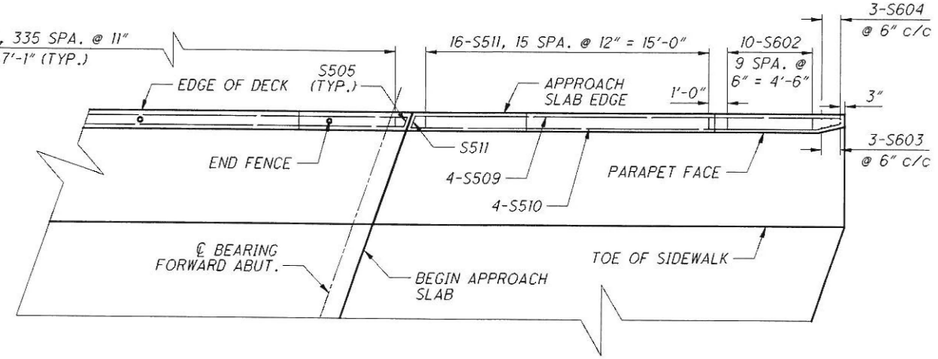
46/51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CDP002.dgn 23-FEB-2010 2:25PM mblythe



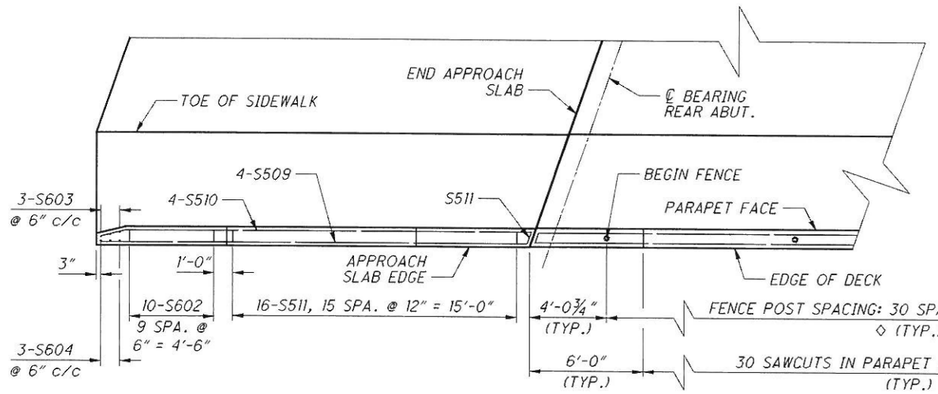
PARAPET PLAN ✣

REAR, LEFT CORNER



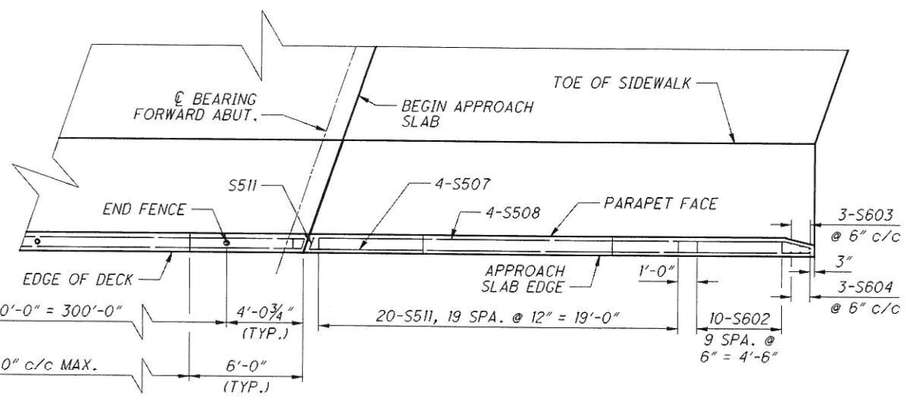
PARAPET PLAN ✣

FORWARD, LEFT CORNER



PARAPET PLAN ✣

REAR, RIGHT CORNER



PARAPET PLAN ✣

FORWARD, RIGHT CORNER

NOTES & LEGEND

CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1¼" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. PLACE THE SAWCUTS AT A MINIMUM OF 6 FEET AND A MAXIMUM OF 10 FEET CENTERS.

USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF ¼ INCH.

SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CON- FORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM ½INCH OF THE INSIDE AND OUTSIDE FACE UNSEALED TO ALLOW WATER TO ESCAPE.

ALL REINFORCING STEEL IS TO BE EPOXY COATED.

#5 BAR MINIMUM LAP = 2'-6"

✣ - DECK AND SIDEWALK REINFORCING NOT SHOWN FOR CLARITY. FOR REINFORCING CALL OUT, SEE SHEETS 19/25 , 20/25 & 22/25.

◇ - SEE STD. DWG. VPF-1-90 FOR MORE DETAILS

DESIGN AGENCY: ODOT CENTRAL OFFICE, OFFICE OF PRODUCTION

DESIGNED TAA | DRAWN MRB | REVIEWED RCD | DATE 3/18/09

CHECKED MRB | REVISED | STRUCTURE FILE NUMBER 4704789

PARAPET PLAN

BRIDGE NO. LOR-90-1478

I.R. 90 UNDER GULF RD.

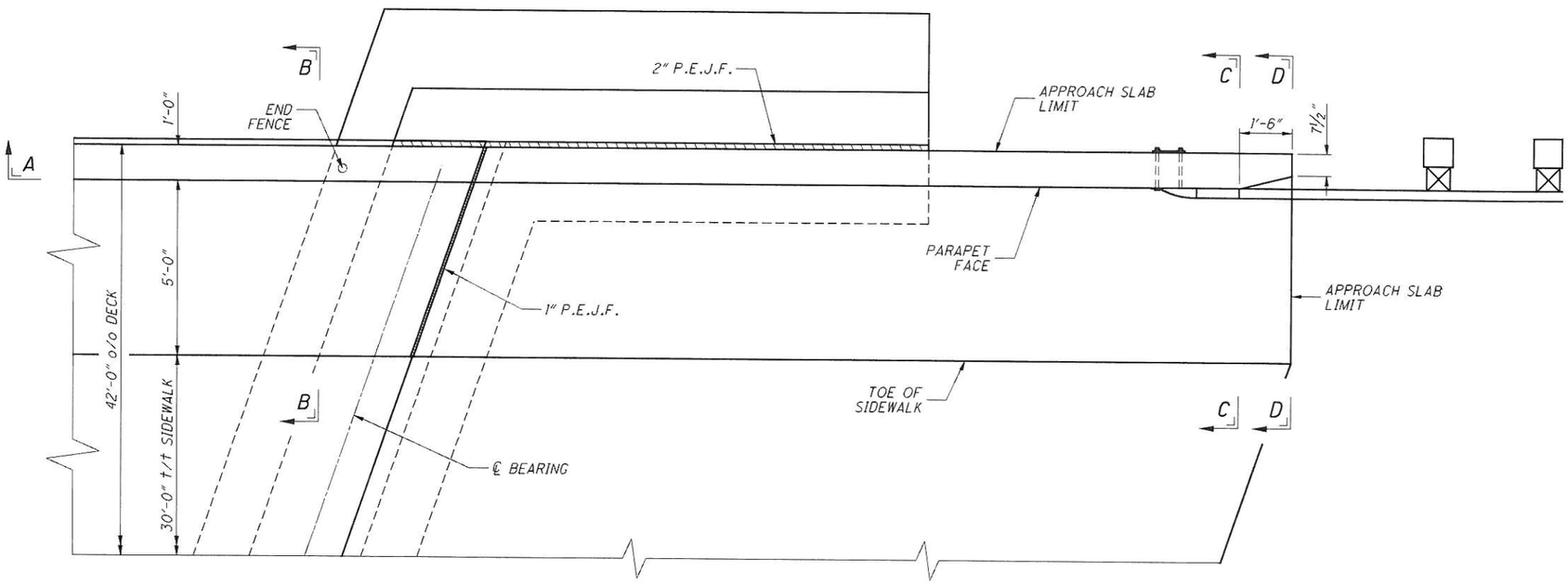
LOR-90-14.78

PID No. 19585

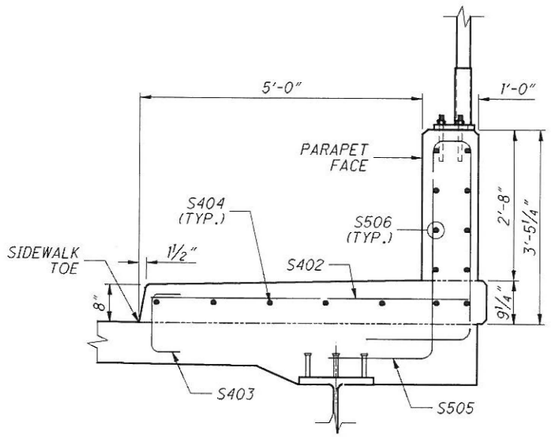
21/25

47/51

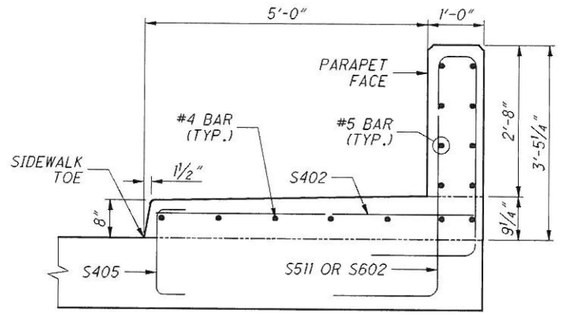
I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CDP003.dgn 23-FEB-2010 2:25PM mblythe



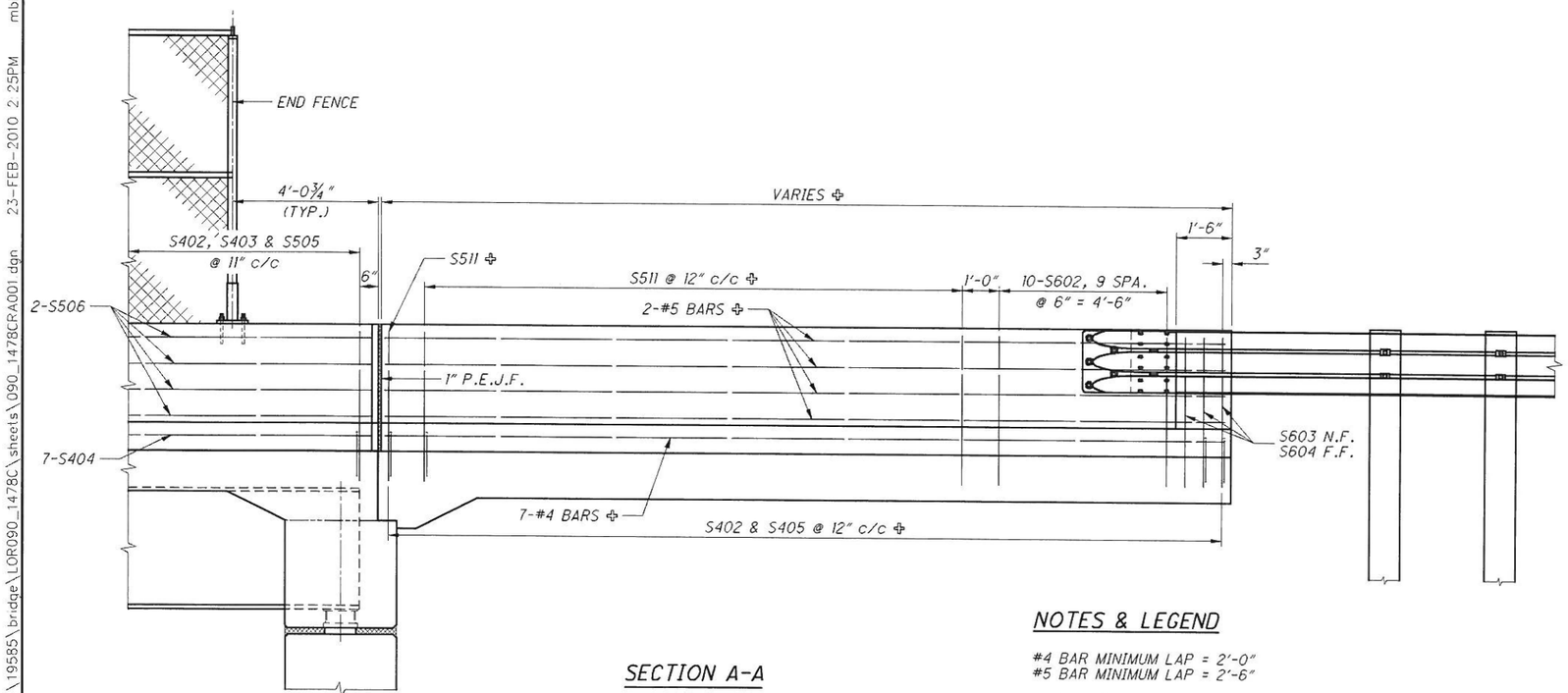
PART PLAN AT ABUTMENT



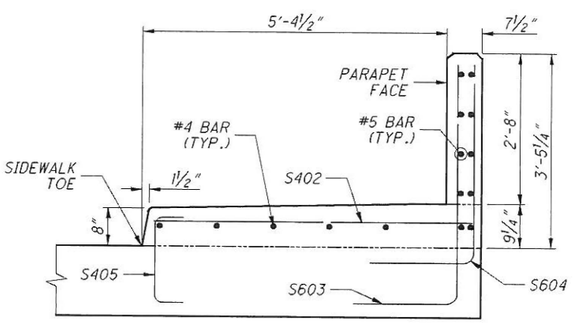
SECTION B-B



SECTION C-C



SECTION A-A



SECTION D-D

NOTES & LEGEND

#4 BAR MINIMUM LAP = 2'-0"
#5 BAR MINIMUM LAP = 2'-6"

N.F. - NEAR FACE
F.F. - FAR FACE

⌖ - SKEW REQUIRES DIMENSION & REINFORCEMENT TO VARY.
FOR REINFORCING CALL OUT, SEE SHEETS 20/25 & 21/25.

DESIGN AGENCY: ODOT CENTRAL OFFICE, OFFICE OF PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
MRB	MRB	RCD	3/18/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
TAA		4704789	

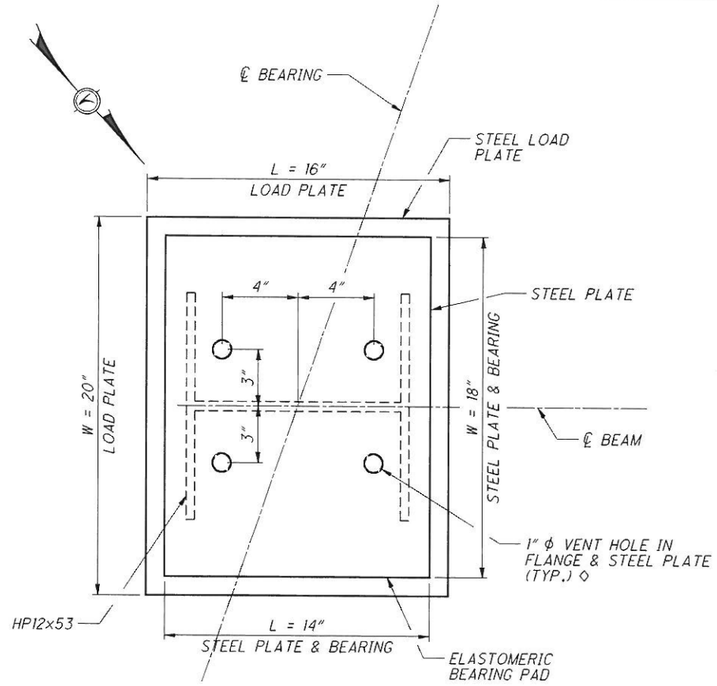
PARAPET DETAILS
BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

22/25

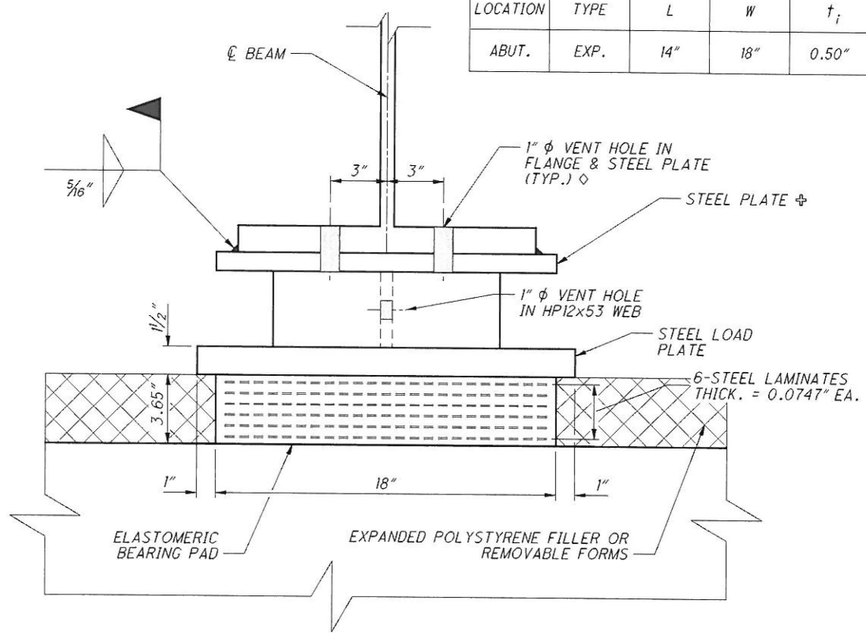
48/51

I:\or\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CRA001.dgn 23-FEB-2010 2:25PM mblythe



PLAN

(REAR ABUTMENT BEARING SHOWN)



SECTION A-A

ABUTMENT BEARING TABLE

LOCATION	TYPE	L	W	t_i	t_e	n_{ie}	n_s	STEEL LOAD PLATE	DESIGN LOAD		
									DL	LL	TOTAL
ABUT.	EXP.	14"	18"	0.50"	0.35"	5	6	16"x20"x1.5"	102 K	57 K	159 K

H-PILE 'H' DIMENSION

LOCATION	BEAM A	BEAM B	BEAM C	BEAM D	BEAM E
REAR ABUT.	5½"	7 1/16"	8½"	6 5/16"	4"
FWD. ABUT.	4"	7"	9 13/16"	9 1/16"	8⅛"

STEEL PLATE

LOCATION	THICKNESS
REAR ABUT.	14"x18"x1"
FWD. ABUT.	14"x18"xBEVEL ✣

NOTES & LEGEND

BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80 °F OR LOWER THAN 40 °F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60 °F (+/-) 10 °F, RAISE THE BEAMS OR GIRDERS TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60 °F (+/-) 10 °F.

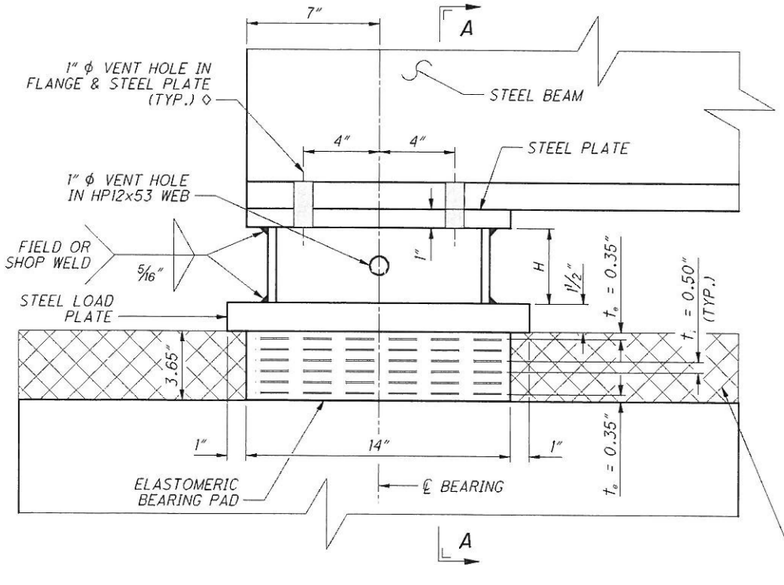
ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF (50 OR 60) DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONG-TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.

H-PILE, STEEL PLATE, AND VENT HOLES IN STEEL PLATE AND H-PILE WEB TO BE INCLUDED IN ITEM 516 FOR PAYMENT.

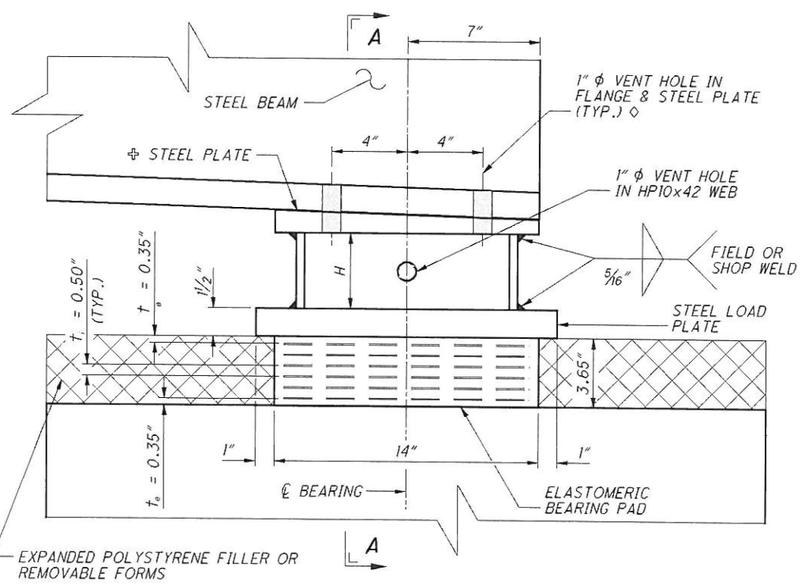
t_i - THICKNESS OF INTERNAL ELASTOMER LAYER
t_e - THICKNESS OF EXTERNAL ELASTOMER LAYER
n_{ie} - NUMBER OF INTERNAL ELASTOMER LAYERS
n_s - NUMBER OF INTERNAL STELL LAMINATES, THICKNESS = 0.0747"

✣ - TOP STEEL PLATE OF THE FORWARD ABUTMENT BEARING IS BEVELED SEE STEEL PLATE DETAIL FOR THICKNESSES & ORIENTATION

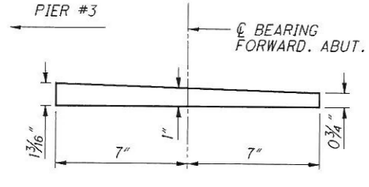
◇ - 1" ϕ HOLES DRILLED INTO PROPOSED BEAM FLANGES SHALL BE PAID UNDER ITEM 513 STRUCTURAL STEEL. THIS PAYMENT IS INCIDENTAL TO THE PAY ITEM.



ELEVATION - REAR ABUTMENT



ELEVATION - FORWARD ABUTMENT



STEEL PLATE DETAIL

(FORWARD ABUTMENT)

DESIGN AGENCY: ODOT CENTRAL OFFICE, OFFICE OF PRODUCTION
DESIGNED TAA | DRAWN MRB | REVIEWED RCD | DATE 3/16/09 | CHECKED MRB | REVISED | STRUCTURE FILE NUMBER 4704789

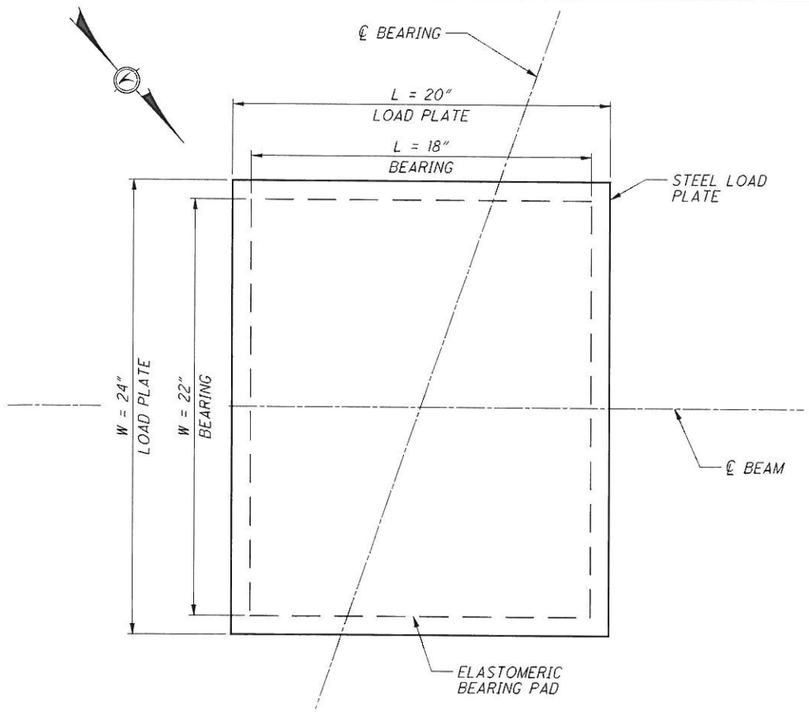
ABUTMENT BEARING DETAILS
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

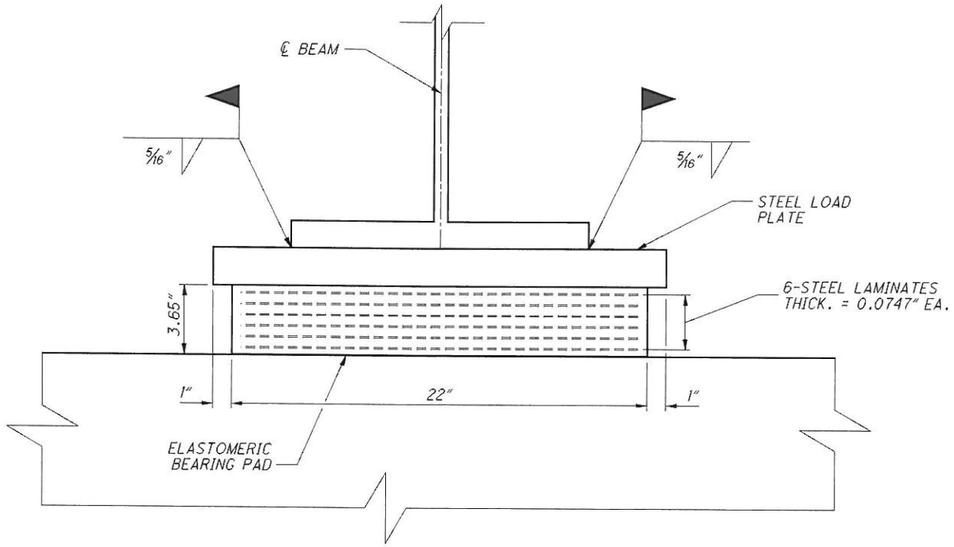
23/25

49/51

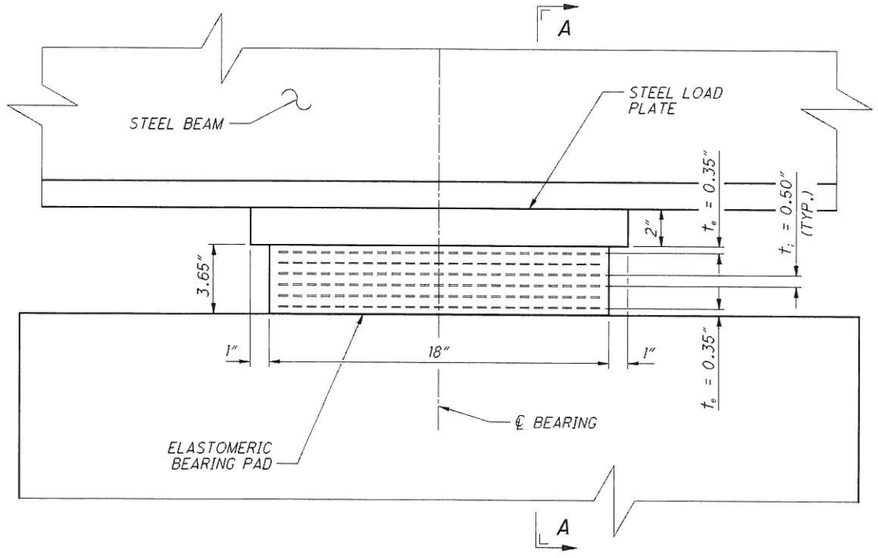
I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CBR001.dgn 23-FEB-2010 2:25PM mblythe



PLAN



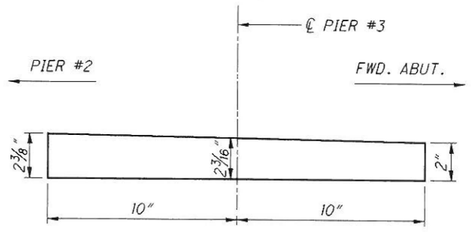
SECTION A-A



ELEVATION

PIER BEARING TABLE

LOCATION	TYPE	L	W	t_i	t_e	n_{ie}	n_s	STEEL LOAD PLATE	DESIGN LOAD		
									DL	LL	TOTAL
PIER #1	EXP.	18″	22″	0.50″	0.35″	5	6	20″x24″x2.0″	235 K	106 K	341 K
PIER #2	EXP.	18″	22″	0.50″	0.35″	5	6	20″x24″x2.0″	266 K	114 K	380 K
PIER #3	EXP.	18″	22″	0.50″	0.35″	5	6	20″x24″xBEVEL ✣	235 K	106 K	341 K



LOAD PLATE DETAILS

(PIER #3)

NOTES & LEGEND

FOR ADDITIONAL NOTES SEE SHEETS 23/25

t_i - THICKNESS OF INTERNAL ELASTOMER LAYER
t_e - THICKNESS OF EXTERNAL ELASTOMER LAYER
n_{ie} - NUMBER OF INTERNAL ELASTOMER LAYERS
n_s - NUMBER OF INTERNAL STELL LAMINATES, THICKNESS = 0.0747″

✣ - PIERS #1 & 2 HAVE A CONSTANT LOAD PLATE THICKNESS OF 2″.
SEE LOAD PLATE DETAIL FOR PIER #3 THICKNESSES & ORIENTATION.

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

REVIEWED RCD | DATE 3/18/09 | STRUCTURE FILE NUMBER 4704789
DRAWN MRB | REVISED
DESIGNED TAA | CHECKED MRB

PIER BEARING DETAILS
BRIDGE NO. LOR-90-1478
I.R. 90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

24/25

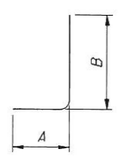
50
51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CBR002.dgn 23-FEB-2010 2:25PM rnblythe

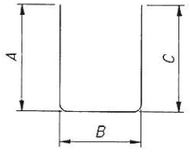
MARK	NUMBER REAR	NUMBER FORWARD	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
ABUTMENTS													
F501	69	69	138	17'-0"	2447	3	2'-7"	5'-7"					
F502	12	12	24	25'-9"	645	STR							
F503	6	6	12	15'-1"	189	STR							
F504	6	6	12	16'-4"	204	STR							
F505	3	3	6	8'-0"	50	34	2'-0"	4'-0"	2'-0"				
F801	8	8	16	26'-6"	1132	STR							
F802	4	4	8	15'-1"	322	STR							
F803	4	4	8	16'-4"	349	STR							
A501	42	42	84	15'-6"	1358	3	2'-7"	4'-10"					
A502	4	4	8	24'-8"	206	STR							
A503	32	32	64	12'-2"	812	3	2'-8"	3'-1"					
A504	32	32	64	7'-11"	528	2	3'-1"	2'-0"	3'-1"				
A505	26	26	52	10'-11"	592	2	5'-0"	1'-2"	5'-0"				
A506	13		13	14'-7"	198	2	6'-10"	1'-2"	6'-10"				
A507	12	12	24	14'-3"	357	STR							
A508	14		14	14'-11"	218	2	7'-0"	1'-2"	7'-0"				
A509	12	12	24	14'-10"	371	STR							
A510		1	1	15'-9"	16	2	7'-5"	1'-2"	7'-5"				
		1	1	13'-11"			6'-6"		6'-6"				
A511		SR OF	SR OF	TO	195	2	TO	1'-2"	TO				0'- ½"
		13	13	14'-11"			7'-0"		7'-0"				
		1	1	14'-9"			6'-11"		6'-11"				
A512		SR OF	SR OF	TO	207	2	TO	1'-2"	TO				0'- ½"
		13	13	15'-9"			7'-5"		7'-5"				
A801	8	8	16	26'-6"	1132	STR							
A802	14	14	28	21'-2"	1582	STR							
A803	14	14	28	29'-11"	2237	STR							
D801	30	30	60	5'-6"	881	18	3'-4"	1'-0"	1'-0"				
SUB-TOTAL					16,228								

MARK	NUMBER PIER #1	NUMBER PIER #2	NUMBER PIER #3	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
PIERS														
SP401	3			3	16'-8"	1035	27	0'-4 ½"	3'-6"					
SP402		3		3	16'-4"	1015	27	0'-4 ½"	3'-6"					
SP403			3	3	15'-0"	938	27	0'-4 ½"	3'-6"					
P501	48	48	48	144	15'-4"	2303	3	3'-8"	3'-8"					
P502	10	10	10	30	43'-7"	1364	STR							
P503	48	48	48	144	9'-7"	1439	STR							
P801	48	48	48	144	11'-3"	4325	17	9'-7"						
P901	16	16	16	48	43'-7"	7112	STR							
P1000		45		45	21'-1"	4082	16	19'-8"						
P1001	45			45	21'-5"	4147	16	20'-0"						
P1002	45	45	45	135	12'-10"	7455	1	1'-10"	11'-4"					
P1003			45	45	19'-10"	3840	16	18'-5"						
SUB-TOTAL						39,055								

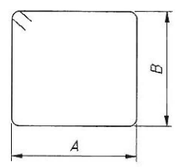
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
SUPERSTRUCTURE											
S401	671	30'-0"	13447	STR							
S402	784	5'-8"	2969	STR							
S403	676	2'-6"	1129	2	0'-10"	1'-0"	0'-10"				
S405	108	2'-11"	210	2	0'-10"	1'-5"	0'-10"				
	2	24'-7"									
S406	SR OF	TO	239	STR							0'-4"
	7	26'-7"									
	2	22'-7"									
S407	SR OF	TO	220	STR							0'-4"
	7	24'-7"									
S501	1258	41'-7"	54561	STR							
	4	8'-0"									
S502	SR OF	TO	2792	STR							1'-3 ½"
	27	41'-7"									
S503	20	6'-0"	125	STR							
S504	704	30'-0"	22028	STR							
S505	674	10'-6"	7381	30	1'-6"	0'-8"	3'-10 ½"	3'-6"			
S506	192	28'-0"	5607	STR							
S507	8	26'-7"	222	STR							
S508	8	26'-3"	219	19	24'-9"	1'-6"	0'-4 ½"				
S509	8	22'-6"	188	STR							
S510	8	23'-10"	199	19	22'-4"	1'-6"	0'-4 ½"				
S511	76	10'-11"	865	30	1'-6"	0'-8"	4'-3"	3'-6"			
S601	138	38'-6"	7980	STR							
S602	40	11'-5"	686	30	1'-10"	0'-8"	4'-3"	3'-6"			
S603	12	5'-11"	107	1	1'-10"	4'-3"					
S604	12	5'-2"	93	1	1'-10"	3'-6"					
SUB-TOTAL		121,267									



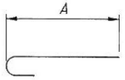
TYPE-1



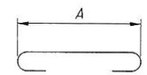
TYPE-2



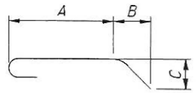
TYPE-3



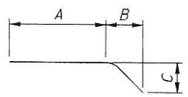
TYPE-16



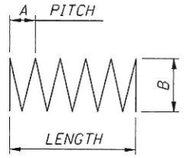
TYPE-17



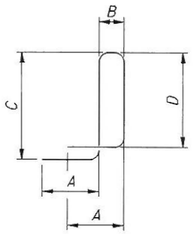
TYPE-18



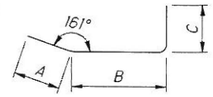
TYPE-19



TYPE - 27



TYPE 30



TYPE-34

DESIGN AGENCY
ODOT CENTRAL OFFICE
OFFICE OF PRODUCTION

REVIEWED RCD
DATE 3/26/09
STRUCTURE FILE NUMBER 4704789

DRAWN MRB
REVISED

DESIGNED MRB
CHECKED TAA

REINFORCING STEEL LIST

BRIDGE NO. LOR-90-1478
I.R.90 UNDER GULF RD.

LOR-90-14.78
PID No. 19585

25 / 25

51
51

I:\pr\project\LOR\19585\bridge\LOR090_1478C\sheets\090_1478CRL001.dgn 23-FEB-2010 2:25PM mblythe

PROJECT DESCRIPTION

REPLACEMENT OF THE EXISTING 4-SPAN GULF ROAD STRUCTURE OVER IR 90 WITH A NEW 4-SPAN STRUCTURE, RAISING THE PROFILE OF GULF ROAD, AND HEREBY PROVIDING A MINIMUM OF 16.5' OF VERTICAL CLEARANCE ABOVE IR 90. ASSOCIATED WORK ON GULF ROAD.

HISTORIC RECORDS

HISTORIC BORINGS WERE OBTAINED FROM ODOT OFFICE OF GEOTECHNICAL ENGINEERING, AND/OR DISTRICT FOR LOR-90-13.01. TWO BORINGS WERE USED IN THE CURRENT PROJECT DESIGN AND ARE SHOWN WITHIN THIS EXPLORATION.

THE HISTORIC BORINGS H-001 AND H-008 ENCOUNTERED COHESIVE SOILS UNDERLAIN BY FIRM SHALE BEDROCK AT ELEVATIONS 654.2 FEET AND 653.7 FEET, RESPECTIVELY.

GEOLOGY

THE PROJECT IS LOCATED WITHIN THE GLACIATED ERIE LAKE PLAIN WHICH IS CHARACTERIZED BY VERY LOW RELIEF TERRAIN. THE OVERBURDEN SOILS ARE REPORTED AS BEING COMPRISED OF LACUSTRINE SAND, SILT, CLAY, AND WAVE-PLANED TILL OF PLEISTOCENE AGE. THE OVERBURDEN SOILS ARE UNDERLAIN BY SHALE AND SANDSTONE OF DEVONIAN AND MISSISSIPPIAN AGE.

RECONNAISSANCE

FIELD RECONNAISSANCE WAS PERFORMED ON AUGUST 23, 2007. THE GULF ROAD PAVEMENT WAS FOUND TO BE CRACKED AND RAVELING IN SEVERAL LOCATIONS. THE APPROACH EMBANKMENTS SHOW NO SIGNS OF INSTABILITY.

SUBSURFACE EXPLORATION

THREE (3) BORINGS, B-001 THROUGH B-003, WERE COMPLETED AS PART OF THE SUBSURFACE EXPLORATION BETWEEN JANUARY 15 AND 24, 2008. THE BORINGS WERE DRILLED WITH A TRUCK MOUNTED ROTARY DRILL RIG, USING 3 1/4-INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE BORINGS THROUGH THE SOIL.

DISTURBED SAMPLES WERE COLLECTED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 2.5-FOOT INTERVALS FOR THE FULL DEPTH OF THE BORINGS TO BEDROCK.

THE HAMMER SYSTEM USED WAS LAST CALIBRATED IN FEBRUARY 20, 2007, AND THE AVERAGE DRILL ROD ENERGY RATIO (ER) IS 83.4%.

THE BORINGS WERE ADVANCED INTO BEDROCK AND SAMPLED (AASHTO T225) USING AN N SERIES WIRELINE CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

SUBSURFACE CONDITIONS REVEALED BY THE BORINGS INDICATED THAT THE OVERBURDEN SOILS AT THE STRUCTURE LOCATION ARE COHESIVE RANGING BETWEEN SANDY SILT (A-4a) TO SILTY CLAY (A-6b). THE BORINGS FOR THIS PROJECT ALONG WITH THE HISTORICAL BORINGS WERE FOUND TO BE RELATIVELY CONSISTENT, WITH TYPICALLY STIFF SOILS OVERLYING STIFF TO HARD GLACIAL TILL. SOFT TO MEDIUM STIFF SOIL OVERLAIN THE GLACIAL TILL IN B-002. B-003 WAS DRILLED THROUGH THE FORWARD APPROACH EMBANKMENT ENCOUNTERING STIFF TO VERY STIFF SOILS WITHIN THE EMBANKMENT.

BEDROCK WAS ENCOUNTERED IN ALL THREE BORINGS FOR THIS PROJECT AS WELL AS THE TWO HISTORICAL BORINGS AT ELEVATIONS RANGING FROM 659.5 FEET TO 652.6 FEET. THE CORE SAMPLES INDICATED THAT THE BEDROCK IS GENERALLY STRONG SHALE, FRACTURED TO MODERATELY FRACTURED, WITH RQD'S RANGING FROM 59 TO 71%.

SEEPAGE NOTED AS A WET SPLIT SPOON SAMPLE WAS RECORDED DURING THE DRILLING IN BORING B-002 AT ELEVATION 668.0 FEET.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
SANDY SILT	A-4a (6)	9	3
SILT AND CLAY	A-6a (7)	12	3
SILTY CLAY	A-6b (9)	3	1
	TOTAL	24	7
SHALE	VISUAL		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	VISUAL		
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	VISUAL		

EXPLORATION LOCATION - PLAN VIEW

HISTORIC BORING LOCATION - PLAN VIEW - LOR-90-13.01, 1964

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

HISTORICAL BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

WC INDICATES WATER CONTENT IN PERCENT.

W— INDICATES FREE WATER ELEVATION.

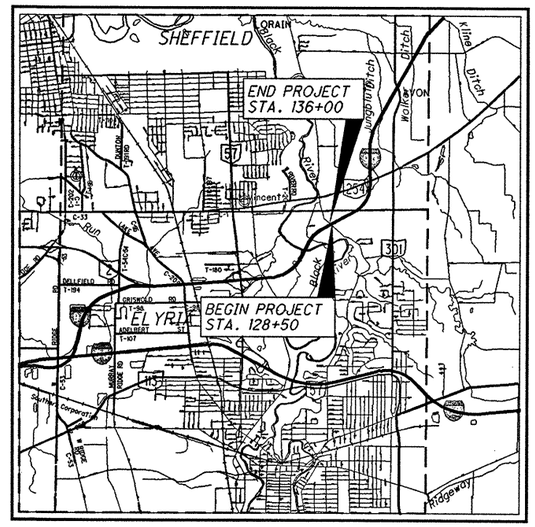
N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

X/Y NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X= NUMBER OF BLOWS FOR FIRST 6 INCHES
Y= NUMBER OF BLOWS FOR SECOND 6 INCHES

SS INDICATES A SPLIT SPOON SAMPLE.

TR INDICATES TOP OF ROCK.

HISTORIC BORING DESCRIPTIONS	ODOT CLASS	CLASSIFIED MECH./VISUAL	
SANDY SILT	A-4a	4	-
SILT	A-4b	1	-
SILTY AND CLAY	A-6a	7	-
SILTY CLAY	A-6b	3	-
CLAY	A-7-6	12	-
	TOTAL	27	-
SHALE	VISUAL		
WEATHERED SHALE	VISUAL		



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS |	COBBLES |	GRAVEL |	COARSE SAND |	FINE SAND |	SILT | CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE	

RECON. - ST 08/23/07
DRILLING - KAM 01/15-24/08
DRAWN - KAL 03/31/08
REVIEWED - WLC 04/04/08

DESIGN AGENCY
OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF GEOTECHNICAL ENGINEERING
1600 W. BROAD ST. COLUMBUS, OH 43223

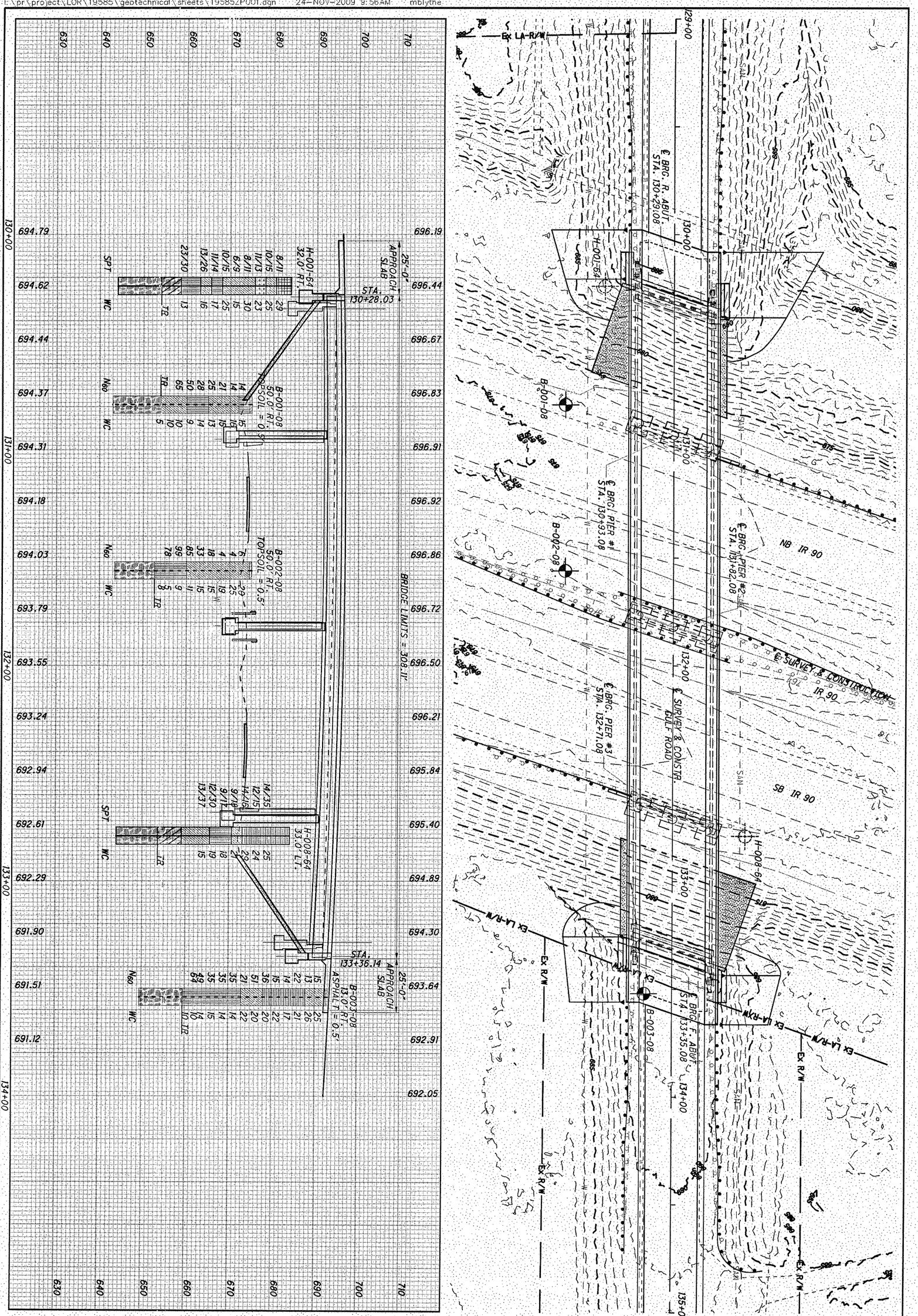
PID NO. 19585

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. LOR-90-1478 OVER IR 90

LOR-90-14.78

1/6

I:\pr\project\LOR\19585\geotechnical\sheets\19585ZC001.dgn 24-NOV-2009 9:54AM mblythe



2/6	LOR-90-14.78	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. LOR-90-14.78 OVER IR 90	DRAWN: KAL CHECKED: MRS	HORIZONTAL SCALE IN FEET

I:\pr\project\LOR\19585\geotechnical\sheets\19585ZL001.dgn 24-NOV-2009 9:54AM mblythe

PROJECT: LOR-90-14.78
TYPE: STRUCTURE - BRIDGE
PID: 19585 BRIDGE ID: 1478
START: 1/15/08 END: 1/15/08

DRILLING FIRM / OPERATOR: NOT RECORDED
SAMPLING FIRM / LOGGER: ODOT / MCLEISH
DRILLING METHOD: 3.25" HSA / NQ2
SAMPLING METHOD: SPT / NX

DRILL RIG: CME 55
HAMMER: AUTOMATIC
CALIBRATION DATE: 2/20/07
ENERGY RATIO (%): 83.4

STA / OFFSET: 130+79, 50' RT
ALIGNMENT: ℄ GULF RD
ELEV: 675.0 FT (MSL) EOB: 32.0 FT
COORDS: 1244590.023 N, 2080196.545 E

EXPLORATION ID: B-001-08
PAGE 1 of 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 675.0	DEPTHS	SPT / ROD	N60	REC %	HP (TSF)	SAMPLE ID	GRADATION (%) GR	CS	FS	SI	CL	ATTRBRG. LL	PL	PI	WC	ODOT CLASS (GI)	INS
6" SOD AND TOP SOIL	674.5																(VISUAL)	
STIFF GRAY SANDY SILT, "AND" CLAY, TRACE GRAVEL, DAMP	672.0		4 4 6	14	33	1.75	SS-1	10	10	12	30	38	27	17	10	15	A-4a (7)	
STIFF GRAY SILT AND CLAY, LITTLE SAND, TRACE GRAVEL, GLACIAL TILL, MOIST TO DAMP			3 4 6	14	67	2.00	SS-2	9	9	11	29	42	26	15	11	16	A-6a (8)	
@ 6.0'; VERY STIFF	665.0		4 7 8	21	100	2.50	SS-3	-	-	-	-	-	-	-	-	15	A-6a (V)	
VERY STIFF GRAY SANDY SILT, "AND" CLAY, LITTLE GRAVEL, GLACIAL TILL, DAMP			4 7 11	25	100	3.00	SS-4	10	8	11	31	40	27	14	13	13	A-6a (8)	
@ 13.5'; SOME CLAY	660.0		11 8 12	28	100	3.00	SS-5	17	6	9	30	38	28	18	10	14	A-4a (7)	
HARD GRAY SILT AND CLAY, LITTLE GRAVEL, LITTLE SAND, GLACIAL TILL, DAMP			21 16 20	50	-	4.00	SS-6	24	8	12	30	26	20	15	5	9	A-4a (4)	
			16 20 27	65	100	4.50	SS-7	17	7	9	33	34	25	14	11	10	A-6a (7)	
	654.0	TOR	34 62	-	67	4.50	SS-8	-	-	-	-	-	-	-	-	10	A-6a (V)	
SHALE, BLACK, SLIGHTLY WEATHERED, STRONG, LAMINATED, CARBONACEOUS, CONTAINS CALCAREOUS LAMINAE, FRACTURED TO MODERATELY FRACTURED; ROD 71%, LOSS 8%.			21 74	-	100	-	SS-9	-	-	-	-	-	-	-	-	5	ROCK (V)	
	643.0	EOB	80		92		RC-1										CORE	

NOTES: HOLE DRY BEFORE CORING
ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE, DRY METHOD

PROJECT: LOR-90-14.78
TYPE: STRUCTURE - BRIDGE
PID: 19585 BRIDGE ID: 1478
START: 1/16/08 END: 1/16/08

DRILLING FIRM / OPERATOR: ODOT / CAREY
SAMPLING FIRM / LOGGER: ODOT / MCLEISH
DRILLING METHOD: 3.25" HSA / NQ2
SAMPLING METHOD: SPT / NX

DRILL RIG: CME 55
HAMMER: AUTOMATIC
CALIBRATION DATE: 2/20/07
ENERGY RATIO (%): 83.4

STA / OFFSET: 131+56, 50' RT
ALIGNMENT: ℄ IR 90
ELEV: 675.0 FT (MSL) EOB: 31.5 FT
COORDS: NOT RECORDED

EXPLORATION ID: B-002-08
PAGE 1 of 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 675.0	DEPTHS	SPT / ROD	N60	REC %	HP (TSF)	SAMPLE ID	GRADATION (%) GR	CS	FS	SI	CL	ATTRBRG. LL	PL	PI	WC	ODOT CLASS (GI)	INS
6" SOD AND TOP SOIL	674.5																(VISUAL)	
STIFF TO VERY STIFF BROWN SILT AND CLAY, LITTLE GRAVEL, LITTLE TO SOME SAND, MOIST			1 2 2	6	89	2.50	SS-1	17	7	9	27	40	30	18	12	20	A-6a (7)	
@ 3.5' - 5.0'; TRACE GRAVEL			1 1 2	4	100	1.50	SS-2	8	10	12	27	43	30	18	12	25	A-6a (8)	
@ 6.0'; GRAY @ 6.0' - 7.5'; SOME GRAVEL	668.0	W	1 1 2	4	100	1.00	SS-3	34	8	13	18	27	28	16	12	19	A-6a (3)	
@ 8.5'; GLACIAL TILL, DAMP			3 5 8	18	100	3.50	SS-4	15	8	10	26	41	26	15	11	15	A-6a (7)	
			7 10 14	33	100	4.00	SS-5	12	8	9	25	46	28	17	11	15	A-6a (8)	
@ 13.5'; HARD	660.0		18 25 36	85	-	4.50	SS-6	-	-	-	-	-	-	-	-	11	A-6a (V)	
HARD GRAY SANDY SILT, SOME CLAY, SOME GRAVEL, GLACIAL TILL, DAMP			14 27 44	99	100	4.50	SS-7	24	10	10	30	26	23	15	8	9	A-4a (4)	
@ 18.5'; LITTLE CLAY			16 25 31	78	100	4.50	SS-8	28	19	11	24	18	22	16	6	5	A-4a (1)	
	652.6	TOR	62	-	100	-	SS-9	-	-	-	-	-	-	-	-	8	A-4a (V)	
SHALE, BLACK, SLIGHTLY WEATHERED, STRONG, LAMINATED, CARBONACEOUS, CONTAINS CALCAREOUS LAMINAE, FRACTURED TO MODERATELY FRACTURED; ROD 59%, NO LOSS.																		
	643.5	EOB	55		98		RC-1										CORE	

NOTES: TUBE WET @ 7.0'
ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE, DRY METHOD

I:\pr\project\LOR\19585\geotechnical\sheets\19585GL002.dgn 24-NOV-2009 9:54AM mblythe

PROJECT: LOR-90-14.78
TYPE: STRUCTURE - BRIDGE
PID: 19585 BRIDGE ID: 1478
START: 1/23/08 END: 1/24/08

DRILLING FIRM / OPERATOR: NOT RECORDED
SAMPLING FIRM / LOGGER: ODOT / MCLEISH
DRILLING METHOD: 3.25" HSA / NQ2
SAMPLING METHOD: SPT / NX

DRILL RIG: CME 55
HAMMER: AUTOMATIC
CALIBRATION DATE: 2/20/07
ENERGY RATIO (%): 83.4

STA / OFFSET: 133+52, 13' Rt
ALIGNMENT: ℄ GULF RD
ELEV: 693.0 FT (MSL) EOB: 43.5 FT
COORDS: 1244758.347 N, 2079987.648 E

EXPLORATION ID: B-003-08
PAGE 1 of 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT / ROD	N60	REC %	HP (TSF)	SAMPLE ID	GRADATION (%) GR	CS	FS	SI	CL	ATTRBRG. LL	PL	PI	WC	ODOT CLASS (GI)	INS
6" ASPHALT	693.0																	
STIFF BROWN AND GRAY SILT AND CLAY, SOME GRAVEL, SOME SAND, MOIST	692.5																(VISUAL)	
@ 1.5' - 3.0'; TRACE ASPHALT FRAGMENTS			3 8 3	15	78	2.00	SS-1	26	10	10	22	32	37	23	14	25	A-6a (5)	
	688.0		3 4 5	13	67	1.50	SS-2	21	9	15	23	32	35	21	14	26	A-6a (6)	
VERY STIFF GRAY WITH BROWN SILTY CLAY, LITTLE SAND, LITTLE GRAVEL, DAMP			5 7 9	22	100	2.50	SS-3	16	9	9	30	36	39	23	16	21	A-6b (9)	
@ 8.5'; SOME GRAVEL			4 4 6	14	100	2.25	SS-4	31	7	10	21	31	38	22	16	17	A-6b (6)	
@ 13.5'; HARD, BROWN, NO SAND, NO GRAVEL, MOIST			3 3 8	15	100	3.00	SS-5	14	1	5	28	52	34	24	10	22	A-6b (8)	
	678.0		8 12 14	36	100	4.50	SS-6	0	0	0	38	62	36	19	17	20	A-6b (11)	
HARD BROWN WITH GRAY SILT AND CLAY, LITTLE GRAVEL, GLACIAL TILL, DAMP			8 15 22	51	100	4.50	SS-7	14	0	0	34	52	36	22	14	20	A-6a (10)	
@ 18.5'; STIFF, GRAY, TRACE FINE SAND, MOIST			5 7 8	21	100	2.00	SS-8	12	0	1	32	55	31	18	13	22	A-6a (9)	
	673.0																	
VERY STIFF GRAY SANDY SILT, "AND" CLAY, LITTLE GRAVEL, GLACIAL TILL, DAMP			5 8 17	35	100	4.00	SS-9	15	8	11	26	40	27	18	9	14	A-4a (6)	
			6 8 17	35	100	3.50	SS-10	16	7	10	29	38	26	17	9	14	A-4a (6)	
			8 10 17	35	100	4.00	SS-11	-	-	-	-	-	-	-	-	15	A-4a (V)	
@ 28.5'; HARD			6 14 21	49	100	4.50	SS-12	-	-	-	-	-	-	-	-	14	A-4a (V)	
@ 30.0'; SOME CLAY, SOME GRAVEL			5 18 28	64	100	4.50	SS-13	21	8	11	33	27	21	15	6	10	A-4a (5)	
	659.5	TOR	18 42	-	100	-	SS-14	22	6	9	32	31	23	16	7	10	A-4a (6)	
SHALE, BLACK, MODERATELY WEATHERED, SLIGHTLY STRONG, LAMINATED, HIGHLY FRACTURED; RQD 0%, NO LOSS.	659.0																	
SHALE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, LAMINATED, FRACTURED; RQD 0%, NO LOSS.	658.3																	
SHALE, BLACK, SLIGHTLY WEATHERED, STRONG, LAMINATED, CARBONACEOUS, CONTAINS CALCAREOUS LAMINAE, FRACTURED TO MODERATELY FRACTURED; ROD 71%, NO LOSS.																		
	649.5	EOB	71		100		RC-1										CORE	

NOTES: HOLE DRY BEFORE CORING
ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE, DRY METHOD

I:\pr\project\LOR\19585\geotechnical\sheets\19585ZL003.dgn 24-NOV-2009 9:54AM mblythe

State of Ohio
Department of Transportation
Office of Geotechnical Engineering

LOG OF BORING

Project: LOR-90-13.01 County: LORAIN Description: STRUCTURE FOUNDATION EXPLORATION
Boring Number: H-001 Date Started: 11/11/64 Sampler Type: SS Surface Elevation: 684.2'
Station & Offset: 130+24, 32' RT (REAR ABUTMENT) Date Completed: 11/13/64 Diameter: 1.375" Water Elevation: -
Northing: Easting:

Elev.	Depth	Std. Pen. (N)	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
684.2	0														
681.7	2														
	4	8/11			BROWN AND GRAY SILTY CLAY	SS-1	0	0	2	35	63	46	17	29	A-7-6
679.2	6	10/15			BROWNISH-GRAY SILT AND CLAY	SS-2	0	0	1	47	52	40	14	25	A-6a
676.7	8	11/13			BROWN AND GRAY CLAYEY SILT	SS-3	0	0	1	62	37	37	10	23	A-4b
674.2	10	8/11			BROWNISH-GRAY SILT AND CLAY	SS-4	0	0	1	35	64	37	11	30	A-6a
671.7	12	6/9			GRAY SILT AND CLAY	SS-5	0	4	9	33	54	32	12	15	A-6a
669.2	14	10/15			GRAY SILT AND CLAY	SS-6	0	0	1	39	60	38	12	25	A-6a
666.7	16	11/14			GRAY CLAYEY SILT	SS-7	0	8	10	37	45	28	8	17	A-4a
664.2	18	13/26			GRAY SILT AND CLAY	SS-8	0	7	11	35	47	31	12	16	A-6a
659.2	20														
658.7	22	23/30			GRAY SANDY SILT	SS-9	0	10	12	40	38	25	6	13	A-4a
	24														
	26		4.5	0.0	GRAY CLAYEY SILT WITH STONE FRAGMENTS										
654.2	28				TOP OF ROCK										
	30														
	32		4.2	0.8	SHALE, BLACK, CARBONACEOUS, FISSILE, FIRM, SLIGHTLY BROKEN INTERVALS. CORE LOSS 8%										
	34														
	36		5.0	0.0											
	38														
644.2	40				BOTTOM OF BORING										

LOR-90-14.78

STRUCTURE FOUNDATION EXPLORATION
BORING LOG H-001-64

DRAWN KAL
CHECKED ST

State of Ohio
Department of Transportation
Office of Geotechnical Engineering

LOG OF BORING

Project: LOR-90-13.01 County: LORAIN Description: STRUCTURE FOUNDATION EXPLORATION
Boring Number: H-008 Date Started: 11/17/64 Sampler Type: SS Surface Elevation: 684.2'
Station & Offset: 132+79, 33' LT (FORWARD PIER) Date Completed: 11/18/64 Diameter: 1.375" Water Elevation: -
Northing: Easting:

Elev.	Depth	Std. Pen. (N)	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
684.2	0														
	2														
	4														
679.2	6	14/35			BROWN SANDY GRAVELLY CLAY	SS-1	34	15	3	17	31	PL = 22		25	A-6b (VISUAL)
676.7	8	12/15			BROWN SILTY CLAY	SS-2	0	4	2	29	65	38	16	24	A-6b
674.2	10	14/16			BROWN SANDY CLAY, TRACE OF ROOTS	SS-3	0	22	4	22	52	38	17	29	A-6b
671.7	12	9/18			GRAY GRAVELLY CLAY	SS-4	29	7	8	24	32	28	11	21	A-6a
669.2	14	9/17			GRAY GRAVELLY SILT	SS-5	42	5	7	17	29	28	10	18	A-4a
666.7	16	12/30			GRAY GRAVELLY SANDY SILT	SS-6	27	9	9	20	35	28	10	19	A-4a
664.2	18	13/37				SS-7	34	5	7	21	33	29	11	15	A-6a
	20														
	22														
659.2	24														
	26		1.7	3.3	BROWN SILTY CLAY WITH STONE FRAGMENTS										
	28				TOP OF ROCK										
	30														
653.7	32		3.9	1.1	SHALE, BLACK, CARBONACEOUS, FISSILE, FIRM, BROKEN AND JOINTED CORE LOSS 15%										
	34														
	36														
	38		4.4	0.6											
644.2	40														

BOTTOM OF BORING

9/9	LOR-90-14.78	STRUCTURE FOUNDATION EXPLORATION BORING LOG H-008-64	DRAWN KAL CHECKED ST

STATION RANGE			ROUTE	SIDE	DISTANCE (D)	AVERAGE WIDTH (W)	SURFACE AREA (A) A=DxW	CADD GENERATED AREA (A)	204 A/9		301(6") 6*A/12*27	304 (6") 6*A/12*27	407 (0.075gal/sy) 0.075xA/9	407 Int. (0.075gal/sy) 0.075xA/9	442 INT. COURSE (1-34") 1.75xA/12x27	442 SURF. COURSE (1-1/4") 1.25xA/12x27			
					FEET	FEET	SQ. FT.		SQ. YD.		CU. YD.	CU. YD.	GAL.	GAL.	CU. YD.	CU. YD.			
127+63.00	TO	128+50.00	GULF		87.00			576	64.00			10.67							
127+63.00	TO	128+50.00	GULF		87.00			379			7.02		3.16	3.16	2.05	1.46			
128+50.00	TO	130+28.03	GULF		178.03	32.67		5816	646.17			107.69							
128+50.00	TO	130+03.03	GULF		153.03	30.00		4591			85.02		38.26	38.26	24.80	17.71			
133+36.14	TO	136+00.00	GULF		263.86	32.67		8619	957.71			159.62							
133+61.14	TO	136+00.00	GULF		238.86	30.00		7166			132.70		59.72	59.72	38.70	27.65			
136+00.00	TO	136+10.00	GULF		10.00	8.67		87	9.63			1.60							
136+00.00	TO	136+10.00	GULF		10.00	6.00		60			1.11		0.50	0.50	0.32	0.23			
								SUBTOTALS	1678		226	280	102	102	66	47			

CALCULATED TKB
CHECKED MDC

PAVEMENT CALCULATIONS

LOR-90-14.78