PLAN INDEX

THE REGULATED WASTE ACTIVITY IDENTIFICATION NUMBERS FOR THIS PROJECT ARE AS FOLLOWS:

CONTROL SECTION	NUMBER
STU 82400	MIR000025114

CITY OF DETROIT STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

C-4380.....STANDARD CURB DETAILS
C-4391.....MANHOLE FRAME AND COVER
C-4392.....FLAT TYPE GRATE AND FRAME
C-4942R....PAVEMENT REINFORCEMENT
C-4943.....REINFORCED CONCRETE PAVEMENT JOINTS
C-4992.....TYPICAL JOINT LAYOUT FOR REINFORCED CONCRETE PAVEMENT

MDOT STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

B-25-F.....BRIDGE RAILING, AESTHETIC PARAPET TUBE
B-101-E.....DRAIN CASTING ASSEMBLY DETAILS
B-103-E.....MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS
R-52-E.....TEMPORARY CONCRETE BARRIER
R-67-F.....GUARDRAIL ANCHORAGE, BRIDGE, DETAILS
R-96-E.....SOIL EROSION & SEDIMENTATION CONTROL MEASURES
R-45-H.....PAVEMENT REINFORCEMENT FOR BRIDGE APPROACH
R-100-F.....SEEDING AND TREE PLANTING

MDOT TRAFFIC AND SAFETY SPECIAL DETAILS (INCLUDED IN THE PROPOSAL)

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE SPECIAL DETAILS GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

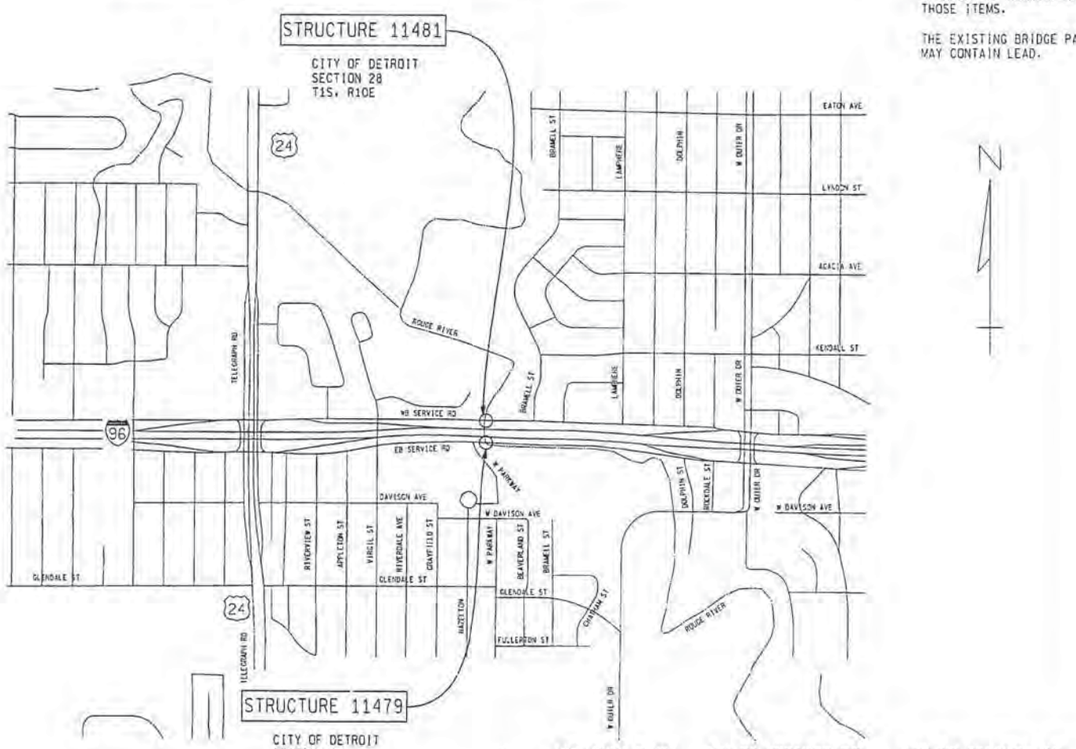
WZD-100-A...GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS
WZD-125-E...TEMPORARY TRAFFIC CONTROL DEVICES

CITY OF DETROIT
IN COOPERATION WITH
MICHIGAN DEPARTMENT OF TRANSPORTATION
AND
FEDERAL HIGHWAY ADMINISTRATION

PLANS OF PROPOSED REHABILITATION FOR:

I-96 EB SERVICE ROAD OVER ROUGE RIVER
AND
I-96 WB SERVICE ROAD OVER ROUGE RIVER

STRUCTURE NO.:	11479	11481
FEDERAL PROJECT NO.:	STP 1082 (164)	STP 1082 (163)
FEDERAL ITEM NO.:	HH 6772	HH 6771
STATE BRIDGE NO.:	B01 OF 82122	B03 OF 82122
JOB NO.:	104599A	104601A
CONTROL SECTION NO.:	STU 82400	STU 82400



TRAFFIC DATA	I-96 EB SERVICE RD		I-96 WB SERVICE RD	
	YEAR 2010	YEAR 2030	YEAR 2010	YEAR 2030
A.D.T.	3,265	3,592	1,087	1,196
COMM. %	10%	10%	10%	10%
DESIGN SPEED	40 MPH	40 MPH	40 MPH	40 MPH
POSTED SPEED	35 MPH	35 MPH	35 MPH	35 MPH

GENERAL NOTES

THE REHABILITATION DESIGN IS BASED ON THE 17TH EDITION OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS20-44 AND ALTERNATE MILITARY LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/375 OF CANTILEVER ARM. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE. THE ORIGINAL STRUCTURE WAS DESIGNED FOR H520 AND ALTERNATE MILITARY LOADING.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 2003 EDITION.

THE STATIONING AS SHOWN ON THESE PLANS ARE TAKEN FROM THE EXISTING PLANS.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE: GRADE S2	f'c =	3,000 psi
CONCRETE: GRADE D	f'c =	4,000 psi
STEEL REINFORCEMENT	fy =	60,000 psi
STRUCTURAL STEEL: AASHTO M270 GRADE 36	Fy =	36,000 psi
STRUCTURAL STEEL: AASHTO M270 GRADE 50	Fy =	50,000 psi
STRUCTURAL STEEL: AASHTO M270 GRADE 50W	Fy =	50,000 psi
STRUCTURAL STEEL PINS: ASTM A 276 UNS DESIGNATION S20161 OR S21800	Fy =	50,000 psi
TEMP SUPPORT HANGER RODS: ASTM A 193 GRADE B7 (AISI 4140) 2½" AND UNDER	Fu =	125,000 psi
	Fy =	105,000 psi

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH ½" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

BIDDERS WILL BE FURNISHED WITH SCANNED IMAGES OF PLAN SHEETS OF THE EXISTING STRUCTURE IF REQUESTED. (CONTACT: HNTB CORPORATION, 313-961-3330)

UNLESS OTHERWISE SHOWN ON THE PLANS PROVIDE MINIMUM CONCRETE CLEAR COVER FOR REINFORCEMENT ACCORDING TO THE FOLLOWING:
CONCRETE CAST AGAINST EARTH: 3 in
ALL OTHER UNLESS SHOWN ON PLANS: 2 in

THE BRIDGE DECK SURFACE HAS AN HMA OVERLAY. HMA CAP OR HMA PATCHES. REMOVAL OF HMA AS A RESULT OF REMOVAL OF OTHER SUPERSTRUCTURE ITEMS SHALL BE INCLUDED IN THE REMOVAL OF THOSE ITEMS.

THE EXISTING BRIDGE PAINT MAY CONTAIN LEAD.

CONTRACT FOR: DECK REPLACEMENT, PIN AND HANGER REPLACEMENT, EXISTING STRUCTURAL STEEL CLEANING & COATING, SCOUR COUNTERMEASURES, APPROACH WORK, ELECTRIC (PLD) WORK, AND MAINENANCE OF TRAFFIC.

THESE PLANS WERE PREPARED FOR THE CITY OF DETROIT BY

HNTB

BY: Mukund Patel
LICENSED PROFESSIONAL ENGINEER
46329
REGISTRATION NUMBER
07-21-2010
DATE

STATE OF MICHIGAN — MUKUND P. PATEL — ENGINEER NO. 46329 — LICENSED PROFESSIONAL ENGINEER

TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
2633 MICHIGAN AVENUE
DETROIT, MI 48216

APPROVED BY: SEE DETOUR SHEET 2

DEPARTMENT OF WATER AND SEWERAGE
1420 WASHINGTON BLVD.
DETROIT, MI 48226

CHECKED BY: 7/26/2010 | APPROVED BY: for Bharat Doshi 7/26/2010 | FILE NUMBER:

PUBLIC LIGHTING DEPARTMENT
CITY OF DETROIT

CHECKED BY: MR | APPROVED BY: M. Laskawski 8/3/10 (FOR PLD PORTION ONLY) | FILE NUMBER:

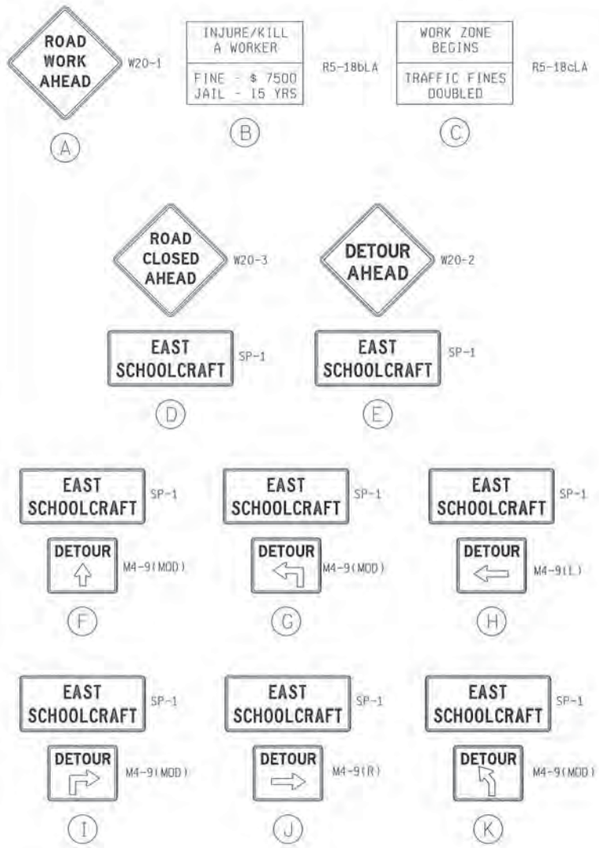
LOCAL AUTHORITY APPROVAL
CITY OF DETROIT
CITY ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

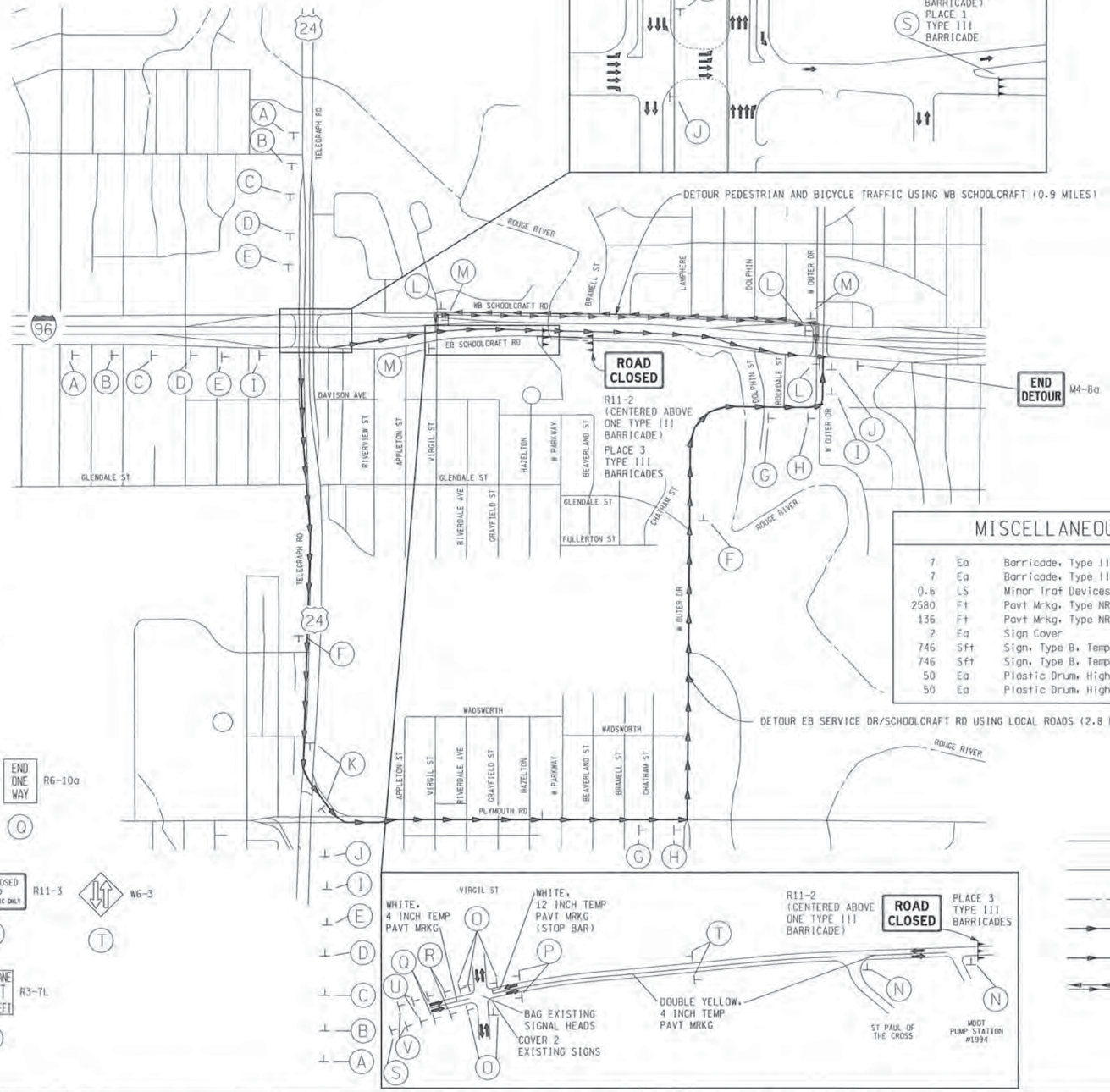
BY:
LICENSED PROFESSIONAL ENGINEER
CITY OF DETROIT
CITY ENGINEERING DIVISION
65 CADILAC SQUARE
8TH FLOOR CADILAC TOWER
DETROIT, MI 48226
620103717I
REGISTRATION NUMBER
8/5/2010
DATE

MDOT Michigan Department of Transportation

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	ITEM	SHEET NO.
STU 82400	104599A/	STP 1082 (164)	HH 6772	1
	104601A	STP 1082 (163)	HH 6771	

CONTROL SECTION — JOB NUMBER
STU 82400 - 104599A, 104601A
DATE: 06/10 CORRECTED BY: SJP DATE: 06/10
CHECKED BY: DFE
DRAWN BY: SJP DATE: 06/10
FILE NAME: 47953 Bridge B01 TS.dgn





MISCELLANEOUS QUANTITIES

7	Ea	Barricade, Type III, High Intensity, Lighted, Furn
7	Ea	Barricade, Type III, High Intensity, Lighted, Oper
0.6	LS	Minor Traf Devices (Structure 11479)
2580	Ft	Pavt Mrkg, Type NR, Paint, 4 inch, Yellow, Temp
136	Ft	Pavt Mrkg, Type NR, Paint, 4 inch, White, Temp
2	Ea	Sign Cover
746	Sft	Sign, Type B, Temp, Prismatic, Furn
746	Sft	Sign, Type B, Temp, Prismatic, Oper
50	Ea	Plastic Drum, High Intensity, Furn
50	Ea	Plastic Drum, High Intensity, Oper

LEGEND

- EXISTING ROADWAY
- EXISTING WATER COURSE
- PROPOSED DETOUR ROUTE (LOCAL ROADS)
- ALTERNATE DETOUR ROUTE (NOT POSTED)
- PROPOSED PEDESTRIAN DETOUR ROUTE

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	JLP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DYE

APPROVED: Sunny Jacob 7/2/10
DPW-Traffic Engineering

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

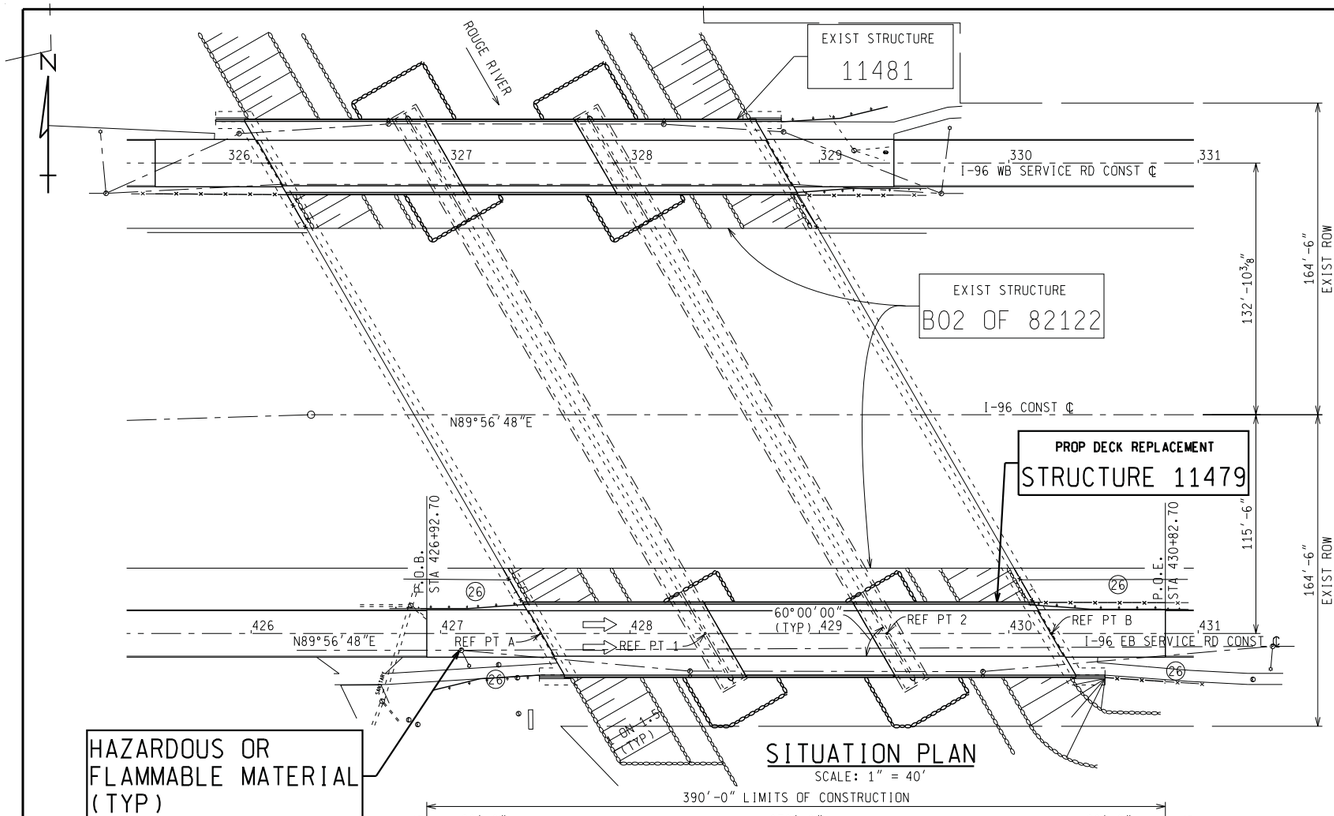
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

DETOUR SHEET

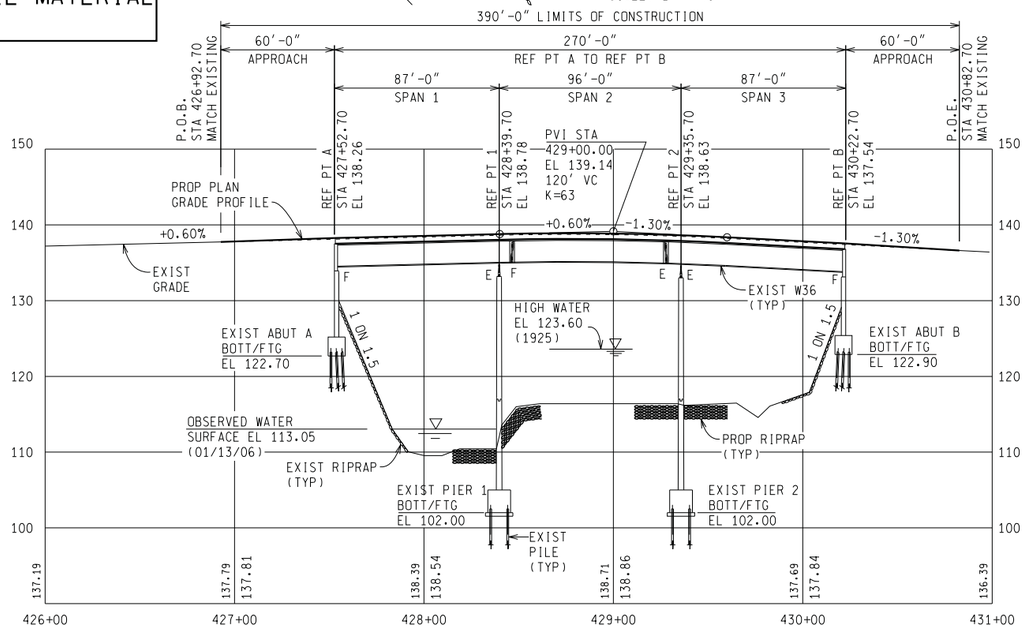
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: JUNE 25, 2010



SITUATION PLAN

SCALE: 1" = 40'



PROFILE ALONG I-96 EB SERVICE ROAD CONST ℄

VERT. SCALE: 1" = 10'
HOR. SCALE: 1"= 40'

UTILITIES

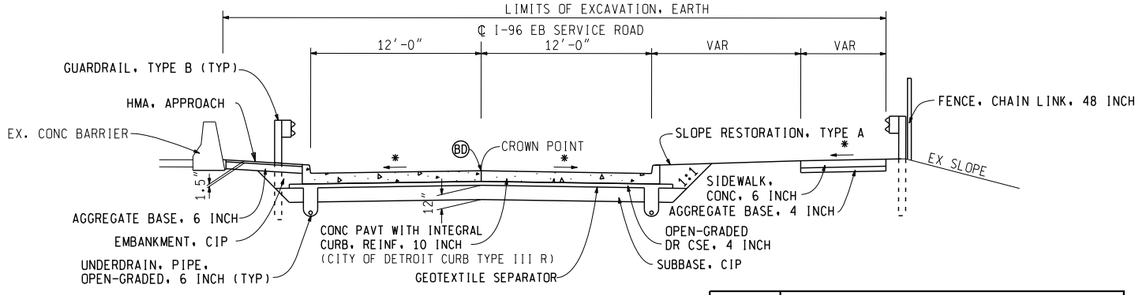
CITY OF DETROIT DETROIT WATER AND SEWERAGE DEPARTMENT ATTN: BHARAT DOSHI ENGINEER OF WATER SYSTEMS DETROIT DESIGN SECTION JULIAN MADISON BUILDING 1420 WASHINGTON BLVD. DETROIT, MI 48226 PHONE: (313) 967-1541 FAX: (313) 964-9810	WATER/SEWER
CITY OF DETROIT PUBLIC LIGHTING DEPARTMENT 9449 GRINNELL AVENUE DETROIT, MI 48213 PHONE: (313) 267-7228 FAX: (313) 267-8153	ELECTRIC/ LIGHTING/ SIGNALS
DETROIT EDISON CO. PROJECT MANAGEMENT ATTN: ANJANETTE BORAWSKI 2000 2ND. AVE., ROOM 565 SB DETROIT, MI 48226 PHONE: (313) 235-9284 FAX: (313) 235-0297	ELECTRIC
MICHIGAN CONSOLIDATED GAS CO. ENGINEERING AND CONSTRUCTION 3200 HOBSON STREET DETROIT, MI 48201 PHONE: (313) 577-7470 FAX: (313) 577-7061	GAS

EXISTING STRUCTURE

THE EXISTING STRUCTURE IS A THREE-SPAN, ROLLED STEEL BEAM BRIDGE. IT WAS BUILT IN 1970 AND WAS DESIGNED FOR HS20 LOADING. THE STRUCTURE CARRIES 2 THRU LANES WITH 24'-0' CLEAR ROADWAY WIDTH.

BENCHMARKS

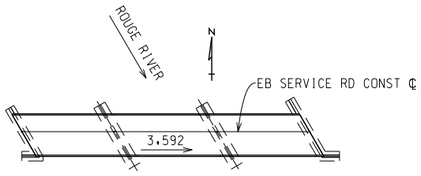
BM 11000 WCRC BRASS DISK IN SW QUADRANT OF BRIDGE SIDEWALK N = 119689.829 E = 40815.081	EL 138.77
BM 11001 SE BOLT OF FREEWAY SIGN SUPPORT IN NW QUADRANT OF BRIDGE N = 119722.576 E = 40686.289	EL 138.75
BM 11002 NW BOLT ON LIGHT POLE BASE IN SE QUADRANT OF BRIDGE N = 119683.097 E = 41189.582	EL 137.30



TYPICAL APPROACH SECTION

* VARIES - MATCH BRIDGE DECK CROSS SECTION AT REFERENCE LINES AND TRANSITION TO MATCH EXISTING.

KEY	SOIL EROSION AND SEDIMENTATION CONTROL QUANTITIES
26	240 Ft Erosion Control, Silt Fence



2030 ESTIMATED TRAFFIC DISTRIBUTION

0000	AVERAGE DAILY TRAFFIC
10%	COMMERCIAL
40 MPH	DESIGN SPEED
35 MPH	POSTED SPEED
←	DIRECTIONAL TRAFFIC

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PIN AND HANGER REPLACEMENT, CLEANING AND COATING EXISTING STRUCTURAL STEEL, APPROACH WORK, MAINTAINING TRAFFIC AND PLACING SCOUR COUNTERMEASURES (RIPRAP) TO THE LIMITS SHOWN.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

EB SERVICE ROAD TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS. SEE DETOUR PLAN FOR DETAILS.

ALL AREAS SHOWN FOR THE PROPOSED WORK ARE WITHIN EXISTING RIGHT-OF-WAY.

PLAN ELEVATIONS REFER TO CITY OF DETROIT DATUM.

WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE.

COORDINATES ARE NOT AVAILABLE FOR THIS PROJECT.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK: MPP	REVIEW: DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

GENERAL PLAN OF SITE

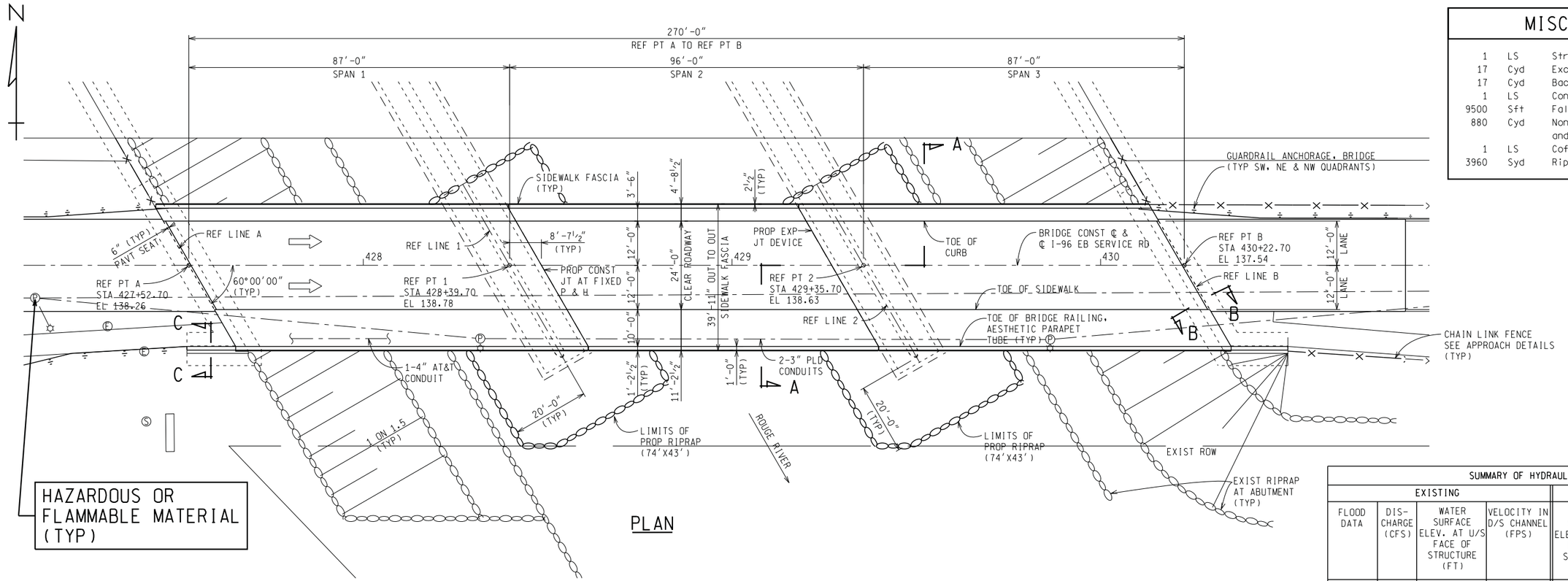
I-96 EB SERVICE ROAD OVER ROUGE RIVER

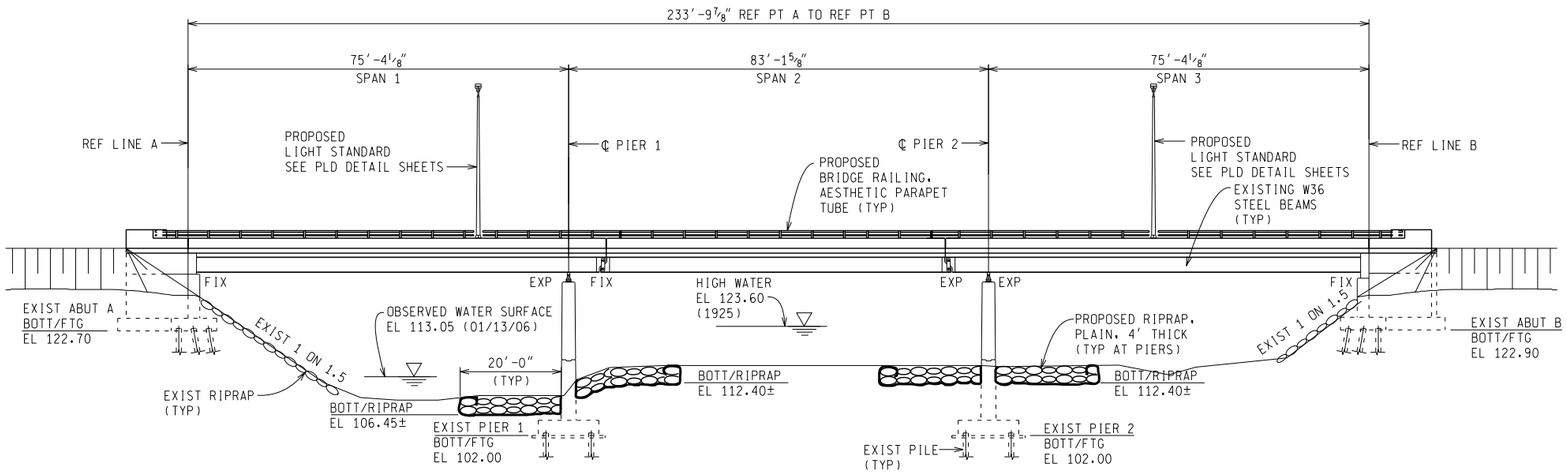
SHEET 3 OF 25 SHEETS

STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: AUGUST 6, 2010





ELEVATION

(VIEWED NORMAL TO SUBSTRUCTURE UNITS)

MISCELLANEOUS QUANTITIES

1	LS	Structures, Rem Portions (Structure 11479)
17	Cyd	Excavation, Fdn
17	Cyd	Backfill, Structure, CIP
1	LS	Conc Surface Coating (Structure 11479)
9500	Sft	False Decking
880	Cyd	Non Haz Contaminated Material Handling and Disposal, LM
1	LS	Cofferdams (Structure 11479)
3960	Syd	Riprap, Plain

SUMMARY OF HYDRAULIC ANALYSIS

	EXISTING			PROPOSED			
FLOOD DATA	DIS-CHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN WS EL (FT) U/S OF PROPOSED STRUCTURE
50 YEAR	7000	122.83	4.77	122.83	4.77	1468	0.00
100 YEAR	8889	123.61	5.47	123.61	5.47	1626	0.00
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 4650 SQUARE FEET							

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN. THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 184 SQUARE MILES.

NOTES:

THE REHABILITATION DESIGN IS BASED ON THE 17TH EDITION OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS20-44 AND ALTERNATE MILITARY LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/375 OF CANTILEVER ARM. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE. THE ORIGINAL STRUCTURE WAS DESIGNED FOR HS20 AND ALTERNATE MILITARY LOADING

WITHOUT THE PREVENTIVE MEASURES SHOWN ON THESE PLANS, THERE IS A POSSIBILITY THAT STREAM BED SCOUR MAY OCCUR. THE ESTIMATED TOTAL SCOUR DEPTH IS CALCULATED TO BE 11 FEET AT PIER 1 AND PIER 2. THESE DEPTHS ARE BASED ON A 500 YEAR RUNOFF EVENT.

GEOTEXTILE LINER SHALL BE PLACED PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN THE PAYMENT FOR RIPRAP.

A COFFERDAM OR OTHER MEANS OF WATER CONTROL MAY BE USED FOR THE PLACEMENT OF THE RIPRAP, AS APPROVED BY THE ENGINEER, PROVIDED THEY DO NOT DISTURB THE STREAM BED. PAYMENT FOR WATER CONTROL, WHETHER IT BE BY COFFERDAM OR OTHER APPROVED MEANS, SHALL BE INCLUDED IN THE PAYMENT FOR RIPRAP.

PLACE RIPRAP BLANKET, 4 FEET IN THICKNESS AND EXTENDING HORIZONTALLY A MINIMUM 20 FEET FROM ALL FACES OF EACH PIER. THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED. THE ESTIMATED WEIGHT OF RIPRAP IS 800 TONS. TOP OF PROPOSED RIPRAP SHALL MATCH EXISTING RIVERBED. BROKEN CONCRETE SHALL NOT BE USED AS RIPRAP. WORK IN THE RIVER SHALL BE LIMITED TO THE DAYS SHOWN IN THE MDNRE PERMIT.

FALSE DECKING SHALL INCLUDE THE AREA BOUNDED BY REFERENCE LINES A & B AND OUTSIDE FLANGE FASCIAS OF BEAMS. THE ESTIMATED AREA IS 9500 SQUARE FEET DURING REMOVAL AND CONSTRUCTION OF BRIDGE DECK.

CONCRETE SURFACE COATING SHALL BE APPLIED TO THE ENTIRE CONCRETE PORTION OF BRIDGE RAILING, SLAB FASCIA AND SIDEWALK FASCIA. SEE SPECIAL PROVISION FOR COATING COLOR. THE ESTIMATED AREA OF COATING IS 420 SQUARE YARDS.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

GENERAL PLAN OF STRUCTURE

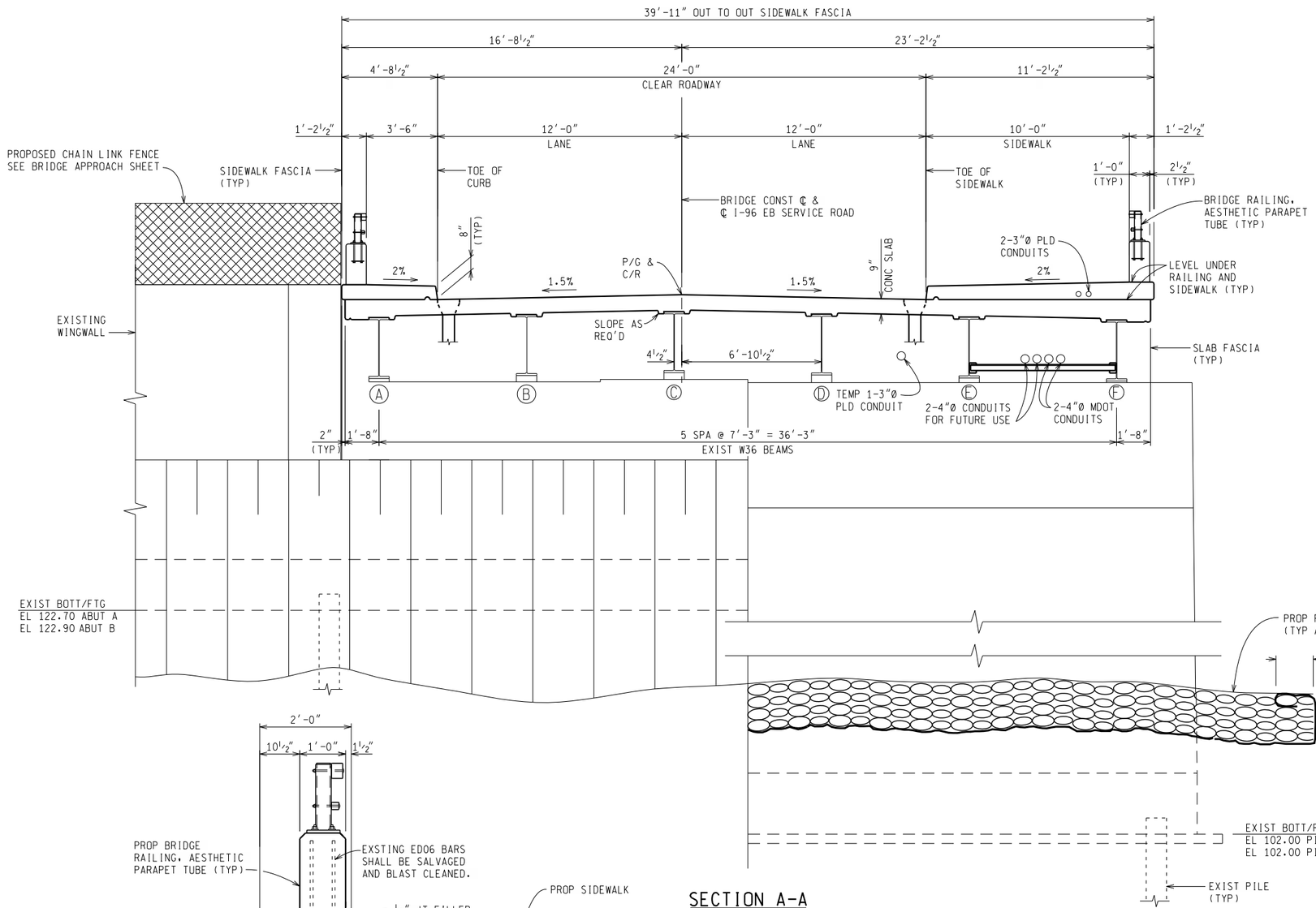
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 4 OF 25 SHEETS

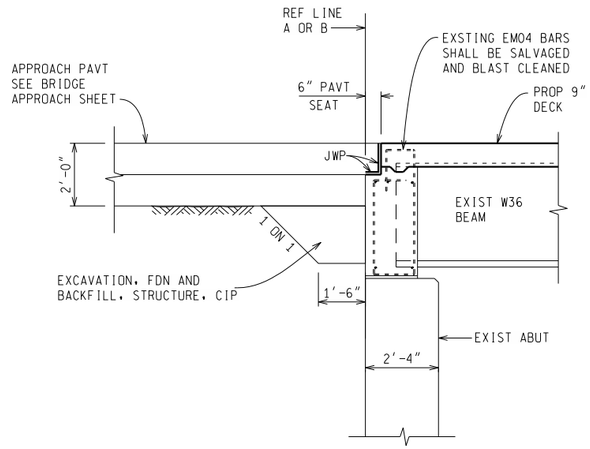
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: AUGUST 6, 2010



SECTION A-A



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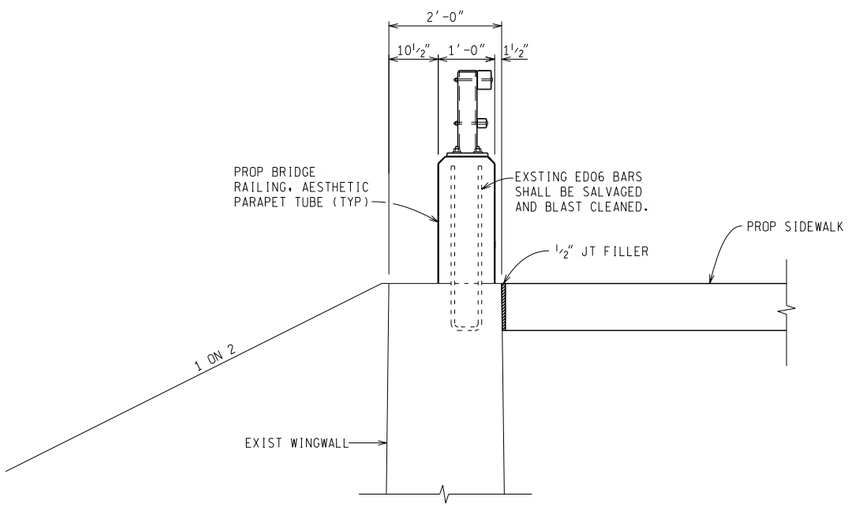
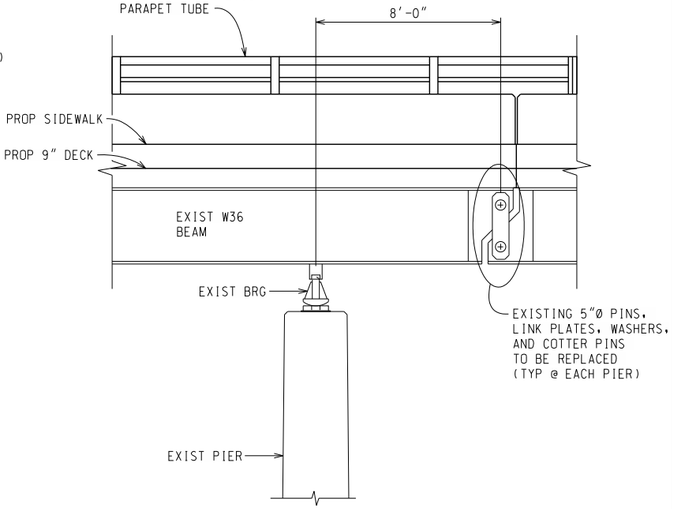


SECTION C-C



TYP SECTION THROUGH PIER

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

GENERAL PLAN OF STRUCTURE

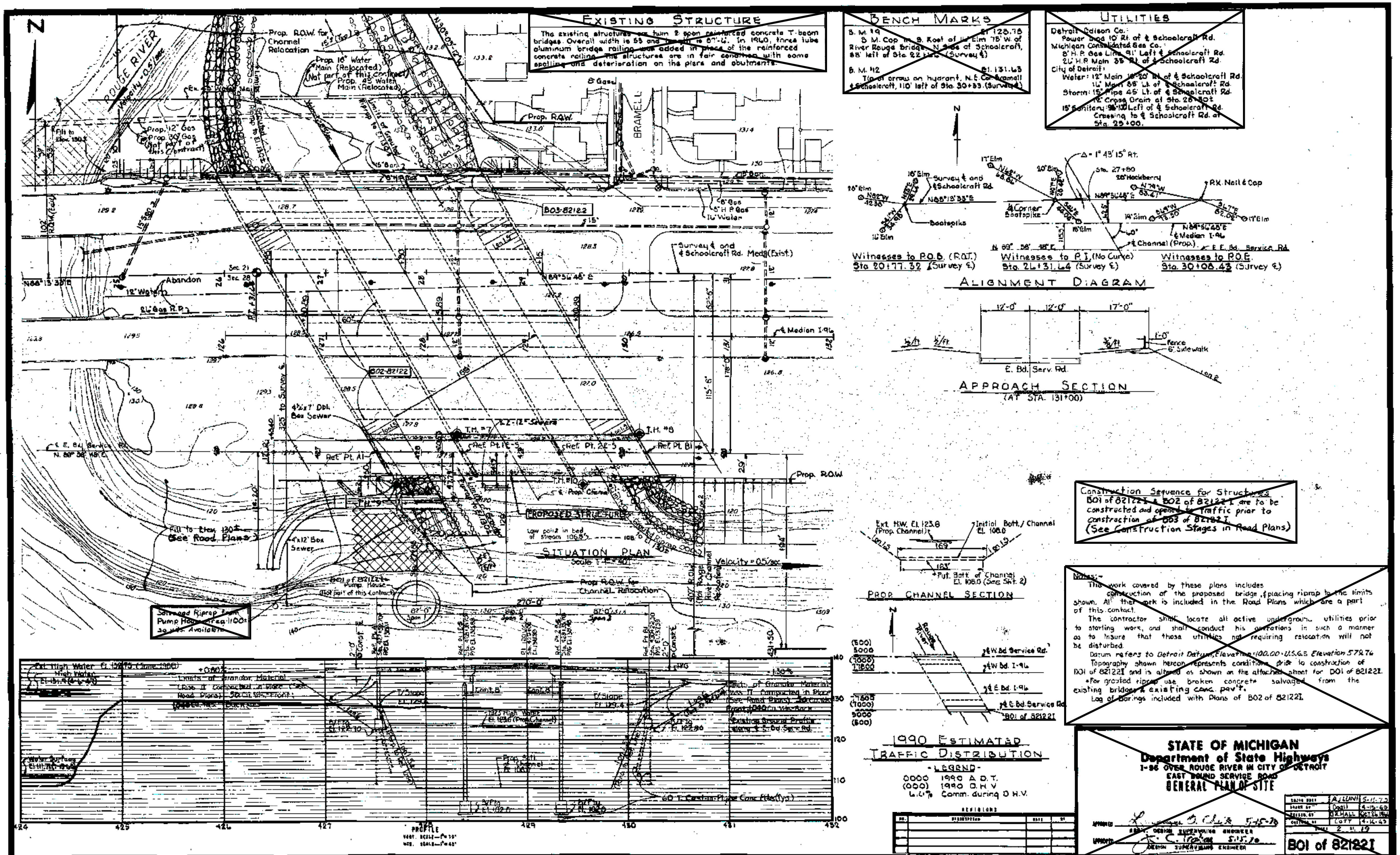
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 5 OF 25 SHEETS

STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: NOVEMBER 29, 2010



EXISTING

DO NOT WORK FROM THIS SHEET.
THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

DESCRIPTION	DRN	CK'D	APV'D	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING GENERAL PLAN OF SITE

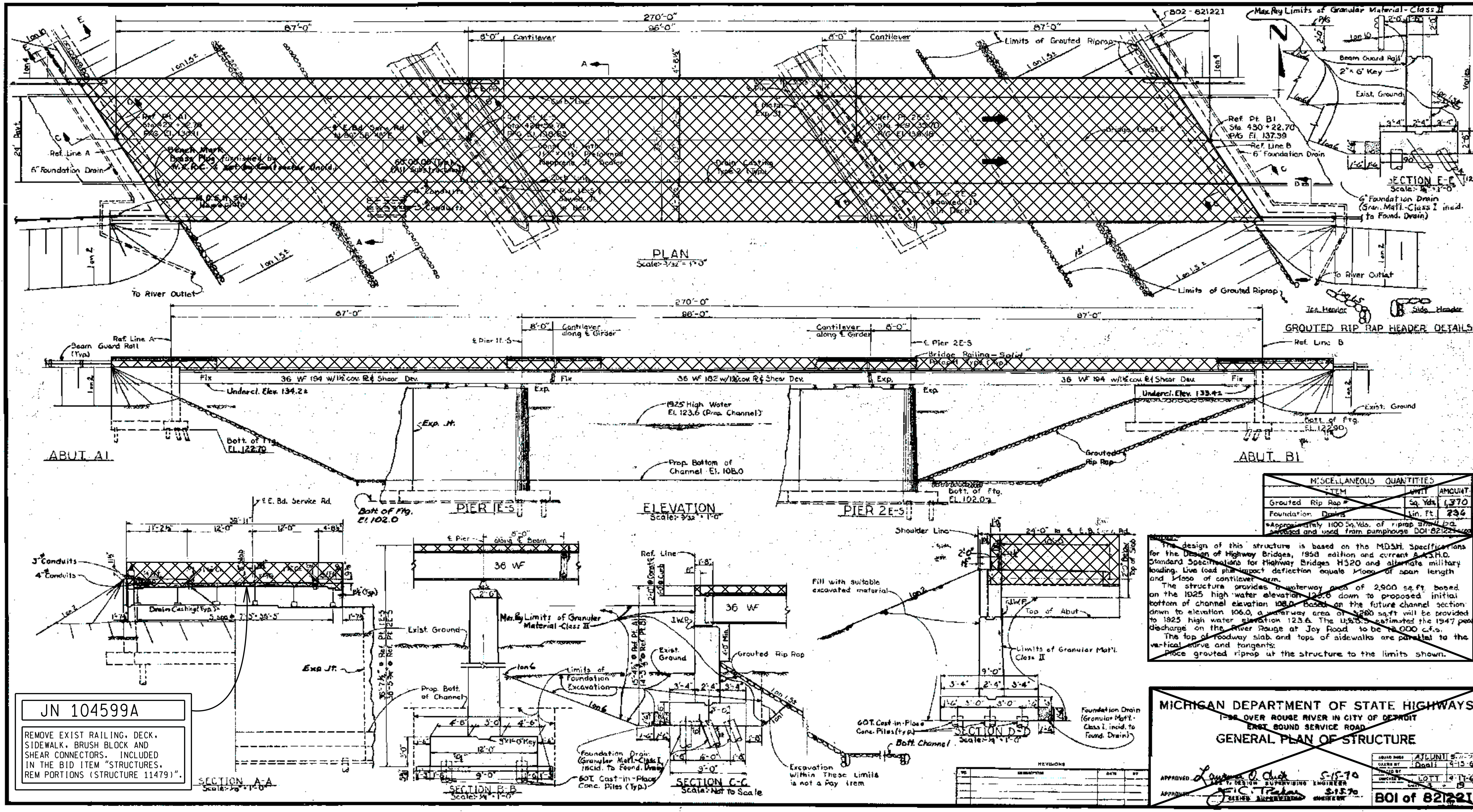
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 6 OF 25 SHEETS

STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: AUGUST 6, 2010



REMOVAL SHEET

JOB NUMBER 104599A

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

- PROPOSED WORK
- DENOTES REMOVAL PORTIONS

DESCRIPTION	DRN	CK'D	APV'D	DATE		BY	CHECKED BY	
REVISIONS					PLAN	SJP	MPP	APPROVED:
					GRADE			FEDERAL PROJECT NO.
					ESTIMATE			
					FINAL	CHECK MPP	REVIEW DFE	FEDERAL ITEM NO.

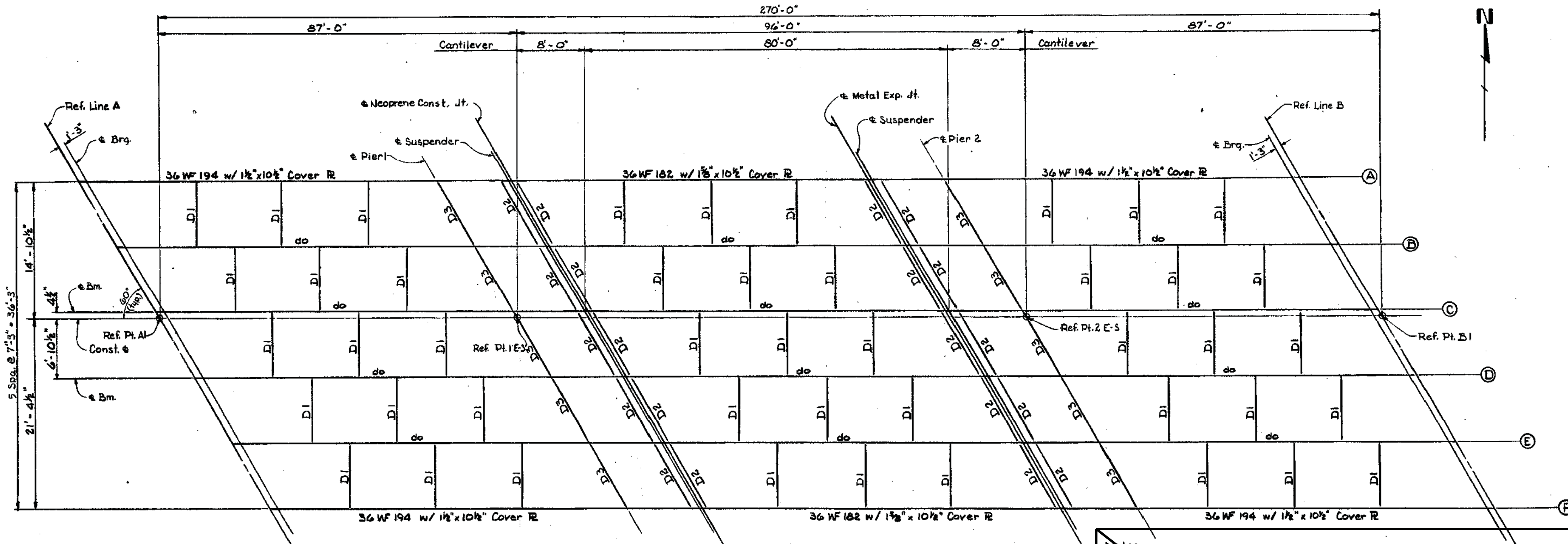
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING GENERAL PLAN OF STRUCTURE

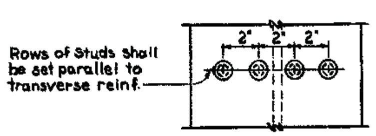
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 7 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: AUGUST 6, 2010

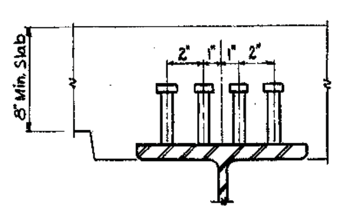


Note:
Intermediate Diaphragms @ approx. ¼ points.

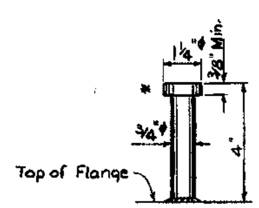
ERECTION DIAGRAM



PLAN



SECTION



DETAIL OF STUD

* ⅞"ϕ studs may be used instead of ¾"ϕ studs. The spacing of the ⅞"ϕ studs shall be ⅓± of that shown for the ¾" studs.

STUD SHEAR DEVELOPER DETAILS

Notes:
Welding of Studs to beam flanges is incidental to Shear Developers.
Weight of Studs is not included in Structural Steel Weights.

STRUCTURAL STEEL QUANTITIES		
Item	Unit	Amount
Structural Steel ~ Furnishing & Fabricating	Lbs.	401,600
Structural Steel ~ Erection	Lbs.	401,600
Shear Developers	Lump Sum	Lump Sum
Field Painting	Lump Sum	Lump Sum

Notes.
- Design: Michigan Department of State Highways Specifications for Design of Highway Bridges - 1958 edition and current A.A.S.H.O. Standard Specifications for Highway Bridges. HS-20 Loading.
- Fabrication: Michigan Department of State Highways Standard Specifications for Highway Construction - 1970 edition.
- Shop connections shall be welded as shown on the plans.
- Field connections shall be bolted with ¾" high-strength bolts, except as noted.
- The beams in spans #1 & #3 are to have a parabolic camber of 2½". The beams in span 2 are to have a camber of 4". This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ± ¼". Heating is to be used if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is ½".
- Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.
- Steel in anchor bolts may be A.S.T.M. A-307.
- The quantity Structural Steel includes:

A36 Steel	401,379#
Bronze	34#
Lead	187#
Total	401,600#

- Finish coat of Field Paint for Structural Steel is to be No. 4-69 Green.
- Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fraction thereof.
- Steel for pins may be A.S.T.M. A-108 or A.S.T.M. A-235.
- Anchor Bolts (including nuts and washers) shall be galvanized in accordance with A.S.T.M. designation A-153.
- All steel material used for bearings, with exception of portion welded to beams, shall be galvanized in accordance with A.S.T.M. Designation A-123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.
- Bronze for washers shall be A.S.T.M. B100, A.S.T.M. B22.

Work this sheet with sheet #11.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	A.J. LUNT	5-11-70
DRAWN BY	C. Giller	6-20-69
TRACED BY		
CHECKED BY	R. Beckon	11-12-69
SHEET 10 OF 19		

B01 of 82122 I

EXISTING

DO NOT WORK FROM THIS SHEET.
THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

DESCRIPTION	DRN	CK'D	APV'D	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:
FEDERAL PROJECT NO.
FEDERAL ITEM NO.

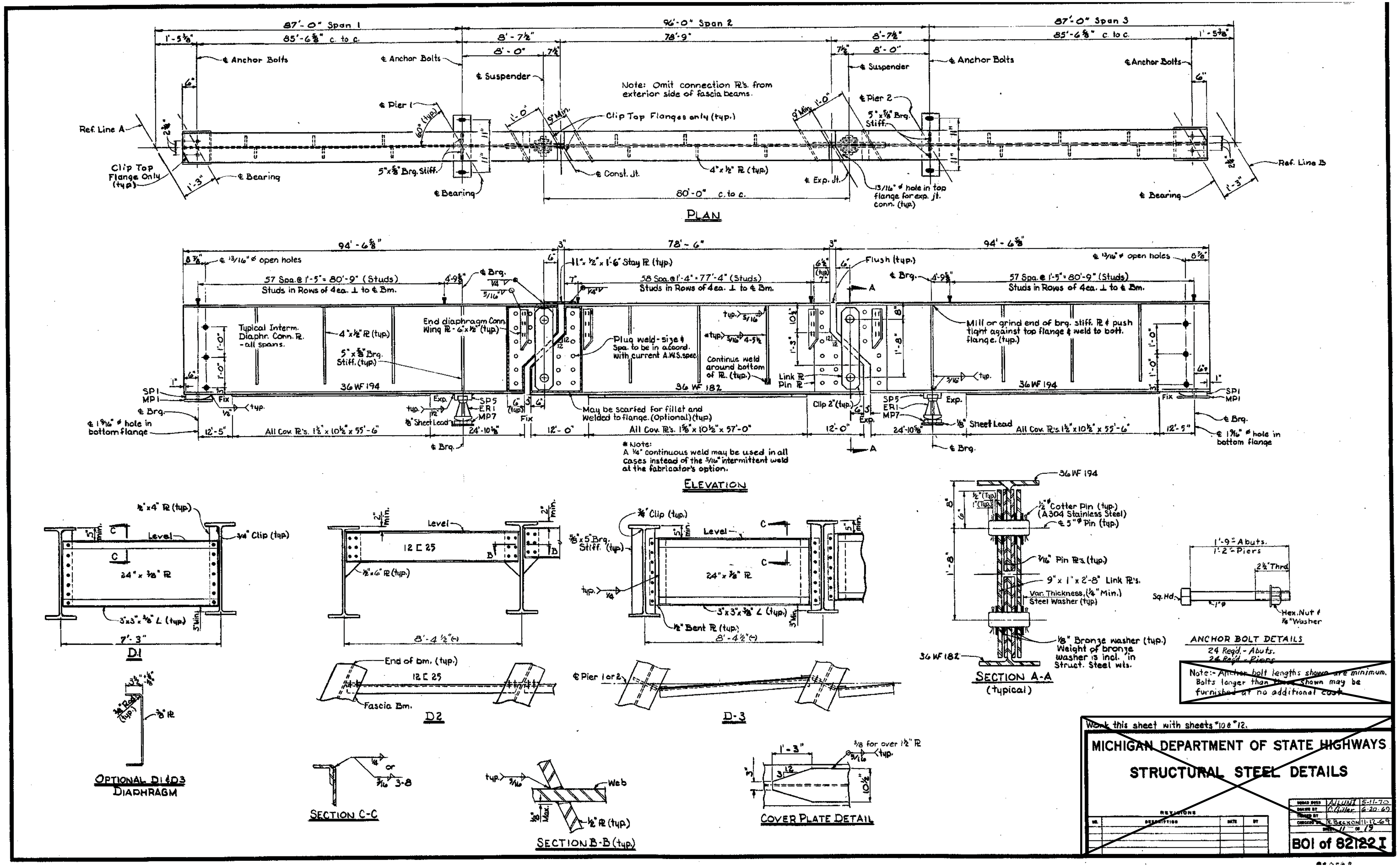
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING STRUCTURAL STEEL DETAILS

I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 8 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: AUGUST 6, 2010



EXISTING

DO NOT WORK FROM THIS SHEET.
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DESCRIPTION	DRN	CK'D	APV'D	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

APPROVED:
FEDERAL PROJECT NO.
FEDERAL ITEM NO.

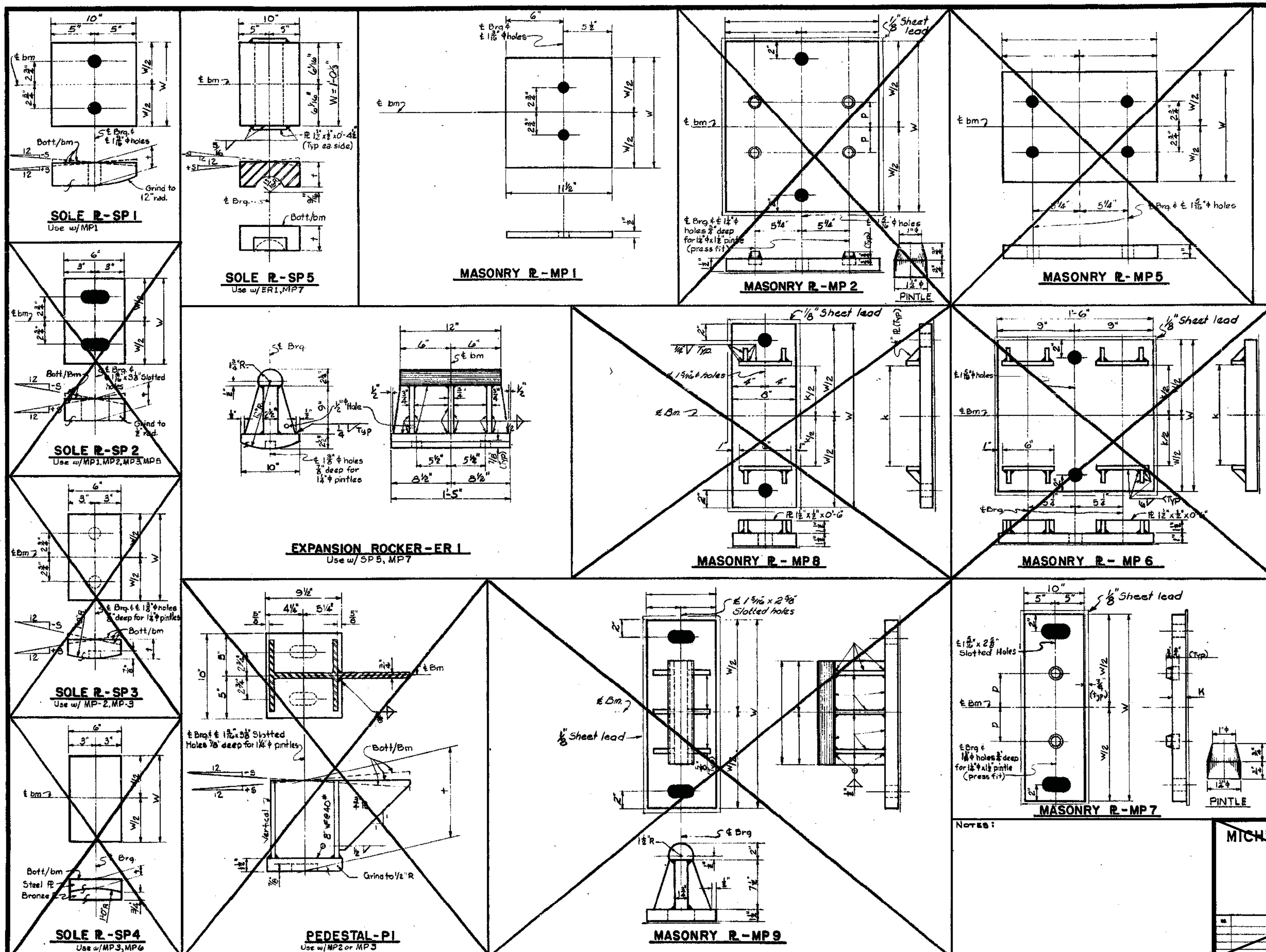
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING STRUCTURAL STEEL DETAILS

I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 9 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: AUGUST 6, 2010



	BEAM	TYPE	VARIABLE DIMENSIONS L	W	t	p	k	s
Abut. A	A	SP1		1'-0"	2"			0"
	B	↑		↑	3"			↑
	C				4"			
	D	do		do	3¾"			do
	E	↓		↓	3¼"			↓
	F	SP1		1'-0"	3¾"			0"
	A thru F	MP1		1'-1"				
Pier 1	A	SP5		1'-0⅛"	3"			0"
	B	↑		↑	3¾"			↑
	C				5"			
	D	do		do	4½"			do
	E	↓		↓	4¼"			↓
	F	SP5		1'-0⅛"	4½"			0"
Pier 2	A	SP5		1'-0⅛"	5¼"			-⅛"
	B	↑		↑	5½"			↑
	C				5¾"			do
	D	do		do	4¾"			
	E	↓		↓	3½"			↓
	F	SP5		1'-0⅛"	3"			-⅛"
Pier 1 or 2	A	MP7		2'-2"		5½"	1¾"	
	B	↑		↑		↑	↑	
	C							
	D	do		do		do	do	
	E	↓		↓		↓	↓	
	F	MP7		2'-2"		5½"	1¾"	
Abut. B	A	SP1		1'-0"	5¼"			+⅛"
	B	↑		↑	5¼"			↑
	C				5¼"			
	D	do		do	4¼"			do
	E	↓		↓	2¾"			↓
	F	SP1		1'-0"	2"			+⅛"
	A thru F	MP1		1'-1"				

NOTES:

MICHIGAN STATE HIGHWAY DEPARTMENT

BEARING DETAILS

REVISIONS

B01 of 82182 I

EXISTING

DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

DESCRIPTION | DRN | CK'D | APV'D | DATE
REVISIONS

APPROVED:
FEDERAL PROJECT NO.
FEDERAL ITEM NO.

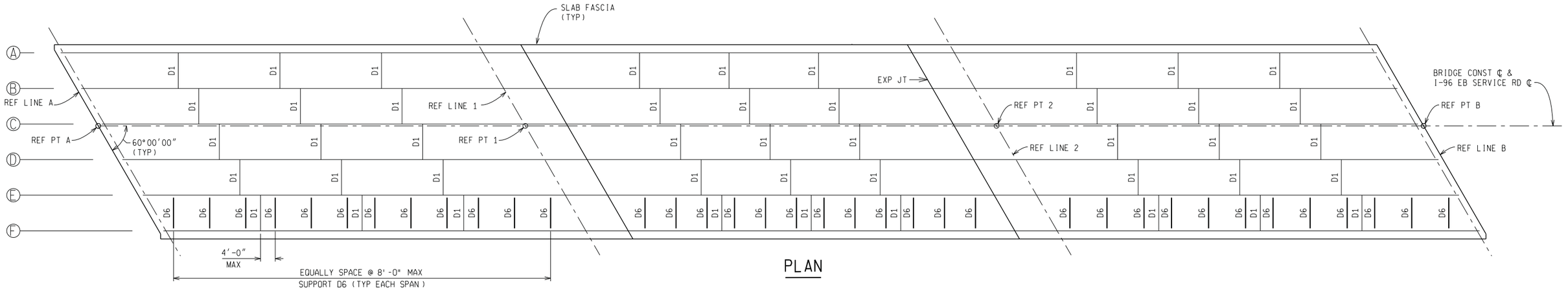
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

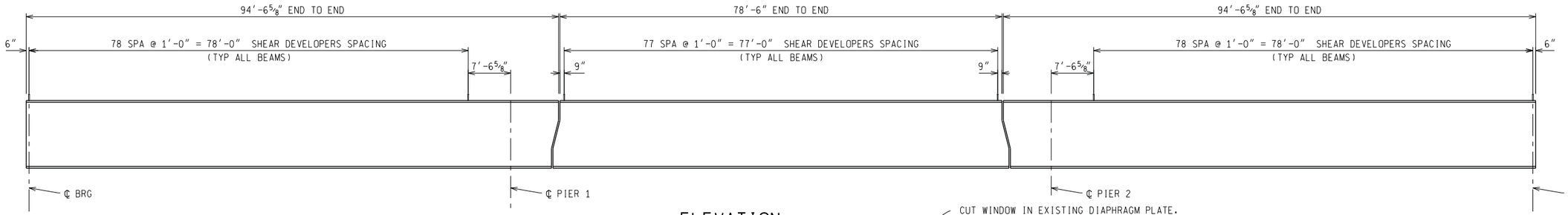
EXISTING STRUCTURAL STEEL DETAILS

I–96 EB SERVICE ROAD OVER ROUGE RIVER

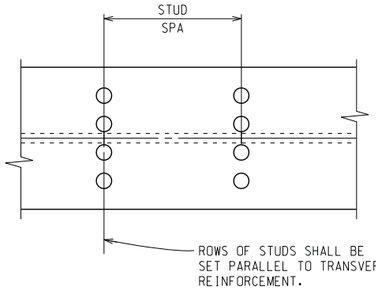
SHEET 10 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: AUGUST 6, 2010



PLAN



ELEVATION



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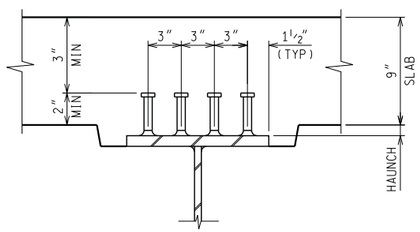

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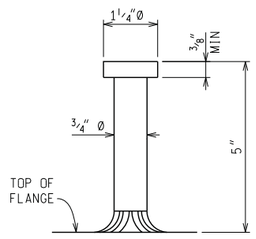
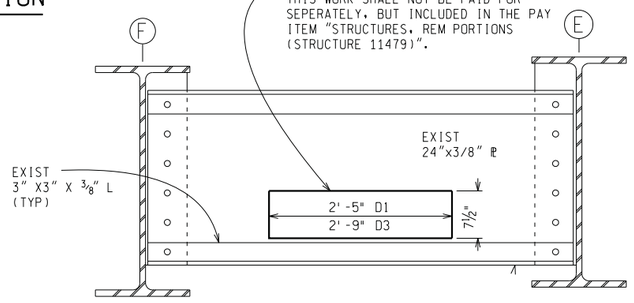


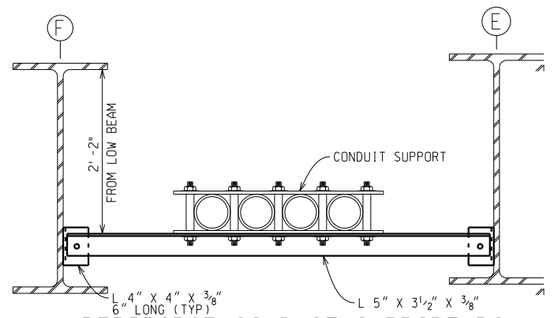
STUD DETAIL



EXISTING DIAPHRAGM D1 OR D3

COORDINATE LOCATION WITH ELECTRICAL PLANS

DIAPHRAGM D1 SHOWN, D3 SIMILAR



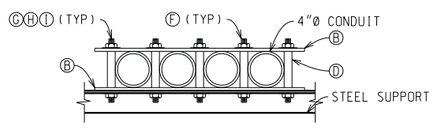
UNDERBRIDGE CONDUIT SUPPORT D6

COORDINATE LOCATION WITH ELECTRICAL PLANS

BILL OF MATERIAL 4-4"

I	3/4"	HDG LOCK WASHER
H	3/4"	HDG FLAT WASHER
G	3/4"	HDG HEX NUT
F	3/4"	X 9" HDG THREADED ROD
D	3/4"	X 4 5/8" F-G SPACER TUBE
B	1/2"	X 2" X 2'-8" F-G PLATE

STUD SHEAR DEVELOPER DETAILS



4-4" UNDERBRIDGE CONDUIT SUPPORT

PAYMENT FOR THE UNDERBRIDGE CONDUIT SUPPORT SHALL BE INCLUDED IN THE PAY ITEMS "CONDUIT, 4, 4-INCH, STRUCTURE". SEE ELECTRICAL PLANS FOR QUANTITIES.

NOTE:

TEMP TIMBER BRACING FOR CONDUIT SUPPORT BETWEEN BEAMS D AND FON EXISTING BEAMS SHALL BE DESIGNED BY THE CONTRACTOR. CALCULATIONS SUPPORTING THE DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. TIMBER SUPPORTS AND THEIR DESIGN TO BE INCLUDED IN THE PAY ITEM "Conduit, ENCASED, 2, 3 INCH, PLD". REMOVAL OF THE TIMBER SUPPORT AND TEMPORARY CONDUITS ARE INCLUDED IN THE PAY ITEM "Conduit, ENCASED, 2, 3 INCH, PLD".

MISCELLANEOUS QUANTITIES

3,000	Lb	Structural Steel, Retrofit, Furn, Fab, and Erect
1	LS	Shear Developers (Structure 11479)
180	Syd	Top Flanges and Beam Ends, Clean and Coat
270	Ft	Conduit, 4, 4-inch, Structure

NOTES:

SHEAR DEVELOPERS SHALL BE 3/4 " DIAMETER STUDS.

FIELD CONNECTIONS SHALL BE BOLTED WITH 3/4 " HIGH-STRENGTH BOLTS.

THE PROPOSED STRUCTURAL STEEL FOR UNDERBRIDGE CONDUIT SUPPORTS SHALL CONFORM TO AASHTO M270, GRADE 36.

INFORMATION AND LOCATIONS SHOWN FOR EXISTING DIAPHRAGMS AND CONNECTION PLATES ARE TAKEN FROM EXISTING PLANS. CONTRACTOR SHALL VERIFY THOSE LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS NEEDED, SUBJECT TO APPROVAL OF THE ENGINEER. INCLUDED IN THE BID ITEM " STRUCTURAL STEEL, RETROFIT, FURN, FAB, AND ERECT ".

FIELD MEASUREMENTS REQUIRED TO FABRICATE PROPOSED STRUCTURAL STEEL FOR CONDUIT HANGER SUPPORTS WILL BE INCLUDED IN THE BID ITEM "STRUCTURAL STEEL, RETROFIT, FURN, FAB, AND ERECT".

PROPOSED CONDUIT HANGER SUPPORT CONNECTIONS SHALL BE FIELD DRILLED AND BOLTED TO THE EXISTING BEAMS. INCLUDED IN THE BID ITEM "STRUCTURAL STEEL, RETROFIT, FURN, FAB, AND ERECT".

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

STRUCTURAL STEEL DETAILS

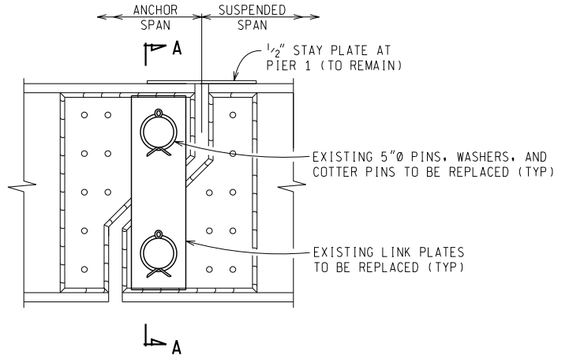
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 11 OF 25 SHEETS

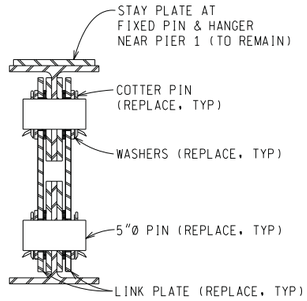
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

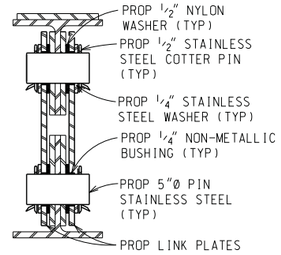
DATE: AUGUST 6, 2010



ELEVATION AT PIN



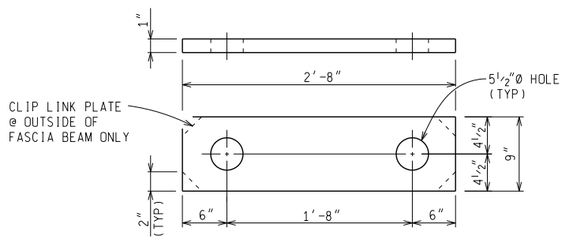
SECTION A-A
(EXISTING)



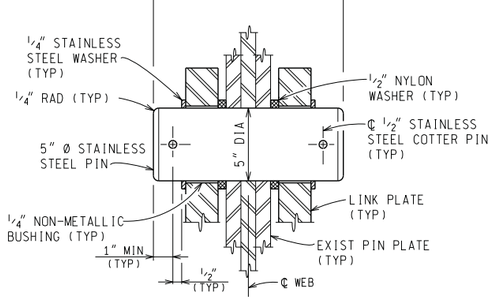
SECTION A-A
(PROPOSED)

MISCELLANEOUS QUANTITIES

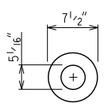
12	Ea	Support, Suspension, Temp
48	Ea	Bushing
3,200	Lb	Structural Steel, Furn and Fab, Pin and Hanger
12	Ea	Hanger Assembly, Field Measurement
12	Ea	Hanger Assembly, Rem and Erect
1	LS	Steel Structure, Cleaning, Type 4 (Structure 11479)
1	LS	Steel Structure, Coating, Type 4 (Structure 11479)
1	LS	Field Repr of Damaged Coating (Structure 11479)
220	Ft	Beam Plate, Seal Perimeter
10	Ea	End Diaphragm, Rem and Replace



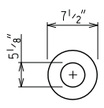
LINK PLATE
(24 REQ'D)



PROPOSED PIN DETAIL
(24 REQ'D)



1/4" STAINLESS STEEL WASHER
(48 REQ'D)



1/2" NYLON WASHER
(48 REQ'D)
INCLUDED IN THE BID ITEM "STRUCTURAL STEEL, FURN AND FAB, PIN AND HANGER."

NOTES:

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF EXISTING PAINTED FAYING SURFACES AND STRUCTURAL STEEL EXPOSED DURING DECK SLAB REMOVAL SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. INCLUDED IN THE BID ITEM, "STRUCTURES, REM PORTIONS (STRUCTURE 11479)".

THIS BRIDGE IS COATED WITH LEAD BASED PAINT. THE STRUCTURAL STEEL HAS BEEN BLAST CLEANED PRIOR TO COATING. THE ADDITIONAL EFFORT TO CLEAN THE STRUCTURAL STEEL WILL NOT BE PAID FOR SEPARATELY BUT WILL BE CONSIDERED INCLUDED IN THE BID ITEMS.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE REGION BRIDGE ENGINEER.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 17,000 SQUARE FEET.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BOLTED END DIAPHRAGM CONNECTION PLATES AND ANGLES UNDER TRANSVERSE DECK JOINTS AT PIN AND HANGER LOCATIONS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF ALL BEAM ENDS WHERE ENCASED IN THE BACKWALLS.

SEALANT SHALL BE APPLIED AROUND THE CONNECTION OF NEW STRUCTURAL STEEL MEMBER TO EXISTING STRUCTURAL STEEL MEMBER.

BLAST CLEAN AND PRIME FAYING SURFACES PRIOR TO ERECTING CONNECTION PLATES OR ANGLES TO EXISTING BEAMS. THIS WORK IS INCLUDED IN THE BID ITEMS FOR CLEANING AND COATING EXISTING STRUCTURAL STEEL.

ALL EXISTING STRUCTURAL STEEL SHALL BE COATED ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL BE LIGHT GRAY. FEDERAL STANDARD 595B COLOR NUMBER 16440.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES AND ON SIGNS ATTACHED TO THE STRUCTURE. INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (STRUCTURE 11479)".

THE PLATE SURFACES OF THE BEAM SPLICES, AND ALL OTHER BOLTED CONNECTIONS UNLESS NOTED OTHERWISE, SHALL BE COATED ACCORDING TO SUBSECTION 716.03.B.2.A FOR SLIP CRITICAL CONNECTIONS. COATED CONNECTIONS (FAYING SURFACES) SHALL MEET THE MINIMUM CURE TIMES ACCORDING TO THE PRODUCT QUALIFICATION TEST AND SUBSECTION 716.02 BEFORE CONNECTION ASSEMBLY.

THE AREA WITHIN 3 FEET EACH SIDE OF THE CENTERLINE OF THE HANGER ASSEMBLY SHALL BE COATED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP COATED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REM AND ERECT."

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED (EXCEPT AS NOTED).

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:
75 TONS VERTICAL GIRDER LOAD (INCLUDES SUPERSTRUCTURE DEAD LOAD AND LIVE LOAD).

STRUCTURAL STEEL FOR PROPOSED LINK PLATES SHALL CONFORM TO AASHTO M270, GRADE 50, OR AASHTO M270, GRADE 50W.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

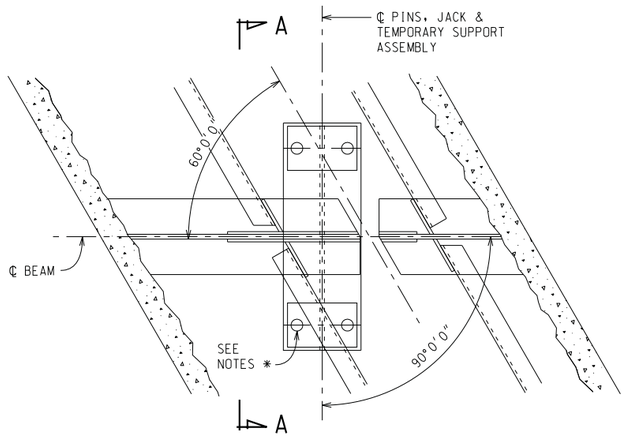
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

PIN & HANGER REPLACEMENT DETAILS

I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 12 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: AUGUST 6, 2010

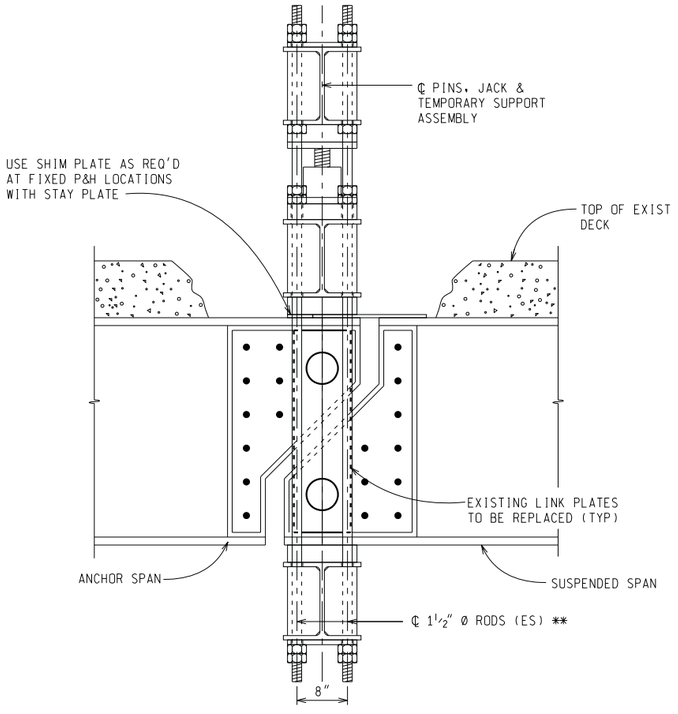


PLAN OF TEMPORARY SUPPORT

* REMOVE EXISTING DIAPHRAGM IF SUSPENDER RODS ARE IN CONFLICT WITH THE EXISTING DIAPHRAGM.

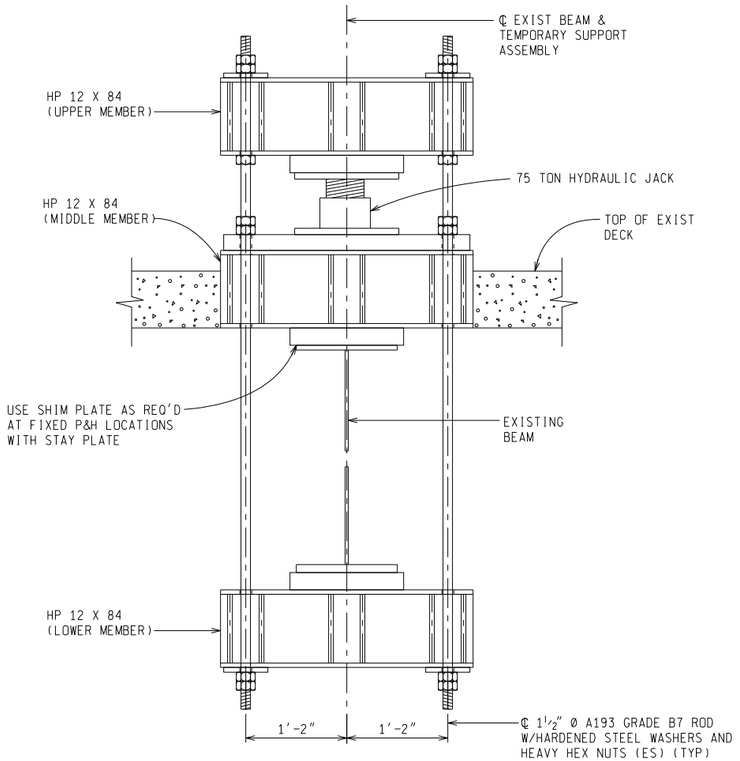
IF DIAPHRAGM REMOVAL IS REQUIRED, ONLY REMOVE EVERY OTHER DIAPHRAGM AT ONE TIME. DIAPHRAGM MUST BE REINSTALLED WITH NEW HS BOLTS BEFORE ADJACENT DIAPHRAGM IS REMOVED.

IF IT IS DETERMINED IN THE FIELD THAT THE SUSPENDER RODS WILL NOT CONFLICT WITH EXISTING END DIAPHRAGMS, THE DIAPHRAGMS MAY REMAIN IN PLACE DURING PIN & HANGER REPLACEMENT AS APPROVED BY THE ENGINEER.

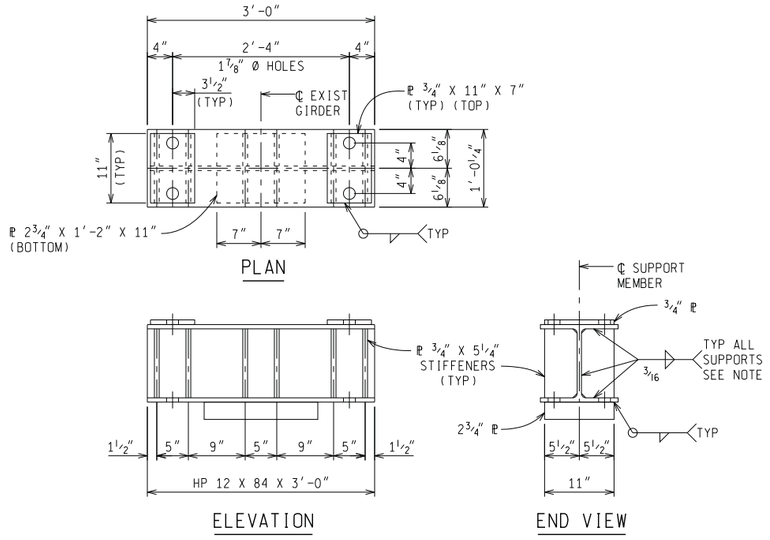


ELEVATION OF TEMPORARY SUPPORT

** CONTRACTOR SHALL DETERMINE ROD AND THREAD LENGTH TO FIT SITUATION
4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS & 4 HARDENED WASHER PER ROD

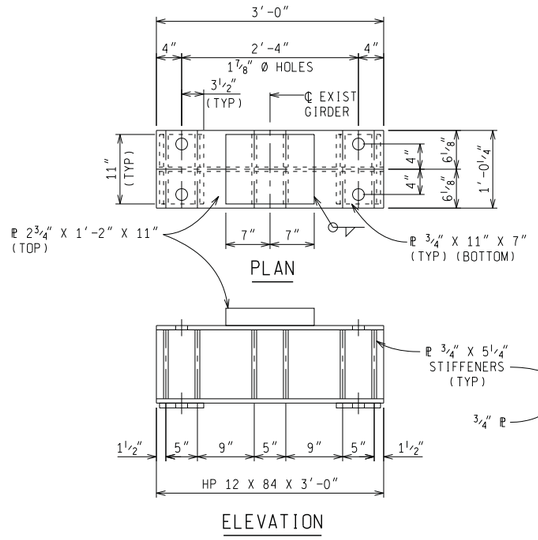


SECTION A-A

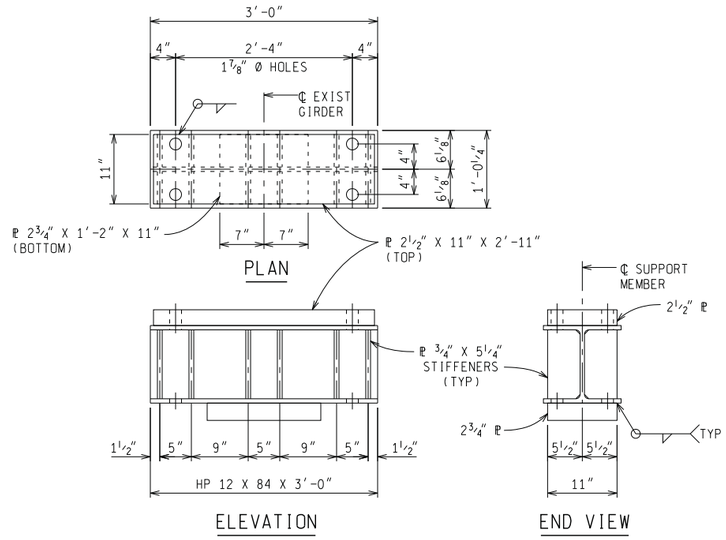


TEMP SUPPORT UPPER MEMBER

NOTE: STOP WELD ¼" SHORT OF CORNER CLIPS. WRAP WELD AROUND OUTSIDE EDGE AT STIFFENERS.



TEMP SUPPORT LOWER MEMBER



TEMP SUPPORT MIDDLE MEMBER

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

PIN & HANGER REPLACEMENT DETAILS

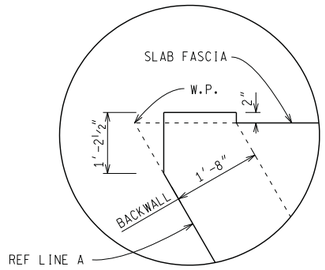
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 13 OF 25 SHEETS

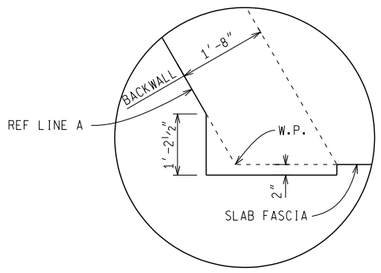
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

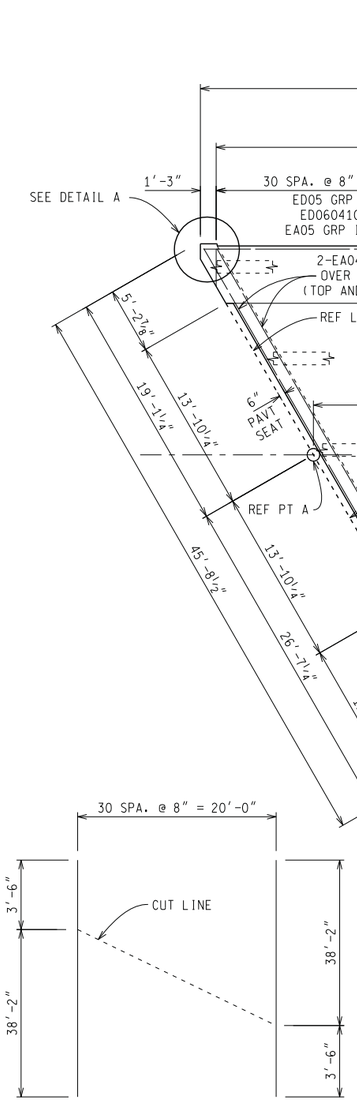
DATE: AUGUST 6, 2010



DETAIL A



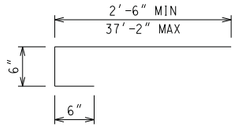
DETAIL B



BAR GROUP I

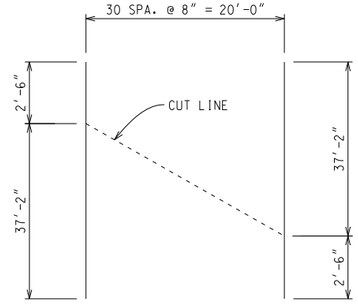
EA054108 (TOTAL 31 BARS)

BEND ALL BARS AS SHOWN AFTER CUT.



MIN LAP TABLE		
BAR	MIN LAP	LOCATION
EA03	1'-7"	TOP LONGITUDINAL
EA04	2'-1"	BOTTOM LONGITUDINAL
EA05	2'-7"	TOP & BOTTOM TRANSVERSE

PLAN OF SLAB (SPAN 1)



BAR GROUP II

EA053908 (TOTAL 31 BARS)

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

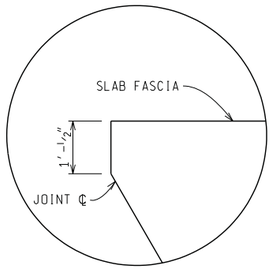
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 14 OF 25 SHEETS

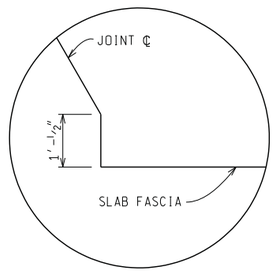
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

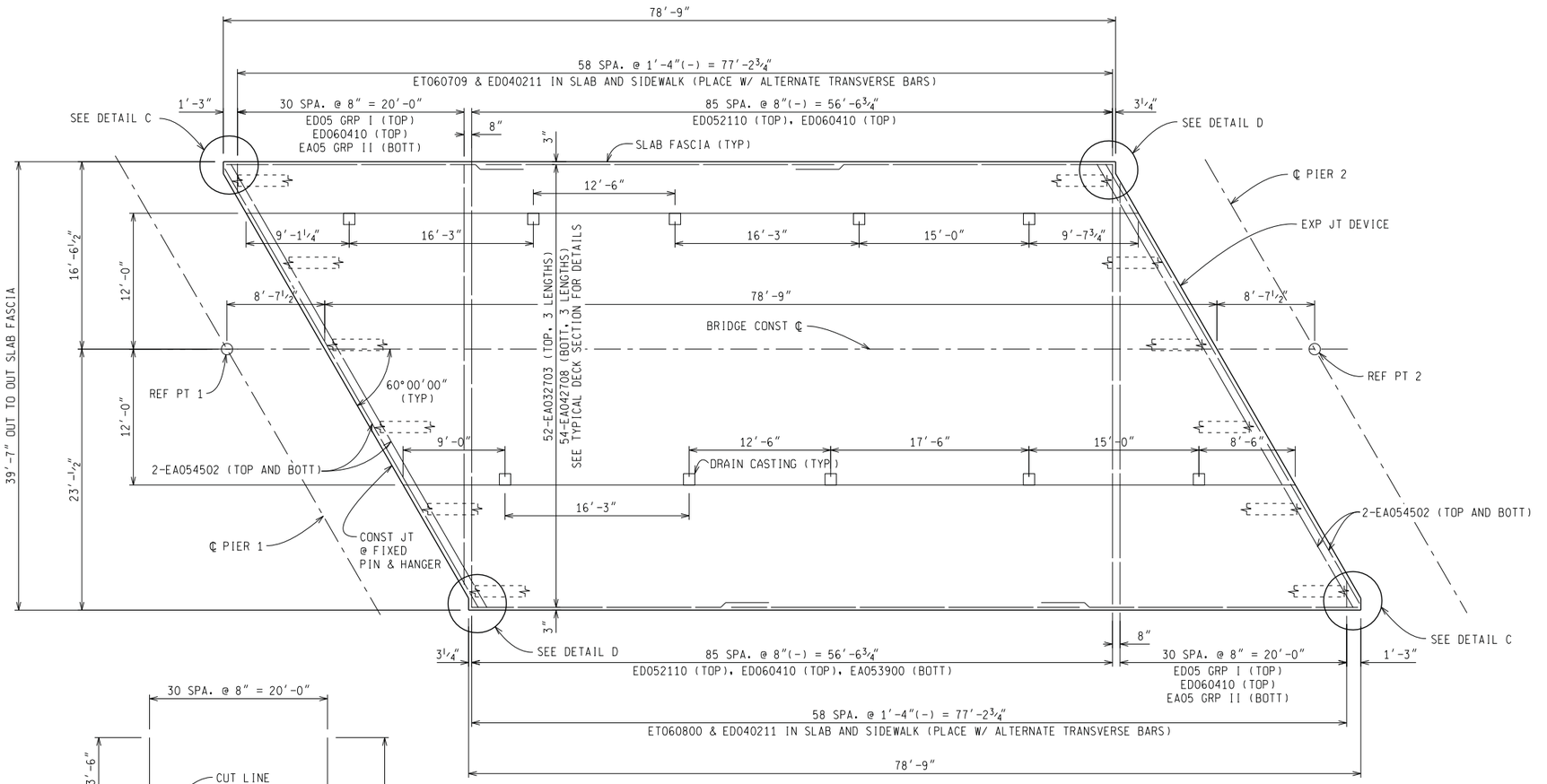
DATE: AUGUST 6, 2010



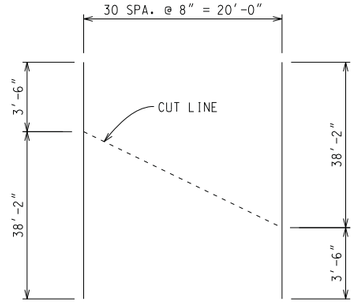
DETAIL C



DETAIL D



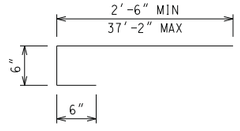
PLAN OF SLAB (SUSPENDED SPAN 2)

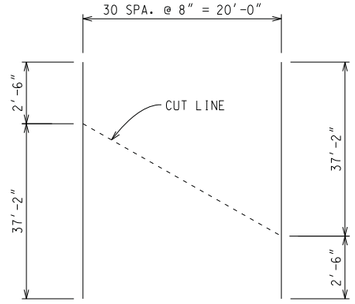


BAR GROUP I

EA054108 (TOTAL 31 BARS)

BEND ALL BARS AS SHOWN AFTER CUT.





BAR GROUP II

EA053908 (TOTAL 31 BARS)

MIN LAP TABLE

BAR	MIN LAP	LOCATION
EA03	1'-7"	TOP LONGITUDINAL
EA04	2'-1"	BOTTOM LONGITUDINAL
EA05	2'-7"	TOP & BOTTOM TRANSVERSE

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

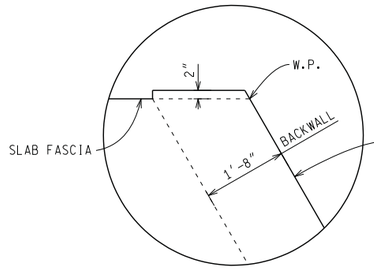
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 15 OF 25 SHEETS

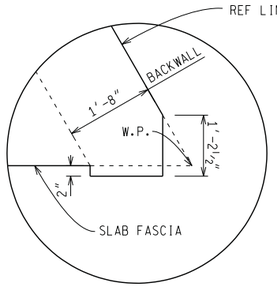
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

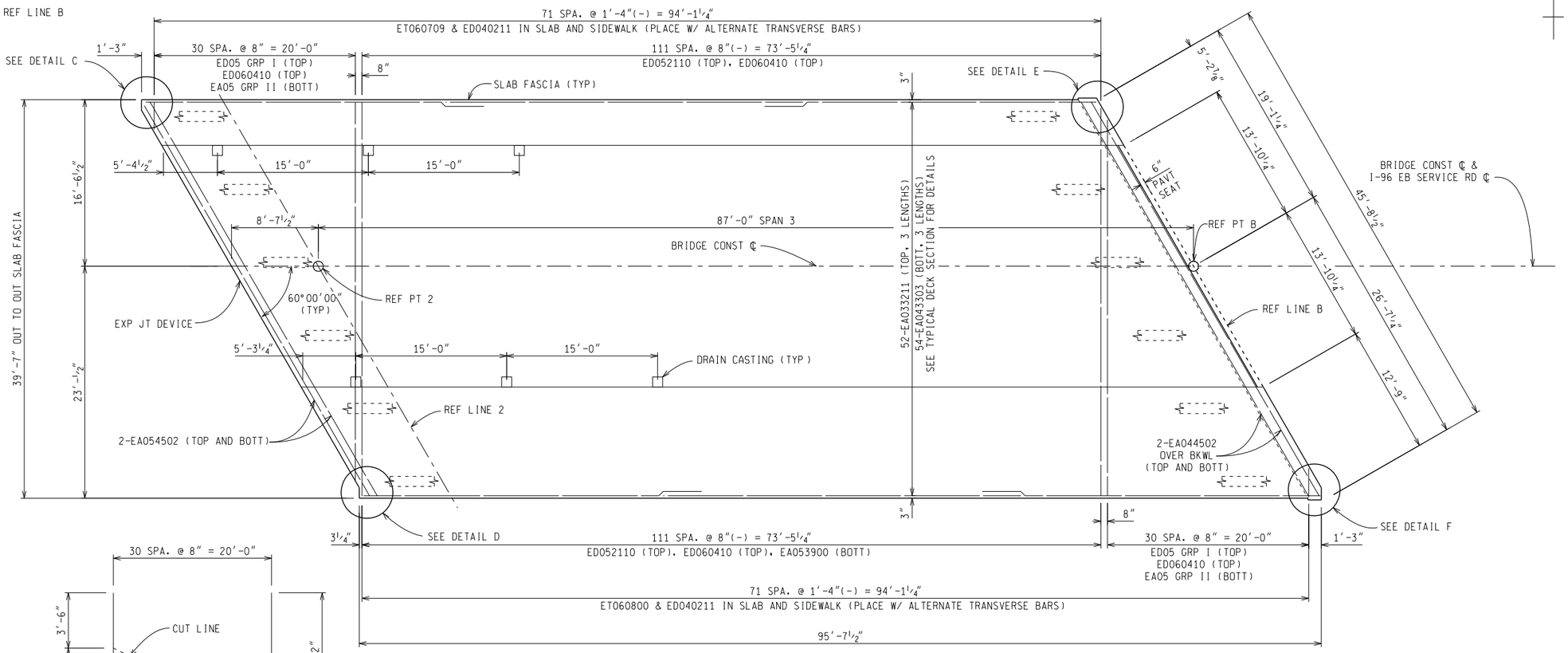
DATE: AUGUST 6, 2010



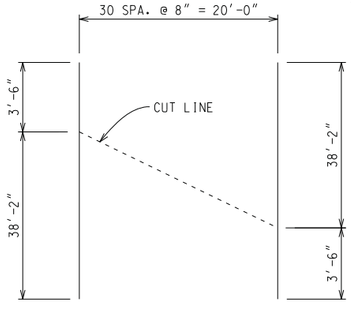
DETAIL E



DETAIL F



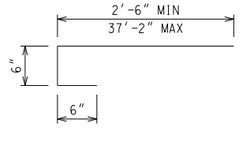
PLAN OF SLAB (SPAN 3)

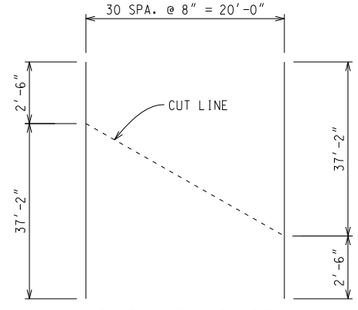


BAR GROUP I

EA054108 (TOTAL 31 BARS)

BEND ALL BARS AS SHOWN AFTER CUT.





BAR GROUP II

EA053908 (TOTAL 31 BARS)

MIN LAP TABLE		
BAR	MIN LAP	LOCATION
EA03	1'-7"	TOP LONGITUDINAL
EA04	2'-1"	BOTTOM LONGITUDINAL
EA05	2'-7"	TOP & BOTTOM TRANSVERSE

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

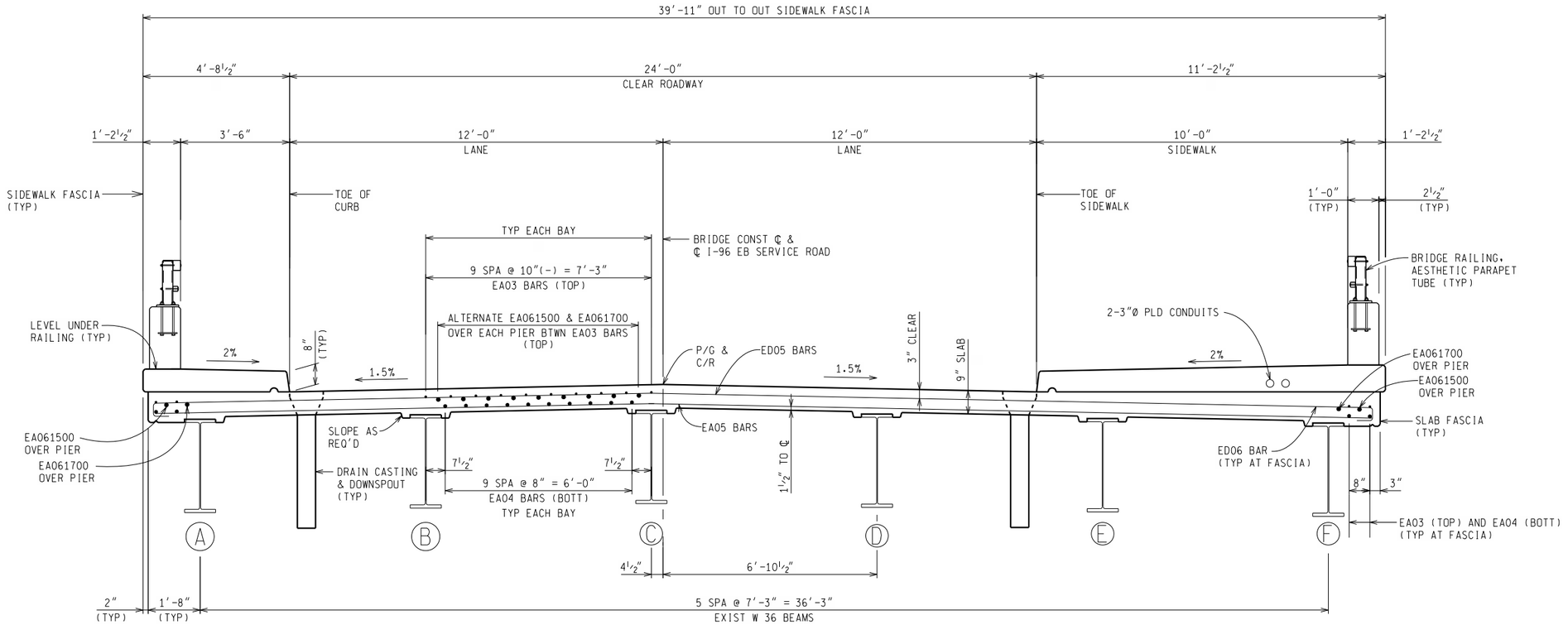
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 16 OF 25 SHEETS

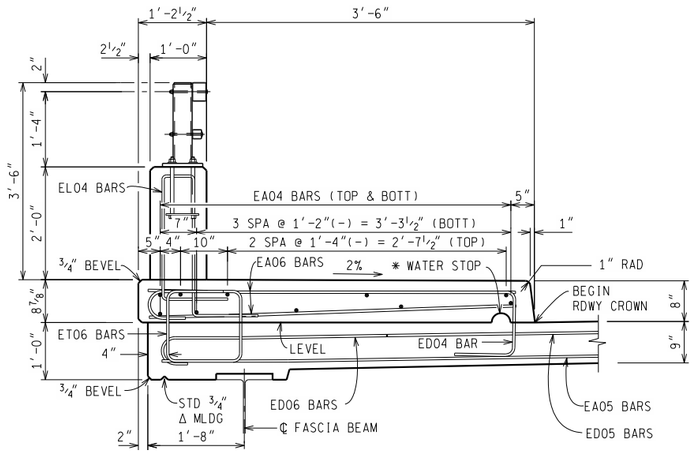
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: AUGUST 6, 2010

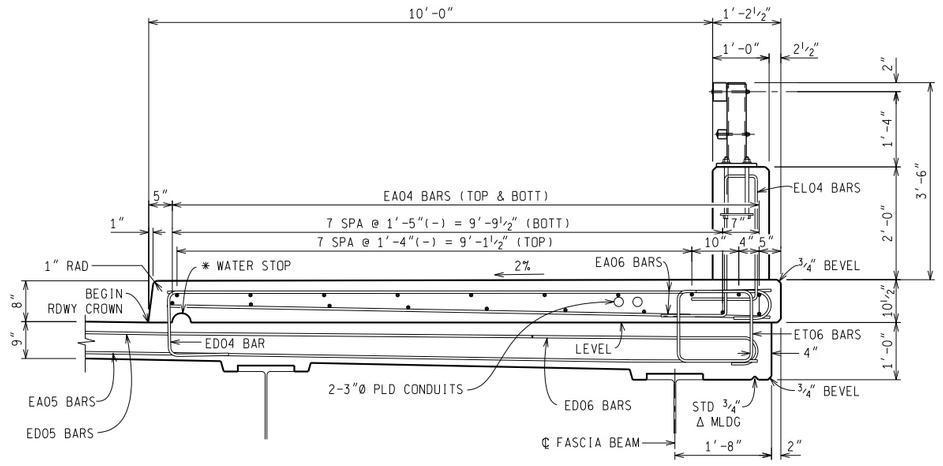


TYPICAL DECK SECTION



TYPICAL PARAPET AND BRUSHBLOCK SECTION

* 2″ HIGH x 4″ LONG (±), FORMING NOT REQUIRED



TYPICAL PARAPET AND SIDEWALK SECTION

* 2″ HIGH x 4″ LONG (±), FORMING NOT REQUIRED

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

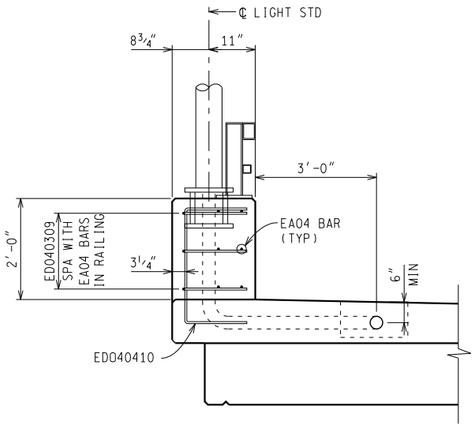
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 17 OF 25 SHEETS

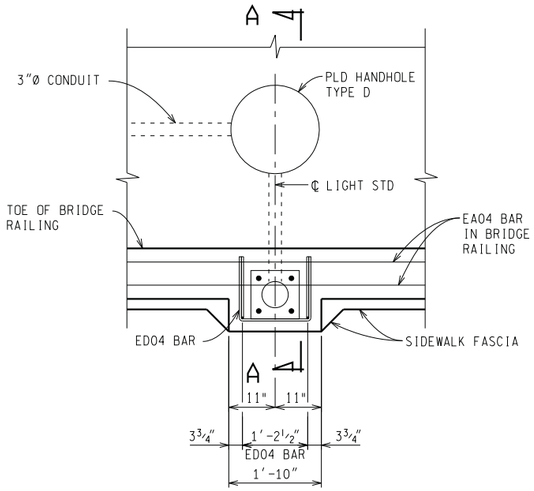
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: NOVEMBER 29, 2010

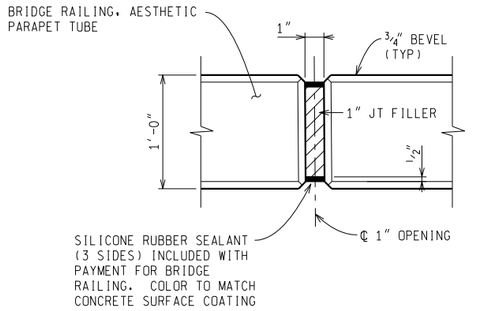


SECTION A-A

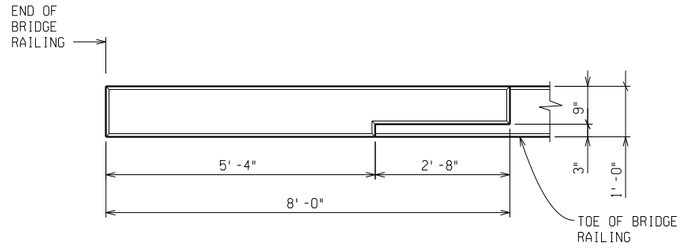


PLAN VIEW

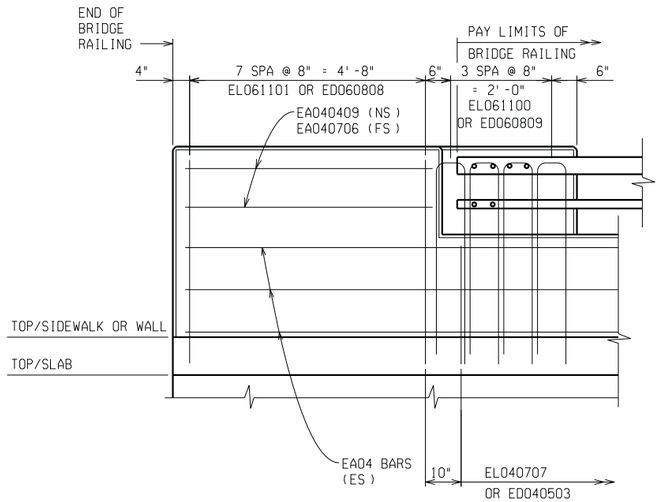
LIGHT STANDARD DETAILS



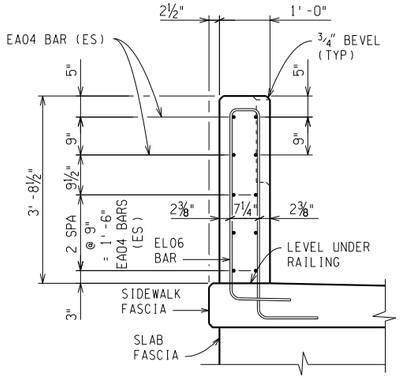
1" OPEN JOINT DETAIL
IN BARRIER



PLAN OF END WALL

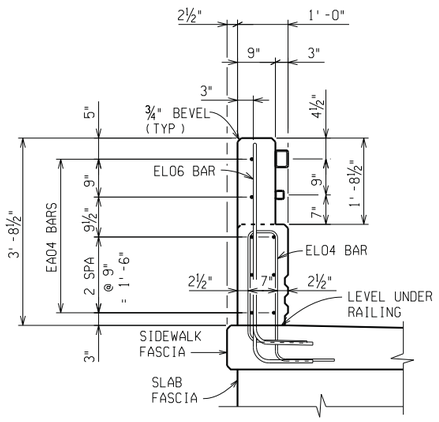


END WALL DETAIL



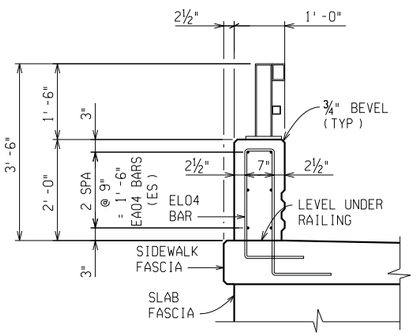
SECTION AT END WALL

(FULL CONCRETE AREA)



SECTION AT END WALL

(TUBE CONNECTION AREA)



TYPICAL BRIDGE RAILING SECTION

SLAB & SIDEWALK REINFORCEMENT ARE NOT SHOWN
FOR CLARITY IN THE BRIDGE RAILING SECTIONS.

NOTE:

SLAB & SIDEWALK REINFORCEMENT ARE NOT SHOWN
FOR CLARITY IN THE BRIDGE RAILING SECTIONS.

USE EPOXY ANCHORED EDO60808, EDO60809 AND EDO40503 BARS
FOR END WALLS OVER EXISTING RETURN WALL.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK: MPP	REVIEW: DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

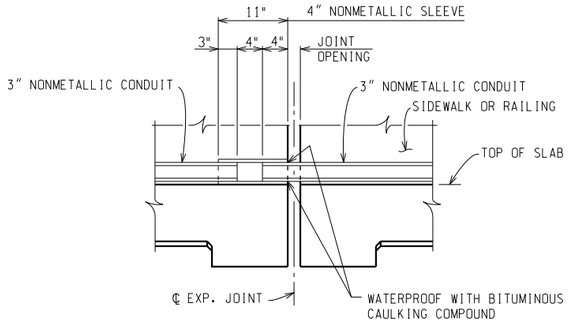
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 18 OF 25 SHEETS

STRUCTURE NUMBER 11479

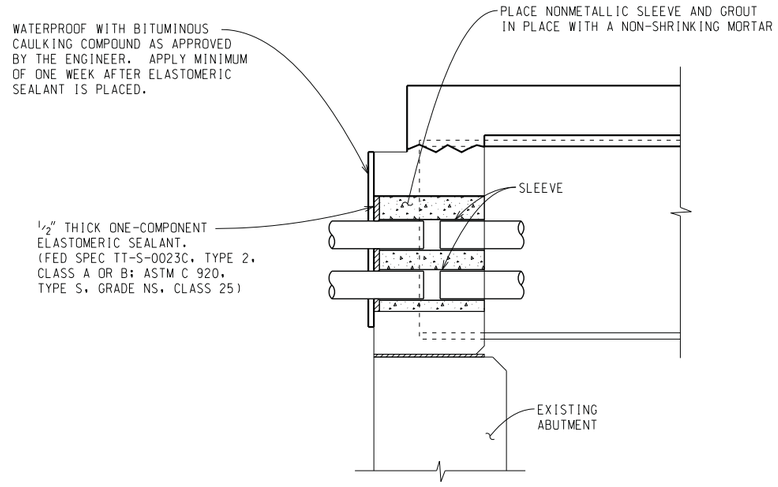
JOB NUMBER 104599A

DATE: AUGUST 6, 2010



LIGHTING CONDUIT AT TRANSVERSE EXPANSION JOINT

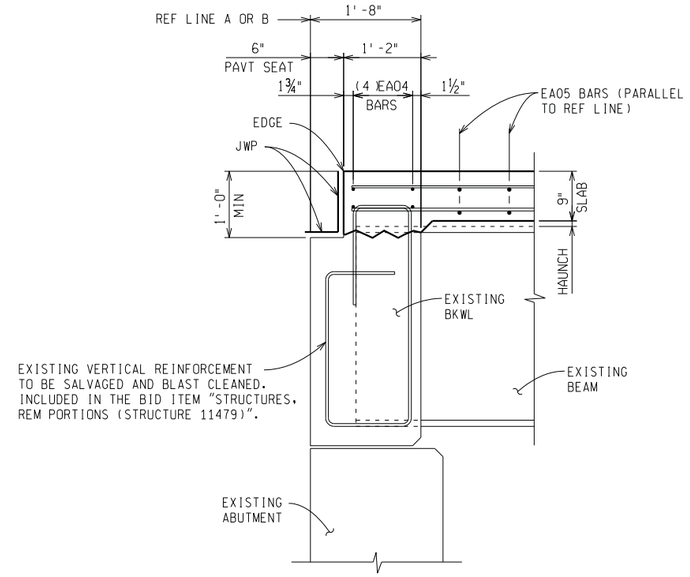
SLEEVES, ADAPTERS, COUPLINGS, CONDUIT PLUGS AND WATERPROOFING ARE INCLUDED IN THE BID ITEMS FOR CONDUITS.



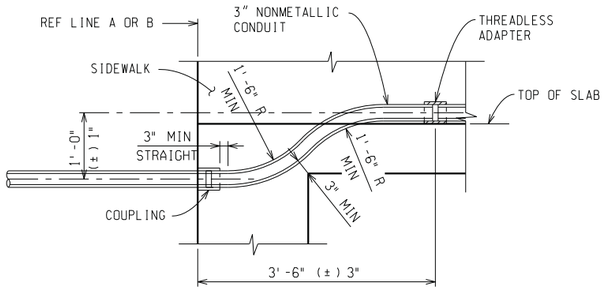
SECTION THRU BACKWALL FOR UTILITY DUCTS

ELASTOMERIC SEALANT, WATERPROOFING, GROUT AND CONDUIT SLEEVES WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE BID ITEMS FOR CONDUITS.

REMOVAL OF PORTION OF BACKWALL REQUIRED FOR CONDUIT AND SLEEVE INSTALLATION WILL BE INCLUDED IN THE BID ITEM "STRUCTURES, REM PORTIONS (STRUCTURE 11479)"

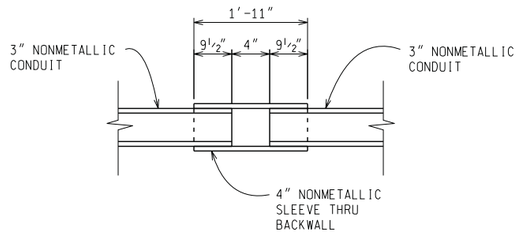


TYPICAL SECTION THRU EXISTING BACKWALL



LIGHTING CONDUIT AT BACKWALL

SLEEVES, ADAPTERS, COUPLINGS, PLUGS AND WATERPROOFING ARE INCLUDED IN THE BID ITEMS FOR CONDUITS.



NONMETALLIC CONDUIT SLEEVE

REVISIONS						BY	CHECKED BY	
DESCRIPTION	DRN	CKD	APVD	DATE	PLAN	SJP	MPP	APPROVED:
					GRADE			FEDERAL PROJECT NO.
					ESTIMATE			
					FINAL	CHECK MPP	REVIEW DPE	FEDERAL ITEM NO.

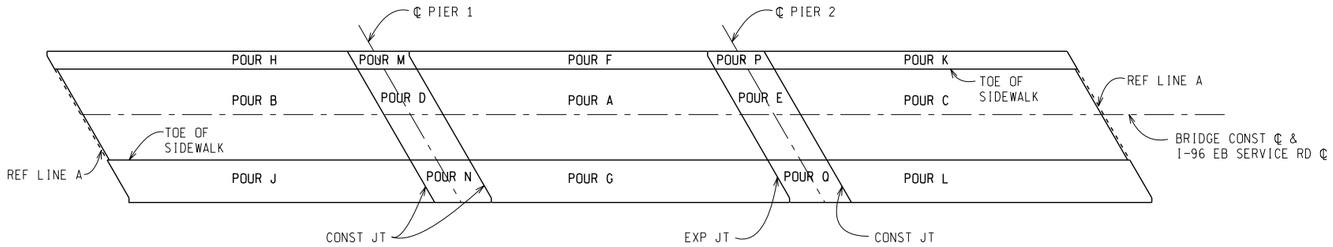
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 19 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: AUGUST 6, 2010



POUR DIAGRAM

SUPERSTRUCTURE CONC, NIGHT CASTING QUANTITIES	
POUR	CYD
A	93.2
B	94.6
C	94.6
D	18.5
E	18.5

SUPERSTRUCTURE CONC QUANTITIES	
POUR	CYD
F	9.7
G	25.5
H	9.9
J	25.9
K	9.9
L	25.9
M	1.9
N	5.1
P	1.9
Q	5.1

MISCELLANEOUS QUANTITIES

121	Cyd	Superstructure Conc
320	Cyd	Superstructure Conc, Night Casting
1	LS	Superstructure Conc, Form, Finish, and Cure (Structure 11479)
1	LS	Superstructure Conc, Form, Finish, and Cure, Night Casting (Structure 11479)
320	Cyd	Bridge Ltg, Oper and Maintain
1	LS	Bridge Ltg, Furn and Rem (Structure 11479)
570	Ft	Bridge Railing, Aesthetic Parapet Tube
100	Sft	Joint Waterproofing
22	Ea	Drain Casting Assembly, Type 1
48	Ea	Adhesive Anchoring of Vertical Bar, 3/4 inch
54	Ea	Adhesive Anchoring of Vertical Bar, 1/2 inch

NOTES:

JWP DENOTES JOINT WATERPROOFING.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD PLAN B-25-SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

A RUBBED SURFACE FINISH ON THE VERTICAL AND TOP CONCRETE SURFACES OF THE PARAPET RAILING IS REQUIRED ON THIS STRUCTURE.

FOR DETAILS OF DRAIN CASTING ASSEMBLIES, SEE STANDARD PLAN B-101-SERIES.

FOR DETAILS OF LIGHT STANDARD ANCHOR BOLT ASSEMBLIES, SEE STANDARD PLAN B-103-SERIES.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE. CONCRETE IN THE SUSPENDED SPAN IS TO BE CAST BEFORE THE CONCRETE IN THE ANCHOR SPANS, AND WHENEVER A DECK POUR IS MADE, AT LEAST 15 HOURS SHALL HAVE ELAPSED SINCE THE ADJACENT SECTION WAS PLACED. THIS INCLUDES SECTIONS SEPARATED BY LONGITUDINAL AS WELL AS TRANSVERSE JOINTS.

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.03 J. OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE BID ITEMS "SUPERSTRUCTURE CONC, NIGHT CASTING" AND "SUPERSTRUCTURE CONC".

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 I. OF THE STANDARD SPECIFICATIONS.

THE LIGHT STANDARD ANCHOR BOLT ASSEMBLIES ARE INCLUDED IN THE PAYMENT FOR "BRIDGE RAILING, AESTHETIC PARAPET TUBE".

THE CONTRACTOR MAY USE METAL STAY IN PLACE FORMS. IF USED, ELIMINATING THE POLYSTYRENE AND FILLING THE CORRUGATIONS WITH CONCRETE IS PROHIBITED.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 1/2" DEEP BY 1/8" WIDE (MINIMUM) IN THE TOP OF SLAB AT TRANSVERSE CONSTRUCTION JOINTS, OVER PIERS AND AT FIXED PIN & HANGER JOINTS. THE JOINT IS TO BE SAWED WITHIN 4 HOURS OF REMOVING THE CURING AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE. (INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (STRUCTURE 11479)").

NO PORTION OF DECK FORMWORK OR SUPPORTS SHALL PROTRUDE ABOVE THE TOP OF PROPOSED HAUNCH.

FILL PERPENDICULAR RAILING JOINTS WITH 1" JOINT FILLER TO 1/2" FROM THE BEVELS OF RAILING AND SEAL REMAINING 1/2" WITH A SILICONE RUBBER SEALANT. INCLUDED IN THE BID ITEM "BRIDGE RAILING, AESTHETIC PARAPET TUBE".

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

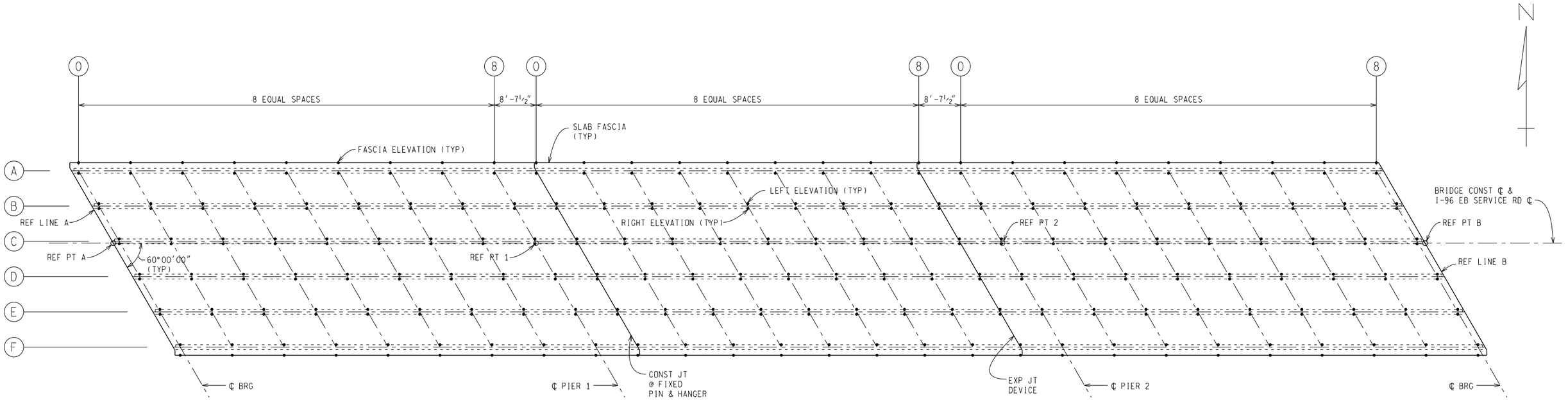
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 20 OF 25 SHEETS

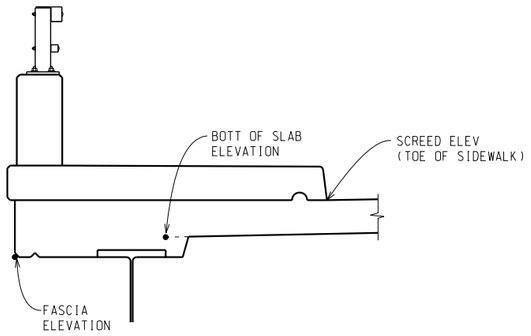
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

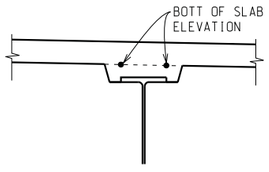
DATE: AUGUST 6, 2010



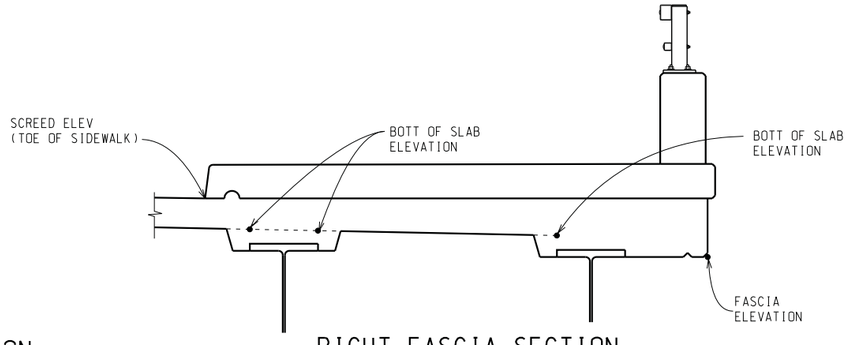
PLAN OF SLAB



LEFT FASCIA SECTION



TYPICAL INTERIOR SECTION



RIGHT FASCIA SECTION

NOTES:

BOTTOM OF SLAB ELEVATIONS ARE AT RIGHT ANGLES TO THE BEAM CENTERLINE AND ARE BASED ON THE CONDITION THAT THE BEAMS AND DIAPHRAGMS ARE COMPLETELY ERECTED WITH NO OTHER LOADS APPLIED. THESE ELEVATIONS INCLUDE ALLOWANCE FOR VERTICAL CURVE AND DEFLECTION DUE TO FORMS, STEEL REINFORCEMENT, CONCRETE SLAB, SIDEWALKS, RAILING AND UTILITIES.

SCREEDS AFFECTED BY LOADS IN OTHER SPANS ARE TO BE SET TO THE ELEVATIONS SHOWN BEFORE CASTING ANY CONCRETE. CONCRETE IN THE SUSPENDED SPAN IS TO BE CAST BEFORE THE CONCRETE IN THE ANCHOR SPANS.

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK, SHEAR DEVELOPERS AND STEEL REINFORCEMENT ARE IN PLACE.

SCREED RAILS FOR FINISHING OF STRUCTURAL CONCRETE SHALL BE LOCATED OVER FASCIA BEAMS.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SLAB AND SCREED DETAILS

I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 21 OF 25 SHEETS

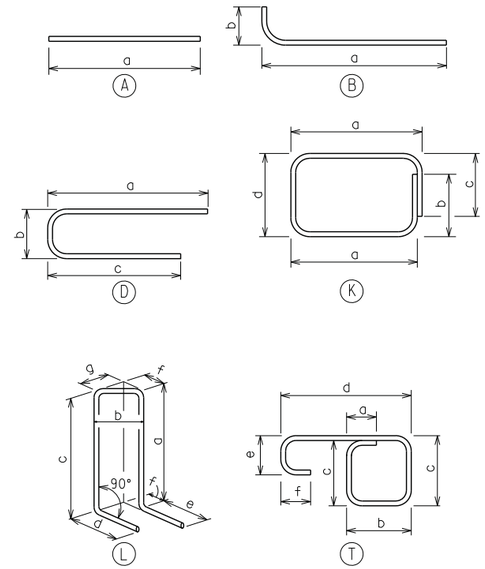
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: AUGUST 6, 2010

	BAR	DIMENSIONS									NO. REQ'D	TOTAL WT.
		a	b	c	d	e	f	g	h	j		
SLAB	EA032703	27′-3″									156	1598
	EA033211	32′-11″									312	3862
	EA042708	27′-8″									162	2994
	EA043303	33′-3″									324	7196
	EA044502	45′-2″									8	241
	EA053900	39′-0″									310	12610
	EA053908	39′-8″									93	3848
	EA054108	41′-8″									93	4042
	EA054502	45′-2″									16	754
	EA061500	15′-0″									98	2208
	ED052110	20′-10″	0′-6″	0′-6″							620	14119
	ED060410	3′-10″	0′-6″	0′-6″							806	5851
SLAB AND SIDEWALK	ED040211	0′-10 3/4″	1′-1 1/2″	0′-10 3/4″							406	791
	ET060709	1′-0″	1′-4″	1′-1″	1′-8″	0′-7 1/2″	0′-8″				285	3318
	ET060800	1′-0″	1′-4″	1′-4″	1′-8″	0′-7 1/2″	0′-8″				293	3521
SIDEWALK	EA042708	27′-8″									87	1608
	EA043303	33′-3″									174	3865
	EA060402	4′-2″									406	2541
	EA061008	10′-8″									406	6505
SIDEWALK & RAILING	ED040410	1′-2″	2′-6″	1′-2″							4	13
	ED040503	2′-3 3/4″	0′-7 1/4″	2′-4″							27	95
	ED060808	4′-0 1/2″	0′-7″	4′-0 1/2″							16	208
	ED060809	4′-1″	0′-7″	4′-1″							8	105
	EL040707	2′-6″	0′-7″	2′ -2″	1′-2″	1′-2″	0′-7″	0′-0″			970	4914
	EL061100	3′-10 1/2″	0′-6 3/4″	4′ -2 1/2″	1′-2 1/8″	1′-2 1/8″	0′-0″	0′-6 3/4″			8	132
	EL061101	4′-2 1/2″	0′-7 1/4″	3′ -10 1/2″	1′-2 1/8″	1′-2 1/8″	0′-7 1/4″	0′-0″			16	266
RAILING	EA040409	4′-9″									8	25
	EA040706	7′-6″									8	40
	EA041208	12′-8″									6	51
	EA041410	14′-10″									6	59
	EA043303	33′-3″									72	1599
	EA044005	40′-5″									24	648
	ED040309	1′-2 1/2″									6	15

BAR	DIMENSIONS									NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h	j		



EPOXY COATED
BAR SIZE
BAR LENGTH (FT)
BAR LENGTH (IN)
EA064700
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES

98,600	Lb	Reinforcement, Steel, Epoxy Coated

NOTE:

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

FIELD BENDING AND CUTTING REINFORCEMENTS SHALL BE DONE ACCORDING TO SECTION 706.03.E OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. FIELDING BENDING, CUTTING AND THREADING REINFORCEMENT WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE BID ITEM "REINFORCEMENT, STEEL, EPOXY COATED".

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

STEEL REINFORCEMENT DETAILS

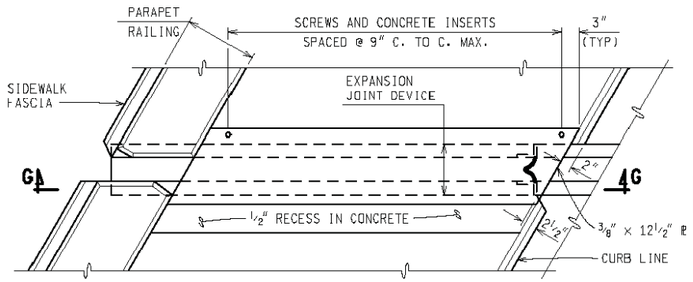
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 22 OF 25 SHEETS

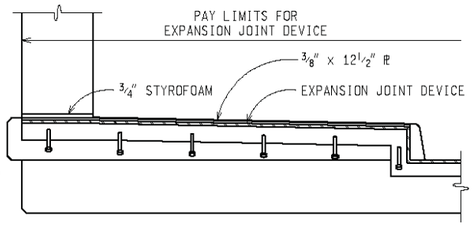
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

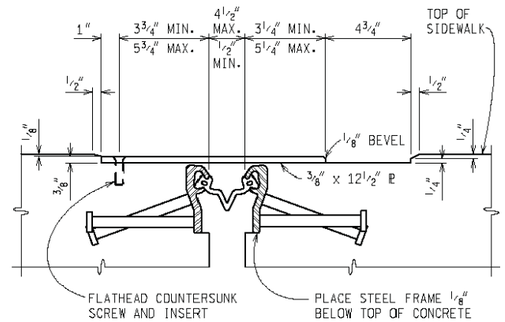
DATE: AUGUST 6, 2010



PLAN AT PARAPET RAILING WITH SIDEWALK



SECTION G – G



SECTION THROUGH EXPANSION JOINT AND COVER PLATE

SIDEWALK SECTIONS

ALL STEEL FOR EXPANSION JOINT AND COVER PLATE SHALL BE AASHTO M270, GRADE 36, AND GALVANIZED (ASTM A123) WITH A STATIC COEFFICIENT OF FRICTION OF 0.6 OR GREATER.

USE ASTM F 593 (TYPE 304) STAINLESS STEEL 3/4" DIAMETER FLATHEAD COUNTERSUNK SCREWS WITH 3/4" DIAMETER INSERTS.

CAST CURBS AND SIDEWALKS WITH 3/8" SLIDING PLATES IN PLACE TO INSURE THAT INSERTS AND SCREWS ARE ALIGNED PROPERLY. APPLY BOND BREAKER TO SLIDING PLATES PRIOR TO INSTALLATION.

FORM CONCRETE RECESS AREA IN SIDEWALK AND GRIND TO PROVIDE SMOOTH SURFACE. TOOL OR GRIND CONCRETE EDGES TO 1/4" RADIUS. APPLY ONE COAT OF EPOXY RESIN ADHESIVE TO ALLOW BENT SLIDING PLATE TO MOVE FREELY WITHOUT FRICTION. CARE SHALL BE TAKEN SO THAT NO ADHESIVE COMES IN CONTACT WITH ANY PART OF THE EXPANSION JOINT DEVISE OR GLAND. REMOVE ANY FOREIGN PARTICLES FROM THE SURFACE PRIOR TO INSTALLING PLATES.

INSTALL PLATES SO THAT THE SCREWS AND INSERTS ARE SET ON THE HIGH SIDE OF LONGITUDINAL SIDEWALK GRADE.

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE COVER PLATE IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE COVER PLATE.

NOTES:

JOINT TYPES

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL - TYPE M	WATSON-BOWMAN & ACME, INC.
WABO STRIP SEAL - TYPE A	WATSON-BOWMAN & ACME, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN SUPPORT AREA.

FABRICATION AND INSTALLATION

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE EXPANSION JOINT DEVICE SHALL BE SET 1/8" - 1/4" BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 1/8".

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.03C.16 OF THE STANDARD SPECIFICATIONS.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.04D SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

IN THE EVENT THAT SPLICING IS REQUIRED OF THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
11479	60	PIN & HANGER	3 1/8"	48'-0"
		AT PIER 2		

QUANTITY		
ITEM	UNIT	AMOUNT
Expansion Joint Device	Ft	48
Expansion Joint Device, Cover Plate	Ft	16

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

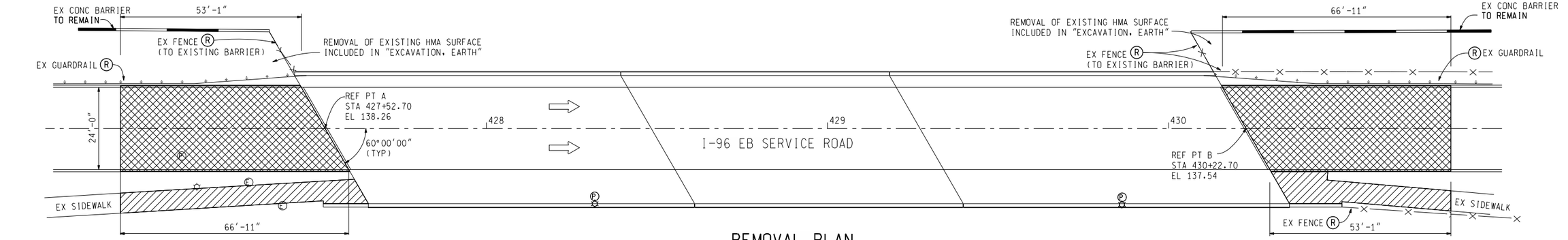
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXPANSION JOINT DETAILS
EJ3Y 03-14-2007

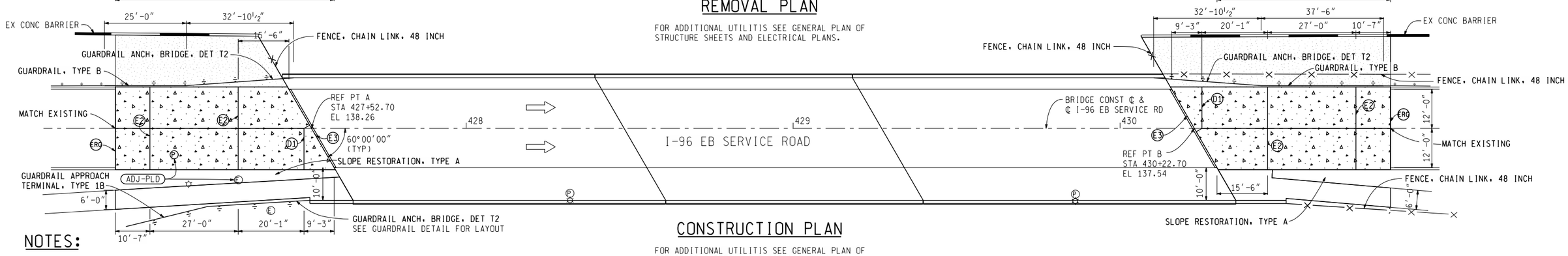
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 23 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: AUGUST 6, 2010



REMOVAL PLAN

FOR ADDITIONAL UTILITIS SEE GENERAL PLAN OF STRUCTURE SHEETS AND ELECTRICAL PLANS.



CONSTRUCTION PLAN

FOR ADDITIONAL UTILITIS SEE GENERAL PLAN OF STRUCTURE SHEETS AND ELECTRICAL PLANS.

NOTES:

STATIONING ON THESE PLANS WAS TAKEN FROM EXISTING PLANS.

FULL DEPTH SAW CUTS WILL NOT BE PAID FOR SEPARATELY, BUT ARE INCLUDED IN THE BID ITEM PAVT, REM.

REMOVE PAVEMENT TO THE LIMITS SHOWN OR AS DIRECTED BY THE ENGINEER.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974. THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE EXISTING UTILITIES SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVALABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

ADDITIONAL CONCRETE AND STEEL REINFORCEMENT NECESSARY TO CONSTRUCT THE APPROACH PAVEMENT SHALL BE INCLUDED IN THE BID ITEM "CONC PAVT WITH INTEGRAL CURB, REINF, 10 INCH".

WHERE UNIT OF PAVEMENT SLAB IS OTHER THAN SPECIFIED ON THE STANDARD, SPECIAL SHEETS OF THE REQUIRED WIDTH MAY BE USED OR STANDARD SHEETS MAY BE CUT TO THE REQUIRED SIZE OR SPLIT SHEETS MAY BE ADDED TO STANDARD SHEETS TO OBTAIN THE REQUIRED SIZE.

SEE STANDARD PLAN R-39-SERIES AND R-44-SERIES FOR DETAILS OF JOINTS AND LOAD TRANSFER.

UTILITY MANHOLE COVER ADJUSTMENTS FOR PLD, DWSD AND DTE MANHOLES WILL BE PAID FOR AS "DR STRUCTURE COVER, ADJ, CASE 2"

MISCELLANEOUS QUANTITIES

AMOUNT	UNIT	ITEM
0.09	Acre	Clearing
334	Syd	Pavt, Rem
86	Syd	Sidewalk, Rem
120	Ft	Guardrail, Rem
130	Ft	Fence, Rem
230	Cyd	Excavation, Earth
338	Syd	Conc Pavt with Integral Curb, Reinf, 10 inch
18	Ton	HMA Approach
774	Sft	Sidewalk, Conc, 6 inch
400	Syd	Open-Graded Dr Cse, 4 inch, Modified
240	Ft	Underdrain, Pipe, Open-Graded, 6 inch
150	Ft	Underdrain Outlet, 6 inch
2	Ea	Underdrain, Outlet Ending, 6 inch
2	Ea	Dr Marker Post
86	Syd	Aggregate Base, 4 inch
209	Syd	Aggregate Base, 6 inch
120	Cyd	Subbase, CIP

MISCELLANEOUS QUANTITIES

AMOUNT	UNIT	ITEM
400	Syd	Geotextile Separator
50	Syd	Slope Restoration, Type A
33	Cyd	Embankment, CIP
102	Ft	Joint, Expansion, E2
59	Ft	Joint, Expansion, E3
51	Ft	Joint, Expansion, Erg
30	Ft	Joint, Plane-of-Weakness, D1
6	Ea	Guardrail Reflector
3	Ea	Guardrail Anch, Bridge, Det T2
63	Ft	Guardrail, Type B
1	Ea	Guardrail Approach Terminal, Type 1B
130	Ft	Fence, Chain Link, 48 inch
2	Ea	Dr Structure Cover, Adj, Case 2
98	Ft	Pavt Mrkg, Sprayable Thermopl, 4 inch, White
390	Ft	Pavt Mrkg, Sprayable Thermopl, 6 inch, White
390	Ft	Pavt Mrkg, Sprayable Thermopl, 6 inch, Yellow

LEGEND

- (B) LONGITUDINAL BULKHEAD JOINT
- (D) LONGITUDINAL LANE TIE JOINT
- (D1) TRANSVERSE PLANE OF WEAKNESS JOINT
- (BD) OPTIONAL B OR D JOINT
- (E4) EXPANSION JOINT E4
- (E3) EXPANSION JOINT E3
- (E2) EXPANSION JOINT E2
- (ERG) EXPANSION JOINT Erg
- (ESC) EXPANSION JOINT ESC
- REMOVAL OF PAVEMENT & CURB
- REMOVAL OF SIDEWALK
- PROPOSED CONCRETE PAVEMENT
- PROPOSED SIDEWALK
- PROPOSED HMA SURFACE

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

BRIDGE APPROACH DETAILS

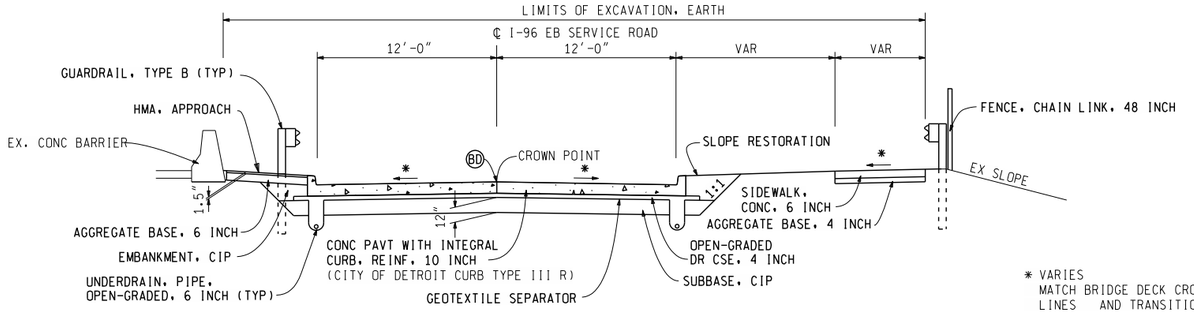
I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 24 OF 25 SHEETS

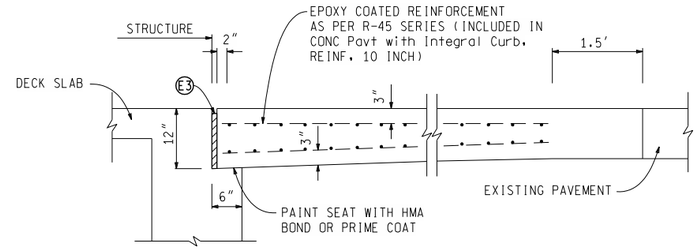
STRUCTURE NUMBER 11479

JOB NUMBER 104599A

DATE: NOVEMBER 29, 2010



TYPICAL APPROACH SECTION

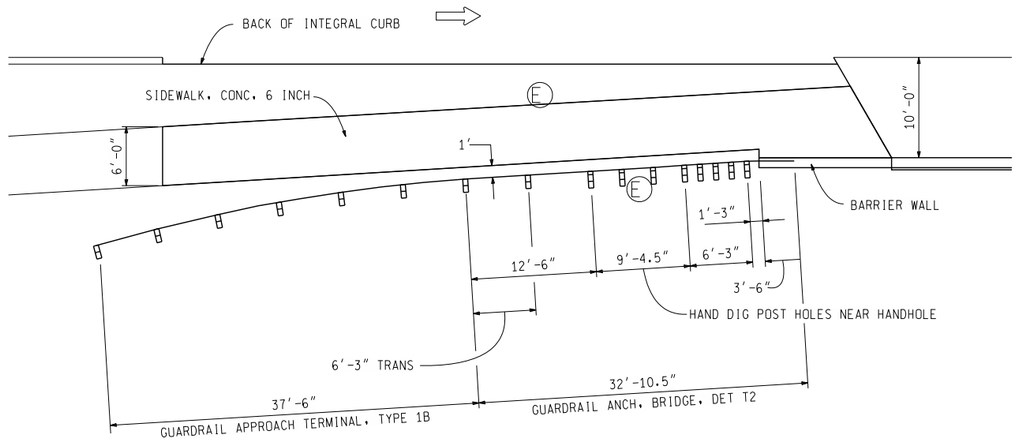


PAVEMENT SLAB ADJACENT TO STRUCTURE

* VARIES
MATCH BRIDGE DECK CROSS SECTION AT REFERENCE LINES AND TRANSITION TO MATCH EXISTING.

NOTE:
TRANSITION CURB TO MATCH BRIDGE SECTION, INCLUDED IN PAY ITEM "CONC PAVT WITH INTEGRAL CURB, REINF, 10 INCH".

ITEM	RATE PER SYD	PERFORMANCE GRADE	REMARKS
HMA, Approach	385 Lb	64-22	2 LIFTS: 4C @ 165 Lbs/Syd on 3C @ 220 Lbs/Syd
Bond Coat	0.05 - 0.15 Gal		FOR INFORMATION ONLY



GUARDRAIL DETAIL
(SW QUADRANT)

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

APPROVED:
FEDERAL PROJECT NO.
FEDERAL ITEM NO.

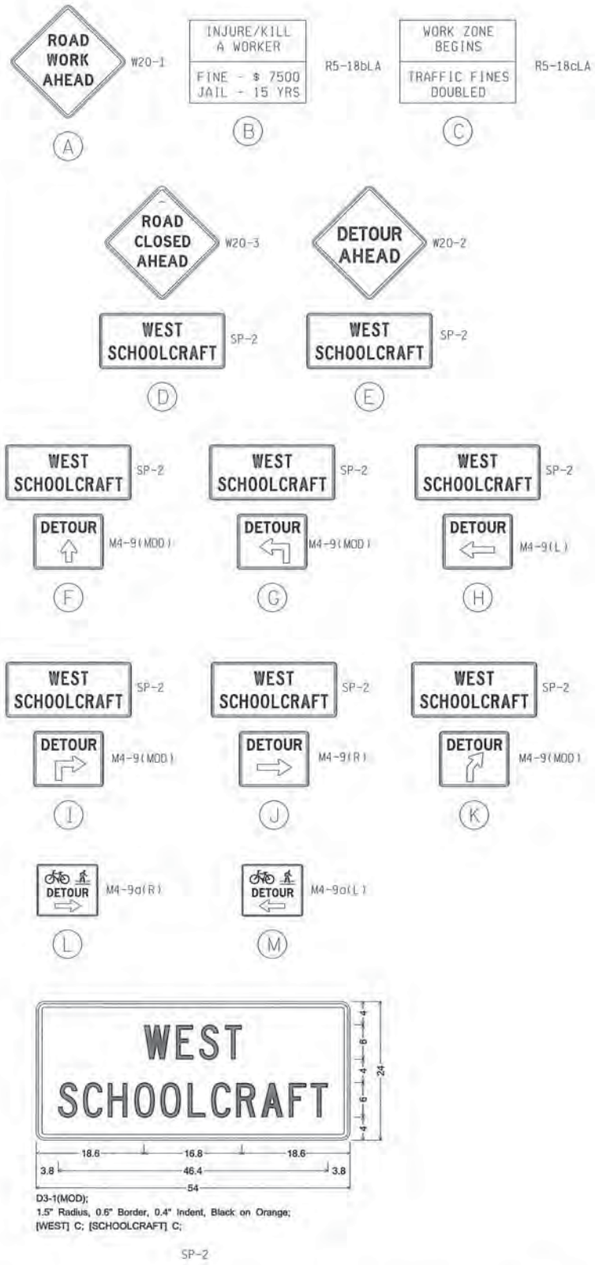
HNTB

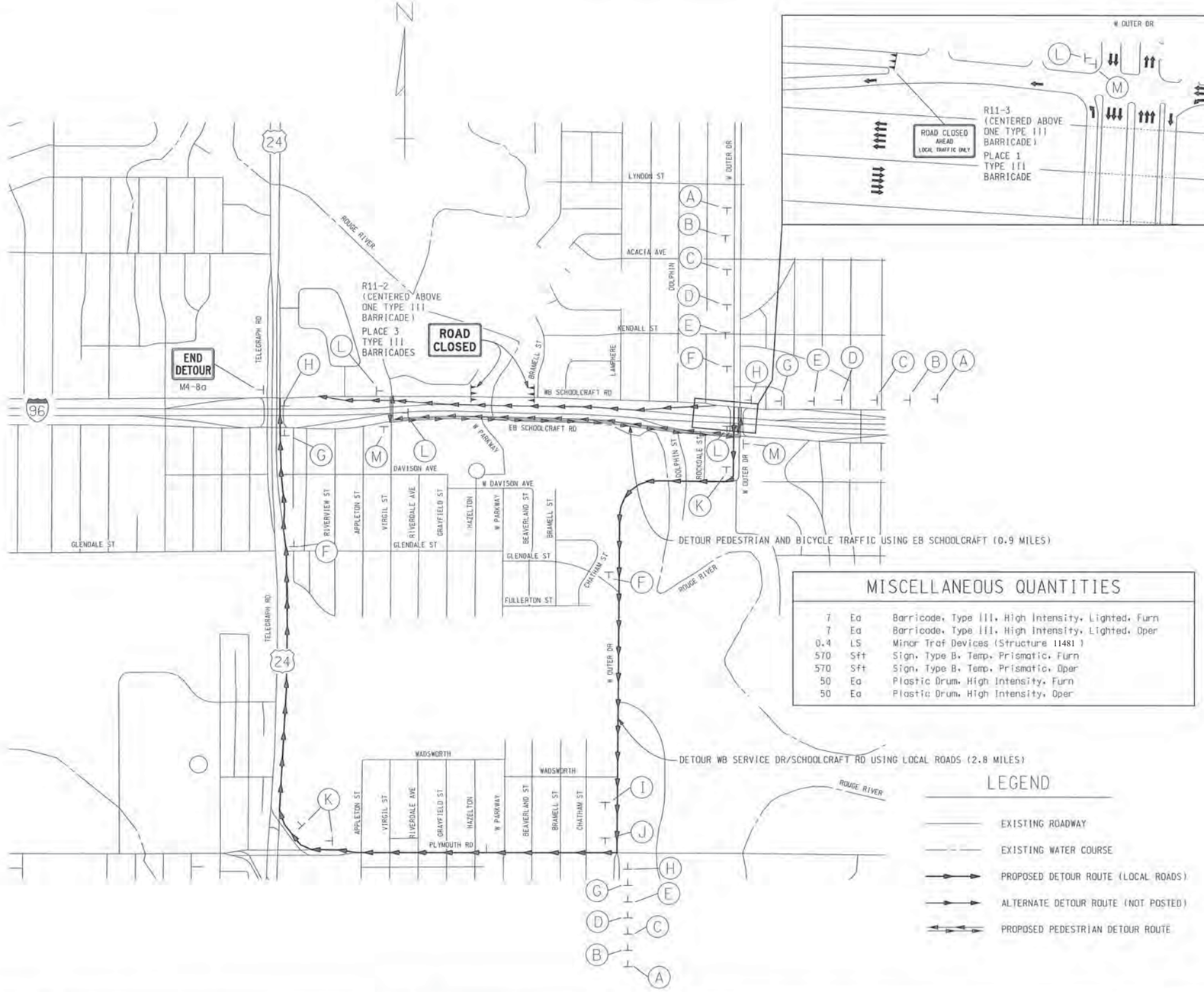
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

BRIDGE APPROACH DETAILS

I-96 EB SERVICE ROAD OVER ROUGE RIVER

SHEET 25 OF 25 SHEETS
STRUCTURE NUMBER 11479
JOB NUMBER 104599A
DATE: NOVEMBER 29, 2010





MISCELLANEOUS QUANTITIES

7	Ea	Barricade, Type III, High Intensity, Lighted, Furn
7	Ea	Barricade, Type III, High Intensity, Lighted, Oper
0.4	LS	Minor Traf Devices (Structure 11481)
570	Sft	Sign, Type B, Temp, Prismatic, Furn
570	Sft	Sign, Type B, Temp, Prismatic, Oper
50	Ea	Plastic Drum, High Intensity, Furn
50	Ea	Plastic Drum, High Intensity, Oper

LEGEND

- EXISTING ROADWAY
- EXISTING WATER COURSE
- PROPOSED DETOUR ROUTE (LOCAL ROADS)
- ALTERNATE DETOUR ROUTE (NOT POSTED)
- PROPOSED PEDESTRIAN DETOUR ROUTE

DESCRIPTION	DATE
REVISIONS	

	BY	CHECKED BY
PLAN	LP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DTE

APPROVED: Sunny Jacob 7/21/10 DPW-Traffic Engineering

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

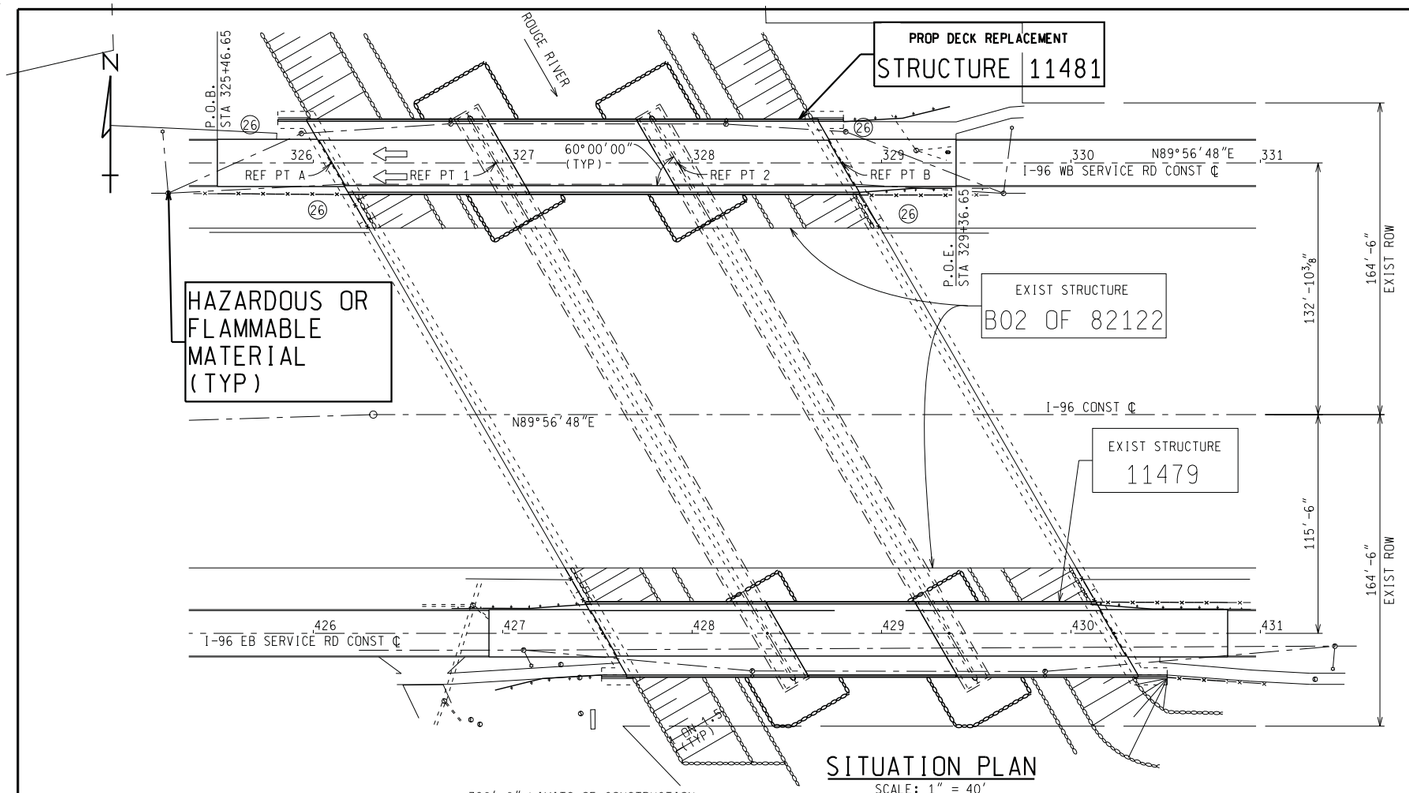
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

DETOUR SHEET

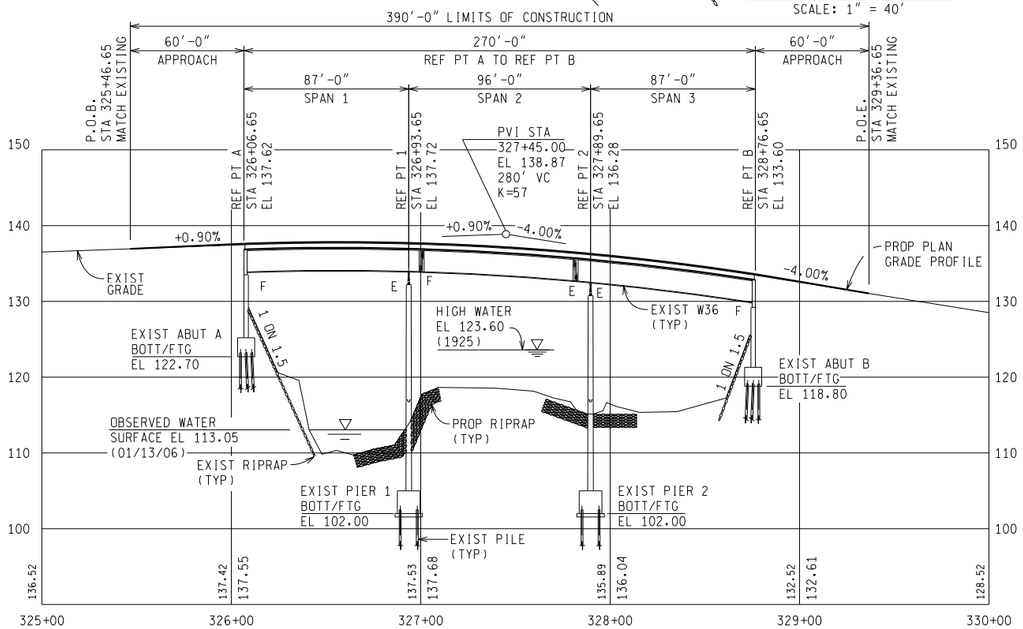
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: JUNE 25, 2010



SITUATION PLAN

SCALE: 1" = 40'



PROFILE ALONG I-96 WB SERVICE ROAD CONST ℄

VERT. SCALE: 1" = 10'
HOR. SCALE: 1"= 40'

UTILITIES

CITY OF DETROIT DETROIT WATER AND SEWERAGE DEPARTMENT ATTN: BHARAT DASHI ENGINEER OF WATER SYSTEMS DETROIT DESIGN SECTION JULIAN MADISON BUILDING 1420 WASHINGTON BLVD. DETROIT, MI 48226 PHONE: (313) 967-1541 FAX: (313) 964-9810	WATER/SEWER
CITY OF DETROIT PUBLIC LIGHTING DEPARTMENT 9449 GRINNELL AVENUE DETROIT, MI 48213 PHONE: (313) 267-7228 FAX: (313) 267-8153	ELECTRIC/ LIGHTING/ SIGNALS
DETROIT EDISON CO. PROJECT MANAGEMENT ATTN: ANJANETTE BORAWSKI 2000 2ND. AVE., ROOM 565 SB DETROIT, MI 48226 PHONE: (313) 235-9284 FAX: (313) 235-0297	ELECTRIC
MICHIGAN CONSOLIDATED GAS CO. ENGINEERING AND CONSTRUCTION 3200 HOBSON STREET DETROIT, MI 48201 PHONE: (313) 577-7470 FAX: (313) 577-7061	GAS

EXISTING STRUCTURE

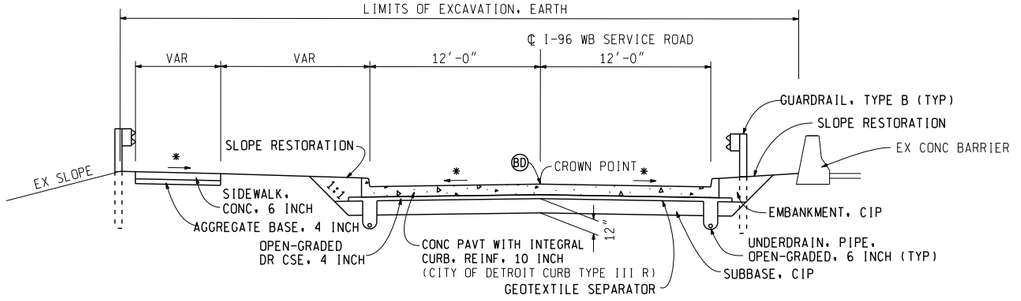
THE EXISTING STRUCTURE IS A THREE-SPAN, ROLLED STEEL BEAM BRIDGE. IT WAS BUILT IN 1970 AND WAS DESIGNED FOR HS20 LOADING. THE STRUCTURE CARRIES 2 THRU LANES WITH 24'-0' CLEAR ROADWAY WIDTH.

BENCHMARKS

BM 11000 EL 138.77
WCRC BRASS DISK IN SW QUADRANT OF BRIDGE SIDEWALK
N = 119689.829
E = 40815.081

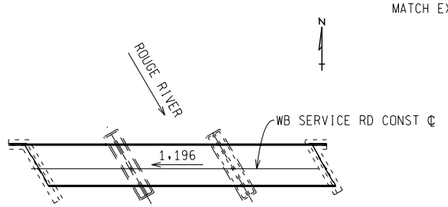
BM 11001 EL 138.75
SE BOLT OF FREEWAY SIGN SUPPORT IN NW QUADRANT OF BRIDGE
N = 119722.576
E = 40686.289

BM 11002 EL 137.30
NW BOLT ON LIGHT POLE BASE IN SE QUADRANT OF BRIDGE
N = 119683.097
E = 41189.582



TYPICAL APPROACH SECTION

* VARIES - MATCH BRIDGE DECK CROSS SECTION AT REFERENCE LINES AND TRANSITION TO MATCH EXISTING.



2030 ESTIMATED TRAFFIC DISTRIBUTION

0000	AVERAGE DAILY TRAFFIC
10%	COMMERCIAL
40 MPH	DESIGN SPEED
35 MPH	POSTED SPEED
⟵	DIRECTIONAL TRAFFIC

KEY	SOIL EROSION AND SEDIMENTATION CONTROL QUANTITIES
(26)	240 Ft Erosion Control, Silt Fence

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PIN AND HANGER REPLACEMENT, CLEANING AND COATING EXISTING STRUCTURAL STEEL, APPROACH WORK, MAINTAINING TRAFFIC AND PLACING SCOUR COUNTERMEASURES (RIPRAP) TO THE LIMITS SHOWN.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

WB SERVICE ROAD TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS. SEE DETOUR PLAN FOR DETAILS.

ALL AREAS SHOWN FOR THE PROPOSED WORK ARE WITHIN EXISTING RIGHT-OF-WAY.

PLAN ELEVATIONS REFER TO CITY OF DETROIT DATUM.

WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE.

COORDINATES ARE NOT AVAILABLE FOR THIS PROJECT.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

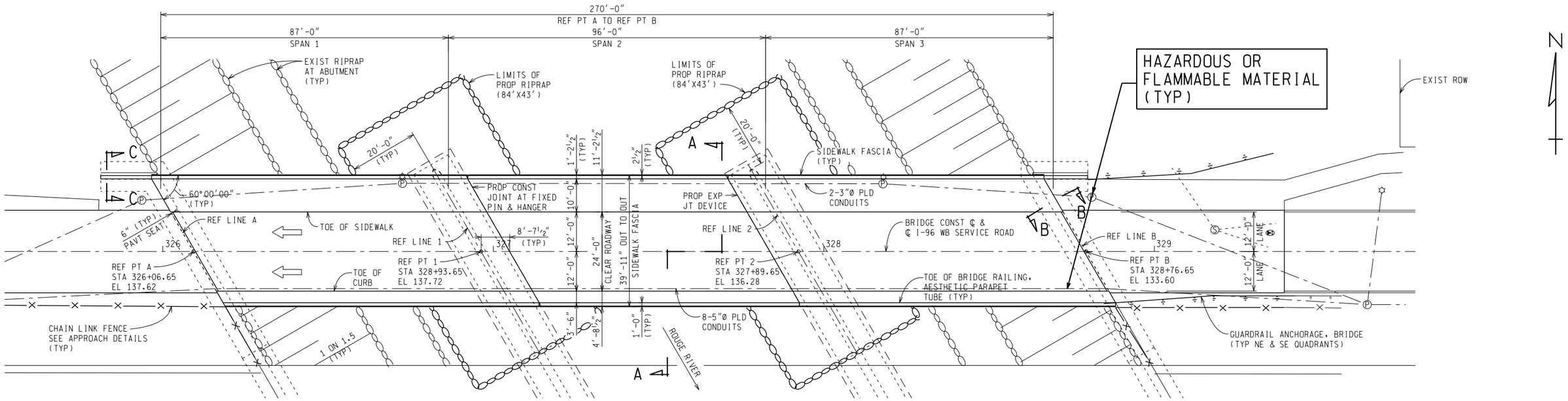
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

GENERAL PLAN OF SITE

I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 3 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010



PLAN

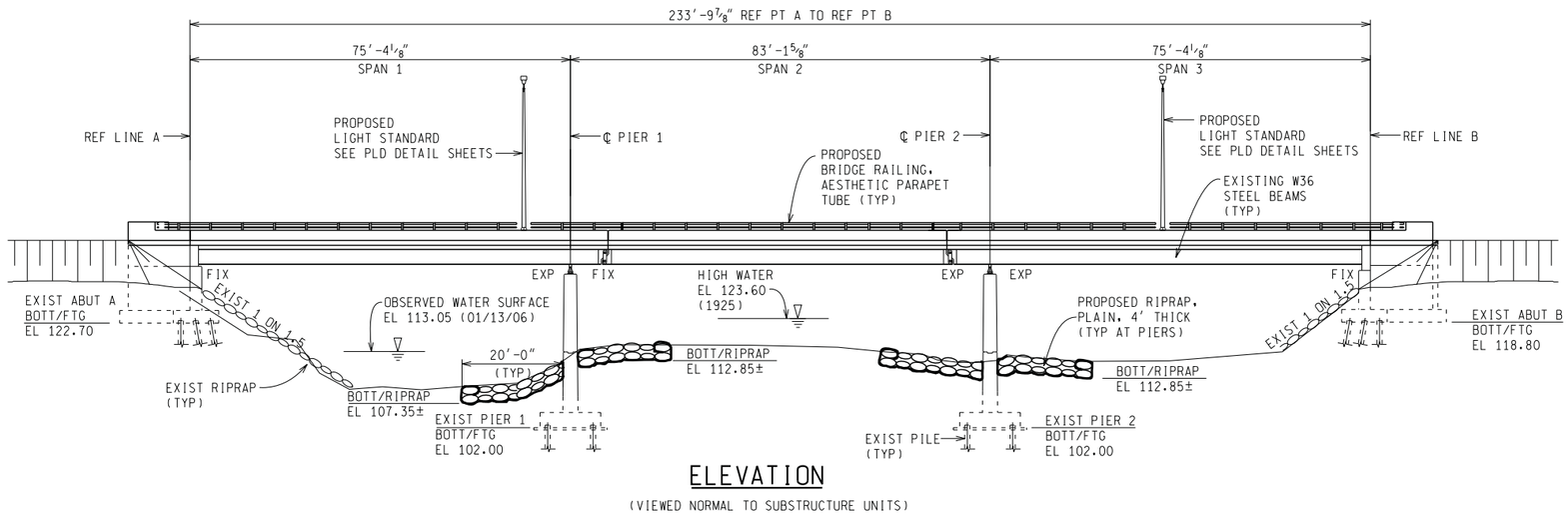
MISCELLANEOUS QUANTITIES

1	LS	Structures, Rem Portions (Structure 11481)
17	Cyd	Excavation, Fdn
17	Cyd	Backfill, Structure, CIP
1	LS	Conc Surface Coating (Structure 11481)
9500	Sft	False Decking
880	Cyd	Non Haz Contaminated Material Handling and Disposal, LM
1	LS	Coffердams (Structure 11481)
4500	Syd	Riprap, Plain

SUMMARY OF HYDRAULIC ANALYSIS

EXISTING				PROPOSED			
FLOOD DATA	DIS-CHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN WS EL (FT) U/S OF PROPOSED STRUCTURE
50 YEAR	7000	122.83	4.77	122.83	4.77	1468	0.00
100 YEAR	8889	123.61	5.47	123.61	5.47	1626	0.00
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 3920 SQUARE FEET							

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN. THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 184 SQUARE MILES.



ELEVATION

(VIEWED NORMAL TO SUBSTRUCTURE UNITS)

NOTES:

THE REHABILITATION DESIGN IS BASED ON THE 17TH EDITION OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS20-44 AND ALTERNATE MILITARY LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/375 OF CANTILEVER ARM. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE. THE ORIGINAL STRUCTURE WAS DESIGNED FOR HS20 AND ALTERNATE MILITARY LOADING

WITHOUT THE PREVENTIVE MEASURES SHOWN ON THESE PLANS, THERE IS A POSSIBILITY THAT STREAM BED SCOUR MAY OCCUR. THE ESTIMATED TOTAL SCOUR DEPTH IS CALCULATED TO BE 11 FEET AT PIER 1 AND PIER 2. THESE DEPTHS ARE BASED ON A 500 YEAR RUNOFF EVENT.

GEOTEXTILE LINER SHALL BE PLACED PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN THE PAYMENT FOR RIPRAP.

A COFFERDAM OR OTHER MEANS OF WATER CONTROL MAY BE USED FOR THE PLACEMENT OF THE RIPRAP, AS APPROVED BY THE ENGINEER, PROVIDED THEY DO NOT DISTURB THE STREAM BED. PAYMENT FOR WATER CONTROL, WHETHER IT BE BY COFFERDAM OR OTHER APPROVED MEANS, SHALL BE INCLUDED IN THE PAYMENT FOR RIPRAP.

PLACE RIPRAP BLANKET, 4 FEET IN THICKNESS AND EXTENDING HORIZONTALLY A MINIMUM 20 FEET FROM ALL FACES OF EACH PIER. THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED. THE ESTIMATED WEIGHT OF RIPRAP IS 800 TONS. TOP OF PROPOSED RIPRAP SHALL MATCH EXISTING RIVERBED. BROKEN CONCRETE SHALL NOT BE USED AS RIPRAP. WORK IN THE RIVER SHALL BE LIMITED TO THE DAYS SHOWN IN THE MDNRE PERMIT.

FALSE DECKING SHALL INCLUDE THE AREA BOUNDED BY REFERENCE LINES A & B AND OUTSIDE FLANGE FASCIAS OF BEAMS. THE ESTIMATED AREA IS 9500 SQUARE FEET DURING REMOVAL AND CONSTRUCTION OF BRIDGE DECK.

CONCRETE SURFACE COATING SHALL BE APPLIED TO THE ENTIRE CONCRETE PORTION OF BRIDGE RAILING, SLAB FASCIA AND SIDEWALK FASCIA. SEE SPECIAL PROVISION FOR COATING COLOR. THE ESTIMATED AREA OF COATING IS 420 SQUARE YARDS.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

GENERAL PLAN OF STRUCTURE

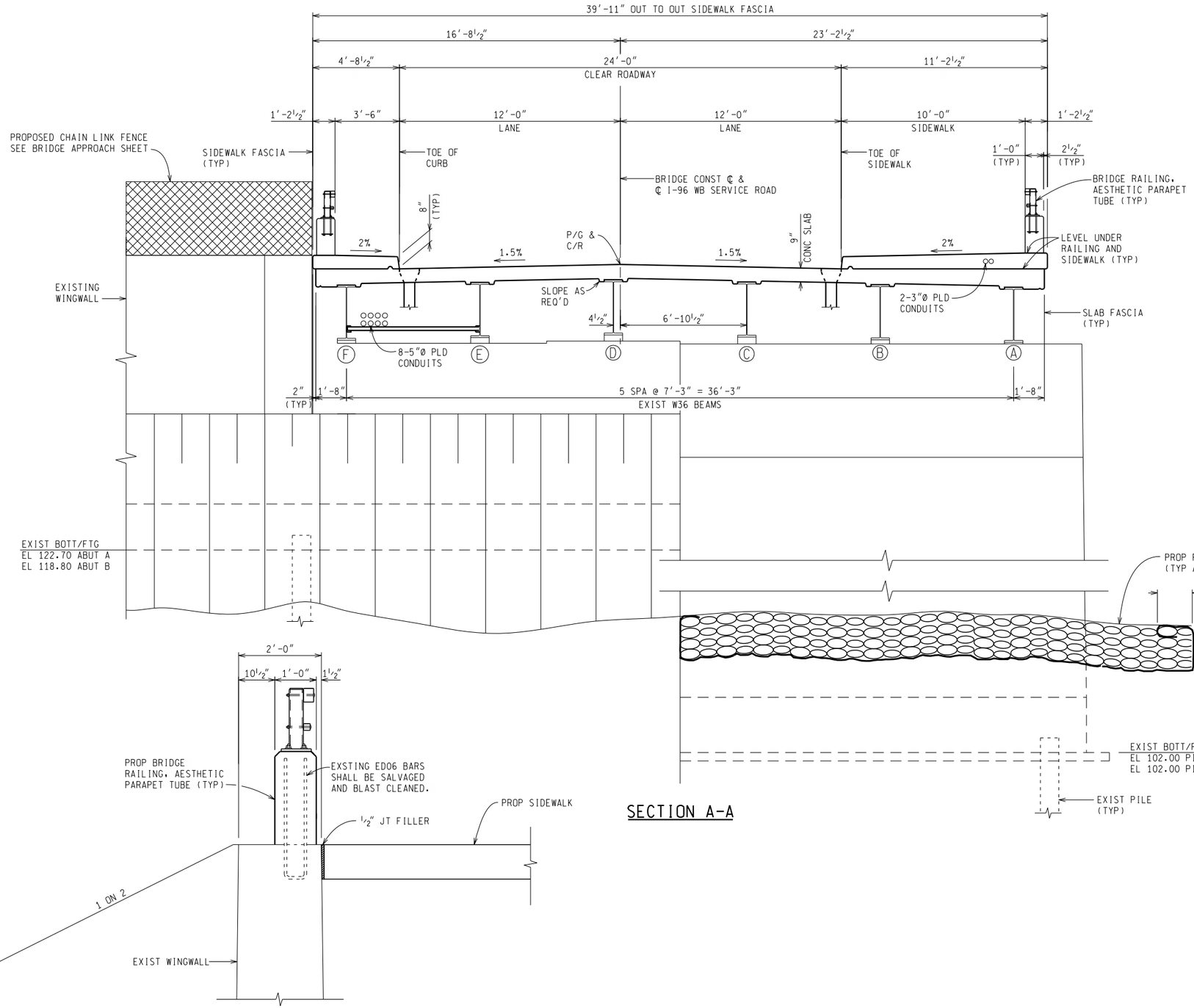
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 4 OF 25 SHEETS

STRUCTURE NUMBER 11481

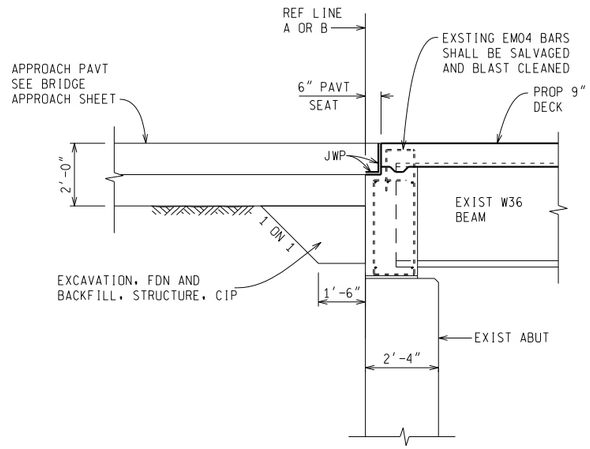
JOB NUMBER 104601A

DATE: AUGUST 6 2010

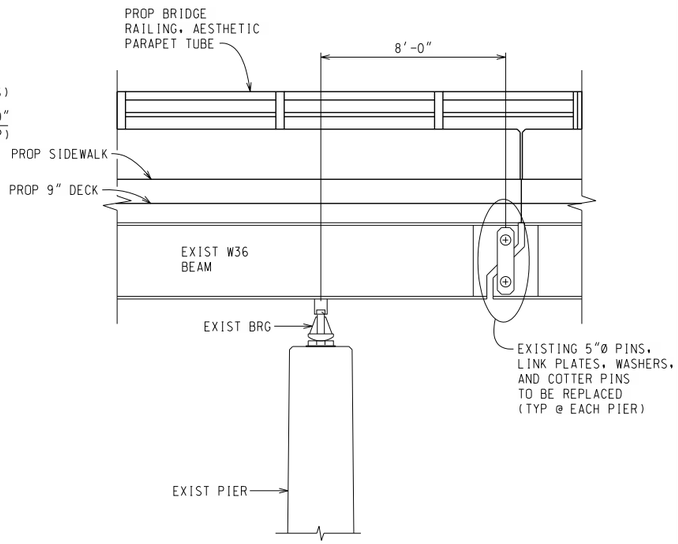


SECTION A-A

SECTION C-C



SECTION B-B



TYP SECTION THROUGH PIER

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

GENERAL PLAN OF STRUCTURE

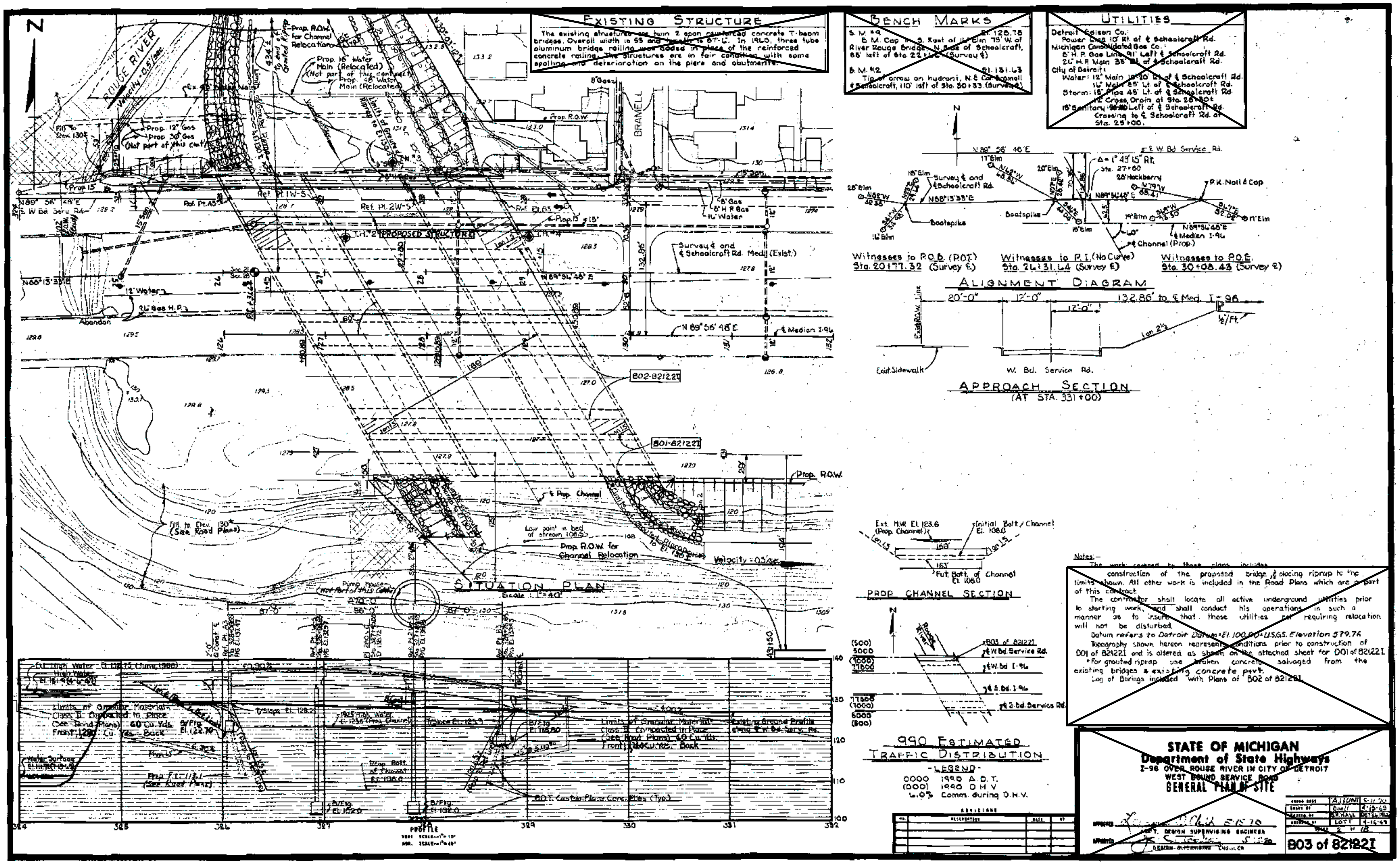
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 5 OF 25 SHEETS

STRUCTURE NUMBER 11481

JOB NUMBER 104601A

DATE: NOVEMBER 29, 2010



EXISTING
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

	DR'N	CK'D	AP'VD	DATE		BY	CHECKED BY	
					PLAN	SJP	MPP	APPROVED:
					GRADE			FEDERAL PROJECT NO.
					ESTIMATE			
DESCRIPTION					FINAL	CHECK MPP	REVIEW DFE	FEDERAL ITEM NO.
REVISIONS								

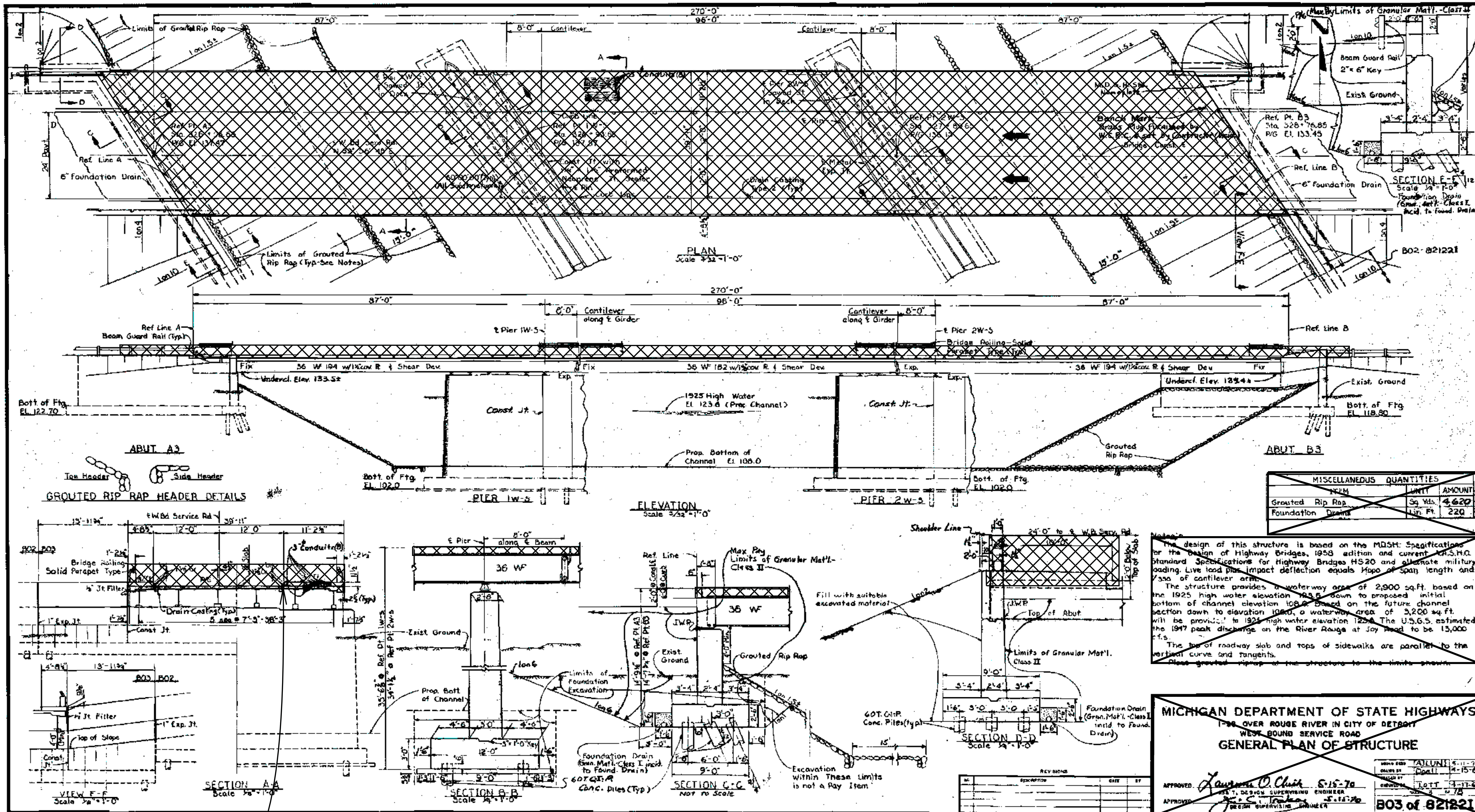
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING GENERAL PLAN OF SITE

I–96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 6 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010


PLAN
Scale 3/32"=1'-0"
270'-0"
87'-0"
96'-0"
87'-0"
Limits of Grouted Rip Rap (Typ-See Notes)
Ref. Line A
6" Foundation Drain
Ref. Line B
B02-821221
ELEVATION
Scale 3/32"=1'-0"
ABUT. A3
ABUT. B3
PIER 1W-5
PIER 2W-5
1925 High Water El. 123.6 (Proc Channel)
Prop. Bottom of Channel El. 108.0
Bott. of Ftg. El. 122.70
Bott. of Ftg. El. 118.80
Bott. of Ftg. El. 102.0
GROUTED RIP RAP HEADER DETAILS
Toe Header
Side Header
SECTION A-A
Scale 3/8"=1'-0"
SECTION B-B
Scale 1/4"=1'-0"
SECTION C-C
Not to Scale
SECTION D-D
Scale 1/4"=1'-0"
SECTION E-E
Scale 1/4"=1'-0"
VIEW F-F
Scale 3/8"=1'-0"
MISCELLANEOUS QUANTITIES
Grouted Rip Rap Sq. Yds. 4,620
Foundation Drains Lin. Ft. 220
Notes:
The design of this structure is based on the M.D.S.H. Specifications for the Design of Highway Bridges, 1958 edition and current A.A.S.H.O. Standard Specifications for Highway Bridges HS20 and alternate military loading. Live load plus impact deflection equals 1/800 of span length and 1/350 of cantilever arm.
The structure provides a waterway area of 2,900 sq.ft. based on the 1925 high water elevation 123.6 down to proposed initial bottom of channel elevation 108.0. Based on the future channel section down to elevation 100.0, a waterway area of 3,200 sq.ft. will be provided to 1925 high water elevation 123.6. The U.S.G.S. estimated the 1947 peak discharge on the River Rouge at Joy Road to be 13,000 c.f.s.
The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.
Place grouted riprap at the structure to the limits shown.
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
I-96 OVER ROUGE RIVER IN CITY OF DETROIT
WEST BOUND SERVICE ROAD
GENERAL PLAN OF STRUCTURE
B03 of 821221

JN 104601A

REMOVE EXIST RAILING, DECK, SIDEWALK, BRUSH BLOCK AND SHEAR CONNECTORS. INCLUDED IN THE BID ITEM "STRUCTURES, REM PORTIONS (STRUCTURE 11481)".

REMOVAL SHEET

JOB NUMBER 104601A

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW. LABELED WITH THIS PROJECT'S JOB NUMBER.

- PROPOSED WORK
- DENOTES REMOVAL PORTIONS

	BY	CHECKED BY	
PLAN	SJP	MPP	APPROVED:
GRADE			FEDERAL PROJECT NO.
ESTIMATE			
FINAL	CHECK MPP	REVIEW DFE	FEDERAL ITEM NO.

DESCRIPTION | DRN | CK'D | APV'D | DATE
REVISIONS

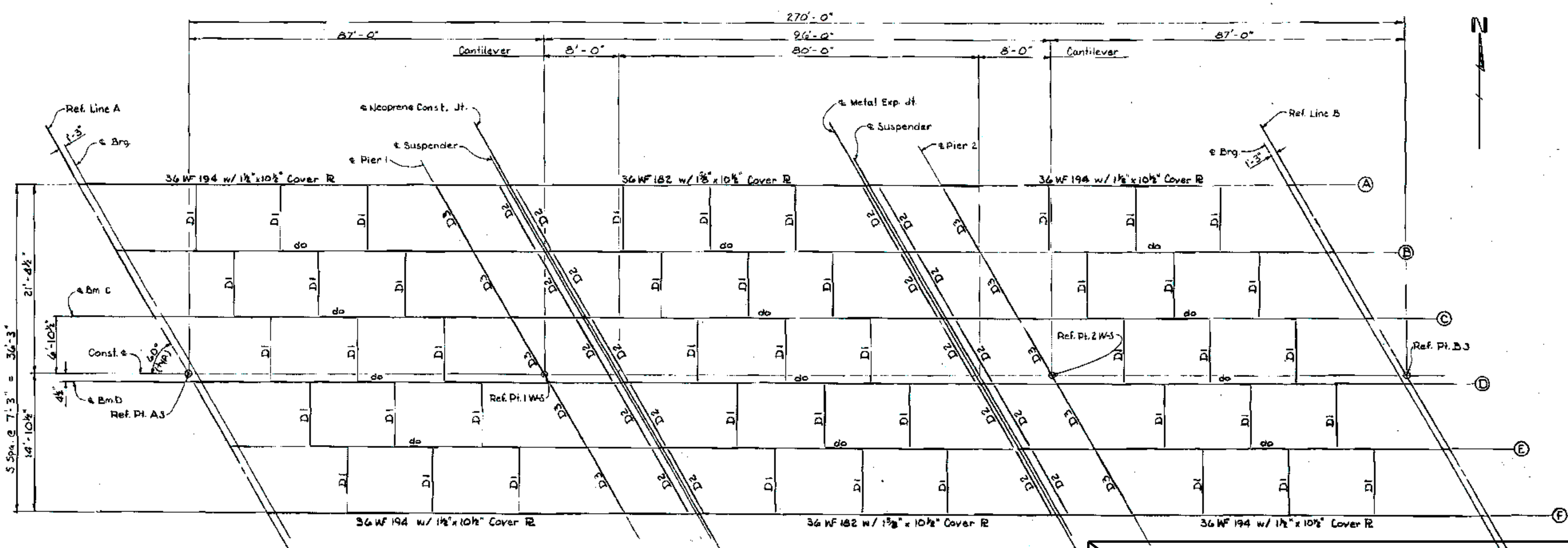
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING GENERAL PLAN OF STRUCTURE

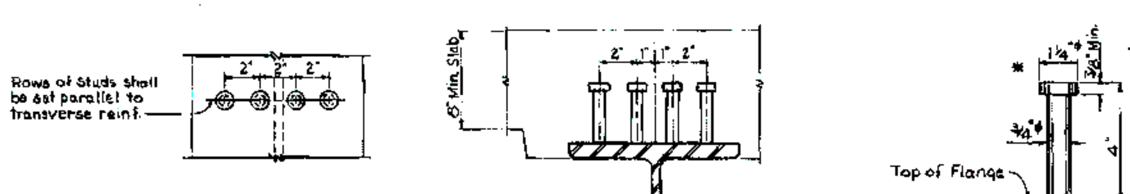
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 7 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010



Note:
Intermediate Diaphragms @ approx. ¼ points.

ERECTION DIAGRAM



PLAN

SECTION

DETAIL OF STUD

* 7/8"ø studs may be used instead of 3/4"ø studs. The spacing of the 7/8"ø studs shall be 7/3± of that shown for the 3/4" studs

STUD SHEAR DEVELOPER DETAILS

Notes:
Welding of studs to beam flanges is incidental to Shear Developers.
Weight of Studs is not included in Structural Steel Weights.

STRUCTURAL STEEL QUANTITIES

Item	Unit	Amount
Structural Steel - Furnishing & Fabricating	Lbs.	401,400
Structural Steel - Erection	Lbs.	401,400
Shear Developers	Lump Sum	Lump Sum
Field Painting	Lump Sum	Lump Sum

Notes.
- Design: Michigan Department of State Highways Specifications for Design of Highway Bridges - 1958 edition and current AASHO Standard Specifications for Highway Bridges. HS-20 Loading.
- Fabrication: Michigan Department of State Highways Standard Specifications for Highway Construction - 1970 edition.
- Shop connections shall be welded as shown on the plans.
- Field connections shall be bolted with 3/4" high-strength bolts, except as noted.
- The beams in spans #1 & #3 are to have a parabolic camber of 4⅜". The beams in span #2 are to have a camber of 4⅝". This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ± 1/4". Heating is to be used if necessary to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is 1/2".
- Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled 1/4" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.
- Steel in anchor bolts may be A.S.T.M. A-307.
- The quantity Structural Steel includes:

A36 Steel	401,179 #
Bronze	34 #
Lead	187 #
Total	401,400 #

- Finish coat of Field Paint for Structural Steel is to be No. 469 Green.
- Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fraction thereof.
- Steel for pins may be A.S.T.M. A-108 or A.S.T.M. A-235. (Class E)
- Anchor Bolts (including nuts and washers) shall be galvanized in accordance with A.S.T.M. designation A-153.
- All steel material used for bearings, with exception of portion welded to beams, shall be galvanized in accordance with A.S.T.M. Designation A-123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.
- Bronze for washers shall be A.S.T.M. B100, A.S.T.M. B22

Work this sheet with sheet 10.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

Design Unit	A.S. UNIT	9-11-70
Drawn by	C. Giller	6-26-69
Traced by		
Checked by	R. Bacon	11-12-69
Sheet 9 of 28		

803 of 82122 I

EXISTING

DO NOT WORK FROM THIS SHEET.
THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

	DRN	CK'D	APV'D	DATE		BY	CHECKED BY	
					PLAN	SJP	MPP	APPROVED:
					GRADE			FEDERAL PROJECT NO.
					ESTIMATE			
DESCRIPTION					FINAL	CHECK MPP	REVIEW DFE	FEDERAL ITEM NO.
REVISIONS								

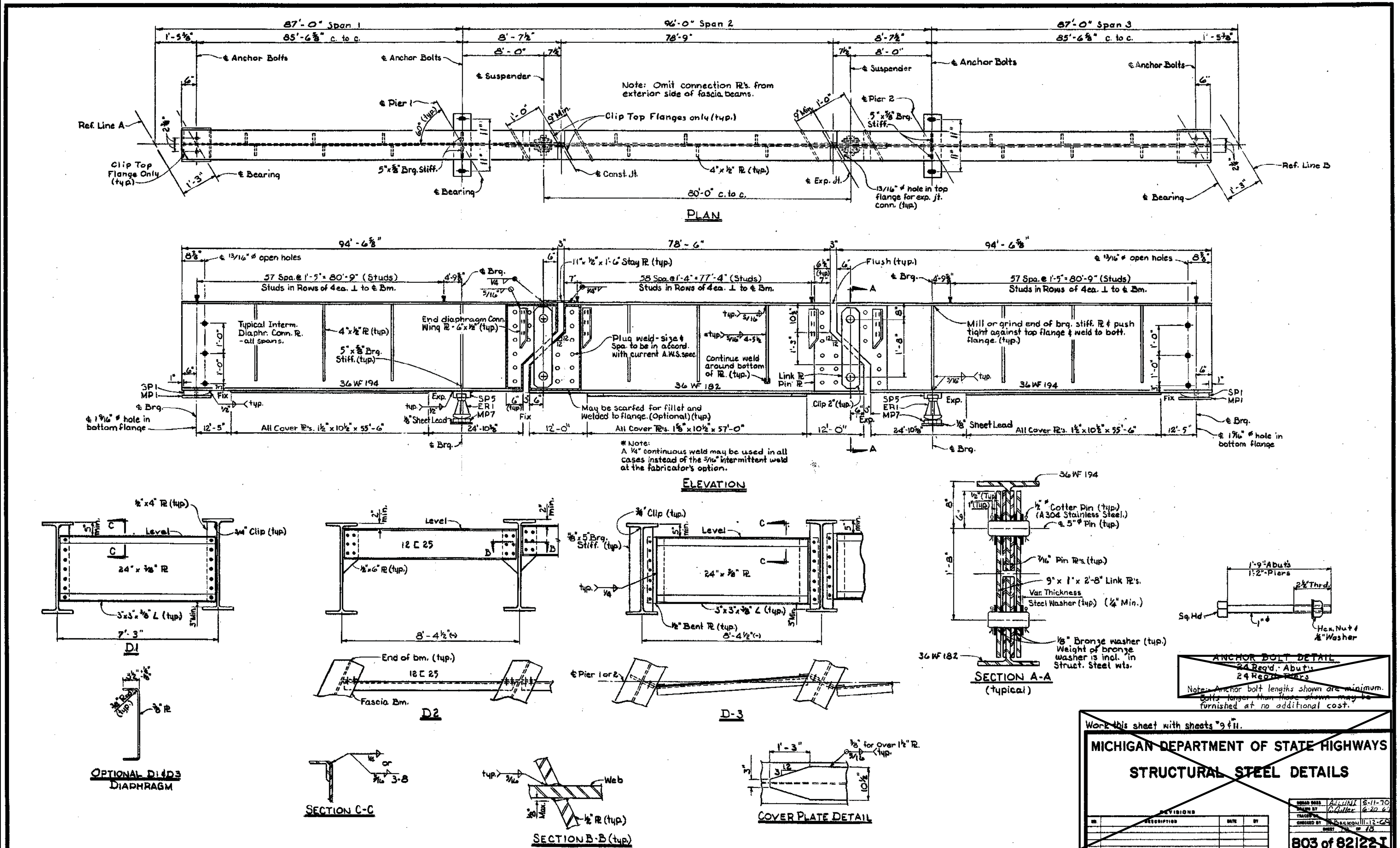
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING STRUCTURAL STEEL DETAILS

I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 8 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010



EXISTING

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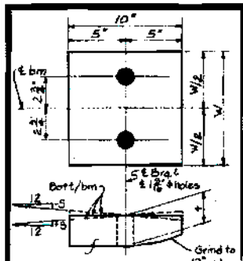
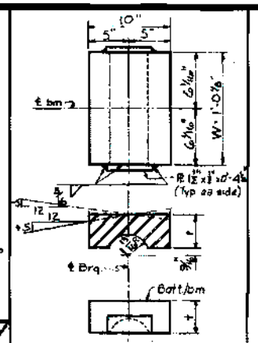
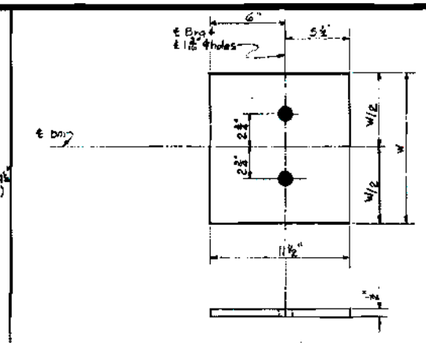
APPROVED: FEDERAL PROJECT NO. FEDERAL ITEM NO.	HNTB	CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERING DIVISION	EXISTING STRUCTURAL STEEL DETAILS I-96 WB SERVICE ROAD OVER ROUGE RIVER

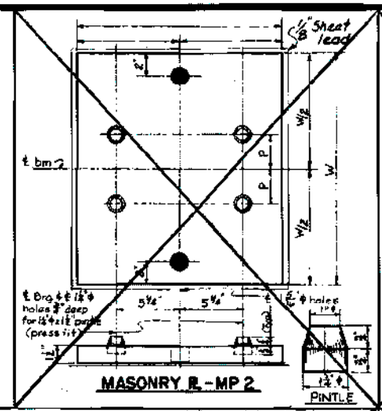
SHEET 9 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010

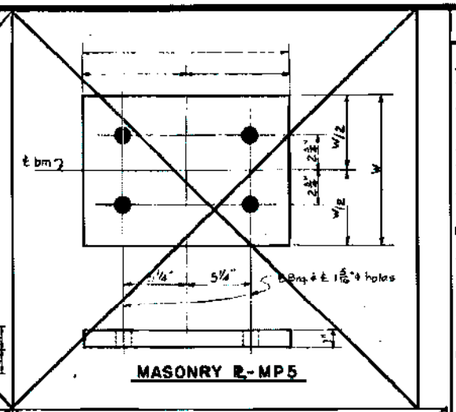
PLAN SJP MPP | GRADE | ESTIMATE | FINAL CHECK MPP REVIEW DPE
DESCRIPTION DRN CK'D APV'D DATE
REVISIONS

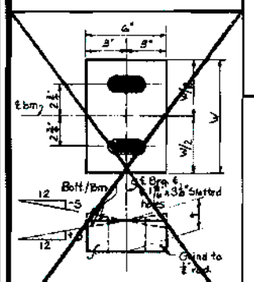


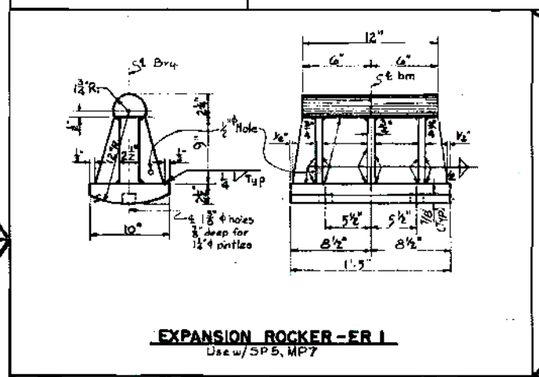


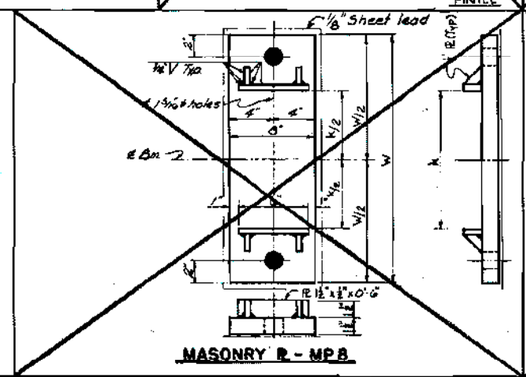


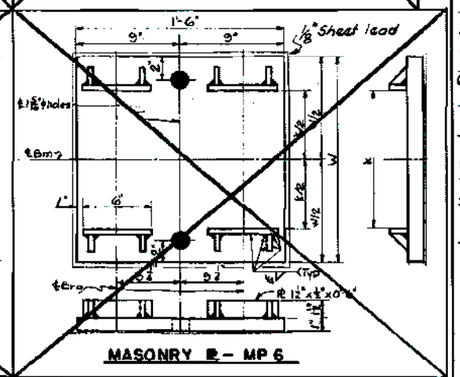


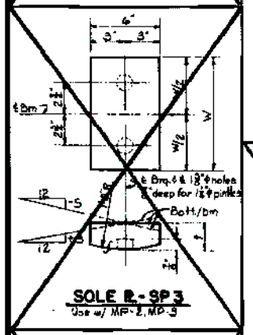












BEAM	TYPE	VARIABLE DIMENSIONS L	W	t	p	k	s
Abut A — A	SP1		1'-0"	2"			+1/8"
B	↑			2 1/2"			+1/16"
C				3 1/16"			0"
D	do		do	4 1/16"			0"
E	↓			4 1/16"			0"
F	SP1		1'-0"	4 1/16"			0"
A thru F	MP1		1'-1"				
Pier 1 — A	SP5		1'-0 1/16"	4 1/16"			0
B	↑			4 1/16"			
C				4 1/16"			
D	do		do	5"			do
E	↓			4"			↓
F	SP5		1'-0 1/16"	3"			0"
Pier 2 — A	SP5		1'-0 1/16"	5"			-1/16"
B	↑			4"			↑
C				3 1/16"			
D	do		do	3"			do
E	↓			4 1/16"			↓
F	SP5		1'-0 1/16"	3"			-1/16"
Pier 1-2 — A	MP7		2'-2"		5 1/2"		1 1/16"
B	↑						↑
C							
D	do		do		do		do
E	↓						↓
F	MP7		2'-2"		5 1/2"		1 1/16"
Abut B — A	SP1		1'-0"	4"			+3 3/16"
B	↑			2"			+7/16"
C				3 1/16"			+1/2"
D	do		do	2"			+1/8"
E	↓			4 1/16"			+1/8"
F	SP1		1'-0"	2"			+1/2"
A thru F	MP1		1'-1"				

Notes:

EXISTING

DO NOT WORK FROM THIS SHEET.
THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MICHIGAN STATE HIGHWAY DEPARTMENT

BEARING DETAILS

803 of 82122I

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXISTING STRUCTURAL STEEL DETAILS

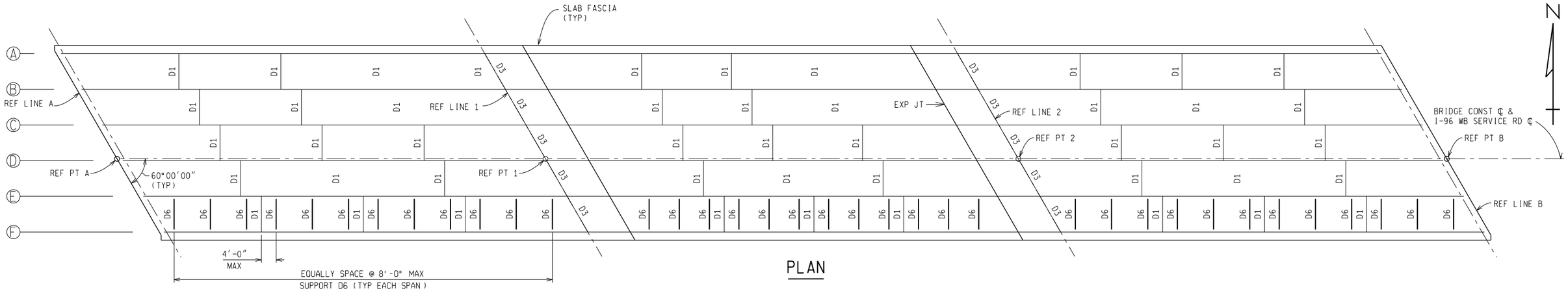
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 10 OF 25 SHEETS

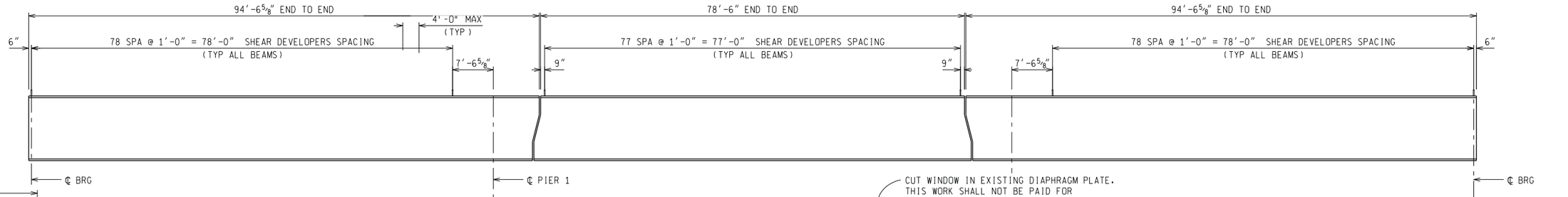
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

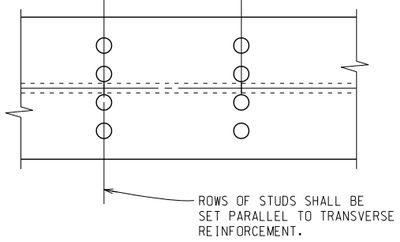
DATE: AUGUST 6 2010



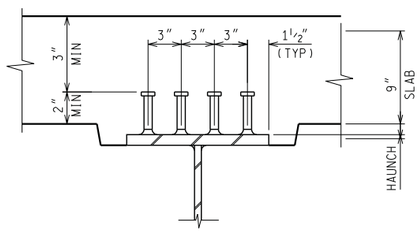
PLAN



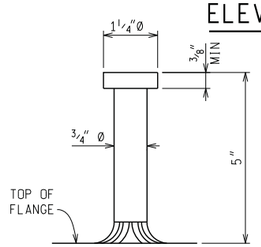
ELEVATION



PLAN

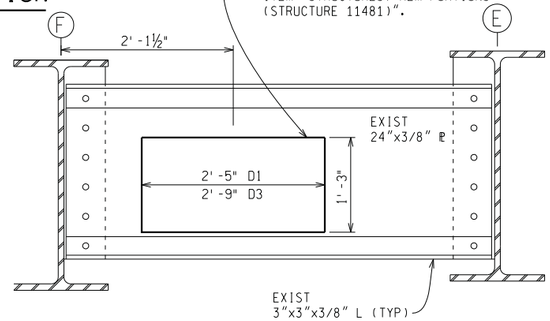


SECTION



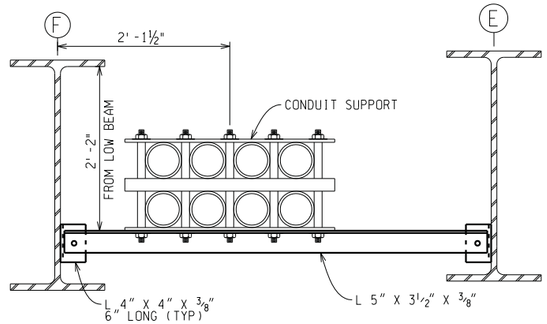
STUD DETAIL

STUD SHEAR DEVELOPER DETAILS



EXISTING DIAPHRAGM D1 OR D3

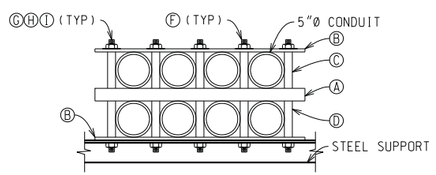
DIAPHRAGM D1 SHOWN, D3 SIMILAR



UNDERBRIDGE CONDUIT SUPPORT D6

BILL OF MATERIAL 8-5"

I	3/4"	HDG LOCK WASHER
H	3/4"	HDG FLAT WASHER
G	3/4"	HDG HEX NUT
F	3/4"	X 1'-6" HDG THREADED ROD
D	3/4"	X 5 5/8" F-G SPACER TUBE
C	3/4"	X 5 5/8" F-G SPACER TUBE
B	1/2"	X 2" X 2'-8" F-G PLATE
A	2"	X 2" X 3'-0" F-G TUBE



8-5" UNDERBRIDGE CONDUIT SUPPORT

PAYMENT FOR THE UNDERBRIDGE CONDUIT SUPPORT SHALL BE INCLUDED IN THE PAY ITEMS "CONDUIT, 8, 5-INCH, STRUCTURE". SEE ELECTRICAL PLANS FOR QUANTITIES.

MISCELLANEOUS QUANTITIES

3,000	Lb	Structural Steel, Retrofit, Furn, Fab, and Erect
1	LS	Shear Developers (Structure 11481)
180	Syd	Top Flanges and Beam Ends, Clean and Coat

NOTES:

SHEAR DEVELOPERS SHALL BE 3/4 " DIAMETER STUDS.

FIELD CONNECTIONS SHALL BE BOLTED WITH 3/4 " HIGH-STRENGTH BOLTS.

THE PROPOSED STRUCTURAL STEEL FOR UNDERBRIDGE CONDUIT SUPPORTS SHALL CONFORM TO AASHTO M270, GRADE 36.

INFORMATION AND LOCATIONS SHOWN FOR EXISTING DIAPHRAGMS AND CONNECTION PLATES ARE TAKEN FROM EXISTING PLANS. CONTRACTOR SHALL VERIFY THOSE LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS NEEDED, SUBJECT TO APPROVAL OF THE ENGINEER. INCLUDED IN THE BID ITEM " STRUCTURAL STEEL, RETROFIT, FURN, FAB, AND ERECT ".

FIELD MEASUREMENTS REQUIRED TO FABRICATE PROPOSED STRUCTURAL STEEL FOR CONDUIT HANGER SUPPORTS WILL BE INCLUDED IN THE BID ITEM "STRUCTURAL STEEL, RETROFIT, FURN, FAB, AND ERECT".

PROPOSED CONDUIT HANGER SUPPORT CONNECTIONS SHALL BE FIELD DRILLED AND BOLTED TO THE EXISTING BEAMS. INCLUDED IN THE BID ITEM "STRUCTURAL STEEL, RETROFIT, FURN, FAB, AND ERECT".

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

STRUCTURAL STEEL DETAILS

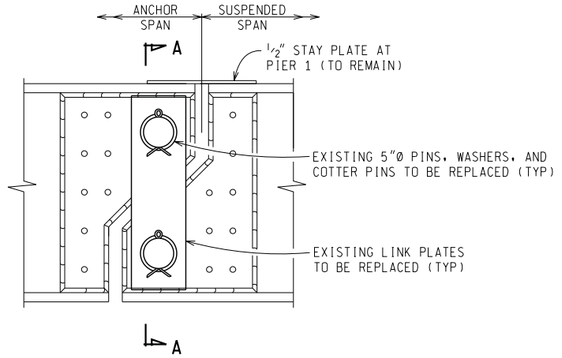
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 11 OF 25 SHEETS

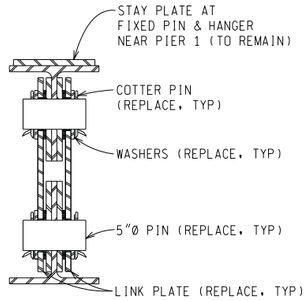
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

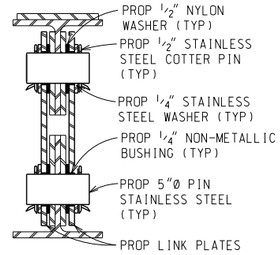
DATE: AUGUST 6 2010



ELEVATION AT PIN



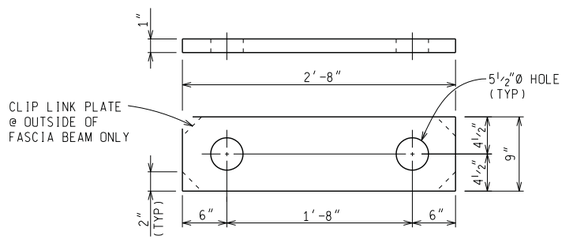
SECTION A-A
(EXISTING)



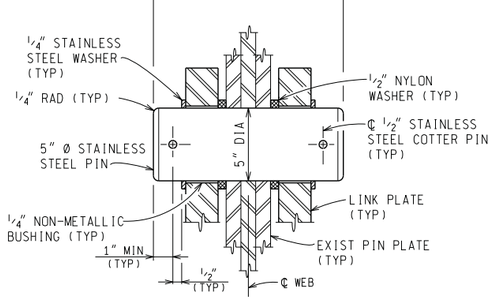
SECTION A-A
(PROPOSED)

MISCELLANEOUS QUANTITIES

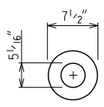
12	Ea	Support, Suspension, Temp
48	Ea	Bushing
3,200	Lb	Structural Steel, Furn and Fab, Pin and Hanger
12	Ea	Hanger Assembly, Field Measurement
12	Ea	Hanger Assembly, Rem and Erect
1	LS	Steel Structure, Cleaning, Type 4 (Structure 11481)
1	LS	Steel Structure, Coating, Type 4 (Structure 11481)
1	LS	Field Repr of Damaged Coating (Structure 11481)
220	Ft	Beam Plate, Seal Perimeter
10	Ea	End Diaphragm, Rem and Replace



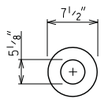
LINK PLATE
(24 REQ'D)



PROPOSED PIN DETAIL
(24 REQ'D)



1/4" STAINLESS STEEL WASHER
(48 REQ'D)



1/2" NYLON WASHER
(48 REQ'D)
INCLUDED IN THE BID ITEM "STRUCTURAL STEEL, FURN AND FAB, PIN AND HANGER."

NOTES:

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF EXISTING PAINTED FAYING SURFACES AND STRUCTURAL STEEL EXPOSED DURING DECK SLAB REMOVAL SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. INCLUDED IN THE BID ITEM, "STRUCTURES, REM PORTIONS (STRUCTURE 11481)".

THIS BRIDGE IS COATED WITH LEAD BASED PAINT. THE STRUCTURAL STEEL HAS BEEN BLAST CLEANED PRIOR TO COATING. THE ADDITIONAL EFFORT TO CLEAN THE STRUCTURAL STEEL WILL NOT BE PAID FOR SEPARATELY BUT WILL BE CONSIDERED INCLUDED IN THE BID ITEMS.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE REGION BRIDGE ENGINEER.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 17,000 SQUARE FEET.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BOLTED END DIAPHRAGM CONNECTION PLATES AND ANGLES UNDER TRANSVERSE DECK JOINTS AT PIN AND HANGER LOCATIONS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF ALL BEAM ENDS WHERE ENCASED IN THE BACKWALLS.

SEALANT SHALL BE APPLIED AROUND THE CONNECTION OF NEW STRUCTURAL STEEL MEMBER TO EXISTING STRUCTURAL STEEL MEMBER.

BLAST CLEAN AND PRIME FAYING SURFACES PRIOR TO ERECTING CONNECTION PLATES OR ANGLES TO EXISTING BEAMS. THIS WORK IS INCLUDED IN THE BID ITEMS FOR CLEANING AND COATING EXISTING STRUCTURAL STEEL.

ALL EXISTING STRUCTURAL STEEL SHALL BE COATED ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL BE LIGHT GRAY. FEDERAL STANDARD 595B COLOR NUMBER 16440.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES AND ON SIGNS ATTACHED TO THE STRUCTURE. INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (STRUCTURE 11481)".

THE PLATE SURFACES OF THE BEAM SPLICES, AND ALL OTHER BOLTED CONNECTIONS UNLESS NOTED OTHERWISE, SHALL BE COATED ACCORDING TO SUBSECTION 716.03.B.2.A FOR SLIP CRITICAL CONNECTIONS. COATED CONNECTIONS (FAYING SURFACES) SHALL MEET THE MINIMUM CURE TIMES ACCORDING TO THE PRODUCT QUALIFICATION TEST AND SUBSECTION 716.02 BEFORE CONNECTION ASSEMBLY.

THE AREA WITHIN 3 FEET EACH SIDE OF THE CENTERLINE OF THE HANGER ASSEMBLY SHALL BE COATED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP COATED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REM AND ERECT."

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED (EXCEPT AS NOTED).

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:
75 TONS VERTICAL GIRDER LOAD (INCLUDES SUPERSTRUCTURE DEAD LOAD AND LIVE LOAD).

STRUCTURAL STEEL FOR PROPOSED LINK PLATES SHALL CONFORM TO AASHTO M270, GRADE 50, OR AASHTO M270, GRADE 50W.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

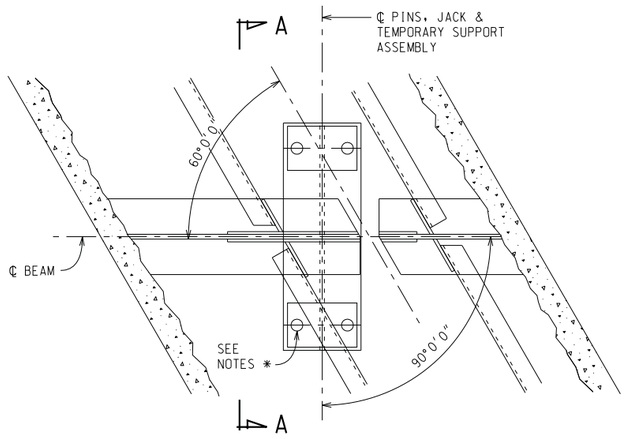
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

PIN & HANGER REPLACEMENT DETAILS

I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 12 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010

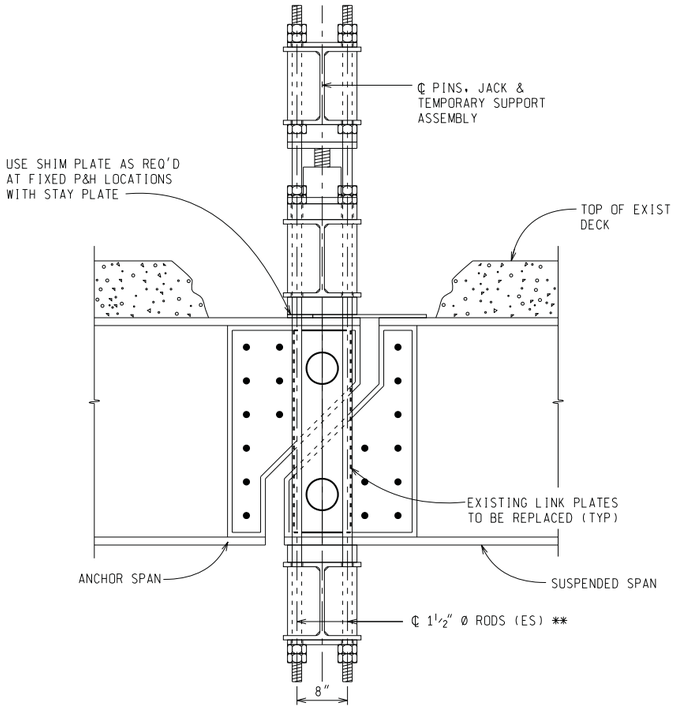


PLAN OF TEMPORARY SUPPORT

* REMOVE EXISTING DIAPHRAGM IF SUSPENDER RODS ARE IN CONFLICT WITH THE EXISTING DIAPHRAGM.

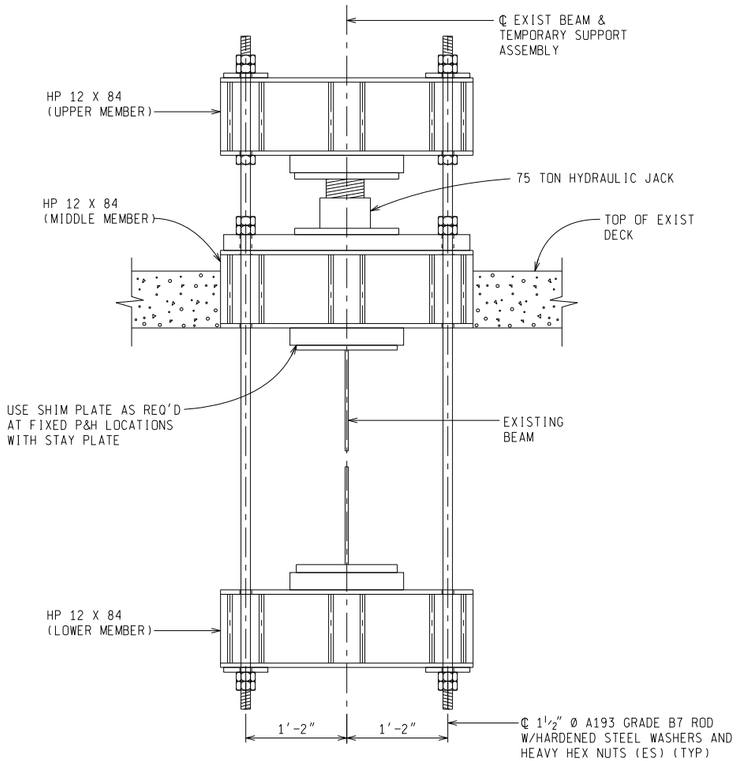
IF DIAPHRAGM REMOVAL IS REQUIRED, ONLY REMOVE EVERY OTHER DIAPHRAGM AT ONE TIME. DIAPHRAGM MUST BE REINSTALLED WITH NEW HS BOLTS BEFORE ADJACENT DIAPHRAGM IS REMOVED.

IF IT IS DETERMINED IN THE FIELD THAT THE SUSPENDER RODS WILL NOT CONFLICT WITH EXISTING END DIAPHRAGMS, THE DIAPHRAGMS MAY REMAIN IN PLACE DURING PIN & HANGER REPLACEMENT AS APPROVED BY THE ENGINEER.

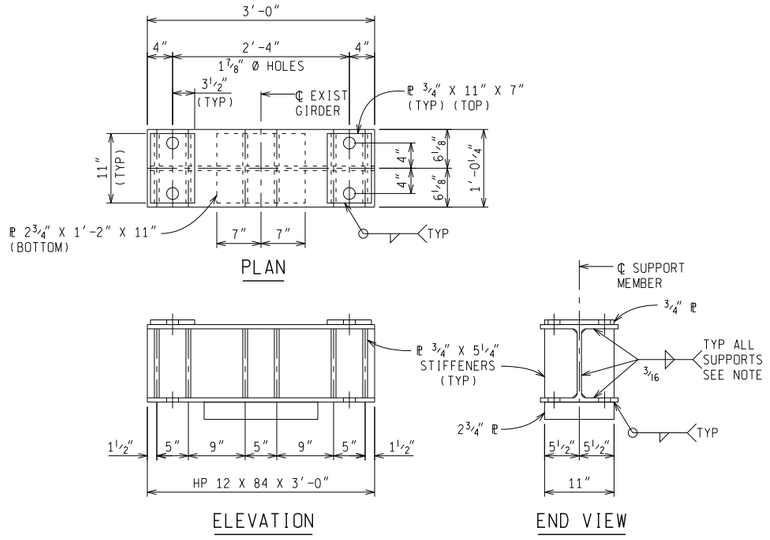


ELEVATION OF TEMPORARY SUPPORT

** CONTRACTOR SHALL DETERMINE ROD AND THREAD LENGTH TO FIT SITUATION
4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS & 4 HARDENED WASHER PER ROD

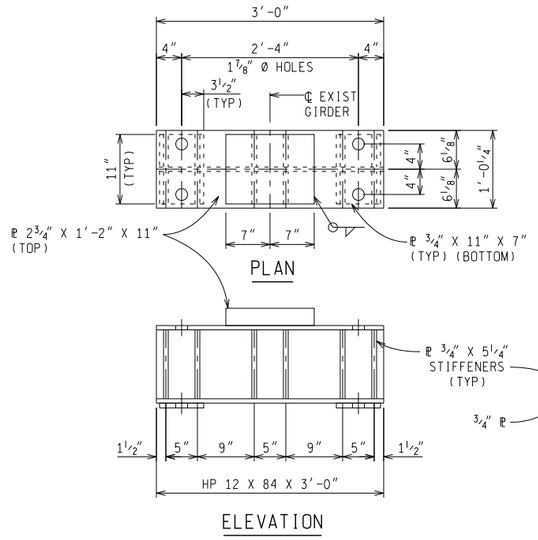


SECTION A-A

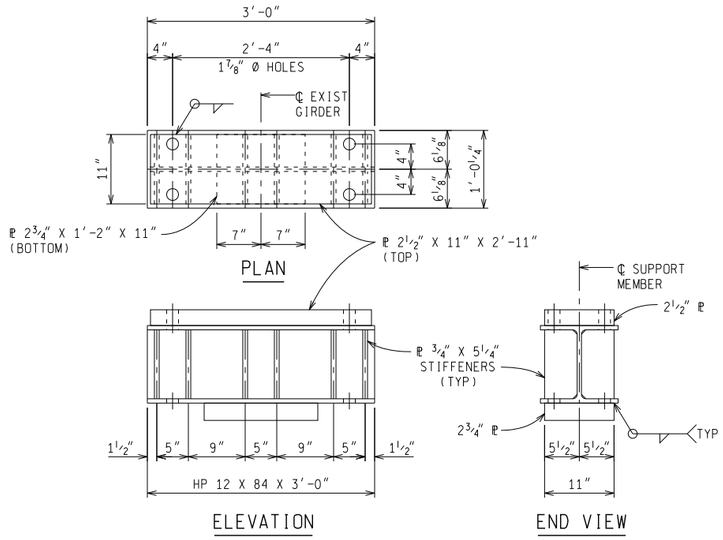


TEMP SUPPORT UPPER MEMBER

NOTE: STOP WELD ¼" SHORT OF CORNER CLIPS. WRAP WELD AROUND OUTSIDE EDGE AT STIFFENERS.



TEMP SUPPORT LOWER MEMBER



TEMP SUPPORT MIDDLE MEMBER

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK: MPP	REVIEW: DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

PIN & HANGER REPLACEMENT DETAILS

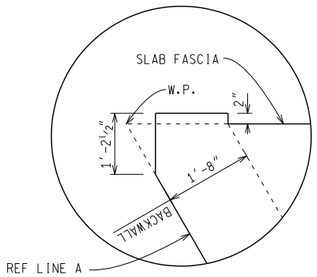
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 13 OF 25 SHEETS

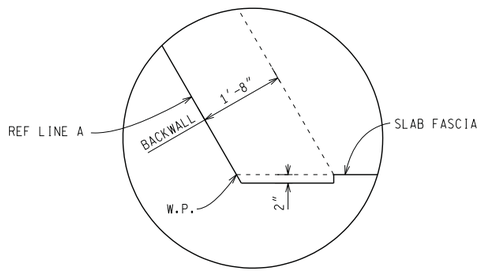
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

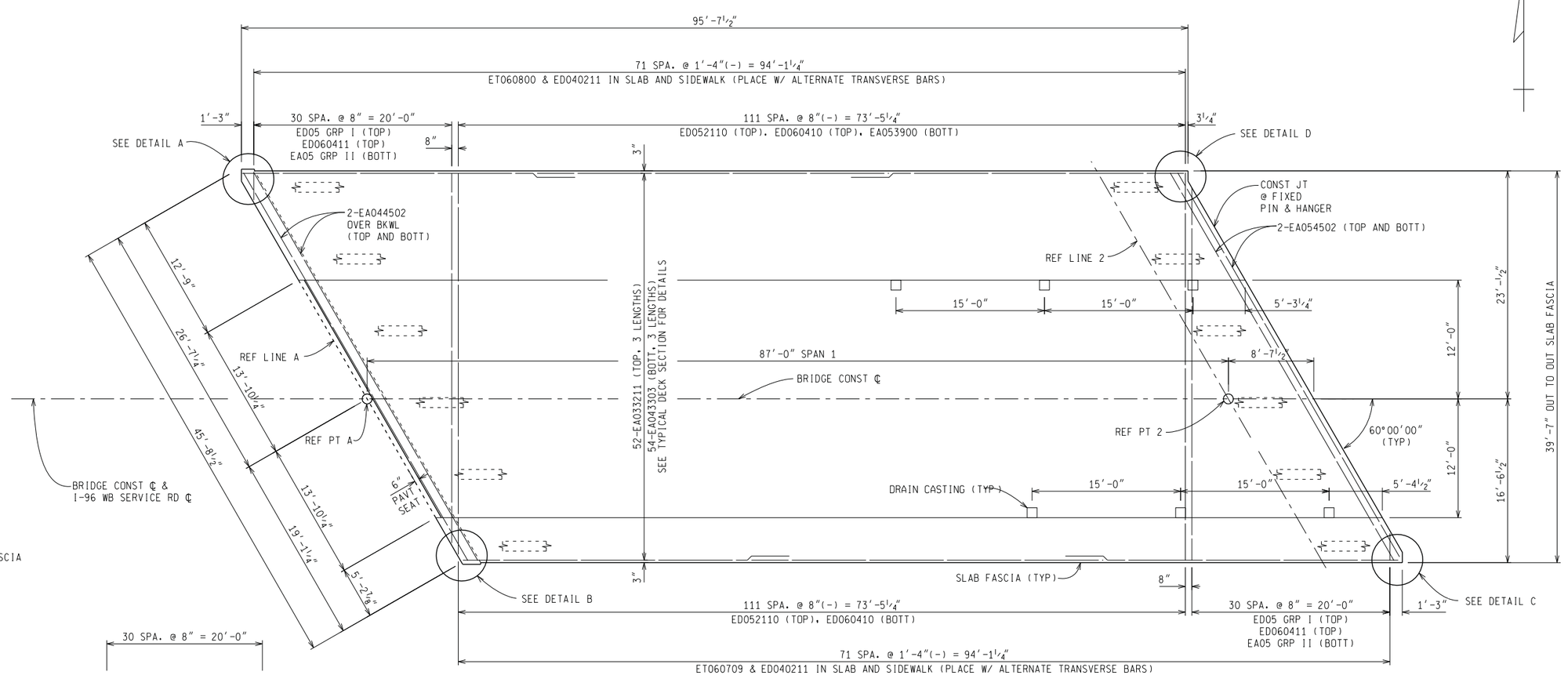
DATE: AUGUST 6 2010



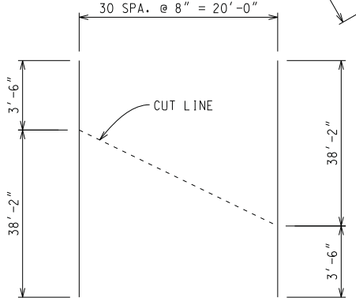
DETAIL A



DETAIL B



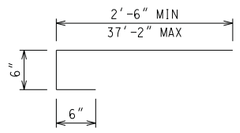
PLAN OF SLAB (SPAN 1)



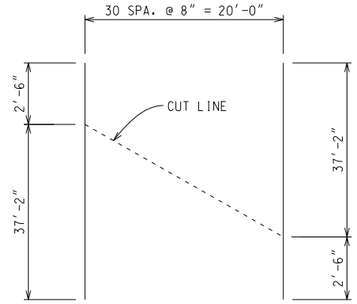
BAR GROUP I

EA054108 (TOTAL 31 BARS)

BEND ALL BARS AS SHOWN AFTER CUT.



MIN LAP TABLE		
BAR	MIN LAP	LOCATION
EA03	1'-7"	TOP LONGITUDINAL
EA04	2'-1"	BOTTOM LONGITUDINAL
EA05	2'-7"	TOP & BOTTOM TRANSVERSE



BAR GROUP II

EA053908 (TOTAL 31 BARS)

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK: MPP	REVIEW: DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

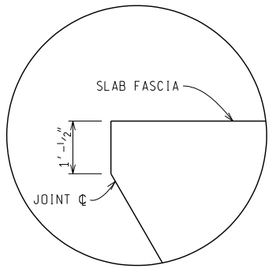
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 14 OF 25 SHEETS

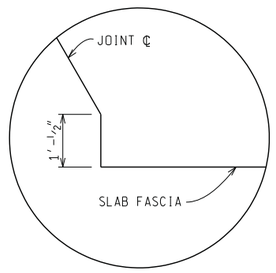
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

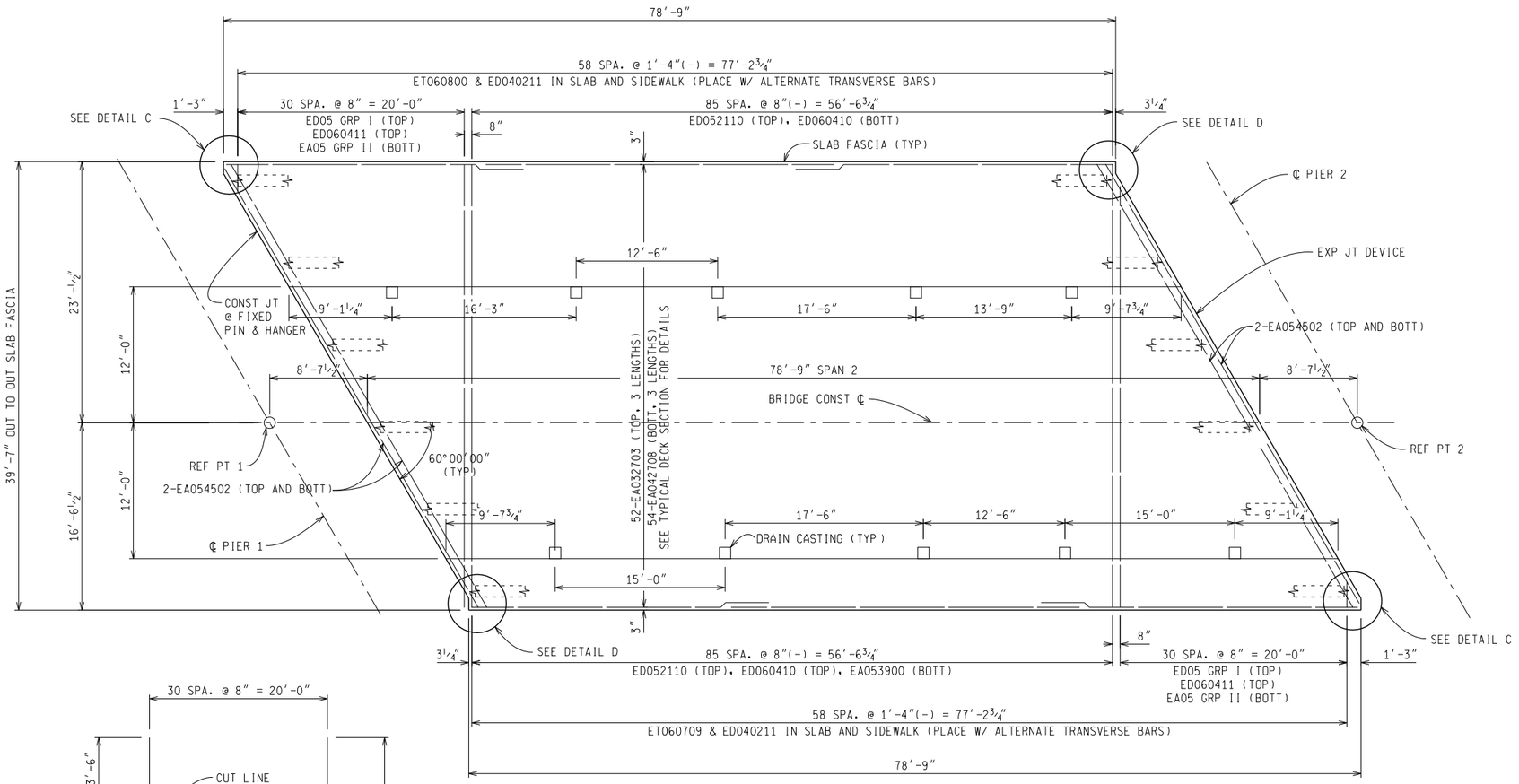
DATE: AUGUST 6 2010



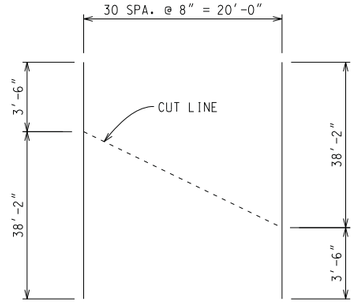
DETAIL C



DETAIL D



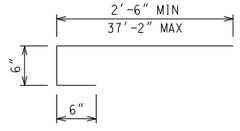
PLAN OF SLAB (SUSPENDED SPAN 2)

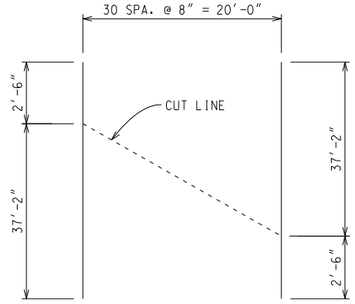


BAR GROUP I

EA054108 (TOTAL 31 BARS)

BEND ALL BARS AS SHOWN AFTER CUT.





BAR GROUP II

EA053908 (TOTAL 31 BARS)

MIN LAP TABLE		
BAR	MIN LAP	LOCATION
EA03	1'-7"	TOP LONGITUDINAL
EA04	2'-1"	BOTTOM LONGITUDINAL
EA05	2'-7"	TOP & BOTTOM TRANSVERSE

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

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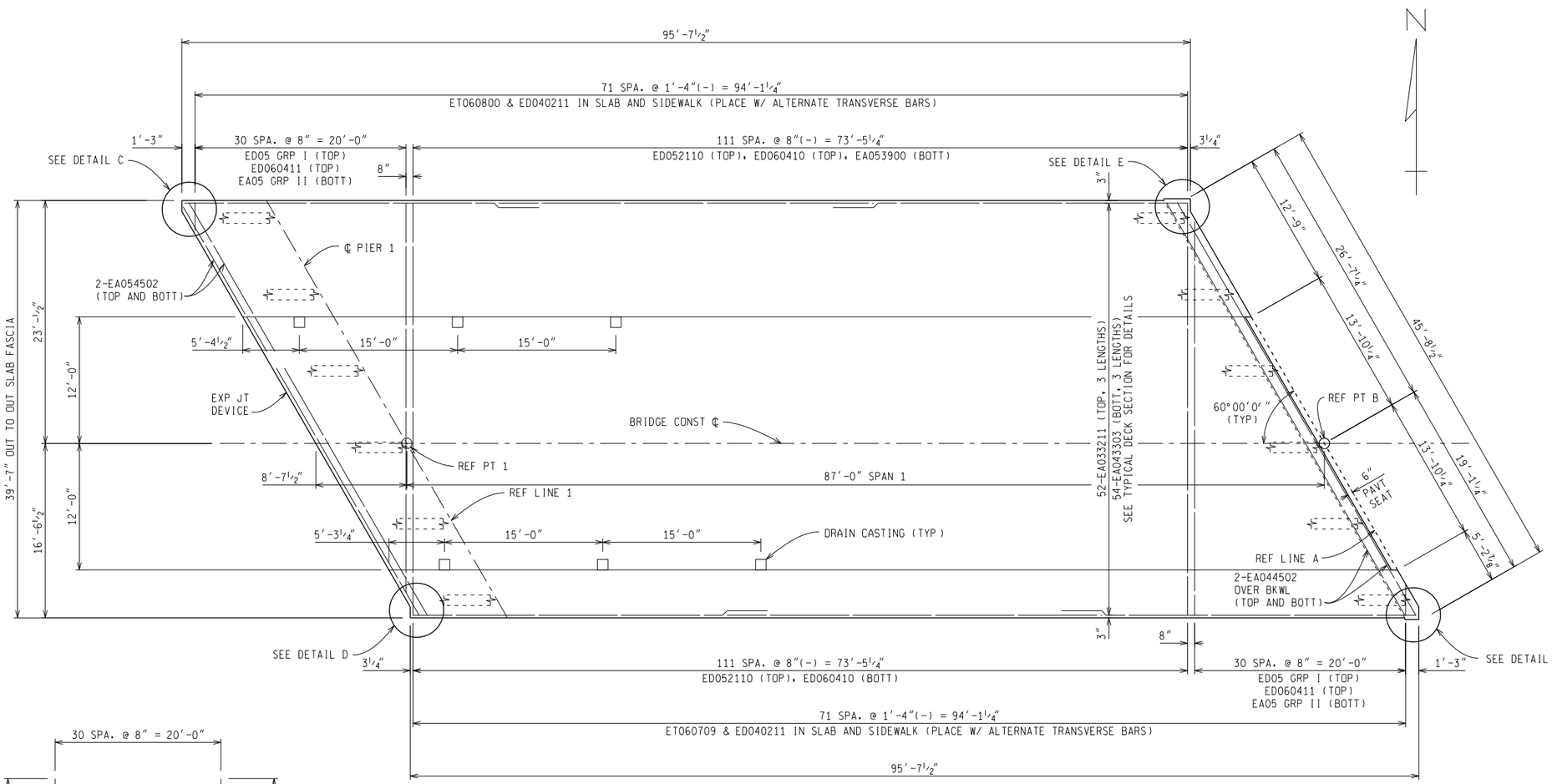
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 15 OF 25 SHEETS

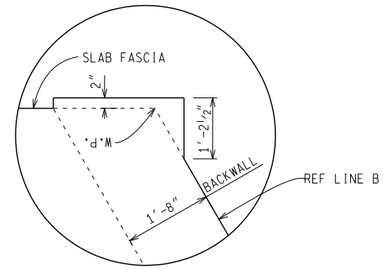
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

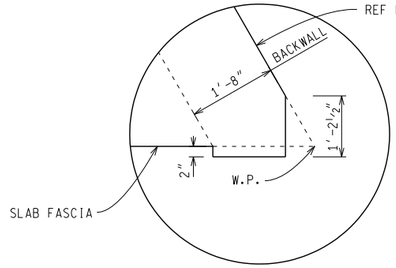
DATE: AUGUST 6 2010



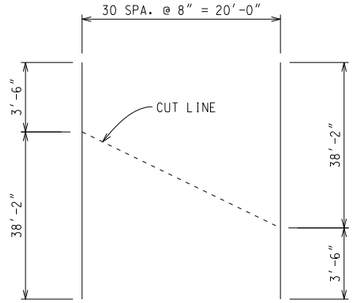
PLAN OF SLAB (SPAN 3)



DETAIL E



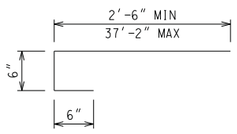
DETAIL F



BAR GROUP I

EA054108 (TOTAL 31 BARS)

BEND ALL BARS AS SHOWN AFTER CUT.



MIN LAP TABLE		
BAR	MIN LAP	LOCATION
EA03	1′-7″	TOP LONGITUDINAL
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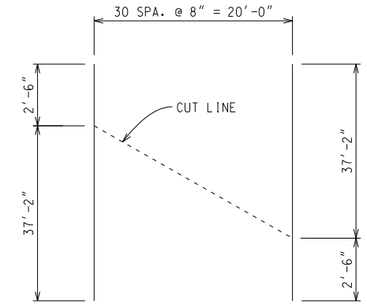
EA05	2′-7″	TOP & BOTTOM TRANSVERSE



BAR GROUP II

EA053908 (TOTAL 31 BARS)

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

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SUPERSTRUCTURE DETAILS

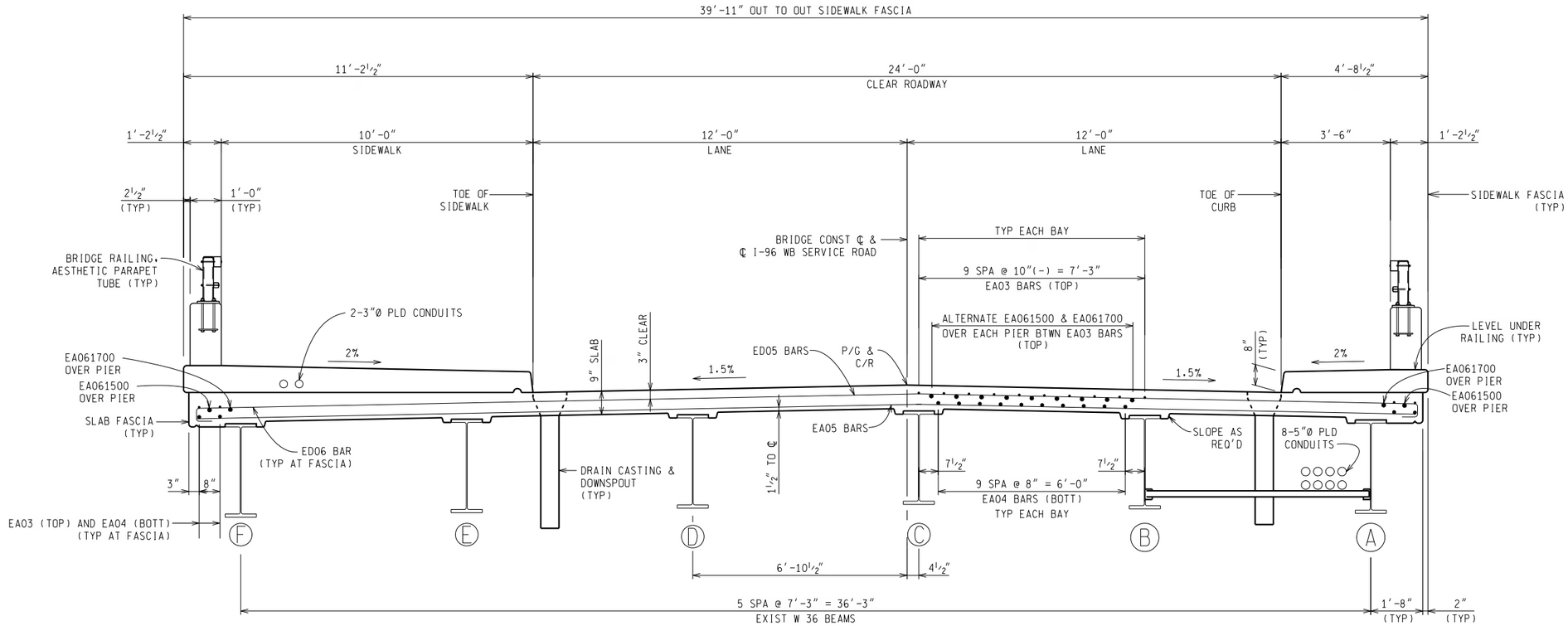
I–96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 16 OF 25 SHEETS

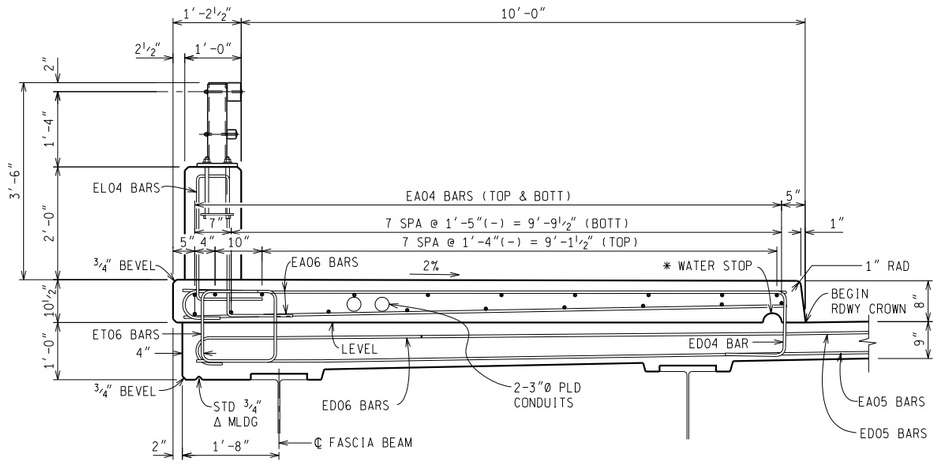
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

DATE: AUGUST 6 2010

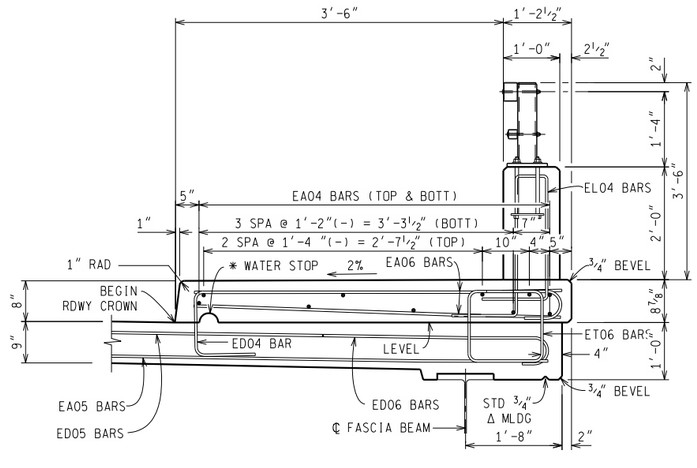


TYPICAL DECK SECTION



TYPICAL PARAPET AND SIDEWALK SECTION

* 2″ HIGH x 4″ LONG (±), FORMING NOT REQUIRED



TYPICAL PARAPET AND BRUSHBLOCK SECTION

* 2″ HIGH x 4″ LONG (±), FORMING NOT REQUIRED

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DFE

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CITY ENGINEERING DIVISION

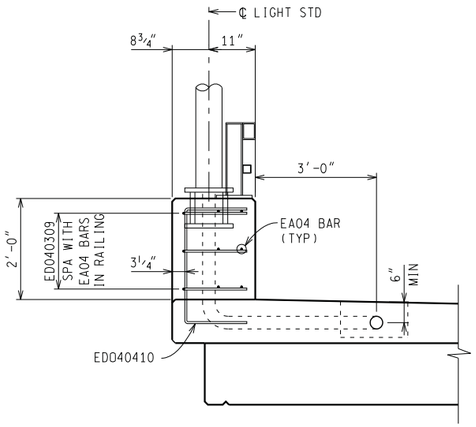
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 17 OF 25 SHEETS

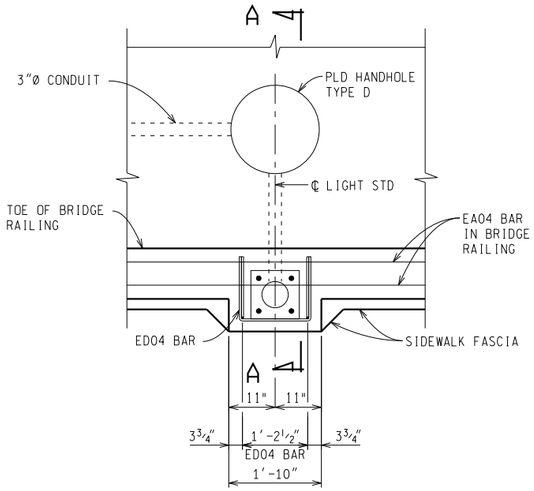
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

DATE: NOVEMBER 29, 2010

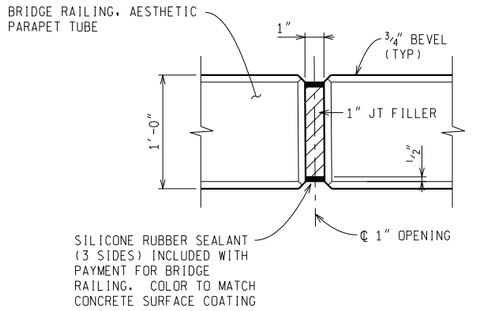


SECTION A-A

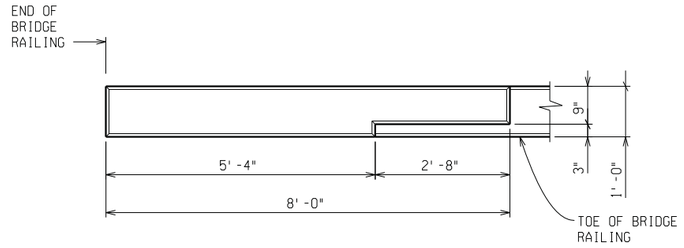


PLAN VIEW

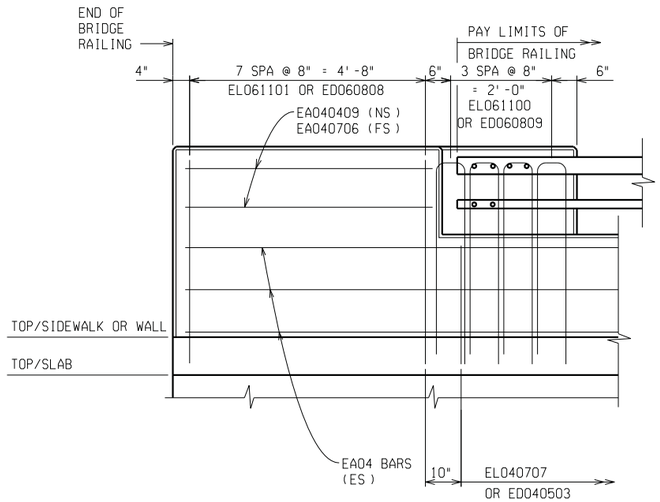
LIGHT STANDARD DETAILS



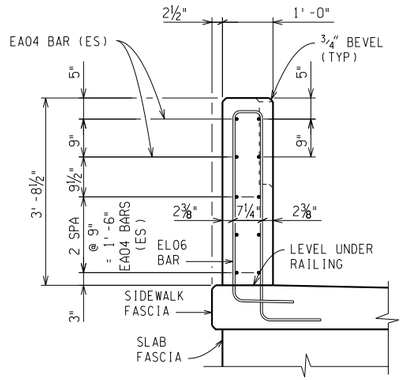
1" OPEN JOINT DETAIL
IN BARRIER



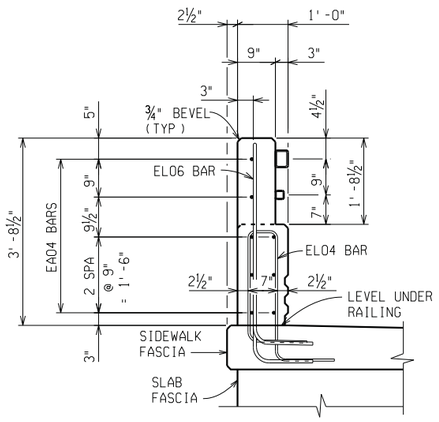
PLAN OF END WALL



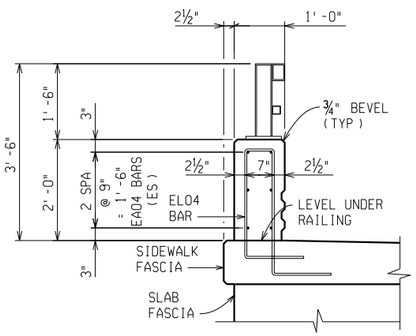
END WALL DETAIL



SECTION AT END WALL
(FULL CONCRETE AREA)



SECTION AT END WALL
(TUBE CONNECTION AREA)



TYPICAL BRIDGE RAILING SECTION

SLAB & SIDEWALK REINFORCEMENT ARE NOT SHOWN
FOR CLARITY IN THE BRIDGE RAILING SECTIONS.

NOTE:

SLAB & SIDEWALK REINFORCEMENT ARE NOT SHOWN
FOR CLARITY IN THE BRIDGE RAILING SECTIONS.

USE EPOXY ANCHORED EDO60808, EDO60809 AND EDO40503 BARS
FOR END WALLS OVER EXISTING RETURN WALL.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK: MPP	REVIEW: DPE

APPROVED:

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CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

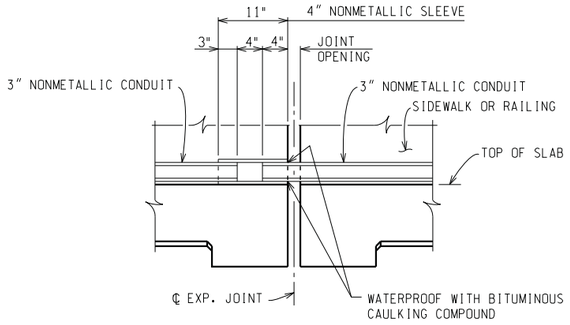
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 18 OF 25 SHEETS

STRUCTURE NUMBER 11481

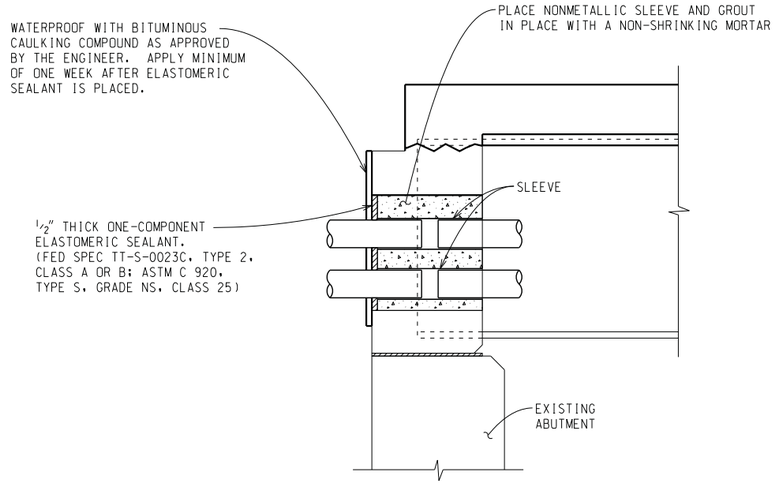
JOB NUMBER 104601A

DATE: AUGUST 6 2010



LIGHTING CONDUIT AT TRANSVERSE EXPANSION JOINT

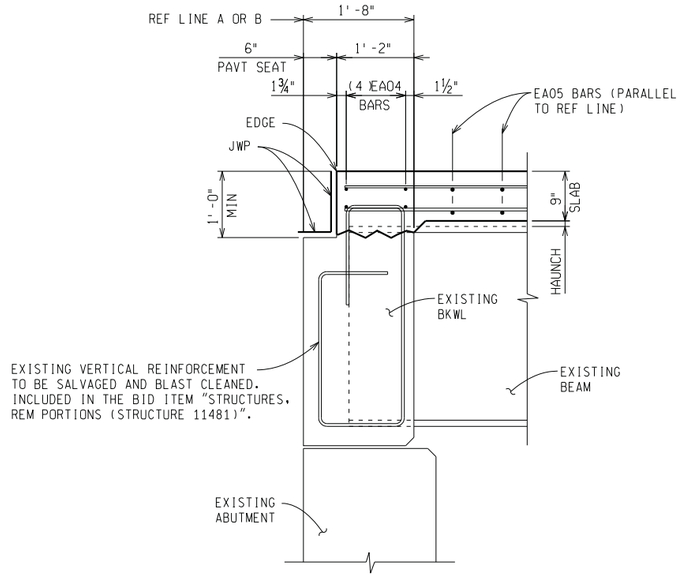
SLEEVES, ADAPTERS, COUPLINGS, CONDUIT PLUGS AND WATERPROOFING ARE INCLUDED IN THE BID ITEMS FOR CONDUITS.



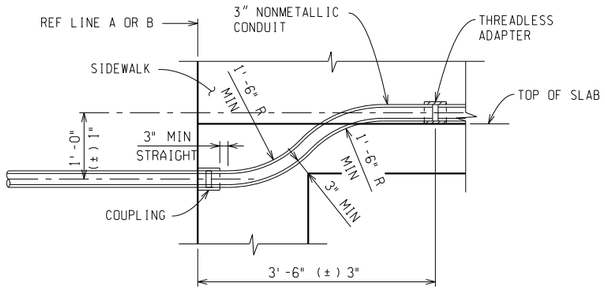
SECTION THRU BACKWALL FOR UTILITY DUCTS

ELASTOMERIC SEALANT, WATERPROOFING, GROUT AND CONDUIT SLEEVES WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE BID ITEMS FOR CONDUITS.

REMOVAL OF PORTION OF BACKWALL REQUIRED FOR CONDUIT AND SLEEVE INSTALLATION WILL BE INCLUDED IN THE BID ITEM "STRUCTURES, REM PORTIONS (STRUCTURE 11481)"

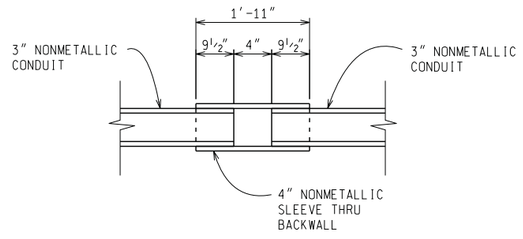


TYPICAL SECTION THRU EXISTING BACKWALL



LIGHTING CONDUIT AT BACKWALL

SLEEVES, ADAPTERS, COUPLINGS, PLUGS AND WATERPROOFING ARE INCLUDED IN THE BID ITEMS FOR CONDUITS.



NONMETALLIC CONDUIT SLEEVE

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

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CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

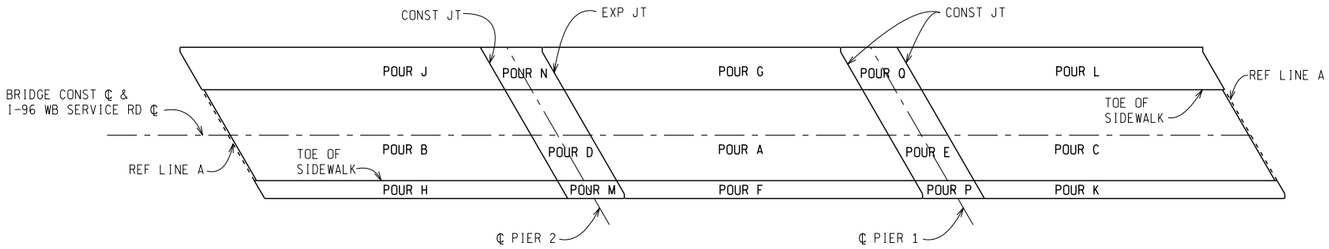
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 19 OF 25 SHEETS

STRUCTURE NUMBER 11481

JOB NUMBER 104601A

DATE: AUGUST 6 2010



POUR DIAGRAM

SUPERSTRUCTURE CONC, NIGHT CASTING QUANTITIES	
POUR	CYD
A	93.2
B	94.6
C	94.6
D	18.5
E	18.5

SUPERSTRUCTURE CONC QUANTITIES	
POUR	CYD
F	9.7
G	25.5
H	9.9
J	25.9
K	9.9
L	25.9
M	1.9
N	5.1
P	1.9
Q	5.1

MISCELLANEOUS QUANTITIES

121	Cyd	Superstructure Conc
320	Cyd	Superstructure Conc, Night Casting
1	LS	Superstructure Conc, Form, Finish, and Cure (Structure 11481)
1	LS	Superstructure Conc, Form, Finish, and Cure, Night Casting (Structure 11481)
320	Cyd	Bridge Ltg, Oper and Maintain
1	LS	Bridge Ltg, Furn and Rem (Structure 11481)
570	Ft	Bridge Railing, Aesthetic Parapet Tube
100	Sft	Joint Waterproofing
22	Ea	Drain Casting Assembly, Type 1
48	Ea	Adhesive Anchoring of Vertical Bar, 3/4 inch
54	Ea	Adhesive Anchoring of Vertical Bar, 1/2 inch

NOTES:

JWP DENOTES JOINT WATERPROOFING.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD PLAN B-25-SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

A RUBBED SURFACE FINISH ON THE VERTICAL AND TOP CONCRETE SURFACES OF THE PARAPET RAILING IS REQUIRED ON THIS STRUCTURE.

FOR DETAILS OF DRAIN CASTING ASSEMBLIES, SEE STANDARD PLAN B-101-SERIES.

FOR DETAILS OF LIGHT STANDARD ANCHOR BOLT ASSEMBLIES, SEE STANDARD PLAN B-103-SERIES.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE. CONCRETE IN THE SUSPENDED SPAN IS TO BE CAST BEFORE THE CONCRETE IN THE ANCHOR SPANS, AND WHENEVER A DECK POUR IS MADE, AT LEAST 15 HOURS SHALL HAVE ELAPSED SINCE THE ADJACENT SECTION WAS PLACED. THIS INCLUDES SECTIONS SEPARATED BY LONGITUDINAL AS WELL AS TRANSVERSE JOINTS.

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.03 J. OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE BID ITEMS "SUPERSTRUCTURE CONC, NIGHT CASTING" AND "SUPERSTRUCTURE CONC".

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 I. OF THE STANDARD SPECIFICATIONS.

THE LIGHT STANDARD ANCHOR BOLT ASSEMBLIES ARE INCLUDED IN THE PAYMENT FOR "BRIDGE RAILING, AESTHETIC PARAPET TUBE".

THE CONTRACTOR MAY USE METAL STAY IN PLACE FORMS. IF USED, ELIMINATING THE POLYSTYRENE AND FILLING THE CORRUGATIONS WITH CONCRETE IS PROHIBITED.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 1/2" DEEP BY 1/8" WIDE (MINIMUM) IN THE TOP OF SLAB AT TRANSVERSE CONSTRUCTION JOINTS, OVER PIERS AND AT FIXED PIN & HANGER JOINTS. THE JOINT IS TO BE SAWED WITHIN 4 HOURS OF REMOVING THE CURING AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE. (INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC, FORM, FINISH AND CURE, NIGHT CASTING (STRUCTURE 11481)").

NO PORTION OF DECK FORMWORK OR SUPPORTS SHALL PROTRUDE ABOVE THE TOP OF PROPOSED HAUNCH.

FILL PERPENDICULAR RAILING JOINTS WITH 1" JOINT FILLER TO 1/2" FROM THE BEVELS OF RAILING AND SEAL REMAINING 1/2" WITH A SILICONE RUBBER SEALANT. INCLUDED IN THE BID ITEM "BRIDGE RAILING, AESTHETIC PARAPET TUBE".

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

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DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SUPERSTRUCTURE DETAILS

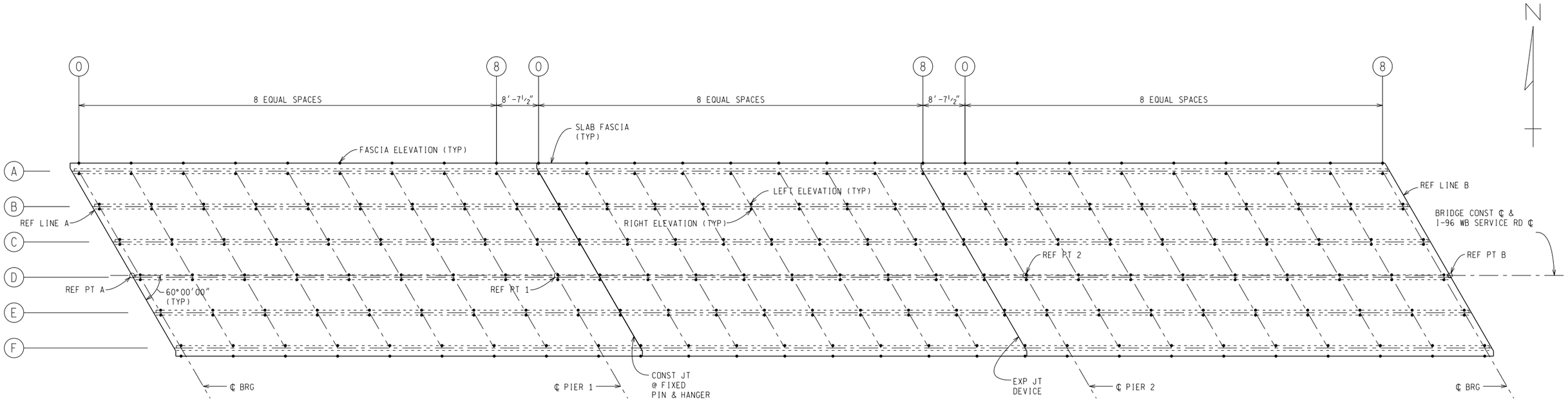
I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 20 OF 25 SHEETS

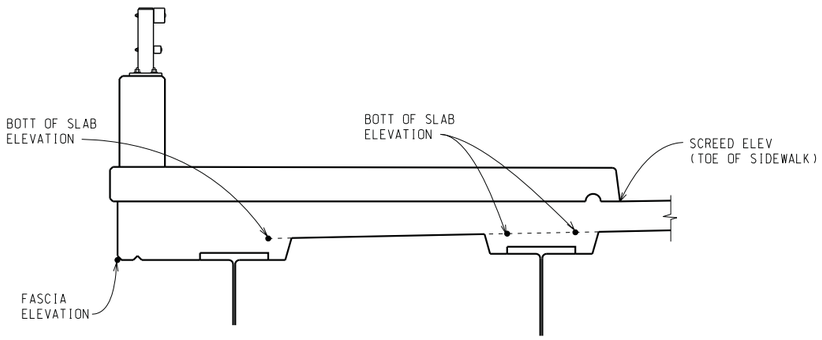
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

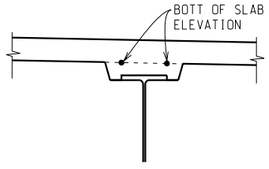
DATE: AUGUST 6 2010



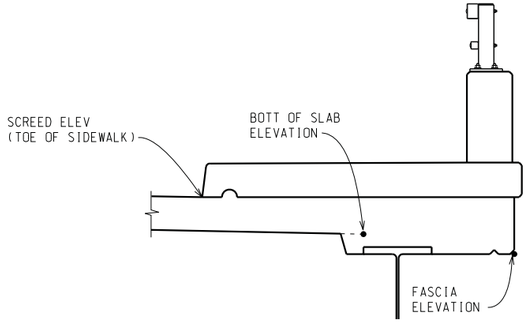
PLAN OF SLAB



LEFT FASCIA SECTION



TYPICAL INTERIOR SECTION



RIGHT FASCIA SECTION

NOTES:

BOTTOM OF SLAB ELEVATIONS ARE AT RIGHT ANGLES TO THE BEAM CENTERLINE AND ARE BASED ON THE CONDITION THAT THE BEAMS AND DIAPHRAGMS ARE COMPLETELY ERECTED WITH NO OTHER LOADS APPLIED. THESE ELEVATIONS INCLUDE ALLOWANCE FOR VERTICAL CURVE AND DEFLECTION DUE TO FORMS, STEEL REINFORCEMENT, CONCRETE SLAB, SIDEWALKS, RAILING AND UTILITIES.

SCREEDS AFFECTED BY LOADS IN OTHER SPANS ARE TO BE SET TO THE ELEVATIONS SHOWN BEFORE CASTING ANY CONCRETE. CONCRETE IN THE SUSPENDED SPAN IS TO BE CAST BEFORE THE CONCRETE IN THE ANCHOR SPANS.

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK, SHEAR DEVELOPERS AND STEEL REINFORCEMENT ARE IN PLACE.

SCREED RAILS FOR FINISHING OF STRUCTURAL CONCRETE SHALL BE LOCATED OVER FASCIA BEAMS.

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

SLAB AND SCREED DETAILS

I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 21 OF 25 SHEETS

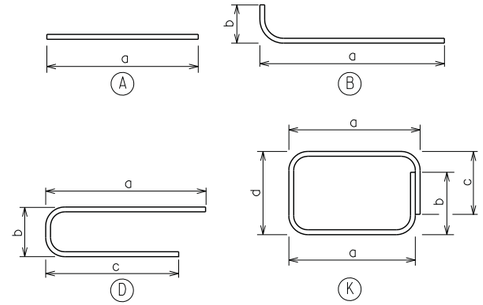
STRUCTURE NUMBER 11481

JOB NUMBER 104601A

DATE: AUGUST 6 2010

	BAR	DIMENSIONS									NO. REQ'D	TOTAL WT.
		a	b	c	d	e	f	g	h	j		
SLAB	EA032703	27′-3″									156	1598
	EA033211	32′-11″									312	3862
	EA042708	27′-8″									162	2994
	EA043303	33′-3″									324	7196
	EA044502	45′-2″									8	241
	EA053900	39′-0″									310	12610
	EA053908	39′-8″									93	3848
	EA054108	41′-8″									93	4042
	EA054502	45′-2″									16	754
	EA061500	15′-0″									98	2208
	ED052110	20′-10″	0′-6″	0′-6″							620	14119
	ED060410	3′-10″	0′-6″	0′-6″							806	5851
SLAB AND SIDEWALK	ED040211	0′-10 3/4″	1′-1 1/2″	0′-10 3/4″							406	791
	ET060709	1′-0″	1′-4″	1′-1″	1′-8″	0′-7 1/2″	0′-8″				285	3318
	ET060800	1′-0″	1′-4″	1′-4″	1′-8″	0′-7 1/2″	0′-8″				293	3521
SIDEWALK	EA042708	27′-8″									87	1608
	EA043303	33′-3″									174	3865
	EA060402	4′-2″									406	2541
	EA061008	10′-8″									406	6505
SIDEWALK & RAILING	ED040410	1′-2″	2′-6″	1′-2″							4	13
	ED040503	2′-3 3/4″	0′-7 1/4″	2′-4″							27	95
	ED060808	4′-0 1/2″	0′-7″	4′-0 1/2″							16	208
	ED060809	4′-1″	0′-7″	4′-1″							8	105
	EL040707	2′-6″	0′-7″	2′ -2″	1′-2″	1′-2″	0′-7″	0′-0″			970	4914
	EL061100	3′-10 1/2″	0′-6 3/4″	4′ -2 1/2″	1′-2 1/8″	1′-2 1/8″	0′-0″	0′-6 3/4″			8	132
	EL061101	4′-2 1/2″	0′-7 1/4″	3′ -10 1/2″	1′-2 1/8″	1′-2 1/8″	0′-7 1/4″	0′-0″			16	266
RAILING	EA040409	4′-9″									8	25
	EA040706	7′-6″									8	40
	EA041208	12′-8″									6	51
	EA041410	14′-10″									6	59
	EA043303	33′-3″									72	1599
	EA044005	40′-5″									24	648
	ED040309	1′-2 1/2″									6	15

BAR	DIMENSIONS									NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g	h	j		



EPOXY COATED
BAR SIZE
BAR LENGTH (FT)
BAR LENGTH (IN)
EA064700
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES

98,600	Lb	Reinforcement, Steel, Epoxy Coated

NOTE:

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

FIELD BENDING AND CUTTING REINFORCEMENTS SHALL BE DONE ACCORDING TO SECTION 706.03.E OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. FIELDING BENDING, CUTTING AND THREADING REINFORCEMENT WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE BID ITEM "REINFORCEMENT, STEEL, EPOXY COATED".

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

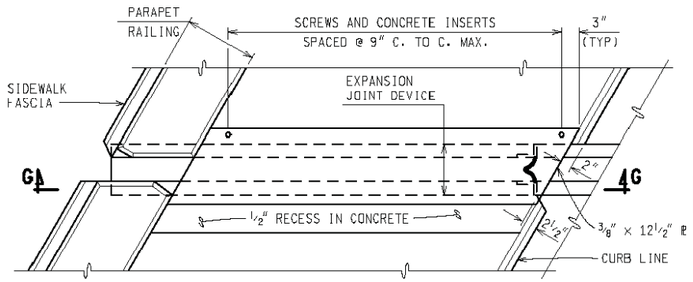
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

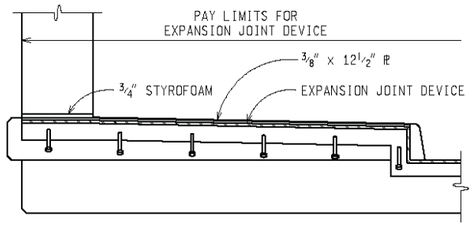
STEEL REINFORCEMENT DETAILS

I-96 WB SERVICE ROAD OVER ROUGE RIVER

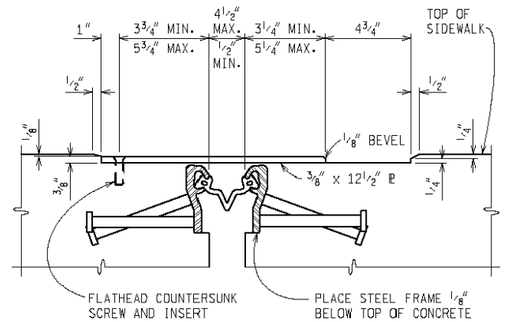
SHEET 22 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010



PLAN AT PARAPET RAILING WITH SIDEWALK



SECTION G – G



SECTION THROUGH EXPANSION JOINT AND COVER PLATE

SIDEWALK SECTIONS

ALL STEEL FOR EXPANSION JOINT AND COVER PLATE SHALL BE AASHTO M270, GRADE 36, AND GALVANIZED (ASTM A123) WITH A STATIC COEFFICIENT OF FRICTION OF 0.6 OR GREATER.

USE ASTM F 593 (TYPE 304) STAINLESS STEEL 3/4" DIAMETER FLATHEAD COUNTERSUNK SCREWS WITH 3/4" DIAMETER INSERTS.

CAST CURBS AND SIDEWALKS WITH 3/8" SLIDING PLATES IN PLACE TO INSURE THAT INSERTS AND SCREWS ARE ALIGNED PROPERLY. APPLY BOND BREAKER TO SLIDING PLATES PRIOR TO INSTALLATION.

FORM CONCRETE RECESS AREA IN SIDEWALK AND GRIND TO PROVIDE SMOOTH SURFACE. TOOL OR GRIND CONCRETE EDGES TO 1/4" RADIUS. APPLY ONE COAT OF EPOXY RESIN ADHESIVE TO ALLOW BENT SLIDING PLATE TO MOVE FREELY WITHOUT FRICTION. CARE SHALL BE TAKEN SO THAT NO ADHESIVE COMES IN CONTACT WITH ANY PART OF THE EXPANSION JOINT DEVISE OR GLAND. REMOVE ANY FOREIGN PARTICLES FROM THE SURFACE PRIOR TO INSTALLING PLATES.

INSTALL PLATES SO THAT THE SCREWS AND INSERTS ARE SET ON THE HIGH SIDE OF LONGITUDINAL SIDEWALK GRADE.

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE COVER PLATE IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE COVER PLATE.

NOTES:

JOINT TYPES

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL - TYPE M	WATSON-BOWMAN & ACME, INC.
WABO STRIP SEAL - TYPE A	WATSON-BOWMAN & ACME, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN SUPPORT AREA.

FABRICATION AND INSTALLATION

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE EXPANSION JOINT DEVICE SHALL BE SET 1/8" - 1/4" BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 1/8".

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.03C.16 OF THE STANDARD SPECIFICATIONS.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.04D SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

IN THE EVENT THAT SPLICING IS REQUIRED OF THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
11481	60	PIN & HANGER	3 1/8"	48'-0"
		AT PIER 2		

QUANTITY		
ITEM	UNIT	AMOUNT
Expansion Joint Device	Ft	48
Expansion Joint Device, Cover Plate	Ft	16

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK MPP	REVIEW DPE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

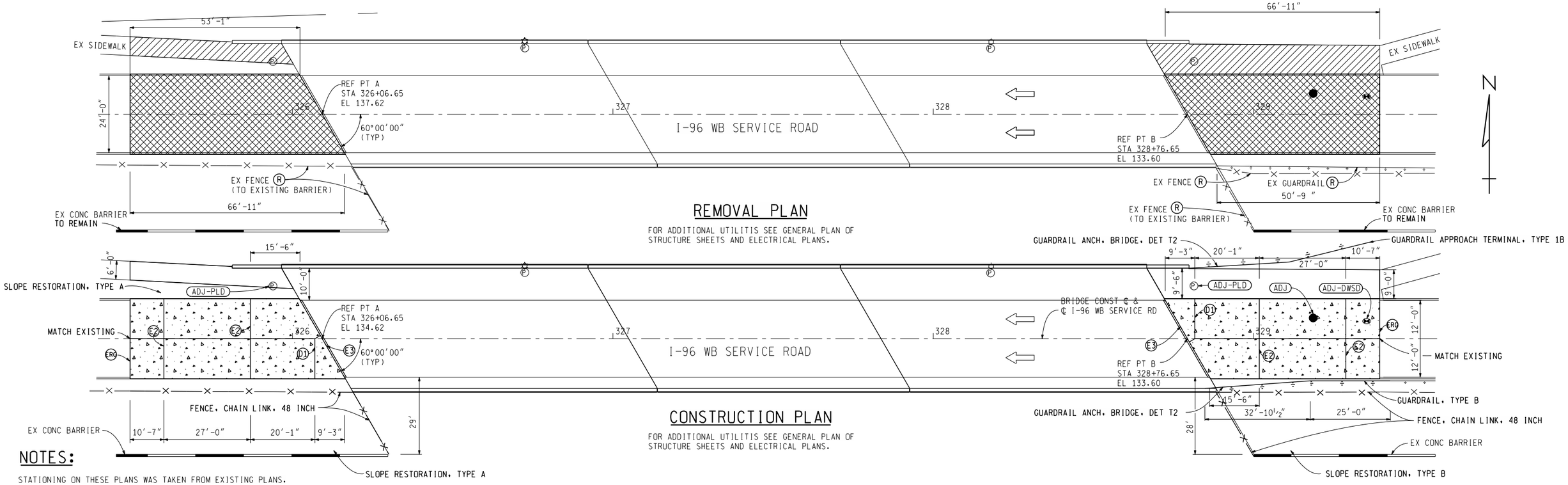
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

EXPANSION JOINT DETAILS
EJ3Y 03-14-2007

I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 23 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: AUGUST 6 2010



NOTES:

STATIONING ON THESE PLANS WAS TAKEN FROM EXISTING PLANS.

FULL DEPTH SAW CUTS WILL NOT BE PAID FOR SEPARATELY, BUT ARE INCLUDED IN THE BID ITEM PAVT, REM.

REMOVE PAVEMENT TO THE LIMITS SHOWN OR AS DIRECTED BY THE ENGINEER.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974. THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE EXISTING UTILITIES SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVALABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

ADDITIONAL CONCRETE AND STEEL REINFORCEMENT NECESSARY TO CONSTRUCT THE APPROACH PAVEMENT SHALL BE INCLUDED IN THE BID ITEM "CONC PAVT WITH INTEGRAL CURB, REINF, 10 INCH".

WHERE UNIT OF PAVEMENT SLAB IS OTHER THAN SPECIFIED ON THE STANDARD, SPECIAL SHEETS OF THE REQUIRED WIDTH MAY BE USED OR STANDARD SHEETS MAY BE CUT TO THE REQUIRED SIZE OR SPLIT SHEETS MAY BE ADDED TO STANDARD SHEETS TO OBTAIN THE REQUIRED SIZE.

SEE STANDARD PLAN R-39-SERIES AND R-44-SERIES FOR DETAILS OF JOINTS AND LOAD TRANSFER.

UTILITY MANHOLE COVER ADJUSTMENTS FOR PLD, DWSD AND DTE MANHOLES WILL BE PAID FOR AS "DR STRUCTURE COVER, ADJ, CASE 2"

MISCELLANEOUS QUANTITIES

AMOUNT	UNIT	ITEM
0.09	Acre	Clearing
334	Syd	Pavt, Rem
104	Syd	Sidewalk, Rem
54	Ft	Guardrail, Rem
170	Ft	Fence, Rem
207	Cyd	Excavation, Earth
334	Syd	Conc Pavt with Integral Curb, Reinf, 10 inch
934	Sft	Sidewalk, Conc, 6 inch
400	Syd	Open-Graded Dr Cse, 4 inch, Modified
240	Ft	Underdrain, Pipe, Open-Graded, 6 inch
150	Ft	Underdrain Outlet, 6 inch
2	Ea	Underdrain, Outlet Ending, 6 inch
2	Ea	Dr Marker Post
104	Syd	Aggregate Base, 4 inch
120	Cyd	Subbase, CIP
400	Syd	Geotextile Separator

MISCELLANEOUS QUANTITIES

AMOUNT	UNIT	ITEM
225	Syd	Slope Restoration, Type A
125	Syd	Slope Restoration, Type B
43	Cyd	Embankment, CIP
100	Ft	Joint, Expansion, E2
58	Ft	Joint, Expansion, E3
50	Ft	Joint, Expansion, Erg
29	Ft	Joint, Plane-of-Weakness, D1
3	Ea	Guardrail Reflector
2	Ea	Guardrail Anch, Bridge, Det T2
25	Ft	Guardrail, Type B
1	Ea	Guardrail Approach Terminal, Type 1B
170	Ft	Fence, Chain Link, 48 inch
4	Ea	Dr Structure Cover, Adj, Case 2
98	Ft	Pavt Mrkg, Sprayable Thermopl, 4 inch, White
390	Ft	Pavt Mrkg, Sprayable Thermopl, 6 inch, White
390	Ft	Pavt Mrkg, Sprayable Thermopl, 6 inch, Yellow

LEGEND

- (B) LONGITUDINAL BULKHEAD JOINT
- (D) LONGITUDINAL LANE TIE JOINT
- (D1) TRANSVERSE PLANE OF WEAKNESS JOINT
- (BD) OPTIONAL B OR D JOINT
- (E4) EXPANSION JOINT E4
- (E3) EXPANSION JOINT E3
- (E2) EXPANSION JOINT E2
- (ERG) EXPANSION JOINT Erg
- (ESG) EXPANSION JOINT ESC

REMOVAL OF PAVEMENT & CURB
REMOVAL OF SIDEWALK
PROPOSED CONCRETE PAVEMENT
PROPOSED SIDEWALK

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK: MPP	REVIEW: DFE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

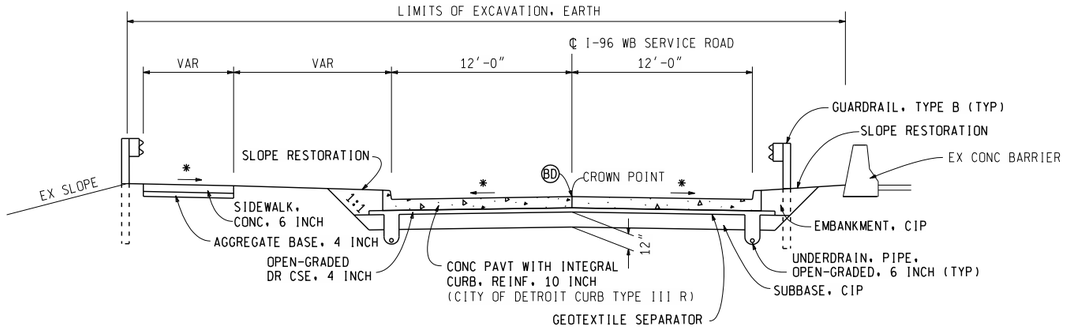
HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

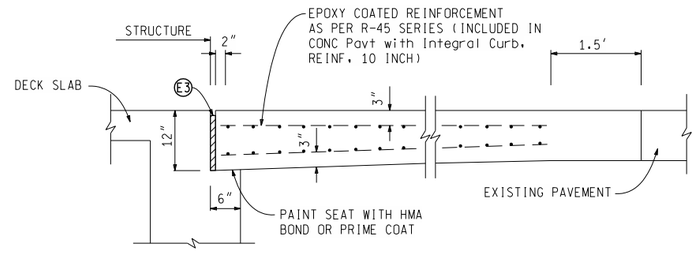
BRIDGE APPROACH DETAILS

I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 24 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: NOVEMBER 29, 2010



TYPICAL APPROACH SECTION



PAVEMENT SLAB ADJACENT TO STRUCTURE

* VARIES
MATCH BRIDGE DECK CROSS SECTION AT REFERENCE LINES AND TRANSITION TO MATCH EXISTING.

NOTE:
TRANSITION CURB TO MATCH BRIDGE SECTION, INCLUDED IN PAY ITEM "CONC PAVT WITH INTEGRAL CURB, REINF, 10 INCH".

DESCRIPTION	DRN	CKD	APVD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	SJP	MPP
GRADE		
ESTIMATE		
FINAL	CHECK: MPP	REVIEW: DFE

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

HNTB

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION

BRIDGE APPROACH DETAILS

I-96 WB SERVICE ROAD OVER ROUGE RIVER

SHEET 25 OF 25 SHEETS
STRUCTURE NUMBER 11481
JOB NUMBER 104601A
DATE: NOVEMBER 29, 2010

LEGEND SHEET

UNDERGROUND

- FIRE HYDRANT
- EXISTING MANHOLE
- EXISTING HANDHOLE
- EXISTING DUCT RUN
- ABANDON EXISTING DUCT RUN
- EXISTING DIRECT BURIAL OR PARKWAY CABLE
- ABANDON DIRECT BURIAL OR PARKWAY CABLE
- INSTALL DIRECT BURIAL CABLE (NO. AND SIZE WILL BE SHOW)
- 6-130mm E.C. BUILD ENCASED CONDUIT (E. C.) (NO. AND SIZE WILL BE SHOWN)
- 2-75mm D.B. INSTALL DIRECT BURIAL CONDUIT (D. B.) (NO. AND SIZE WILL BE SHOWN)
- 2-100mm J.B. JACKED-BORED CONDUIT (J. B.) (NO. AND SIZE WILL BE SHOWN)
- 2-100mm J.B. BUILD NEW MANHOLE (2-WAY)
- BUILD NEW MANHOLE (3-WAY)
- BUILD NEW MANHOLE (4-WAY)
- BUILD NEW MANHOLE (CORNER)
- BUILD NEW HANDHOLE (ROUND OR SQUARE AS INDICATED ON PLANS).
- BUILD POLYMER CONCRETE HANDHOLE
- BUILD TYPE 'S' HANDHOLE
- BUILD TYPE 'D' HANDHOLE
- EXISTING UNDERGROUND-FED ST. LTG. UNIT AND FOUNDATION
- REMOVE UNDERGROUND-FED ST. LTG. UNIT AND FOUNDATION (EXCEPT AS OTHERWISE NOTED)
- INSTALL CODE 009-00, 010-06, OR 118-06 AS NOTED ST. LTG. UNIT ON BRIDGE OR NEW FDN. INSTALL LUMINAIRE (SALVAGED), EXCEPT WHERE OTHERWISE NOTED. ANCHOR BOLTS IN BRIDGE DECK ON PLAN BY OTHERS
- SALVAGED UNDERGROUND-FED ST. LTG. UNIT ON NEW FOUNDATION.

DIAGRAMS

(U. G. -FED. ST. LTG. STD. SYMBOLS ARE THE SAME AS THE UNDERGROUND LEGEND ON THIS SHEET).

- M. H. 1234 PROPOSED MANHOLE
- M. H. 5678 EXISTING MANHOLE
- H. H. PROPOSED HANDHOLE
- H. H. EXISTING HANDHOLE
- M. H. 9012 PROPOSED MANHOLE IN SAME LOCATION AS EXISTING HOLE.

- EXISTING CABLE
- PROPOSED OVERHEAD LINE
- PROPOSED CABLE
- CABLE TO BE ABANDONED
- CABLE TO BE REMOVED
- DISCONNECT, INSULATE AND CAP CABLE END.
- SPLICE STRAIGHT THRU
- SPLICE

PDR. 301 A1-1 INDICATES NEW ST. LTG. STANDARD NUMBER
PDR. 24-26 INDICATES OLD ST. LTG. STANDARD NUMBER

- (1) SECTION OF PROP. CONDUIT WITH PROP. CABLE
- SECTION OF EXIST. CONDUIT WITH EXIST. CABLE
- SECTION OF EXIST. CONDUIT WITH EXIST. & PROP. CABLE
- 2-4" CONDUIT BROKEN OUT IN HANDHOLE
- 4-4" CONDUIT BY-PASSING HANDHOLE

6-4"

MULT. ST. LTG. CABLE — 1
COMMUNICATION CABLE — 2
SERIES ST. LTG. CABLE — 7 9 5
24KV. CABLE — 8 A 6
MULT. ST. LTG. FEEDER CABLE
3 T.S. FEEDER CABLE
4 T.S. INTERCONNECT CABLE
T.S. CABLE
PRI. DISTRIBUTION CABLE
FUTURE CABLE

12-4"

DIAGRAMS

- 1-#6 INDICATES 2000V., 1-1/C #6 ST. LTG. CABLE
- 1/1 INDICATES 2000V., 1-1/C #6 ST. LTG. CABLE & 1-#6 NEUTRAL.
- 2/1 INDICATES 2000V., 2-1/C #6 ST. LTG. CABLES & 1-#6 NEUTRAL (ALL UNLABELED CABLE GROUPS ON WIRING DIAGRAM ARE SUCH.) 480/960V.
- 1-#2 INDICATES 2000V., 1-1/C #2 ST. LTG. CABLE
- 1/1 INDICATES 2000V., 1-1/C #2 ST. LTG. CABLE & 1-#2 NEUTRAL.
- 2/1 INDICATES 2000V., 2-1/C #2 ST. LTG. CABLES & 1-#2 NEUTRAL (ALL UNLABELED CABLE GROUPS ON WIRING DIAGRAM ARE SUCH.) 240/480V.
- 3/1 INDICATES 2000V., 3-1/C #2 ST. LTG. CABLES & 1-#2 NEUTRAL.
- RM. INDICATES REMOVE CABLES IN CONDUIT (REGARDLESS OF SIZE OR NUMBER OF CABLES IN THE CONDUIT.)
- 1-#6 INSTALL 7500V., 1-1/C #8 L. C. ST. LTG. CABLE
- 2-#6 INSTALL 7500V., 2-1/C #8 L. C. ST. LTG. CABLES

OVERHEAD

- C INSTALL OVERHEAD ALLEY LTG. UNIT. WITH 1.83m BRACKET ARM.
- C 16' I INSTALL OVERHEAD RESIDENTIAL LTG. (16 FEET ARM WITH TYPE I 4-WAY LUMINAIRE SHOWN)
- C 10' II INSTALL OVERHEAD RESIDENTIAL LTG. UNIT (3.048m. ARM WITH TYPE II 2-WAY LUMINAIRE SHOWN)
- O_T EXISTING WOOD POLE (AMERITECH POLE SHOWN)
- $\bullet_C$ REMOVE WOOD POLE (P. L. D. POLE SHOWN)
- $\bullet_C$ REPLACE WOOD POLE (HEIGHT & CLASS AS INDICATED)
- INSTALL WOOD POLE (HEIGHT & CLASS AS INDICATED) (USE SALVAGED POLE WHERE INDICATED)
- E EXISTING OVERHEAD ST. LTG. UNIT
- E REMOVE OVERHEAD ST. LTG. UNIT (D. E. CO. POLE SHOWN)
- E INSTALL OVERHEAD ST. LTG. UNIT WITH 8FT. MAIN ST. LTG. BRACKET ARM.
- EXISTING OVERHEAD LINE
- REMOVE OVERHEAD LINE
- INSTALL OVERHEAD LINE
- INSTALL AND LATER REMOVE OVERHEAD LINE
- 3/8" INSTALL GUY AND ANCHOR (10mm GUY UNLESS OTHERWISE NOTED)
- REMOVE GUY AND ANCHOR ROD
- 3/8" P INSTALL POLE GUY (3/8" GUY UNLESS OTHERWISE NOTED)
- 1/4" A INSTALL ARM GUY (1/4" GUY UNLESS OTHERWISE NOTED)
- P OR A REMOVE GUY (POLE OR ARM GUY WILL BE INDICATED)
- RM. MATERIALS TO BE REMOVED
- IN. MATERIALS TO BE INSTALLED
- C. P. CABLE POLE
- EX. EXISTING MATERIALS
- M. S. S. MAKE WOOD POLE SELF-SUPPORTING IN CRUSHED STONE
- XYZ PHASES OF P. L. D. DISTRIBUTION WIRES OR EQUIPMENT
- E D. E. CO. DISTRIBUTION WIRE
- e. s. D. E. SECONDARY WIRE
- (C) INSTALL SUSPENSION INSULATOR
- EXISTING → C / PROPOSED → C P. L. D. DISTRIBUTION WIRE
- EXISTING → CS / PROPOSED → CS P. L. D. SECONDARY WIRE
- EXISTING → A / PROPOSED → A P. L. D. SERIES ST. LTG. WIRE
- EXISTING → M / PROPOSED → M P. L. D. MULT. ST. LTG. WIRE

GENERAL

- GUARD RAIL (CONCRETE)
- GUARD RAIL (STEEL)
- CENTER LINE (CL)
- PROPERTY LINE (PL) OR RIGHT OF WAY (ROW)
- PAVEMENT JOINTLINE AND CURB
- CURB LINE
- EXISTING ROUND CATCH BASIN
- EXISTING RECTANGLE CATCH BASIN
- S EXISTING SEWER LINE, MANHOLE AND CATCH BASIN
- E EXISTING DETROIT EDISON UNDERGROUND LINE AND MANHOLE
- T EXISTING AMERITECH TELEPHONE UNDERGROUND LINE AND MANHOLE
- G EXISTING GAS LINE AND MANHOLE
- W EXISTING WATER LINE AND HANDHOLE
- P EXISTING DETROIT PUBLIC LIGHTING UNDERGROUND LINE AND HANDHOLE.
- ST EXISTING DETROIT EDISON UNDERGROUND STEAM LINE
- EXISTING R. R. TRACKS
- EXISTING STREETCAR TRACKS
- EXISTING FENCE
- EXISTING PUBLIC TELEPHONE
- EXISTING TELEPHONE CONTROL BOX
- EXISTING TRANSFORMER
- NEW TRANSFORMER
- EXISTING R. R. CROSSING GATE AND FLASHERS
- EXISTING R. R. FLASHERS
- EXISTING R. R. CROSSING MAST ARM AND FLASHERS
- EXISTING DOUBLE POST SIGN (TYPE SHOWN ON PLANS)
- INSTALL DOUBLE POST SIGN (TYPE SHOWN ON PLANS)
- EXISTING SINGLE POST SIGN (TYPE SHOWN ON PLANS)
- INSTALL SINGLE POST SIGN (TYPE SHOWN ON PLANS)
- EXISTING MAST ARM ROAD SIGN (TYPE SHOWN ON PLANS)

TRAFFIC SIGNAL

- POCH POLE CONTACT HEIGHT OF TRAFFIC SIGNAL SPAN WIRE
- L. C. H. LOWEST CONTACT HEIGHT OF TRAFFIC SIGNAL TO SPAN WIRE.
- REMOVE HOOD AND INSTALL LAMPS (INCIDENTAL TO INSTALLATION OF TRAFFIC SIGNAL ON THIS CONTRACT)
- BACK-OUT LAMPS AND HOOD (SIGNALS INCLUDED IN THE INSTALLATION OF TRAFFIC SIGNAL ON THIS CONTRACT).
- EXISTING STOP BAR
- STOP BAR TO BE INSTALLED

TRAFFIC SIGNAL

- INSTALL 3-SECTION TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL 3-SECTION TRAFFIC SIGNAL WITH SALVAGED HEADS (2-WAY SHOWN)
- REMOVE 3-SECTION TRAFFIC SIGNAL (3-WAY SHOWN)
- EXISTING 3-SECTION TRAFFIC SIGNAL (4-WAY SHOWN)
- INSTALL 3-SECTION 300mm(12")TRAFFIC SIGNAL (2-WAY SHOWN)
- EXISTING 1 OR 2-SECTION 300mm(12")TRAFFIC SIGNAL FLASHERS
- INSTALL 1 OR 2-SECTION 300mm(12")TRAFFIC SIGNAL FLASHERS
- INSTALL TWO-WAY ILLUMINATED CASE SIGN
- INSTALL TWO-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE TWO-WAY ILLUMINATED CASE SIGN
- EXISTING TWO-WAY ILLUMINATED CASE SIGN
- INSTALL FOUR-WAY ILLUMINATED CASE SIGN
- INSTALL FOUR-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE FOUR-WAY ILLUMINATED CASE SIGN
- EXISTING FOUR-WAY ILLUMINATED CASE SIGN
- INSTALL 2-SECTION, 300mm(12")PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (2-WAY SHOWN)
- INSTALL 2-SECTION, 300mm(12")PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL WITH SALVAGED HEAD (2-WAY SHOWN)
- REMOVE 2-SECTION, PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- EXISTING 2-SECTION, 300mm(12")PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL TRAFFIC SIGNAL CONTROLLER (NEW OR SALVAGED AS SHOWN) (EXCEPT AS OTHERWISE NOTED).
- INSTALL MAST ARM STD. & MAST ARM ON NEW FOUNDATION (EXCEPT AS OTHERWISE NOTED).
- INSTALL TRAFFIC SIGNAL PEDESTAL ON NEW FOUNDATION (EXCEPT AS OTHERWISE NOTED).
- INSTALL 9.14m(30') ANCHOR BASE STEEL STRAIN POLE ON NEW FOUNDATION (EXCEPT AS OTHERWISE NOTED). (USE 400mm[16"] BOLT CIRCLE FOR ALL NEW STRAIN POLES).
- EXISTING TRAFFIC SIGNAL CONTROLLER
- EXISTING MAST ARM STANDARD
- EXISTING PEDESTAL
- EXISTING STEEL STRAIN POLE
- INSTALL OVERHEAD PLASTIC JACKETED CABLE (P. J.)
- EXISTING OVERHEAD PLASTIC JACKETED CABLE (P. J.)
- REMOVE OVERHEAD PLASTIC JACKETED CABLE (P. J.)
- INSTALL JUNCTION BOX (J. B.)
- INSTALL SALVAGED JUNCTION BOX (J. B.)
- REMOVE JUNCTION BOX (J. B.)
- EXISTING JUNCTION BOX (J. B.)
- EXISTING LOOP DETECTOR
- INSTALL LOOP DETECTOR

CONTRACTOR TO FURNISH AND INSTALL ALL MATERIALS PLD SHALL APPROVE SHOP DRAWING FOR ALL MATERIALS

PLD FILE 62-8

1 PLD

Aug 02, 2010 - 3:25pm
Z:\0909 I-96 Bridges - HNTB\Warren Work\090767DPO\D0909E1.dwg

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

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PLAN	---	---
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ESTIMATE		
FINAL CHECK	---	REVIEW ---

APPROVED:
FEDERAL PROJECT NO.
FEDERAL ITEM NO.

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CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

NOTES & LEGEND

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E1 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

GENERAL INFORMATION

1. CALL MISS DIG (313) (647–7344) 3 WORKING DAYS PRIOR TO ANY EXCAVATION FOR THE LOCATIONS OF UNDERGROUND UTILITIES.
2. A MINIMUM CLEARANCE OF 1.07m (3.5') HORIZONTAL & .3048m(1.0') VERTICAL MUST BE MAINTAINED BETWEEN PROPOSED P.L.D. FACILITIES & EXISTING U.G. WATER FACILITIES.
3. CONTRACTOR TO NOTIFY MICHIGAN CONSOLIDATED GAS CO. AT (313) 491–6301 IF PROTECTIVE COATED GAS MAIN IS EXPOSED OR DAMAGED.
4. CONTRACTOR TO NOTIFY D.E. CO., AT (313) 237–9564 IF PROTECTIVE COATING OF ANY D.E.CO. HIGH VOLTAGE UNDERGROUND LINE IS EXPOSED OR DAMAGED.
5. ALL EXISTING P.L.D. LIGHTING, TRAFFIC SIGNAL, PRIMARY, TRANSMISSION ETC. CIRCUITS SHALL ALWAYS BE MAINTAINED IN AN OPERATIONAL CONDITION (EXCEPT WHERE OTHERWISE NOTED). NOTIFY P.L.D. SYSTEM OPERATOR AT (313) 224–0500 48 HOURS PRIOR TO BEGINNING WORK ON P.L.D. CIRCUITS & KEEP HIM INFORMED ON A DAILY BASIS.
6. EXISTING OVERHEAD & TRAFFIC SIGNAL FACILITIES ARE NOT NECESSARILY SHOWN ON PLANS.
7. CROSSARMS SHALL BE REMOVED AFTER ALL CONTACTS ARE REMOVED. (INCLUDED WITH THE REMOVAL OF OVERHEAD LINES).
8. ALL OVERHEAD WIRES & UNDERGROUND CABLES SHALL CONSIST OF COPPER CONDUCTORS AS PER SPECIFICATIONS.
9. ALL REMOVED WOOD POLES & CROSSARMS SHALL BE DISPOSAL BY P.L.D. THE CONTRACTOR AT A PROPER SITE.
10. ALL NEW ANCHOR GUYS SHALL BE INSTALLED ON A 1:1 RATIO OR AS NEARLY AS POSSIBLE (EXCEPT WHERE OTHERWISE NOTED). (STRUT GUYS ARE EXCEPTED).
11. ARM GUYS SHALL BE SIEMENS–MARTIN GRADE. ANCHOR AND POLE GUYS SHALL BE EXTRA HIGH STRENGTH GRADE.
12. INSTALL WOOD POLES SO AS NOT TO INTERFERE WITH TRAFFIC OR FUTURE CONSTRUCTION STAGES.
13. ALL SALVAGED WOOD POLES DIRECTED TO BE INSTALLED SHALL BE POLES PREVIOUSLY INSTALLED NEW ON THIS CONTRACT.
14. ALL TRANSFORMER POLES AND CABLE POLES SHALL BE FITTED UP WITH 3.048m (120") ARMS (EXCEPT WHERE OTHERWISE INDICATED).
15. INSTALLATION OF ARMS FOR EQUIPMENT, CUTOUTS, POTHEADS, TRANSFORMER, ETC. NOT SHOWN ON NEW CABLE AND TRANSFORMER POLES SHALL BE INSTALLED AS PER THE DETAIL DRWG. REQUIREMENT AND SHALL BE INCLUDED IN THE FITTING–UP OF THE CABLE AND/OR TRANSFORMER POLE.
16. ALL POTHEADS ON PRIMARY DISTRIBUTION CABLE POLES SHALL BE FLAT DIVERGENT DISCONNECTING TYPE.
17. WHERE A P.L.D. WOOD POLE WITH OTHER UTILITY CONTACTS IS TO BE REMOVED THE P.L.D. INSPECTOR WILL INDICATE IF THE POLE IS IN FACT TO BE REMOVED.
18. ALL TRAFFIC STREET SIGNS SUCH AS "NO PARKING", "NO STANDING" ETC. SHALL BE TRANSFERRED FROM OLD STD. OR POLE TO NEW STD. OR POLE AT SAME LOCATION OR IN CLOSE PROXIMITY BY D.D.O.T.
19. ALL TRAFFIC SIGNALS SHALL BE MOUNTED WITH NEW STANDARD TRAFFIC SIGNAL BRACKETS & FITTINGS.
20. ALL TRAFFIC SIGNAL ITEMS, AS CALLED FOR ON PLANS, SHALL INCLUDE AS INCIDENTAL TO THE TRAFFIC SIGNAL ALL CABLES FROM THE CONTROLLER TO THE TRAFFIC SIGNALS & FOUNDATIONS AS INDICATED.
21. WHEN ENTERING PROPOSED CONDUIT INTO EXISTING MANHOLES & HANDHOLES EXERCISE CAUTION NOT TO DISTURB EXISTING CABLES. WALLS SHALL BE CORE DRILLED ONLY FOR ENTRANCE OF CONDUITS. NEW CONDUITS SHALL NOT INTERFERE WITH RACKING AND / OR TRAINING OF CABLES.
22. ALL SALVAGED TRAFFIC SIGNALS DIRECTED TO BE INSTALLED SHALL BE TRAFFIC SIGNALS PREVIOUSLY INSTALLED NEW ON THIS CONTRACT. (EXCEPT AS OTHERWISE INDICATED).
23. FOR TRAFFIC SIGNAL SPAN WIRE USE 8mm (5/16") EXTRA HIGH STRENGTH GRADE AS PER SPECIFICATIONS.
24. SIDEWALK RAMPS OF THE TYPE & LOCATION AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER SHALL BE CONSTRUCTED.
25. SEAL–END OF CABLE WHERE COILING OF CABLE IS CALLED FOR ON PLANS. (CONTRACTOR SHALL RECEIVE PAYMENT FOR COILED–UP CABLES).
26. CONTRACTOR SHALL DELIVER WHERE REQUIRED TO THE PUBLIC LIGHTING DEPARTMENT THE T.S. CONTROLLER FOR TIMING. CONTRACTOR SHALL PICK–UP CONTROLLER FROM P.L.D. WHEN READY FOR INSTALLATION.
27. PROPOSED T.S. SHALL BE PUT INTO OPERATION AT TIME OF REMOVAL OF EXISTING T.S. FACILITIES. CONTRACTOR SHALL NOTIFY THE P.L.D. INSPECTION IF HE IS UNABLE TO MAINTAIN T.S. IN AN OPERABLE CONDITION AT ALL TIMES.
28. THE CANDLEPOWER DISTRIBUTION FOR ALL MERCURY VAPOR & SODIUM VAPOR ST. LTG. LUMINAIRES SHALL BE SEMI–CUTOFF, MEDIUM DISTRIBUTION OF TYPE AS INDICATED ON THE PLANS.
29. ALL LUMINAIRES SHALL BE PROVIDED WITH 240V. INTERNAL BALLASTS AS CALLED FOR ON PLANS. (EXCEPT WHERE OTHERWISE INDICATED)
30. WHERE REMOVAL OF LUMINAIRES IS CALLED FOR ON PLANS THE ASSOCIATED O.H. SERIES COIL SHALL BE REMOVED BY THE CONTRACTOR. (REMOVE O.H. COIL IS INCLUDED WITH THE REMOVAL OF LUMINAIRE).
31. WHERE INSTALLATION OF NEW MANHOLES OR HANDHOLES OVER EXISTING CONDUITS (TO ACCOMMODATE NEW & EXISTING CONDUITS) IS CALLED FOR ON PLANS, CONTRACTOR SHALL CAREFULLY & SO AS NOT TO DAMAGE EXIST. CABLES, REMOVE THE EXISTING CONDUITS & ENCASEMENT WITHIN HOLES. EXIST. CABLES SHALL BE EXTENDED & PROPERLY TRAINED, RACKED & SUPPORTED.
32. WHERE ABANDONING OF U.G. CABLES IS CALLED FOR ON PLANS OR DIAGRAMS, CONTRACTOR SHALL CUT & REMOVE CABLES WITHIN MANHOLES & HANDHOLES.
33. FOR LOCATIONS OF P.L.D. INSTALLATIONS ON STRUCTURES SUCH AS CONDUITS HANDHOLES, CONDUIT SLEEVES, GALVANIZED STEEL CONDUITS & STREET LIGHTING STANDARD ANCHOR BOLTS SEE STRUCTURE PLANS.
34. PAVEMENT, SIDEWALK, CURB REMOVAL, REPLACEMENT AND EXCAVATION & BACKFILL SHALL BE DONE ACCORDING TO CITY OF DETROIT SPECIFICATIONS.
35. UNDERGROUND CABLE QUANTITIES ARE ITEMIZED ON GENERAL PLANS. ALL CABLES SHALL BE TAGGED IN ALL M.H.'S & H.H.'S. THIS INCLUDES EXIST. CABLES THAT ARE CONVERTED TO MULTIPLE, RECONNECTED TO OTHER CIRCUITS OR RENDERED DEAD.
36. ALL NEW SALVAGED & CONVERTED STEEL STREET LIGHTING STANDARDS SHALL BE PAINTED.
37. ALL ST. LTG. UNITS INSTALLED ON THIS CONTRACT AND EXIST. STREET LIGHTING UNITS CONVERTED OR RE–CONNECTED TO OTHER CIRCUITS SHALL BE STENCILED OR RE–STENCILED AS SHOWN ON PLANS. (INCLUDED TO STREET LIGHTING UNITS)
38. STENCILING SHALL BE ON THE CURB SIDE OF THE POLE, LOCATED BETWEEN 1.219m (4') AND 1.524m (5') ABOVE GRADE. ALL LETTERS AND NUMBERS SHALL BE 50.8mm (2") IN HEIGHT. THE STENCILING SHALL BE DONE WITH A WEATHER–RESISTANT ENAMEL: BLACK ENAMEL ON GRAY COLORED OR ALUMINUM POLES, AND YELLOW OR WHITE ENAMEL ON BLACK OR BRONZE COLORED POLES.
39. WHERE UNDERGROUND UTILITIES INTERFERE WITH THE INSTALLATION OF A NEW FOUNDATION, INSTALL THE SPECIAL FOUNDATION OF PARTICULAR DIMENSIONS AS INDICATED ON THE DETAIL DRWG. TO SUIT THE FIELD CONDITION. THERE WILL BE NO EXTRA PAYMENT FOR THE SPECIAL FOUNDATION. IT WILL BE PAID FOR AS A NORMAL FOUNDATION.
40. ALL NEW CONDUIT RUNS SHALL BE BUILT STRAIGHT AS POSSIBLE. BENDS SHALL HAVE NO LESS THAN 7.925m (26') RADIUS AND NO REVERSE OR "S" BENDS.
41. WHERE TRIMMING OF TREES ON CITY PROPERTY IS CALLED FOR ON PLANS THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE RECREATION DEPT. OF THE CITY OF DETROIT AND SHALL HAVE SUCH WORK DONE BY A LICENSED TREE SERVICE CONTRACTOR. CALL (313) (931–3950).
42. ALL TREE TRIMMING REQUIRED TO CLEAR NEW OR SALVAGED STREET LIGHTING & TRAFFIC SIGNAL STD.'S AND O.H. ST. LTG. & TRAFFIC SIGNAL UNITS & O.H. WIRES SHALL BE INCLUDED WITH THE PAY–ITEM & NO EXTRA PAYMENT SHALL BE MADE.
43. WHERE IT IS SHOWN ON PLANS TO HAND DIG FOUNDATION, EXCAVATE BY HAND TOOLS ENTIRE DEPTH OF FOUNDATION. NO MECHANICAL EQUIPMENT SHALL BE USED.
44. CONTRACTOR SHALL NOTIFY THE P.L.D. SYSTEM OPERATION AT (313) (224–0500) & THE D.D.O.T. AFTER COMPLETION OF WORK AT ANY TRAFFIC SIGNAL INTERSECTION.
45. ALL CABLES SHALL BE TRAINED & PROPERLY RACKED IN ALL EXISTING MANHOLES & HANDHOLES. RACKS ARE TO BE INSTALLED WHERE NECESSARY & ARE INCLUDED IN THE INSTALLATION OF UNDERGROUND CABLE.
46. ALL CONDUITS NOT TERMINATING IN STRUCTURES SUCH AS MANHOLES, HANDHOLES OR FOUNDATIONS SHALL EXTEND .914m (3') BEYOND PAVEMENT LIMIT (EXCEPT AS OTHERWISE INDICATED). ALL UNOCCUPIED CONDUITS SHALL BE PLUGGED.
47. ALL NEW UNDERGROUND–FED STREET LIGHTING UNITS SHALL BE INSTALLED .762m (2.5') BACK OF FACE OF CURB UNLESS OTHERWISE INDICATED ON PLANS. VERIFY WITH P.L.D.
48. D.S.R. STREETCAR RAILS AND FOUNDATIONS (TRACKS) ARE SHOWN ON THE PLANS IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. EXACT LOCATIONS WITHIN THE STREETS & INTERSECTIONS ARE NOT KNOWN. SOME RAILS MAY BE REMOVED.
49. THE "FINAL" CONDUIT MUST BE TRIMMED FLUSH WITH MANHOLE WALL, HAVE END BELLS AND SPACERS AND BE TUCK POINTED. DO NOT ENCASE FINAL CONDUIT WITHOUT INSPECTION BY THE P.L.D. UNDERGROUND INSPECTION DEPARTMENT.
50. INSTALL 5mm (3/16") DIAMETER YELLOW POLYPROPYLENE ROPE IN ALL "FINAL" CONDUIT. (INCLUDE IN PAY ITEM FOR "CONDUIT")
51. CONDUIT TRENCHES SHALL BE EXCAVATED FROM MANHOLE TO MANHOLE TO ASSURE A CLEAR PASSAGE WITH PROPER GRADING PRIOR TO BUIODING ENCASED CONDUIT RUN.
52. CONTRACTOR TO PROVIDE ALL CABLE TAGS TO P.L.D. STANDARD.
53. ALL MANHOLE CHIMNEY'S ARE TO HAVE A MINIMUM 3 BRICK HIGH CHINMNEY, BUT NO HIGHER THREE FEET.
54. ALL MANHOLE RECONSTRUCTION DIMENSIONS MUST BE VERIFIED AND APPROVED BY P.L.D.
55. ALL SPLICING KITS MUST BE APPROVED BY P.L.D. BEFORE USE. THERE WILL BE NO ADDITIONAL COMPENSATION FOR ADDITIONAL SPLICING MATERIALS AND/OR TESTIING TO MEET P.L.D. SPECIFICATIONS.
56. THE QUANTITY FOR LENGTH OF CABLE IS FROM CENTER OF MANHOLE/HANDOLE. CONTRACTOR IS RESPONSIBLE TO ACCOUNT FOR ADDITIONAL LENGTH OF CABLE REQUIRED FOR RACKING AND BENDS WITHIN BID.

CAUTION: CABLE FIREPROOFING MAY CONTAIN ASBESTOS. SEE SPECIAL PROVISION FOR ASBESTOS NOTIFICATION.

PROPERTY CONTROL CLAUSE

ALL REMOVED PUBLIC LIGHTING DEPARTMENT (P.L.D.) EQUIPMENT AND MATERIAL THAT IS NOT RE–USED ON PROJECT IS TO BE SALVAGED IN USABLE CONDITION AND RETURNED TO P.L.D. CONTACT P.L.D. ENGINEERING IF THERE ARE SPECIFIC QUESTIONS. MATERIAL TO BE RETURNED TO THE P.L.D. SHALL INCLUDE, BUT NOT BE LIMITED TO, SUCH ITEMS AS MANHOLE AND HANDHOLE FRAMES AND COVERS, STREET LIGHTING POLES, (NOT INCLUDING WOOD, UNLESS SPECIFIED), MAST ARMS FOR LIGHTING AND TRAFFIC SIGNALS, LIGHTING FIXTURES, TRAFFIC SIGNALS, CABLE AND WIRE (POWER, LIGHTING COMMUNICATION, TRAFFIC SIGNAL AND ALL OVERHEAD LINE WIRE CLASSES), TRANSFORMER BASES, BALLASTS AND "COILS", POTHEADS, DISTRIBUTION TRANSFORMERS, TRAFFIC SIGNAL CONTROLLERS, MULTIPLE STREET LIGHTING CONTROL CABINETS AND TRAFFIC PEDESTALS. THIS MATERIAL IS THE PROPERTY OF THE P.L.D. CALL MICHAEL LASKOWSKI AT (313) 267–7306 TO DELIVER SALVAGED MATERIAL TO PLD (BY CONTRACTOR).

PLD FILE
62-8

2 PLD

Aug 02, 2010 - 3:07pm
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DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

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PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

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CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

GENERAL INFORMATION

I–96 SERVICE ROADS OVER ROUGE RIVER

SHEET E2 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

NOTES:

1. NOTIFY THE SYSTEM OPERATOR (PLD) 3 WORKING DAYS PRIOR TO WORKING ON ANY PLD CIRCUIT OR STRUCTURE AT TELEPHONE NO. (313) 224-0500.
2. CONTACT MS. DENISE WILLIAMS OF PLD AT (313) 267-7216 FOR SITE COORDINATION BEFORE ENTERING CONDUIT INTO ANY HANDHOLE OR MANHOLE.
3. ANY DAMAGES TO THE EXISTING SYSTEM CAUSED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE AS DIRECTED BY THE PLD ENGINEER.
4. VERTICAL CONDUIT TRANSITIONS MUST NOT EXCEED 4' IN 8' OF DUCT. THE MINIMUM RADIUS OF ANY FACTORY SWEEP MUST NOT BE LESS THAN 24" SUBJECT TO PLD APPROVAL.
5. INSTALL 3/16" DIA. YELLOW POLYPROPYLENE ROPE IN ALL NEW "FINAL" CONDUIT.
6. CABLE PROVIDED BY CONTRACTOR SHALL BE PER PLD SPECIFICATIONS.
7. ALL ELECTRICAL CABLE SHALL BE INSTALLED IN CONDUIT. NO SLICES WILL BE ALLOWED EXCEPT IN HANDHOLE, MANHOLE, OR LIGHT STANDARD. THE CONTRACTOR SHALL PROVIDE SPLICE AND CABLE AND THE COST OF THE SPLICE SHALL BE INCLUDED IN THE COST OF THE CABLE.
8. ALL REMOVED CABLE SHALL BE RETURNED TO PLD. NO CABLE IS TO BE REUSED.
9. ALL CABLES MUST BE TAGGED, TRAINED AND RACKED. NEW SPLICES (IN FINAL POSITION) MUST OCCUPY POSITION OF OLD SPLICE. SEE SPECIAL PROVISION FOR ELECTRICAL WORK. CONTRACTOR SHALL PROVIDE TAGS AS SPECIFIED.
10. SEAL THE ENDS OF ALL UNUSED CABLES AFTER PULLING THEM INTO MANHOLE (TEMP AND FINAL) LEAVE SUFFICIENT SLACK IN MANHOLES FOR SPLICES.
11. THE LIGHT STANDARD BRACKET ARMS, LUMINARIES, MAST ARM AND MAST ARM STANDARD WILL BE FURNISHED BY THE CONTRACTOR. FURNISHING AND INSTALLING THE ANCHOR BOLTS IS THE RESPONSIBILITY OF THE CONTRACTOR. ANCHOR BOLTS SHALL BE APPROVED BY PLD.
12. FOR ANCHOR BOLT ASSEMBLY, SEE BRIDGE CONSTRUCTION PLANS.
13. THE ITEM "REMOVE U.G. FED ST. LTG. UNIT" SHALL INCLUDE THE REMOVAL OF LIGHT STD, LUMINAIRE, BRACKET ARM, COIL AND SHAFT WIRE. RETURN ALL MATERIALS TO THE PLD.
14. GROUNDING OF LIGHT STD. IN BRIDGE INCLUDES CABLE AND SHALL BE INCLUDED N THE ITEM "STREET LIGHTING STANDARD".
15. HANDHOLES ON 009-00 LIGHT STANDARDS MOUNTED ON BRIDGE WALLS SHALL FACE THE ROADWAY.
16. AFTER CONSTRUCTION IS COMPLETE, CABLES AND CONNECTIONS SHALL BE RESTORED TO EXISTING FORM AND ALL TEMPORARY CABLES REMOVED UNLESS OTHERWISE NOTED.
17. STENCIL ST. LTG. STD. WITH WIRING DIAGRAM DESIGNATIONS. USE 2" HIGH LETTERING, BLACK WATERPROOF ENAMEL PAINT.
18. COUPLING OF CONDUITS SHALL BE AS DIRECTED BY THE ENGINEER AND SHALL BE INCLUDED IN THE AFFECTED PAY ITEMS AND SHALL NOT BE PAID SEPARATELY.
19. PLD DUCT IS TO REPLACED IN KIND PER PLD RECORD DRAWING TO CURRENT PLD SPECIFICATIONS AND AS DETERMINED BY PLD ENGINEER. IF PLAN DRAWING OF PLD FACILITIES IS NOT IN AGREEMENT WITH FIELD CONDITIONS, THE CONTRACTOR SHALL CALL THE PLD ENGINEER AT (313) 267-7216.
20. TEMPORARY DUCTS SHALL ENTER PLD STRUCTURES A MINIMUM OF 12" FROM THE ROOF OF THE STRUCTURE AND BE REMOVED WHEN NO LONGER IN USE, UNLESS OTHERWISE NOTED.
21. WHERE TEMPORARY DUCTS ARE REMOVED OR EXISTING PLD DUCTS ARE ABANDONED, THE WALLS OF PLD STRUCTURES SHALL BE NEATLY PATCHED WITH BRICK OR MORTAR DEPENDANT UPON THE EXISTING STRUCTURE COMPOSITION.
22. THE CONTRACTOR SHALL REMOVE CONSTRUCTION DEBRIS FROM PLD STRUCTURES.
23. WHEN UNIVERSAL TRANSFORMER BASES ARE USED WITH STREET LIGHTING STANDARDS, THE HANDHOLE OPENING SHALL FACE AWAY FROM ONCOMING TRAFFIC.
24. WHERE ANCHOR BASE STREET LIGHTING STANDARDS ARE MOUNTED ON BRIDGE WALLS INSTALL A P.L.C. PATTERN NO. IA ASTM CLASS 20 PR 30 GRAY IRON HANDHOLE FRAME COVER A (SEE PLD SHEET E20) IN THE SIDE WALK. ONLY ONE 90 DEGREE, 24" RADIUS SWEEP OF CONDUIT IS ALLOWED BETWEEN PULLING STRUCTURES AND LIGHTING STANDARD. IF A LIGHT IS REMOVED BACK IN BRIDGE APPROACH, THE LUMINAIRE SETTING SHOULD BE CHANGED TO TYPE THREE.
25. REMOVE ALL ABANDON DIRECT BURIED, ENCASED AND SUSPENDED CONDUIT.
26. ENCASED CONDUIT SHALL BE TC6 SCHEDULE 20 PVC.
27. CONDUITS MUST ENTER MANHOLES IN THE SAME DUCT POCKETS AND REMAIN IN CONFORMANCE WITH PLD CONSTRUCTION STANDARDS. MANHOLES MAY REQUIRE MODIFICATION IF NEW LOCATION CONDUIT PRECLUDES CONFORMITY. CONTACT MICHAEL LASKOWSKI AT (313) 267-7306.
28. ALL MATERIAL RETURNED TO PLD SHALL BE INCLUDED IN THE COST OF PROJECT AND WILL NOT BE PAID FOR SEPARATELY.
29. SERIES STREET LIGHTING CABLE SPLICES ARE LEAD WIPE.
30. INSTALL SERIES COIL INSIDE NEAREST HANDHOLE OR MANHOLE OFF THE BRIDGE (NO G&W). COIL SHALL BE TREATED WITH ZIEBART AND MOUNTED TO UPPER HALF OF STRUCTURE WALL.
31. UNDER BRIDGE CONDUIT SHALL BE 5" DIAMETER CHAMPION FIBERGLASS, MED. WALL I.P. SIZE CAT. #50C-MW-20-1.
32. ALL MANHOLES TO BE REBUILT WITH PLD SPECIFIED BRICK. PLD ENGINEERING TO GIVE DIMENSIONS PER FIELD CONDITIONS.

PLD FILE
62-8

3 PLD

						BY	CHECKED BY	
					PLAN	---	---	APPROVED:
					GRADE			FEDERAL PROJECT NO.
					ESTIMATE			
DESCRIPTION	DR'N	CK'D	AP'VD	DATE	FINAL	CHECK ---	REVIEW ---	FEDERAL ITEM NO.
REVISIONS								

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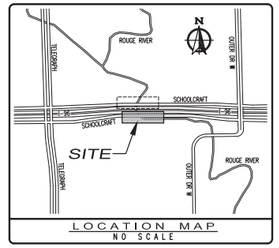
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

NOTES

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E3 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 - 3:09pm
Z:\0909 I-96 Bridges- HNTB\Warren Work\09076TOPO\E0909E3.dwg



LOCATION MAP
NO SCALE

QUANTITIES THIS PLAN

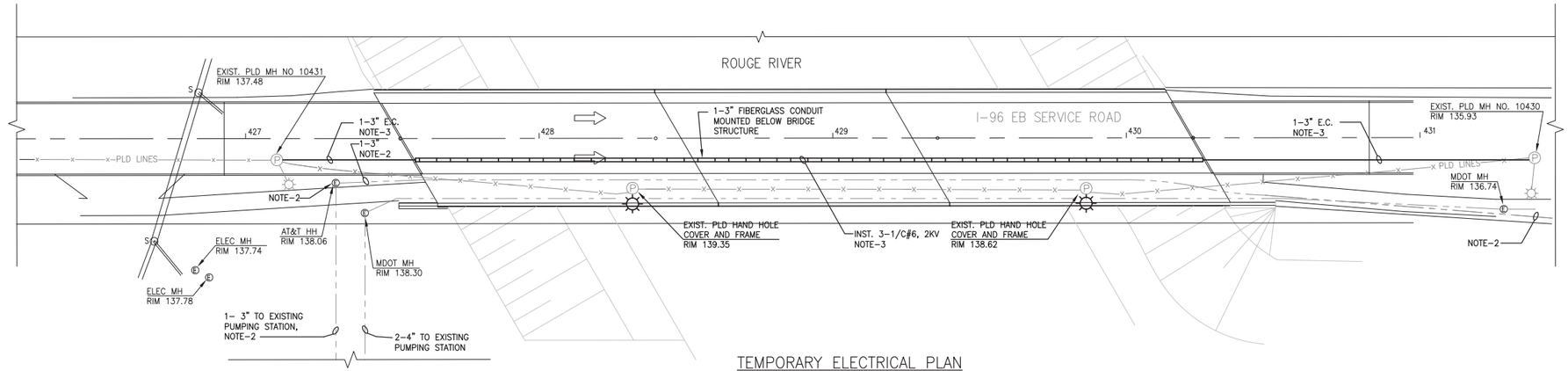
1320 Ft —— Remove Cables, PLD
166 Ft —— Conduit, Encased, 2–3", Rem, PLD
270 Ft —— Conduit, 1, 3–inch, Structure
160 Ft —— Conduit, Encased, 1, 3 inch, PLD
1296 Ft —— Cable, St Ltg, 2KV, 3–1/C#6, PLD

NOTES:

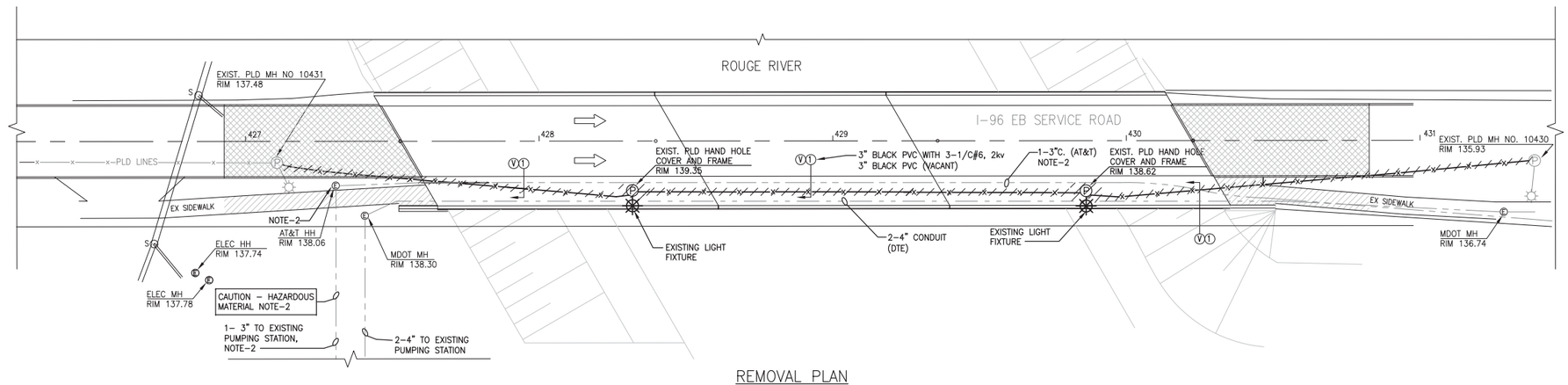
1. EXCAVATE TRENCH OPENING IN GRADE TO ALLOW DEMOLITION OF EXISTING ENCASED CONDUITS. TRENCH OPENING CONSTRUCTED AS OUTLINED IN THE SPECIAL PROVISIONS.

2. EXISTING AT&T UNDERGROUND SERVICES IS SHOWN WITH HANDHOLE, 1–3" CONCRETE ENCASED CONDUIT ROUTE SOUTH TO EXISTING PUMPING STATION AND 1–3" ENCASED CONDUIT ROUTED EAST INTO THE BRIDGE. ONE AT&T CABLE IS ROUTED IN THE 3" CONDUIT. PRIOR TO PROCEEDING WITH BRIDGE DEMOLITION COORDINATE THE DEMOLITION AND NEW AT&T UNDERGROUND SERVICE INSTALLATION WITH DAVID HARDAWAY, AT&T ENGINEER, AT (734) 523–6880.

3. COORDINATE TEMPORARY 1–3" CONDUIT ENTRY INTO MANHOLE WITH PLD ENGINEER. NEW 3–1/C#6, 2 KV WILL BE INSTALLED AND ONLY REMOVED AFTER THE NEW BRIDGE AND PROPOSED CONDUIT ROUTING INSTALLATION HAVE BEEN COMPLETED.



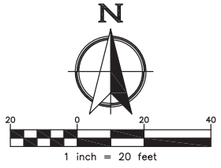
TEMPORARY ELECTRICAL PLAN



REMOVAL PLAN

LEGEND:

- REMOVAL OF PAVEMENT & CURB
- REMOVAL OF SIDEWALK
- STEAM MANHOLE
- ELECTRIC MANHOLE
- EXIST./NEW PLD HANDHOLE COVER AND FRAME OR MANHOLE (TYPE AS INDICATED)
- UTILITY POLE
- EXIST. LIGHT POLE
- DEMO EXIST. LIGHT POLE
- EXIST. DUCT RUN (SIZE AS INDICATED)
- CABLE TO BE REMOVED (SIZE AS INDICATED)
- OVERHEAD UTILITIES
- 2–5" E.C. NEW PVC EB 20 DUCT RUN (SIZE AND NUMBER AS INDICATED)
- ENCASED DUCT RUN IN BRIDGE (SIZE AS INDICATED)
- FIBERGLASS CONDUIT RUN (SIZE AS INDICATED)
- EXIST. AT&T OR MDOT DUCT RUN (SIZE AS INDICATED)
- NEW AT&T OR MDOT DUCT RUN (SIZE AS INDICATED)



PLD FILE
62-8

4 PLD

REVISIONS	DESCRIPTION	DR'N	CK'D	AP'VD	DATE

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

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FEDERAL ITEM NO.

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CITY ENGINEERING DIVISION

I–96 EB. SERVICE ROAD REMOVAL AND TEMPORARY PLANS

I–96 SERVICE ROADS OVER ROUGE RIVER

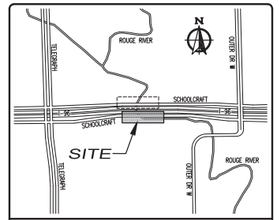
SHEET E4 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 – 3:11pm
Z:\0909 I–96 Bridges– HNTB\Warren Work\09076TOPO\E090924.dwg

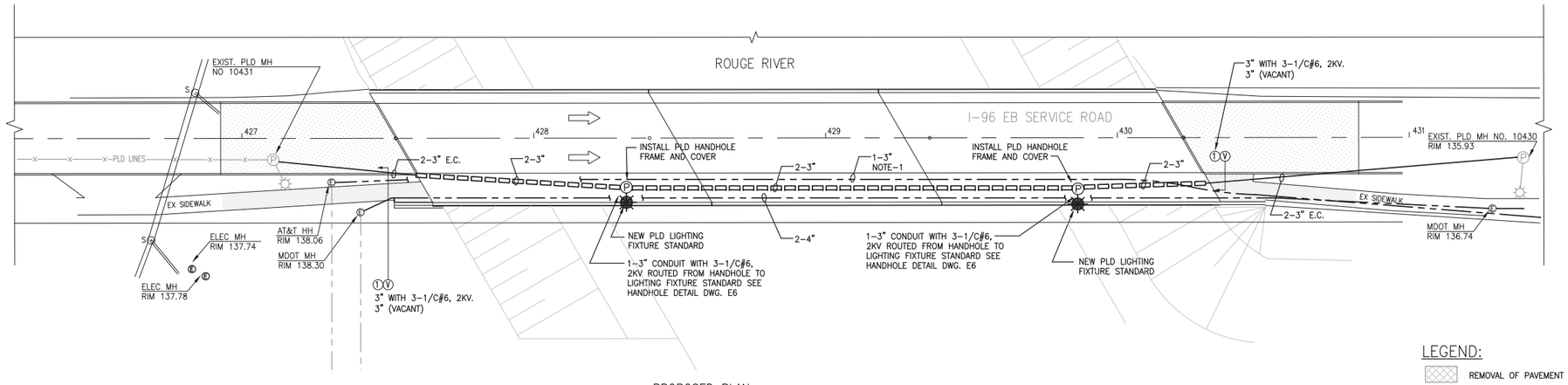
NOTES:

1. NEW AT&T UNDERGROUND CONDUIT ROUTING ALIGNMENT SHOWN INTO NEW BRIDGE IS APPROXIMATE. ALL LABOR AND MATERIALS FOR INSTALLING NEW UNDERGROUND CONDUIT INTO NEW BRIDGE IS FURNISHED BY AT&T. COORDINATE NEW ROUTING WITH DAVID HARDAWAY, AT&T ENGINEER AT (734) 523-6880.

2. PAY ITEM FOR CONDUITS 3 INCH IS FOR INSTALLATION OF CONDUITS IN BRIDGE SIDE WALk.



LOCATION MAP
NO SCALE



PROPOSED PLAN

QUANTITIES THIS SHEET

2 Ea	Luminaire, 250W. High Pressure Sodium, PLD	
2 Ea	Code 009-00 St Ltg Standard, PLD	
2 Ea	6 Ft Clamp on Bracket Arm, (3' Rise), PLD	
2 Ea	Ltg Std Fdn, PLD	
430 Ft	Conduit, Encased, 2, 3 inch, PLD	SEE NOTE 2
16 Ft	Conduit, Encased, 1, 3 inch, PLD	
1290 Ft	Cable, St Ltg, 2KV, 3-1/C#6, PLD	
2 Ea	Hh Frame and Cover, PLD	
1296 Ft	Remove, Cables, PLD	

LEGEND:

- REMOVAL OF PAVEMENT & CURB
- REMOVAL OF SIDEWALK
- STEAM MANHOLE
- ELECTRIC MANHOLE
- EXIST./NEW PLD HANDHOLE COVER AND FRAME OR MANHOLE (TYPE AS INDICATED)
- UTILITY POLE
- EXIST. LIGHT POLE
- DEMO EXIST. LIGHT POLE
- EXIST. DUCT RUN (SIZE AS INDICATED)
- CABLE TO BE REMOVED (SIZE AS INDICATED)
- OVERHEAD UTILITIES
- 2-3" E.C. NEW PVC EB 20 DUCT RUN (SIZE AND NUMBER AS INDICATED)
- ENCASED DUCT RUN IN BRIDGE (SIZE AS INDICATED)
- FIBERGLASS CONDUIT RUN (SIZE AS INDICATED)
- EXIST. AT&T OR MDOT DUCT RUN (SIZE AS INDICATED)
- NEW AT&T OR MDOT DUCT RUN (SIZE AS INDICATED)

N

20 0 20 40
1 inch = 20 feet

PLD FILE
62-8

5 PLD

REVISIONS	DES'N	CK'D	APV'D	DATE

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

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I-96 EB. SERVICE ROAD
CONSTRUCTION PLAN

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E5 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 - 3:12pm
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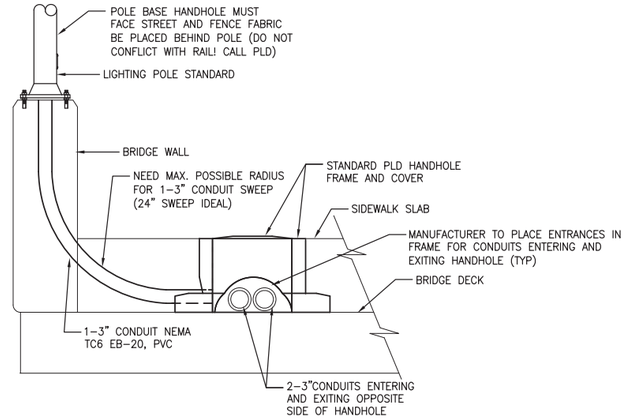
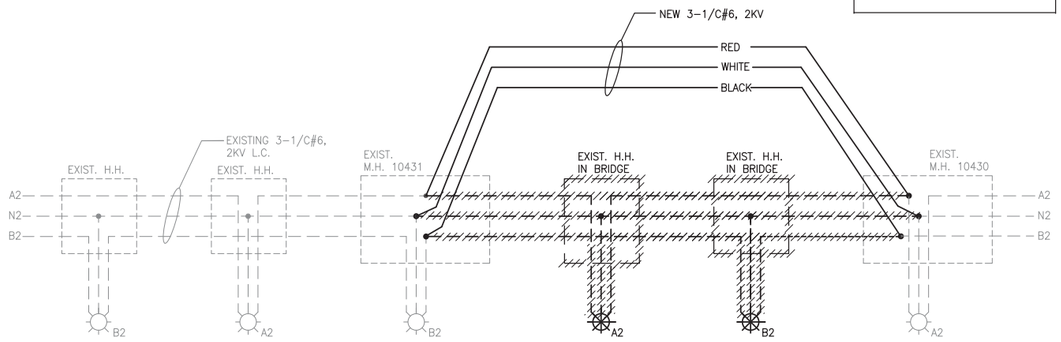


BRIDGE HANDHOLE DETAIL

NO SCALE

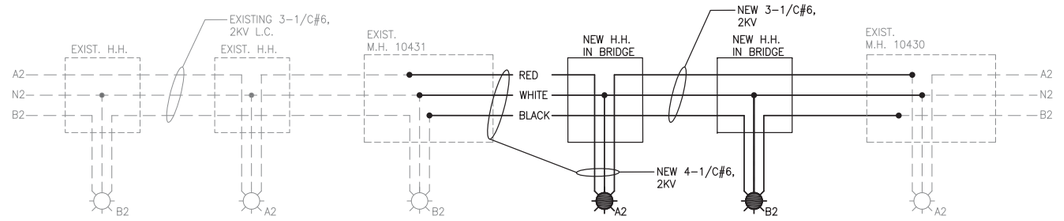
PHASE COLORS: A = RED
B = BLACK
N = WHITE



2KV MULTIPLE STREET LIGHTING WIRING DIAGRAM - EAST BOUND SERVICE ROAD GRF-330 (480 / 960V)

NO SCALE

NOTES:
1. ALL SPLICING BY PLD APPROVED SPLICER.
2. GUARANTEE SPLICE AND MATERIALS FOR 1 YEAR,
3. SUBMIT SPLICING MATERIAL FOR REVIEW AND APPROVAL. PLD MUST OBSERVE SPLICING OPERATION FOR ST. LTG. AND POWER SPLICES.



2KV MULTIPLE STREET LIGHTING WIRING DIAGRAM - EAST BOUND SERVICE ROAD GRF-330 (480 / 960V)

NO SCALE

PLD FILE
62-8

6 PLD

Aug 02, 2010 - 3:14pm
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DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:

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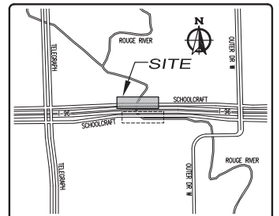
WIRING DIAGRAMS

I-96 SERVICE ROADS OVER ROUGE RIVER

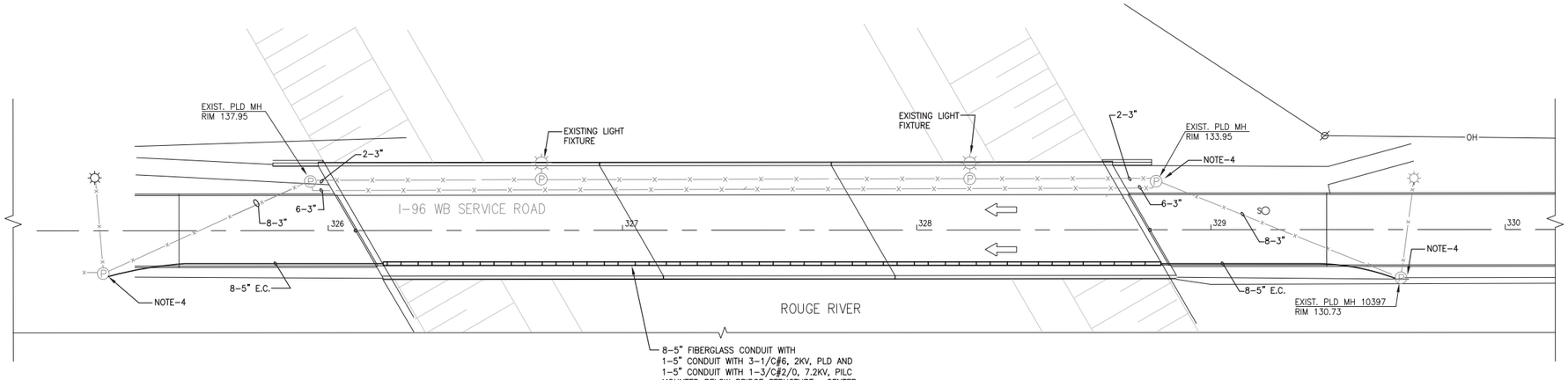
SHEET E6 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

NOTES:

1. REFER TO GENERAL NOTES AND NOTES ON DWG. E2 AND E3 RESPECTIVELY.
2. TEMPORARY INSTALLATION FOR 1-3/C#2/0, 7.2KV, PILC FEEDER WILL BECOME THE FINAL INSTALLATION AND TEMPORARY 3-1/C#6, 2KV, WILL BE REMOVED AFTER THE BRIDGE AND PROPOSED CONDUIT ROUTING INSTALLATION HAVE BEEN COMPLETED.
3. REMOVE EXISTING 8-3" CONDUIT BANK TO ACCOMMODATE NEW 2-3" CONDUIT BANK. RE-BRICK MANHOLE TO FIX POCKET TO PLD SPECIFICATIONS.
4. MODIFY EXISTING MANHOLE WALL FOR NEW 8-5" CONDUIT DUCT ROUTING, SEE DWG. E21. MODIFY MANHOLE WALL WITH BRICK PER PLD SPECIFICATION, SEE SHEET 21PLD.
5. PROVIDE ALTERNATE PRICE FOR 1-3/C#350KCMIL, 7.2KV, PILC IF 1-3/C#2/0, 7.2KV, PILC IS NOT READILY AVAILABLE.
6. COORDINATE REMOVAL OF 8-3" CONDUIT BANK TO ACCOMMODATE NEW 8-5" CONDUIT BANK ROUTING INTO MANHOLE.



LOCATION MAP
NO SCALE



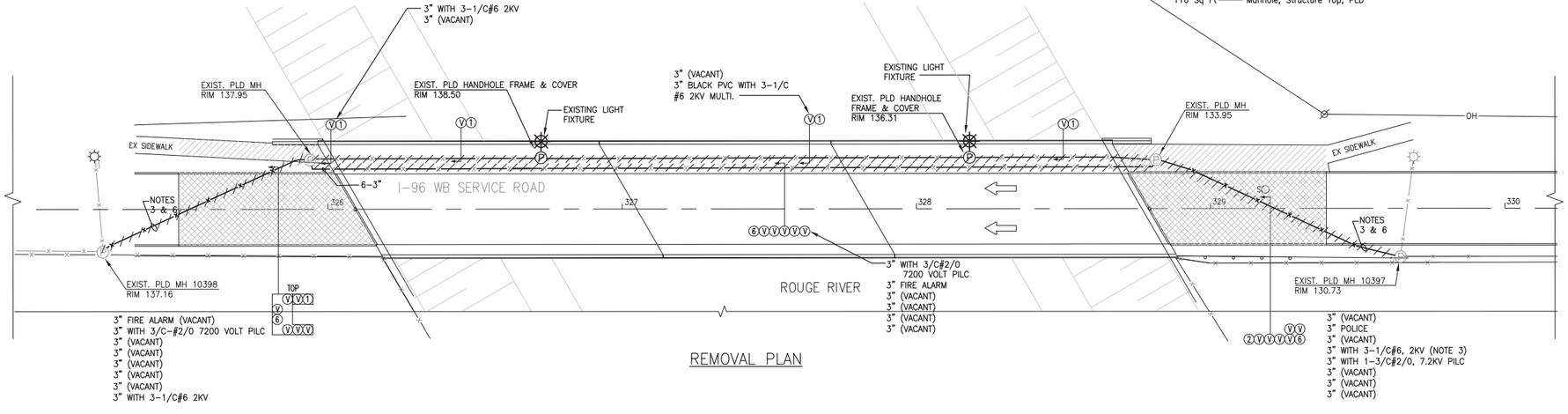
TEMPORARY ELECTRICAL ROUTING PLAN

QUANTITIES THIS SHEET

1832 Ft—— Remove Cables, PLD
190 Ft—— Conduit, Encased, 2-3 inch, Rem, PLD
190 Ft —— Conduit, Encased, 6-3 inch, Rem, PLD
265 Ft —— Conduit, 8, 5-inch, Structure
178 Ft —— Conduit, Encased, 8, 5 inch, PLD
443 Ft—— Cable, Prim Distribution, 7.2KV, 1-3/C#2/0, PILCPJ, PLD (NOTE 5)
1329 Ft—— Cable, St Ltg, 2KV, 3-1/C#6, PLD
2 Ea.—— Manhole, Reconstruct, PLD
116 Sq Ft—— Manhole, Structure Top, PLD

LEGEND:

- REMOVAL OF PAVEMENT & CURB
- REMOVAL OF SIDEWALK
- STEAM MANHOLE
- ELECTRIC MANHOLE
- EXIST./NEW PLD HANDHOLE FRAME & COVER OR MANHOLE (TYPE AS INDICATED)
- UTILITY POLE
- EXIST. LIGHT POLE
- DEMO EXIST. LIGHT POLE
- EXIST. DUCT RUN (SIZE AS INDICATED)
- CABLE TO BE REMOVED (SIZE AS INDICATED)
- OH— OVERHEAD UTILITIES
- 2-5" E.C. NEW PVC EB20 DUCT RUN (SIZE AND NUMBER AS INDICATED)
- FIBERGLASS CONDUIT RUN (SIZE AS INDICATED)
- ABANDON EXISTING DUCT BANK



REMOVAL PLAN

N

20 0 20 40
1 inch = 20 feet

PLD FILE
62-8

7 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

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FEDERAL ITEM NO.

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I-96 WB. SERVICE ROAD REMOVAL AND TEMPORARY PLANS

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E7 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 - 3:17pm
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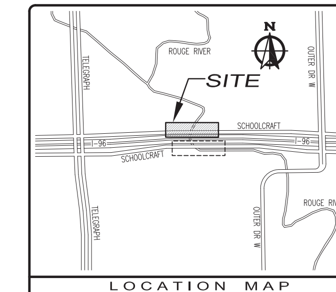
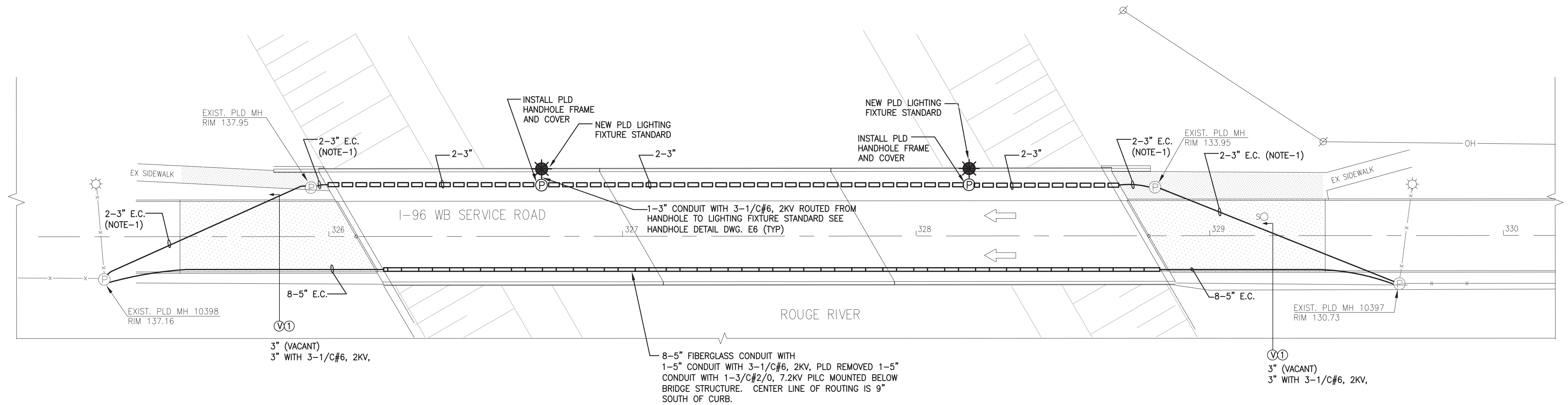
NOTES:

1. REBUILD ENCASED CONDUIT TO MANHOLE. REPAIR MANHOLE WALL WITH BRICK PER PLD SPECIFICATIONS.
2. PAY ITEM FOR CONDUITS 3 INCH IS FOR INSTALLATION OF CONDUITS IN BRIDGE SIDEWALK.



LOCATION MAP
NO SCALE



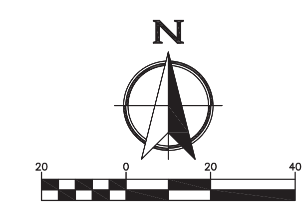
PROPOSED PLAN

QUANTITIES THIS SHEET

2 Ea	Luminaire, 250W High Pressure Sodium, PLD
2 Ea	Code 009-00 St Ltg Standard, PLD
2 Ea	6 Ft Clamp on Bracket Arm, (3' Rise), PLD
2 Ea	Ltg Std, Fdn., PLD
459 Ft	Conduit, Encased, 2, 3 inch, PLD (SEE NOTE 2)
16 Ft	Conduit, Encased, 1, 3 inch, PLD (SEE NOTE 2)
1400 Ft	Cable, St Ltg, 2KV, 3-1/C#6, PLD
2 Ea	Hh Frame and Cover, PLD
1329 Ft	Remove Cables, PLD

LEGEND:

- NEW PAVEMENT & CURB
- NEW SIDEWALK
- STEAM MANHOLE
- ELECTRIC MANHOLE
- EXIST./NEW PLD HANDHOLE/MANHOLE
- UTILITY POLE
- EXIST. LIGHT POLE
- NEW LIGHT POLE
- EXIST. DUCT RUN (SIZE AS INDICATED)
- OVERHEAD UTILITIES
- 8-5" E.C. NEW PVC EB20 DUCT RUN (SIZE AND NUMBER AS INDICATED)
- ENCASED DUCT RUN IN BRIDGE (SIZE AS INDICATED)
- FIBERGLASS CONDUIT RUN (SIZE AS INDICATED)
- ABANDON EXISTING DUCT BANK



PLD FILE
62-8

8 PLD

Aug 02, 2010 - 3:19pm
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	BY	CHECKED BY	
PLAN	---	---	APPROVED:
GRADE			FEDERAL PROJECT NO.
ESTIMATE			
FINAL	CHECK ---	REVIEW ---	FEDERAL ITEM NO.

REVISIONS: DESCRIPTION | DR'N | CK'D | AP'VD | DATE

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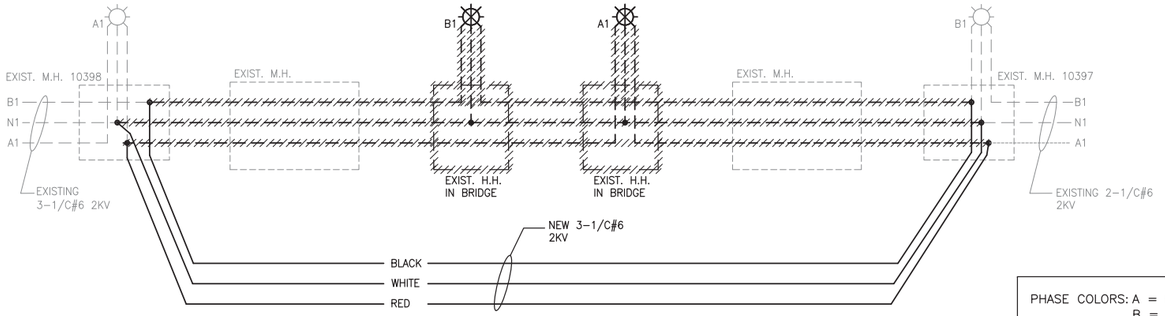
I-96 WB. SERVICE ROAD
CONSTRUCTION PLAN

I-96 SERVICE ROADS OVER ROUGE RIVER

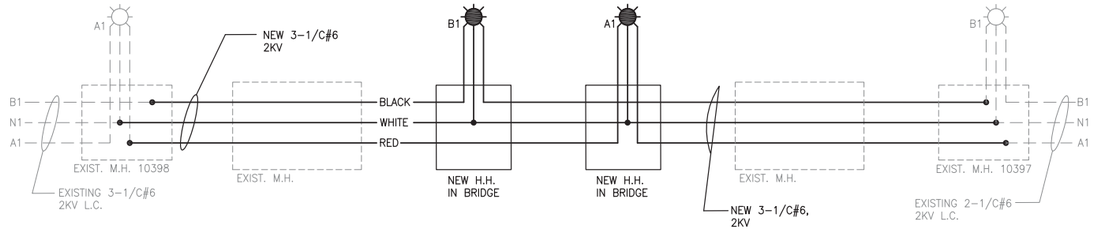
SHEET E8 OF E22 SHEET	
STRUCTURE NUMBER:	11479/11481
JOB NUMBER:	104599A/104601A
CONTROL SECTION NUMBER:	STU 82400
DATE:	JUNE 16, 2010



2KV MULTIPLE STREET LIGHTING WIRING DIAGRAM - WEST BOUND SERVICE ROAD GRF. 330 (480 / 960V)

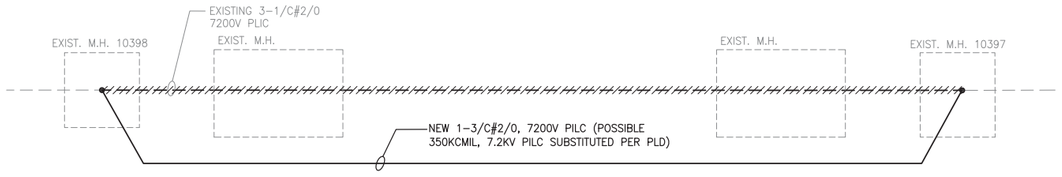
NO SCALE

PHASE COLORS: A = RED
B = BLACK
N = WHITE



2KV MULTIPLE STREET LIGHTING WIRING DIAGRAM - WEST BOUND SERVICE ROAD GRF. 330 (480 / 960V)

NO SCALE



7200V WIRING DIAGRAM - WEST BOUND SERVICE ROAD GRF. 319 (7200V)

NO SCALE

NOTES:
1. ALL SPLICING BY PLD APPROVED SPLICER.
2. GUARANTEE SPLICE AND MATERIALS FOR 1 YEAR,
3. SUBMIT SPLICING MATERIAL FOR REVIEW AND APPROVAL. PLD MUST OBSERVE SPLICING OPERATION FOR ST. LTG. AND POWER SPLICES.

PLD FILE
62-8

9 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

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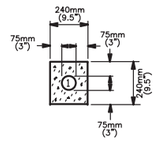
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

WIRING DIAGRAMS

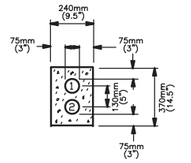
I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET	E9 OF E22 SHEETS
STRUCTURE NUMBER:	11479/11481
JOB NUMBER:	104599A/104601A
CONTROL SECTION NUMBER:	STU 82400
DATE:	JUNE 16, 2010

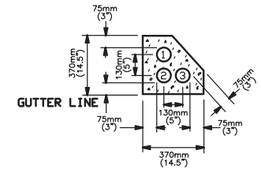
Aug 02, 2010 - 3:21pm
Z:\0909 I-96 Bridges - HNTB\Warren Work\090767DPO\E9909E9.dwg



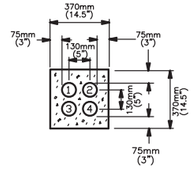
1–75mm (3") CONDUIT



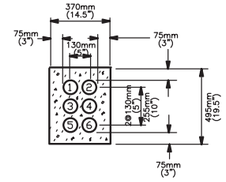
2–75mm (3") CONDUITS



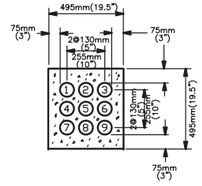
3–75mm (3") CONDUITS



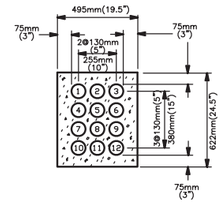
4–75mm (3") CONDUITS



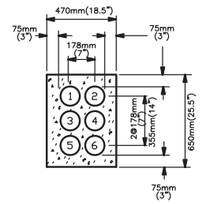
6–75mm (3") CONDUITS



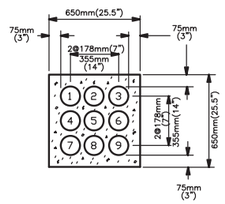
9–75mm (3") CONDUITS



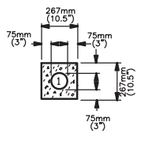
12–75mm (3") CONDUITS



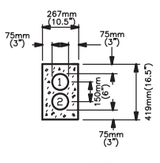
6–130mm (5") CONDUITS



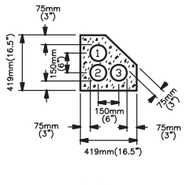
9–130mm (5") CONDUITS



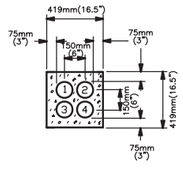
1–100mm (4") CONDUIT



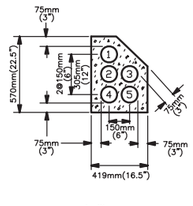
2–100mm (4") CONDUITS



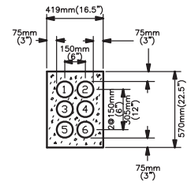
3–100mm (4") CONDUITS



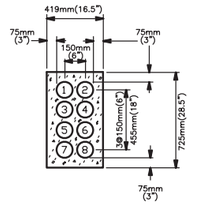
4–100mm (4") CONDUITS



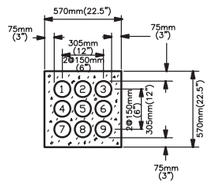
5–100mm (4") CONDUITS



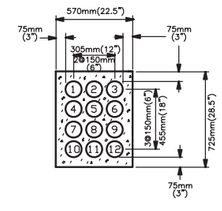
6–100mm (4") CONDUITS



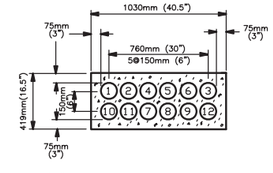
8–100mm (4") CONDUITS



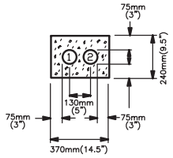
9–100mm (4") CONDUITS



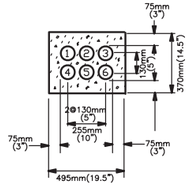
12–100mm (4") CONDUITS



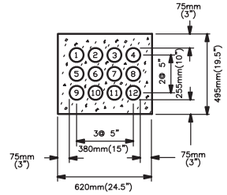
12–100mm (4") CONDUITS IN BRIDGE APPROACH



2–75mm (3") CONDUITS



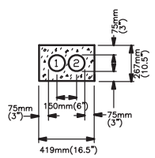
6–75mm (3") CONDUITS



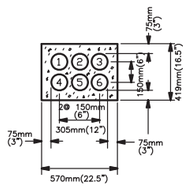
12–75mm (3") CONDUITS

ALTERNATE ARRANGEMENT OF 75mm (3") CONDUIT

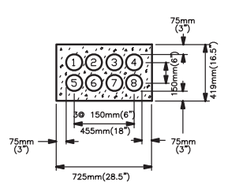
(TO SUIT FIELD CONDITIONS)
(TO BE APPROVED BY THE ENGINEER)



2–100mm (4") CONDUITS



6–100mm (4") CONDUITS

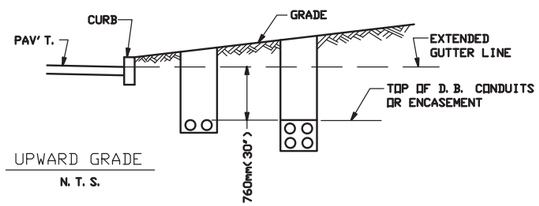


8–100mm (4") CONDUITS

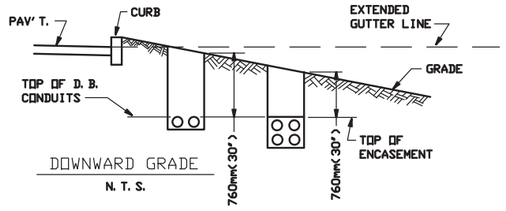
ALTERNATE ARRANGEMENT OF 100mm (4") CONDUIT

(TO SUIT FIELD CONDITIONS)
(TO BE APPROVED BY THE ENGINEER)

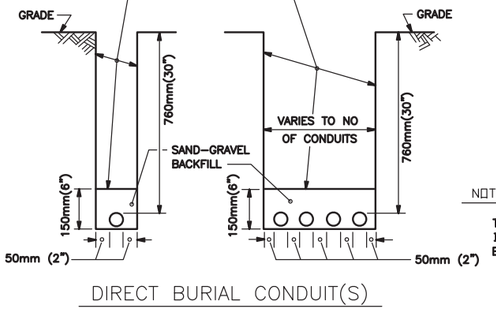
NOTE:
2" (INCH) SPACING BETWEEN CONDUITS SHALL BE MAINTAINED.



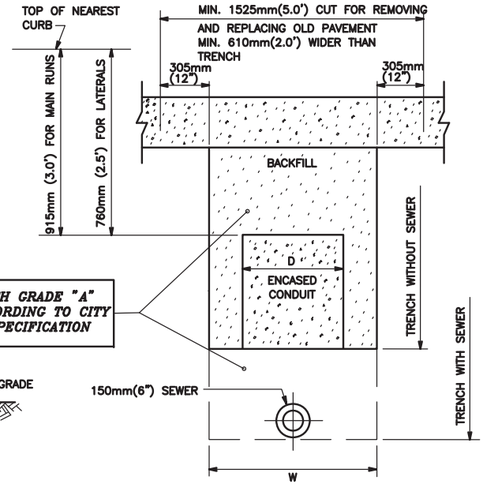
UPWARD GRADE
N. T. S.



DOWNWARD GRADE
N. T. S.



DIRECT BURIAL CONDUIT(S)



ENCASED CONDUIT(S)

NOTE:
THE PREFERRED TRENCH WIDTH 'W' IS THE WIDTH OF 'D' OF CONDUIT ENCASEMENT.

PLD FILE
62-8

10 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:
FEDERAL PROJECT NO.
FEDERAL ITEM NO.

METCO SERVICES, INC.
1274 LIBRARY, DETROIT, MI. 48226
TEL - (313) 961-4560 * FAX (313) 961-1698
12504 STEPHENS, WARREN, MI. 48089
TEL - (586) 755-5770 * FAX (586) 755-5774
www.metcoservices.com

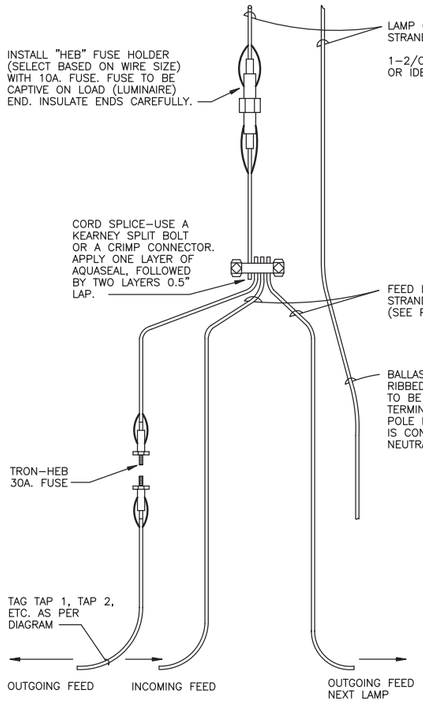
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

MISC. ENCASED CONDUIT – SECTIONS DETAIL

I–96 SERVICE ROADS OVER ROUGE RIVER

SHEET E10 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 - 2:46pm
Z:\0809 I-96 Bridges - HNTB\Warren Work\0907STOP\E0809E10.dwg



MULTIPLE STREET LIGHTING CONNECTION IN POLE BASE

N.T.S.

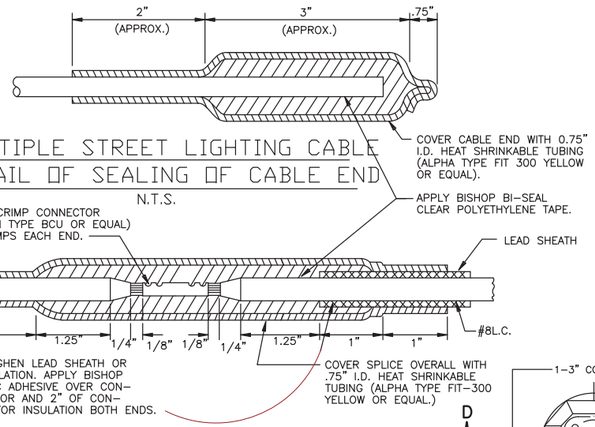
TYPE	POLE DIAMETER
A	3.6"–4.5"
B	6.1"–6.9"
C	7.5"–8.5"

CLAMP SIZE TABLE

* FINISH SHALL BE HOT DIP GALVANIZED AFTER FABRICATION

CLAMP FEEDER ARM

N.T.S.



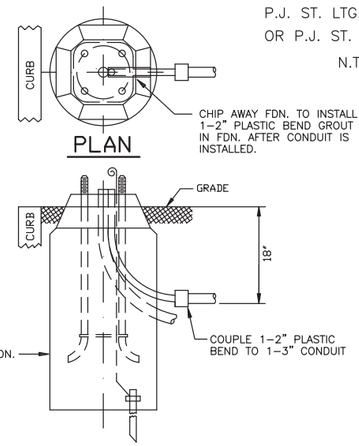
MULTIPLE STREET LIGHTING CABLE DETAIL OF SEALING OF CABLE END

N.T.S.

MULTIPLE STREET LIGHTING SPLICE DETAIL A

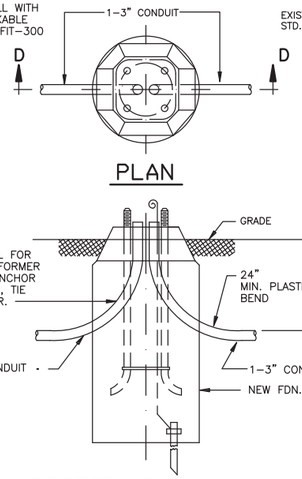
P.J. ST. LTG. TO #8 L.C. ST. LTG.
OR P.J. ST. LTG. TO P.J. ST. LTG.

N.T.S.



DETAIL OF INSTALLING CONDUITS INTO EXISTING FDN.

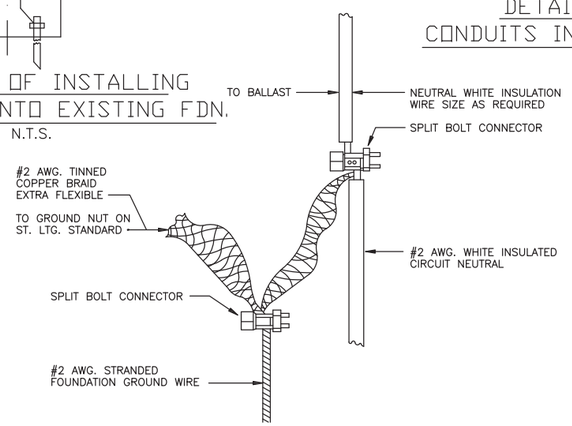
N.T.S.



SECTION D–D

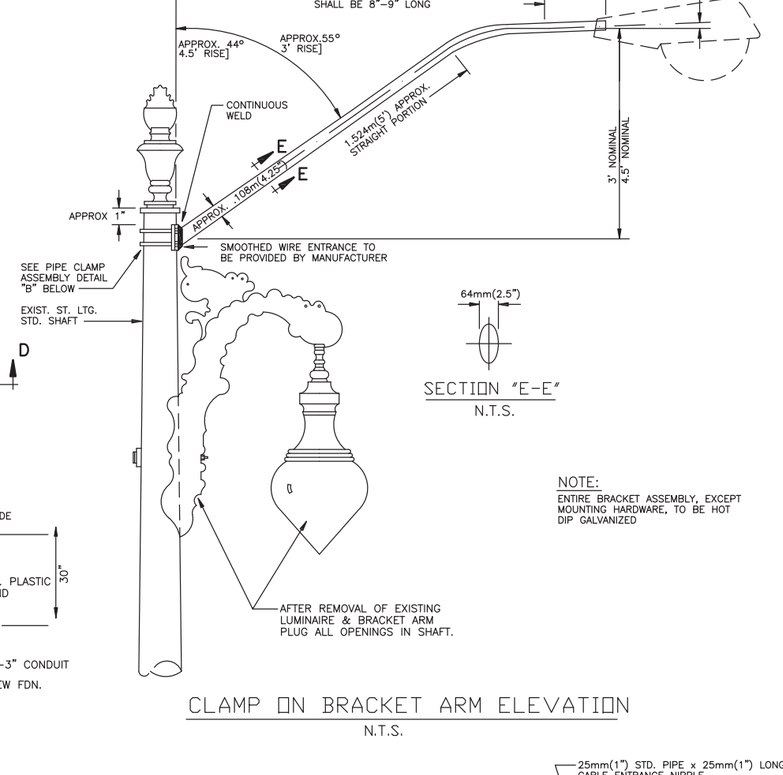
DETAIL OF INSTALLING CONDUITS IN & OUT OF NEW FDN.

N.T.S.



GROUND CONNECTION

N.T.S.



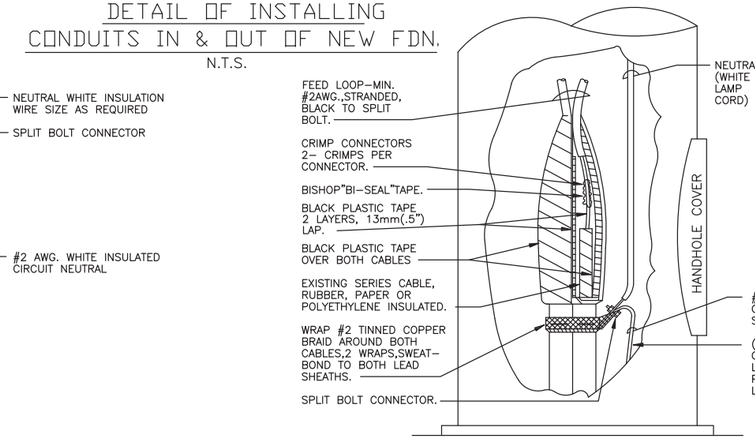
CLAMP ON BRACKET ARM ELEVATION

N.T.S.

SECTION "E–E"

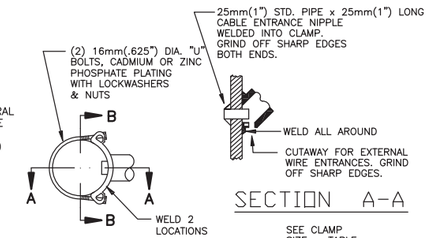
N.T.S.

NOTE:
ENTIRE BRACKET ASSEMBLY, EXCEPT MOUNTING HARDWARE, TO BE HOT DIP GALVANIZED



SERIES–TO–MULTIPLE LIGHTING CONVERSION POLE BASE CONNECTIONS

N.T.S.



N.T.S.

CLAMP SIZE TABLE

TYPE	POLE DIAMETER
A	3.6"–4.5"
B	6.1"–6.9"
C	7.5"–8.5"

PIPE CLAMP DETAILS

N.T.S.

PLD FILE
62-8

11 PLD

Aug 02, 2010 – 2:47pm
Z:\2008 I-96 Bridges– HNTB\Warren Work\08076TOPO\C0809E11.dwg

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:
FEDERAL PROJECT NO.
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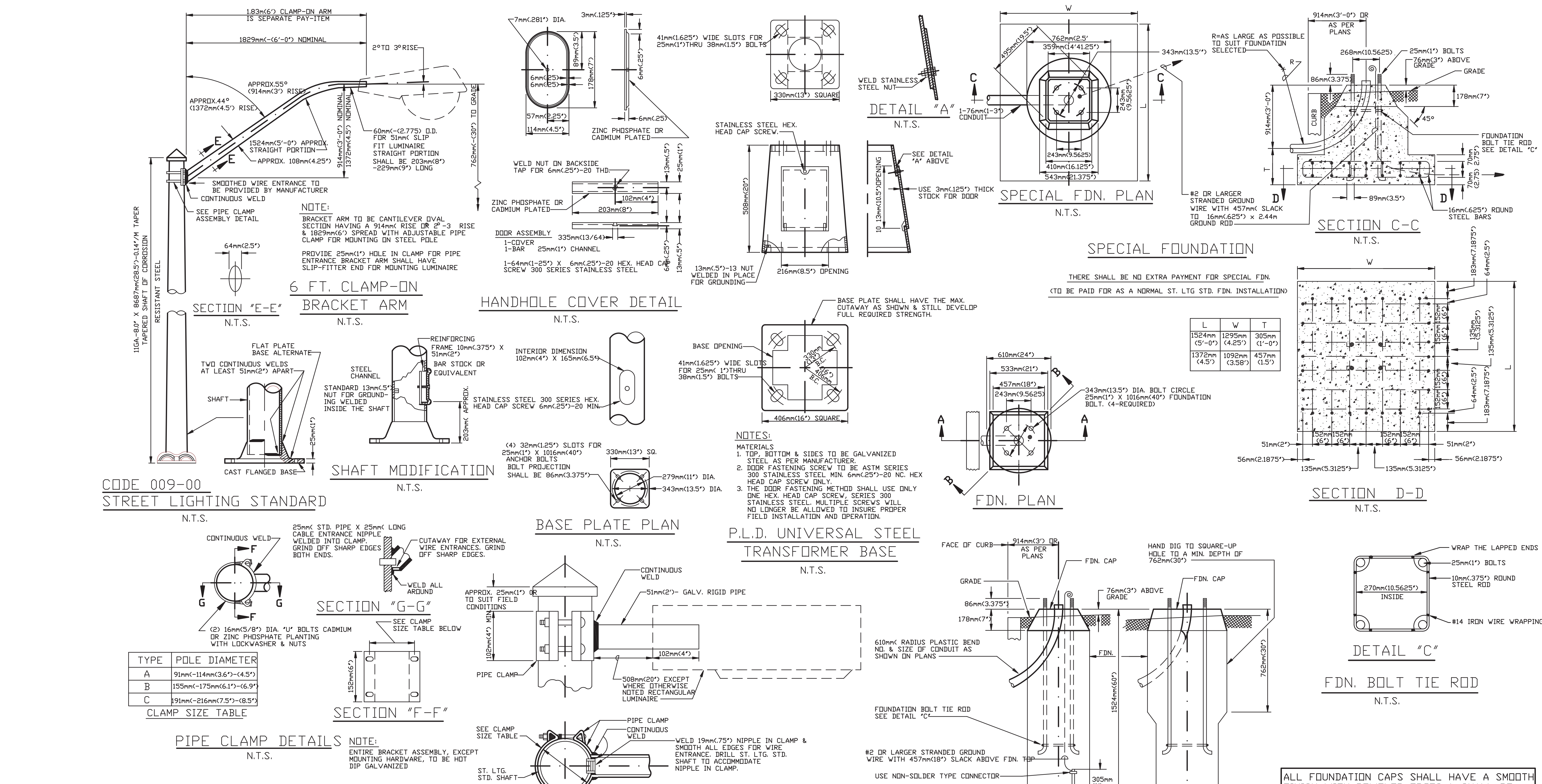
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

MULTI. ST. LTG. CABLE CONNECTIONS
CLAMP–ON ARM & MISC. DETAILS

I–96 SERVICE ROADS OVER ROUGE RIVER

SHEET	E11 OF E22 SHEETS
STRUCTURE NUMBER:	11479/11481
JOB NUMBER:	104599A/104601A
CONTROL SECTION NUMBER:	STU 82400
DATE:	JUNE 16, 2010



1.83m(6') CLAMP-ON ARM IS SEPARATE PAY-ITEM
1829mm(~(6'-0") NOMINAL
2° TO 3° RISE
APPROX.55° (914mm(3') RISE)
APPROX.44° (1372mm(4.5') RISE)
1524mm(5'-0") APPROX. STRAIGHT PORTION
APPROX. 108mm(4.25")
60mm(~(2.775) O.D. FOR 51mm SLIP FIT LUMINAIRE STRAIGHT PORTION SHALL BE 203mm(8") -229mm(9") LONG
762mm(~(30") TO GRADE
SMOOTHED WIRE ENTRANCE TO BE PROVIDED BY MANUFACTURER
CONTINUOUS WELD
SEE PIPE CLAMP ASSEMBLY DETAIL
11GA-8.0" X 8687mm(28.5')-0.14"/M TAPER TAPERED SHAFT OF CORROSION RESISTANT STEEL
NOTE:
BRACKET ARM TO BE CANTILEVER OVAL SECTION HAVING A 914mm(RISE OR 2° -3 RISE & 1829mm(6') SPREAD WITH ADJUSTABLE PIPE CLAMP FOR MOUNTING ON STEEL POLE
PROVIDE 25mm(1") HOLE IN CLAMP FOR PIPE ENTRANCE BRACKET ARM SHALL HAVE SLIP-FITTER END FOR MOUNTING LUMINAIRE
6 FT. CLAMP-ON BRACKET ARM
N.T.S.
SECTION "E-E"
N.T.S.
FLAT PLATE BASE ALTERNATE
TWO CONTINUOUS WELDS AT LEAST 51mm(2") APART
SHAFT
CAST FLANGED BASE
CODE 009-00 STREET LIGHTING STANDARD
N.T.S.
REINFORCING FRAME 10mm(.375") X 51mm(2")
BAR STOCK OR EQUIVALENT
STEEL CHANNEL
STANDARD 13mm(.5") NUT FOR GROUNDING WELDED INSIDE THE SHAFT
SHAFT MODIFICATION
N.T.S.
INTERIOR DIMENSION 102mm(4") X 165mm(6.5")
STAINLESS STEEL 300 SERIES HEX. HEAD CAP SCREW 6mm(.25")-20 MIN.
WELD NUT ON BACKSIDE TAP FOR 6mm(.25")-20 THD.
ZINC PHOSPHATE OR CADMIUM PLATED
DOOR ASSEMBLY
1-COVER
1-BAR 25mm(1") CHANNEL
1-64mm(1-.25") X 6mm(.25")-20 HEX. HEAD CAP SCREW 300 SERIES STAINLESS STEEL
HANDHOLE COVER DETAIL
N.T.S.
(4) 32mm(1.25") SLOTS FOR 25mm(1") X 1016mm(40") ANCHOR BOLTS BOLT PROJECTION SHALL BE 86mm(3.375")
330mm(13") SQ.
279mm(11") DIA.
343mm(13.5") DIA.
BASE PLATE PLAN
N.T.S.
41mm(1.625") WIDE SLOTS FOR 25mm(1")THRU 38mm(1.5") BOLTS
330mm(13") SQUARE
WELD STAINLESS STEEL NUT
DETAIL "A"
N.T.S.
STAINLESS STEEL HEX. HEAD CAP SCREW.
SEE DETAIL "A" ABOVE
USE 3mm(.125") THICK STOCK FOR DOOR
13mm(.5")-13 NUT WELDED IN PLACE FOR GROUNDING
216mm(8.5") OPENING
BASE PLATE SHALL HAVE THE MAX. CUTAWAY AS SHOWN & STILL DEVELOP FULL REQUIRED STRENGTH.
BASE OPENING
41mm(1.625") WIDE SLOTS FOR 25mm(1")THRU 38mm(1.5") BOLTS
406mm(16") SQUARE
NOTES:
MATERIALS
1. TOP, BOTTOM & SIDES TO BE GALVANIZED STEEL AS PER MANUFACTURER.
2. DOOR FASTENING SCREW TO BE ASTM SERIES 300 STAINLESS STEEL MIN. 6mm(.25")-20 NC. HEX HEAD CAP SCREW ONLY.
3. THE DOOR FASTENING METHOD SHALL USE ONLY ONE HEX. HEAD CAP SCREW, SERIES 300 STAINLESS STEEL. MULTIPLE SCREWS WILL NO LONGER BE ALLOWED TO INSURE PROPER FIELD INSTALLATION AND OPERATION.
P.L.D. UNIVERSAL STEEL TRANSFORMER BASE
N.T.S.
SPECIAL FDN. PLAN
N.T.S.
SPECIAL FOUNDATION
THERE SHALL BE NO EXTRA PAYMENT FOR SPECIAL FDN.
(TO BE PAID FOR AS A NORMAL ST. LTG STD. FDN. INSTALLATION)
L | W | T
1524mm (5'-0") | 1295mm (4.25') | 305mm (1'-0")
1372mm (4.5') | 1092mm (3.58') | 457mm (1.5')
R=AS LARGE AS POSSIBLE TO SUIT FOUNDATION SELECTED
#2 OR LARGER STRANDED GROUND WIRE WITH 457mm(SLACK TO 16mm(.625") x 2.44m GROUND ROD
SECTION C-C
N.T.S.
FOUNDATION BOLT TIE ROD SEE DETAIL "C"
16mm(.625") ROUND STEEL BARS
SECTION D-D
N.T.S.
343mm(13.5") DIA. BOLT CIRCLE 25mm(1") X 1016mm(40") FOUNDATION BOLT. (4-REQUIRED)
FDN. PLAN
CONTINUOUS WELD
(2) 16mm(5/8") DIA. "U" BOLTS CADMIUM OR ZINC PHOSPHATE PLANTING WITH LOCKWASHER & NUTS
25mm(STD. PIPE X 25mm(LONG CABLE ENTRANCE NIPPLE WELDED INTO CLAMP. GRIND OFF SHARP EDGES BOTH ENDS.
CUTAWAY FOR EXTERNAL WIRE ENTRANCES. GRIND OFF SHARP EDGES.
WELD ALL AROUND
SECTION "G-G"
SEE CLAMP SIZE TABLE BELOW
SECTION "F-F"
TYPE | POLE DIAMETER
A | 91mm(~114mm(3.6")-(4.5")
B | 155mm(~175mm(6.1")-(6.9")
C | 191mm(~216mm(7.5")-(8.5")
CLAMP SIZE TABLE
PIPE CLAMP DETAILS
N.T.S.
NOTE:
ENTIRE BRACKET ASSEMBLY, EXCEPT MOUNTING HARDWARE, TO BE HOT DIP GALVANIZED
APPROX. 25mm(1") OR TO SUIT FIELD CONDITIONS
CONTINUOUS WELD
51mm(2")- GALV. RIGID PIPE
PIPE CLAMP
508mm(20") EXCEPT WHERE OTHERWISE NOTED RECTANGULAR LUMINAIRE
SEE CLAMP SIZE TABLE
ST. LTG. STD. SHAFT
WELD 19mm(.75") NIPPLE IN CLAMP & SMOOTH ALL EDGES FOR WIRE ENTRANCE. DRILL ST. LTG. STD. SHAFT TO ACCOMMODATE NIPPLE IN CLAMP.
5mm(.1875") STOCK
CLAMP-ON BRACKET & RECTANGULAR LUMINAIRE
N.T.S.
FACE OF CURB
914mm(3') OR AS PER PLANS
FDN. CAP
GRADE
76mm(3") ABOVE GRADE
HAND DIG TO SQUARE-UP HOLE TO A MIN. DEPTH OF 762mm(30")
610mm(RADIUS PLASTIC BEND NO. & SIZE OF CONDUIT AS SHOWN ON PLANS
FOUNDATION BOLT TIE ROD SEE DETAIL "C"
#2 OR LARGER STRANDED GROUND WIRE WITH 457mm(18") SLACK ABOVE FDN. TOP
USE NON-SOLDER TYPE CONNECTOR
16mm(.625") DIA. X 2438mm(8') COPPER CLAD GROUND ROD
SECTION A-A
N.T.S.
SECTION B-B
N.T.S.
ANCHOR BASE STD. FOUNDATION
WRAP THE LAPPED ENDS
25mm(1") BOLTS
10mm(.375") ROUND STEEL ROD
270mm(10.5625") INSIDE
#14 IRON WIRE WRAPPING
DETAIL "C"
FDN. BOLT TIE ROD
N.T.S.
ALL FOUNDATION CAPS SHALL HAVE A SMOOTH FINISH WITH BEVELED EDGES & SHALL BE SHAPED TO ALLOW COMPLETE DRAINAGE OF WATER. ANCHOR BOLT PROJECTIONS ABOVE CAP SHALL BE CLEANED OF ALL CONCRETE & FULLY USABLE THEIR FULL LENGTH.

STD. CODE NO.	SHAFT LENGTH	SHAFT DEFLECTION *	MINIMUM LOAD **	ANCHOR BOLT CIRCLE Ø	ANCHOR BOLT Ø & O.A.	HANDHOLE	LUMINAIRE MOUNTING HEIGHT	BRACKET FITTERS REQ'D	BRACKET LENGTH
009-00	8687mm (28.5')	74mm (2.9")	880#	343mm (13.5")	25mm(1")X 1016mm(40")	102mm(4") X 165mm(6.5")	9.14m(30')	—	1.83m(6')

* SHAFT DEFLECTION: SHAFT DEFLECTION MEASURED IN INCHES AT TOP, SHALL NOT BE GREATER THAN THAT SHOWN, FOR A HORIZONTAL LOAD OF 100 LBS. APPLIED 18 INCHES BELOW TOP OF SHAFT.

** SHAFT LOADING: SHAFTS SHALL WITHSTAND, AT THE GUARANTEED MINIMUM YIELD STRENGTH OF THE SHAFT MATERIAL, THE LOADS SHOWN IN THIS TABLE, THE LOAD SHALL BE APPLIED IN A SINGLE HORIZONTAL DIRECTION ANYWHERE AROUND THE CIRCUMFERENCE OF SHAFT 18 INCHES FROM THE TOP.

PLD FILE
62-8

12 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE		BY	CHECKED BY	
REVISIONS					PLAN	---	---	APPROVED:
					GRADE			FEDERAL PROJECT NO.
					ESTIMATE			
					FINAL	CHECK ---	REVIEW ---	FEDERAL ITEM NO.

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CODE 009-00 ST LTG STD DETAILS

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E12 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 - 2:49pm
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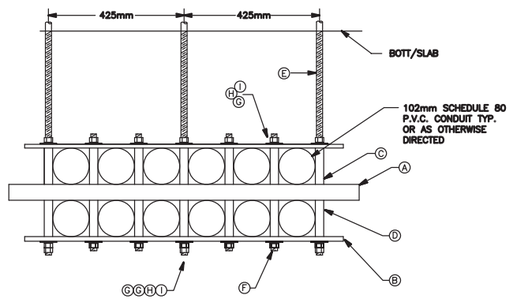
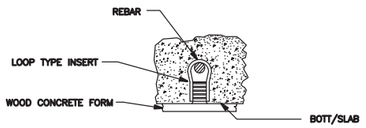


12-102mm UNDERBRIDGE SUSPENDED CONDUIT
N.T.S.

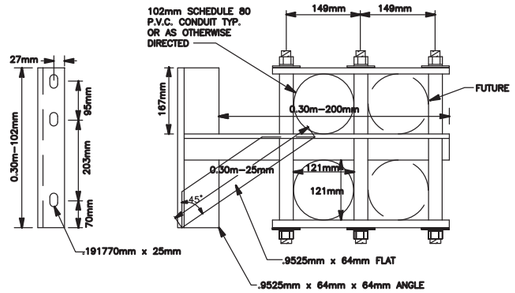


LOOP TYPE INSERT
N.T.S.

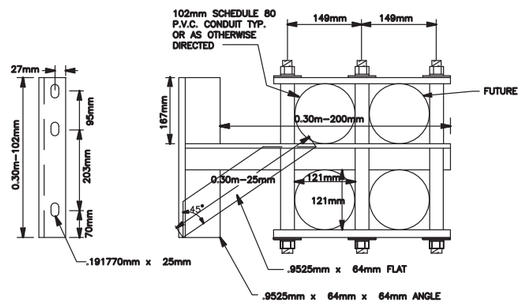
BILL OF MATERIAL 12-102mm		
	I	.1905mm HDG LOCK WASHER
	H	.1905mm HDG FLAT WASHER
	G	.1905mm HDG HEX NUT
	F	.1905mm x 387mm HDG THREADED ROD
△	E	.1905mm x 800mm HDG THREADED ROD
	D	.1905mm x 121mm F-G SPACER TUBE
	C	.1905mm x 165mm F-G SPACER TUBE
	B	.127mm x 51mm x 946mm F-G PLATE
*	A	51mm x 51mm x 1048mm F-G TUBE
		DESCRIPTION

* 13mm x 51mm x 946mm F-G PLATE MAY BE SUBSTITUTED FOR (A) IF EXIST. CONDITIONS REQUIRE

△ LENGTH OF ROD MAY VARY TO PROVIDE 152mm FROM BOTTOM OF BRIDGE TO BOTTOM OF SUSPENDED CONDUIT



2-102mm CONDUIT BOLTED TO BRIDGE BEAM
N.T.S.



4-102mm CONDUIT BOLTED TO BRIDGE BEAM
N.T.S.

COORDINATE WITH THE ENGINEER, THERE SHALL BE 1524mm MAX. BETWEEN HANGER ASSEMBLIES.

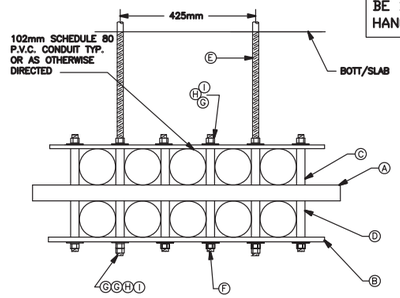
NOTE:

1. ALL CONDUIT SUPPORT ASSEMBLIES SHALL BE FROM OSBORN ASSOCIATION INC., KYOVA PIPE COMPANY OR GEORGE INGHRAHAM COMPANY, ALL MATERIALS SHALL CONFORM TO M.D.O.T. STANDARD SPECIFICATIONS.

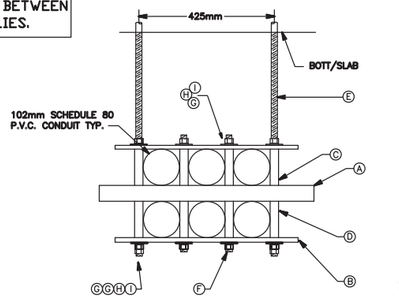
2. UNDERBRIDGE SUSPENDED CONDUIT CONFIGURATIONS ARE TYPICAL. SEE BRIDGE PLANS FOR SPECIAL REQUIREMENTS FOR ASSEMBLIES.

COORDINATE WITH THE ENGINEER & DRILL BRIDGE BEAM FOR MOUNTING CONDUIT SUPPORT ASSEMBLY USING .1905mm BOLTS, LOCK WASHERS, FLATWASHERS & NUTS. THERE SHALL BE 1524mm MAX. BETWEEN CONDUIT SUPPORT ASSEMBLIES.

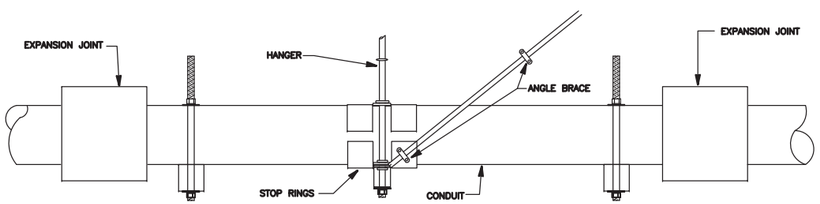
NOTE:
AFTER TEMPORARY SUPPORT IS REMOVED FROM BRIDGE FASCIA BEAM, PLUG HOLES IN BEAM WITH 19mmHIGH STRENGTH GALVANIZED BOLTS.BOLTS, WASHERS AND NUTS ARE TO BE GALVANIZED AND CONFORM TO M.D.O.T. STANDARD SPECIFICATIONS FOR STRUCTURAL STEEL, SECTION 5.04.



9 OR 10-102mm UNDERBRIDGE SUSPENDED CONDUIT
N.T.S.



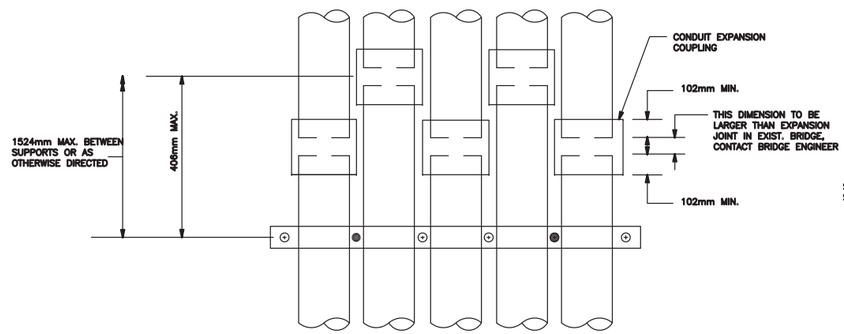
6-102mm UNDERBRIDGE SUSPENDED CONDUIT
N.T.S.



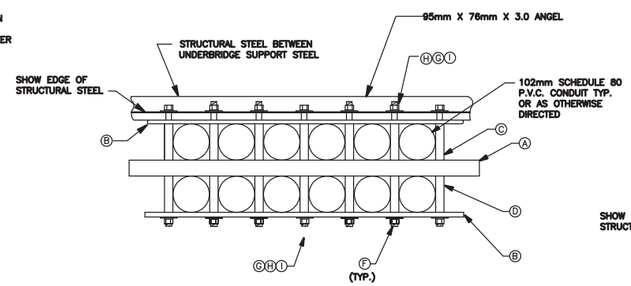
ANCHOR POINT

SUPPORT BETWEEN TWO EXPANSION JOINTS

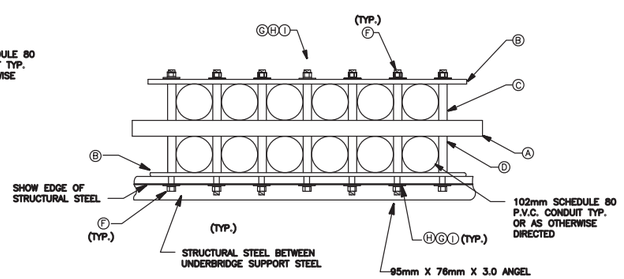
NOTE : MANUFACTURER RECOMMENDS THAT ON BRIDGES BETWEEN 200FT. AND 400FT. IN LENGTH, TWO EXPANSION JOINTS ARE REQUIRED ONE AT EACH HALF SECTION OF THE BRIDGE ONE SET OF STOP RINGS IS REQUIRED AT THE CENTER OF THE BRIDGE BETWEEN THE TWO EXPANSIONS JOINTS.



EXPANSION JOINT
PLAN VIEW
N.T.S.



12-102mm UNDERBRIDGE CONDUIT SUPPORT FROM STEEL MEMBER
N.T.S.



12-102mm UNDERBRIDGE CONDUIT SUPPORT ON STEEL MEMBER
N.T.S.

PLD FILE
62-8

13 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
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ESTIMATE		
FINAL	CHECK ---	REVIEW ---

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BRIDGE CONDUIT MODERNIZATION
CONDUIT DETAILS

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E13 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 - 2:59pm
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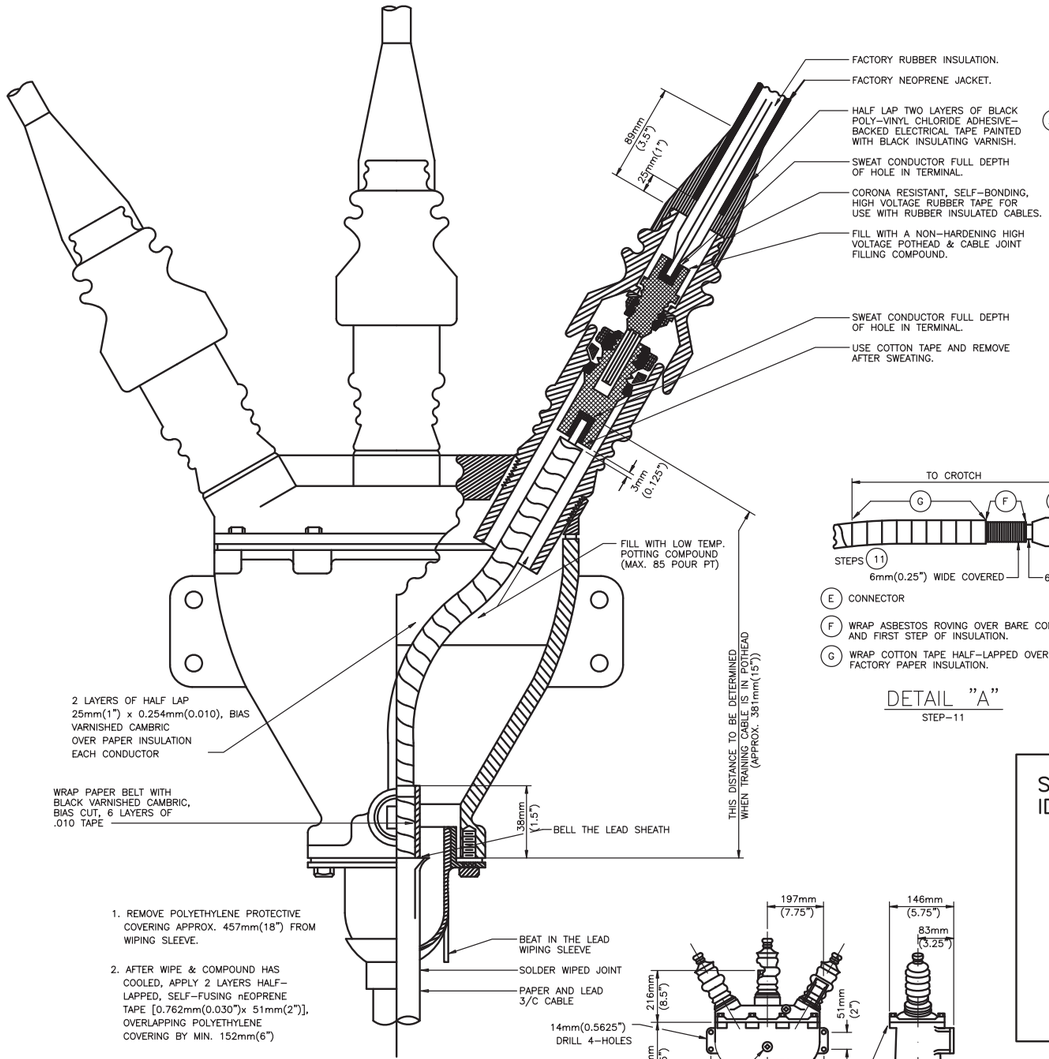


1. REMOVE POLYETHYLENE PROTECTIVE COVERING APPROX. 457mm(18") FROM WIPING SLEEVE.
2. AFTER WIPE & COMPOUND HAS COOLED, APPLY 2 LAYERS HALF-LAPPED, SELF-FUSING nEOPRENE TAPE [0.762mm(0.030")x 51mm(2")], OVERLAPPING POLYETHYLENE COVERING BY MIN. 152mm(6")

5000V. & 7500V. 3/C DISC. POTHEAD

N.T.S.

ASSEMBLED POTHEAD

NOTE:

DIMENSIONS APPLY TO BOTH 250A. & 500A. POTHEADS.

POTHEADS FURNISHED SHALL INCLUDE ENTRANCE SLEEVE & CAPS.

NOTES:

1. SEE SPECIFICATIONS OR P.L.D., WHERE REQUIRED, FOR MATERIAL SPECIFICATIONS.
2. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A LIST OF ALL SPLICING MATERIALS HE PROPOSES TO USE WITH SUPPORTING DATA THAT MATERIAL IS SUITABLE FOR APPLICATION AS SHOWN ON THE DRAWINGS.

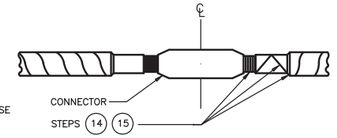
(E) CONNECTOR

(F) WRAP ASBESTOS ROVING OVER BARE CONDUCTOR AND FIRST STEP OF INSULATION.

(G) WRAP COTTON TAPE HALF-LAPPED OVER FACTORY PAPER INSULATION.

DETAIL "A"

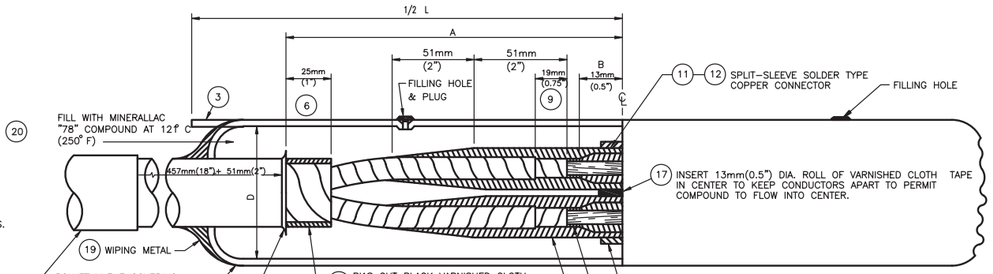
STEP-11



BOILED COTTON YARN IN STEP CORNERS, ONE TURN TO HOLD PAPER AND OVER CONDUCTOR TO LEVEL OF FIRST STEP.

DETAIL "B"

STEP-15



DIMENSIONS

	#2	#2/0	#4/0	350 MCM
A	191mm (7.5")	241mm (9.5")	241mm (9.5")	267mm (10.5")
B	25mm (1")	25mm (1")	38mm (1.5")	32mm (1.25")
D	76mm (3")	89mm (3.5")	89mm (3.5")	102mm (4")
L	457mm (18")	610mm (24")	610mm (24")	610mm (24")

SUBSTATION CIRCUIT ABBREVIATIONS ON IDENTIFICATION TAGS SHALL BE SPELLED AS FOLLOWS

BEL	KSG	POR
BUT	LAB	RVS
CAN	LEE	STA
COB	LOT	STO
CON	LUD	TOW
CUS	MAP	TRI
GRF	MCC	TUR
HUD	MON	WAL
JSC	PAL	WSU
JOY	PHI	JEF

NOTE:

ASBESTOS TAPE CAN ONLY BE USED WITH PERMISSION OF THE P.L.D.

INSTRUCTIONS FOR 3/C 5.0 & 7.0KV. P. & L. BELTED CABLE JOINTS

1. TRAIN CABLE. DO NOT BEND TO RADIUS LESS THAN THE FOLLOWING SPECIFIED MINIMUM: #2 AND #2/0-406mm(16"), #4/0-432mm(17"), 350 MCM-508mm(20").
2. ESTABLISH CENTERLINE OF JOINT. CUT CABLES THRU CENTERLINE.
3. CLEAN AND CANDLE OUTSIDE OF SLEEVE FOR 51mm(1") AT BELL ENDS. SLIDE SLEEVE OVER CABLE
4. CREASE LEAD SHEATHS THE SPECIFIED DISTANCE FROM CABLE END (DIM.A). CLEAN AND PROTECT SURFACES OF SHEATH WITH STEARINE WHERE WIPES ARE TO BE MADE.
5. REMOVE SHEATH TO CREASE, TEAR SO AS TO GIVE THE SHEATH A NATURAL BELL.
6. REMOVE ALL BINDER TAPES TO 25mm(1") FROM END OF SHEATH.
7. REMOVE FILLERS FROM CROTCH, CUTTING WITH KNIFE DIRECTED AWAY FROM INSULATION.
8. TEST FILLER FOR MOISTURE (IN PARAFFIN AT 121 °C(250 °F).
9. STEP INSULATION BY USE OF GILLING TWINE. FOR THE SINGLE STEP REMOVE HALF OF FACTORY INSULATION THICKNESS.
10. REMOVE INSULATION FROM CONDUCTOR FOR THE CONNECTOR BY CUTTING SQUARE WITHOUT NICKING CONDUCTOR.
11. PUT CONNECTORS IN PLACE WITH SPLIT OPENINGS TURNED UPWARD. COVER BARE CONDUCTOR AND FIRST STEPS WITH ASBESTOS ROVING COVER PAPER INSULATION WITH HALF-LAPPED COTTON TAPE. SEE DETAIL "A".
12. SWEAT CONNECTORS IN PLACE. REMOVE ANY SHARP EDGES OF THE CONNECTOR OR SOLDER. REMOVE COTTON TAPE AND ASBESTOS ROVING BEING CAREFUL TO KEEP METAL PARTICLES OFF OF CONDUCTOR AND PAPER INSULATION.
13. APPLY 6 WRAPS OF 25mm(1") BLACK V.C. TAPE OVER THE FACTORY BELT ON EACH END OF SPLICE.
14. APPLY STRANDED COTTON YARN BOILED IN PETROLATUM TO FILL IN BETWEEN INSULATION AND CONNECTOR TO LEVEL OF FIRST STEP.
15. ALSO APPLY BOILED COTTON YARN OVER STEPS TO HOLD PAPER TAPE IN PLACE WHILE APPLYING V.C. INSULATION. SEE DETAIL "B".
16. APPLY V.C. TAPE HALF-LAPPED TO EACH CONDUCTOR, BUILDING UP TO A THICKNESS OF 6mm OVER THE CONNECTOR, TAPERING ENDS AS SHOWN AND HAND WIPING THIN COATING OF PETROLATUM BETWEEN LAYERS OF V.C. TAPE.
17. APPLY 13mm(0.5") DIA. SPACER ROLL OF 25mm(1") BLACK V.C. TAPE IN CENTER OF CONDUCTOR.
18. INSTALL BINDER BELT OF 25mm(1") BLACK V.C. TAPE APPROX. 10 LAYERS (USE 2.74M(3YD.) ROLL) TIE IN PLACE WITH COTTON TAPE
19. PULL UP AND CENTER SLEEVE. WIPE SLEEVE TO CABLE SHEATHS. DO NOT USE STEARINE FOR COOLING AT THIS STAGE.
20. FILL JOINT WITH COMPOUND AT 121°C(250° F). COOL FOR 45 MINUTES, REFILL, AND COOL FOR 15 MINUTES. REPEAT REFILLS TWICE IF NECESSARY.
21. WHILE JOINT IS COOLING, ATTACH BONDING CONNECTION, FIREPROOF CABLE AND ATTACH CABLE TAGS.
22. SEAL FILLING HOLES AND FINISH FIREPROOFING.
23. APPLY 51mm(2") WIDE TAPE NEOPRENE COVERING OVER SLEEVE.

PLD FILE
62-8

14 PLD

REVISIONS	DESCRIPTION	DR'N	CK'D	AP'VD	DATE

	BY	CHECKED BY
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GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

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5000V. & 7000V. BELTED - BELTED P. & L. CABLE JOINT & POTHEAD SPLICE

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E14 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

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Aug 02, 2010 – 2:53pm
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USE	VOLT RATING	ITEM NO.	CONDUCTOR	SYNTHETIC RUBBER	IMPREG-NATED PAPER	POLYETH-YLENE	POLYVINYL-CHLORIDE	SHIELD OVER INSULATED CONDUCTOR	TAPE OVER INSULATED CONDUCTORS	IMPREG-NATED PAPER BELT	JACKET	LEAD SHEATH	COVERING OVER LEAD	STEEL TAPE ARMOR	COVERING OVER STEEL TAPE	COVERING OVER CONDUCTOR
OVERHEAD LINE WIRE	——	1	#2–#6 AWG. H.D.,UNCOATED SOLID COPPER A.S.T.M. B1													1.2mm(.047") BLACK NEOPRENE
	——	2	#4/0–#2/0AWG. M.H.D.,UNCOATED 7/STR. COPPER A.S.T.M. B1													1.6mm(.063") BLACK NEOPRENE
	——	3	#2– AWG.H.D., UNCOATED SOLID COPPER A.S.T.M. B1													.8mm(.032") BLACK POLYETHYLENE
	——	4	#2–AWG.,H.D., UNCOATED SOLID COPPER A.S.T.M. B1													1.2mm(.047") BLACK POLYETHYLENE
	——	5	#4/0–#2/0AWG. M.H.D.,UNCOATED 7/STR. COPPER A.S.T.M. B8													1.6mm(.063") BLACK POLYETHYLENE
SPECIAL EVENT FEEDER,	2000V.	6														
MULT. ST. LTG.	2000V.	7														
TRAFFIC SIGNAL SECOND-ARY	2000V.	8														
RECEPTA-CLE BRACKET & LAMP POST WIRE	600V.	9	#8 AWG.1/C UNCOATED,SOFT 7/STR. COPPER A.S.T.M. B8				1.6mm(.062") 75°C,BLACK, (167 F) OR WHITE AS REQ'D PIGMENTED NOT PRINTED									
2/C AERIAL SERVICE	600V.	10	2/C#8 AWG UNCOATED,SOFT 7/STR. COPPER A.S.T.M. B8				1.6mm(.062") 75°C,BLACK, (167 F) FIGURE 8 CONSTRUCTION									
DISTRIBU-TION CABLES	5000V. BELTED	11	3/C 350 MCM SECTOR, SOFT UNCOATED COPPER AEIC		2.2mm(.085") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)					11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100 ° (212° F)		2.4mm(.095") COPPER BEARING LEAD	2.3mm(.090") HEAT & LIGHT STABILIZED BLACK HIGH MOLE-CULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
	5000V. BELTED	12	3/C#2/0AWG. SECTOR, SOFT UNCOATED COPPER AEIC		2.2mm(.085") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)					11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100 ° (212° F)		2.2mm(.085") COPPER BEARING LEAD	2mm(.08") HEAT & LIGHT STABILIZED BLACK HIGH MOLE-CULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
	5000V. BELTED	13	3/C#2AWG. ROUND, SOFT UNCOATED COPPER AEIC		2.2mm(.085") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)					11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100 ° (212° F)		2mm(.08") COPPER BEARING LEAD	2mm(.08") HEAT & LIGHT STABILIZED BLACK HIGH MOLE-CULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
	7000V. BELTED	14	3/C 350 MCM SECTOR, SOFT UNCOATED COPPER AEIC		2.54mm(.10") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)					11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100 ° (212° F)		2.4mm(.095") COPPER BEARING LEAD	2.3mm(.090") HEAT & LIGHT STABILIZED BLACK HIGH MOLE-CULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
	7000V. BELTED	15	3/C#2AWG. SECTOR, SOFT UNCOATED COPPER AEIC		2.54mm(.10") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)					11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100 ° (212° F)		2.2mm(.085") COPPER BEARING LEAD	2.3mm(.090") HEAT & LIGHT STABILIZED BLACK HIGH MOLE-CULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
	7000V. BELTED	16	3/C 350 MCM ROUND, SOFT UNCOATED COPPER AEIC		2.54mm(.10") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)					11.4mm(.45") OVERALL OIL VISCOSITY 1,000 SUS AT 100 ° (212° F)		2.2mm(.085") COPPER BEARING LEAD	2mm(.08") HEAT & LIGHT STABILIZED BLACK HIGH MOLE-CULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
SERIES ST. LTG. CABLE, IN DUCT	7500V.	17	1/C#8 AWG. SOLID, SOFT UNCOATED COPPER ASTM B3			4.8mm(.188") HIGH MOLE-CULAR NAT-URAL OVER CONDUCTOR	1.2mm(.047") 60°C BLACK					1.6mm(.063") COMMERCIALLY PURE				
SERIES ST. LTG. CABLE, DIRECT BURIAL	7500V.	18	1/C#8 AWG. SOLID, SOFT UNCOATED COPPER ASTM B3			4.8mm(.188") HIGH MOLE-CULAR NAT-URAL OVER CONDUCTOR	1.2mm(.047") 60°C BLACK OVER INSULATED CONDUCTOR					1.6mm(.063") COMMERCIALLY PURE	1.2mm(.047") ASPHALTUM SATURATED JUTE OVER LEAD	TWO LAYER .51mm(.02") GALV. STEEL TAPE	ASPHALTUM SATURATED JUTE OVER STEEL TAPE	
TRANS-MISSION CABLES	24000V. SHIELDED	19	3/C 350 MCM SECTOR, SOFT UNCOATED COPPER * AEIC		5.8mm(.230") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)			COPPER TAPE INTERCALATED WITH SEMI-CONDUCTING OF OR METALIZED PAPER TAPE	* *			2.8mm(.11") COPPER BEARING LEAD	2.8mm(.11") HEAT LIGHT STABILIZED BLACK HIGH MO-LECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
	24000V. SHIELDED	20	3/C 350 MCM SECTOR, SOFT UNCOATED COPPER * AEIC		5.8mm(.230") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)			COPPER TAPE INTERCALATED WITH SEMI-CONDUCTING OF OR METALIZED PAPER TAPE	* *			2.7mm(.105") COPPER BEARING LEAD	2.8mm(.11") HEAT LIGHT STABILIZED BLACK HIGH MO-LECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
	24000V. SHIELDED	21	3/C #2/0 AWG. SECTOR, SOFT UNCOATED COPPER * AEIC		6.2mm(.245") PER CONDUCTOR OIL VISCOSITY 1,000 SUS AT 100 °C (212° F)			COPPER TAPE INTERCALATED WITH SEMI-CONDUCTING OF OR METALIZED PAPER TAPE	* *			2.5mm(.10") COPPER BEARING LEAD	2.3mm(.09") HEAT LIGHT STABILIZED BLACK HIGH MO-LECULAR WEIGHT POLYETHYLENE OVER LEAD SHEATH			
MULTI-CONDUCTOR SIGNAL CABLE, IN DUCT	——	22	#14 AWG. SOLID, SOFT UNCOATED COPPER, NO. OF CONDUCTOR AS REQ'D. ASTM B3	ACCORDING TO SPECIFICATIONS												
MULTI-CONDUCTOR SIGNAL CABLE, AERIAL(I.M.)	——	23	#14 AWG. SOLID, SOFT UNCOATED COPPER, NO. OF CONDUCTOR AS REQ'D. ASTM B3													
8/C SERIES ST. LTG. IN DUCT	7500V.	24	8/C#8 AWG. SOLID, SOFT TINNED COPPER ASTM B33	SPECIAL INSTRUCTION 1.6mm(.063") OF 30% HEAVEA RUBBER AND ONE LAYER OF LAPPED FILLED COTTON TAPE OVER EACH CONDUCTOR CENTRAL CONDUCTOR HAS ADDITIONAL 4.3mm(.17") VARNISHED CAMBRIC TAPE REMAINING 7 CONDUCTORS EACH HAVE ADDITIONAL 2.4mm(.094") VARNISHED CAMBRIC TAPE ONE OF 7 OUTSIDE CONDUCTORS WRAPPED WITH WHITE PAPER FOR IDENTIFICATION ALL CONDUCTORS CABLED WITH PARAFFINED JUTE (OUTSIDE FILLER). 2.4mm(.094") BELT OF OIL SATURATED PAPER OVERALL (2.9mm)0.115 INCH COPPER BEARING LEAD BENEATH OVERALL.												
OVERHEAD FLEXIBLE TRAINER WIRE (SHIELDED)	——	25	1/C#2 AWG. & LARGER, SOFT CLASS G OR H STANDING TINNED COPPER ASTM B173	SEMI-CONDUCTING COTTON TAPE OVER CON-DUCTOR & 0.268 OZONE RESISTING BUTYL							1.6mm(.063") GENERAL PURPOSE OR HEAVY DUTY BLACK NEOPRENE					

(Items 6, 7, 8:)

ALL MULTIPLE STREET LIGHTING, TRAFFIC SIGNAL SECONDARY AND SPECIAL EVENT CABLES INSTALLED IN CONDUIT SHALL BE AS PER THE FOLLOWING: CONDUCTORS: COATED, STRANDED COPPER CONDUCTOR PER ASTM B-8 AND B-189. INSULATION: MEETS OR EXCEEDS ALL REQUIREMENTS OF LATEST EDITION OF ICEA S-68-516, NEMA WC 8 FOR ETHYLENE-PROPYLENE RUBBER INSULATION AND ASTM D2802-78 AND UL STANDARD 44. JACKET: MEETS OR EXCEED ALL REQUIREMENTS OF LATEST EDITION OF ICEA S-68-516, NEMA WC8 FOR HEAVY DUTY CHLOROSULFONATED-POLYETHYLENE. LISTED BY UNDERWRITER'S LABORATORIES INC. AS TYPE RHH OR RHW.

NOTE: PRIOR TO PLACING ORDER FOR PURCHASE OF THIS CABLE, A SAMPLE LENGTH OF CABLE MUST FIRST BE SUBMITTED TO P.L.D. FOR THEIR APPROVAL.

COLOR CODED AS FOLLOWS:

RED – A CIRCUIT
BLACK – B CIRCUIT
WHITE – NEUTRAL

* CARBON BLACK PAPER

* * BINDER TAPE OVER SHIELDED INSULATED CONDUCTOR AND FILLERS TO BE COPPER OR BRONZE TAPE INTERCALATED WITH PAPER TAPE OR (2) METALIZED PAPER TAPES

CONTINUED ON E17

PLD FILE 62-8

15 PLD

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CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

CABLE AND WIRE
SPECIFICATIONS AND DETAILS

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E15 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

1. DISTRIBUTION AND TRANSMISSION CABLES

ALL TRANSMISSION CABLES, (24 KV., ITEMS 11-16 INCLUSIVE) ARE FOR CIRCUITS WITH GROUNDED NEUTRAL, AND SHALL CONFORM STRICTLY WITH THE LATEST REVISION OF THE A.E.I.C. "SPECIFICATION FOR IMPREGNATED PAPER INSULATED, LEAD COVERED SOLID TYPE CABLE", 9TH EDITION, DATED APRIL, 1954, AND CONSTRUCTION OPTIONS AS NOTED IN SHEET 1.

ALL DISTRIBUTION CABLES, (7 & 5 KV, ITEMS 19 & 21 INCLUSIVE) ARE FOR CIRCUITS WITH UNDERGROUND NEUTRAL AND SHALL ALSO CONFORM WITH THE ABOVE SPECIFICATION, WITH CONSTRUCTION OPTIONS AS NOTED IN TABLE 1.

2. OVERHEAD LINE WIRE

OVERHEAD LINE WIRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF ASA C8.34 (NEOPRENE COVERING) OR THE LATEST REVISION OF ASA C8.35 (POLYETHYLENE COVERING).

3. 8/C,#8AWG, STREET LIGHTING CABLE, 7500 V.

THIS IS A SPECIAL CONSTRUCTION AND SHALL BE MADE STRICTLY IN ACCORDANCE WITH THE DESCRIPTION IN TABLE 1. APPLICABLE REFERENCE SPECIFICATIONS SHOWN BELOW:

4. OTHER RUBBER OR THERMOPLASTIC INSULATED CABLES, LEADED & NON-LEADED

WIRE SIZE, INSULATION TYPE AND NORMAL THICKNESSES, OTHER CONSTRUCTION FEATURES SHALL BE AS SHOWN IN TABLE 1, AND APPLICABLE REFERENCE SPECIFICATIONS SHOWN BELOW:

INSULATIONS

THE MINIMUM INSULATION THICKNESS OF ANY OF THESE CABLES SHALL BE LESS THAN 90% OF THE NOMINAL THICKNESS SHOWN ON TABLE 1.

THE PHYSICAL AND AGING PROPERTIES OF THERMOPLASTIC AND RUBBER INSULATIONS SHALL BE AS FOLLOWS:

		POLYVINYL-CHLORIDE 60°C (140°F)	POLYVINYL-CHLORIDE 75°C (167°F)	HIGH MOLECULAR WEIGHT NATURAL POLYETHYLENE	SYNTHETIC RUBBER 75°C(167°F) HEAT & MOISTURE RESISTANT	OZONE RESISTING BUTYL RUBBER
ORIGINAL	TENSILE STRENGTH PSI	2300, MIN.	2300, MIN.	1400, MIN.	700, MIN.	600, MIN.
	ELONGATION AT RUPTURE, PERCENT	250, MIN.	250, MIN.	250, MIN.	300, MIN. & 13mm(.5") SET,MAX.	350, MIN. & 13mm(.5") SET,MAX.
AIR OVEN TEST, TIME & TEMP, AS NOTED	TENSILE STRENGTH % OF ORIGINAL	65, MIN. 168 HRS.,100 ± 1°C (212± 1.8°F)	120, MAX. 80, MIN. 168 HRS.,120 ± 1°C (248± 1.8°F)	75, MIN. 48 HRS.,100 ± 1°C (212± 1.8°F)	———	60, MIN. 168 HRS.,100 ± 1°C (212± 1.8°F)
	ELONGATION % OF ORIGINAL	* 65, MIN. 168 HRS.,100 ± 1°C (212± 1.8°F)	** 75, MIN. 168 HRS.,120 ± 1°C (248± 1.8°F)	75, MIN. 48 HRS.,100 ± 1°C (212± 1.8°F)	———	60, MIN. 168 HRS.,100 ± 1°C (212± 1.8°F)
OXYGEN PRESSURE TEST	TENSILE STRENGTH % OF ORIGINAL	———	———	———	50, MIN. 168 HRS., 80 ± 1°C (176 ± 1.8°F)	———
	ELONGATION % OF ORIGINAL	———	———	———	50, MIN. 168HRS., 80 ± 1°C (176 ± 1.8°F)	———
AIR PRESSURE HEAT TEST	TENSILE STRENGTH % OF ORIGINAL	———	———	———	50, MIN. 20 HRS., 127 ± 1°C (260± 1.8°F)	50, MIN. 40 HRS., 127 ± 1°C (260± 1.8°F)
	ELONGATION % OF ORIGINAL	———	———	———	50, MIN. 20 HRS., 127 ± 1°C (260± 1.8°F)	50, MIN. 40 HRS., 127 ± 1°C (260± 1.8°F)
HEAT DISTORTION 121 ± 1°C (250±1.8°F)	% OF ORIGINAL	50, MAX.	25, MAX.	———	———	———
OIL IMMERSION 4 HRS.,70 ± 1°C (158±1.8°F)	TENSILE STRENGTH % OF ORIGINAL	* 85, MIN.	** 85, MIN.	———	———	———
	ELONGATION % OF ORIGINAL	* 85, MIN.	** 85, MIN.	———	———	———
HEAT SHOCK 121 ± 1°C (250±1.8°F)	———	NO CRACKS	NO CRACKS	———	———	———
COLD BEND	———	NO CRACKS -30 ±1°C (-22 ± 1.8°F)	NO CRACKS -30 ±1°C (-22 ± 1.8°F)	NO CRACKS -55 ±1°C (-67 ± 1.8°F)	———	———
INSULATION RESISTANCE CONSTANT AT 15.6 °C (60±1.8°F)	———	1,000 MIN.	2,000 MIN.	50,000 MIN.	4,000 MIN.	20,000 MIN.
FLAME RESISTANCE PROPERTIES	———	SECT. 6.5 IPCEA S-61-402	SECT. 6.5 IPCEA S-61-402	———	———	———
ACCELERATED WATER ABSORPTION REQUIREMENT	ELECTRICAL METHOD — DIELECTRIC CONSTANT, 1 DAY	10, MAX.	10, MAX.	———	5, MAX.	———
	ELECTRICAL METHOD — % CAPACITANCE INCREASE	1-14 DAYS-10,MAX. 7-14 DAYS-5,MAX.	1-14 DAYS-4.0,MAX. 7-14 DAYS-2.0,MAX.	———	1-14 DAYS-10.0,MAX. 7-14 DAYS-4.0,MAX.	1-14 DAYS-5.0,MAX. 7-14 DAYS-3.0,MAX.
	ELECTRICAL METHOD — TEMP.	50 ±1°C (122 ±1.8°F)	75 ±1°C (167 ±1.8°F)	———	75 ±1°C (167 ±1.8°F)	75 ±1°C (167 ±1.8°F)
	— OR — GRAVIMETRIC METHOD	20 MILLIGRAMS PER SQ. 25.4mm(1") MAX.	10 MILLIGRAMS PER SQ. 25.4mm(1") MAX.	———	20 MILLIGRAMS PER SQ. 25.4mm(1") MAX.	15 MILLIGRAMS PER SQ. 25.4mm(1") MAX.
TEST IN ACCORDANCE WITH LATEST REVISION OF:		IPCEA S-61-402 (EXCEPTIONS ARE NOTED ABOVE)		IPCEA S-61-402	IPCEA S-19-81 (EXCEPTIONS ARE NOTED ABOVE)	IPCEA S-19-81

FOR #6 AWG AND LARGER, USING BUFFED DIE-CUT SPECIMENS, THE FOLLOWING VALUES SHALL APPLY:

* ELONGATION AFTER AIR OVEN TEST 45% MIN.

** ELONGATION AFTER AIR OVEN TEST 50% MIN.

* OR ** TENSILE STRENGTH AFTER OIL IMMERSION 80% MIN.

* OR ** ELONGATION AFTER OIL IMMERSION 60% MIN.

CONDUCTORS

ALL CONDUCTORS SHALL BE COPPER, COMPLYING WITH THE LATEST REVISIONS OF ASTM SPECIFICATIONS, AS FOLLOWS:

SOFT OR ANNEALED, BARE COPPER WIRE	ASTM B3
MEDIUM HARD DRAWN COPPER WIRE	ASTM B2
HARD DRAWN COPPER WIRE	ASTM B1
CONCENTRIC-LAY-STRANDED COPPER CONDUCTORS, HARD, MEDIUM HARD OR SOFT, COATED OR UNCOATED, AS REQUIRED.	ASTM B8
ROPE-LAY-STRANDED, SOFT, COPPER CONDUCTORS, COATED OR UNCOATED, AS REQUIRED.	ASTM B173
SOFT, SOLID COPPER CONDUCTORS, TINNED	ASTM B33
SOFT, SOLID COPPER CONDUCTORS, LEAD OR LEAD ALLOY COATED	ASTM B189

JACKETS

THE MINIMUM JACKET THICKNESS SHALL NOT BE LESS THAN 80% OF THE NOMINAL THICKNESS SHOWN ON TABLE 1.

		NEOPRENE BLACK,HEAVY DUTY	NEOPRENE BLACK GENERAL PURPOSE	POLYVINYL-CHLORIDE, BLACK	HEAT & LIGHT STABILIZED BLACK POLYETHYLENE COVER'G OVER LEAD SHEATH
ORIGINAL	TENSILE STRENGTH PSI	1800, MIN.	1500, MIN.	1500, MIN.	1400, MIN.
	ELONGATION AT RUPTURE, %	300, MIN. & 10mm(.375") MAX.SET	250, MIN. & 10mm(.375") MAX.SET	100, MIN.	350, MIN.
AIR OVEN TEST, TIME & TEMP, AS NOTED	TENSILE STRENGTH % OF ORIGINAL	———	———	75 MIN. 120 HRS. 121± 1°C (250 ± 1.8°F)	75, MIN.
	ELONGATION % OF ORIGINAL	———	———	60 MIN. 120 HRS. 121± 1°C (250 ± 1.8°F)	75, MIN.
OXYGEN PRESSURE TEST 168 HRS. 80± 1°C (176 ± 1.8°F)	TENSILE STRENGTH % OF ORIGINAL	50, MIN.	50, MIN.	———	———
	ELONGATION % OF ORIGINAL	50, MIN.	50, MIN.	———	———
AIR PRESSURE HEAT TEST 20 HRS. 127± 1°C (260 ± 1.8°F)	TENSILE STRENGTH % OF ORIGINAL	50, MIN.	50, MIN.	———	———
	ELONGATION % OF ORIGINAL	50, MIN.	50, MIN.	———	———
OIL IMMERSION TEST, TIME & TEMP. AS NOTED	TENSILE STRENGTH % OF ORIGINAL	60 MIN. 18 HRS 121 ± 1°C (250 ± 1.8°F)	60 MIN. 18 HRS 121 ± 1°C (250 ± 1.8°F)	60 MIN. 4 HRS 70 ± 1°C (158 ± 1.8°F)	———
	ELONGATION % OF ORIGINAL	60 MIN. 18 HRS 121± 1°C (250 ± 1.8°F)	60 MIN. 18 HRS 121 ± 1°C (250 ± 1.8°F)	60 MIN. 4 HRS 70 ± 1°C (158 ± 1.8°F)	———
HEAT DISTORTION PERCENT OF UNAGED-VALUE	———	———	———	50, MAX. 90 ± 1°C (194 ± 1.8°F)	25, MAX. 90 ± 1°C (194 ± 1.8°F)
HEAT SHOCK 121 ± 1°C (250 ± 1.8°F)	———	———	———	NO CRACKS	———
COLD BEND TEST-35 ± 1°C (-31 ± 1.8°F)	———	———	———	NO CRACKS	NO CRACKS
ENVIRONMENTAL CRACKING	———	———	———	———	NO CRACKS
LIGHT ABSORPTIVITY	———	———	———	———	24,000, MIN.
TEST IN ACCORDANCE WITH LATEST REVISION OF:		IPCEA S-19-82		IPCEA S-61-402	IPCEA INTERIM REVISION #1 PUB. S-54-401 SEPT. 1959

PLD FILE
62-8

16 PLD

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DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

CABLE AND WIRE SPECIFICATIONS AND DETAILS

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E16 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

CERTIFIED TEST REPORTS

SHIPMENTS OF WIRE AND CABLE SHALL NOT BE CONSIDERED COMPLETE UNTIL CERTIFIED TEST REPORTS ARE RECEIVED AND APPROVED. TEST REPORTS FOR VARIOUS ITEMS OF WIRE AND CABLE SHOWN ON SHEET 1 SHALL CONTAIN THE FOLLOWING TEST RESULTS:

ITEMS 1 - 5 INCLUSIVE - OVERHEAD LINE WIRE

1. CONDUCTOR CONTINUITY, RESISTANCE, TENSILE STRENGTH AND ELONGATION TESTS.
2. COVERING THICKNESS, PHYSICAL AND AGING TESTS.
3. WEIGHT OF FINISHED WIRE.

ALL TESTS IN ACCORDANCE WITH THE LATEST REVISION OF ASA 8.34 (NEOPRENE COVERING) OR ASA 8.35 (POLYETHYLENE COVERING).

ITEMS 6 - 10 INCLUSIVE

1. CONDUCTOR CONTINUITY, RESISTANCE, TENSILE STRENGTH, AND ELONGATION TESTS IN ACCORDANCE WITH THE LATEST REVISIONS OF ASTM B8, B33 OR B189.
2. THE PHYSICAL AND OTHER TESTS FOR THE SPECIFIED INSULATION SHOWN ON SHEET 2.
3. INSULATION THICKNESS MEASUREMENTS.
4. THE ALTERNATING-CURRENT VOLTAGE TEST IN ACCORDANCE WITH THE LATEST REVISION OF IPCEA S-61-402.
5. INSULATION RESISTANCE TEST. INSULATION RESISTANCE CONSTANT AS SHOWN ON SHEET 2.
6. (CABLE ITEM 8 ONLY) MINIMUM, MAXIMUM AND AVERAGE LEAD THICKNESS MEASUREMENTS SHALL ALSO BE INCLUDED.
7. (CABLE ITEM 10 ONLY) A RIP TEST SHALL ALSO BE INCLUDED AS FOLLOWS:

   A 1.83m SAMPLE OF THE COMPLETED 2 CONDUCTOR WIRE WITH CLEANLY CUT ENDS SHALL BE SUBJECTED TO A TEMPERATURE OF -(-23°3 C). -10 F FOR ONE HOUR, WHILE STILL COLD, THE TWO INSULATED CONDUCTORS SHALL BE SEPARATED AT ONE END FOR A DISTANCE OF APPROXIMATELY (76.mm) 3 INCHES AND THEN SHALL BE TORN APART WITH STEADY PULL AT A RATE OF (838mm) 33 INCHES IN ONE SECOND OR LESS. THERE SHALL BE NO DAMAGE TO THE INSULATION.

ITEMS 11 - 16 INCLUSIVE - DISTRIBUTION CABLES UNDER 10KV. RATING

1. CONDUCTOR RESISTANCE.
2. SHEATH THICKNESS MEASUREMENTS.
3. HIGH VOLTAGE TEST.
4. MECHANICAL INTEGRITY TEST.
5. BENDING TEST.
6. SPARK TEST ON COVERING OVER LEAD SHEATH ON EACH LENGTH IF COVERING IS SPECIFIED.

   ALL TESTS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF "SOLID TYPE IMPREGNATED-PAPER-INSULATED LEAD-COVERED CABLE SPECIFICATION" PUBLISHED BY THE ASSOCIATION OF EDISON ILLUMINATING COMPANIES.

ITEMS 17 - 18 INCLUSIVE - SERIES STREET LIGHTING CABLE

1. CONDUCTOR RESISTANCE AND CONTINUITY, IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-3.
2. THE PHYSICAL AND OTHER TESTS FOR HIGH MOLECULAR WEIGHT POLYETHYLENE INSULATION AS SHOWN ON SHEET 2.
3. THE PHYSICAL AND OTHER TESTS FOR 60 C (140 F) POLYVINYL-CHLORIDE INSULATION AS SHOWN ON SHEET 2.
4. THE FOLLOWING TESTS SHALL ALSO BE MADE AND REPORTED:

HIGH VOLTAGE TEST-AFTER NOT LESS THAN SIX(6)HOURS IMMERSION IN WATER AT (15.6 C). °(60 F) AND WHILE STILL IMMERSED, EACH REEL OF INSULATION CABLE WITHOUT LEAD, SHALL WITHSTAND A 60 CYCLE POTENTIAL OF 30,000 VOLTS FOR A PERIOD OF FIVE (5) MINUTES.

INSULATION RESISTANCE TEST-THE INSULATION RESISTANCE SHALL NOT BE LESS THAN 26,500 MEGOHMS PER THOUSAND FEET AT (15.6° C). 60 F THIS TEST SHALL BE CONDUCTED UPON COMPLETION OF THE HIGH VOLTAGE TEST.

SHORT-TIME DIELECTRIC STRENGTH TEST - A (3.05m)X(TEN(10)FT.) SAMPLE OF THE FINISHED CABLE WITH ONLY THE LEAD REMOVED, AFTER TWELVE (2) HOURS SUBMERSION IN WATER AND WHILE STILL IMMERSED, SHALL WITHSTAND A VOLTAGE TEST OF 60,000 VOLTS 60 CYCLE A.C. FOR FIVE (5) MINIATURES. ON COMPLETION OF THIS TEST, THE VOLTAGE WILL BE GRADUALLY RAISED IN ACCORDANCE WITH I.P.C.E.A. SPECIFICATIONS, UNTIL THE INSULATION IS PUNCTURED. THIS VOLTAGE SHALL BE RECORDED AND SHALL BE NOT LESS THAN 72,000 VOLTS.

EXTERNAL CORONA TEST-THIS TEST SHALL BE CONDUCTED ON ONE(1)SAMPLE PER 10,000 FT. OF COMPLETED CABLE EIGHTEEN(18)INCHES LONG WITH ONLY THE LEAD SHEATH REMOVED, AFTER WHICH SHALL BE WIPED WITH A CLEAN DRY CLOTH. THESE SAMPLES SHALL BE BENT AND MAINTAINED IN A "U-SHAPE" HAVING A BENDING DIAMETER EQUAL TO FIVE TIMES THE INSULATED CABLE DIAMETER. THE BENT SAMPLES SHALL THEN BE PLACED IN A VERTICAL POSITION ON A FLAT METALLIC GROUNDED PLATE AND 60 CYCLE A.C. VOLTAGE SHALL BE GRADUALLY APPLIED WITH A CORONA-LEVEL TEST APPARATUS OF THE FILTER-CIRCUIT TYPE, MAINTAINING SUFFICIENT AMPLIFICATION TO INDICATE THE EXISTENCE OF CORONA DISCHARGE. THIS VOLTAGE SHALL BE RAISED UNTIL CORONA IS INDICATED, AND SHALL NOT BE LESS THAN 8,200 VOLTS RMS.

THE VOLTAGE SHALL THEN BE RAISED TO 25,000 VOLTS AND MAINTAINED FOR SIX(6) HOURS WITHOUT FAILURE OF THE INSULATION. THE VOLTAGE SHALL NOT BE RAISED IN 10% STEPS AT TEN(10) MINUTE INTERVALS UNTIL FAILURE OF THE INSULATION OR FLASHOVER OCCURS.

THESE VOLTAGES SHALL BE RECORDED AND REPORTED.

INTERNAL-CORONA-LEVEL-EACH LENGTH OF COMPLETED CABLE SHALL BE TESTED IN ACCORDANCE WITH SECTION 6.13 OF THE LATEST REVISION OF I.P.C.E.A. STANDARD S-61-402, EXCEPT THAT THE MINIMUM CORONA LEVEL SHALL BE 8,200 VOLTS.

ITEMS 19 - 21 INCLUSIVE - TRANSMISSION CABLES.

1. CONDUCTOR RESISTANCE
2. SHEATH THICKNESS MEASUREMENT
3. HIGH VOLTAGE TEST
4. MECHANICAL INTEGRITY TEST
5. BENDING TEST
6. IONIZATION TEST — ONE TEST PER ORDER OR
7. HIGH VOLTAGE-TIME TEST) — THERE IS A QUANTITY LIMITATION OF
8. DIELECTRIC POWER TEST) — 7.62m (25') ON THESE TESTS PER AEIC
9. POWER FACTOR TEST
10. SPARK TEST ON COVERING OVERHEAD SHEATH ON EACH LENGTH

ALL TESTS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF "SOLID-TYPE IMPREGNATED-PAPER=INSULATED LEAD-COVERED CABLE SPECIFICATION," PUBLISHED BY THE ASSOCIATION OF EDISON ILLUMINATING COMPANIES.

ITEMS 22 -23 INCLUSIVE - MULTI-CONDUCTOR TRAFFIC SIGNAL CABLE

1. INDIVIDUAL CONDUCTOR RESISTANCE IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B3.
2. INSULATION THICKNESS MEASUREMENTS.
3. INSULATION PHYSICAL AND OTHER TESTS FOR 60 C (140 F) POLYVINYL CHLORIDE IS SHOWN ON SHEET 2.
4. ALTERNATING CURRENT VOLTAGE TEST.
5. INSULATION RESISTANCE TEST INSULATION RESISTANCE CONSTANT AS SHOWN ON SHEET 2.
6. (CABLE ITEM 23 ONLY)
   a. POLYVINYL CHLORIDE JACKET PHYSICAL AND OTHER TESTS SHOWN ON SHEET 2.
   b. JACKET THICKNESS MEASUREMENTS.
7. (CABLE ITEM 22 ONLY), LEAD SHEATH THICKNESS MEASUREMENTS.

   TESTS NO. 4-7, INCLUSIVE, SHALL BE MADE IN ACCORDANCE WITH THE LATEST REVISION OF I.P.C.E.A. S-61-402, EXCEPT THAT THE INSULATION RESISTANCE CONSTANT SHALL BE 1000 AT 15.6° C (60° F).

ITEM 24 - 8/C SERIES STREET LIGHTING CABLE

1. CONDUCTOR CONTINUITY AND RESISTANCE IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-33.
2. LEAD SHEATH THICKNESS MEASUREMENTS.
3. A HIGH VOLTAGE TEST CONSISTING OF 22,500 VOLTS, 60 CYCLES A.C. FOR A DURATION OF 5 MINUTES, BETWEEN CONDUCTORS AND FROM EACH CONDUCTOR TO THE LEAD SHEATH.

ITEM 25 - FLEXIBLE OVERHEAD TRAINER WIRE

1. CONDUCTOR RESISTANCE, TENSIL STRENGTH AND ELONGATION IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-173.
2. INSULATION PHYSICAL AND OTHER TESTS SHOWN ON SHEET-2.
3. ADDITIONAL INSULATION TESTS IN ACCORDANCE WITH THE LATEST REVISION OF I.P.C.E.A. S-19-81 AS FOLLOWS:

   a. ALTERNATING-CURRENT VOLTAGE TEST.
   b. INSULATION RESISTANCE TEST.
   c. DIRECT-CURRENT VOLTAGE TEST.
   d. CORONA LEVEL TEST.
   e. SHORT-TIME DIELECTRIC STRENGTH TEST.
   f. COLD-BENDING AND LONG-TIME DIELECTRIC STRENGTH TEST.
   g. CAPACITY AND POWER FACTOR TEST.
   h. OZONE RESISTANCE TEST.
4. PHYSICAL AND OTHER TESTS ON THE NEOPRENE JACKET (GENERAL PURPOSE OR HEAVY DUTY), AS SHOWN ON SHEET 2.
5. JACKET THICKNESS MEASUREMENTS

ITEM 26 - SUPERVISORY CONTROL CABLE (MULTI-CONDUCTOR)

1. CONDUCTOR RESISTANCE, TENSILE STRENGTH AND ELONGATION, IN ACCORDANCE WITH THE LATEST REVISION OF ASTM B-3.
2. INSULATION PHYSICAL FOR 60 C (140 F) PVC INSULATION AND OTHER TESTS SHOWN ON SHEET 2.
3. INSULATION RESISTANCE TESTS.
4. VOLTAGE TESTS PER IPCEA S-61-402.
5. INSULATION THICKNESS.
6. LEAD SHEATH THICKNESS.
7. THICKNESS OF COVERING OVER LEAD SHEATH.
8. SPARK TEST ON COVER LEAD SHEATH ON EACH LENGTH.

ITEM 27 - INTEGRAL MESSENGER COMMUNICATIONS CABLE (MULTI-PAIR)

ITEM 28 - COMMUNICATIONS CABLE

ITEM 29 - COMMUNICATIONS CABLE, LEAD SHEATH

ITEM 30 - COMMUNICATIONS CABLE, LEAD SHEATH, DIRECT BURIAL

MULTI-PAIR COMMUNICATION CABLES (Maximum Mutual Capacities = 90 nf per mile) (ALSO FOR TRAFFIC SIGNAL CHRONOPLAN) AND SUPERVISORY

ITEM NO.	USE AND RATING	CONDUCTOR	INSULATION[b]	TAPE OVER INSULATION CONDUCTORS	INNER BELT	SHIELD OVER TAPE OR BELT	JACKET OR SHEATH	COVERING OVER SHEATH
27	[a] AERIAL 600V.	#6 OR #19 AWG, SOLID, UNCOATED COPPER (ASTM B3)-NUMBER OF PAIRS AS REQUIRED	.635mm(.025")[c] CLASS B POLYETHYLENE (ASTM D 1351)	12.5 PERCENT MINIMUM LAP, POLYETHYLENE TEREPHTHALATE		CORRUGATED, LONGITUDINAL, ANNEALED, .1mm (.004") [c] COPPER	BLACK POLYETHYLENE (ASTM D 2308). THICKNESSES OVER CORE AND MESSENGER AND WEB DIMENSIONS IN ACCORDANCE WITH REA SPECIFICATION PE-38.	
28	IN DUCT 600V.				BLACK POLY-ETHYLENE (ASTM D 2308) .254mm(.010") MIN. .76mm(.030") MAX. THICKNESS		BLACK POLYETHYLENE (ASTM D 2308). THICKNESS IN ACCORDANCE WITH PARAGRAPH 3.6.7.3.7 AND TABLE IV OF FED. SPEC. J.C.111.	
29	IN DUCT 600V.	#6 OR #19 AWG, SOLID, TINNED COPPER (ASTM B 33)-NUMBER OF PAIRS AS REQUIRED	.79mm(.031")[c] DIOCTYL PHTHALATE PLASTICIZED PVC (ASTM D 2219)				LEAD-ANTIMONY THICKNESS PER ITEM 26 EXCEPT 1.6mm (.063") MIN. THICKNESS[c]	
30	DIRECT BURIAL 600V.						COMMERCIALLY PURE LEAD, THICKNESS PER ITEMS 22 & 23.	ASPHALTUM-SATURATED JUTE STEEL ARMOR PER ITEMS 17 & 18.

TEST REPORTS

SHIPMENTS OF WIRE AND CABLE SHALL NOT BE CONSIDERED COMPLETE UNTIL CERTIFIED TEST REPORTS ARE RECEIVED AND APPROVED. TEST REPORTS FOR THE VARIOUS ITEMS ABOVE SHALL SHOW COMPLIANCE WITH CITED SPECIFICATIONS, LISTING TEST RESULTS, AS WELL AS THE FOLLOWING TESTS:

1. CONDUCTOR RESISTANCE OF EACH LENGTH OF EACH CONDUCTOR IN OHMS PER 304.80m (1000')
2. CERTIFICATION OF MUTUAL CAPACITANCE OF ALL CABLES AND OF NON-INJURIOUS EFFECT OF FLOODING COMPOUND ON ITEM 27.

(a) "FIGURE .203m (8") CONSTRUCTION. MESSENGER SHALL BE 7 STRAND EHS GALVANIZED, CLASS A, 6mm (.25") NORMAL DIAM. (ASTM A 475) AND SHALL BE FULL FLOODED.
(b) COLOR CODED PER FEDERAL SPECIFICATION J-C-111.
(C) NOMINAL THICKNESS, mm (INCHES).

PLD FILE
62-8

17 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:
FEDERAL PROJECT NO.
FEDERAL ITEM NO.

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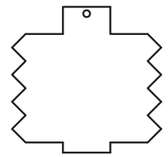
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

CABLE AND WIRE
SPECIFICATIONS AND DETAILS

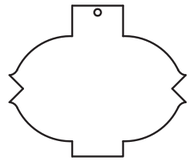
I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E17 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

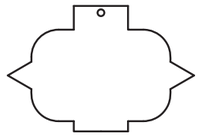
Aug 02, 2010 - 2:56pm
Z:\2009 I-96 Bridges - HNTB\Warren Work\09078TOPO\D0909E17.dwg



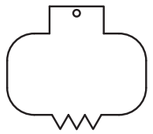
24,000 VOLT TRUNK LINE



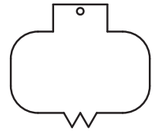
24,000 VOLT FEEDER



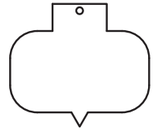
13200 VOLT FEEDER



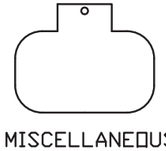
7200 VOLT FEEDER



4800 & 5500 VOLT FEEDER

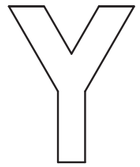


2400 VOLT FEEDER



MISCELLANEOUS

O.H. LINE PHASE TAG



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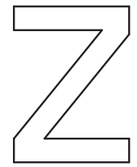

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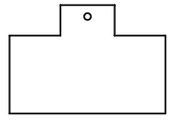
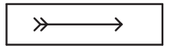
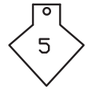


SUPERVISORY CONTROL



CIRCUIT DIRECTION



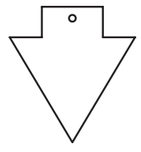
ST. LTG. COND. NO.(FROM 8/C CABLE)

ST. LTG. CIRC. NUMBER

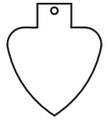
O.H. LINE OR POTHEAD PHASE TAG

O.H. LINE OR POTHEAD PHASE TAG

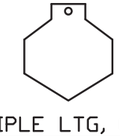
O.H. LINE OR POTHEAD PHASE TAG



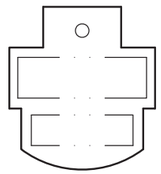
DEAD CABLE



8/C COND. CABLE



MULTIPLE LTG, CONTROL



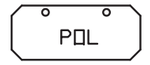
MULTIPLE STREET LIGHTING ALL VOLTAGES

MULTIPLE INC. LTG.

TRAFFIC SIGNALS

SECONDARY POWER TO SAFETY ISLANDS & TRAFFIC SIGNALS

TRAFFIC SIGNAL CHRONOLIZER



COMMUNICATION

SUBSTATION & CIRCUIT ABBREVIATIONS ON IDENTIFICATION TAGS SHALL BE SPELLED AS FOLLOWS

BEL.	KSG.
BUT.	LAB.
CAN.	LEE.
COB.	LOT.
CON.	LUD.
CUS.	MAP.
GRF.	MCC.
HUD.	MON.
JSC.	PAL.
JOY.	PHI.

NOTE:

LEAD CABLE IDENTIFICATION TAGS WILL BE FURNISHED TO CONTRACTOR BY P.L.D. CABLE TAG MARKINGS SUCH AS SUBSTATION OR CABLE MARKINGS WILL BE AS SHOWN ON PLANS OR WILL BE FURNISHED BY P.L.D.

IDENTIFICATION TAGS

MATERIAL : LEAD

PLD FILE
62-8

18 PLD

Aug 02, 2010 - 2:57pm
Z:\0809 I-96 Bridges - HNTB\Warren Work\080767DPO\D0809E18.dwg

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:
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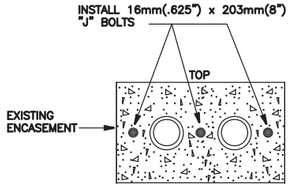
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

CABLE TAGS DETAILS

I-96 SERVICE ROADS OVER ROUGE RIVER

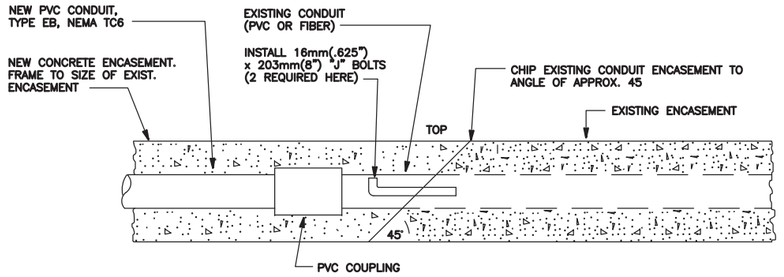
SHEET E18 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010



DETAIL " A "

N.T.S.

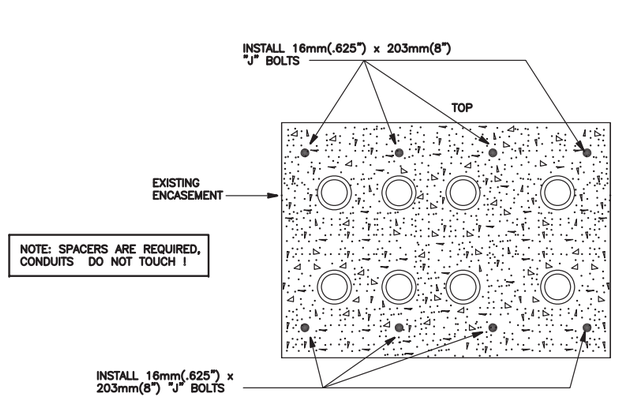
END VIEW OF CONDUIT ENCASEMENT SHOWING
APPROX. LOCATIONS OF "J" BOLTS (2 REQUIRED)



DETAIL " A "

N.T.S.

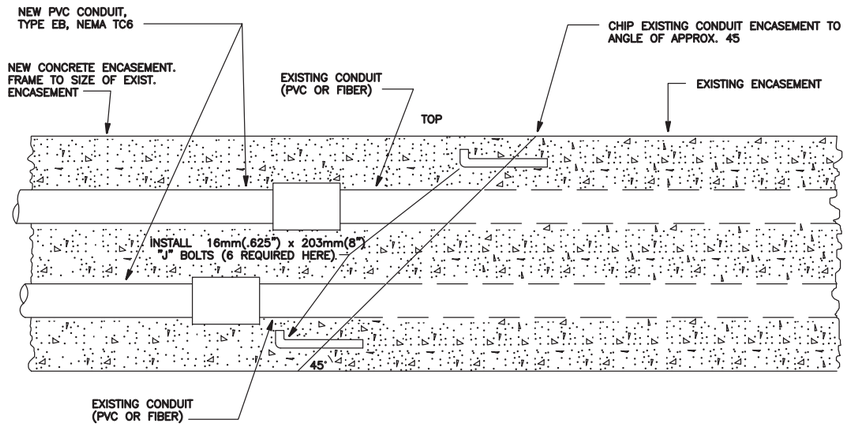
SIDE VIEW OF A SINGLE CONDUIT ENCASEMENT



DETAIL " B "

N.T.S.

END VIEW OF CONDUIT ENCASEMENT SHOWING
APPROX. LOCATIONS OF "J" BOLTS (6 REQUIRED)



DETAIL " B "

N.T.S.

SIDE VIEW OF A MULTIPLE CONDUIT ENCASEMENT

NOTE :
TO TERMINATE A NEW CONDUIT BANK FOR FUTURE EXTENSION, REFERENCE P.L.D. DRWG. NO. 44-0308

PLD FILE
62-8

19 PLD

Aug 02, 2010 - 2:59pm
Z:\0069 I-96 Bridges - HNTB\Warren Work\0907STOP\E0909E19.dwg

REVISIONS	DESCRIPTION	DR'N	CK'D	AP'VD	DATE

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:

FEDERAL
PROJECT NO.

FEDERAL
ITEM NO.

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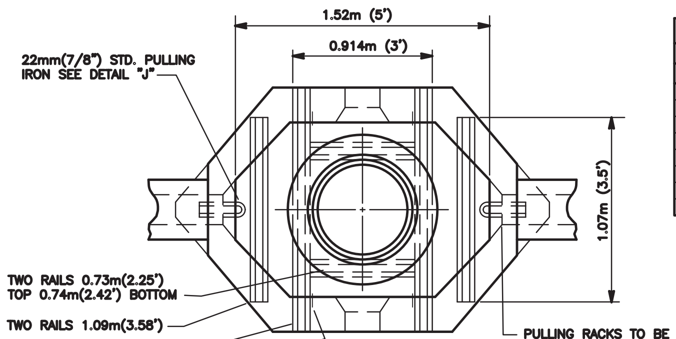
DETAIL FOR JOINING CONDUIT ENCASEMENTS

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E19 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010



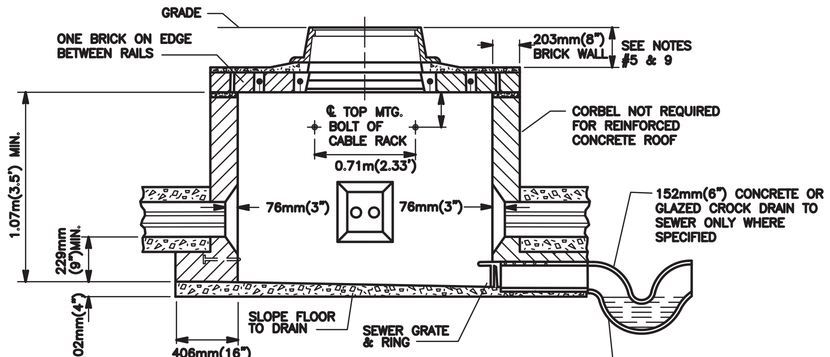
PLAN

TYPE "S" HANDHOLE

N.T.S.

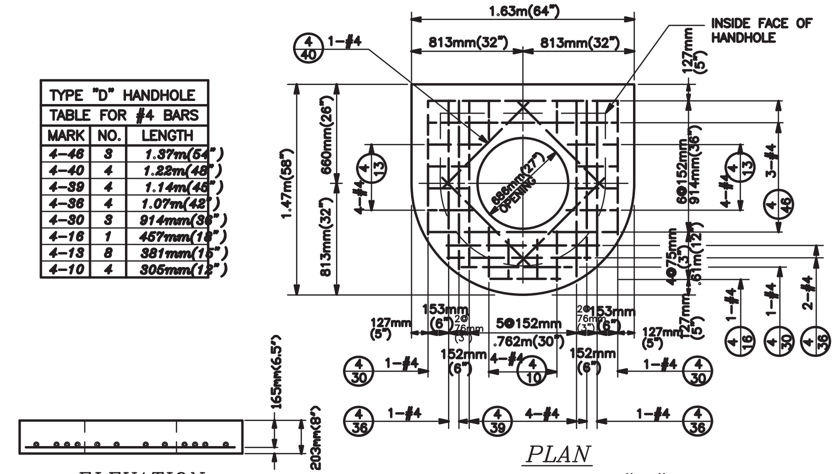
TYPE "S" HANDHOLE		
TABLE FOR #5 BARS		
MARK	NO.	LENGTH
5-50	2	1.524m(5')
5-46	8	11.37m(4.5')
5-36	4	1.07m(3.5')
5-30	6	.6096m(2')
5-19	10	533mm(21")
5-10	8	3048mm(12")

TYPE "D" HANDHOLE		
TABLE FOR #4 BARS		
MARK	NO.	LENGTH
4-46	3	1.37m(54")
4-40	4	1.22m(48")
4-39	4	1.14m(45")
4-36	4	1.07m(42")
4-30	3	914mm(36")
4-16	1	457mm(18")
4-13	8	381mm(15")
4-10	4	305mm(12")



SECTION TYPE "S" HANDHOLE

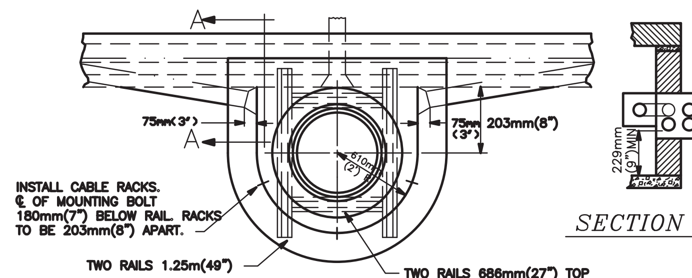
N.T.S.



PLAN

ALTERNATE ROOF-TYPE "D" HANDHOLE

N.T.S.



PLAN

SECTION "A-A"

NOTE:

CABLE RACKS SHALL BE GALV. AFTER FAB. IN ACCORDANCE WITH ASTM A-123.

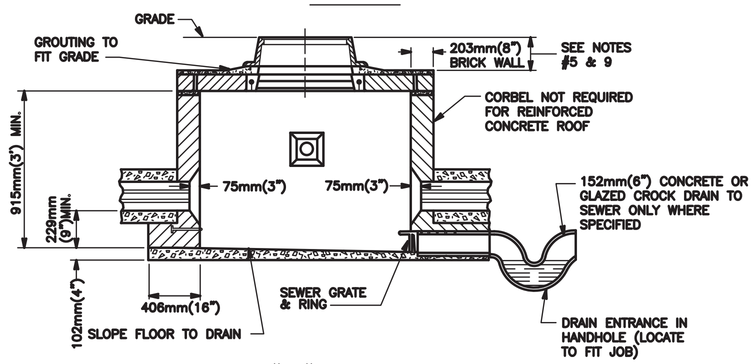
CABLE ARMS SHALL BE GALV. AFTER FAB. IN ACCORDANCE WITH ASTM A-153 53.

ARMS MUST FIT ON INSIDE & OUTSIDE OF RACKS & MUST ALLOW INSULATOR TO FIT LOOSELY.

USE 13mm (.5") GALV. SUPPORTING BOLTS AND EXPANSION ANCHORS.

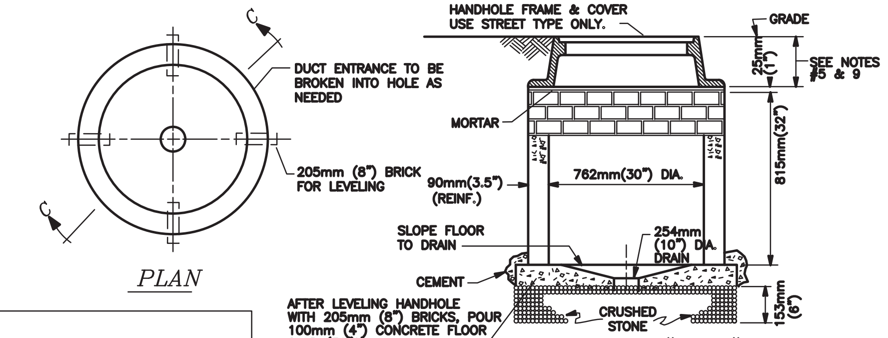
NOTE:

1. DUCT ENTRANCE TO BE BUILT AS REQUIRED.
2. ALL RAILS TO BE 60#/YD. OR HEAVIER.
3. CABLE PULLING IRONS TO BE GALVANIZED
4. CABLE RACKS AND ARMS TO BE GALVANIZED.
5. IN PAVEMENT PROVIDE AT LEAST 75mm(3") BETWEEN ROOF AND BASE OF PAVEMENT. WHERE EXISTING GRADE IS HIGHER THAN PROP. FUTURE GRADE INSTALL BRICK RING OR GROUT (AS REQ'D.) UNDER FRAME TO ALLOW FOR FUTURE FRAME ADJUSTMENT.
6. BAR NUMBERS DENOTE THE SIZE OF BAR REQUIRED IN ACCORDANCE WITH CURRENT USAGE SPECIFIED BY THE CONCRETE REINFORCING STEEL INSTITUTE.
7. EXCAVATION LIMITS FOR PUBLIC LIGHTING DEPARTMENT HANDHOLES SHALL BE ON VERTICAL PLANES OF THE FOOTING OUTLINE.
8. INSTALL ANCHORS & CABLE-RACKS AS SHOWN.
9. WHERE HANDHOLES ARE LOCATED BACK OF CURBS ROOF MUST BE BUILT 1205mm (8") BELOW CURB GRADE, TO PROVIDE FOR FUTURE WIDENING.



SECTION TYPE "D" HANDHOLE

N.T.S.



NOTE:

BELL ENDS ARE REQUIRED ON EACH CONDUIT BROKEN OUT IN HANDHOLE. TYPE AND SIZE SHALL BE IDENTICAL TO CONDUIT TYPE AND SIZE.

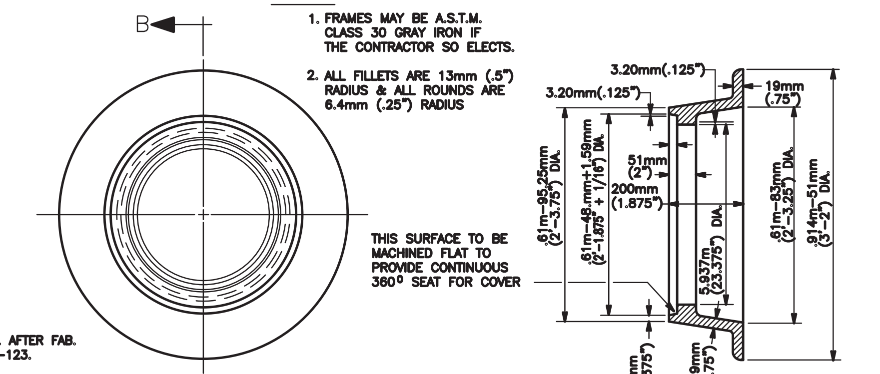
SECTION "C-C"

REINFORCED CONCRETE PIPE (CLASS III)

ROUND HANDHOLE

NOTE:

1. FRAMES MAY BE A.S.T.M. CLASS 30 GRAY IRON IF THE CONTRACTOR SO ELECTS.
2. ALL FILLETS ARE 13mm (.5") RADIUS & ALL ROUNDS ARE 6.4mm (.25") RADIUS



P.L.C. PATTERN NO. 1A

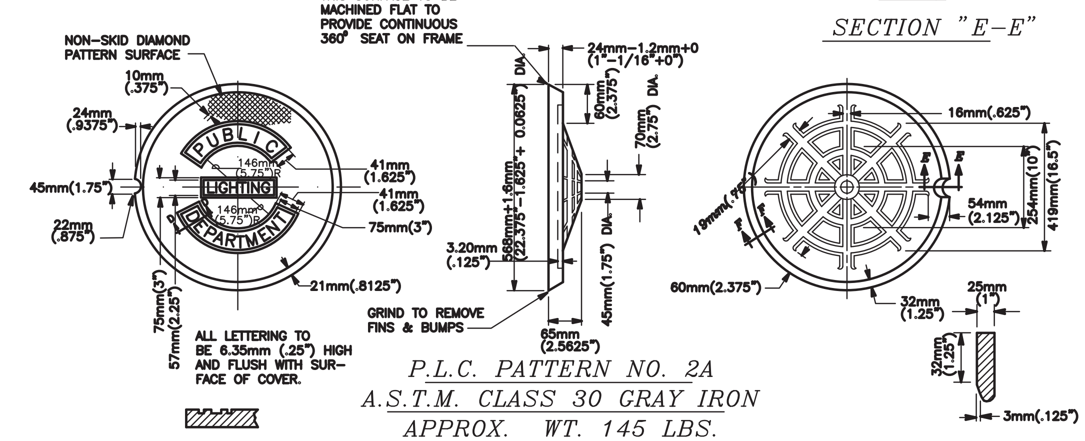
A.S.T.M. CLASS 20 OR 30 GRAY IRON

APPROX. 251 LBS.

HANDHOLE FRAME

SECTION "B-B"

SECTION "E-E"



SECTION "D-D"

P.L.C. PATTERN NO. 2A

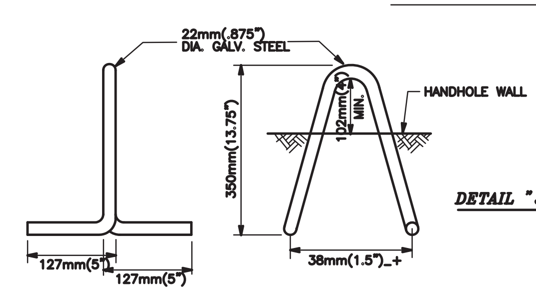
A.S.T.M. CLASS 30 GRAY IRON

APPROX. WT. 145 LBS.

STREET TYPE COVER

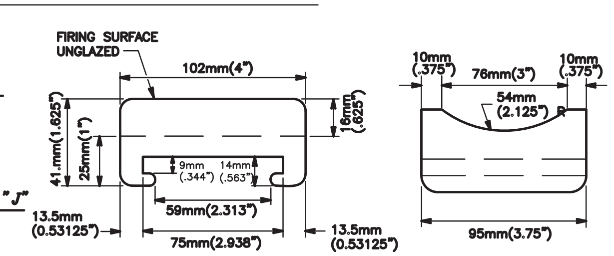
TO BE USED IN STREETS & DRIVES

SECTION "F-F"



PULLING IRON

N.T.S.



CABLE ARM INSULATORS

WHITE GLAZED PORCELAIN DRY PROCESS

N.T.S.

PLD FILE 62-8

20 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

APPROVED:

FEDERAL PROJECT NO.

FEDERAL ITEM NO.

METCO SERVICES, INC.
1274 LIBRARY, DETROIT, MI. 48226
TEL - (313) 961-4560 * FAX (313) 961-1698
12504 STEPHENS, WARREN, MI. 48089
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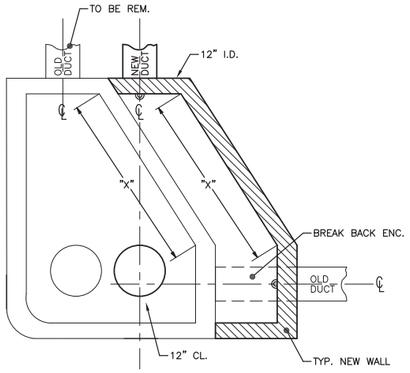
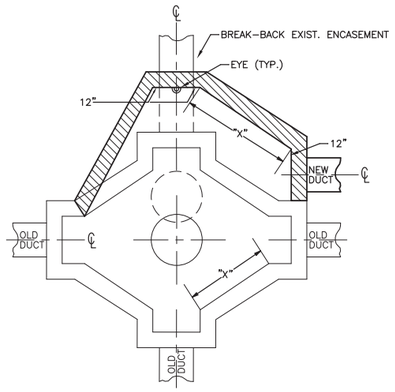
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

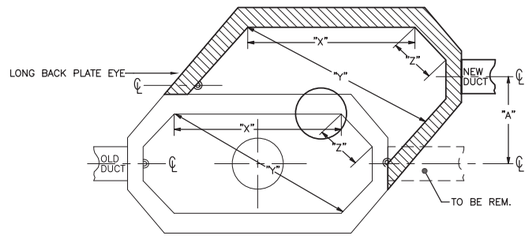
HANDHOLES

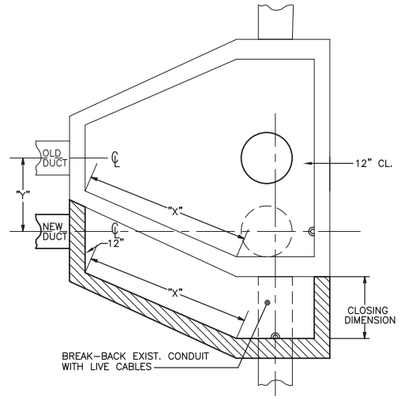
I-96 SERVICE ROADS OVER ROUGE RIVER

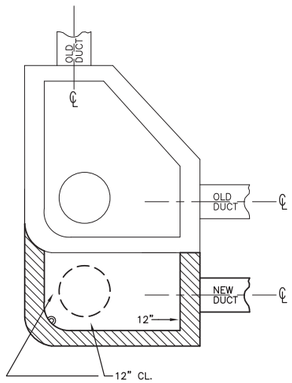
SHEET E20 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010





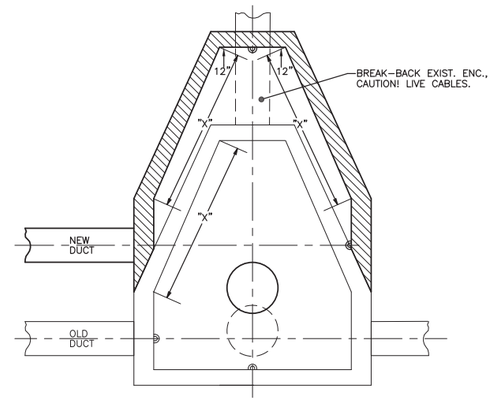


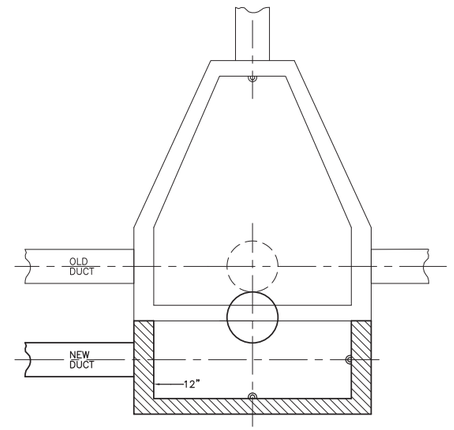




NOTES:

1. OLD DUCT POCKET NEATLY PATCHED WITH "EXTENDERS" AND MORTAR.
2. DOUBLE BRICK WALLS AT 10FT. OR DEEPER.
3. KEY-IN WALLS
4. 34" DIA. OPENING.
5. FOOTING REQUIRED UNDER DUCT POCKETS.
6. LENTIL REQUIRED OVER DUCT WINDOW.
7. GENERAL MH DESIGNS STILL APPLY.
8. PLD ENG. TO DETERMINE ACCEPTABLE REBUILDS AND FIELD CONFLICT RESOLUTIONS.
9. THIS DESIGN IS FOR "ADJACENT BAY" ADJUSTMENTS TO MH.
10. NEW ROOF TO BE "ONE SECTION".
11. NEW MH FLOORS ARE NOT TO EXCEED 6" PAST NEW MH WALLS. HOOK BOLT OLD AND NEW FLOOR SLABS TOGETHER.





PLD FILE
62-8

21 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
REVISIONS				

	BY	CHECKED BY
PLAN	---	---
GRADE		
ESTIMATE		
FINAL	CHECK ---	REVIEW ---

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CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS/PLD
CITY ENGINEERING DIVISION

MANHOLE MODIFICATION DETAIL

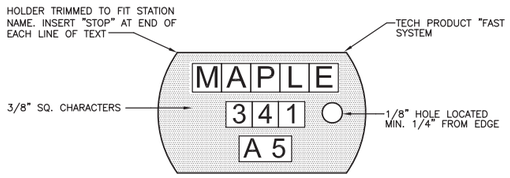
I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E21 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

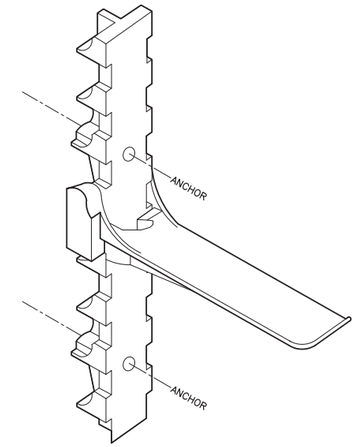
Aug 02, 2010 - 3:03pm
Z:\2009 I-96 Bridges - HNTB\Warren Work\09076TOPO\D0909E21.dwg

SERIES STREET LIGHT TAG
N.T.S.

PRIMARY FEEDER TAG
N.T.S.



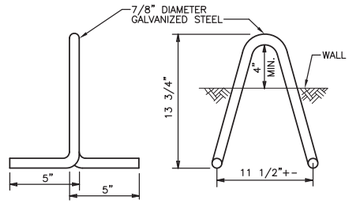
MULTI STREET LIGHTING TAG
N.T.S.



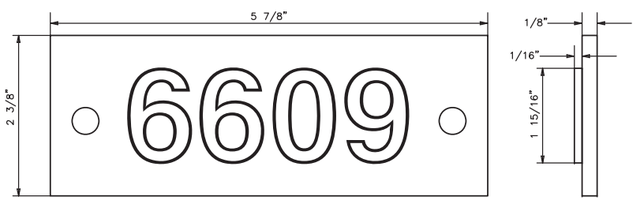
CABLE RACKS
N.T.S.

SUR-FLO PLASTICS & ENGINEERING, CO.

14 1/2" ARM = #07340371
8" ARM = #07340433
STANCHION = #07340374 (22")
STANCHION = #07340375 (33")
(INSTALL FROM FLOOR TO CEILING)
USE STAINLESS STEEL HARDWARE
CAW-010 1/2"X4 1/4" TYPE STAINLESS ANCHOR

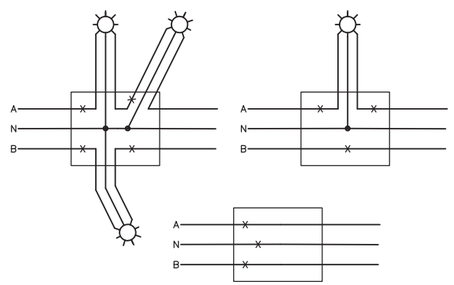


PULLING IRON
N.T.S.



MANHOLE NUMBER (LEAD)
N.T.S.

MOUNT WITH 1/4-20 CAULK-IN
ANCHORS AND ROUND-HEAD BRASS
MACHINE SCREWS AND FLAT BRASS WASHERS



X = CABLE TAG

CABLE TAG APPLICATION DETAIL
N.T.S.

NOTE: TAG ALL PHASES OF CABINET FEED, OTHER TAG ARRANGEMENTS ARE POSSIBLE.

NOTES:

1. WHERE MANHOLES ARE LOCATED BACK OF CURBS, TOP OF MANHOLE ROOF MUST BE BUILT 26" BELOW CURB GRADE TO PROVIDE FOR FUTURE PAVEMENT.
2. IN EXISTING PAVEMENT, PROVIDE AT LEAST 8" BETWEEN TOP OF ROOF AND BASE PAVEMENT.
3. BOLTS, RACKS AND PULLING IRONS TO BE HOT-DIP GALVANIZED.
4. NOT USED
5. MANHOLE NUMBER TO BE INSTALLED ON MANHOLE WALL IN CONSPICUOUS PLACE.
6. MOUNTING HEIGHT FOR LOWER BOLTS OF CABLE RACK SHALL BE THE AVERAGE HEIGHT OF THE BOTTOM OF THE LOWEST DUCTS IN MAIN CONDUITS INSTALL MIN. (2) 48" (2) LONG RACKS ON WALLS.
7. 8" THICK BRICK CHIMNEYS WHERE SPECIFIED SHALL BE INCIDENTAL TO APPLICABLE MANHOLE ITEM.
8. EXCAVATION LIMITS FOR PUBLIC LIGHTING DEPARTMENT MANHOLES SHALL BE ON VERTICAL PLANES ON THE FOOTING OUTLINE.
9. 1/2" PLASTER OUTSIDE WALLS OF BRICK MANHOLES.
10. SPACING OF INSERTS AS REQUIRED TO ACCOMODATE CABLE RACK.
11. BELL ENDS ARE REQUIRED ON EACH CONDUIT ENTERING MANHOLE (TYPE AND SIZE SHALL BE IDENTICAL TO CONDUIT TYPE AND SIZE). INSTALL BELL FLUSH WITH MH WALL.
12. INSTALL STANCHIONS ON WALLS, FLOOR TO CEILING. 4 IN 2-WAY MANHOLE, 6 IN 3-WAY MANHOLE AND 8 IN 4-WAY MANHOLE.
13. CONTRACTOR IS TO INSTALL MANHOLE NO. TAG FURNISHED BY P.L.D. MANHOLE SHALL NOT BE CONSIDERED COMPLETE WITHOUT MANHOLE TAG INSTALLED.

PLD FILE
62-8

22 PLD

DESCRIPTION	DR'N	CK'D	AP'VD	DATE
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REVISED CABLE TAGS DETAIL

I-96 SERVICE ROADS OVER ROUGE RIVER

SHEET E22 OF E22 SHEETS
STRUCTURE NUMBER: 11479/11481
JOB NUMBER: 104599A/104601A
CONTROL SECTION NUMBER: STU 82400
DATE: JUNE 16, 2010

Aug 02, 2010 - 3:04pm
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