



CITY OF ANN ARBOR PROJECT MANAGEMENT

2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS BROADWAY OVER DEPOT STREET & MDOT RAILROAD BROADWAY OVER HURON RIVER EB & WB FULLER ROAD OVER HURON RIVER

CITY OF ANN ARBOR FILE NO. 2019-030

STR 11075
BROADWAY OVER
HURON RIVER

STR 11070 & 11071
WB & EB FULLER ROAD
OVER HURON RIVER


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VICINITY MAP



ENGINEERING



MICHAEL G. NEARING, P.E. - MI LICENSE No. 38748
SENIOR PROJECT MANAGER

_____, xx/xx/xxxx
DATE

PREPARED UNDER THE SUPERVISION OF

VINCENT GUADAGNI, P.E. - MI LICENSE No. 40036
FTCH PROJECT MANAGER

_____, xx/xx/xxxx
DATE

ENGINEER'S SEAL

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS

TITLE SHEET

SCALE:

DRAWING No.
2019-030

SHEET No.
1

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1647
734-794-4810
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811
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NOTES:

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE CONTRACT DOCUMENTS AND DETAILED SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE LATEST REVISIONS OF THE CITY OF ANN ARBOR PUBLIC SERVICE DEPARTMENT STANDARD SPECIFICATIONS AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION 2012 EDITION AS APPLICABLE.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL CALL 811 OR 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 UNDERGROUND LOCATIONS AND DEPTH SHOWN FOR ALL PUBLIC AND PRIVATE UTILITIES ARE APPROXIMATE. THE CITY OF ANN ARBOR, THE UNIVERSITY OF MICHIGAN, AND FTCH ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. THE CONTRACTOR SHALL CONTACT MISS DIG TO LOCATE ALL MARKED AND UNMARKED 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.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DELAYS, DAMAGES, COSTS AND/OR CHARGES INCURRED DUE TO AND/OR BY REASON OF ANY UTILITY, STRUCTURE, FEATURES AND/OR SITE CONDITION, WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE, AT ITS SOLE EXPENSE, TO AS GOOD OR BETTER CONDITION, ANY AND ALL UTILITIES, STRUCTURES, FEATURES AND/OR SITE CONDITIONS WHICH ARE IMPACTED BY REASON OF THE WORK, OR INJURED BY ITS OPERATIONS, OR DURING THE OPERATIONS OF ITS SUBCONTRACTORS OR SUPPLIERS.

DRIVEWAYS AND ENTRANCES TO BUILDINGS, REAL PROPERTY, AND THE LIKE SHALL NOT BE BLOCKED EXCEPT FOR SHORT DURATIONS AND ONLY WHEN APPROVED BY THE ENGINEER. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES AS SPECIFIED IN MAINTAINING TRAFFIC PLANS AND SPECIFICATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY TRAFFIC CONTROL DEVICES AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA AND APPROACHES TO PROJECT SITE, UNTIL THE FINAL COMPLETION OF THE PROJECT. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS TO BE APPROVED BY THE ENGINEER. ANY MATERIALS STOCKPILED OR STORED SHALL NOT CREATE AN EROSION PROBLEM, INTERFERE WITH DRAINAGE, OR CREATE INSUFFICIENT SIGHT DISTANCE.

EXISTING STREET NAME, GUIDE, REGULATORY SIGNS, MAILBOXES, ETC., WHICH CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED PRIOR TO CONSTRUCTION, STORED IN A MANNER WHICH WILL PREVENT DAMAGE, AND RE-SET IN LOCATIONS AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE OTHER BID ITEMS OF WORK.

A RAILROAD PERMIT IS NOT REQUIRED UNDER THE CONDITION THAT THE CONTRACTOR KEEPS ALL WORKERS, MATERIALS, VEHICLES AND EQUIPMENT ON THE PARKING LOTS SIDE OF THE PIER BETWEEN THE AREA TO BE PATCHED AND THE RAILROAD TRACKS, AND IN NO CIRCUMSTANCE SHALL THE CONTRACTOR ACCESS THE TRACK SIDE OF THE PIER.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

UNLESS OTHERWISE SHOWN ON THE PLANS PROVIDE MINIMUM CONCRETE CLEAR COVER FOR REINFORCEMENT ACCORDING TO THE FOLLOWING:
 CONCRETE CAST AGAINST EARTH: 3 IN.
 PRESTRESSED BEAMS: 1 IN.
 ALL OTHER UNLESS SHOWN ON PLANS: 2 IN.

REMOVAL OF EXISTING HMA OVERLAY, HMA CAP OR HMA PATCHES AS A RESULT OF REMOVAL OF OTHER SUPERSTRUCTURE ITEMS SHALL BE INCLUDED IN THE REMOVAL OF THOSE ITEMS AND SHALL NOT BE PAID FOR SEPARATELY

HURON RIVER 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. THE PREVENTIVE MEASURES SHALL BE EFFECTIVE. IF DEBRIS FALL OFF THE STRUCTURE, IT SHALL BE REMOVED IMMEDIATELY.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.

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

LOW TEMPERATURE PROTECTION OF CONCRETE PATCHING MATERIALS SHALL BE APPLIED ACCORDING TO SECTION 706.03 J. OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE OTHER BID ITEMS OF WORK.

ADHESIVE ANCHOR SYSTEMS SHALL BE CHOSEN FROM HILITI HIT-RE-500V3 CERAMIC 6, EPCON ACRYLIC 7, DEWALT PURE 110+EPOXY, SIKA ANCHORFIX 500 EPOXY, OR AS ENGINEER APPROVES EQUAL.

SYSTEMS FOR ANCHORING HORIZONTAL OR VERTICAL REINFORCEMENT AND BOLTS IN EXISTING CONCRETE SHALL BE CHOSEN FROM THE QUALIFIED PRODUCTS LIST IN THE CURRENT MDOT MATERIALS SOURCE GUIDE.

NO PORTION OF THE FORMWORK OR FALSEWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

ALL CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, EXCEPT AS MODIFIED IN THESE PLANS.

ALL REINFORCEMENT BARS SHALL BE NEW AND EPOXY COATED.

PUBLIC UTILITY CONTACT INFORMATION		
WATER	CITY OF ANN ARBOR FIELD OPERATIONS SERVICE UNIT W.R. WHEELER SERVICE CENTER	DAN WOODEN (734) 794-6350
SANITARY	4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	TRAVIS CONLEY (734) 794-3325
STORM		PAT MAINO (734) 794-3304
FORESTRY		MATT WALDSMITH (734) 794-3321
SIGNS SIGNALS STREET LIGHTS		CHUCK FOJTIK (734) 794-6361

PRIVATE UTILITY CONTACT INFORMATION		
GAS	DTE ENERGY 3150 E. MICHIGAN AVE YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	CLAY COMBEE (734) 397-4112
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	(734) 996-2135
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.	
PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR PROJECT MANAGEMENT UNIT
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE

* NO COST TO CONTRACTOR

MISCELLANEOUS QUANTITIES				
Item Description	Unit	Broadway over MDOT RR	Broadway over Huron River	EB & WB Fuller over Huron River
_ Exploratory Investigation, Approach Sidewalk	Ea			2
_ Overband Crack Fill	Ft	114	114	200
_ E3 Joint Sealant	Ft	168	160	104
Cofferdams	LSUM			1
Reinforcement, Steel, Epoxy Coated	Lb	500	200	500
Conc Surface Coating	Syd	800	385	840
Penetrating Healer/Sealer, Bridge Deck	Syd	1,950	1,131	
Hand Chipping, Shallow	Syd	40	20	46
Hand Chipping, Deep	Syd	75	20	106
Hand Chipping, Other Than Deck	Cft	100	100	50
Patch, Forming	Sft	200	150	200
Epoxy Ovly	Syd			1144
Patching Conc, C-L	Cyd	40	30	30
Embedded Galvanic Anode	Ea	230	60	480
_ Hand Chipping, Special	Sft			100
_ Beam End Repair, Latex Modified Conc	Cft			10
_ Mechanical Anchor, Adjust, Complete	Ea	1,280	392	
_ Timber Rub Rail, Replace	Ft			243
_ Conc Column Cap, Remove and Reset	Ea	2		
Riprap, Heavy	Syd			130

MAINTAINING TRAFFIC QUANTITIES			
Item Description	Unit	Broadway Bridges	Fuller Road Bridges
Barricades, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	18	17
Barricades, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	18	17
Pedestrian Type II Barricade, Temp	Ea	8	12
Pedestrian Type II Channelizer, Temp	Ft	1205	632
Channelizing Device, 42 inch, Furn	Ea	60	106
Channelizing Device, 42 inch, Oper	Ea	60	106
Lighted Arrow, Type C, Furn	Ea	1	2
Lighted Arrow, Type C, Oper	Ea	1	2
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp	Ft	450	490
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp	Ft	125	825
Sign Cover	Ea	10	10
Sign Cover, Type 1	Ea	2	2
Sign, Type B, Temp, Prismatic, Furn	Sft	360	569
Sign, Type B, Temp, Prismatic, Oper	Sft	360	569
Sign, Type B, Temp, Prismatic, Special, Furn	Sft	30	29
Sign, Type B, Temp, Prismatic, Special, Oper	Sft	30	29

PAVEMENT MARKING QUANTITIES		
Item Description	Unit	Project Total
Witness, Log, Layout, \$1000.00	Dlr	1000

FILE NAME: Z:\2019\190381\CAD\CD\190381_NOTE_001.DGN



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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
PROJECT INFORMATION AND NOTE SHEET

SCALE: NO SCALE
DRAWING No. 2019-030

SHEET No. 2

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DATE

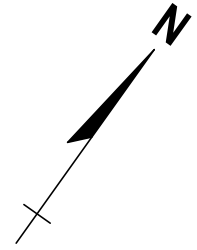
REV.

DESCRIPTION

E SUMMIT ST

DEPOT ST

NORFOLK SOUTHERN RAILWAY



REV.	DATE	DRAWN	CHECKED

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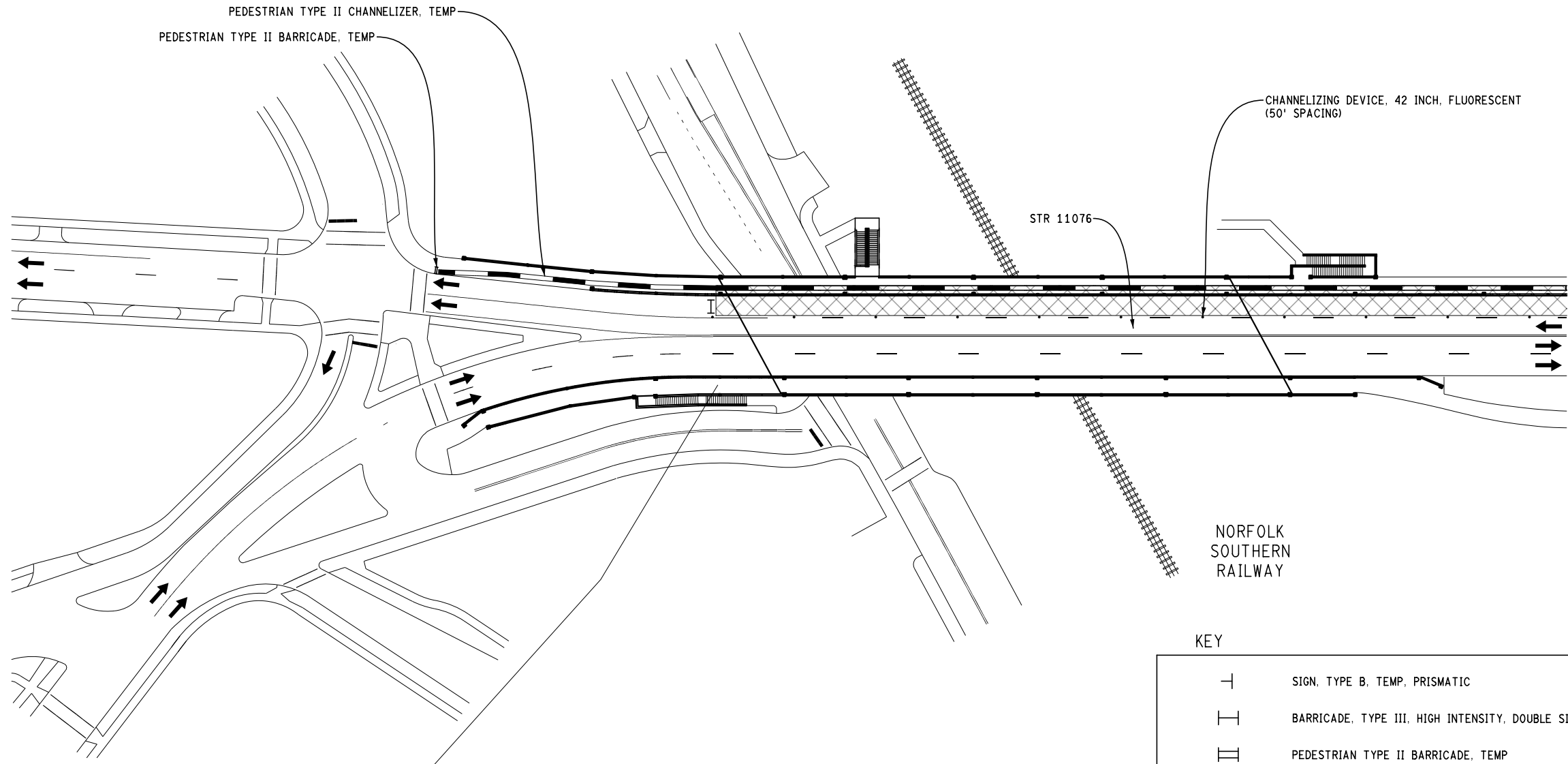
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80 PLAN (FT)
DRAWING No. 2019-030
SHEET No. 3

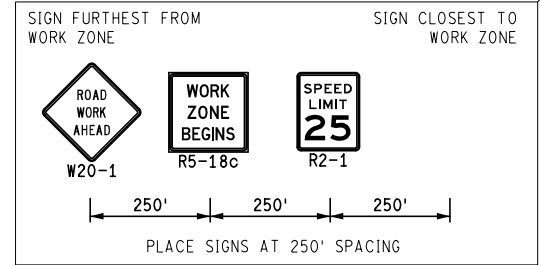
BEAKES ST

DETROIT ST

BROADWAY



STAGE 1
APPLIES: CLOSE WB OUTSIDE LANE



KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

N DIVISION ST

HIGH ST

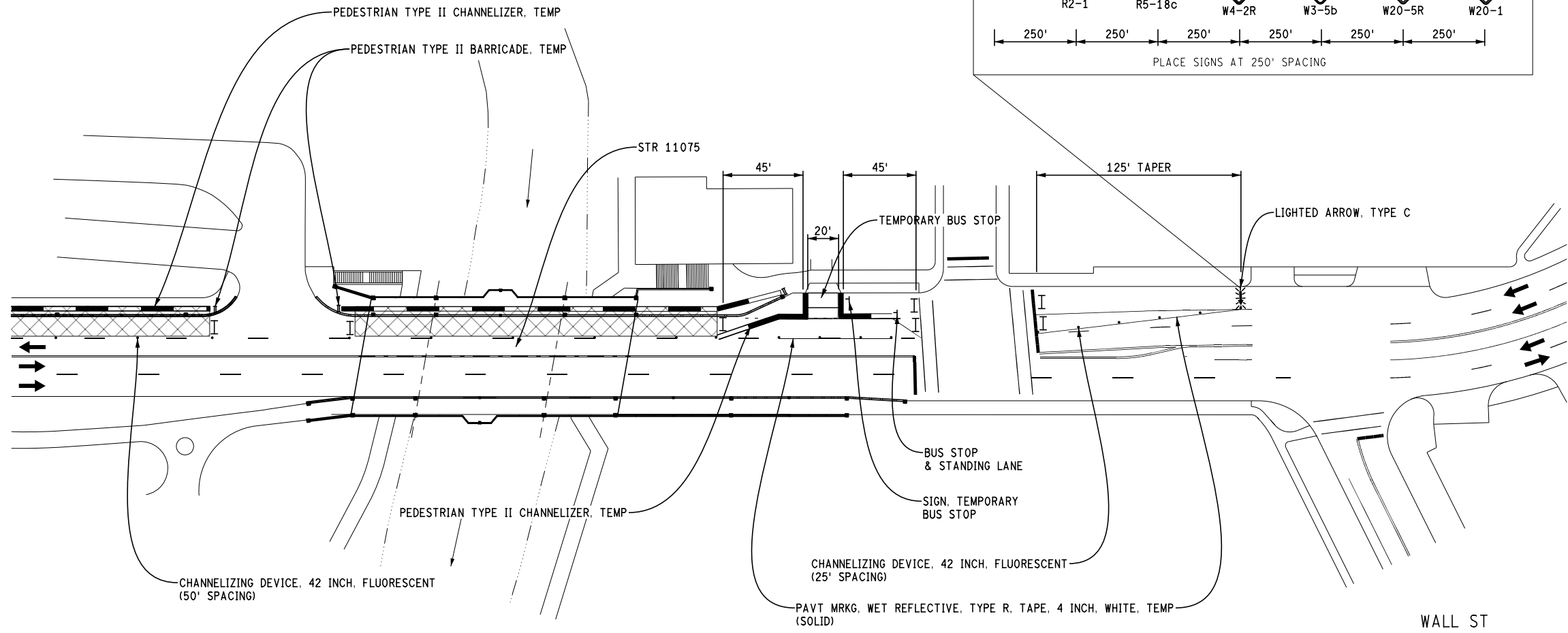
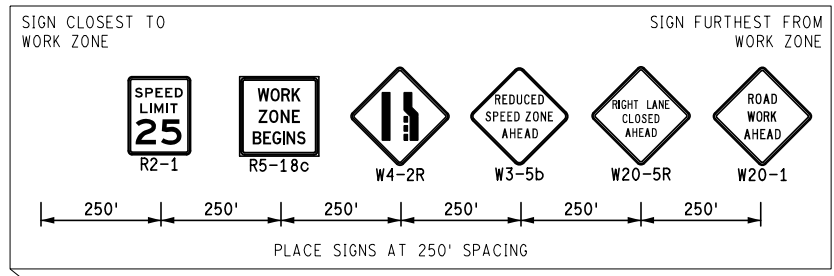
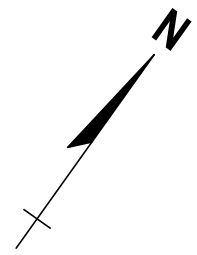
DEPOT ST

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

FILE NAME: Z:\2019\80081\CAD\CAD\MOT\BROADWAY1001_MOT_STAGE1.DGN

HURON RIVER

SWIFT ST



BROADWAY

BROADWAY

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (50' SPACING)

PEDESTRIAN TYPE II CHANNELIZER, TEMP

PEDESTRIAN TYPE II CHANNELIZER, TEMP

PEDESTRIAN TYPE II BARRICADE, TEMP

STR 11075

45'

45'

20'

TEMPORARY BUS STOP

125' TAPER

LIGHTED ARROW, TYPE C

BUS STOP & STANDING LANE

SIGN, TEMPORARY BUS STOP

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (25' SPACING)

PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, WHITE, TEMP (SOLID)

WALL ST

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

STAGE 1
APPLIES: CLOSE WB OUTSIDE LANE

HURON RIVER

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

FILE NAME: Z:\2019\80381\CAD\DMOT\BROADWAY\1002_MOT_STAGE1.DGN



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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80
PLAN (FT)

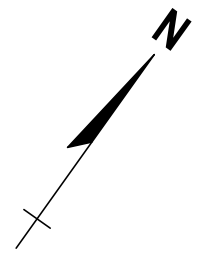
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2019-030

SHEET No.
4

E SUMMIT ST

DEPOT ST

NORFOLK SOUTHERN RAILWAY



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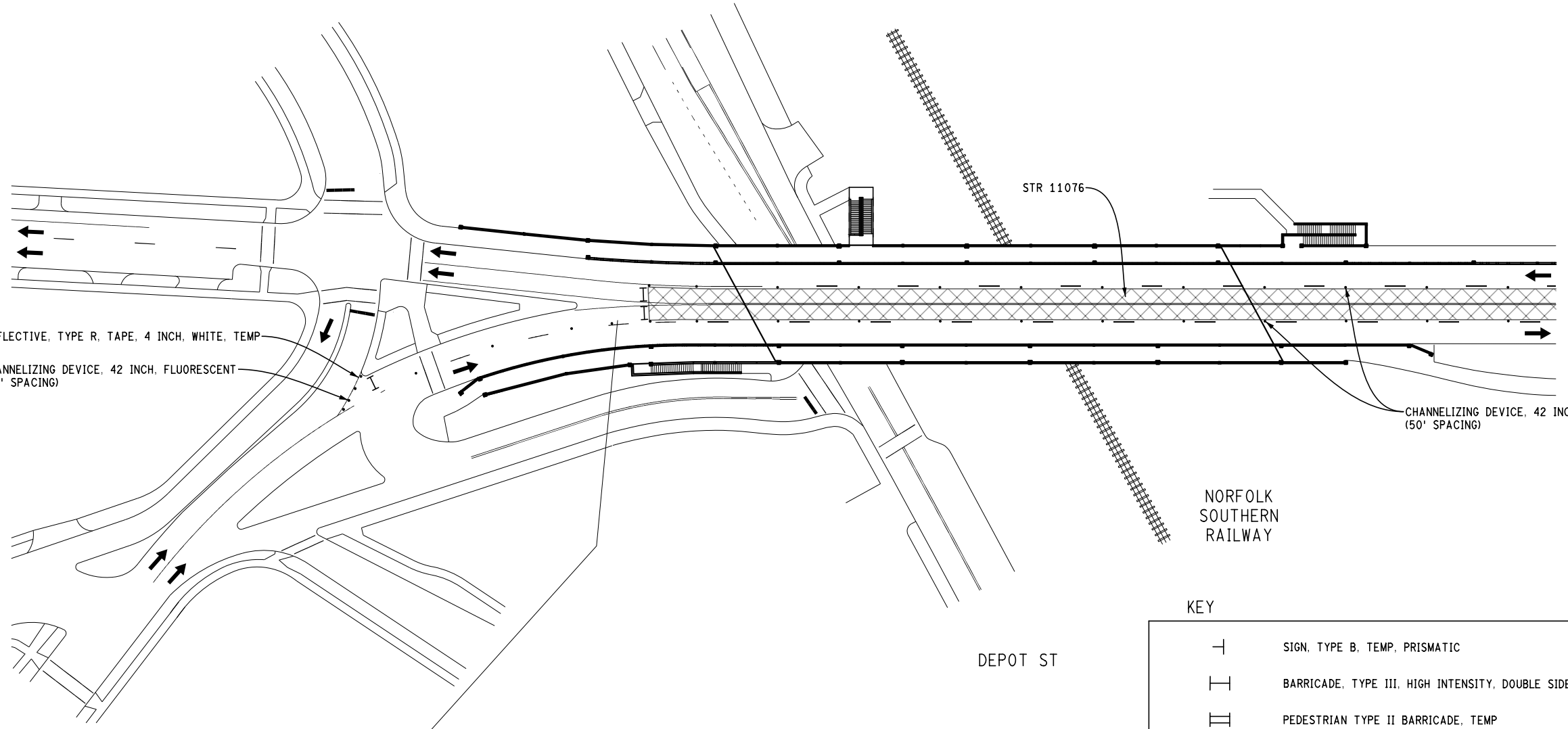
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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80 PLAN (FT)
DRAWING No. 2019-030
SHEET No. 5

BEAKES ST

DETROIT ST

BROADWAY



STR 11076

PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, WHITE, TEMP (SOLID)
CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (10' SPACING)

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (50' SPACING)

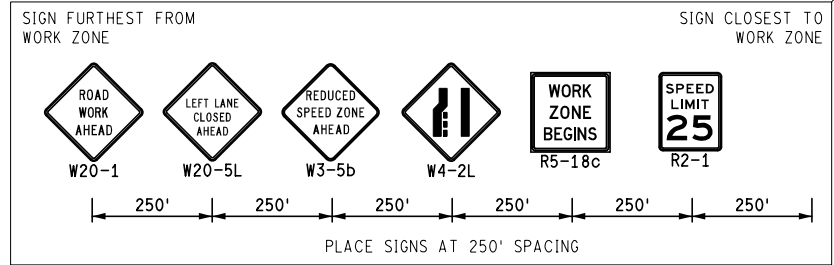
NORFOLK SOUTHERN RAILWAY

DEPOT ST

STAGE 2
APPLIES: CLOSE WB AND EB INSIDE LANES

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH



N DIVISION ST

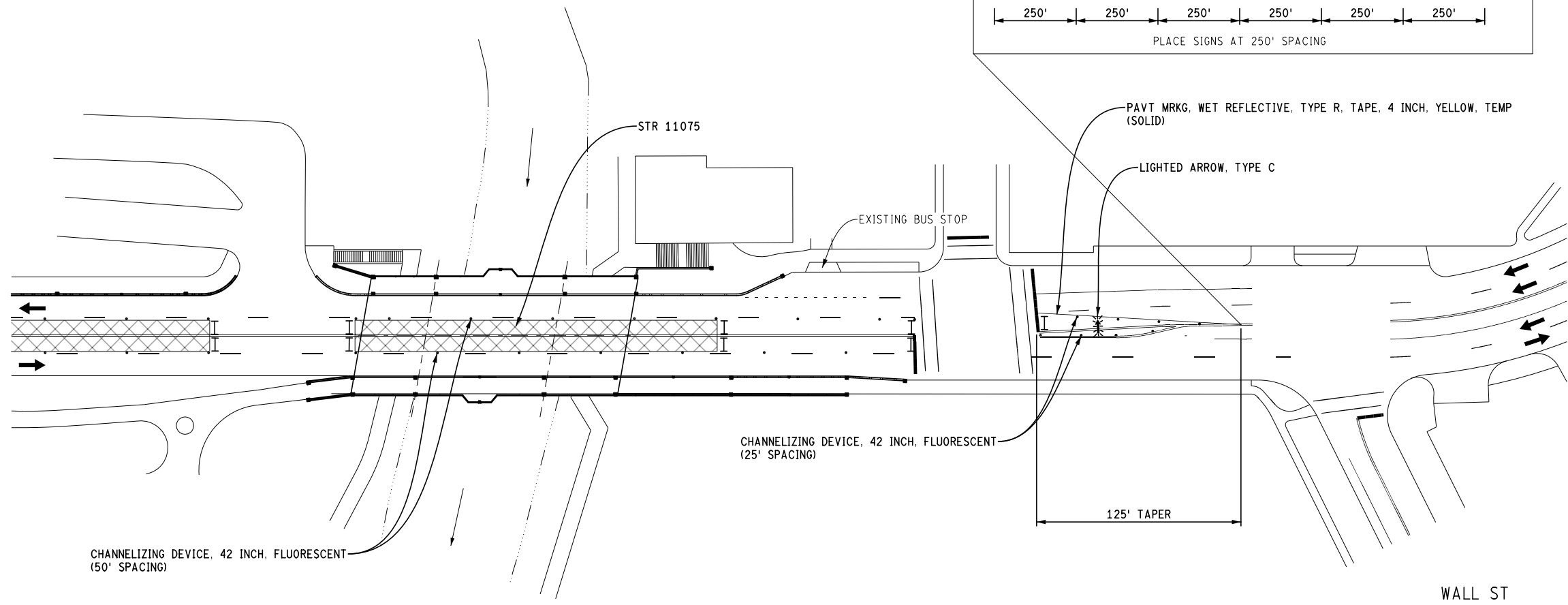
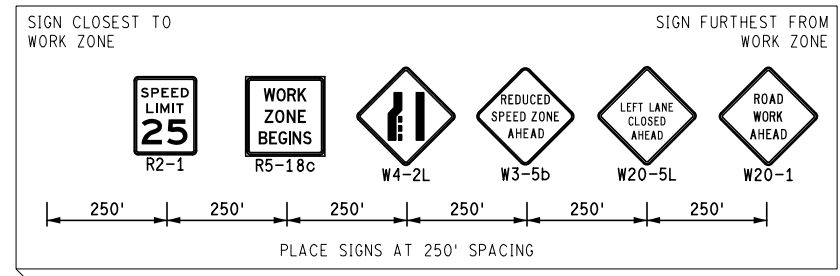
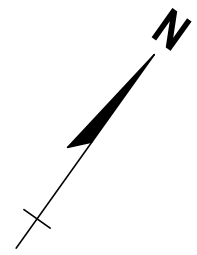
HIGH ST

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

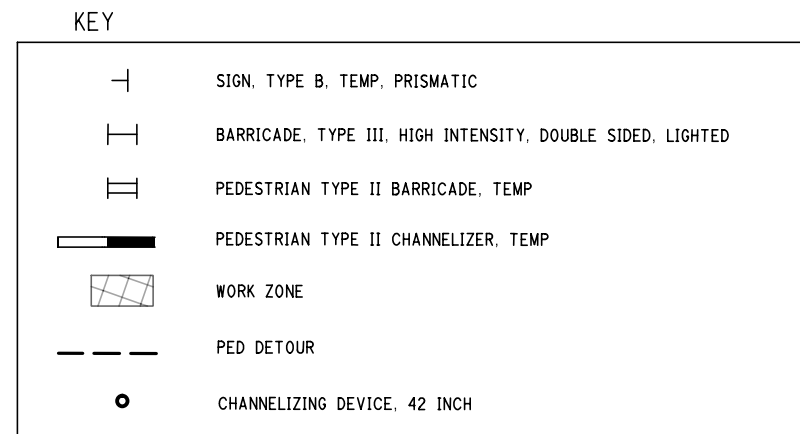
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HURON RIVER

SWIFT ST



STAGE 2
 APPLIES: CLOSE WB AND EB INSIDE LANES



MAINTAINING TRAFFIC
 (BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

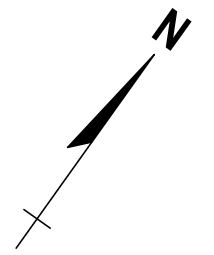
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SHEET No. 6	DRAWING No. 2019-030
REV.	DATE
DESCRIPTION	DRAWN
CHECKED	DATE

E SUMMIT ST

DEPOT ST

NORFOLK SOUTHERN RAILWAY



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

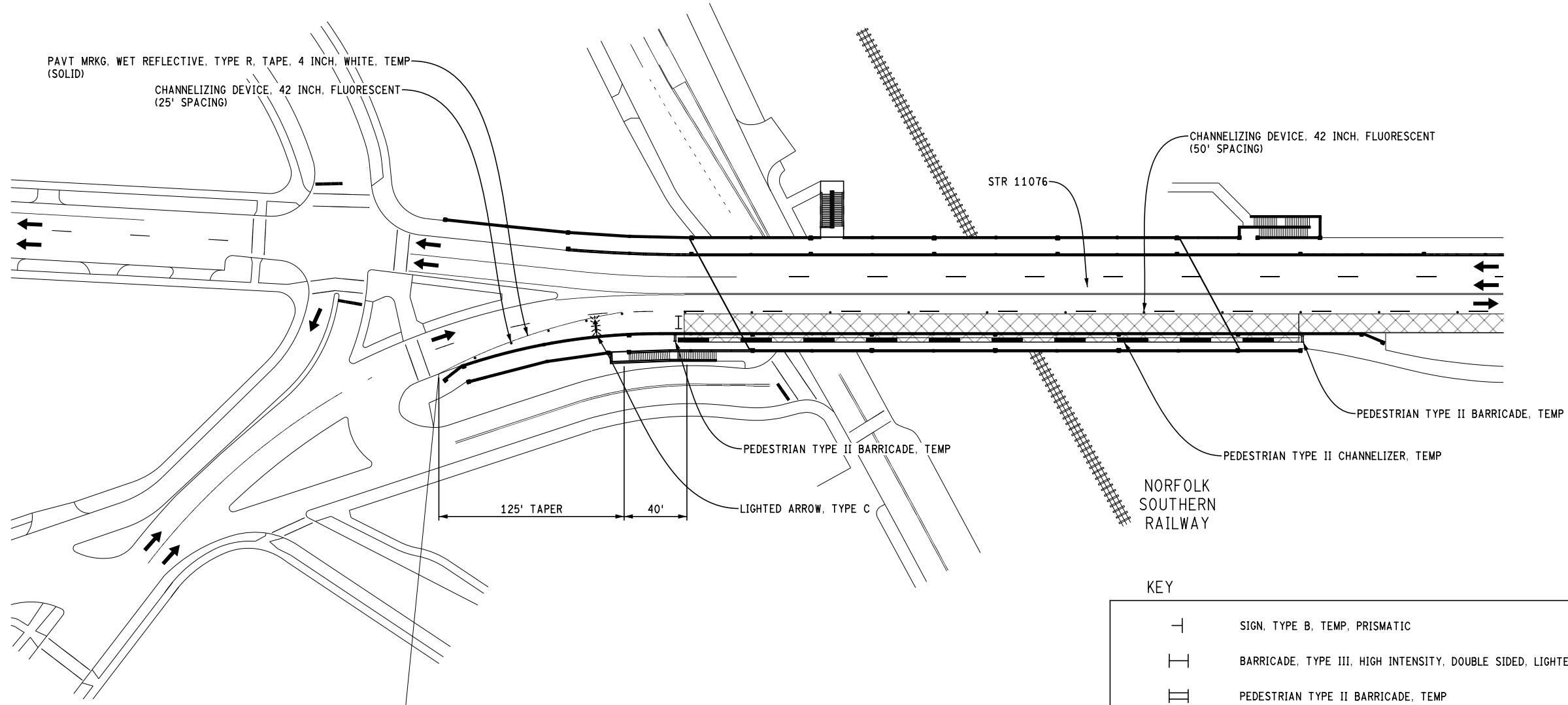
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SHEET No. 7

BEAKES ST

DETROIT ST

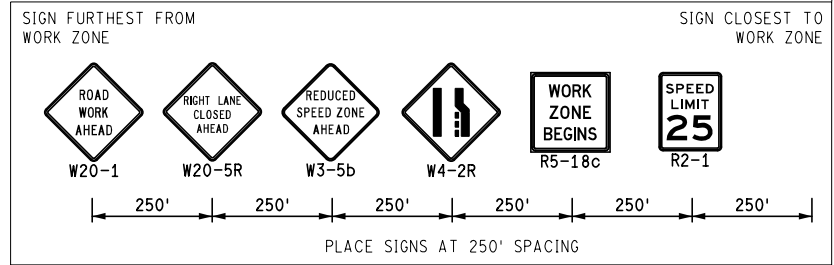
BROADWAY



STAGE 3
APPLIES: CLOSE EB OUTSIDE LANE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH



N DIVISION ST

HIGH ST

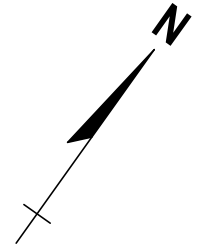
DEPOT ST

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

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HURON RIVER

SWIFT ST



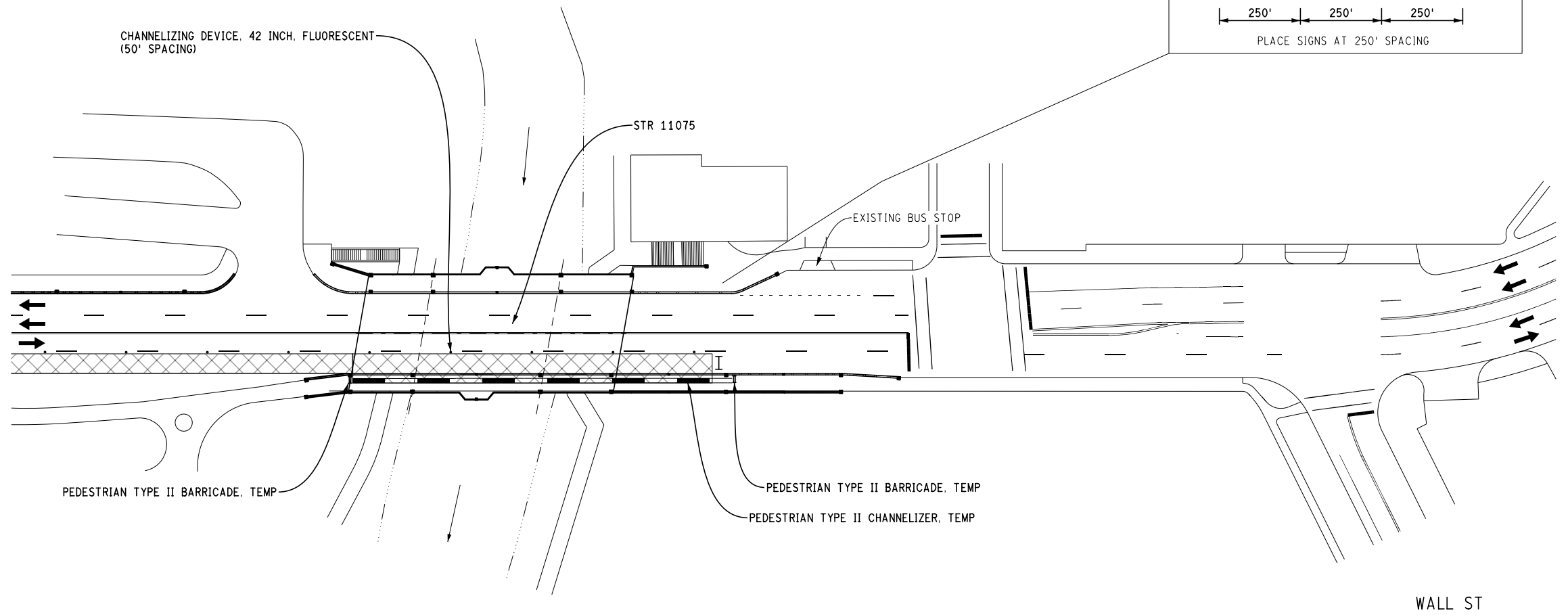
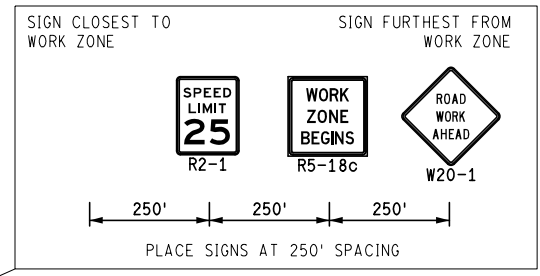
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 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80 PLAN (FT)
 DRAWING No. 2019-030
 SHEET No. 08



STAGE 3
 APPLIES: CLOSE EB OUTSIDE LANE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

MAINTAINING TRAFFIC
 (BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

HURON RIVER

FILE NAME: Z:\2019\80381\CAD\CAD\MOT\BROADWAY\2002_MOT_STAGE3.DGN

FULLER
LOT M-78



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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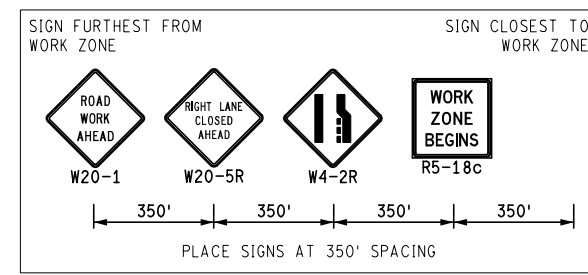
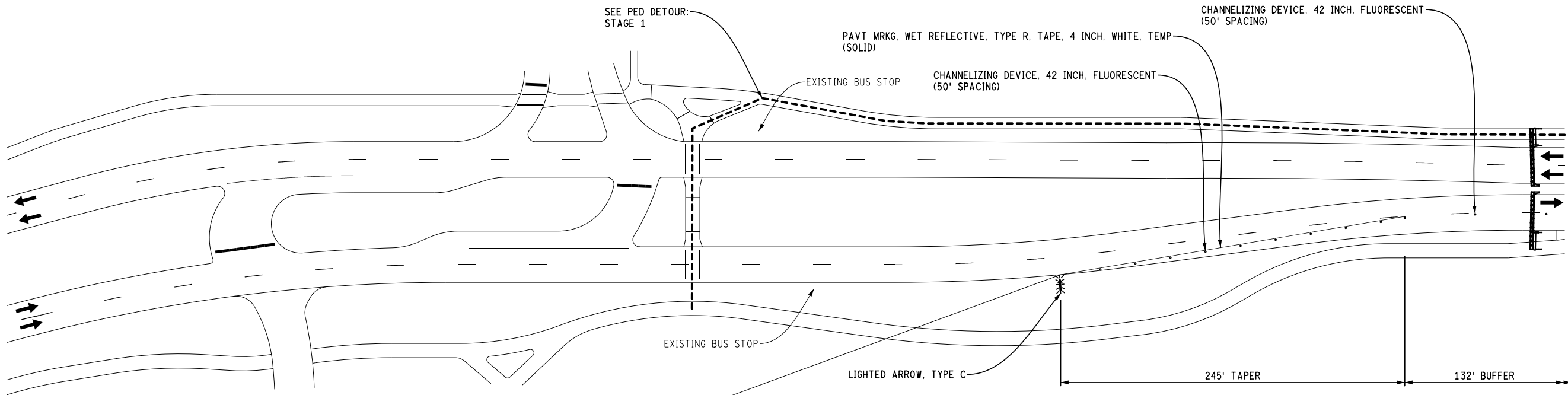
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80 PLAN (FT)
DRAWING No. 2019-030

SHEET No. 9

FULLER RD

FULLER RD



STAGE 1
APPLIES: CLOSE EB OUTSIDE LANE AND SIDEWALK
DETOUR PEDS TO WB SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

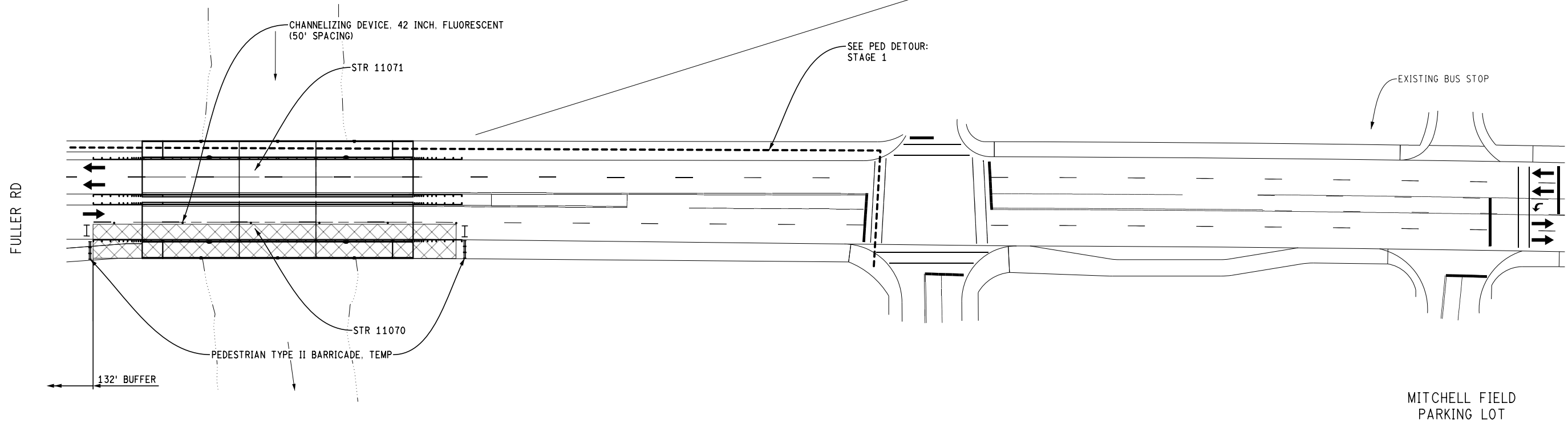
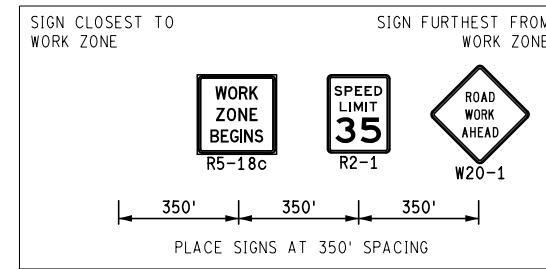
MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2019\80081\CAD\CAD\MOT\FULLER001_MOT_STAGE1.DGN

HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



STAGE 1
 APPLIES: CLOSE EB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO WB SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

MAINTAINING TRAFFIC
 (FULLER ROAD OVER HURON RIVER)

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 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80 PLAN (FT)
 DRAWING No. 2019-030

SHEET No. 10


FILE NAME: Z:\2019\80081\CAD\CAD\MOT\FULLER102_MOT_STAGE1.DGN

FULLER
LOT M-78



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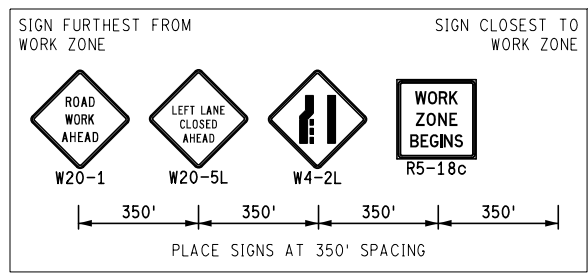
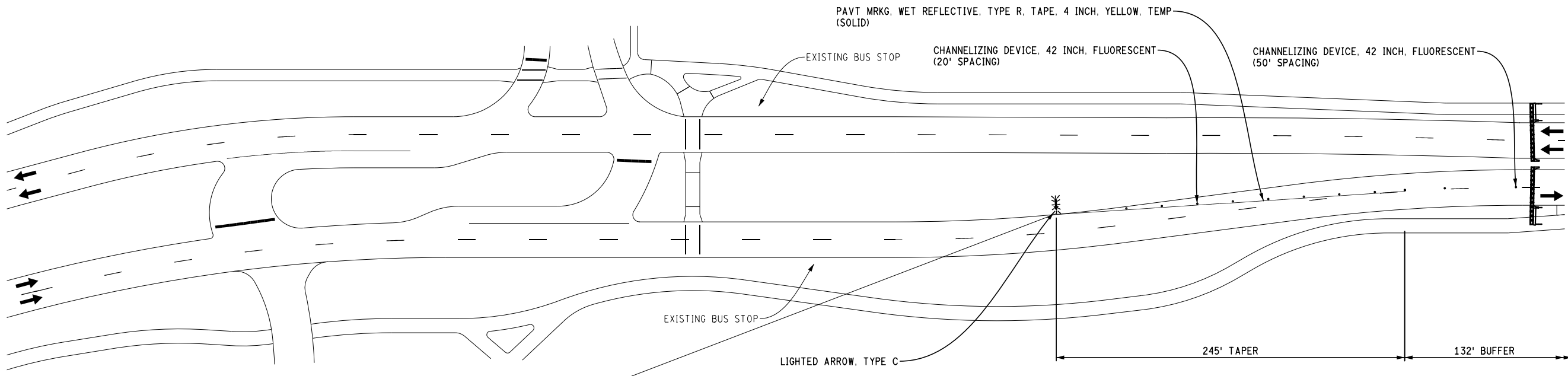
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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80
PLAN (FT)
DRAWING No.
2019-030

SHEET No.
11

FULLER RD

FULLER RD



STAGE 2
APPLIES: CLOSE EB AND WB INSIDE LANES

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

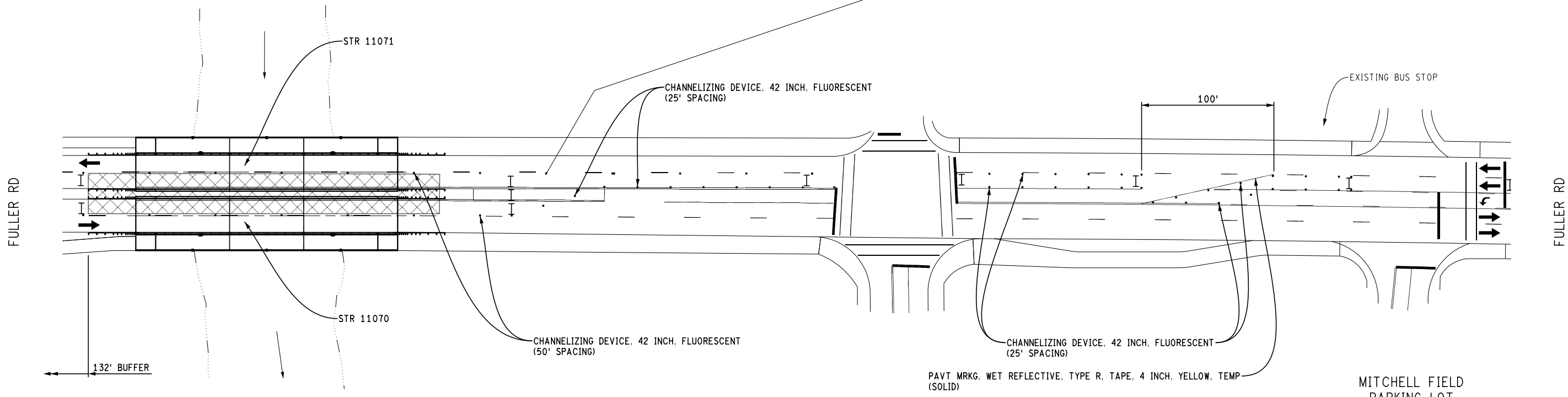
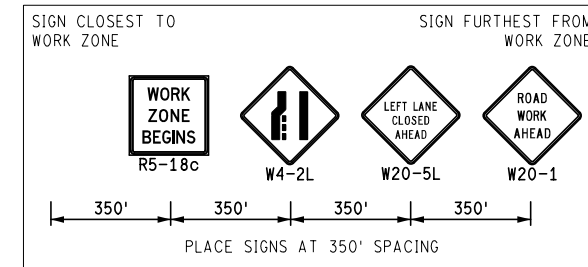
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(FULLER ROAD OVER HURON RIVER)

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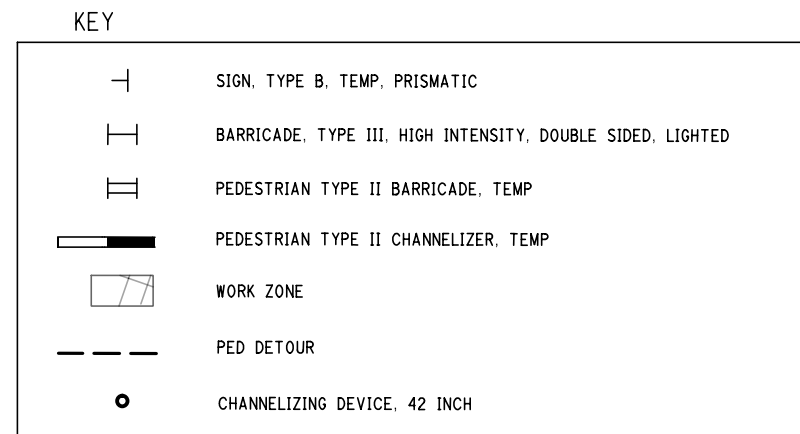
HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



STAGE 2
 APPLIES: CLOSE EB and WB INSIDE LANES



MAINTAINING TRAFFIC
 (FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2019\80081\CAD\CAD\MOT\FULLER2019_MOT_STAGE2.DGN

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 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80 PLAN (FT)
 DRAWING No. 2019-030

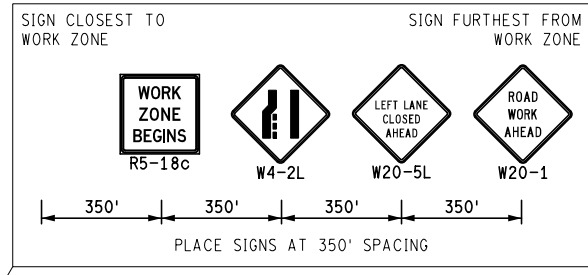
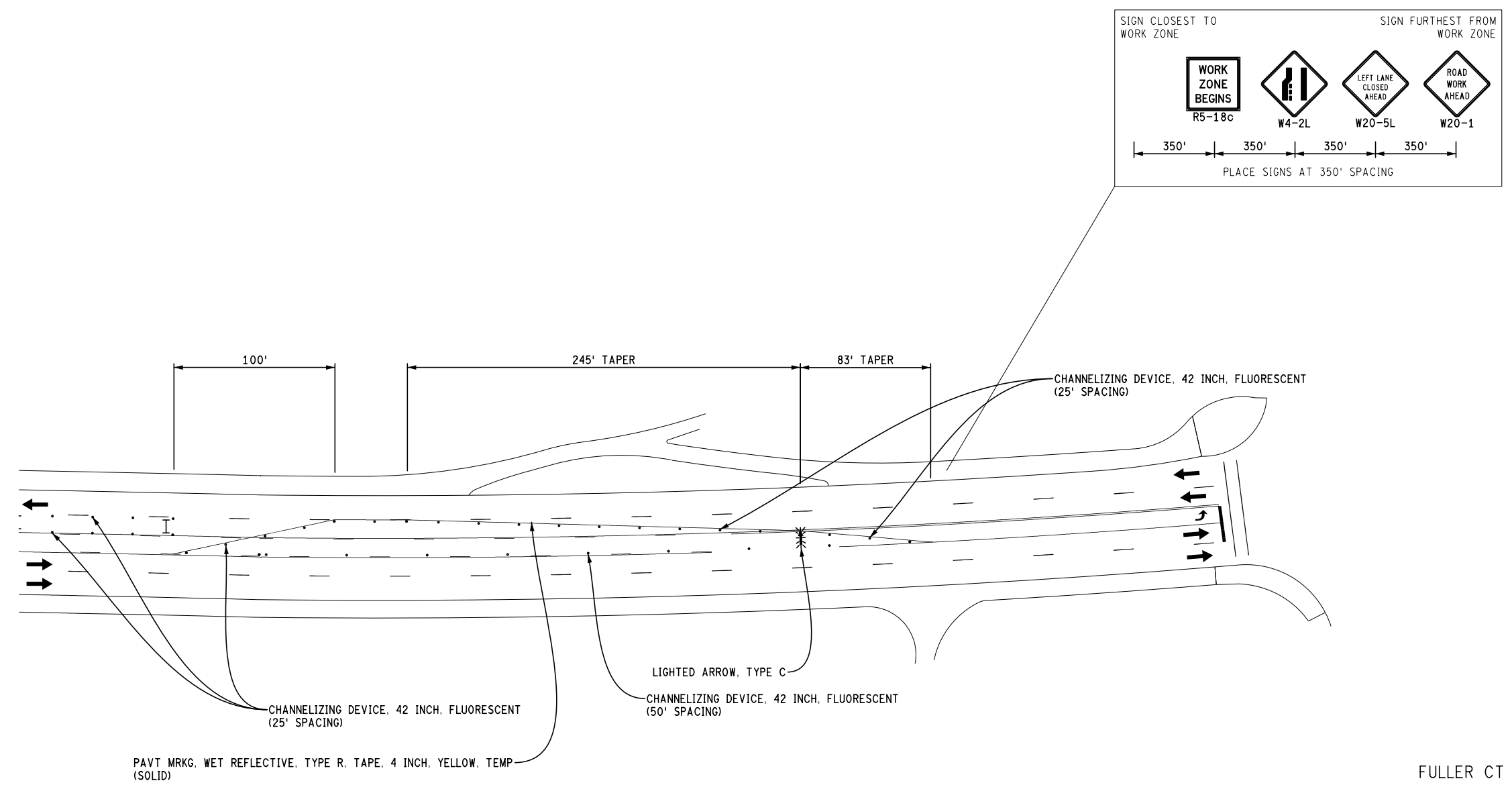
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FILE NAME: Z:\2019\80081\CAD\CAD\MOT\FULLER2003_MOT_STAGE2.DGN

FULLER RD

BORDER TO
BORDER TRAIL

BONISTEEL BLVD



PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, YELLOW, TEMP (SOLID)

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (25' SPACING)

LIGHTED ARROW, TYPE C

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (50' SPACING)

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

STAGE 2
APPLIES: CLOSE EB and WB INSIDE LANES

FULLER CT

FULLER RD

BORDER TO
BORDER TRAIL

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)

811
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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS

MAINTAINING TRAFFIC

SCALE: 0 80
PLAN (FT)

DRAWING No.
2019-030

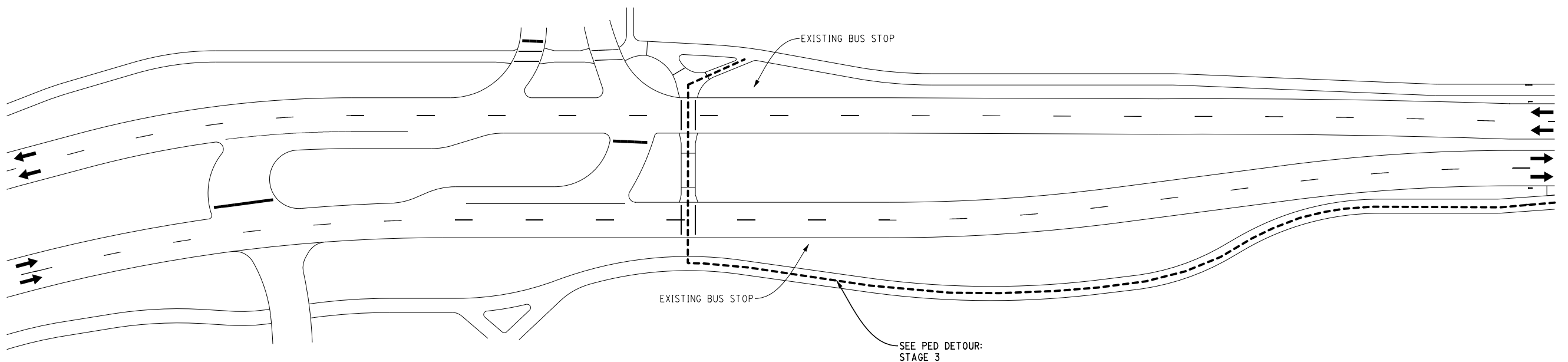
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13

FILE NAME: Z:\2019\80081\CAD\CAD\MOT\FULLER01_MOT_STAGE3.DGN

FULLER
LOT M-78

FULLER RD

FULLER RD



STAGE 3
 APPLIES: CLOSE WB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO EB SIDE

KEY	
	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)



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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS MAINTAINING TRAFFIC											
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REV.	DESCRIPTION	DATE	DRAWN	CHECKED							

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HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



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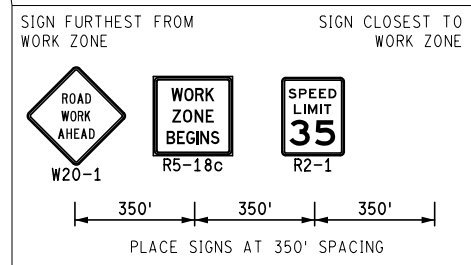
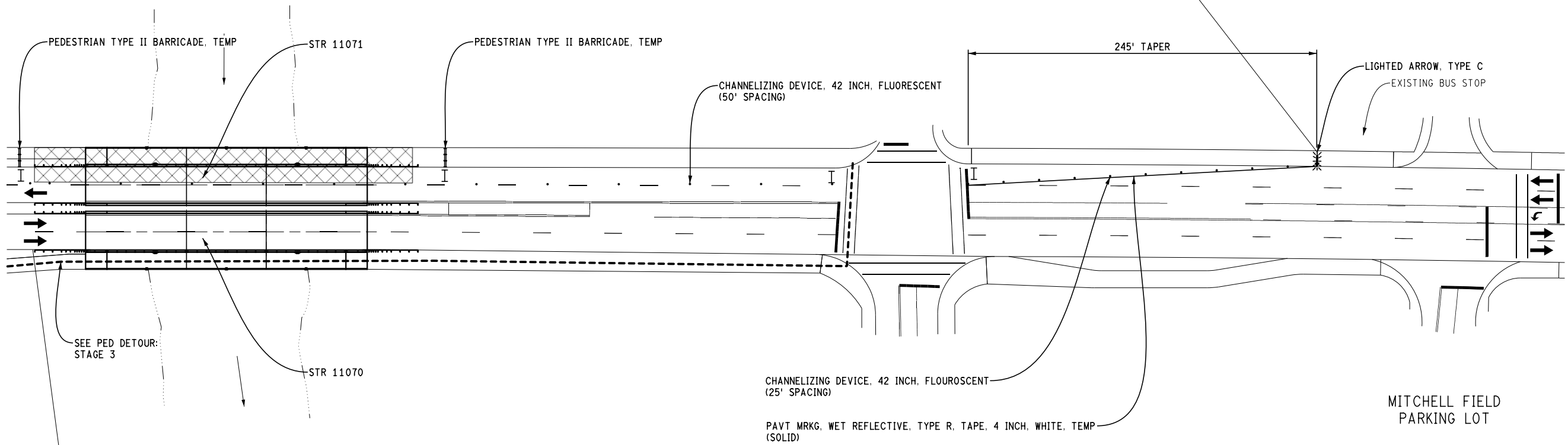
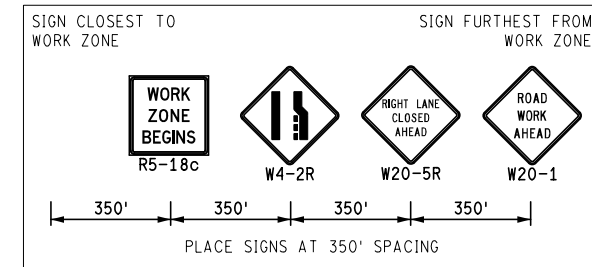
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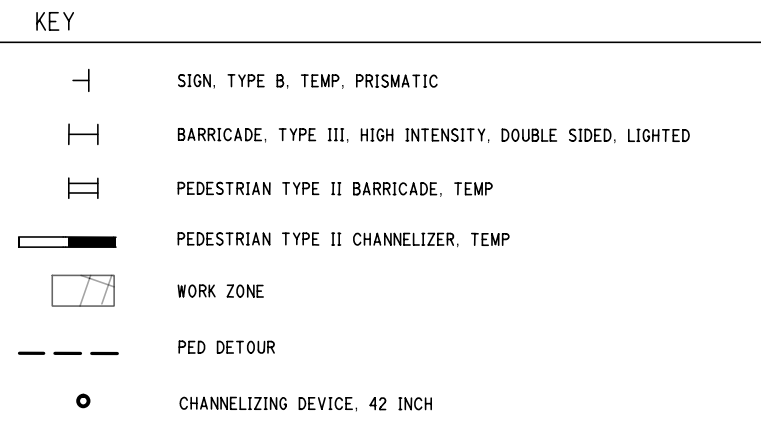
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80 PLAN (FT)
 DRAWING No. 2019-030

SHEET No. 15



STAGE 3
 APPLIES: CLOSE WB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO EB SIDE



MAINTAINING TRAFFIC
 (FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2019\80081\CAD\CAD\MOT\FULLER02_MOT_STAGE3.DGN

HURON RIVER

CEDAR BEND DR

HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



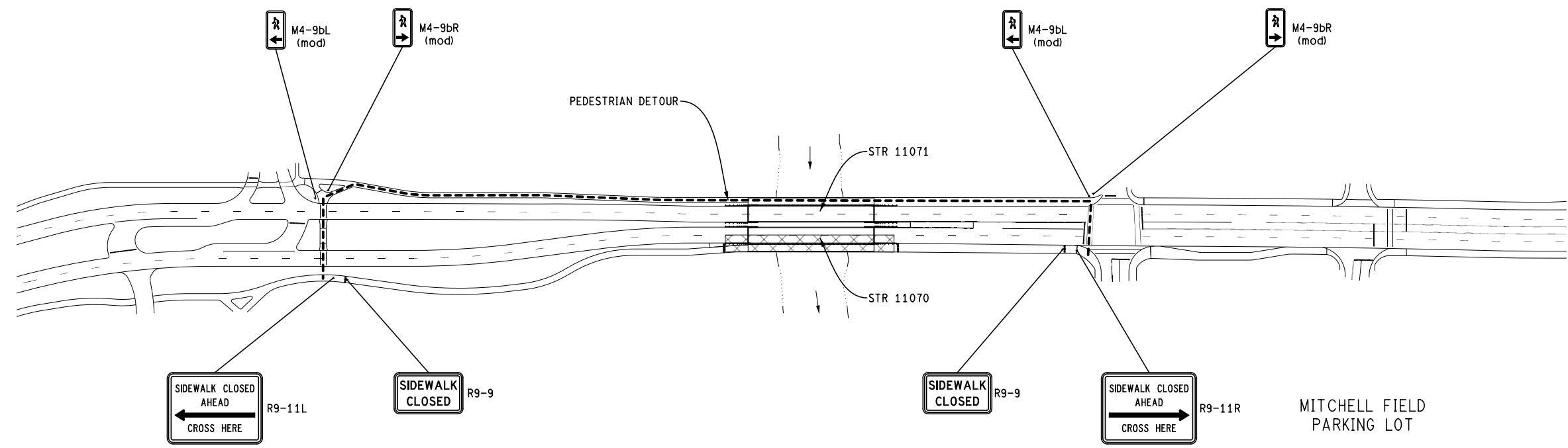
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FULLER RD



PED DETOUR: STAGE 1
APPLIES: CLOSE EB OUTSIDE LANE AND SIDEWALK
DETOUR PEDS TO NORTH SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 100 200
PLAN (FT)
DRAWING No.
2019-030

SHEET No. 16

FULLER RD

U OF M PARKING
YELLOW LOT

HURON RIVER

CEDAR BEND DR

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2019\80081\CAD\CAD\MOT\FULLER001_PED-DETOUR_STAGE-1.DGN

HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



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 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

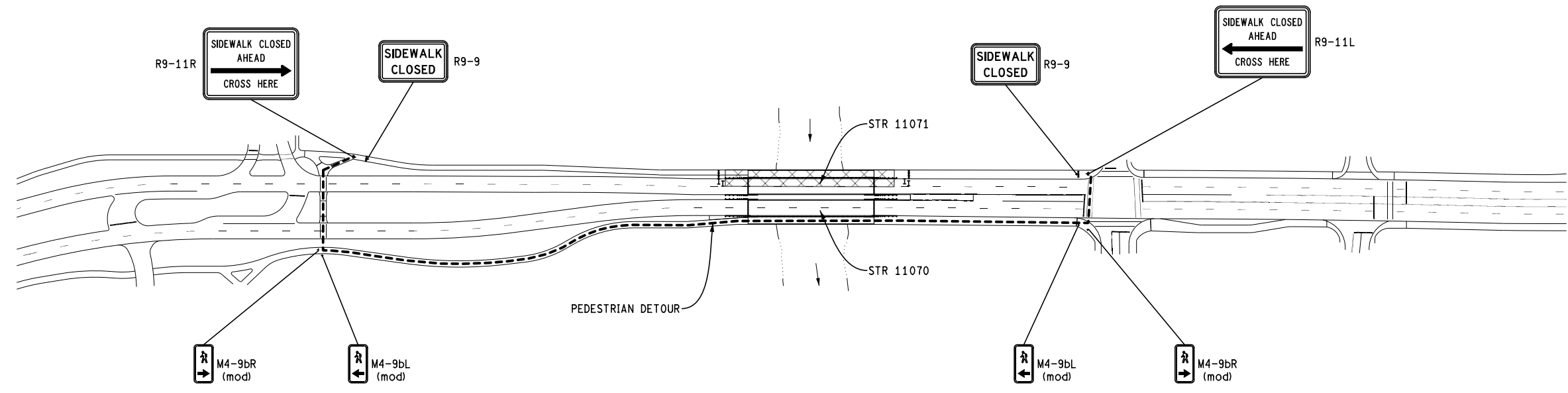
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 PLAN (FT)
 DRAWING No.
 2019-030

SHEET No.
17



FULLER RD

FULLER RD



PED DETOUR: STAGE 3
 APPLIES: CLOSE WB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO SOUTH SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

HURON RIVER

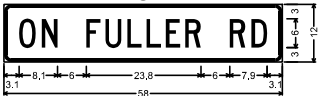
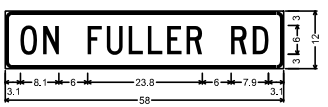
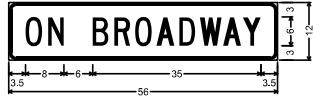
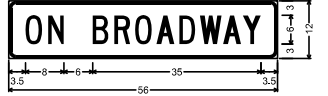
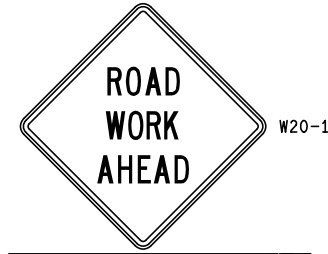
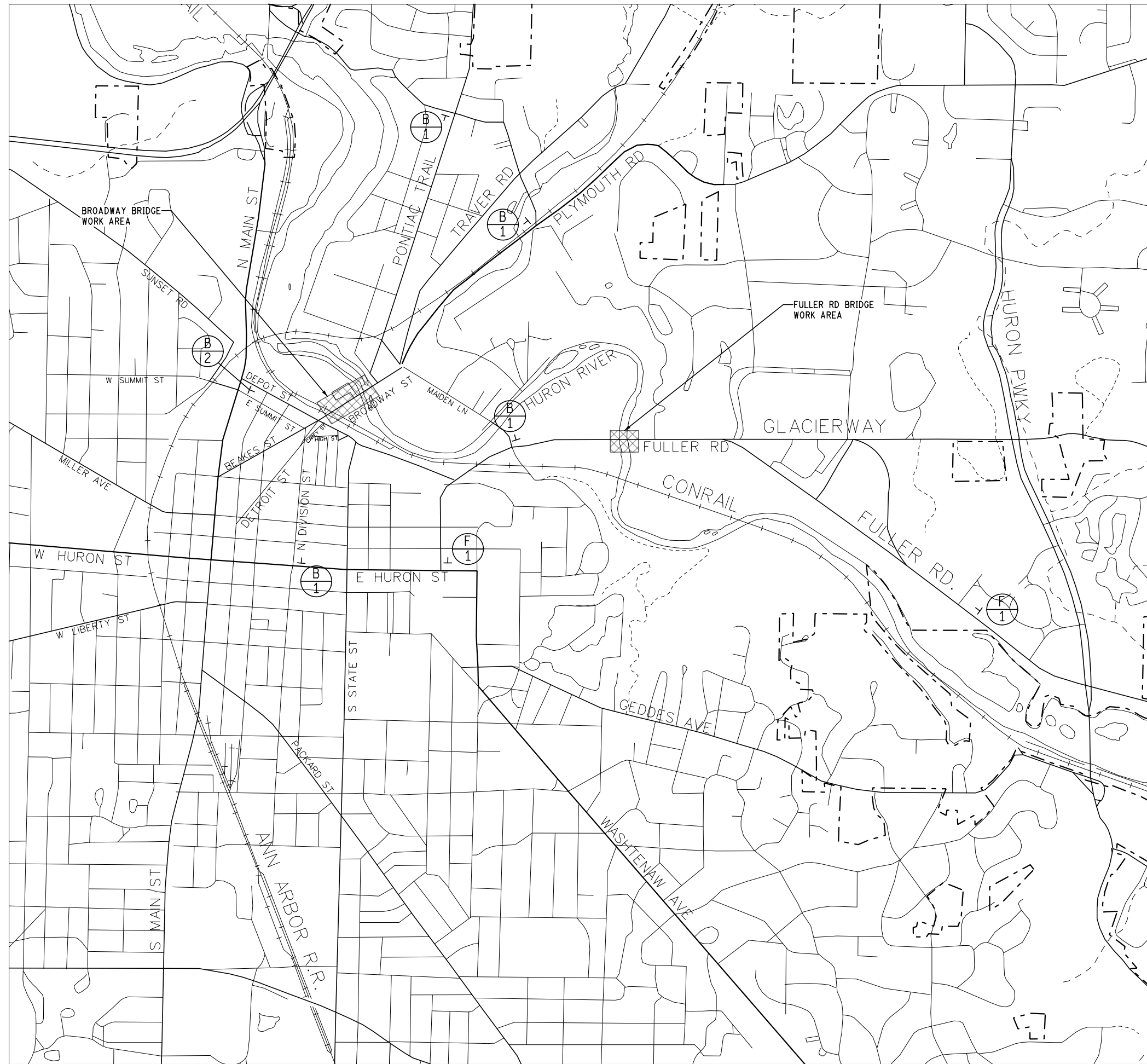
CEDAR BEND DR

MITCHELL FIELD
PARKING LOT

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)

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FILE NAME: Z:\2019\190381\CAD\CD\MOT\MOT - GLOBAL SIGNING.DWG



W20-1

SPECIAL SIGN #1

W20-1

SPECIAL SIGN #1

SPECIAL SIGN #2

W20-1

SPECIAL SIGN #2

MAINTAINING TRAFFIC



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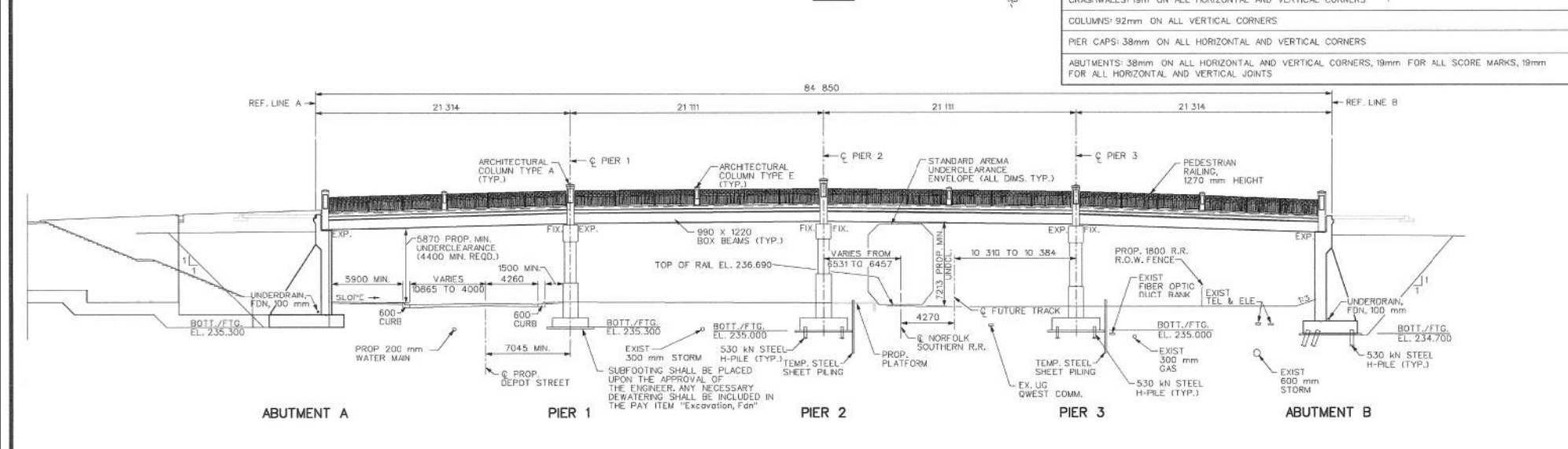
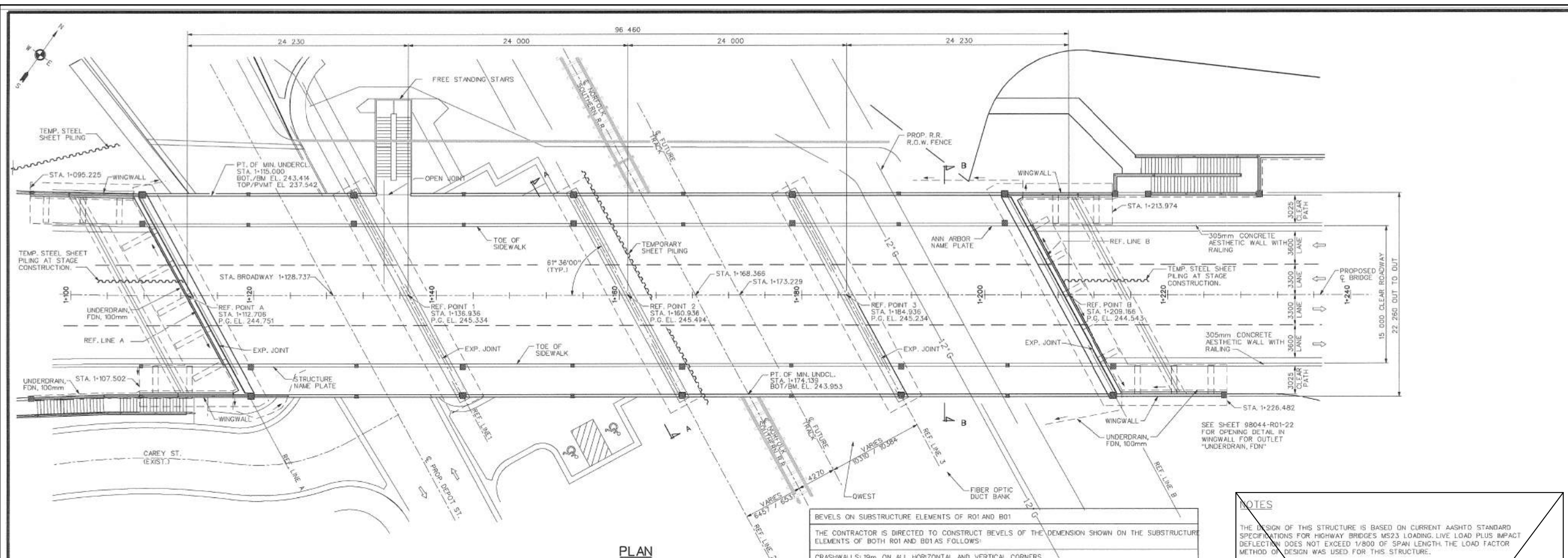


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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC DETOUR MAP

SCALE: NO SCALE
DRAWING No. 2019-030

SHEET No. 18

FILE NAME: Z:\2019\80081\CAD\CDD\BROADWAY_OVER_DEPOT_EXIST_001.DSN



MISCELLANEOUS QUANTITIES

8658	m3	Backfill, Structure, CP
1	LS	Structures, Rem, R01
6383	m3	Excavation, Fdn
111	m	Underdrain, Fdn, 100 mm
498.7	m2	Steel Sheet Piling, Left in Place
0	m2	Steel Sheet Piling, Left in Place
27.9	m	Fence, Chain Link, 1800 mm
1	ea	Fence, Gate, 4800 mm, For 1800 mm Chain Link Fence
100000	DLRS	Removal and Disposal of Asbestos Materials
1023.4	m2	Faise Decking
1987	m2	Sandblasting Concrete Surface
ea		Structure Name Plate

LEGEND

EXISTING FENCE	EXISTING SANITARY SEWER & MANHOLE	EXISTING TELEPHONE	EXISTING RR. & GRADE	PROPOSED SANITARY SEWER & MANHOLE	PROPOSED CURB & GUTTER
CONTOUR	UTILITY POLE & GUY	GAS LINE	LEFT EDGE/NO. GRADE	STORM SEWER & CAT. BAS.	
STORM SEWER & CAT. BAS.	FIRE HYDRANT ASSEMBLY	CABLE T.V.	RIGHT EDGE/NO. GRADE	WATER MAIN W/T. H. ASSEM.	
WATER MAIN & VALVE-IN-WELL	LIGHT POLE	ELECTRIC	CURB & GUTTER	CONTOUR	
WATER MAIN & VALVE-IN-BOX	END SECTION	SIGN	EDGE/GRAVEL	ROAD & GRADE	

NOTES

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 LOADING, LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

THE TOP OF ROADWAY SLAB AND TOPS OF SIDEWALKS AND BRIDGE RAILINGS ARE PARALLEL TO THE VERTICAL CURVE.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AND THE RAILWAY DETAILED EXCAVATION PLANS, TEMPORARY SHORING PLANS, AND CALCULATIONS ALL PREPARED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF MICHIGAN SHOWING SIZES OF ALL TEMPORARY SHORING STRUCTURAL MEMBERS, DETAILS OF CONNECTION, AND EMBEDMENT DEPTH. THE PLANS SHALL INCLUDE A PLAN VIEW SHOWING ALL THE PROPOSED EXCAVATIONS AND DISTANCES FROM CENTERLINE OF TRACK TO FACE OF EXCAVATION. PLANS SHALL SHOW A SECTION NORMAL TO THE TRACK SHOWING THE SHORING LOCATION RELATIVE TO THE CENTERLINE OF TRACK AND SHOWING THE HEIGHT OF SHEETING AND TRACK ELEVATION IN RELATION TO THE BOTTOM OF EXCAVATION. THE PLANS MUST BE COMPLETE AND ACCURATELY DESCRIBE THE NATURE OF THE WORK. THE PLANS AND CALCULATIONS SHALL BE APPROVED BY THE RAILWAY BEFORE EXCAVATION BEGINS.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AND THE RAILWAY A DEMOLITION PLAN INDICATING THE METHOD OF TRACK PROTECTION, THE SEQUENCE OF DEMOLITION AND A DESCRIPTION OF THE PROCEDURE AND EQUIPMENT TO BE USED DURING DEMOLITION. ALL DEMOLITION PLANS AND PROCEDURES SHALL BE REVIEWED AND APPROVED BY THE RAILWAY BEFORE DEMOLITION BEGINS. NO DEBRIS SHALL BE ALLOWED TO INTENTIONALLY FALL TO RAILWAY PROPERTY.

A MINIMUM TEMPORARY VERTICAL CONSTRUCTION UNDERCLEARANCE OF 6.71m WILL BE ALLOWED OVER THE RAILROAD TRACK BETWEEN POINTS 4.27m EITHER SIDE OF TRACK CENTERLINE.

A MINIMUM HORIZONTAL CLEARANCE OF 4.27m FROM CENTERLINE OF TRACK SHALL BE MAINTAINED AT ALL TIMES.

UPON COMPLETION OF CONSTRUCTION WORK, THE CONTRACTOR SHALL ENSURE THAT ALL MATERIALS AND EQUIPMENT HAVE BEEN REMOVED AND THAT THE PERMANENT VERTICAL AND HORIZONTAL CLEARANCES IN SPAN 3 (OVER AND ADJUNCT TO THE RAILROAD) ARE AT LEAST THOSE SHOWN ON THE PLANS.

REFER TO THE "SPECIAL PROVISION FOR PROTECTION OF RAILWAY INTEREST" LOCATED IN THE PROPOSAL FOR FURTHER REQUIREMENTS WHEN WORKING ON OR ABOVE RAILWAY PROPERTY.

THE PAY ITEM "SANDBLASTING CONCRETE SURFACES" SHALL BE USED FOR AESTHETIC PURPOSES TO PROVIDE A UNIFORM, BLEMISH-FREE APPEARANCE AND SHALL BE PERFORMED ON ALL SUBSTRUCTURE CONCRETE EXPOSED TO VIEW IN THE FINISHED WORK.

FALSE DECKING IS REQUIRED IN SPAN 1 (OVER DEPOT ST) AND SPAN 3 (OVER RAILROAD) AND AS DIRECTED BY THE ENGINEER.

3 WORKING DAYS BEFORE YOU DIG
 CALL MISS DIG
 800-482-7171
 1 TOLL FREE

EARTH TECH
 36133 SCHOOLCRAFT ROAD • LIVONIA, MICHIGAN 48150 • (734) 779-2800

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
 BROADWAY OVER NORFOLK SOUTHERN RR AND DEPOT STREET (R01 OF 81102A)
 GENERAL PLAN OF STRUCTURE

4	AS-BUILT	2/23/05	KV	JLF
3	FINAL MDDT REVIEW	05/03/02	K.B.	CLR
	FINAL REVIEW SUBMITTAL	11/21/01		
	G.I. SUBMITTAL	01/01		

SCALE: 1"=200'
 SHEET NO. 216 OF 334

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

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

811
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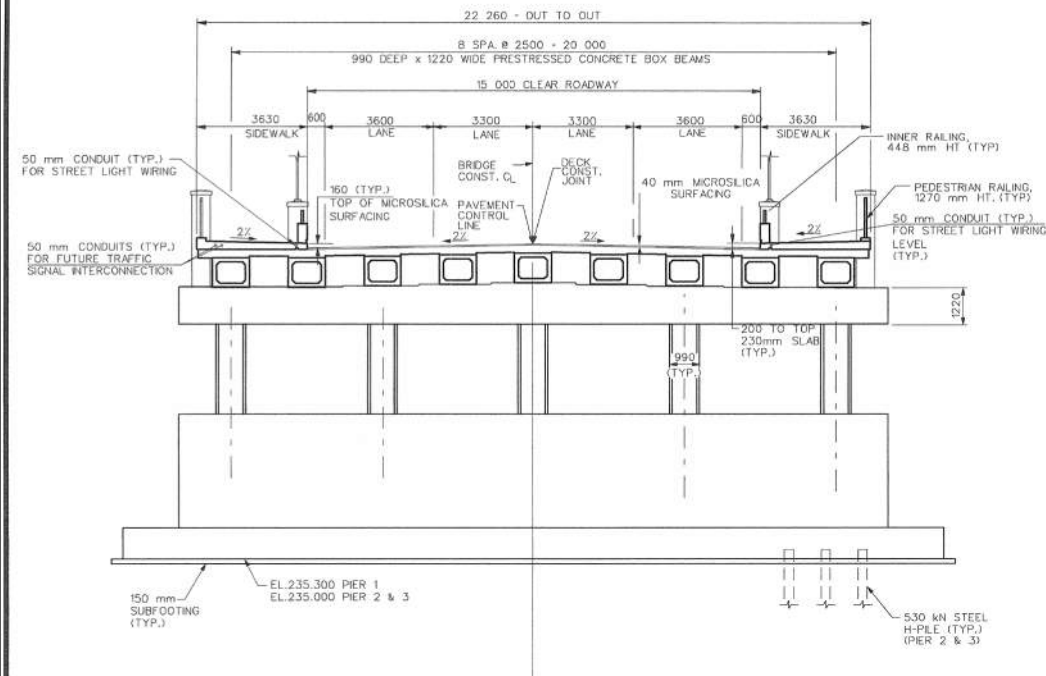
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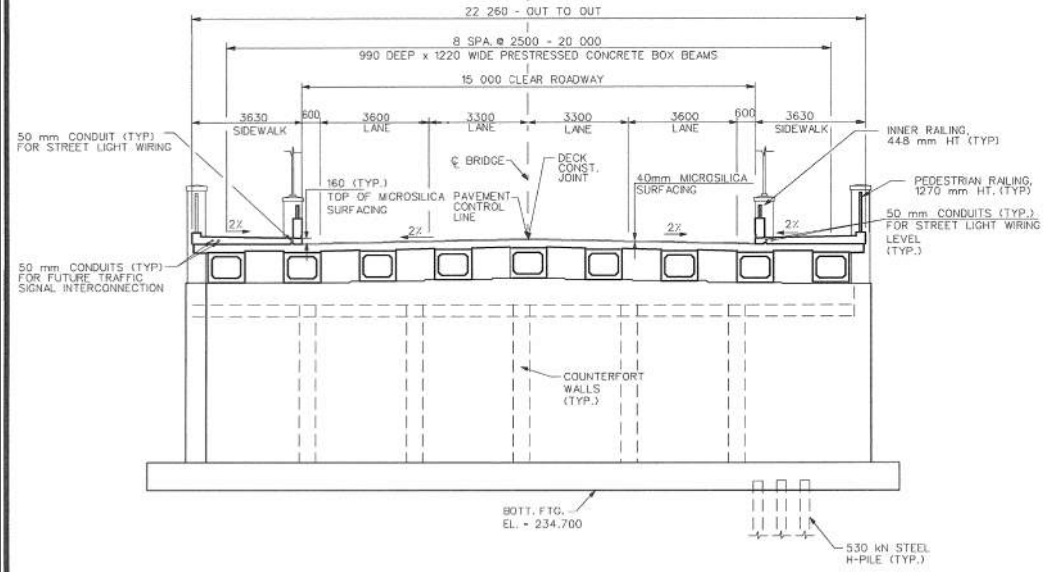
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 EXISTING GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
 DRAWING No. 2019-030
 SHEET No. 19

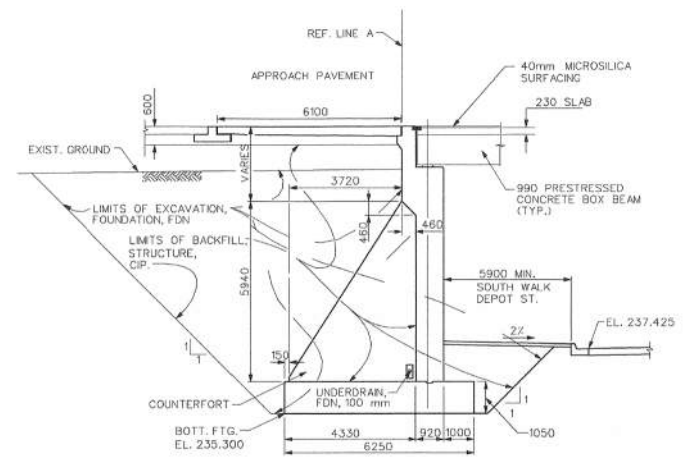
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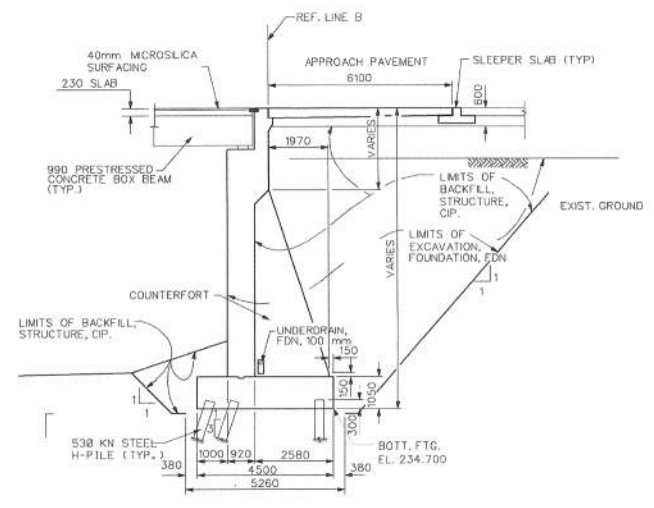
SECTION A-A
(LOOKING UP STATION)
PIER (TYP.)



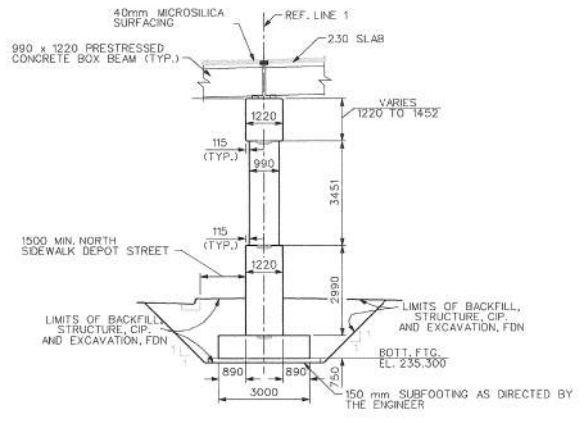
SECTION B-B
(LOOKING UP STATION)
ABUTMENT B



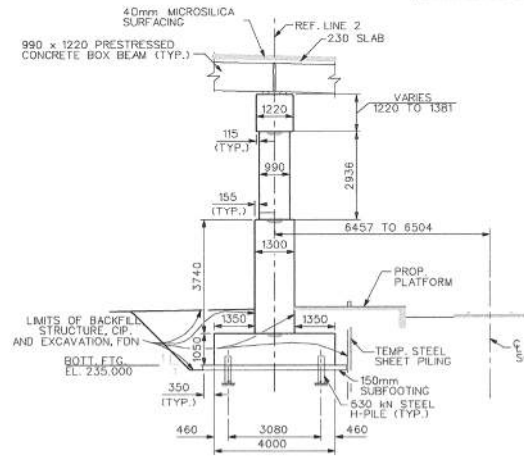
SECTION THRU ABUTMENT A



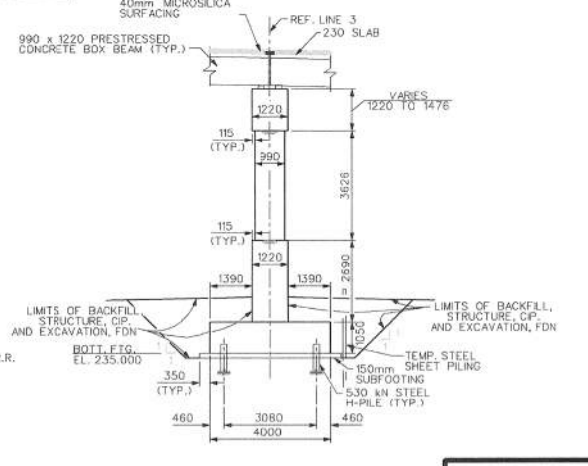
SECTION THRU ABUTMENT B



SECTION THRU PIER 1



SECTION THRU PIER 2



SECTION THRU PIER 3

EARTH TECH

3633 SCHOOLCRAFT ROAD • LIVONIA, MICHIGAN 48150 • (734) 779-2800

EXISTING FENCE		EXISTING SANITARY SEWER & MANHOLE		EXISTING TELEPHONE		EXISTING R.O. & GRADE		PROPOSED SANITARY SEWER & MANHOLE		PROPOSED CURB & GUTTER	
---	CONTOUR	---	UTILITY POLE & GUY	---	GAS LINE	---	LEFT EDGE/PRO. GRADE	---	STORM SEWER & CAT. BAS.	---	PROPOSED CURB & GUTTER
---	STORM SEWER & CAT. BAS.	---	FIRE HYDRANT ASSEMBLY	---	CABLE T.V.	---	RIGHT EDGE/PRO. GRADE	---	WATER MAIN W/F.H. ASSEW.	---	
---	WATER MAIN & VALVE-IN-WELL	---	LIGHT POLE	---	ELECTRIC	---	CURB & GUTTER	---	CONTOUR	---	
---	WATER MAIN & VALVE-IN-BOX	---	END SECTION	---	SIGN	---	EDGE/RAVEL	---	ROAD & GRADE	---	

REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY
4	AS-BUILT	2/23/05	KV	JLF
3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR
	FINAL REVIEW SUBMITTAL	11/21/01		
	G.I. SUBMITTAL	01/01		

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER NORFOLK SOUTHERN RR AND DEPOT STREET (R01 OF 81102A)
GENERAL PLAN OF STRUCTURE

SCALE: 1"=100'

DRAWING NO. **98044-R01-6**

SHEET NO. 217 OF 334

FOR INFORMATION ONLY
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BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

811 Know what's below. Call before you dig.

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 ANN ARBOR 734-794-6410
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

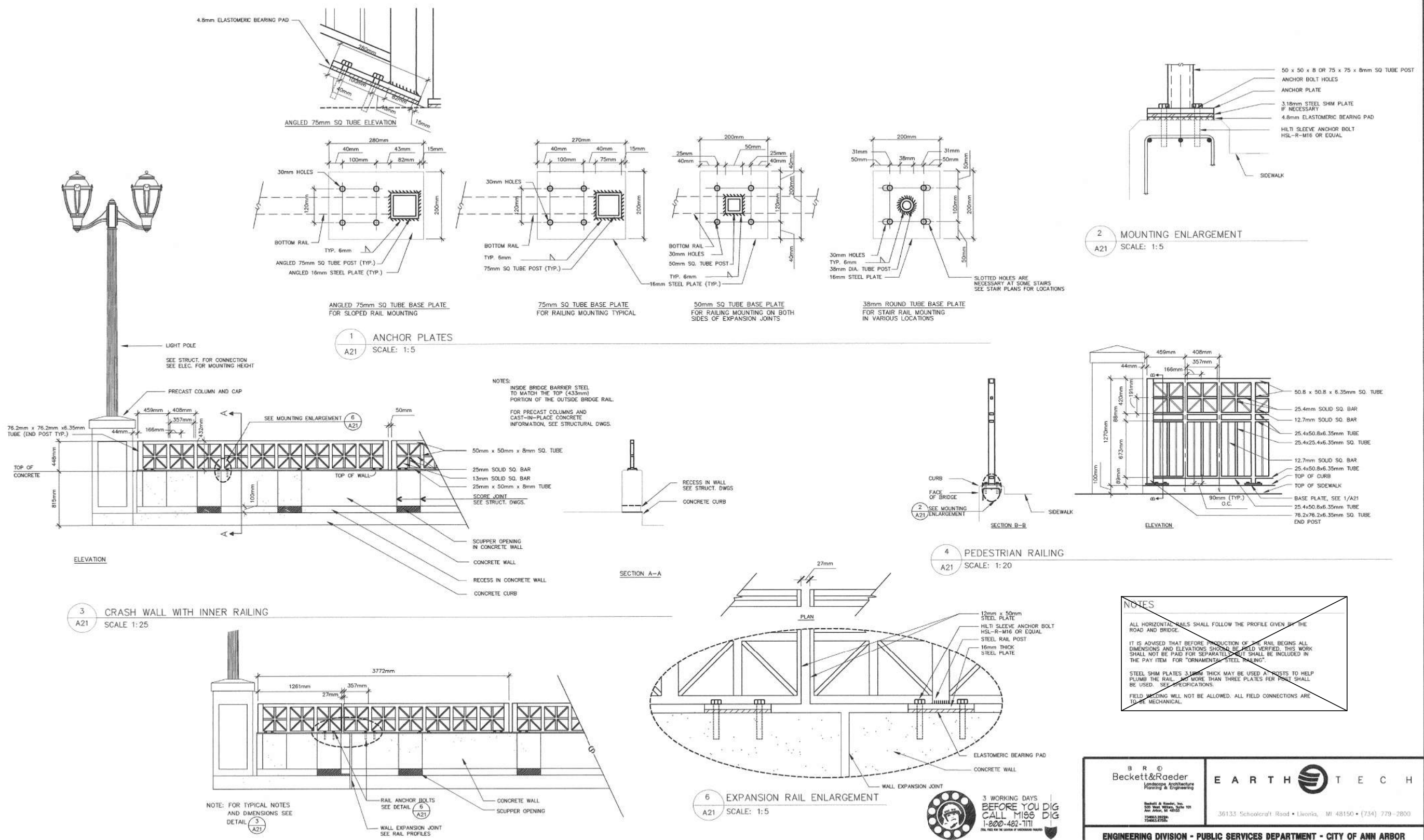
SCALE: NO SCALE

DRAWING No. 2019-030

SHEET No. 20

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FILE NAME: Z:\2019\190381\CAD\CD\ROADWAY_COVER_DEPOT_EXIST_003.DSN



BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
		4	NO AS-BUILT CHANGES	3/24/05	KV	REL
		3	FINAL MDOT REVIEW	11/21/01		
			FINAL REVIEW/SUBMITTAL	11/21/01		
			REVIEW	08/01		
			Q.L. SUBMITTAL	01/01	SBR	

Beckett & Raeder
Landscape Architecture
Planning & Engineering

EARTH TECH

36133 Schoolcraft Road • Livonia, MI 48150 • (734) 779-2800

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
TYPICAL RAILING DETAILS

SCALE AS SHOWN

DRAWING NO. **98044-A21**

SHEET NO. **210 OF 334**

APPROVED BY: _____

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NO PAY ITEMS ARE SHOWN.

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

811
Know what's below. Call before you dig.

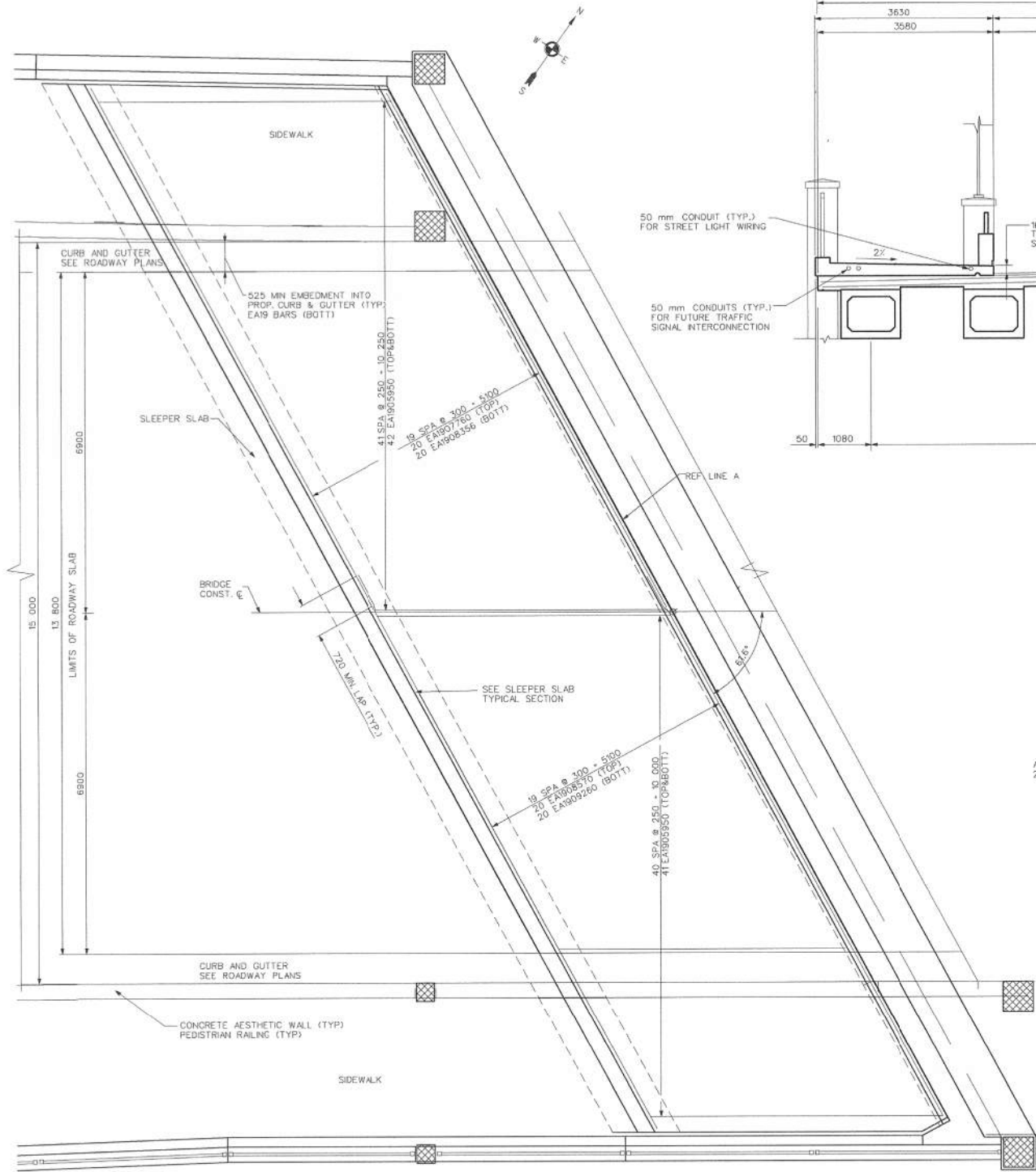
CITY OF ANN ARBOR PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106
ANN ARBOR PUBLIC SERVICES
734-794-4810
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING TYPICAL RAILING DETAILS

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

SCALE: NO SCALE
DRAWING No. 2019-030
SHEET No. **21**

FILE NAME: Z:\2019\80081\CAD\CD\ROADWAY_COVER_DEPOT_EXIST_04.DSN



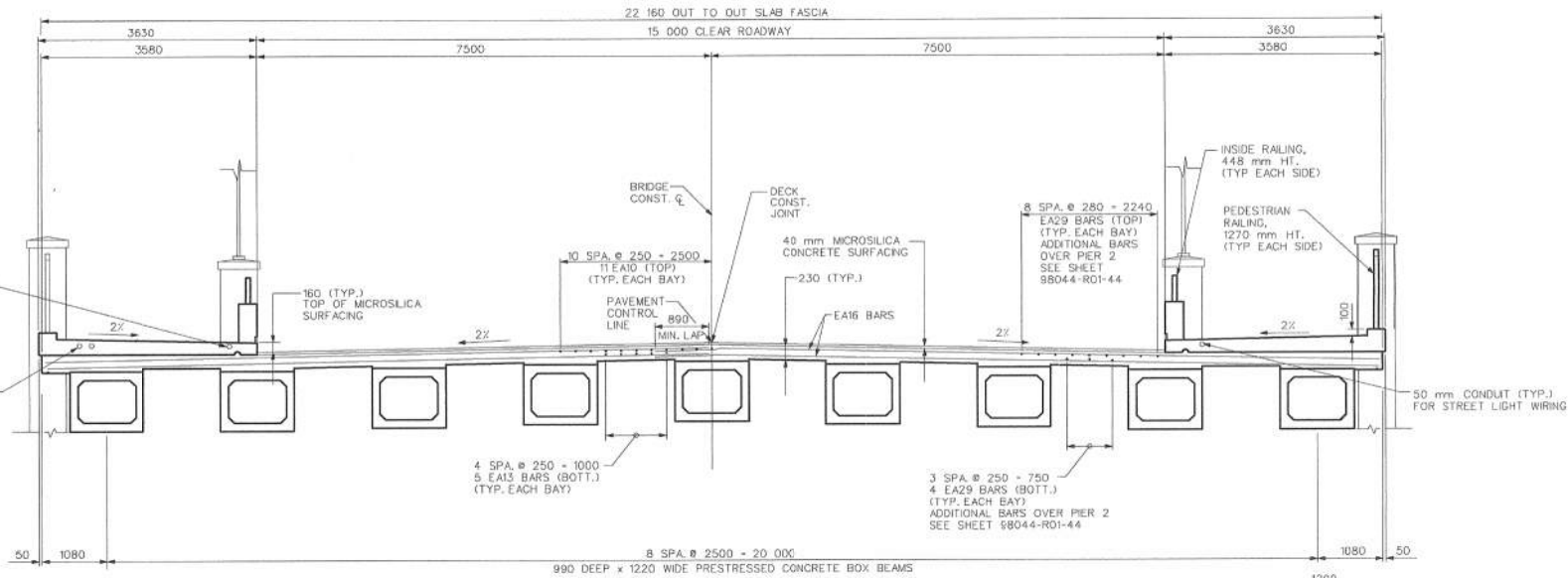
PLAN OF APPROACH SLAB
TYP WEST SIDE SHOWN, EAST SIDE IDENTICAL

R01 Sleeper Slab, Sidewalk and Road Approach Slab (North Half)

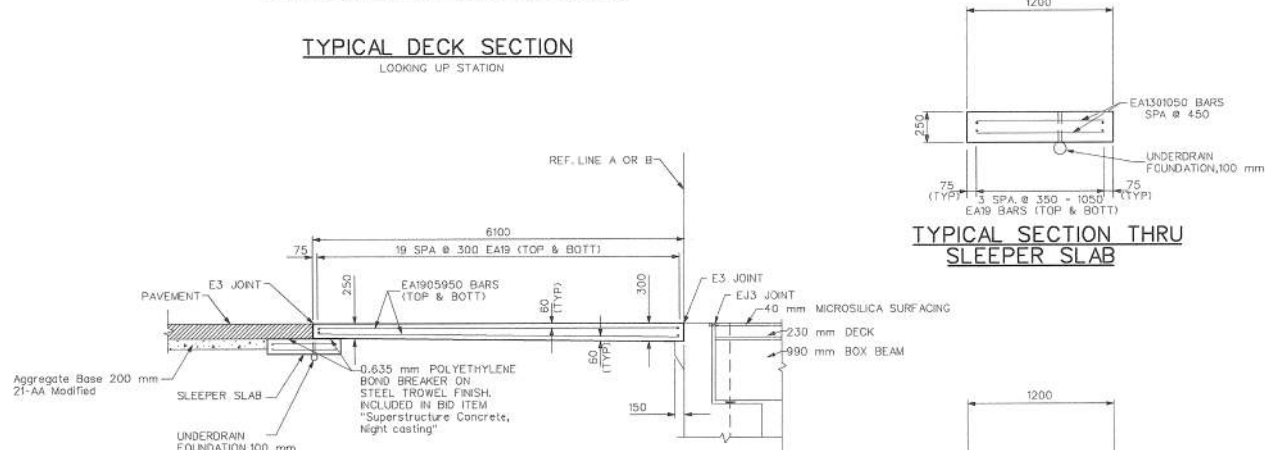
Bar	Dimension (mm)	Notes
EA1301050	1050	long. Reinf. in sleeper slab plan calls for 108, bar sheet shows 34
EA1911935	11935	transverse reinf. in sleeper slab plan calls for 120, bar sheet shows 34
EA1902180	2180	lap onto EA1907760 trans reinf. in road approach slab to extend reinf. to full width of slab
EA1901485	1485	lap onto EA1908356 trans reinf. in road approach slab to extend reinf. to full width of slab
EA1905049	5049	long. Reinf. need 60 in the sidewalk approach slabs + 136 in the road approach slabs + 190, bar sheet shows 112

Notes:
Work Order #38
Transverse reinforcement was ordered for the sidewalk approach slabs. EA1902925 were ordered and will have to be cut in the field to fit the width of the sidewalk approach slab.
Top and bottom mats of reinforcement in the road approach slab will extend into the curb.

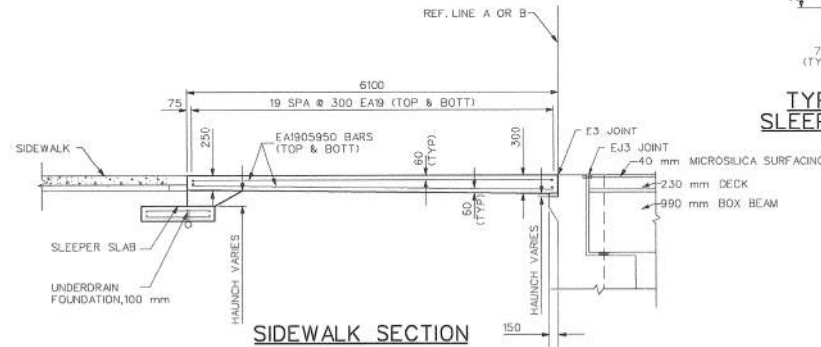
EXISTING FENCE		EXISTING SANITARY SEWER & MANHOLE		EXISTING TELEPHONE		EXISTING RD. & GRADE		PROPOSED SANITARY SEWER & MANHOLE		PROPOSED CURB & GUTTER	
CONTOUR	257	UTILITY POLE & DUY	○	GAS LINE	—	LEFT EDGE/RD. GRADE	—	STORM SEWER & CAT. BAS.	—	STORM CURB & GUTTER	—
STORM SEWER & CAT. BAS.	—	FIRE HYDRANT ASSEMBLY	—	CABLE T.V.	—	RIGHT EDGE/RD. GRADE	—	WATER MAIN W/F.H. ASSEM.	—	CONTOUR	257
WATER MAIN & VALVE-IN-WELL	—	LIGHT POLE	—	ELECTRIC SIGN	—	CURB & GUTTER	—	CONTOUR	—	ROAD & GRADE	—
WATER MAIN & VALVE-IN-BOX	—	END SECTION	—			EDGE/GRAVEL	—				



TYPICAL DECK SECTION
LOOKING UP STATION



APPROACH ROADWAY SECTION



SIDEWALK SECTION

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ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR
BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER NORFOLK SOUTHERN RR AND DEPOT STREET (R01 OF 81102A)
SUPERSTRUCTURE DETAILS
SCALE: 1:50
DRAWING No. 98044-R01-47
SHEET NO. 258 OF 334

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BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

811 Know what's below. Call before you dig.

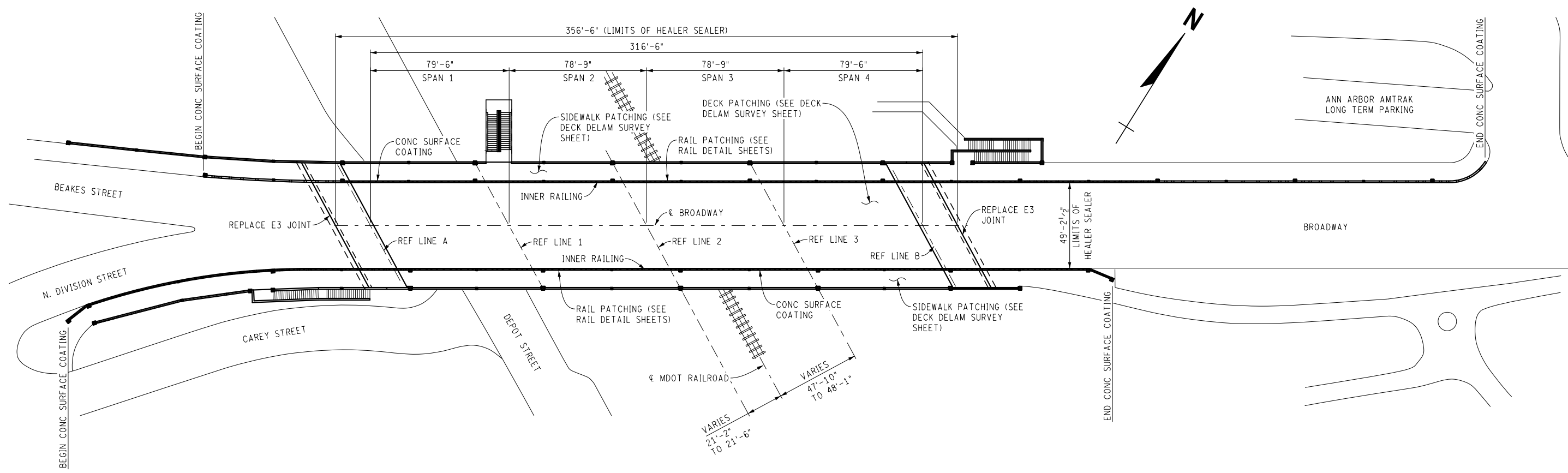
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106
ANN ARBOR (810) 766-6847
ANN ARBOR (810) 734-7948x10
www.a2gov.org

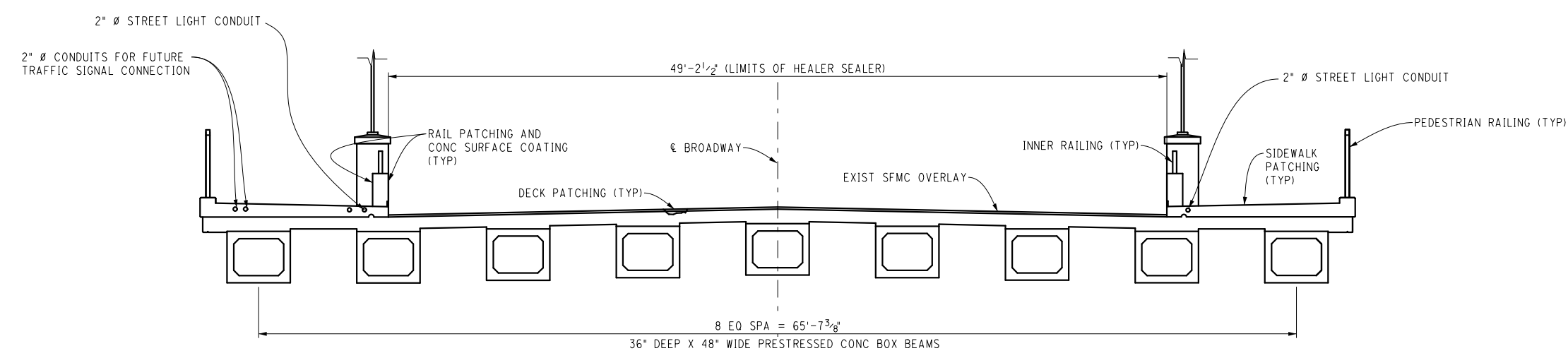
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING SUPERSTRUCTURE DETAILS

SCALE: NO SCALE
DRAWING No. 2019-030
SHEET No. 22

FILE NAME: Z:\2019\190381\CAD\CAD\BROADWAY_OVER_DEPOT_STR_001.DGN



PLAN



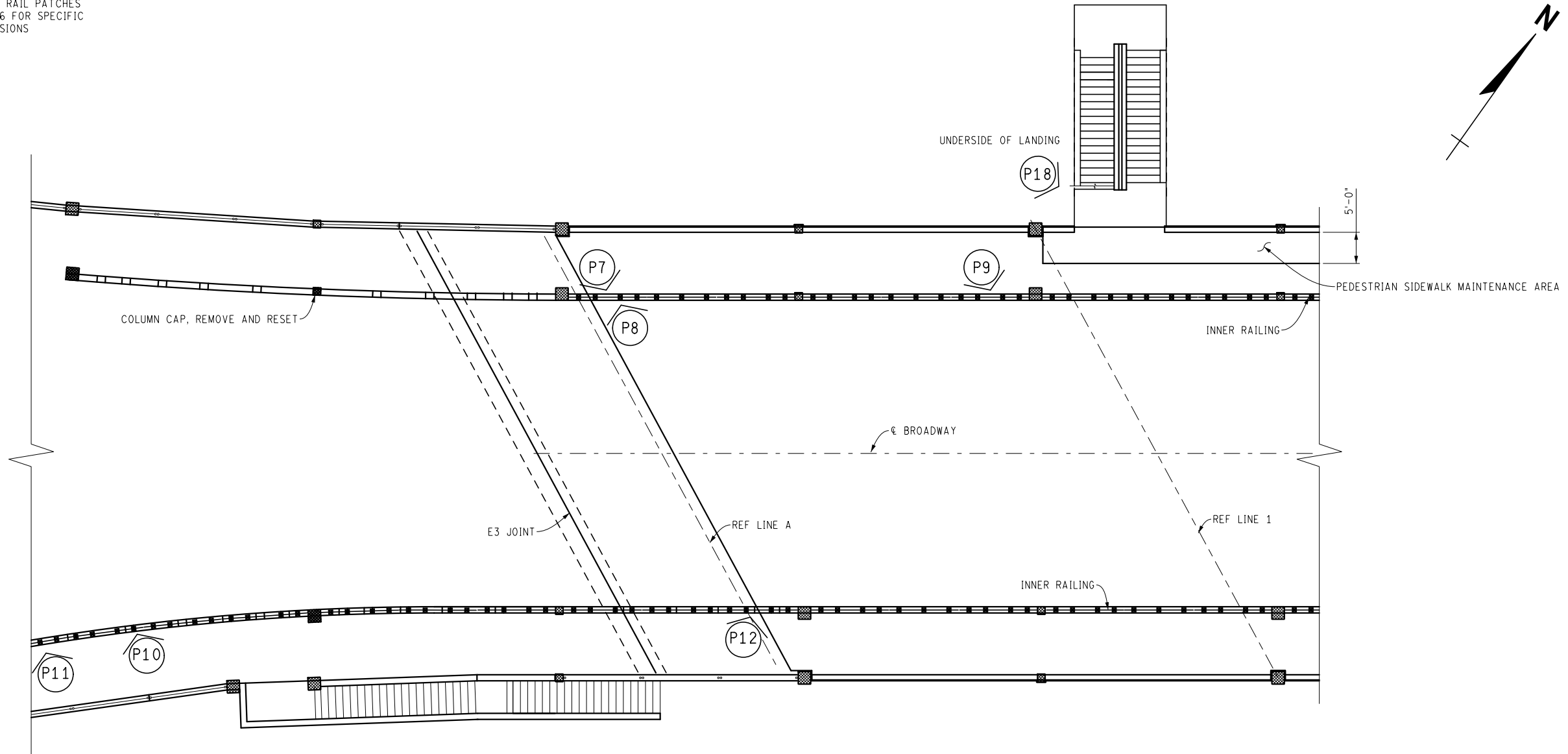
DECK SECTION

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

<p>ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106 734-794-4810 www.a2gov.org</p>	<p>ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106 734-794-4810 www.a2gov.org</p>
<p>PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS GENERAL PLAN OF STRUCTURE</p>	<p>SCALE: NO SCALE DRAWING No. 2019-030</p>
<p>REV. DESCRIPTION DATE DRAWN CHECKED</p>	<p>SHEET No. 23</p>

LEGEND

(P##) = LOCATION OF RAIL PATCHES
SEE SHEET 26 FOR SPECIFIC
PATCH DIMENSIONS



PLAN - WEST

NOTES:

A RAILROAD PERMIT IS NOT REQUIRED UNDER THE CONDITION THAT THE CONTRACTOR KEEPS ALL WORKERS, MATERIALS, VEHICLES AND EQUIPMENT ON THE PARKING LOT SIDE OF THE PIER BETWEEN THE AREA TO BE PATCHED AND THE RAILROAD TRACKS, AND IN NO CIRCUMSTANCE SHALL THE CONTRACTOR ACCESS THE TRACK SIDE OF THE PIER.

IN ORDER TO PERFORM THE BARRIER RAIL REPAIRS, THE CONTRACTOR SHALL REMOVE, STORE, PROTECT, AND REPLACE WHEN THE PATCHES HAVE BEEN PROPERLY CURED, THE NEEDED METAL RAILING SEGMENTS. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ASSOCIATED ITEMS OF WORK.

FILE NAME: Z:\2019\190381\CAD\CAD\BROADWAY_OVER_DEPOT_STREET_RAIL_001.DGN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

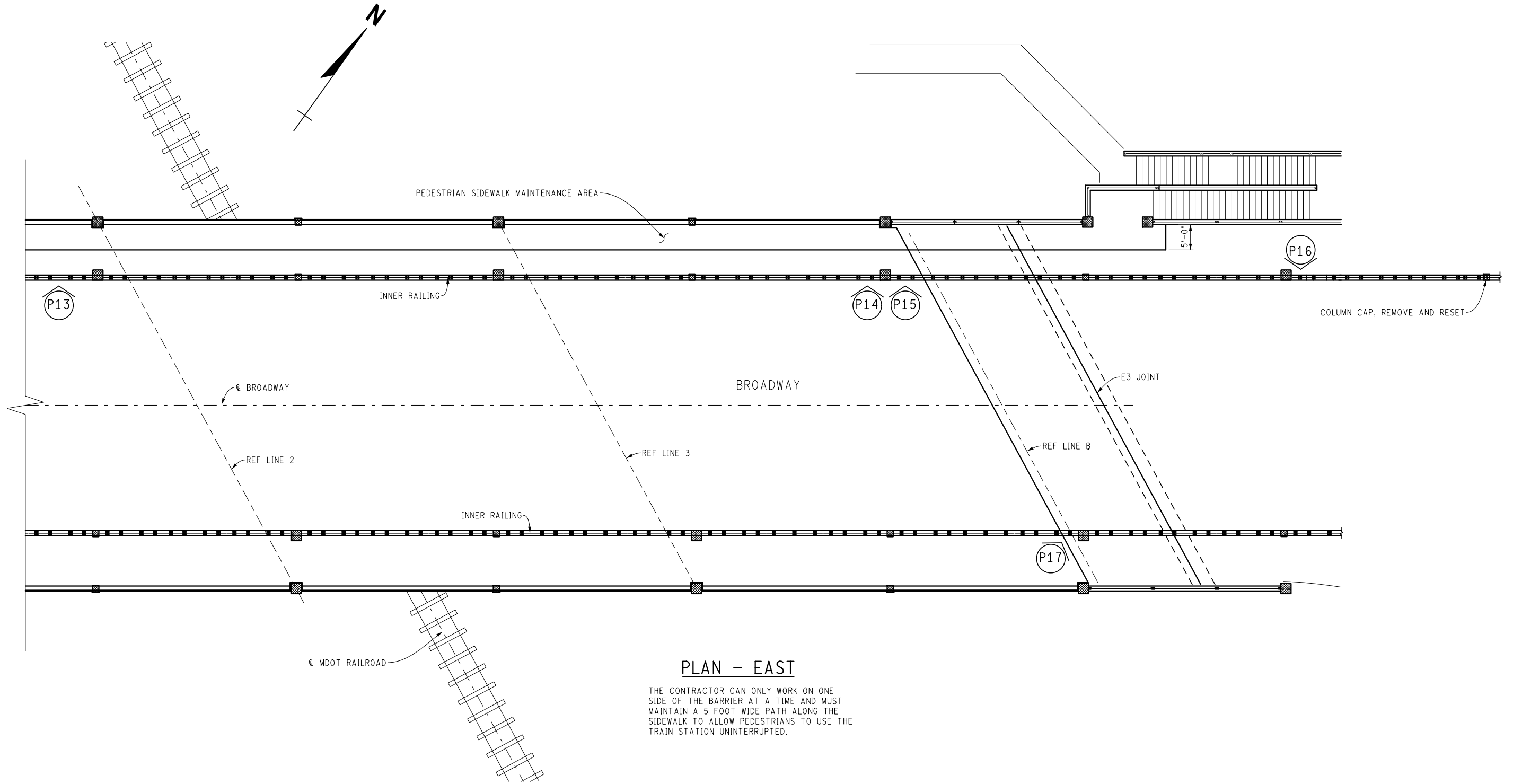
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301 EAST HURON STREET
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734-794-6477
www.a2gov.org



PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONCRETE RAIL PATCHING LOCATIONS

SCALE: NO SCALE
DRAWING No. 2019-030

FILE NAME: Z:\2019\190381\CAD\CIBROADWAY_OVER_DEPOT_RAIL_002.DGN



PLAN - EAST

THE CONTRACTOR CAN ONLY WORK ON ONE SIDE OF THE BARRIER AT A TIME AND MUST MAINTAIN A 5 FOOT WIDE PATH ALONG THE SIDEWALK TO ALLOW PEDESTRIANS TO USE THE TRAIN STATION UNINTERRUPTED.

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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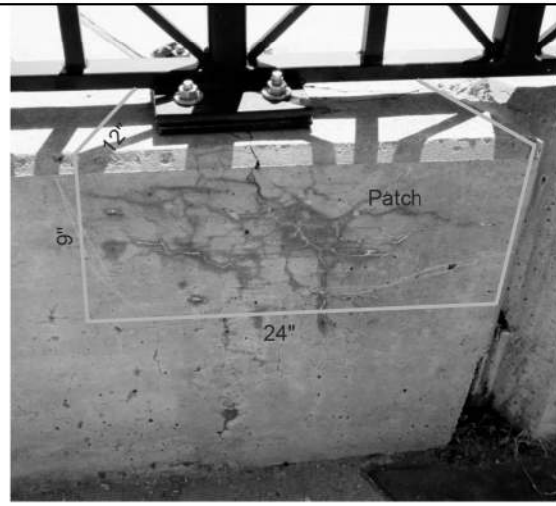


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONCRETE RAIL PATCHING LOCATIONS

SCALE: NO SCALE
DRAWING No. 2019-030

SHEET No. **25**

FILE NAME: Z:\2019\190381\CA\CD\BROADWAY_OVER_DEPOT_STREET_RAIL_001.DGN



P7



P8



P9



P10



P11



P12



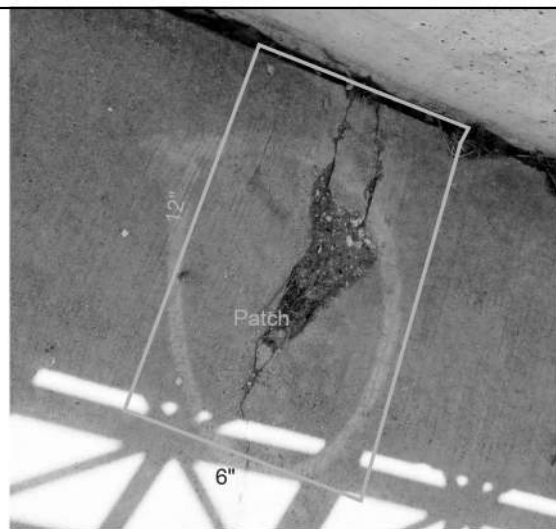
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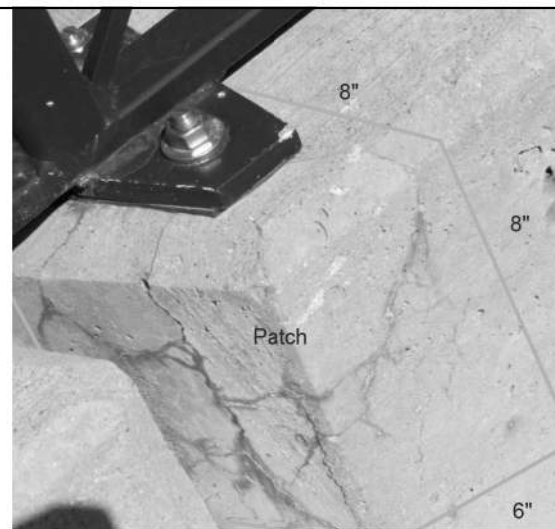
P14



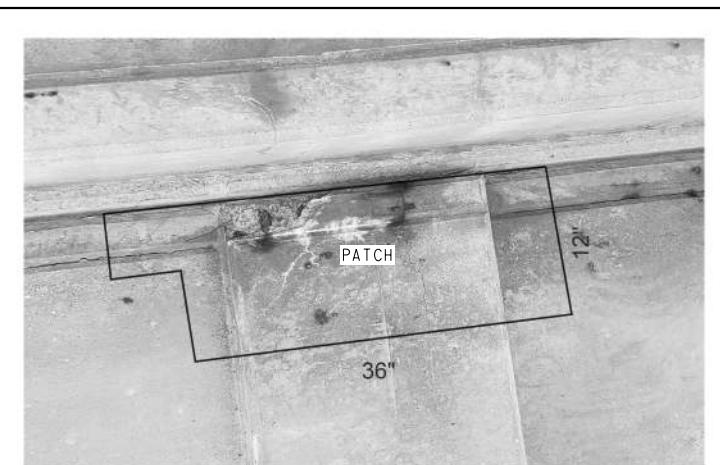
P15



P16



P17



P18

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD



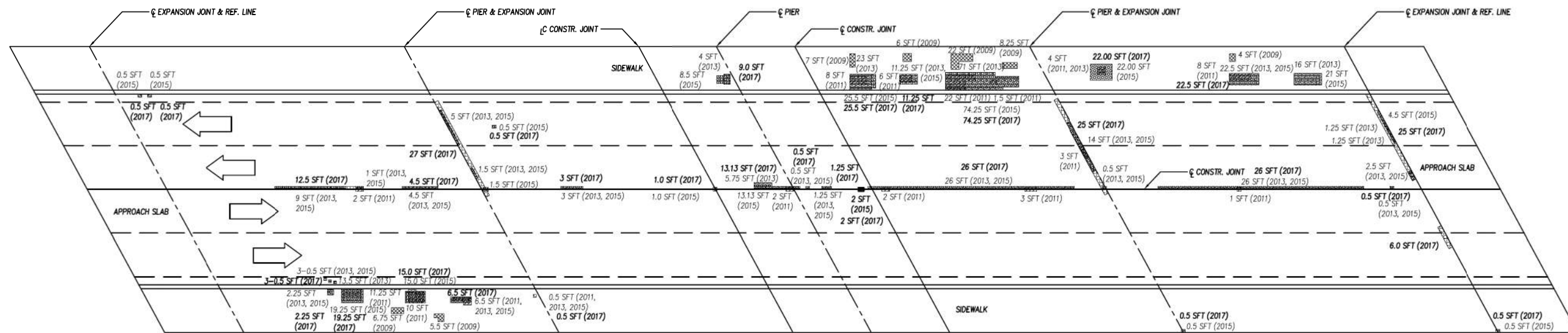
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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 PUBLIC SERVICE
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-1700
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 FAX: 734-769-6810
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 CONCRETE RAIL PATCHING LOCATIONS

SCALE: NO SCALE
 DRAWING No. 2019-030
 SHEET No. 26

FILE NAME: Z:\2019\90381\CAD\BROADWAY_OVER_DEPOT_DECK_DELAM_SURVEY_001.DGN



PLAN OF DECK DEFICIENCIES

SIZES AND LOCATIONS OF DEFICIENCIES SHOWN ON THIS SHEET ARE APPROXIMATED FROM PREVIOUS DECK EVALUATION. CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF DEFICIENCIES AND PATCH AS DIRECTED BY THE ENGINEER. CONTRACTOR TO GIVE ENGINEER 36 HOURS TO VERIFY LIMITS OF PATCHING PRIOR TO PLACING PATCHING MATERIAL.

LEGEND:

- 2009 DECK DELAMINATION
 - 2011 DECK DELAMINATION
 - 2013 DECK DELAMINATION
 - 2015 DECK DELAMINATION
 - 2017 DECK DELAMINATION
- 2009 TOTAL DECK DELAMINATION = 61.50 SFT
 2011 TOTAL DECK DELAMINATION = 79.50 SFT
 2013 TOTAL DECK DELAMINATION = 290.0 SFT
 2015 TOTAL DECK DELAMINATION = 347.15 SFT
 2017 TOTAL DECK DELAMINATION = 402.65 SFT

The Contractor is responsible to wet cure all latex modified patches placed on this project for a period of seven calendar days in accordance with Section 712.03.P and as detailed herein. The Contractor shall ensure that the burlap remains wet for the entire duration of the curing period. The polyethylene film covering the patches shall be securely affixed to each patch. This work shall not be paid for separately, but shall be included in the item of work "Patching Conc, C-L."



BROADWAY BRIDGE OVER DEPOT ST AND NS RR DECK DELAMINATION SURVEY



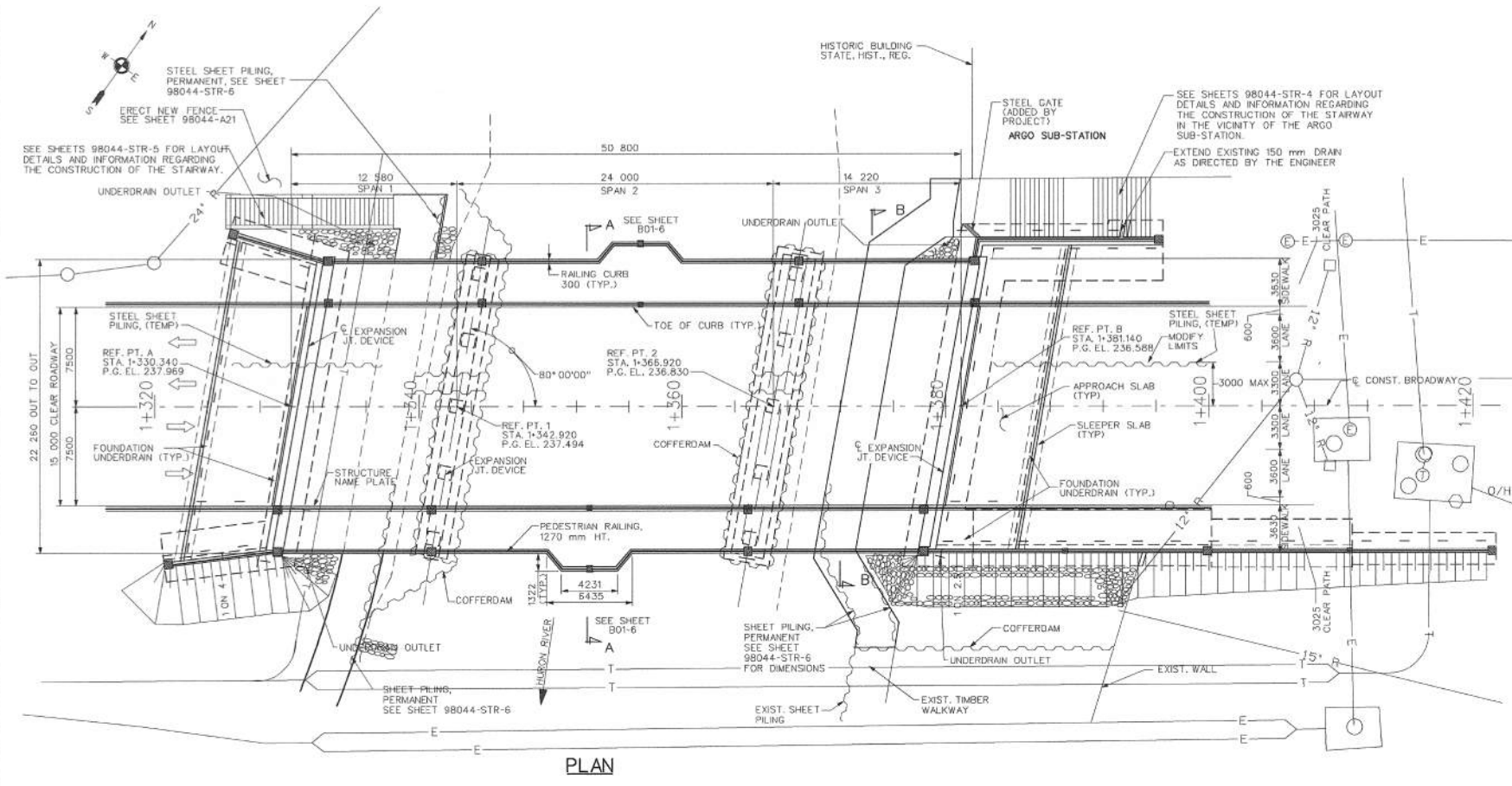
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 DECK DELAMINATION AND PATCHING PLAN

SCALE: NO SCALE
 DRAWING No. 2019-030

FILE NAME: Z:\2019\80081\CAD\CAD\BROADWAY_OVER_HURON_DECK_EXST_001.DGN



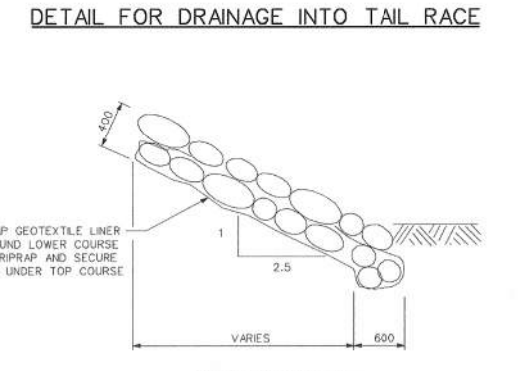
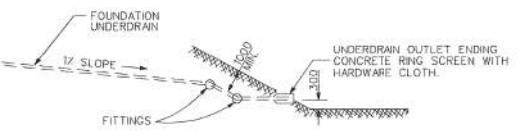
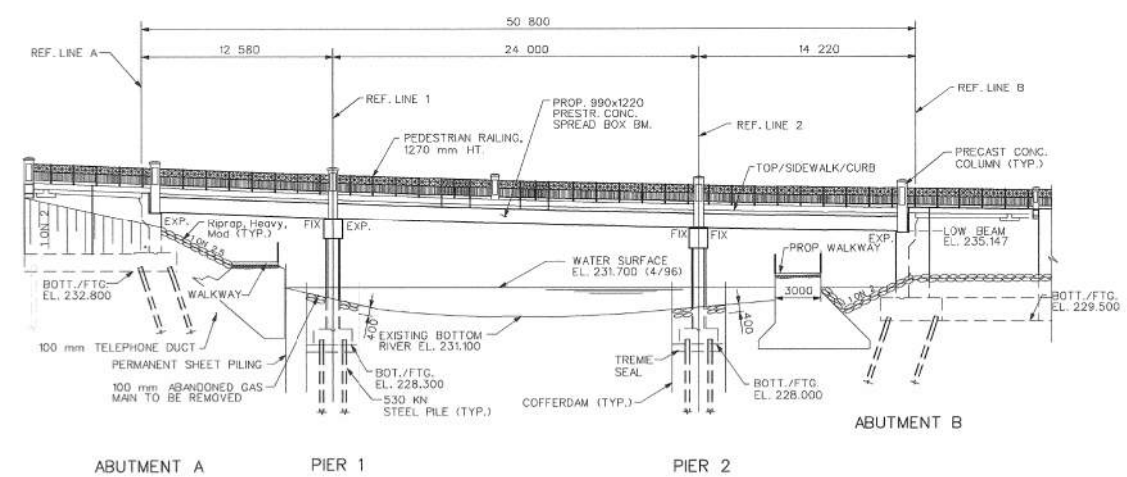
SUMMARY OF HYDRAULIC ANALYSIS							
FLOOD DATA	EXISTING			PROPOSED			
	DISCHARGE (m ³ /s)	WATER SURFACE ELEV @ U/S FACE OF STRUCTURE (m)	VELOCITY IN D/S CHANNEL (m/s)	WATER SURFACE ELEV @ U/S FACE OF STRUCTURE (m)	VELOCITY IN D/S CHANNEL (m/s)	WATERWAY AREA @ D/S FACE (m ²)	CHANGE IN WSEL @ 45 m U/S OF PROPOSED STRUCTURE (m)
50-YEAR	184.55	233.26	3.05	233.28	2.94	67.60	-0.05
100-YEAR	212.38	233.44	3.21	233.47	3.05	69.63	-0.04

MISCELLANEOUS QUANTITIES		
3961	m ³	Backfill, Structure, CP
1	LS	Structures, Rem, Parting, B01
1	LS	Concretedams
3308	m ³	Excavation, Fdn
380	m ²	Riprap, Heavy, Modified
438	m ³	Excavation, Channel
117	m	Underdrain, Fdn, 90 mm
4	ea	Underdrain, Outlet, Long, 100 mm
735	m ²	Steel Sheet Piling, Temp
1	LS	Dewatering, Abutment B
124	m ²	Steel Sheet Piling, Temp, Left in Place
50000	dir/s	Removal and Disposal of Asbestos Materials
1072	m ²	False Decking
1	ea	Structure Name Plate

THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA REQUIRED, REGARDLESS OF NUMBER OF LAYERS REQUIRED.

WHERE POSSIBLE, CONTRACTOR TO REUSE PROTECTIVE SHIELD FROM DEMOLITION PHASE DURING CONSTRUCTION OF NEW SUPERSTRUCTURE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR REUSE OF PROTECTIVE SHIELD. IF NECESSARY, CONTRACTOR MAY, WITH APPROVAL OF THE ENGINEER, ERECT FALSE DECKING. CONTRACTOR WILL BE PAID FOR FALSE DECKING WHERE APPROVED.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE SPECIAL LAYOUTS OF TEMP SHEET PILING TO FACILITATE THE CONSTRUCTION AS DETAILED HEREIN. ALL COSTS ASSOCIATED WITH ADDITIONAL BRACING, NEEDLE BEAMS, ETC., SHALL BE DEEMED TO BE INCLUDED IN THE COST OF "Steel Sheet Piling, Temp." AND WILL NOT BE PAID FOR SEPARATELY. THE CONTRACTOR SHALL NOT RESTRICT THE EXISTING LANE OF INBOUND TRAFFIC ALONG BROADWAY IN ANY MANNER DURING THE CONSTRUCTION OF BRIDGE.



NOTES

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

THE TOP OF ROADWAY SLAB AND TOPS OF SIDEWALKS AND BRIDGE RAILINGS ARE PARALLEL TO THE VERTICAL CURVE.

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 FLOOD PLAN. THE ELEVATIONS MAY BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

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 1 METER AT ABUTMENTS A & B, 4 METERS AT PIERS 1 & 2, AND 1 METERS AT PIER 2. THESE DEPTHS ARE BASED ON A 100 YEAR RUNOFF EVENT.

THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED. THE ESTIMATED MASS OF RIPRAP IS 456 METRIC TONS.

THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 1933 SQUARE KILOMETERS.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.

THE TREMIE SEAL DESIGN WAS BASED ON A WATER SURFACE ELEVATION OF 231.700.

FALSE DECKING SHALL BE USED IN ALL SPANS OVER THE RIVER AND AS DIRECTED BY THE ENGINEER.

SEE SPECIAL PROVISION ENTITLED "ASBESTOS" FOR ADDITIONAL INFORMATION RELATED TO ASBESTOS CONTAINING CONDUITS AND THE LINE.

LEGEND	
EXISTING FENCE	EXISTING SANITARY SEWER & MANHOLE
CONTOUR	UTILITY POLE & GUY
STORM SEWER & CAT. BAS.	FIRE HYDRANT ASSEMBLY
WATER MAIN & VALVE-IN-WELL	LIGHT POLE
WATER MAIN & VALVE-IN-BOX	END SECTION
EXISTING TELEPHONE	EXISTING HD. & GRADE
GAS LINE	LEFT EDGE/HD. GRADE
CABLE T.V.	RIGHT EDGE/HD. GRADE
ELECTRIC	CURB & GUTTER
SIGN	EDGE/GRAVEL
PROPOSED SANITARY SEWER & MANHOLE	PROPOSED CURB & GUTTER
STORM SEWER & CAT. BAS.	WATER MAIN W/F.I.N. ASSEM.
CONTOUR	ROAD & GRADE

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
		4	AS-BUILT	3/24/05	KV	REL
		3	FINAL MDT REVIEW	05/03/02	K.B.	CLR
			FINAL REVIEW SUBMITTAL	11/21/01		
			G.I. SUBMITTAL	D1/01		

3 WORKING DAYS BEFORE YOU DIG
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ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER HURON RIVER
(B01 OF 81102A)
GENERAL PLAN OF STRUCTURE

SCALE: 1:200

DRAWING NO. **98044-B01-5**

SHEET NO. 279 OF 334

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BROADWAY OVER HURON RIVER

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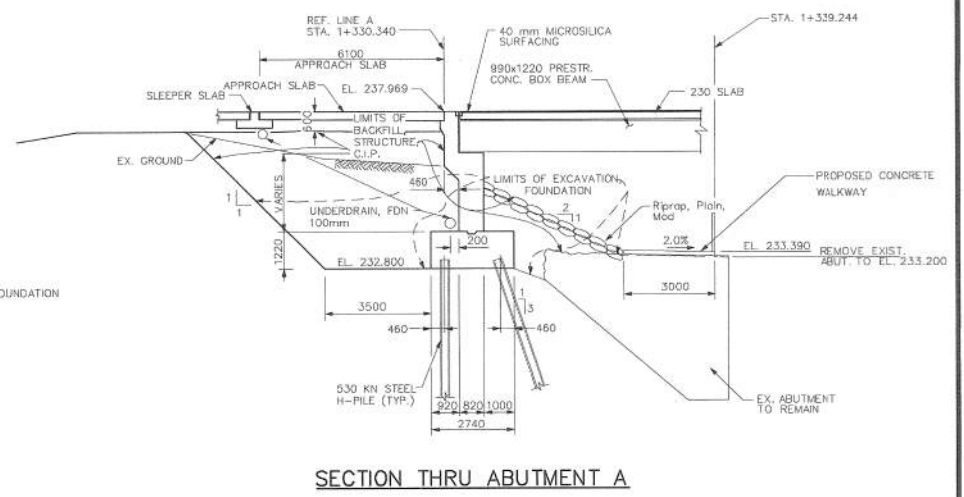
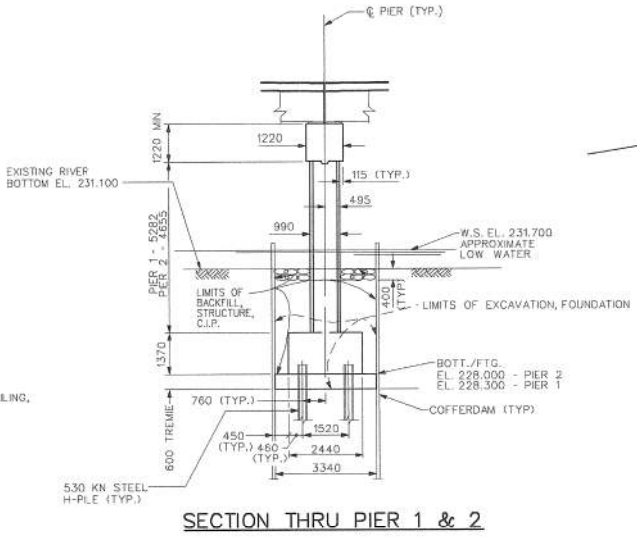
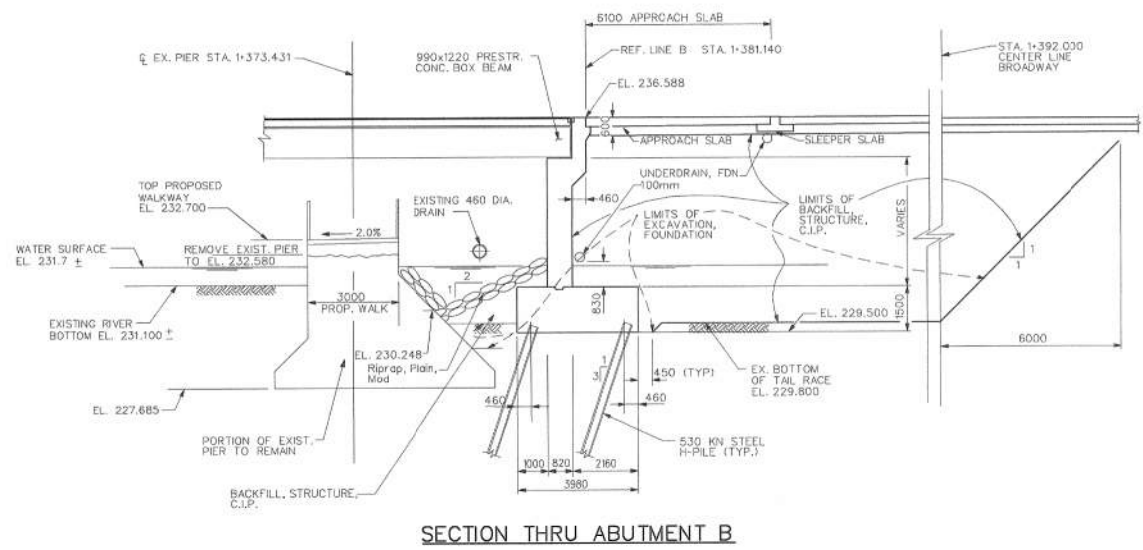
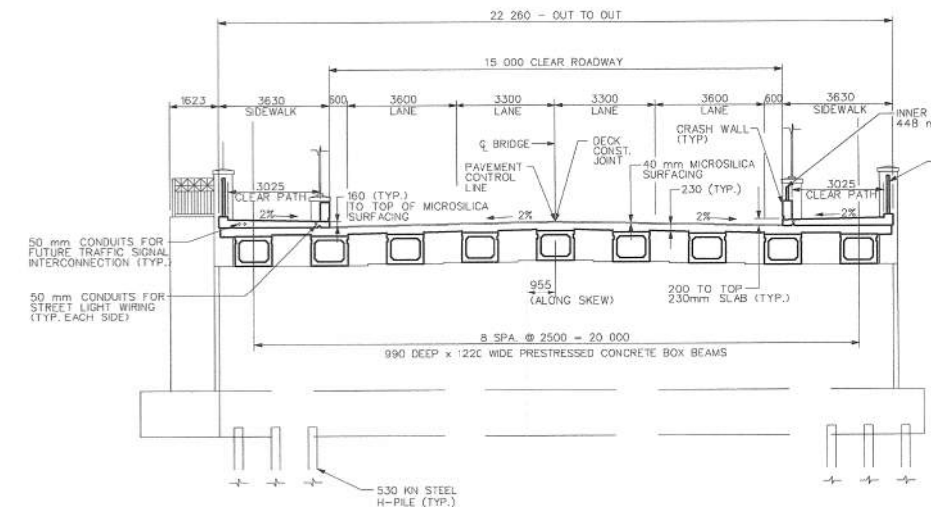
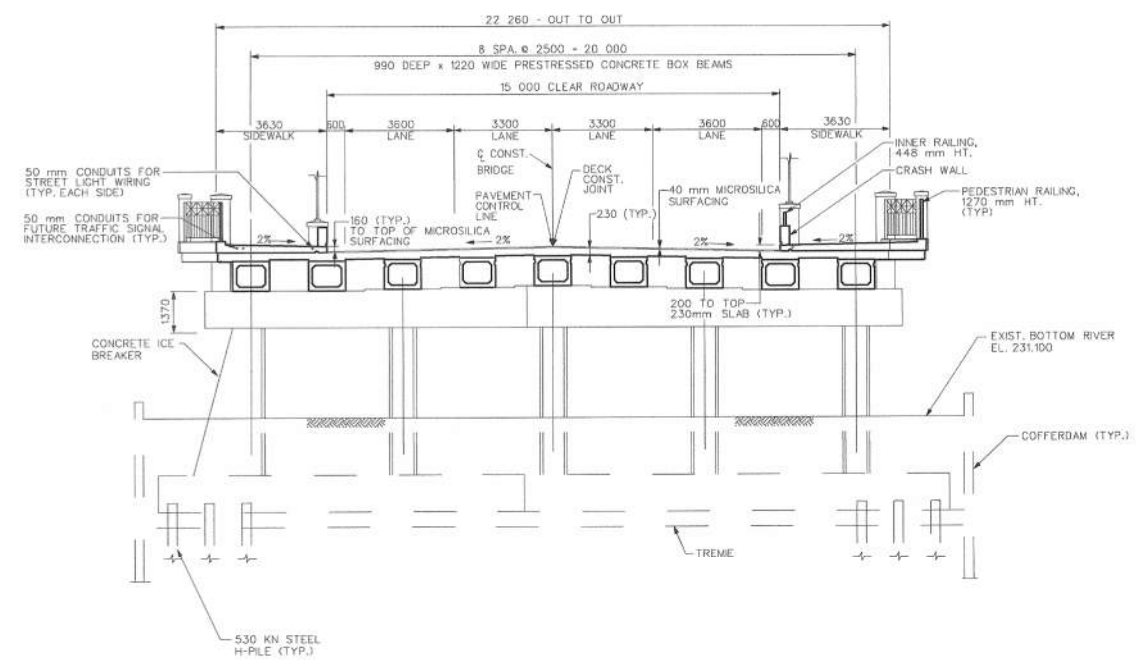
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING No. 2019-030
SHEET No. 28

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FILE NAME: Z:\2019\80081\CAD\CDD\BROADWAY_OVER_HURON_DECK_EXST_002.DGN



NOTE: Backfill, Structure, CIP is paid for on Sheet 98044-B01-5

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ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER HURON RIVER (B01 OF 81102A)
GENERAL PLAN OF STRUCTURE

APPROVED BY: _____

EXISTING FENCE		EXISTING SANITARY SEWER & MANHOLE		EXISTING TELEPHONE		EXISTING RD. E GRADE		PROPOSED SANITARY SEWER & MANHOLE		PROPOSED CURB & GUTTER	
---	CONTOUR	---	UTILITY POLE & GUY	---	GAS LINE	---	LEFT EDGE/PRO. GRADE	---	STORM SEWER & CAT. BAS.	---	---
---	STORM SEWER & CAT. BAS.	---	FIRE HYDRANT ASSEMBLY	---	CABLE T.V.	---	RIGHT EDGE/PRO. GRADE	---	WATER MAIN W/P-H. ASSEM.	---	---
---	WATER MAIN & VALVE-IN-WELL	---	LIGHT POLE	---	ELECTRIC	---	CURB & GUTTER	---	CONTOUR	---	---
---	WATER MAIN & VALVE-IN-BOE	---	END SECTION	---	SDN	---	EDGE/GRAVEL	---	ROAD E GRADE	---	---

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY
		4	AS-BUILT	3/24/05	KV	REL
		3	FINAL MDT REVIEW	05/03/02	K.B.	CLR
			FINAL REVIEW SUBMITTAL	11/21/01		
			G.I. SUBMITTAL	01/01		

SCALE	1"=10'
DRAWING NO.	98044-B01-6
SHEET No.	280 OF 334

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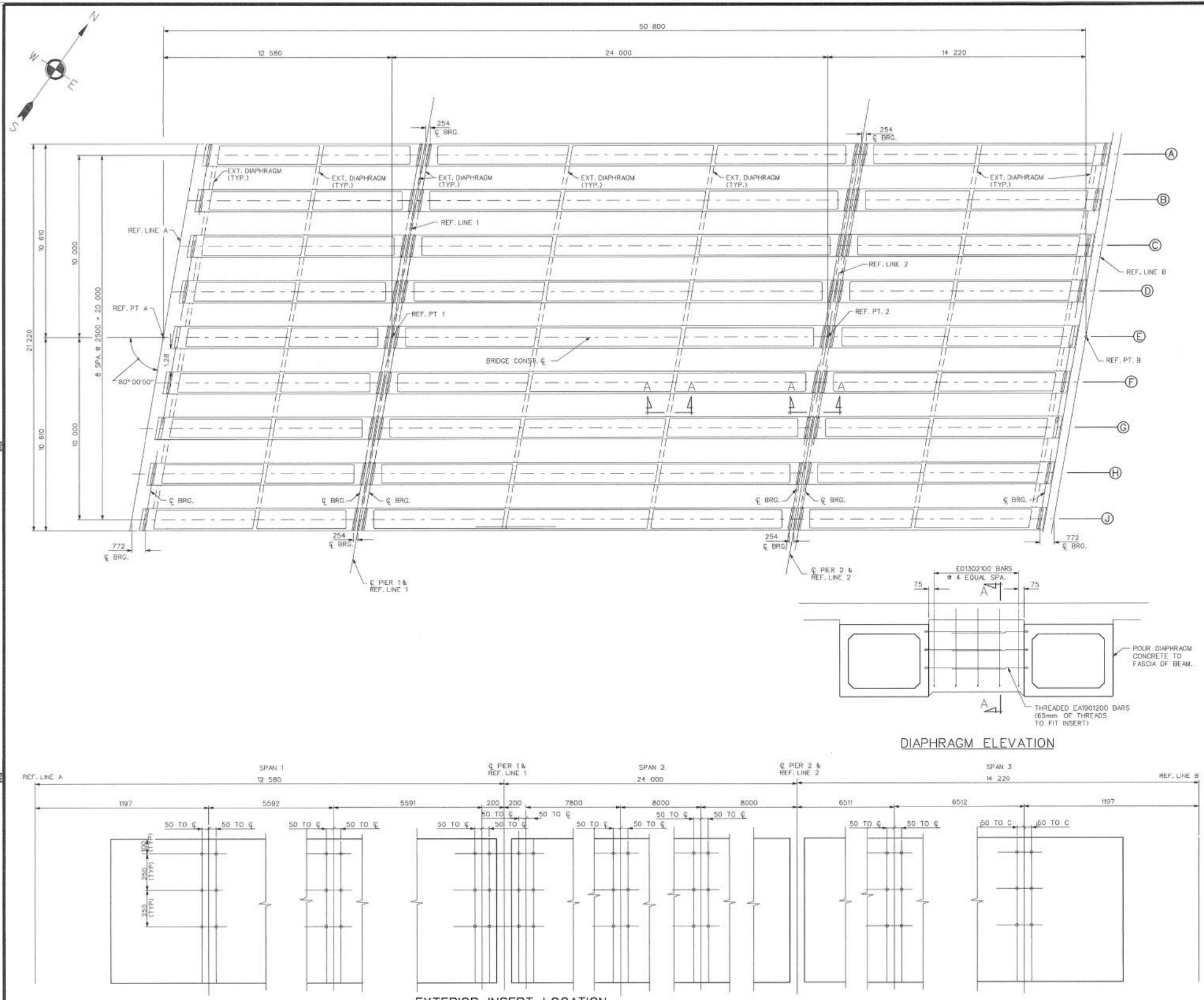
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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

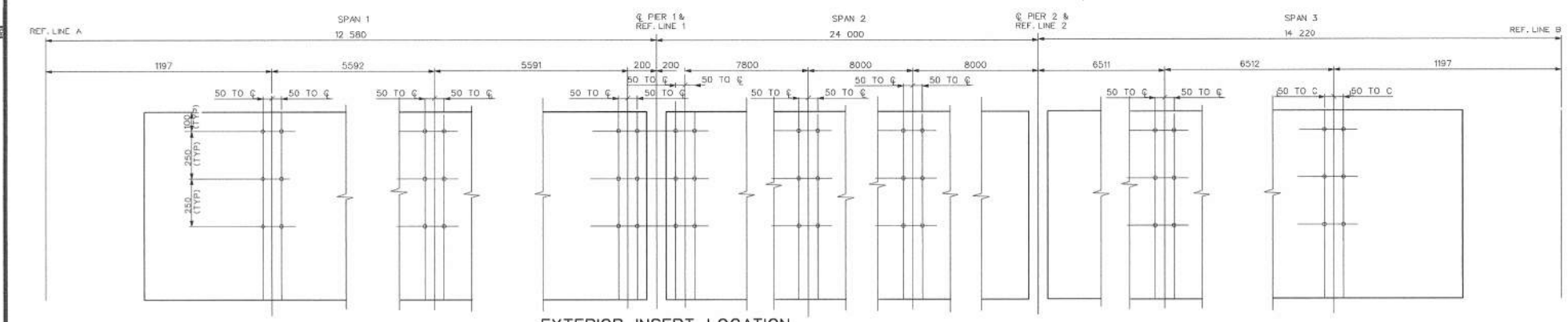
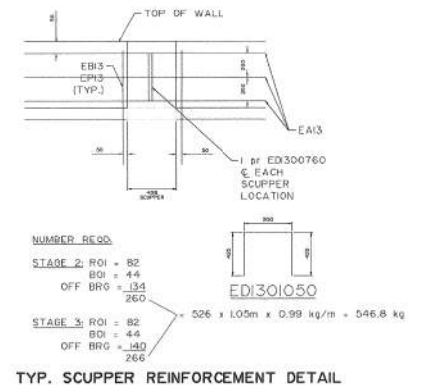
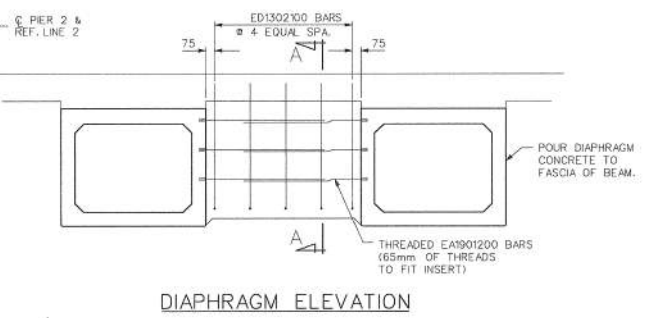
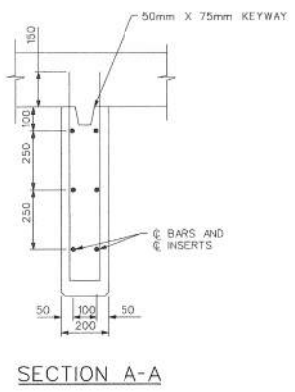
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DRAWING No. 2019-030
SHEET No. 29

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FILE NAME: Z:\2019\80081\CAD\BROADWAY_OVER_HURON_DECK_EXST_003.DGN



NOTES:
 PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS AS FOLLOWS:
 1. 24 mm DIA. - 195 kN PRESTRESS
 CONCRETE INSERTS SHALL BE PARALLEL TO REF. LINE AND 19mm DIAMETER RICHMOND, TYPE T2 OR TYPE T12; DAYTON SUPERIOR, TYPE B-1 HEAVY OR TYPE B-18; WILLIAMS, TYPE C-12 OR TYPE C-18; MEADOW STEEL, TYPE CT-2 OR TYPE C-4; OR EQUAL.
 TOTAL ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE FOR SPAN 1 - 2 mm, SPAN 2 - 14mm, SPAN 3 - 3mm.
 THE ESTIMATED BEAM CAMBER AT RELEASE IS SPAN 1 - 3 mm, SPAN 2 - 44 mm, SPAN 3 - 10 mm.
 THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.
 THREADING OF REINFORCEMENT AND INSTALLATION INTO CONCRETE INSERTS IS INCLUDED IN THE BID ITEM "PRESTRESSED CONCRETE BOX BEAM, FURNISHED, 990mm".
 LIFTING DEVICES SHALL BE REMOVED AFTER BEAMS ARE ERECTED. REMOVAL IS INCLUDED IN THE BID ITEM "PRESTRESSED CONCRETE BOX BEAM, ERECTED, 990mm".
 POSITION DWELLS SHALL BE HOT-DIP GALVANIZED ACCORDING TO AASHTO M 232. POSITION DWELLS ARE INCLUDED IN PAYMENT FOR "PRESTRESSED CONCRETE BOX BEAMS, FURNISHED, 990mm".
 PRESTRESSED STRAND SHALL BE 15.24mm NOMINAL DIAMETER MEETING THE REQUIREMENTS OF ASTM A416M, GRADE 1860, LOW RELAXATION STRAND.



LEGEND

EXISTING FENCE	EXISTING TELEPHONE	EXISTING RR. & GRADE	PROPOSED SANITARY SEWER & MANHOLE
CONTOUR	GAS LINE	LEFT EDGE/RR. GRADE	STORM SEWER & CAT. BAS.
STORM SEWER & CAT. BAS.	CABLE T.V.	RIGHT EDGE/RR. GRADE	WATER MAIN W/F.H. ASSEM.
WATER MAIN & VALVE-IN-WELL	ELECTRIC	CURB & GUTTER	CONTOUR
WATER MAIN & VALVE-IN-BOX	STON	EDGE/DRAWN	ROAD & GRADE
EXISTING SANITARY SEWER & MANHOLE	UTILITY POLE & GUY	PROPOSED CURB & GUTTER	
FIRE HYDRANT ASSEMBLY	END SECTION		

REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY
4	NO AS-BUILT NEEDED	3/24/05	KV	REL
3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR
	FINAL REVIEW SUBMITTAL	11/21/01		
	G.I. SUBMITTAL	01/01		

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BROADWAY BRIDGES RECONSTRUCTION PROJECT
 BROADWAY OVER HURON RIVER (B01 OF 81102A)
 BOX BEAM DETAILS

SCALE: 1:100

DRAWING NO. 98044-B01-34

SHEET NO. 30B OF 33A

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BROADWAY OVER HURON RIVER

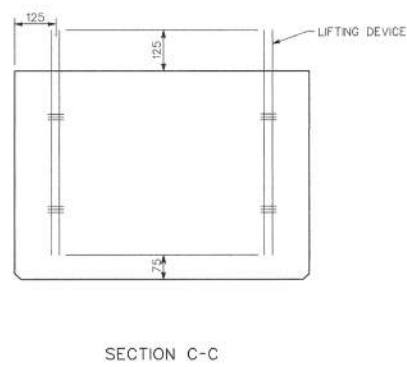
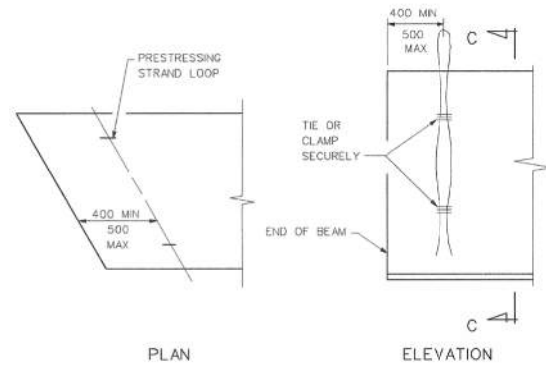
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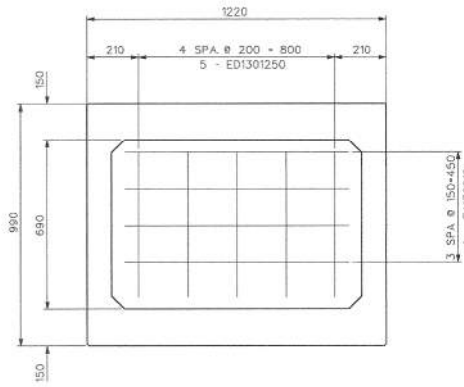
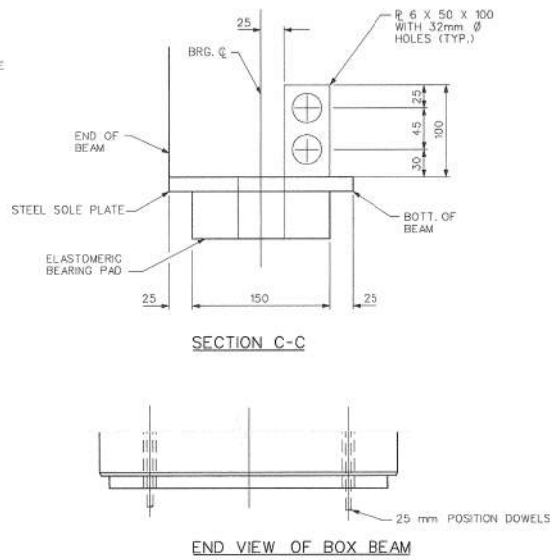
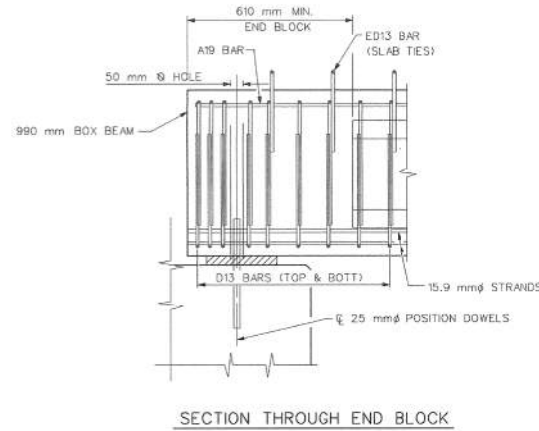
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 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 EXISTING BOX BEAM DETAILS

SCALE: NO SCALE
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 SHEET No. 30



DETAILS OF LIFTING DEVICE

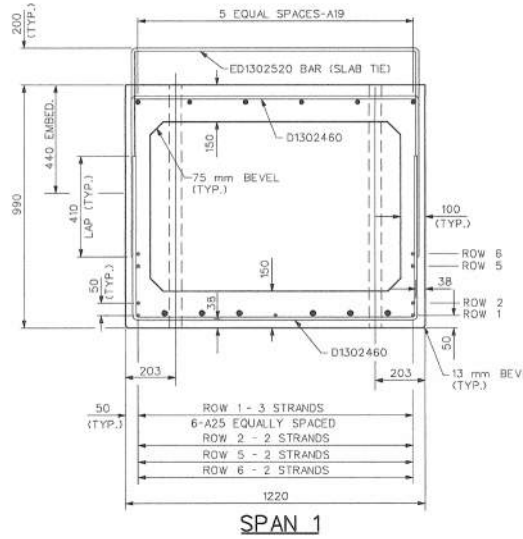
NOTE: LIFTING OF BEAM SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES. OTHER TYPES OF LIFTING DEVICES MAY BE USED SUBJECT TO APPROVAL BY THE ENGINEER.



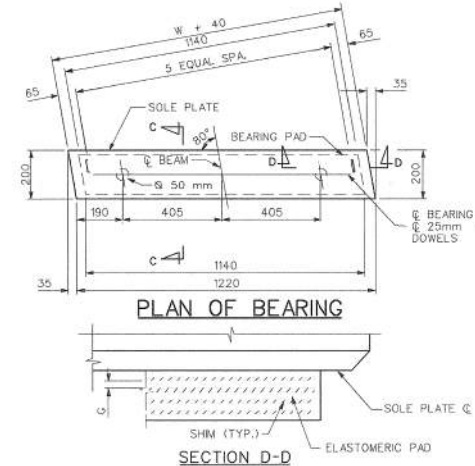
INTERIOR DIAPHRAGM DETAILS

GRIDER	TILT OF SOLE PLATE IN %					
	ABUT A	PIER 1		PIER 2		ABUT B
	SPAN 1	SPAN 1	SPAN 2	SPAN 2	SPAN 3	SPAN 3
A	3.67	3.67	2.67	2.67	1.62	1.62
B	3.69	3.69	2.69	2.69	1.64	1.64
C	3.71	3.71	2.71	2.71	1.67	1.67
D	3.74	3.74	2.74	2.74	1.69	1.69
E	3.76	3.76	2.76	2.76	1.72	1.72
F	3.79	3.79	2.79	2.79	1.74	1.74
G	3.81	3.81	2.81	2.81	1.77	1.77
H	3.84	3.84	2.84	2.84	1.79	1.79
J	3.86	3.86	2.86	2.86	1.82	1.82

	ELASTOMERIC PAD & SOLE PLATE DIMENSIONS					
	SPAN 1	SPAN 2	SPAN 3	SPAN 1	SPAN 2	SPAN 3
L	150	150	150	150	150	150
W	1140	1140	1140	1140	1140	1140
THICKNESS	51	51	51	51	51	51
NO. OF INT. LAYERS	3	3	3	3	3	3
MIN. STEEL SOLE PL THICKNESS	20	20	20	20	20	20
STEEL SOLE PL LENGTH	1239	1239	1239	1239	1239	1239
STEEL SOLE PL WIDTH	200	200	200	200	200	200
COVER LAYER THICKNESS	6	6	6	6	6	6
INT. LAYER THICKNESS, G	9	9	9	9	9	9
SHIM THICKNESS	3	3	3	3	3	3



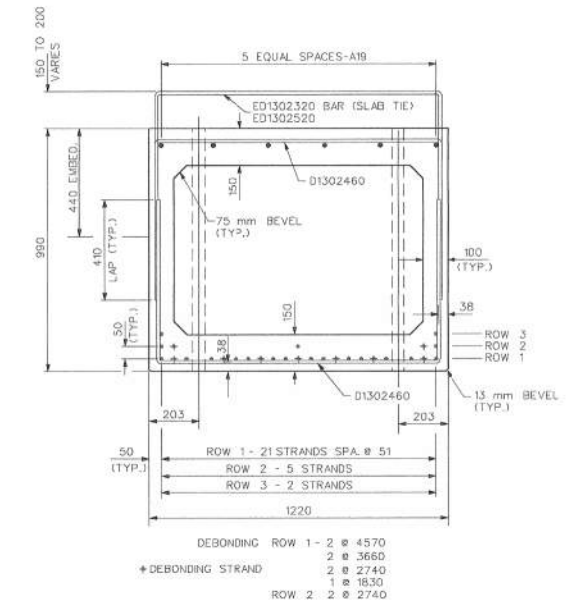
SPAN 1



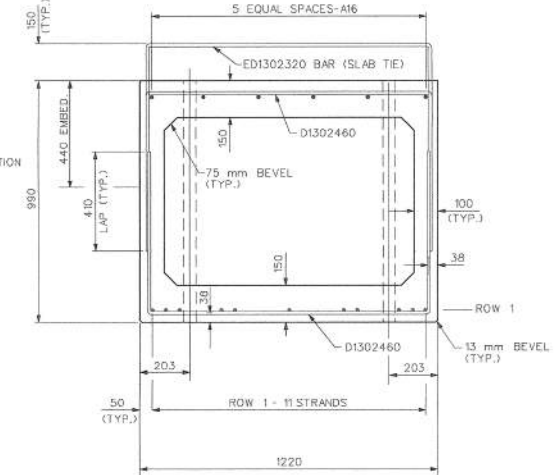
PLAN OF BEARING

SECTION D-D

NOTE: STEEL SOLE PLATE AND APPURTENANCES SHALL BE FABRICATED FROM A360 M270 M GRADE 250 STRUCTURAL STEEL AND HOT-DIP GALVANIZED ACCORDING TO ASTM N2.



SPAN 2



SPAN 3

PRESTRESSING STRAND LIFTING DEVICES		
BEAM MASS (METRIC TONS)	STRAND SIZE (mm)	NO. OF STRANDS
18	9.53	2
24	11.11	2
33	12.7	2
27	9.53	3
37	11.11	3
49	12.7	3



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BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER HURON RIVER (B01 OF 81102A)
BOX BEAMS DETAILS

SCALE: NTS
DRAWING NO. **98044-B01-36**
SHEET NO. 310 OF 334

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY	APPROVED BY:
		4	NO AS-BUILT NEEDED	3/24/05	KV	REL	
		3	FINAL MDT REVIEW	05/03/02	K.B.	CLR	
			FINAL REVIEW SUBMITTAL	11/21/01			
			G.I. SUBMITTAL	01/01			

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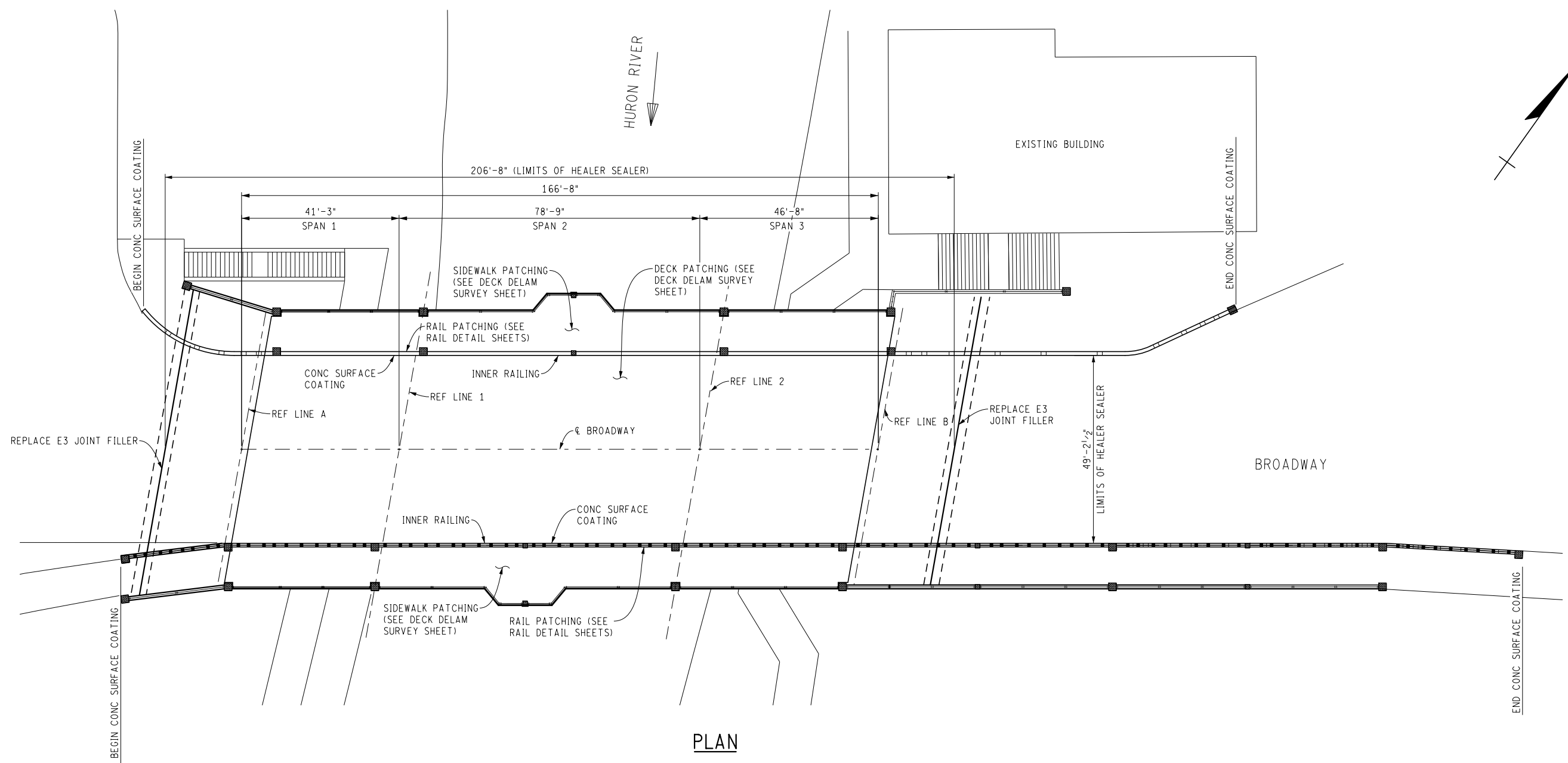
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CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING BOX BEAM DETAILS

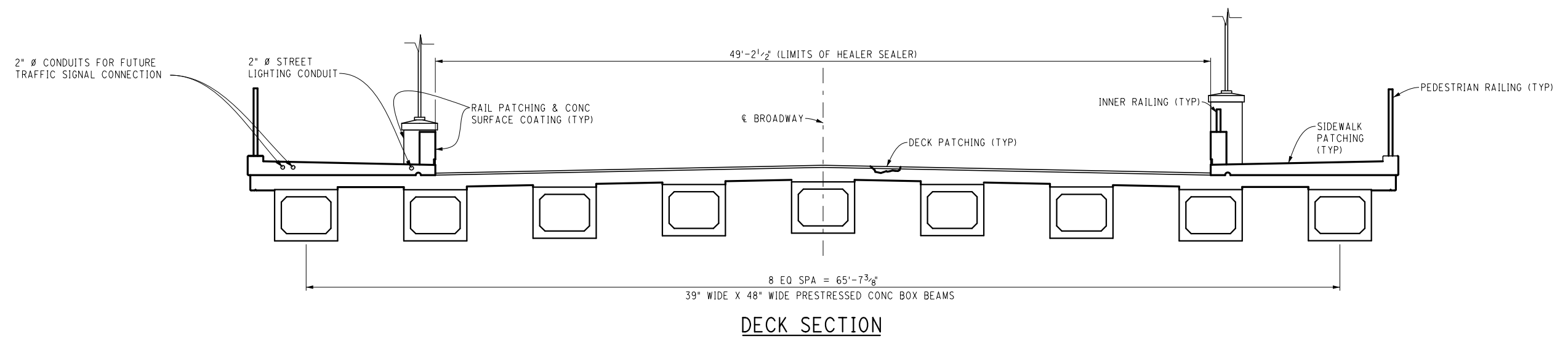
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SHEET No. 31

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PLAN



DECK SECTION

BROADWAY OVER HURON RIVER

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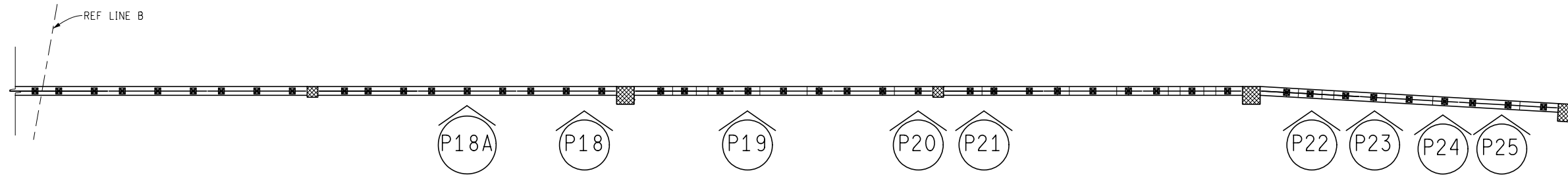
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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING No. 2019-030

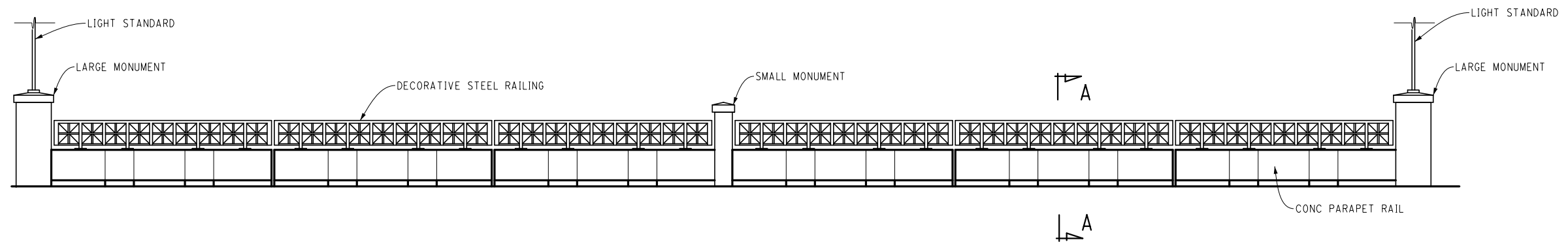
SHEET No. **32**

LEGEND

P## = LOCATION OF RAIL PATCHES
SEE SHEET 34 FOR SPECIFIC
PATCH DIMENSIONS

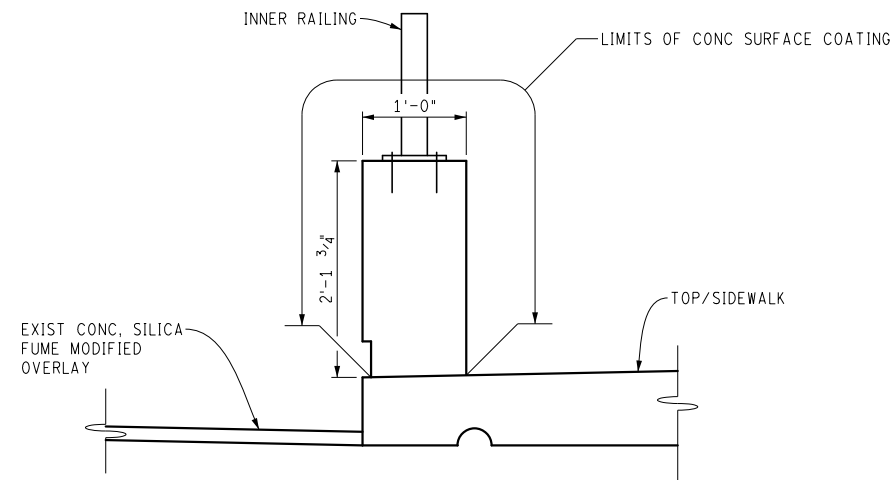


PLAN - SOUTH RAIL PATCHING LOCATIONS



ELEVATION - INNER RAIL

PROTECT EXIST MONUMENTS FROM APPLICATION OF CONC SURFACE COATING RAILING. ALL MEANS OF PROTECTION SHALL BE COMPLETELY EFFECTIVE (TYP ALL MONUMENTS).



SECTION A-A

NOTE:

IN ORDER TO PERFORM THE BARRIER RAIL REPAIRS, THE CONTRACTOR SHALL REMOVE, STORE, PROTECT, AND REPLACE WHEN THE PATCHES HAVE BEEN PROPERLY CURED, THE NEEDED METAL RAILING SEGMENTS. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ASSOCIATED ITEMS OF WORK.

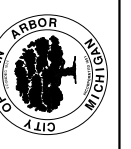
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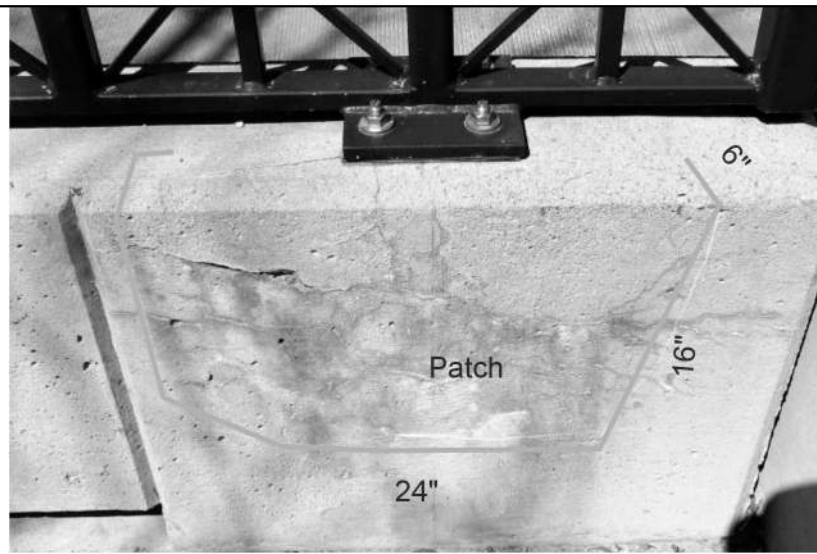
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ANN ARBOR 734-794-4810
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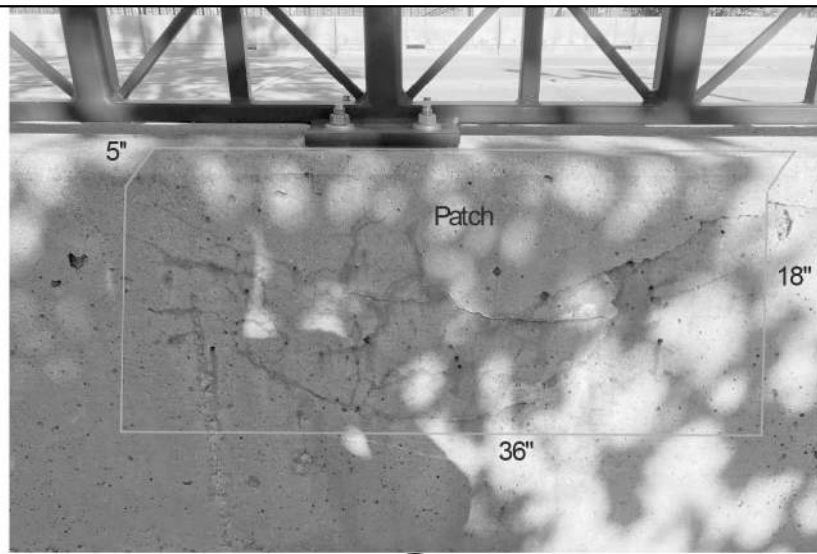


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CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONC RAIL PATCHING LOCATIONS

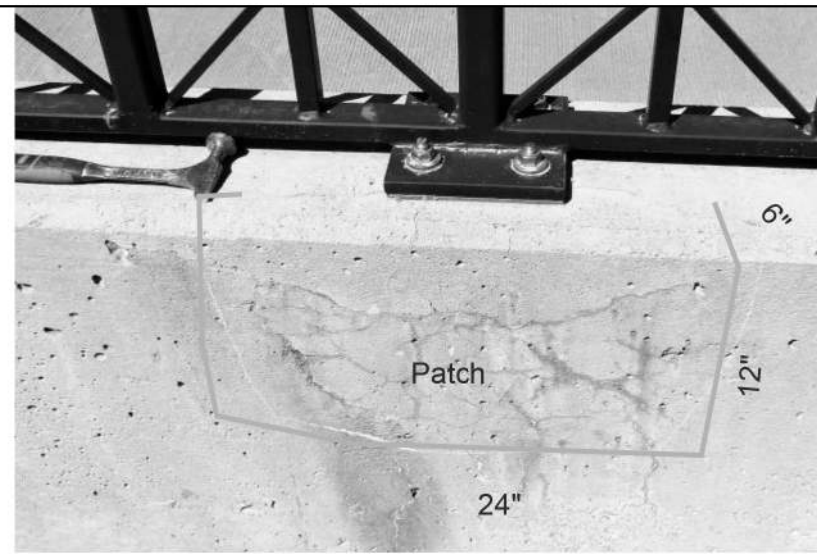
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DRAWING No. 2019-030



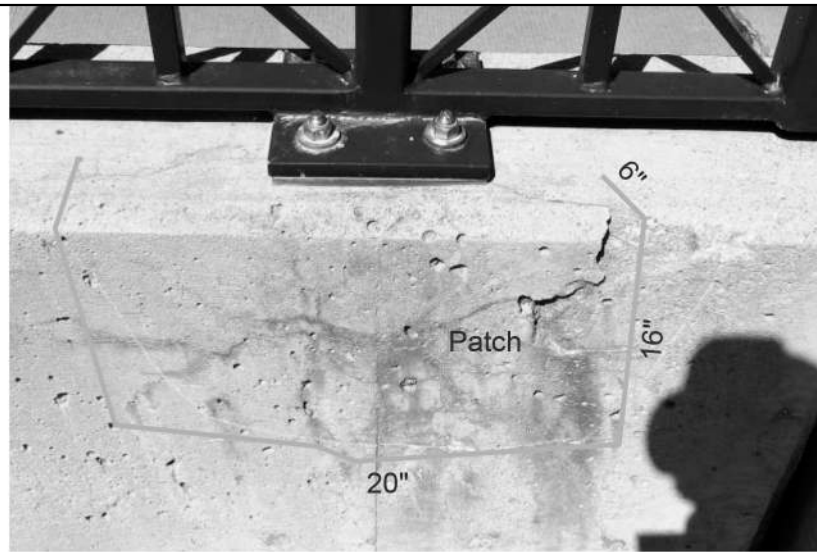
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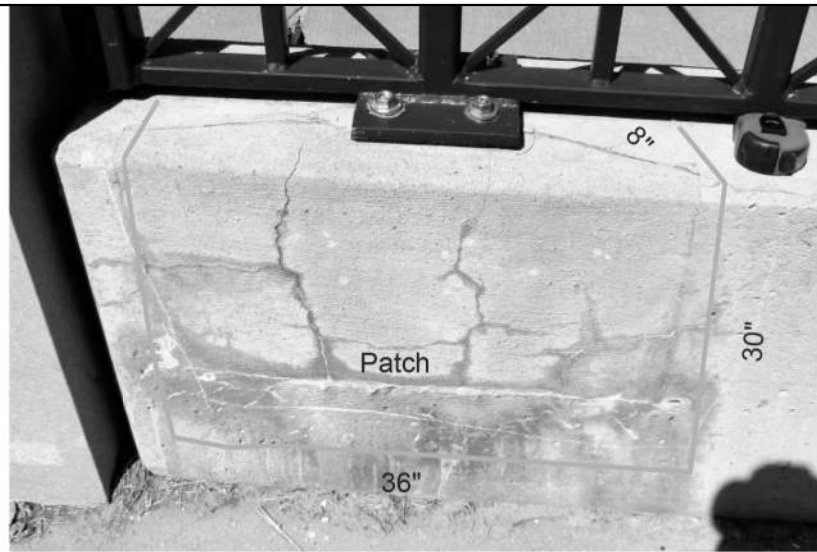
P18A



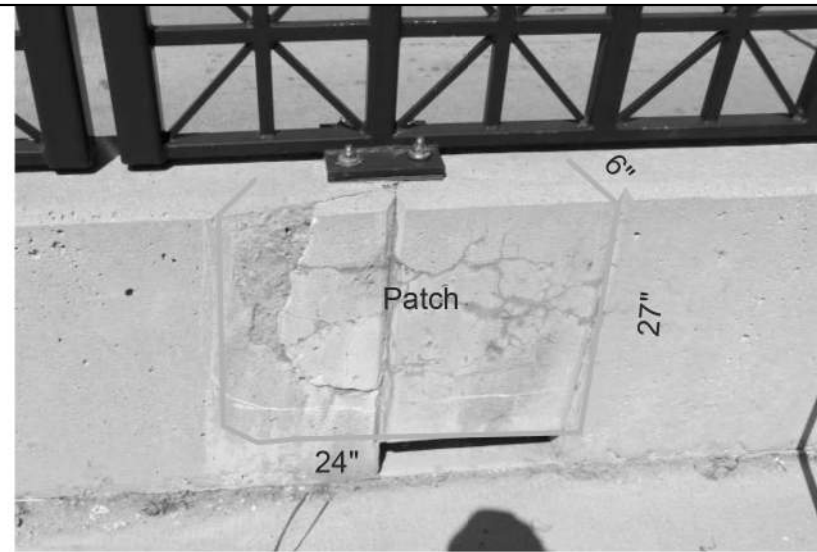
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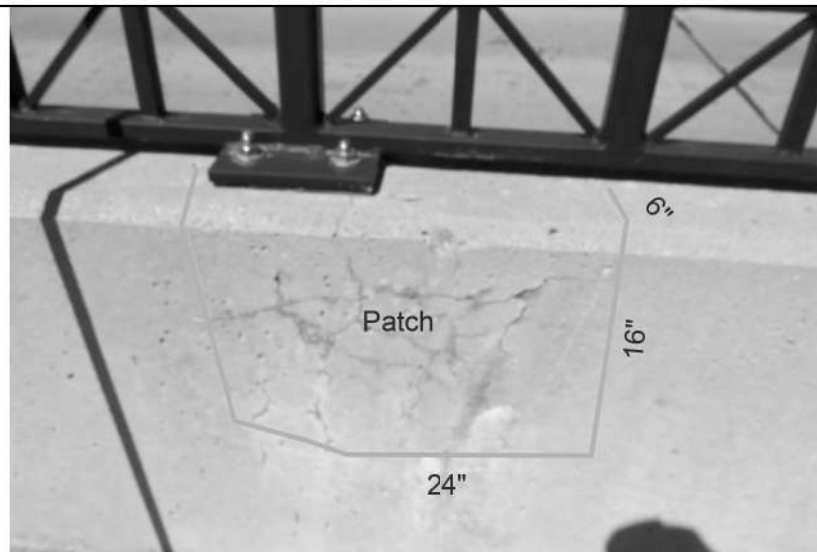
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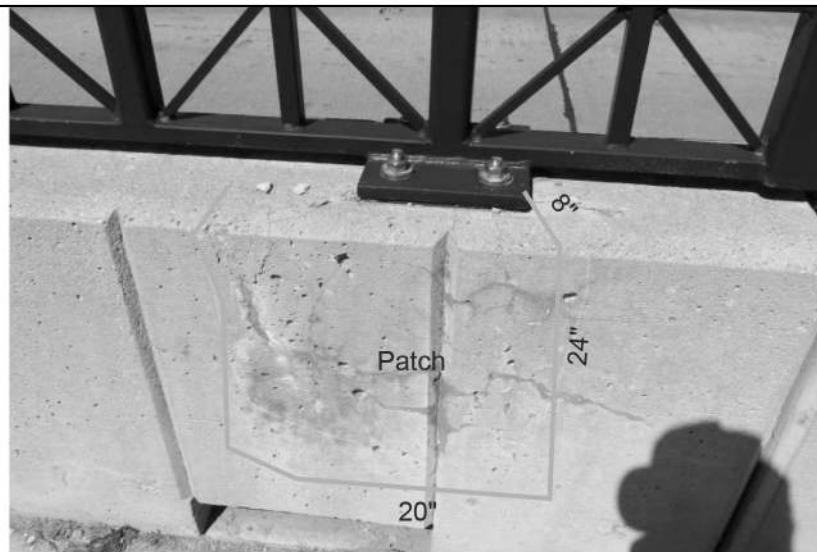
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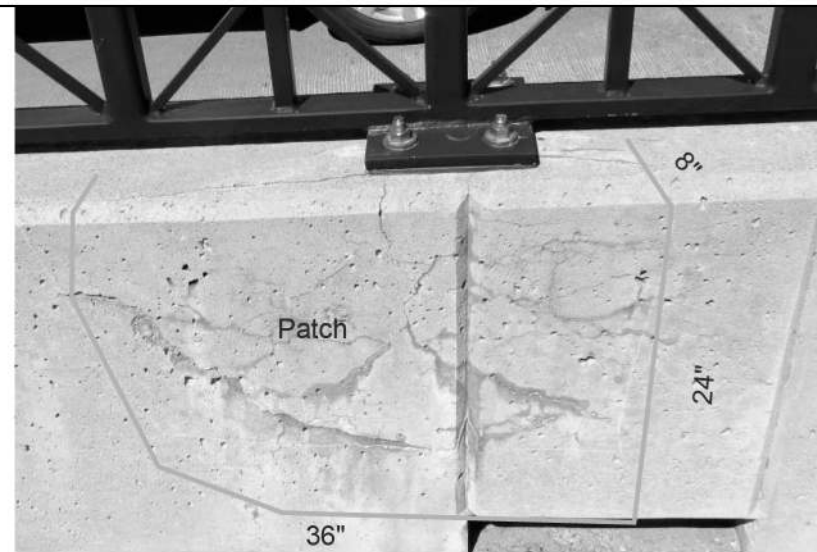
P22



P23



P24



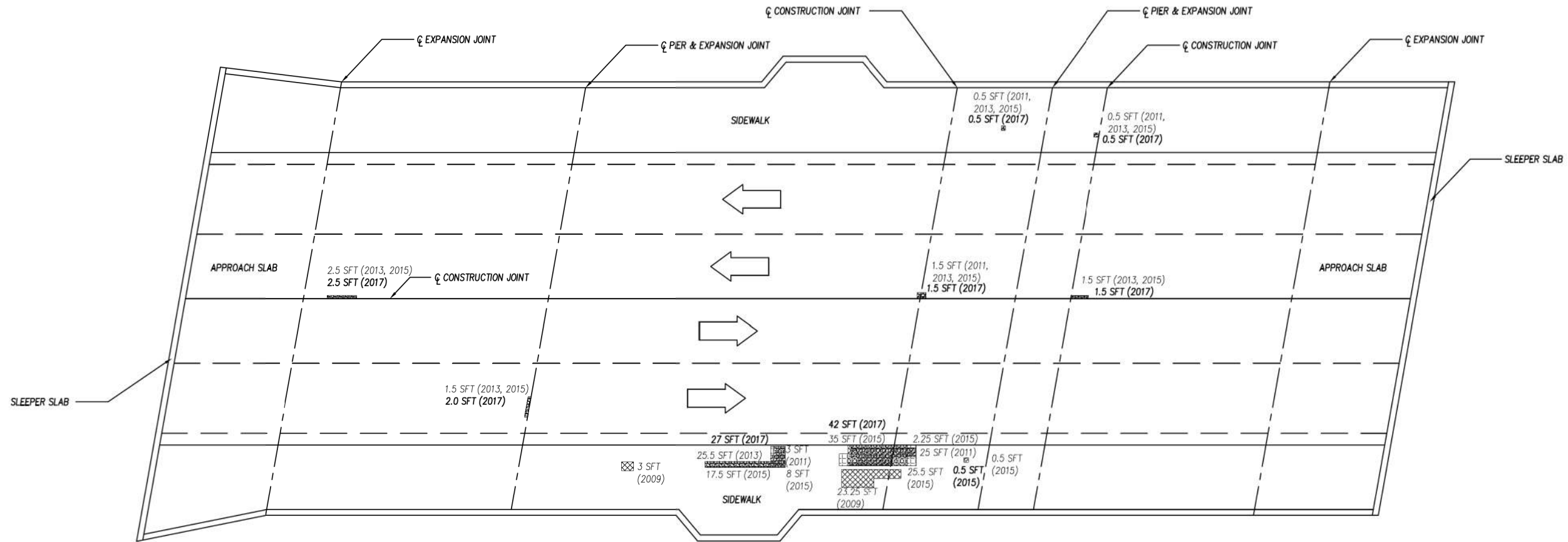
P25

BROADWAY OVER HURON RIVER

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PLAN OF DECK DEFICIENCIES

SIZES AND LOCATIONS OF DEFICIENCIES SHOWN ON THIS SHEET ARE APPROXIMATED FROM PREVIOUS DECK EVALUATION. CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF DEFICIENCIES AND PATCH AS DIRECTED BY THE ENGINEER. CONTRACTOR TO GIVE ENGINEER 36 HOURS TO VERIFY LIMITS OF PATCHING PRIOR TO PLACING PATCHING MATERIAL.

LEGEND:

- 2009 DECK DELAMINATION
- 2011 DECK DELAMINATIONS AND SPALLS
- 2013 DECK DELAMINATIONS AND SPALLS
- 2015 DECK DELAMINATIONS AND SPALLS
- 2017 DECK DELAMINATIONS AND SPALLS

2009 TOTAL DECK DELAMINATION = 26.25 SFT
 2011 TOTAL DECK DELAMINATION = 30.50 SFT
 2013 TOTAL DECK DELAMINATION = 51.0 SFT
 2015 TOTAL DECK DELAMINATION = 64.73 SFT
 2017 TOTAL DECK DELAMINATION = 73.73 SFT

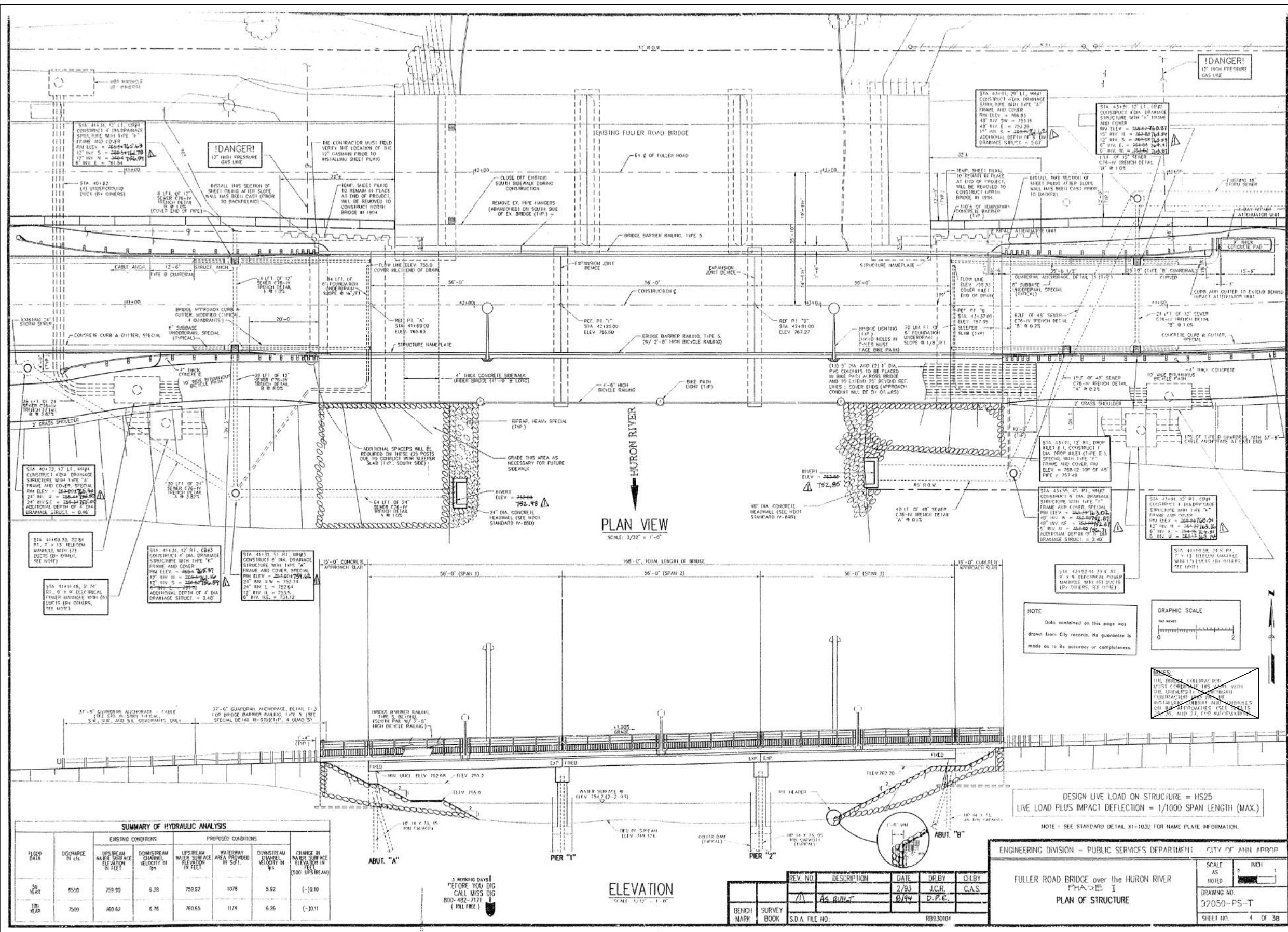
The Contractor is responsible to wet cure all latex modified patches placed on this project for a period of seven calendar days in accordance with Section 712.03.P and as detailed herein. The Contractor shall ensure that the burlap remains wet for the entire duration of the curing period. The polyethylene film covering the patches shall be securely affixed to each patch. This work shall not be paid for separately, but shall be included in the item of work "Patching Conc, C-L."



BROADWAY BRIDGE OVER THE HURON RIVER
 DECK DELAMINATION SURVEY

CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106-1777 ANN ARBOR, MI 48106-1777 734-794-6410 www.a2gov.org	KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS DECK DELAMINATION AND PATCHING PLAN	SCALE: NO SCALE DRAWING No. 2019-030
SHEET No. 35	DESCRIPTION DATE DRAWN CHECKED REV.

FILE NAME: Z:\2019\190381\CAD\CD\FULLER_EXST_001.DGN



SUMMARY OF HYDRAULIC ANALYSIS						
FLOOD DATA	DISCHARGE (CFS)	EXISTING CONDITIONS		PROPOSED CONDITIONS		
		UPSTREAM WATER SURFACE ELEVATION (FEET)	CHANNEL CHARGE VELOCITY (FPS)	UPSTREAM WATER SURFACE ELEVATION (FEET)	WATERWAY AREA PROVIDED (SQ FT)	CHANNEL CHARGE VELOCITY (FPS)
50 YEAR	6500	759.90	6.38	759.92	1078	5.92 (-10.10)
100 YEAR	7500	760.62	6.76	760.65	1174	6.26 (-10.11)

3 WORKING DAYS BEFORE YOU DO CALL MASS INC 800-482-7171 (TOLL FREE)

ELEVATION SCALE: 1/2" = 1'-0"

REV. NO.	DESCRIPTION	DATE	DR. BY	CHECKED BY
1	AS BUILT	8/94	J.C.R.	C.A.S.

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE I
PLAN OF STRUCTURE

SCALE: AS SHOWN

DRAWING NO. 32050-PS-T
SHEET NO. 4 OF 38

FOR INFORMATION ONLY
DO NOT WORK FROM THIS SHEET.
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NO PAY ITEMS ARE SHOWN.

FULLER ROAD OVER HURON RIVER (EASTBOUND)

811 Know what's below. Call before you dig.

NO.	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICES DEPARTMENT
301 EAST HURON STREET
ANN ARBOR, MI 48106
ANN ARBOR 811 734-764-6847
ANN ARBOR 811 734-764-6810
www.a2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS

EXISTING GENERAL PLAN OF STRUCTURE

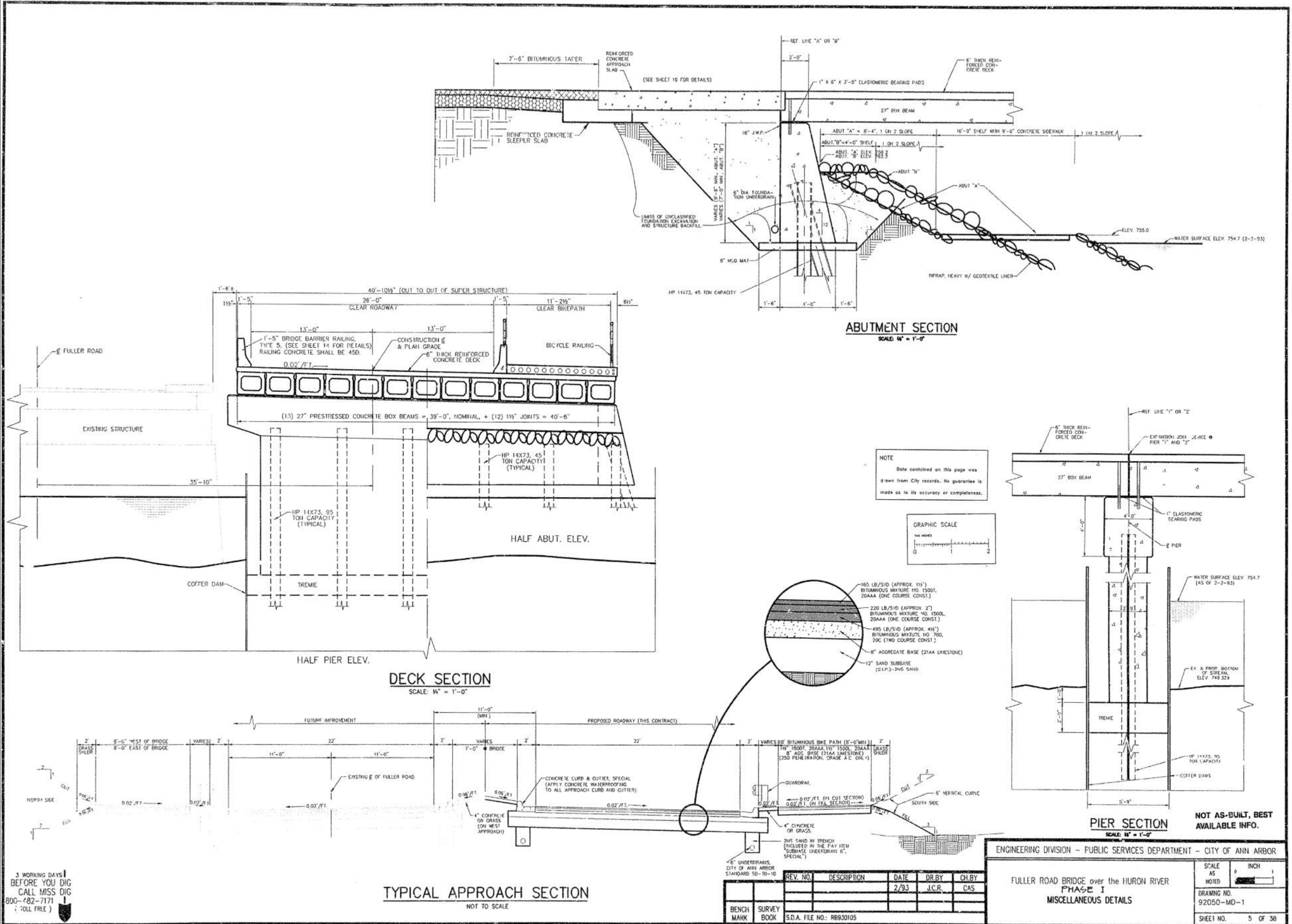
SCALE: NO SCALE

DRAWING No. 2019-030

SHEET No. 36

FILE NAME: Z:\2019\180381\CADD\FULLER_EAST_002.DGN

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)



REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
		2/93	J.C.R.	CAS

BENCH MARK SURVEY BOOK S.D.A. FILE NO.: RB930105

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE I
MISCELLANEOUS DETAILS

SCALE AS NOTED

DRAWING NO. 92050-MD-1

SHEET NO. 5 OF 38

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FULLER ROAD OVER HURON RIVER
(EASTBOUND)

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Know what's below.
Call before you dig.

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PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-1687
ANN ARBOR 734-794-8410
www.a2gov.org

CITY OF ANN ARBOR
MICHIGAN

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

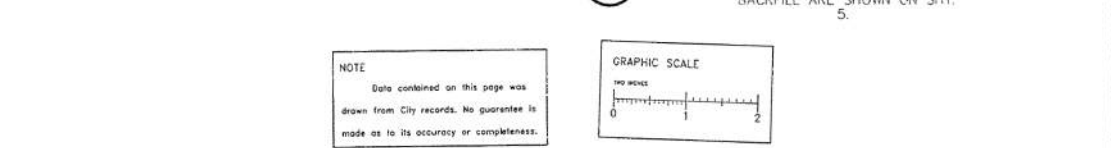
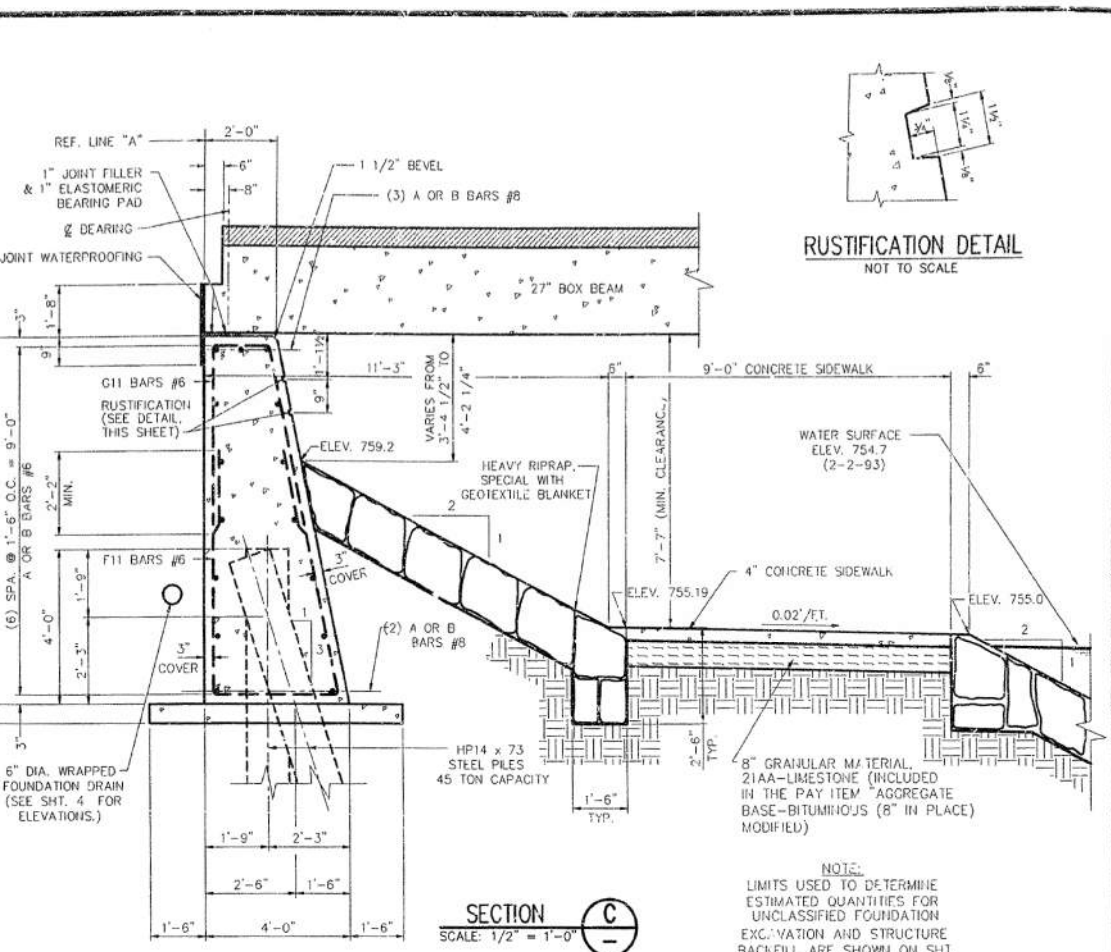
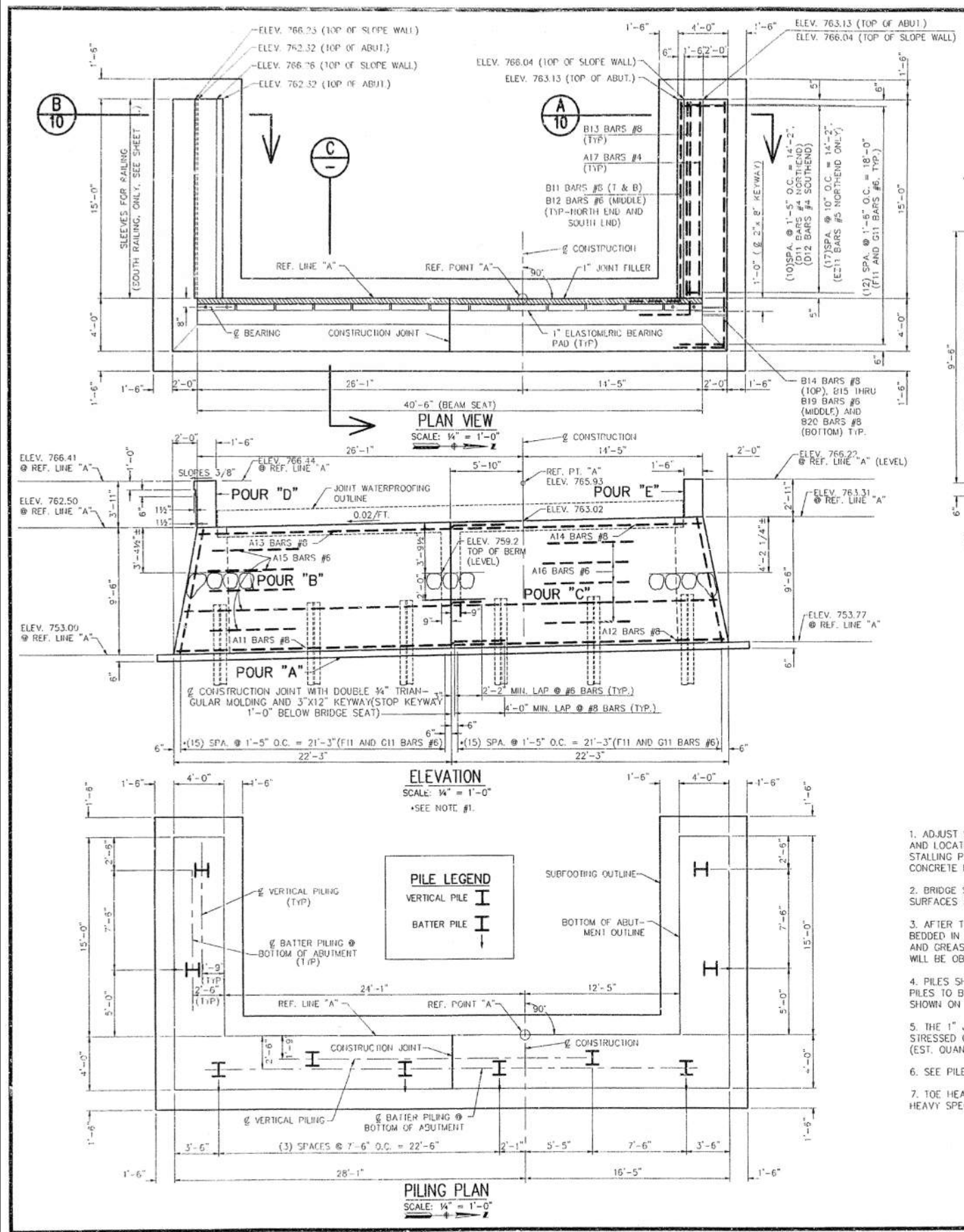
SCALE: NO SCALE

DRAWING No. 2019-030

SHEET No. 37

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FILE NAME: Z:\2019\190301\CAD\CAD\FULLER_EXIST_003.DGN



NOTES:

- ADJUST SPACING OF REINFORCING STEEL AS REQUIRED TO CLEAR PILING AND LOCATION OF POSITION DOWELS WHEN DRILLED. (FURNISHING AND INSTALLING POSITION DOWELS IS INCLUDED IN THE PAY ITEM "27" PRESTRESSED CONCRETE DECK").
- BRIDGE SEATS SHALL BE FINISHED TO PROVIDE TRUE AND EVEN SLOPING SURFACES AS SHOWN AND CALLED FOR ON THIS DRAWING.
- AFTER THE STEEL PILES ARE DRIVEN AND CUT OFF, PORTIONS TO BE EMBEDDED IN CONCRETE SHALL BE THOROUGHLY CLEANED OF ALL SCALE, DIRT AND GREASE SO THAT A SATISFACTORY BOND BETWEEN STEEL AND CONCRETE WILL BE OBTAINED.
- PILES SHALL BE DRIVEN WITH SUCH ACCURACY THAT THE ENDS OF THE PILES TO BE EMBEDDED IN THE CONCRETE ARE WITHIN 3" OF THE LOCATIONS SHOWN ON THE PLANS. (MIN. 6" OF CONCRETE COVER.)
- THE 1" JOINT FILLER SHALL BE INCLUDED IN THE PAY ITEM "27" PRESTRESSED CONCRETE DECK" AND SHALL NOT BE PAID FOR SEPARATELY. (EST. QUANTITY FOR BOTH ABUTMENTS = 34 SF.)
- SEE PILE SPLICE DETAIL ON "PIER "1" AND "2" DETAILS" SHEET.
- TOE HEADERS SHALL BE INCLUDED IN THE PAY ITEM "RIPRAP, HEAVY SPECIAL".

HP 14 X 73 STEEL PILES, 45 TON CAPACITY			
NUMBER REQUIRED	EST. LENGTH - L.F. FURNISHED AND DRIVEN		SPICES EACH
	EACH	TOTAL	
(4) VERTICAL	19	76	2
(6) BATTER	20	120	3
TOTAL - ABUTMENT "A"		196	5

ABUTMENT "A" CONCRETE QUANTITIES (CYD)			
POUR	LOCATION	SUBFOOTING CONCRETE (35S)	SUBSTRUCTURE CONCRETE
"A"	SUBFOOTING	10.0	30.3
"B"	WALL		38.3
"C"	WALL		3.3
"D"	SLOPEWALL		2.4
"E"	SLOPEWALL		2.4
TOTAL		10.0	82.3

ABUTMENT "A" MISCELLANEOUS QUANTITIES		
UNIT	UNIT	AMOUNT
UNCLASSIFIED FOUNDATION EXCAVATION	C.YD	320
STRUCTURE BACKFILL (C.I.P.)	C.YD	250
JOINT WATERPROOFING	SFT.	120
RIPRAP, HEAVY SPECIAL	S.YD.	250
FOUNDATION DRAIN, 6"	L.F.T.	84
CONCRETE SIDEWALK, 4"	S.F.T.	369
PILE POINTS, STEEL PILES	EACH	10
FOUNDATION PILING PREBORING	L.F.T.	126
OFFERED	L.SUM	1

NOT AS-BUILT, BEST AVAILABLE INFO.

REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
1		4-93	L.C.H.	C.S.

S.D.A. FILE NO: RB930109

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE 1
ABUTMENT "A" DETAILS

SCALE AS NOTED: 1" = 6" INCH

DRAWING NO. 92050-AA-1
 SHEET NO. 9 OF 38

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FULLER ROAD OVER HURON RIVER (EASTBOUND)

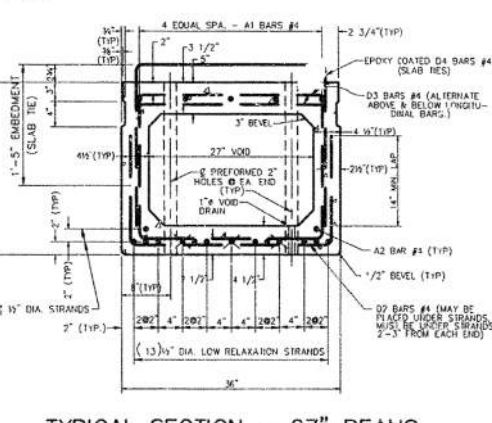
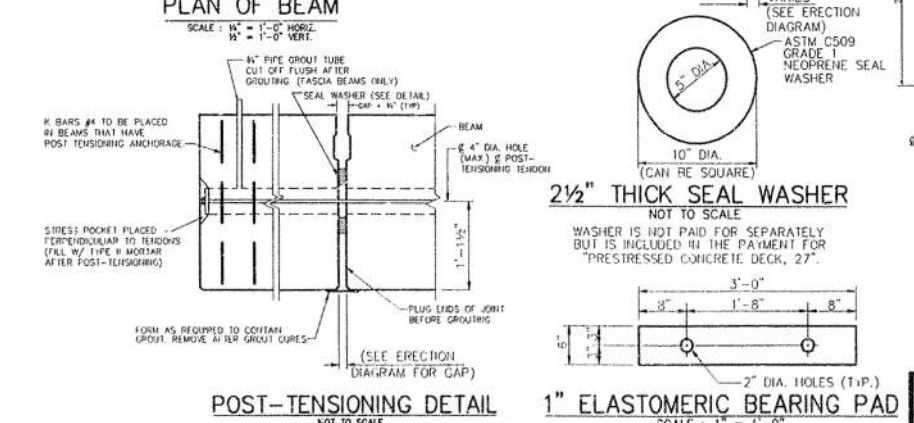
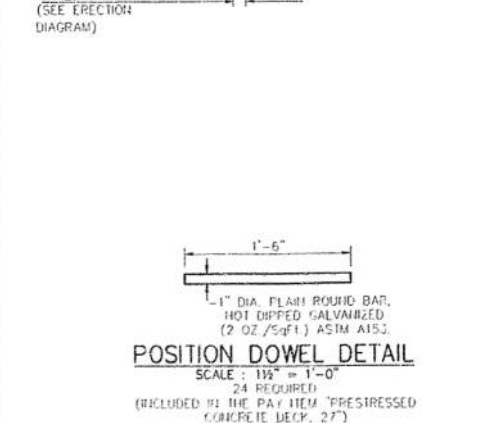
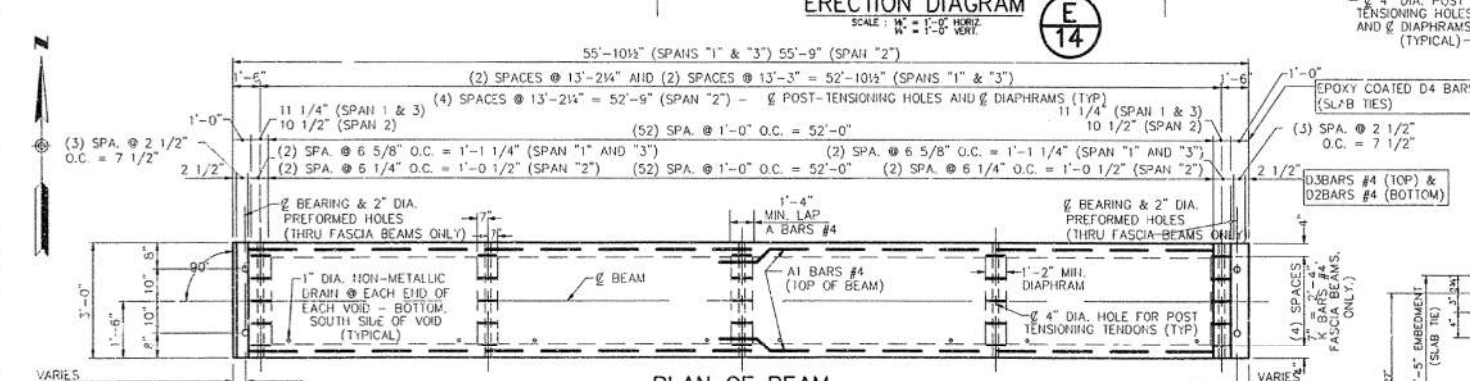
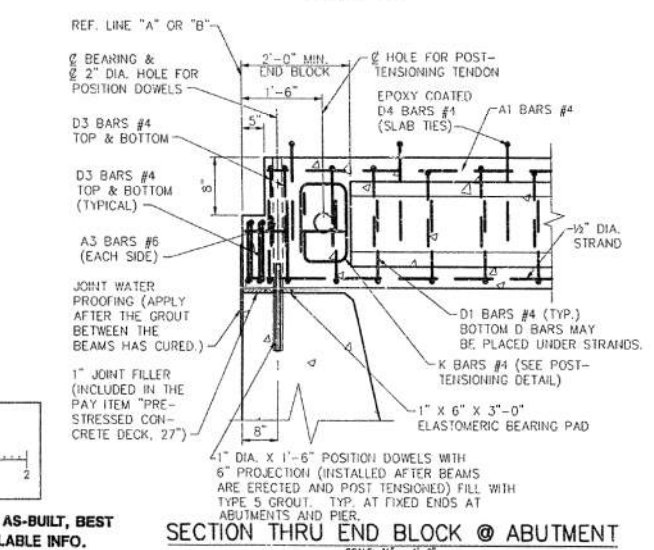
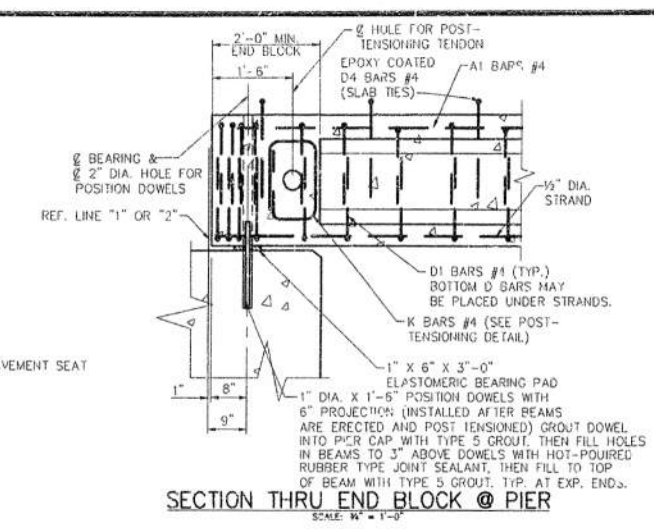
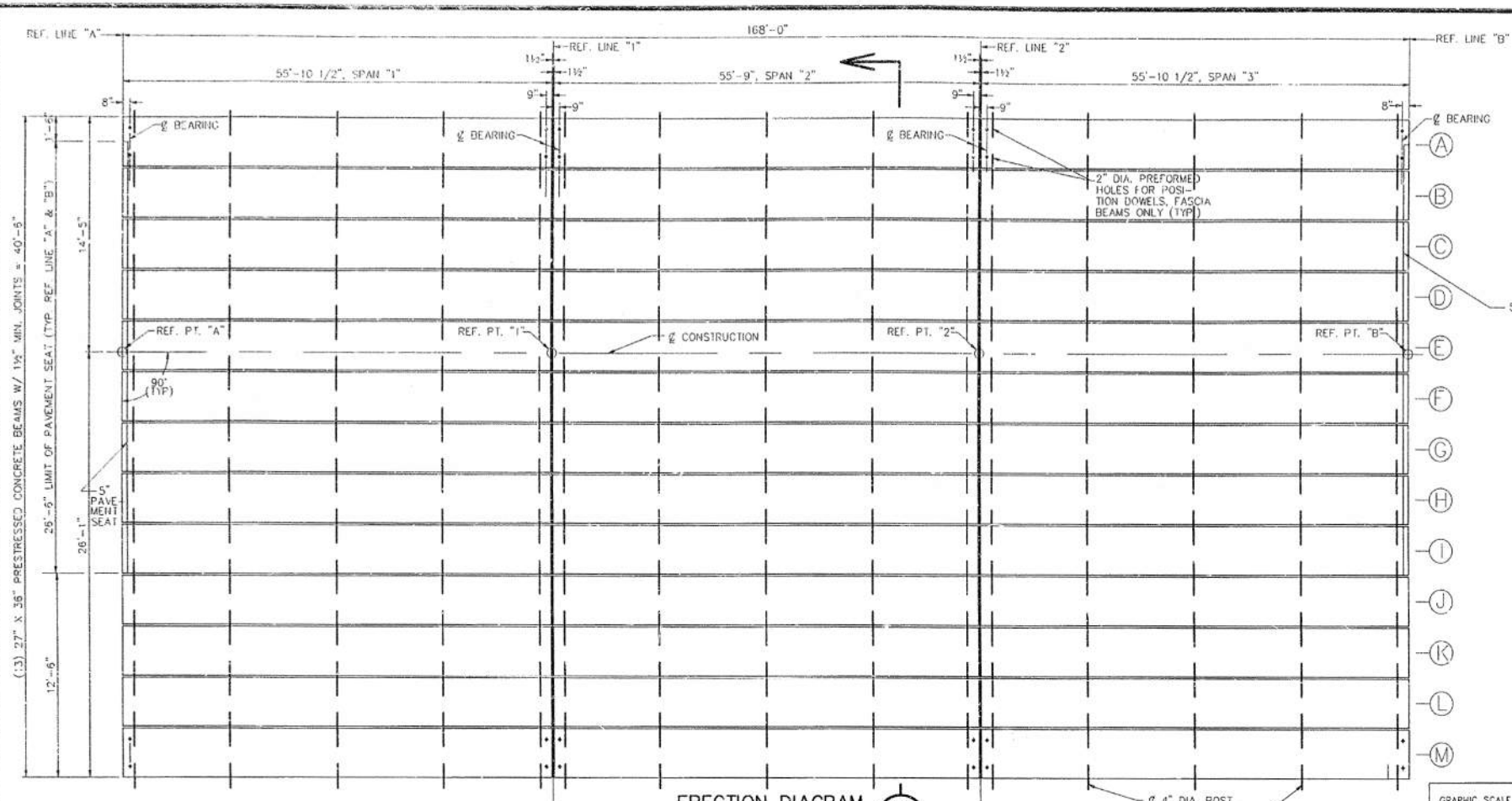
811
 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48106
 ANN ARBOR TEL: 734-769-6847
 734-769-6810
 www.a2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING ABUTMENT A DETAILS

SCALE: NO SCALE
 DRAWING No. 2019-030
 SHEET No. 38



NOTE
Data contained on this page was drawn from City records. No guarantee is made as to its accuracy or completeness.

NOT AS-BUILT, BEST AVAILABLE INFO.

- NOTES
1. PRECAST, PRESTRESSED CONCRETE BOX BEAMS SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE MICHIGAN DEPT. OF STATE HIGHWAYS AND TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1990 EDITION, AND THE SPECIAL PROVISIONS FOR THIS JOB.
 2. PRESTRESSING STRANDS SHALL BE 1/2" DIA. WITH A CROSS SECTIONAL AREA OF .151 SQ. IN., MEETING REQUIREMENTS OF A.S.T.M. A416, GRADE 270. INITIAL PRESTRESSING SHALL BE 31.00 KIPS PER STRAND. STRANDS SHALL BE STRESS RELIEVED & HEAT TREATED.
 3. INITIAL POST TENSIONING FORCE IS 82.5 KIPS.
 4. MEMBRANE WATERPROOFING AT BEAM ENDS IS NOT TO BE APPLIED UNTIL THE Voids BETWEEN THE BEAMS HAVE BEEN GROUTED.
 5. THE DESIGN LIVE LOADING IS HS20.
 6. SET POSITION DOWELS IN CONCRETE AS DESCRIBED IN SECTIONS 5.03.14 AND 5.03.21 OF M.D.O.T.'S STD. SPECIFICATIONS FOR CONSTRUCTION, 1990 EDITION.
 7. THE TOP SURFACE OF BOX BEAMS SHALL BE MECHANICALLY ROUGHENED.
 8. NO BOND STRESS SHALL BE TRANSFERRED BY THE CONCRETE TIEOR SHALL END ANCHORAGE BE RELEASED UNTIL THE CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 3500 P.S.I.
 9. BEAM BEARING PADS SHALL BE SHIMMED AS NECESSARY, IN AN APPROVED MANNER DURING ERECTION TO PROVIDE FULL BEARING CONTACT WITH THE BOTTOM OF THE BEAM.
 10. TACK WELDING OF STEEL REINFORCEMENT IS PROHIBITED.
 11. BOND BREAKERS SHALL BE USED ON THE STRANDS IN THE BOTTOM ROWS AND PLACED SYMMETRICALLY ABOUT THE CENTERLINE OF THE BEAM. PLACING BOND BREAKERS ON PERIPHERAL STRANDS SHALL BE AVOIDED. THE NUMBER, LOCATION, AND LENGTH OF THE BOND BREAKERS SHALL BE AS SHOWN IN THE DETAILS. LENGTH SHOWN IS FROM END OF BEAM TO END OF BREAKER. THEY SHALL CONSIST OF TWO TUBES (ONE INSIDE THE OTHER) WITH OVERLAP TURNED IN OPPOSITE DIR.
 12. THE APPROXIMATE WEIGHT OF EACH BEAM IS 17 TONS.
 13. LIFTING OF BEAMS SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES.
 14. CALCIUM NITRITE SHALL BE ADDED AS A CORROSION INHIBITOR IN THE PRESTRESSED CONCRETE BEAMS.
 15. THE ESTIMATED BEAM CAMBER AT THE TIME OF RELEASE IS 3/4". THIS CAMBER IS DUE TO THE PRESTRESSING AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE I
BEAM DETAILS

REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
1		4-93	J.C.R.	C.S.

SCALE AS NOTED

DRAWING NO. 92050-BD-1

SHEET NO. 12 OF 38

BENCH MARK	SURVEY BOOK	S.D.A. FILE NO.	I:\DATA\ACAD1\RB\RB930111
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FULLER ROAD OVER HURON RIVER
(EASTBOUND)

811
Know what's below. Call before you dig.

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1687
ANN ARBOR
734-794-4810
www.a2gov.org

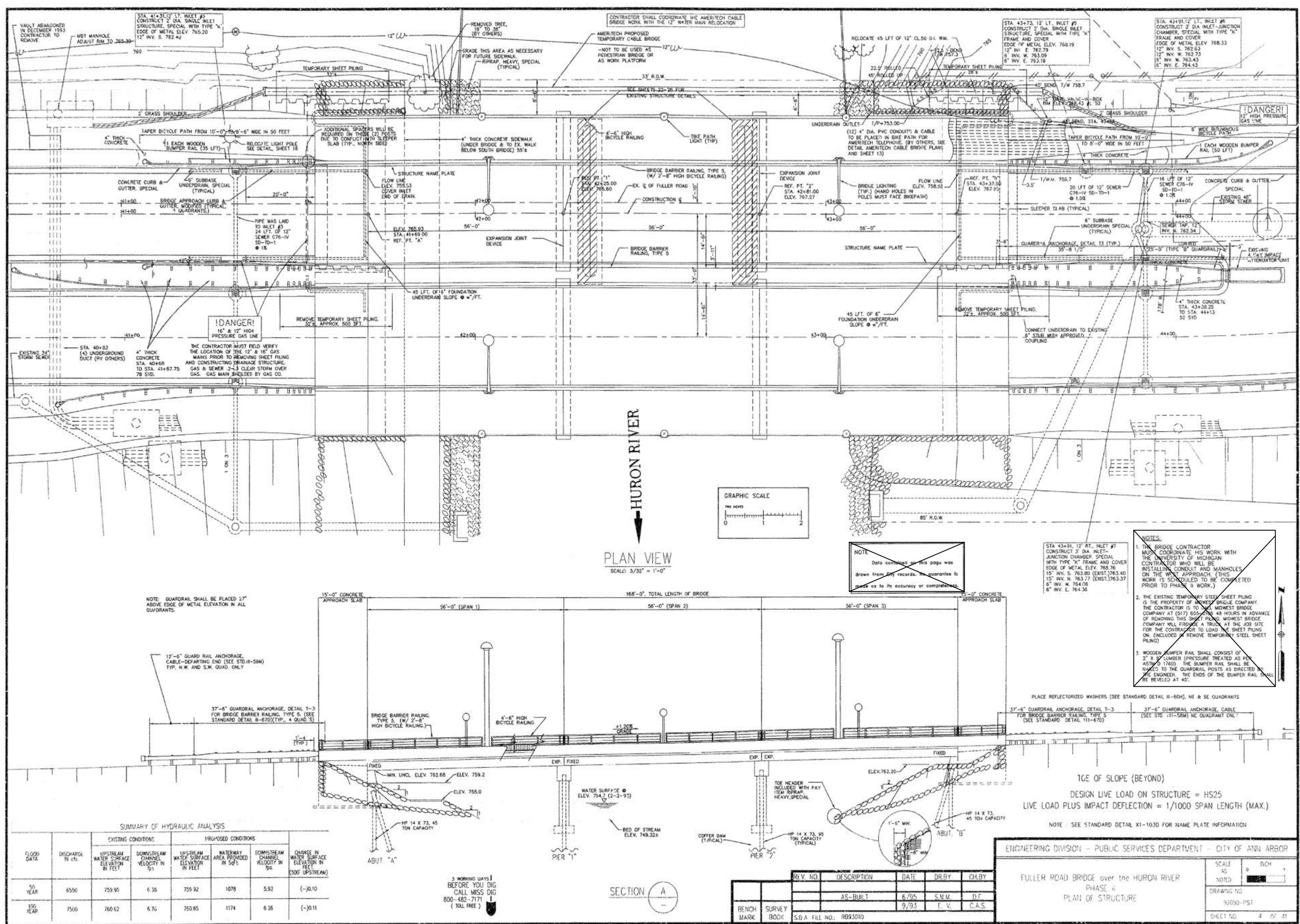
CITY OF ANN ARBOR
MICHIGAN

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING BEAM DETAILS

SCALE: NO SCALE
DRAWING No. 2019-030
SHEET No. 39

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FILE NAME: Z:\2019\190381\CAD\CD\FULLER_EXST_005.DGN



SUMMARY OF HYDRAULIC ANALYSIS

FLOOD DATA	DISCHARGE IN CFS	EXISTING CONDITIONS		PROPOSED CONDITIONS		CHANGE IN WATER SURFACE ELEVATION IN FEET (5000 UPSTREAM)
		UPSTREAM WATER SURFACE ELEVATION IN FEET	DOWNSTREAM CHANNEL VELOCITY IN FPS	UPSTREAM WATER SURFACE ELEVATION IN FEET	WATERWAY AREA PROVIDED IN SQ FT	
50 YEAR	6550	759.95	6.38	759.92	1078	5.92 (-)0.10
100 YEAR	7500	760.62	6.70	760.65	1174	6.26 (-)0.11

REVISIONS

REV. NO.	DESCRIPTION	DATE	DRY	CHK BY
1	AS-BUILT	6/9/5	S.M.M.	D.F.
2		9/93	F.V.	C.A.S.

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE II
PLAN OF STRUCTURE

SCALE: AS NOTED

DRAWING NO: 9/050-PST

SHEET NO: 4 OF 41

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FULLER ROAD OVER HURON RIVER (WESTBOUND)

Know what's below. Call before you dig.

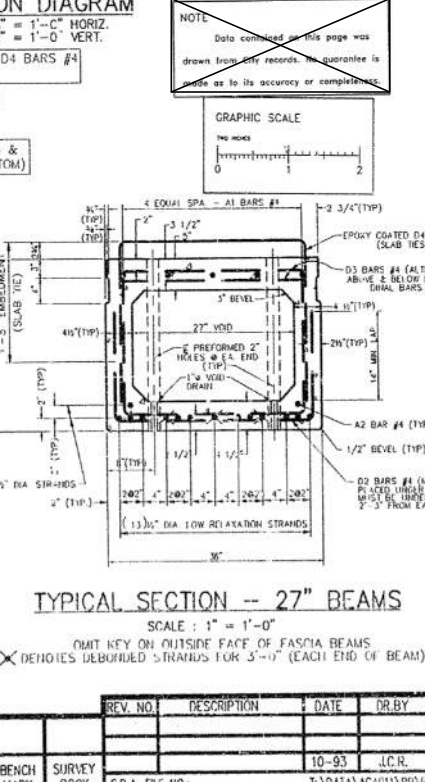
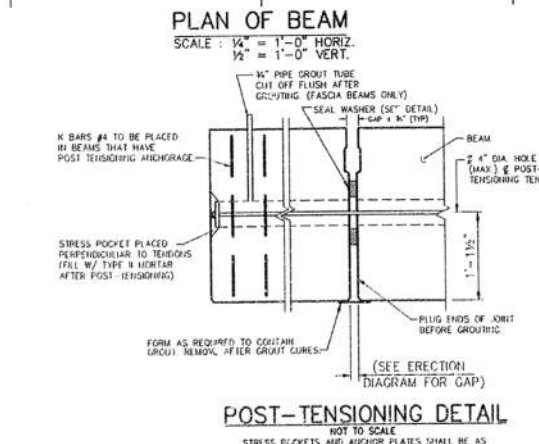
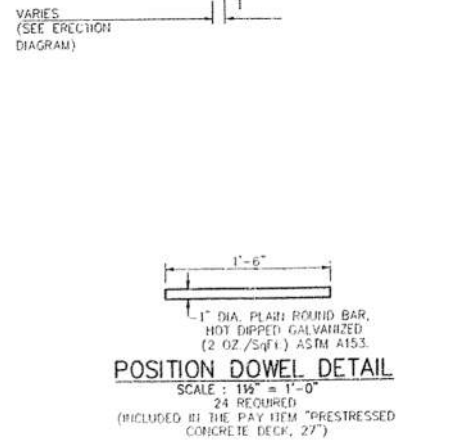
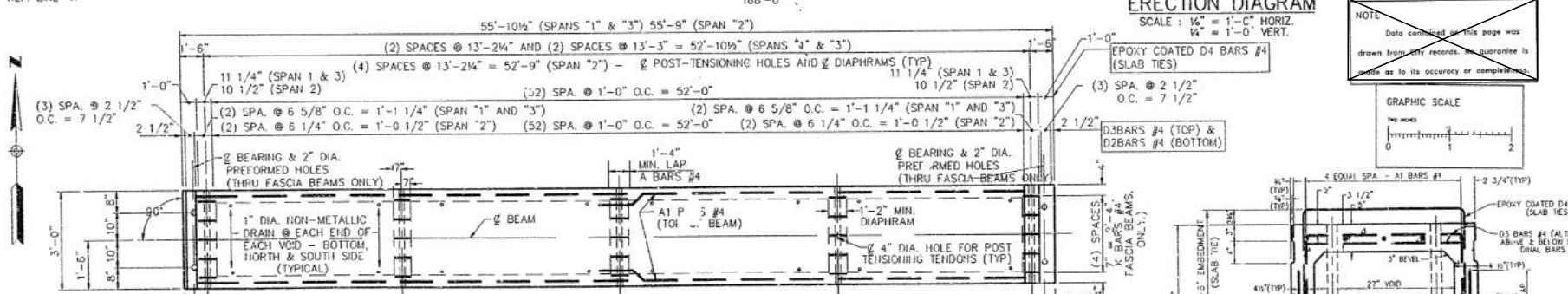
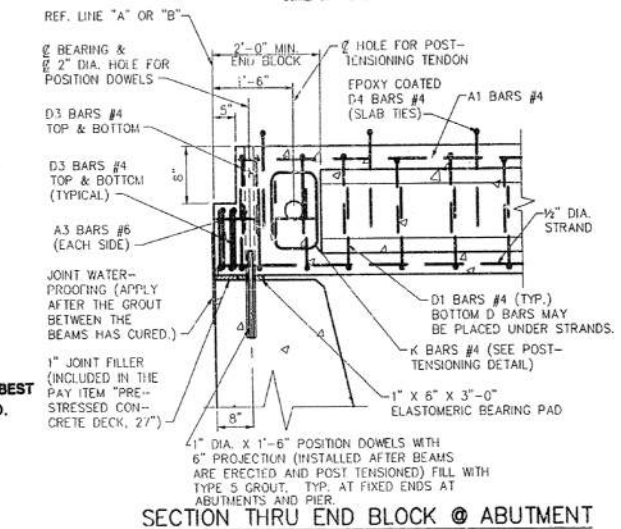
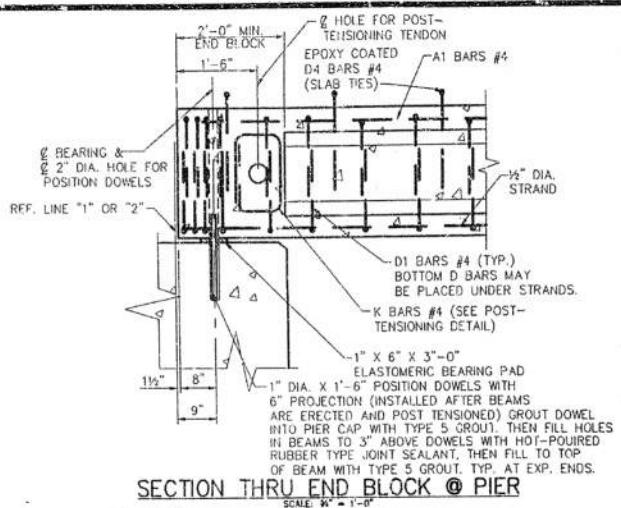
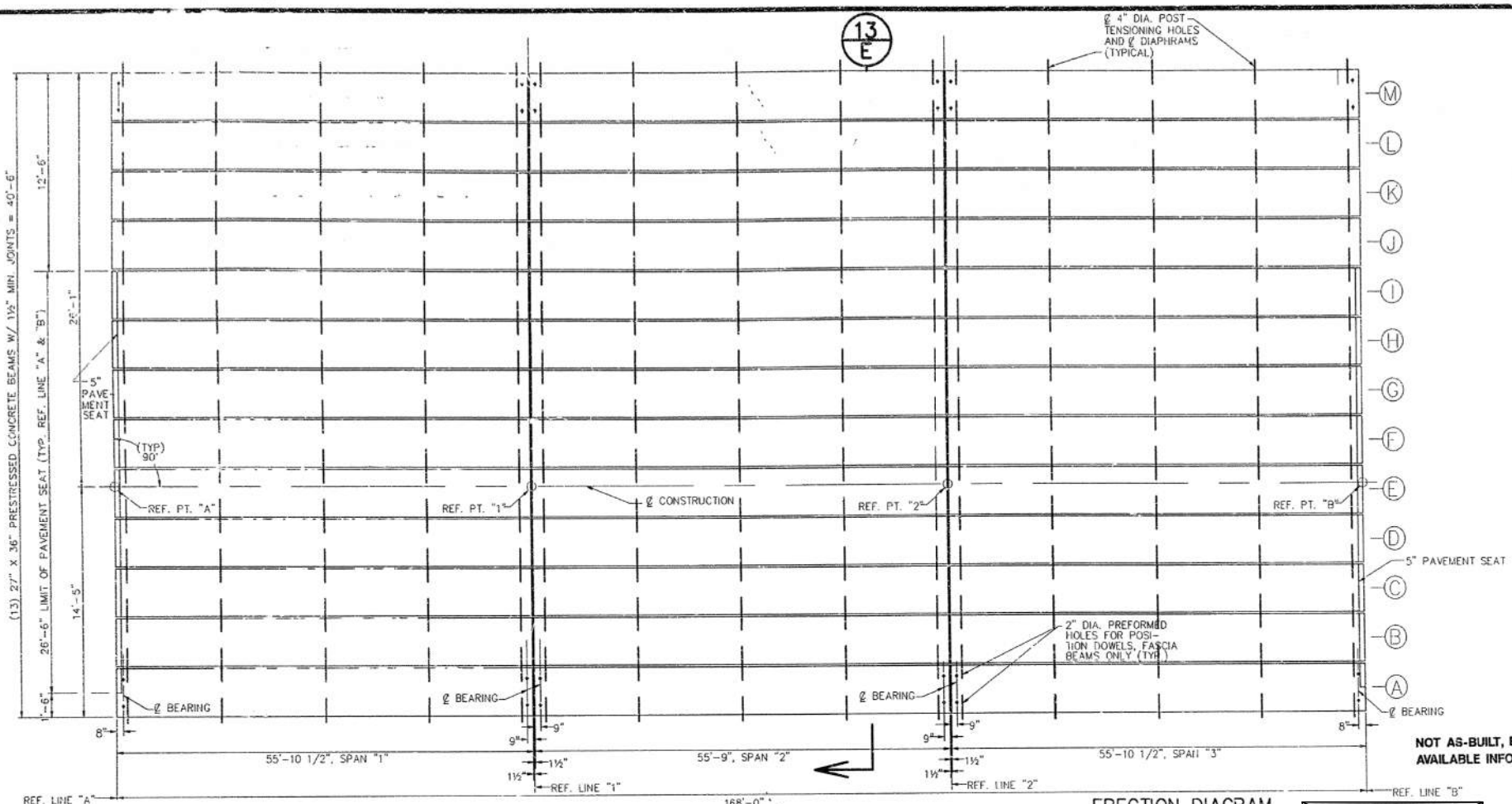
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
 DRAWING NO: 2019-030
 SHEET No: 40

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106
ANN ARBOR 734-764-6847
WWW.A2gov.org

FILE NAME: Z:\2019\80081\CAD\CAD\FULLER_EXIST_008.DGN



NOTES

- PRECAST, PRESTRESSED CONCRETE BOX BEAMS SHALL BE MANUFACTURED AND ERUCTION IN ACCORDANCE WITH THE MICHIGAN DEPT. OF STATE HIGHWAYS AND TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 1990 EDITION AND THE SPECIAL PROVISIONS FOR THIS JOB.
- PRESTRESSING STRANDS SHALL BE 1/2" DIA. WITH A CROSS SECTIONAL AREA OF .1531 SQ. IN., MEETING REQUIREMENTS OF A.S.T.M. A416, GRADE 270. INITIAL PRESTRESSING SHALL BE 3100 KIPS PER STRAND. STRANDS SHALL BE STRESS RELIEVED & HEAT TREATED.
- INITIAL POST TENSIONING FORCE IS 82.5 KIPS.
- MEMBRANE WATERPROOFING AT BEAM ENDS IS NOT TO BE APPLIED UNTIL THE VOIDS BETWEEN THE BEAMS HAVE BEEN GROUTED.
- THE DESIGN LIVE LOADINGS IS HS25.
- SET POSITION DOWELS IN CONCRETE AS DESCRIBED IN SECTIONS 5.03.14 AND 5.03.21 OF M.D.O.T.'S STD. SPECIFICATIONS FOR CONSTRUCTION, 1990 EDITION.
- THE TOP SURFACE OF BOX BEAMS SHALL BE INTENTIONALLY ROUGHENED.
- NO BOND STRESS SHALL BE TRANSFERRED TO THE CONCRETE NOR SHALL END ANCHORAGE BE RELEASED UNTIL THE CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 3500 P.S.I.
- BEAM BEARING PADS SHALL BE SHIMMED AS NECESSARY, IN AN APPROVED MANNER DURING ERUCTION TO PROVIDE FULL BEARING CONTACT WITH THE BOTTOM OF THE BEAM.
- TACK WELDING OF STEEL REINFORCEMENT IS PROHIBITED.
- BOND BREAKERS SHALL BE USED ON THE STRANDS IN THE BOTTOM ROWS AND PLACED SYMMETRICALLY ABOUT THE CENTERLINE OF THE BEAM. PLACING BOND BREAKERS ON PERIPHERAL STRANDS SHALL BE AVOIDED. THE NUMBER, LOCATION, AND LENGTH OF THE BOND BREAKERS SHALL BE AS SHOWN IN THE DETAILS. LENGTH SHOWN IS FROM END OF BEAM TO END OF BREAKER. THEY SHALL CONSIST OF TWO TUBES (ONE INSIDE THE OTHER) WITH OVERLAP TURNED IN OPPOSITE DIR.
- THE APPROXIMATE WEIGHT OF EACH BEAM IS 17 TONS.
- LIFTING OF BEAMS SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES.
- CALCIUM NITRIDE SHALL BE ADDED AS A CORROSION INHIBITOR IN THE PRESTRESSED CONCRETE BEAMS AT A RATE OF 4.0 GALLONS/ CYD OF CONCRETE.
- THE ESTIMATED BEAM CAMBER AT THE TIME OF RELEASE IS 3/4". THIS CAMBER IS DUE TO THE PRESTRESSING AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERUCTION POSITION.
- THE LOCATION OF VOID DRAINS MAY NOT BE ALTERED FROM THE PLANS WITHOUT PRIOR APPROVAL OF THE ENGINEER.

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE II
BEAM DETAILS

REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY
1				

SCALE AS NOTED

DRAWING NO. 92050-BD-1

SHEET NO. 11 OF 41

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FULLER ROAD OVER HURON RIVER
(WESTBOUND)

811
Know what's below. Call before you dig.

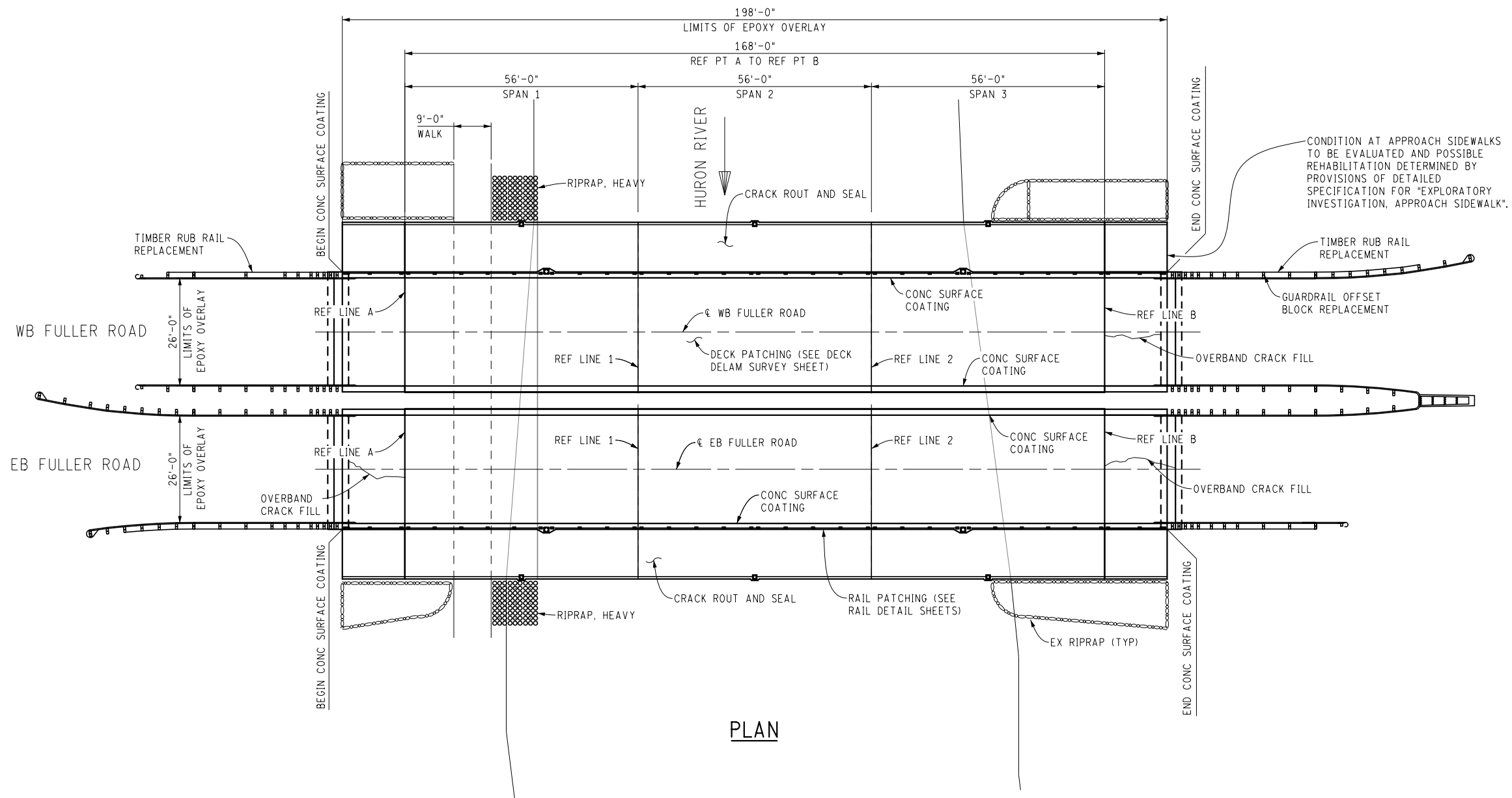
REV.	DATE	DRAWN	CHECKED	DESCRIPTION

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-0687
ANN ARBOR
734-794-8410
www.a2gov.org

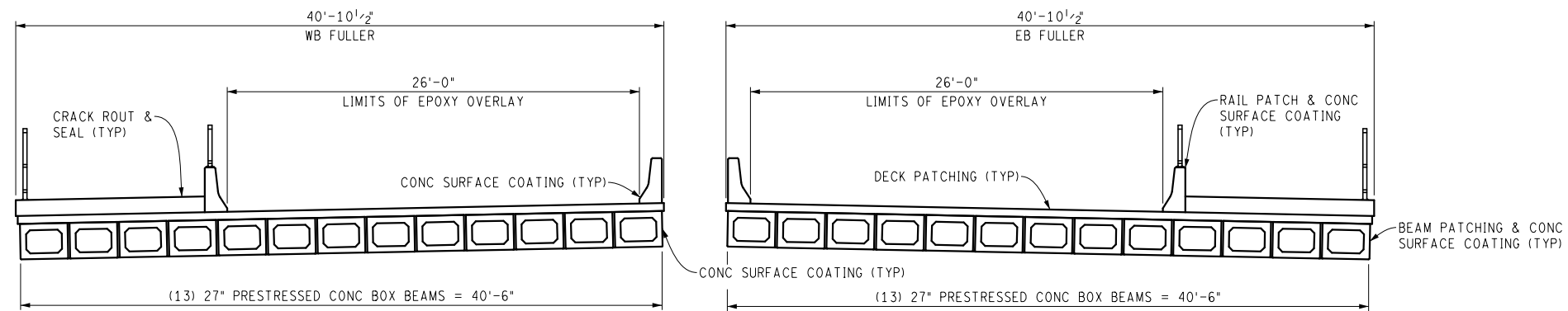
ANN ARBOR MICHIGAN

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING BEAM DETAILS

SCALE: NO SCALE
DRAWING No. 2019-030
SHEET No. 41



PLAN



DECK SECTION
(LOOKING EAST)

FULLER ROAD OVER HURON RIVER

FILE NAME: Z:\2019\190381\CAD\CAD\FULLER_GPSTR_001.DGN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1647
734-774-4810
www.a2gov.org



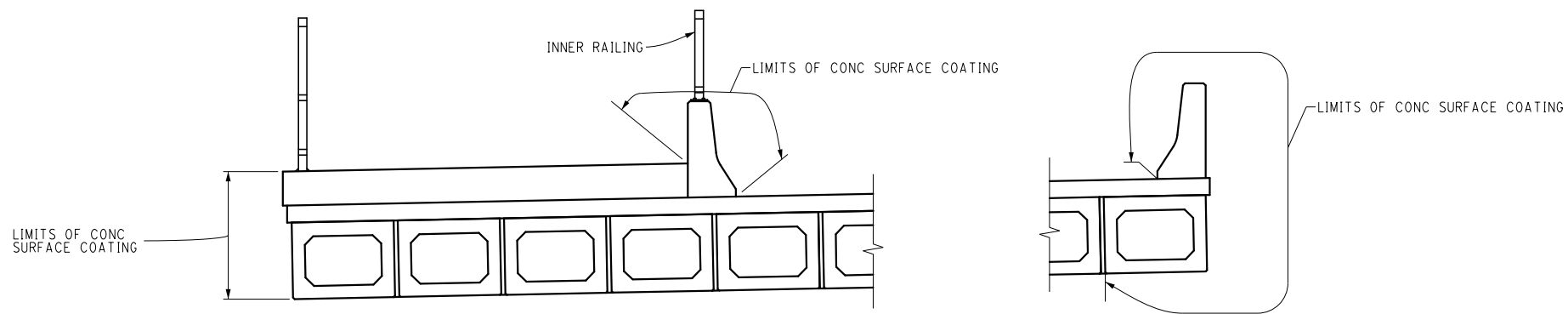
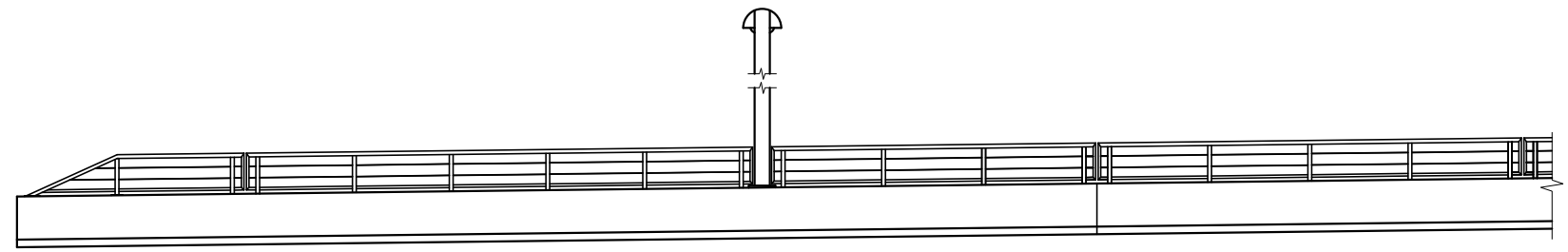
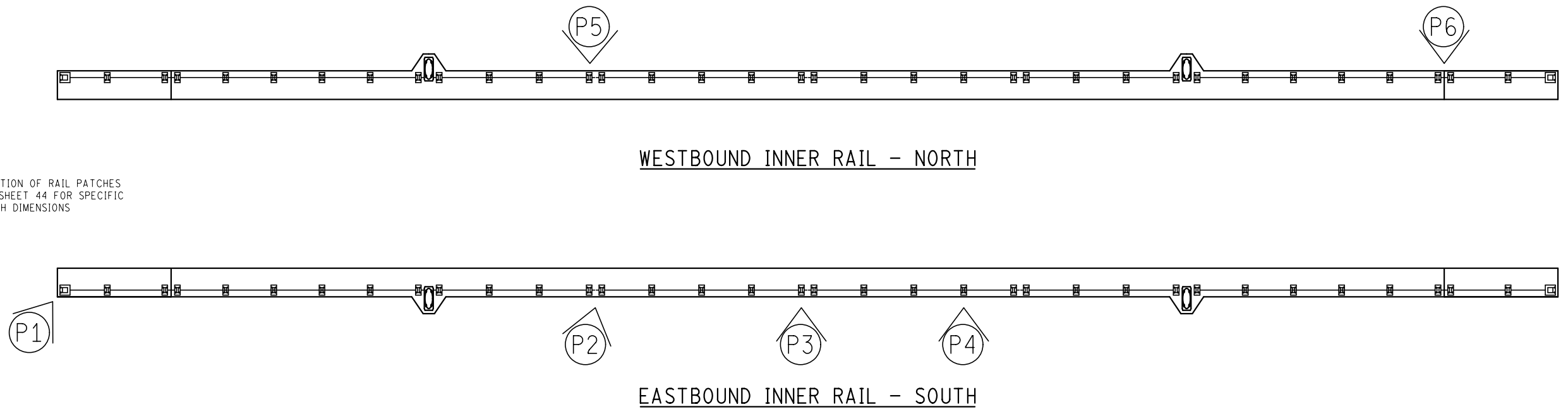
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING No. 2019-030

FILE NAME: Z:\2019\190381\CAD\CAD\FULLER_RAIL_001.DSN

LEGEND

(P#) = LOCATION OF RAIL PATCHES
SEE SHEET 44 FOR SPECIFIC
PATCH DIMENSIONS



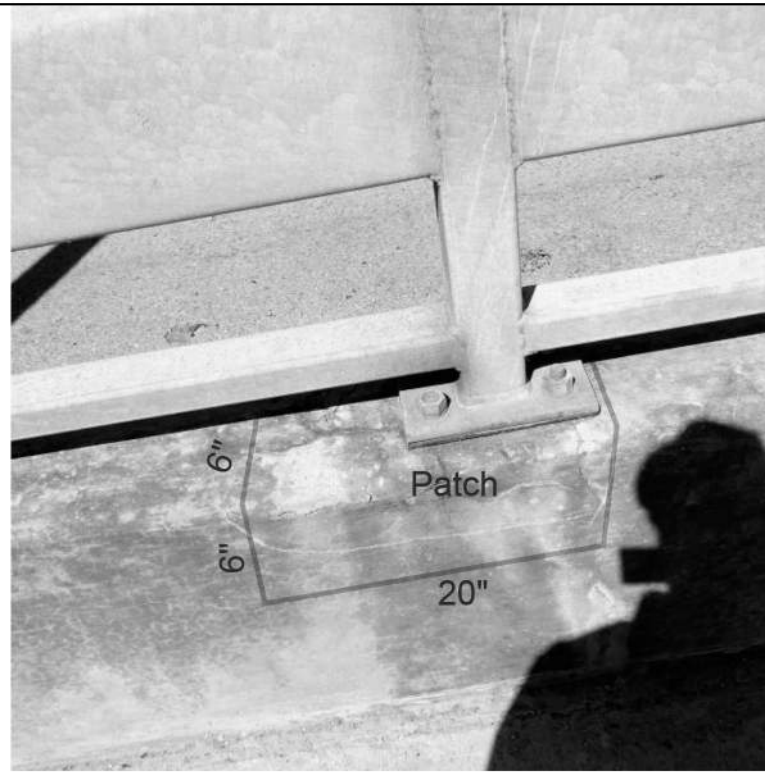
NOTE:
 IN ORDER TO PERFORM THE BARRIER RAIL REPAIRS, THE CONTRACTOR SHALL REMOVE, STORE, PROTECT, AND REPLACE WHEN THE PATCHES HAVE BEEN PROPERLY CURED, THE NEEDED METAL RAILING SEGMENTS. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ASSOCIATED ITEMS OF WORK.

FULLER ROAD OVER HURON RIVER

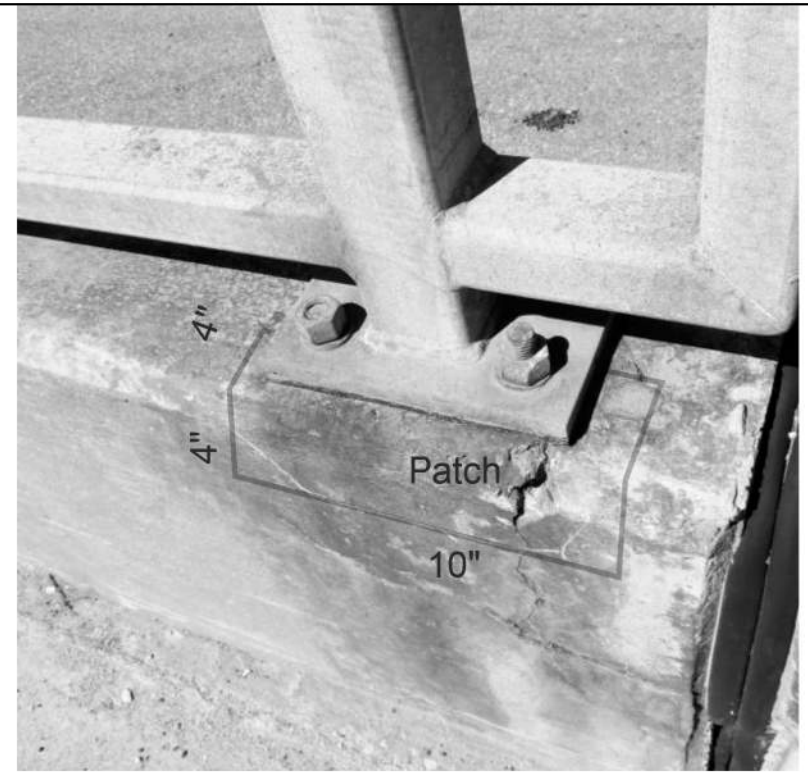
811 Know what's below. Call before you dig.	
CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106 TEL: 734-769-6847 WWW.A290V.ORG	
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS CONCRETE RAIL PATCHING LOCATIONS	SCALE: NO SCALE DRAWING No. 2019-030
SHEET No. 43	
	REV. DESCRIPTION DATE DRAWN CHECKED



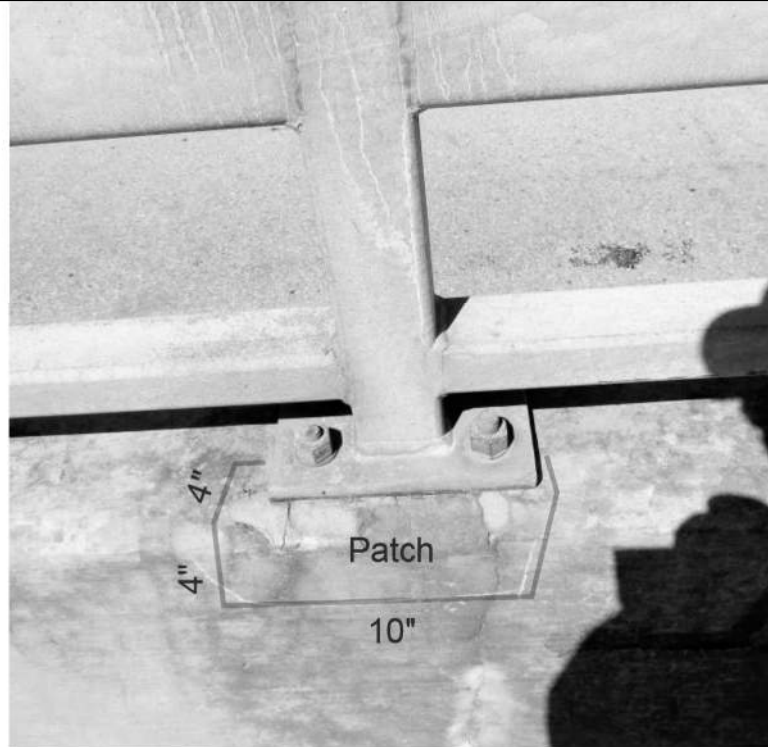
P1



P2



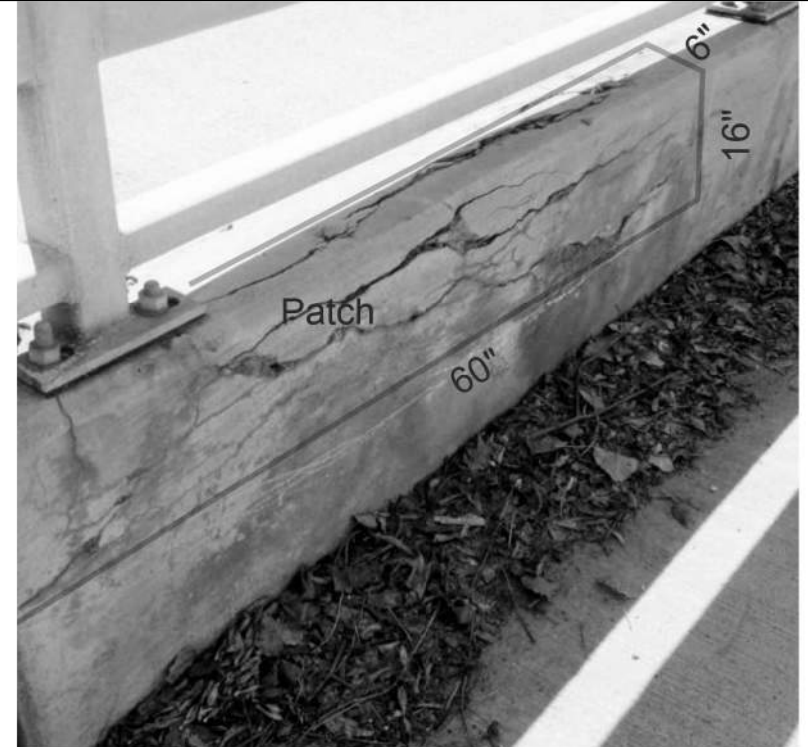
P3



P4



P5



P6

FULLER ROAD OVER
HURON RIVER

FILE NAME: Z:\2019\80081\CAD\CDFULLER_RAIL_002.DSN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

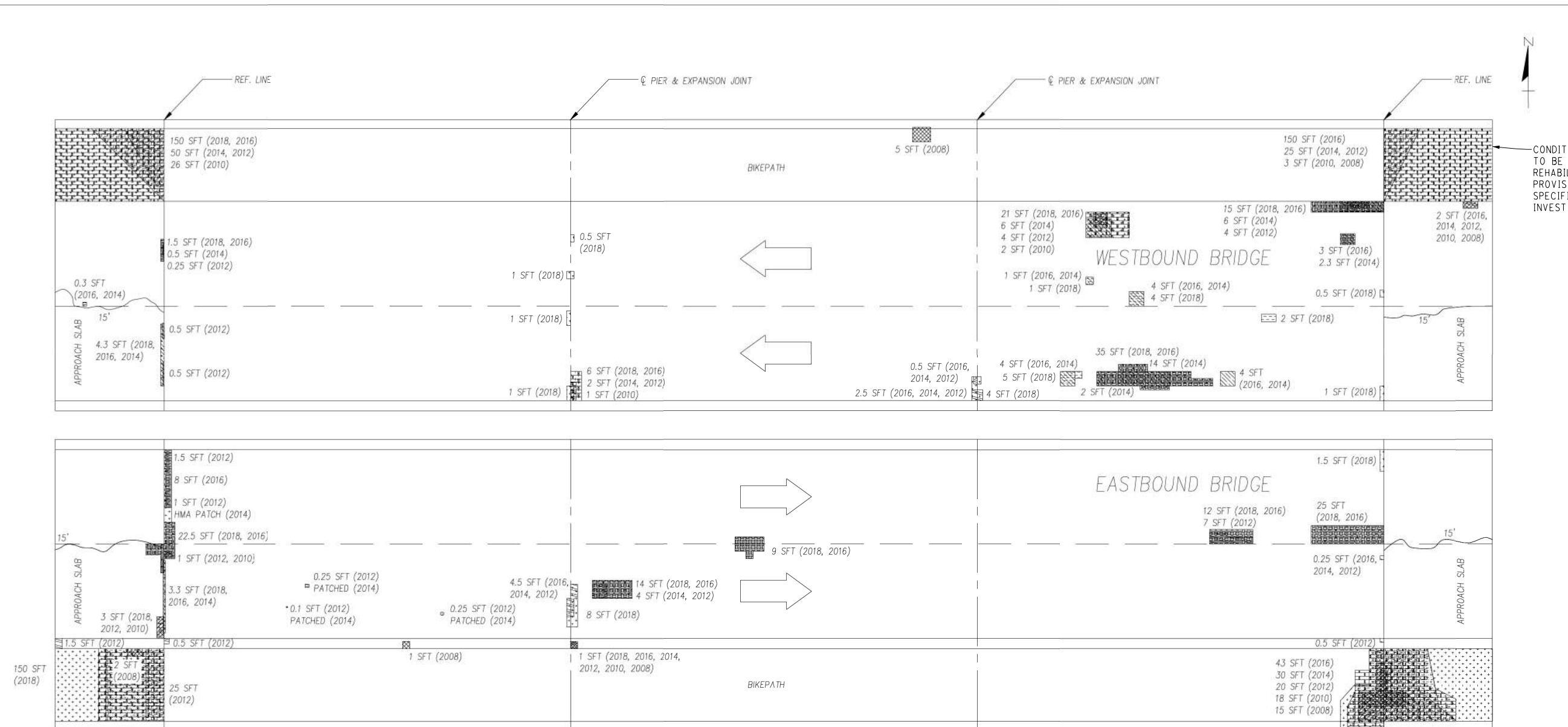
CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1647
734-774-8410
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONCRETE RAIL PATCHING LOCATIONS

SCALE: NO SCALE
DRAWING No. 2019-030

FILE NAME: Z:\2019\190381\CAD\CD\FULLER_DECK_DELAM_SURVEY_001.DGN



PLAN OF DECK DEFICIENCIES

SIZES AND LOCATIONS OF DEFICIENCIES SHOWN ON THIS SHEET ARE APPROXIMATED FROM PREVIOUS DECK EVALUATION. CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF DEFICIENCIES AND PATCH AS DIRECTED BY THE ENGINEER. CONTRACTOR TO GIVE ENGINEER 36 HOURS TO VERIFY LIMITS OF PATCHING PRIOR TO PLACING PATCHING MATERIAL.

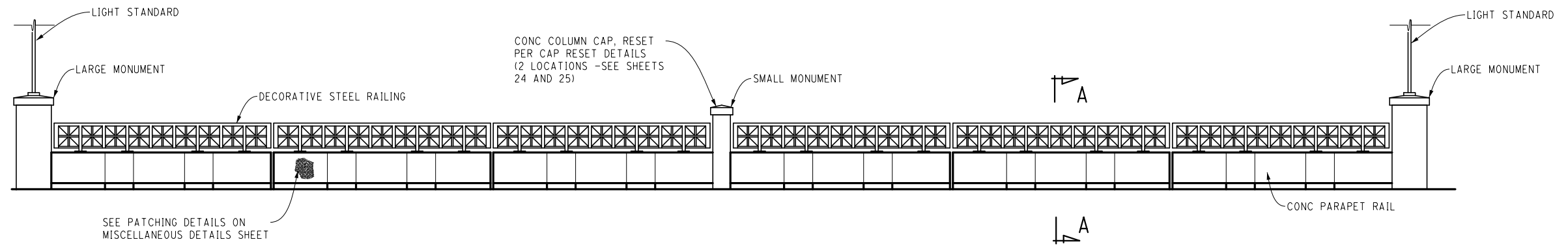
- | | | | | | |
|--|---------------------------------|--|---------------------------------|--|---------------------------------|
| | - 2008 DECK DELAMINATION | | - 2014 DECK DELAMINATION | | - 2018 DECK DELAMINATION |
| | - 2010 DECK DELAMINATION | | - 2014 SPALLING | | - 2018 SPALLING |
| | - 2010 SPALLING | | - 2014 HOLLOW SOUNDING CONCRETE | | - 2016 DECK DELAMINATION |
| | - 2010 HOLLOW SOUNDING CONCRETE | | - 2016 SPALLING | | - 2016 HOLLOW SOUNDING CONCRETE |
| | - 2012 DECK DELAMINATION | | - DECK CRACK | | |
| | - 2012 SPALLING | | | | |
| | - 2012 HOLLOW SOUNDING CONCRETE | | | | |

The Contractor is responsible to wet cure all latex modified patches placed on this project for a period of seven calendar days in accordance with Section 712.03.P and as detailed herein. The Contractor shall ensure that the burlap remains wet for the entire duration of the curing period. The polyethylene film covering the patches shall be securely affixed to each patch. This work shall not be paid for separately, but shall be included in the item of work "Patching Conc, C-L."



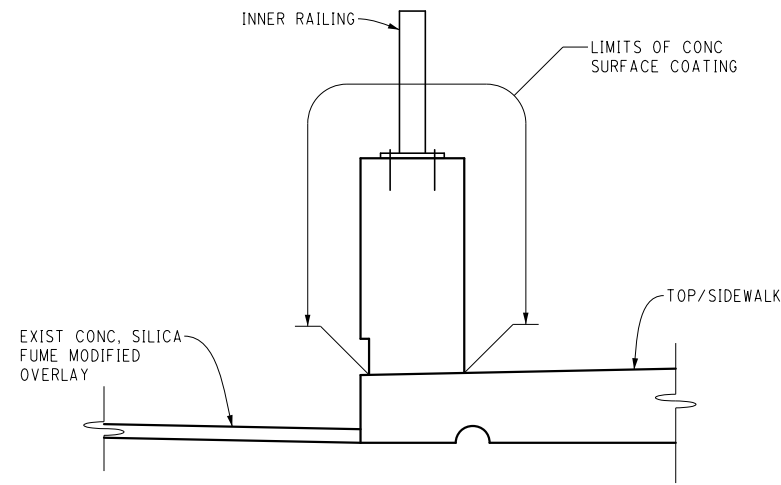
FULLER ROAD DECK DELAMINATION SURVEY

<p>CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106 734-774-6410 www.a2gov.org</p>	<p>PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS DECK DELAMINATION AND PATCHING PLAN</p>
<p>SCALE: NO SCALE</p>	<p>DRAWING No. 2019-030</p>
<p>SHEET No. 45</p>	<p>REV. DESCRIPTION DATE DRAWN CHECKED</p>

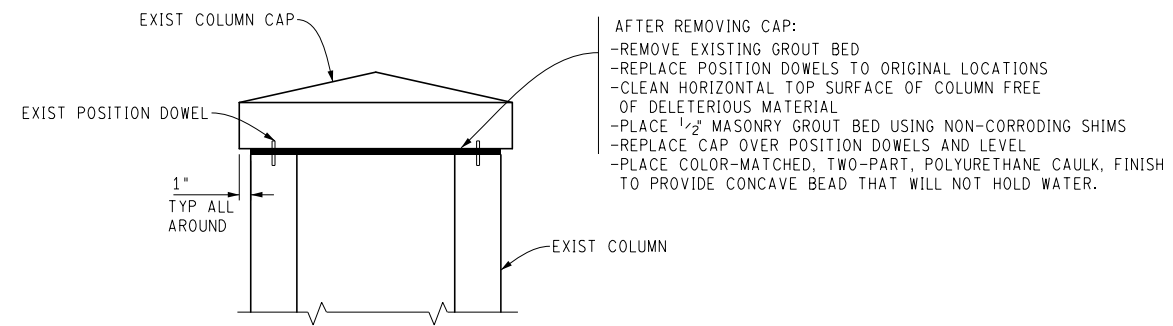


TYPICAL ELEVATION - INNER RAIL

PROTECT EXIST MONUMENTS FROM APPLICATION OF CONC SURFACE COATING RAILING. ALL MEANS OF PROTECTION SHOULD BE COMPLETELY EFFECTIVE (TYP ALL MONUMENTS).



SECTION A-A



CAP RESET DETAIL

CONCRETE RAIL REPAIR DETAILS
 (BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

FILE NAME: 2/20/19/190381/CAD/CDBROADWAY_OVER_DEPOT_RAIL_04L.DGN



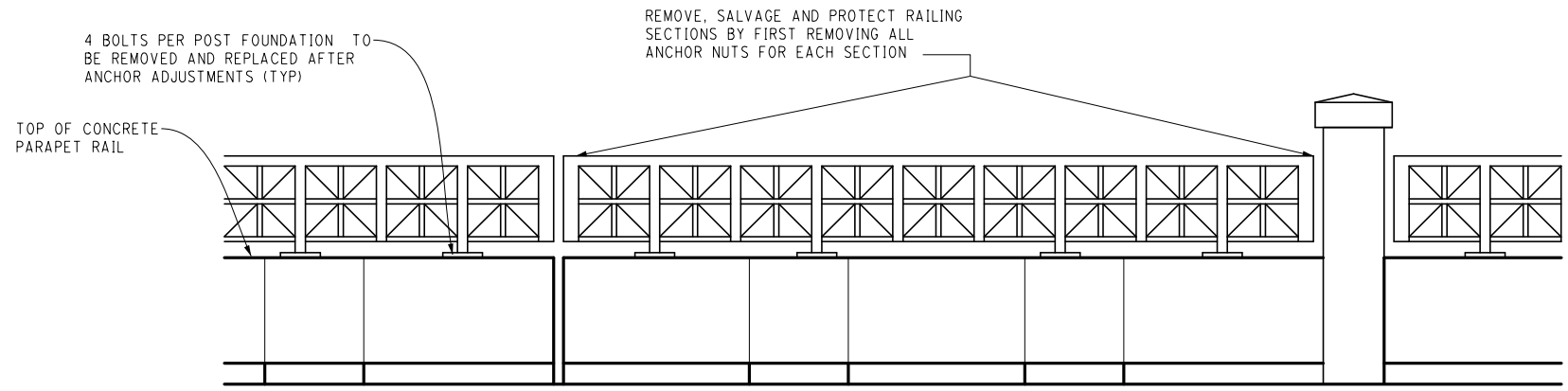
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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 ANN ARBOR, MI 48106-1700
 ANN ARBOR 734-794-6447
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 CITY OF ANN ARBOR 2019 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 CONCRETE RAIL REPAIR DETAILS

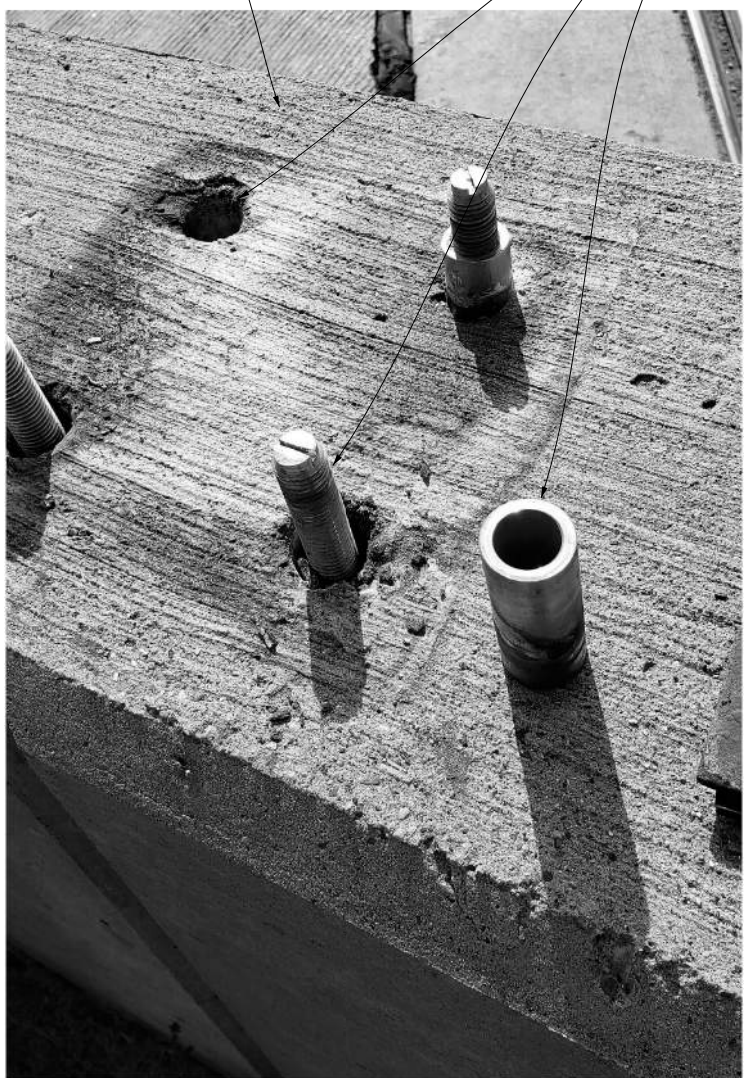
SCALE: NO SCALE
 DRAWING No. 2019-030

FILE NAME: Z:\2019\190381\CAD\BROADWAY_OVER_DEPOT_STREET_RAIL_005.DGN



RAILING ELEVATION

TOP OF CONCRETE PARAPET RAIL



AFTER REMOVING METAL RAILING AND 1/2" BEARING PAD:

- REMOVE THREADED RODS
- REMOVE SLEEVES
- BLOW OUT HOLES WITH HIGH-PRESSURE AIR
- CLEAN THREADED RODS WITH WIRE BRUSH



PRIOR TO REINSTALLING METAL RAILING AND 1/2" BEARING PAD:

- REINSTALL THREADED RODS TO 2" PROJECTION ABOVE TOP OF CONCRETE
- DO NOT REINSTALL SLEEVES
- INJECT HILTI HIT-RE 100 ADHESIVE, FILLING VOID TO TOP OF CONCRETE
- TOOL ADHESIVE TO LEAVE SMOOTH SURFACE AT TOP OF CONCRETE FREE OF SURFACE VOIDS

ANCHOR ADJUSTMENT DETAILS

RAILING ANCHOR ADJUSTMENT DETAILS
 (BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

811
 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

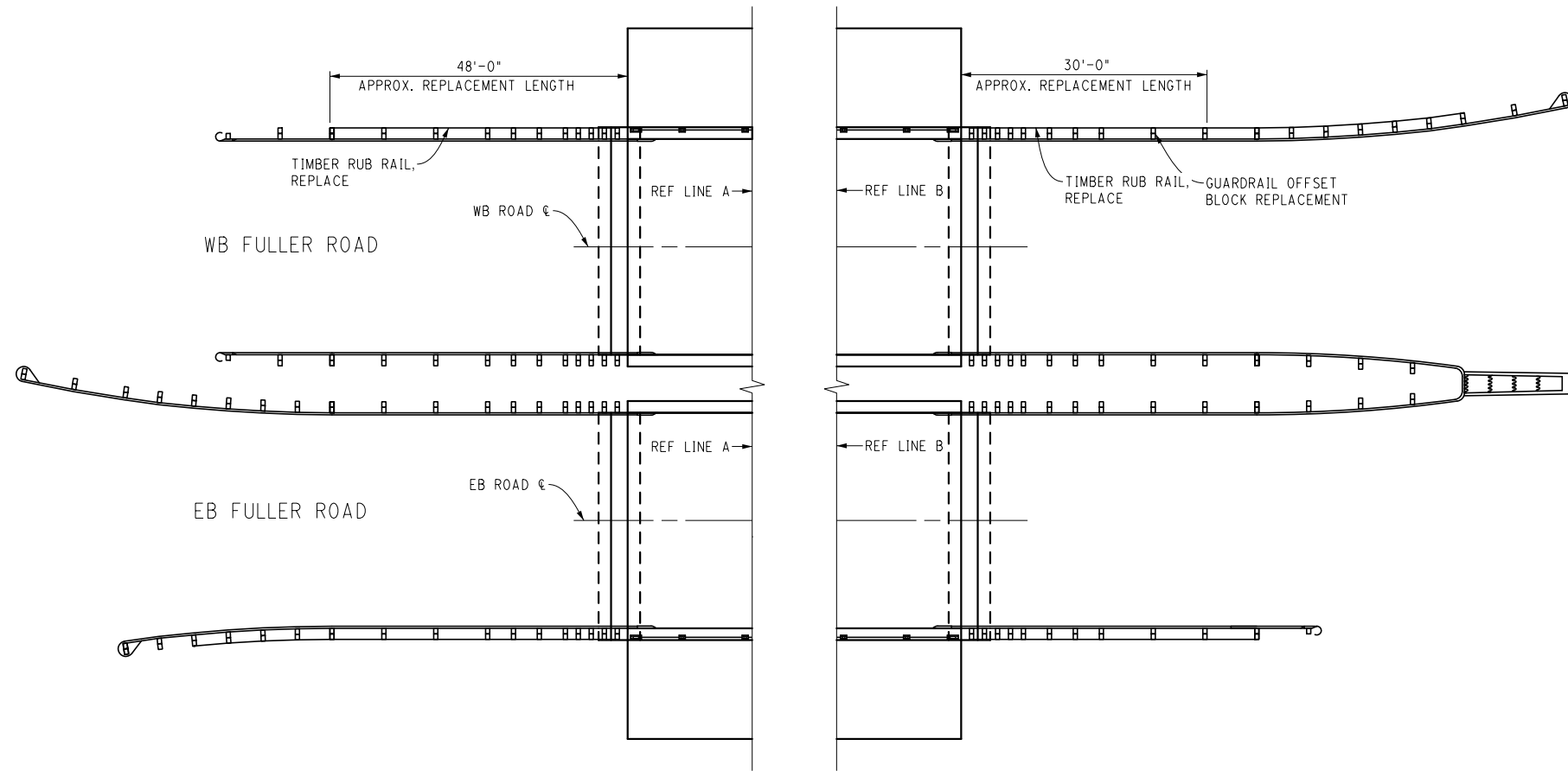
CITY OF ANN ARBOR
 PUBLIC SERVICE
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-1700
 TEL: 734-769-6647
 FAX: 734-769-6647
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 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 RAILING ANCHOR ADJUSTMENT DETAILS

SCALE: NO SCALE
 DRAWING No. 2019-030

SHEET No. **47**



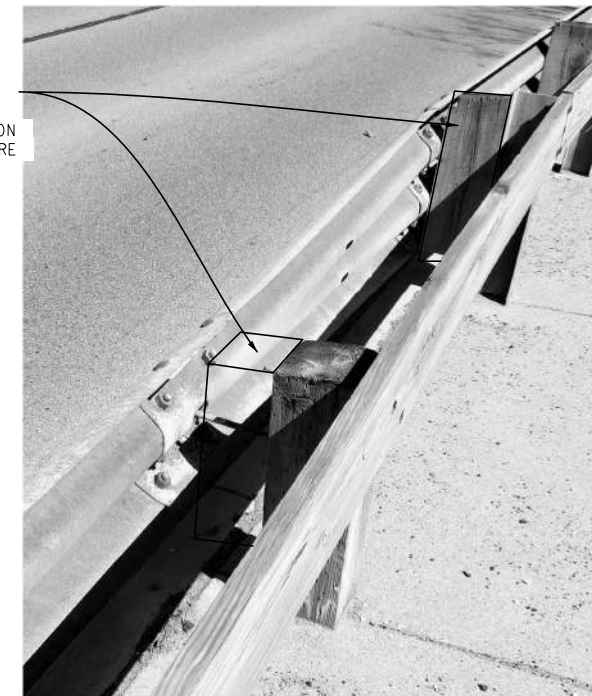
GUARDRAIL REPAIR LOCATIONS PLAN

REMOVE EXIST CONNECTION HARDWARE. SALVAGE AND REUSE AS CONDITION ALLOWS. REPLACE HARDWARE ELEMENTS THAT ARE BENT, BROKEN OR HEAVILY CORRODED, AS DIRECTED BY THE ENGINEER.



RUB RAIL REPLACEMENT DETAIL

REPLACE MISSING AND BROKEN TIMBER OFFSET BLOCKS PER MDOT STD. PLAN R-60-J. SALVAGE AND REUSE CONNECTION HARDWARE AS CONDITION ALLOWS. REPLACE HARDWARE ELEMENTS THAT ARE BENT, BROKEN OR HEAVILY CORRODED, AS DIRECTED BY THE ENGINEER.



OFFSET BLOCK REPLACEMENT DETAIL

GUARDRAIL AND RUB RAIL REPAIR DETAILS

(FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2019\80081\CAD\CDFULLER_RUBRAIL_001.DGN

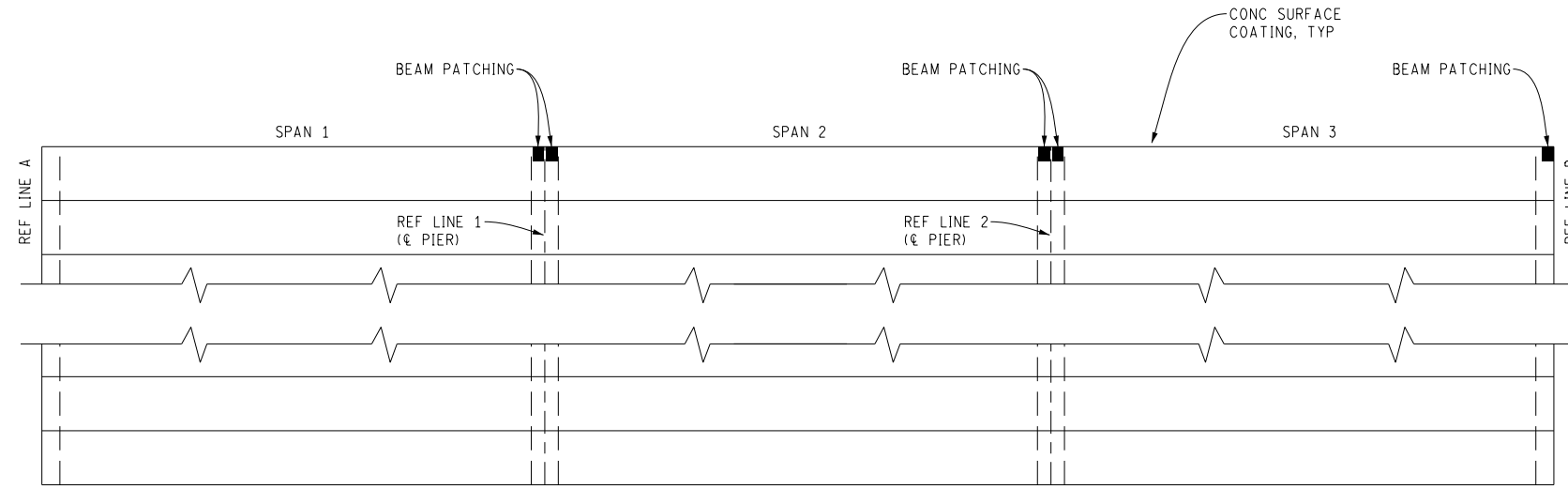


REV.	DESCRIPTION	DATE	DRAWN	CHECKED

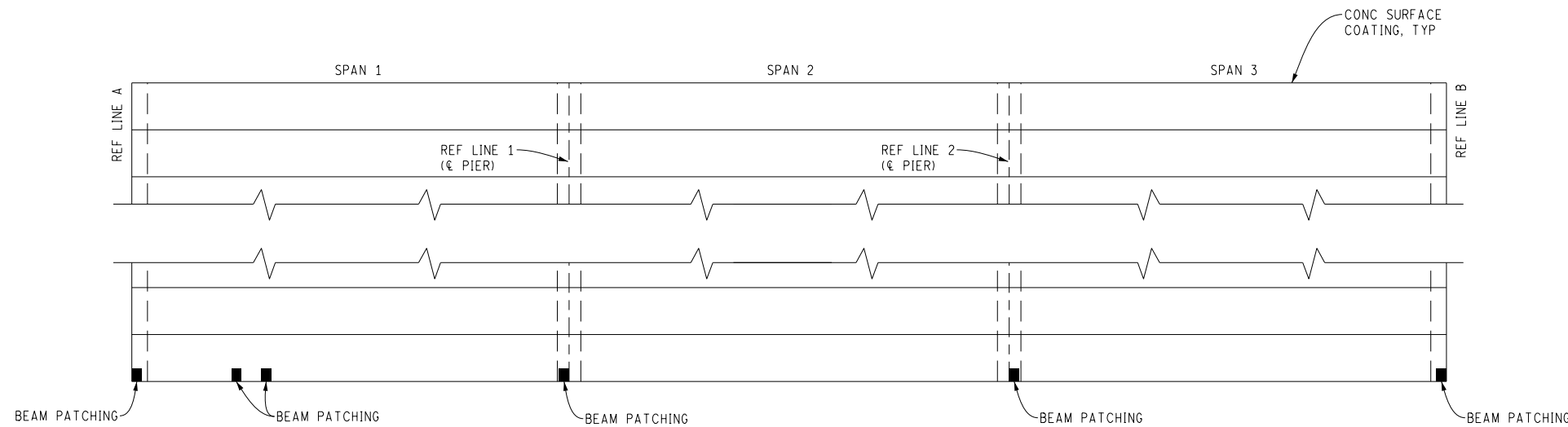
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734-794-6410
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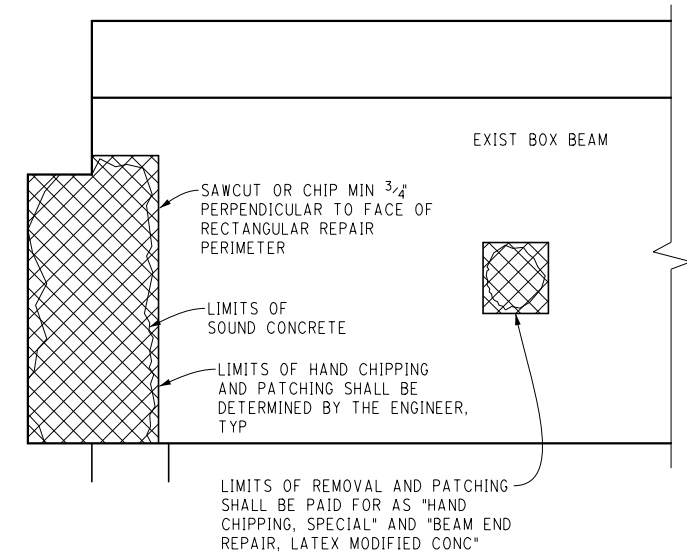
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GUARDRAIL AND RUB RAIL REPAIR DETAILS
SCALE: NO SCALE
DRAWING No. 2019-030



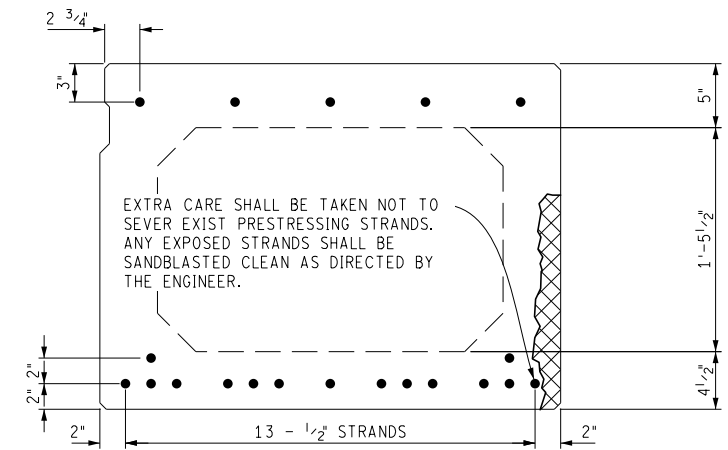
FRAMING PLAN - FULLER ROAD WB



FRAMING PLAN - FULLER ROAD EB



BEAM END ELEVATION



BEAM SECTION

ANCHOR HOLES NEEDED FOR PATCH FORMING SHALL BE LOCATED BETWEEN BOTTOM OF TOP FLANGE AND TOP OF BOTTOM FLANGE.

PRESTRESSED CONCRETE BEAM REPAIR DETAILS
(FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2019\80381\CAD\CIB\BEAM_DETAILS_001.DSN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

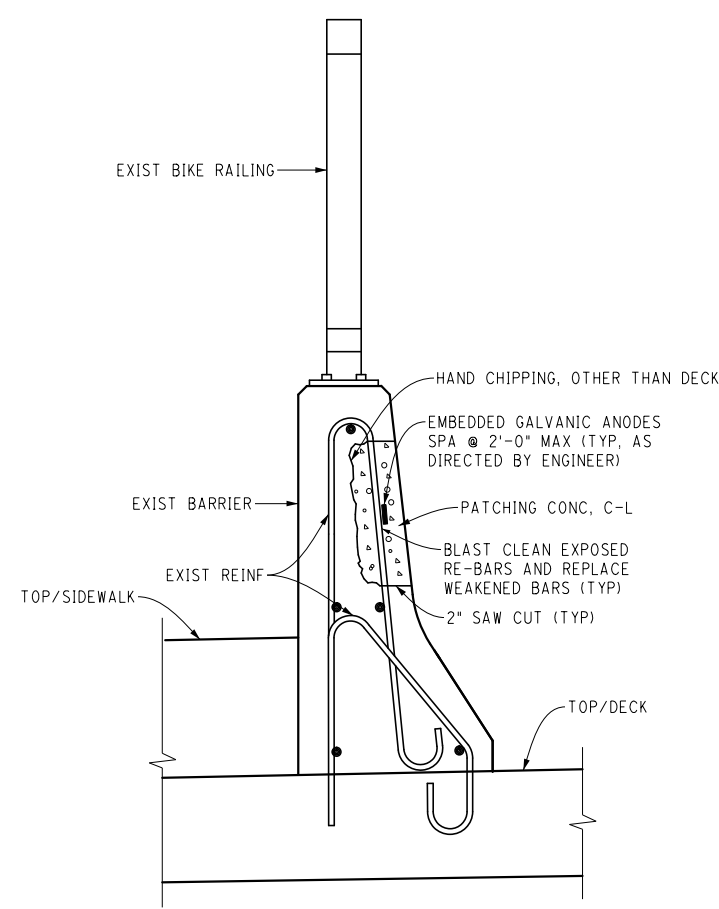
CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1647
734-794-8410
www.a2gov.org



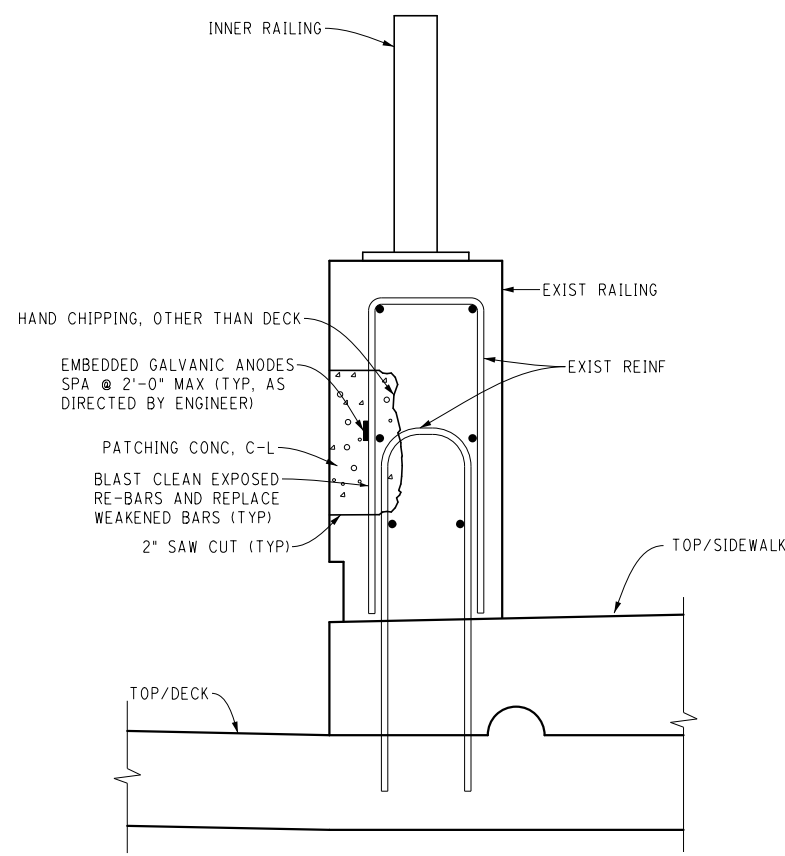
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
PRESTRESSED CONCRETE BEAM REPAIR DETAILS

SCALE: NO SCALE
DRAWING No. 2019-030

FILE NAME: Z:\2019\190381\CAD\MISC_DETAILS_001.DGN



FULLER ROAD RAILING

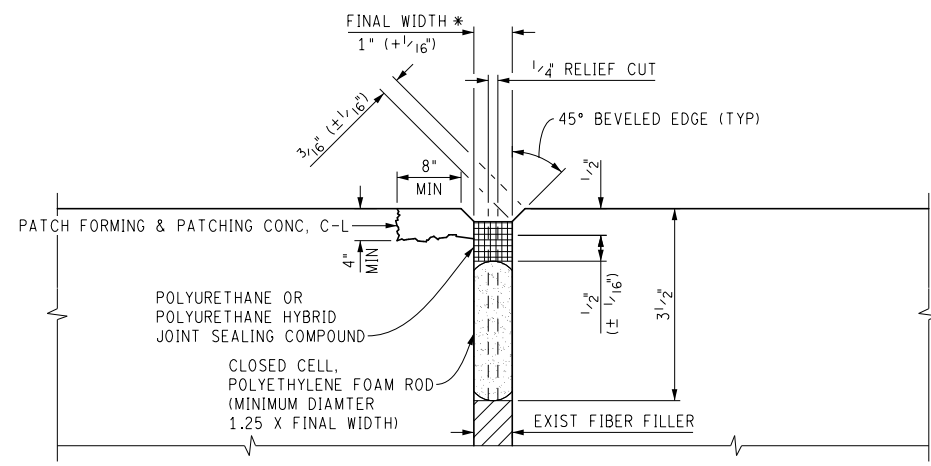


BROADWAY RAILING
(APPLIES TO BOTH BRIDGES)

TYPICAL RAILING PATCH DETAILS

(DECK REINFORCEMENT NOT SHOWN FOR CLARITY)

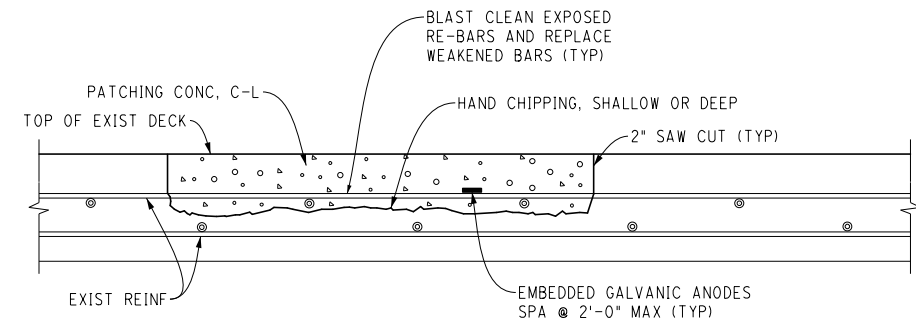
SALVAGE AND BLAST CLEAN EXPOSED REINFORCEMENT. INCLUDED IN THE BID ITEM "HAND CHIPPING, OTHER THAN DECK".
ENGINEER MUST VERIFY PREPARATION OF CAVITY AT EACH LOCATION PRIOR TO PLACING PATCH MATERIAL.



E3 JOINT REPLACEMENT DETAIL

(APPLIES TO BOTH BROADWAY BRIDGES)

* AT LOCATION OF JOINT EDGE SPALLS, LIMITS TO BE APPROVED BY ENGINEER. ADDITIONAL WIDTH SAW-CUTTING MAY BE REQUIRED. ALL COSTS ASSOCIATED WITH ADDITIONAL SAW-CUTTING SHALL BE INCLUDED IN THE ITEM "E3 JOINT SEALANT" AND WILL NOT BE PAID FOR SEPARATELY.





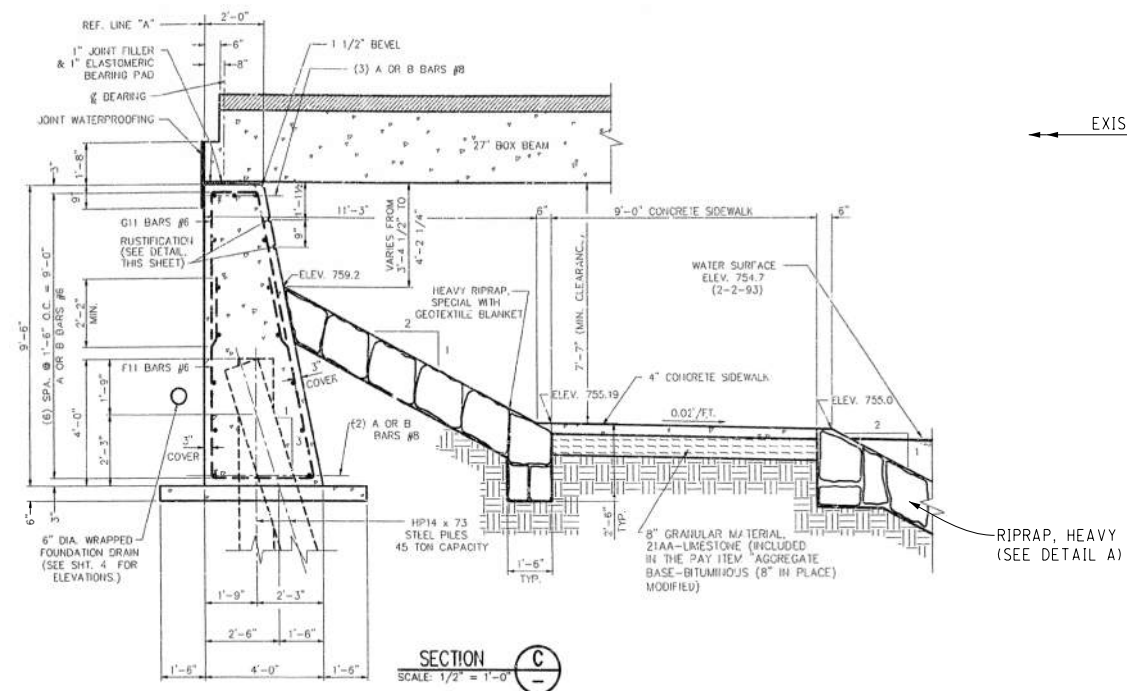
TYPICAL DECK PATCH

(APPLIES TO ALL THREE BRIDGES)

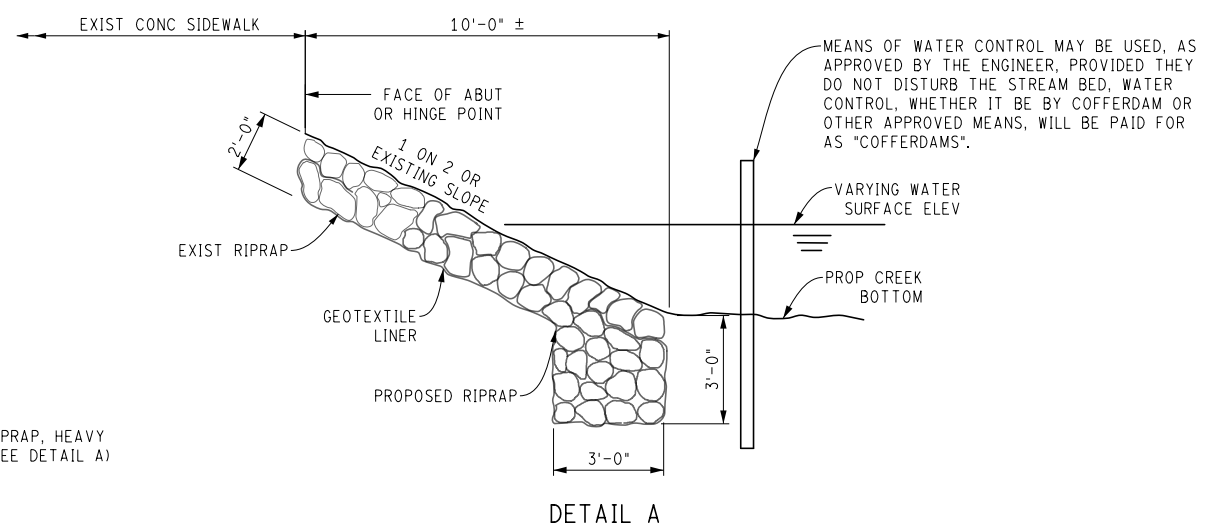
SALVAGE, BLAST CLEAN, AND REUSE ALL EXPOSED REINFORCEMENT. INCLUDED IN THE BID ITEM "HAND CHIPPING, OTHER THAN DECK".
ENGINEER MUST VERIFY PREPARATION OF CAVITY AT EACH LOCATION PRIOR TO PLACING PATCH MATERIAL.

MISCELLANEOUS DETAILS

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS MISCELLANEOUS DETAILS	
SCALE: NO SCALE	DRAWING No. 2019-030
SHEET No. 50	



(AS-BUILT DRAWING)



DETAIL A

RIPRAP DETAILS



(FULLER ROAD WEST ABUTMENT)

TOE OF RIPRAP SHALL BE AT OR BELOW EXISTING STREAMBED/SLOPE ELEVATION.
 AN APPROPRIATE METHOD OF WATER DIVERSION FOR PLACING RIPRAP SHALL BE PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
 THE RIPRAP SCHEME SHOWN IS A MINIMUM REQUIREMENT FOR SCOUR. BROKEN CONCRETE SHALL NOT BE USED FOR RIPRAP. ONLY NATURAL, ROUNDED STONES SHALL BE USED.

FILE NAME: Z:\2019\190381\CAD\MISC_DETAILS_002.DGN

RIPRAP DETAILS

(FULLER ROAD OVER HURON RIVER)

 <small>Know what's below. Call before you dig.</small>	
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<p>CITY OF ANN ARBOR PUBLIC SERVICE 301 EAST HURON STREET ANN ARBOR, MI 48107-6647 734-794-8410 www.a2gov.org</p>	
	
<p>PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2019 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS RIPRAP DETAILS</p>	
SCALE:	NO SCALE
DRAWING No.	2019-030
SHEET No.	51