CITY OF DETROIT KWAME M. KILPATRICK - MAYOR CITY ENGINEERING DIVISION DEPARTMENT OF PUBLIC WORKS





ASHLAND AVE. INDEX OF SHEETS

TITLE SHEET GENERAL PLAN OF SITE LOG OF BORINGS GENERAL PLAN OF STRUCTURE FOOTING DETAILS MISCELLANEOUS DETAILS SUPERSTRUCTURE DETAILS PRECAST CULVERT SPECIFICATIONS STEEL REINFORCEMENT STEEL REINFORCEMENT AND QUANTITIES A12 DETOUR PLAN MDOT STANDARD PLANS

PLANS FOR PROPOSED REPLACEMENT OF THE ASHLAND AVE. BRIDGE OVER FOX CREEK (BW-245), FEDERAL STRUCTURE NO. 0024400B01

CHAIN LINK FENCE, FABRIC HEIGHT = 3048 R-98A R-125A LIGHTED ARROWS AND BARRICADES R-96A SOIL EROSION AND SEDIMENTATION CONTROL MEASURES R-100B SEEDING AND SODDING MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY B-103B AND NAME PLATE DETAILS BRIDGE RAILING, SOLID PARAPET TYPE B-18B B-24A BRIDGE RAILING, 1 TUBE

CITY OF DETROIT STANDARD PLANS (3-7-98)

C-4380 TYPE IIIR INTEGRAL CURB C-4381 TYPICAL PAVEMENT CROSS SECTION LOCATION OF TRANSVERSE EXPANSION

C-4492 AND CONTRACTION JOINT PROJECT LOCATIONS

DETROIT RIVER

DR'N BY

CK'D BY

FINAL CK'D BY M.D.W.

LAKE ST. CLAIR CANADA

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARD IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF THE SPAN LENGTH. THE

SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 1996

TO THE DESIGN OFFICE IN DETROIT. AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL/INTERSECTION OF THE CENTERLINE OF THE BRIDGE AND ROADWAY

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 13 mm TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE

CONCRETE: GRADE S2 CONCRETE: GRADE D STEEL REINFORCEMENT:

f'c = 21 MPaf'c = 28 MPafy = 400 MPa

ALL DIMENSIONS ON THESE PLANS ARE IN MILLIMETERS EXCEPT AS NOTED.

PROJECT:

REMOVAL AND REPLACEMENT OF THE STRUCTURES AT

CONTRACT

PLANS PREPARED BY SNELL ENVIRONMENTAL GROUP. INC.

CITY ENGINEERING DIVISION

FOR APPROVAL FOR APPROVAL

DATE

RECOMMENDED

RECOMMENDED

APPROVED

APPROVED

DRWG. NO.

SCALE NOT TO SCALE TITLE SHEET 9641-5160-01

A1 OF 22

METRIC

CURVE AND ALIGNMENT DATA ARE IN METERS STATIONS ARE IN KILOMETERS + METERS.



SNELL ENVIRONMENTAL ROUP . INC . A DLZ Company 151 W. CONGRESS, SUITE 328 DETROIT, MICHIGAN 48226 TELEPHONE (313) 961-4040

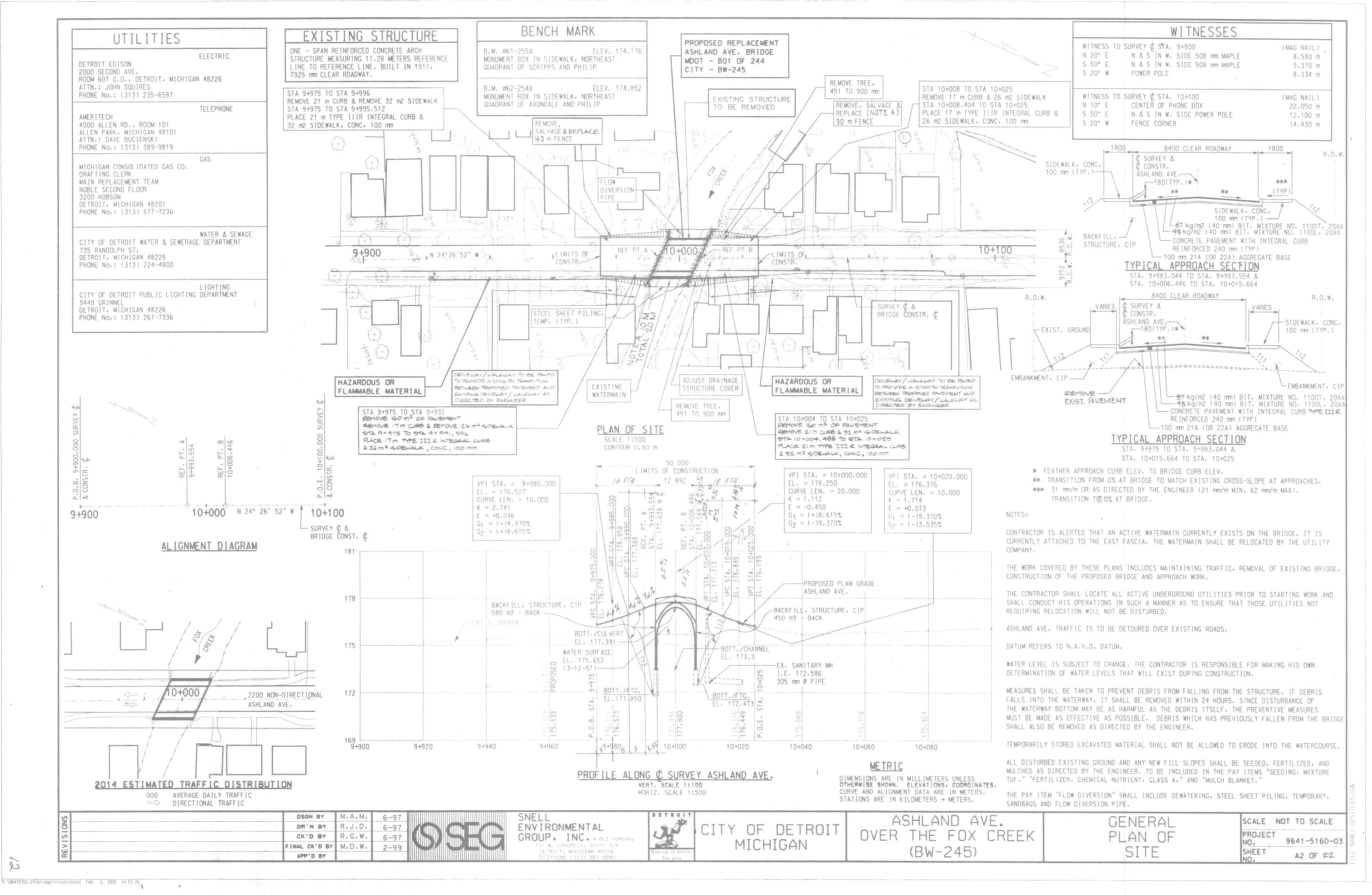


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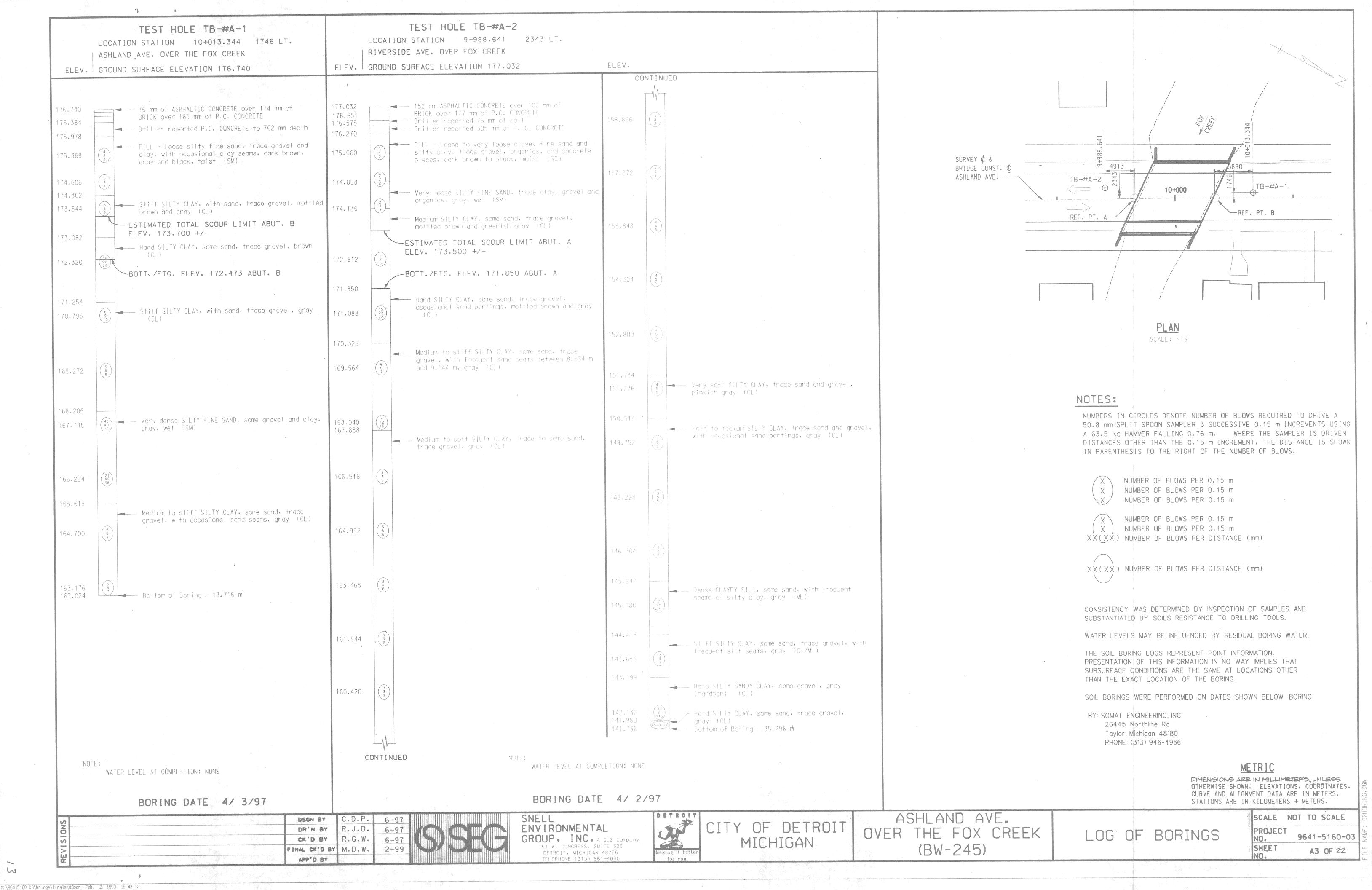
ASHLAND AVE. OVER FOX CREEK (BW-245)

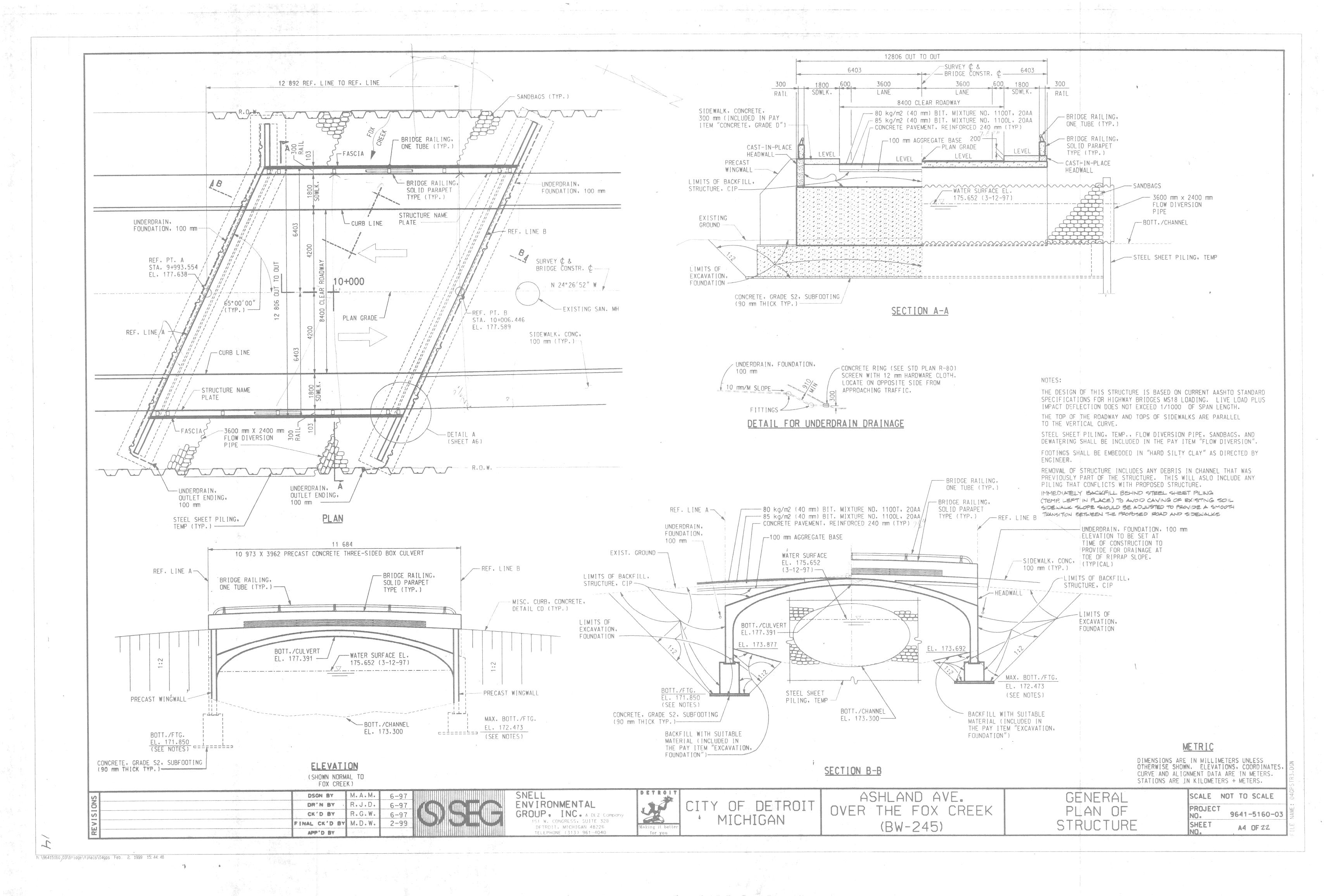
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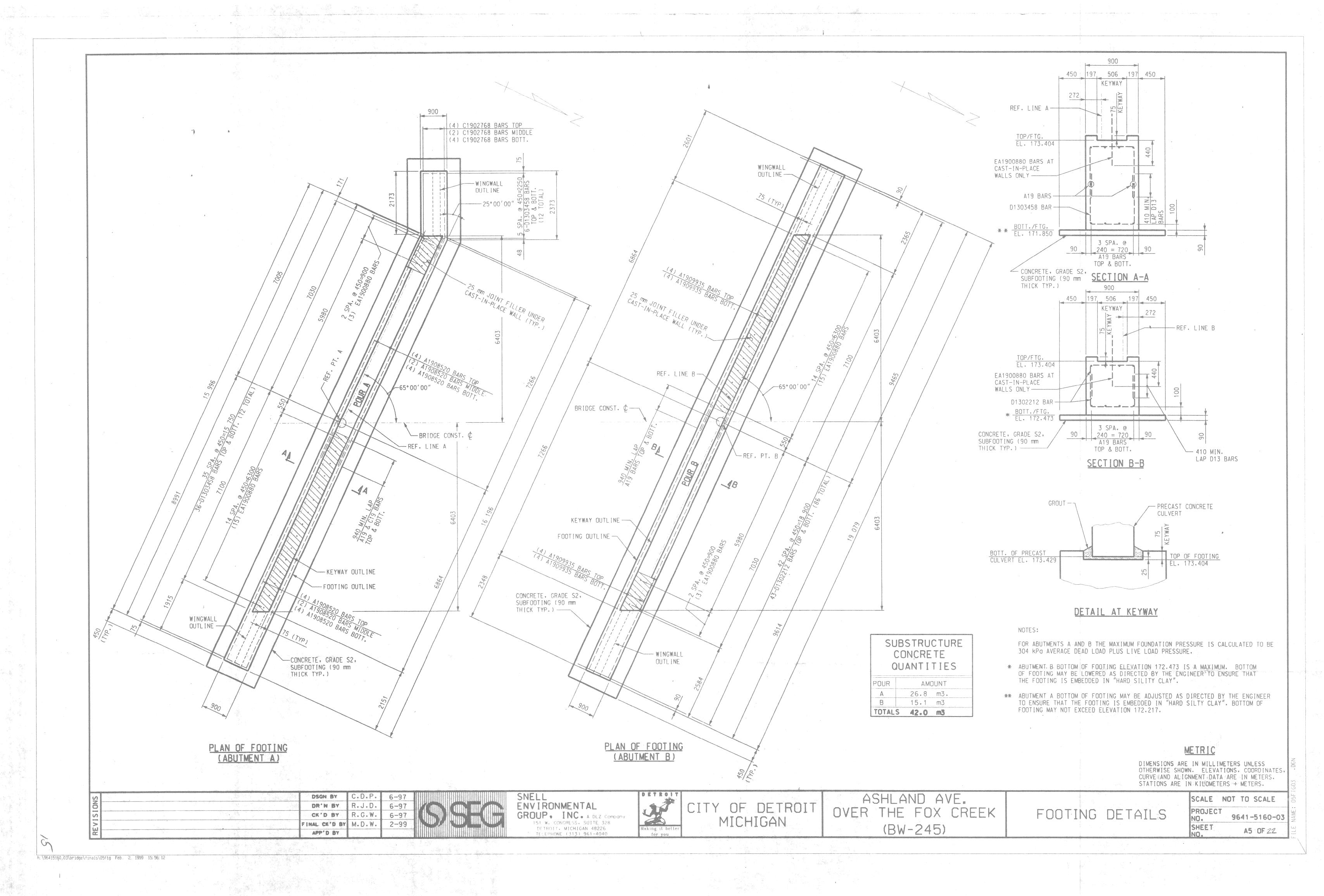
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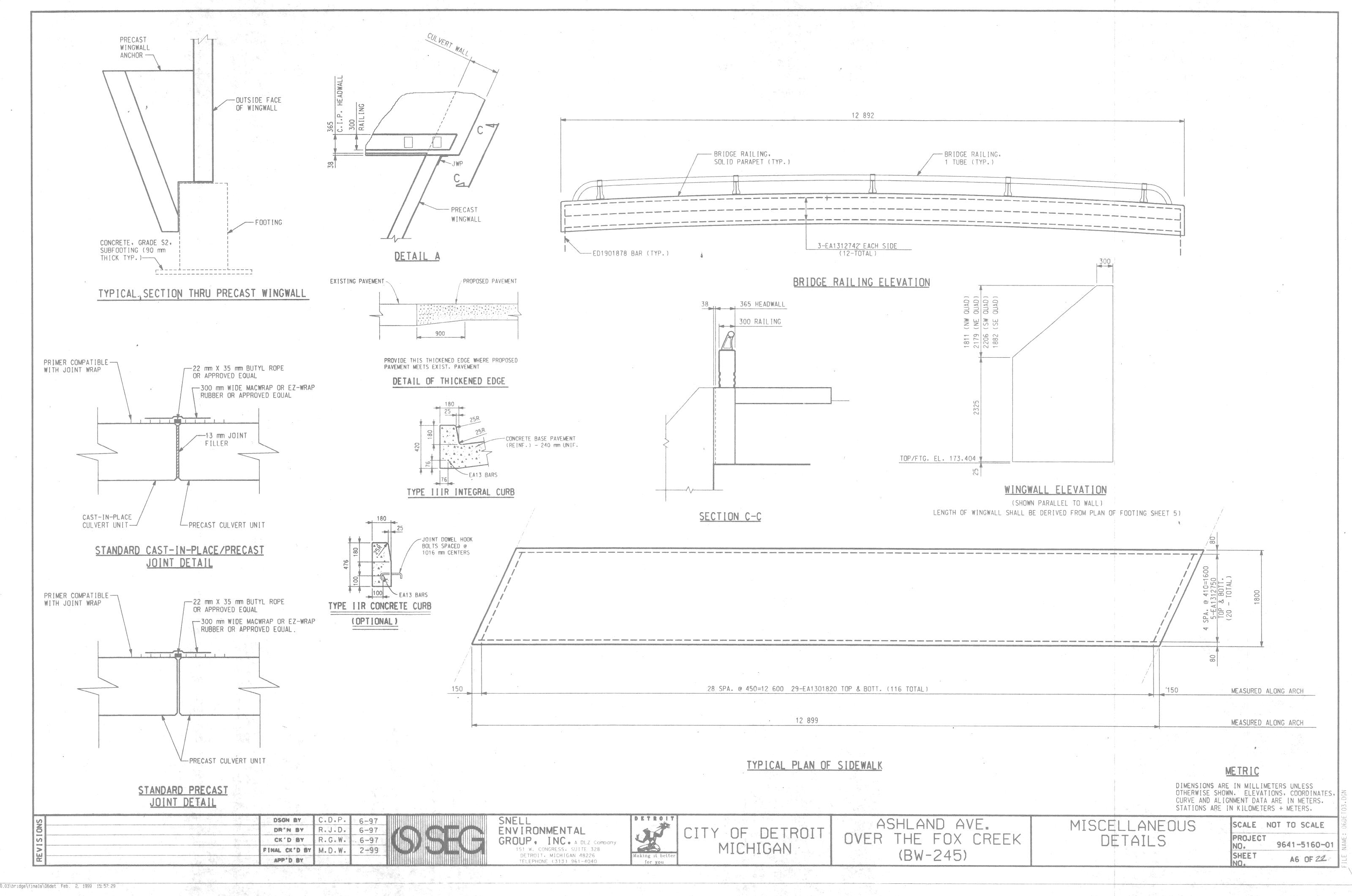


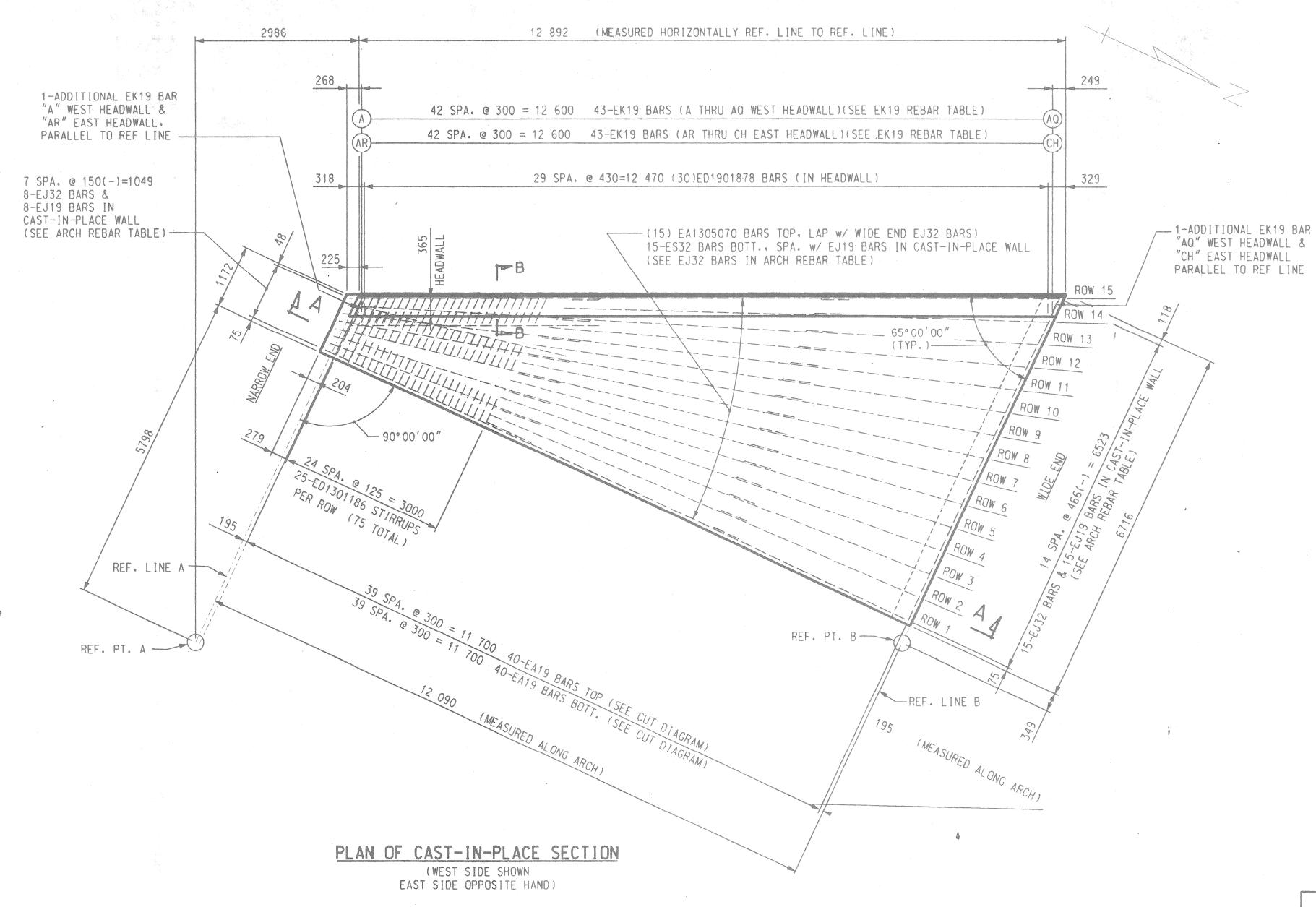
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Ē	EK1903.	335	AV	EK1903299
F	EK1903	129	AW	EK1903099
G	EK19029	931	A·X	EK1902907
Н	EK1902	749	AY	EK1902727
I	EK1902	577	AZ	EK1902561
J	EK1902	419	BA	EK1902405
K	EK19022	271	BB	EK1902263
L	EK1902	137	BC	EK1902133
М	EK19020	013	BD	EK1902113
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Р	EK1901	709	BG	EK1901723
Q	EK19016	629	BH	EK1901647
R	EK19015	559	BI	EK1901583
S	EK19015	501	BJ	EK1901529
T	EK1901	453	BK	EK1901485
U	EK19014	417	BL	EK1901453
V	EK1901	389	BM	·EK1901431
W	EK19013	373	BN	EK1901419
Χ	EK19013	367	BO	EK1901417
Υ	EK19013	373	BP	EK1901427
Z	EK19013	387	BQ	EK1901445
AA	EK19014	413	BR	EK1901477
AB	EK19014	449	BS	EK1901517
AC	EK19014	197	BT	EK1901569
AD	EK19015	555	BU	EK1901631
AE	EK19016	523	BV	EK1901705
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ROW	10	ES3209795	EJ1904156		EJ3207054
ROW	11	ES3212499	EJ1904170	EJ3207241	EJ3207091
ROW	12	ES3210037	EJ1904184		EJ3207133
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CUT DIAGRAM

METRIC

OTHERWISE SHOWN. ELEVATIONS, COORDINATES.
CURVE AND ALIGNMENT DATA ARE IN METERS.
STATIONS ARE IN KILOMETERS + METERS.

DSGN BY C.D.P. 6-97

DR'N BY R.J.D. 6-97

CK'D BY R.G.W. 6-97

FINAL CK'D BY M.D.W. 2-99

APP'D BY

SNELL ENVIRONMENTAL GROUP. INC. A DLZ Company 151 W. CONGRESS. SUITE 328 DETROIT. MICHIGAN 48226 TELEPHONE (313) 961,-4040



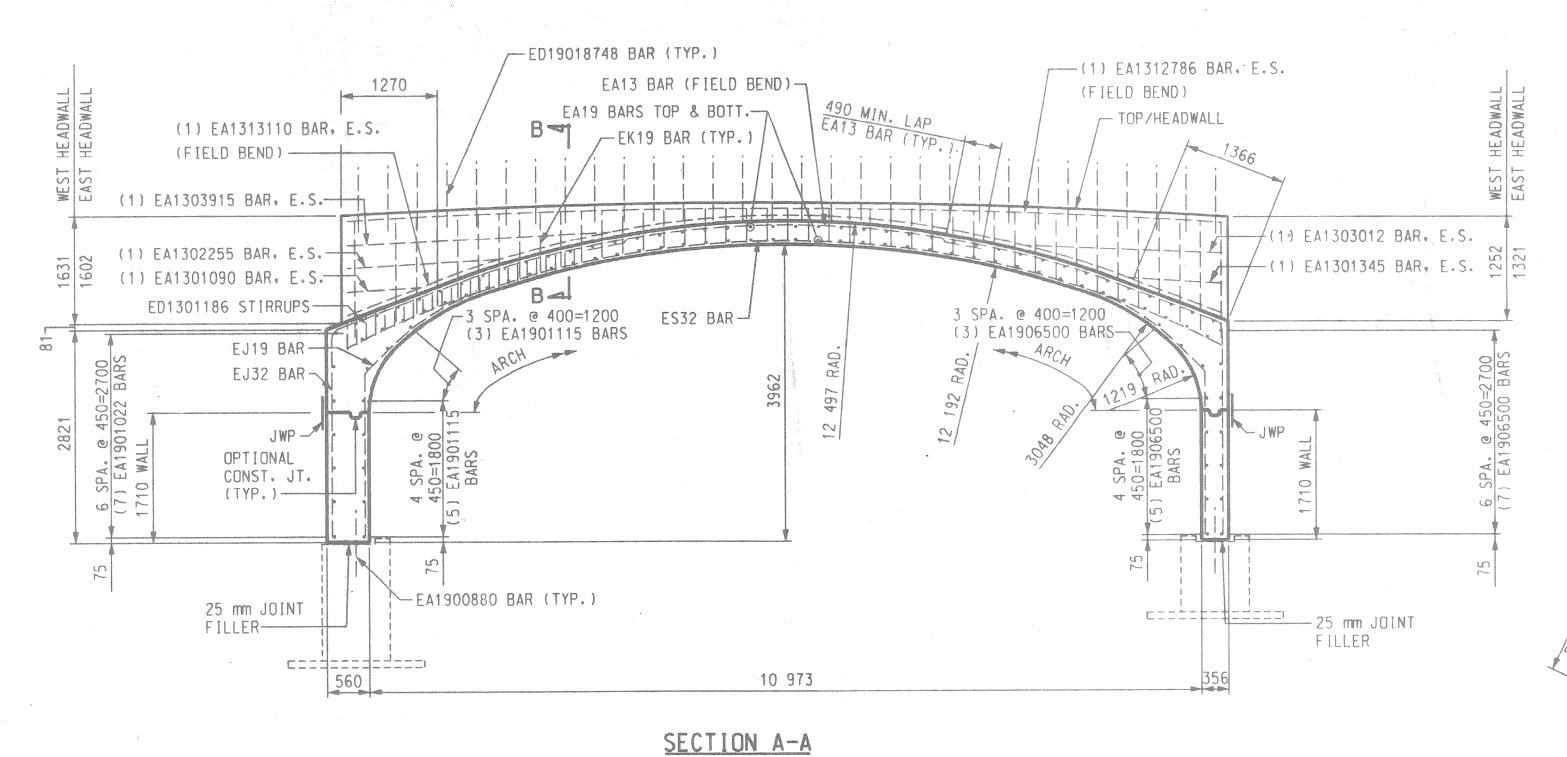
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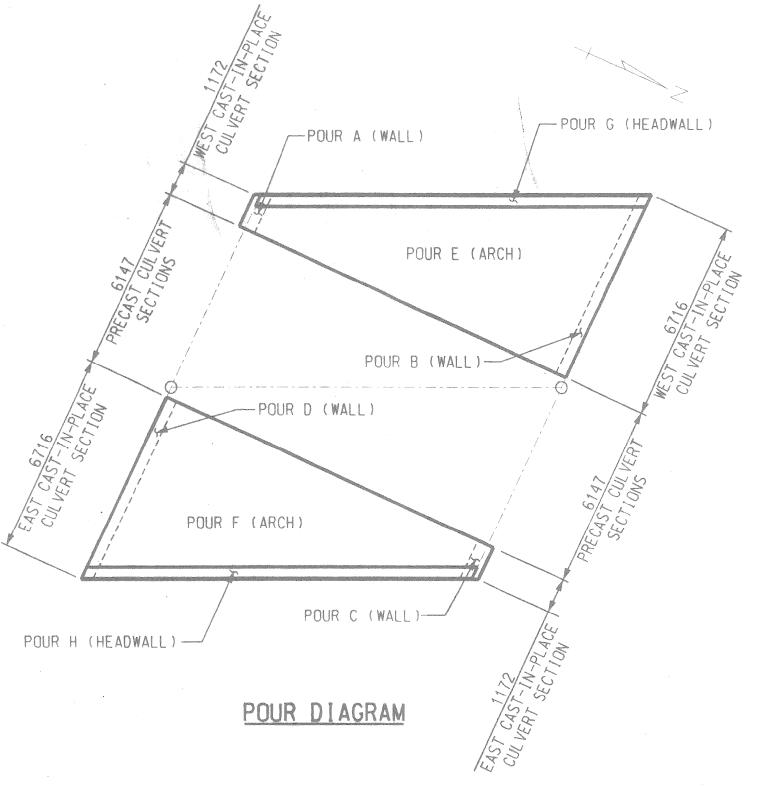
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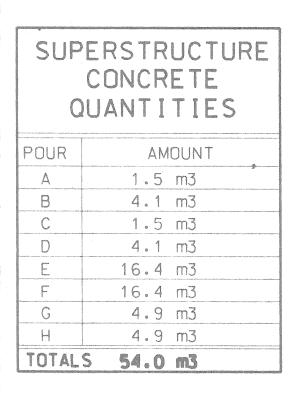
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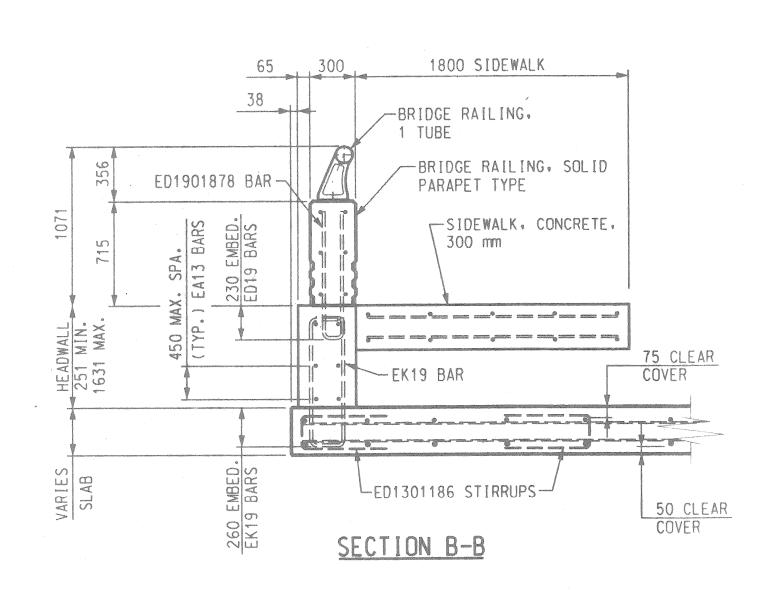
SUPERSTRUCTURE DETAILS

PROJECT
NO. 9641-5160-03
SHEET
NO. A7 OF 22









NOTES:

FOR NAME PLATE MOUNTING, MOLDING AND BEVEL DETAILS, SEE STANDARD B-103-B. FOR BRIDGE RAILING, SOLID PARAPET TYPE, SEE STANDARD B-18-B. FOR BRIDGE RAILING ONE TUBE, SEE STANDARD B-24-A.

FOR NAME PLATE LOCATION, SEE SHEET 4.

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

DUE TO THE "HINGED" CONNECTION BETWEEN THE CAST-IN-PLACE WALL AND THE FOOTING, THE CAST-IN-PLACE WALL SHALL BE SUPPORTED FROM BOTH FACES DURING ITS CONSTRUCTION AND DURING THE CONSTRUCTION OF THE "ARCH".

BACKFILLING SHALL NOT BE PERMITTED PRIOR TO BOTH OF THE CAST-IN-PLACE "ARCHES" AND HEADWALLS ATTAINING THEIR RESPECTIVE MINIMUM 28 DAY COMPRESSIVE STRENGTHS.

CAST-IN-PLACE CULVERT SECTIONS SHALL BE CONNECTED TO THE ADJACENT PRECAST CULVERT SECTIONS IN A MANNER THAT IS SIMILAR TO THE CONNECTION BETWEEN TWO ADJACENT PRECAST CULVERT SECTIONS. THE CONTRACTOR SHALL SUPPLY DETAILS OF SAID CONNECTION TO THE ENGINEER FOR APPROVAL.

TOP OF HEADWALL IS PARALLEL TO THE VERTICAL CURVE.

METRIC

DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN. ELEVATIONS, COORDINATES, 2 CURVE AND ALIGNMENT DATA ARE IN METERS. STATIONS ARE IN KILOMETERS + METERS.

C.D.P. R.J.D. R.G.W. CK'D BY FINAL CK'D BY M.D.W. APP'D BY

SNELL ENVIRONMENTAL GROUP • INC • A DLZ Company 151 W. CONGRESS, SUITE 328 DETROIT, MICHIGAN 48226 TELEPHONE (313) 961-4040



CITY OF DETROIT MICHIGAN

ASHLAND AVE. OVER THE FOX CREEK (BW-245)

SUPERSTRUCTURE DETAILS

SCALE NOT TO SCALE 9641-5160-03

A8 OF 22

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SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF PRECAST CULVERT BRIDGE SYSTEMS

DESCRIPTION

This work shall consist of constructing a Con/Span culvert or approved equal in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans or as established by the Engineer.

Precast reinforced concrete Con/Span culverts or approved equal manufactured in accordance with this specification shall be designated by span

3. MATERIALS + CONCRETE

The concrete for the culverts shall be air-entrained when installed in areas subject to freeze-thaw conditions, composed of portland cement, fine and course aggregates, admixtures and water. Concrete shall contain 6 ± 2 percent air. The air entraining admixture shall conform to AASHTO M154.

- 3.1. Cement Portland cement shall conform to the requirements of ASTM Specifications C150-Type I, Type II, or Type III cement.
- 3.2 Course Aggregate Shall consist of stone having a maximum size of 25 mm Aggregate shall meet requirements for ASTM C33.
- 3.3 Water Reducing Admixture The manufacturer may submit for approval by the Engineer, water-reducing admixture for the purpose of increasing workability and reducing the water requirement for the concrete.
- 3.4 Calcium Chloride The addition to the mix of calcium chloride or admixtures containing calcium chloride will not be permitted.

4. MATERIALS - STEEL REINFORCEMENT AND HARDWARE

All reinforcing steel for the culverts shall be fabricated and placed in accordance with the detailed shop drawings submitted by the manufacturer.

4.1 Steel Reinforcement - Reinforcement shall consist of welded wire fabric conforming to ASTM Specification A 185 or A 497, or deformed billet steel bars conforming to ASTM Specification A 615, Grade 400. Longitudinal distribution reinforcement may consist of welded wire fabric or deformed billet-steel bars.

5. MANUFACTURE

- 5.1 Mixture The aggregates, cement and water shall be proportioned and mixed in a batch mixer to produce a homogeneous concrete meeting the strength requirements of this specification. The proportion of portland cement in the mixture shall not be less than 256 kg (5 sacks) per cubic meter of concrete.
- 5.2 Curing The precast concrete culvert units shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be
 - 5.2.1 Steam Curing The culverts may be low pressure, steam cured by a system that will maintain a moist atmosphere.
 - 5.2.2 Water Curing The culverts may be water cured by any method that will keep the sections moist.
 - 5.2.3 Membrane Curing A sealing membrane conforming to the requirements ASTM Specification C 309 may be applied and shall be left intact until the required concrete compressive strength is attained. The Concrete temperature at the time of application shall be within + 6 degree C of the atmospheric temperature. All surfaces shall be kept moist prior to the application of the compounds and shall be damp when the compound is applied.
- 5.3 Forms the forms used in manufacture shall be sufficiently rigid and accurate to maintain the culvert dimensions within the permissible variations given in Section 7. All casting surfaces shall be of smooth
- 5.4 Handling Handling devices or holes shall be permitted in each culvert for the purpose of handling and
- 5.5 Storage The culverts shall be stored in such a manner to prevent cracking or damage. The units shall not be stored in an upright position until the compressive strength is a minimum of 28 MPa.

6. DESIGN

6.1 The culvert dimension and reinforcement details shall be as prescribed in the plan and the shop drawings provided by the manufacturer subject to the provisions of Section 7. The minimum concrete compressive strength shall be 28 MPa. The minimum steel yield strength shall be 400 MPa.

The culverts are designed in accordance with the "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1996; and the Alternate Military Loading. A minimum of 300 mm of cover above the crown of the culvert is required in the installed condition. (Unless noted otherwise and designed

- 6.2 Placement of Reinforcement The cover of concrete over the outside circumferential reinforcement shall be 50 mm minimum. The cover of concrete over the inside circumferential reinforcement shall be 40 mm minimum. The clear distance of the end circumferential wires shall not be less than 25 mm nor more than 50 mm from the ends of the culvert. Reinforcement shall be assembled utilizing single or multiple layers of welded wire fabric, or utilizing a single layer of deformed billet-steel bars. The welded wire fabric shall be composed of circumferential and longitudinal wires meeting the spacing requirements of 6.4 and shall contain sufficient longitudinal wires extending through the culvert to maintain the shape and position of reinforcement. Longitudinal distribution reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.4. The ends of the longitudinal distribution reinforcment shall be not more than 75 mm from the ends of the culvert.
- 6.3 Bending of Reinforcement the outside and inside circumferential reinforcing steel for the corners of the culvert shall be bent to such an angle that is approximately equal to the configuration of the culvert's outside corner.
- 6.4 Laps, Welds, and Spacing Tension splices in the circumferential reinforcement shall be made by lapping. Laps may be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of ACI 12.8 and 12.19. For deformed welded wire fabric, the overlap shall meet the requirements of ACI 12.7 and 12.18. For deformed billet-steel bars, the overlap shall meet the requirements of ACI12.2. For splices other than tension splices, the overlap shall be a minimum of 300 mm for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be not less than 50 mm nor more than 100 mm. For the wire fabric, the spacing center to center of the longitudinal wires shall not be more than 200 mm. The spacing center to either line of reinforcing in the top slab shall be not more than 400 mm.

7. PERMISSIBLE VARIATIONS

- 7.1 Internal Dimensions The internal dimension shall vary not more than 1% from the design dimensions nor more than 40 mm whichever is less. The haunch dimensions shall vary not more than 20 mm from the design
- 7.2 Slab and Wall Thickness The slab and wall thickness shall not be less than that shown in the design by more than 6 mm. A thickness more than that required in the design shall not be cause for rejection.
- 7.3 Length of Opposite Surfaces Variations in laying lengths of two opposite surfaces of the culvert shall not be more than 16 mm in any culvert section, except where beveled ends for laying of curves are specified by the purchaser.
- 7.4 Length of Section The underrun in length of a section shall not be more than 13 mm in any culvert.
- 7.5 Position of Reinforcement The maximum variation in position of the reinforcement shall be ± 13 mm. n no case shall the cover over the reinforcement be less than 40 mm for the outside circumferential steel or be less than 25 mm for the inside circumferential steel as measured to the external or internal surface of the culvert. These tolerances or cover requirements do not apply to mating surfaces of the joints.
- 7.6 Area of Reinforcement The areas of steel reinforcement shall be the design steel areas as shown in the manufacturer's shop drawings. Steel areas greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances

8. TESTING AND INSPECTION

- 8.1 Type of Test Specimen Concrete compressive strength shall be determined from compression tests made on cylinders or cores. For cylinder testing a minimum of 4 cylinders shall be taken during each production run. For core testing, one core shall be cut from a culvert section selected at random from each group of 15 culverts or less of a particular size and production run. For each continuous production run, each group of 15 culverts of a single size or fraction thereof shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than 3 consecutive days.
- 8.2 Compression Testing Cylinders shall be made and tested as prescribed by the ASTM C 39 Specification. Cores shall be obtained and tested for compressive strength in accordance with the provisions of the ASTM C 497 Specification.
- 8.3 Acceptability of Cylinder Tests Failure of any of the 28 day test cylinders to meet 90 percent of the minimum compressive strength requirement can be cause for
- 8.4 Acceptability of Core Tests The Compressive strength of the concrete in each group of culverts as defined in 8.1 is acceptable when the core test strength are equal. to or greater than the design concrete strength. When the compressive strength of the core tested is less than the design concrete strength, the culvert from which that core was taken may be recored. When the compressive strength of the récore is equal to or greater than the design concrete strength, the compressive strength of the concrete in that group of culverts is acceptable.
 - 8.4.1 When the compressive strength of any recore is less than the design concrete strength, the culvert from which that core was taken shall be rejected. Two culverts from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group of culverts is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, the remainder of the group of culverts shall be rejected or, at the option of the manufacturer, each culvert of the remainder of the group shall be cored and accepted individually, and any of these culverts that have cores with less than the design concrete strength shall be rejected.
- 8.4.2 Plugging Core Holes The core holes shall be plugged and sealed by the manufacturer in a manner such that the culvert will meet all of the test requirements of this specification. Culverts so sealed shall be considered satisfactory for use.
- 8.4.3 Test Equipment Every manufacturer furnishing culverts under this specification shall furnish all facilities and personnel necessary to carryout the test required.

9. JOINTS

The culverts shall be produced with flat butt ends. The ends of the culvert shall be such that when the sections are laid together they will make a continuous line of culverts with a smooth interior free of appreciable irregularities, all compatible with the permissible variations in Section 7. The joint width shall not exceed 20 mm.

10. WORKMANSHIP AND FINISH

The culverts shall be substantially free of fractures. The ends of the culverts shall be normal to the walls and centerline of the culvert section, within the limits of the variations given in Section 7, except where beveled ends are specified. The surface of the culverts shallbe a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth steel form finish.

11. REPAIRS

Culverts may be repaired, if necessary, because of imperfections in manufacture or handling damage and will be acceptable if, in the opinion of the purchaser, the repairs are sound, properly finished and cured, and the repaired section conforms to the requirements of this specification.

12. INSPECTION

The quality of materials, the process of manufacture, and the finished culverts shall be subject to inspection by the purchaser.

13. REJECTION

Culverts shall be subject to rejection on account of any of the specification requirements. Individual culverts may be rejected because of any of the following.

- 13.1 Fractures or cracks passing through the wall, except for a single end crack that does not exceed one half the thickness of the wall.
- 13.2 Defects that indicate proportioning, mixing, and molding not in compliance with Section 5.
- 13.3 Honeycombed or open texture, and
- 13.4 Damaged ends, where such damage would prevent making a satisfactory joint.

14. MARKING

Each culvert shall be clearly marked by waterproof paint. The following shall be shown on the inside of the verticalleg of the culvert section:

Culvert Section Span X Culvert Rise

Date of Manufacture

Name or trademark of the manufacturer

And in the case of headwall sections. east or west face shall also be marked

15. CONSTRUCTION REQUIREMENTS

- 15.1 Footings the culverts shall be installed on either precast or cast-in-place concrete footings. The design size and elevation of the footers shall be as determined by the Engineer. A 75 mm deep keyway shall be formed in the top surface of the footing 75 mm clear of the outside faces of the culvert, unless specified otherwise on the plans. the footings shall be given a smooth float finish and shall reach a compressive strength of 14 MPa before placement of the culvert sections. The completed footing surface shall be constructed in accordance with grades shown on the plans. When tested with a 3000 mm straight edge, the surface shall not vary more than 6 mm in 3000 mm. If a precast concrete footer is used, the contractor shall prepare a 100 mm thick layer of compacted granular material the full width of the footer prior to placing the precast footer.
- 15.2 Placement of the Culverts The culverts shall be placed as shown on the Engineer's plan drawings. Special care shall be taken in setting the culverts to the true line and grade. The culverts shall be set on 150 mm X 150 mm masonite or steel shims. A minimum of 13 mm gap shall be provided between the footing and the bottom of the culvert's vertical legs. The gap shall be filled with cement grout (portland cement and water or cement mortar composed of one part portland cement and three parts of sand, by volume, and water.
- 15.3 External Protection of Joints The butt joint made by two adjoining culverts shall be covered with a 22 mm X 35 mm (32 mm round equivalent) piece of butylrope and a minimum of 230 mm wide joint wrap. The surface shall be free of dirt before applying the joint material. A primer compatible with the joint wrap to be used shall be applied for a minimum width of 230 mm on each side of the joint. The external wrap shall be either EZ-WRAP RUBBER by PRESS-SEAL GASKET CORPORATION, SEAL WRAP by MAR MAC MANUFACTURING CO. INC. or approved equal. The joint shall be covered continuously from the bottom of the culvert leg, across the top of the arch and to the opposite culvert section leg. Any laps that result in the loint wrap shall be a minimum of 150 mm long with the overlap running downhill.

In addition to the joints between units, the joint between the end unit and the headwall shall be sealed. If using precast wingwalls, the joint between the end bridge unit and the wingwall shall be sealed with this type of wrap or at the discretion of the Engineer, filter fabric shall be substituted.

During the backfilling operation, care shall be taken to keep the joint wrap in its proper location over

15.4 Backfill - Backfill shall be considered as all replaced excavation and new embankment adjacent to the Con/Span or approved equal bridge units and wingwalls. The project construction and material specifications which include the specifications for excavation for structures and roadway excavation and embankment construction shall apply except as modified in this section.

Backfill material for a minimum width of 1220 mm on each side of the culvert, from the base of the unit to 300 mm above the outside corner shall be a soil meeting AASHTO classification A1, A2, A3 or A4 unless authorization to use a different materials given in writing by the designer. For heights of fill over 3660 mm, only A1 & A3 materials shall be used. Maximum dry density shall be determined by AASHTO T-99 or other approved methods. Backfill shall be placed and compacted in layers untill the density is not less than 95% of maximum dry density. All material outside the backfill zone shall be good quality, well compacted embankment or in situ soil.

No backfill shall be placed against any structural elements until they have been approved by the Engineer.

Backfill against a waterproofed surface shall be placed carefully to avoid damage to the waterproofing material.

Mechanical tampers or approved compacting equipment shall be used to compact all backfill and embankment immediately adjacent to each side of the culvert and over the top of the culvert until it is covered to a minimum depth' of 300 mm. The backfill within 1220 mm of each side of the culvert shall be placed in lifts of 200 mm or less (loose depth). Heavy compaction equipment shall not be operated in this area or over the culvert untilit is covered to a depth of 300 mm.

Lightweight dozers and graders may be operated over culverts having one 300 mm of compacted cover, but heavy earth moving equipment (larger than a D-4 Dozer weighing : in excess of 107 kN and having track pressures of 55 kPa or greater) shall require 600 mm of cover unless the design cover is less than 600 mm. In no case shall equipment operating in excess of the design load (MS18 or MS23) is to be permitted over the culvert unless approved by Con\Span or approved equal.

Any additional fill and subsequent excavation required to provide this minimum cover shall be made at no additional cost to the project.

As a precaution against introducing unbalanced stresses in the culvert and wingwalls, when placing backfill at no time shall the difference between the heights of fill on opposite sides of the culvert exceed 600 mm.

Backfill in front of wingwalls shall be carried to ground lines shown in the plans.

16. MEASUREMENT AND PAYMENT

The completed work as measured for Precast Culvert will be paid for at the contract unit price for the following contract item (pay item).

<u>Pay Item</u>

<u>Pay Unit</u>

10 973 x 3962 Precast Concrete

Three - Sided Box Culvert Payment for Precast Culvert shall be payment in full for

labor, equipment and material necessary to design, manufacture and install the arch elements, including any steel shims needed to level the arch elements, casting holes in the elements as needed for quardrail posts, casting in the anchor assembly per STD. B-18-B, furnishing and placing the grout between the footing and the arch elements, precast headwall units, steel connection plates between units, and furnishing and placing the joint waterproofing.

METRIC

DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN. ELEVATIONS, COORDINATES, CURVE AND ALIGNMENT DATA ARE IN METERS. STATIONS ARE IN KILOMETERS + METERS.

DR'N BY CK'D BY FINAL CR'D BY M.D.W.

R.J.D. R.G.W. 2-99



ENVIRONMENTAL ROUP. INC. A DLZ Company 151 W. CONGRESS, SUITE 328 DETROIT, MICHIGAN 48226 TELEPHONE (313) 961-4040

SNELL



OF DETROIT MICHIGAN

ASHLAND AVE. OVER THE FOX CREEK (BW - 245)

PRECAST CULVERT SPECIFICATIONS

SCALE NOT TO SCALE PROJEC1

9641-5160-03 SHEET A9 OF 22

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ABUT. A	BAR A1908520	a	8	r de la faction de	as the first term of the first	_	The second secon	The state of the state of	1		DEAM	MACC		BAR	April Control (Section 1994)				Contract Con		The second second second second		T	Libla service	TOTAL
	A1908520			G	d	•		9	h	J	REO'D	MASS			8	Ь	C	d					J	REO'D	MASS
		8520									20	381	-	EJ3206989	2776	482	1254	1344	2869	13030				2	90
ABCT	C1902768	444	2278	0	0	0	207	490			10	62	<u>4</u> 1	EJ3207019	2776	481	1263	1352	2891	13276				2	90
8	D1303458	1354	750	1354							84	289		EJ3207027	2695	563	1428	1535	2797	12422				2	90
	mingupandan engirim unun pangabapan terminakan menengkanakan menengkan kelalaran dan menghabapan dan menghabap	A SAN BOOK OF BROKE STOLEN OF BUILDING AND						Navira Statut sa		SUBTOTAL		732 kg		EJ3207036	2695	563	1431	1538	2803	12473				2	90
9											4.0			EJ3207054	2776	481	1275	1362	2916	13427				2	90
-	EA1900880	880									18	35		EJ3207062	2695	563	1439	1546	2821	12635				2	90
		eastandari maga genjaha arawa ing musum en e e masakan ilikuli se anakali maga				gresseure such auss er sig as militario en parte en persona en as sens		E	POXY	SUBTOTAL		35 kg		EJ3207091	2776	481	1286	1373	2942	13760	Aller-kenyadhilik kenyalishi kelinggah diaspahin kennoson pasasing			2.	91
et anna		our experience and a secretaria security of the secretaria secretaria security and a secretaria security and a												EJ3207105	2695	563	1455	1560	2850	12902				2	91
No.		~~~				enalastiki ka esa mujuwa jugiligi ka Gagarikitan mulimitusiki gan-ar		gw am negani isolani isolang pada an mangalah caway sa amanya an Afanana	Seven control of the Annal State September 1991 and the			And the state of t		EJ3207133	2777	481	1299	1385	2971	13962				2	91
	A1909935	9935	750			pulmundinatu nakipuda apitikana pikinumusun aribi abaliakalahan egen suan Mar					16	355		EJ3207166	2696	562	1475	1579	2891	13276				2	92
0	D1302212	731	750	731				www.eleigh.com.enderneto.com.enderneto.com.enderneto.com.enderneto.com.enderneto.com.enderneto.com.enderneto.co		CHOTOTAL	86	189		EJ3207177	2777	481	1313	1398	3002	14346				2	92
				manaska opisalosii ilka tari oo assiittii oo alijiin ka maraa aa kun had dhiidd						SUBTOTAL		544 kg		EJ3207225	2777	480	1328	1412	3036	14523					93
AB -			au di inglasjouwani e di jimina kat may glora wake jihiki direw wake sibo a sesata wake								4.0			EJ3207241	2696	562	1502	1604	2941	13760				2	93
	EA1900880	880									18	35		EJ3207277	2777	480	1344	1427	3073	15044	More - mance - had to contribute on construction construction construction.			2	93
-	neg en champ from figure de sign e del transcom companion es en activações com o como en en esta de signa e co							LE	POXY	SUBTOTAL		35 kg		EJ3207331	2696	561	1533	1633	3002	14346	markaray oo marka aasan waxaa aa aa aa aa ahaa ahaa oo aa a			2	94
-	gent B 4 MIQ de 20		o protest manifestible enemicroshiperio dell'asservicio basic eniche filme e singli filme e spirito di	partyropan e silveri delektrik sedisperiologija kor urbijkan kurvijskych sport				pament companies recorded discussion and the American companies are recorded to the American Companies and America			ang.			EJ3207433	2696	561	1570	1667	3070	15044	Minerico e o Mil Para committo e de riengio cida per Minerico de completo de la completo del la completo de la completo del la completo de la completo del la completo de la completo del la completo del la completo della completo della completo della completo della completo della completo de		yasawati waliqiren wasawani nagasan intananin sanaaw	2	95
-	EA1301022	1022	som a dess de diffréponsité d'une des sought litré diffrés de sous en servent souve									7		EK1901367	436	140	140	215	ARTICLE POR TO CONTROL OF COMPANY AND ARTICLE POR CONTROL OF CONTR				Northwater comment with which copy is gift per land an annual consequence plants.	1	To the
-	EA1301090	1090	n en seu vinis litra aj proprio se ne l'altri de l'altri de l'altri de l'altri d'altri d'altri d'altri d'altri					palaman masantalappingan production and deviated account of the second of the second			4	4		EK1901373	439	140	140	215	onstantian-erassessita anila malla massassanavida (militaria-vida)		and consulted his field and a second and a s			2.	6
L	EA1301115	1115									8	9		EK1901387	446	140	140	215	ett saktio-traggjara garagoti o jään-stojulajo o min-vissae assiskaasise jä järenentä		palanta ilikalika da Wila kata al mangapa ngantanta a saya an			1	
	EA1301345	1345							andra de la constitución de la c		4	5	•	EK1901389	447	140	140	215							
-	EA1301820	1820		practicement halos de significação registração construer que que que esta misión por							116	210		EK1901413	459	140	140	215						1	
Junea	EA1302255	2255		anna assanga kaliki di makadan kalipisang dilin di yang dipulan melekulis melilis							4	9	1 a 2	EK1901417	461	140	140	215	entrantique h 1 to fragminionisse en cita à distribute, con active en rioque étal.				Militage in routh light or time in minimal now may be writted as an early as prop-	2	6
-	EA1303012	3012									4	12	Š	EK1901419	462	140	140	215	elikerilden som in er dit stallen stallen geleinen med dit blick die lijderlick konsentralij					1	
_	EA1303915	3915	engan good liidhin dhiilidhii ka waxaa isa ka dhara dhii dhiir ah dhara dhii dha								4	16	2	EK1901427	466	140	140	215						1	3
	EA1305070	5070	personantiformuni sidde estatumine en en sida accionino a sidalistifori di singre								30	151	百	EK1901431	468	140	140	215						1	3
	EA1306500	6500	gad auron navigatilijaga astavapaa ke kirneriläin syvensattensatiinitat								15	97	S	EK1901445	475	140	140	215						1	
	EA1312742	12742									12	152	9	EK1901449	477	140	140	215						1	3
	EA1312750	12750								toragen is required where never \$1500 to \$1600 account on a sistence on which is a second	20	253	S	EK1901453	479	140	140	215	ellifetade NA-Ottilinope socieli di policopina portini visuopini soni minimi socia e comi		gram in Million Andreach Andreach Republican State and S			2	6
	EA1312786	12786	generation of the later communication of the control of the contro								4	51		EK1901477	491	140	140	215					anne no no na chairtean na fhairtean na fhairtean n-fallaine, canadh aghtaigheadh na chairtean na fhairtean n	1	3
اس	EA1313110	13110									4	52	·	EK1901485	495	140	140	215	enthraft diggs in the second of the second o					1	3
2	EJ1904097	2159	371	370	524	1414	3098				. 4	37		EK1901497	501	140	140	215	o Primanovina salak panasana palena papapapana magalina na ana ara-ara-ara-					1	3
TRUC	EJ1904098	2159	371	370	524	1415	3100				2	18		EK1901501	503	140	140	215						1/2 -	3
ST.	EJ1904101	2159	371	371	525	1417	3105				4	37		EK1901517	511	140	140	215	Biberilikaisan gippiskash-silkesisii siirinnyypensias myrkepaan noosta mis					1	3
E E	EJ1904103	2159	371	372	525	1419	3115				4	37		EK1901529	517	140	140	215	ender for declaration come and the state of					1	3
SUPER	EJ1904108	2159	371	373	526	1423	3129			-	4	37		EK1901555	530	140	140	215	El-villa de a como como como como como como como co		Makei Wara w 2004 a 2004 a angalah di disarah araksan dibangsan tang anganggan			1	3
	EJ1904116	2159	372	376	529	1428	3146				2	18		EK1901559	532	140	140	215						4	3
	EJ1904124	2159	372	378	531	1434	3167				4	37		EK1901569	537	140	140	215				n n		1	4
	EJ1904133	2159	372	381	533	1441	3193	Common Approximate States of Control States Approximate States			2	18		EK1901583	544	140	140	215	ned difference in construction de de dependence con constitue de section de la constitue de la					1	4
Secure 1	EJ1904144	2159	373	385	536	1449	3222				4	37		EK1901623	564	140	140	215						1	4
	EJ1904156	2159	373	388	539	1458	3255				2	19		EK1901629	567	140	140	215	empresser simple egyet i teleprose de Assept i trabijar minima e se se sa sa sa						4
	EJ190417Ó	2159	374	393	543	1468	3292				4	37		EK1901631	568	140	140	215			mineral (1) a constant of the		and the control of th	1	4
	EJ1904184	2159	374	397	546	1479	3333			expansion in the second	2	19		EK1901647	576	140	140	215					enement (enement (en	1	4
	EJ1904199	2159	375	402	550	1490	3378			of a damage a submanife conjugace	4	38		EK1901705	605	140	140	215				Operating (SS) in the garage on the Authorities		2	8
a	EJ1904216	2159	375	407	554	1503	3427	12			2	19		EK1901709	607	140	140	215						1	4
÷	EJ1904235	2159	376	413	559	1517	3480				4	38		EK1901723	614	140	140	215			en region mad PA-SON Million And Adelegated a province in the			1	4
	EJ3206888	2776	482	1223	1314	2798	12422				2	88		EK1901789	647	140	140	215	et en egen allem de colonistique esting de dit de de constitution plane est appli		onne franke te som de spektigligt de ste finde de ste finde som finde som de som de som de som de som de som d		ggen eiligeme villetilmis-merepanen zur von sehr meiser ville zur deutsche Studie siehe der	1	4
	EJ3206891	2776	482	1223	1315	2800	12433				2	88		EK1901795	650	140	140	215	ntt gelig die Stellen der Stellen der Gelige Stellen der Armitisch zellen der verweren der Armitisch		hannarum-Marykani-atamihiailijaustanda adhaanak			1	4
	EJ3206897	2776	482	1225	1317	2804	12473				2	88		EK1901799	652	140	140	215	ngthe states (control all suggisted as step control quinting of control of a state plane of one control of the		genn om en kommen fry skoloniste i regennessi å en ejern men men eje vy er	and the control of th	ikken miladeli memapakan asalah sahiri sahabanyak mendilipat silikili dangan melalag	1	4
-	EJ3206907	2776	482	1229	1320	2811	12534				2	88		EK1901809	657	140	140	215	iffetti dijohomuso inkresust eriketo ilasan filosofisione, er erenennesi		лизе и не положения рукопологовым не место подорожения и		gentri kilotta ettissinse etti kilotti tili tili tili tili tili tili til	1	nerranico como estraco recessor en
	EJ3206921	2776	482	1233	1324	2821	12635				2	89		EK1901885	695	140	140	215			paratrianes mension attache distilla dalla suspension e primare degressorigi			1	4
- I	EJ3206940	2776	482	1239	1329	2835	12733				2	89		EK1901899	702	140	140	215			professionen men fest füll die Bilderfessif fühlindessen son sob die bezeichtigtig gibt.			1	4
ŀ	EJ3206963	2776	482	1246	1336	2851	12902				2	89		EK1901901	703	140	140	215	epolitimus crem nega a analizacio di legi cinquigli di menence i indicata della considerazione		over-elimentus individualisti guescha duesti (gd. elezzonnas indivi				4

F		BAR					D	MENSI	DNS	. 3		NO.	TOTAL
S		Margin W. W. W	8	ь	С	d	9	f	g	h	j	REO'D	MASS
0		EK1901905	705	140	140	215	er for state from a for state from the state of the state					1	4
0		EK1901993	749	140	140	215	eraktanomikarjungan propositionakonykilikus a ana akan s	and the second s				1	4
0	ñ	EK1902013	759	140	140	215						2	9
0		EK1902113	809	140	140	215				Common of the co		2	9
0		EK1902133	819	140	140	215					Till der der gestelle der der der der der der der der der de	1	5
0		EK1902137	821	140	140	215					en en fan de fan de fan en en en en fan fan de fan de fan en en en fan en en en fan en en en en en en en en en	1	5
1	e e	EK1902141	823	140	140	215					MA terili glaven va animi en se pringili ingle isan reples nde anjane sa dan pajagaga pila in	1	5
1	-	EK1902243	874	140	140	215	title verket in statisferen bliede ekste Cappa Geraph (2016). Eastern verkere et 2014	graduati di mengradi				1	5
1		EK1902263	884	140	140	215	er 2000 til til til gjelde efter upprings sjerne ut det grade skillig si de er en og de jeste op og.		et til film fra ett fra en state en en en state state et det en			1	5
2		EK1902271	888	140	140	215	Mikli verkin nye rezi vi kineradike mornee akilip duu en emasaabo y	минециональной на в менену посом можему проторых од 2000 грани				1	5
2		EK1902279	892	140	140	215	ur (tild rings) i gjörja negriffskafjál áffinn til árag merfjer á færdi og seura samt	melan and emman or name with plantage and among the acceptance				1	5
3		EK1902387	946	140	140	215	том не при на пр		The second secon			1	5
3		EK1902405	955	140	140	215	Philips Michael and the standard Charleston en la companie purposa.	After system (Are consistent or consistent o				1	eric reneral and a comment of the co
3		EK1902419	962	140	140	215						1	5
4		EK1902431	968	140	140	215		www.co.wheelgraw.clincilisconi.eni.eni.eni.eni.eni.eni.eni.eni.eni.e				1	5
5		EK1902543	1024	140	140	215	1994/19 (1995) Administration of Administration (Administration of Administration of	planteraring Sweet in 1600 to the last is in the pure time to company the	en manament de la minima de la manament de la minima de la			1	6
3	الما	EK1902561	1033	140	140	215	NY NETHANISH TO SEE STORM STORM STORM AND SEE SEE SEE SEE SEE SEE SEE SEE SEE SE					1	6
6	S	EK1902577	1041	140	140	215	official to remain humana subsection in the nation of the view copy of	STOREGO - TOTAL PROSENTA POR				1	6
3	2	EK1902597	1051	140	140	215		дицикоо-на-ии-номацийский-политериализация деления-				1	6
3	3	EK1902713	1109	140	140	215	Profit mieromologistessiski proprofestring heusespolen essen suoi vivon virg					1	6
3	ERS	EK1902727	1116	140	140	215	titti elektrisiga alam gan titti merjitti di melitinin elektrisi oleh di internet kemende					1	6
6	5	EK1902749	1127	140	140	215	nennen minerale letter om medestalle blevere bestelle bestelle bestelle bestelle bestelle bestelle bestelle be	gyddio o erwod b own edd daiaetholiocheiriau o edd kristoliou gelloc gollon o			anne de la companya d	1	6
3	S	EK1902765	1135	140	140	215		ONTIN AND AND AND AND AND AND AND AND AND AN			ermanija venetika porminent popular projektion na sistementa a rtu majulja vene a si	1	6
3		EK1902887	1196	140	140	215	CONTROL CONTRO	pillipudelitus e esimililiadelitus antivieren ar venti estanoissasse ekvanta dan				1	6
3		EK1902907	1206	140	140	215	neglisk of things (and the classification of the classification and endpart (all lines in our was service).				erren gerinterektörintek de sigte och hristine revenuerasionen resassion.	1	6
3		EK1902931	1218	140	140	215		Mülifeli mallissi rivenne krotnakirklissi di ferremeza ukuspa			inntendig pulificial puni glas di sporce di dici con spicio escreta e como como como como como como como co	1	7
3		EK1902933	1219	140	140	215						1	in neurona neurona mandra neurona neuro
6		EK1903059	1282	140	140	215		gas deposited de la light de l				1	
3		EK1903099	1302	140	140	215		sak-inan-kilon-inan-igifasiya yan Filialiya iyo (dige adam resintiya (ma	nervenned for existing a regardischlar plant genroussen group in desistance - e			1	
3		EK1903101	1303	140	140	215	994 karrin di Percentan dan dianan kenangan di sebagai sebagai sebagai sebagai sebagai sebagai sebagai sebagai					1	
3		EK1903129	1317	140	140	215		en en sistema de en esta en esta en esta en esta esta astrona de principa an				1	7
3		EK1903231	1368	140	140	215						1	7
3		EK1903265	1385	140	140	215		nakama akila pinaka dikanan minaka akila perjama yana a samaja pasa				2	15
3		EK1903299	1402	140	140	215						1	romanian and a second a second and a second
3		EK1903335	1420	140	140	215						1	7
3		EK1903399	1452	140	140	215		or of the Miller Cost (of Cost Cost Cost Cost Cost Cost Cost Cost				2	15
4		EK1903499	1502	140	140	215	iddar-trans di Santon byg Silligting gynggalaan narrydnyn arwyl					1	8
4		EK1903539	1522	140	140	215	ng Arthropolipa kasala asalaw-na-eta nda musin apasasa nyuww-					1	8
4		EK1903697	1601	140	140	215		omeningen with it god a painter, of the different little date butter open a plane and		200 A CONTRACTOR OF THE CONTRA		1	8
4		EK1903741	1623	140	140	215	Strick in with the prison to the strick of the management of principles and the strick of the strick	Marco Markon-dikladi kilasoopovassa Massa salakki edilah kak		1 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		1	
4		EK1903895	1700	140	140	215	1944 годин по по на населения подава на подава по на подава по подава подава подава по подава подава подава по					1	8
Y		LNIJUJOJJ	1100	140	140	613							9

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

ALL BENDS IN REINFORCING STEEL TO BE MADE ABOUT A PIN OF THE MINIMUM DIAMETER ALLOWED BY THE STANDARD SPECIFICATIONS.

TOLERANCES IN CUTTING AND BENDING BARS ARE AS ESTABLISHED IN THE MANUAL OF STANDARD PRACTICE OF THE CONCRETE REINFORCING STEEL INSTITUTE AND DETAILING MANUAL OF THE AMERICAN CONCRETE INSTITUTE.

WHERE FIELD CUTTING OF EPOXY BARS IS REQUIRED. THE CONTRACTOR SHALL REPAIR THE EPOXY COATING AT THE CUT END AS PROVIDED FOR IN STANDARD SPECIFICATION 706.03.E.8.

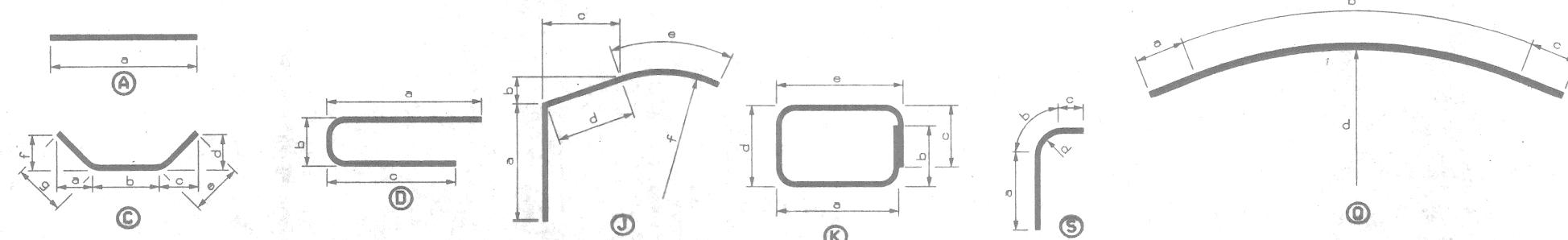
BAR SIZE

BAR LENGTH (mm)

EA2013000

BAR SHAPE

BAR LEGEND



METRIC

DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN. ELEVATIONS, COORDINATES. CURVE AND ALIGNMENT DATA ARE IN METERS. STATIONS ARE IN KILOMETERS + METERS.

DSGN BY C.D.P. 6-97
DR'N BY R.J.D. 6-97
CK'D BY R.G.W. 6-97
FINAL CK'D BY M.D.W. 2-99
APP'D BY

DSGN BY C.D.P. 6-97
G-97
CITY OF DETROIT
MICHIGAN 48226
DETROIT, MICHIGAN 48226
TELEPHONE (313), 961-4040

SNELL
ENVIRONMENTAL
GROUP. INC. a DLZ Company
DETROIT, MICHIGAN 48226
TELEPHONE (313), 961-4040

Making it better for you

Naking it better for you

STEEL REINFORCEMENT PROJECT 9641-5160-0

PROJECT NO. 9641-5160-03 SHEET NO. A10 OF ZZ

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						D	MENSION	IS			NO.	TOTAL
	BAR	0	ь	e	d	•	f	9	h	J	REO'D	MASS
	EK1903943	1724	140	140	215			kalagamana ang diagameter diginga oton agintanan			1	9
	EK1904089	1797	140	140	215			and the second s			2	18
	EK1904143	1824	140	140	215			namu unima di minimperiori di Ambanda di Amb			2	19
	ES3209292	0	7933	1359	12254						2	119
	ES3209343	0	7979	1364	12358	· · · · · · · · · · · · · · · · · · ·		SALUKA CHI COMMUNICHI ALI CUMMUNICA AND AND AND AND AND AND AND AND AND AN	gang penduluk pendul	tina y ang Panja may nagaran ng tanjan nagara ta mananan ang nagara na nagara sa nagara na nagara na nagara na	2	120
	ES3209445	0	8071	1374	12567		de principal de principal de la planta que del descripción de consecuent de activa de activa de activa de acti	ekanektija novom kitologisko krait vikralektijajili in vikralemperit			2	121
ш	ES3209595	0	8207	1388	12879			gen, werk in give foreign sich eine glane i den generaliefen were eine eine sich sich sich der			2	123
SUPERSTRUCTURE	ES3209795	0	8387	1408	13298						2	125
3	ES3210037	0	8606	1431	13819						2	129
E	ES3210323	0	8864	1459	14445	uu ja alla saa a ja auruu ka yen ya ni ope ma nk da uurub ni kii ka tii inkontilandi.		gen een valad van Delt speel die stel van van van die die van die van van van die van van van van die van van v			2	132
ريا اليا	ES3211885	1358	9169	1358	12242			in and process group and and part or considered growth a print free and Million of			2	152
5	ES3211910	1361	9188	1361	12291			gg, auszappagusen men den der gelfelen die betreekte kennelle betreet in der der			2	153
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	ES3212280	1397	9486	1397	13075		langs senter melementer er en spision at en additional propriet en el enter transporter de				2	157
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	ES3212758	1445	9868	1445	14119						2	163
	ES3213059	1475	10109	1475	14798	taliganessa.comunican hildericandon eximilida herberrala finiferensima	igen op controversion of the section				2	167
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TEM NO.	ITEM DESCRIPTION	UNIT	QUANTIT
1500000	MOBILIZATION, MAX.	Leum	-
2020002	TREE, REMOVE, 451 TO 900 mm	ea	2
	CUEB, REMOVE	m.	7/4
2040011	PAVEMENT, REMOVE	m2	320
2040013	SIDEWALK, REMOVE		116
and the state of t		m2	l I C
2040020	STRUCTURES, REMOVE	Lsum	
2047102	FENCE REMOVAL SALVAGE AND REPLACE	m ————————————————————————————————————	92
2050010	EMBANKMENT, CIP	m3	110
2060002	BACKFILL. STRUCTURE. CIP	m3	1030
2060011	EXCAVATION, FOUNDATION	m3	1200
2080025	EROSION CONTROL. SILT FENCE	m	6.3
3020014	AGGREGATE BASE 100 mm	m2	353
3050001	BITUMINOUS BASE CRUSHING AND SHAPING	m2	146
4017102	10 973 X 3962 PRECAST CONC THREE-SIDED BOX CULVERT	m	6.2
4030043	DRAINAGE STRUCTURE COVER, ADJUST, ADDITIONAL DEPTH	m	
4030045	DRAINAGE STRUCTURE COVER, ADJUST, CASE 1	60	harmat harman karan karan M
4040030	UNDERDRAIN, FOUNDATION, 100 mm	m	44
4040110	UNDERDRAIN, OUTLET ENDING, 100 mm	ea	2
-		arter and the same from the same are an arter proper and the same and the same	
5020115	BIT. MIXTURE NO. 1100L, 20AA	+	- 3
5020116	BIT. MIXTURE NO. 1100T, 20AA	+	43
6020206	CONCRETE PAVEMENT WITH INTEGRAL CURB (TYPE IIIR), REINFORCED 240 mm	m2	450
7047051	FLOW DIVERSION	Lsum	
7060007	CONCRETE: GRADE D	m3	14
7060010	CONCRETE, GRADE S2, SUBFOOTING	m3	
7060020	SUBSTRUCTURE CONCRETE	m3	42
7060022	SUPERSTRUCTURE CONCRETE	m3	54
7060024	SUPERSTRUCTURE CONCRETE, FORM, FINISH, AND CURE	LS	and the second s
7060030	REINFORCEMENT, STEEL	kg	1276
7060031	REINFORCEMENT, STEEL, EPOXY COATED	kg	6556
70,60040	CONCRETE, LOW TEMPERATURE PROTECTION	m3	152
7060250	STRUCTURE NAME PLATE		132
nacional and recommendate and recommend the second of the		ea	Lance of the second sec
7100001	JOINT WATERPROOFING	m2	27
7110004	BRIDGE RAILING. SOLID PARAPET TYPE	m	26
7110007	BRIDGE RAILING, ONE TUBE	m	26
8030002	SIDEWALK, CONCRETE, 100 mm	m2	146
8110241	PAVT MRKG, REGULAR DRY, 100 mm, WHITE	m	100
8110242	PAVT MRKG. REGULAR DRY. 100 mm, YELLOW	m	100
8120026	PLASTIC DRUM, LIGHTED, FURN	ea	20
8120027	PLASTIC DRUM, LIGHTED, OPER	ea	20
8120036	BARRICADE, TYPE III, LIGHTED, FURN.	ea	
8120037	BARRICADE, TYPE III, LIGHTED, OPER.		
8120041	CONCRETE BARRIER, TEMPORARY, FURNISHED	ea	7.0
		m	36.5
8120042	CONCRETE BARRIER, TEMPORARY, OPERATED	I I I I	36.5
8120054	MINOR TRAFFIC DEVICES	LS	de para anticipa producido estados a reculto recebir de indeprio anticipa esta feráncio de independida esta de
8120060	SIGN. TYPE B TEMPORARY, PRISMATIC RETRFLEC SHEETING	m2	35.0
8160003	WATER	KL	22
8160007	SEEDING, MIXTURE TUF	kg	
8160020	FERTILIZER, CHEMICAL NUTRIENT, CLASS A	kg	
8160072	MULCH ANCHORING	m2	100
8160077	MULCH BLANKET	m2	100
8017120	DRIVEWAY, NONREINFORCED CONCRETE	m ³	C
eccolorisci principi de construire de la companie de la compa			
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METRIC

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	APP'D BY			
	FINAL CK'D BY	M.D.W.	2-99	
<u>S</u>	CK'D BY	R.G.W.	6-97	Mara () Marine Cores (() Marine
<u>6</u>	DR'N BY	R.J.D.	6-97	Prankwank milank
N	DSGN BY	C.D.P.	6-97	

SNELL ENVIRONMENTAL GROUP. INC. A DLZ Company 151 W. CONGRESS, SUITE 328 DETROIT, MICHIGAN 48226 TELEPHONE (313) 961-4040



ITY OF DETROIT MICHIGAN

ASHLAND AVE.

OVER THE FOX CREEK

(BW-245)

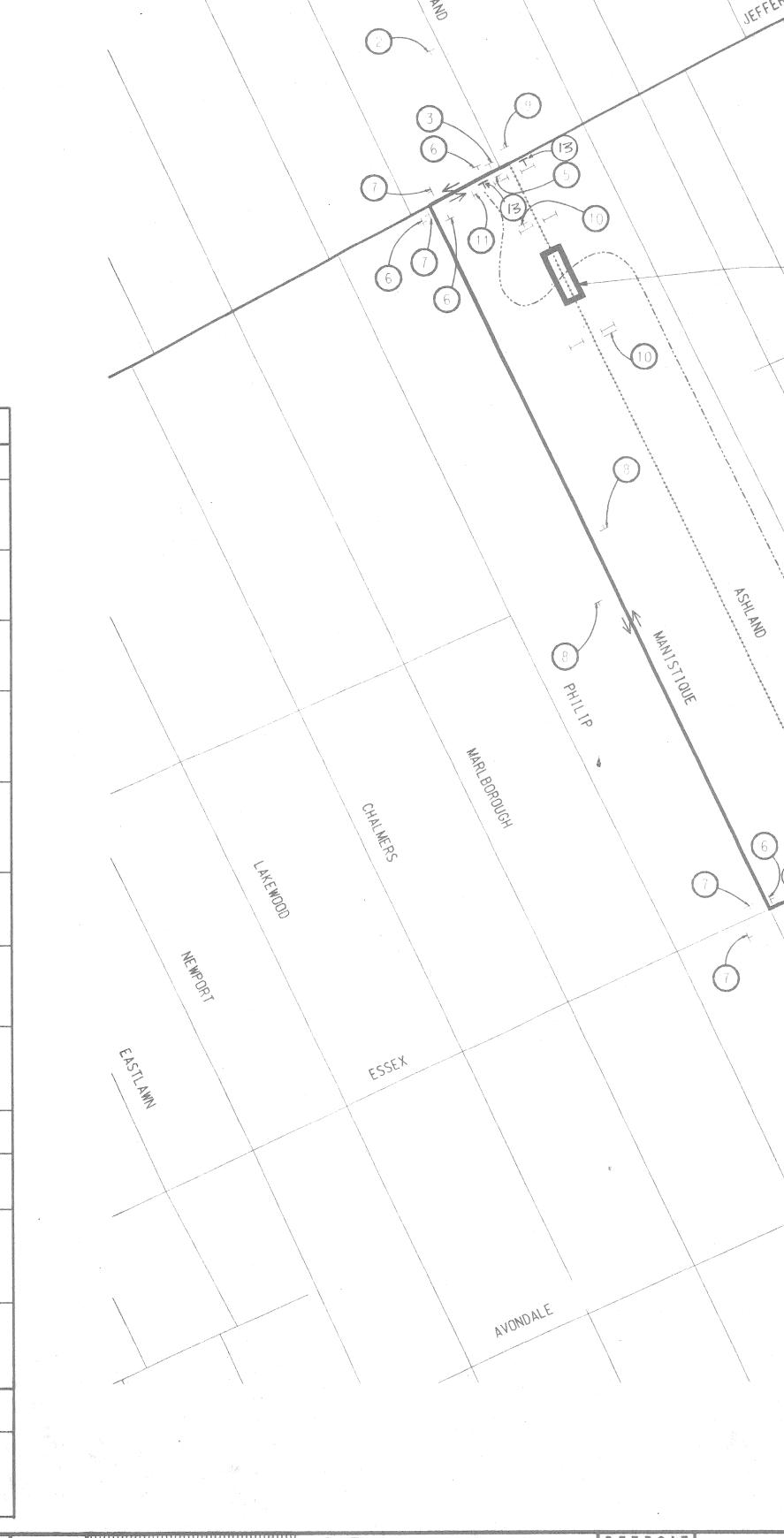
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QUANTITIES

SCALE NOT TO SCALE

PROJECT
NO. 9641-5160-03

SHEET
NO. A11 OF 22

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MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
BARRICADE, TYPE III, LIGHTED, OPER	ea	8
BARRICADE, TYPE III, LIGHTED, FURN	ea	8
PLASTIC DRUM. LIGHTED. FURN	ea	20
PLASTIC DRUM, LIGHTED, OPER	ea	20
SIGN, TYPE B, TEMPORARY, PRISMATIC RETROREFLECTIVE SHEETING	m2	35.0
PAVT MRKG, REGULAR DRY, 100 mm, WHITE	m	100
PAVT MRKG. REGULAR DRY, 100 mm, YELLOW	m	100
CONCRETE BARRIER, TEMPORARY, FURNISHED	m	36.5
CONCRETE BARRIER, TEMPORARY, OPERATED	m	36.5
MINOR TRAFFIC DEVICES	LS	1
	ACTUAL PLANTS OF THE PARTY OF T	

* CONCRETE BARRIER, TEMPORARY IS TO BE PLACED BEHIND TYPE III BARRICADES.

SIGN TYPE LEGEND

+ SIGN, TYPE B

H TYPE III BARRICADE

NOTES

THE CONTRACTOR WILL FURNISH AND ERECT THE SIGNS LISTED ON THE SIGN CHART AT THE LOCATIONS SHOWN.

AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ANY ADDITIONAL SIGNS, BARRICADES AND LIGHTS WITHIN THE PROJECT TO PROTECT THE TRAFFIC AND WORK AREA.

THE CONTRACTOR SHALL PLACE SANDBAGS ON BARRICADES TO PREVENT MOVEMENT OF THE BARRICADES. THE CONTRACTOR SHALL ATTACH AND MAINTAIN THREE (3) STEADY BURN AMBER LIGHTS (TYPE "C") ON EACH OF THE BARRICADES.

THE CONTRACTOR SHALL ATTACH AND MAINTAIN ONE (1) BATTERY OPERATED AMBER FLASHER LIGHTS (TYPE "A") AND ONE (1) ORANGE FLUORESCENT DAY-GLO FLAG ON EACH ADVANCE CONSTRUCTION SIGN (SIGNS 1).

TRAFFIC CONTROL SIGNS WHICH ARE REMOVED FROM THE VICINITY OF THE PROJECT DUE TO INTERFERENCE SHALL BE TURNED OVER TO THE CITY. UPON COMPLETION OF THE PROJECT. TRAFFIC CONTROL SIGNS AND STREET NAME SIGNS WILL BE RESET IN THEIR PROPER POSITION BY THE CONTRACTOR.

THE CONTRACTOR SHALL NOT BEGIN ANY OPERATIONS ON THE PROJECT UNTIL ALL OF THE SIGNS HAVE BEEN POSITIONED AND FLASHER LIGHTS AND FLAGS ARE ATTACHED TO ALL REQUIRED SIGNS AND BARRICADES.

ANY OTHER SIGNS WHICH THE CONTRACTOR MAY BE REQUIRED TO FURNISH SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

ALL CONSTRUCTION SIGNS SHALL CONFORM TO MOOT 1996 STANDARD SPECIFICATIONS FOR CONSTRUCTION 812.02.B.1.

METRIC

DIMENSIONS ARE IN MILLIMETERS UNLESS
OTHERWISE SHOWN. ELEVATIONS. COORDINATES.
CURVE AND ALIGNMENT DATA ARE IN METERS.
STATIONS ARE IN KILOMETERS + METERS.

SIGN CHART

J.D. NUMBER

DETOUR AHEAD

ADNO CLOSED TO THRU TRAFFIC

ROAD CLOSED TO THRU TRAFFIC

ASHLAND AVE

DETOUR

ASHLAND AVE

DETOUR

4----

ASHLAND AVE

DETOUR

1

ROAD CLOSED

ASHLAND AVE

ASHLAND AVE

SIDEWALK CLOSED AHEAD

SIDEWALK CLOSED AHEAD

NO ACCESS TO

JEFFERSON AVE.

12

SIGN DESIGNATION

W20 - 3

W20-2

W20 - 3

R11-4

M4 - 10

D3-1

M4 - 9

03 - 1

M4 - 9

D3-1

M4 - 9

M4-8a

R11-2

M6-1b

D3-1

M6-1b

R11-4

K11-4

P11-2

NUMBER REQUIRED

1200X1200

1200X1200

1200X1200

1500X750

1200X450

1500X750

1200X450

1200X300

750X600

1200X300

750X600

1200X300

750X600

600X450

1200X750

1200X300

525X375

1200X300

525X375

500 × 750

1500 × 750

200 × 750

SNELL ENVIRONMENTAL GROUP • INC • A DLZ COMPANY 151 W. CONGRESS • SUITE 328 DETROIT • MICHIGAN 48226 TELEPHONE (313) 961-4040



ITY OF DETROIT MICHIGAN

BRIDGE CONSTRUCTION

ASHLAND AVE.
VER THE FOX CREEK
(BW-245)

DETOUR PLAN

SCALE NOT TO SCALE

PROJECT
NO. 9641-5160-03

SHEET A12 OF 22

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