

INDEX OF SHEETS

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STANDARD PLANS

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

PUBLIC UTILITIES

<p>AT&T METRO EAST 100 S MAIN ST, SUITE 314 MT CLEMENS, MI 487043-2374 JOE SIKOKI</p> <p>RIGHT OF WAY- METRO WEST 17651 MICHIGAN AVE., RM 301 DEARBORN, MI 48126</p> <p>KEVIN LOGAN CELL FAX K129152att.com MARK BRANAM Mark.branam@att.com BRADLEY HALL Bradley.x.hall@att.com DEREK BULKLEY Derek.m.bulkley@att.com</p> <p>NOTE: AT&T WILL REQUIRE FIVE TO SEVEN BUSINESS DAYS ADVANCE NOTICE PRIOR TO ADJUSTING FRAMES AND COVERS. CONTACT AT&T AT (734) 523-6883.</p> <p>CITY OF DETROIT PUBLIC LIGHTING AUTHORITY OF DETROIT 65 CADILLAC SQUARE, SUITE 3100 DETROIT, MI 48226 PHONE WEBSITE: www.pldetroit.org</p> <p>CITY OF DETROIT DETROIT WATER & SEWERAGE DEPARTMENT 6425 HUBER (CSF) A-219 DETROIT, MI 48211 DEBRA SINGLETON dsingleton@dwsd.org EMERGENCY 24 HOUR SERVICE</p>	<p>TELEPHONE</p> <p>(586) 466-6310</p> <p>(313) 240-5482 (734) 223-5645 (313) 982-1029</p> <p>(313) 240-5390</p> <p>(313) 466-1049</p> <p>(313) 240-5480</p> <p>ELECTRIC POWER AND STREET LIGHTING</p> <p>(313) 324-8290</p> <p>WATER MAINS & SEWERS</p> <p>(313) 267-8309</p> <p>(313) 267-7401</p>	<p>CITY OF DETROIT DETROIT FIRE DEPARTMENT FIRE MARSHAL'S DIVISION 1301 THIRD STREET DETROIT, MI 48226 PHONE CHIEF OTIS B. HOLT FAX</p> <p>CITY OF DETROIT, DETROIT POLICE DEPARTMENT DETROIT PUBLIC SAFETY HEADQUARTERS 1301 THIRD STREET DETROIT, MI 48226 PHONE FAX</p> <p>CITY OF DETROIT TRAFFIC ENGINEERING, D.P.W. 2633 MICHIGAN AVENUE DETROIT, MI 48207 ASHOK PATEL FAX AshPat@detroitmi.gov JUBI CHACKUNKAL JubCha@detroitmi.gov KIRIT PATEL PatelK@detroitmi.gov</p> <p>SIGN SHOP 2425 FENKELL DETROIT, MI 48238 SIGN SHOP MANAGE FAX</p> <p>COMCAST CABLEVISION 12775 LYNDON DETROIT, MI 48227 BENE CUMMINGS FAX</p>	<p>FIRE CALL BOXES AND FIRE HYDRANTS</p> <p>(313) 596-2900 (313) 224-1311 (313) 596-2978</p> <p>POLICE CALL BOXES</p> <p>(313) 596-2200 (313) 596-1450</p> <p>PAVEMENT MARKINGS, SIGNS & TRAFFIC SIGNALS</p> <p>(313) 224-1610 (313) 224-1304</p> <p>(313) 224-1315 (313) 407-4124 (313) 628-5641</p> <p>SIGNS REMOVALS & INSTALLATIONS</p> <p>(313) 628-2923 (313) 628-4966</p> <p>TV CABLES</p> <p>(313) 934-2600 (313) 934-4824</p>	<p>DTE, GAS COMPANY ONE ENERGY PLAZA-WCB1722 DETROIT, MI 48226 DAVE ORZEL orzeld@dteenergy.com</p> <p>DTE, ELECTRIC COMPANY ONE ENERGY PLAZA ICS GROUP, 5185B DETROIT, MI 48226 ROBIN O'CONNELL FAX EXPOSED OR DAMAGED FACILITIES</p> <p>DTE, ENERGY/MICHCON GAS DATA INTEGRITY GAS ONE ENERGY PLAZA-WCB1836 DETROIT, MI 48226 BARBARA SAUNDERS CELL EXPOSED OR DAMAGED FACILITIES</p>	<p>HIGH PRESSURE GAS TRANSMISSION</p> <p>(313) 235-1135</p> <p>ELECTRIC POWER</p> <p>(313) 235-5632 (313) 235-9366 (313) 237-9564</p> <p>GAS MAINS</p> <p>(313) 235-5111 (313) 920-4488 (800) 477-4747</p>	<p>NOTE: CONTACT DTE TEN (10) WORKING DAYS PRIOR TO THE CONSTRUCTION START DATE TO COORDINATE ADJUSTMENTS FOR DETROIT EDISON MANHOLES.</p> <p>DETROIT THERMAL LLC 541 MADISON DETROIT, MI 48226 TOM MONRO FAX</p> <p>STEAM LINES</p> <p>(313) 921-1922 (313) 921-1972</p> <p>ELECTRICITY TRANSMISSION COMPANY</p> <p>(248) 946-3322</p> <p>ALL UNDERGROUND UTILITIES</p> <p>MISS DIG CALL THREE (3) WORKING DAYS BEFORE YOU DIG (800) 482-7171 OR 811</p> <p>WAYNE COUNTY TRAFFIC OFFICE 29900 GODDARD RD. DETROIT, MI 48242 PHONE</p> <p>(734) 955-2154</p>
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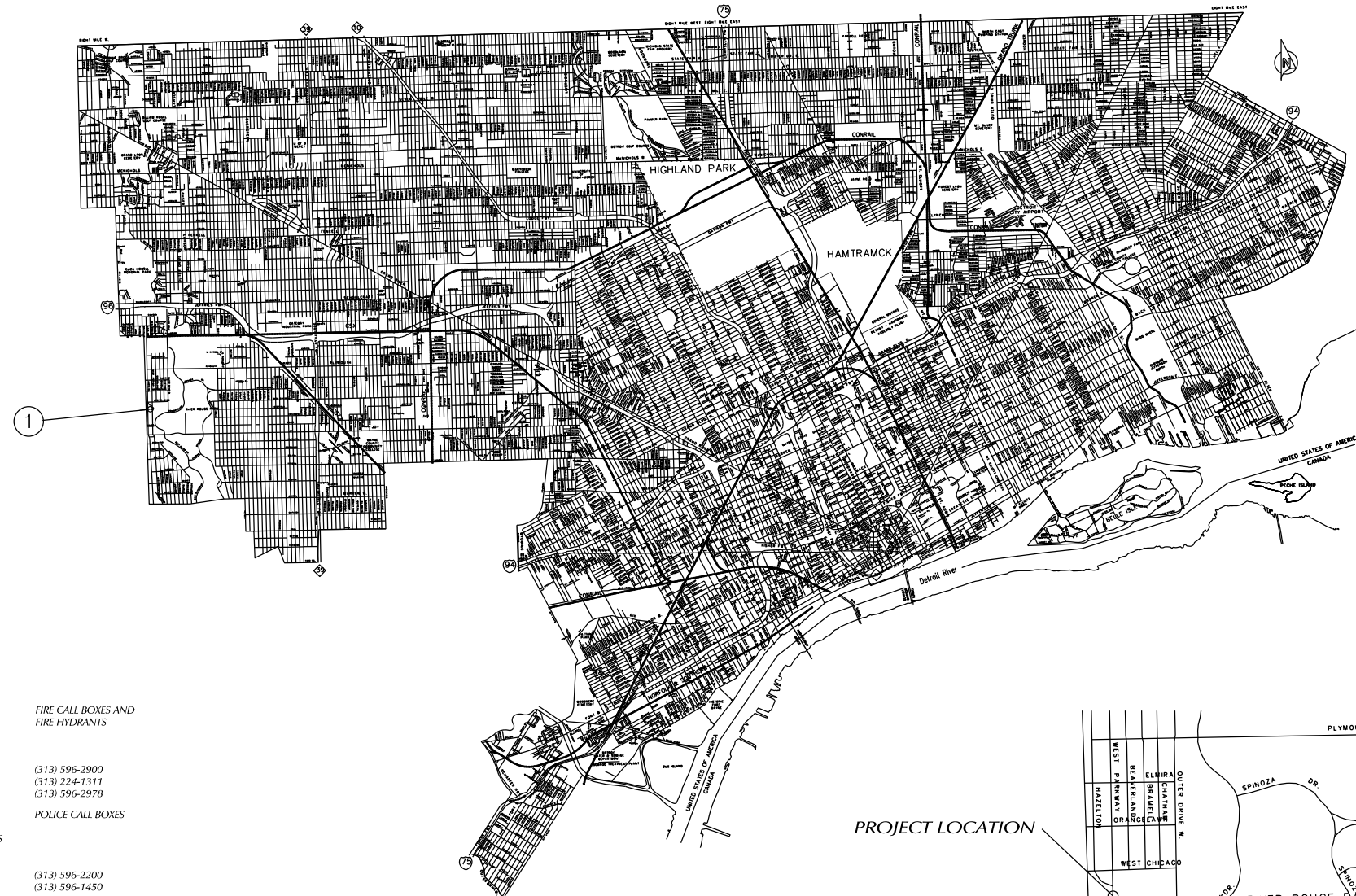
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS



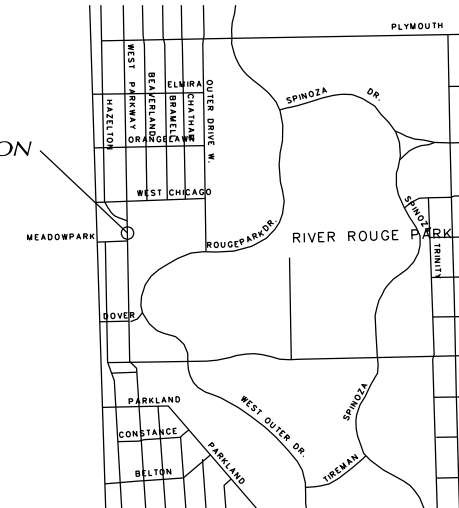
CONTROL SECTION
XXX XXXXX

PROJECT JOB NO.
PW-6987

CULVERT REPLACEMENT PROJECT
REPLACEMENT OF THE W. PARKWAY CULVERT OVER
ASHCROFT - SHERWOOD DRAIN



PROJECT LOCATION



THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AMERICAN ASSOCIATION OF THE STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (AASHTO), FOR HIGHWAY BRIDGES HS 25 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF THE SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS FOR CONSTRUCTION 2003 EDITION.

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

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIALS OF THE FOLLOWING GRADES AND STRESSES.

CONCRETE: GRADE S2 f'c = 3,000 PSI
CONCRETE: GRADE D f'c = 4,000 PSI
STEEL REINFORCEMENT: fy = 60,000 PSI
PRESTRESSED CONCRETE: f'c = 5,000 PSI

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



DESIGNED BY LA		Date: 12/04/2017
Drawn WLW		
Checked By: ---	Approved By: ---	Job No: PW-6987
CONTRACT FOR: REPLACEMENT OF THE W. PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN		
LOCAL AUTHORITY APPROVAL CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS CITY ENGINEERING DIVISION		
APPROVED BY: _____	DATE: _____	
PREPARED UNDER THE SUPERVISION OF _____ REGISTERED PROFESSIONAL ENGINEER REGISTRATION NO. _____ CITY OF DETROIT ORGANIZATION CITY ENGINEERING DIVISION, D.P.W. 2 WOODWARD AVE. SUITE 601 DETROIT MI 48216 ADDRESS		
SHEET ___ OF ___		

CONTROL SECTION NO.: XXX XXXXX
JOB NO.: PW-6987

BENCHMARKS

BM#1 ELEV = 616.82
CHISEL MARK 26.4 FEET
RIGHT OF STA 4+81

BM#2 ELEV = 605.44
CHISEL MARK SW COR.
W. PARKWAY & MEADOWPARK

WITNESSES

WITNESSES TO CP#2 EAST - W. PARKWAY, NORTH HAZELTON
55' FRONT LIGHTPOLE NORTH

CP#86 SW COR. W. PARKWAY & MEADOWPARK
5' N. FIRE HYDRANT
7' W. CURB LINE
30' S. SOUTH CURB LINE OF MEADOWPARK

REF PT COORDINATES

REF PT A X=5000.00
Y=5092.93

REF PT B X=5040.57
Y=4555.99

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDED REMOVAL OF THE EXISTING METAL CORRUGATED STEEL CULVERT, CONSTRUCTION OF THE PROPOSED CULVERT & RETAINING WALL AND PLACING RIPRAP TO THE LIMITS SHOWN. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE PART OF THE PACKAGE.

THE STATIONING SHOWN IS UNIQUE TO THIS PROJECT AND CANNOT BE RELATED TO ANY OTHER EXISTING STATIONING.

W. PARKWAY TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.

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

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 STRUCTURES. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE.

IMMEDIATELY AFTER THE CONSTRUCTION OF A CULVERT SLOPE IS COMPLETED, SLOPE PROTECTION AND SEEDING OR SODDING SHALL BE PLACED ON THE ADJACENT EMBANKMENT SLOPES.

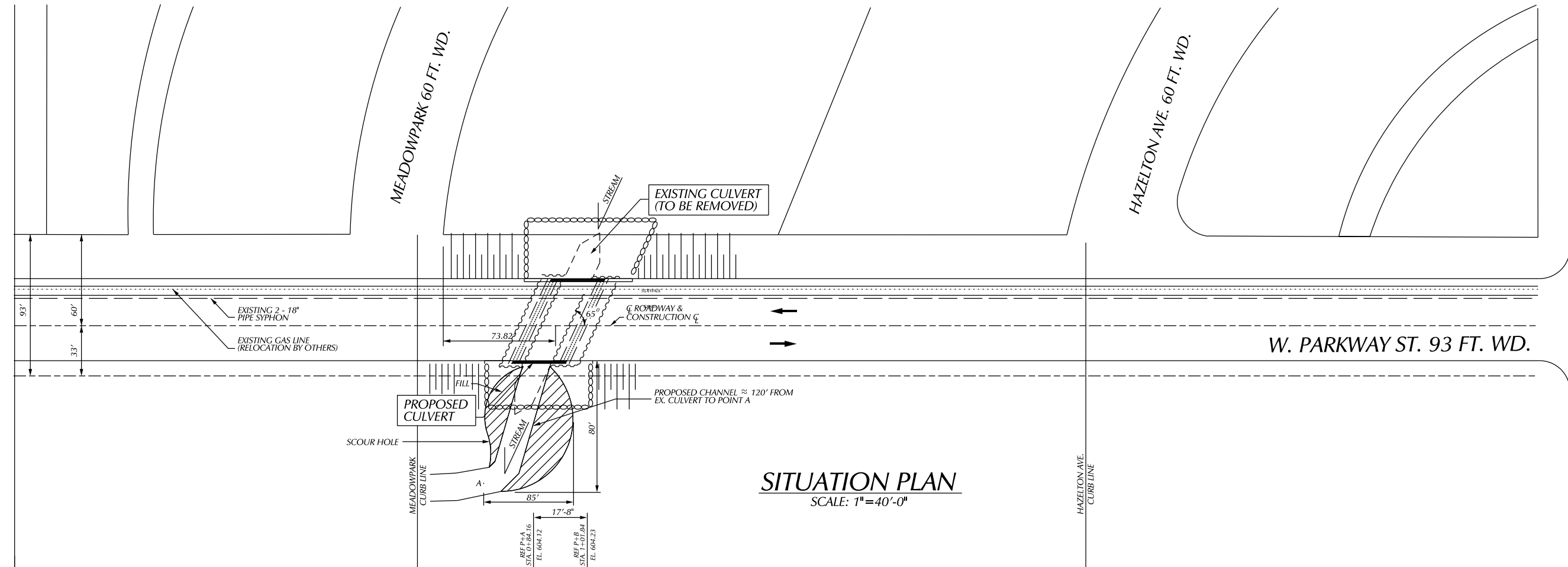
PLANS REFER TO THE NAVD88 DATUM.

THE SURVEY INFORMATION ON THIS PROJECT WAS ACQUIRED BY THE CITY OF DETROIT DEPARTMENT OF PUBLIC WORKS, CITY ENGINEER DIVISION SURVEYOR.

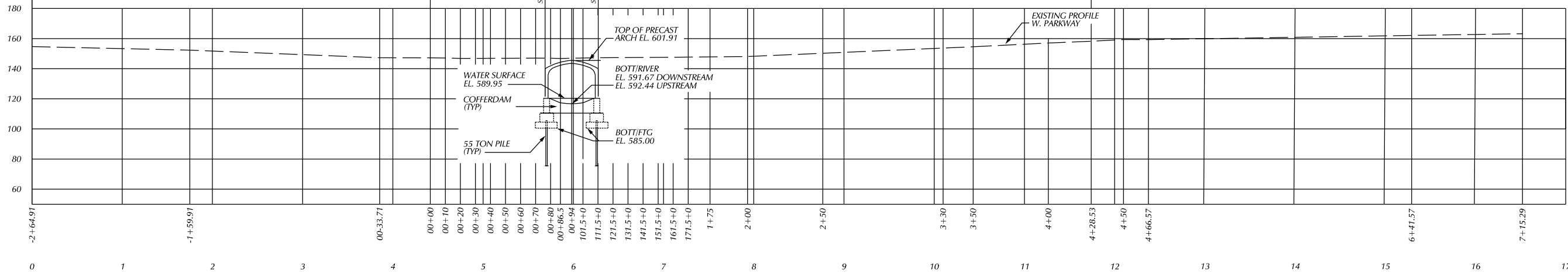
SCALE	HORIZONTAL	VERTICAL	BOOK NO.	PG.	LEVEL	DATE

BEFORE STARTING CONSTRUCTION CONTRACTOR MUST CHECK WITH UTILITIES FOR LOCATIONS OF EXISTING STRUCTURES WHETHER OR NOT INDICATED ON PLANS.

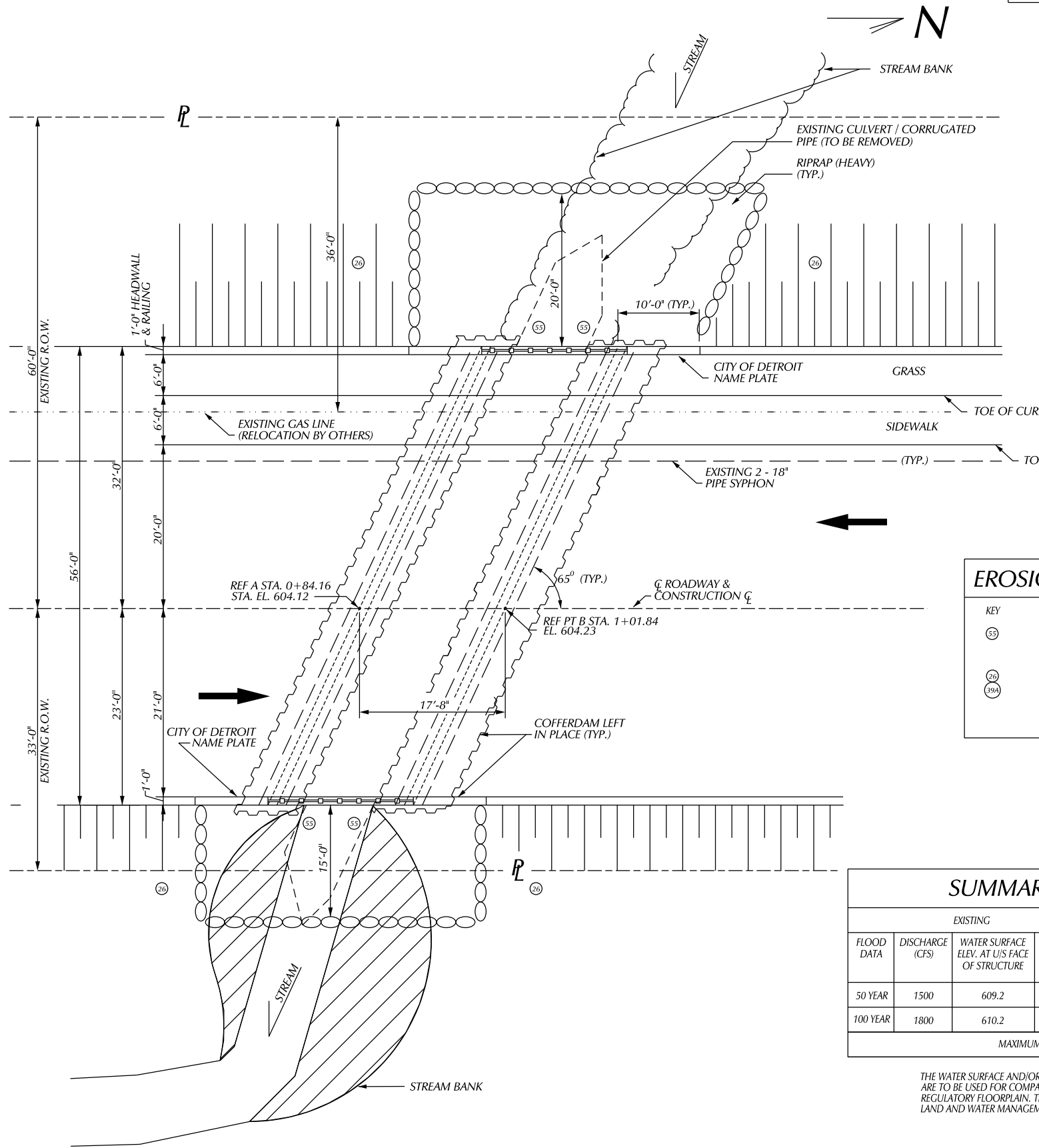
BENCH MARKS ELEV



W. CHICAGO AVE. 86 FT. WD.



<table border="1"> <tr> <td>DESCRIPTION</td> <td>DR</td> <td>CHK</td> <td>APP</td> <td>DATE</td> </tr> <tr> <td>REVISIONS</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		DESCRIPTION	DR	CHK	APP	DATE	REVISIONS					<table border="1"> <tr> <td>BY</td> <td>CHECKED BY</td> <td>APPROVED</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	BY	CHECKED BY	APPROVED				<p>CITY OF DETROIT CITY ENGINEERING DIVISION - D.P.W. BUREAUS OF STREETS AND HIGHWAYS FOR</p>	<p>WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN</p> <p>GENERAL PLAN OF SITE</p>	<table border="1"> <tr> <td>SHEET NO.</td> <td>OF SHEETS</td> </tr> <tr> <td>CONTRACT NO.</td> <td></td> </tr> <tr> <td>ASSIGNMENT NO.</td> <td></td> </tr> <tr> <td>DATE</td> <td></td> </tr> </table>	SHEET NO.	OF SHEETS	CONTRACT NO.		ASSIGNMENT NO.		DATE	
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MISCELLANEOUS QUANTITIES

1 LS	MONITORING VIBRATIONS (STRUCTURES)
1 LS	MONITORING VIBRATIONS (SANITARY SEWERS)
1 LS	STRUCTURES, REM (B01 OF 63021)
1 LS	STRUCTURES, REM *
4 CYD	EXCAVATION, FDN **
1570 CYD	BACKFILL, STRUCTURE, CIP
569 CYD	EMBANKMENT, CIP
610 CYD	NON HAZ CONTAMINATED MATERIAL HANDLING AND DISPOSAL, LM
400 TON	RIPRAP, HEAVY, SPECIAL
1 LS	CONFFERDAMS, LEFT IN PLACE
150 SYD	CONC. SURFACE COATING

* STRUCTURE, REM INCLUDED: REMOVAL OF EXISTING CORRUGATED PIPE-CULVERT, REMOVAL EXISTING GUARDRAIL, EXCAVATING, FDN FOR CULVERT REMOVAL.
 ** THIS QUANTITY FOR EXCAVATION FOUNDATION FOR PROPER INSTALLATION OF PROPOSED COFFERDAMS.

NOTES:

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARDS SPECIFICATIONS FOR HIGHWAY BRIDGES HS25 LOADING. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

THE REMOVAL OF THE EXISTING STRUCTURE, SLOPEWALLS AND GABIONS IS INCLUDED IN THE PAY ITEM, "STRUCTURE, REM". SEE "STRUCTURES REMOVAL SEQUENCE" ON SHEET.

REMOVAL OF THE EXISTING SUBSTRUCTURE UNITS SHALL BE ISOLATED FROM THE WATERWAY USING TEMPORARY STEEL SHEET PILING. TEMPORARY SHEETING FOR THE REMOVAL SHALL ADHERE TO THE SAME REQUIREMENTS FOR CONSTRUCTION AND DE-WATERING AS THE COFFERDAM. TEMPORARY SHEETING SHALL BE CUT OFF 1'-0" BELOW FINISH GRADE AND SHALL NOT INTERFERE WITH PROPOSED CONSTRUCTION. ALL COST ASSOCIATED WITH THE TEMPORARY SHEETING IS INCLUDING IN THE REMOVAL ITEMS.

DURING WORK ON THE EXISTING AND PROPOSED RETAINING WALLS CASE SHALL BE TAKEN TO PREVENT ANY MATERIAL FROM ENTERING THE WATERWAY. THE CONTRACTOR SHALL PROPOSE A SYSTEM FOR PROTECTION OF THE WATERWAY & SUBMIT IT TO THE ENGINEER FOR APPROVAL. PAID FOR AS "SEDIMENTATION CONTROL". SEE SPECIAL PROVISION.

PAYMENT FOR FALSE DECKING SHALL BE BASED ON THE AREA OF THE EXISTING ARCH BARREL OVER THE WATERWAY REGARDLESS OF THE SIZE OF THE BARGE OR PLATFORM USED. THE CONTRACTOR SHALL TAKE CARE NOT TO ALLOW THE EXISTING EARTH FILL TO FALL INTO THE WATERWAY.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN THE PAYMENT FOR "RIPRAP, HEAVY, SPECIAL".

THE EXISTING STRUCTURE PROVIDES A WATERWAY AREA OF 91 SQUARE FEET. TO UNDERCLEARANCE ELEVATION 592.15.

EROSION AND SEDIMENTATION CONTROL

KEY	QUANTITY	PAY ITEM
55	4 EA	EROSION CONTROL, FILTER BAG
26	500 FT	TURBIDITY CURTAIN (SHALLOW)
26	100 FT	EROSION CONTROL, SILT FENCE
39A	4 EA	EROSION CONTROL, INLET PROTECTION, FABRIC DROP
	1 LS	SEDIMENTATION CONTROL

SUMMARY OF HYDRAULIC ANALYSIS

FLOOD DATA	EXISTING			PROPOSED			
	DISCHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY AT D/S FACE (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN WS EL 3 U/S OF PROPOSED STRUCTURE
50 YEAR	1500	609.2	13.3	606	9.9	1321	3.2
100 YEAR	1800	610.2	13.8	607.8	11.9	1842	1.9

MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 151 SQUARE FEET

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOORPLAN. THE ELEVATIONS MAY NOT BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

PLAN

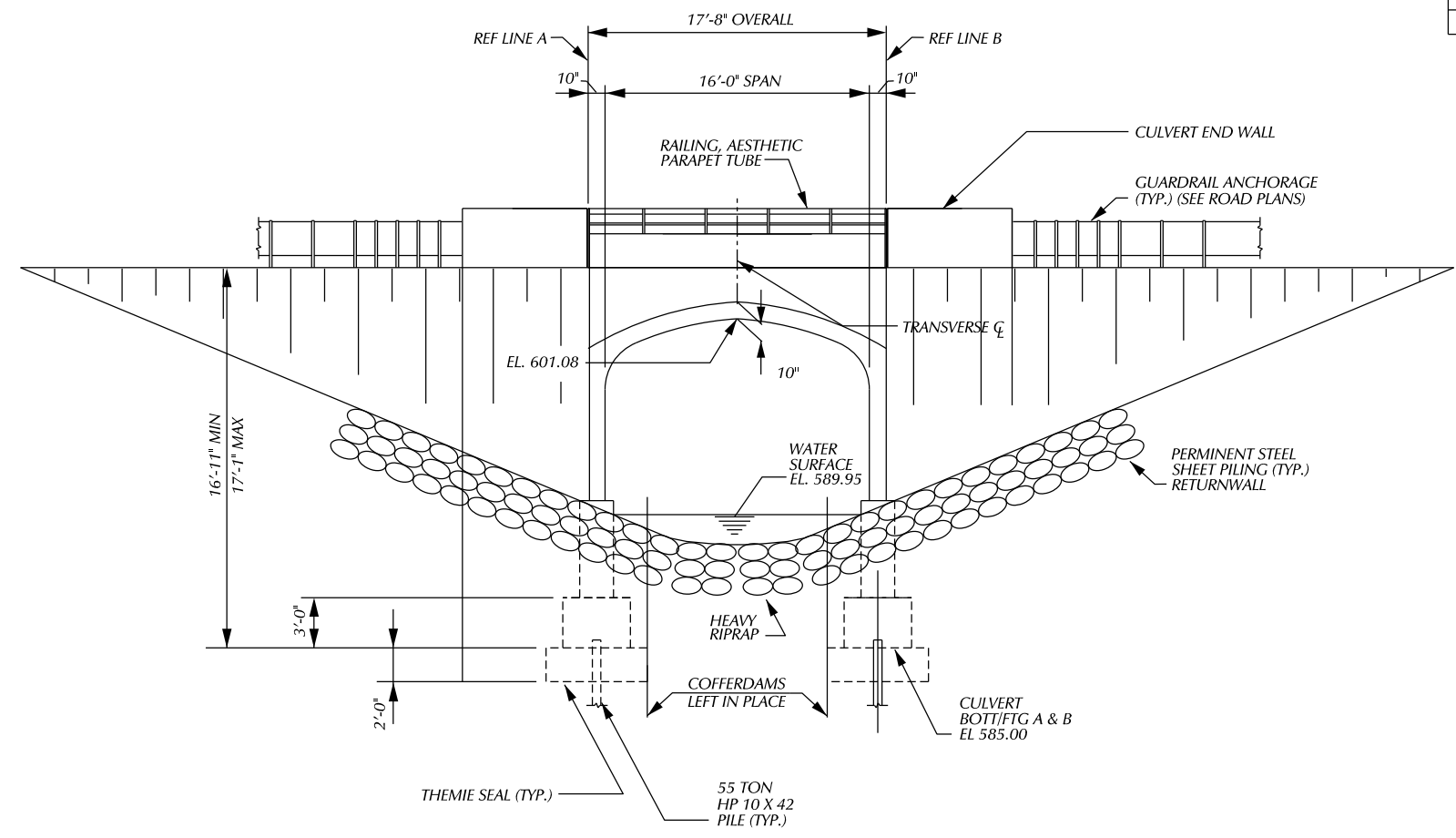
BY	CHECKED BY	APPROVED
PLAN		
GRADE		
ESTIMATE		
DESCRIPTION	DR	CHK
REVISIONS	DATE	BY

CITY OF DETROIT
 CITY ENGINEERING DIVISION - D.P.W.
 BUREAUS OF STREETS AND HIGHWAYS
 FOR

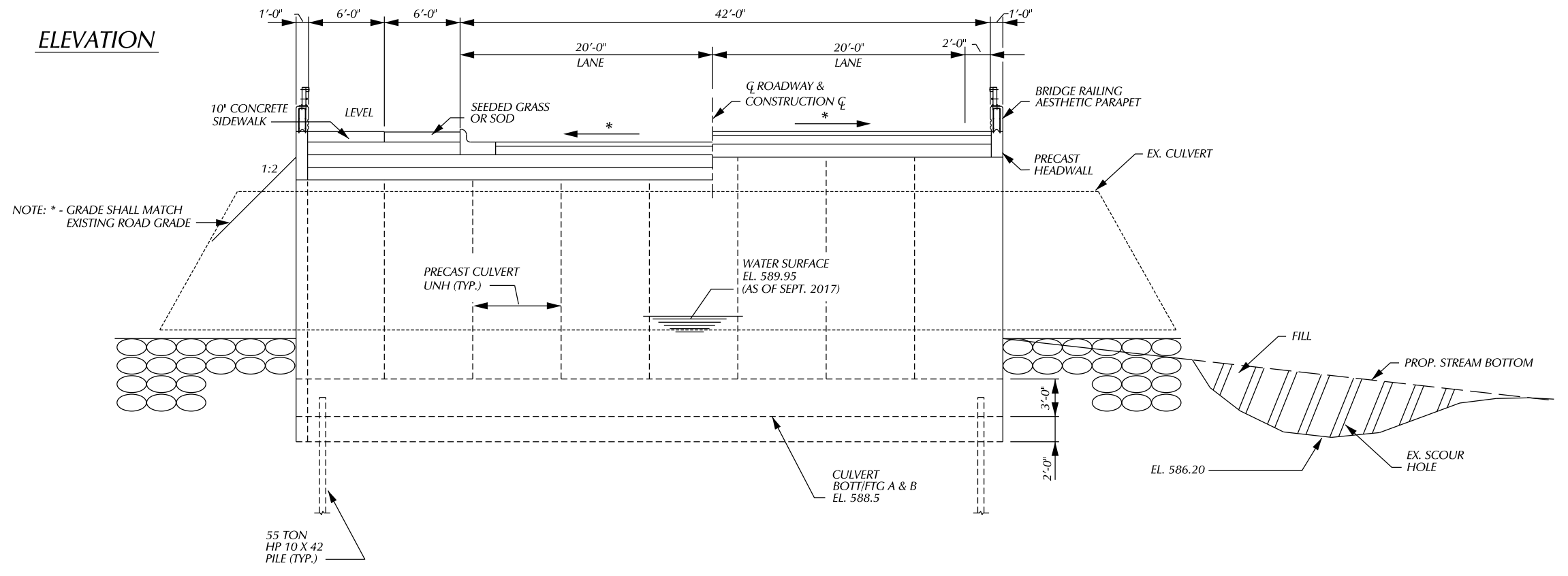
WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

GENERAL PLAN OF STRUCTURE

SHEET	OF	SHEETS
CONTRACT		
NO.		
ASSIGNMENT		
NO.		
DATE		

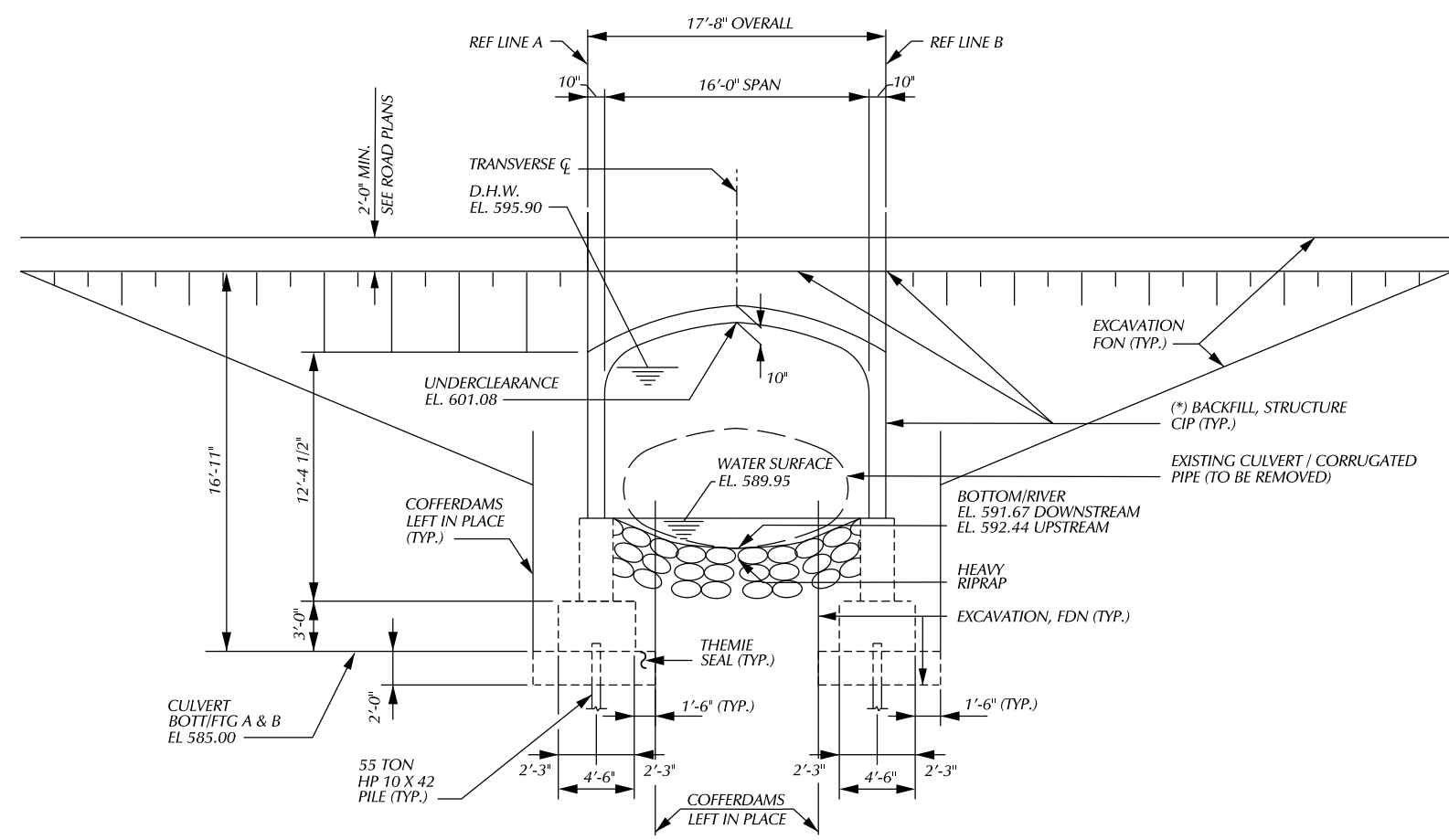


ELEVATION



SECTION A - A

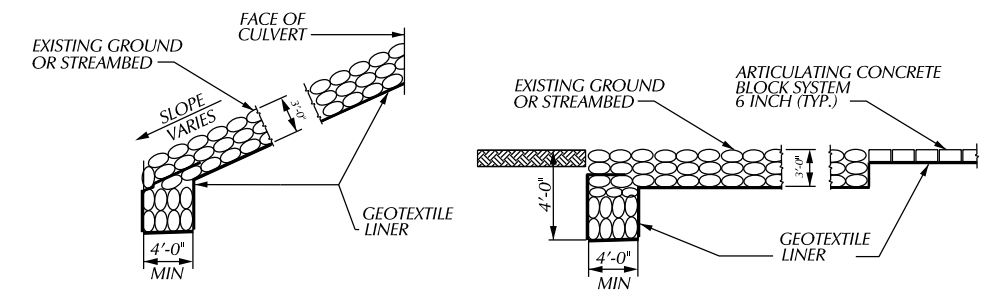
DESCRIPTION		DR	CK	APPROV	DATE	BY	CHECKED BY	APPROVED:	CITY OF DETROIT CITY ENGINEERING DIVISION - D.P.W. BUREAUS OF STREETS AND HIGHWAYS FOR	WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN	GENERAL PLAN OF STRUCTURE	SHEET	OF	SHEETS
REVISIONS												CONTRACT NO.	ASSIGNMENT NO.	DATE



CULVERT SECTION

NOTES:

- * - BACKFILL FRONT ABUT A & B : 50 CYD (EA)
- * - BACKFILL BACK ABUT A & B : 368 CYD (EA)
- SCOUR FILL: 700 CYD



TOE HEADER

END HEADER

RIPRAP HEADER DETAILS

RIPRAP SHALL BE BURIED BELOW TOP OF EXISTING SLOPE

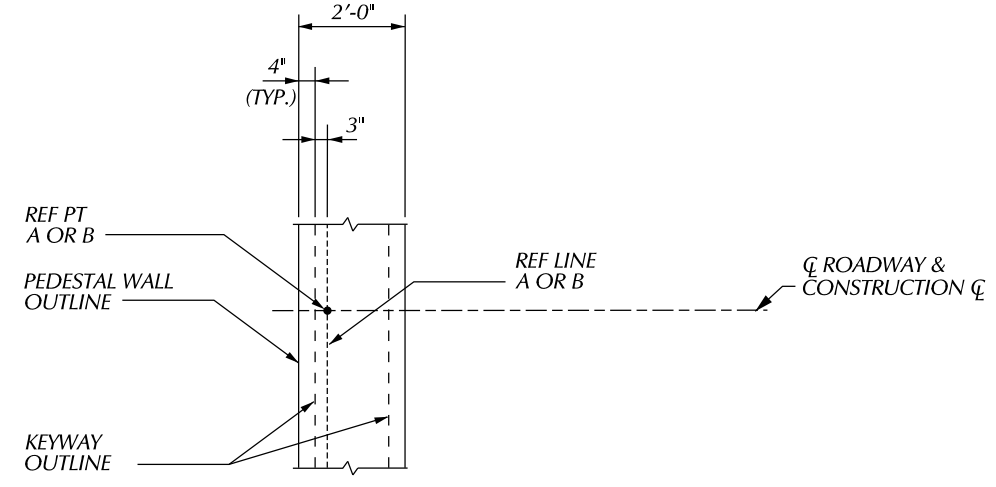
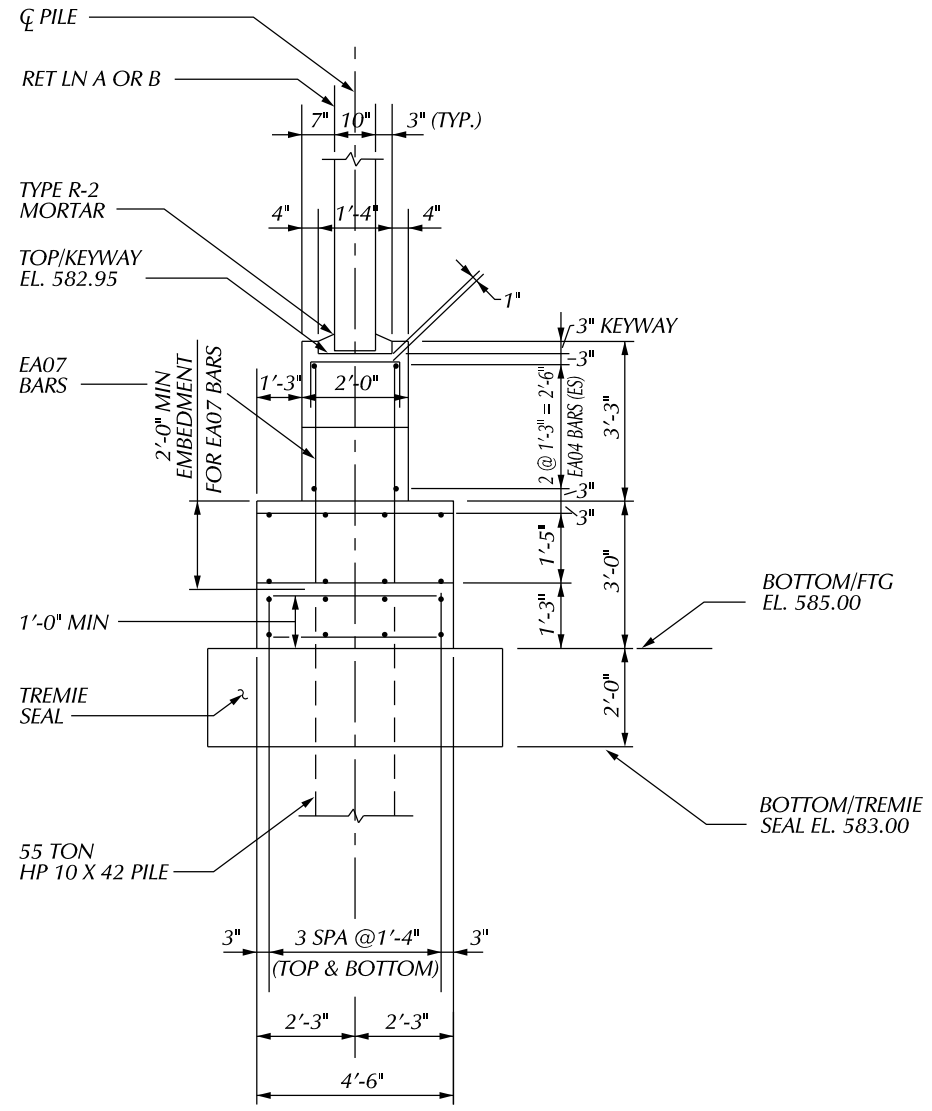
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GRADE							
ESTIMATE							
FINAL							

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

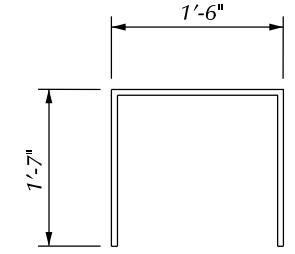
GENERAL PLAN OF STRUCTURE

SHEET	OF	SHEETS
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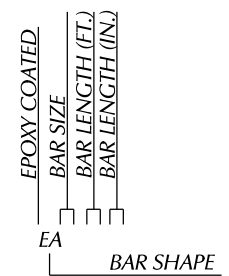


DETAIL A

EPOXY COATED STEEL REINFORCEMENT			
BAR	NO. REQ'D	TOTAL WT FIG A	TOTAL WT FIG B
EO70410	332	1639	1639
EA060400	168	505	505
EA060410	168	610	610
EA063202	32	773	773
EA060408	168	588	588
EA060405	8	27	27
EA042200	24	177	177



ED060410

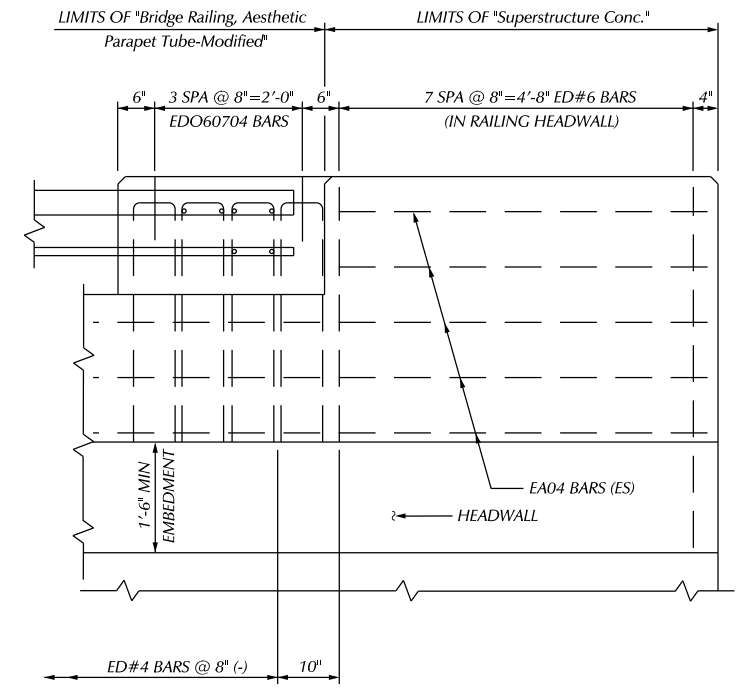


BAR LEGEND

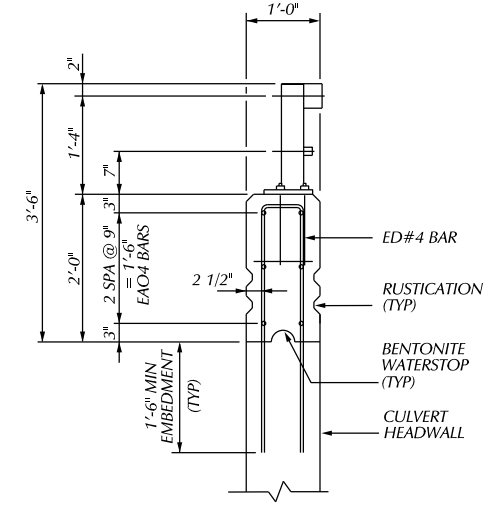


EA BAR

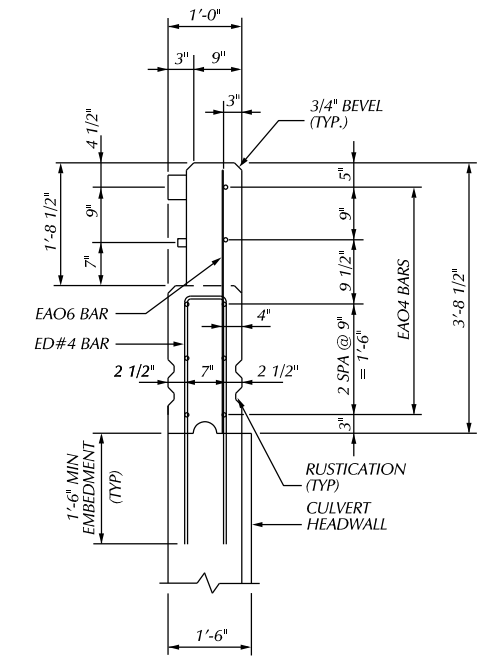
SECTION THRU PEDESTAL WALL



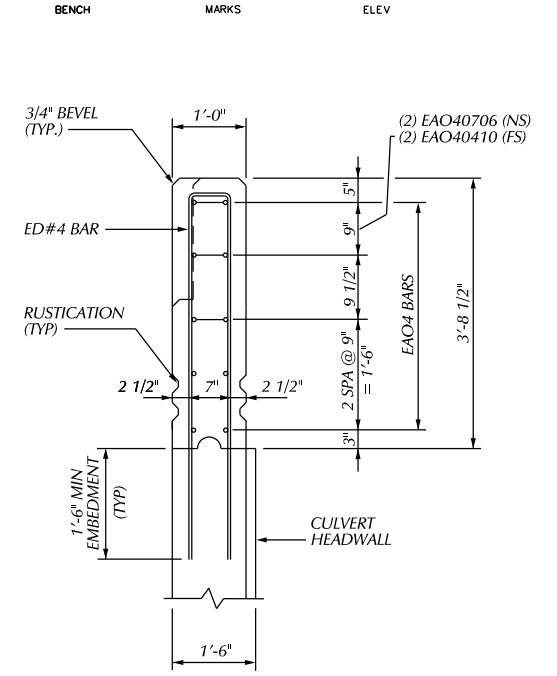
PLAN - CULVERT END WALL DETAIL



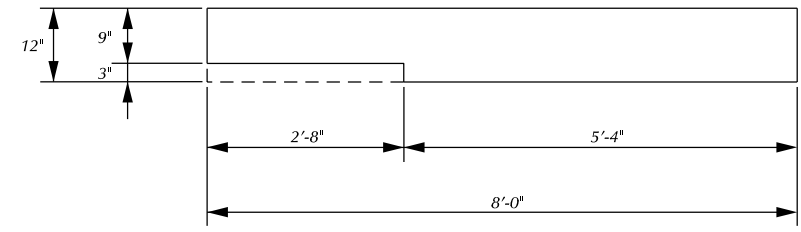
TYPICAL CULVERT RAILING SECTION



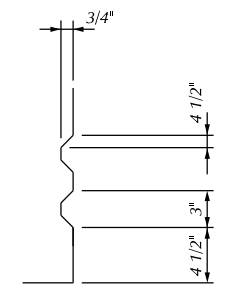
SECTION AT CULVERT END WALL (TUBE CONNECTION AREA)



SECTION AT CULVERT END WALL (FULL CONCRETE AREA)



PLAN - CULVERT END WALL

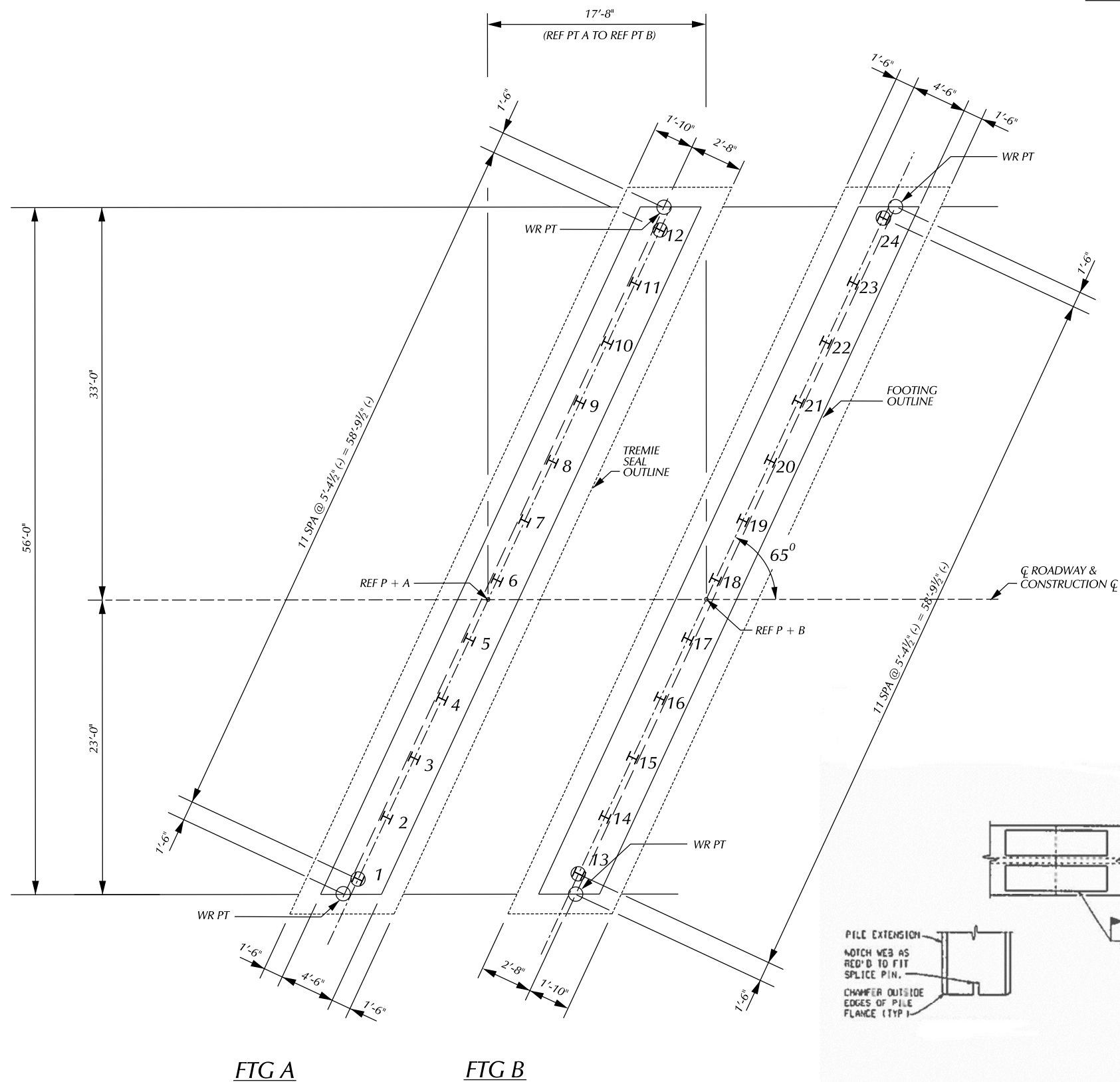


RUSTICATION DETAIL (SHOWING RUSTICATION)

PLAN		BY	CHECKED BY	APPROVED:	CITY OF DETROIT CITY ENGINEERING DIVISION - D.P.W. BUREAUS OF STREETS AND HIGHWAYS FOR	WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN	SHEET OF SHEETS
GRADE				ENGINEER BY STREET			CONTRACT NO.
ESTIMATE							ASSIGNMENT NO.
DESCRIPTION		DR	CHK	APP	DATE	CULVERT RAILING DETAILS	DATE
REVISIONS							

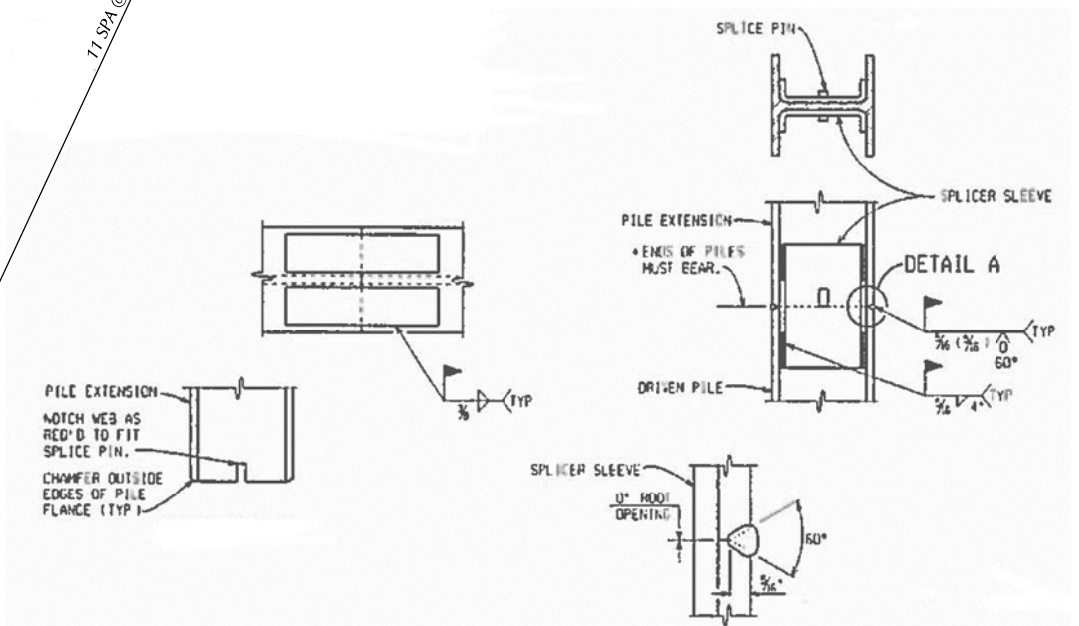


BENCH MARKS ELEV



FTG A FTG B

PILE LAYOUT

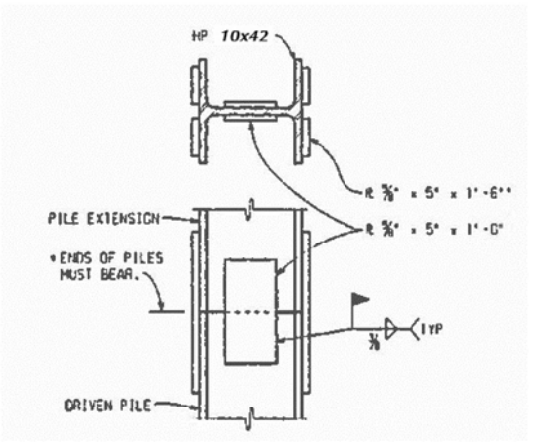


NOTCH DETAIL

DETAIL A

ALTERNATE SPLICE DETAILS

* SET PILE EXTENSION IN PLACE WITH SPLICE PLATES ATTACHED. TAP SEVERAL TIMES WITH THE HAMMER TO IMPROVE BEARING CONTACT, THEN COMPLETE WELDING OF PLATES TO THE LOWER SECTION.



SPLICE DETAILS

* SET PILE EXTENSION IN PLACE WITH SPLICE PLATES ATTACHED. TAP SEVERAL TIMES WITH THE HAMMER TO IMPROVE BEARING CONTACT, THEN COMPLETE WELDING OF PLATES TO THE LOWER SECTION.

55 TON STEEL "H" PILES					
LOCATION	PILE TYPE	NUMBER OF PILES	ESTIMATED LENGTH FURNISHED & DRIVEN		CUT-OFF ELEV.
			EACH LFT	TOTAL LFT	
FTG A	TEST	2	35	70	566.00
	VERTICAL	10	25	250	566.00
FTG B	TEST	2	30	70	566.00
	VERTICAL	10	25	250	566.00
TOTAL				640	

MISCELLANEOUS QUANTITIES	
1 LS	PILE DRIVING EQUIPMENT, FURN
640 FT	PILE STEEL, FURN AND DRIVEN, 10 INCH
4 EA	TEST PILE, STEEL 10 INCH
24 EA	PILE POINT, STEEL

NOTES:

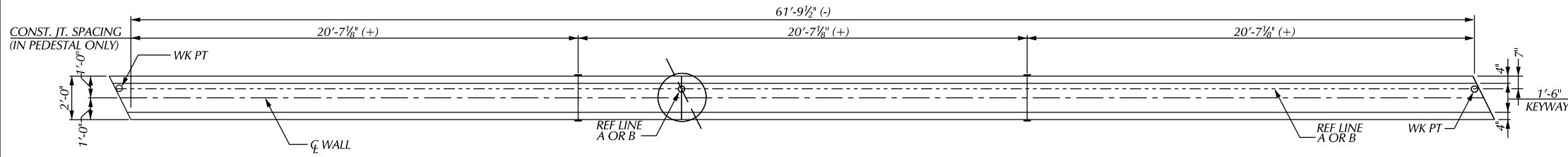
- H - DENOTES VERTICAL PILES.
- (H) - DENOTES VERTICAL TEST PILES.
- ALL PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 55 TONS.
- STEEL PILES SHALL BE HP 10 X 42.
- ESTIMATED PILE PENETRATIONS HAVE BEEN DETERMINED BY USE OF THE STATIC FORMULA.
- THE PILE DRIVING FORMULAS IN THE STANDARD SPECIFICATIONS ARE NOT TO BE USED TO DETERMINE BATTERED PILE CAPACITY. BATTERED PILES ARE TO BE DRIVEN TO THE ELEVATION ESTABLISHED FOR VERTICAL PILES.
- THE USE OF VIBRATORY HAMMERS FOR INSTALLING H-PILES SHALL NOT BE ALLOWED.

DESCRIPTION	DR	CHK	DATE	BY	CHECKED BY	APPROVED:
PLAN						
GRADE						
ESTIMATE						
FINAL						

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN
CULVERT H PILE DETAILS

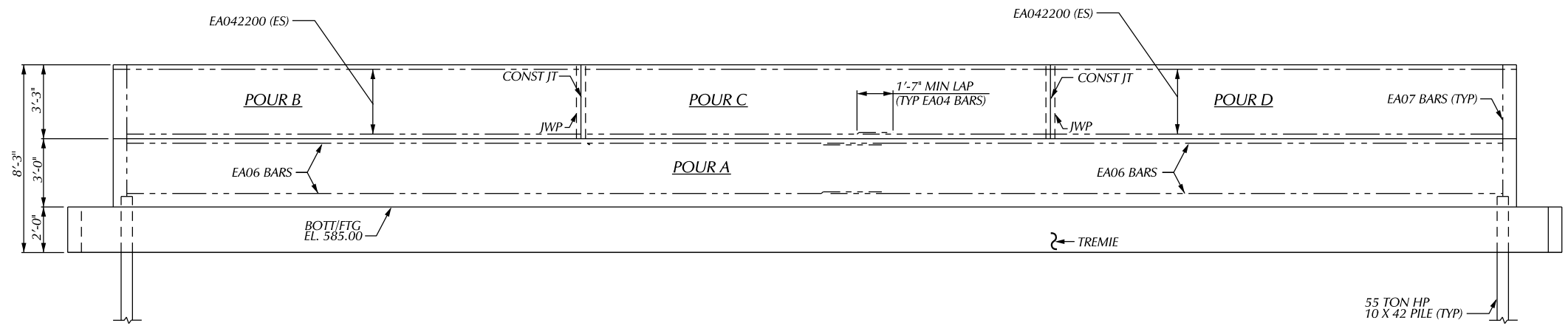
SHEET	OF	SHEETS
CONTRACT		
NO.		
ASSIGNMENT		
NO.		
DATE		



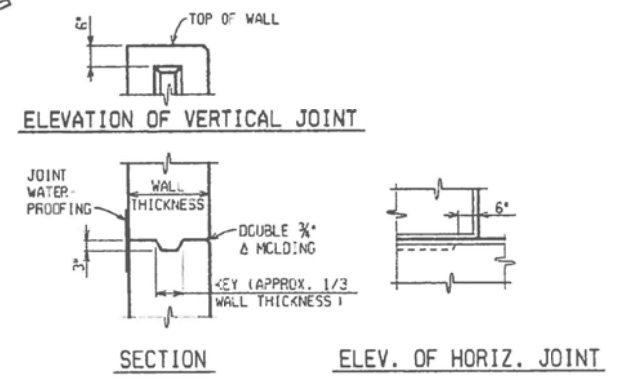
PLAN OF PEDESTAL WALL

SUBSTRUCTURE CONCRETE QUANTITIES		
POUR	FTG A	FTG B
A	31	31
B	5	5
C	5	5
D	5	5

MISCELLANEOUS QUANTITIES			
WALL A	WALL B	TOTAL	
31	31	62 CYD	CONC. GRADE T
15	15	30 CYD	SUBSTRUCTURE CONC.
4319	4319	8638 LB	REINFORCEMENT STEEL, EPOXY COATED
15	15	30 SFT	JOINT WATERPROOFING

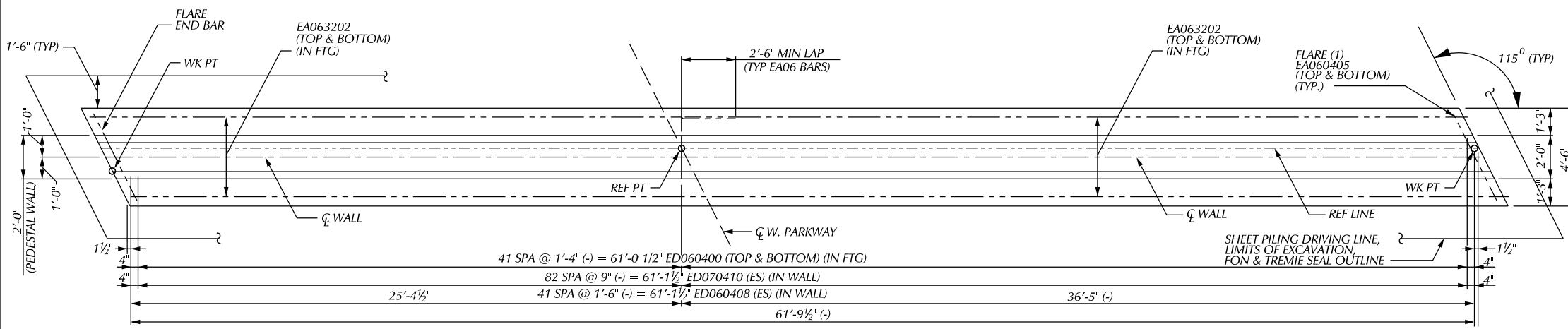


ELEVATION - PEDESTAL WALL

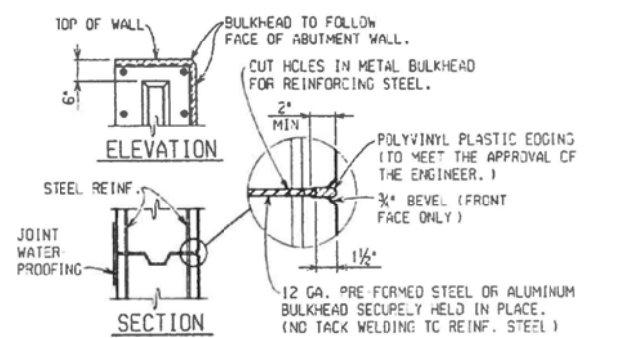


CONSTRUCTION JOINT DETAILS

NOTE: WHERE OPTIONAL CONSTRUCTION JOINTS ARE USED, THERE WILL BE NO PAYMENT FOR THE REQUIRED JOINT WATERPROOFING.



PLAN OF FOOTINGS
(FTG A SHOWN, FTG B OPPOSITE)



METAL BULKHEAD DETAILS

NOTES: METAL BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT AT CONTRACTOR'S EXPENSE. CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

NOTES:

THE SUBSTRUCTURE DESIGN IS BASED ON A FACTORED MAXIMUM VERTICAL LOAD OF 20 KIPS/FT AND A HORIZONTAL LOAD OF 8 KIPS/FT.

JWP DENOTES JOINT WATERPROOFING.

FOR PILE QUANTITIES, LAYOUT AND NOTES, SEE SHEET ____.

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.03J OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT PAID FOR SEPARATELY BUT WILL INCLUDED IN THE BID ITEM FOR 'SUBSTRUCTURE CONC' AND 'CONCRETE GRADE T'.

ES - DENOTES EACH SIDE

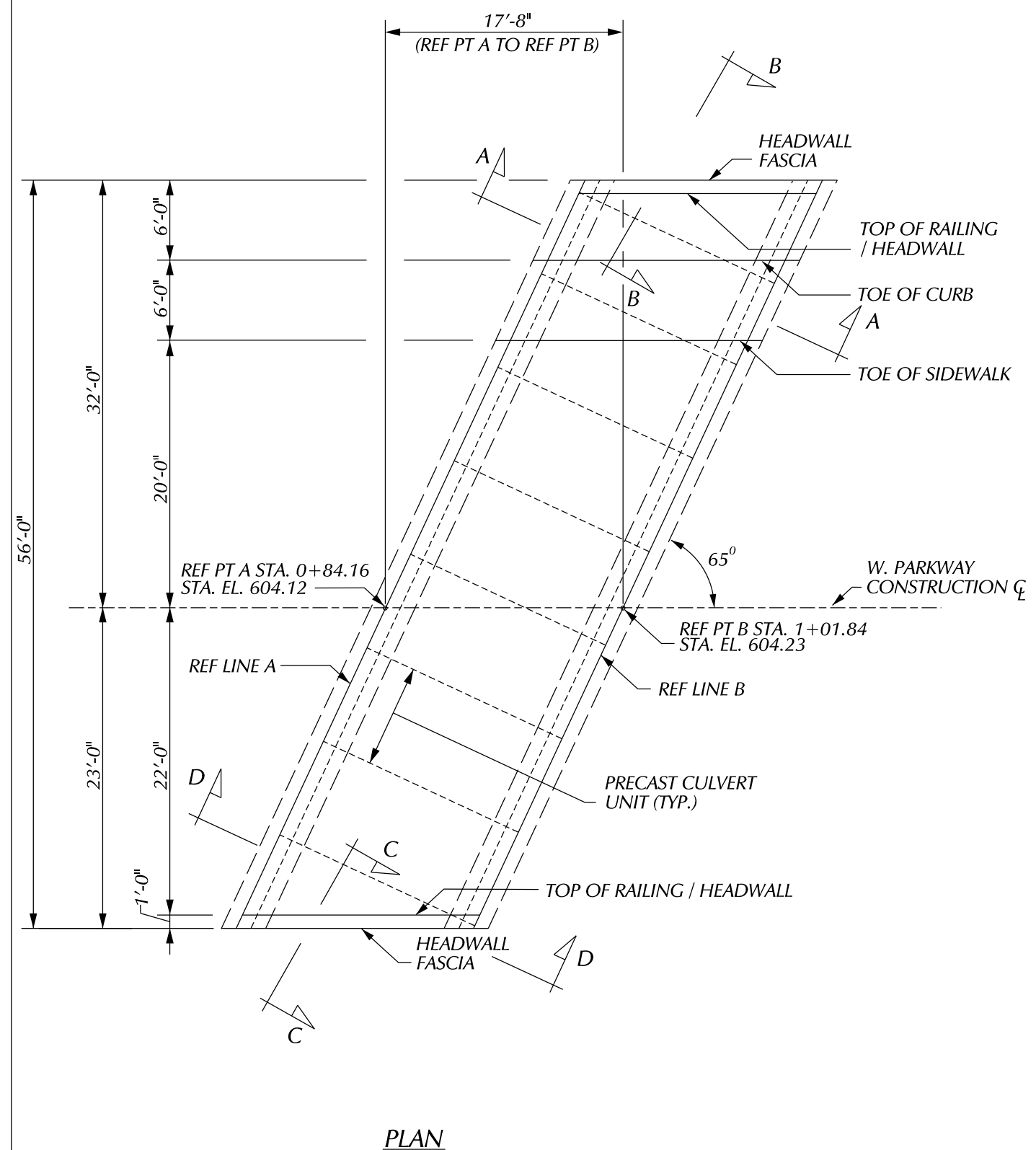
PLAN	BY	CHECKED BY	APPROVED:
GRADE			ENGINEER BY STREET
ESTIMATE			
DESCRIPTION	OR CHECK DATE	DATE	DATE
REVISIONS			

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAU OF STREETS AND HIGHWAYS
FOR

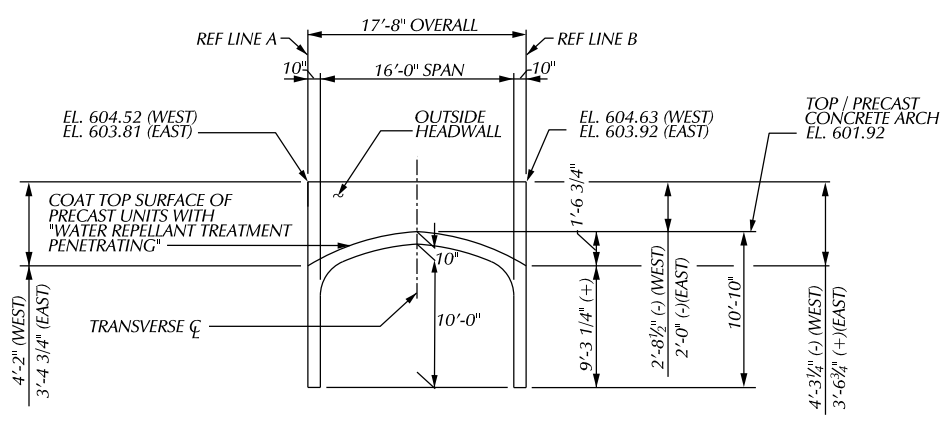
WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

CULVERT SUBSTRUCTURE DETAILS

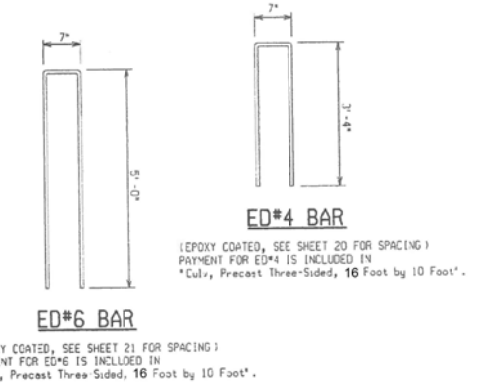
SHEET	OF	SHEETS
CONTRACT		
NO.		
ASSIGNMENT		
NO.		
DATE		



PLAN



SECTION A-A (WEST HEADWALL)
SECTION D-D (EAST HEADWALL)
(ED BARS NOT SHOWN)

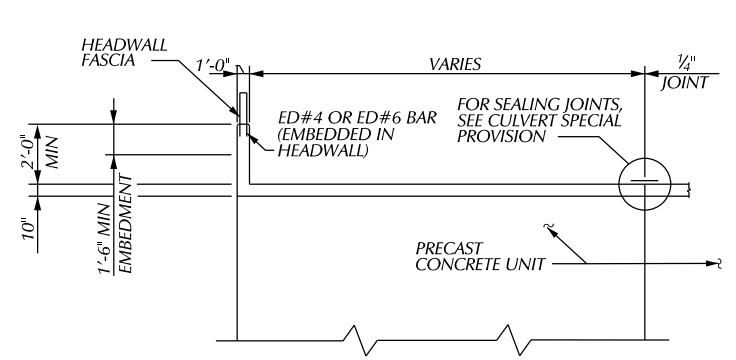


MISCELLANEOUS QUANTITIES

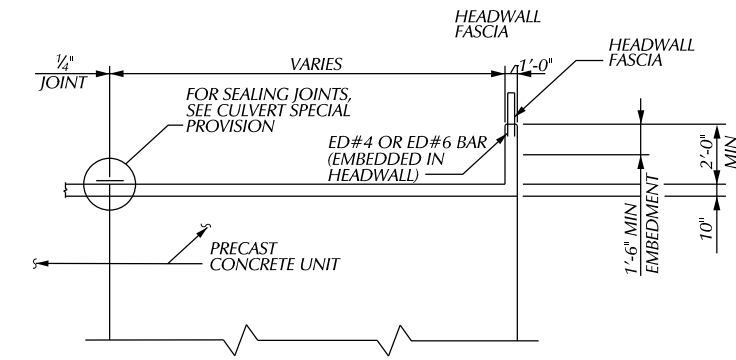
62 FT	CULV. PRECAST THREE-SIDED OR ARCH, 16 FOOT BY 10 FOOT
100 SYD	WATER REPELLANT TREATMENT, PENETRATING

NOTES:

DESIGN ALL CULVERT / HEADWALL CONNECTIONS FOR TRAFFIC LOADS.



SECTION B-B



SECTION C-C

PLAN	BY	CHECKED BY	APPROVED
GRADE			
ESTIMATE			
FINAL	****	****	

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAU OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

CONCRETE ARCH DETAILS

SHEET	OF	SHEETS
CONTRACT		
NO.		
ASSIGNMENT		
NO.		
DATE		

DATE	REVISIONS
	OLD MAP 3-30-15
	Added Note 'X' 6-12-59 J.E.
6-25-58	QUANTITY CHANGE FOR ALLEY RETURN REMOVAL (SEE SHEET 52 FOR QUANTITIES)

BEFORE STARTING CONSTRUCTION CONTRACTOR MUST CHECK WITH UTILITIES FOR LOCATIONS OF EXISTING STRUCTURES WHETHER OR NOT INDICATED ON PLANS.

SCALE
LOTS & ALLEYS 1" = 60'
STREET WIDTH 1" = 60'
VERTICAL 1" = 10'

DRAINAGE COMPLETED
PAVING COMPLETED C.C. 8-4-59

QUANTITIES	ESTIMATE	
	LOTS	CITY
EXCAVATION CU. YDS.	761	713
NEW CURB LIN. FT.		105
PAVING 10'-8" 10' SQ. YDS.	4008	369
2" x 10" UNIF. 30' YD.		498
2" x 10" UNIF. 24' YD.		318
TEST CORES	5	
SIDEWALK 4" CONC. SQ. FT.	2836	
MANHOLES	1	
CONSTRUCT CONC. RECONSTRUCT		
ADJUST		
CONSTRUCT		
ADJUST		
CONSTRUCT		
ADJUST		
CONSTRUCT		
ADJUST		
CONSTRUCT		
SEWER-12" LIN. FT.	500	

PETITION NO. FCC	PETITION DATE 6-4-57
ASSIGNMENT NO. 225-CO-2	GROUP NO.
BOOK 935 44	LEVEL 3 24-53
NO. 1696 PG. 30	DATE 10-12-56
LOTS 21 2039.62	LENGTH 1019.81
CITY 21 232.88	LENGTH 116.44
TOTAL 2272.50	LENGTH 1136.25
DATE OF DRAWING	

MADE BY
CHECKED BY
PLAN
PROFILE
GRADE
ESTIMATE
SEWER APPROVED
FINAL CHECK
APPROVED

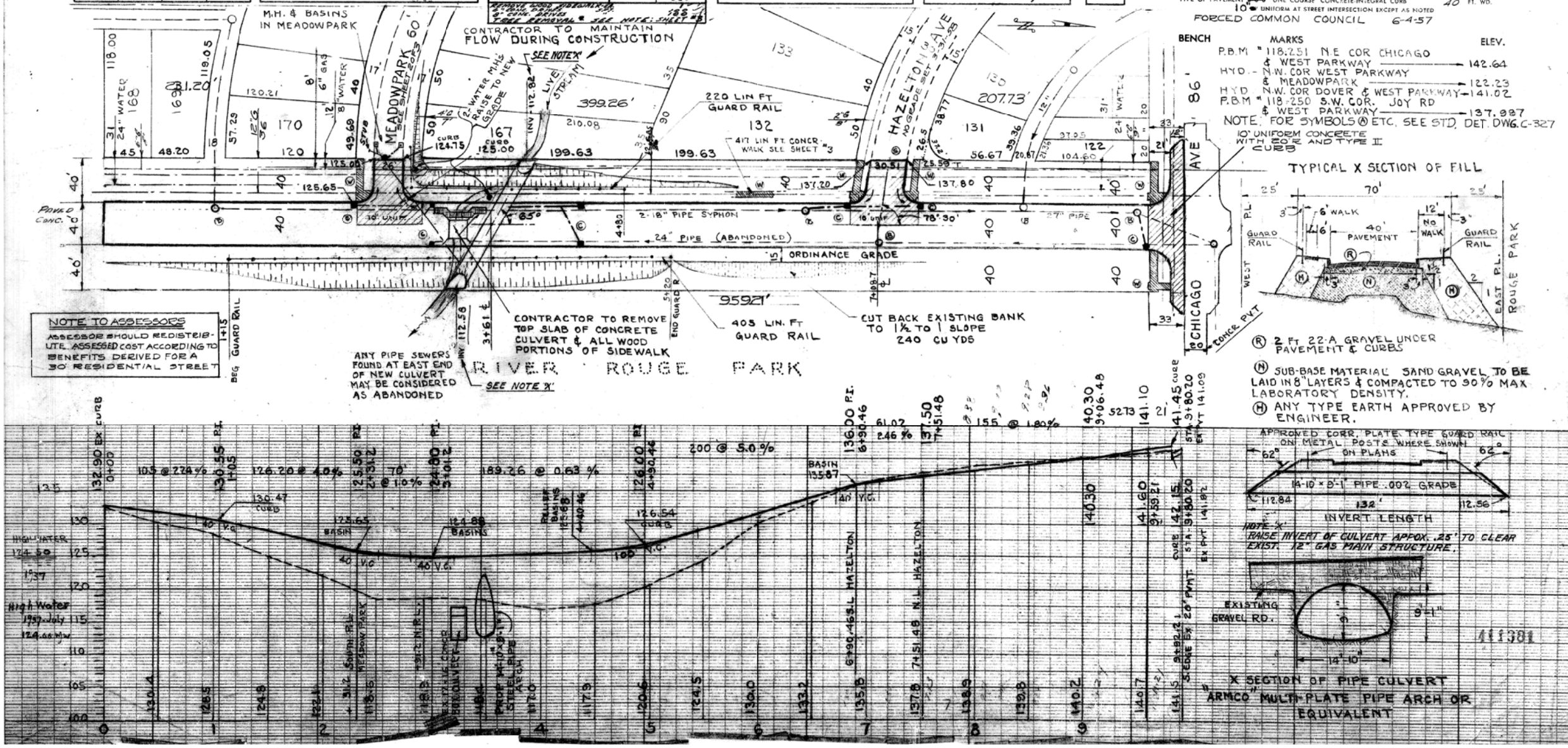
B. J. Walker
ENGINEER OF STREETS
CITY ENGINEER

58-4 ✓
INDEX NO. 77
TOWN NO. 117
INDEXED ✓

CONTRACT NO. P.W. 3249 F
STREET PAVING PLAN
CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS - CITY ENGINEERS OFFICE

NAME OF STREET **WEST PARKWAY**
FROM **959.21' S. OF S.L. CHICAGO**
TO **33 N. OF S.L. CHICAGO**

TYPE OF PAVEMENT **10'-8" 10' ONE COURSE CONCRETE INTEGRAL CURB**
10' UNIFORM AT STREET INTERSECTION EXCEPT AS NOTED
FORCED COMMON COUNCIL 6-4-57



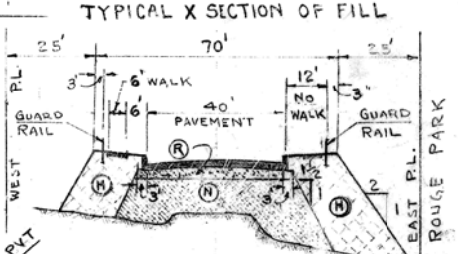
NOTE TO ASSESSORS
ASSESSOR SHOULD REDISTRIBUTE ASSESSED COST ACCORDING TO BENEFITS DERIVED FOR A 30' RESIDENTIAL STREET

CONTRACTOR TO REMOVE TOP SLAB OF CONCRETE CURB & ALL WOOD PORTIONS OF SIDEWALK

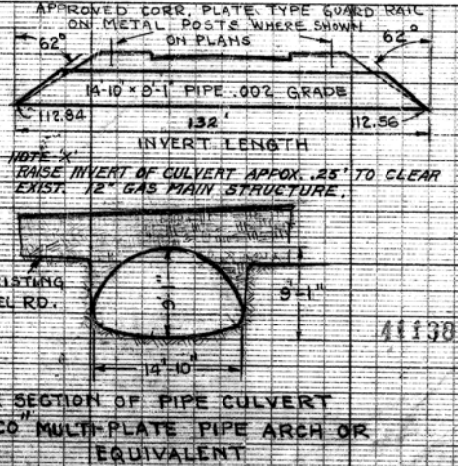
CONTRACTOR TO MAINTAIN FLOW DURING CONSTRUCTION

CONTRACTOR TO REMOVE TOP SLAB OF CONCRETE CURB & ALL WOOD PORTIONS OF SIDEWALK

CONTRACTOR TO MAINTAIN FLOW DURING CONSTRUCTION



- (R) 2 FT 22-A GRAVEL UNDER PAVEMENT & CURBS
- (N) SUB-BASE MATERIAL SAND GRAVEL TO BE LAID IN 8" LAYERS & COMPACTED TO 90% MAX. LABORATORY DENSITY.
- (H) ANY TYPE EARTH APPROVED BY ENGINEER.



EXISTING

FOR INFORMATION ONLY

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

DATE	REVISIONS
	OLD MAP 3-20-65
	Added Sec. AA 6-12-58 J.E.

SUPPLEMENTARY DETAILS			
C-325	C-324	C-733	C-928
C-328A	C-585	C-739	C-1608
C-327	C-586	C-739A	C-1783
C-330	C-587	C-739B	

BEFORE STARTING CONSTRUCTION
CONTRACTOR MUST CHECK WITH UTILITIES FOR LOCATIONS OF EXISTING STRUCTURES WHETHER OR NOT INDICATED ON PLANS.

SCALE

LOTS & ALLEYS

STREET WIDTH

VERTICAL

DRAINAGE COMPLETED

PAVING COMPLETED C.C. 8-4-59

QUANTITIES	ESTIMATED	
	LOTS	CITY
EXCAVATION CU. YDS.		
NEW CURS LIN. FT.		
PAVING SQ. YDS.		
TEST CORES		
SIDWALK		
MANHOLES	ADJUST	CONSTRUCT
ASINS	ADJUST	CONSTRUCT
SEWER-12" LIN. FT.		

SECTION NO. FCC DATE 6-4-57

ASSIGNMENT NO. GROUP NO.

BOOK NO. PG. LEVEL DATE

LOT 21 LENGTH CITY 21 LENGTH TOTAL LENGTH DATE OF DRAW

MADE BY: J. Wallace

CHECKED BY: J. Wallace

ESTIMATE APPROVED: J. Wallace

SEWER APPROVED: J. Wallace

FINAL CHECKS APPROVED: J. Wallace

CITY ENGINEER

58-4 ✓

INDEX NO.	77
TOPO NO.	117
INDEXED	1

CONTRACT NO. P.W. 3249 F

STREET PAVING PLAN
CITY OF DETROIT

DEPARTMENT OF PUBLIC WORKS - CITY ENGINEERS OFFICE

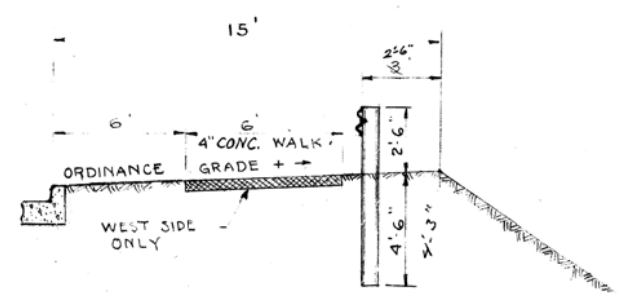
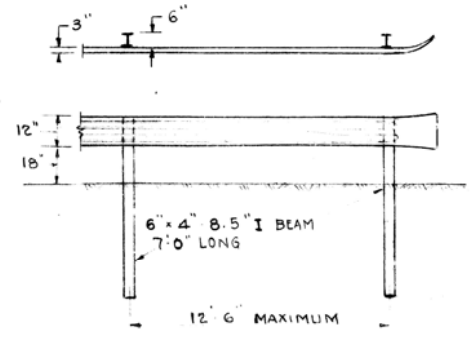
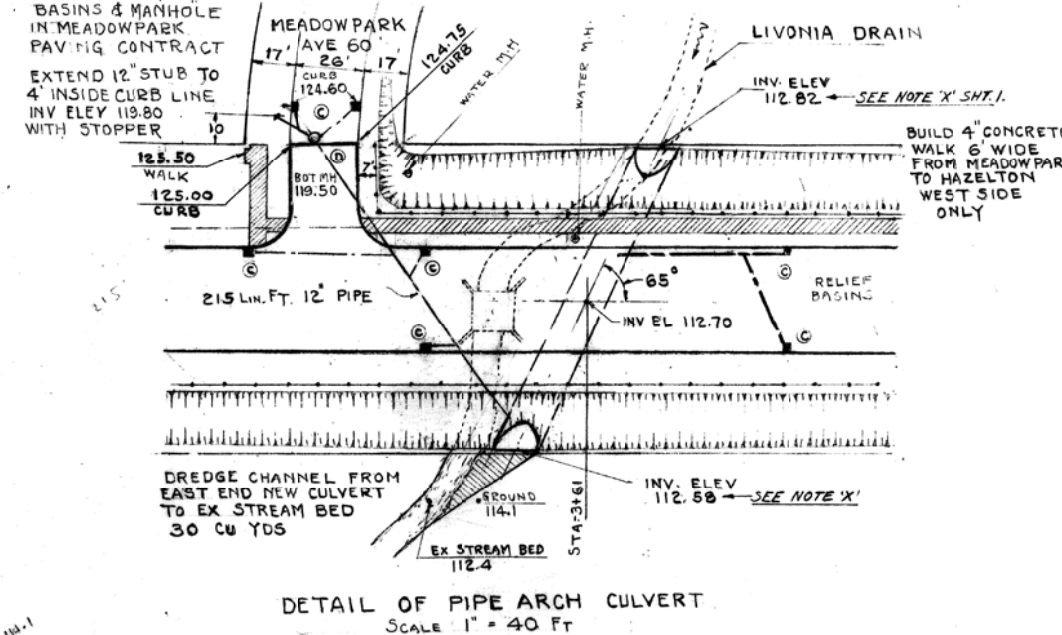
NAME OF STREET: WEST PARKWAY

FROM 959.2' S OF S.L. CHICAGO TO 33' N OF S.L. CHICAGO

TYPE OF PAVEMENT: 8 & 8 ONE COURSE CONCRETE INTEGRAL CURB 8" UNIFORM AT STREET INTERSECTION EXCEPT AS NOTED

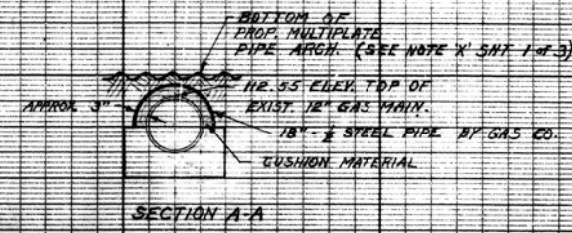
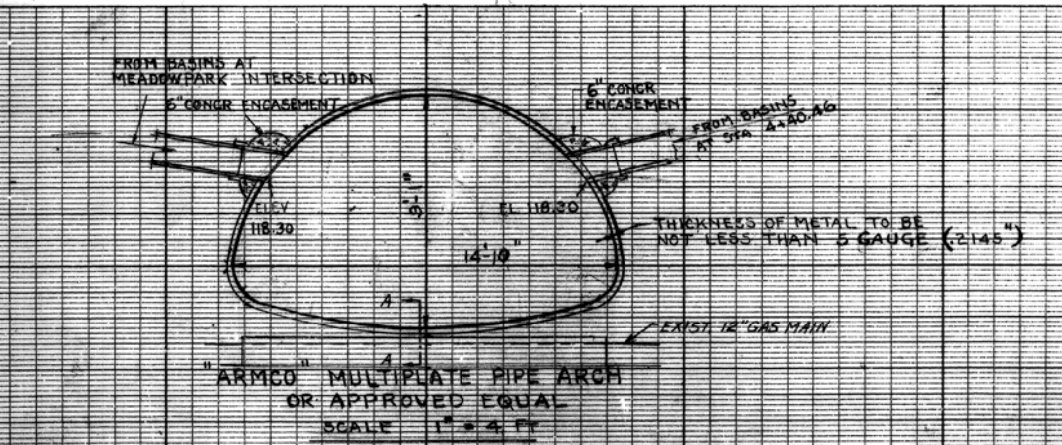
FORCED COMMON COUNCIL 6-4-57

BENCH MARKS ELEV.



FOR LOTS ONLY

STA.	SIZE	NO.
0173	6" ASH	1
0177	6" ASH	2
0185	6" ASH	1
2110	8" ASH	1
2116	14" OAK	1
2127	18" OAK	1
2153	18" OAK	1
2177	8" ASH	1
2185	8" ASH	1
3122	8" ASH	2
3128	8" ASH	1
3170	8" ASH	1
3176	8" ASH	1
3186	8" ASH	1
3196	8" ASH	1
3200	8" ASH	1
3202	8" ASH	1
4117	8" ASH	2
4121	8" ASH	1
4136	8" ASH	1
4156	8" ASH	1
4187	12" OAK	1
4187	8" ASH	1
4188	8" ASH	1
4190	8" ASH	2
4198	14" OAK	1
4198	8" ASH	1
4198	8" ASH	1
5128	8" ASH	1
5130	8" ASH	1
5147	8" ASH	1



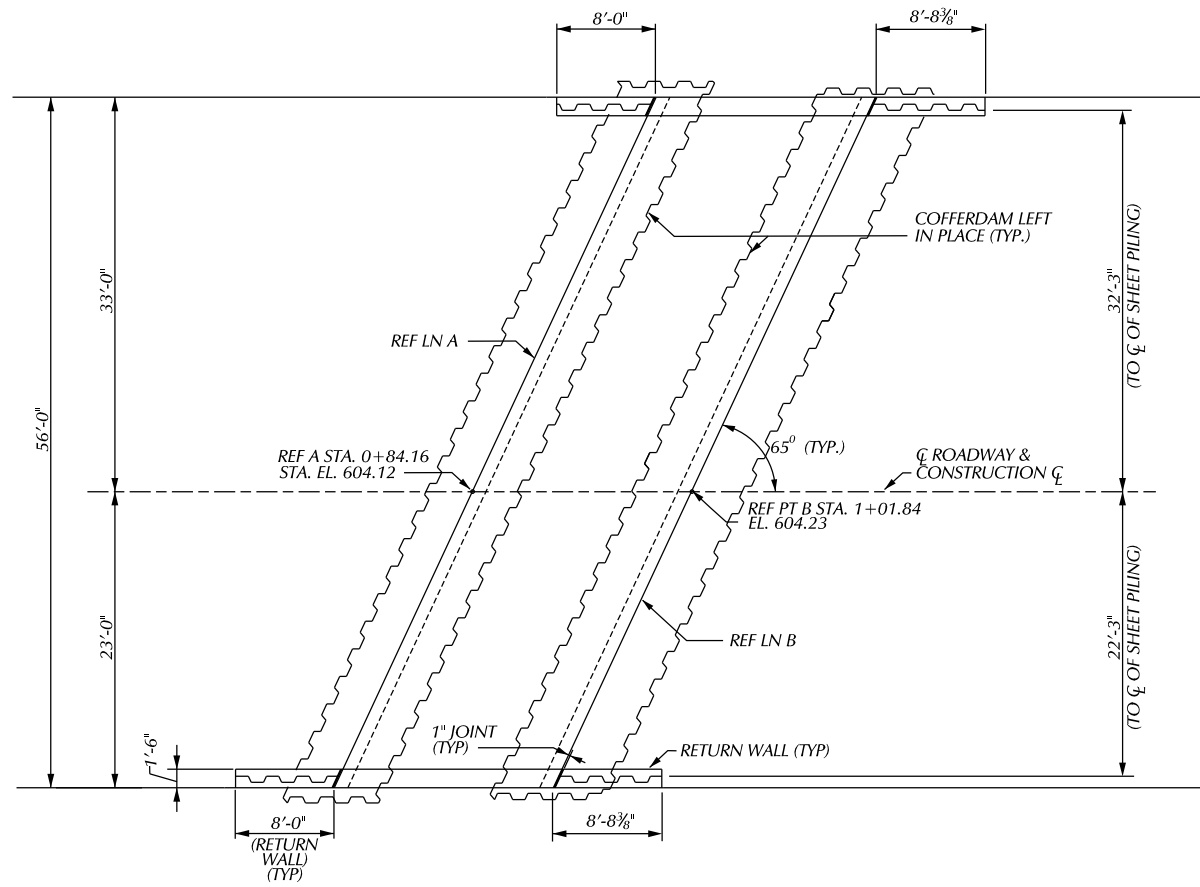
411392

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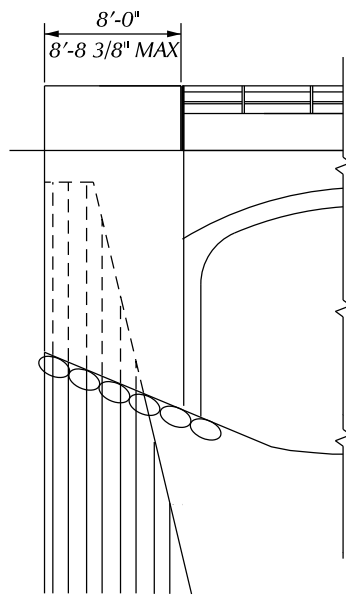
FOR INFORMATION ONLY

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

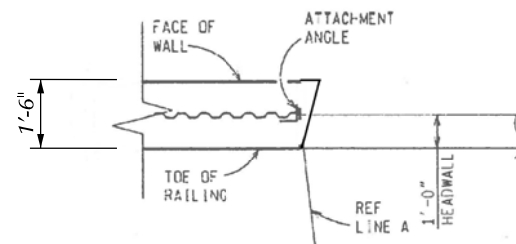
PLAN	BY	CHECKED BY	APPROVED:	CITY OF DETROIT CITY ENGINEERING DIVISION - D.P.W. BUREAUS OF STREETS AND HIGHWAYS FOR	WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN	SHEET OF SHEETS
GRADE						CONTRACT NO.
ESTIMATE						ASSIGNMENT NO.
REVISIONS	DESCRIPTION	OR CHECK DATE	DATE			DATE



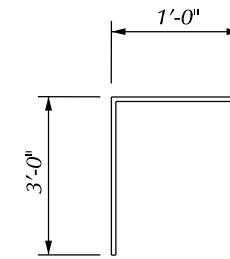
PLAN OF RETURN WALLS



ELEVATION SHEET PILE RETAINING WALL



DETAIL



MIN. LAP TABLE

EA 03BEIR 1'-2"

ED060500

LEGEND

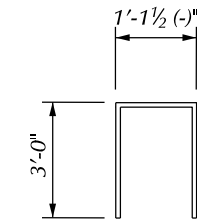
EA BAR

SUBSTRUCTURE CONCRETE QUANTITIES

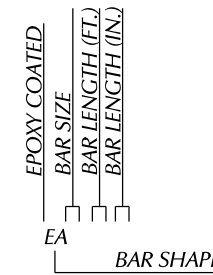
POUR	AMT (CYDS)
A	4.5
B	4.5
C	4.5
D	4.5

MISCELLANEOUS QUANTITIES

810 SFT	STEEL SHEET PILING, PERMANENT
18 CYD	SUBSTRUCTURE CONC.
__ LB	REINFORCEMENT STEEL, EPOXY COATED



ED060502



BAR LEGEND

EPOXY COATED STEEL REINFORCEMENT

BAR	NO. REQ'D	TOTAL WT
EA040706	30	153.0
EA040801	30	162.0
EA040406	16	349.0
EA040306	16	325.0
EA040500	40	301.0
EA040502	4	31.0

NOTES:

- ALL PERMANENT STEEL SHEET PILING SHALL BE ASTM A-572, P2-27, WHERE ALLOWED BY THE ENGINEER, SELECT ALTERNATE HOT ROLLED SHEET PILING WITH A NOMINAL SECTION MODULUS OF AT LEAST 30.2 CUBIC INCHES PER FOOT OF WALL.
- ALL LABOR AND MATERIALS REQUIRED FOR CONSTRUCTION OF THE PERMANENT STEEL SHEET PILING REQUIRED FOR CONSTRUCTION OF THE PERMANENT STEEL SHEET PILING WITH TIE NOT BE PAID FOR SEPARATELY, BUT INCLUDED IN THE PAVEMENT FOR "STEEL SHEET PILING, PERMANENT".
- THE RODS SHALL BE PLACED AND TIGHTENED BEFORE CASTING THE CONCRETE FACING.
- THE USE OF VIBRATORY HAMMERS FOR INSTALLING SHEET PILING SHALL NOT BE ALLOWED.
- TOP ROW OF SHEAR STUDS SHALL BE 3" BELOW THE TOP OF SHEETING, AND ADDITIONAL ROWS SHALL BE SPACED VERTICALLY AT 1'-6" MAX. BOTTOM ROW OF STUDS SHALL BE 3" ABOVE THE BOTTOM OF CONCRETE ELEVATION.
- SHEAR STUDS SHALL NOT BE PAID SEPARATELY BUT ARE INCLUDED IN PAYMENT FOR "STEEL SHEET PILING, PERMANENT".
- INSTALL RAILING REINFORCEMENT PRIOR TO POURING CONCRETE CAP ON RETAINING WALL PRIOR TO POURING CONCRETE CAP ON RETAINING WALL.
- THE CONTRACTOR SHALL PROVIDE & INSTALL A MAT OF 6X6-D6X6 WELDED WIRE FABRIC IN THE FRONT FACE OF SHEET PILING CAP WHERE STANDARD REINFORCEMENT IS NOT SHOWN. THE COST TO PROVIDE AND INSTALL THE WIRE FABRIC IS INCLUDED IN "STEEL SHEET PILING, PERMANENT". PROVIDE A MINIMUM OF 2" OF CLEAR COVER ON ALL SIDES.
- PRIOR TO DRIVING PERMANENT SHEETING, THE CONTRACTOR SHALL ANCHOR L 6"x6"x1/2" ANGLES TO THE PEDESTAL WALL, CULVERT AND HEADWALL TO USE AS A DRIVING GUIDE FOR THE SHEET PILING. ANGLES SHALL BE ATTACHED UTILIZING EITHER 3/4" ADHESIVE ANCHORED OR 3/4" EXPANSION ANCHORED BOLTS CHOSEN FROM THE QUALIFIED PRODUCT LIST.
- AFTER DRIVING PILING, ATTACHED WEB OF PILING TO OUTSTANDING LEG OF ANGLES WITH 3/4" HIGH STRENGTH BOLTS. ALL WORK AND MATERIALS FOR ANGLES AND CONNECTORS ARE INCLUDED IN "STEEL SHEET PILING, PERMANENT".
- LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.030 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WALL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE BID ITEM "SUBSTRUCTURE CONC".

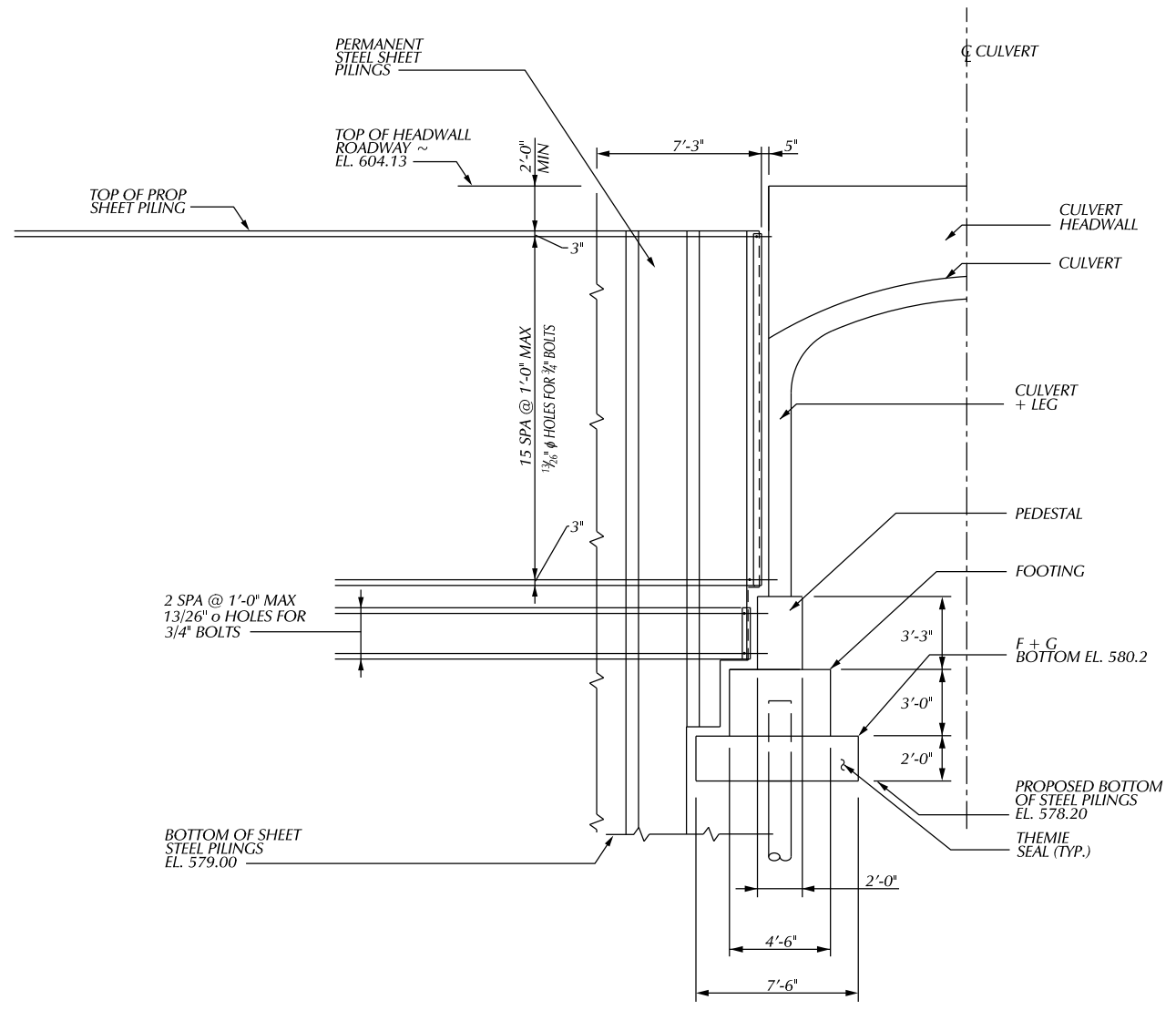
DESCRIPTION	DR	CHK	APP	DATE	BY	CHECKED BY	APPROVED
PLAN							
GRADE							
ESTIMATE							
FINAL							
REVISIONS							

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

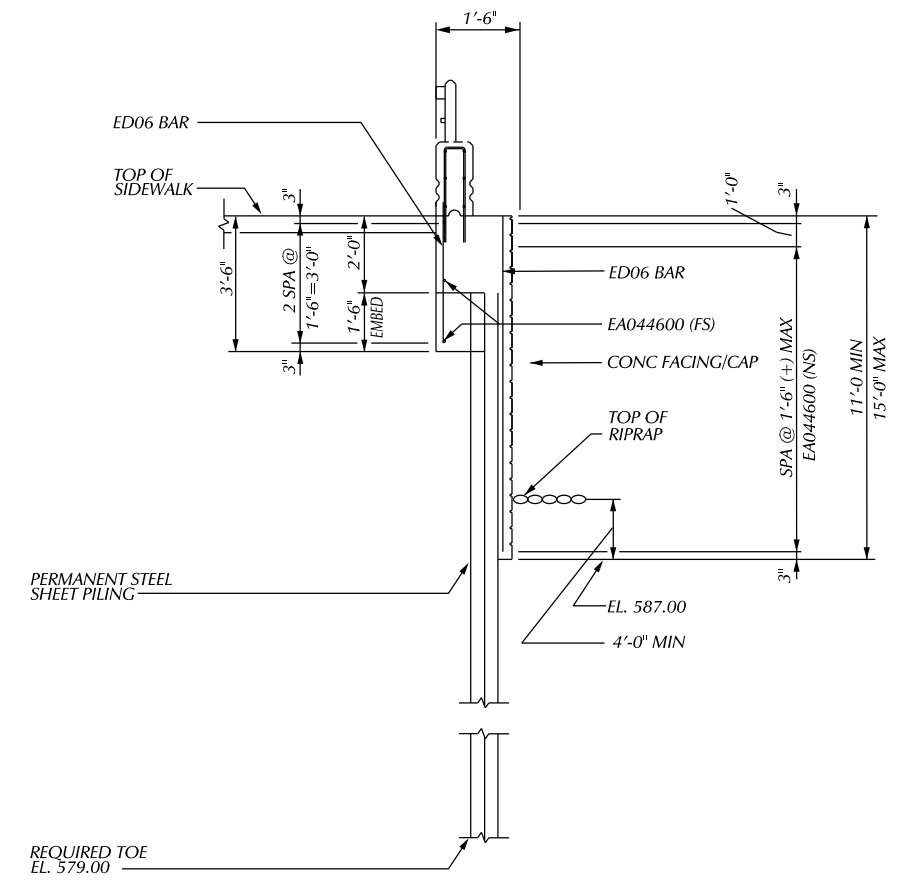
WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN

SHEET PILE WALL DETAILS

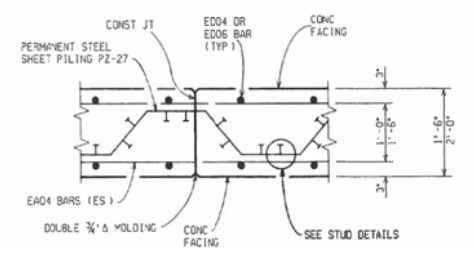
SHEET OF SHEETS
CONTRACT NO.
ASSIGNMENT NO.
DATE



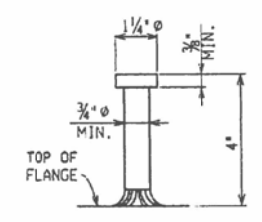
SECTION THRU PERMANENT SHEETING ANCHORAGE
(TYP. ALL QUADRANTS)



SECTION THRU RETAINING WALL



TYPICAL SECTION THRU CONC. CAP
(THE MIN. REQ'D PLACEMENT OF STUDS PER ROW IS AS SHOWN)
(SPACE ROWS @ 1'-6" MAX)



STUD DETAILS

DESCRIPTION	DR	CHK	APP	DATE
REVISIONS				

CITY OF DETROIT
CITY ENGINEERING DIVISION - D.P.W.
BUREAUS OF STREETS AND HIGHWAYS
FOR

WEST PARKWAY CULVERT OVER ASHCROFT - SHERWOOD DRAIN
SHEET PILE WALL DETAILS

SHEET NO.	OF SHEETS
CONTRACT NO.	
ASSIGNMENT NO.	
DATE	

TEST BORING NO. SB-01

LOCATION: WEST PARKWAY STREET

PHYSICAL REFERENCE: 20' NORTH OF EXISTING CULVERT CENTER LINE

PHYSICAL OFFSET: 21' EAST OF TOE OF THE WEST SIDE SIDEWALK

STATION: -

GROUND SURFACE ELEVATION: 605.0 FT

BORING DATE: 9/11/17

DEPTH (FT)	SOIL DESCRIPTION	PP	UCS	MC	DD
605.00					
604.40	7.5 INCHES OF PORTLAND CEMENT CONCRETE				
602.50	FILL - DENSE POORLY GRADED FINE TO COARSE SAND, WITH GRAVEL, TRACE SILT, BROWN, MOIST (SP)				
602.00					
600.00	FILL - DENSE POORLY GRADED FINE SAND, WITH SILT, TRACE GRAVEL, BROWN, MOIST (SP-SM)				
599.50	FILL - SILTY FINE SAND, TRACE GRAVEL, DARK GRAY, MOIST (SM) (FIELD ENGINEER NOTED STRONG FOREIGN ODOR)				
598.50					
597.50	WATER TABLE AT 8' UPON COMPLETION ALTERNATING LAYERS OF SANDY LEAN CLAY AND CLAYEY FINE SAND, FEW GRAVEL, DARK GRAY, (CL) (SC) (OCCASIONAL ORGANIC SEAMS AND WOOD PIECES ABOVE 8 FEET) (FIELD ENGINEER NOTED STRONG FOREIGN ODOR)				
595.00					
594.00	VERY STIFF LEAN CLAY, TRACE SAND, TRACE GRAVEL, GRAY (CL)	6000*	24.2		
592.50					
592.00	VERY LOOSE SANDY SILT, TRACE GRAVEL, GRAY, MOIST (ML)				
590.00					
589.00					
585.00	STIFF TO VERY STIFF SANDY LEAN CLAY, TRACE GRAVEL, OCCASIONAL SAND PARTINGS, GRAY (CL)	3550	23.3	100	
580.00					
579.00		5500*	11.5		
575.00					
575.00	HARD LEAN CLAY, FEW SAND, TRACE GRAVEL, GRAY (CL)	9000*	11.5		
570.00					
570.00		9000*	11.2		
567.00					
566.25	EXTREMELY DENSE FINE GRAVEL, WITH SAND, TRACE SILT, GRAY, WET (GP)				

E.O.B. 38.75 FEET (EL. 566.25)
BORING TERMINATED AT SAMPLER AND AUGER REFUSAL.
POSSIBLE TOP OF BEDROCK

TEST BORING NO. SB-02

LOCATION: WEST PARKWAY STREET

PHYSICAL REFERENCE: 36' SOUTH OF EXISTING CULVERT CENTER LINE

PHYSICAL OFFSET: 36' EAST OF TOE OF THE WEST SIDE SIDEWALK

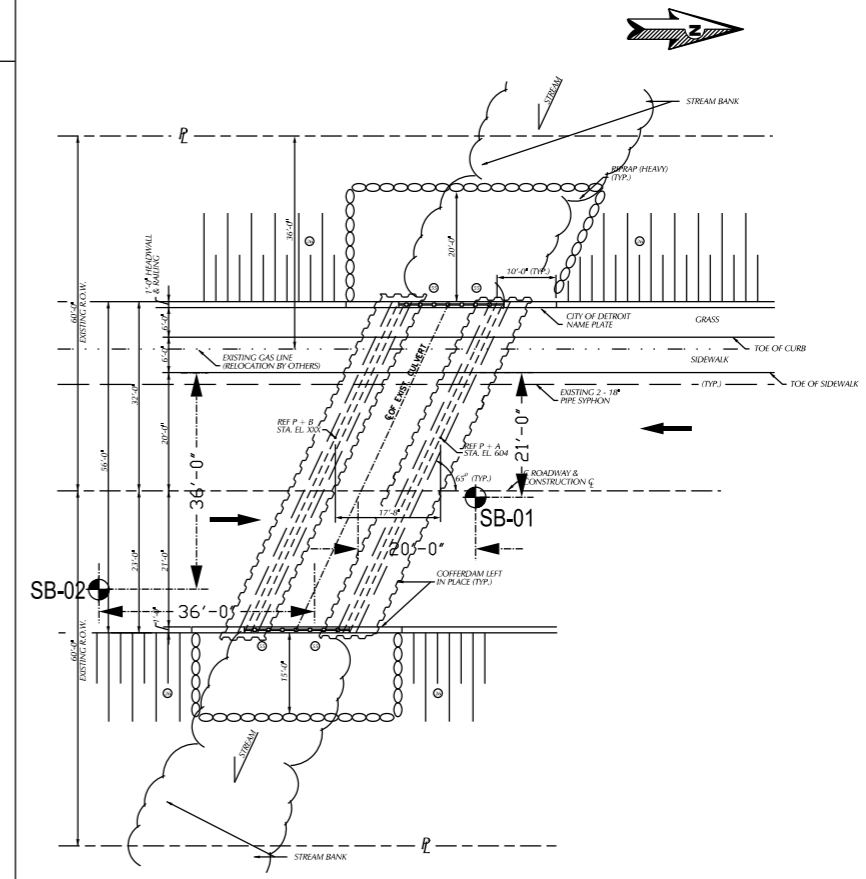
STATION: -

GROUND SURFACE ELEVATION: 605.0 FT

BORING DATE: 9/11/17

DEPTH (FT)	SOIL DESCRIPTION	PP	UCS	MC	DD
605.00					
604.30	8 INCHES OF PORTLAND CEMENT CONCRETE				
602.50	FILL - MEDIUM DENSE POORLY GRADED FINE TO COARSE SAND, WITH GRAVEL, BROWN, MOIST (SP)				
602.00					
600.00	FILL - DENSE SILTY FINE SAND, TRACE GRAVEL, BROWN AND DARK BROWN, MOIST (SM)				
599.50					
597.50	WATER TABLE AT 6.5' UPON COMPLETION				
595.00	FILL - MEDIUM DENSE POORLY GRADED FINE SAND, WITH SILT, TRACE GRAVEL, BROWN, MOIST (SP-SM)				
594.00					
592.50	FILL - MEDIUM DENSE SILTY FINE TO COARSE SAND, WITH GRAVEL, BROWN, WET (SM)				
592.00					
590.00	VERY SOFT LEAN CLAY, TRACE SAND, FREQUENTLY SILTY FINE SAND SEAMS, GRAY (CL)				
589.00					
585.00	STIFF LEAN CLAY, TRACE SAND, TRACE GRAVEL, GRAY (CL)	2690	25.3	103	
583.00					
580.00	STIFF SANDY LEAN CLAY, TRACE GRAVEL, OCCASIONAL SILTY FINE SAND SEAMS, GRAY (CL)	2500*	14.6		
578.00					
575.00	HARD LEAN CLAY, TRACE SAND, TRACE GRAVEL, GRAY (CL)	9000*	10.8		
573.00					
570.00	EXTREMELY DENSE SANDY SILT, FEW GRAVEL, TRACE CLAY, GRAY, WET (ML)				
568.00					
566.50	POORLY GRADED FINE TO MEDIUM SAND, TRACE SILT, TRACE GRAVEL, BROWN, WET (SP)				

E.O.B. 38.50 FEET (EL. 566.50)
BORING TERMINATED AT SAMPLER AND AUGER REFUSAL.
POSSIBLE TOP OF BEDROCK



SOIL BORING LOCATION PLAN

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" O.D. X 1.5" I.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140 LB HAMMER FALLING 30".

PP = POCKET PENETROMETER, UNCONFINED COMPRESSIVE STRENGTH - TONS/SQ.FT (TSF)
UCS = LAB DETERMINED UNCONFINED COMPRESSIVE STRENGTH - TONS/SQ.FT (TSF)
MC = MOISTURE CONTENT - (%)
DD = DRY DENSITY - LBS/CU.FT (PCF)

ISSUED FOR:	
DATE:	
BY:	
JOB NO.:	
SHEET.:	1 OF 1

CITY OF DETROIT
DEPARTMENT OF PUBLIC WORKS
CITY ENGINEERING DIVISION
WEST PARKWAY CULVERT REPLACEMENT
SOIL BORING LOG PLAN

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