CUY-90-14.90

PID 77332/85531

APPENDIX UT-03

NEORSD Walworth Run Relocation
(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: April 30, 2010

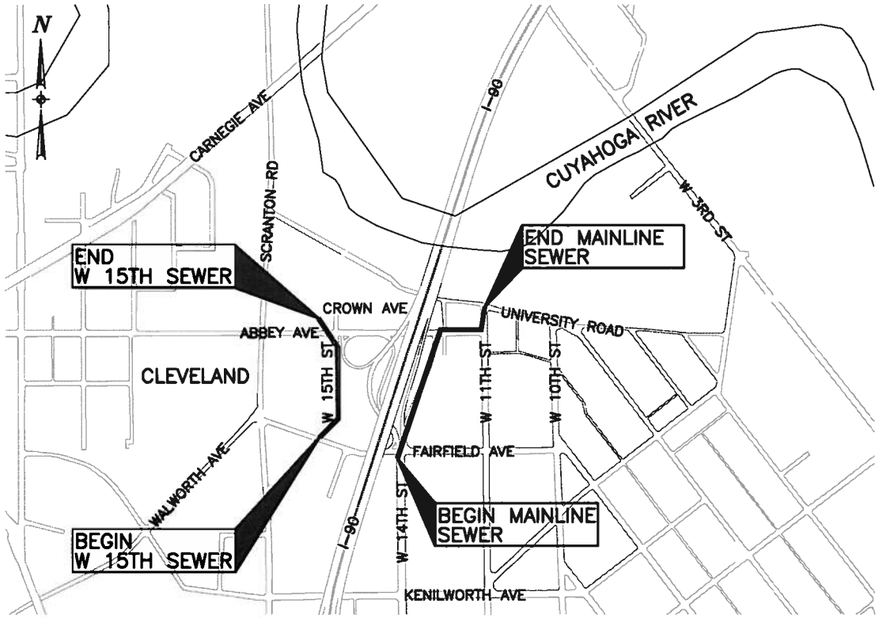
3 - Addendum No. 3 - Updated to include 90% Submittal to NEORSD

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

NORTHEAST OHIO REGIONAL SEWER DISTRICT

WRIR

WALWORTH RUN INTERCEPTOR REALIGNMENT (WRIR)



LOCATION MAP

SCALE: 1"=500'

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ACCEPTED BY :

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EXECUTIVE DIRECTOR

KELLIE C. ROTUNNO — **DATE**
DIRECTOR OF ENGINEERING AND CONSTRUCTION

NORTHEAST OHIO REGIONAL SEWER DISTRICT

SUBMITTED BY :

DLZ OHIO, INC — DATE

DLZ OHIO, INC.

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90% SUBMITTAL
APRIL 30, 2010

UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG
CALL-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON MEMBERS
MUST BE CALLED DIRECTLY

NOTES

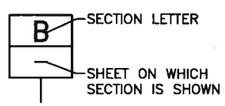
1. BASIS OF BEARING AND ELEVATION: HORIZONTAL AND VERTICAL CONTROL IS BASED ON THE OHIO NORTH ZONE STATE PLANE COORDINATE SYSTEM NAD 83 AND THE NAVD 88 VERTICAL DATUM.
2. EXISTING STRUCTURES, GRADES, PIPING ETC., ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE INFORMATION SHOWN IS NOT GUARANTEED TO BE CORRECT OR COMPLETE. THE DATA SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THE WORK OF THE UTILITY OWNERS OR OTHERS WHO MAY RELOCATE EXISTING UTILITIES, AND SHALL NOTIFY OWNERS OF THE UTILITIES OF HIS SCHEDULE SUFFICIENTLY IN ADVANCE TO PERMIT THEM TO MAKE THE NECESSARY ALTERATIONS.
4. INFORMATION ON EXISTING UTILITIES AND OTHER SUB-STRUCTURES WAS OBTAINED FROM APPROPRIATE AGENCIES. EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE BY THE CONTRACTOR UNLESS OTHERWISE SHOWN ON THE PLANS OR STATED IN THE SPECIFICATIONS. THE LOCATIONS OF EXISTING UTILITIES AND SUB-STRUCTURES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS, ELEVATIONS, AND DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION IN THE AREA OF THE SPECIFIC SUB-STRUCTURE.
5. THE LENGTH OF PIPE SHOWN ON THE DRAWINGS IS GIVEN FROM CENTER-TO-CENTER OF STRUCTURE FOR STRUCTURES UP TO 6-FT INSIDE DIAMETER OR SIZE AND TO THE INSIDE FACE OF STRUCTURE FOR STRUCTURES OVER 6-FT INSIDE DIAMETER OR SIZE.

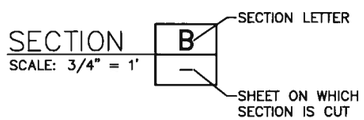
LEGEND

- EXISTING MANHOLE
- EXISTING CATCH BASIN
- EXISTING HYDRANT
- EXISTING/PROPOSED VALVE
- LIGHT POLE
- TELEPHONE POLE
- POWER POLE
- UTILITY POLE
- LIGHT & POWER POLE
- TELEPHONE & POWER POLE
- TELEPHONE & LIGHT POLE
- GUY ANCHOR
- SIGN (1 POST)
- SIGN (2 POST)
- EXISTING SANITARY MANHOLE
- STORM INLET/ CATCH BASIN
- STORM INLET/ CATCH BASIN
- POST (SQUARE)
- POST (ROUND)
- TREE
- SHRUB
- BENCH MARK
- CHISELED BENCH MARK
- EXISTING MONUMENT BOX
- IRON PIN/PIPE FOUND
- IRON PIN/PIPE SET
- TACKED HUB
- DRILL HOLE
- PKNAIL
- RAILROAD SPIKE
- ELECTRICAL BOX
- EXISTING ELECTRICAL MANHOLE
- BORING LOCATION

- CONCRETE
- GROUT
- SCREENED GRAVEL
- UNDISTURBED EARTH

SECTION CUTS





ABBREVIATIONS

ADH. – ADHESIVE
AB – ANCHOR BOLT
ADD'L – ADDITIONAL
ALT. – ALTERNATE
ALUM – ALUMINUM
& – AND
ASS'Y – ASSEMBLY
@ – AT
BITUM. – BITUMINOUS
B/ – BOTTOM OF
OR BOT/
℄ – BASE LINE
OR BL
BLDG. – BUILDING
BLK. – BLOCK
BOT – BOTTOM
B PL – BASE PLATE
BRG. – BEARING
BT PL. – BENT PLATE
CCFRPMP – CENTRIFUGALLY CAST FIBER-REINFORCED POLYMER MORTAR PIPE
C/C – CENTER TO CENTER
C.J. – CONSTRUCTION JOINT
℄ – CENTERLINE
CIRC – CIRCULAR
CLR – CLEAR
CLSM – CONTROLED LOW-STRENGTH MATERIAL
CMU – CONCRETE MASONRY UNIT
COL – COLUMN
COMB. – COMBINED
CONC – CONCRETE
CONT – CONTINUOUS
CONTL. – CONTROL
CPP – CLEVELAND PUBLIC POWER
DEFL – DEFLECTION
DEPR. – DEPRESSION
DET – DETAIL
DI(DIP) – DUCTILE IRON PIPE
DIA – DIAMETER
ø – DIAMETER
DIM – DIMENSION
DL – DEAD LOAD
DIST. – DISTANCE
DWL/DWLS – DOWEL(S)
DWO – DRY WEATHER OUTLET
EE – EACH END
E.F. – EACH FACE
E.J. – EXPANSION JOINT
E – EAST
ELEV.(EL.) – ELEVATION
ELEC – ELECTRIC
EMBD. – EMBEDDED
E.W. – EACH WAY
EQ – EQUAL
EX OR EXIST – EXISTING
EXP – EXPANSION
EXT – EXTERIOR
FDN. – FOUNDATION
FIN – FINISH
FL – FINISH LINE
FLR – FLOOR
FF – FAR FACE
FTG – FOOTING
G – GAS
GA. – GAGE
GR. – GRADE
GRD. – GROUND
HORIZ – HORIZONTAL
HP – HIGH POINT
HHP – HIGH HIGH POINT
HR. – HANDRAIL
HS – HIGH STRENGTH
I.F. – INSIDE FACE
INT – INTERIOR
INSUL. – INSULATION
INV. – INVERT
JT – JOINT
K. – KIP (1000 POUNDS)
LL – LIVE LOAD
LLBB – LONG LEG BACK-TO-BACK
LLH – LONG LEG HORIZONTAL
LLV – LONG LEG VERTICAL
LONG. – LONGITUDINAL
LP – LOW POINT
LT – LEFT
LW – LIGHT WEIGHT
MAS – MASONRY
MAX – MAXIMUM
MH – MANHOLE
MID. – MIDDLE
MIN – MINIMUM
MK. – MARK
MO – MASONRY OPENING
N/A – NOT APPLICABLE
N.F. – NEAR FACE
NO. – NUMBER
OC – ON CENTER
O/H E – OVERHEAD EXISTING
OPP. – OPPOSITE
OPNG – OPENING
+/- – PLUS OR MINUS
PC – PRECAST
℄ – PROPERTY LINE/PLATE
PROP – PROPOSED
PSI – POUNDS PER SQUARE INCH
PSF – POUNDS PER SQUARE FOOT
PVC – POLYVINYL CHLORIDE
R. – RISER
RCP – REINFORCED CONCRETE PIPE
REINF – REINFORCING
REQ'D. – REQUIRED
REQ'MTS. – REQUIREMENTS
RO – ROUGH OPENING
RT – RIGHT
R/W – RIGHT-OF-WAY
SAN – SANITARY SEWER
SCHED – SCHEDULE
SECT – SECTION
SF – SQUARE FEET
SHT. – SHEET
SIM – SIMILAR
SJ – STEEL JOIST
SLBB – SHORT LEG BACK-TO-BACK
SLV – SHORT LEG VERTICAL
SPA. – SPACES OR SPACING
SPRD. – SPREAD
SQ OR ☐ – SQUARE
ST – STORM SEWER
STA. – STATION
ST. STL. – STAINLESS STEEL
STD – STANDARD
STL. – STEEL
STR. – STRUCTURAL
SUP. – SUPPORT
SWO – STORMWATER OVERFLOW
T. – TREAD
T/ – TOP OF
OR TOP/
T&B – TOP AND BOTTOM
TEMP – TEMPORARY
THK. – THICK
TOM – TOP OF MASONRY
TYP – TYPICAL
U.O.N. – UNLESS OTHERWISE NOTED
VCP – VITRIFIED CLAY PIPE
VERT – VERTICAL
W – WATER
W/ – WITH
W. – WEST
W/M – WATER MAIN
W/O – WITHOUT
WP – WORK POINT
WS – WATERSTOP
WWF – WELDED WIRE FABRIC

SHEET INDEX

BAR IS ONE INCH ON ORIGINAL DRAWING
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WALWORTH RUN INTERCEPTOR REALIGNMENT

LEGEND, SHEET INDEX, AND GENERAL NOTES

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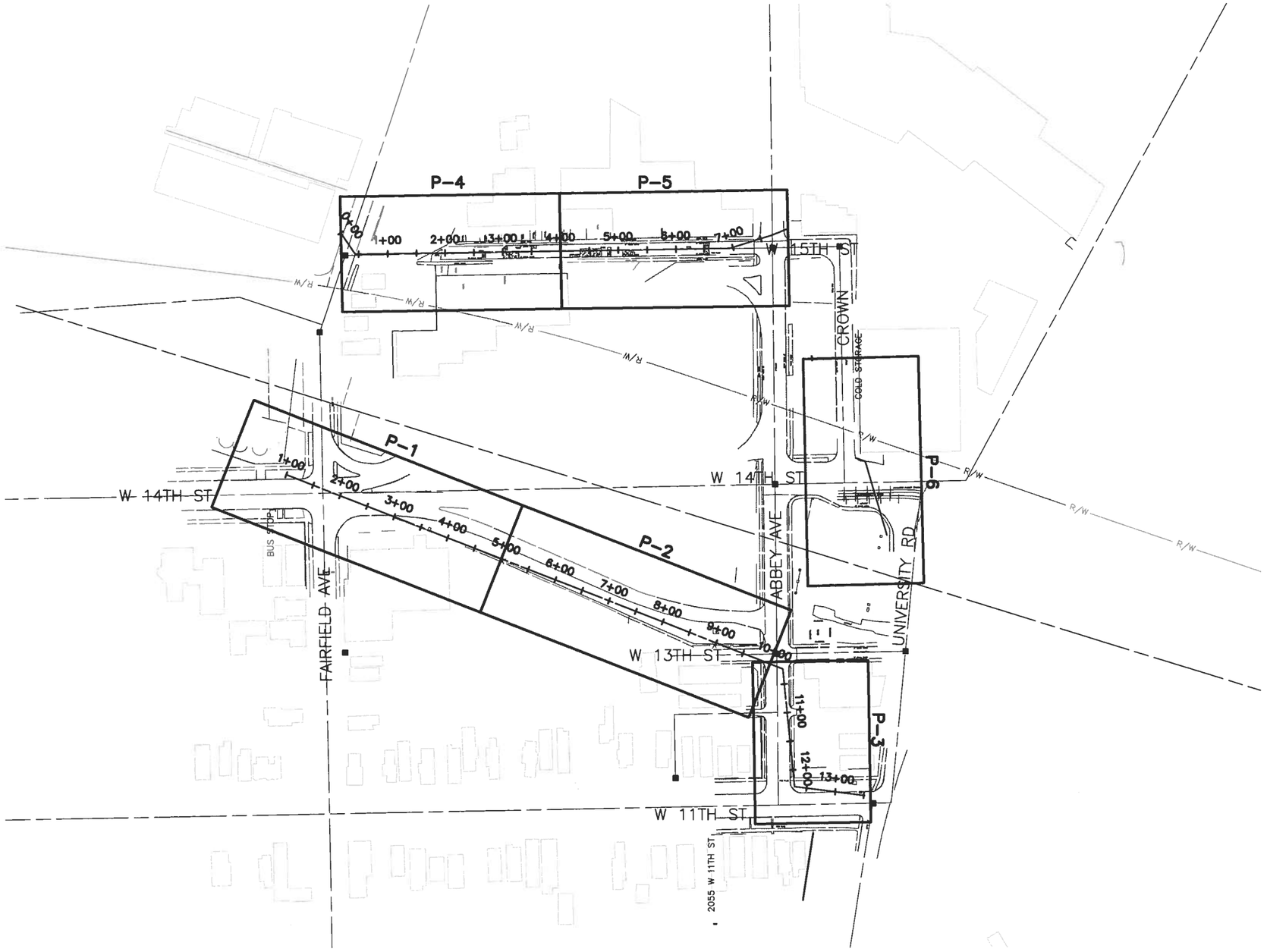
SCALE: 1"=10'
SHEET NO.: G-1



0 70 140
HORIZ. SCALE IN FEET

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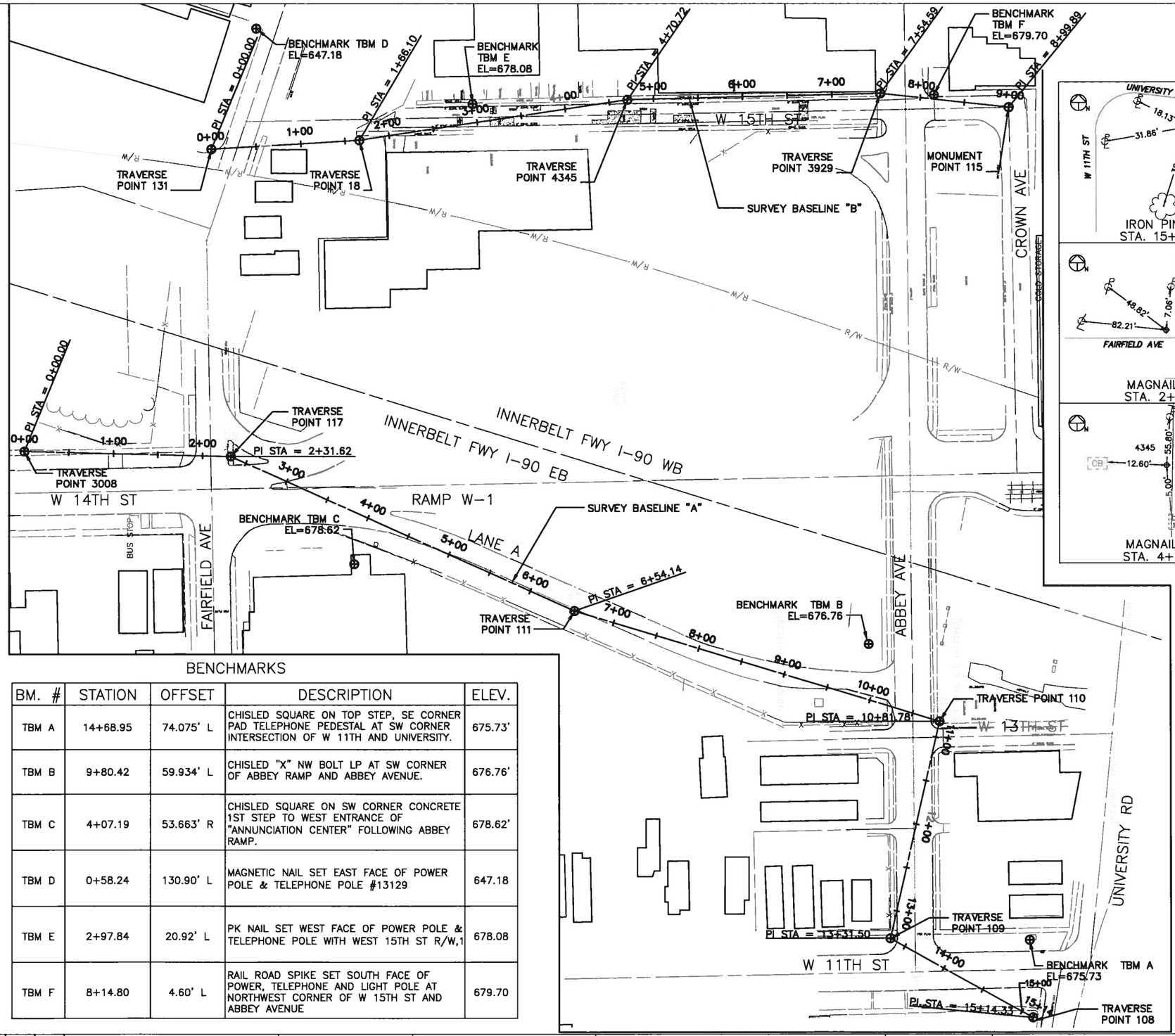
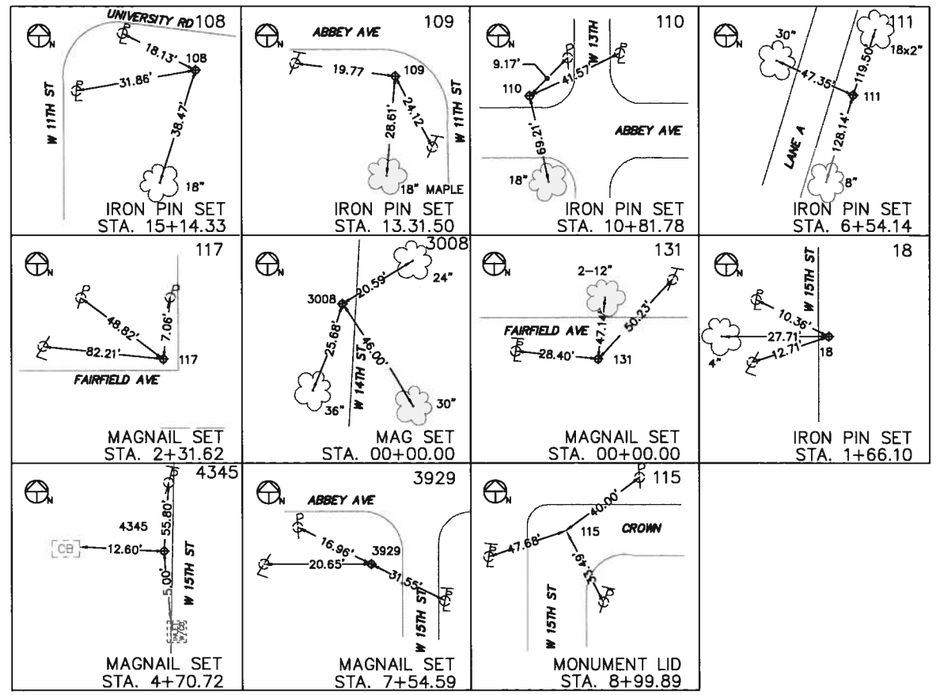
WALWORTH RUN INTERCEPTOR REALIGNMENT

LOCATION MAP

PROJECT NO.:
SHEET:
SCALE: 1"=60'
SHEET NO.: G-2



SURVEY BASELINE CONTROL POINT LOCATIONS



BENCHMARKS

BM. #	STATION	OFFSET	DESCRIPTION	ELEV.
TBM A	14+68.95	74.075' L	CHISLED SQUARE ON TOP STEP, SE CORNER PAD TELEPHONE PEDESTAL AT SW CORNER INTERSECTION OF W 11TH AND UNIVERSITY.	675.73'
TBM B	9+80.42	59.934' L	CHISLED "X" NW BOLT LP AT SW CORNER OF ABBEY RAMP AND ABBEY AVENUE.	676.76'
TBM C	4+07.19	53.663' R	CHISLED SQUARE ON SW CORNER CONCRETE 1ST STEP TO WEST ENTRANCE OF "ANNUNCIATION CENTER" FOLLOWING ABBEY RAMP.	678.62'
TBM D	0+58.24	130.90' L	MAGNETIC NAIL SET EAST FACE OF POWER POLE & TELEPHONE POLE #13129	647.18
TBM E	2+97.84	20.92' L	PK NAIL SET WEST FACE OF POWER POLE & TELEPHONE POLE WITH WEST 15TH ST R/W,1	678.08
TBM F	8+14.80	4.60' L	RAIL ROAD SPIKE SET SOUTH FACE OF POWER, TELEPHONE AND LIGHT POLE AT NORTHWEST CORNER OF W 15TH ST AND ABBEY AVENUE	679.70

SURVEY BASELINE "A" CONTROL POINTS

PT. #	NORTHING	EASTING	ELEV.	STATION	DESC.
108	N 663454.480'	E 2190785.510'	675.770'	15+14.33	108 IRON PIN SET
109	N 663294.540'	E 2190696.920'	675.410'	13+31.50	109 IRON PIN SET
110	N 663350.000'	E 2190453.440'	676.000'	10+81.78	110 IRON PIN SET
111	N 662940.790'	E 2190329.240'	679.670'	6+54.14	111 IRON PIN SET
117	N 662555.680'	E 2190155.420'	675.940'	2+31.62	117 MAGNAIL SET
3008	N 662324.1300'	E 2190149.7600'	677.350'	0+00.00	3008 MAGNAIL SET

SURVEY BASELINE "B" CONTROL POINTS

PT. #	NORTHING	EASTING	ELEV.	STATION	DESC.
131	N 662533.9700'	E 2189810.5200'	655.190'	0+00.00	131 MAGNAIL SET
18	N 662699.7500'	E 2189800.2900'	676.530'	1+66.10	18 IRON PIN SET
4345	N 663000.9700'	E 2189754.8900'	677.340'	4+70.72	4345 MAGNAIL SET
3929	N 663284.7500'	E 2189747.8200'	679.060'	7+54.59	3929 MAGNAIL SET
MON 115	N 663429.2100'	E 2189763.4500'	677.160'	8+99.89	115 MONUMENT LID ONLY

0 60 120
HORIZ. SCALE IN FEET

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SURVEY CONTROL

PROJECT NO.:
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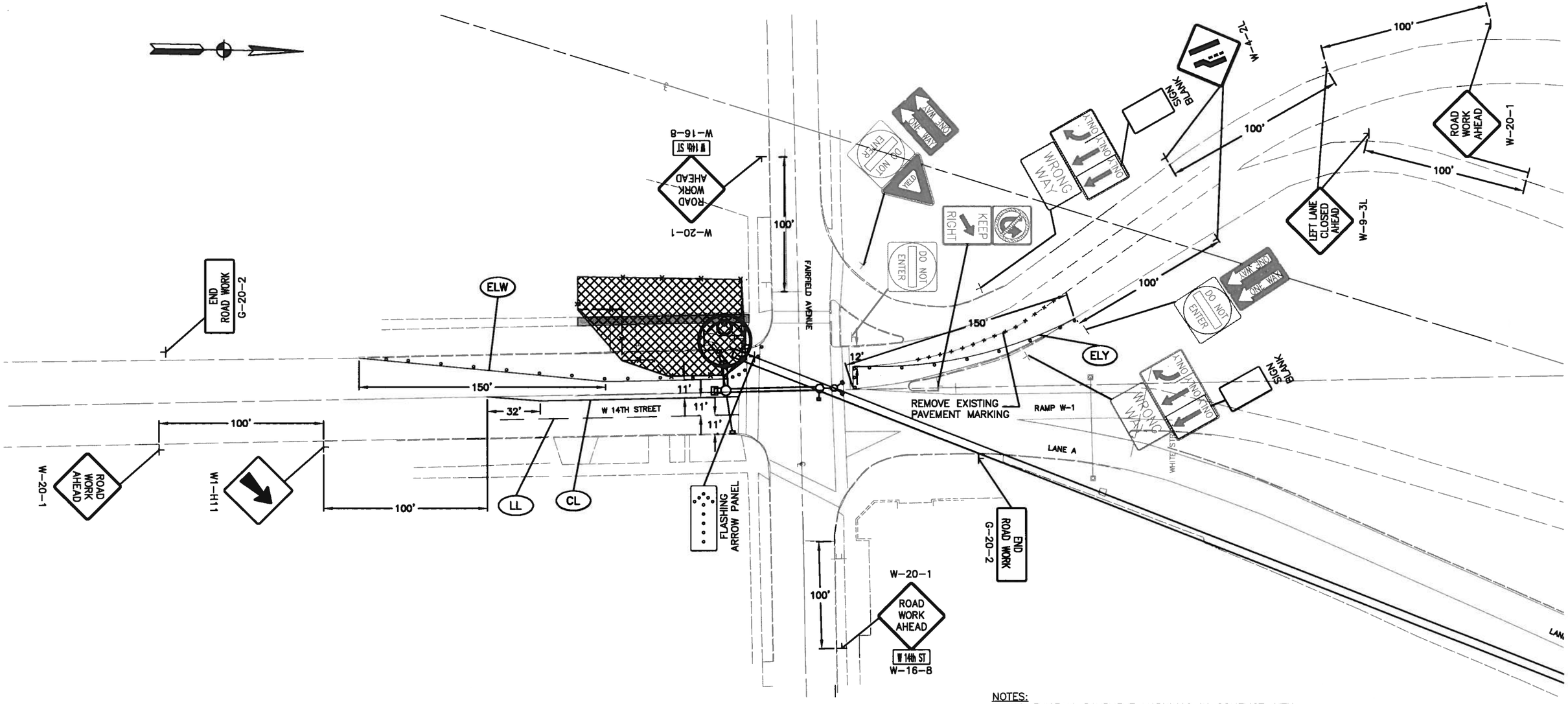
SCALE: 1"=60'
SHEET NO.: G-3



MOT PLAN

LEGEND

- CL — CENTER LINE
- DL — DOTTED LINE
- ELW — EDGE LINE WHITE
- ELY — EDGE LINE YELLOW
- LL — LANE LINE
- SL — STOP LINE
- DRUMS
- WORK ZONE

NOTES:

1. ALL EXISTING PAVEMENT MARKINGS IN CONFLICT WITH MAINTENANCE OF TRAFFIC PAVEMENT MARKINGS SHALL BE REMOVED OR COVERED AS PER THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ODOT SPECIFICATION MANUAL.

2. CONTRACTOR SHALL ADJUST SIGNAL HEADS AT FAIRFIELD AND W. 14TH STREET AS PER THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES SPECIFICATIONS REGARDING POSITIONING OVER LANES AND NUMBER OF SIGNAL FACES PER APPROACH.

3. PEDESTRIANS TO BE MAINTAINED AS PER THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TA-28 AND TA-29) AND THE ODOT STANDARD CONSTRUCTION DRAWINGS (MT-110.10).

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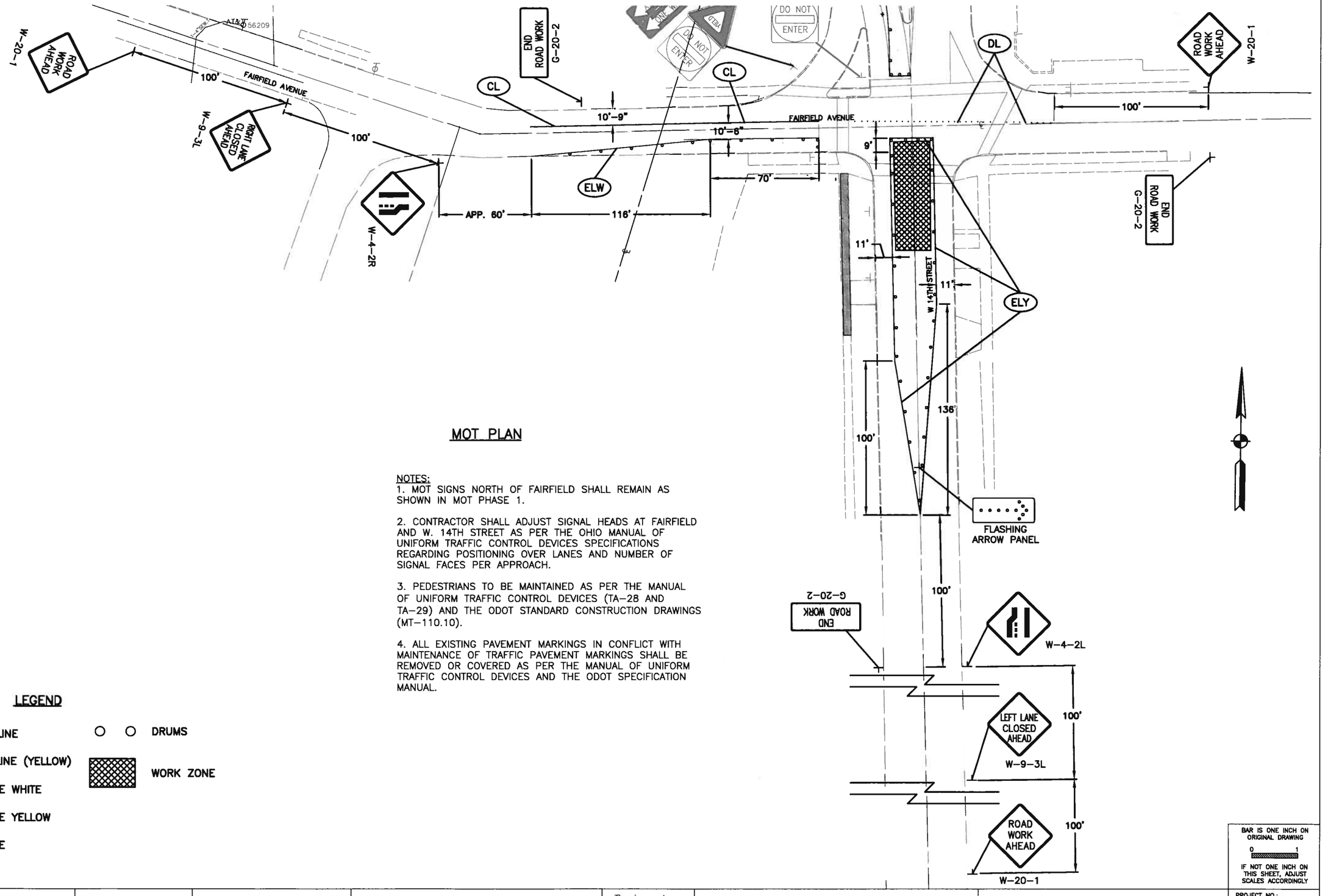
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER NO. 1
MAINTENANCE OF TRAFFIC
PHASE 1

PROJECT NO.:
SHEET: X
SCALE: 1"=30'
SHEET NO.: MOT-1



MOT PLAN

NOTES:
1. MOT SIGNS NORTH OF FAIRFIELD SHALL REMAIN AS SHOWN IN MOT PHASE 1.

2. CONTRACTOR SHALL ADJUST SIGNAL HEADS AT FAIRFIELD AND W. 14TH STREET AS PER THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES SPECIFICATIONS REGARDING POSITIONING OVER LANES AND NUMBER OF SIGNAL FACES PER APPROACH.

3. PEDESTRIANS TO BE MAINTAINED AS PER THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TA-28 AND TA-29) AND THE ODOT STANDARD CONSTRUCTION DRAWINGS (MT-110.10).

4. ALL EXISTING PAVEMENT MARKINGS IN CONFLICT WITH MAINTENANCE OF TRAFFIC PAVEMENT MARKINGS SHALL BE REMOVED OR COVERED AS PER THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ODOT SPECIFICATION MANUAL.

LEGEND

- (CL) CENTER LINE
- (DL) DOTTED LINE (YELLOW)
- (ELW) EDGE LINE WHITE
- (ELY) EDGE LINE YELLOW
- (SL) STOP LINE
- DRUMS
- WORK ZONE

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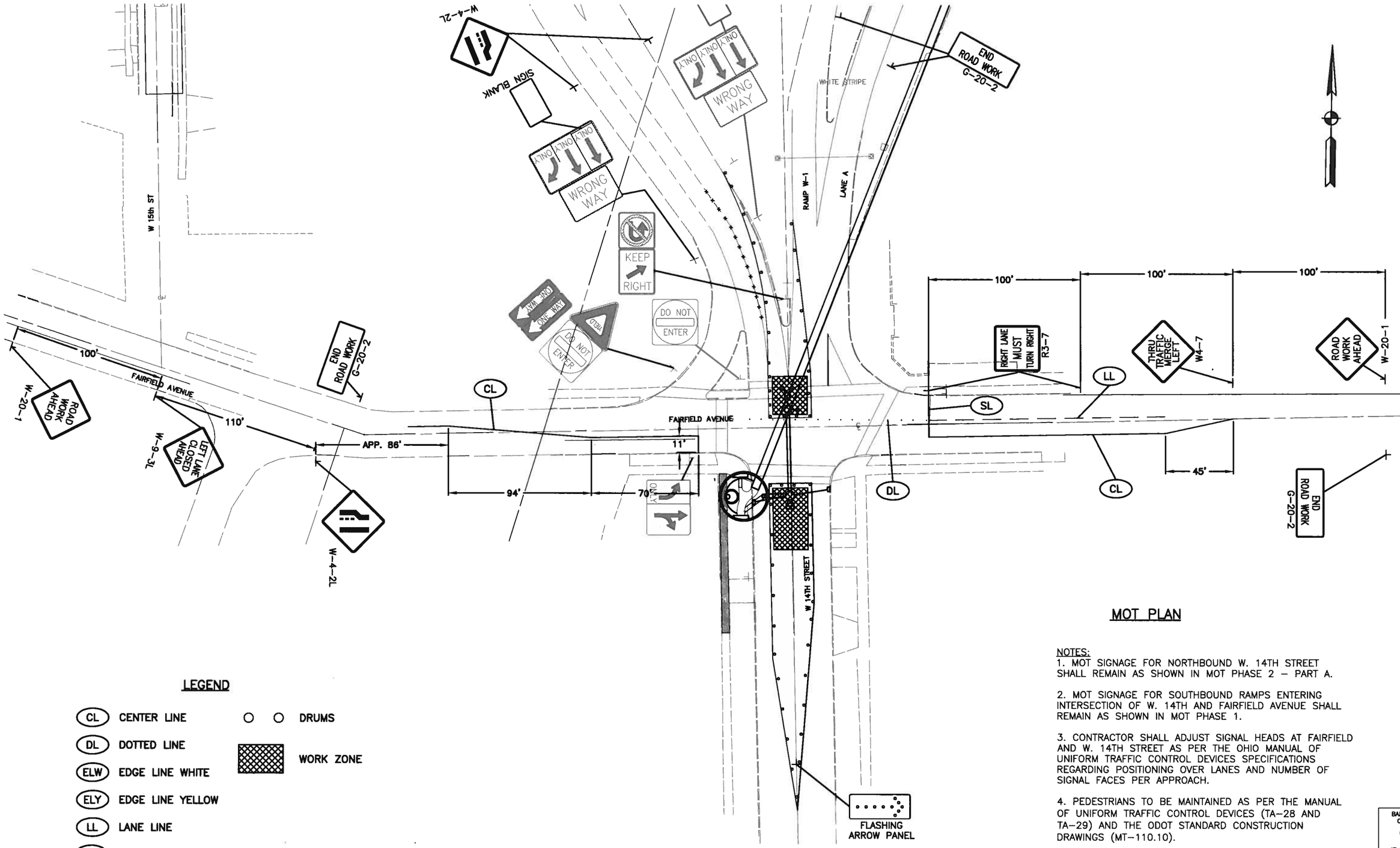
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER NO. 1
MAINTENANCE OF TRAFFIC
PHASE 2 - PART A

PROJECT NO.:
SHEET: X
SCALE: 1"=30'
SHEET NO.: MOT-2



LEGEND

- CL — CENTER LINE
- DL — DOTTED LINE
- ELW — EDGE LINE WHITE
- ELY — EDGE LINE YELLOW
- LL — LANE LINE
- SL — STOP LINE
- DRUMS
- WORK ZONE

MOT PLAN

NOTES:

1. MOT SIGNAGE FOR NORTHBOUND W. 14TH STREET SHALL REMAIN AS SHOWN IN MOT PHASE 2 – PART A.
2. MOT SIGNAGE FOR SOUTHBOUND RAMPS ENTERING INTERSECTION OF W. 14TH AND FAIRFIELD AVENUE SHALL REMAIN AS SHOWN IN MOT PHASE 1.
3. CONTRACTOR SHALL ADJUST SIGNAL HEADS AT FAIRFIELD AND W. 14TH STREET AS PER THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES SPECIFICATIONS REGARDING POSITIONING OVER LANES AND NUMBER OF SIGNAL FACES PER APPROACH.
4. PEDESTRIANS TO BE MAINTAINED AS PER THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TA-28 AND TA-29) AND THE ODOT STANDARD CONSTRUCTION DRAWINGS (MT-110.10).

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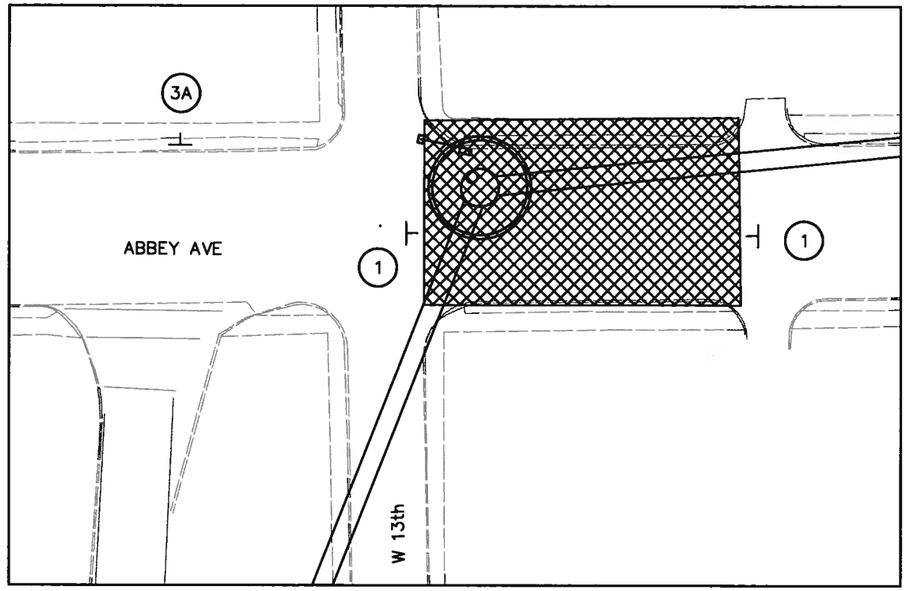
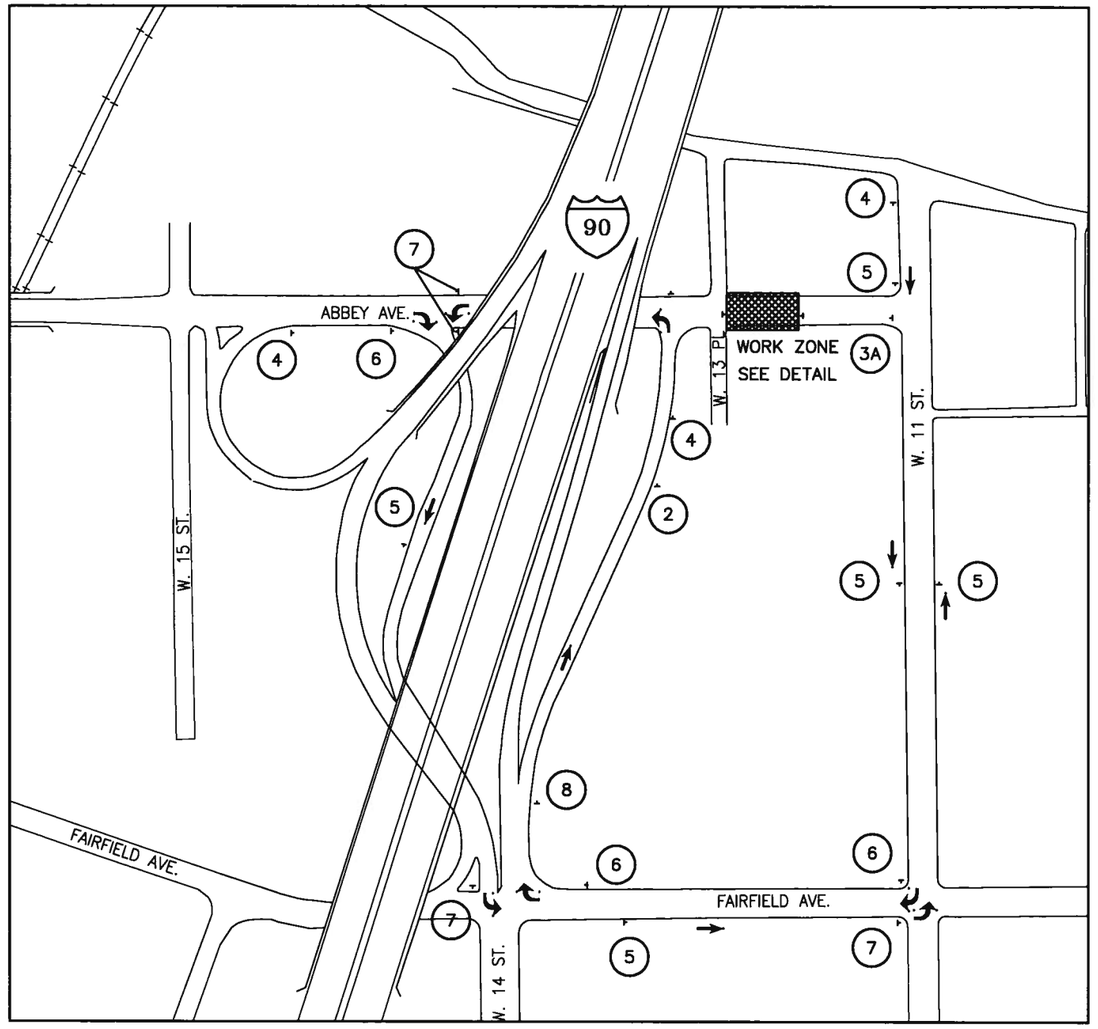
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER NO. 1
MAINTENANCE OF TRAFFIC
PHASE 2 - PART B

PROJECT NO.:
SHEET: X
SCALE: 1"=10'
SHEET NO.: MOT-3



WORK ZONE DETAIL



DETOUR PLAN

1

ROAD CLOSED

R-11-2
ON TYPE III
BARRICADE

2

ROAD WORK AHEAD

W-20-1

3

R-11-3

ROAD CLOSED
LOCAL TRAFFIC ONLY

DETOUR

M-4-10L

FOR 3A ADD

ABBEY RD

W-16-8

4

W-20-2

DETOUR AHEAD

ABBEY RD

W-16-8

5

M-4-8

DETOUR

ABBEY RD W-16-8

M-6-3

6

W-16-8

ABBEY RD

DETOUR

M-4-9R

7

W-16-8

ABBEY RD

DETOUR

M-4-9L

8

M-4-8

DETOUR

ABBEY RD W-16-8

M-6-2R

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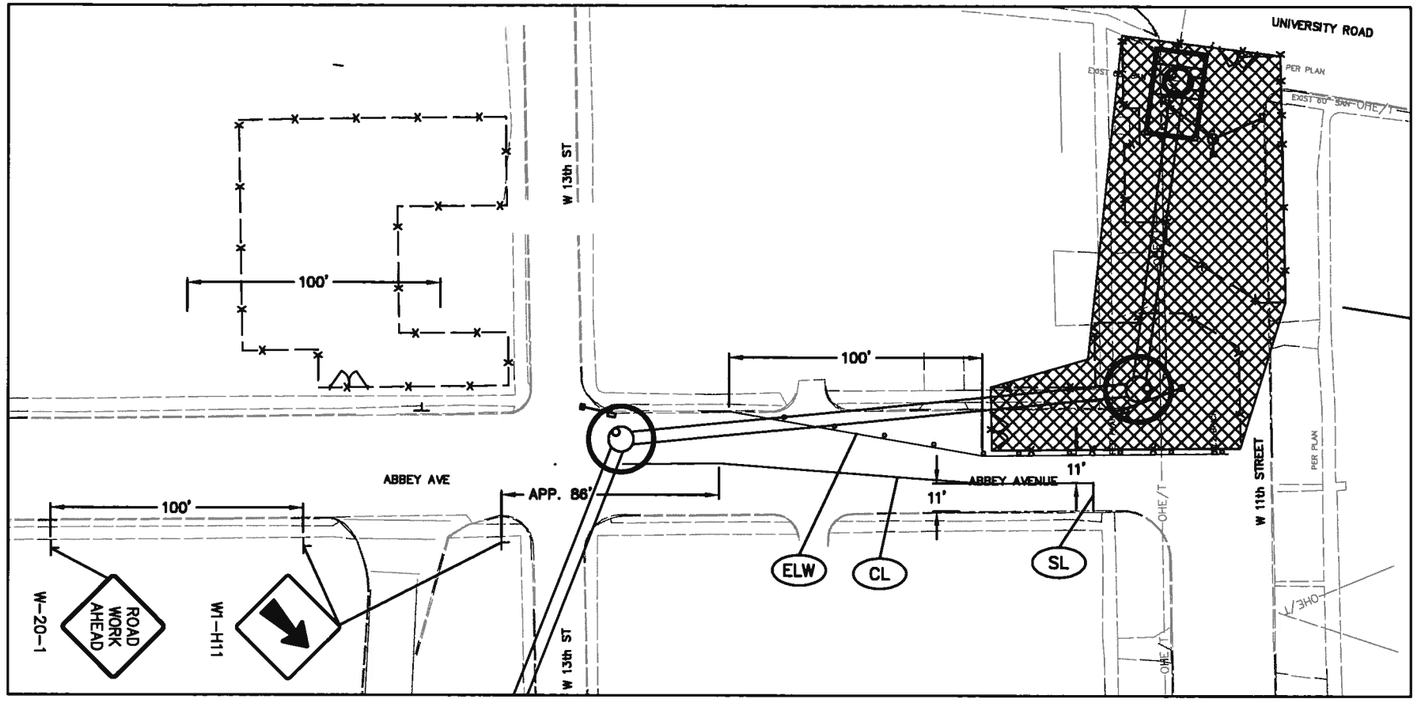
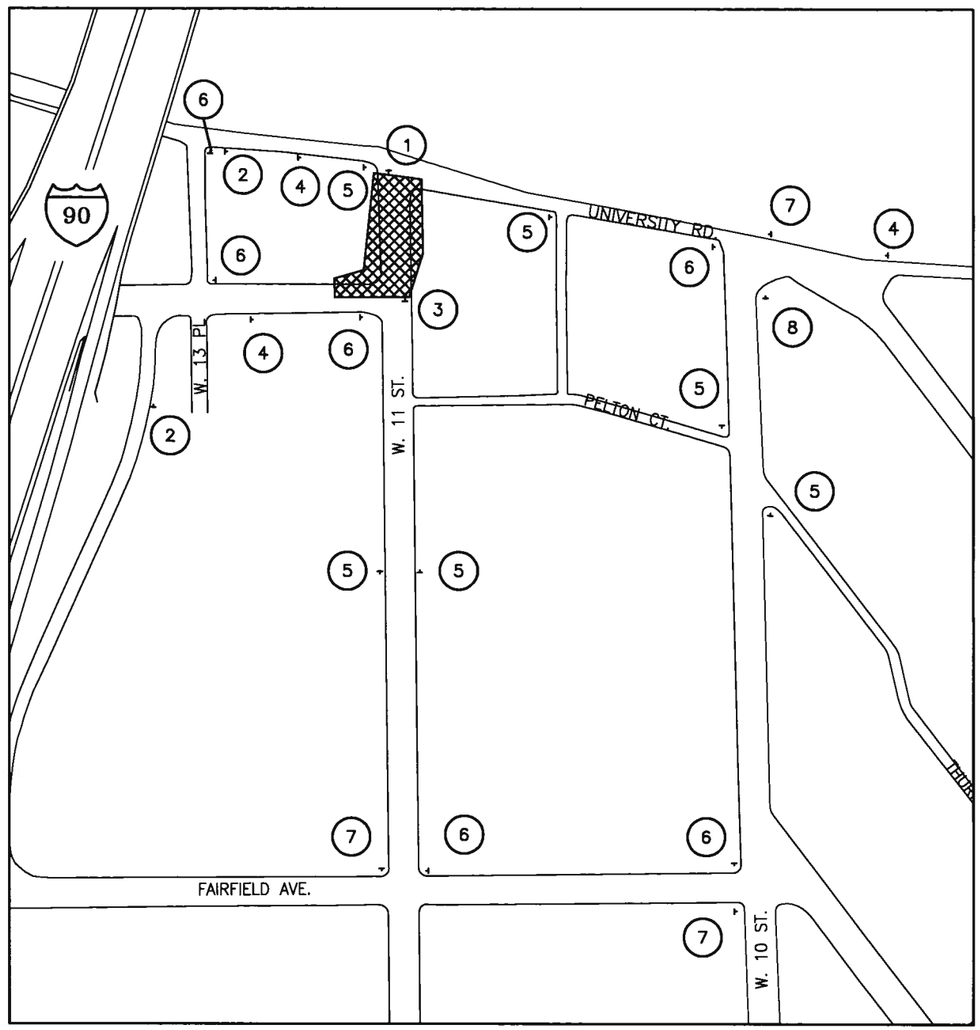
WALWORTH RUN INTERCEPTOR REALIGNMENT

MAINTENANCE OF TRAFFIC DETOUR ROUTE FOR MANHOLE NO. 1

PROJECT NO.:
SHEET: X
SCALE: NOT TO SCALE
SHEET NO.: MOT-4



WORK ZONE DETAIL



DETOUR PLAN

LEGEND

- CL — CENTER LINE
- ELW — EDGE LINE WHITE
- SL — STOP LINE
- DRUMS
- WORK ZONE

(1) R-11-2 — ROAD CLOSED — ON TYPE III BARRICADE

(2) W-20-1 — ROAD WORK AHEAD

(3) R-11-3 — ROAD CLOSED LOCAL TRAFFIC ONLY — DETOUR — M-4-10L

(4) W-20-2 — DETOUR AHEAD — W 11TH ST — W-16-8

(5) M-4-8 — DETOUR — W 11TH ST — W-16-8 — M-6-3

(6) W-16-8 — W 11TH ST — DETOUR — M-4-9R

(7) W-16-8 — W 11TH ST — DETOUR — M-4-9L

(8) W-16-8 — W 11TH ST — END DETOUR — M-4-8A

BAR IS ONE INCH ON ORIGINAL DRAWING (0 — 1)
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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SHEET CHK'D BY:
CROSS CHK'D BY:
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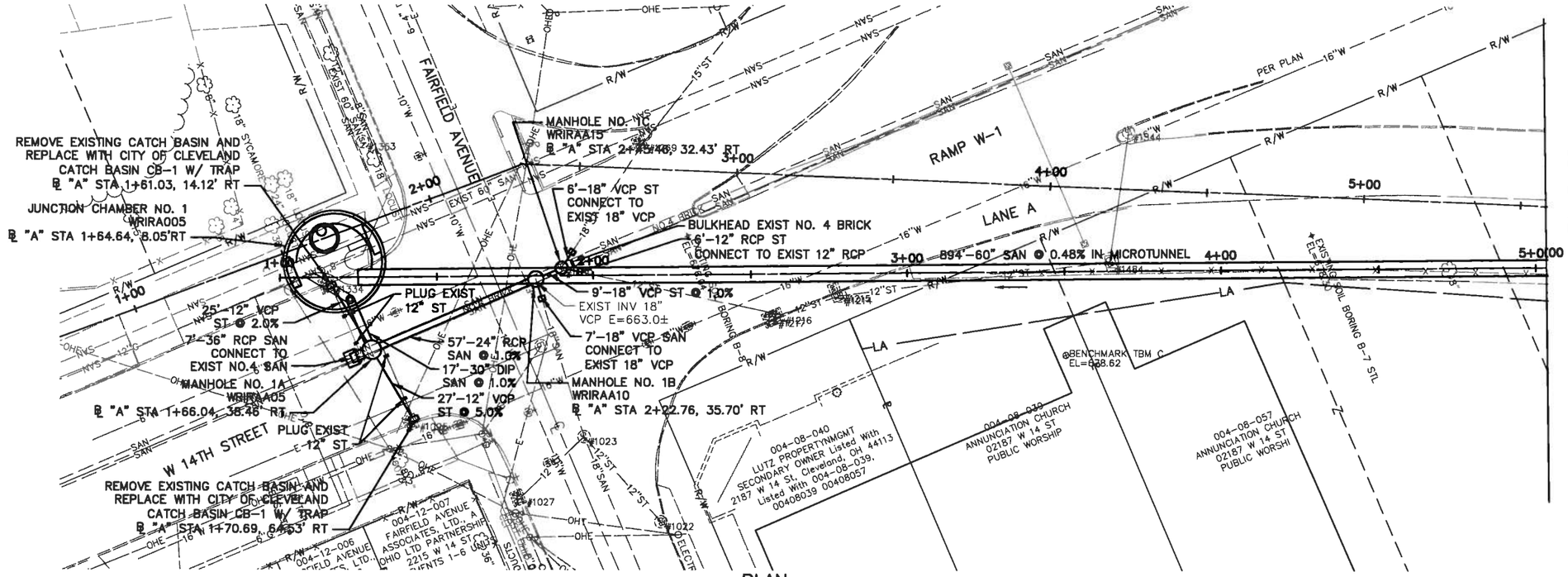
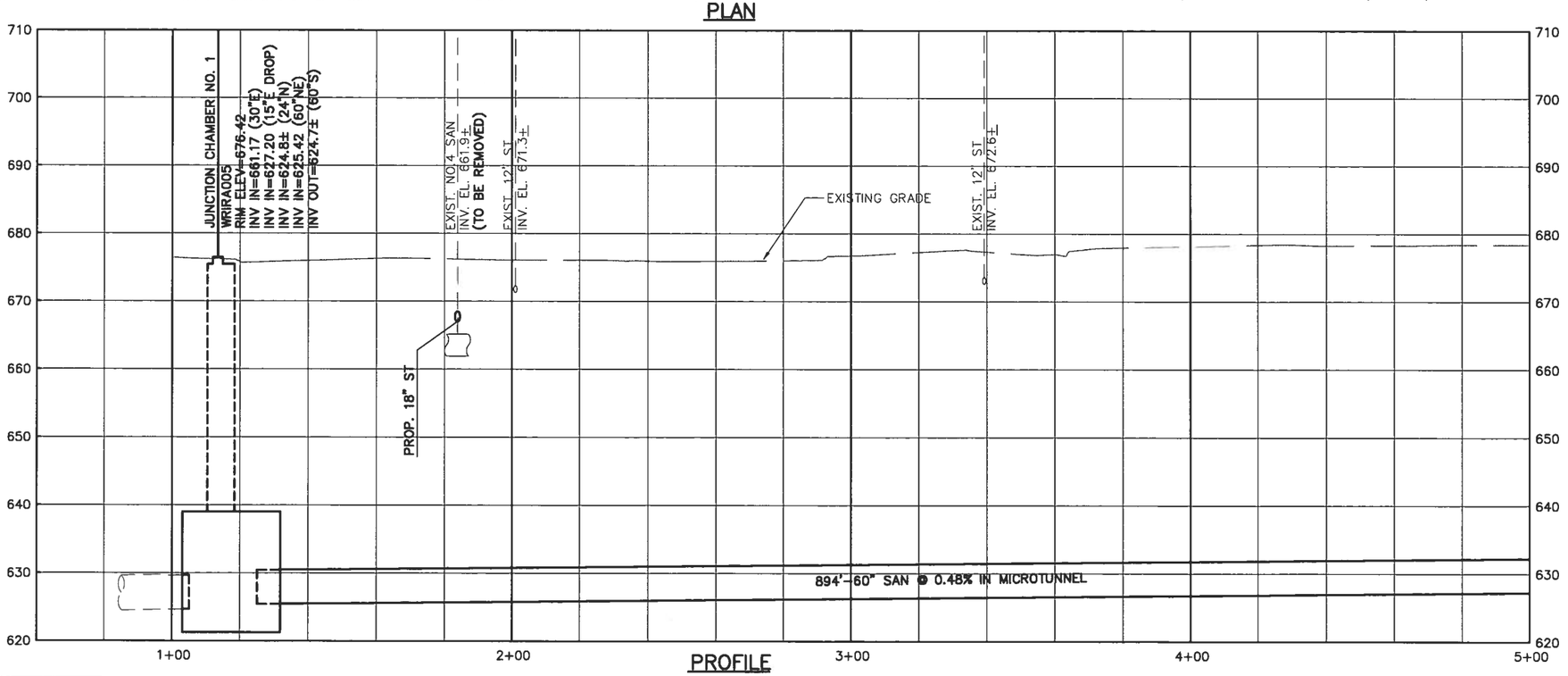
WALWORTH RUN INTERCEPTOR REALIGNMENT

MAINTENANCE OF TRAFFIC DETOUR ROUTE FOR MANHOLE NO. 2 AND JUNCTION CHAMBER NO. 2

PROJECT NO.:
SHEET: X
SCALE: NOT TO SCALE
SHEET NO.: MOT-5





CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
MOT-1 TO MOT-3	MAINTENANCE OF TRAFFIC PLANS
C-2	SEWER ABANDONMENT PLAN
C-3	JUNCTION CHAMBER NO. 1 SITE PLAN
C-10	PRECAST CONCRETE MANHOLE DETAILS
C-14	CITY OF CLEVELAND CATCH BASIN DETAIL
P-7&P-8	SEWER PROFILES

IGR #1022
TOC=677.19
INV 12" RCP SW (TO #1023)=674.19

SMH #1023
TOC=676.91
FAIR-02
INV 18" VCP E=663.56
INV 18" VCP W=663.65
INV 12" CP NE=673.01
INV 15" VCP NE=666.31

INCB #1027
TOC=676.62
INV 12" VCP NE=672.32

INCB #1095
TOC=675.80
NO PIPES VISIBLE
MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.15

SMH #1150
TOC=676.18
INV 12" RCP NE=671.24
INV 18" RCP NW=667.82
BOTTOM OF STRUCTURE=661.88

STMH #1214
TOC=676.35
INV 12" RCP N=672.35
INV 12" RCP S=672.35

IN #1215
TOC=675.79
CURB INLET WINDOW

INCB #1216
TOC=675.52
INV 12" RCP SW (TO #1150)=672.32

INCB #1217
TOC=675.53

INCB #1269
TOC=675.69
INV 18" VCP S (TO #1150)=668.04

INCB #1334
TOC=675.48
MEASUREMENT +/-
BOTTOM OF STRUCTURE=669.88

SMH #1353
TOC=675.52
FAIR-04
INV 60" BRICK E=625.27
INV 60" BRICK W=625.12

IGS #1484
TOC=676.52
FILLED TO GRATE
NO PIPES VISIBLE

STMH #1544
TOC=679.26
FILLED TO GRATE
NO PIPES VISIBLE

0 20 40
HORIZ. SCALE IN FEET
0 10 20
VERT. SCALE IN FEET

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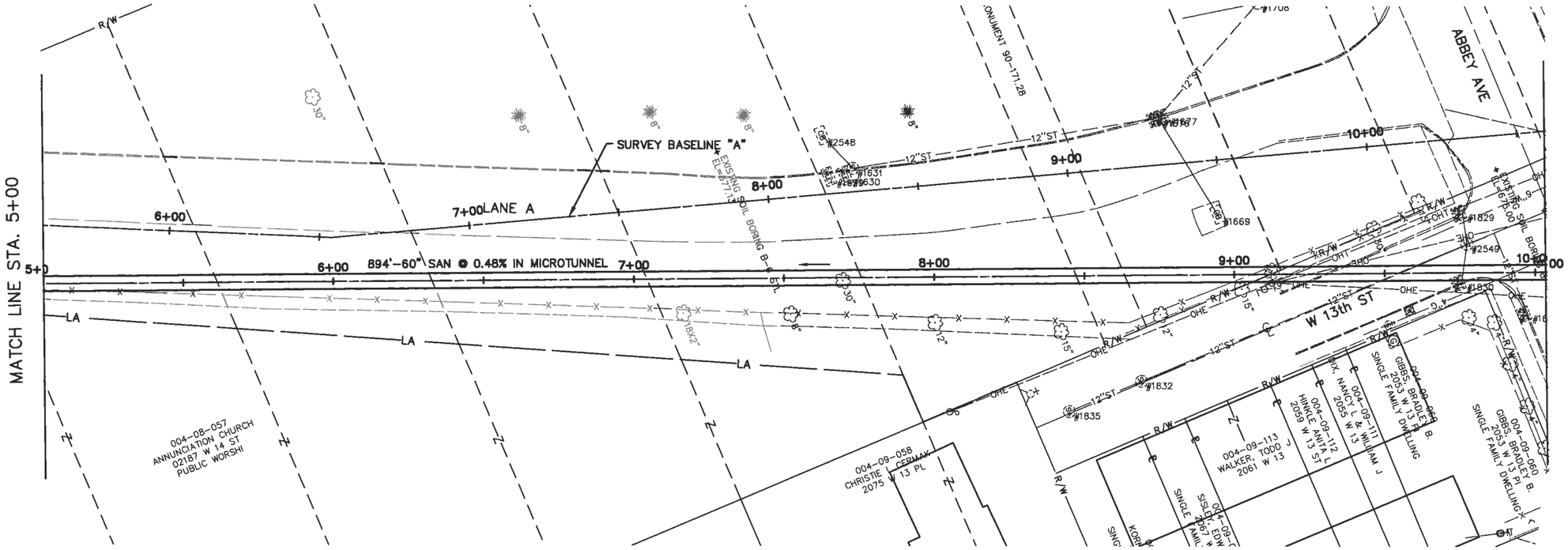
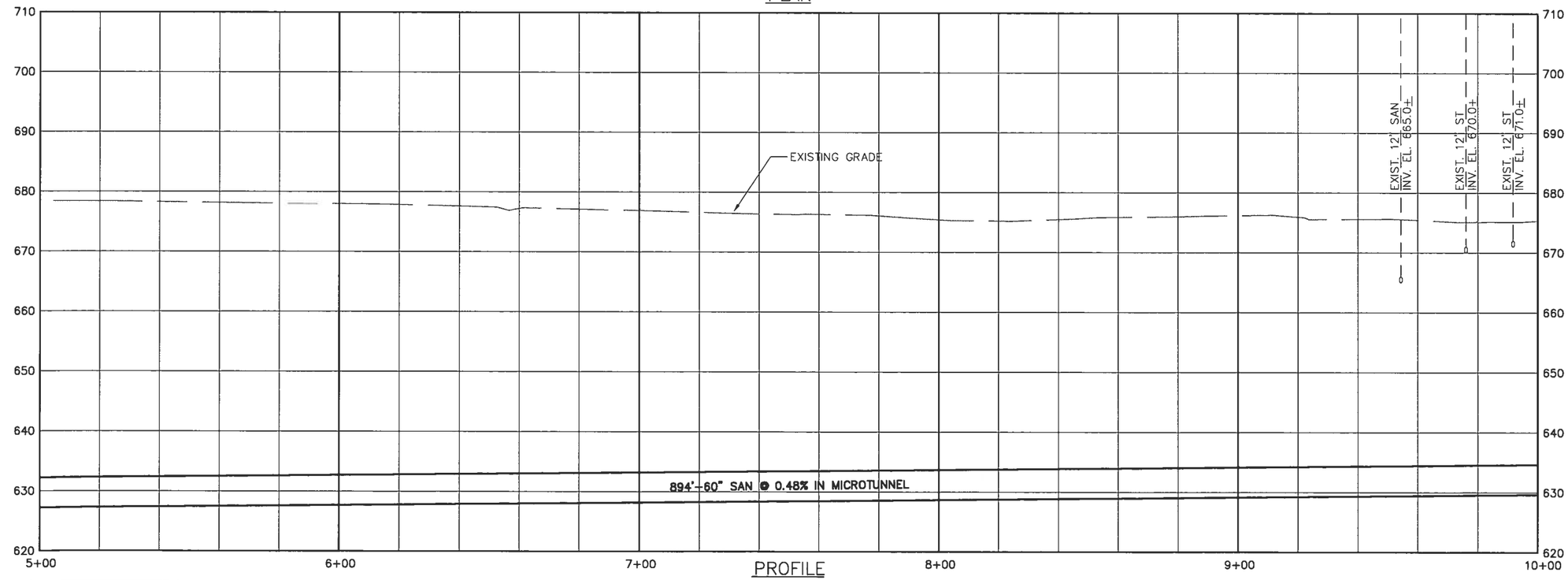
WALWORTH RUN INTERCEPTOR REALIGNMENT

WRIR MAINLINE
PLAN & PROFILE
STA. 1+00 TO STA. 5+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=10'V
SHEET NO.: P-1



PLAN



PROFILE

IN #1629
TOC=675.88
CURB INLET WINDOW

IN #1630
TOC=675.78
CURB INLET WINDOW

STMH #1631
TOC=676.19
INV 12" RCP N (TO #1676)=670.99
INV 12" RCP W (TO #2548)=671.09

IGS #1669
TOC=673.26
NO PIPES VISIBLE

INCB #1676
TOC=673.38
INV 12" RCP E (TO #1669)=668.58
INV 12" VCP NW (TO #1708)=668.48
INV 12" RCP SW (TO #1631)=668.68

INCB #1677
TOC=673.38

INCB #1829
TOC=675.22
INV 12" VCP SE (TO #2549)=670.57

INCB #1830
TOC=675.09
INV 12" VCP NW (TO #2549)=670.09

INCB #1831
TOC=675.11
NO PIPES VISIBLE
MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.91

IGS #2548
TOC=675.82
FILLED TO TOP OF STRUCTURE

STMH #2549
TOC=675.42
INV 12" VCP SE (TO #1830)=669.67
INV 12" VCP NW (TO #1829)=669.02
INV 12" VCP S (TO #1832)=664.92
INV 12" VCP N=664.92

0 20 40
HORIZ. SCALE IN FEET
0 10 20
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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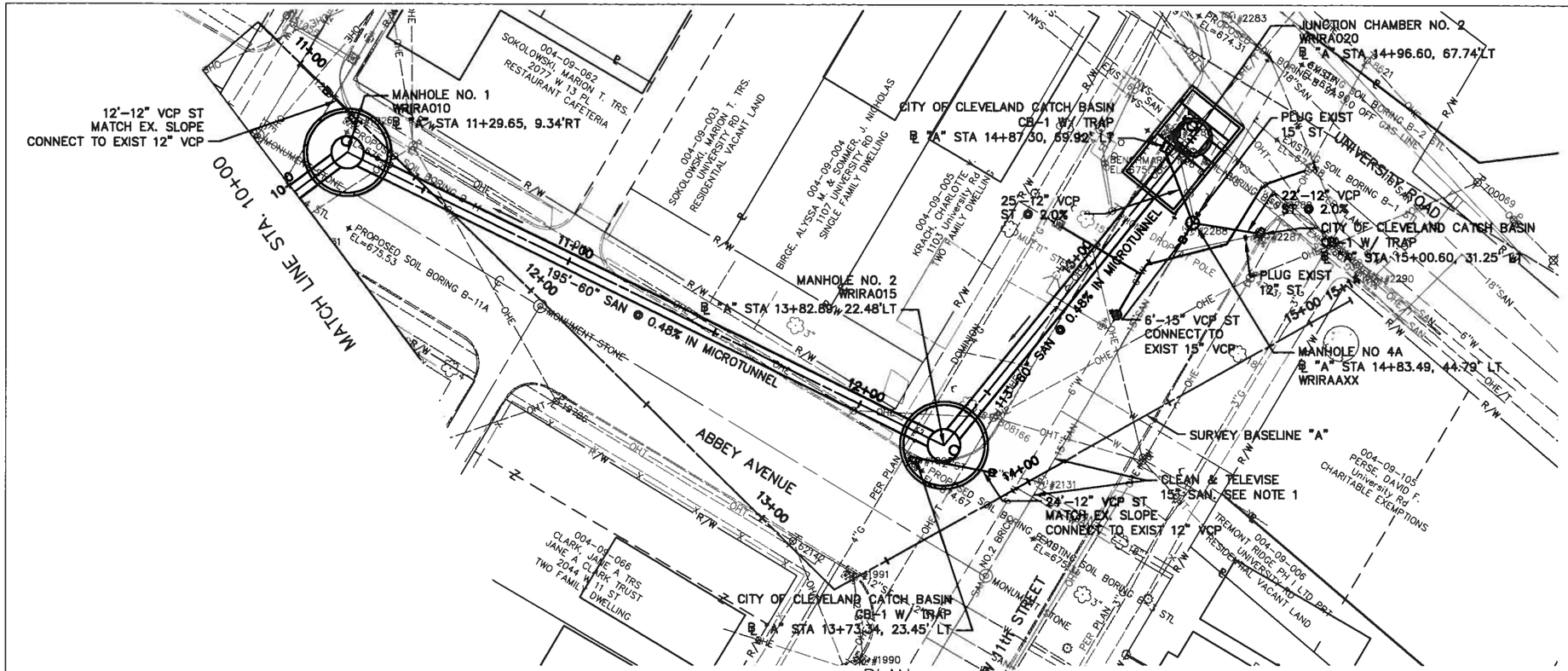
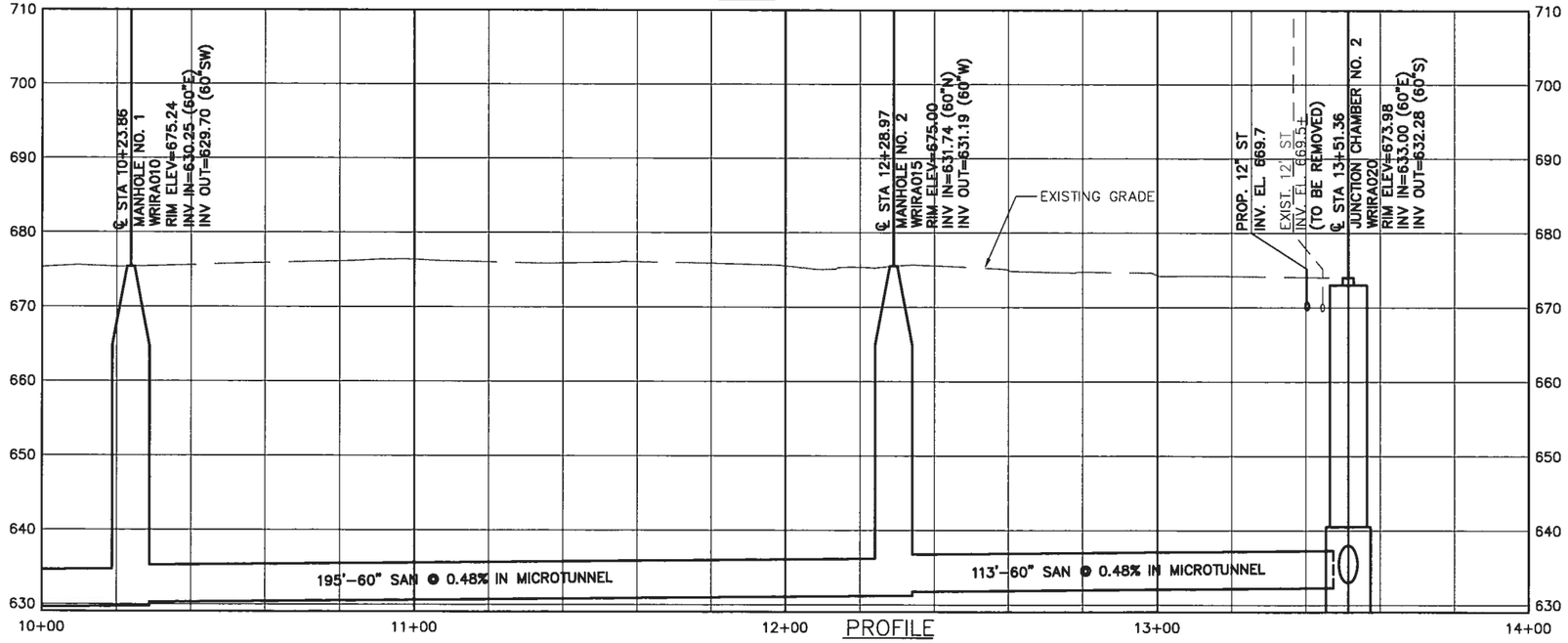
WRIR MAINLINE
PLAN & PROFILE
STA. 5+00 TO STA. 10+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=10'V
SHEET NO.: P-2





CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
MOT-4 TO MOT-5	MAINTENANCE OF TRAFFIC PLANS
C-1	SEWER ABANDONMENT PLAN
C-4	MH NO. 1 SITE PLAN
C-5	MANHOLE NO. 2 & JUNCTION CHAMBER NO. 2 SITE PLAN
C-6 TO C-9	WATER MAIN PLANS AND DETAILS
C-10	PRECAST CONCRETE MANHOLE DETAILS
P-7&P-8	SEWER PROFILES
TU-5 TO TU-8	JUNCTION CHAMBER NO. 2 STRUCTURAL DETAILS
TU-9	MH NO. 1 INITIAL SUPPORTS
TU-10	MH NO. 2 INITIAL SUPPORTS

NOTE:

1. THE CONTRACTOR SHALL CLEAN AND TELEVISE THE EXISTING 15" SAN SEWER ON W11TH ST BETWEEN MH 2287 AND MH 2131, AND BETWEEN MH 2131 AND THE NEXT DOWNSTREAM MANHOLE BEFORE AND AFTER CONSTRUCTING THE NEW WORK. PROVIDE 2 COPIES OF THE VIDEOTAPES TO THE ENGINEER. THIS WORK SHALL BE INCLUDED FOR PAYMENT UNDER THE UNIT PRICE FOR THE 60" SAN SEWER IN MICROTUNNEL. SHOULD THE CONTRACTOR DAMAGE THE EXISTING SANITARY SEWER MAINLINE OR LATERAL CONNECTIONS DURING CONSTRUCTION, HE SHALL REPAIR OR REPLACE THE SEWER TO THE SATISFACTION OF THE CITY. NEW SEWER MATERIALS SHALL MATCH EXISTING.

INCB #1826
TOC=675.09
FILLED WITH WATER MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.09

INCB #1990
TOC=674.82
MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.82

INCB #1991
TOC=674.52
INV 12" VCP SE (TO #1990)=670.62
INV 12" VCP E=669.62

INCB #1992
TOC=674.61
INV 12" VCP NE=669.81

SMH #2131
TOC=675.35
DID NOT OPEN - CRACKED LID

SMH #2283
TOC=674.64
UN-03
INV 18" VCP E (TO #2356)=661.94
INV 15" VCP W (TO #1799)=661.99
INV 12" VCP SW=667.99
INV 12" VCP NW=666.04

INCB #2286
TOC=673.69
FILLED TO TOP OF STRUCTURE

INCB #2287
TOC=673.92
FILLED TO TOP OF STRUCTURE

SMH #2288
TOC=674.89
W11-01
INV 15" VCP N (TO #2131)=667.59
INV 15" VCP S (TO #?)=667.39

SMH #2289
TOC=674.25
UN-02
INV 60" BRICK SE (TO #?)=633.25
INV 60" BRICK NW (TO #2313)=633.15

INCB #2290
TOC=673.93
NO PIPES VISIBLE MEASUREMENT +/-
BOTTOM OF STRUCTURE=667.38

0 20 40
HORIZ. SCALE IN FEET
0 10 20
VERT. SCALE IN FEET

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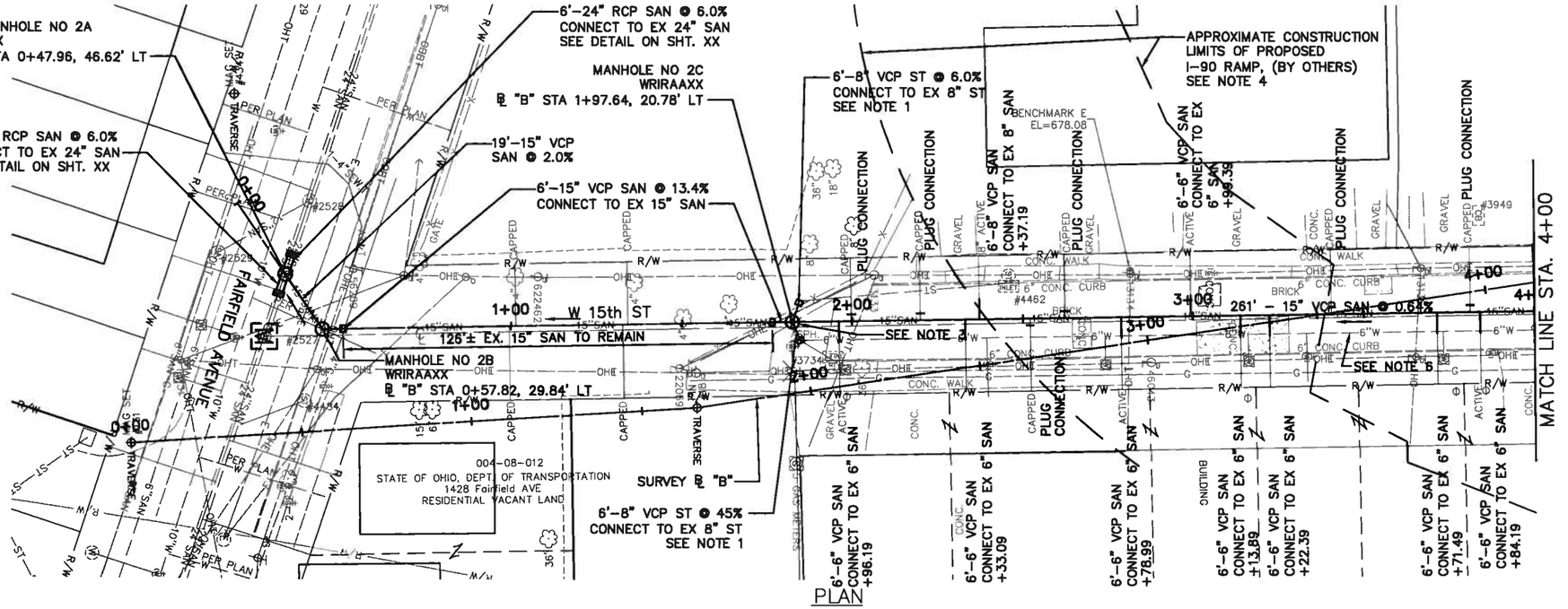
WALWORTH RUN INTERCEPTOR REALIGNMENT

WRIR MAINLINE
PLAN & PROFILE
STA. 10+00 TO STA. 15+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=10'V
SHEET NO.: P-3



SMH #2527
TOC=651.52
FAIR-07
INV 15" VCP N=645.92
INV 15" VCP SW=644.62

SMH #2528
TOC=649.22
FAIR-09
INV 24" BRICK E (TO #2526)=638.72
INV 24" BRICK W=638.62
INV 12" BRICK S=635.42

SMH #2529
TOC=650.51
FAIR-B
INV 60" BRICK SE (TO #1353)=630.21
INV 12" VCP W=633.81
INV 12" VCP W=629.81

CB #3734
TOC=676.73
INV 8" SW 672.73

CB #3949
TOC=676.93
NO PIPES VISIBLE

CB #4462
TOC=676.69
INV 8" S 669.69

CB #4484
TOC=652.91
INV 12" VCP SE=648.46

CROSS REFERENCE TABLE

SHEET NO.	DESCRIPTION
C-2	SEWER ABANDONMENT PLAN
C-10	PRECAST CONCRETE MANHOLE DETAILS
C-11	TRENCH REPAIR DETAILS
C-13	SEWER DETAILS
P-5	W. 15TH ST. SAN SEWER

NOTES:

1. CONNECTION CONFIGURATION, PIPE SIZES AND ELEVATIONS TO BE FIELD VERIFIED PRIOR TO MANHOLE FABRICATION. CONTRACTOR SHALL REPLACE 8" STORM SEWER CONNECTION TO A POINT ALONG DIRECT ALIGNMENT TO CATCH BASIN, AS DIRECTED BY THE ENGINEER.

2. THE CONTRACTOR SHALL PLUG ALL CAPPED CONNECTIONS WHICH ARE DISTURBED BY EXCAVATION.

3. REMOVE AND REPLACE EXISTING GUARDRAIL AND FENCE AS REQUIRED TO CONSTRUCT SANITARY SEWER.

4. THE PROPOSED I-90 RAMP (TO BE DESIGNED BY OTHERS) WILL RESULT IN EMBANKMENT FILLS ABOVE THE EXISTING GRADE. THE ENGINEER HAS DESIGNED THE PROPOSED 15" SAN SEWER FROM ℄ STA. 1+82 TO ℄ STA. 4+00 FOR 32' OF EARTH COVER.

5. ALL CONNECTIONS TO EXISTING PIPES SHALL BE MADE USING FLEXIBLE PIPE COUPLINGS, UNLESS OTHERWISE SHOWN.

6. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN AVOIDING DAMAGE TO THE EXISTING WATER MAIN DURING CONSTRUCTION. ANY WATER MAIN DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

0 20 40
HORIZ. SCALE IN FEET
0 5 10
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
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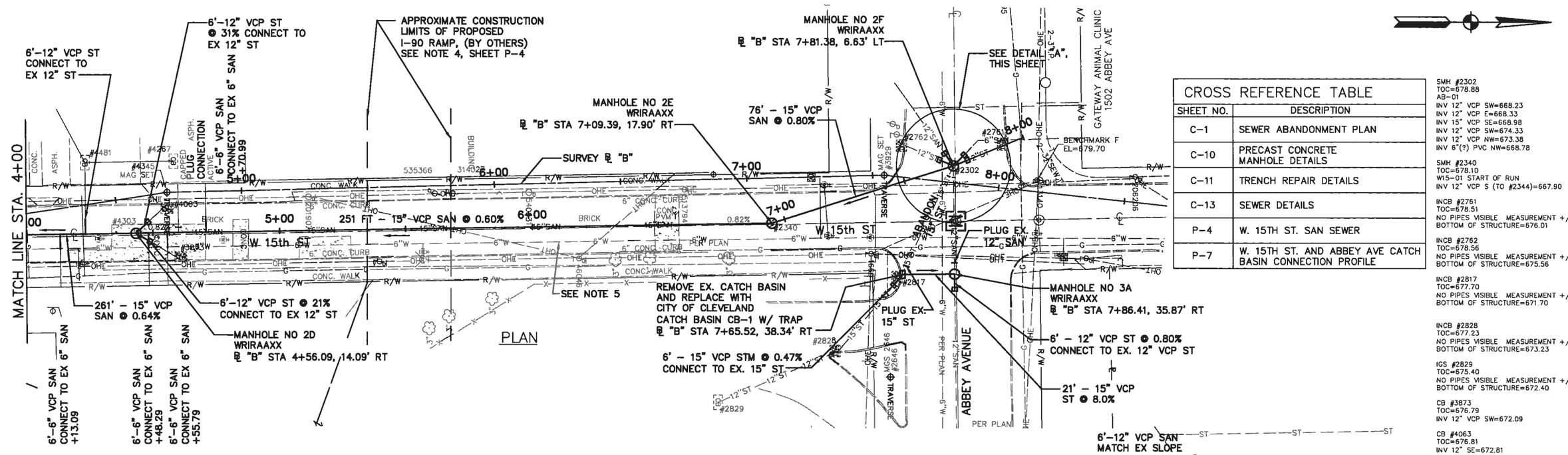
WALWORTH RUN INTERCEPTOR REALIGNMENT

W15TH ST SANITARY SEWER PLAN & PROFILE STA 0+00 TO STA 4+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=5'V
SHEET NO.: P-4



CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
C-1	SEWER ABANDONMENT PLAN
C-10	PRECAST CONCRETE MANHOLE DETAILS
C-11	TRENCH REPAIR DETAILS
C-13	SEWER DETAILS
P-4	W. 15TH ST. SAN SEWER
P-7	W. 15TH ST. AND ABBEY AVE CATCH BASIN CONNECTION PROFILE

SMH #2302
TOC=678.88
AB-01
INV 12" VCP SW=668.23
INV 12" VCP E=668.33
INV 15" VCP SE=668.98
INV 12" VCP SW=674.33
INV 12" VCP NW=673.38
INV 6"(?) PVC NW=668.78

SMH #2340
TOC=678.10
W15-01 START OF RUN
INV 12" VCP S (TO #2344)=667.90

INCB #2761
TOC=678.51
NO PIPES VISIBLE MEASUREMENT +/- BOTTOM OF STRUCTURE=676.01

INCB #2762
TOC=678.56
NO PIPES VISIBLE MEASUREMENT +/- BOTTOM OF STRUCTURE=675.56

INCB #2817
TOC=677.70
NO PIPES VISIBLE MEASUREMENT +/- BOTTOM OF STRUCTURE=671.70

INCB #2828
TOC=677.23
NO PIPES VISIBLE MEASUREMENT +/- BOTTOM OF STRUCTURE=673.23

IGS #2829
TOC=675.40
NO PIPES VISIBLE MEASUREMENT +/- BOTTOM OF STRUCTURE=672.40

CB #3873
TOC=676.79
INV 12" VCP SW=672.09

CB #4063
TOC=676.81
INV 12" SE=672.81

CB #4267
TOC=677.73
INV 6" PVC S=675.23

SMH #4303
TOC=677.11
W15-02
INV 12" VCP N (TO #2340)=665.86
INV 15" VCP S (TO #W15-03 ?)=665.76
INV 12" VCP NW=667.46
INV 12" VCP NE=667.61

CB #4481
TOC=676.77
INV 8" PVC E=670.94
INV 12" PVC W=670.89

NOTES:

1. THE CONTRACTOR SHALL PLUG ALL CAPPED CONNECTIONS WHICH ARE DISTURBED BY EXCAVATION.
2. ALL CONNECTIONS TO EXISTING PIPES SHALL BE MADE USING FLEXIBLE PIPE COUPLINGS.
3. REPLACE EXISTING CURB AND PAVEMENT AS NECESSARY TO INSTALL STORM SEWERS AND CATCH BASINS.
4. FROM ℄ STA. 4+80 TO ℄ STA. 6+94 THE LOCATIONS, NUMBER, AND STATUS OF SERVICE CONNECTIONS IS UNKNOWN. THE CONTRACTOR SHALL IDENTIFY SUCH CONNECTIONS AND RECONNECT THEM TO THE NEW SEWER IF THEY ARE ACTIVE. THE CONTRACTOR SHALL PLUG THEM IF THEY ARE INACTIVE. A QUANTITY OF 24 LF OF 6" VCP SAN HAS BEEN INCLUDED IN THE BID FORM FOR THE RECONNECTION OF LATERALS IN THIS AREA.
5. SEE NOTE 6 ON SHEET P-4.

0 20 40
HORIZ. SCALE IN FEET
0 5 10
VERT. SCALE IN FEET

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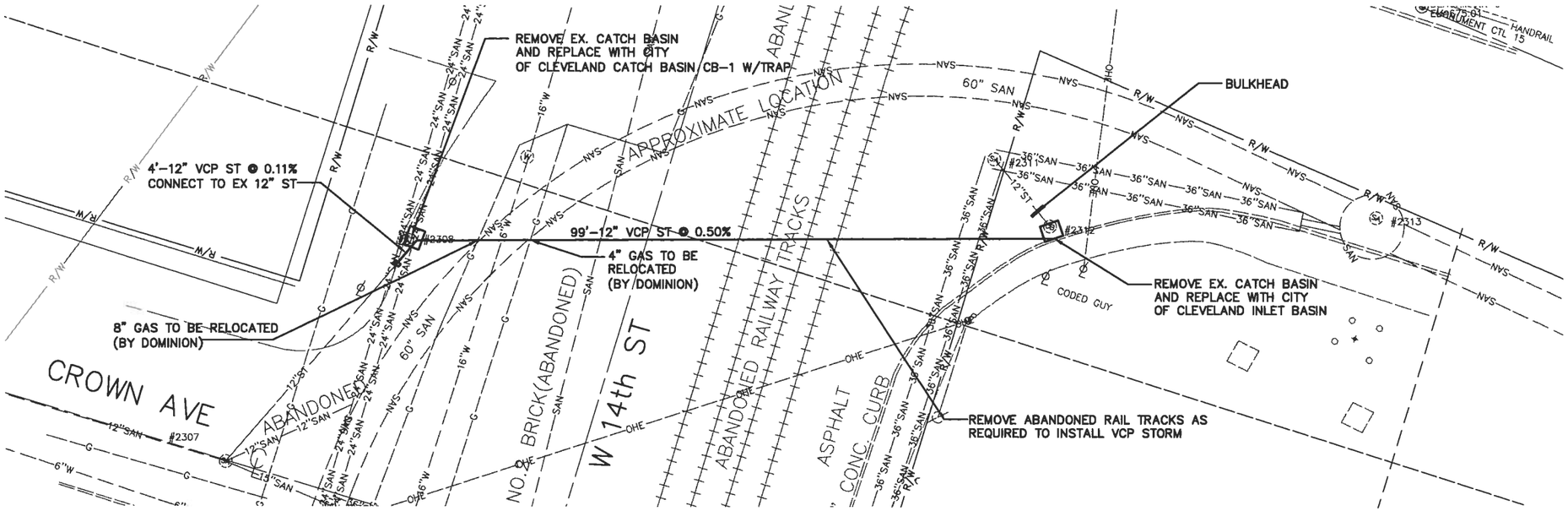
WALWORTH RUN INTERCEPTOR REALIGNMENT

W15TH ST SANITARY SEWER PLAN & PROFILE STA 4+00 TO STA 8+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=5'V
SHEET NO.: P-5



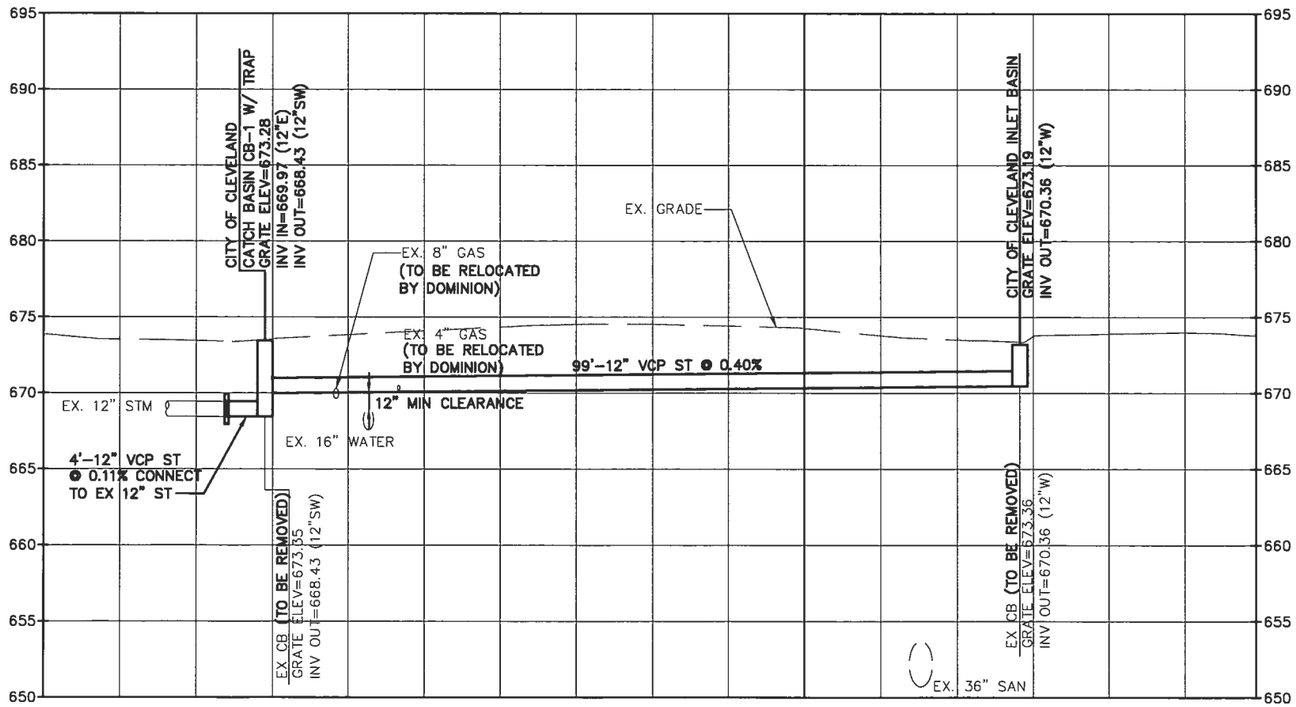
SMH #2307
TOC=674.18
CR-02
INV 12" VCP NE=668.48
INV 12" VCP W=659.68
INV 15" VCP SE=659.73

INCB #2308
TOC=673.35
INV 12" VCP SW=668.43

SMH #2311
TOC=673.97
UN-06
INV 38" BRICK NE=650.37
INV 38" BRICK SW=650.52
INV 12" VCP SE=669.97

IGR #2312
TOC=673.36
NO PIPES VISIBLE MEASUREMENT +/-
BOTTOM OF STRUCTURE=670.36

PLAN



PROFILE

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
C-11	TRENCH REPAIR DETAILS
C-13	SEWER DETAILS
C-14	CATCH BASIN DETAIL
C-15	INLET BASIN DETAIL

NOTES:

1. ALL CONNECTIONS TO EXISTING PIPES SHALL BE MADE USING FLEXIBLE PIPE COUPLINGS.

2. REPLACE EXISTING CURB AND PAVEMENT AS NECESSARY TO INSTALL STORM SEWERS AND CATCH BASINS.

0 10 20
HORIZ. SCALE IN FEET
0 5 10
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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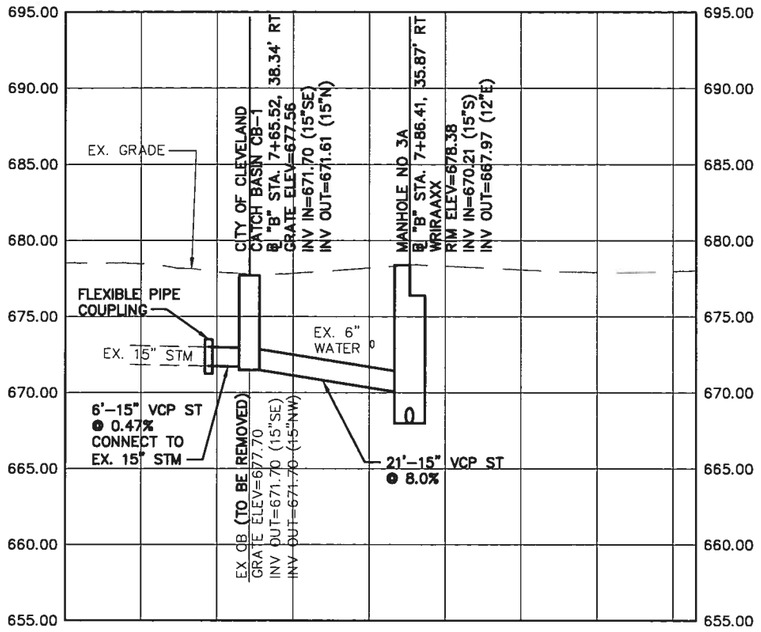
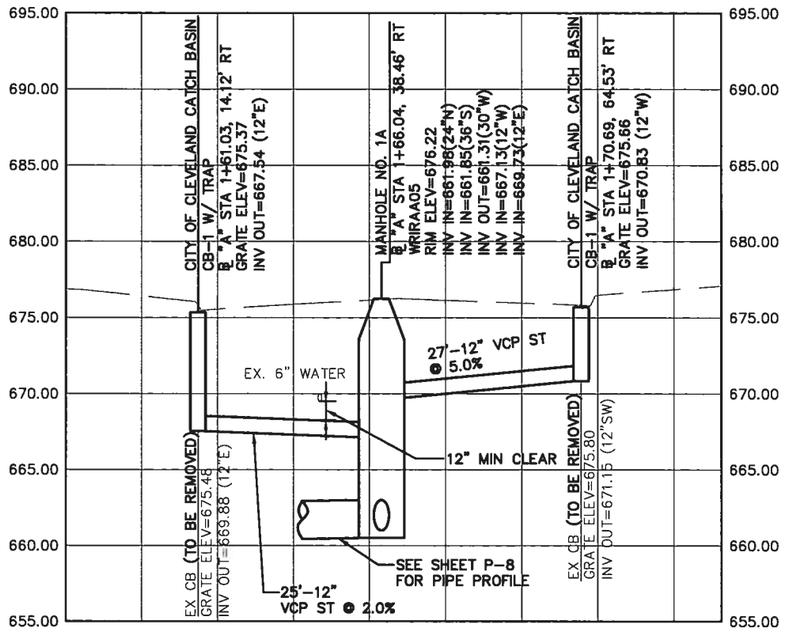
WALWORTH RUN INTERCEPTOR REALIGNMENT

CROWN AVE / W. 14TH ST. STORM SEWER CONNECTION PLAN & PROFILE

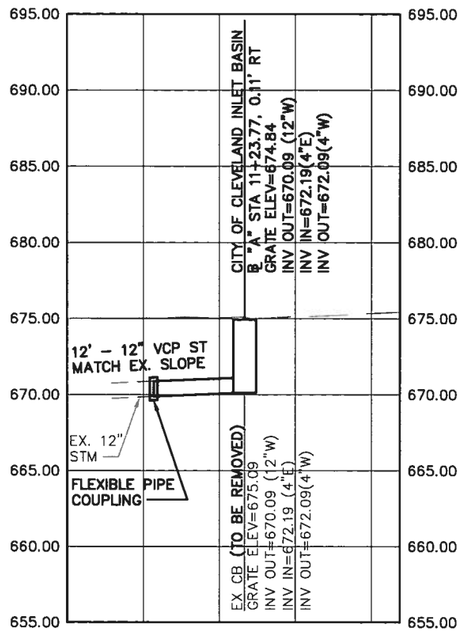
PROJECT NO.:
SHEET:
SCALE: 1"=10'H; 1"=5'V
SHEET NO.: P-6



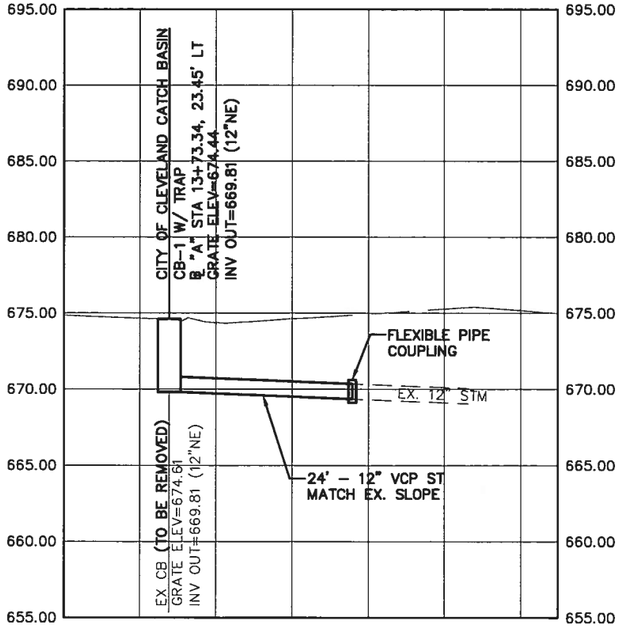
W 15TH AND ABBEY AVE CATCH BASIN CONNECTION



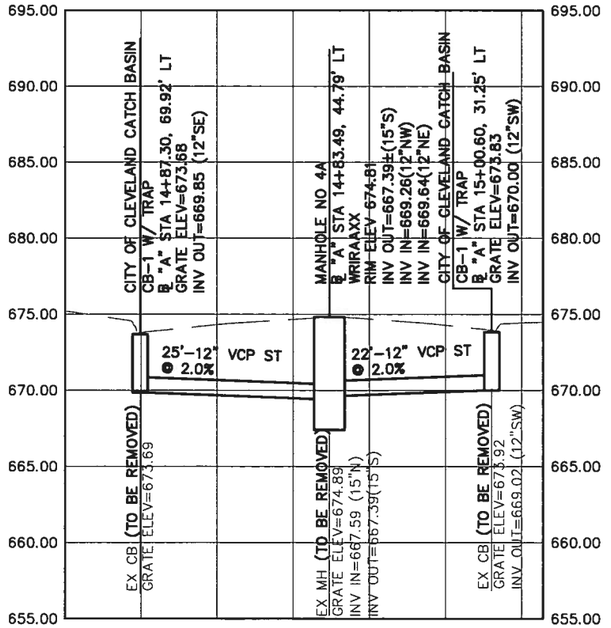
W 14TH AND FAIRFIELD AVE CATCH BASIN CONNECTIONS



W 13TH AND ABBEY AVE CATCH BASIN CONNECTIONS



W 11TH AND ABBEY AVE CATCH BASIN CONNECTIONS



W 11TH AND UNIVERSITY AVE CATCH BASIN CONNECTIONS

NOTE: THE CONTRACTOR SHALL CUT EXISTING SHEETING AS NECESSARY TO CONSTRUCT CATCH BASIN CONNECTIONS.

0 10 20
HORIZ. SCALE IN FEET
0 5 10
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

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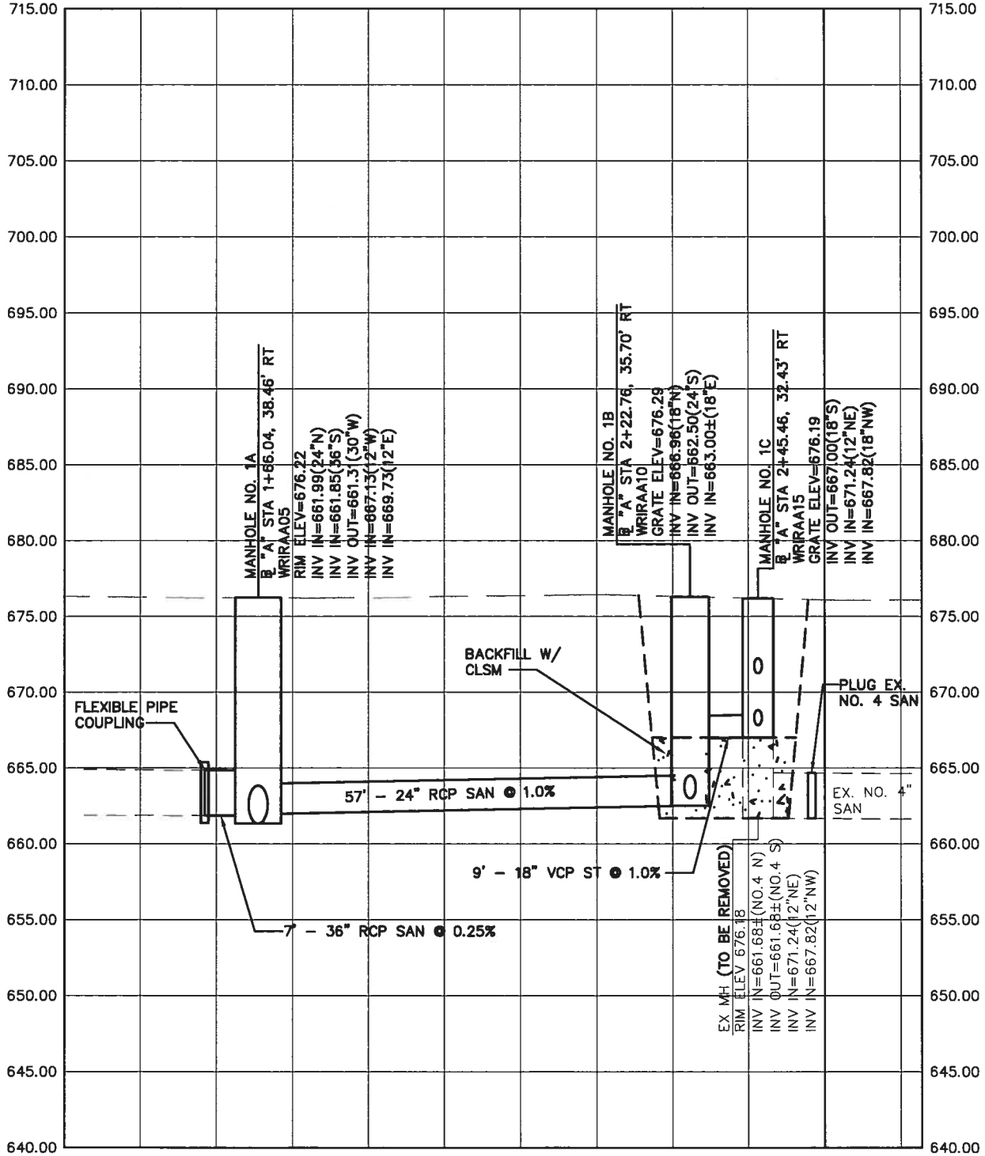
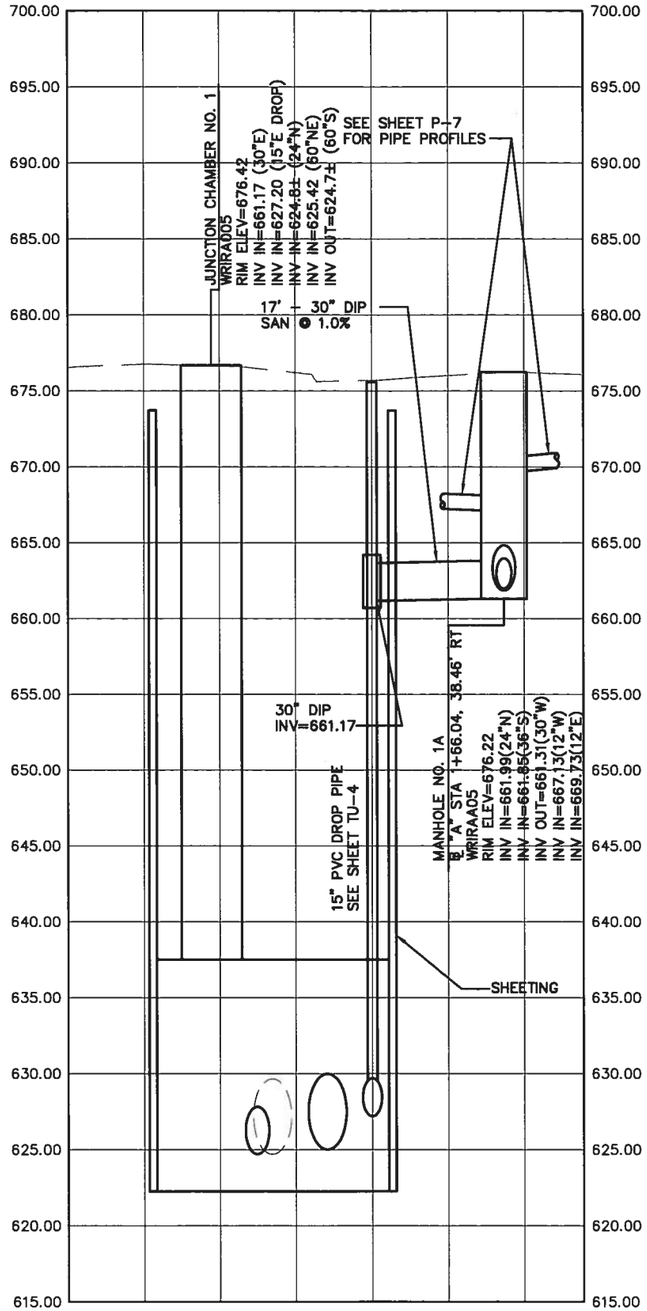
WALWORTH RUN INTERCEPTOR REALIGNMENT

SEWER PROFILES

PROJECT NO.:
SHEET:
SCALE: 1"=10'H; 1"=5'V
SHEET NO.: P-7



W 14TH ST. AND FAIRFIELD AVE – SEWER CONNECTION



W 14TH ST. AND FAIRFIELD AVE – CONNECTION TO JUNCTION CHAMBER 1

0 10 20
HORIZ. SCALE IN FEET
0 5 10
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

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DATE:

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WALWORTH RUN INTERCEPTOR REALIGNMENT

SEWER PROFILES

PROJECT NO.:
SHEET:
SCALE: 1"=10'H; 1"=5'V
SHEET NO.: P-8

STMH #1708
TOC=675.75
INV 12" CMP S=672.15
INV 12" VCP SW=670.35
INV 12" VCP W=667.55
INV 12" VCP SE (TO #1677)=667.65
INV 12" VCP N=669.35

INCB #1721
TOC=673.39
DARK – LITTLE LIGHT
INV 12" RCP N (TO #1722)=666.94

INCB #1722
TOC=673.55
DARK – LITTLE LIGHT
INV 12" RCP S (TO #1721)=666.65
INV 15" RCP W (TO #2303)=666.55

SMH #1798
TOC=674.53
W13–01
INV 12" VCP S (TO #1832)=663.68
INV 12" VCP NE (TO #1799)=663.59
INV 12" VCP E=666.56
INV 12" VCP W=666.38

SMH #1799
TOC=674.42
UN–04
INV 12" VCP SW (TO #1798)=662.97
INV 15" VCP E (TO #2283)=662.67
INV 12" VCP SE=664.87
INV 12" VCP SE=669.62
INV 4" VCP NE=670.12
INV 12" VCP W=666.77

INCB #1826
TOC=675.09
INV 4" VCP W=672.09
INV 4" VCP E=672.19
INV 12" VCP W=670.09

INCB #1829
TOC=675.22
INV 12" VCP SE (TO #2549)=670.57

INCB #1830
TOC=675.09
INV 12" VCP NW (TO #2549)=670.09

INCB #1831
TOC=675.11
INV 4" VCP E=672.61
INV 12" VCP W=671.31

INCB #1990
TOC=674.82
MEASUREMENT +/–
BOTTOM OF STRUCTURE=671.82

INCB #1991
TOC=674.52
INV 12" VCP SE (TO #1990)=670.62
INV 12" VCP E=669.62

INCB #1992
TOC=674.61
INV 12" VCP NE=669.81

SMH #2086
TOC=677.41
FLOW NOT MOVING DEBRIS
INV 2.25 x1.94" BRICK N (TO #2288)=665.36
INV 2.25 x1.94" BRICK S=665.36

SMH #2131
TOC=675.35
DID NOT OPEN – CRACKED LID

SMH #2227
TOC=675.00
COULD NOT OPEN – SEALED SHUT

INCB #2282
TOC=674.01
INV 12" VCP E (TO #2283)=669.46

SMH #2283
TOC=674.64
UN–03
INV 18" VCP E (TO #2356)=661.94
INV 15" VCP W (TO #1799)=661.99
INV 12" VCP SW=667.99
INV 12" VCP NW=666.04

INCB #2286
TOC=673.69
FILLED TO TOP OF STRUCTURE

INCB #2287
TOC=673.92
INV 12" VCP SW=669.02

SMH #2288
TOC=674.89
W11–01
INV 15" VCP N (TO #2131)=667.59
INV 15" VCP S (TO #?)=667.39

SMH #2289
TOC=674.25
UN–02
INV 60" BRICK SE (TO #?)=633.25
INV 60" BRICK NW (TO #2313)=633.15

INCB #2290
TOC=673.93
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=667.38

IGS #2300
TOC=675.20
FILLED TO TOP OF STRUCTURE

IGS #2301
TOC=673.40
FILLED TO TOP OF STRUCTURE

SMH #2302
TOC=678.88
AB–01
INV 12" VCP SW=668.23
INV 12" VCP E=668.33
INV 15" VCP SE=668.98
INV 12" VCP SW=674.33
INV 12" VCP NW=673.38
INV 6"(?) PVC NW=668.78

SMH #2303
TOC=674.57
W14–01
INV 12" VCP N=667.27
INV 12" RCP NE=668.37
INV 15" VCP E=665.07
INV 12" VCP E=661.67
INV 48" BRICK S=657.97
INV 12" VCP SW=668.57
INV 48" BRICK NW=657.97

SMH #2304
TOC=674.06
W14–02
INV 45 x 35.4" BRICK N
(TO #2306)=657.71
INV 45 x 35.4" BRICK SE
(TO #2303)=657.81
INV 12" VCP SW=661.06

INCB #2305
TOC=673.68
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=668.78

SMH #2306
TOC=674.23
CR–03
INV 24" BRICK N=654.23
INV 24" BRICK S=654.53
INV 15" VCP W=658.63
INV 36" VCP E=651.93 (DWO)

SMH #2307
TOC=674.18
CR–02
INV 12" VCP NE=668.48
INV 12" VCP W=659.68
INV 15" VCP SE=659.73

INCB #2308
TOC=673.35
INV 12" VCP SW=668.43

SMH #2310
TOC=674.65
W14–03
INV 36" BRICK N (TO #?)=651.70
INV 36" BRICK SW (TO #2306)=652.00

SMH #2311
TOC=673.97
UN–06
INV 38" BRICK NE=650.37
INV 38" BRICK SW=650.52
INV 12" VCP SE=669.97

IGR #2312
TOC=673.36
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=670.36

SMH #2313
TOC=673.89
UN–05
INV 60" BRICK NE
(TO #2289)=630.89
INV 60" BRICK NW=630.69
INV 12" RCP SW=649.89

SMH #2340
TOC=678.10
W15–01 START OF RUN
INV 15" VCP S (TO #2344)=667.90

SMH #2341
TOC=676.99
CR–01
INV 12" VCP S (TO #?)=670.49
INV 12" VCP E (TO #2307)=669.49

SMH #2342
TOC=673.66
UN–07 START OF RUN
INV 18" VCP NW=666.46

INCB #2343
TOC=674.81
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=670.46

SMH #2344
TOC=677.11
W15–02
INV 12" VCP N (TO #2340)=665.86
INV 15" VCP S (TO #W15–03 ?)=665.76
INV 12" VCP NW=667.46
INV 12" VCP NE=667.61

SMH #2356
TOC=674.18
UN–01
INV 18" VCP W (TO #2283)=659.68
INV 18" VCP SE (TO #?)=659.78
INV 12" VCP SW=668.28
INV 10" VCP NE=664.78
INV 4" VCP N=669.58

SMH #2520
TOC=661.01
UN–09
INV 18" VCP E=654.91
INV 6" VCP NE=658.81
INV 18" VCP W=654.91

SMH #2521
TOC=651.79
UN–10
INV 18" VCP NE (TO #2520)=645.49
INV 27 x23.3" BRICK SE=638.21
INV 27 x23.3" BRICK NW=638.21

SMH #2522
TOC=641.23
UN–11
INV 24" BRICK E (TO #2521)=626.98
INV 18" VCP S (TO #?)=627.28
INV 24" BRICK W=626.63

SMH #2523
TOC=634.47
UN–12
INV 24" VCP E (TO #2522)=619.02
INV 6" VCP S (TO #?)=623.87
INV 24" VCP W=618.77

SMH #2524
TOC=648.48
UN–08 STRUCTURE NOT INSPECTED
NO REPORT

IGS #2548
TOC=675.82
FILLED TO TOP OF STRUCTURE

STMH #2549
TOC=675.42
INV 12" VCP SE (TO #1830)=669.67
INV 12" VCP NW (TO #1829)=669.02
INV 12" VCP S (TO #1832)=664.92
INV 12" VCP N=664.92

INCB #2761
TOC=678.51
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=676.01

INCB #2762
TOC=678.56
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=675.56

INCB #2817
TOC=677.70
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=671.70

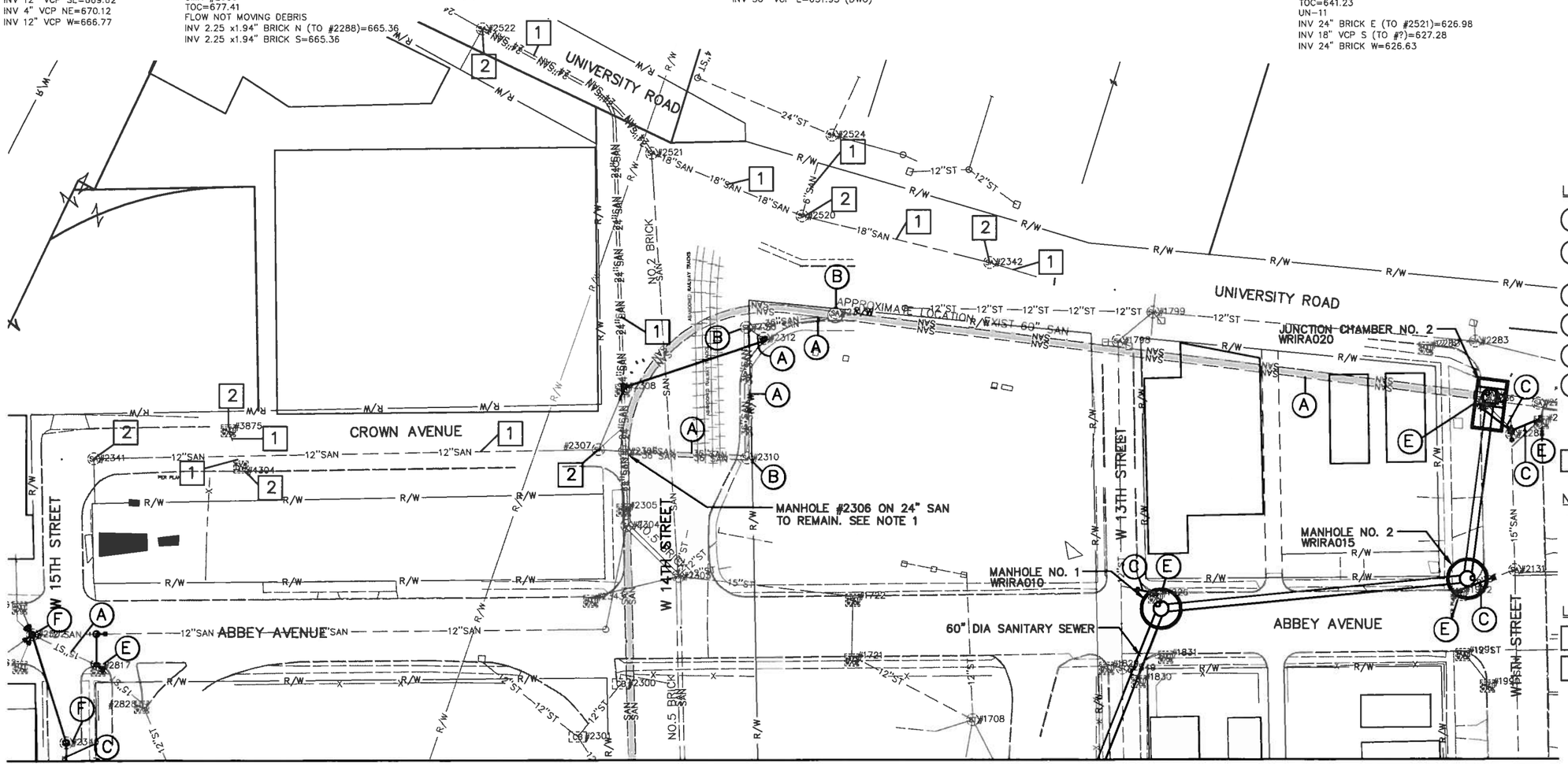
INCB #2828
TOC=677.23
NO PIPES VISIBLE MEASUREMENT +/–
BOTTOM OF STRUCTURE=673.23

STMH #2963
TOC=677.76
OUTSIDE PROJECT LIMITS NO REPORT NEEDED

STMH #2964
TOC=678.12
OUTSIDE PROJECT LIMITS NO REPORT NEEDED

SMH #2965
TOC=678.17
14–B
INV 60" BRICK N (TO #2966)=620.37
INV 60" BRICK S (TO #?)=620.32
INV 6" VCP SW=673.37

SMH #2966
TOC=677.53
INV 60" BRICK N (TO #1353)=622.28
INV 60" BRICK S (TO #2965)=622.23



MATCH LINE SEE SHEET C–2

PLAN

LEGEND FOR CONTRACT WORK

(A) ABANDON PIPE IN PLACE. BULKHEAD EXPOSED ENDS.

(B) ABANDON MANHOLE. REMOVE CASTING AND STRUCTURE TO A MINIMUM TWO (2) FEET BELOW GRADE. BULKHEAD INLET AND OUTLET PIPE CONNECTIONS. BACKFILL TO GRADE.

(C) REMOVE PIPE. BULKHEAD EXPOSED ENDS.

(D) REMOVE MANHOLE. BACKFILL TO GRADE.

(E) REMOVE AND REPLACE CATCH BASIN

(F) REMOVE AND REPLACE MANHOLE

INDICATES LIMITS OF PROPOSED ABANDONMENT

NOTES FOR CONTRACT WORK

1. INSTALL CONCRETE BULKHEAD AT MANHOLE #2306 DRY WEATHER OUTLET TO 36" SANITARY SEWER, MAINTAIN FLOW IN 24" SANITARY SEWER.

LEGEND FOR FUTURE WORK (BY OTHERS)

[1] ABANDON OR REMOVE PIPE.

[2] ABANDON OR REMOVE MANHOLE/ CATCH BASIN.

0 40 80
SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

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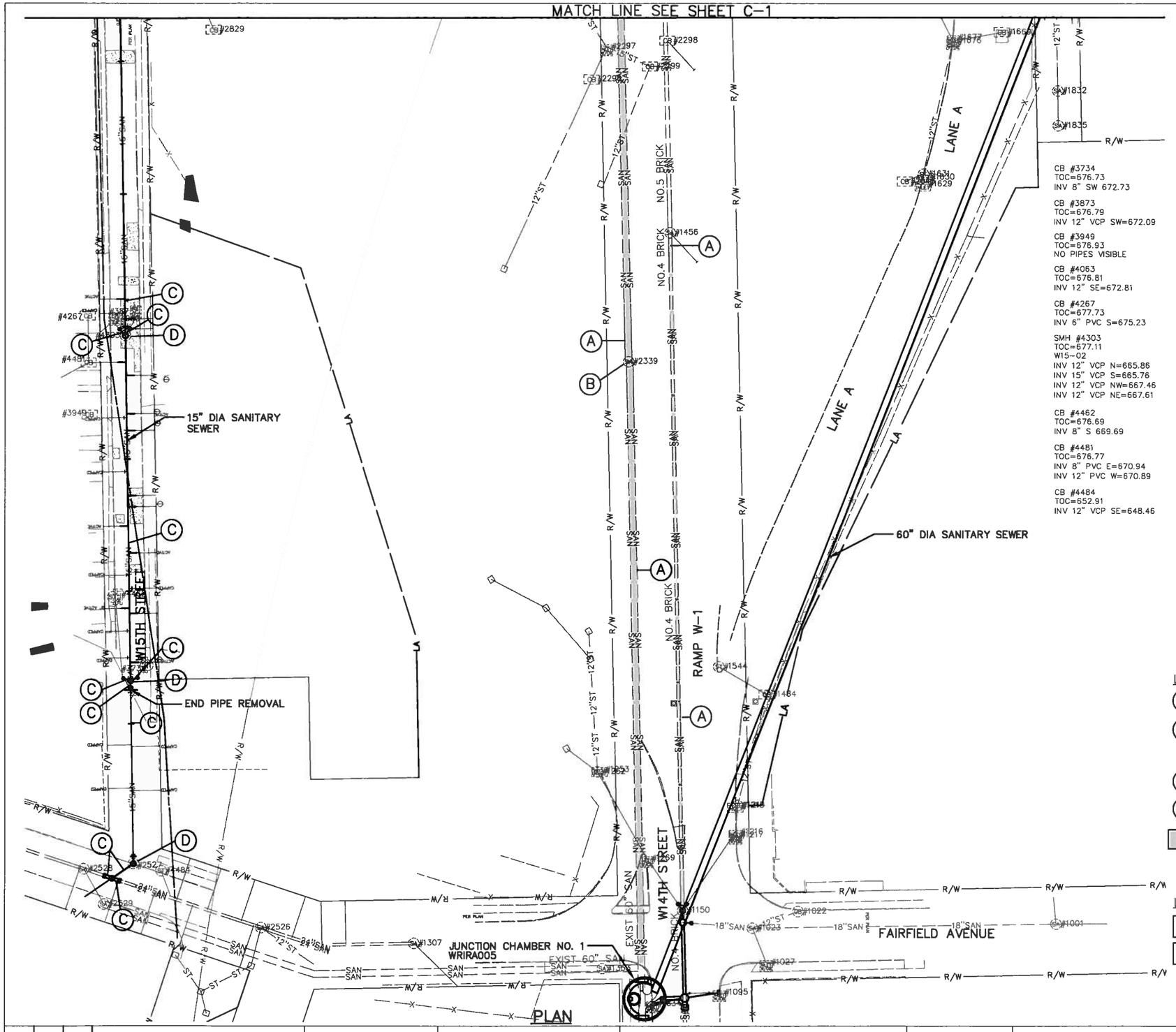
WALWORTH RUN INTERCEPTOR REALIGNMENT

NORTHERN SEWER ABANDONMENT PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=40'
SHEET NO.: C–1

MATCH LINE SEE SHEET C-1



SMH #1001
TOC=679.65
FAIR -01
INV 18" VCP E=664.35
INV 18" VCP W=664.40
INV 12" VCP NW=669.95

IGR #1022
TOC=677.19
INV 12" RCP SW (TO #1023)=674.19

SMH #1023
TOC=676.91
FAIR-02
INV 18" VCP E=663.56
INV 18" VCP W=663.65
INV 12" CP NE=673.01
INV 15" VCP NE=666.31

INCB #1027
TOC=676.62
INV 12" VCP NE=672.32

INCB #1095
TOC=675.80
NO PIPE VISIBLE MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.15

SMH #1133
TOC=676.84
COULD NOT OPEN - SEALED SHUT

SMH #1150
TOC=676.18
NOT OPENED - BOLTED LID

STMH #1214
TOC=676.35
INV 12" RCP N (TO #1484)=672.35
INV 12" RCP S=672.35

IN #1215
TOC=675.79
CURB INLET WINDOW

INCB #1216
TOC=675.52
INV 12" RCP SW (TO #1150)=672.32

INCB #1217
TOC=675.53

IN #1253
TOC=675.10
CURB INLET WINDOW

INCB #1269
TOC=675.69
SMELLS
INV 18" VCP S (TO #1150)=668.04

SMH #1307
TOC=666.48
START OF RUN-STORM TIED
INTO SANITARY FAIR -05
INV 24" BRICK W=653.13
INV 8" VCP SE=655.88

INCB #1334
TOC=675.48
MEASUREMENT +/-
BOTTOM OF STRUCTURE=669.88

SMH #1353
TOC=675.52
FAIR-04
INV 60" BRICK W (TO #1307)=625.27
INV 60" BRICK E (TO #1150)=625.12

SMH #1456
TOC=675.49
U90-01
INV 44.4 x 35.4" BRICK NW=659.39
INV 41.4 x 30.5" BRICK SE=659.64
INV 12" VCP SE=672.57

IGS #1484
TOC=676.52
FILLED TO GRATE - NO PIPES VISIBLE

STMH #1544
TOC=679.26
FILLED TO GRATE - NO PIPES VISIBLE

C=674.57
W14-01
INV 12" VCP N=667.27
INV 12" RCP NE=668.37
INV 15" VCP E=665.07
INV 12" VCP E=661.67
INV 48" BRICK S=657.97
INV 12" VCP SW=668.57
INV 48" BRICK NW=657.97

SMH #2339
TOC=675.28
UN-02/U90-02
INV 60" BRICK NW=628.08
INV 60" BRICK SE=627.98

SMH #2526
TOC=658.74
FAIR-06
INV 24" BRICK E (TO #1307)=645.94
INV 24" BRICK W (TO #2528)=645.84
INV 24" RCP S=646.24
INV 12" VCP SE=647.04

SMH #2527
TOC=651.52
FAIR-07
INV 15" VCP N=645.92
INV 15" VCP SW=644.62

SMH #2528
TOC=649.22
FAIR-09
INV 24" BRICK E (TO #2526)=638.72
INV 24" BRICK W=638.62
INV 12" BRICK S=635.42

SMH #2529
TOC=650.51
FAIRO-8
INV 60" BRICK SE (TO #1353)=630.21
INV 12" VCP W=633.81
INV 12" VCP W=629.81

SMH #1456
TOC=675.49
U90-01
INV 44.4 x 35.4" BRICK NW=659.39
INV 41.4 x 30.5" BRICK SE=659.64
INV 12" VCP SE=672.57

IN #1629
TOC=675.88
CURB INLET WINDOW

IN #1630
TOC=675.78
CURB INLET WINDOW

STMH #1631
TOC=676.19
INV 12" RCP N (TO #1676)=670.99
INV 12" RCP W (TO #2548)=671.09

IGS #1669
TOC=673.26
INV 12" RCP W=669 26

INCB #1676
TOC=673.38
INV 12" RCP E (TO #1669)=668.58
INV 12" VCP NW (TO #1708)=668.48
INV 12" RCP SW (TO #1631)=668.68

INCB #1677
TOC=673.38

SMH #1832
TOC=676.07
W13-02
INV 12" VCP N (TO #1798)=665.42
INV 12" VCP S=666.92

SMH #1835
TOC=676.19
DEAD END 13th PLACE NO REPORT

IGS #2296
TOC=673.69
INV 12" RCP NE=666.59
INV 12" RCP SW=667.64

INCB #2297
TOC=673.57
INV 12" RCP SW=666.37
INV 12" RCP NW=669.47
INV 18" RCP E=665.77

IGS #2298
TOC=674.16
INV 12" RCP SE (TO #1456)=667.51

IGS #2299
TOC=672.63
INV 18" RCP W=666.93
INV 12" RCP S=669.51
INV 12" RCP E=666.78

IGS #2829
TOC=675.40
NO PIPES VISIBLE MEASUREMENT +/-
BOTTOM OF STRUCTURE=672 40

CB #3734
TOC=676.73
INV 8" SW 672.73

CB #3873
TOC=676.79
INV 12" VCP SW=672.09

CB #3949
TOC=676.93
NO PIPES VISIBLE

CB #4063
TOC=676.81
INV 12" SE=672.81

CB #4267
TOC=677.73
INV 6" PVC S=675.23

SMH #4303
TOC=677.11
W15-02
INV 12" VCP N=665.86
INV 15" VCP S=665.76
INV 12" VCP NW=667.46
INV 12" VCP NE=667.61

CB #4462
TOC=676.69
INV 8" S 669.69

CB #4481
TOC=676.77
INV 8" PVC E=670.94
INV 12" PVC W=670.89

CB #4484
TOC=652.91
INV 12" VCP SE=648.46

LEGEND FOR CONTRACT WORK

(A) ABANDON PIPE IN PLACE. BULKHEAD EXPOSED ENDS.

(B) ABANDON MANHOLE. REMOVE CASTING AND STRUCTURE TO A MINIMUM TWO (2) FEET BELOW GRADE. BULKHEAD INLET AND OUTLET PIPE CONNECTIONS. BACKFILL TO GRADE WITH CLSM.

(C) REMOVE PIPE. BULKHEAD EXPOSED ENDS.

(D) REMOVE MANHOLE. BACKFILL TO GRADE.

INDICATES LIMITS OF PROPOSED ABANDONMENT

LEGEND FOR FUTURE WORK (BY OTHERS)

1 ABANDON OR REMOVE PIPE.

2 ABANDON OR REMOVE MANHOLE.

0 40 80
SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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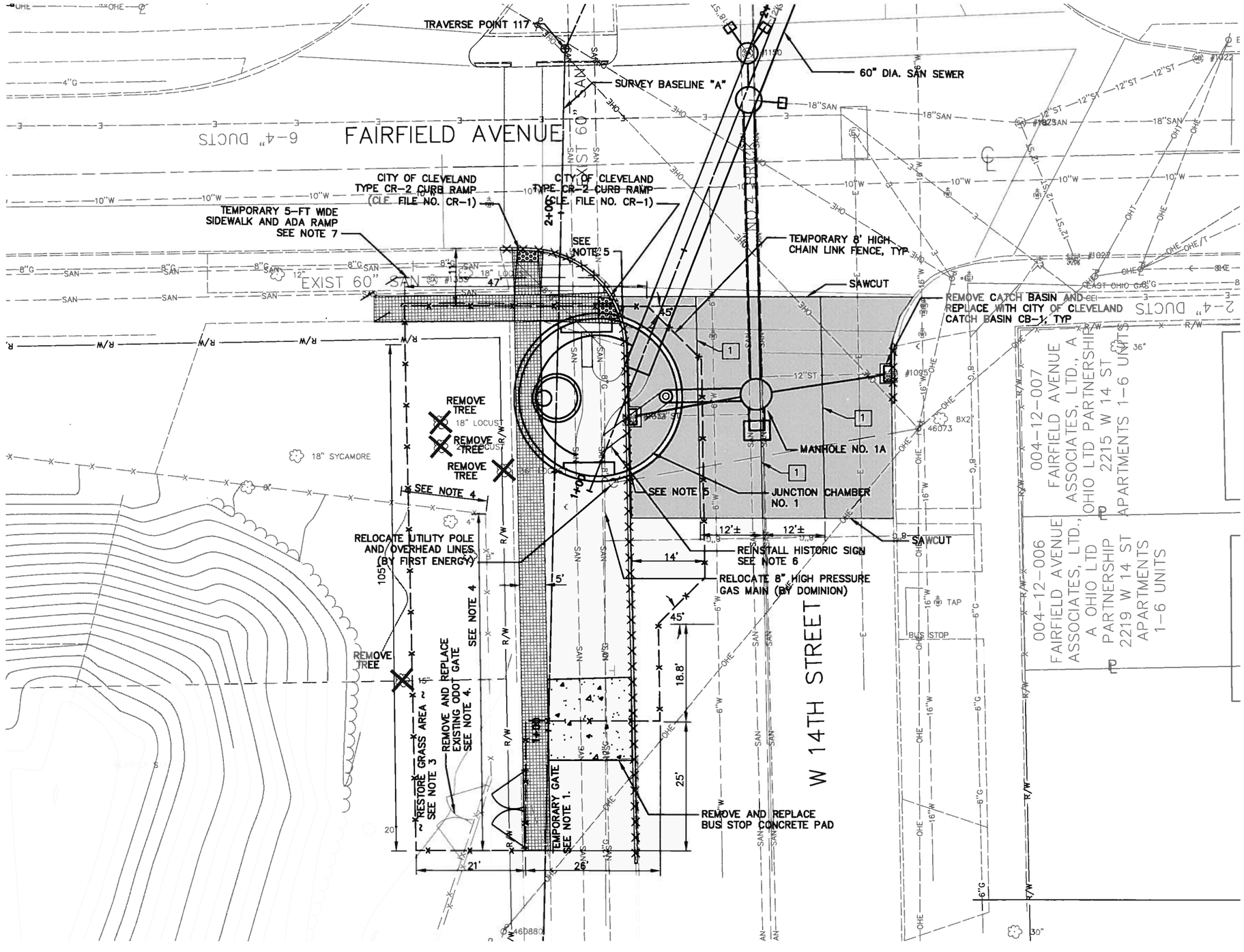
WALWORTH RUN INTERCEPTOR REALIGNMENT

SOUTHERN SEWER ABANDONMENT PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=40'
SHEET NO.: C-2



PLAN

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
C-12	PAVEMENT SECTIONS AND DETAILS
P-1	WRIR PLAN & PROFILE

LEGEND

- REMOVE AND REPLACE CURB
- FREMOVE AND REPLACE FULL-DEPTH ASPHALT PAVEMENT
- REMOVE AND REPLACE SIDEWALK
- [1] LONGITUDINAL PAVEMENT JOINT

NOTES:

1. CONTRACTOR SHALL DETERMINE THE WIDTH AND LOCATION OF THE TEMPORARY GATE.
2. CONTRACTOR SHALL REMOVE TEMPORARY FENCING AND GATE AFTER CONSTRUCTION IS COMPLETE.
3. CONTRACTOR SHALL SEED AND MULCH ALL GRASS AREAS DISTURBED DURING CONSTRUCTION.
4. CONTRACTOR SHALL REMOVE EXISTING ODOT FENCE AND GATE DURING CONSTRUCTION. REPLACE FENCE WITH NEW ODOT TYPE CL FENCE (REF. ODOT DWG. F-1.1) UPON COMPLETION OF JUNCTION CHAMBER CONSTRUCTION. PROVIDE ONE 10-FT WIDE CHAIN LINK WALK GATE (REF. ODOT DWG. F-3.2) TO REPLACE EXISTING GATE.
5. CONTRACTOR SHALL CUT HOLES IN THE SHEETING TO ALLOW GUTTER FLOWS TO ENTER THE EXCAVATION. CONTRACTOR SHALL TEMPORARILY PUMP OR FLUME DRAINAGE FLOWS AS REQUIRED.
6. CONTRACTOR SHALL REMOVE THE " TREMONT HISTORIC DISTRICT SIGN" AND FOUNDATION. STORE THE SIGN DURING CONSTRUCTION. INSTALL A NEW FOUNDATION AND REINSTALL THE EXISTING SIGN AT OR NEAR ITS FORMER LOCATION AFTER THE CHAMBER CONSTRUCTION IS COMPLETED.
7. CONTRACTOR SHALL PROVIDE A TEMPORARY CONCRETE SIDEWALK WITH ADA RAMP DURING CONSTRUCTION. THE SIDEWALK AND RAMP SHALL BE REPLACED BY THE PERMANENT SIDEWALK AND ADA RAMP SHOWN.

0 10 20
HORIZ. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
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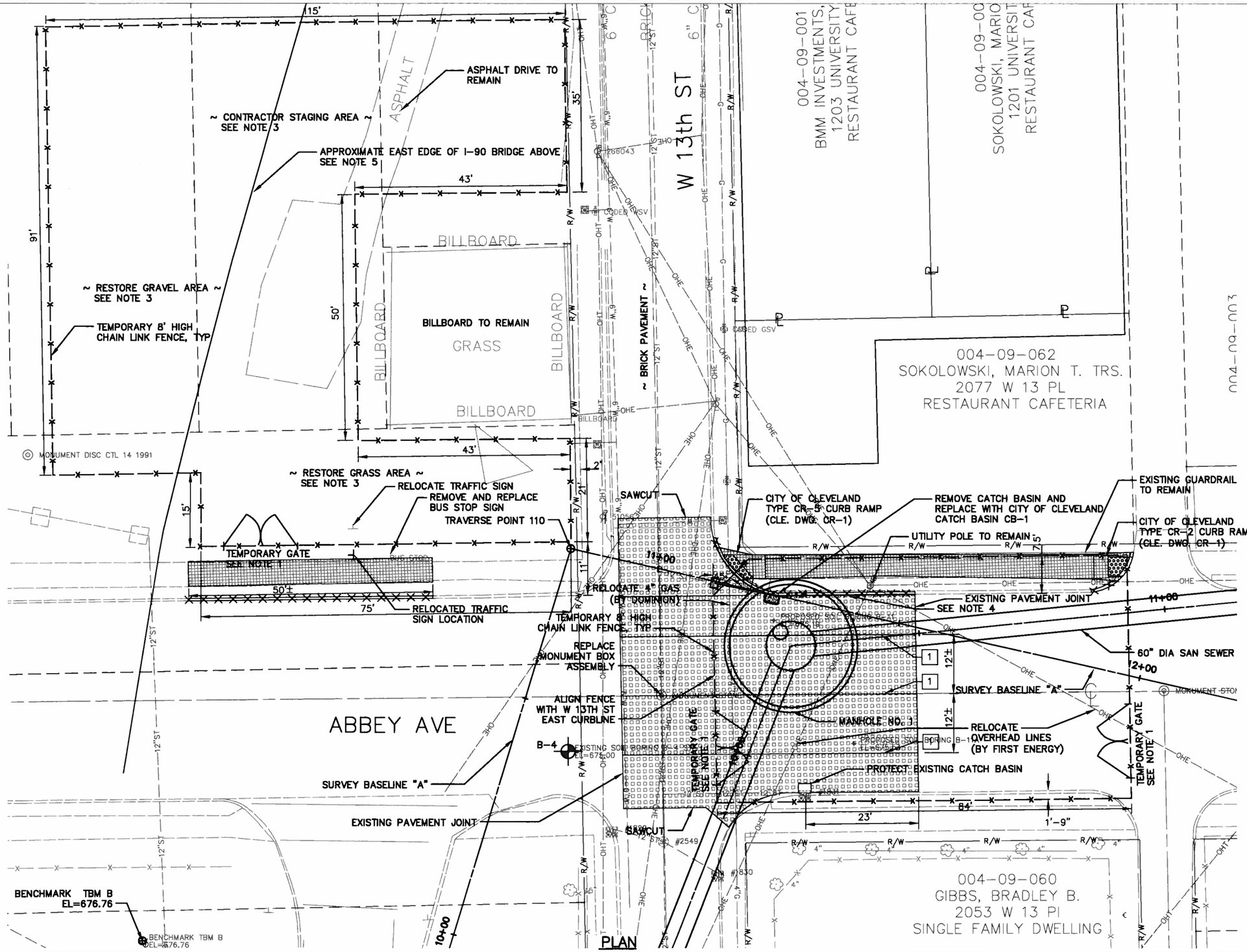
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER NO. 1
SITE PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=10'
SHEET NO.: C-3



CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
C-12	PAVEMENT SECTIONS AND DETAILS
P-2	WRIR PLAN & PROFILE

LEGEND

- REMOVE AND REPLACE CURB
- REMOVE AND REPLACE FULL-DEPTH CONCRETE PAVEMENT
- REMOVE AND REPLACE SIDEWALK
- [1] LONGITUDINAL PAVEMENT JOINT

NOTES:

1. CONTRACTOR SHALL DETERMINE THE WIDTH AND LOCATION OF THE TEMPORARY GATES.
2. CONTRACTOR SHALL REMOVE TEMPORARY FENCING AND GATES AFTER CONSTRUCTION IS COMPLETE.
3. CONTRACTOR SHALL SEED AND MULCH ALL GRASS AREAS DISTURBED DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL GRAVEL AREAS DISTURBED DURING CONSTRUCTION.
4. CONTRACTOR SHALL CUT HOLES IN THE SHEETING TO ALLOW GUTTER FLOWS TO ENTER THE EXCAVATION. CONTRACTOR SHALL TEMPORARILY PUMP OR FLUME DRAINAGE FLOWS AS REQUIRED.
5. CONTRACTOR SHALL LIMIT HIS OPERATIONS TO AVOID DAMAGE TO THE EXISTING I-90 BRIDGE. HEADROOM IS RESTRICTED BENEATH THE BRIDGE STRUCTURE.

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HORIZ. SCALE IN FEET

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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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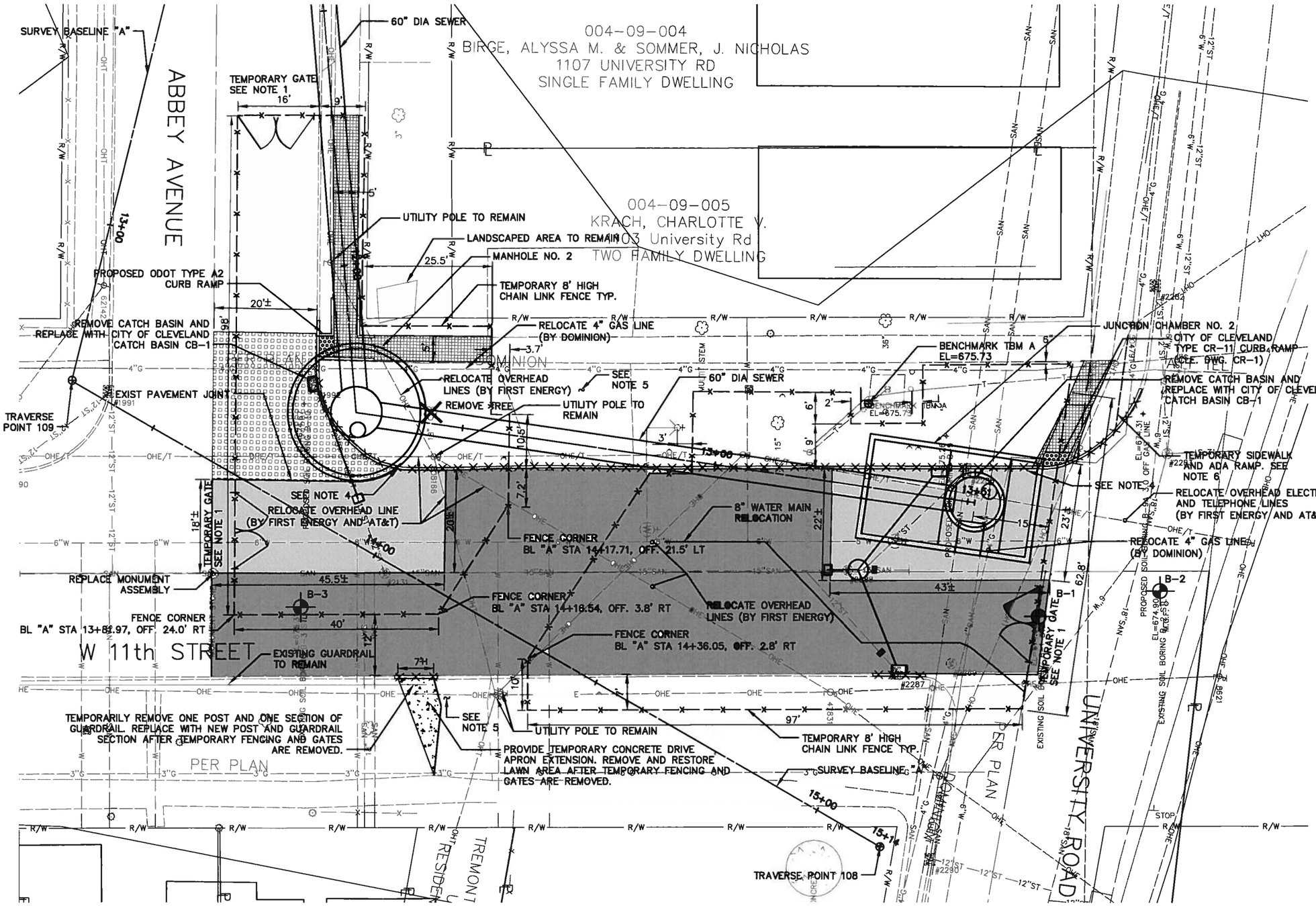
WALWORTH RUN INTERCEPTOR REALIGNMENT

MANHOLE NO. 1 SITE PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=10'
SHEET NO.: C-4



PLAN

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
C-6 TO C-9	WATER MAIN RELOCATION PLAN & DETAIL
C-12	PAVEMENT SECTIONS AND DETAILS
P-3	WRIR PLAN & PROFILE

LEGEND

- REMOVE AND REPLACE CURB
- REMOVE AND REPLACE FULL-DEPTH ASPHALT PAVEMENT
- REMOVE AND REPLACE SIDEWALK
- FULL DEPTH CONCRETE PAVEMENT REPAIR
- MILL AND FILL 1½-INCH ASPHALT WEARING COURSE

NOTES:

1. CONTRACTOR SHALL DETERMINE THE WIDTH AND LOCATION OF THE TEMPORARY GATES.
2. CONTRACTOR SHALL REMOVE TEMPORARY FENCING AND GATES AFTER CONSTRUCTION IS COMPLETE.
3. CONTRACTOR SHALL SEED AND MULCH ALL GRASSY AREAS DISTURBED DURING CONSTRUCTION
4. CONTRACTOR SHALL CUT HOLES IN THE SHEETING TO ALLOW GUTTER FLOWS TO ENTER THE EXCAVATION. CONTRACTOR SHALL TEMPORARILY PUMP OR FLUME DRAINAGE FLOWS AS REQUIRED.
5. CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENTIAL DRIVEWAYS AT ALL TIMES. DO NOT BLOCK DRIVES DURING CONSTRUCTION.
6. CONTRACTOR SHALL PROVIDE A TEMPORARY CONCRETE SIDEWALK WITH ADA RAMP DURING CONSTRUCTION. THE SIDEWALK AND RAMP SHALL BE REPLACED BY THE PERMANENT SIDEWALK AND ADA RAMP SHOWN.

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HORIZ. SCALE IN FEET

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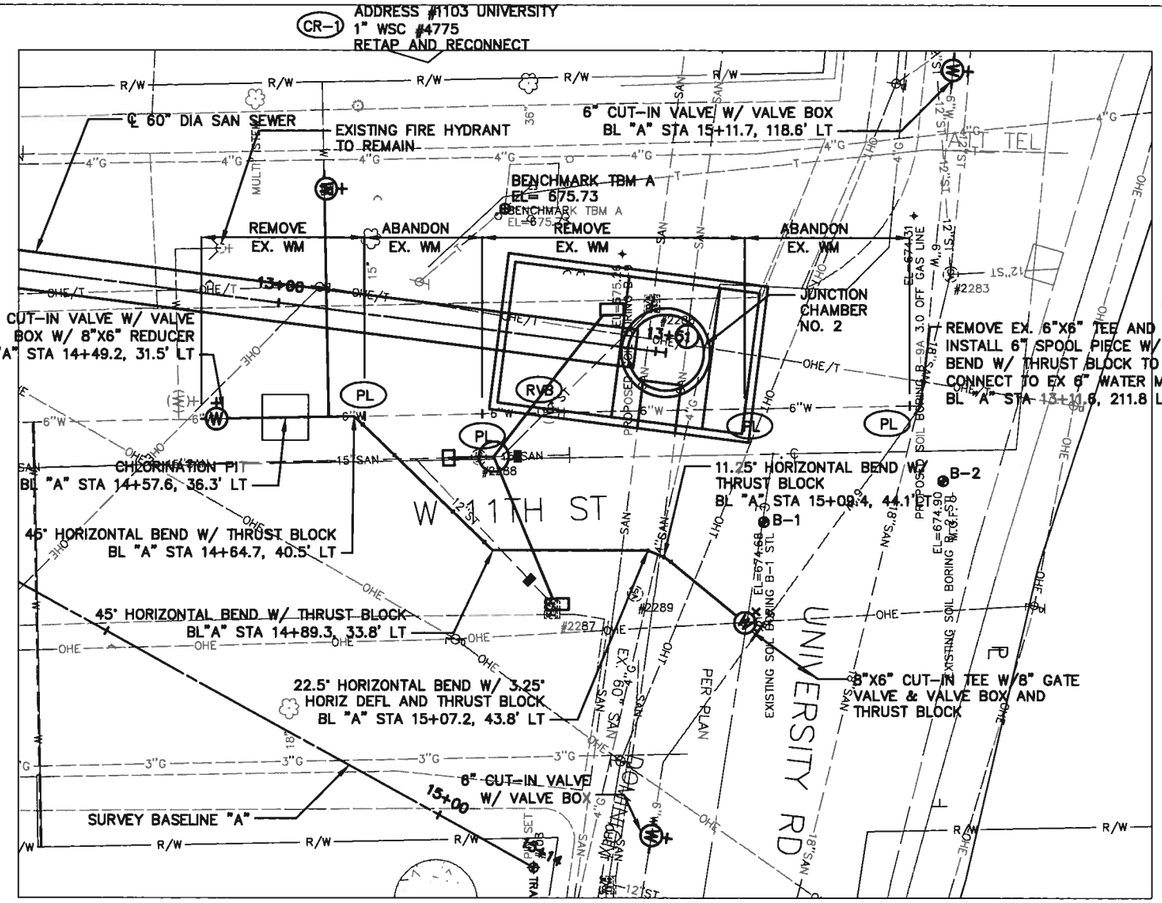
WALWORTH RUN INTERCEPTOR REALIGNMENT

MANHOLE NO. 2 AND JUNCTION CHAMBER NO. 2 SITE PLAN

PROJECT NO.:
SHEET:
SCALE: 1"=10'
SHEET NO.: C-5



CLEVELAND DIVISION OF WATER NOTES FOR NEW WATER MAIN INSTALLATION

CONTRACTOR IS TO ABIDE BY THE MOST CURRENT VERSION OF THE CLEVELAND, DIVISION OF WATER NOTES AND DETAILS. THE MOST UP–TO–DATE VERSION CAN BE FOUND AT WWW.CLEVELANDWATER.COM.

GENERAL:

1. THE INFORMATION SHOWN ON THE CLEVELAND DIVISION OF WATER'S SUMMARY OF WORK/CHARGE LETTER AND STRIP MAPS ARE TAKEN FROM EXISTING AVAILABLE RECORDS, AND THEIR ACCURACY IS NOT GUARANTEED.

2. CALL THE INSPECTION AND ENFORCEMENT UNIT AT 216–664–2342 TO SCHEDULE A PRECONSTRUCTION MEETING. THE OPERATION OF ANY VALVE OR ALTERATION OF ANY PART OF THE WATER SYSTEM BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF THE CLEVELAND DIVISION OF WATER INSPECTOR.

3. THE MUNICIPALITY SHALL REQUIRE THAT THE PROJECT'S PROFESSIONAL ENGINEER OBTAIN ACTUAL FIELD MEASUREMENTS OF THE MAIN DURING INSTALLATION AND SHALL FURNISH THE CWD INSPECTOR WITH RECORD PRINTS IN A FORM ACCEPTABLE TO THE DIVISION OF WATER. THE CLEVELAND DIVISION OF WATER WILL REQUIRE THE DELIVERY AND ACCEPTANCE OF TWO COPIES OF RECORD (AS BUILT) PRINTS, STAMPED BY A PROFESSIONAL ENGINEER, BEFORE THE PRESSURE TEST AND CHLORINATION OF THE MAIN.

4. FOR THE PURPOSES OF CHLORINATION AND BACTERIOLOGICAL TESTING OF THE WATER MAINS THE CONTRACTOR SHALL PROVIDE AND INSTALL, AT EACH OF THE CHLORINATION PIT LOCATIONS SHOWN AND AT OTHER LOCATIONS DETERMINED BY THE DIVISION OF WATER, FLUSHING/SAMPLING TAPS OF SIZES TO BE DETERMINED BY THE DIVISION OF WATER. CHLORINATION PITS SHALL BE SIX (6) FOOT SQUARE MEETING OSHA STANDARDS.

5. A TWO YEAR WARRANTY, COMMENCING FROM THE DATE OF ACCEPTANCE OF THE FINAL CHLORINATION OF THE WATER MAIN INSTALLATION, SHALL BE PROVIDED BY THE BUILDER/DEVELOPER AND/OR CONTRACTOR FOR ALL WATER MAINS AND SERVICE CONNECTION WORK PERFORMED BY THE CONTRACTOR, INCLUDING RETAPS, SHOULD ANY LEAKS OCCUR AND REPAIRS BE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP.

6. USE BACKFILL MATERIAL AS SPECIFIED AND COMPACT SUFFICIENTLY IN THOSE AREAS WHERE EXISTING MAINS AND WATER SERVICE CONNECTIONS ARE EXPOSED. (SEE DIVISION OF WATER STANDARD DETAIL STD–001).

7. ALL MATERIALS, INCLUDING BUT NOT LIMITED TO WATER MAINS, FIRE HYDRANTS, VALVES, CONNECTION MATERIALS AND OTHER WATER APPURTENANCES, SHALL BE NEW AND UNUSED AND SHALL CONFORM TO THE MOST CURRENT DIVISION OF WATER SPECIFICATIONS. ALL MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH DIVISION OF WATER'S STANDARDS.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING WATER MAINS AND APPURTENANCES THEREOF WHEN CONNECTING THE NEW WATER MAIN FOR THE HYDROSTATIC TEST. ALL REPAIRS TO DAMAGED EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE DIVISION OF WATER. (REFER TO THE THE ALTERNATE TEST DETAIL STD–002 AS NEEDED).

9. ALL HYDROSTATIC PRESSURE TESTING SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF THE DIVISION OF WATER'S INSPECTOR. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI. THE PRESSURE TEST SHALL BE FOR A DURATION OF TWO (2) HOURS WITH THE PRESSURE BEING MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE. SHOULD THE PRESSURE TEST FAIL THE CONTRACTOR SHALL FIND AND CORRECT THE DEFICIENCY(IES) TO THE SATISFACTION OF THE DIVISION OF WATER AND REPEAT THE TWO (2) HOUR PRESSURE TEST.

10A. ALL PIPE, UNLESS OTHERWISE CALLED FOR, SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED HAVING PUSH–ON JOINTS WITH RADIALLY COMPRESSED RUBBER RING GASKET AND INSTALLED AS PER THE MOST CURRENT REVISION OF AWWA C600.

10B. ALL FITTINGS, UNLESS OTHERWISE CALLED FOR, SHALL BE APPROVED DUCTILE IRON, CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED. ALL FITTINGS AND PIPE CONNECTED TO FITTINGS SHALL BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT CONFORMING TO THE MATERIAL AND PERFORMANCE REQUIREMENTS OF ANSI/AWWA C–110/A21.10 AND ANSI/AWWA C–111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANSI/AWWA C–153/A21.53. EXCEPT FOR ANCHOR TEES, REDUCERS OR OTHER SPECIAL CIRCUMSTANCES WHEN DIRECTED BY CLEVELAND DIVISION OF WATER, ALL FITTINGS ARE TO HAVE BELL ENDS.

10C. ALL BOLTS AND NUTS ON ALL "RETAINED" MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C–105/A21.5–88, CLASS "C", METHOD "B".

10D. WHERE SHOWN ON THE PLANS, OR WHEN OTHERWISE CALLED FOR, PIPE AND FITTINGS SHALL HAVE AN APPROVED "TYPE I" OR "TYPE II" BOLTLESS RESTRAINED PUSH–ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS.

PLAN

PROFILE ALONG WATER MAIN/W 11TH ST

LEGEND

(CR–1) REPLACE EXISTING CONNECTION, SHORT SIDE, (1" AND UNDER) WITH 1" COPPER CONNECTION, INCLUDING CURB VALVE AND VALVE BOX

(PL) PLUG EXISTING WATER MAIN END

(RVB) REMOVE VALVE AND VALVE BOX

0 2.5 5
VERTICAL SCALE IN FEET

0 10 20
HORIZ. SCALE IN FEET

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WALWORTH RUN INTERCEPTOR
REALIGNMENT

WATER MAIN RELOCATION PLAN
AND NOTES

PROJECT NO.:
SHEET:
SCALE: 1"=10'
SHEET NO.: C–6

CLEVELAND DIVISION OF WATER NOTES FOR NEW WATER MAIN INSTALLATION (CONTINUED)

10E. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL PLUG ALL OPEN PIPE ENDS WITH WATER TIGHT PLUGS AS PER THE "PREVENTITIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION" SECTION OF THE MOST CURRENT REVISION OF AWWA C-651 AS TO PREVENT THE INFILTRATION OR INTRUSION OF ANY FOREIGN OBJECTS OR MATERIALS. DATE STAMPED DIGITAL PHOTOS SHALL BE PROVIDED FOR EACH WORKDAY DEMONSTRATING THAT PROPER AWWA C-651 METHODS WERE USED TO PLUG ALL OPEN WATER MAIN ENDS. EACH PHOTO SHALL CLEARLY IDENTIFY THE STATION AT WHICH THE PIPE IS PLUGGED. THE STATIONING SHALL BE SHOWN BY THE USE OF A STATION MARKER PLACED AT THE PLUGGED PIPE END.

PHOTOS SHALL BE SUBMITTED ON A DAILY BASIS UNLESS OTHERWISE DEFINED BY THE CWD INSPECTOR OR ENGINEER. ALL PHOTOS TAKEN OVER THE COURSE OF THE PROJECT SHALL BE SUBMITTED BY THE CONTRACTOR AS PART OF THE AS-BUILT SUMITTAL. AS-BUILTS SHALL BE CONSIDERED INCOMPLETE WITHOUT SAID COLLECTION OF DIGITAL PHOTOS.

11. IN ALL HYDRANT INSTALLATIONS THE CONTRACTOR SHALL FACE ALL HYDRANT'S 4" (STEAMER) NOZZLE TOWARD THE PAVEMENT PRIOR TO TESTING AND CHLORINATION OF WATER MAINS. CONTRACTOR SHALL CONSULT WITH THE LOCAL MUNICIPALITY'S ENGINEERING OR SERVICE DEPARTMENT TO OBTAIN HYDRANT MODEL AND NOZZLE THREAD REQUIREMENTS IF NOT INDICATED ON THE APPROVED PLANS.

12. ALL VALVES SHALL BE AN APPROVED MODEL RESILIENT SEATED GATE VALVES AS PER THE MOST CURRENT VERSION OF AWWA C509 OR C515.

CONNECTIONS:

13. WATER CONNECTIONS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY AND ARE NOT PART OF THE WATER MAIN APPROVAL. ADDITIONAL PERMITS FOR SERVICE CONNECTIONS MUST BE OBTAINED FROM THE DIVISION OF WATER PRIOR TO INSTALLATION OF ANY PORTION OF THE SERVICE CONECTION(S). IT IS THE CONTRACTORS RESPONSIBILITY TO ARRANGE FOR PERMITS FOR ALL SIZE WATER SERVICE CONNECTIONS BEFORE RFORMING ANY WORK. THE AMOUNT OF THE CHARGES CAN BE OBTAINED FROM THE DIVISION OF WATER, PERMITS AND SALES SECTION AT 216-664-2444 X5203.

14. ONE INCH SERVICE CONNECTIONS SHALL BE PERMITTED TO SERVICE HOMES BASED ON THE FOLLOWING CRITERIA:

* PEAK FLOW DEMANDS DO NOT EXCEED 25 GPM FOR AN INDIVIDUAL HOME/UNIT. INCLUSIVE OF ALL USAGE (FIRE, DOMESTIC AND/OR IRRIGATION) AND

* LENGTH OF ONE INCH CONNECTION DOES NOT EXCEED 75 FEET AS MEASURED FROM THE MAIN TO THE POINT OF ENTRY INTO THE PROPOSED HOME/UNIT.

ANY SERVICE REQUESTS DIFFERING FROM THE STATED CRITERIA SHALL REQUIRE THE SUBMITTAL OF A COMPLETE WATER SERVICE APPLICATION. PEAK DEMANDS ARE TO BE ASSESSED ON APPLICATION AND SETBACKS ARE TO SHOWN ON AN ACCOMPANYING SITE PLAN. SITE PLANS SHALL SHOW WATER METER VAULTS IN THE RIGHT OF WAY OR IN AN EASEMENT CONTIGUOUS TO THE RIGHT OF WAY FOR ANY HOMES/UNITS WITH SETBACKS GREATER THAN 150 FEET. EASEMENTS ARE TO BE PROVIDED WITH THE SERVICE CONNECTION APPLICATION SUBMITTAL.

15. ALL WATER MAIN CURB VALVE BOXES & METER VAULTS SHALL BE INSTALLED IN GRASS AREAS WHEN POSSIBLE.

EMERGENCIES:

16. IF A WATER MAIN OR SERVICE CONNECTION BREAK OCCURS DURING CONSTRUCTION AND EMERGENCY ASSISTANCE IS REQUIRED, PLEASE NOTIFY THE DIVISION OF WATER T 216-664-3060.

UTILITIES:

1. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST TWO (2) WORKING DAYS (NOT INCLUDING SATURDAYS AND LEGAL HOLIDAYS) PRIOR TO CONSTRUCTION TO HAVE UTILITIES STAKED, MARKED OR OTHERWISE DESIGNATED IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATION SHALL OCCUR APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION.

2. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS AND BELIEVED TO ESSENTIALLY CORRECT. THE LOCATIONS WERE OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C. NO GUARANTEE IS MADE RELATIVE TO THE COMPLETENESS OR ACCURACY AND THE CONTRACTOR IS REQUIRED TO CONTACT THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY SHOWN ON THE PLANS AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION IN ANY AREA.

3. ALL EXISTING UTILITIES, SERVICES, POLES AND CONNECTIONS SHALL BE PROTECTED AT THE CONTRACTOR'S EXPENSE. IF DAMAGE IS CAUSED BY CONSTRUCTION TO ANY EXISTING UTILITY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR RESTORATION OF SAME AT HIS EXPENSE IN ACCORDANCE WITH DIRECTIONS OF THE ENGINEERS, AND FOR ANY RESULTING CONTINGENT DAMAGES. EXISTING UTILITIES INCLUDE, BUT ARE NOT LIMITED TO WATER MAINS, STORM SEWERS, SANITARY SEWERS, GAS, ELECTRICAL, TELEPHONE, FIBER OPTIC CABLE, TELEVISION CABLE, AND INDIVIDUAL SERVICE CONNECTIONS AND LATERALS.

UTILITIES (CONTINUED)

4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXPOSE ALL EXISTING UTILITIES, SERVICES, OR STRUCTURES TO VERIFY THE VERTICAL AND HORIZONTAL LOCATION OF THE UTILITY, SERVICE, OR STRUCTURE AND ITS EFFECT ON THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE UTILITY OWNER.

5. INDIVIDUAL STORM, SANITARY, GAS, WATER, ELECTRICAL, TELEPHONE AND CABLE SERVICE CONNECTIONS MAY NOT BE SHOWN. THE CONTRACTOR SHALL LOCATE AND PROTECT SERVICE CONNECTIONS THROUGHOUT THE COURSE OF THE WORK. IN THE EVENT SERVICE CONNECTIONS ARE BROKEN OR DISTURBED, THE CONTRACTOR SHALL REPAIR OR REPLACE THE SERVICE CONNECTIONS TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL EXPECT EACH RESIDENCE/COMMERCIAL PROPERTY ALONG THE ROUTE TO HAVE AT LEAST ONE SERVICE CONNECTION FOR EACH UTILITY.

6. EXISTING LATERAL CONNECTIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL FIELD LOCATE TO DETERMINE LOCATION AND NUMBER OF LATERALS. NOT ALL LATERALS MAY BE SHOWN.

7. STORM SEWER, SANITARY SEWER, AND CULVERT INVERTS SHOWN ON THE PLANS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY DEPTHS AND LOCATIONS PRIOR TO CONSTRUCTION.

8. THE CONTRACTOR HALL REPAIR AT HIS OWN COST ANY DAMAGE TO TRAFFIC SIGNAL LOOP DETECTORS. ONTRACTOR SHALL FIELD VERIFY ALL LOOP DETECTORS WITHIN PROJECT AREA.

PAVEMENTS AND WALKS:

1. ROADWAYS, DRIVES, AND PAVEMENTS DISTURBED BY CONSTRUCTION SHALL BE REPLACED. SEE DETAILS ON PLANS AND SPECIFICATIONS. TEMPORARY PAVEMENT SHALL BE USED WHEN HOT MIX ASPHALT IS NOT AVAILABLE OR WHEN WEATHER FOR PAVEMENT IS UNACCEPTABLE. SIDEWALKS AND DRIVEWAY APRONS SHALL BE FLOAT FINISHED.

2. THE CONTRACTOR MAY DAMAGE EXISTING ROADWAY CURBING WHILE INSTALLING THE WATER MAIN. THE CONTRACTOR SHALL REPLACE ANY DAMAGED CURBING ALONG ALL ROADS WITH ODOT 609 CURBING. CURB REPLACEMENT SHALL MATCH EXISTING CURB, AND LIMITS OF REPLACEMENT SHALL BE TO THE NEAREST CONTROL JOINT ON EITHER SIDE OF THE AREA DAMAGED.

3. THE CONTRACTOR MAY DAMAGE EXISTING DRIVE APRONS WHILE INSTALLING THE WATER MAIN. DRIVE APRONS SHALL BE REMOVED AND REPLACED TO THE NEAREST JOINT. PAVEMENT TYPE AND THICKNESS SHALL MATCH EXISTING.

4. WHERE NECESSARY TO DISTURB PAVEMENTS OR DRIVES, PAVEMENT SHALL BE CUT IN NEAT, STRAIGHT LINES.

SUPPLEMENTAL WATER MAIN NOTES:

1. ALL NEW VALVES SHALL OPEN BY TURNING CLOCKWISE. VALVES SHALL BE SAME SIZE AS THE WATER MAIN. ALL VALVE BOXES SHALL BE INSTALLED FLUSH TO GRADE.

2. THE MAXIMUM TRENCH OPENING SHALL NOT EXCEED 100 LINEAL FEET. WHERE ACCESS TO DRIVES AND PARKING LOTS IS HINDERED OR BLOCKED FOR AN EXTENDED PERIOD OF TIME, THE CONTRACTOR SHALL PROVIDE TEMPORARY BITUMINOUS PAVEMENT TO MAINTAIN ACCESS. CONTRACTOR SHALL KEEP ALL WORK WITHIN THE RIGHT-OF-WAY.

3. UNLESS OTHERWISE NOTED, THE NEW WATER MAIN SHALL HAVE 6' MINIMUM COVER OVER THE TOP OF PIPE.

4. A MINIMUM OF 35 PSI SHALL BE MAINTAINED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.

5. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.

6. PIPE JOINTS SHALL BE DEFLECTED TO MAINTAIN HORIZONTAL ALIGNMENT AND VERTICAL ELEVATIONS UNLESS OTHERWISE INDICATED. DEFLECTIONS SHALL NOT EXCEED THE PIPE MANUFACTURERS RECOMMENDATIONS.

7. ALL COSTS ASSOCIATED WITH ABANDONING AND/OR REMOVING THE EXISTING WATER MAIN, LINE VALVES, OR SERVICE CONNECTIONS SHALL BE INCLUDED IN THE BID PRICE PER LINEAL FOOT OF WATER MAIN.

8. NEW FIRE HYDRANTS SHALL BE BAGGED UNTIL THE NEW WATER MAIN IS INSTALLED AND IN OPERATION.

9. THE WATER MAIN SHALL BE PRESSURE TESTED AND DISINFECTED PRIOR TO PERFORMING CORPORATION STOP TAPS.

10. FIRE HYDRANT PLACEMENT SHALL BE ESTABLISHED BY GOVERNING FIRE DEPARTMENT.

11. CONTRACTOR SHALL PRESSURE TEST AND DISINFECTION TEST WITHIN 15 DAYS OF WATER MAIN INSTALLATION.

12. ANY EXISTING UTILITIES OR APPURTENANCES INSIDE OR OUTSIDE OF THE CONSTRUCTION LIMITS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

13. GROUNDWATER CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE TIME THE EXCAVATION REACHES THE GROUNDWATER LEVEL TO MAINTAIN INTEGRITY OF THE IN-SITU MATERIALS. WHILE THE EXCAVATION IS OPEN, THE GROUNDWATER LEVEL SHALL BE MAINTAINED CONTINUOUSLY AT 2 FEET OR MORE BELOW THE WORKING LEVEL.

14. UNSTABLE OR UNSUITABLE PIPE FOUNDATION CONDITIONS THAT RESULT FROM INADEQUATE OR INAPPROPRIATE DEWATERING METHODS SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE OWNER.

15. ANY EXISTING PROPERTY CORNER PINS OR MONUMENTS DAMAGED OR DESTROYED BY THE CONSTRUCTION SHALL BE RESET BY A REGISTERED SURVEYOR UPON COMPLETION OF THE PROJECT PRIOR TO FINAL PAYMENT. A CERTIFICATION SHALL BE FURNISHED BY A REGISTERED SURVEYOR, STATING THAT SAID DAMAGES HAVE BEEN RESTORED. THE COST SHALL BE INCLUDED IN THE PRICE BID PER LINEAL FOOT OF WATER MAIN.

16. ACCESS TO ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.

17. RIGHT-OF-WAY AND PROPERTY LINES SHOWN WERE PREPARED FROM RECORD INFORMATION AND DO NOT REPRESENT A BOUNDARY SURVEY.

18. CONTRACTOR SHALL CLEAN THE ROADWAY AT THE END OF EACH DAY OF OPERATION OR EVERY 500 FEET OF INSTALLED WATER MAIN. CLEANING SHALL BE PERFORMED USING A POWER BROOM OR HYDROSPRAYER, OR AS DIRECTED BY THE ENGINEER.

19. THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR CONSTRUCTION, INCLUDING BUT NOT LIMITED TO EXCAVATION AND ROAD OPENINGS. PERMITS SHALL BE OBTAINED FROM THE CITY ENGINEER AND FROM ANY LOCAL GOVERNMENTAL OFFICIALS IN WHICH THE WORK IS BEING PERFORMED.

20. CONTRACTOR SHALL NOT BE PERMITTED TO STORE MATERIALS, EQUIPMENT, OR VEHICLES ON PRIVATE PROPERTY.

21. THE CONTRACTOR SHALL PROVIDE TEMPORARY WATER MAINS AND SERVICE CONNECTIONS PER SPECIFICATION SECTION 02660. TEMPORARY MAINS SHALL BE LAID IN THE GUTTERLINES AND SHALL CROSS THE STREETS AT INTERSECTIONS. TEMPORARY MAINS SHALL NOT BE LAID ON TREELAWNS.

CONSTRUCTION SEQUENCE

THE PROPOSED WATER MAIN SHALL BE CONSTRUCTED GENERALLY IN ACCORDANCE WITH THE FOLLOWING CONSTRUCTION SEQUENCE:

1. INSTALL AND OPERATIONALIZE TEMPORARY WATER SERVICE CONNECTION TO 1103 UNIVERSITY ROAD.

2. INSTALL 8-INCH CUT-IN VALVE WITH 8-INCH BY 6-INCH REDUCER AT BASELINE STATION 14+49.2, 13.5' LT AND 6-INCH CUT-IN VALVES ON UNIVERSITY ROAD.

3. CLOSE VALVES AT BASELINE STATION 14+49.2, 13.5' LT AND ON UNIVERSITY ROAD TO ISOLATE THE WATER MAIN ON W 11TH STREET BETWEEN BASELINE STATION 14+49.2, 13.5' LT AND UNIVERSITY ROAD.

4. BEGINNING AT BASELINE STATION 14+49.2, 13.5' LT, REMOVE EXISTING 6-INCH WATER MAIN AND INSTALL PROPOSED 8-INCH WATER MAIN. INSTALL TEMPORARY END CAPS, DO NOT CONNECT TO EXISTING MAIN AT UNIVERSITY ROAD.

5. REMOVE EXISTING 6-INCH BY 6-INCH TEE AND BEND AT BASELINE STATION 13+11.6, 211.8' LT AND INSTALL 22.5° BEND AND 6-INCH SPOOL PIECES TO CONNECT TO EXISTING WATER MAIN. PLUG ABANDONED WATER MAIN ENDS WHERE SHOWN ON PLANS.

6. COMPLETE HYDROSTATIC PRESSURE TESTING, DISINFECTION, BACTERIA TESTING, AND FLUSHING OF NEW MAIN.

7. INSTALL 6-INCH BY 8-INCH CUT-IN TEE WITH 8-INCH VALVE AT UNIVERSITY RD, AND COMPLETE CONNECTION AT UNIVERSITY RD.

8. OPEN LINE VALVES AND OPERATIONALIZE NEW WATER MAIN.

9. TAP NEW MAIN, AND REPLACE AND OPERATIONALIZE NEW SERVICE CONNECTION.

10. REMOVE TEMPORARY WATER MAIN SYSTEM.

BAR IS ONE INCH ON ORIGINAL DRAWING
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DATE:

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Protecting Your Health and Environment

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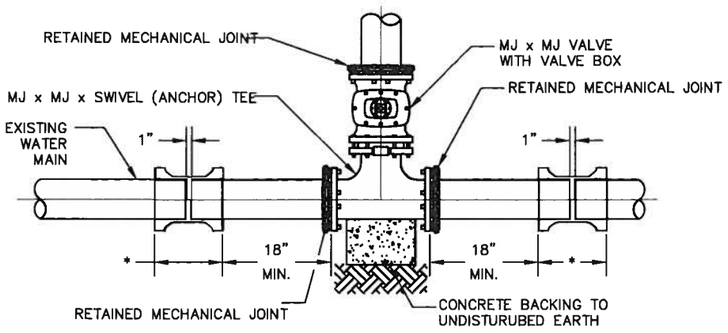
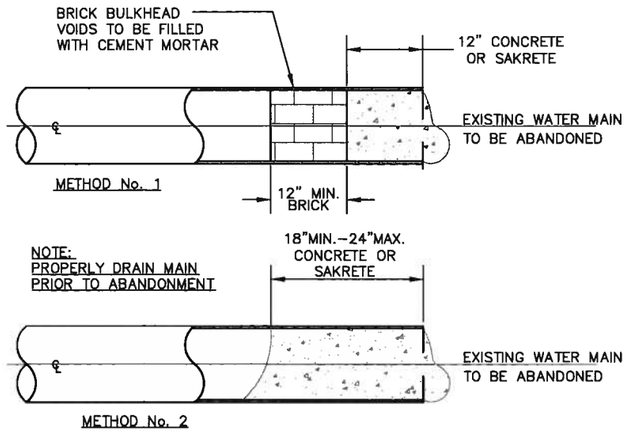
WALWORTH RUN INTERCEPTOR REALIGNMENT

WATER MAIN NOTES

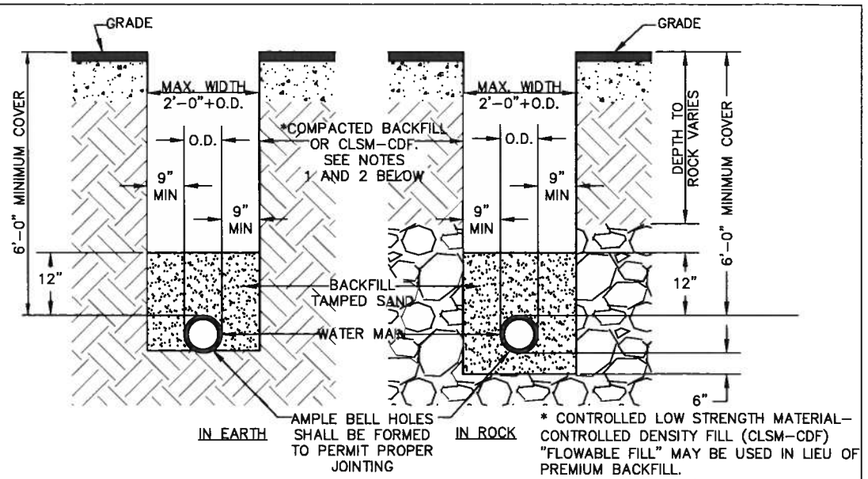
PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-7



CUT-IN TEE DETAIL METHOD No.1
STD-T01
NOT TO SCALE



PLUGGING ABANDONED WATER MAIN ENDS (STD-004)
NOT TO SCALE



WATER MAIN TRENCH DETAILS (STD-001)
NOT TO SCALE

NOTES:
1) PREMIUM BACKFILL CONSISTING OF CONTROLLED LOW STRENGTH MATERIAL – CONTROLLED DENSITY FILL (CLSM-CDF) "FLOWABLE FILL" IS REQUIRED:
   A) UNDER ALL EXISTING OR FUTURE PAVEMENTS, SIDEWALKS AND DRIVES
   B) AT ALL LOCATIONS WITHIN THE CITY OF CLEVELAND CORPORATION LIMITS
   C) AS SPECIFIED IN LOCAL MUNICIPALITIES SERVED BY CWD (SEE LOCAL REQUIREMENTS)
2) WHEN PREMIUM BACKFILL IS REQUIRED BY THE LOCAL MUNICIPALITY FOR CASES OTHER THAN THOSE LISTED IN NOTE 1 ABOVE, IT SHALL BE LIMESTONE GRADED PER ODOT 304.02 OR ODOT 411. NO SLAG IS PERMITTED.*
3) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
4) MINIMUM COMPACTION FOR ALL SAND BEDDING, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.
5) PAVEMENT, SIDEWALK OR DRIVES TO BE INSTALLED IN ACCORDANCE WITH LOCAL MUNICIPALITY'S SPECIFICATIONS.

*CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

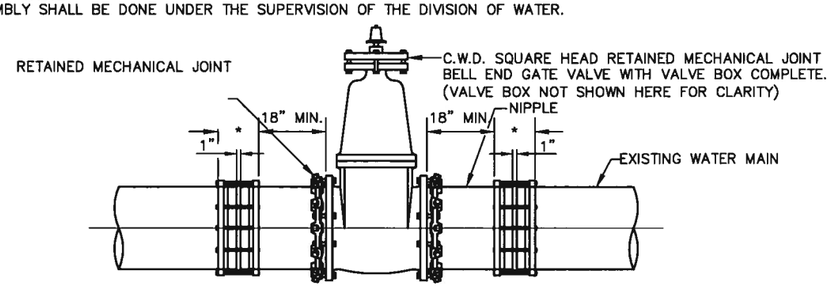
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

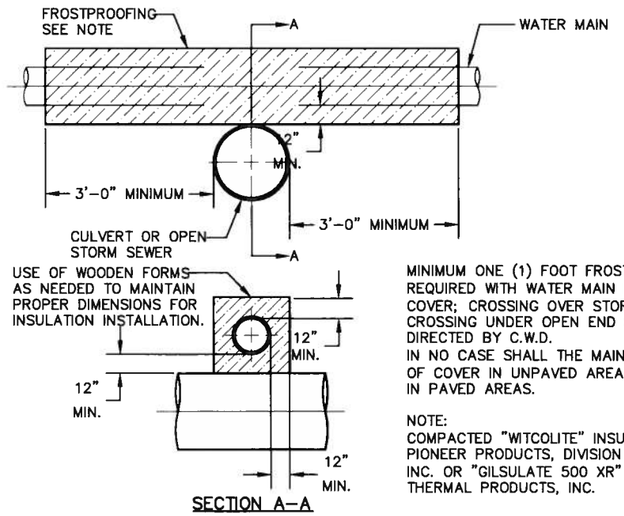
THE DIVISION OF WATER WILL DETERMINE THE FIELD LOCATION OF THE CUT-IN-VALVE ASSEMBLY. THE DIVISION OF WATER WILL ALSO SET THE TIME OF INSTALLATION OF THE CUT-IN-VALVE ASSEMBLY.

THE CONTRACTOR SHALL DO ALL PIPE CUTTING AND INSTALLATION. HOWEVER, THE INSTALLATION OF THE CUT-IN-VALVE
ASSEMBLY SHALL BE DONE UNDER THE SUPERVISION OF THE DIVISION OF WATER.



NOTE:
BEFORE CUTTING EXISTING WATER MAIN, THE NIPPLES SHALL BE CONNECTED TO THE MECHANICAL JOINT BELL END GATE VALVE. AFTER CUTTING PIPE, FINAL CONNECTIONS SHALL BE MADE WITH COUPLINGS/SOLID SLEEVES AS SPECIFIED.

CUT-IN-VALVE DETAIL (STD-005)
NOT TO SCALE



MINIMUM ONE (1) FOOT FROSTPROOFING INSULATION ENVELOPE REQUIRED WITH WATER MAIN LAID WITH LESS THAN FIVE (5) FT. COVER; CROSSING OVER STORM SEWERS 24" AND LARGER; OR CROSSING UNDER OPEN END CULVERTS, OR OTHERWISE DIRECTED BY C.W.D.
IN NO CASE SHALL THE MAINS BE LAID WITH LESS THAN 3'-6" OF COVER IN UNPAVED AREAS & 3'-0" TO BOTTOM OF SLAB IN PAVED AREAS.

NOTE:
COMPACTED "WITCOLITE" INSULATION AS MANUFACTURED BY PIONEER PRODUCTS, DIVISION OF WITCO CHEMICAL COMPANY, INC. OR "GILSULATE 500 XR" AS MANUFACTURED BY AMERICAN THERMAL PRODUCTS, INC.

TYPICAL FROSTPROOFING DETAIL (STD-009)
NOT TO SCALE

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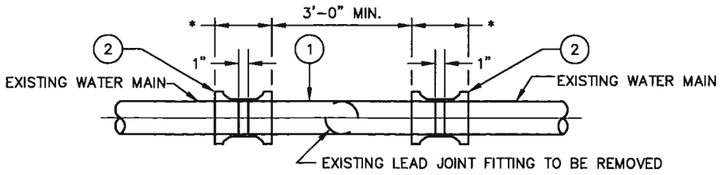
WALWORTH RUN INTERCEPTOR REALIGNMENT

WATER MAIN DETAILS

PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-8



1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) *CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

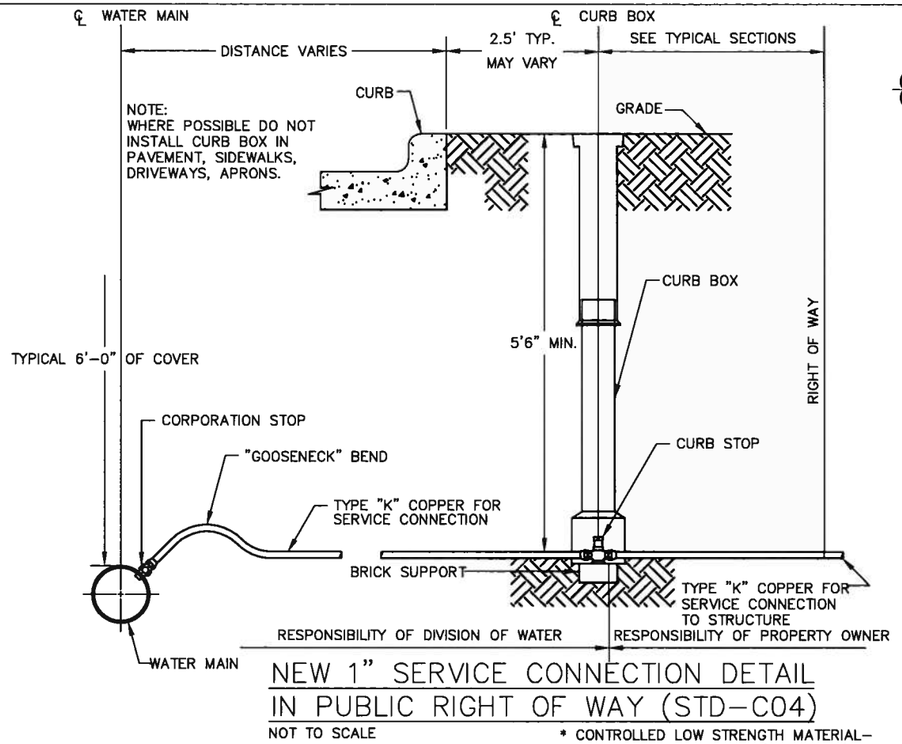
COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

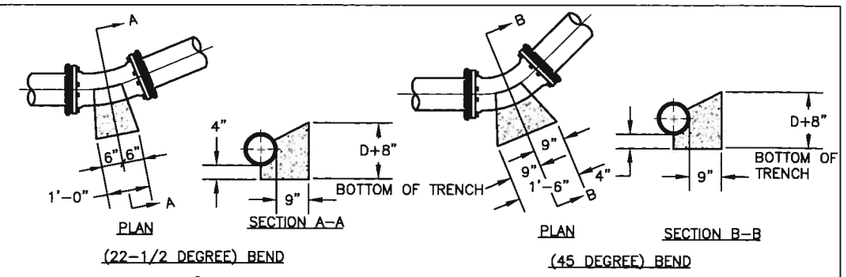
THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE) OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

SPOOL PIECE INSTALLATION DETAIL (STD-008)
NOT TO SCALE



NEW 1" SERVICE CONNECTION DETAIL IN PUBLIC RIGHT OF WAY (STD-C04)
NOT TO SCALE



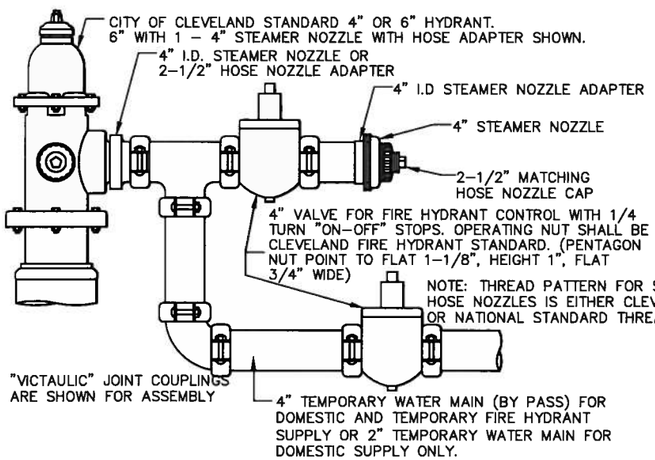
NOTE 1: ALL DIMENSIONS SHOWN HEREON ARE MINIMUM; THRUST BLOCK SHALL BE POURED TO DISTURBED EARTH.

NOTE 2: ALL CONCRETE FOR THRUST BLOCKS SHALL BE CLASS "C" HAVING 4,000 PSI 28 DAY COMPRESSIVE STRENGTH.

NOTE 3: DO NOT COVER BOLTS WITH CONCRETE ON MECHANICAL JOINTS.

NOTE 4: USE FORMS WHEN POURING CONCRETE TO MAINTAIN SHAPE AND DIMENSIONS OF THRUST BLOCKS.

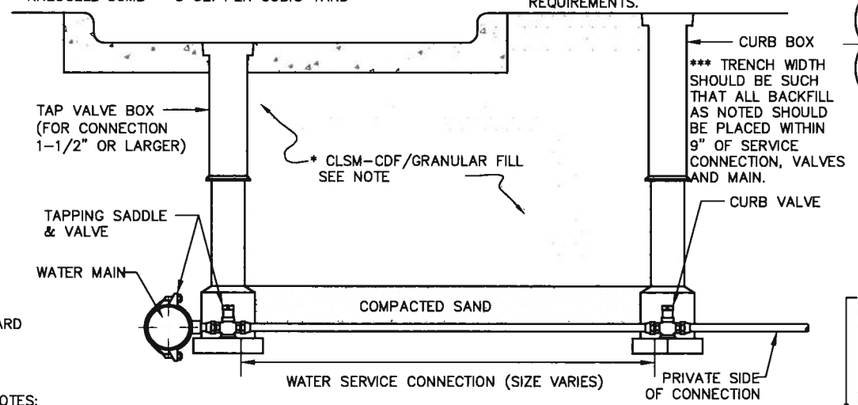
TYPICAL THRUST BLOCK DETAIL FOR HORIZONTAL DEFLECTION FOR PIPE UP TO 16" DIAMETER (STD-006)
NOT TO SCALE D = PIPE DIAMETER



TEMPORARY WATER MAIN & HYDRANT CONNECTION ASSEMBLY-A TO PROVIDE SIMULTANEOUS SERVICE IN EXISTING HYDRANT AND TEMPORARY BYPASS MAIN (STD-H14)
NOT TO SCALE

** CLEVELAND REQUIRED MIX DESIGN -
CEMENT - 50 LBS. PER CUBIC YARD
SAND - 2850 LBS. PER CUBIC YARD
WATER - 50 GALLONS PER CUBIC YARD
RHEOCELL 30MB - 3 OZ. PER CUBIC YARD

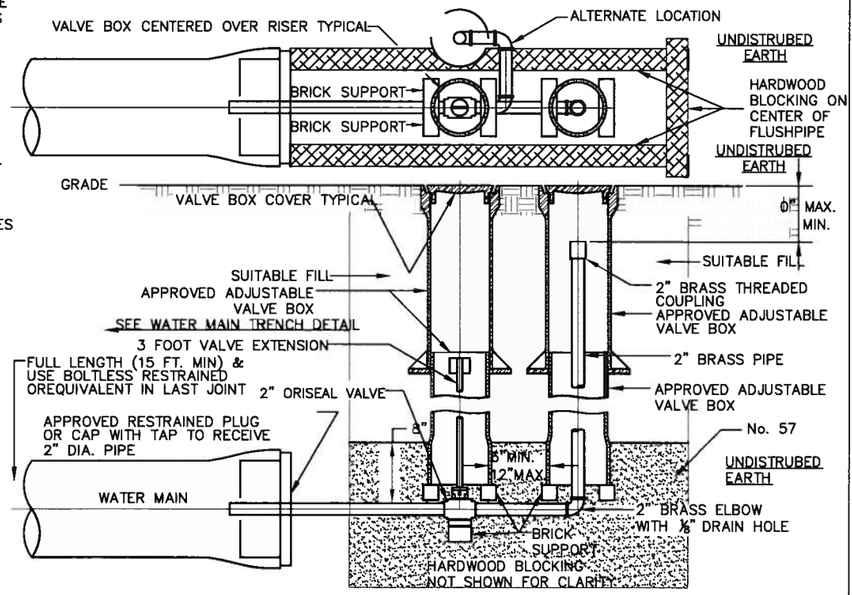
* CONTROLLED LOW STRENGTH MATERIAL-CONTROLLED DENSITY FILL (CLSM-CDF) "FLOWABLE FILL" IS REQUIRED WITHIN THE CITY OF CLEVELAND CORPORATION LIMITS AND PERMITTED IN ALL COMMUNITIES SERVICED BY CWD. CHECK LOCAL REQUIREMENTS.



NOTES:
1) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING BACKFILL, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.

2) MINIMUM COMPACTION FOR ALL SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.

SERVICE CONNECTION BACKFILL DETAIL (STD-023)
NOT TO SCALE



TYPICAL FLUSHING ASSEMBLY (STD-003)
NOT TO SCALE

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WALWORTH RUN INTERCEPTOR REALIGNMENT

WATER MAIN DETAILS

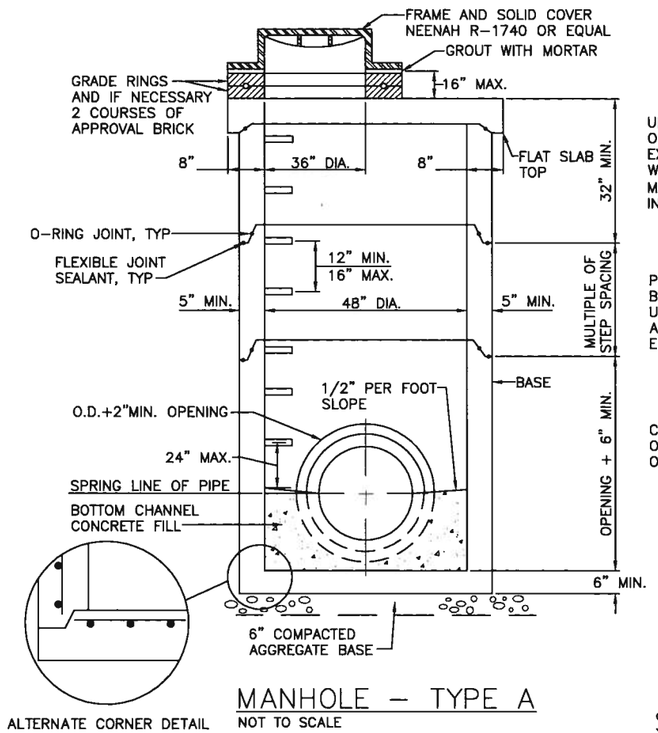
PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-9

PRECAST MANHOLE SCHEDULE

MANHOLE NUMBER	MANHOLE TYPE				COMMENTS
	TYPE A	TYPE B	TYPE C	TYPE D	
1				X	
2				X	
1A			X		
1B		X			
1C	X				
2A	X				DROP MANHOLE
2B	X				
2C	X				
2D	X				
2E	X				
2F	X				
3A	X				
4A	X				
TOTAL	9	1	1	2	

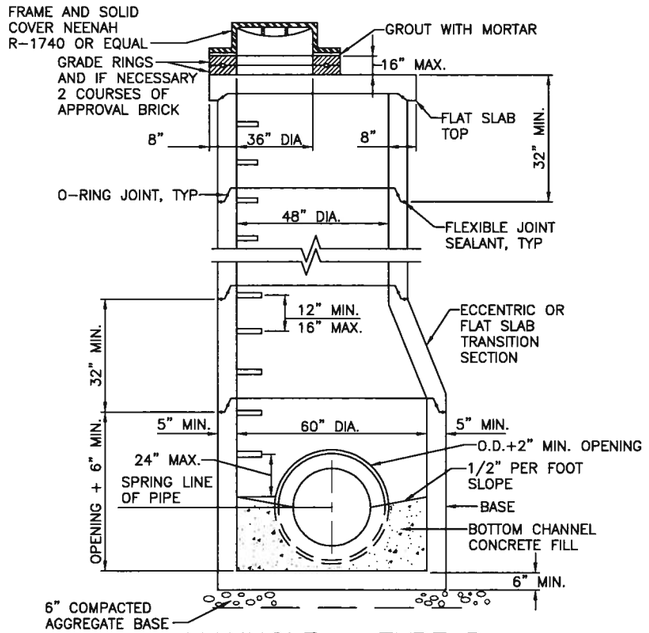
NOTES

1. SECTIONS OF THE PRECAST MANHOLE SHALL BE CAST AND ASSEMBLED WITH EITHER ALL TONGUE OR ALL GROOVE ENDS UP. LIFT HOLES MAY BE PROVIDED IN EACH SECTION FOR HANDLING.
2. BASES FOR MANHOLES ARE SHOWN WITH MONOLITHIC FLOOR AND RISERS WHICH MAY BE CAST IN ONE OR TWO OPERATIONS. A PERMISSIBLE ALTERNATE IS TO CAST AND SHIP THE FLOOR AND BARREL SEPARATELY. OPENINGS FOR INLET AND OUTLET PIPES SHALL BE PROVIDED, EITHER WHEN THE UNIT IS CAST OR LATER, TO MEET PROJECT REQUIREMENTS. BOTTOM CHANNELS MAY BE FORMED OF CONRETE PRECAST IN THE BASE OR INSTALLED BY FIELD CONSTRUCTION. FLOORS MAY ALSO BE POURED IN PLACE.
3. OPENINGS IN RISER SECTIONS SHALL BE PREFABRICATED. FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR SANITARY AND STORM SEWERS. PREMIUM SEALS SHALL MEET ASTM C-923,
4. JOINT SEALS BETWEEN PRECAST MANHOLE SECTIONS SHALL BE RESILENT AND FLEXIBLE GASKET JOINTS. JOINTS SHALL MEET ASTM C-443, FEDERAL SPECIFICATION SS-S-00210 (210 A), AND AASHTO M-198.
5. MANHOLE JOINTS SHALL BE SEALED BY A FLEXIBLE SEALANT, CONSEAL CS-202 AS MANUFACTURED BY CONSEAL CONCRETE SEALANTS, INC., OR APPROVED EQUAL.
6. MANHOLE GRADE RINGS SHALL BE SEALED EXTERNALLY AND BETWEEN GRADE RINGS WITH A LAYER OF MASTIC COMPOUND SUCH AS FABERLITE, KENT SEAL, OR EQUAL.
7. PRECAST MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
8. SEAL ALL LIFT HOLES WITH APPROVED CONCRETE PLUGS.
9. SEE PLANS FOR FRAME AND COVER ELEVATIONS.
10. TOP MANHOLE STEP SHALL BE INSTALLED NOT MORE THAN 2' BELOW TOP OF FRAME.
11. APPLY "THOROSEAL" BY THORO SYSTEM PRODUCTS, OR APPROVED EQUAL TO THE INSIDE EXPOSED SURFACES OF ALL MANHOLES.



MANHOLE – TYPE A

NOT TO SCALE

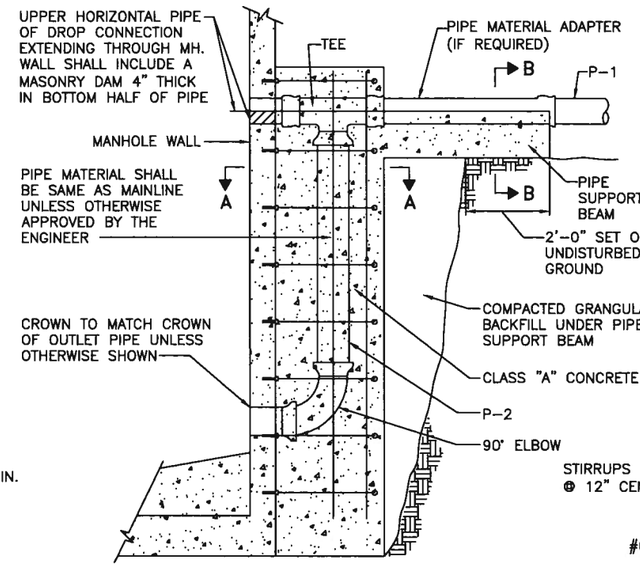


MANHOLE – TYPE B

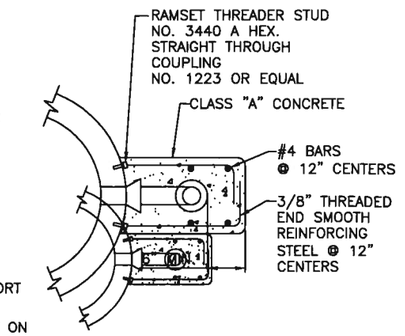
NOT TO SCALE

TABLE OF DIMENSIONS

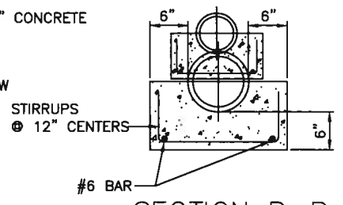
P-1	P-2
15"	12"
30"	15"



PLAN



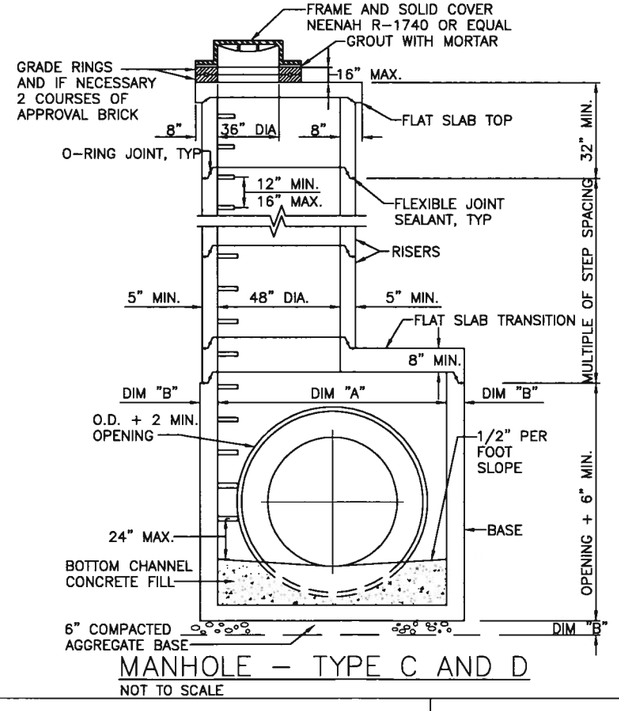
SECTION A–A



SECTION B–B

STANDARD PRECAST SANITARY MANHOLE DROP CONNECTION

NOT TO SCALE



MH TYPE	DIM "A"	MIN DIM "B"
C	72"	6"
D	120"	10"

MANHOLE – TYPE C AND D

NOT TO SCALE

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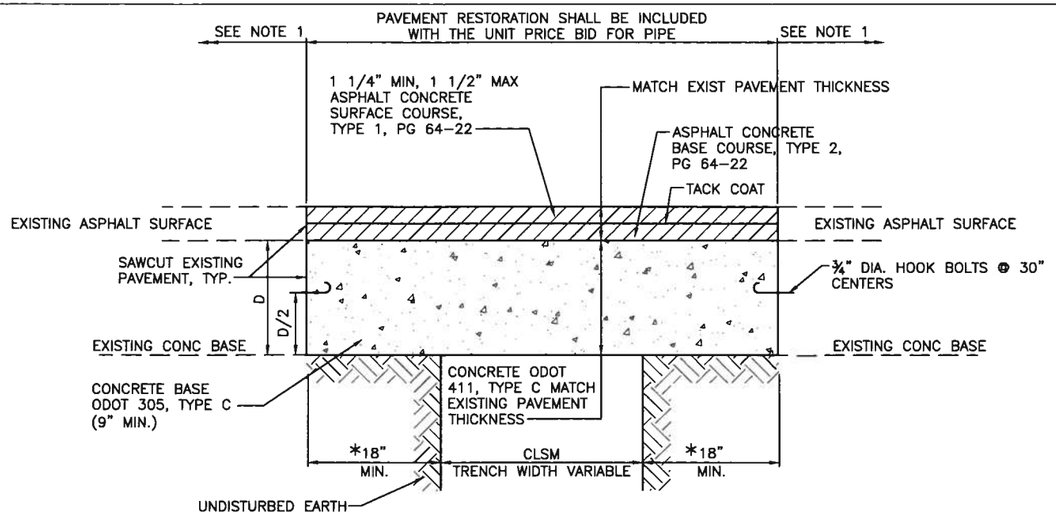
WALWORTH RUN INTERCEPTOR REALIGNMENT

PRECAST CONCRETE MANHOLE DETAILS

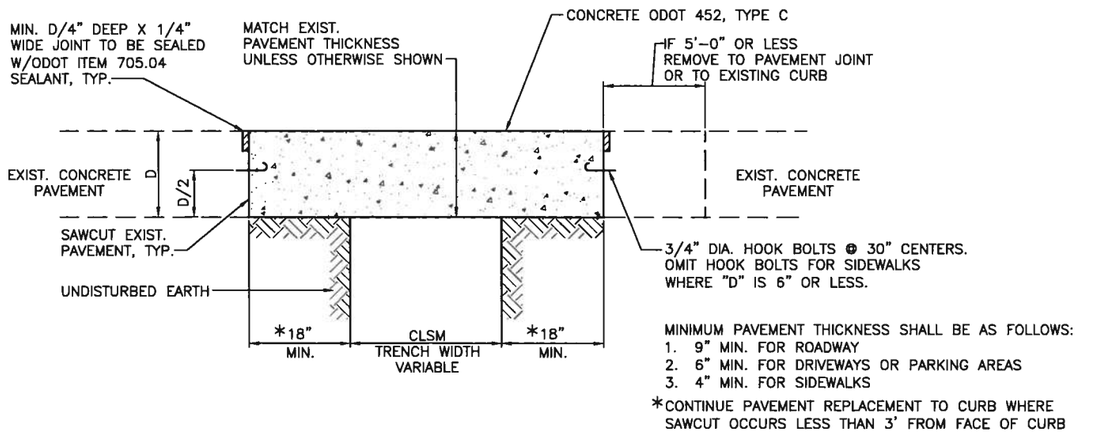
PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-10



*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

TYPICAL TRENCH DETAIL FOR ASPHALT PAVEMENT WITH CONCRETE BASE

NOT TO SCALE

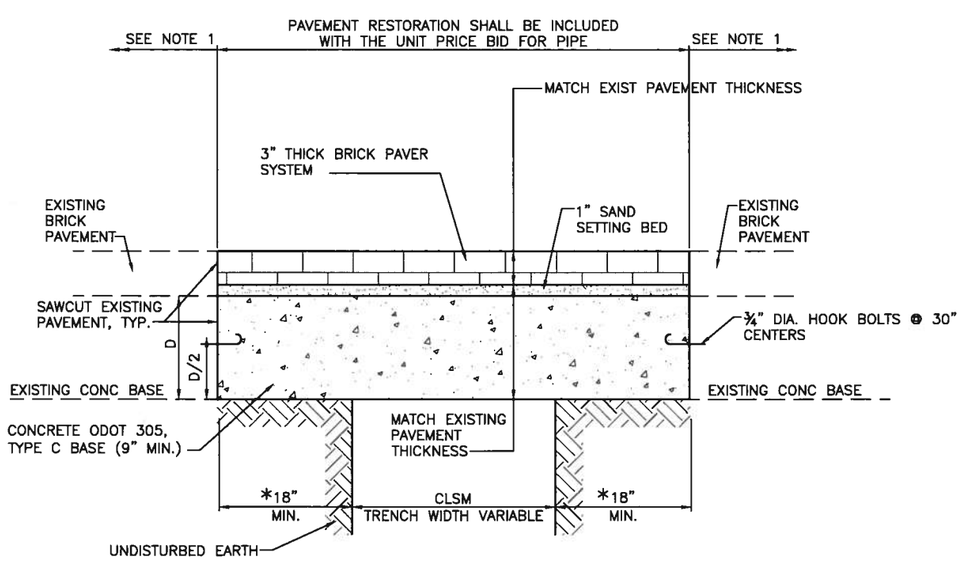


MINIMUM PAVEMENT THICKNESS SHALL BE AS FOLLOWS:
1. 9" MIN. FOR ROADWAY
2. 6" MIN. FOR DRIVEWAYS OR PARKING AREAS
3. 4" MIN. FOR SIDEWALKS

*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

TYPICAL TRENCH DETAIL FOR CONCRETE PAVEMENT

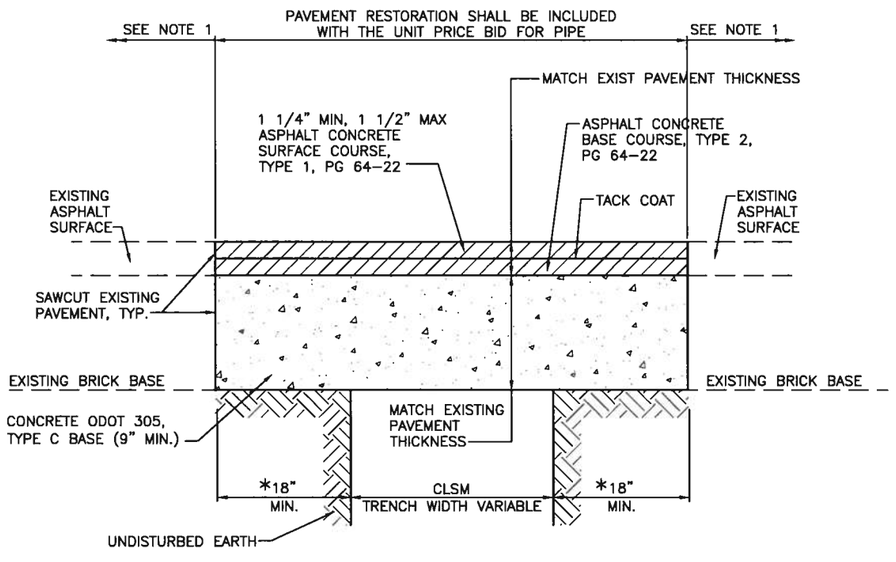
NOT TO SCALE



*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

TYPICAL TRENCH DETAIL FOR BRICK PAVEMENT WITH CONCRETE BASE

NOT TO SCALE



*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

NOTE:

1. MILL AND RESURFACE ASPHALT PAVEMENT WHERE SHOWN ON THE DRAWINGS. PAYMENT SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR PAVEMENT MILLING AND RESURFACING

TYPICAL TRENCH DETAIL FOR ASPHALT PAVEMENT WITH BRICK BASE

NOT TO SCALE

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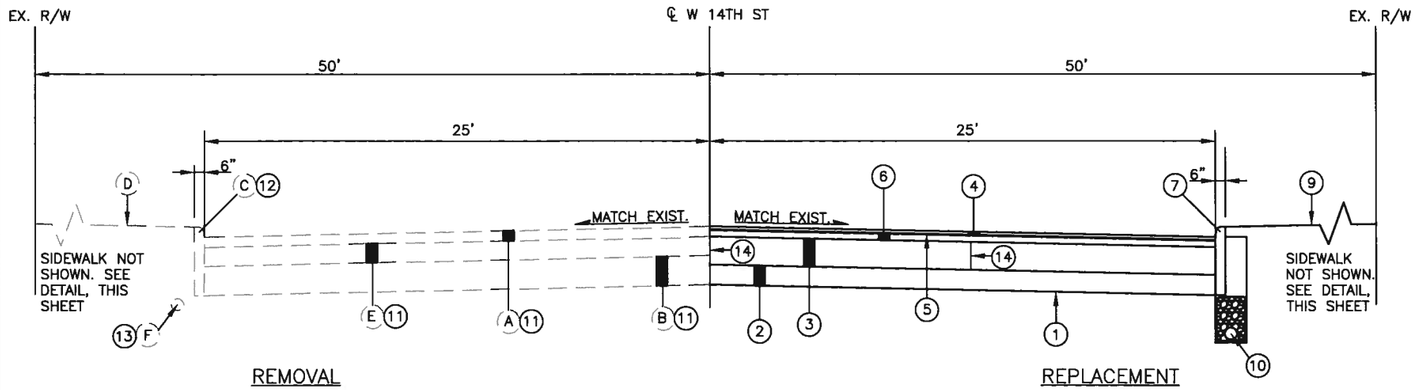
WALWORTH RUN INTERCEPTOR REALIGNMENT

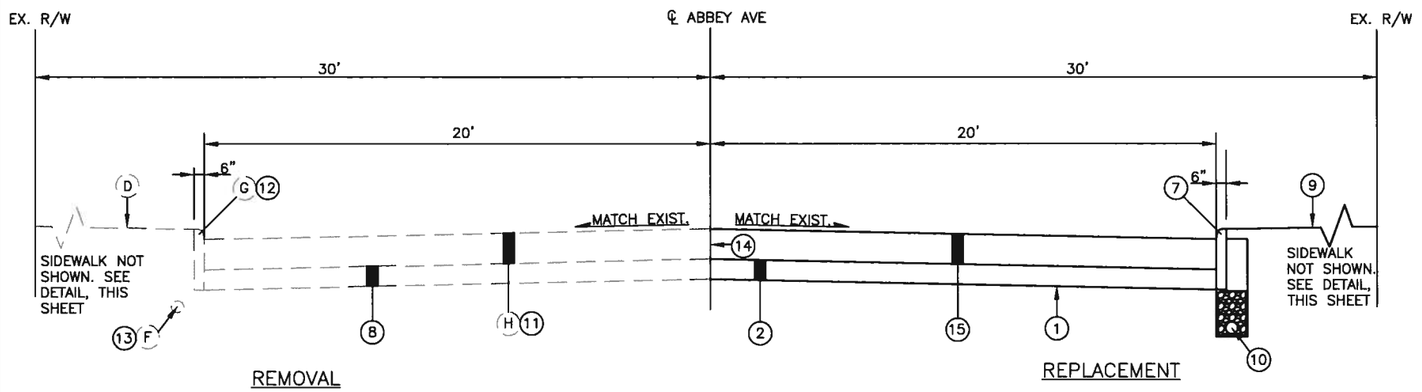
TRENCH REPAIR DETAILS

PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-11



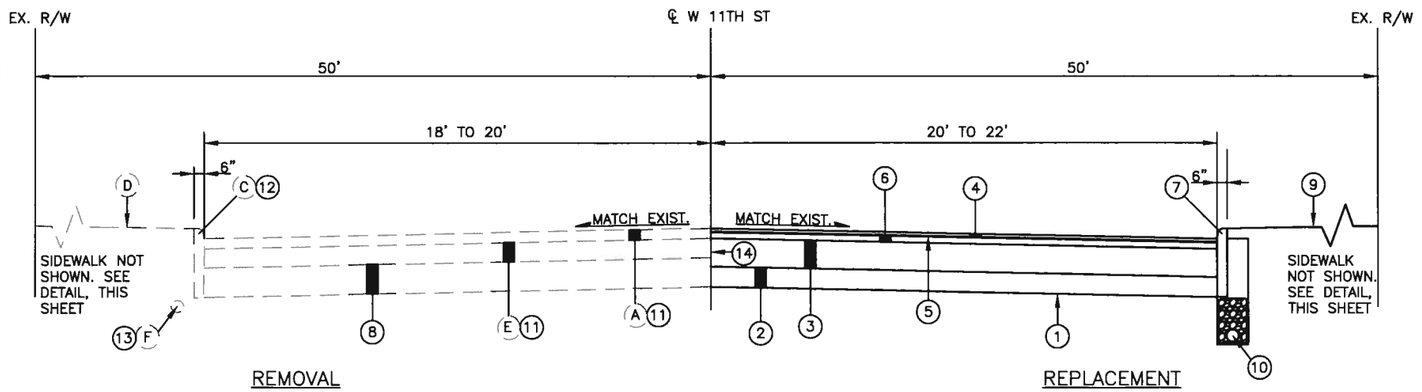
TYPICAL PAVEMENT SECTION–W 14TH ST AT JUNCTION CHAMBER NO.1

NOT TO SCALE



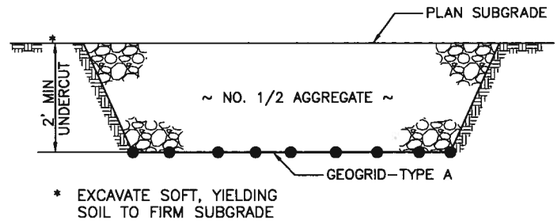
TYPICAL PAVEMENT SECTION–ABBEY AVE AT MANHOLE NO.1 AND NO.2

NOT TO SCALE



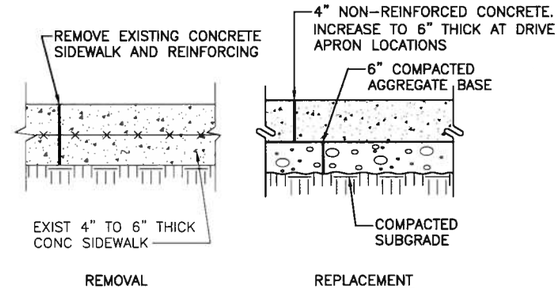
TYPICAL PAVEMENT SECTION–W 11TH ST AT MANHOLE NO.2 AND JUNCTION CHAMBER NO.2 SHOWING FULL DEPTH PAVEMENT REPLACEMENT

NOT TO SCALE



SUBGRADE STABILIZATION DETAIL

NOT TO SCALE



SIDEWALK REMOVAL AND REPLACEMENT

NOT TO SCALE

LEGEND

(1) SUBGRADE COMPACTION
(2) 6" AGGREGATE BASE
(3) 9" CONCRETE BASE, ODOT ITEM 305
(4) 1¼" ASPHALT CONCRETE SURFACE COURSE TYPE 1, P664–22
(5) TACK COAT (0.040 GAL/SY)
(6) 1¾" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE 2, P664–22
(7) CAST–IN–PLACE TYPE 6 CONCRETE CURB. SEE CITY OF CLEVELAND DWG CD–1
(8) EXCAVATION TO SUBGRADE
(9) SEEDING AND MULCHING
(10) 4" UNDERDRAIN WITH AGGREGATE AND FILTER WRAP
(11) ODOT ITEM 202–PAVEMENT REMOVED WHERE SHOWN ON PLANS
(12) ODOT ITEM 202–CURB REMOVED WHERE SHOWN ON PLANS
(13) UNDERDRAIN REMOVED
(14) LONGITUDINAL JOINT WITH TIE BARS, SEE CITY OF CLEVELAND DWG CONC 1
(15) 10" CONCRETE PAVEMENT, ODOT ITEM 452
(A) EXISTING 4"± ASPHALT PAVEMENT
(B) EXISTING 9"± CONCRETE BASE
(C) EXISTING CONCRETE CURB
(D) EXISTING TREE LAWN
(E) EXISTING 5"± BRICK BASE
(F) EXISTING 4" UNDERDRAIN
(G) EXISTING SANDSTONE CURB
(H) EXISTING 10" CONCRETE PAVEMENT

NOTES:
1. FOR ITEMS (3) AND (15) PROVIDE TRANSVERSE PAVEMENT JOINTS PER CITY OF CLEVELAND STANDARD CONSTRUCTION DRAWING.

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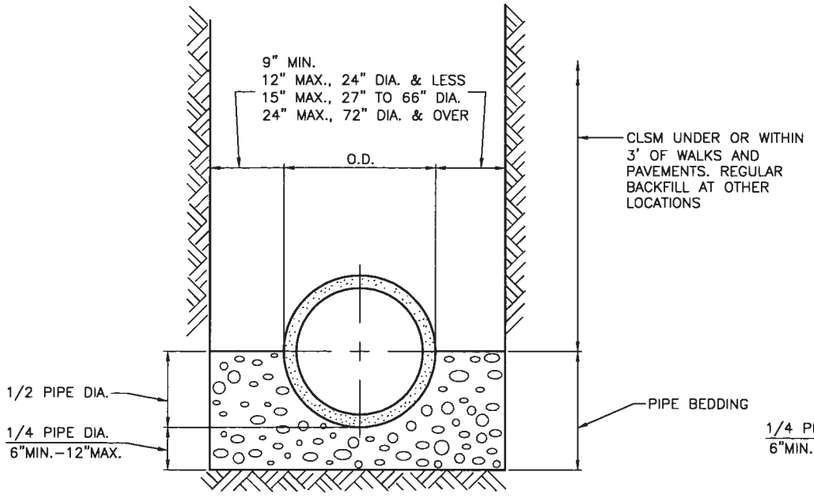
WALWORTH RUN INTERCEPTOR REALIGNMENT

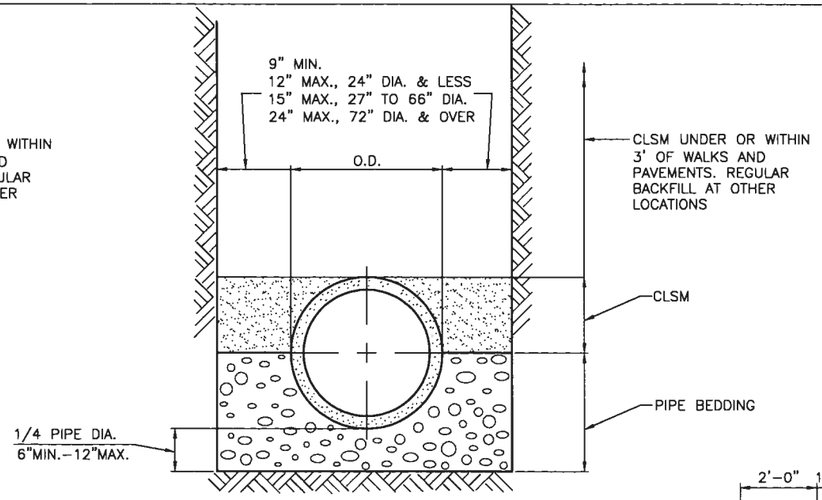
PAVEMENT SECTIONS AND DETAILS

PROJECT NO.:
SHEET: X
SCALE: NONE
SHEET NO.: C–12



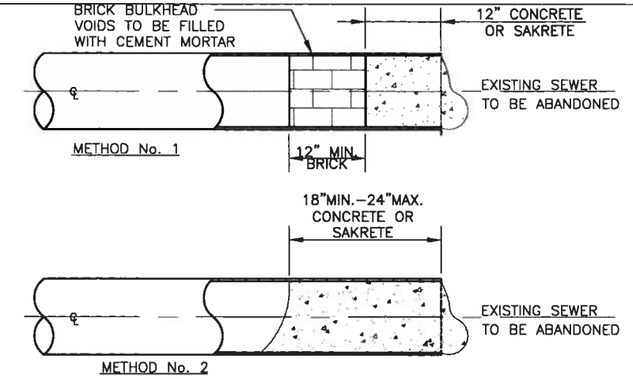
TYPICAL SEWER TRENCH
FOR RCP STORM AND SANITARY
AND VCP STORM SEWER

NOT TO SCALE



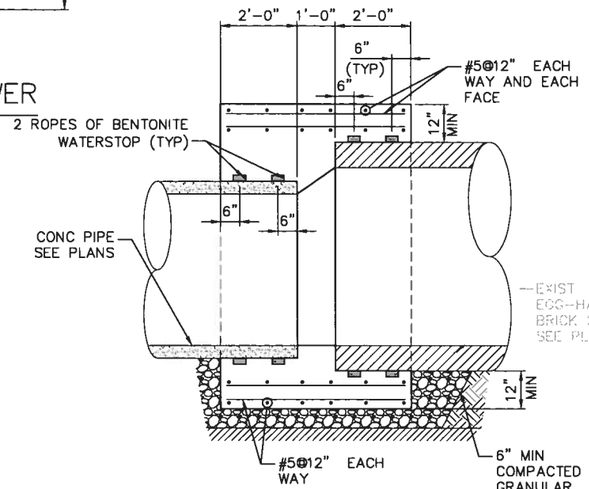
TYPICAL SEWER TRENCH
FOR VCP SANITARY SEWER

NOT TO SCALE

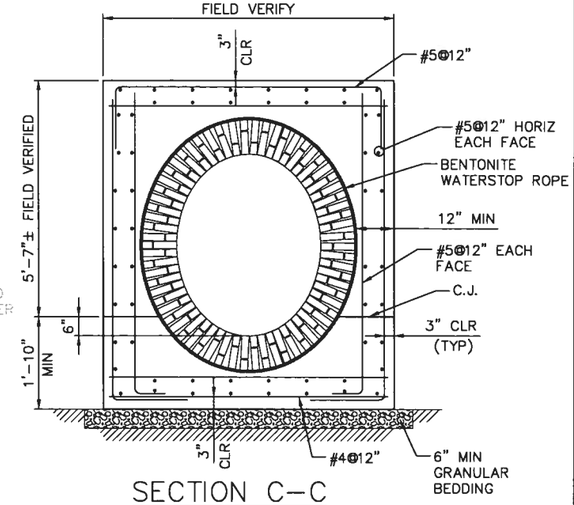


PLUGGING ABANDONED SEWER ENDS

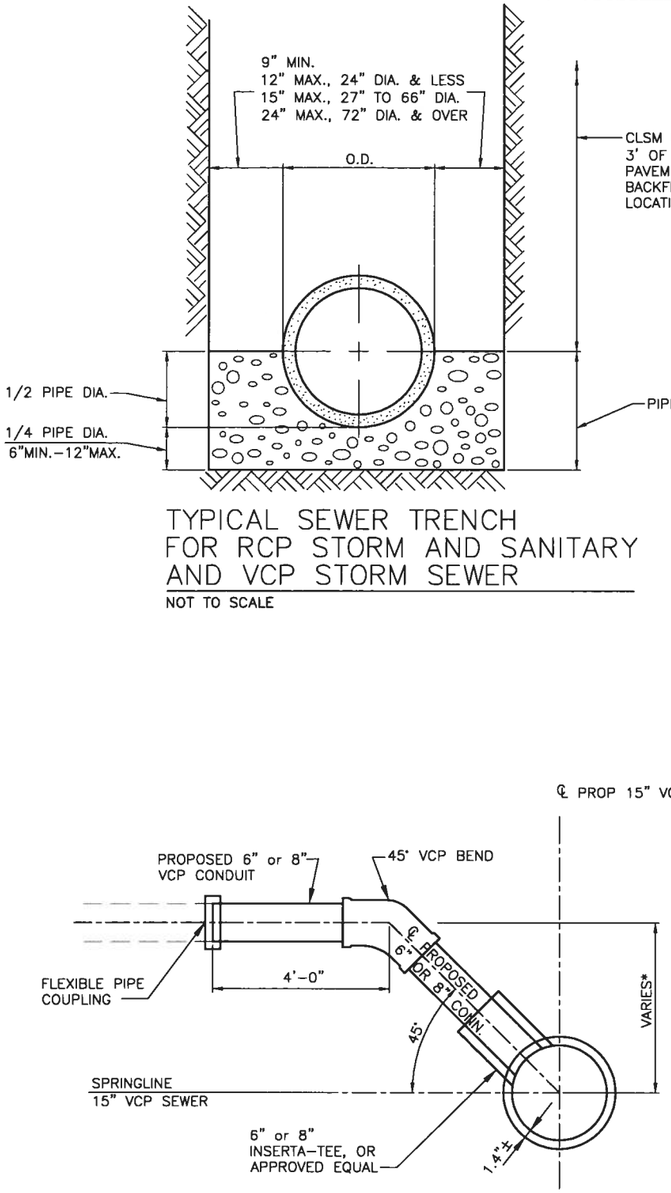
NOT TO SCALE



SECTION B-B



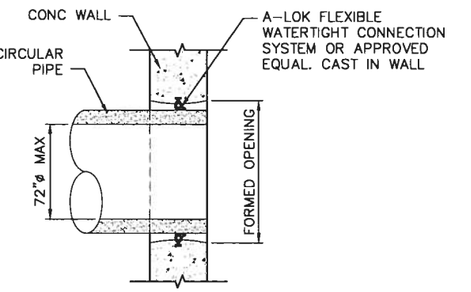
SECTION C-C



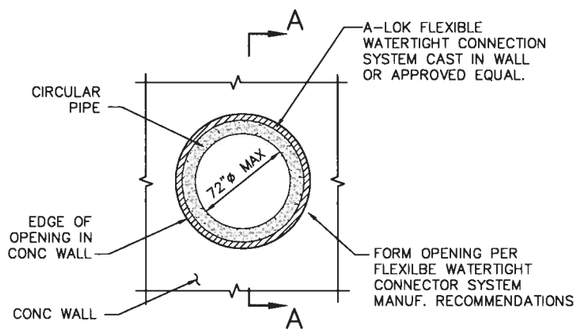
* NOTE: ELEVATION OF 45° BEND TO BE PLACED ACCORDING TO ELEVATION OF EXISTING CONNECTION. CONTRACTOR SHALL REPLACE FOUR (4) FEET BEYOND 45° BEND TO CONNECT TO THE EXISTING PIPE.

SANITARY SERVICE CONNECTION DETAIL

NOT TO SCALE



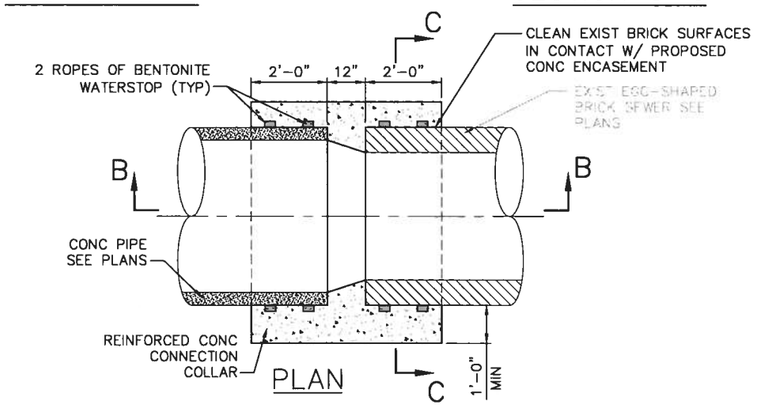
SECTION A-A



ELEVATION

TYPICAL PIPE-WALL
PENETRATION DETAIL WITH A-LOK

NOT TO SCALE



PLAN

TYPICAL RCP-TO-EXIST BRICK
SEWER CONNECTION DETAIL

NOT TO SCALE

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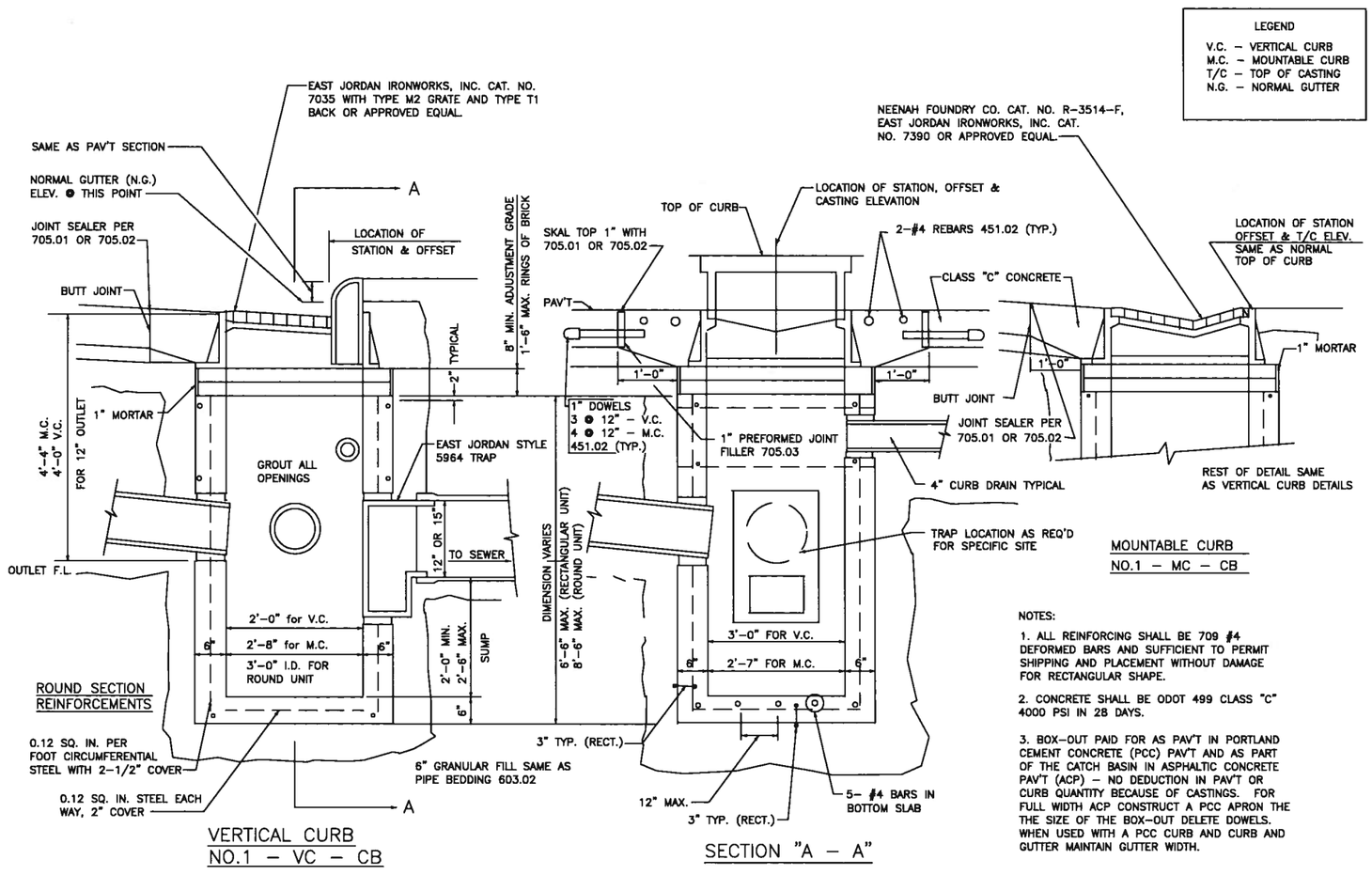
WALWORTH RUN INTERCEPTOR REALIGNMENT

SEWER DETAILS

PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-13



LEGEND

V.C. – VERTICAL CURB
M.C. – MOUNTABLE CURB
T/C – TOP OF CASTING
N.G. – NORMAL GUTTER

NOTES:

1. ALL REINFORCING SHALL BE 709 #4 DEFORMED BARS AND SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE FOR RECTANGULAR SHAPE.

2. CONCRETE SHALL BE ODOT 499 CLASS "C" 4000 PSI IN 28 DAYS.

3. BOX-OUT PAID FOR AS PAV'T IN PORTLAND CEMENT CONCRETE (PCC) PAV'T AND AS PART OF THE CATCH BASIN IN ASPHALTIC CONCRETE PAV'T (ACP) – NO DEDUCTION IN PAV'T OR CURB QUANTITY BECAUSE OF CASTINGS. FOR FULL WIDTH ACP CONSTRUCT A PCC APRON THE THE SIZE OF THE BOX-OUT DELETE DOWELS. WHEN USED WITH A PCC CURB AND CURB AND GUTTER MAINTAIN GUTTER WIDTH.

ALTERNATE BASIN SHAPE

A ROUND PRECAST CONCRETE UNIT MAY BE USED IN LIEU OF RECTANGULAR UNIT. THE ROUND SECTION SHALL BE A 36" I.D. UNIT WITH INTEGRAL BASE AND PRECAST TOP TRANSITION (ROUND TO RECTANGULAR) SECTION TO FIT CASTING BEING USED. TRANSITION UNIT REQUIRES A #5 REBAR AT CORNERS OF RECTANGULAR SHAPED SECTION AND 3 x 8 W6 X X W5 WELDED WIRE FABRIC IN VERTICAL SECTION.

CITY OF CLEVELAND STANDARD CATCH BASIN CB-1

NOT TO SCALE

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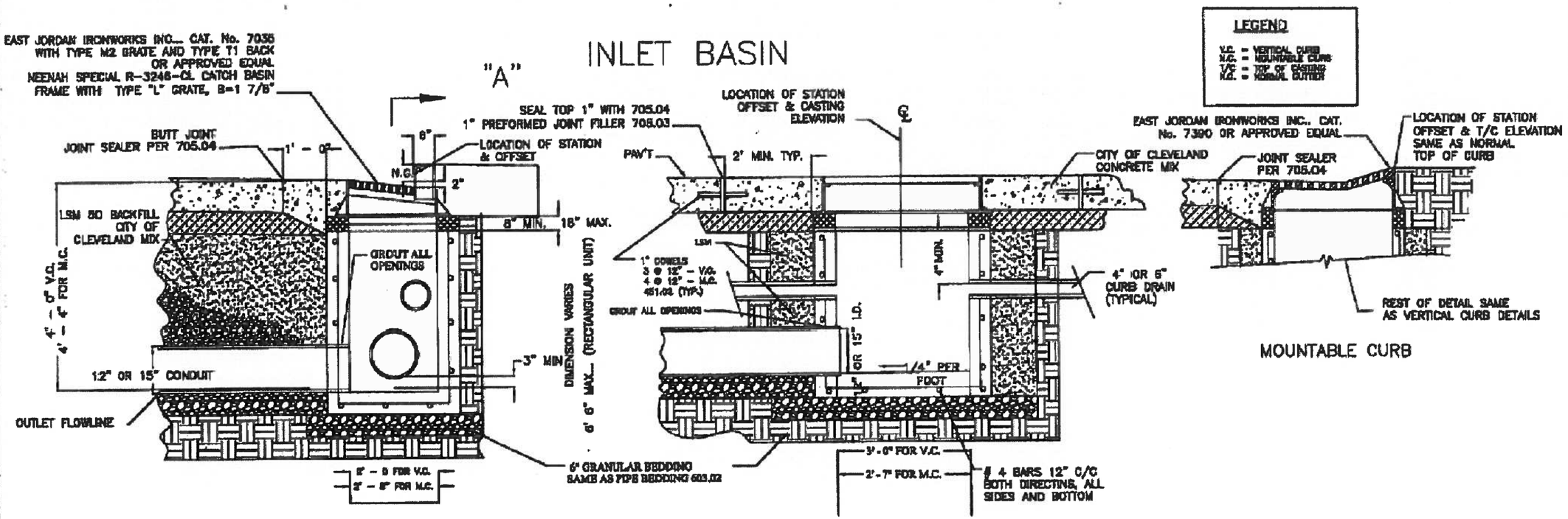
WALWORTH RUN INTERCEPTOR REALIGNMENT

CITY OF CLEVELAND CATCH BASIN CB-1 DETAIL

PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-14

INLET BASIN



NOTES

1. ALL REINFORCING SHALL BE # 4 DEFORMED BARS, AS PER ODOT 709, AND SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE TO RECTANGULAR SHAPE.
2. CONCRETE SHALL BE ODOT 499 CLASS "C" 4000 PSI IN 28 DAYS.
3. BOX-OUT SHALL BE PAID FOR AS PAVEMENT IN PORTLAND CEMENT CONCRETE PAVEMENT AND AS PART OF THE CATCH BASIN IN ASPHALTIC CONCRETE PAVEMENT WITH NO REDUCTION IN PAVEMENT OR CURB QUANTITY BECAUSE OF CASTING.
4. FOR FULL WIDTH ASPHALTIC CONCRETE PAVEMENT— CONSTRUCT A PORTLAND CEMENT CONCRETE APRON.
5. MINIMUM WALL THISKNESS 8" FOR CAST IN PLACE AND 6" FOR PRECAST

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JOWARIE WASIK-DIRECTOR OF PUBLIC SERVICE
STANDARD CONSTRUCTION DRAWING
STANDARD RECTANGULAR PRECAST CONCRETE
INLET BASIN
NOT TO SCALE

DRAWN BY: R. PLIODZINSKAS DATE: 4/8/08
SUBMITTED BY: W. MCLAUGHLIN DATE: 4/8/08
APPROVED: DATE: 7-8-09
COMMISSIONER OF ENGINEERING & CONSTRUCTION

FILE NO. CB-1 | SHEET 2/7 | 27

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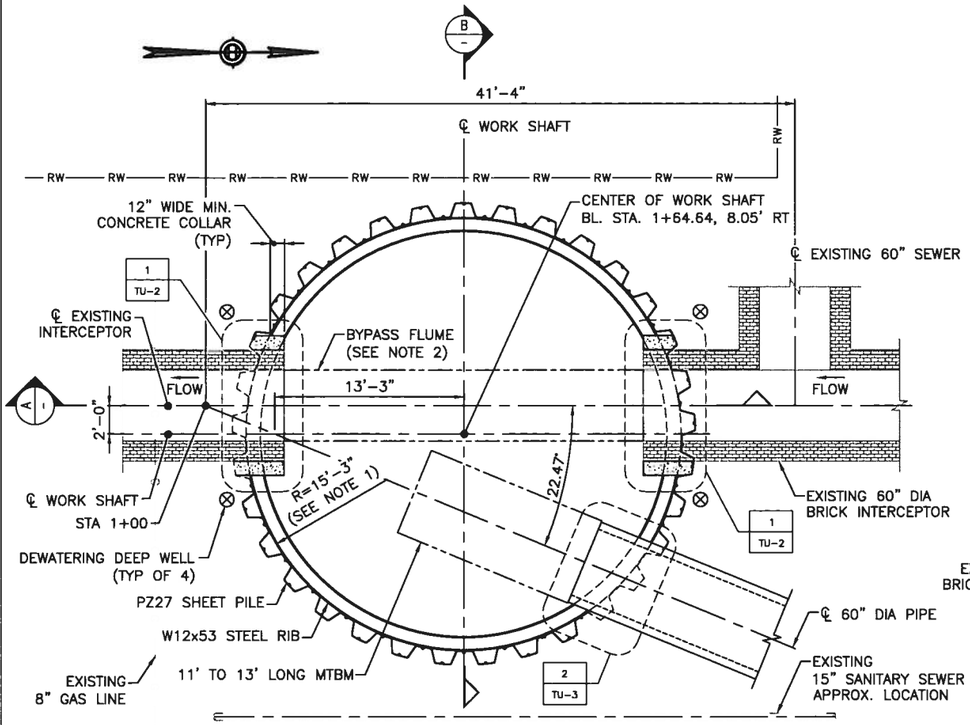
WALWORTH RUN INTERCEPTOR REALIGNMENT

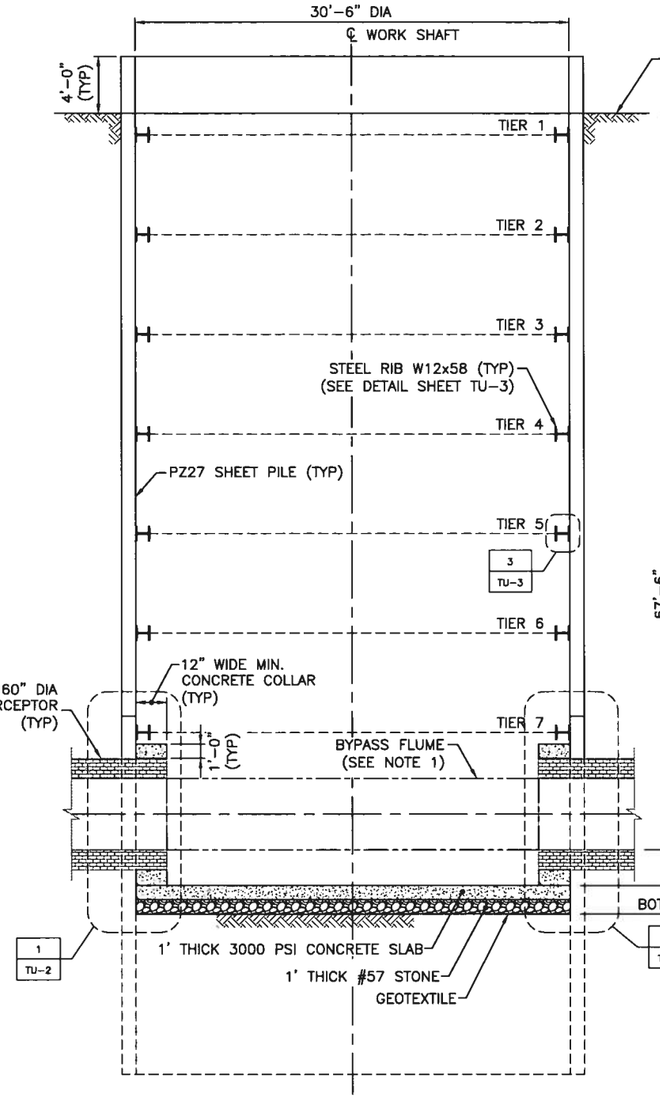
CITY OF CLEVELAND INLET BASIN DETAIL

PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-15



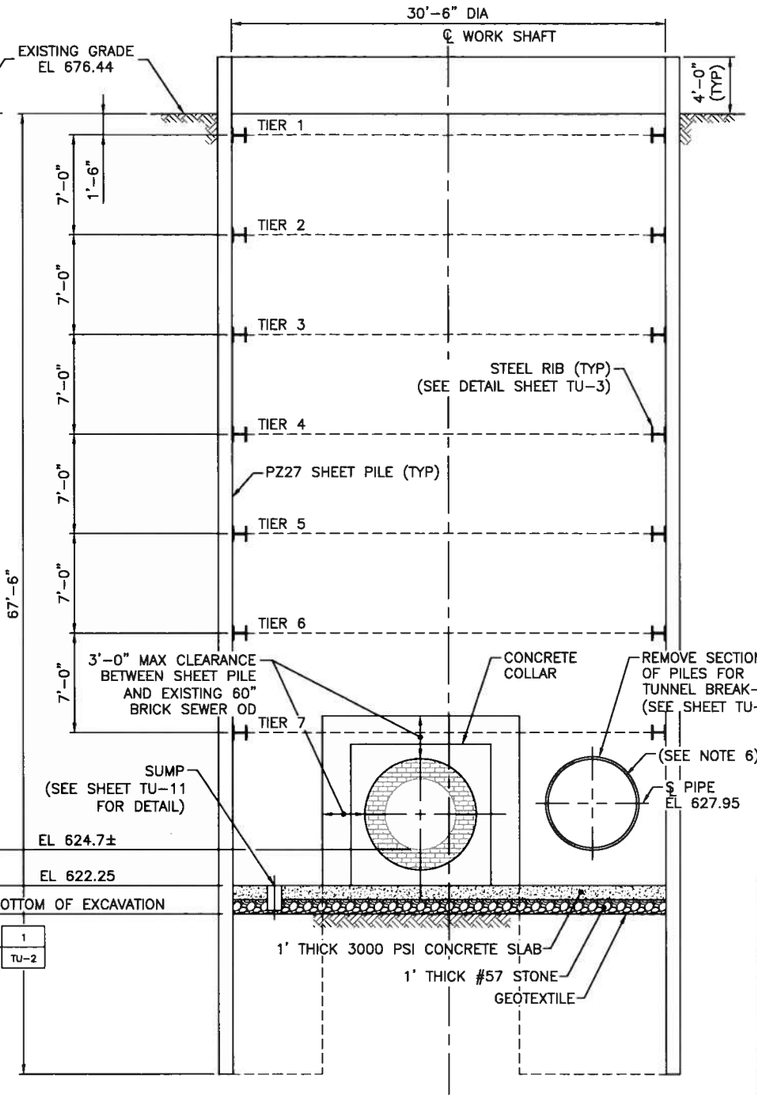
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'-0"



SECTION A

SCALE: 3/16" = 1'-0"



SECTION B

SCALE: 3/16" = 1'-0"

NOTES:

1. RADIUS BASED ON SHEET PILE MANUFACTURER'S REQUIREMENT – CIRCULAR SHEET PILING LAYOUT DETAILS PROVIDED BY SKYLINE STEEL LLC.
2. DESIGN AND INSTALL FLOW BYPASS FLUME FOR 154 CFS CAPACITY.
3. REFER TO SHAFT SITE PLANS FOR UTILITY INFORMATION.
4. OVERHEAD UTILITIES NOT SHOWN. THEY WILL BE RELOCATED DURING CONSTRUCTION.
5. REFER TO SHEET TU-3 FOR SUGGESTED MTBM BULLSEYE ARRANGEMENT AND MISCELLANEOUS DETAILS. FOR CLARITY, BULLSEYE CONCRETE NOT SHOWN ON SECTION VIEW.
6. THE APPROXIMATE MTBM DIAMETER IS 64"± FOR CCFRPMP AND 76"± FOR POLYMER CONCRETE PIPE.
7. ALL STRUCTURAL STEEL MEMBERS INCLUDING SHEET PILES ARE Fy=50 KSI.
8. USE E70XX ELECTRODES FOR ALL WELDS.
9. THE MAX THRUST LOAD FROM MTBM ON TUNNEL BREAK-IN CONCRETE SHALL NOT EXCEED 50 TONS.
10. SEE SHEET TU-2 FOR SEQUENCE OF CONSTRUCTION.

3/16"=1'-0" 6 4 2 0 5'

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DATE: APRIL 30, 2010

Dawn Underground Engineering, Inc.
Tunnel and Underground Structures Consultants
10 Village Court - Hazlet - New Jersey 07730
Tel: 732-739-8840 Fax: 732-739-8870

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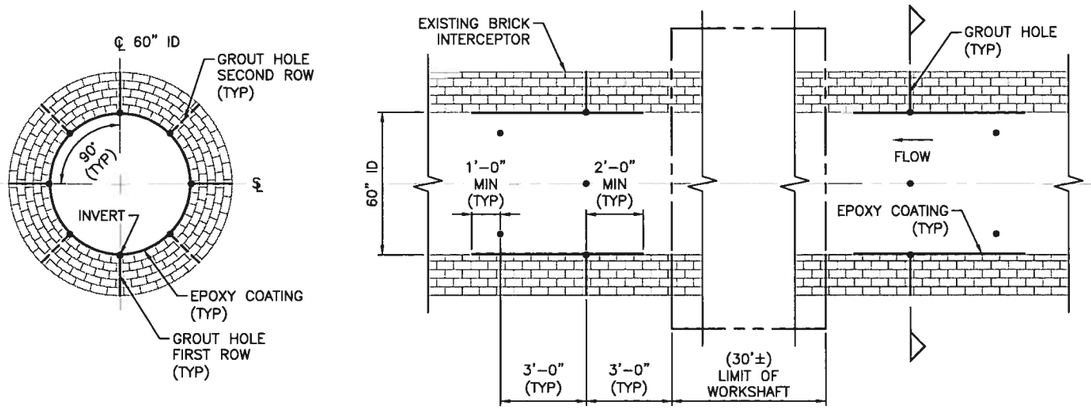
WALWORTH RUN INTERCEPTOR REALIGNMENT

WORK SHAFT
JUNCTION CHAMBER No. 1
INITIAL SUPPORTS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-1

90 DESIGN UBM TTAL



NOTE: GROUT HOLE PATTERN FOR CUT–OFF & CONTACT GROUTING FROM EXISTING INTERCEPTOR.

GROUT HOLE PATTERN

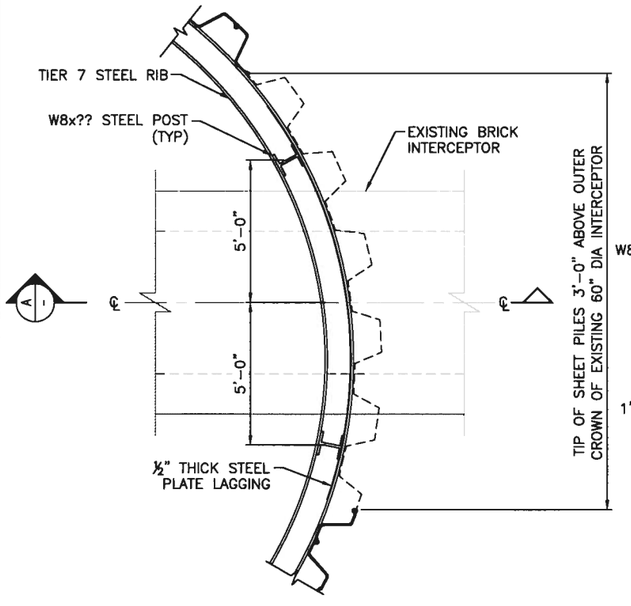
SCALE: 3/8" = 1'–0"

SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT JUNCTION CHAMBER NO. 1

1. INSTALL SHEET PILES TO THE DEPTH SHOWN. IN PROXIMITY OF THE EXISTING INTERCEPTOR, TERMINATE THE SHEET PILES MINIMUM THREE (3) FEET ABOVE AND ON BOTH SIDES OF THE INTERCEPTOR'S EXTERIOR LIMITS.
2. INSTALL SECOND (OUTER) ROW OF SHEET PILES AT THE TUNNEL BREAK–IN LOCATION WITHIN LIMITS INDICATED.
3. FROM WITHIN THE INTERIOR OF THE EXISTING INTERCEPTOR PERFORM CUT–OFF /CONTACT GROUTING OF THE INTERCEPTOR'S EXTERIOR IN A PATTERN SHOWN ON THE DRAWING.
4. INSTALL DEWATERING DEEP WELLS. LOCATE THE WELLS AS CLOSE AS PRACTICAL TO THE EXTERIOR OF THE SHEET PILING AND THE EXISTING INTERCEPTOR TO MINIMUM DEPTH OF TEN (10) FEET BELOW THE LIMIT OF EXCAVATION WITHIN THE WORK SHAFT.
5. START OPERATING DEWATERING WELLS ON 24 HOURS/DAY 7 DAYS/WEEK BASIS.
6. EXCAVATE WORK SHAFT TO MAXIMUM OF 2 FEET DEPTH BELOW TIER 1 LEVEL AND INSTALL TIER 1 STEEL SUPPORTS.
7. CONTINUE TO EXCAVATE SHAFT IN STEPS TO MAXIMUM OF 2 FEET DEPTH BELOW EACH TIER LEVEL AND SUBSEQUENTLY INSTALL EACH TIER STEEL SUPPORTS (FROM TIER 2 THROUGH TIER 6).
8. AFTER INSTALLATION OF THE TIER 6, CONTINUE TO EXCAVATE THE SHAFT TO A MAXIMUM OF 2 FEET DEPTH BELOW TIER 7 LEVEL. DURING THE EXCAVATION EMPLOY STEEL POLLING AND LAGGING PLATES TO COVER THE GAP AND TO CONTROL SOIL INFLOW FROM WITHIN THE GAP BETWEEN THE SHEET PILING AND THE OUTSIDE OF EXISTING INTERCEPTOR. DRIVE THE PLATES BELOW THE EXCAVATION TO MAINTAIN STABLE CONDITIONS AT ALL TIMES. WELD STEEL POLING/LAGGING PLATES TOGETHER AND TO SHEET PILING TO COMPLETELY CLOSE THE GAP. INSTALL TIER 7 STEEL SUPPORTS (STEEL RIB WALER).
9. CONTINUE TO EXCAVATE THE SHAFT TO THE SPRING LINE LEVEL OF THE EXISTING INTERCEPTOR BY INSTALLING STEEL LAGGING/POLING PLATES WITHIN THE GAP BETWEEN THE SHEET PILING AND EXISTING INTERCEPTOR TO CONTROL SOIL AND WATER INFILTRATION. PROVIDE WATER TIGHT SEAL AND FILL VOIDS IN THIS AREA BY EMPLOYING FOAM, CHEMICAL AND OTHER GROUTING METHODS. WELD ALL STEEL PLATES TOGETHER AND TO SHEET PILES.
10. DURING LOW FLOW CONDITION, SAW CUT THE INTERCEPTOR UP TO ITS SPRING LINE AT FUTURE CONCRETE COLLAR LIMIT AND DEMOLISH AND REMOVE THE TOP HALF OF EXISTING INTERCEPTOR. PROVIDE A FLOW BYPASS SYSTEM FOR THE SEWER FLOW.
11. CONTINUE TO EXCAVATE THE SHAFT TO THE BOTTOM OF THE EXCAVATION BY INSTALLING STEEL LAGGING/POLING PLATES WITHIN THE GAP BETWEEN THE SHEET PILING AND EXISTING INTERCEPTOR TO CONTROL SOIL AND WATER INFILTRATION. PROVIDE WATER TIGHT SEAL AND FILL VOIDS IN THIS AREA BY EMPLOYING FOAM, CHEMICAL AND OTHER GROUTING METHODS. WELD ALL STEEL PLATES TOGETHER AND TO SHEET PILES.
12. DEMOLISH BOTTOM HALF (BELOW SPRING LINE) OF THE EXISTING INTERCEPTOR. PROVIDE SUPPORT TO FLOW BYPASS SYSTEM AS NECESSARY. INSTALL STEEL POSTS ON BOTH SIDES OF THE EXISTING SEWER FROM TIER 7 INTO FUTURE CONCRETE SLAB AS SHOWN ON THE DRAWINGS. CLEAN THE BOTTOM OF EXCAVATION AND PLACE GEOTEXTILE, CRUSHED STONE BASE AND CONCRETE SLAB.
13. PROVIDE SUMP PIT AS SHOWN ON THE DRAWINGS. PLACE CONCRETE COLLAR AROUND THE EXISTING INTERCEPTOR. ALLOW THE CONCRETE SLAB AND COLLAR TO GAIN THE DESIGN STRENGTH. STOP OPERATING DEWATERING WELLS. IF THE AREA AROUND THE EXISTING INTERCEPTOR SHOWS LEAKAGE, CORRECT THE PROBLEM BY WELDING, GROUTING AND SEALING UNTIL TOTAL STABILITY IS ASSURED.
14. CONTINUOUSLY PUMP OUT THE WATER FROM THE SUMP PIT FOR THE ENTIRE DURATION OF WORK.

PROCEDURE FOR BREAK–IN FOR DRIVE 1

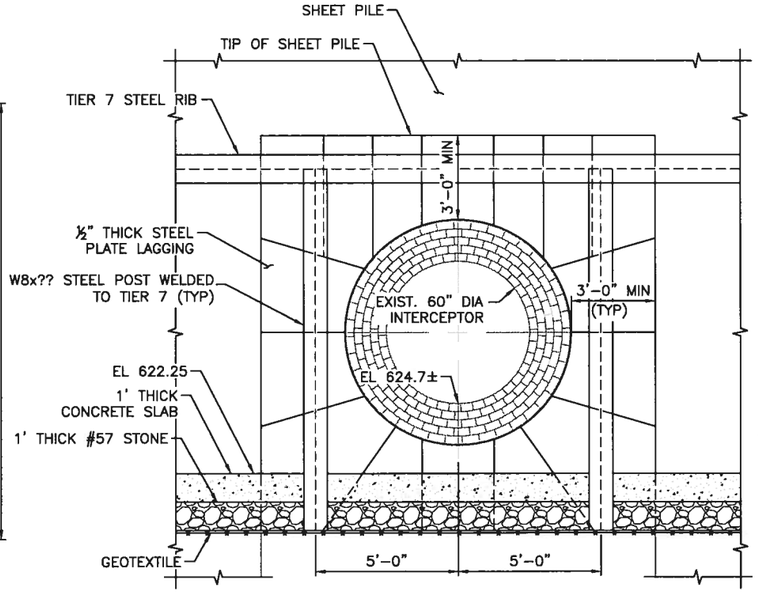
15. PLACE SUITABLE GROUT BETWEEN THE TWO ROWS OF SHEET PILING AT TUNNEL BREAK–IN LOCATION TO PREVENT GROUNDWATER OR SOIL INFILTRATION WHEN MAIN SHEET PILES ARE CUT FOR MICROTUNNEL BORING MACHINE (MTBM) BULL'S EYE.
16. TEST THE BULL'S EYE AREA FOR WATER TIGHTNESS BY DRILLING TEST PORTS. PROVIDE ADDITIONAL GROUTING AS NECESSARY TO ELIMINATE ANY LEAKAGE. WHEN ACCEPTABLE, CUT THE MAIN SHEET PILES (INSTALLED FOR THE SHAFT) IN THE MICROTUNNEL BREAK–IN AREA (BULL'S EYE). IF DURING CUTTING OF SHEET PILES, GROUNDWATER OR SOIL INFILTRATION IS OBSERVED, PROVIDE SECONDARY GROUT TO COMPLETELY SEAL THE BULL'S EYE ZONE AS NECESSARY. APPLY A BOND BREAKER AGAINST SHEET PILES IN THE BULL'S EYE ZONE.
17. PLACE CONCRETE FOR AND INSTALL STEEL BULL'S EYE SEAL PLATE AT THE TUNNEL BREAK–IN FOR DRIVE 1. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICROTUNNEL BORING MACHINE (MTBM) FOR DRIVE 1.
18. RECEIVE THE MTBM IN THE SHAFT AND GROUT THE ANNULUS AROUND THE CARRIER PIPE THROUGH THE PIPE GROUT PORTS BEFORE THE SEALS ARE REMOVED AT BULL'S EYES OF THE DRIVE.



PLAN VIEW

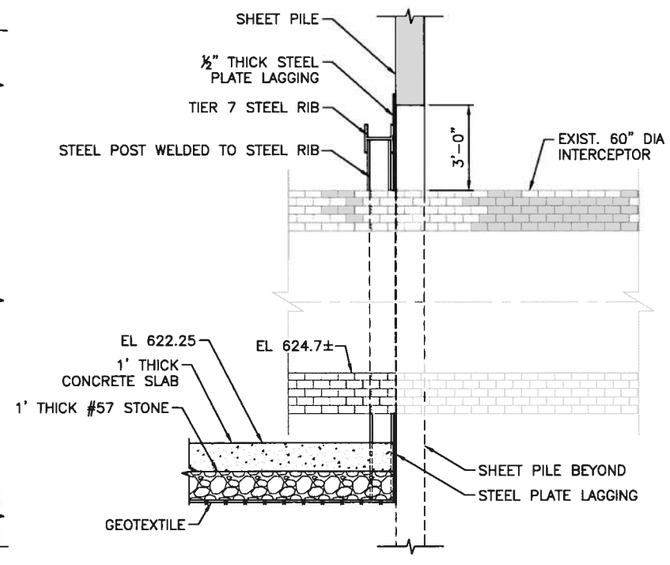
SCALE: 3/8" = 1'–0"

1 / TU–1



FRONT ELEVATION

SCALE: 3/8" = 1'–0"



SECTION

SCALE: 3/8" = 1'–0"

A / –

3/8"=1'–0"

12" 0 1 2 4'

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90% DESIGN SUBMITTAL

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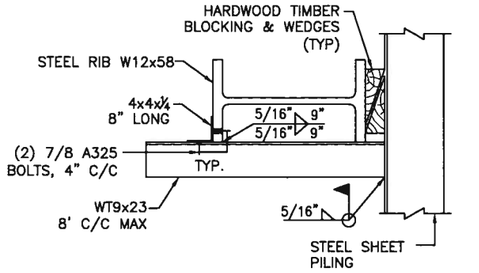
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER No. 1 SUPPORTS AT EXISTING INTERCEPTOR

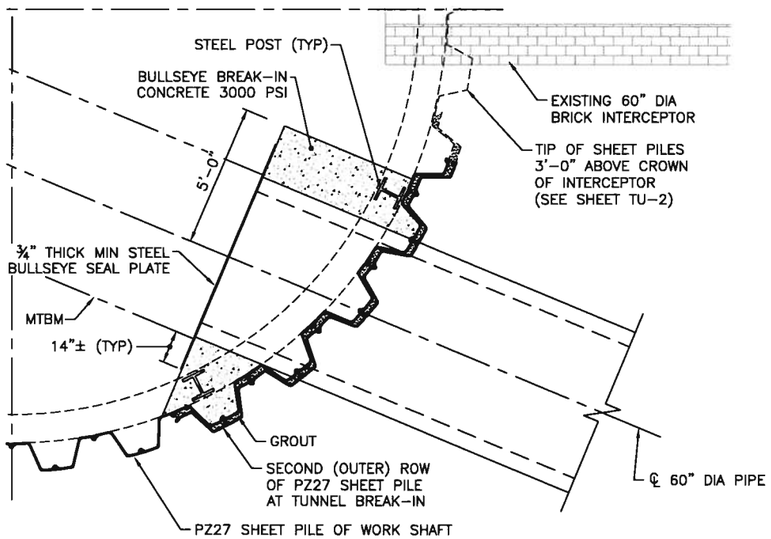
PROJECT NO.:
SHEET:
SCALE: 3/16"=1'–0"
SHEET NO.: TU–2



RIB SEAT DETAIL

SCALE: N.T.S.

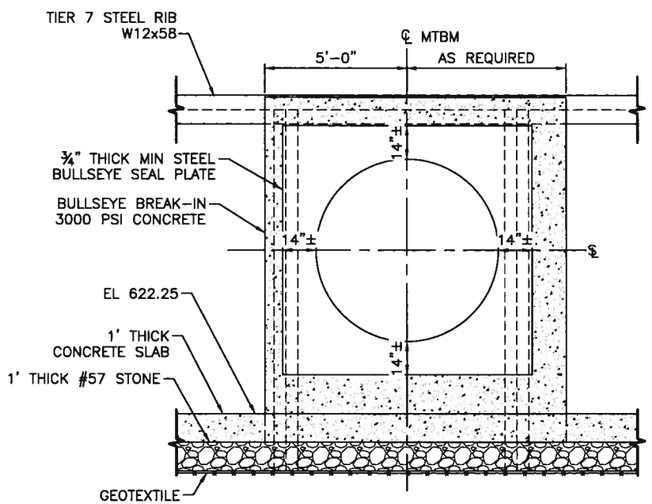
3 / TU–1



PLAN VIEW
TUNNEL BREAK–IN DETAIL

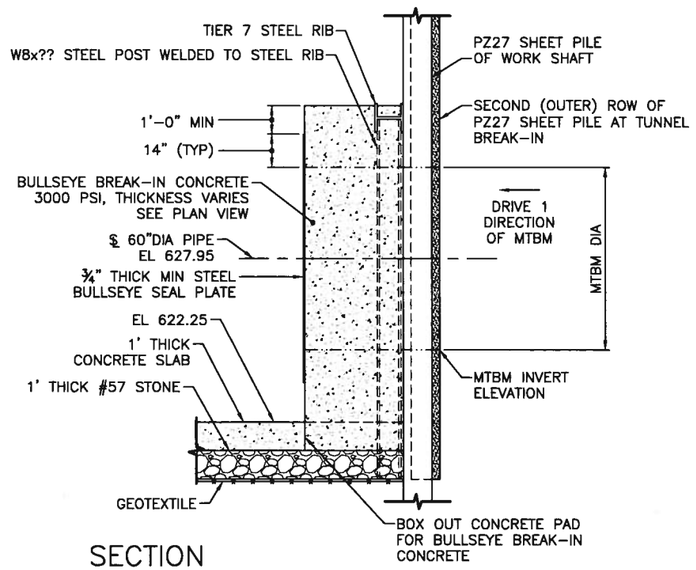
SCALE: 3/8" = 1'–0"

2 / TU–1



ELEVATION
TUNNEL BREAK–IN DETAIL

SCALE: 3/8" = 1'–0"



SECTION
TUNNEL BREAK–IN DETAIL

SCALE: 3/8" = 1'–0"

NOTE:
NO DEWATERING IS REQUIRED FOR TUNNEL BREAK–IN.

3/8"=1'–0"

12" 0 1 2 4'

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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90% DESIGN SUBMITTAL

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: APRIL 30, 2010

Dawn Underground Engineering, Inc.
Tunnel and Underground Structures Consultants
10 Village Court · Hazlet · New Jersey 07730
Tel: 732-739-8840 Fax: 732-739-8870

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

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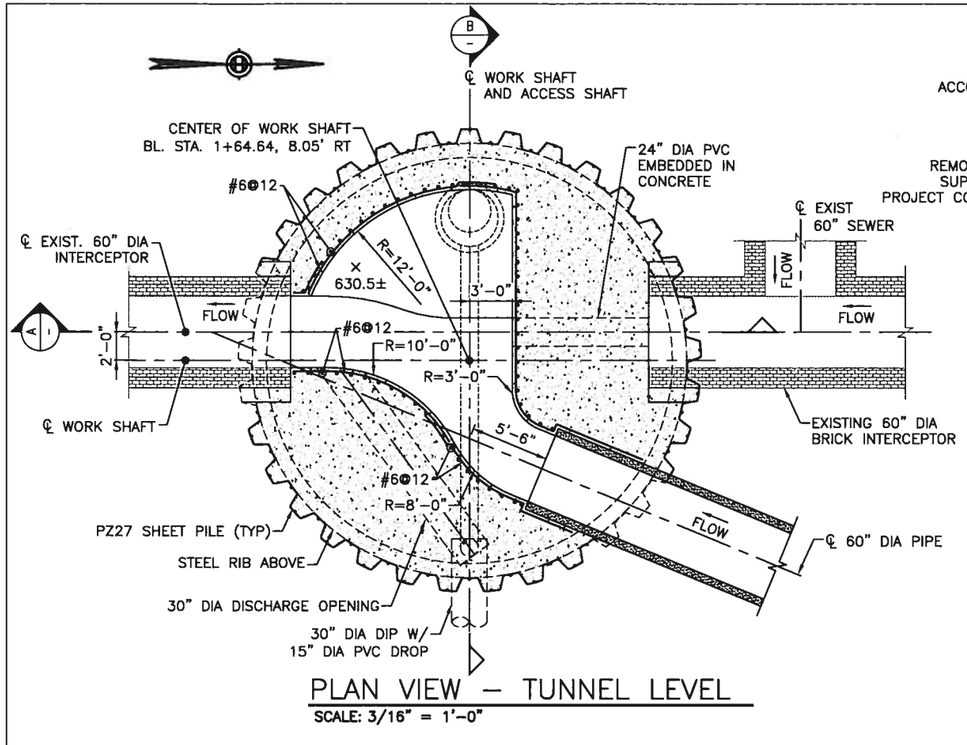
WALWORTH RUN INTERCEPTOR REALIGNMENT

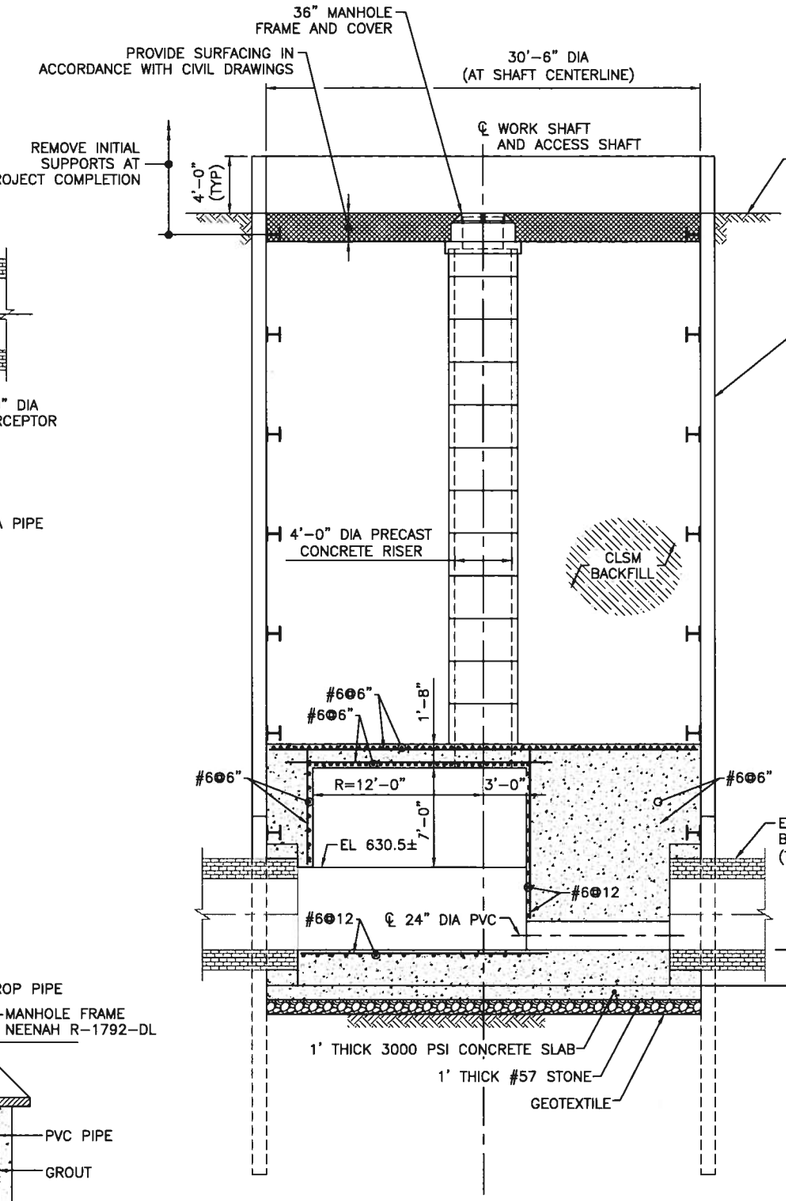
JUNCTION CHAMBER No. 1
BULLSEYE AND MISCELLANEOUS DETAILS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'–0"
SHEET NO.: TU–3



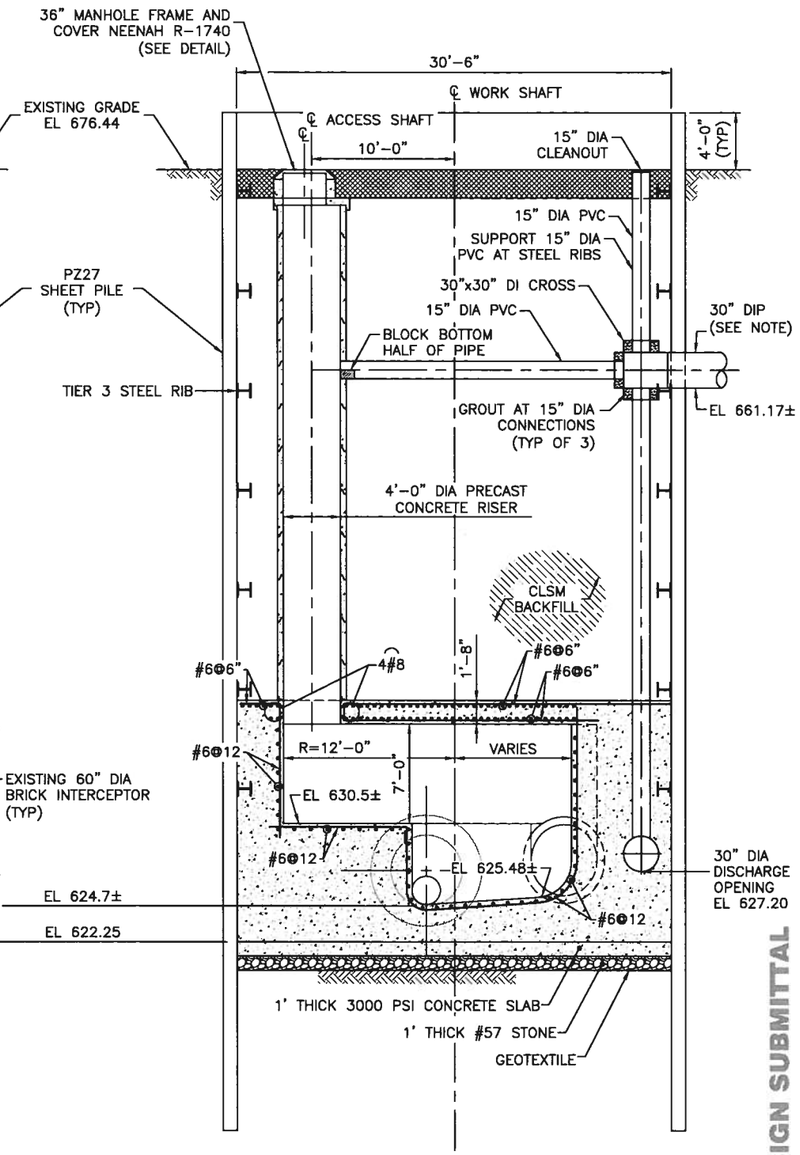
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'-0"



SECTION A

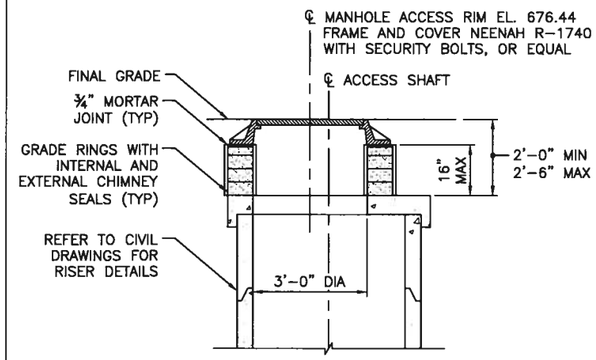
SCALE: 3/16" = 1'-0"



SECTION B

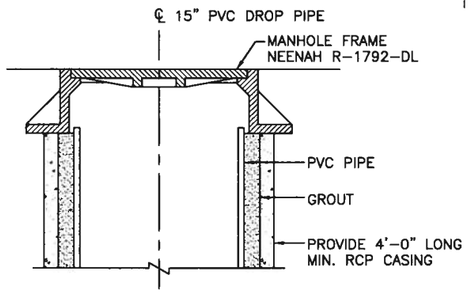
SCALE: 3/16" = 1'-0"

NOTE: BEFORE INSTALLING 30" DIP AND 30"x30" CROSS, BACKFILL SHAFT TO 2 FT BELOW TIER 3 STEEL RIB. THEN REMOVE TIER 3 STEEL RIB AND INSTALL DI PIPING.



FRAME AND COVER 36" MANHOLE DETAIL

SCALE: N.T.S.



15" DIA PVC CLEANOUT DETAIL

SCALE: N.T.S.

90% DESIGN SUBMITTAL

3/16"=1'-0"

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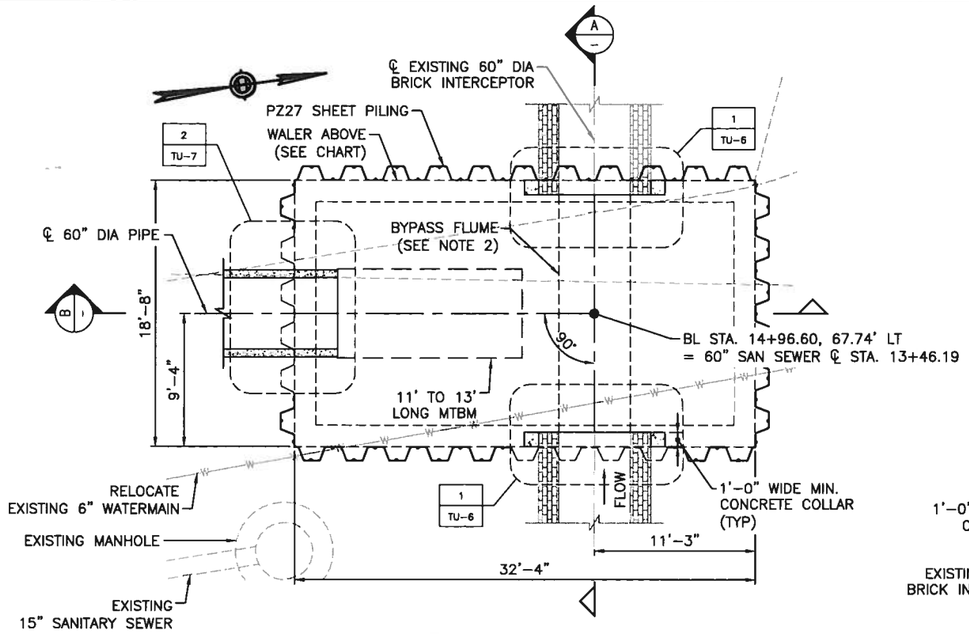
WALWORTH RUN INTERCEPTOR REALIGNMENT

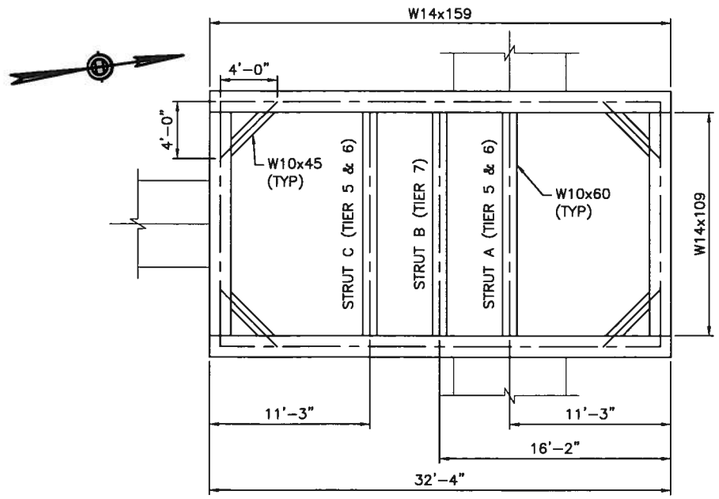
JUNCTION CHAMBER No. 1 STRUCTURE DETAILS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-4



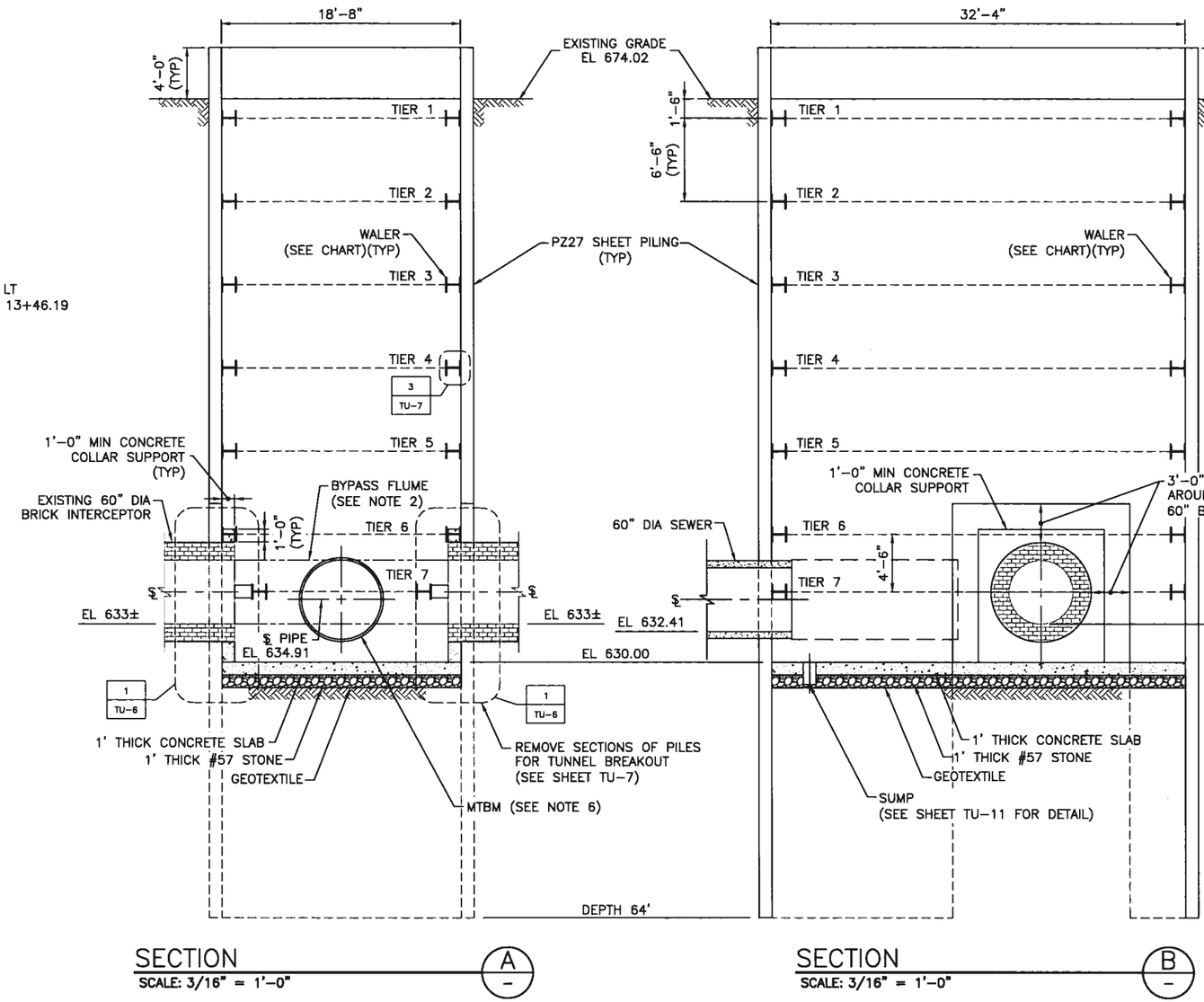
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'-0"



WALER SIZE CHART

SCALE: N.T.S.



SECTION A

SCALE: 3/16" = 1'-0"

SECTION B

SCALE: 3/16" = 1'-0"

NOTES:

1. SUPPORT DIMENSIONS BASED ON SHEET PILE MANUFACTURER'S REQUIREMENT.
2. DESIGN AND INSTALL FLOW BYPASS FLUME FOR 154 CFS CAPACITY.
3. REFER TO SHAFT SITE PLANS FOR UTILITY INFORMATION.
4. OVERHEAD UTILITIES NOT SHOWN. THEY WILL BE RELOCATED DURING CONSTRUCTION.
5. REFER TO SHEET TU-3 FOR SUGGESTED MTBM BULLSEYE ARRANGEMENT AND MISCELLANEOUS DETAILS. FOR CLARITY, BULLSEYE CONCRETE NOT SHOWN ON SECTION VIEW.
6. THE APPROXIMATE MTBM DIAMETER IS 64"± FOR CCFRPMP AND 76"± FOR POLYMER CONCRETE PIPE.
7. ALL STRUCTURAL STEEL MEMBERS INCLUDING SHEET PILES ARE Fy=50 KSI.
8. USE E70XX ELECTRODES FOR ALL WELDS.
9. THE MAX THRUST LOAD FROM MTBM ON TUNNEL BREAK-IN CONCRETE SHALL NOT EXCEED 50 TONS.
10. SEE SHEET TU-6 FOR SEQUENCE OF CONSTRUCTION.

3/16"=1'-0" 6 4 2 0 5'

90% DESIGN SUBMITTAL

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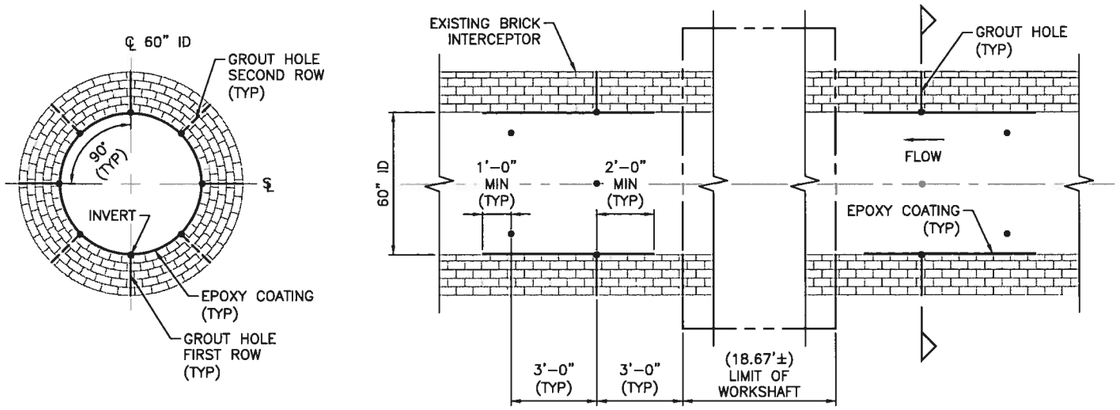
WALWORTH RUN INTERCEPTOR REALIGNMENT

WORK SHAFT
JUNCTION CHAMBER No. 2
INITIAL SUPPORTS

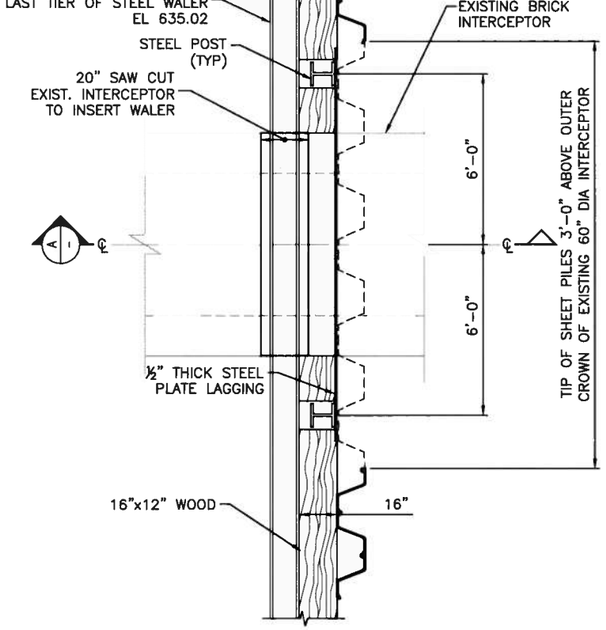
PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-5



NOTE: GROUT HOLE PATTERN FOR CUT–OFF & CONTACT GROUTING FROM EXISTING INTERCEPTOR.

GROUT HOLE PATTERN

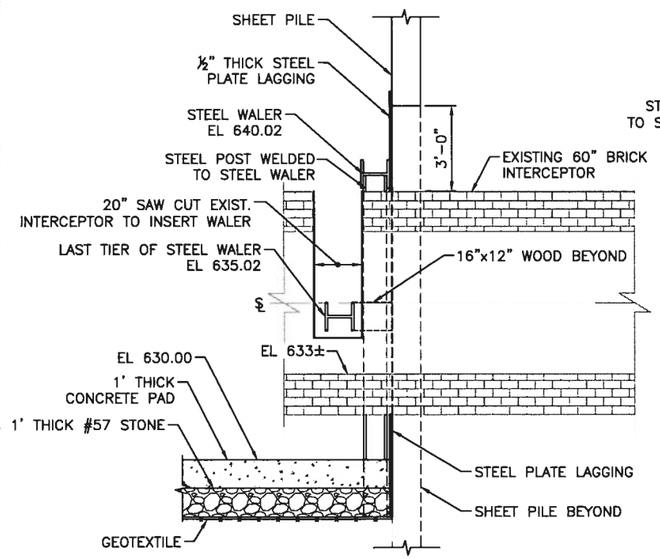
SCALE: 3/8" = 1'–0"



PLAN VIEW

SCALE: 3/8" = 1'–0"

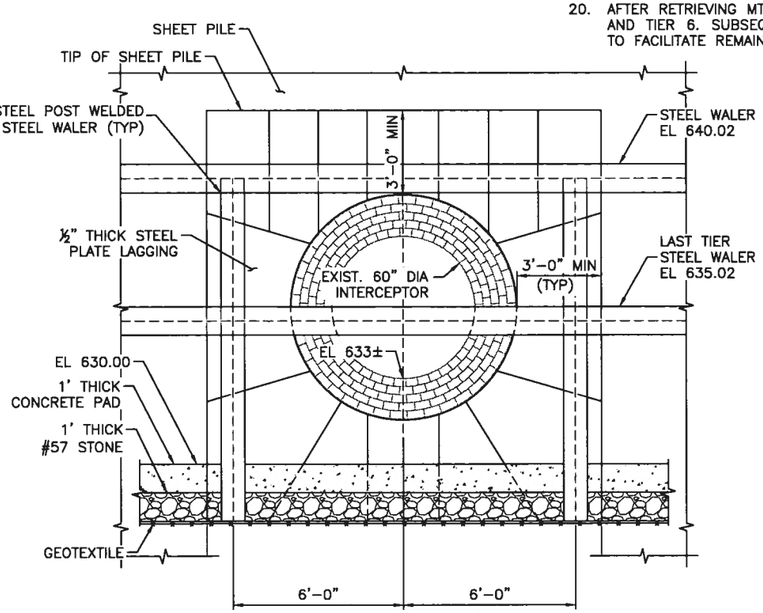
1 / TU–5



SECTION

SCALE: 3/8" = 1'–0"

A / –



FRONT ELEVATION

SCALE: 3/8" = 1'–0"

3/8"=1'–0"

12" 0 1 2 4'

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1

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SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT JUNCTION CHAMBER NO. 2

1. INSTALL SHEET PILES TO THE DEPTH SHOWN. IN PROXIMITY OF THE EXISTING INTERCEPTOR, TERMINATE THE SHEET PILES MINIMUM THREE (3) FEET ABOVE AND ON BOTH SIDES OF THE INTERCEPTOR'S EXTERIOR LIMITS.
2. INSTALL SECOND (OUTER) ROW OF SHEET PILES AT THE TUNNEL BREAK–IN LOCATION WITHIN LIMITS INDICATED.
3. FROM WITHIN THE INTERIOR OF THE EXISTING INTERCEPTOR PERFORM CUT–OFF /CONTACT GROUTING OF THE INTERCEPTOR'S EXTERIOR IN A PATTERN SHOWN ON THE DRAWING.
4. INSTALL DEWATERING DEEP WELLS. LOCATE THE WELLS AS CLOSE AS PRACTICAL TO THE EXTERIOR OF THE SHEET PILING AND THE EXISTING INTERCEPTOR WITH AND TO MINIMUM DEPTH OF TEN (10) FEET BELOW THE LIMIT OF EXCAVATION WITHIN THE WORK SHAFT.
5. START OPERATING DEWATERING WELLS ON 24 HOURS/DAY 7 DAYS/WEEK BASIS.
6. EXCAVATE WORK SHAFT TO MAXIMUM OF 2 FEET DEPTH BELOW TIER 1 LEVEL AND INSTALL TIER 1 STEEL SUPPORTS.
7. CONTINUE TO EXCAVATE SHAFT IN STEPS TO MAXIMUM OF 2 FEET DEPTH BELOW EACH TIER LEVEL AND SUBSEQUENTLY INSTALL EACH TIER STEEL SUPPORTS (FROM TIER 2 THROUGH TIER 5). INSTALL ONLY STRUT A FOR TIER 5.
8. AFTER INSTALLATION OF TIER 5, CONTINUE TO EXCAVATE THE SHAFT TO A MAXIMUM OF 2 FEET DEPTH BELOW TIER 6 LEVEL. DURING THE EXCAVATION EMPLOY STEEL POLLING AND LAGGING PLATES TO COVER THE GAP AND TO CONTROL SOIL INFLOW FROM WITHIN THE GAP BETWEEN THE SHEET PILING AND THE OUTSIDE OF EXISTING INTERCEPTOR. DRIVE THE PLATES BELOW THE EXCAVATION TO MAINTAIN STABLE CONDITIONS AT ALL TIMES. WELD STEEL POLING/LAGGING PLATES TOGETHER AND TO SHEET PILING TO COMPLETELY CLOSE THE GAP. INSTALL TIER 6 STEEL SUPPORTS (WALERS AND STRUTS). INSTALL ONLY STRUT A FOR TIER 6.
9. CONTINUE TO EXCAVATE THE SHAFT TO A MAXIMUM OF 2 FEET DEPTH BELOW TIER 7 LEVEL. DURING THE EXCAVATION EMPLOY STEEL POLLING AND LAGGING PLATES TO COVER THE GAP AND TO CONTROL SOIL INFLOW FROM WITHIN THE GAP BETWEEN THE SHEET PILING AND THE OUTSIDE OF EXISTING INTERCEPTOR. DRIVE THE PLATES BELOW THE EXCAVATION TO MAINTAIN STABLE CONDITIONS AT ALL TIMES. WELD STEEL POLING/LAGGING PLATES TOGETHER AND TO SHEET PILING TO COMPLETELY CLOSE THE GAP.
10. DURING LOW FLOW CONDITION, SAW CUT THE INTERCEPTOR AT THE FUTURE CONCRETE COLLAR LIMIT JUST BELOW THE SPRING LINE OF INTERCEPTOR THAT CAN ACCOMMODATE TIER 7 STEEL SUPPORTS. DEMOLISH AND REMOVE THE SAW CUT TOP HALF OF EXISTING INTERCEPTOR. INSTALL TIER 7 STEEL SUPPORTS. INSTALL STRUT B FOR TIER 7. PROVIDE A FLOW BYPASS SYSTEM FOR THE SEWER FLOW.
11. CONTINUE TO EXCAVATE THE SHAFT TO THE LIMIT OF THE EXCAVATION BY INSTALLING STEEL LAGGING/POLING PLATES WITHIN THE GAP BETWEEN THE SHEET PILING AND EXISTING INTERCEPTOR TO CONTROL SOIL AND WATER INFILTRATION. PROVIDE WATER TIGHT SEAL AND FILL VOIDS IN THIS AREA BY EMPLOYING FOAM, CHEMICAL AND OTHER GROUTING METHODS. WELD ALL STEEL PLATES TOGETHER AND TO SHEET PILES.
12. DEMOLISH BOTTOM HALF (BELOW SPRING LINE) OF THE EXISTING INTERCEPTOR. PROVIDE SUPPORT TO FLOW BYPASS SYSTEM AS NECESSARY. INSTALL STEEL POSTS ON BOTH SIDES OF THE EXISTING SEWER FROM TIER 6 INTO FUTURE CONCRETE SLAB AS SHOWN ON THE DRAWINGS. CLEAN THE BOTTOM OF EXCAVATION AND PLACE GEOTEXTILE, CRUSHED STONE BASE AND CONCRETE SLAB.
13. PROVIDE SUMP PIT AS SHOWN ON THE DRAWINGS. PLACE CONCRETE COLLAR AROUND THE EXISTING INTERCEPTOR. ALLOW THE CONCRETE SLAB AND COLLAR TO GAIN THE DESIGN STRENGTH. STOP OPERATING DEWATERING WELLS. IF THE AREA AROUND THE EXISTING INTERCEPTOR SHOWS LEAKAGE, CORRECT THE PROBLEM BY WELDING, GROUTING AND SEALING UNTIL TOTAL STABILITY IS ASSURED.
14. REMOVE STEEL SUPPORTS FOR TIER 7 (I.E., WALERS & STRUT B).
15. CONTINUOUSLY PUMP OUT THE WATER FROM THE SUMP PIT FOR THE ENTIRE DURATION OF WORK.

PROCEDURE FOR BREAK–IN FOR DRIVE 3

16. PLACE SUITABLE GROUT BETWEEN THE TWO ROWS OF SHEET PILING AT TUNNEL BREAK–IN LOCATION TO PREVENT GROUNDWATER OR SOIL INFILTRATION WHEN MAIN SHEET PILES ARE CUT FOR MICROTUNNEL BORING MACHINE (MTBM) BULL'S EYE.
17. TEST THE BULL'S EYE AREA FOR WATER TIGHTNESS BY DRILLING TEST PORTS. PROVIDE ADDITIONAL GROUTING AS NECESSARY TO ELIMINATE ANY LEAKAGE. WHEN ACCEPTABLE, CUT THE MAIN SHEET PILES (INSTALLED FOR THE SHAFT) IN THE MICROTUNNEL BREAK–IN AREA (BULL'S EYE). IF DURING CUTTING OF SHEET PILES, GROUNDWATER OR SOIL INFILTRATION IS OBSERVED, PROVIDE SECONDARY GROUT TO COMPLETELY SEAL THE BULL'S EYE ZONE AS NECESSARY. APPLY A BOND BREAKER AGAINST SHEET PILES IN THE BULL'S EYE ZONE.
18. PLACE CONCRETE FOR AND INSTALL STEEL BULL'S EYE SEAL PLATE AT THE TUNNEL BREAK–IN FOR DRIVE 3. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICRO TUNNEL BORING MACHINE (MTBM) FOR DRIVE 3.
19. RECEIVE THE MTBM IN THE SHAFT AND GROUT THE ANNULUS AROUND THE CARRIER PIPE THROUGH THE PIPE GROUT PORTS BEFORE THE SEALS ARE REMOVED AT BULL'S EYES OF THE DRIVE.
20. AFTER RETRIEVING MTBM FROM WORK SHAFT, INSTALL STRUT C FOR TIER 5 AND TIER 6. SUBSEQUENTLY REMOVE STRUT A FOR TIER 5 AND TIER 6 TO FACILITATE REMAINING CONSTRUCTION OF JUNCTION CHAMBER.

90 DESIGN SUBMITTAL

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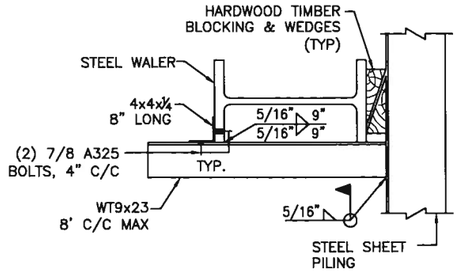
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER NO. 2 SUPPORTS AT EXISTING INTERCEPTOR

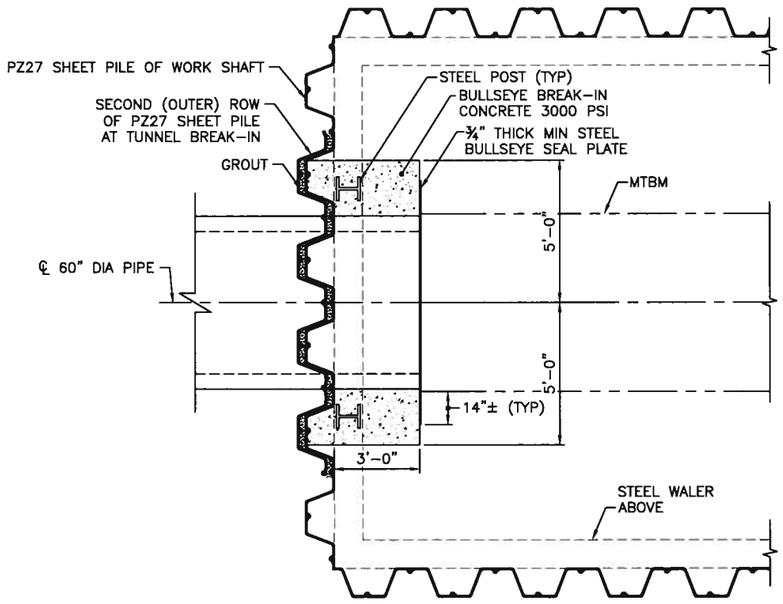
PROJECT NO.:
SHEET:
SCALE: 3/16"=1'–0"
SHEET NO.: TU–6



WALER SEAT DETAIL

SCALE: N.T.S.

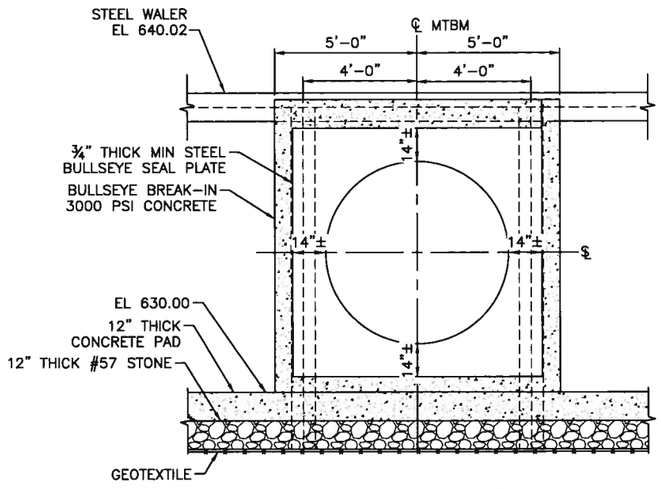
3 / TU–5



PLAN VIEW
TUNNEL BREAK–IN DETAIL

SCALE: 3/8" = 1'–0"

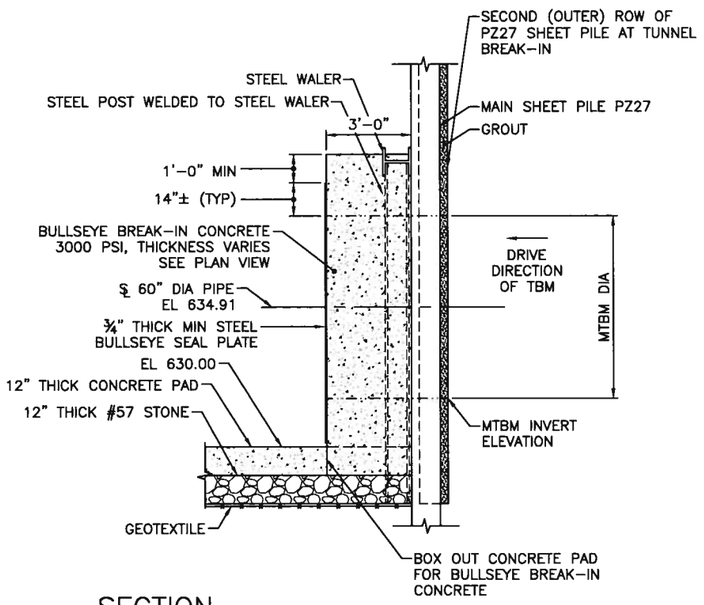
2 / TU–5



ELEVATION
TUNNEL BREAK–IN DETAIL

SCALE: 3/8" = 1'–0"

NOTE:
NO DEWATERING IS REQUIRED FOR TUNNEL BREAK–IN.



SECTION
TUNNEL BREAK–IN DETAIL

SCALE: 3/8" = 1'–0"

90% DESIGN SUBMITTAL

3/8"=1'–0"

12" 0 1 2 4'

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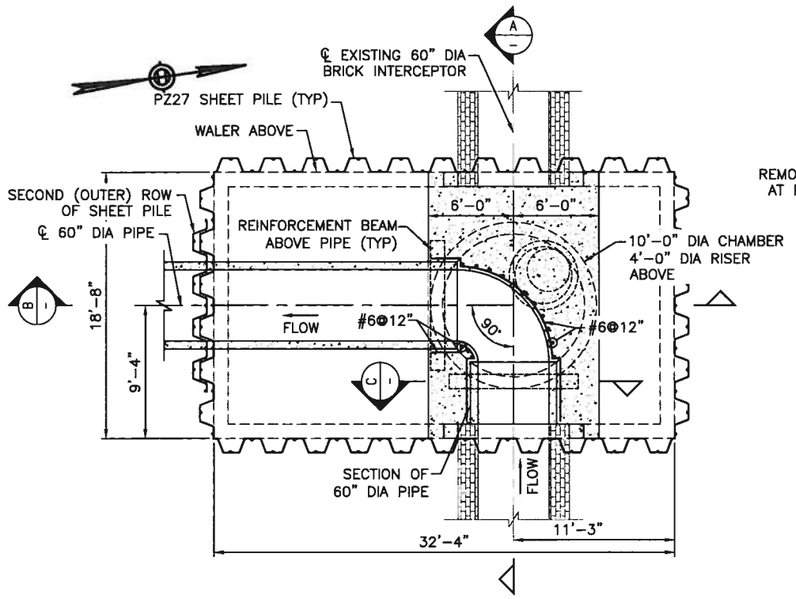
WALWORTH RUN INTERCEPTOR REALIGNMENT

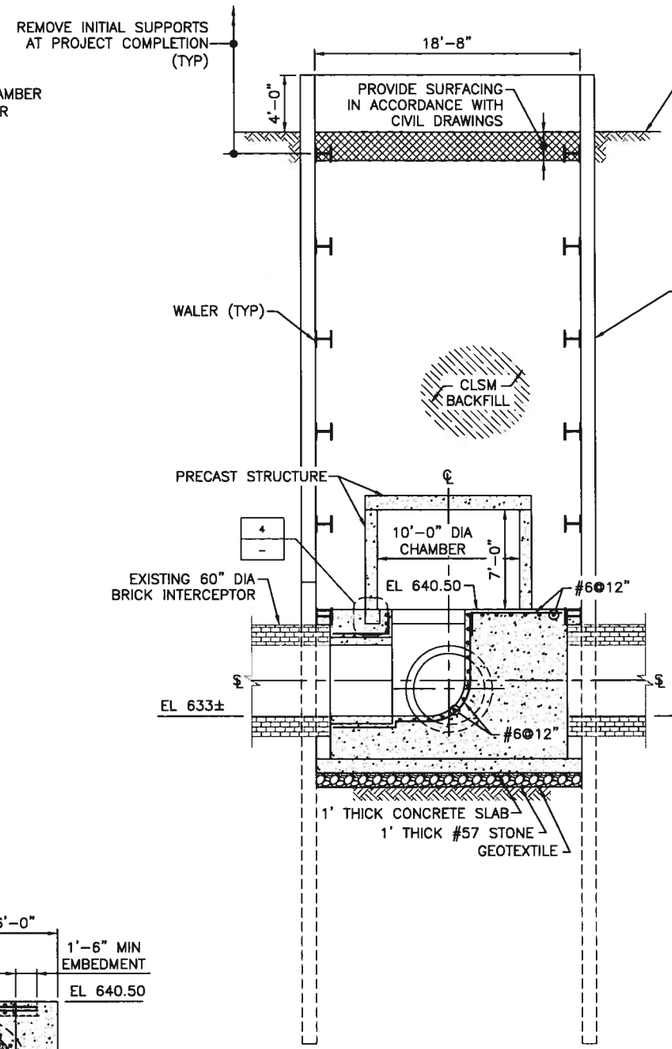
JUNCTION CHAMBER No. 2
BULLSEYE AND MISCELLANEOUS DETAILS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'–0"
SHEET NO.: TU–7



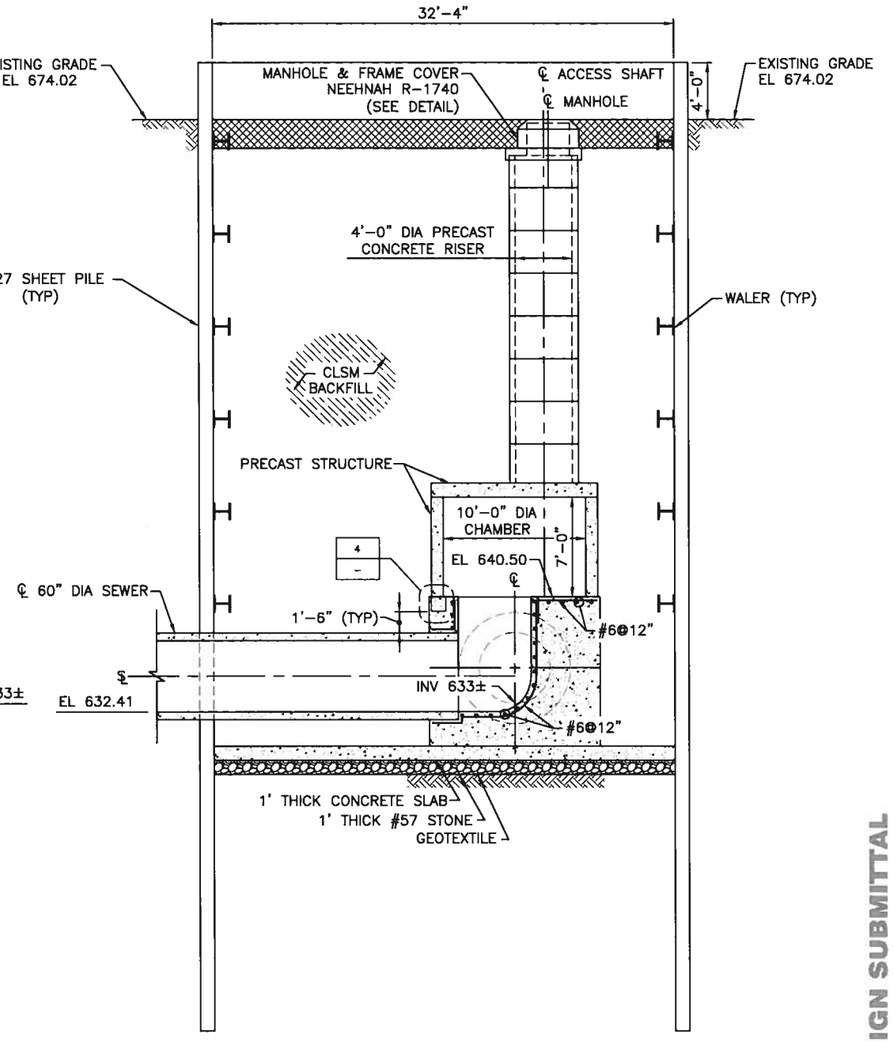
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'-0"



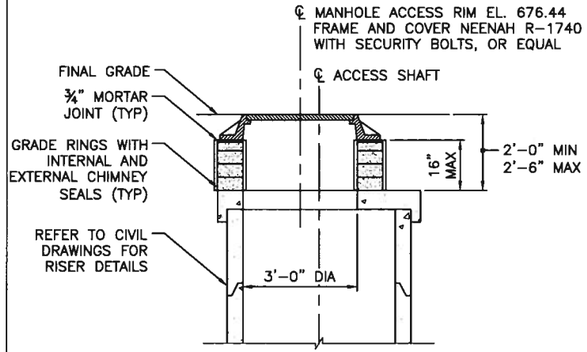
SECTION A

SCALE: 3/16" = 1'-0"



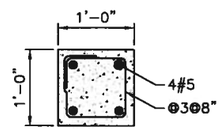
SECTION B

SCALE: 3/16" = 1'-0"



FRAME AND COVER 36" MANHOLE DETAIL

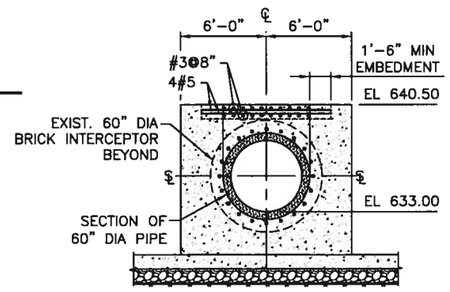
SCALE: N.T.S.



REINFORCEMENT BEAM DETAIL

4 / –

SCALE: N.T.S.



SECTION C

SCALE: 3/16" = 1'-0"

3/16"=1'-0" 6 4 2 0 5'

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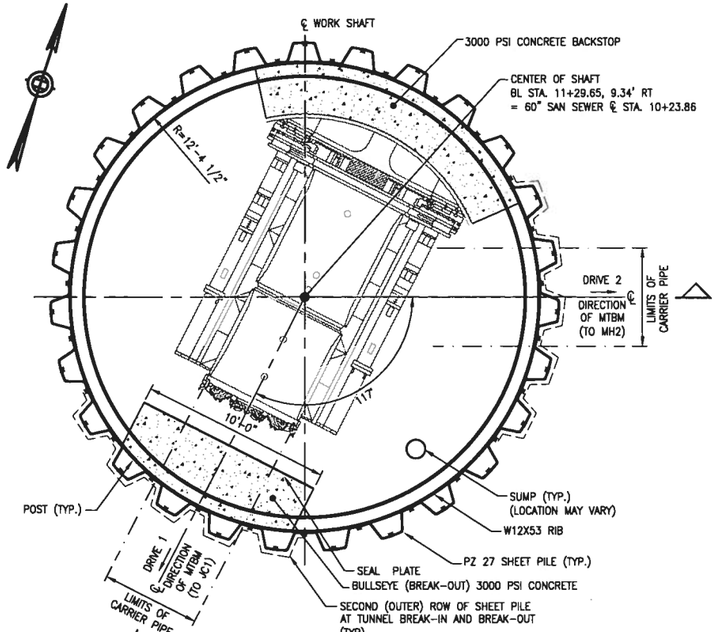
WALWORTH RUN INTERCEPTOR REALIGNMENT

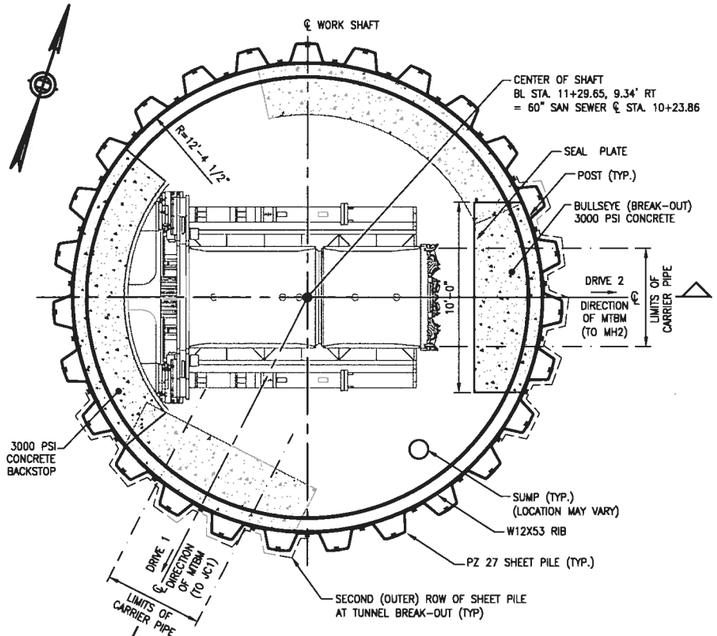
WORK SHAFT JUNCTION CHAMBER No. 2 STRUCTURAL DETAILS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-8



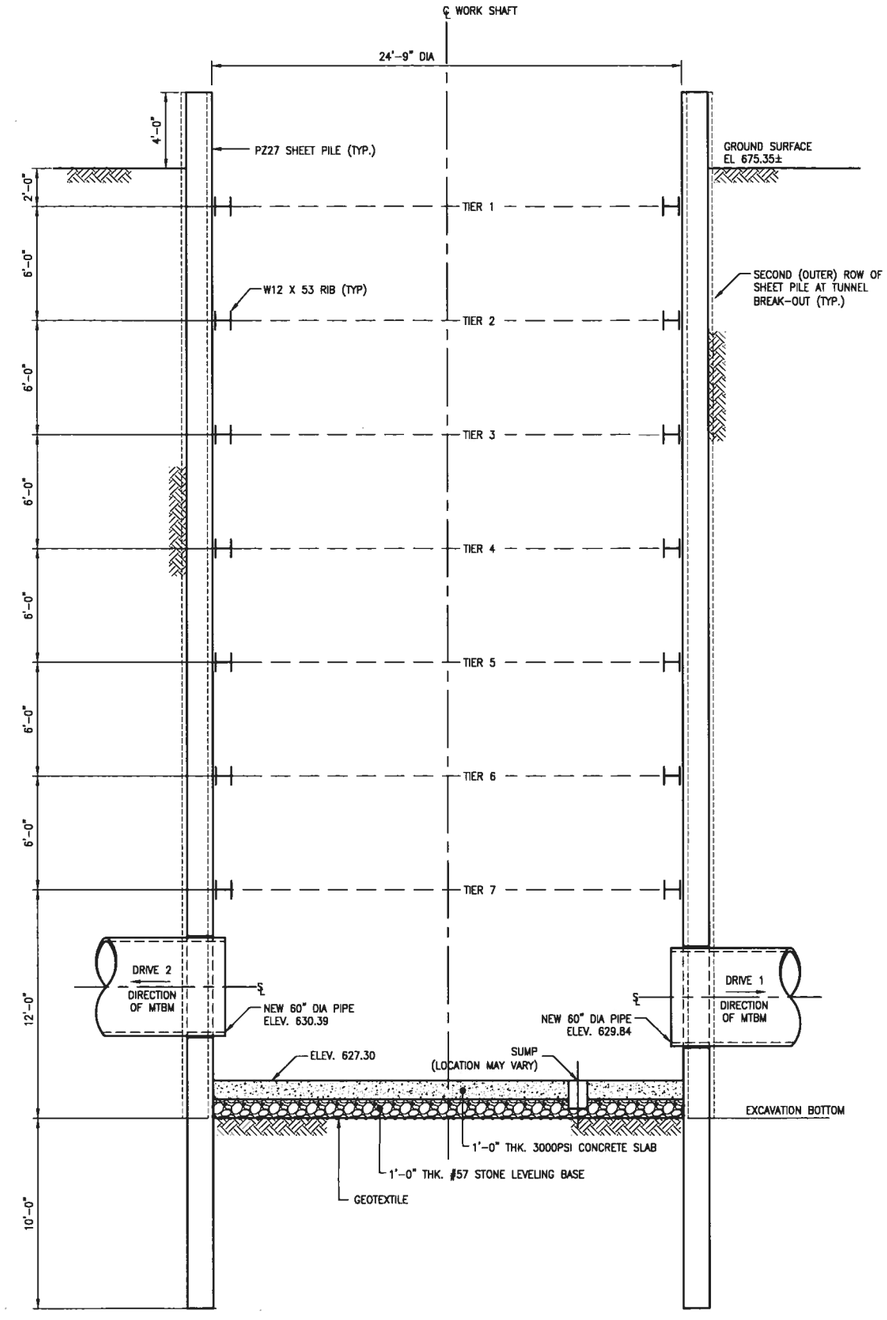
PLAN VIEW
DRIVE 1 (JACKING)

SCALE: 1/4" = 1'-0"



PLAN VIEW
DRIVE 2 (JACKING)

SCALE: 1/4" = 1'-0"



SECTION

SCALE: 1/4" = 1'-0"

1

GENERAL NOTES:

1. ALL STRUCTURAL STEEL MEMBERS ARE FY = 50 KSI.
2. SHEET PILING IS PZ27 OR EQUAL (FY = 50 KSI))
3. USE E70XX ELECTRODES FOR ALL WELDS.
4. THE MAX. THRUST LOAD FROM MTBM ON TUNNEL BREAK-IN CONCRETE SHALL NOT EXCEED 50 TONS.
5. CIRCULAR SHEET PILE LAYOUT PROVIDED BY SKYLINE STEEL LLC.
6. REFER TO SHEET TU-11 FOR BULLSEYE AND MISC. DETAILS.
7. FOR CLARITY BACKSTOP AND BULLSEYE CONCRETE IS NOT SHOWN.

SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MANHOLE NO. 1 (MH1)

THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MH1 IS PREPARED CONSIDERING THAT MICROTUNNEL DRIVE 1 WILL BE COMPLETED FIRST AND THEN DRIVE 2 WILL BE COMPLETED.

TO MAINTAIN THE EXCAVATION AND SUPPORT STABILITY, THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR THE WORK SHAFT SHALL BE FOLLOWED:

1. INSTALL SHEET PILES TO THE DEPTH SHOWN FOR THE CIRCULAR SHAFT.
2. INSTALL SECOND (OUTER) ROW OF SHEET PILES AT TUNNEL BREAK-OUT LOCATIONS WITHIN LIMITS INDICATED.
3. EXCAVATE SHAFT TO MAXIMUM OF 2 FEET DEPTH BELOW TIER 1 LEVEL AND INSTALL TIER 1 STEEL SUPPORTS.
4. CONTINUE TO EXCAVATE SHAFT IN STEPS TO MAXIMUM OF 2 FEET DEPTH FOR EACH OF THE REMAINING TIER LEVEL AND INSTALL REMAINING TIER STEEL SUPPORTS.
5. AFTER INSTALLATION OF THE LAST TIER, CONTINUE TO EXCAVATE THE SHAFT DOWN TO THE BOTTOM OF EXCAVATION.
6. CLEAN THE BOTTOM OF EXCAVATION AND PLACE GEOTEXTILE FABRIC, CRUSHED STONE BASE AND CONCRETE SLAB. PROVIDE SUMP PIT AS SHOWN ON THE DRAWINGS. ALLOW THE CONCRETE SLAB TO GAIN THE DESIGN STRENGTH.
7. IF GROUND WATER IS IN-FILTERING INTO THE SUMP PIT, CONTINUOUSLY PUMP OUT THE WATER FROM THE SUMP PIT FOR THE ENTIRE DURATION OF WORK.

PREPARATION FOR BREAK-OUT FOR DRIVE 1 AND DRIVE 2

8. PLACE SUITABLE GROUT BETWEEN TWO ROWS OF SHEETING AT TUNNEL BREAK-OUT LOCATIONS TO PREVENT GROUNDWATER OR SOIL INFILTRATION WHEN MAIN SHEET PILES ARE CUT FOR MICROTUNNEL BORING MACHINE (MTBM) BULLS EYE.
9. CUT THE SHEET PILES (INSTALLED FOR THE SHAFT) IN THE MICROTUNNEL BREAK-OUT AREAS (BULLSEYE). IF DURING CUTTING OF SHEET PILES, GROUNDWATER OR SOIL INFILTRATION IS OBSERVED, PROVIDE SECONDARY GROUT TO COMPLETELY SEAL BULLSEYE ZONE AS NECESSARY. APPLY A BOND BREAKER AGAINST SHEET PILES IN THE BULLSEYE ZONE.

PROCEDURE FOR BREAK-OUT FOR DRIVE1 AND DRIVE 2

10. INSTALL STEEL BULLSEYE SEAL PLATE AND PLACE CONCRETE FOR THE TUNNEL BREAK-OUT BETWEEN SEAL PLATE AND SHEET PILES FOR DRIVE 1. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICRO TUNNEL BORING MACHINE (MTBM) FOR DRIVE 1.
11. ON COMPLETION OF DRIVE1, INSTALL BREAK-OUT FOR DRIVE 2 SIMILAR TO THE BREAK-OUT PROCEDURE FOR DRIVE 1. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICROTUNNEL BORING MACHINE (MTBM) FOR DRIVE 2.

CONCRETE BACKSTOP CONSTRUCTION FOR DRIVE 1 AND DRIVE 2

12. CONSTRUCT THE CONCRETE BACK STOP AS SHOWN ON THE DRAWING FOR DRIVE 1.
13. ON COMPLETION OF DRIVE 1, CONSTRUCT THE CONCRETE BACK STOP FOR DRIVE 2.

99% DESIGN SUBMITTAL

1/4"=1'-0"

1 0 1 2 3

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1

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DESIGNED BY:
DRAWN BY:
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CROSS CHK'D BY:
APPROVED BY:
DATE: APRIL 30, 2010

Dawn Underground Engineering, Inc.
Tunnel and Underground Structures Consultants
10 Village Court · Hazlet · New Jersey 07730
Tel: 732-739-8840 Fax: 732-739-8870

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

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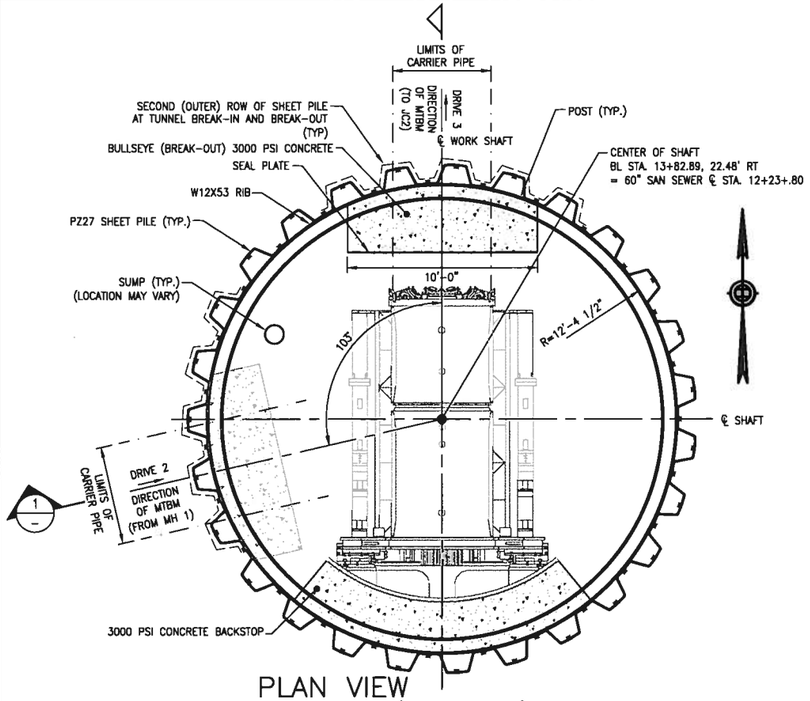
WALWORTH RUN INTERCEPTOR REALIGNMENT

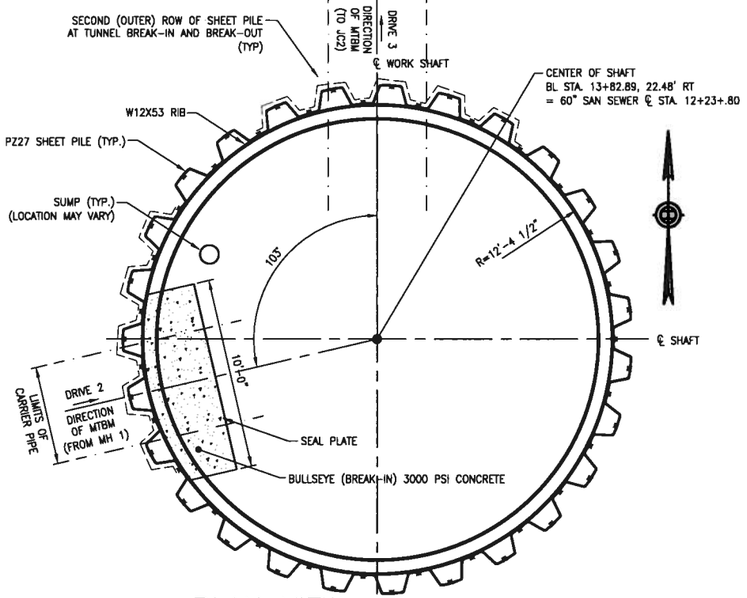
WORK SHAFT
MANHOLE No.1
INITIAL SUPPORTS

PROJECT NO.:
SHEET:
SCALE: AS NOTED
SHEET NO.: TU-9



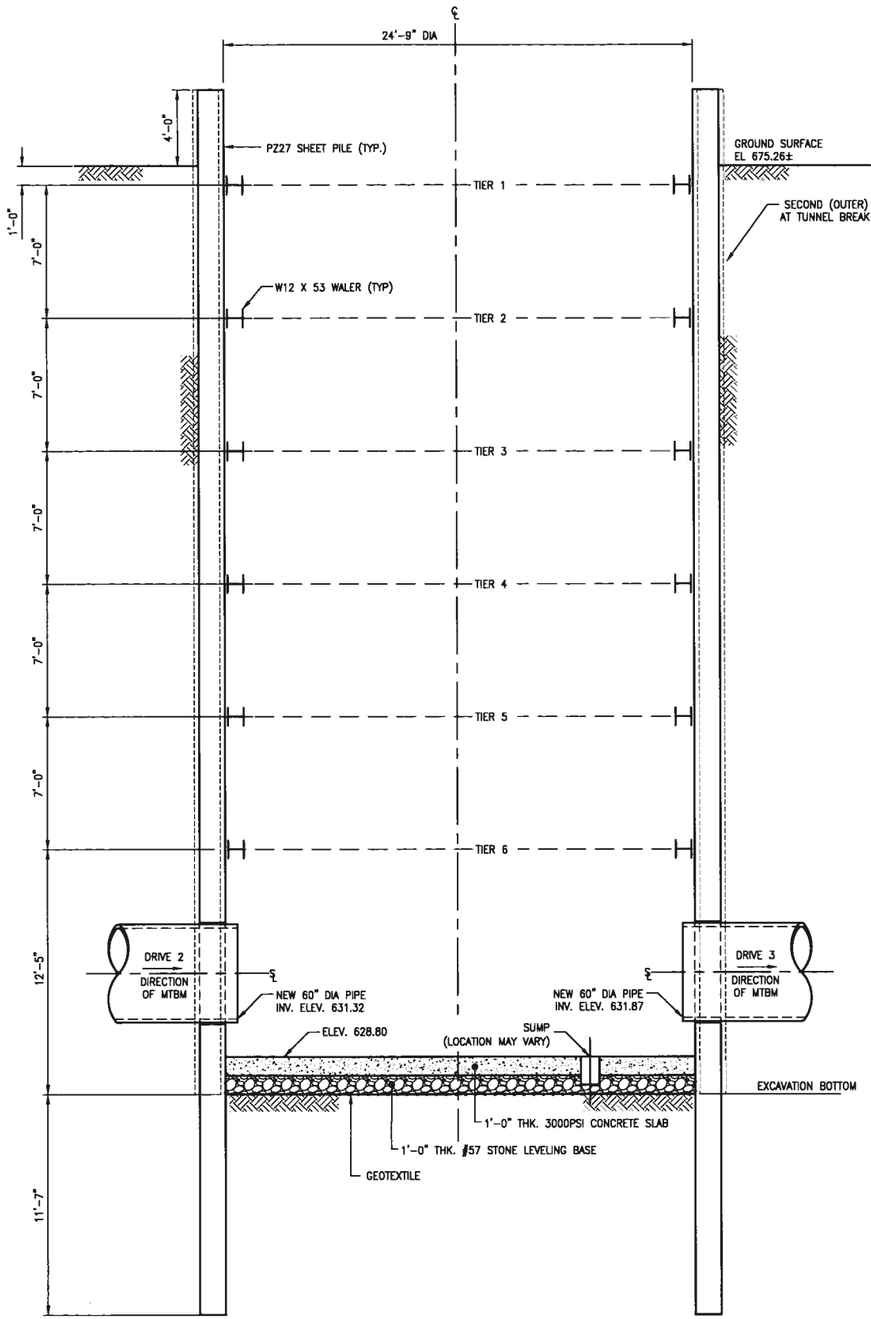
PLAN VIEW
DRIVE 3 (JACKING)

SCALE: 1/4" = 1'-0"



PLAN VIEW
DRIVE 2 (RECEIVING)

SCALE: 1/4" = 1'-0"



SECTION

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. ALL STRUCTURAL STEEL MEMBERS ARE FY = 50 KSI.
2. SHEET PILING IS PZ27 OR EQUAL (FY = 50 KSI))
3. USE E70XX ELECTRODES FOR ALL WELDS.
4. THE MAX. THRUST LOAD FROM MTBM ON TUNNEL BREAK-IN CONCRETE SHALL NOT EXCEED 50 TONS.
5. CIRCULAR SHEET PILE LAYOUT PROVIDED BY SKYLINE STEEL LLC.
6. REFER TO SHEET TU-11 FOR BULLSEYE AND MISC. DETAILS.
7. FOR CLARITY BACKSTOP AND BULLSEYE CONCRETE IS NOT SHOWN.

SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MANHOLE NO. 2 (MH2)

THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MH2 IS PREPARED CONSIDERING THAT MICROTUNNEL DRIVE 2 WILL BE COMPLETED FIRST AND THEN DRIVE 3 WILL BE COMPLETED.

TO MAINTAIN THE EXCAVATION AND SUPPORT STABILITY, THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR THE WORK SHAFT SHALL BE FOLLOWED:

1. INSTALL SHEET PILES TO THE DEPTH SHOWN FOR THE CIRCULAR SHAFT.
2. INSTALL SECOND (OUTER) ROW OF SHEET PILES AT TUNNEL BREAK-IN AND BREAK-OUT LOCATION WITHIN LIMITS INDICATED.
3. EXCAVATE SHAFT TO MAXIMUM OF 2 FEET DEPTH BELOW TIER 1 LEVEL AND INSTALL TIER 1 STEEL SUPPORTS.
4. CONTINUE TO EXCAVATE SHAFT IN STEPS TO MAXIMUM OF 2 FEET DEPTH FOR EACH OF THE REMAINING TIER LEVEL AND INSTALL REMAINING TIER STEEL SUPPORTS.
5. AFTER INSTALLATION OF THE LAST TIER, CONTINUE TO EXCAVATE THE SHAFT DOWN TO THE BOTTOM OF EXCAVATION.
6. CLEAN THE BOTTOM OF EXCAVATION AND PLACE GEOTEXTILE FABRIC, CRUSHED STONE BASE AND CONCRETE SLAB. PROVIDE SUMP PIT AS SHOWN ON THE DRAWINGS. ALLOW THE CONCRETE SLAB TO GAIN THE DESIGN STRENGTH.
7. IF GROUND WATER IS IN-FILTERING INTO THE SUMP PIT, CONTINUOUSLY PUMP OUT THE WATER FROM THE SUMP PIT FOR THE ENTIRE DURATION OF WORK.

PREPARATION FOR BREAK-IN FOR DRIVE 2 AND BREAK-OUT FOR DRIVE 3

8. PLACE SUITABLE GROUT BETWEEN THE TWO ROWS OF SHEET PILING AT TUNNEL BREAK-IN AND BREAK-OUT LOCATIONS TO PREVENT GROUNDWATER OR SOIL INFILTRATION WHEN MAIN SHEET PILES ARE CUT FOR MICROTUNNEL BORING MACHINE (MTBM) BULLS EYE.
9. CUT THE SHEET PILES (INSTALLED FOR THE SHAFT) IN THE MICROTUNNEL BREAK-IN AND BREAK-OUT AREA (BULLSEYE). IF DURING CUTTING OF SHEET PILES, GROUNDWATER OR SOIL INFILTRATION IS OBSERVED, PROVIDE SECONDARY GROUT TO COMPLETELY SEAL BULLSEYE ZONE AS NECESSARY. APPLY A BOND BREAKER AGAINST SHEET PILES IN THE BULLSEYE ZONE.

PROCEDURE FOR BREAK-IN FOR DRIVE 2

10. INSTALL STEEL BULLSEYE SEAL PLATE AND PLACE CONCRETE FOR THE TUNNEL BREAK-IN FOR DRIVE2. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICROTUNNEL BORING MACHINE (MTBM) FOR DRIVE 2.
11. RECEIVE THE MTBM IN THE SHAFT AND GROUT THE ANNULUS AROUND THE CARRIER PIPE THROUGH THE GROUT PORTS.

PROCEDURE FOR BREAK-OUT FOR DRIVE 3

12. ON COMPLETION OF DRIVE 2, INSTALL STEEL BULLSEYE SEAL PLATE AND PLACE CONCRETE FOR THE TUNNEL BREAK-OUT FOR DRIVE 3. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. JUST BEFORE COMMENCING THE WORK ON MICROTUNNELING FOR DRIVE 3, PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICROTUNNEL BORING MACHINE (MTBM) FOR DRIVE 3.

CONCRETE BACKSTOP CONSTRUCTION FOR DRIVE 3

13. ON COMPLETION OF DRIVE 2, CONSTRUCT THE CONCRETE BACK STOP AS SHOWN ON THE DRAWING FOR DRIVE 3.

90% DESIGN SUBMITTAL

1/4"=1'-0"

BAR IS ONE INCH ON ORIGINAL DRAWING

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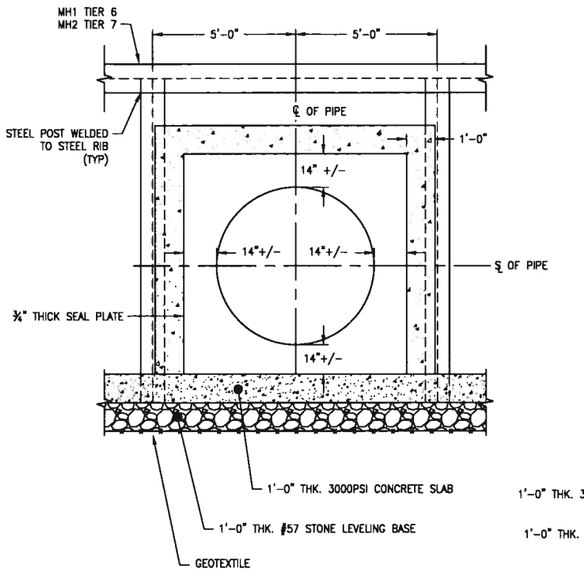
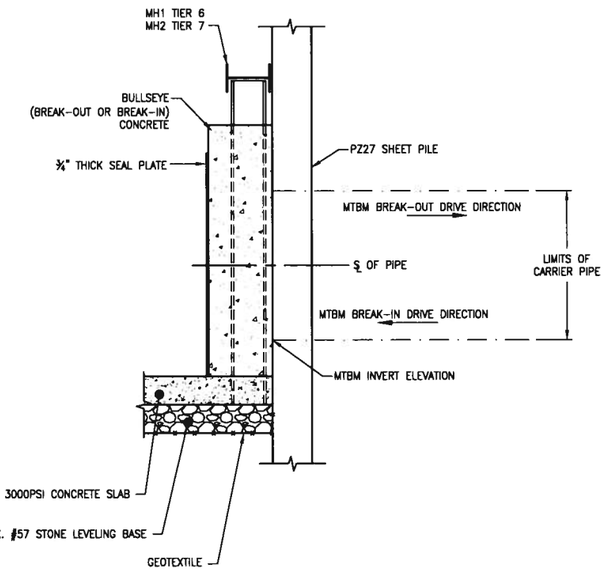
WALWORTH RUN INTERCEPTOR REALIGNMENT

WORK SHAFT
MANHOLE No.2
INITIAL SUPPORTS

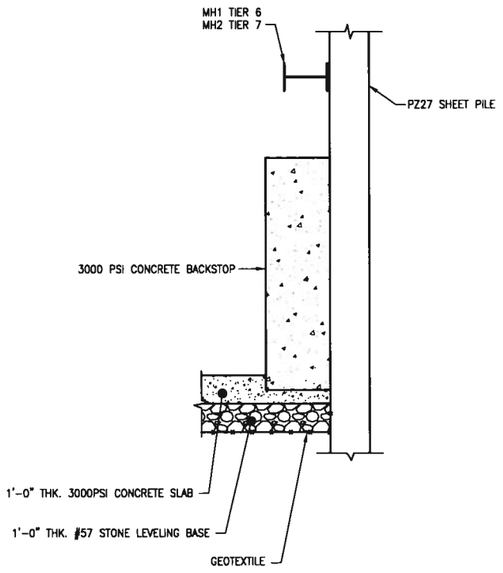
PROJECT NO.:
SHEET:
SCALE: AS NOTED
SHEET NO.: TU-10





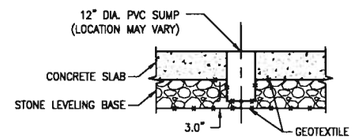
BULLSEYE DETAIL

SCALE: N.T.S.



BACKSTOP DETAIL

SCALE: N.T.S.



SUMP DETAIL

SCALE: N.T.S.

90% DESIGN SUBMITTAL

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0 1

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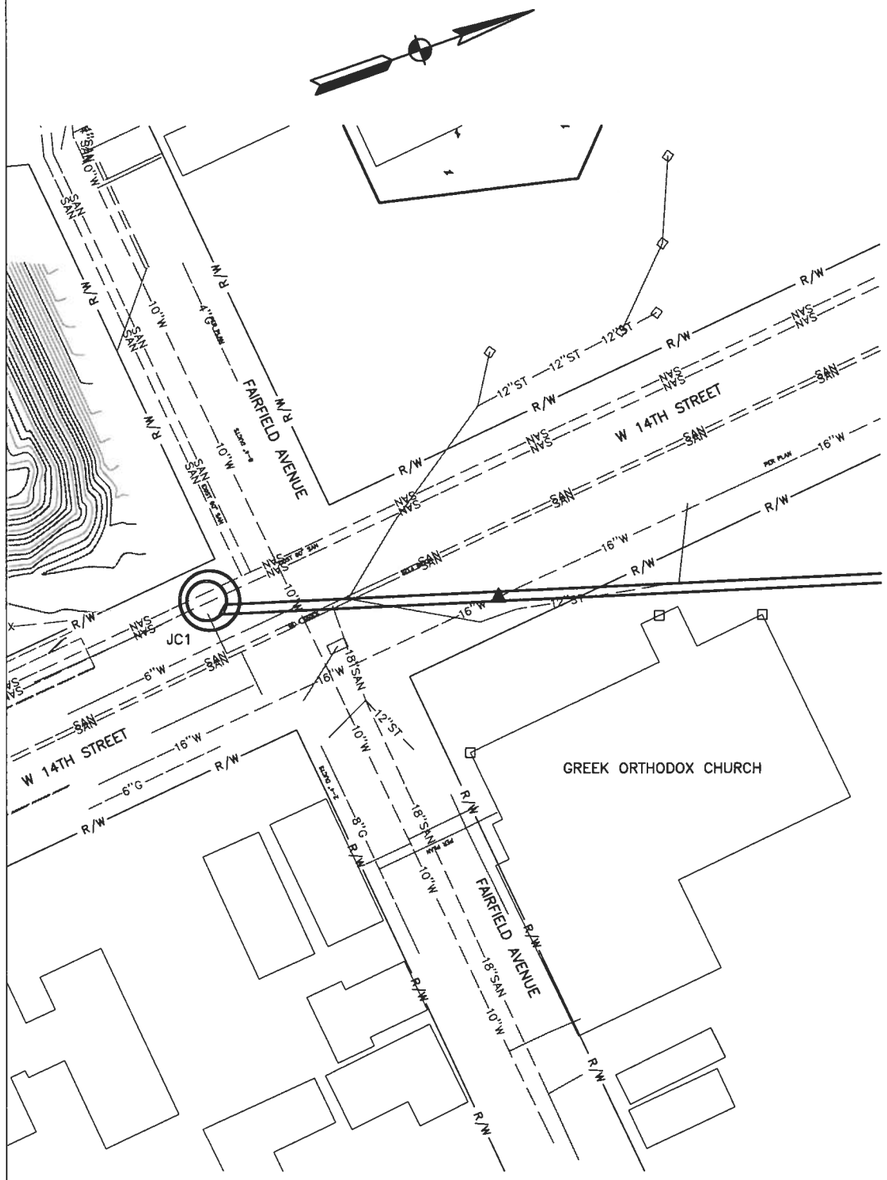
WALWORTH RUN INTERCEPTOR REALIGNMENT

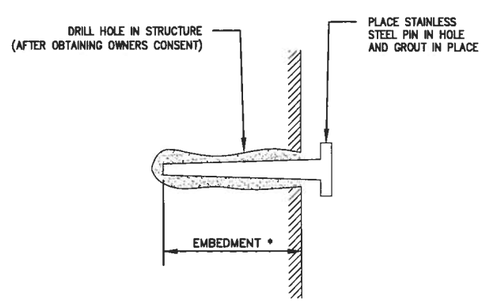
MANHOLE No. 1 AND MANHOLE No. 2 BREAK-IN, BREAK-OUT, BACKSTOP AND SUMP DETAILS

PROJECT NO.:
SHEET:
SCALE: AS NOTED
SHEET NO.: TU-11



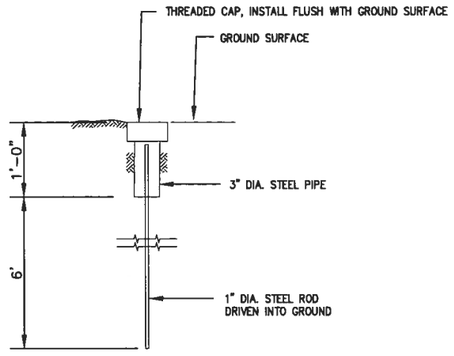
PLAN VIEW
MONITORING AT JC1

LEGEND
⊕ – GROUND SETTLEMENT POINT
□ – STRUCTURE SETTLEMENT POINT
▲ – UTILITY SETTLEMENT POINT

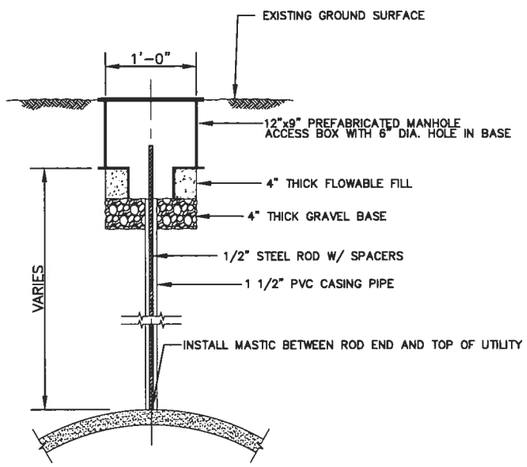


* EMBED TO A DEPTH AS NECESSARY TO PROVIDE A RIGID IMMOVABLE POINT

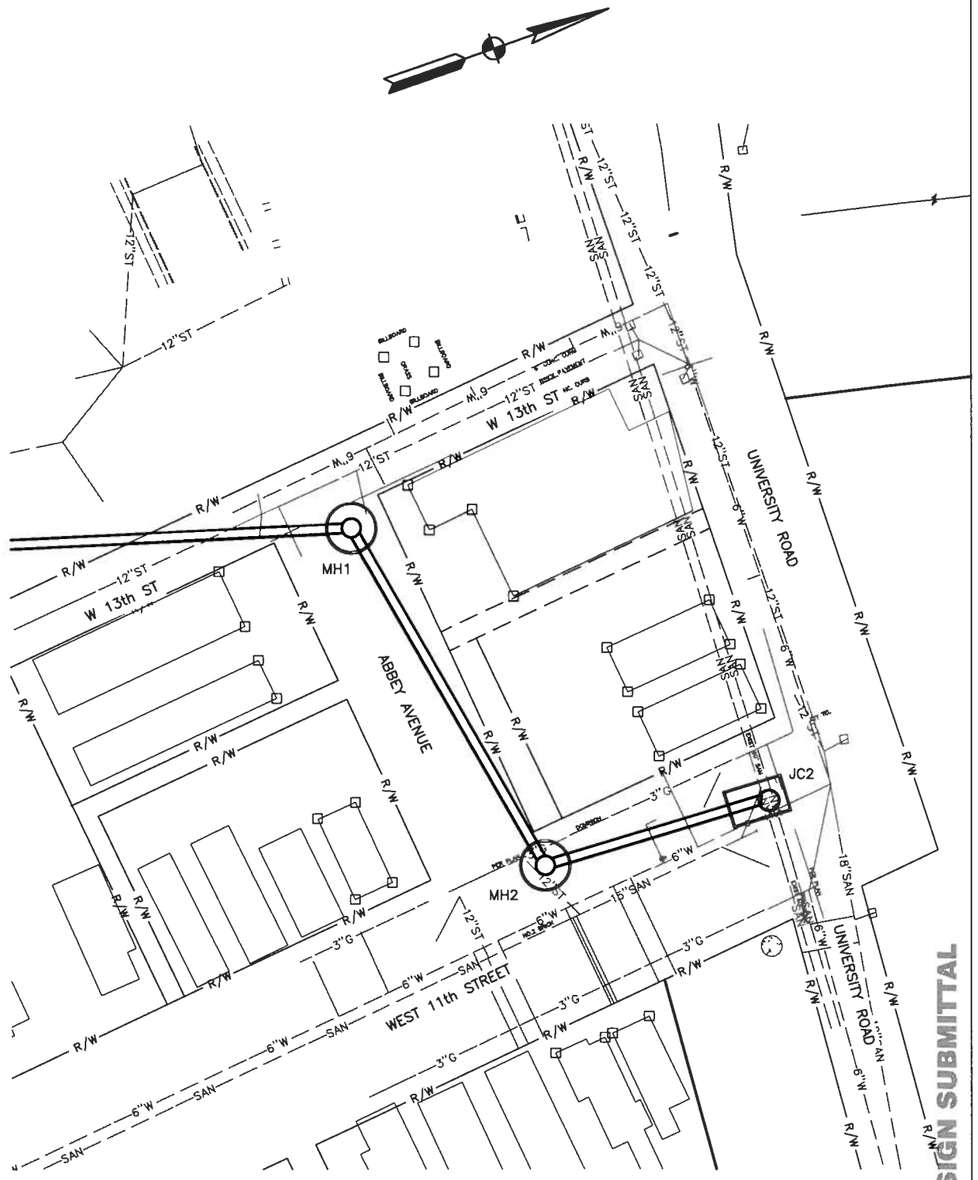
STRUCTURE SETTLEMENT POINT
N.T.S.



GROUND SETTLEMENT POINT
N.T.S.



UTILITY SETTLEMENT POINT
N.T.S.



PLAN VIEW
MONITORING AT MH1, MH2 & JC2

NOTES:
1. THE LOCATIONS OF CRACK MONITORS WILL BE DETERMINED DURING THE EXISTING STRUCTURES INSPECTIONS AS OUTLINED IN SPECIFICATION SECTION 01379.
2. INSTALL SETTLEMENT POINTS ON THE FOUNDATION OF THE BILLBOARD STRUCTURE LOCATED NORTH OF THE MH1 WORK SHAFT.

1"=40'-0" 40 20 0 40'

90 DESIGN SUBMITTAL

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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WALWORTH RUN INTERCEPTOR REALIGNMENT

MONITORING

PROJECT NO.:
SHEET:
SCALE: 1" = 40'
SHEET NO.: TU-12

GENERAL

1. QUALITY OF CONSTRUCTION REQUIRED, PERFORMANCE LEVELS OF WORKMANSHIP, MANUFACTURING AND INDUSTRY STANDARDS, STRENGTH AND PHYSICAL REQUIREMENTS OF MATERIALS, CONFORMANCE TO CODES AND REGULATIONS, GUARANTEES AND OTHER PROJECT REQUIREMENTS ARE SPECIFIED IN THE SPECIFICATIONS.
2. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED, OR NOTED SHALL BE PROVIDED.
3. PERFORM ALL WORK IN COORDINATION WITH ALL DRAWINGS AND INFORMATION RELATED TO STRUCTURAL WORK.
4. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE-DOWNS THAT MAY BE NECESSARY. SUCH TEMPORARY MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
5. FACILITIES HAVE BEEN DESIGNED FOR DESIGN LOADS SHOWN OR SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FACILITIES SUBJECT TO CONSTRUCTION LOADS EXCEEDING THE DESIGN LOADS AND SHALL NOTIFY THE ENGINEER OF ANY SUCH ADDITIONAL LOADS.
6. DURING CONSTRUCTION, STRUCTURE MAY BE BUOYANT WHEN EMPTY. IN THE EVENT THAT THE EXCAVATION BECOMES FLOODED OR THE SURROUNDING GROUND BECOMES SATURATED, ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT FLOATATION OF THE STRUCTURE.

FOUNDATIONS

1. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SURVEY AND THE SUBSURFACE INVESTIGATION REPORT BEFORE BEGINNING CONSTRUCTION.
2. NOTIFY THE ENGINEER AS SOON AS POSSIBLE OF ANY UNUSUAL SOIL CONDITIONS, OR SOIL CONDITIONS IN VARIANCE WITH TEST BORINGS, SUCH AS UNEXPECTED SPRING OR SEEPAGE WATER, MATERIAL DIFFERING FROM TEST BORINGS, OR SOIL OF QUESTIONABLE BEARING CAPACITY.
3. SET FOUNDATIONS AT ELEVATIONS SHOWN. THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER THAT EACH FOOTING PLACED IS BEARING ON DESIGN MATERIAL.
4. LEVELS OF BACKFILL AGAINST CONCRETE WALLS SHALL NOT DIFFER BY MORE THAN 2'-0" ON EITHER SIDE OF WALLS UNLESS ADEQUATELY BRACED OR ALL FLOOR FRAMING IS IN PLACE UP TO AND INCLUDING GRADE LEVEL SLABS.
5. PROTECT EXCAVATION FROM FLOODING UNTIL ALL WALLS AND FLOOR FRAMING UP TO AND INCLUDING GRADE LEVEL FLOORS ARE IN PLACE AND BACKFILLING HAS BEGUN. WATER LEVEL SHALL BE MAINTAINED BELOW EXCAVATION AT ALL TIMES.

STANDARD HOOKS

1. UNLESS OTHERWISE SHOWN OR NOTED, ALL 90°, 135° AND 180° HOOKS FOR REINFORCING SHALL BE IN ACCORDANCE WITH THE STANDARD HOOK DETAILS SHOWN IN ACI DETAILING MANUAL.

CAST-IN-PLACE CONCRETE

1. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:
   - 3,000 psi
   - 5,000 psi
2. ALL CONCRETE WORK NOT COVERED UNDER ACI 350 SHALL BE IN ACCORDANCE WITH "THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 318. TOLERANCES SHALL BE IN ACCORDANCE WITH ACI 347, SECTION 3.3.1, TOLERANCES FOR REINFORCED CONCRETE BUILDINGS.
3. ALL REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL CONFORMING TO ASTM-615 GRADE 60.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 DELIVERED IN FLAT SHEETS.
5. ALL REINFORCING DETAILS SHALL CONFORM TO "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI 315, UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS.
6. CONTRACTOR SHALL REVIEW ALL DRAWINGS FOR SIZE AND LOCATION OF EMBEDDED ITEMS, SLEEVES, SLAB DEPRESSIONS. THESE ITEMS SHALL BE FURNISHED AND INSTALLED PRIOR TO PLACEMENT OF CONCRETE.
7. WHERE BAR LENGTHS ARE GIVEN ON THE DRAWINGS, THE LENGTH OF ANCHOR HOOK, IF REQUIRED, IS NOT INCLUDED.
8. ALL BEAMS, SPANDRELS AND SLABS SHALL BE CAST MONOLITHICALLY, EXCEPT FOR REQUIRED CONSTRUCTION JOINTS. CONTRACTOR SHALL SUBMIT ANY AND ALL ALTERNATE AND ADDITIONAL CONSTRUCTION JOINT LOCATIONS AND DETAILS.
9. CONSTRUCTION JOINTS REQUIRED BY THE ENGINEER ARE SHOWN ON THE DRAWINGS. ADDITIONAL CONSTRUCTION JOINTS SHALL BE PROVIDED AS OUTLINED IN SPECIFICATIONS. REINFORCEMENT SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS. SUBMIT ALL CONSTRUCTION JOINT LOCATIONS WITH REINFORCING STEEL SHOP DRAWINGS.
10. CONTRACTOR SHALL PROVIDE ¾ INCH CHAMFER USING WOOD CHAMFER STRIPS ON ALL EXPOSED CORNERS OF COLUMNS, BEAMS AND WALLS, OR AS REQUIRED TO MATCH EXISTING.
11. CLEARANCES FOR REINFORCING STEEL SHALL CONFORM TO THE FOLLOWING:
    TYPICAL REINFORCING BAR CLEARANCE TABLE
    CONCRETE CAST AGAINST EARTH. . . . . 3"
    SLAB REINF. TO CLEAR WATER STOP. . . . . 3"
    SURFACES EXPOSED TO LIQUIDS . . . . . 2"
    SURFACES EXPOSED TO EARTH OR WEATHER . . 3"
12. PROVIDE WATERSTOPS AT ALL CONSTRUCTION JOINTS IN SLABS AND WALLS.
    - PROVIDE 6" WIDE PVC WATERSTOP AT ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN SLABS AND WALLS OF NEW CONCRETE CONSTRUCTION.
    - PROVIDE BENTONITE (HYDROPHILIC) WATERSTOP AT PIPE-WALL-PENETRATIONS, PRECAST CONCRETE RISERS AND AT JOINTS BETWEEN EXISTING STRUCTURE AND NEW CONCRETE CONSTRUCTION.
13. ALL EXPANSION JOINTS SHALL HAVE WATERSTOPS, UNLESS NOTED OTHERWISE.
14. WELDING OF REINFORCING STEEL IS NOT PERMITTED, UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS.
15. CALCIUM CHLORIDE SHALL NOT BE PERMITTED NOR SHALL ANY ADMIXTURE CONTAINING CALCIUM CHLORIDE BE PERMITTED THAT RESULTS IN A TOTAL CONCRETE MIX IN WHICH THE PRESENCE OF CHLORIDE IONS EXCEED 0.15 PERCENT BY WEIGHT OF CEMENT.
16. CONCRETE SHALL BE DISCHARGED AT THE SITE WITHIN 90 MINUTES AFTER WATER HAS BEEN ADDED TO THE CEMENT AND AGGREGATES. ADDITION OF WATER TO THE MIX AT THE PROJECT SITE WILL NOT BE ALLOWED. ALL WATER MUST BE ADDED AT THE BATCH PLANT.
17. REINFORCING BARS REQUIRED FOR PROPER SUPPORT OF PRINCIPAL REINFORCING SHALL BE DETAILED AND SUPPLIED BY THE CONTRACTOR WHETHER OR NOT THEY ARE INDICATED ON THE DRAWINGS.
18. ONLY MOISTURE CURING METHODS SHALL BE USED ON CONCRETE WHICH WILL BE COVERED WITH WATERPROOFING SYSTEM, A CONCRETE TOPPING, OR A MATERIAL SET IN A MORTAR BED, BOTH OF WHICH REQUIRE A BOND TO THE FIRST CAST CONCRETE.
19. REINFORCING BAR LAP SPLICES AND ANCHORAGE LENGTH SHALL CONFORM WITH "LAP SPLICE AND EMBEDMENT LENGTH TABLE".
20. POSITIVE CONNECTION SPLICES: MECHANICAL CONNECTIONS SHALL DEVELOP 125 PERCENT OF THE YIELD STRENGTH OF THE REINFORCING BAR. ALL SPLICES WILL BE VISUALLY INSPECTED BY THE ENGINEER TO VERIFY THAT THE SPLICE HAS BEEN MADE PROPERLY.
21. BOND BREAKER MATERIAL SHALL BE 15 POUNDS FELT PAPER, UNLESS NOTED OTHERWISE.

REINFORCEMENT BAR DEVELOPMENT

1. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, REINFORCING BARS SHALL BE DEVELOPED AND/OR SPLICED IN ACCORDANCE WITH THE FOLLOWING TABLE:

REINFORCEMENT LAP SPLICE, EMBEDMENT LENGTH AND STANDARD HOOKS

BAR SIZE	MIN. LAP LENGTHS FOR BEAMS *		MIN. LAP LENGTHS FOR SLABS AND WALLS **		MIN. LAP LENGTHS FOR COLUMNS	MIN. EMBEDMENT LENGTHS			MIN. STD. HOOKS		
	CLASS B		CLASS B			STRAIGHT BARS*		WITH STANDARD HOOKS	90°	135°	
	TOP***	OTHERS	TOP***	OTHERS		TOP***	OTHERS		A OR G	A OR G	H
#3	25	19	16	16	12	19	15	5	6	4	2.5
#4	33	25	20	16	15	25	19	7	8	4.5	3
#5	41	31	25	19	19	31	24	9	10	5.5	3.75
#6	49	37	29	23	23	37	29	10	12	8	4.5
#7	71	54	43	33	27	54	42	12	14	9	5.25
#8	81	62	49	37	30	62	48	14	16	10.5	6
#9	91	70	80	48	34	70	54	15	19	–	–
#10	102	79	74	57	39	79	61	17	22	–	–
#11	114	87	89	69	43	87	67	19	24	–	–

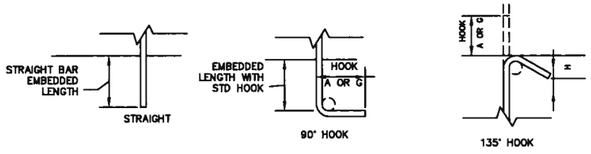
2. REINFORCEMENT LAP SPLICE, EMBEDMENT LENGTH AND STANDARD HOOKS TABLE IS BASED ON A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4000 PSI AND 60,000 PSI REINFORCEMENT (WITH NO EPOXY COATING).
3. ALL LAP SPLICES SHALL BE CLASS B SPLICES.

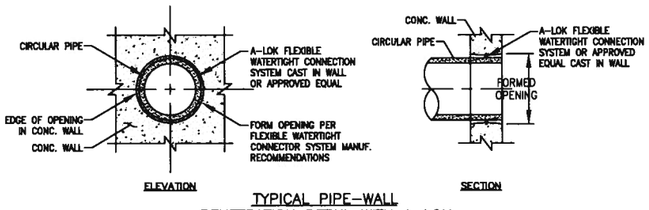
* THE MINIMUM LAP LENGTH FOR BEAMS AND STRAIGHT EMBEDMENTS ARE BASED ON A 3 BAR DIAMETER MINIMUM CENTER TO CENTER BAR SPACING AND A 2 INCH BAR COVER. IF THE SPLICE AND/OR EMBEDMENT DOES NOT CONFORM TO THESE REQUIREMENTS, THEN CONTRACTOR SHALL APPLY APPROPRIATE FACTORS IN COMPLIANCE WITH ACI 318 WITH APPROVAL BY ENGINEER.

** THE MINIMUM LAP LENGTH FOR SLABS AND WALLS IS BASED ON A 6 INCH BAR SPACING AND A 2 INCH BAR COVER. IF THE LAP CONDITION DOES NOT CONFORM TO THESE REQUIREMENTS, THENUSE BEAM LAP LENGTHS; OR COMPLY WITH LAP REQUIREMENTS OF ACI 318 WITH APPROVAL BY ENGINEER.

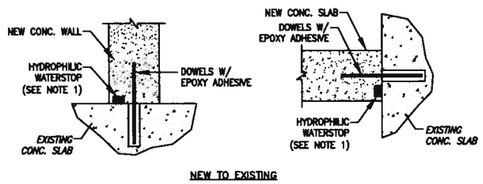
*** TOP BARS ARE DEFINED AS ALL HORIZONTAL BARS, EXCLUDING WALL BARS, WITH 12" OR MORE FRESH CONCRETE BENEATH.

4. WHERE SPLICES ARE INDICATED BETWEEN BARS OF DIFFERENT SIZES, THE SPLICE LENGTH SHAL BE BASED ON THE SMALLER BAR SIZE.





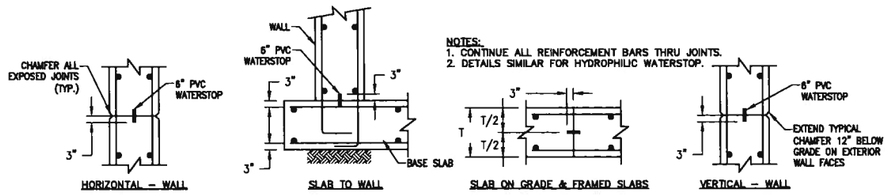
TYPICAL PIPE-WALL PENETRATION DETAIL WITH A-LOK
SCALE: N.T.S.



NEW TO EXISTING

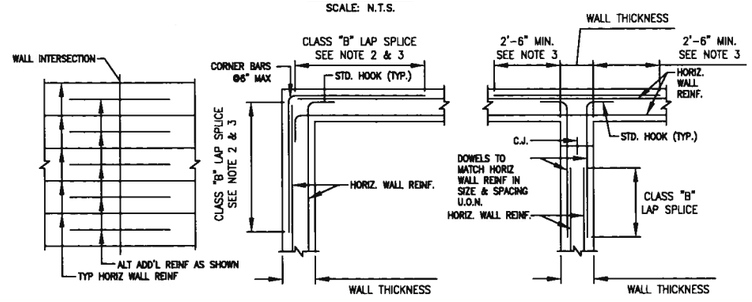
TYPICAL CONSTRUCTION JOINT DETAILS AT NEW TO EXISTING
SCALE: N.T.S.

NOTES:
1. PROVIDE HYDROPHILIC WATERSTOP AT ALL NEW CONCRETE TO EXISTING CONCRETE CONSTRUCTION JOINTS BELOW GRADE AND IN WATER CONTAINING STRUCTURES.



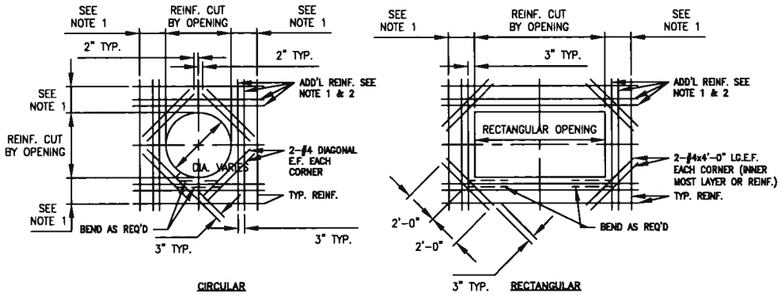
NOTES:
1. CONTINUE ALL REINFORCEMENT BARS THRU JOINTS.
2. DETAILS SIMILAR FOR HYDROPHILIC WATERSTOP.

TYPICAL CONSTRUCTION JOINT DETAILS
SCALE: N.T.S.



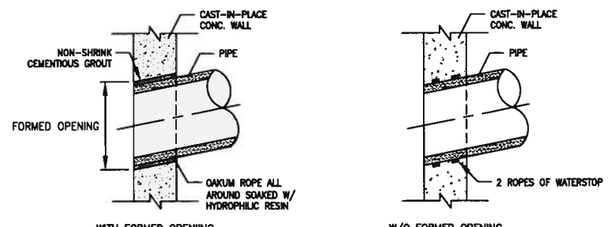
TYPICAL REINFORCEMENT DETAIL AT WALL INTERSECTIONS
SCALE: N.T.S.

NOTES:
1. PROVIDE ADDITIONAL REINFORCING AT WALL INTERSECTIONS AS SHOWN ABOVE UNLESS NOTED OTHERWISE ON DRAWINGS.
2. PROVIDE CORNER BAR REINFORCING AT SIX INCHES SPACING, UNLESS OTHERWISE NOTED ON DRAWINGS, AT ALL CORNERS. CORNER BAR REINFORCEMENT SHALL MATCH TYPICAL HORIZONTAL WALL REINFORCEMENT IN SIZE. DIMENSIONS SHALL BE 0.25 TIMES THE CLEAR SPAN DISTANCE BETWEEN WALL INTERSECTIONS MEASURED HORIZONTALLY, BUT SHALL NOT BE LESS THEN TYPE "B" LAP SPLICE NOR GREATER THEN 6'-0".
3. ADDITIONAL REINFORCEMENT SHALL MATCH SIZE AND SPACING OF WALL HORIZONTAL REINFORCEMENT, UNLESS OTHERWISE NOTED. ALTERNATE ADDITIONAL REINFORCEMENT WITH HORIZONTAL WALL REINFORCEMENT.



TYPICAL REINFORCEMENT AROUND OPENING IN WALL AND SLAB
SCALE: N.T.S.

NOTES:
1. PROVIDE ADDITIONAL REINFORCEMENT AT ALL OPENINGS EQUAL IN AREA TO TYPICAL REINFORCEMENT CUT BY OPENING IN EACH DIRECTION. ADDITIONAL REINFORCEMENT TO MATCH SIZE AND LENGTH OF TYPICAL REINFORCEMENT (MIN. 2 BARS E.F.) AND PLACED BETWEEN TYPICAL REINFORCEMENT ON EACH SIDE OF OPENING.
2. PROVIDE MATCHING DOWELS, WHERE REQUIRED TO PROVIDE CLASS "B" LAP WITH ADDITIONAL REINFORCEMENT.



TYPICAL PIPE-WALL PENETRATION DETAIL WITH WATERSTOP
SCALE: N.T.S.

90% DESIGN SUBMITTAL

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE: APRIL 30, 2010

Dawn Underground Engineering, Inc.
Tunnel and Underground Structures Consultants
10 Village Court · Hazlet · New Jersey 07730
Tel: 732-739-8840 Fax: 732-739-8870

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

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WALWORTH RUN INTERCEPTOR REALIGNMENT

STRUCTURAL DETAILS AND NOTES

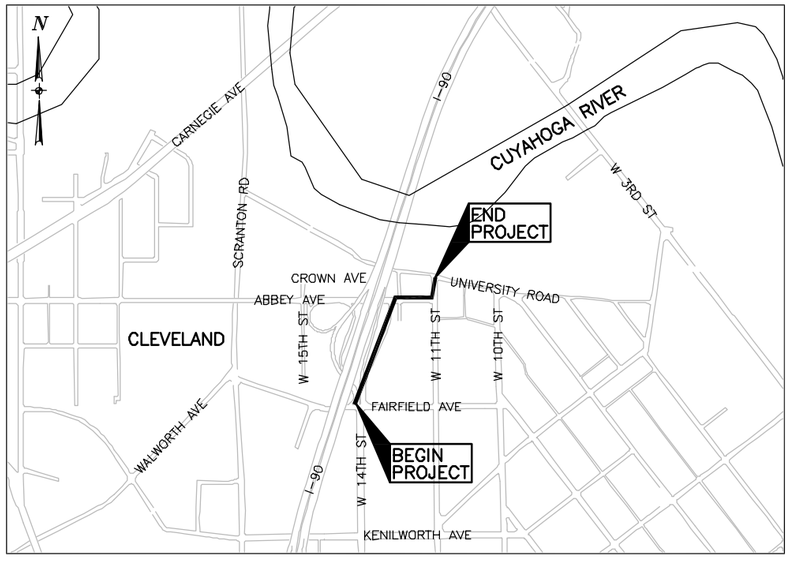
PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-13

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

NORTHEAST OHIO REGIONAL SEWER DISTRICT

WALWORTH RUN INTERCEPTOR REALIGNMENT (WRIR)

WRIR



LOCATION MAP

SCALE: 1"=500'

NORTHEAST OHIO
REGIONAL SEWER DISTRICT

BOARD OF TRUSTEES

DARNELL BROWN, PRESIDENT
GARY W. STARR, VICE PRESIDENT
DEAN DEPIERO, SECRETARY
MAYOR JACK BACCI
SHEILA J. KELLY
WALTER O' MALLEY
RONALD D. SULIK

JULIUS CIACCIA, JR., EXECUTIVE DIRECTOR

ACCEPTED BY :

JULIUS CIACCIA, JR.
EXECUTIVE DIRECTOR

DATE

KELLIE C. ROTUNNO
DIRECTOR OF ENGINEERING
AND CONSTRUCTION

NORTHEAST OHIO REGIONAL SEWER DISTRICT

DATE

SUBMITTED BY :

DLZ OHIO, INC

DATE

DLZ OHIO, INC.

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

50% SUBMITTAL
MARCH 19, 2010

UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON MEMBERS
MUST BE CALLED DIRECTLY

NOTES

1. BASIS OF BEARING AND ELEVATION: HORIZONTAL AND VERTICAL CONTROL IS BASED ON THE OHIO NORTH ZONE STATE PLANE COORDINATE SYSTEM NAD 83 AND THE NAVD 88 VERTICAL DATUM.

2. EXISTING STRUCTURES, GRADES, PIPING ETC,. ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE INFORMATION SHOWN IS NOT GUARANTEED TO BE CORRECT OR COMPLETE. THE DATA SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

3. THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THE WORK OF THE UTILITY OWNERS OR OTHERS WHO MAY RELOCATE EXISTING UTILITIES, AND SHALL NOTIFY OWNERS OF THE UTILITIES OF HIS SCHEDULE SUFFICIENTLY IN ADVANCE TO PERMIT THEM TO MAKE THE NECESSARY ALTERATIONS.

4. INFORMATION ON EXISTING UTILITIES AND OTHER SUB-STRUCTURES WAS OBTAINED FROM APPROPRIATE AGENCIES. EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE BY THE CONTRACTOR UNLESS OTHERWISE SHOWN ON THE PLANS OR STATED IN THE SPECIFICATIONS. THE LOCATIONS OF EXISTING UTILITIES AND SUB-STRUCTURES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS, ELEVATIONS, AND DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION IN THE AREA OF THE SPECIFIC SUB-STRUCTURE.

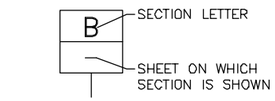
5. THE LENGTH OF PIPE SHOWN ON THE DRAWINGS IS GIVEN FROM CENTER-TO-CENTER OF STRUCTURE FOR STRUCTURES UP TO 6-FT INSIDE DIAMETER, AND TO THE INSIDE FACE OF STRUCTURE FOR STRUCTURES OVER 6-FT INSIDE DIAMETER.

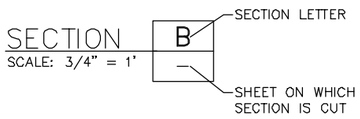
LEGEND

- EXISTING MANHOLE
- EXISTING CATCH BASIN
- EXISTING HYDRANT
- EXISTING/PROPOSED VALVE
- LIGHT POLE
- TELEPHONE POLE
- POWER POLE
- UTILITY POLE
- LIGHT & POWER POLE
- TELEPHONE & POWER POLE
- TELEPHONE & LIGHT POLE
- GUY ANCHOR
- SIGN (1 POST)
- SIGN (2 POST)
- EXISTING SANITARY MANHOLE
- STORM INLET/ CATCH BASIN
- STORM INLET/ CATCH BASIN
- POST (SQUARE)
- POST (ROUND)
- TREE
- SHRUB
- BENCH MARK
- CHISELED BENCH MARK
- EXISTING MONUMENT BOX
- IRON PIN/PIPE FOUND
- IRON PIN/PIPE SET
- TACKED HUB
- DRILL HOLE
- PKNAIL
- RAILROAD SPIKE
- ELECTRICAL BOX
- EXISTING ELECTRICAL MANHOLE
- BORING LOCATION

- CONCRETE
- GROUT
- SCREENED GRAVEL
- UNDISTURBED EARTH

SECTION CUTS





ABBREVIATIONS

ADH. – ADHESIVE
AB – ANCHOR BOLT
ADD'L – ADDITIONAL
ALT. – ALTERNATE
ALUM – ALUMINUM
& – AND
ASS'Y – ASSEMBLY
@ – AT
BITUM. – BITUMINOUS
B/ – BOTTOM OF
OR BOT/
℄ – BASE LINE
BLDG. – BUILDING
BLK. – BLOCK
BOT – BOTTOM
B PL – BASE PLATE
BRG. – BEARING
BT PL. – BENT PLATE
CCFRPMP – CENTRIFUGALLY CAST FIBER-REINFORCED POLYMER MORTAR PIPE
C/C – CENTER TO CENTER
C.J. – CONSTRUCTION JOINT
℄ – CENTERLINE
CIRC – CIRCULAR
CLR – CLEAR
CLSM – CONTROLED LOW-STRENGTH MATERIAL
CMU – CONCRETE MASONRY UNIT
COL – COLUMN
COMB. – COMBINED
CONC – CONCRETE
CONT – CONTINUOUS
CONTL. – CONTROL
CPP – CLEVELAND PUBLIC POWER
DEFL – DEFLECTION
DEPR. – DEPRESSION
DET – DETAIL
DI(DIP) – DUCTILE IRON PIPE
DIA – DIAMETER
ϕ – DIAMETER
DIM – DIMENSION
DL – DEAD LOAD
DIST. – DISTANCE
DWL/DWLS – DOWEL(S)
DWO – DRY WEATHER OUTLET
EE – EACH END
E.F. – EACH FACE
E.J. – EXPANSION JOINT
E. – EAST
ELEV.(EL.) – ELEVATION
ELEC – ELECTRIC
EMBD. – EMBEDDED
E.W. – EACH WAY
EQ – EQUAL
EXIST – EXISTING
EXP – EXPANSION
EXT – EXTERIOR
FDN. – FOUNDATION
FIN – FINISH
FL – FINISH LINE
FLR – FLOOR
FF – FAR FACE
FTG – FOOTING
G – GAS
GA. – GAGE
GR. – GRADE
GRD. – GROUND
HORIZ – HORIZONTAL
HP – HIGH POINT
HHP – HIGH HIGH POINT
HR. – HANDRAIL
HS – HIGH STRENGTH
I.F. – INSIDE FACE
INT – INTERIOR
INSUL. – INSULATION
INV. – INVERT
JT – JOINT
K. – KIP (1000 POUNDS)
LL – LIVE LOAD
LLBB – LONG LEG BACK-TO-BACK
LLH – LONG LEG HORIZONTAL
LLV – LONG LEG VERTICAL
LONG. – LONGITUDINAL
LP – LOW POINT
LT – LEFT
LW – LIGHT WEIGHT
MAS – MASONRY
MAX – MAXIMUM
MH – MANHOLE
MID. – MIDDLE
MIN – MINIMUM
MK. – MARK
MO – MASONRY OPENING
N/A – NOT APPLICABLE
N.F. – NEAR FACE
NO. – NUMBER
OC – ON CENTER
O/H E – OVERHEAD EXISTING
OPP. – OPPOSITE
OPNG – OPENING
+/- – PLUS OR MINUS
PC – PRECAST
℄ – PROPERTY LINE/PLATE
PROP – PROPOSED
PSI – POUNDS PER SQUARE INCH
PSF – POUNDS PER SQUARE FOOT
PVC – POLYVINYL CHLORIDE
R. – RISER
RCP – REINFORCED CONCRETE PIPE
REINF – REINFORCING
REQ'D. – REQUIRED
REQ'MTS. – REQUIREMENTS
RO – ROUGH OPENING
RT – RIGHT
R/W – RIGHT-OF-WAY
SAN – SANITARY SEWER
SCHED – SCHEDULE
SECT – SECTION
SF – SQUARE FEET
SHT. – SHEET
SIM – SIMILAR
SJ – STEEL JOIST
SLBB – SHORT LEG BACK-TO-BACK
SLV – SHORT LEG VERTICAL
SPA. – SPACES OR SPACING
SPRD. – SPREAD
SQ OR ☐ – SQUARE
ST – STORM SEWER
STA. – STATION
ST. STL. – STAINLESS STEEL
STD – STANDARD
STL. – STEEL
STR. – STRUCTURAL
SUP. – SUPPORT
SWO – STORMWATER OVERFLOW
T. – TREAD
T/ – TOP OF
OR TOP/
T&B – TOP AND BOTTOM
TEMP – TEMPORARY
THK. – THICK
TOM – TOP OF MASONRY
TYP – TYPICAL
U.O.N. – UNLESS OTHERWISE NOTED
VCP – VITRIFIED CLAY PIPE
VERT – VERTICAL
W – WATER
W/ – WITH
W. – WEST
W/M – WATER MAIN
W/O – WITHOUT
WP – WORK POINT
WS – WATERSTOP
WWF – WELDED WIRE FABRIC

SHEET INDEX

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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REV. NO.	DATE	ISSUE BY	REMARKS

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SHEET CHK'D BY:
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APPROVED BY:
DATE:

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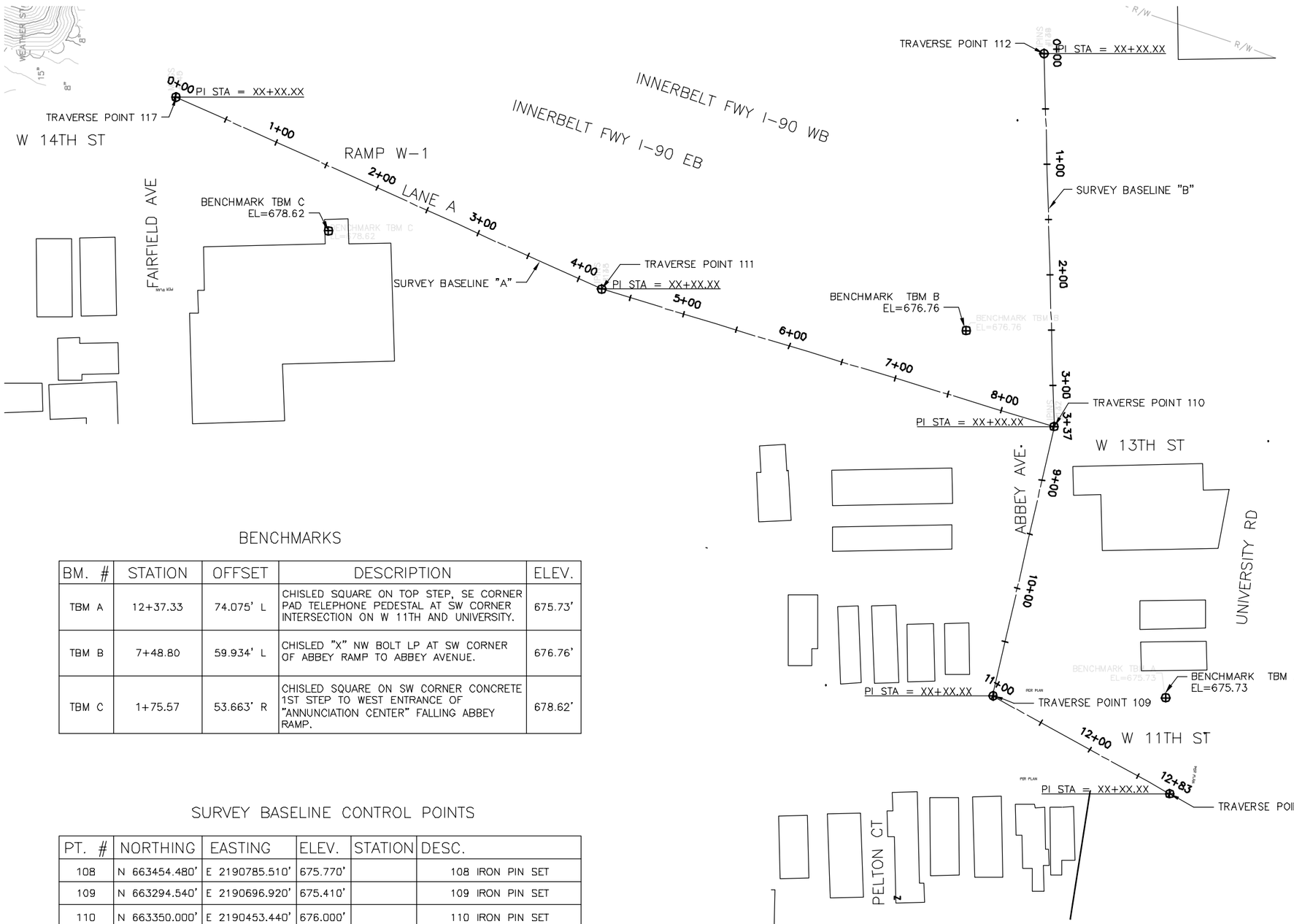
WALWORTH RUN INTERCEPTOR REALIGNMENT

LEGEND, SHEET INDEX, AND GENERAL NOTES

PROJECT NO.:
SHEET: X
SCALE: 1"=10'
SHEET NO.: G-1



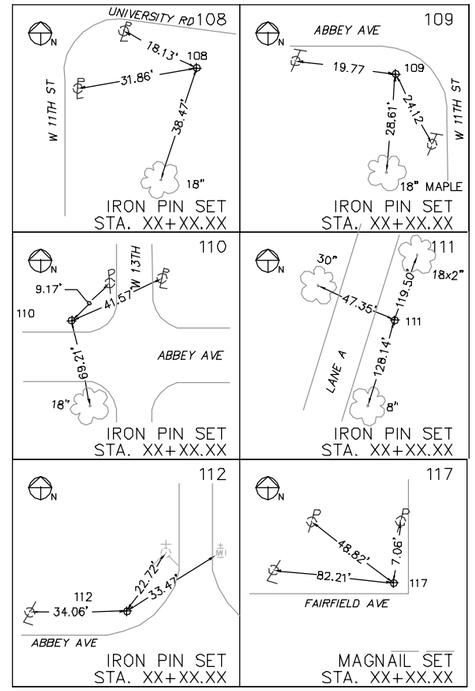
BENCHMARKS

BM. #	STATION	OFFSET	DESCRIPTION	ELEV.
TBM A	12+37.33	74.075' L	CHISLED SQUARE ON TOP STEP, SE CORNER PAD TELEPHONE PEDESTAL AT SW CORNER INTERSECTION ON W 11TH AND UNIVERSITY.	675.73'
TBM B	7+48.80	59.934' L	CHISLED "X" NW BOLT LP AT SW CORNER OF ABBEY RAMP TO ABBEY AVENUE.	676.76'
TBM C	1+75.57	53.663' R	CHISLED SQUARE ON SW CORNER CONCRETE 1ST STEP TO WEST ENTRANCE OF "ANNUNCIATION CENTER" FALLING ABBEY RAMP.	678.62'

SURVEY BASELINE CONTROL POINTS

PT. #	NORTHING	EASTING	ELEV.	STATION	DESC.
108	N 663454.480'	E 2190785.510'	675.770'		108 IRON PIN SET
109	N 663294.540'	E 2190696.920'	675.410'		109 IRON PIN SET
110	N 663350.000'	E 2190453.440'	676.000'		110 IRON PIN SET
111	N 662940.790'	E 2190329.240'	679.670'		111 IRON PIN SET
112	N 663340.790'	E 2190116.180'	675.230'		112 IRON PIN SET
117	N 662555.680'	E 2190155.420'	675.940'		117 MAGNAIL SET

SURVEY BASELINE CONTROL POINT LOCATIONS



0 50 100
HORIZ. SCALE IN FEET

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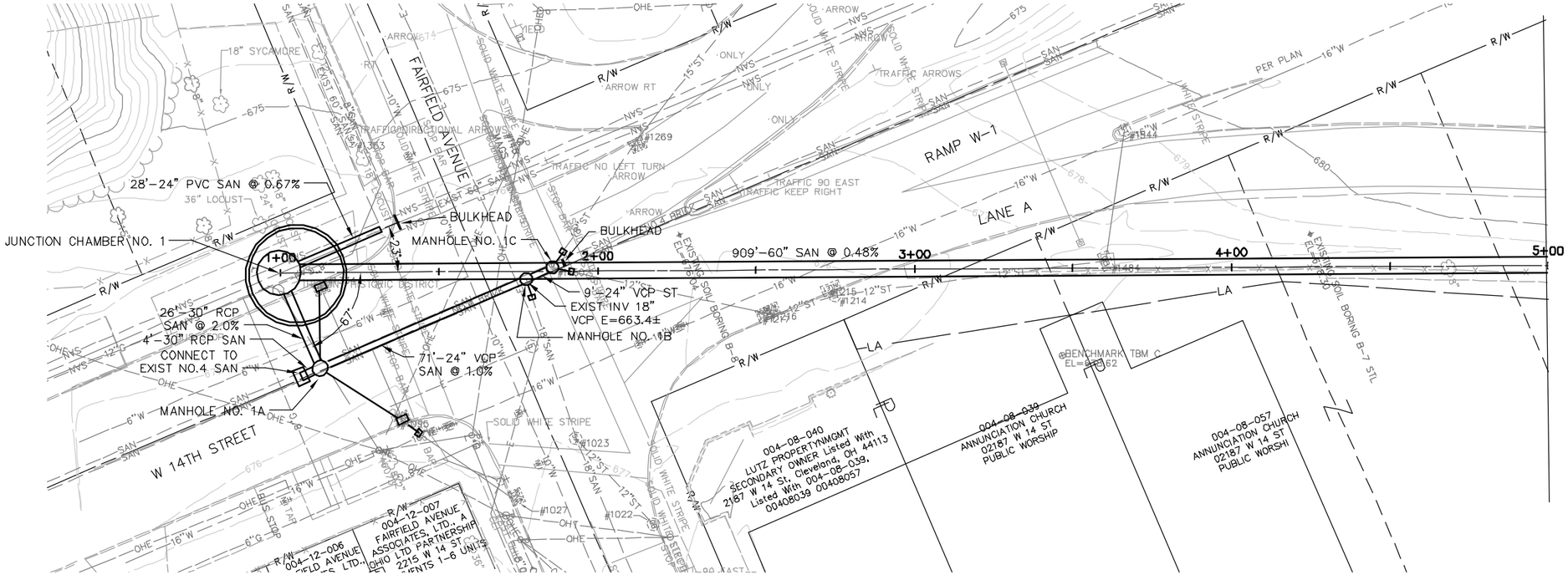
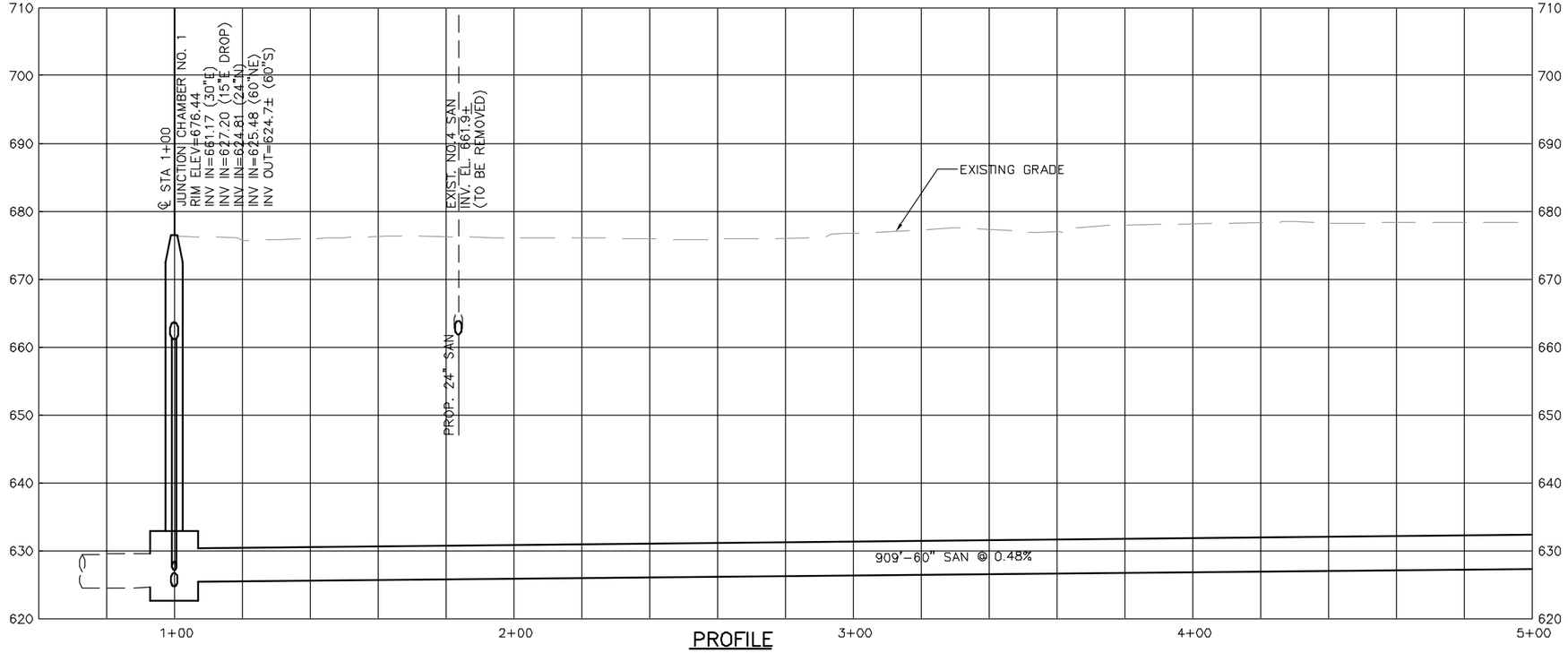
WALWORTH RUN INTERCEPTOR REALIGNMENT

SURVEY CONTROL

PROJECT NO.:
SHEET:
SCALE: 1"=50'
SHEET NO.: G-2



PLAN



PROFILE

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
	JUNCTION CHAMBER NO. 1 SITE PLAN
	JUNCTION CHAMBER NO. 1 STRUCTURAL PLANS AND DETAILS

IGR #1022
TOC=677.19
INV 12" RCP SW (TO #1023)=674.19

SMH #1023
TOC=676.91
FAIR-02
INV 18" VCP E=663.56
INV 18" VCP W=663.65
INV 12" CP NE=673.01
INV 15" VCP NE=666.31

INCB #1027
TOC=676.62
INV 12" VCP NE=672.32

INCB #1095
TOC=675.80
NO PIPES VISIBLE
MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.15

SMH #1150
TOC=676.18
INV 12" RCP NE=671.24
INV 18" RCP NW=667.82
BOTTOM OF STRUCTURE=661.88

STMH #1214
TOC=676.35
INV 12" RCP N=672.35
INV 12" RCP S=672.35

IN #1215
TOC=675.79
CURB INLET WINDOW

INCB #1216
TOC=675.52
INV 12" RCP SW (TO #1150)=672.32

INCB #1217
TOC=675.53

INCB #1269
TOC=675.69
INV 18" VCP S (TO #1150)=668.04

INCB #1334
TOC=675.48
MEASUREMENT +/-
BOTTOM OF STRUCTURE=669.88

SMH #1353
TOC=675.52
FAIR-04
INV 60" BRICK E=625.27
INV 60" BRICK W=625.12

ICS #1484
TOC=676.52
FILLED TO GRATE
NO PIPES VISIBLE

STMH #1544
TOC=679.26
FILLED TO GRATE
NO PIPES VISIBLE

0 20 40
HORIZ. SCALE IN FEET
0 10 20
VERT. SCALE IN FEET

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SHEET CHK'D BY:
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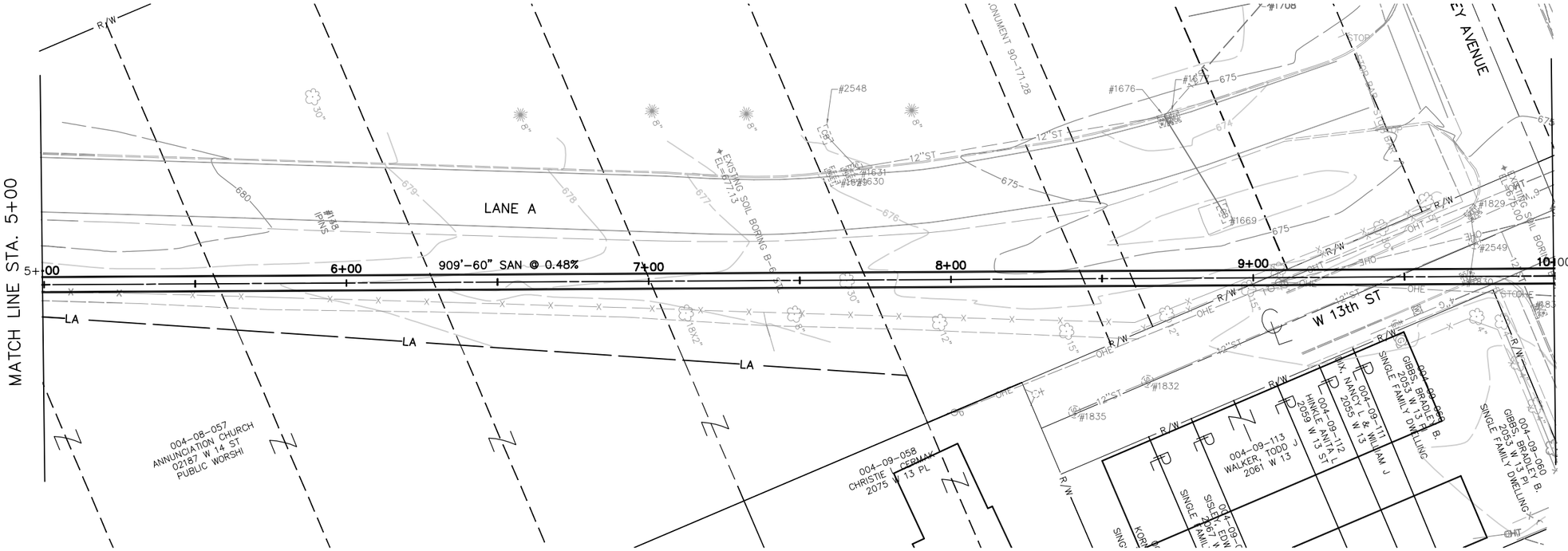
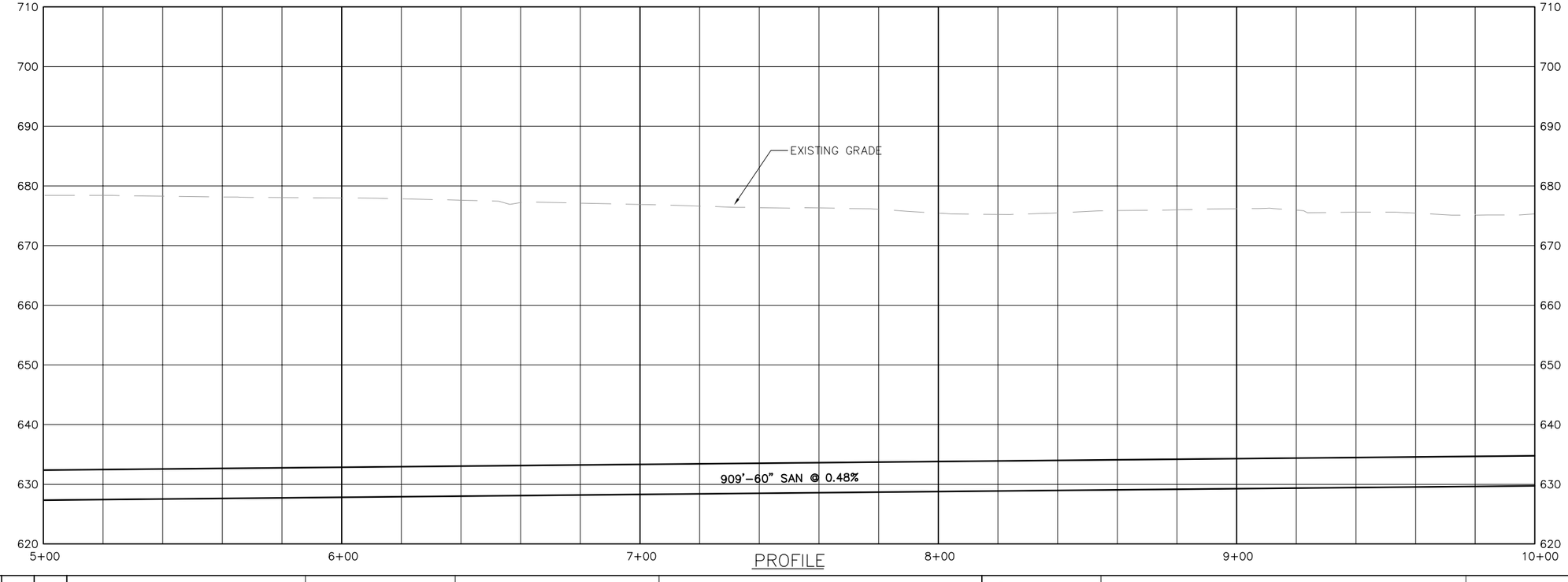
WALWORTH RUN INTERCEPTOR REALIGNMENT

PLAN & PROFILE
STA. 1+00 TO STA. 5+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=10'V
SHEET NO.: P-1





CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION

IN #1629
TOC=675.88
CURB INLET WINDOW

IN #1630
TOC=675.78
CURB INLET WINDOW

STMH #1631
TOC=676.19
INV 12" RCP N (TO #1676)=670.99
INV 12" RCP W (TO #2548)=671.09

IGS #1669
TOC=673.26
NO PIPES VISIBLE

INCB #1676
TOC=673.38
INV 12" RCP E (TO #1669)=668.58
INV 12" VCP NW (TO #1708)=668.48
INV 12" RCP SW (TO #1631)=668.68

INCB #1677
TOC=673.38

INCB #1829
TOC=675.22
INV 12" VCP SE (TO #2549)=670.57

INCB #1830
TOC=675.09
INV 12" VCP NW (TO #2549)=670.09

INCB #1831
TOC=675.11
NO PIPES VISIBLE
MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.91

IGS #2548
TOC=675.82
FILLED TO TOP OF STRUCTURE

STMH #2549
TOC=675.42
INV 12" VCP SE (TO #1830)=669.67
INV 12" VCP NW (TO #1829)=669.02
INV 12" VCP S (TO #1832)=664.92
INV 12" VCP N=664.92

0 20 40
HORIZ. SCALE IN FEET
0 10 20
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

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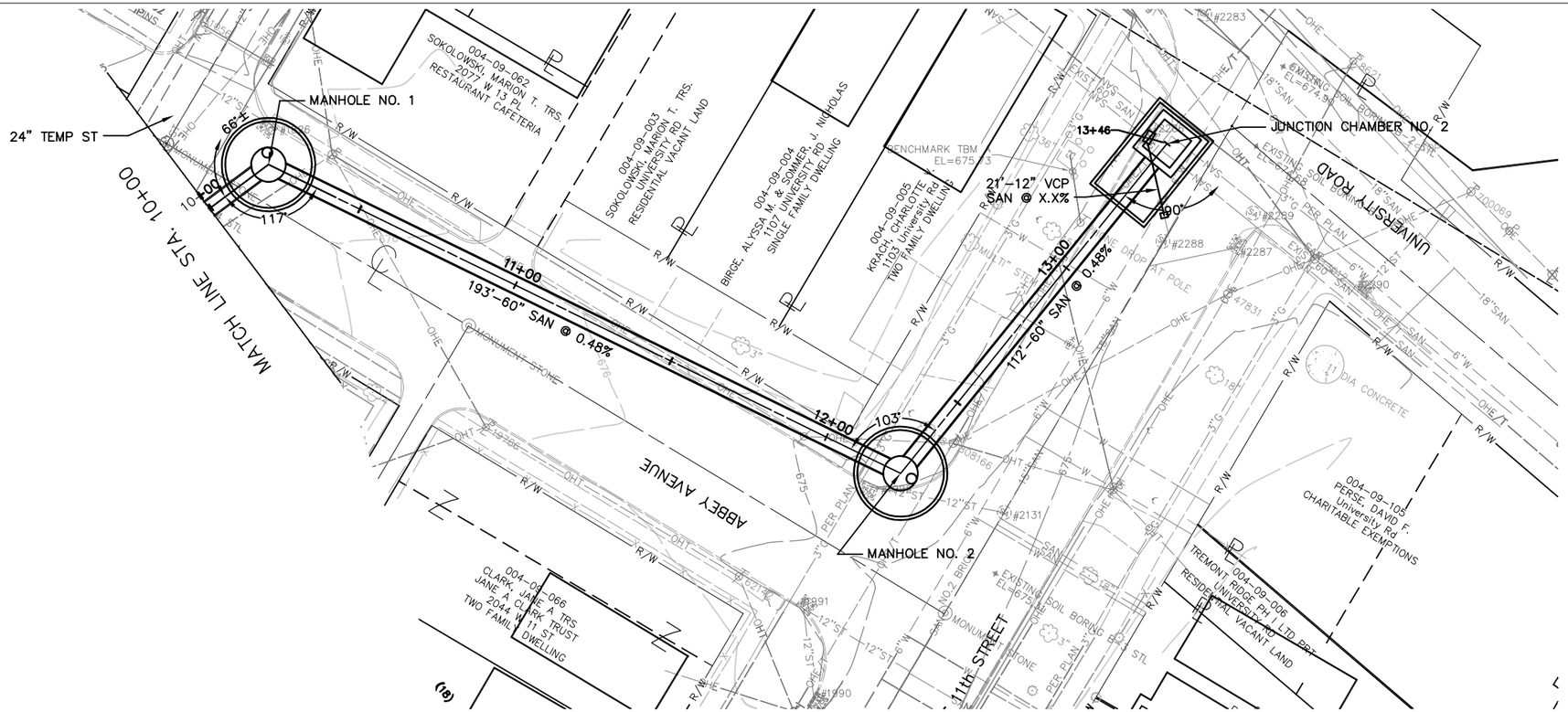
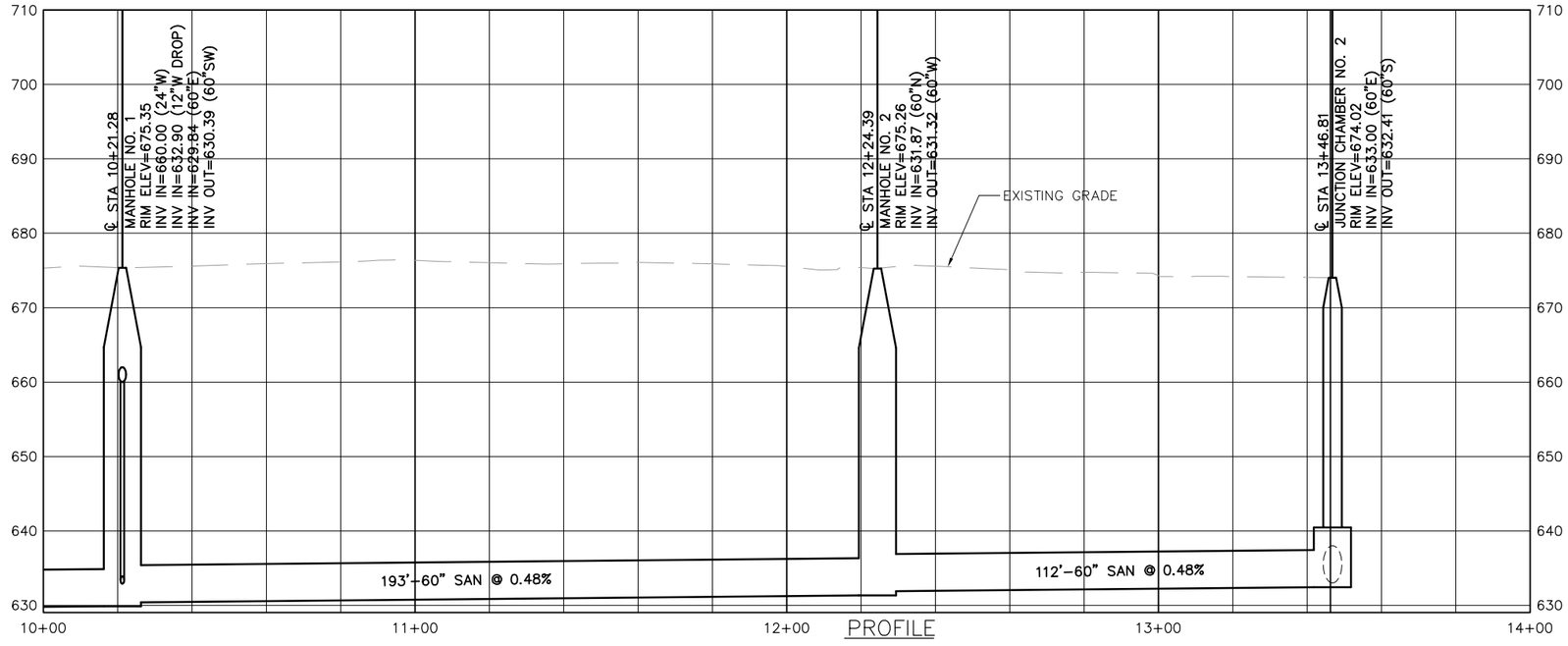
WALWORTH RUN INTERCEPTOR REALIGNMENT

PLAN & PROFILE
STA. 5+00 TO STA. 10+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=10'V
SHEET NO.: P-2



PLAN



PROFILE

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION
C-2	MH NO. 1 SITE PLAN
C-3	MANHOLE NO. 2 & JUNCTION CHAMBER NO. 2 SITE PLAN

INCB #1826
TOC=675.09
FILLED WITH WATER MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.09

INCB #1990
TOC=674.82
MEASUREMENT +/-
BOTTOM OF STRUCTURE=671.82

INCB #1991
TOC=674.52
INV 12" VCP SE (TO #1990)=670.62
INV 12" VCP E=669.62

INCB #1992
TOC=674.61
INV 12" VCP NE=669.81

SMH #2131
TOC=675.35
DID NOT OPEN - CRACKED LID

SMH #2283
TOC=674.64
UN-03
INV 18" VCP E (TO #2356)=661.94
INV 15" VCP W (TO #1799)=661.99
INV 12" VCP SW=667.99
INV 12" VCP NW=666.04

INCB #2286
TOC=673.69
FILLED TO TOP OF STRUCTURE

INCB #2287
TOC=673.92
FILLED TO TOP OF STRUCTURE

SMH #2288
TOC=674.89
W11-01
INV 15" VCP N (TO #2131)=667.59
INV 15" VCP S (TO #?)=667.39

SMH #2289
TOC=674.25
UN-02
INV 60" BRICK SE (TO #?)=633.25
INV 60" BRICK NW (TO #2313)=633.15

INCB #2290
TOC=673.93
NO PIPES VISIBLE MEASUREMENT +/-
BOTTOM OF STRUCTURE=667.38

0 20 40
HORIZ. SCALE IN FEET
0 10 20
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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CROSS CHK'D BY:
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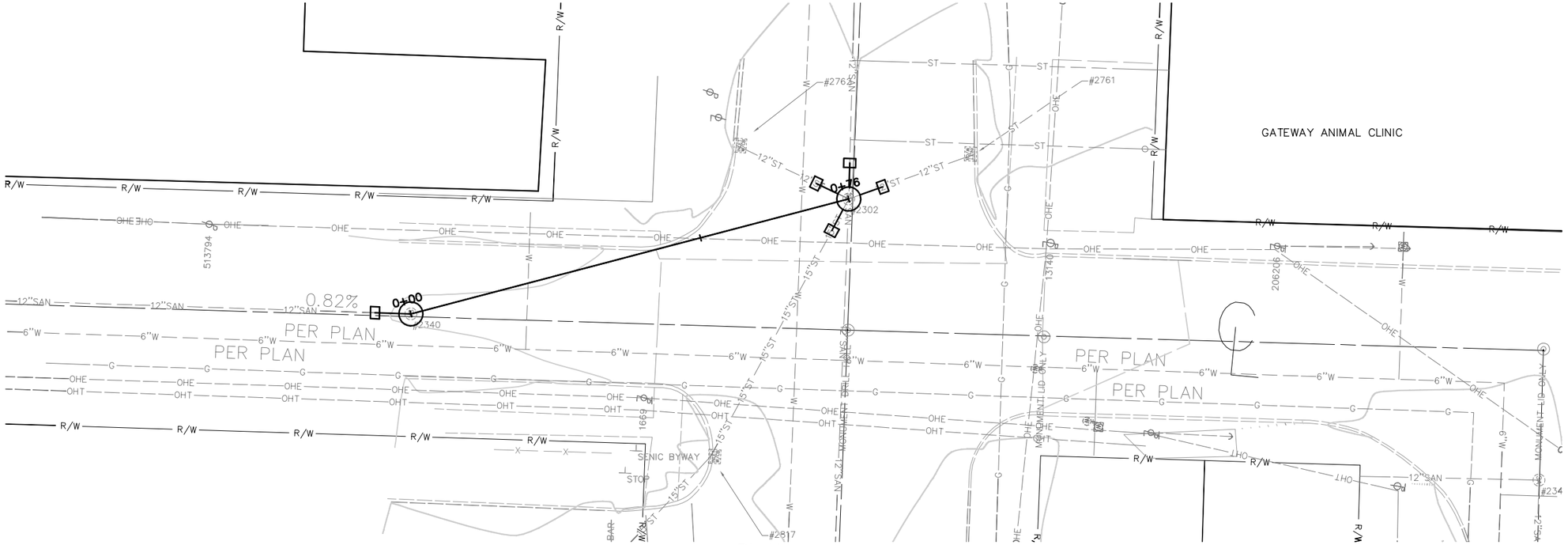
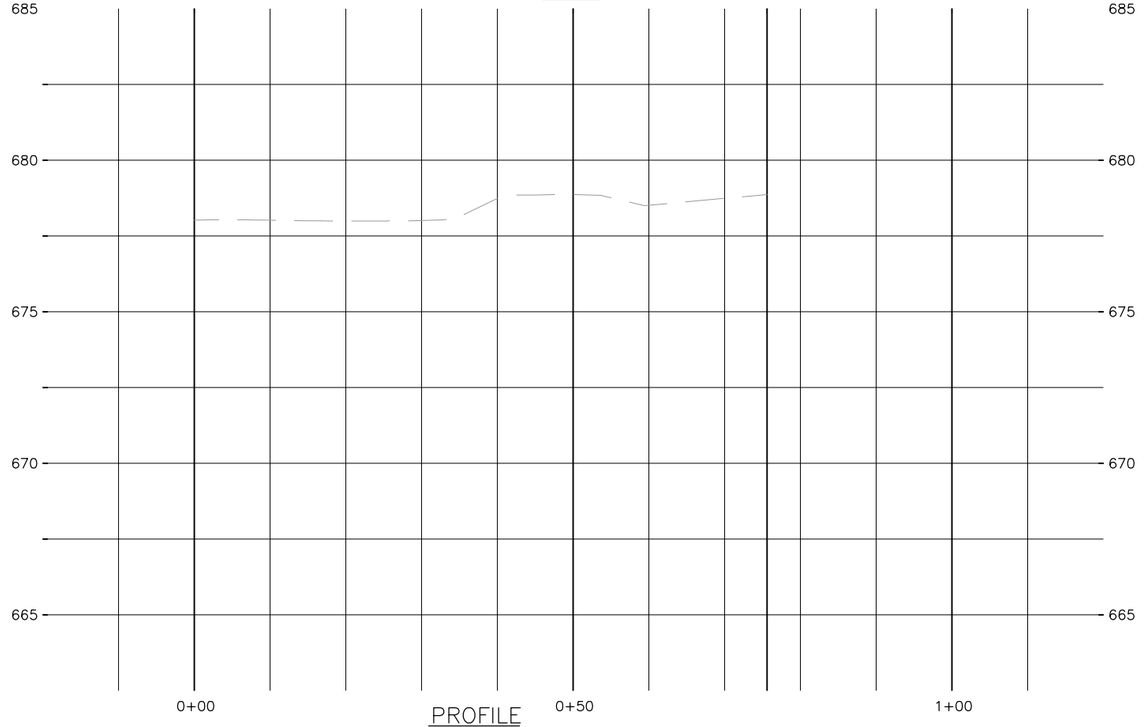
PLAN & PROFILE
STA. 10+00 TO STA. 15+00

PROJECT NO.:
SHEET:
SCALE: 1"=20'H; 1"=10'V
SHEET NO.: P-3



PLAN



PROFILE

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION

0 10 20
HORIZ. SCALE IN FEET
0 5 10
VERT. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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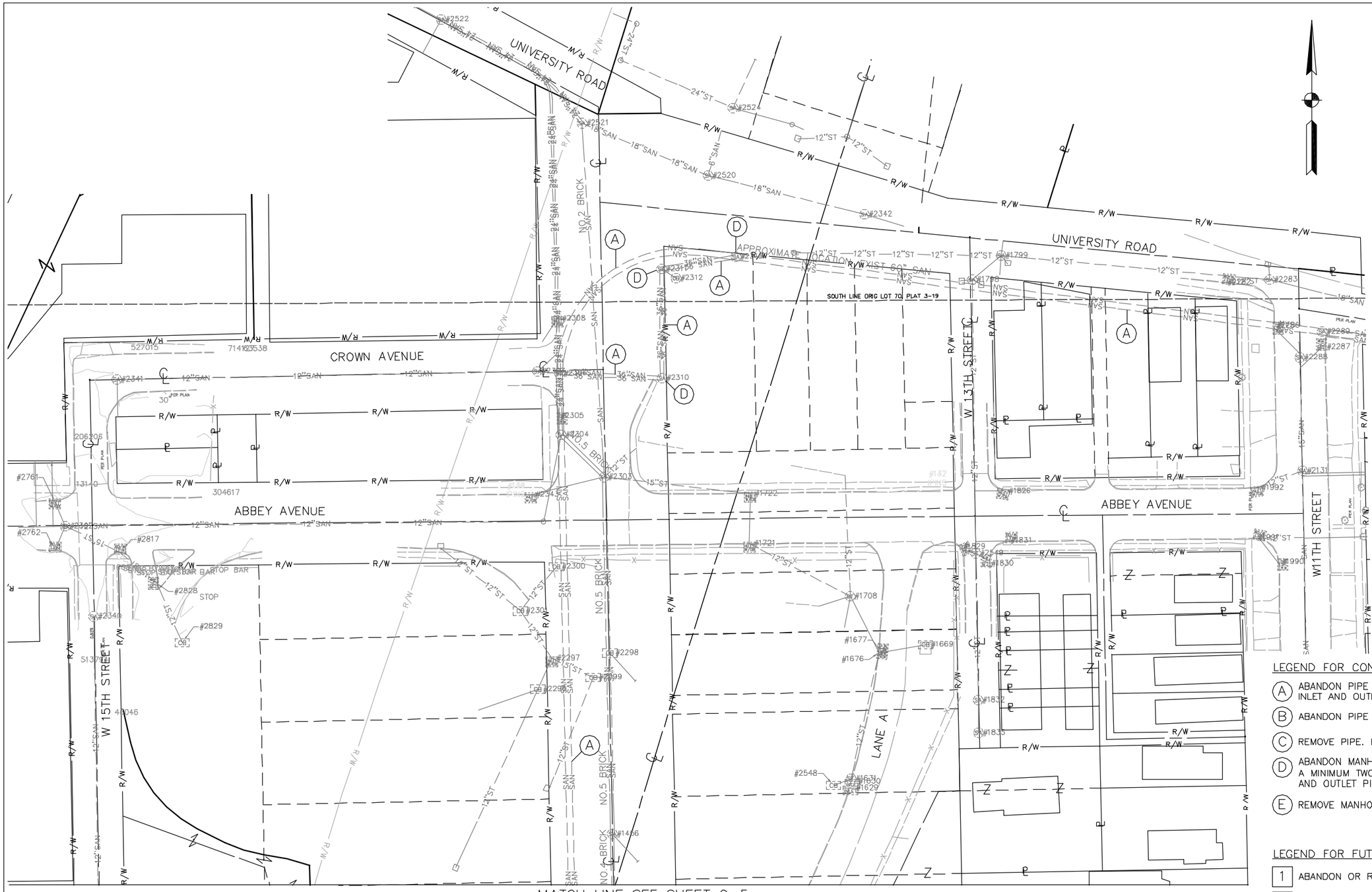
WALWORTH RUN INTERCEPTOR REALIGNMENT

W15TH ST SEWER CONNECTION PLAN & PROFILE

PROJECT NO.:
SHEET:
SCALE: 1"=10'H; 1"=5'V
SHEET NO.: P-4



MATCH LINE SEE SHEET C-5

PLAN

LEGEND FOR CONTRACT WORK

- (A) ABANDON PIPE IN PLACE AND FILL WITH GROUT. BULKHEAD INLET AND OUTLET PIPE CONNECTIONS PRIOR TO GROUTING.
- (B) ABANDON PIPE IN PLACE. BULKHEAD EXPOSED ENDS.
- (C) REMOVE PIPE. BULKHEAD EXPOSED ENDS.
- (D) ABANDON MANHOLE. REMOVE CASTING AND STRUCTURE TO A MINIMUM TWO (2) FEET BELOW GRADE. BULKHEAD INLET AND OUTLET PIPE CONNECTIONS. BACKFILL TO GRADE.
- (E) REMOVE MANHOLE. BACKFILL TO GRADE.

LEGEND FOR FUTURE WORK (BY OTHERS)

- 1 ABANDON OR REMOVE PIPE.
- 2 ABANDON OR REMOVE MANHOLE.

0 40 80
SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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DATE:

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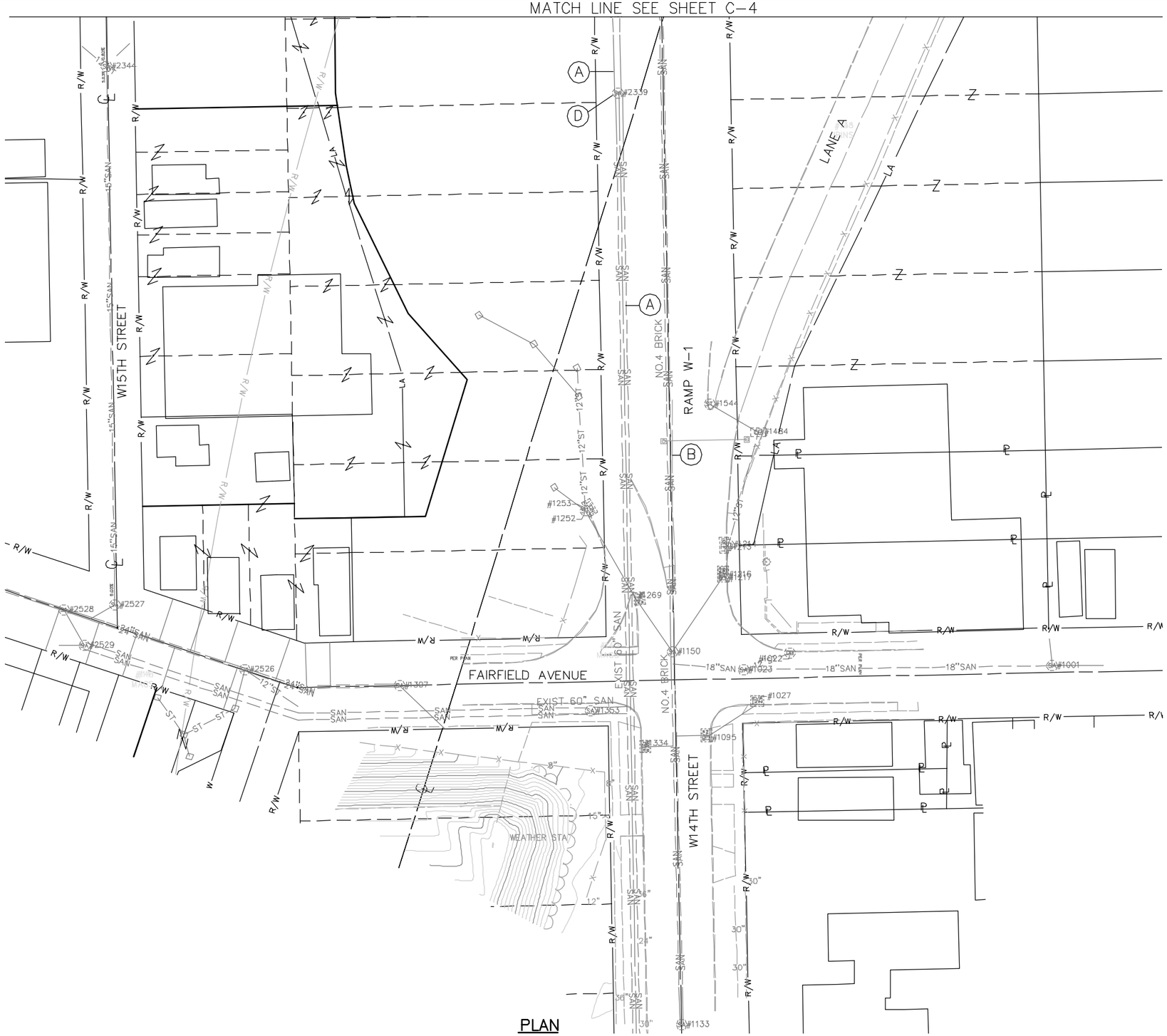
WALWORTH RUN INTERCEPTOR REALIGNMENT

NORTHERN SEWER ABANDONMENT PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=40'
SHEET NO.: C-1

MATCH LINE SEE SHEET C-4



PLAN

LEGEND FOR CONTRACT WORK

(A) ABANDON PIPE IN PLACE AND FILL WITH GROUT. BULKHEAD INLET AND OUTLET PIPE CONNECTIONS PRIOR TO GROUTING.

(B) ABANDON PIPE IN PLACE. BULKHEAD EXPOSED ENDS.

(C) REMOVE PIPE. BULKHEAD EXPOSED ENDS.

(D) ABANDON MANHOLE. REMOVE CASTING AND STRUCTURE TO A MINIMUM TWO (2) FEET BELOW GRADE. BULKHEAD INLET AND OUTLET PIPE CONNECTIONS. BACKFILL TO GRADE.

(E) REMOVE MANHOLE. BACKFILL TO GRADE.

LEGEND FOR FUTURE WORK (BY OTHERS)

[1] ABANDON OR REMOVE PIPE.

[2] ABANDON OR REMOVE MANHOLE.

0 40 80
SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

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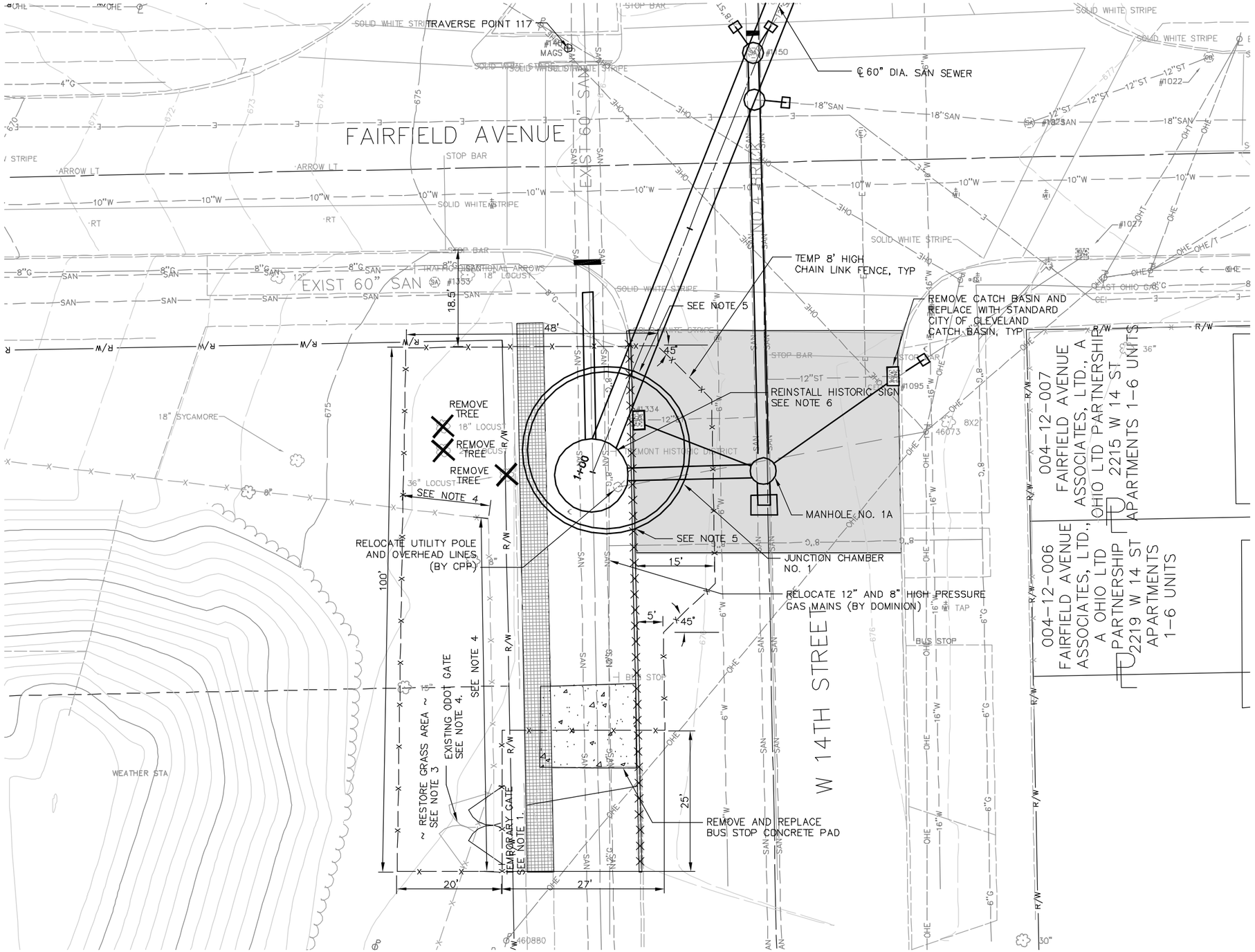
WALWORTH RUN INTERCEPTOR REALIGNMENT

SOUTHERN SEWER ABANDONMENT PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=40'
SHEET NO.: C-2



PLAN

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION

LEGEND

- REMOVE AND REPLACE CURB
- FULL DEPTH ASPHALT PAVEMENT REPAIR
- REMOVE AND REPLACE SIDEWALK

NOTES:

1. CONTRACTOR SHALL DETERMINE THE WIDTH AND LOCATION OF THE TEMPORARY GATE.
2. CONTRACTOR SHALL REMOVE TEMPORARY FENCING AND GATE AFTER CONSTRUCTION IS COMPLETE.
3. CONTRACTOR SHALL SEED AND MULCH ALL GRASSY AREAS DISTURBED DURING CONSTRUCTION.
4. CONTRACTOR SHALL REMOVE EXISTING ODOT FENCE AND GATE DURING CONSTRUCTION. REPLACE WITH NEW ODOT TYPE CL FENCE UPON COMPLETION OF JUNCTION CHAMBER CONSTRUCTION. PROVIDE ONE 10 FT WIDE CHAIN LINK WALK GATE TO REPLACE EXISTING GATE.
5. CONTRACTOR SHALL CUT HOLES IN THE SHEETING TO ALLOW GUTTER FLOWS TO ENTER THE EXCAVATION. CONTRACTOR SHALL TEMPORARILY PUMP OR FLUME DRAINAGE FLOWS AS REQUIRED.
6. CONTRACTOR SHALL REMOVE THE " TREMONT HISTORIC DISTRICT SIGN" AND FOUNDATION. STORE THE SIGN DURING CONSTRUCTION. INSTALL A NEW FOUNDATION AND REINSTALL THE EXISTING SIGN AT OR NEAR ITS FORMER LOCATION AFTER THE CHAMBER CONSTRUCTION IS COMPLETED.

0 10 20
HORIZ. SCALE IN FEET

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0 1
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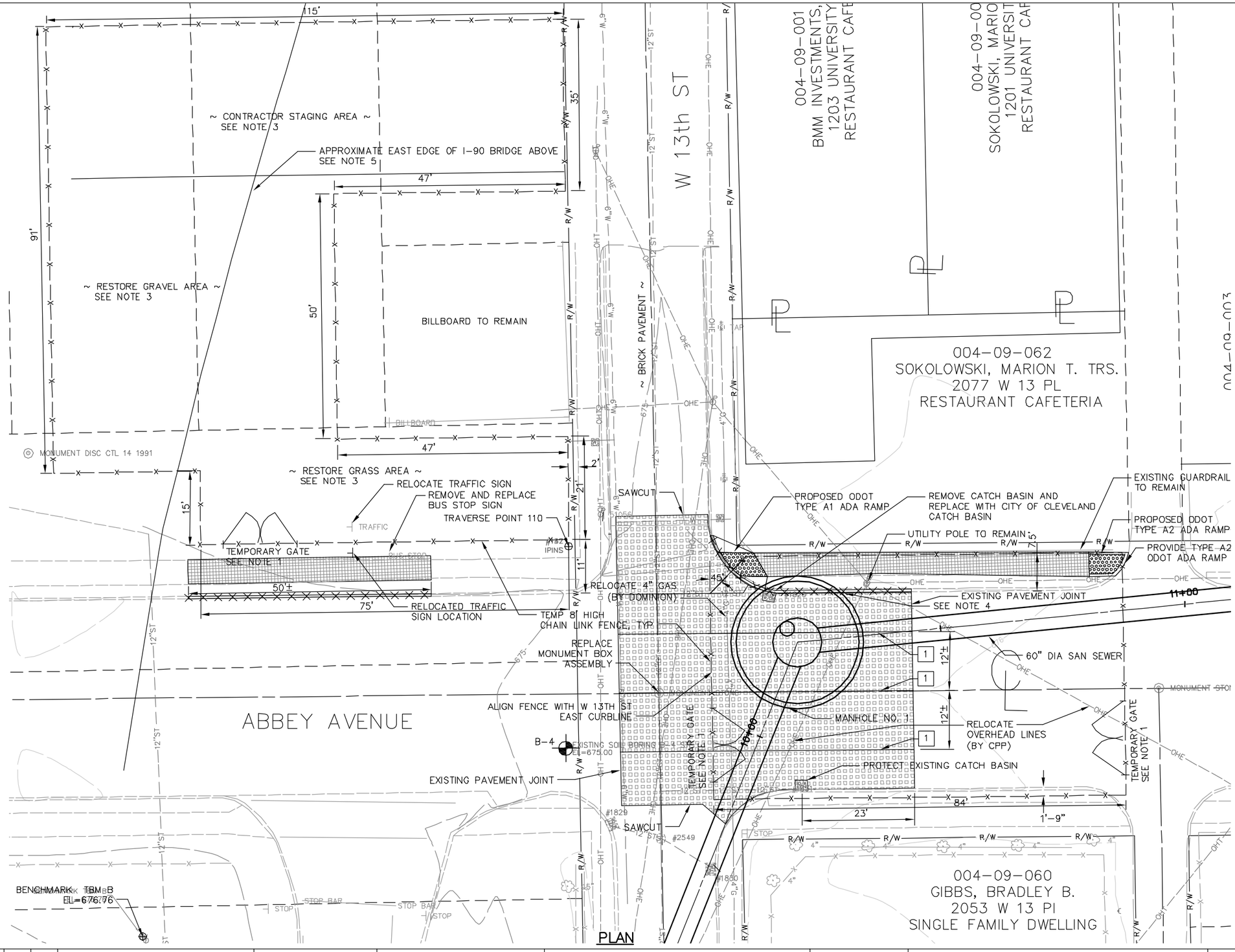
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER NO. 1
SITE PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=10'
SHEET NO.: C-3



PLAN

CROSS REFERENCE TABLE	
SHEET NO.	DESCRIPTION

LEGEND

- REMOVE AND REPLACE CURB
- FULL DEPTH CONCRETE PAVEMENT REPAIR
- REMOVE AND REPLACE SIDEWALK
- [1] LONGITUDINAL PAVEMENT JOINT

NOTES:

1. CONTRACTOR SHALL DETERMINE THE WIDTH AND LOCATION OF THE TEMPORARY GATES.
2. CONTRACTOR SHALL REMOVE TEMPORARY FENCING AND GATES AFTER CONSTRUCTION IS COMPLETE.
3. CONTRACTOR SHALL SEED AND MULCH ALL GRASSY AREAS DISTURBED DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL GRAVEL AREAS DISTURBED DURING CONSTRUCTION.
4. CONTRACTOR SHALL CUT HOLES IN THE SHEETING TO ALLOW GUTTER FLOWS TO ENTER THE EXCAVATION. CONTRACTOR SHALL TEMPORARILY PUMP OR FLUME DRAINAGE FLOWS AS REQUIRED.
5. CONTRACTOR SHALL LIMIT HIS OPERATIONS TO AVOID DAMAGE TO THE EXISTING I-90 BRIDGE. HEADROOM IS RESTRICTED BENEATH THE BRIDGE STRUCTURE.

0 10 20
HORIZ. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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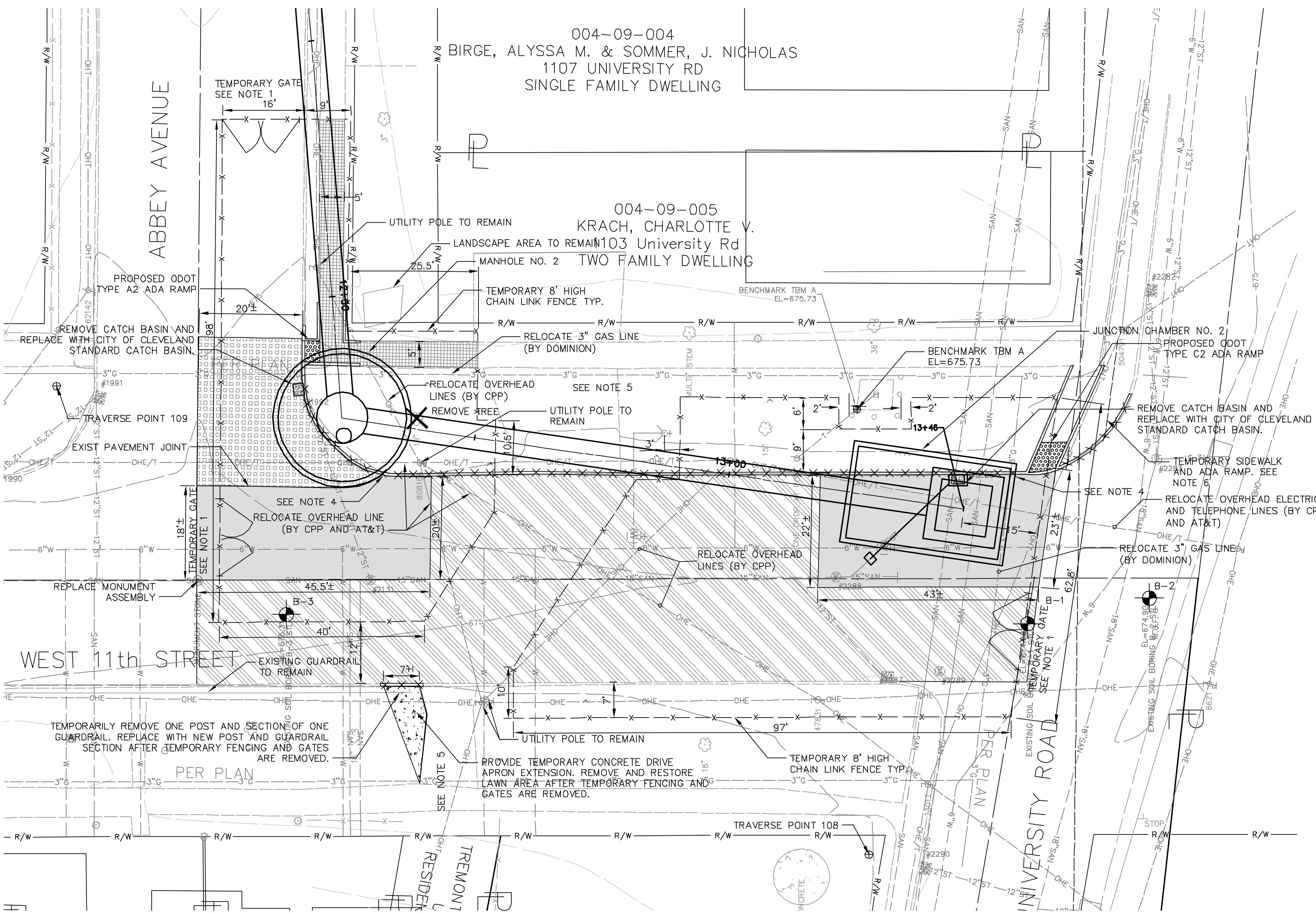
WALWORTH RUN INTERCEPTOR REALIGNMENT

MANHOLE NO. 1 SITE PLAN

PROJECT NO.:
SHEET: X
SCALE: 1"=10'
SHEET NO.: C-4


004-09-004
BIRGE, ALYSSA M. & SOMMER, J. NICHOLAS
1107 UNIVERSITY RD
SINGLE FAMILY DWELLING
004-09-005
KRACH, CHARLOTTE V.
1103 University Rd
TWO FAMILY DWELLING
ABBEY AVENUE
WEST 11th STREET
UNIVERSITY ROAD
TEMPORARY GATE SEE NOTE 1
UTILITY POLE TO REMAIN
LANDSCAPE AREA TO REMAIN
MANHOLE NO. 2
PROPOSED ODOT TYPE A2 ADA RAMP
TEMPORARY 8' HIGH CHAIN LINK FENCE TYP.
REMOVE CATCH BASIN AND REPLACE WITH CITY OF CLEVELAND STANDARD CATCH BASIN.
RELOCATE 3" GAS LINE (BY DOMINION)
RELOCATE OVERHEAD LINES (BY CPP)
REMOVE TREE
SEE NOTE 5
TRAVERSE POINT 109
EXIST PAVEMENT JOINT
SEE NOTE 4
RELOCATE OVERHEAD LINE (BY CPP AND AT&T)
REPLACE MONUMENT ASSEMBLY
EXISTING GUARDRAIL TO REMAIN
TEMPORARILY REMOVE ONE POST AND SECTION OF ONE GUARDRAIL. REPLACE WITH NEW POST AND GUARDRAIL SECTION AFTER TEMPORARY FENCING AND GATES ARE REMOVED.
UTILITY POLE TO REMAIN
PROVIDE TEMPORARY CONCRETE DRIVE APRON EXTENSION. REMOVE AND RESTORE LAWN AREA AFTER TEMPORARY FENCING AND GATES ARE REMOVED.
TEMPORARY 8' HIGH CHAIN LINK FENCE TYP.
TRAVERSE POINT 108
BENCHMARK TBM A EL=675.73
JUNCTION CHAMBER NO. 2
PROPOSED ODOT TYPE C2 ADA RAMP
REMOVE CATCH BASIN AND REPLACE WITH CITY OF CLEVELAND STANDARD CATCH BASIN.
TEMPORARY SIDEWALK AND ADA RAMP. SEE NOTE 6
RELOCATE OVERHEAD ELECTRIC AND TELEPHONE LINES (BY CPP AND AT&T)
RELOCATE 3" GAS LINE (BY DOMINION)
B-1
B-2
B-3
13+00
13+46
PER PLAN
TREMONT
EXISTING SOIL BORING

PLAN

CROSS REFERENCE TABLE

SHEET NO.	DESCRIPTION

LEGEND

- REMOVE AND REPLACE CURB
- FULL DEPTH ASPHALT PAVEMENT REPAIR
- REMOVE AND REPLACE SIDEWALK
- FULL DEPTH CONCRETE PAVEMENT REPAIR
- MILL AND FILL ASPHALT WEARING COURSE

NOTES:

1. CONTRACTOR SHALL DETERMINE THE WIDTH AND LOCATION OF THE TEMPORARY GATES.
2. CONTRACTOR SHALL REMOVE TEMPORARY FENCING AND GATES AFTER CONSTRUCTION IS COMPLETE.
3. CONTRACTOR SHALL SEED AND MULCH ALL GRASSY AREAS DISTURBED DURING CONSTRUCTION
4. CONTRACTOR SHALL CUT HOLES IN THE SHEETING TO ALLOW GUTTER FLOWS TO ENTER THE EXCAVATION. CONTRACTOR SHALL TEMPORARILY PUMP OR FLUME DRAINAGE FLOWS AS REQUIRED.
5. CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENTIAL DRIVEWAYS AT ALL TIMES. DO NOT BLOCK DRIVES DURING CONSTRUCTION.
6. CONTRACTOR SHALL PROVIDE A TEMPORARY CONCRETE SIDEWALK WITH ADA RAMP DURING CONSTRUCTION. THE SIDEWALK AND RAMP SHALL BE REPLACED BY THE PERMANENT SIDEWALK AND ADA RAMP SHOWN.

0 10 20
HORIZ. SCALE IN FEET

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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CROSS CHK'D BY:
APPROVED BY:
DATE:

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WALWORTH RUN INTERCEPTOR REALIGNMENT

MANHOLE NO. 2 AND JUNCTION CHAMBER NO. 2 SITE PLAN

PROJECT NO.:
SHEET:
SCALE: 1"=10'
SHEET NO.: C-5

CLEVELAND DIVISION OF WATER NOTES FOR NEW WATER MAIN INSTALLATION

CONTRACTOR IS TO ABIDE BY THE MOST CURRENT VERSION OF THE CLEVELAND, DIVISION OF WATER NOTES AND DETAILS. THE MOST UP–TO–DATE VERSION CAN BE FOUND AT WWW.CLEVELANDWATER.COM.

GENERAL:

1. THE INFORMATION SHOWN ON THE CLEVELAND DIVISION OF WATER'S SUMMARY OF WORK/CHARGE LETTER AND STRIP MAPS ARE TAKEN FROM EXISTING AVAILABLE RECORDS, AND THEIR ACCURACY IS NOT GUARANTEED.

2. CALL THE INSPECTION AND ENFORCEMENT UNIT AT 216–664–2342 TO SCHEDULE A PRECONSTRUCTION MEETING. THE OPERATION OF ANY VALVE OR ALTERATION OF ANY PART OF THE WATER SYSTEM BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF THE CLEVELAND DIVISION OF WATER INSPECTOR.

3. THE MUNICIPALITY SHALL REQUIRE THAT THE PROJECT'S PROFESSIONAL ENGINEER OBTAIN ACTUAL FIELD MEASUREMENTS OF THE MAIN DURING INSTALLATION AND SHALL FURNISH THE CWD INSPECTOR WITH RECORD PRINTS IN A FORM ACCEPTABLE TO THE DIVISION OF WATER. THE CLEVELAND DIVISION OF WATER WILL REQUIRE THE DELIVERY AND ACCEPTANCE OF TWO COPIES OF RECORD (AS BUILT) PRINTS, STAMPED BY A PROFESSIONAL ENGINEER, BEFORE THE PRESSURE TEST AND CHLORINATION OF THE MAIN.

4. FOR THE PURPOSES OF CHLORINATION AND BACTERIOLOGICAL TESTING OF THE WATER MAINS THE CONTRACTOR SHALL PROVIDE AND INSTALL, AT EACH OF THE CHLORINATION PIT LOCATIONS SHOWN AND AT OTHER LOCATIONS DETERMINED BY THE DIVISION OF WATER, FLUSHING/SAMPLING TAPS OF SIZES TO BE DETERMINED BY THE DIVISION OF WATER. CHLORINATION PITS SHALL BE SIX (6) FOOT SQUARE MEETING OSHA STANDARDS.

5. A TWO YEAR WARRANTY, COMMENCING FROM THE DATE OF ACCEPTANCE OF THE FINAL CHLORINATION OF THE WATER MAIN INSTALLATION, SHALL BE PROVIDED BY THE BUILDER/DEVELOPER AND/OR CONTRACTOR FOR ALL WATER MAINS AND SERVICE CONNECTION WORK PERFORMED BY THE CONTRACTOR, INCLUDING RETAPS, SHOULD ANY LEAKS OCCUR AND REPAIRS BE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP.

6. USE BACKFILL MATERIAL AS SPECIFIED AND COMPACT SUFFICIENTLY IN THOSE AREAS WHERE EXISTING MAINS AND WATER SERVICE CONNECTIONS ARE EXPOSED. (SEE DIVISION OF WATER STANDARD DETAIL STD–001).

7. ALL MATERIALS, INCLUDING BUT NOT LIMITED TO WATER MAINS, FIRE HYDRANTS, VALVES, CONNECTION MATERIALS AND OTHER WATER APPURTENANCES, SHALL BE NEW AND UNUSED AND SHALL CONFORM TO THE MOST CURRENT DIVISION OF WATER SPECIFICATIONS. ALL MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH DIVISION OF WATER'S STANDARDS.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING WATER MAINS AND APPURTENANCES THEREOF WHEN CONNECTING THE NEW WATER MAIN FOR THE HYDROSTATIC TEST. ALL REPAIRS TO DAMAGED EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE DIVISION OF WATER. (REFER TO THE THE ALTERNATE TEST DETAIL STD–002 AS NEEDED).

9. ALL HYDROSTATIC PRESSURE TESTING SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF THE DIVISION OF WATER'S INSPECTOR. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI. THE PRESSURE TEST SHALL BE FOR A DURATION OF TWO (2) HOURS WITH THE PRESSURE BEING MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE. SHOULD THE PRESSURE TEST FAIL THE CONTRACTOR SHALL FIND AND CORRECT THE DEFICIENCY(IES) TO THE SATISFACTION OF THE DIVISION OF WATER AND REPEAT THE TWO (2) HOUR PRESSURE TEST.

10A. ALL PIPE, UNLESS OTHERWISE CALLED FOR, SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED HAVING PUSH–ON JOINTS WITH RADIALLY COMPRESSED RUBBER RING GASKET AND INSTALLED AS PER THE MOST CURRENT REVISION OF AWWA C600.

10B. ALL FITTINGS, UNLESS OTHERWISE CALLED FOR, SHALL BE APPROVED DUCTILE IRON, CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED. ALL FITTINGS AND PIPE CONNECTED TO FITTINGS SHALL BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT CONFORMING TO THE MATERIAL AND PERFORMANCE REQUIREMENTS OF ANSI/AWWA C–110/A21.10 AND ANSI/AWWA C–111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANSI/AWWA C–153/A21.53. EXCEPT FOR ANCHOR TEES, REDUCERS OR OTHER SPECIAL CIRCUMSTANCES WHEN DIRECTED BY CLEVELAND DIVISION OF WATER, ALL FITTINGS ARE TO HAVE BELL ENDS.

10C. ALL BOLTS AND NUTS ON ALL "RETAINED" MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C–105/A21.5–88, CLASS "C", METHOD "B".

10D. WHERE SHOWN ON THE PLANS, OR WHEN OTHERWISE CALLED FOR, PIPE AND FITTINGS SHALL HAVE AN APPROVED "TYPE I" OR "TYPE II" BOLTLESS RESTRAINED PUSH–ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS.

10E. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL PLUG ALL OPEN PIPE ENDS WITH WATER TIGHT PLUGS AS PER THE "PREVENTITIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION" SECTION OF THE MOST CURRENT REVISION OF AWWA C–651 AS TO PREVENT THE INFILTRATION OR INTRUSION OF ANY FOREIGN OBJECTS OR MATERIALS. DATE STAMPED DIGITAL PHOTOS SHALL BE PROVIDED FOR EACH WORKDAY DEMONSTRATING THAT PROPER AWWA C–651 METHODS WERE USED TO PLUG ALL OPEN WATER MAIN ENDS. EACH PHOTO SHALL CLEARLY IDENTIFY THE STATION AT WHICH THE PIPE IS PLUGGED. THE STATIONING SHALL BE SHOWN BY THE USE OF A STATION MARKER PLACED AT THE PLUGGED PIPE END.

PHOTOS SHALL BE SUBMITTED ON A DAILY BASIS UNLESS OTHERWISE DEFINED BY THE CWD INSPECTOR OR ENGINEER. ALL PHOTOS TAKEN OVER THE COURSE OF THE PROJECT SHALL BE SUBMITTED BY THE CONTRACTOR AS PART OF THE AS–BUILT SUMITTAL. AS–BUILTS SHALL BE CONSIDERED INCOMPLETE WITHOUT SAID COLLECTION OF DIGITAL PHOTOS.

HYDRANTS:

11. IN ALL HYDRANT INSTALLATIONS THE CONTRACTOR SHALL FACE ALL HYDRANT'S 4" (STEAMER) NOZZLE TOWARD THE PAVEMENT PRIOR TO TESTING AND CHLORINATION OF WATER MAINS. CONTRACTOR SHALL CONSULT WITH THE LOCAL MUNICIPALITY'S ENGINEERING OR SERVICE DEPARTMENT TO OBTAIN HYDRANT MODEL AND NOZZLE THREAD REQUIREMENTS IF NOT INDICATED ON THE APPROVED PLANS.

12. ALL VALVES SHALL BE AN APPROVED MODEL RESILIENT SEATED GATE VALVES AS PER THE MOST CURRENT VERSION OF AWWA C509 OR C515.

CONNECTIONS:

13. WATER CONNECTIONS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY AND ARE NOT PART OF THE WATER MAIN APPROVAL. ADDITIONAL PERMITS FOR SERVICE CONNECTIONS MUST BE OBTAINED FROM THE DIVISION OF WATER PRIOR TO INSTALLATION OF ANY PORTION OF THE SERVICE CONECTION(S). IT IS THE CONTRACTORS RESPONSIBILITY TO ARRANGE FOR PERMITS FOR ALL SIZE WATER SERVICE CONNECTIONS BEFORE PERFORMING ANY WORK. THE AMOUNT OF THE CHARGES CAN BE OBTAINED FROM THE DIVISION OF WATER, PERMITS AND SALES SECTION AT 216–664–2444 X5203.

14. ONE INCH SERVICE CONNECTIONS SHALL BE PERMITTED TO SERVICE HOMES BASED ON THE FOLLOWING CRITERIA:

* PEAK FLOW DEMANDS DO NOT EXCEED 25 GPM FOR AN INDIVIDUAL HOME/UNIT. INCLUSIVE OF ALL USAGE (FIRE, DOMESTIC AND/OR IRRIGATION) AND

* LENGTH OF ONE INCH CONNECTION DOES NOT EXCEED 75 FEET AS MEASURED FROM THE MAIN TO THE POINT OF ENTRY INTO THE PROPOSED HOME/UNIT.

ANY SERVICE REQUESTS DIFFERING FROM THE STATED CRITERIA SHALL REQUIRE THE SUBMITTAL OF A COMPLETE WATER SERVICE APPLICATION. PEAK DEMANDS ARE TO BE ASSESSED ON APPLICATION AND SETBACKS ARE TO SHOWN ON AN ACCOMPANYING SITE PLAN. SITE PLANS SHALL SHOW WATER METER VAULTS IN THE RIGHT OF WAY OR IN AN EASEMENT CONTIGUOUS TO THE RIGHT OF WAY FOR ANY HOMES/UNITS WITH SETBACKS GREATER THAN 150 FEET. EASEMENTS ARE TO BE PROVIDED WITH THE SERVICE CONNECTION APPLICATION SUBMITTAL.

15. ALL WATER MAIN CURB VALVE BOXES & METER VAULTS WILL BE INSTALL IN GRASS AREAS WHEN POSSIBLE.

EMERGENCIES:

16. IF A WATER MAIN OR SERVICE CONNECTION BREAK OCCURS DURING CONSTRUCTION AND EMERGENCY ASSISTANCE IS REQUIRED, PLEASE NOTIFY THE DIVISION OF WATER AT 216–664–3060.

UTILITIES:

1. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST TWO (2) WORKING DAYS (NOT INCLUDING SATURDAYS AND LEGAL HOLIDAYS) PRIOR TO CONSTRUCTION TO HAVE UTILITIES STAKED, MARKED OR OTHERWISE DESIGNATED IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATION SHALL OCCUR APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION.

OHIO UTILITIES PROTECTION SERVICE	(800) 362–2764
CITY OF SHAKER HEIGHTS SERVICE DEPARTMENT	(216) 491–1490
CLEVELAND WATER – ROBERT SMITH	(216) 664–2444
NORTHEAST OHIO REGIONAL SEWER DISTRICT	(216) 881–6600
AT&T – ERIC WESTERBURG	(216) 476–6142
DOMINION EAST OHIO GAS – JOE HINTON	(800) 362–7557
TIME WARNER CABLE – LARRY BOCK	(440) 974–3401
AMERICAN FIBER SYSTEMS – BRYCE BASISTA	(419) 756–7117
THE ILLUMINATING COMPANY – JASON R. STEC	(440) 717–6808
XO COMMUNICATIONS	(800) 421–3872

2. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS AND BELIEVED TO ESSENTIALLY CORRECT. THE LOCATIONS WERE OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C. NO GUARANTEE IS MADE RELATIVE TO THE COMPLETENESS OR ACCURACY AND THE CONTRACTOR IS REQUIRED TO CONTACT THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY SHOWN ON THE PLANS AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION IN ANY AREA.

3. ALL EXISTING UTILITIES, SERVICES, POLES AND CONNECTIONS SHALL BE PROTECTED AT THE CONTRACTOR'S EXPENSE. IF DAMAGE IS CAUSED BY CONSTRUCTION TO ANY EXISTING UTILITY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR RESTORATION OF SAME AT HIS EXPENSE IN ACCORDANCE WITH DIRECTIONS OF THE ENGINEERS, AND FOR ANY RESULTING CONTINGENT DAMAGES. EXISTING UTILITIES INCLUDE, BUT ARE NOT LIMITED TO WATER MAINS, STORM SEWERS, SANITARY SEWERS, GAS, ELECTRICAL, TELEPHONE, FIBER OPTIC CABLE, TELEVISION CABLE, AND INDIVIDUAL SERVICE CONNECTIONS AND LATERALS.

4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXPOSE ALL EXISTING UTILITIES, SERVICES, OR STRUCTURES TO VERIFY THE VERTICAL AND HORIZONTAL LOCATION OF THE UTILITY, SERVICE, OR STRUCTURE AND ITS EFFECT ON THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE UTILITY OWNER.

5. INDIVIDUAL STORM, SANITARY, GAS, WATER, ELECTRICAL, TELEPHONE AND CABLE SERVICE CONNECTIONS MAY NOT BE SHOWN. THE CONTRACTOR SHALL LOCATE AND PROTECT SERVICE CONNECTIONS THROUGHOUT THE COURSE OF THE WORK. IN THE EVENT SERVICE CONNECTIONS ARE BROKEN OR DISTURBED, THE CONTRACTOR SHALL REPAIR OR REPLACE THE SERVICE CONNECTIONS TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL EXPECT EACH RESIDENCE/COMMERCIAL PROPERTY ALONG THE ROUTE TO HAVE AT LEAST ONE SERVICE CONNECTION FOR EACH UTILITY.

6. EXISTING LATERAL CONNECTIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL FIELD LOCATE TO DETERMINE LOCATION AND NUMBER OF LATERALS. NOT ALL LATERALS MAY BE SHOWN.

7. THE COST OF RELOCATION AND/OR SECURING ANY UTILITY POLES AS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE BID PRICE PER LINEAL FOOT OF WATER MAIN. THE UTILITY MUST BE INFORMED BY THE CONTRACTOR OF THE PROPOSED METHODS BEFOREHAND TO VERIFY THE ADEQUACY OF SUCH SUPPORTS. NOTE THE OSHA REGULATIONS PROHIBIT CRANE/ BACKHOE OPERATIONS WITHIN TEN FEET OF THE ENERGIZED PRIMARY CONDUCTORS. CONTRACTOR MAY ELECT TO PAY THE UTILITY TO PERFORM THIS WORK AT NO ADDITIONAL COST TO OWNER.

8. STORM SEWER, SANITARY SEWER, AND CULVERT INVERTS SHOWN ON THE PLANS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY DEPTHS AND LOCATIONS PRIOR TO CONSTRUCTION.

9. THE CONTRACTOR SHALL REPAIR AT HIS OWN COST ANY DAMAGE TO TRAFFIC SIGNAL LOOP DETECTORS. CONTRACTOR SHALL FIELD VERIFY ALL LOOP DETECTORS WITHIN PROJECT AREA.

10. THE CONTRACTOR MAY DAMAGE EXISTING CATCH BASINS WHILE INSTALLING THE WATER MAIN. THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGED CATCH BASINS TO THE SATISFACTION OF THE CITY OF SHAKER HEIGHTS.

PAVEMENTS AND WALKS:

1. ROADWAYS, DRIVES, AND PAVEMENTS DISTURBED BY CONSTRUCTION SHALL BE REPLACED. SEE DETAILS ON PLANS AND SPECIFICATIONS. TEMPORARY PAVEMENT SHALL BE USED WHEN HOT MIX ASPHALT IS NOT AVAILABLE OR WHEN WEATHER FOR PAVEMENT IS UNACCEPTABLE. SIDEWALKS AND DRIVEWAY APRONS SHALL BE FLOAT FINISHED.

2. THE CONTRACTOR MAY DAMAGE EXISTING ROADWAY CURBING WHILE INSTALLING THE WATER MAIN. THE CONTRACTOR SHALL REPLACE ANY DAMAGED CURBING ALONG ALL ROADS WITH ODOT 609 CURBING. CURB REPLACEMENT SHALL MATCH EXISTING CURB, AND LIMITS OF REPLACEMENT SHALL BE TO THE NEAREST CONTROL JOINT ON EITHER SIDE OF THE AREA DAMAGED.

3. THE CONTRACTOR MAY DAMAGE EXISTING DRIVE APRONS WHILE INSTALLING THE WATER MAIN. DRIVE APRONS SHALL BE REMOVED AND REPLACED TO THE NEAREST JOINT. PAVEMENT TYPE AND THICKNESS SHALL MATCH EXISTING.

4. EXISTING SANDSTONE WALKS THAT MAY BE AFFECTED BY CONSTRUCTION SHALL BE SALVAGED AND RESET. IF STONE WALKS ARE DAMAGED DURING CONSTRUCTION, THEY SHALL BE REMOVED TO THE NEAREST JOINT AND REPLACED IN KIND WITH NEW SANDSTONE WALKS.

5. WHERE NECESSARY TO DISTURB PAVEMENTS OR DRIVES, PAVEMENT SHALL BE CUT IN NEAT, STRAIGHT LINES.

SUPPLEMENTAL WATER MAIN NOTES:

1. ALL NEW VALVES SHALL OPEN BY TURNING CLOCKWISE. VALVES SHALL BE SAME SIZE AS THE WATER MAIN. ALL VALVE BOXES SHALL BE INSTALLED FLUSH TO GRADE.

2. THE MAXIMUM TRENCH OPENING SHALL NOT EXCEED 100 LINEAL FEET. WHERE ACCESS TO DRIVES AND PARKING LOTS IS HINDERED OR BLOCKED FOR AN EXTENDED PERIOD OF TIME, THE CONTRACTOR SHALL PROVIDE TEMPORARY BITUMINOUS PAVEMENT TO MAINTAIN ACCESS. CONTRACTOR SHALL KEEP ALL WORK WITHIN THE RIGHT–OF–WAY.

3. THE CONTRACTOR SHALL INSTALL DETECTABLE TRACER TAPE IN THE SAME TRENCH WITH ALL WATER MAINS. TAPE SHALL BE 3" WIDE, BLUE CODED POTABLE ON BOTH SIDES. TRACER TAPE SHALL BE INCLUDED IN THE PRICE BID PER LINEAL FOOT OF WATER MAIN.

4. UNLESS OTHERWISE NOTED, THE NEW WATER MAIN SHALL HAVE 6' MINIMUM COVER OVER THE TOP OF PIPE.

5. A MINIMUM OF 35 PSI SHALL BE MAINTAINED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.

6. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.

7. PIPE JOINTS SHALL BE DEFLECTED TO MAINTAIN HORIZONTAL ALIGNMENT AND VERTICAL ELEVATIONS UNLESS OTHERWISE INDICATED. DEFLECTIONS SHALL NOT EXCEED THE PIPE MANUFACTURERS RECOMMENDATIONS.

8. CONTRACTOR SHALL ESTABLISH AND STAKE OUT THE WATER MAIN ALIGNMENT FOR CONSTRUCTION FROM THE HORIZONTAL AND VERTICAL CONTROL AS REFERENCED ON THE DRAWINGS.

9. ALL COSTS ASSOCIATED WITH ABANDONING AND/OR REMOVING THE EXISTING WATER MAIN, LINE VALVES, OR SERVICE CONNECTIONS SHALL BE INCLUDED IN THE BID PRICE PER LINEAL FOOT OF WATER MAIN.

10. NEW FIRE HYDRANTS SHALL BE BAGGED UNTIL THE NEW WATER MAIN IS INSTALLED AND IN OPERATION.

11. THE WATER MAIN SHALL BE PRESSURE TESTED AND DISINFECTED PRIOR TO PERFORMING CORPORATION STOP TAPS.

12. FIRE HYDRANT PLACEMENT SHALL BE ESTABLISHED BY GOVERNING FIRE DEPARTMENT.

13. CONTRACTOR SHALL PRESSURE TEST AND DISINFECTION TEST WITHIN 15 DAYS OF WATER MAIN INSTALLATION.

14. ANY EXISTING UTILITIES OR APPURTENANCES INSIDE OR OUTSIDE OF THE CONSTRUCTION LIMITS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

15. GROUNDWATER CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE TIME THE EXCAVATION REACHES THE GROUNDWATER LEVEL TO MAINTAIN INTEGRITY OF THE IN–SITU MATERIALS. WHILE THE EXCAVATION IS OPEN, THE GROUNDWATER LEVEL SHALL BE MAINTAINED CONTINUOUSLY AT 2 FEET OR MORE BELOW THE WORKING LEVEL.

16. UNSTABLE OR UNSUITABLE PIPE FOUNDATION CONDITIONS THAT RESULT FROM INADEQUATE OR INAPPROPRIATE DEWATERING METHODS SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE OWNER.

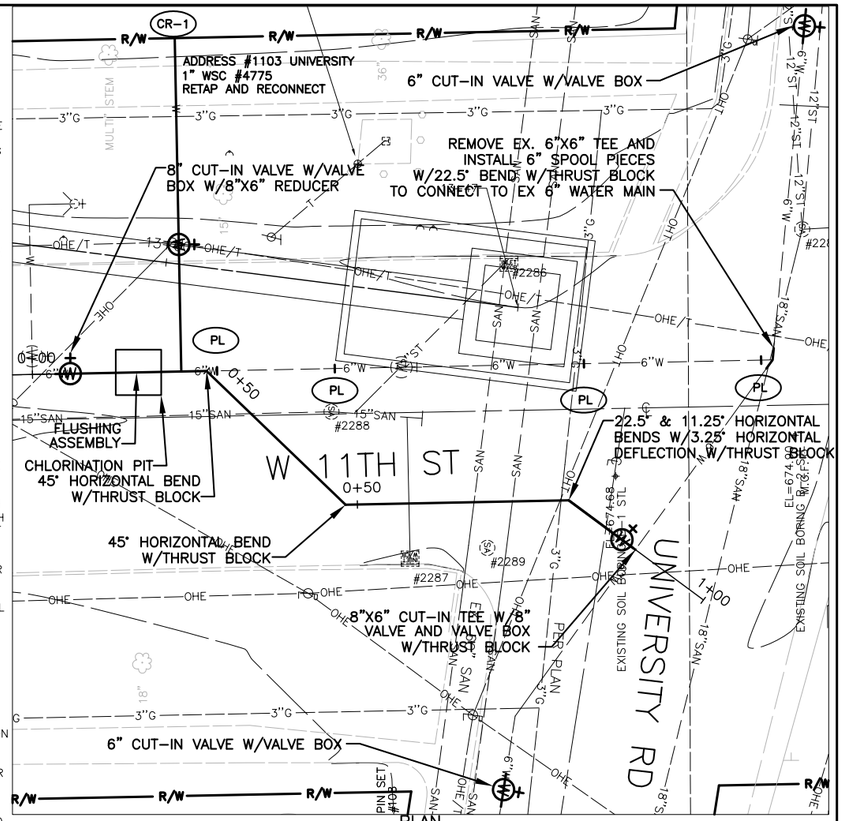
17. THE CONTRACTOR SHALL REMOVE ALL GUARDRAIL AND FENCE AS NECESSARY TO FACILITATE CONSTRUCTION OF THE PROPOSED WATER MAIN. ANY GUARDRAIL OR FENCE DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED IN COMPLETE LENGTH AND KIND BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

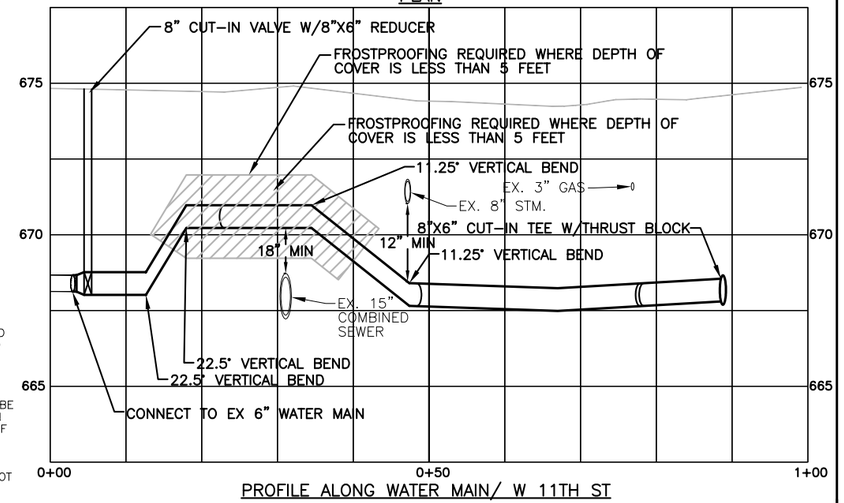
18. ANY EXISTING PROPERTY CORNER PINS OR MONUMENTS DAMAGED OR DESTROYED BY THE CONSTRUCTION SHALL BE RESET BY A REGISTERED SURVEYOR UPON COMPLETION OF THE PROJECT PRIOR TO FINAL PAYMENT. A CERTIFICATION SHALL BE FURNISHED BY A REGISTERED SURVEYOR, STATING THAT SAID DAMAGES HAVE BEEN RESTORED. THE COST SHALL BE INCLUDED IN THE PRICE BID PER LINEAL FOOT OF WATER MAIN.

19. CONTRACTOR SHALL GRADE AND RESLOPE ALL DITCHES DISTURBED DURING CONSTRUCTION. THE COST SHALL BE INCLUDED IN THE PRICE BID PER LINEAL FOOT OF WATER MAIN.

20. ACCESS TO ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.

21. UNLESS MARKED FOR REMOVAL, SPECIAL CARE SHALL BE TAKEN TO AVOID DAMAGE TO TREES AND THEIR ROOT SYSTEMS. IN GENERAL, WHERE THE TRENCH FALLS WITHIN THE LIMITS OF THE LIMB SPREAD, THE LEAVING OF HEADERS ACROSS TO PROTECT ROOTS WILL BE REQUIRED. THE OPERATION OF ALL EQUIPMENT, PARTICULARLY WHEN EMPLOYING BOOMS, THE STORAGE OF MATERIALS, AND DEPOSITION OF EXCAVATION SHALL BE CONDUCTED IN A MANNER WHICH WILL NOT INJURE TREE TRUNKS, BRANCHES, OR ROOTS UNLESS SUCH TREES ARE DESIGNATED BY THE MUNICIPALITY'S SUPERINTENDENT OF FORESTRY FOR REMOVAL.





LEGEND

(CR–1) REPLACE EXISTING CONNECTION, SHORT SIDE, (1" AND UNDER) WITH 1" COPPER CONNECTION, INCLUDING CURB VALVE AND VALVE BOX

(PL) PLUG EXISTING WATER MAIN END

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

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WALWORTH RUN INTERCEPTOR REALIGNMENT

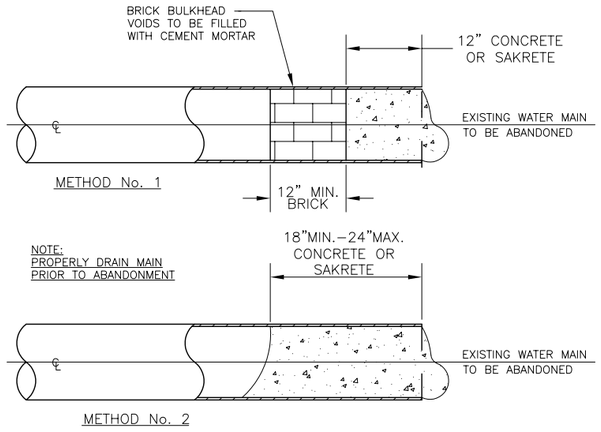
WATER MAIN RELOCATION PLAN AND NOTES

PROJECT NO.:
SHEET:
SCALE: 1"=10'
SHEET NO.: C-6

SUPPLEMENTAL WATER MAIN NOTES: (CONTINUED)

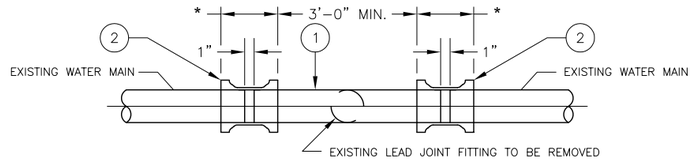
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING MAIL SERVICE IN THE CONSTRUCTION AREA. PRIOR TO DISTURBING ANY MAIL BOXES, THE CONTRACTOR SHALL CONTACT THE POSTAL AUTHORITIES AND SHALL TEMPORARILY RELOCATE MAIL BOXES IN ACCORDANCE WITH THEIR REQUIREMENTS. THE CONTRACTOR SHALL RESTORE MAIL BOXES TO THEIR ORIGINAL CONDITION AND LOCATION. COST OF SAME SHALL BE INCLUDED IN THE UNIT PRICE PER LINEAL FOOT OF WATER MAIN.
23. RIGHT-OF-WAY AND PROPERTY LINES SHOWN WERE PREPARED FROM RECORD INFORMATION AND DO NOT REPRESENT A BOUNDARY SURVEY.
24. THE BIDDER SHALL MAKE HIS OWN INVESTIGATIONS OF THE SITE CONDITIONS PRIOR TO SUBMITTING HIS PROPOSAL. IF THE BIDDER DESIRES TO OBTAIN ADDITIONAL INFORMATION AS TO SOIL CONDITIONS, HE MUST DO SO AT HIS OWN EXPENSE AND SECURE ALL APPLICABLE APPROVALS AND PERMITS.
25. CONTRACTOR SHALL KEEP ALL WORK WITHIN THE RIGHT-OF-WAYS AND EASEMENTS.
26. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL CONSTRUCTION DEBRIS INCLUDING BUT NOT LIMITED TO EXCESS SOIL, ROCK, OR ANY OTHER TYPE OF MATERIALS. THE CONTRACTOR SHALL NOT FILL ANY WETLANDS, LOWLANDS, FLOOD PLAINS, OR DRAINAGE WAYS WITH SAID DEBRIS.
27. THE CONTRACTOR SHALL REMOVE AND REINSTALL CULVERT AND/OR DRAINAGE PIPE AS NECESSARY TO FACILITATE CONSTRUCTION OF THE PROPOSED WATER MAIN. PROPER DRAINAGE MUST BE MAINTAINED AT ALL TIMES. ANY CULVERT OR DRAINAGE PIPE DAMAGED OR BROKEN DURING THE CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED, COMPLETE IN LENGTH AND KIND BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
28. CONTRACTOR SHALL CLEAN THE ROADWAY AT THE END OF EACH DAY OF OPERATION OR EVERY 500 FEET OF INSTALLED WATER MAIN. CLEANING SHALL BE PERFORMED USING A POWER BROOM OR HYDROSPRAYER, OR AS DIRECTED BY THE ENGINEER.
29. THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR CONSTRUCTION, INCLUDING BUT NOT LIMITED TO EXCAVATION AND ROAD OPENINGS. PERMITS SHALL BE OBTAINED FROM THE CITY ENGINEER AND FROM ANY LOCAL GOVERNMENTAL OFFICIALS IN WHICH THE WORK IS BEING PERFORMED.
30. CONTRACTOR SHALL PERFORM ALL CLEAN-UP, ROCK REMOVAL, FINAL GRADING, AND SEEDING TO AREAS DISTURBED BY WORK ASSOCIATED WITH INSTALLATION OF NEW WATER MAIN.
31. CONTRACTOR SHALL PROPERLY NOTIFY PROPERTY OWNERS OF CONSTRUCTION ACTIVITIES THAT WILL IMPACT THEM.
32. CONTRACTOR SHALL NOT BE PERMITTED TO STORE MATERIALS, EQUIPMENT, OR VEHICLES ON PRIVATE PROPERTY.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING LANDSCAPE ITEMS SUCH AS SHRUBBERY, RAILROAD TIES, ETC. IN A MANNER SUITABLE FOR REPLANTING OR RELOCATION BY THE CONTRACTOR, OR AT THE OPTION OF THE PROPERTY OWNER, SHALL REMOVE AND DISPOSE OF THE LANDSCAPE ITEMS. THE COST FOR THE ABOVE RESTORATION SHALL BE INCLUDED IN THE BID PRICE PER LINEAL FOOT OF WATER MAIN.
34. THE CONTRACTOR SHALL PROVIDE TEMPORARY WATER MAINS AND SERVICE CONNECTIONS PER SPECIFICATION SECTION D-45. TEMPORARY MAINS SHALL BE LAID IN THE GUTTERLINES AND SHALL CROSS THE STREETS AT INTERSECTIONS. TEMPORARY MAINS SHALL NOT BE LAID ON TREELAWNS.

CONSTRUCTION SEQUENCE



PLUGGING ABANDONED WATER MAIN ENDS (STD-004)

– NOT TO SCALE –



1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) *CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

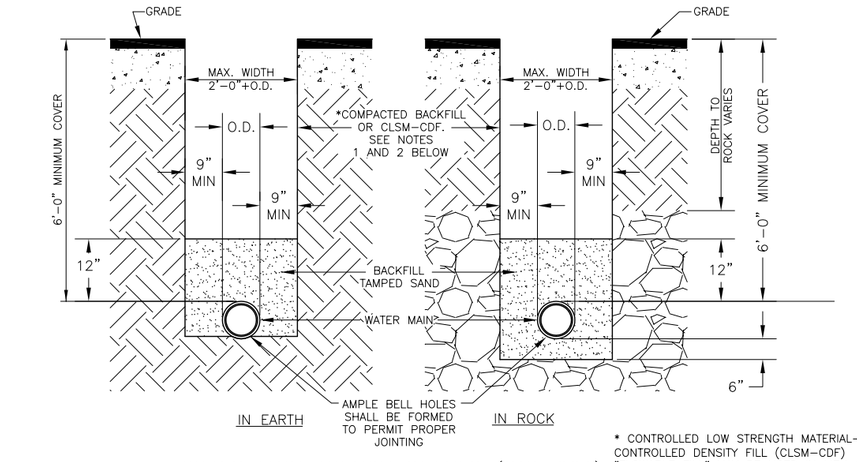
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

SPOOL PIECE INSTALLATION DETAIL (STD-008)

-NOT TO SCALE-



WATER MAIN TRENCH DETAILS (STD-001)

– NOT TO SCALE –

* CONTROLLED LOW STRENGTH MATERIAL-CONTROLLED DENSITY FILL (CLSM-CDF) "FLOWABLE FILL" MAY BE USED IN LIEU OF PREMIUM BACKFILL.

NOTES:
1) PREMIUM BACKFILL CONSISTING OF CONTROLLED LOW STRENGTH MATERIAL – CONTROLLED DENSITY FILL (CLSM-CDF) "FLOWABLE FILL" IS REQUIRED:
   A) UNDER ALL EXISTING OR FUTURE PAVEMENTS, SIDEWALKS AND DRIVES
   B) AT ALL LOCATIONS WITHIN THE CITY OF CLEVELAND CORPORATION LIMITS
   C) AS SPECIFIED IN LOCAL MUNICIPALITIES SERVED BY CWD (SEE LOCAL REQUIREMENTS)
2) WHEN PREMIUM BACKFILL IS REQUIRED BY THE LOCAL MUNICIPALITY FOR CASES OTHER THAN THOSE LISTED IN NOTE 1 ABOVE, IT SHALL BE LIMESTONE GRADED PER ODOT 304.02 OR ODOT 411. NO SLAG IS PERMITTED.*
3) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
4) MINIMUM COMPACTION FOR ALL SAND BEDDING, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.
5) PAVEMENT, SIDEWALK OR DRIVES TO BE INSTALLED IN ACCORDANCE WITH LOCAL MUNICIPALITY'S SPECIFICATIONS.

*CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

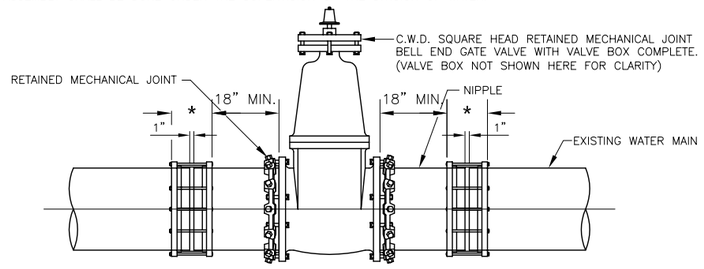
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

THE DIVISION OF WATER WILL DETERMINE THE FIELD LOCATION OF THE CUT-IN-VALVE ASSEMBLY. THE DIVISION OF WATER WILL ALSO SET THE TIME OF INSTALLATION OF THE CUT-IN-VALVE ASSEMBLY.

THE CONTRACTOR SHALL DO ALL PIPE CUTTING AND INSTALLATION. HOWEVER, THE INSTALLATION OF THE CUT-IN-VALVE ASSEMBLY SHALL BE DONE UNDER THE SUPERVISION OF THE DIVISION OF WATER.



NOTE:
BEFORE CUTTING EXISTING WATER MAIN, THE NIPPLES SHALL BE CONNECTED TO THE MECHANICAL JOINT BELL END GATE VALVE. AFTER CUTTING PIPE, FINAL CONNECTIONS SHALL BE MADE WITH COUPLINGS/SOLID SLEEVES AS SPECIFIED.

CUT-IN-VALVE DETAIL (STD-005)

– NOT TO SCALE –

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REV. NO.	DATE	ISSUE BY	REMARKS

DESIGNED BY:
DRAWN BY:
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

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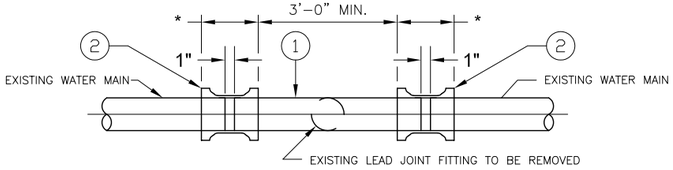
WALWORTH RUN INTERCEPTOR REALIGNMENT

WATER MAIN NOTES AND DETAILS

PROJECT NO.:
SHEET:
SCALE: NTS
SHEET NO.: C-7



1) PLAIN END x PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).

2) *CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

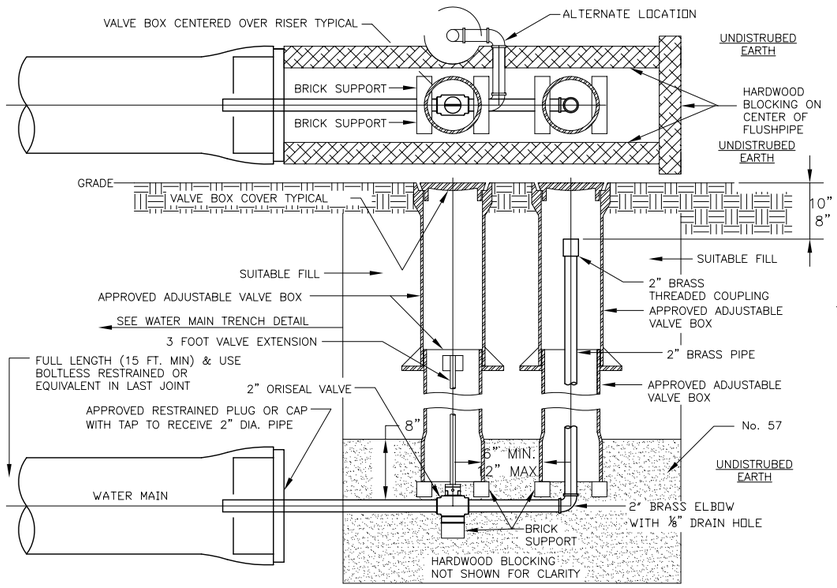
MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

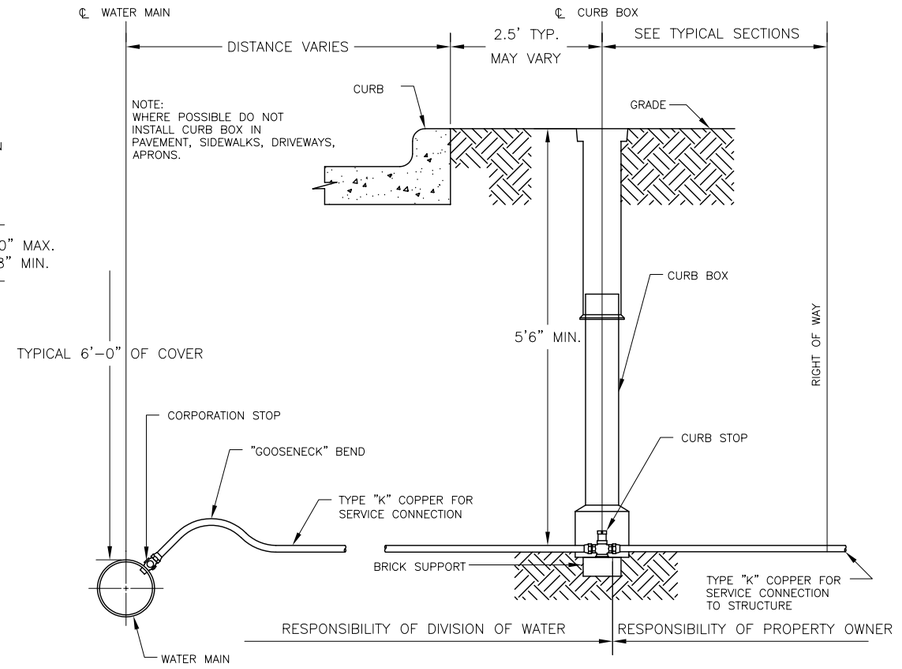
SPOOL PIECE INSTALLATION DETAIL (STD-008)

-NOT TO SCALE-



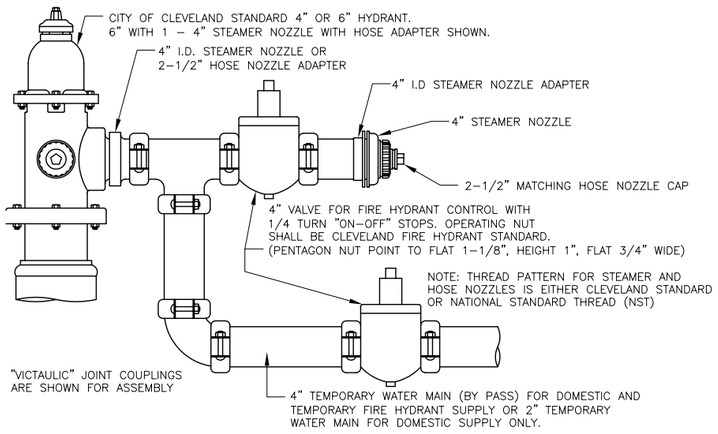
TYPICAL FLUSHING ASSEMBLY

- NOT TO SCALE -



NEW 1" SERVICE CONNECTION DETAIL IN PUBLIC RIGHT OF WAY (STD-C04)

- NOT TO SCALE -



TEMPORARY WATER MAIN & HYDRANT CONNECTION ASSEMBLY-A TO PROVIDE SIMULTANEOUS SERVICE IN EXISTING HYDRANT AND TEMPORARY BYPASS MAIN (STD-H14)

- NOT TO SCALE -

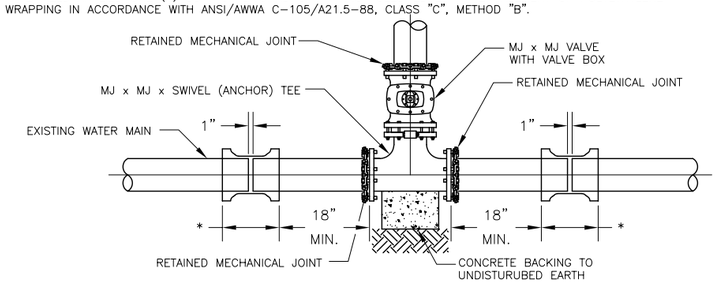
* CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.

COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/A194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.

MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).

THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE No's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.

ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

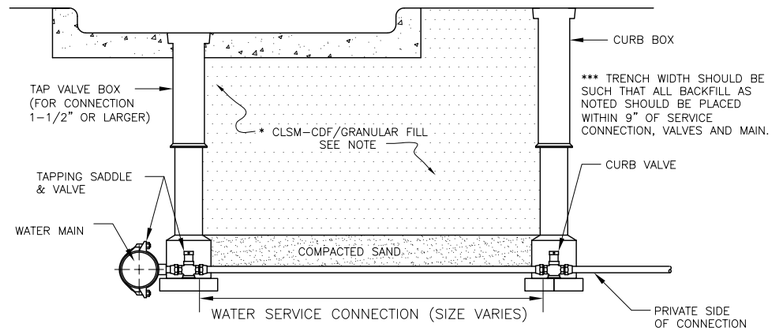


CUT-IN TEE DETAIL METHOD No.1 STD-T01

NOT TO SCALE

** CLEVELAND REQUIRED MIX DESIGN -
CEMENT - 50 LBS. PER CUBIC YARD
SAND - 2850 LBS. PER CUBIC YARD
WATER - 50 GALLONS PER CUBIC YARD
RHEOCELL 30MB - 3 OZ. PER CUBIC YARD

* CONTROLLED LOW STRENGTH MATERIAL-
CONTROLLED DENSITY FILL (CLSM-CDF)
"FLOWABLE FILL" IS REQUIRED WITHIN THE CITY OF CLEVELAND CORPORATION LIMITS AND PERMITTED IN ALL COMMUNITIES SERVICED BY CWD. CHECK LOCAL REQUIREMENTS.



NOTES:
1) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING BACKFILL, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
2) MINIMUM COMPACTION FOR ALL SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.

SERVICE CONNECTION BACKFILL DETAIL (STD-023)

- NOT TO SCALE -

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WALWORTH RUN INTERCEPTOR REALIGNMENT

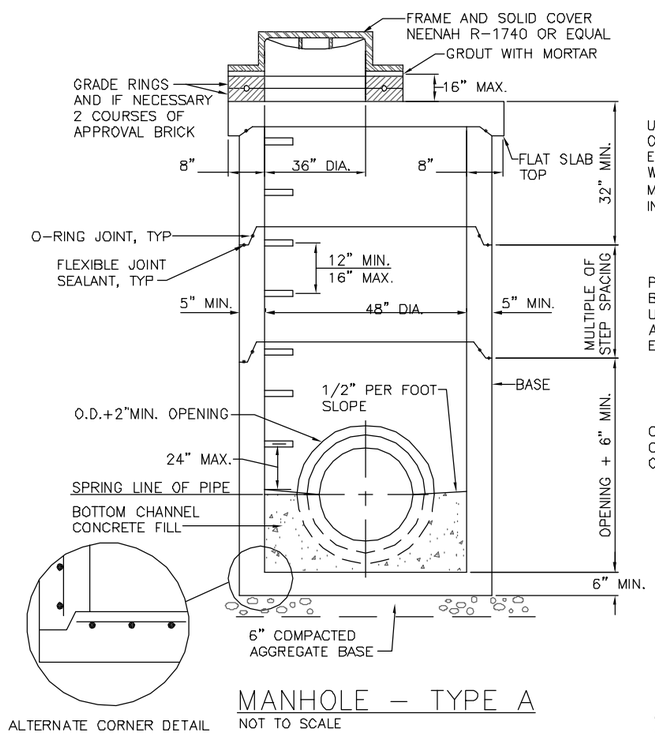
WATER MAIN RELOCATION DETAILS

PROJECT NO.:
SHEET:
SCALE: NTS
SHEET NO.: C-8

PRECAST MANHOLE SCHEDULE								
MANHOLE NUMBER	MANHOLE TYPE						SPECIAL	COMMENTS
	TYPE A	TYPE B	TYPE C	TYPE D	TYPE E	TYPE F		
1								
1A								
1B								
1C								
2								
TOTAL								

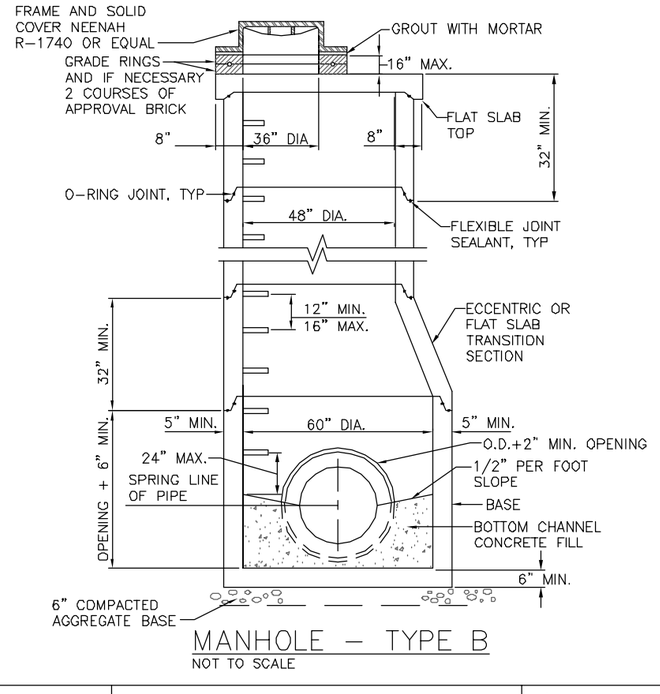
NOTES

1. SECTIONS OF THE PRECAST MANHOLE SHALL BE CAST AND ASSEMBLED WITH EITHER ALL TONGUE OR ALL GROOVE ENDS UP. LIFT HOLES MAY BE PROVIDED IN EACH SECTION FOR HANDLING.
2. BASES FOR MANHOLES ARE SHOWN WITH MONOLITHIC FLOOR AND RISERS WHICH MAY BE CAST IN ONE OR TWO OPERATIONS. A PERMISSIBLE ALTERNATE IS TO CAST AND SHIP THE FLOOR AND BARREL SEPARATELY. OPENINGS FOR INLET AND OUTLET PIPES SHALL BE PROVIDED, EITHER WHEN THE UNIT IS CAST OR LATER, TO MEET PROJECT REQUIREMENTS. BOTTOM CHANNELS MAY BE FORMED OF CONRETE PRECAST IN THE BASE OR INSTALLED BY FIELD CONSTRUCTION. FLOORS MAY ALSO BE POURED IN PLACE.
3. OPENINGS IN RISER SECTIONS SHALL BE PREFABRICATED. FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR SANITARY AND STORM SEWERS. PREMIUM SEALS SHALL MEET ASTM C-923,
4. JOINT SEALS BETWEEN PRECAST MANHOLE SECTIONS SHALL BE RESILENT AND FLEXIBLE GASKET JOINTS. JOINTS SHALL MEET ASTM C-443, FEDERAL SPECIFICATION SS-S-00210 (210 A), AND AASHTO M-198.
5. MANHOLE JOINTS SHALL BE SEALED BY A FLEXIBLE SEALANT, CONSEAL CS-202 AS MANUFACTURED BY CONSEAL CONCRETE SEALANTS, INC., OR APPROVED EQUAL.
6. MANHOLE GRADE RINGS SHALL BE SEALED EXTERNALLY AND BETWEEN GRADE RINGS WITH A LAYER OF MASTIC COMPOUND SUCH AS FABERLITE, KENT SEAL, OR EQUAL.
7. PRECAST MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
8. SEAL ALL LIFT HOLES WITH APPROVED CONCRETE PLUGS.
9. SEE PLANS FOR FRAME AND COVER ELEVATIONS.
10. TOP MANHOLE STEP SHALL BE INSTALLED NOT MORE THAN 2' BELOW TOP OF FRAME.
11. APPLY "THOROSEAL" BY THORO SYSTEM PRODUCTS, OR APPROVED EQUAL TO THE INSIDE EXPOSED SURFACES OF ALL MANHOLES.



MANHOLE – TYPE A

NOT TO SCALE

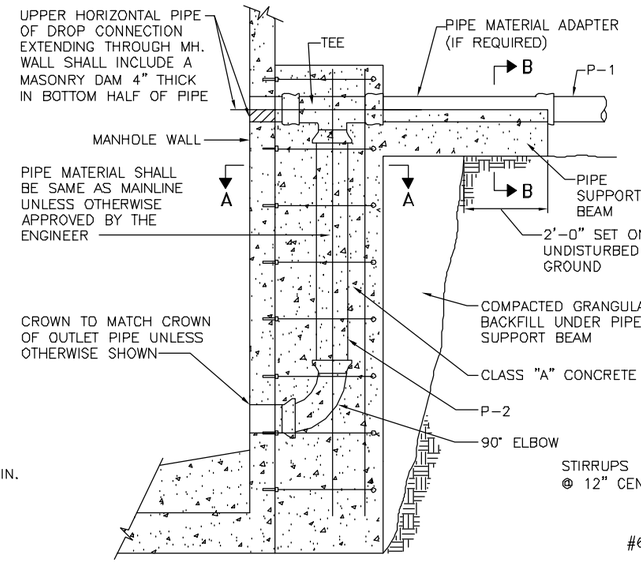


MANHOLE – TYPE B

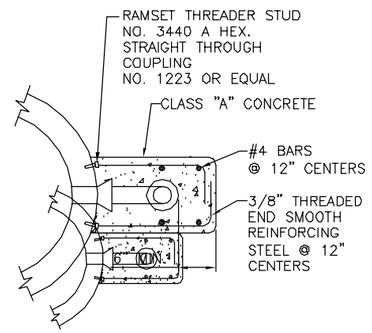
NOT TO SCALE

TABLE OF DIMENSIONS

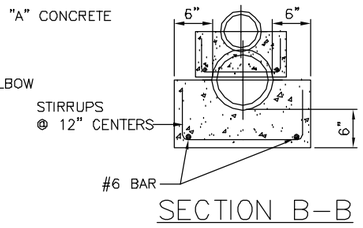
P-1	P-2
18"	12"
24"	12"
30"	15"



PLAN



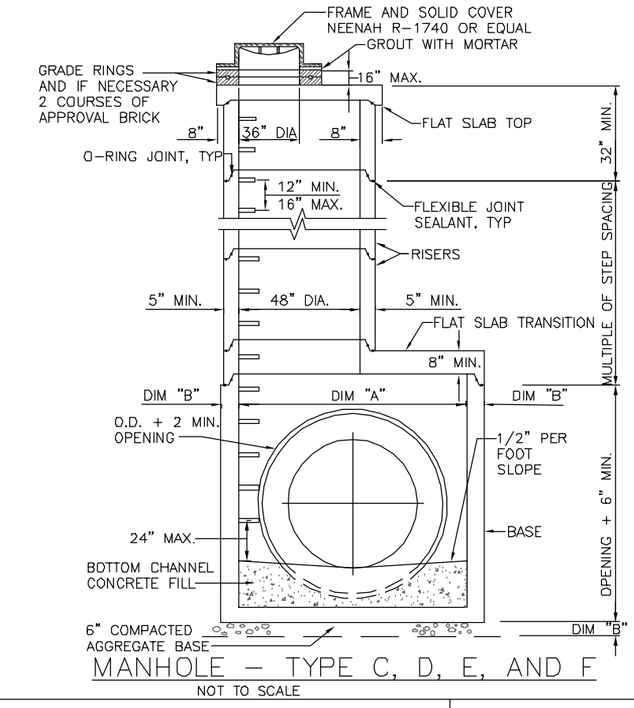
SECTION A–A



SECTION B–B

STANDARD PRECAST SANITARY MANHOLE DROP CONNECTION

NOT TO SCALE



MH TYPE	DIM "A"	MIN DIM "B"
C	72"	6"
D	84"	7"
E	96"	8"
F	120"	10"

MANHOLE – TYPE C, D, E, AND F

NOT TO SCALE

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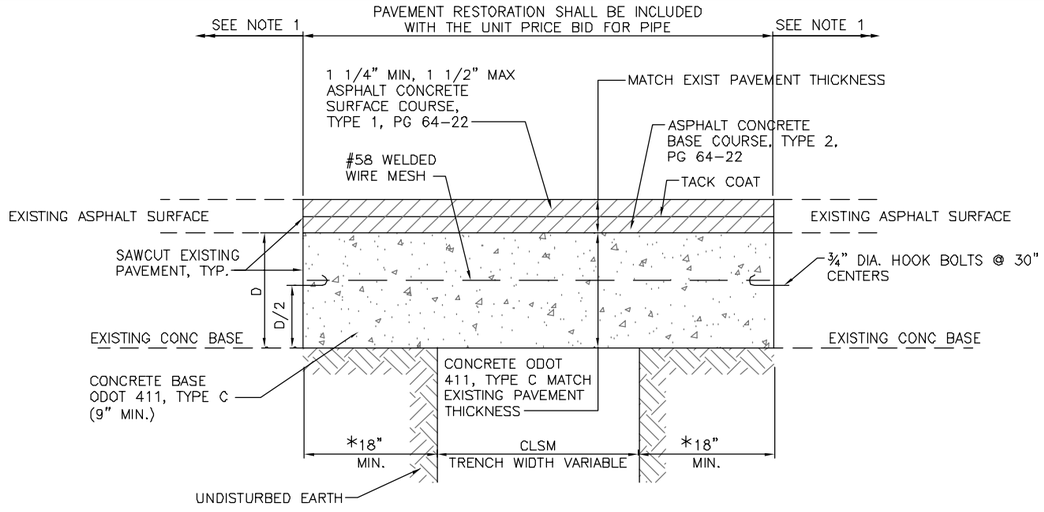
WALWORTH RUN INTERCEPTOR REALIGNMENT

PRECAST CONCRETE MANHOLE DETAILS

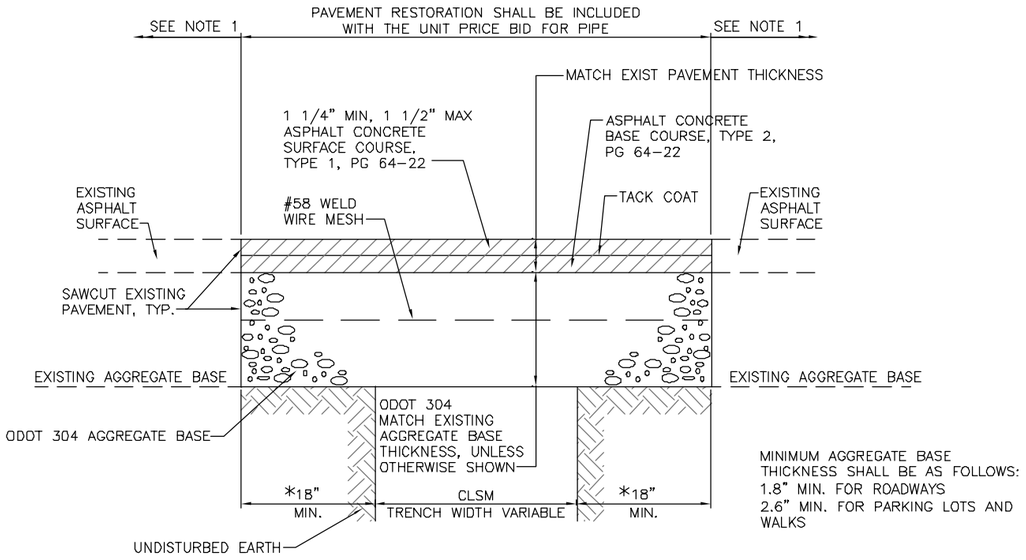
PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-9



*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

TYPICAL TRENCH DETAIL FOR ASPHALT PAVEMENT WITH CONCRETE BASE

NOT TO SCALE

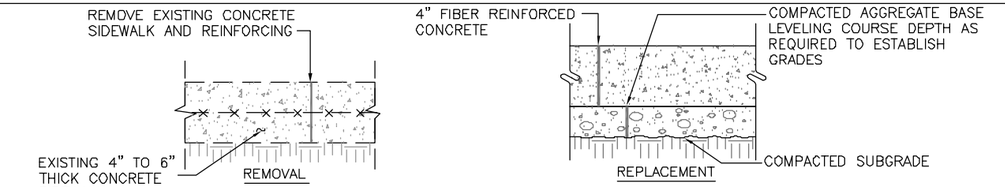


MINIMUM AGGREGATE BASE THICKNESS SHALL BE AS FOLLOWS:
1.8" MIN. FOR ROADWAYS
2.6" MIN. FOR PARKING LOTS AND WALKS

*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

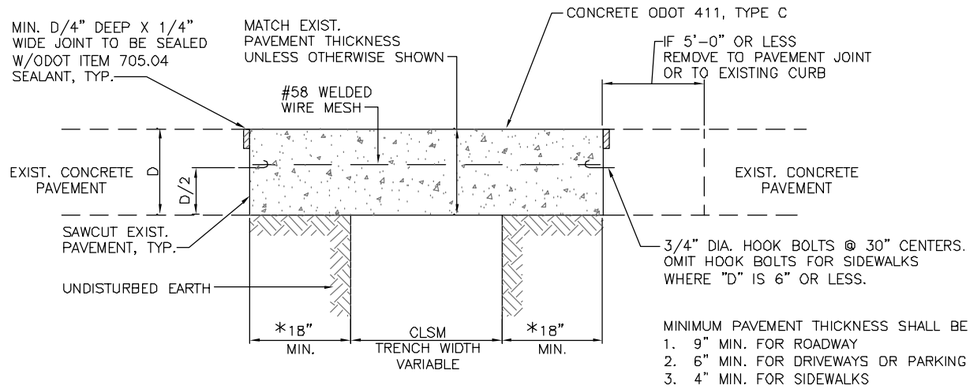
TYPICAL TRENCH DETAIL FOR ASPHALT PAVEMENT WITH AGGREGATE BASE

NOT TO SCALE



SIDEWALK REMOVAL AND REPLACEMENT

NOT TO SCALE

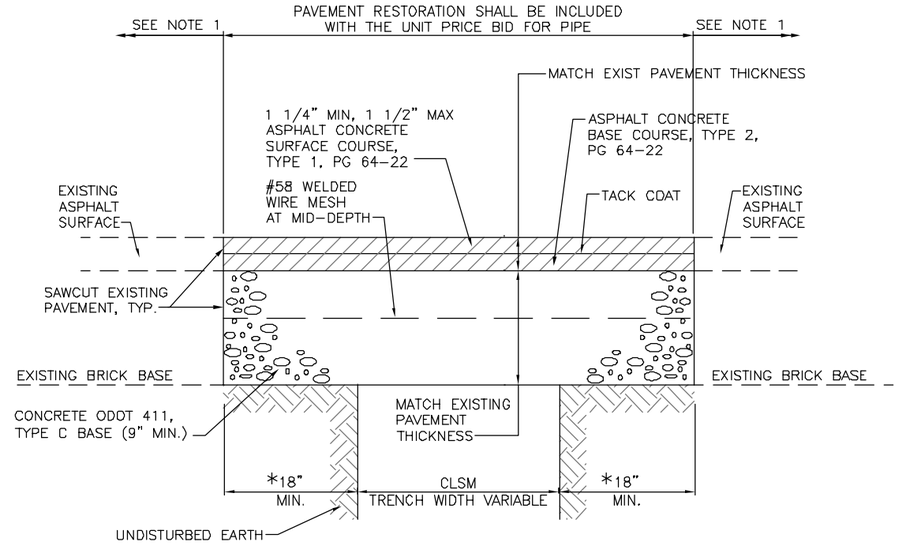


MINIMUM PAVEMENT THICKNESS SHALL BE AS FOLLOWS:
1. 9" MIN. FOR ROADWAY
2. 6" MIN. FOR DRIVEWAYS OR PARKING AREAS
3. 4" MIN. FOR SIDEWALKS

*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

TYPICAL TRENCH DETAIL FOR CONCRETE PAVEMENT

NOT TO SCALE



NOTE:

1. MILL AND RESURFACE ASPHALT PAVEMENT WHERE SHOWN ON THE DRAWINGS. PAYMENT SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR PAVEMENT MILLING AND RESURFACING

*CONTINUE PAVEMENT REPLACEMENT TO CURB WHERE SAWCUT OCCURS LESS THAN 3' FROM FACE OF CURB

TYPICAL TRENCH DETAIL FOR ASPHALT PAVEMENT WITH BRICK BASE

NOT TO SCALE

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TRENCH REPAIR DETAILS

PROJECT NO.:
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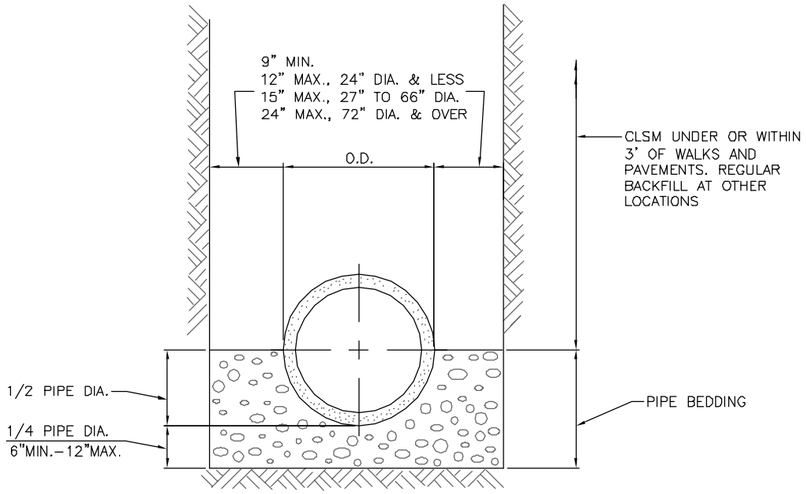
SCALE: NONE
SHEET NO.: C-10



TYPICAL SEWER TRENCH FOR RCP AND VCP

NOT TO SCALE

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CIVIL DETAILS

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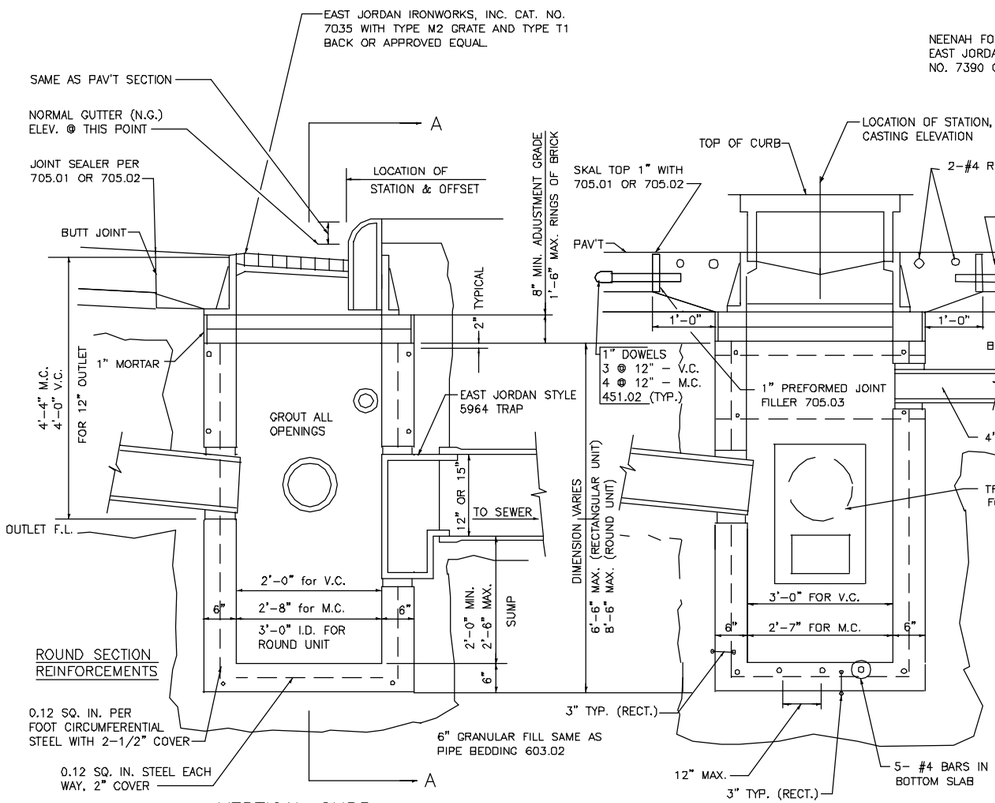
PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-11



LEGEND

V.C. - VERTICAL CURB
M.C. - MOUNTABLE CURB
T/C - TOP OF CASTING
N.G. - NORMAL GUTTER

NOTES:

1. ALL REINFORCING SHALL BE 709 #4 DEFORMED BARS AND SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE FOR RECTANGULAR SHAPE.

2. CONCRETE SHALL BE ODOT 499 CLASS "C" 4000 PSI IN 28 DAYS.

3. BOX-OUT PAID FOR AS PAV'T IN PORTLAND CEMENT CONCRETE (PCC) PAV'T AND AS PART OF THE CATCH BASIN IN ASPHALTIC CONCRETE PAV'T (ACP) - NO DEDUCTION IN PAV'T OR CURB QUANTITY BECAUSE OF CASTINGS. FOR FULL WIDTH ACP CONSTRUCT A PCC APRON THE THE SIZE OF THE BOX-OUT DELETE DOWELS. WHEN USED WITH A PCC CURB AND CURB AND GUTTER MAINTAIN GUTTER WIDTH.

ALTERNATE BASIN SHAPE

A ROUND PRECAST CONCRETE UNIT MAY BE USED IN LIEU OF RECTANGULAR UNIT. THE ROUND SECTION SHALL BE A 36" I.D. UNIT WITH INTEGRAL BASE AND PRECAST TOP TRANSITION (ROUND TO RECTANGULAR) SECTION TO FIT CASTING BEING USED. TRANSITION UNIT REQUIRES A #5 REBAR AT CORNERS OF RECTANGULAR SHAPED SECTION AND 3 x 8 W6 X X W5 WELDED WIRE FABRIC IN VERTICAL SECTION.

CITY OF CLEVELAND STANDARD CATCH BASIN

NOT TO SCALE

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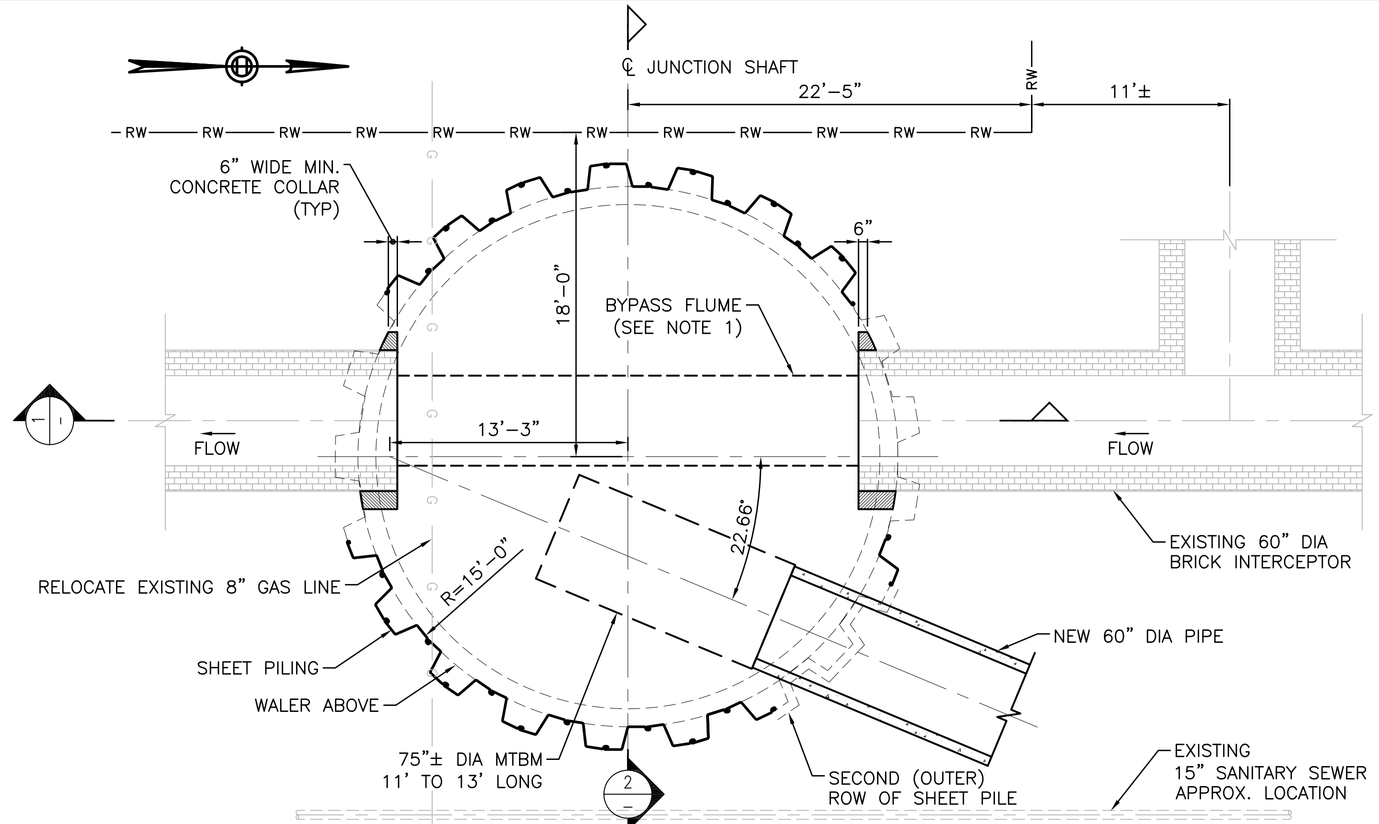
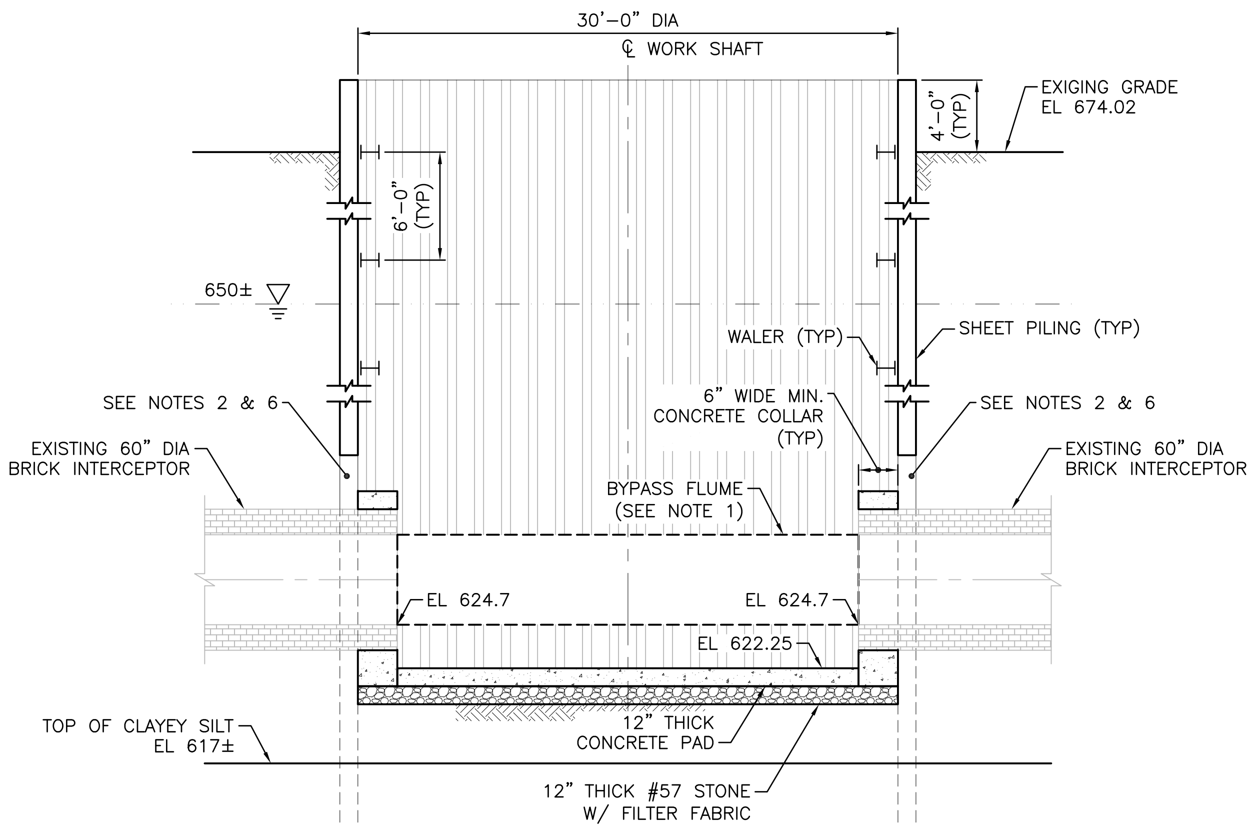
CITY OF CLEVELAND CATCH BASIN DETAIL

PROJECT NO.:
SHEET:
SCALE: NONE
SHEET NO.: C-12



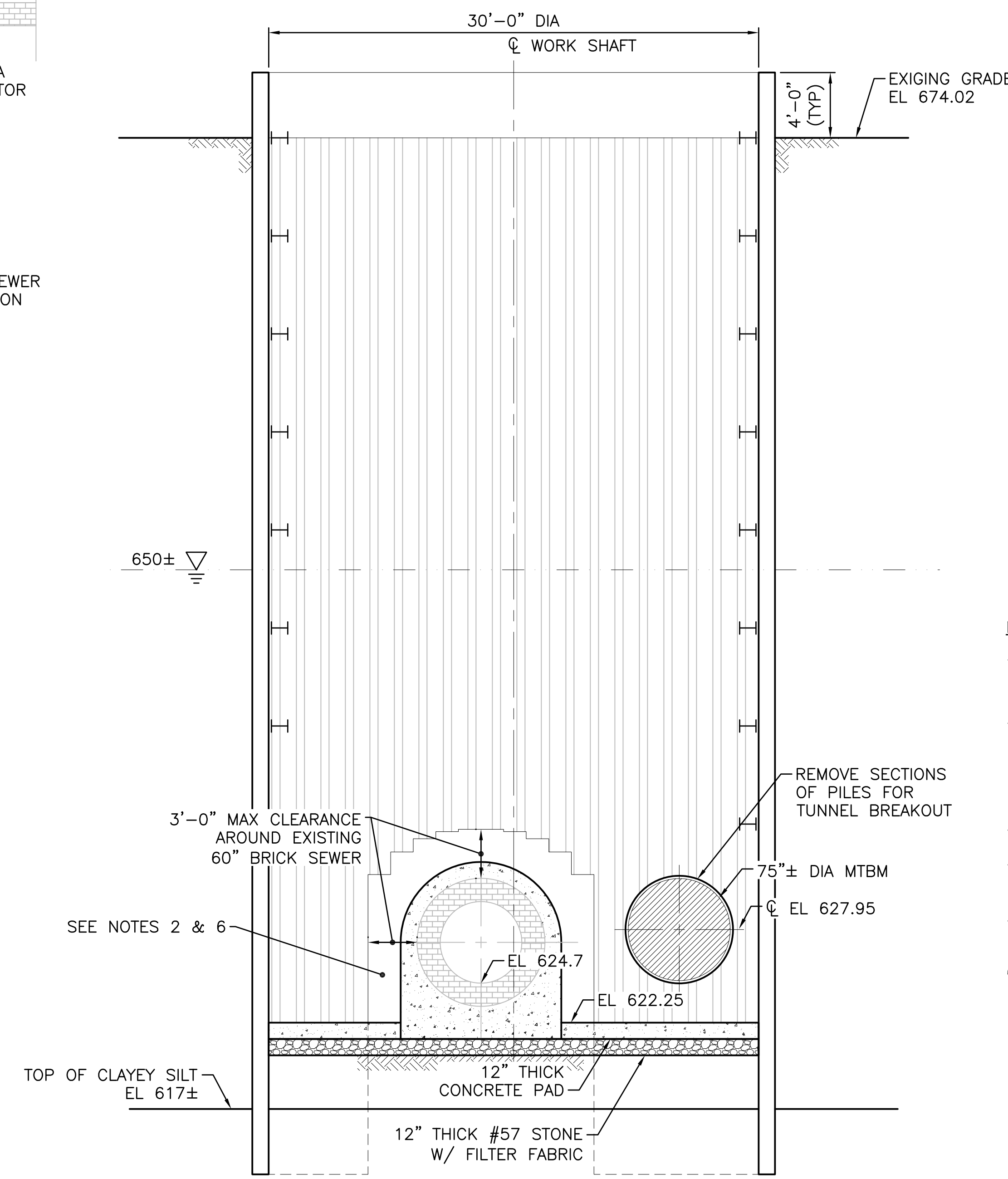
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'-0"



SECTION 1

SCALE: 3/16" = 1'-0"



SECTION 2

SCALE: 3/16" = 1'-0"

NOTES:

1. DESIGN AND INSTALL FLOW BYPASS FLUME FOR 154 CFS CAPACITY.
2. TYPE OF GROUT WILL BE DETERMINED BASED ON SOIL TESTING RESULTS – JET GROUTING OR CHEMICAL GROUTING IS STILL UNDER CONSIDERATION. ALSO, DEWATERING BY TWO WELLS IS UNDER CONSIDERATION PENDING SOIL SAMPLE TESTING RESULTS.
3. REFER TO SHAFT SITE PLANS FOR UTILITY INFORMATION.
4. OVERHEAD UTILITIES NOT SHOWN. THEY WILL BE RELOCATED DURING CONSTRUCTION.
5. REFER TO SHEET ____FOR SUGGESTED MTBM BULLSEYE ARRANGEMENT.
6. DESCRIBE FOREPOLING AT EXISTING SEWER – CLOSE ALL GAPS.

50% DESIGN SUBMITTAL

3/16"=1'-0" 6 4 2 0 5'

BAR IS ONE INCH ON ORIGINAL DRAWING
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DATE:

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Tunnel and Underground Structures Consultants
10 Village Court · Hazlet · New Jersey 07730
Tel: 732-739-8840 Fax: 732-739-8870

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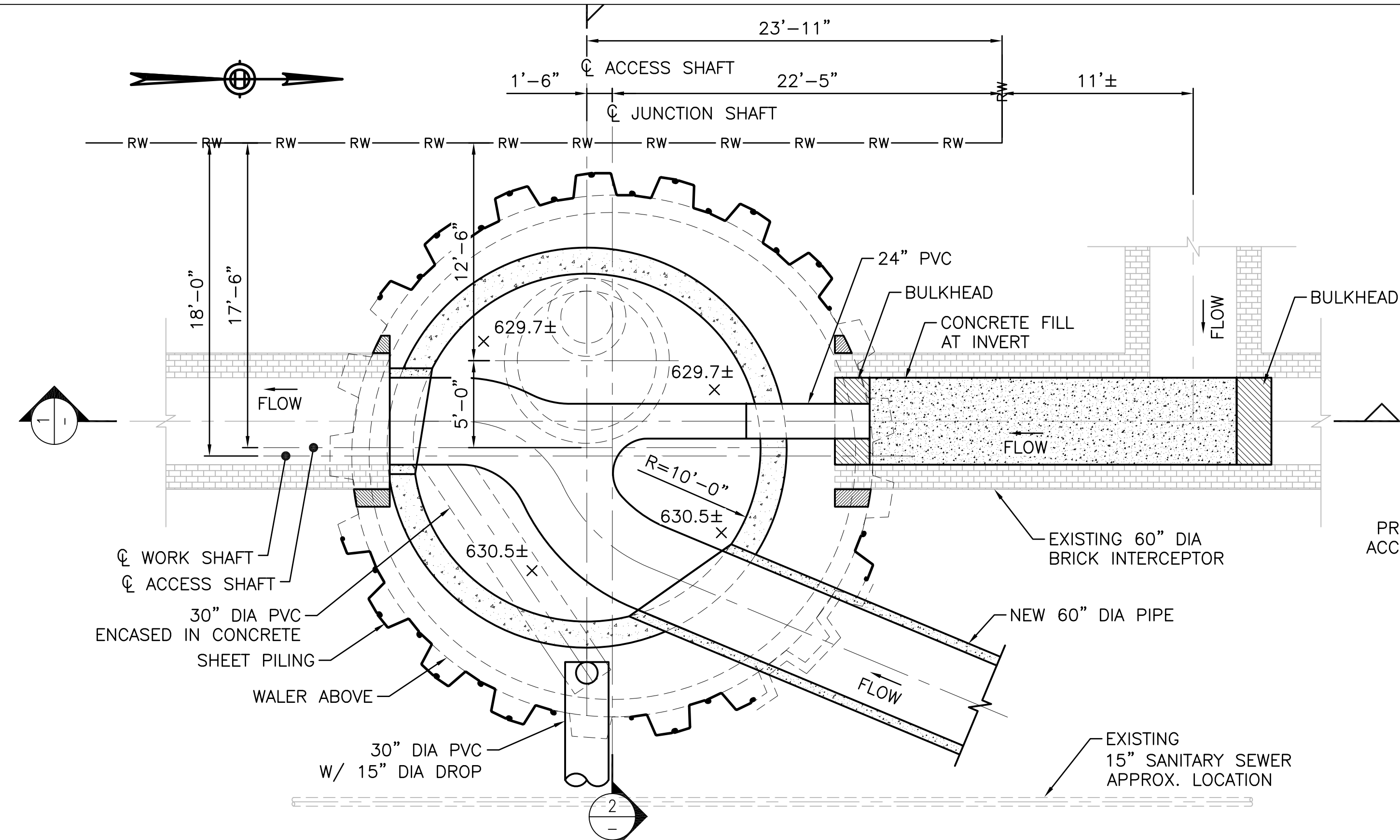
WALWORTH RUN INTERCEPTOR REALIGNMENT

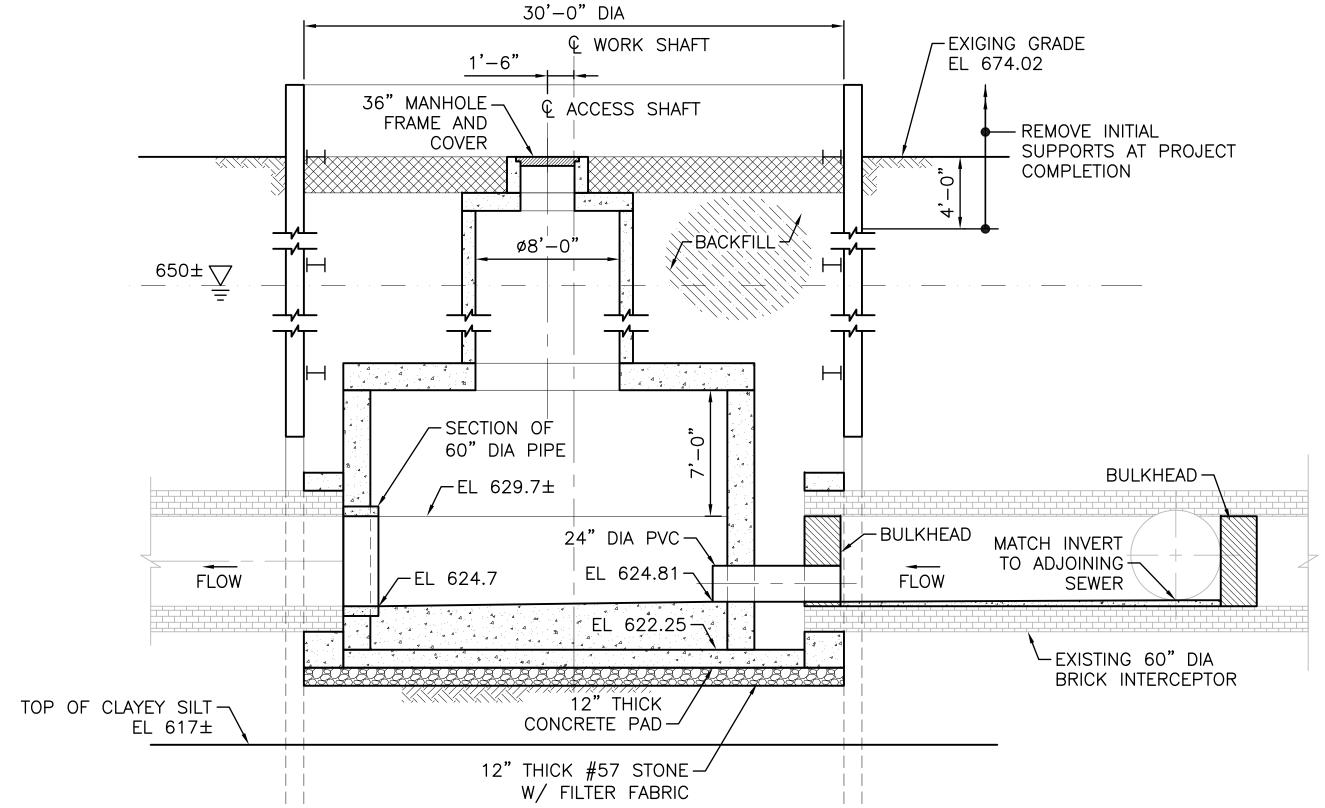
WORK SHAFT
JUNCTION CHAMBER No. 1
INITIAL SUPPORTS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-1



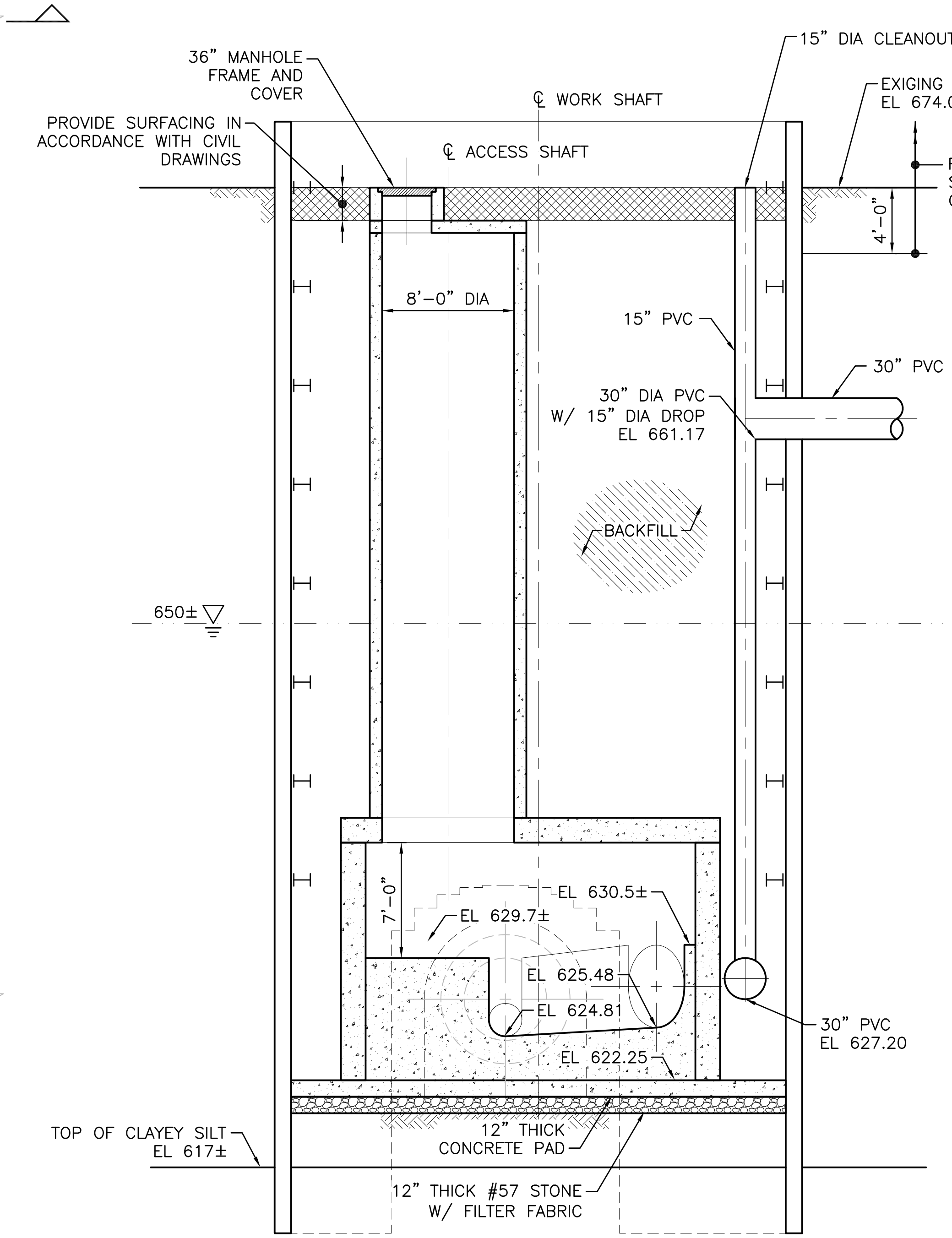
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'-0"



SECTION 1

SCALE: 3/16" = 1'-0"



SECTION 2

SCALE: 3/16" = 1'-0"

50% DESIGN SUBMITTAL

3/16"=1'-0" 6 4 2 0 5'

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CROSS CHK'D BY:
APPROVED BY:
DATE:

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Tunnel and Underground Structures Consultants
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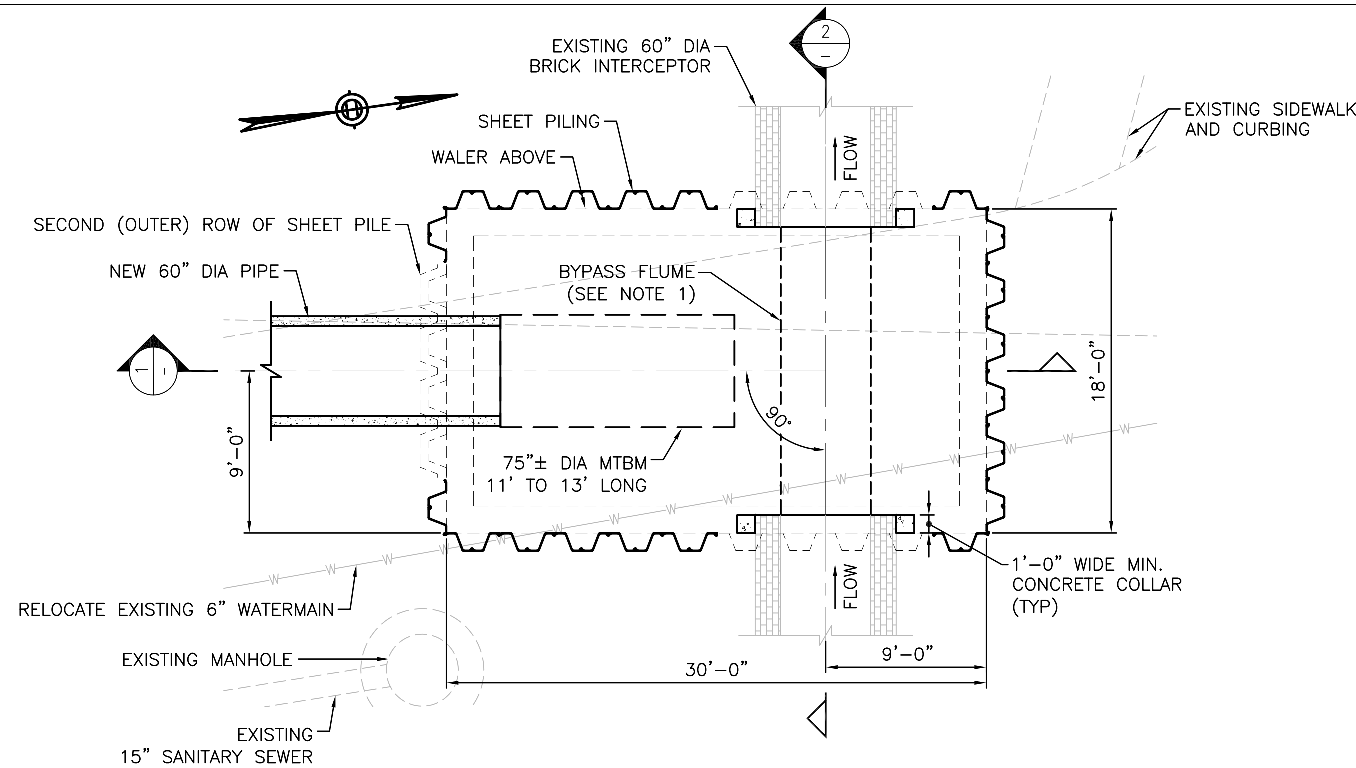
WALWORTH RUN INTERCEPTOR REALIGNMENT

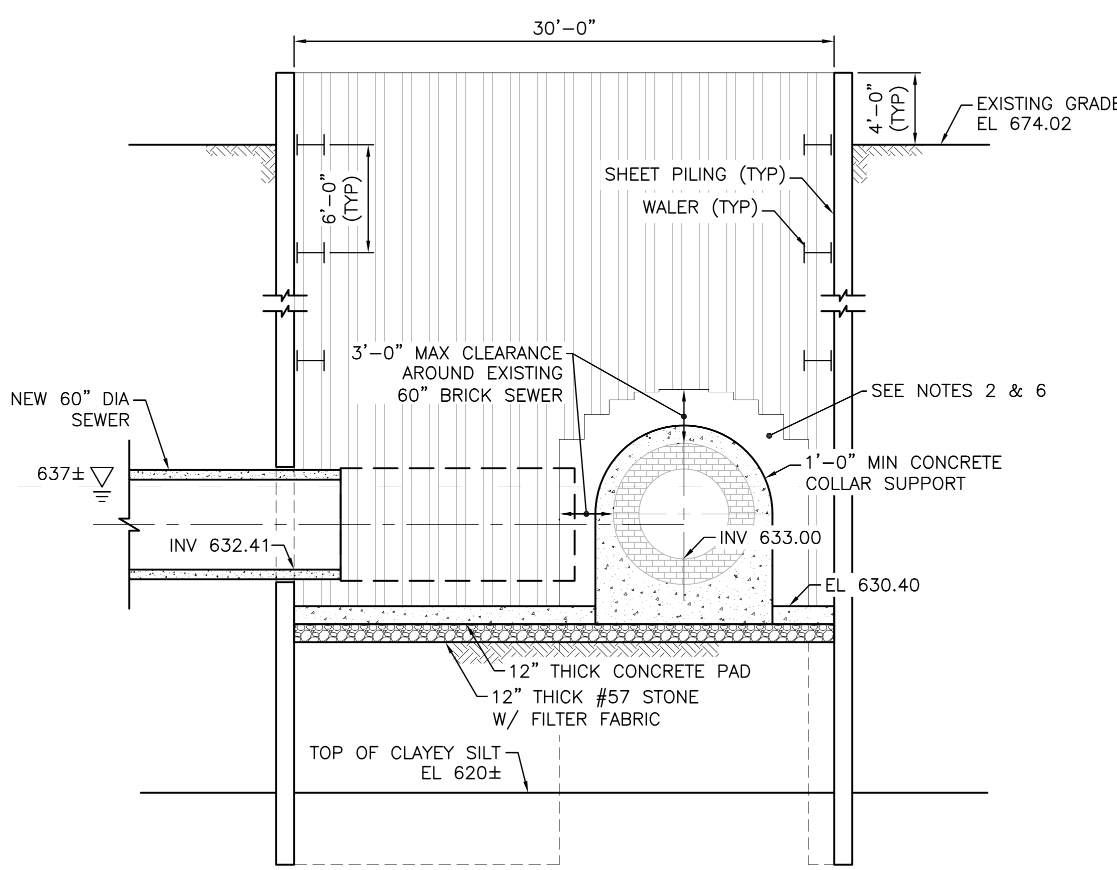
JUNCTION CHAMBER No. 1 FINAL SUPPORTS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-2



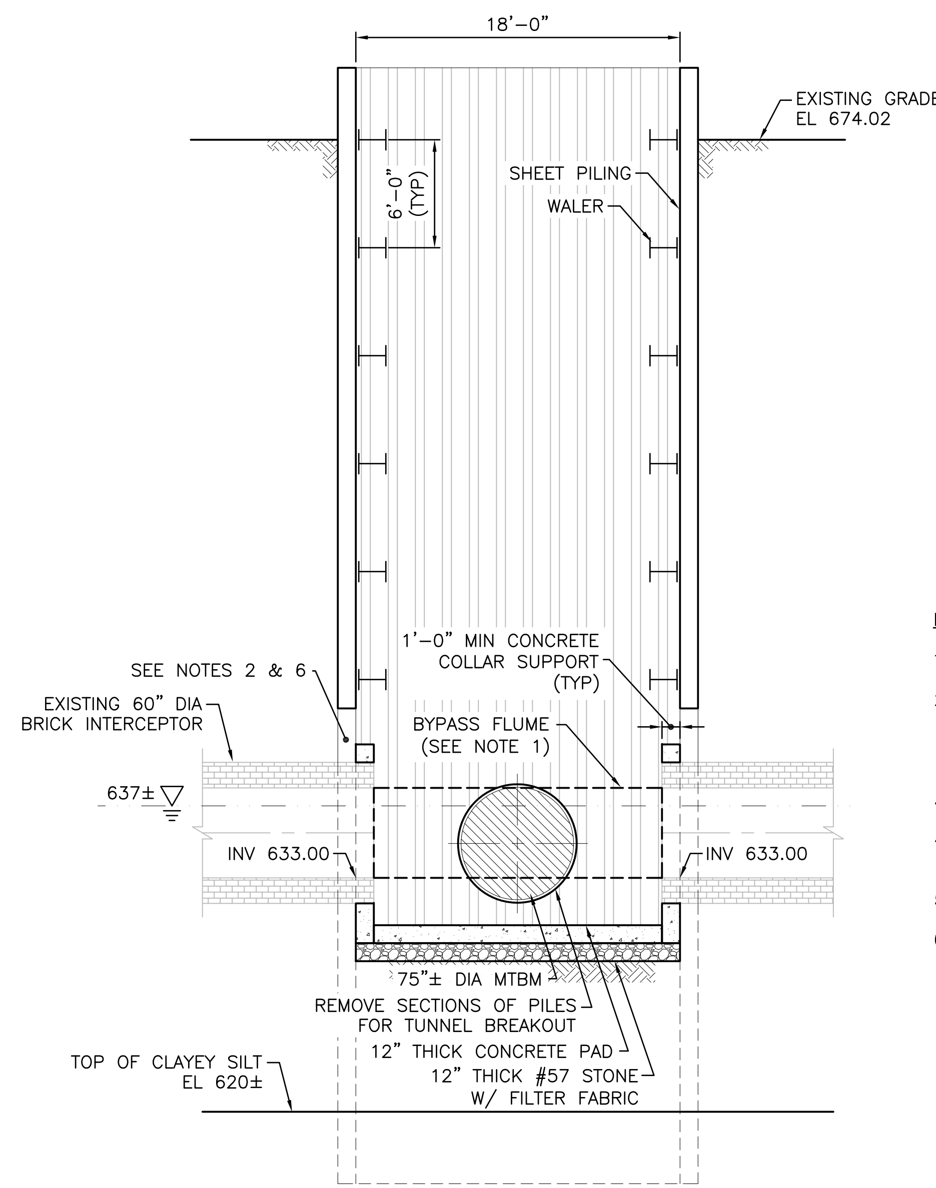
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'–0"



SECTION 1

SCALE: 3/16" = 1'–0"



SECTION 2

SCALE: 3/16" = 1'–0"

NOTES:

1. DESIGN AND INSTALL FLOW BYPASS FLUME FOR 154 CFS CAPACITY.
2. TYPE OF GROUT WILL BE DETERMINED BASED ON SOIL TESTING RESULTS – JET GROUTING OR CHEMICAL GROUTING IS STILL UNDER CONSIDERATION. ALSO, DEWATERING BY TWO WELLS IS UNDER CONSIDERATION PENDING SOIL SAMPLE TESTING RESULTS.
3. REFER TO SHAFT SITE PLANS FOR UTILITY INFORMATION.
4. OVERHEAD UTILITIES NOT SHOWN. THEY WILL BE RELOCATED DURING CONSTRUCTION.
5. REFER TO SHEET __ FOR SUGGESTED MTBM BULLSEYE ARRANGEMENT.
6. DESCRIBE FOREPOLING AT EXISTING SEWER – CLOSE ALL GAPS.

50% DESIGN SUBMITTAL

3/16"=1'–0" 6 4 2 0 5'

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
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APPROVED BY:
DATE:

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Tunnel and Underground Structures Consultants
10 Village Court · Hazlet · New Jersey 07730
Tel: 732-739-8840 Fax: 732-739-8870

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

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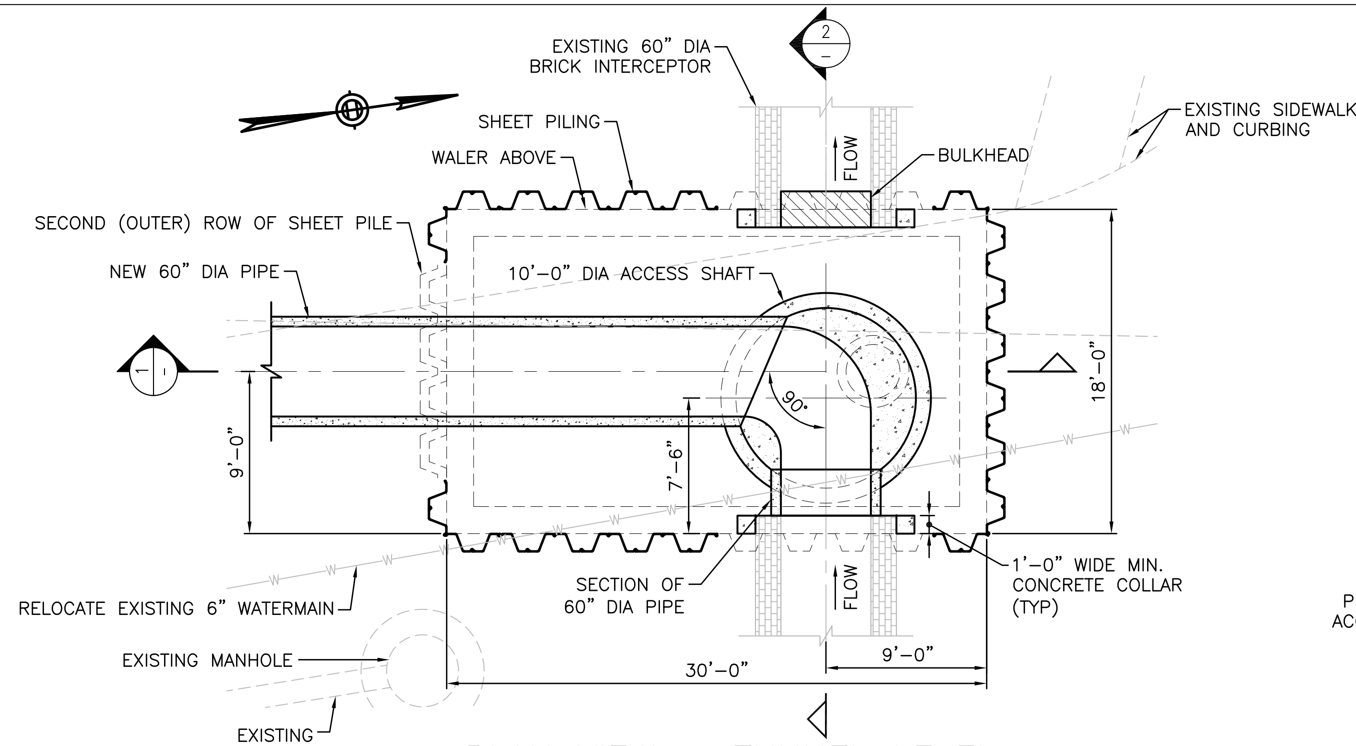
WALWORTH RUN INTERCEPTOR REALIGNMENT

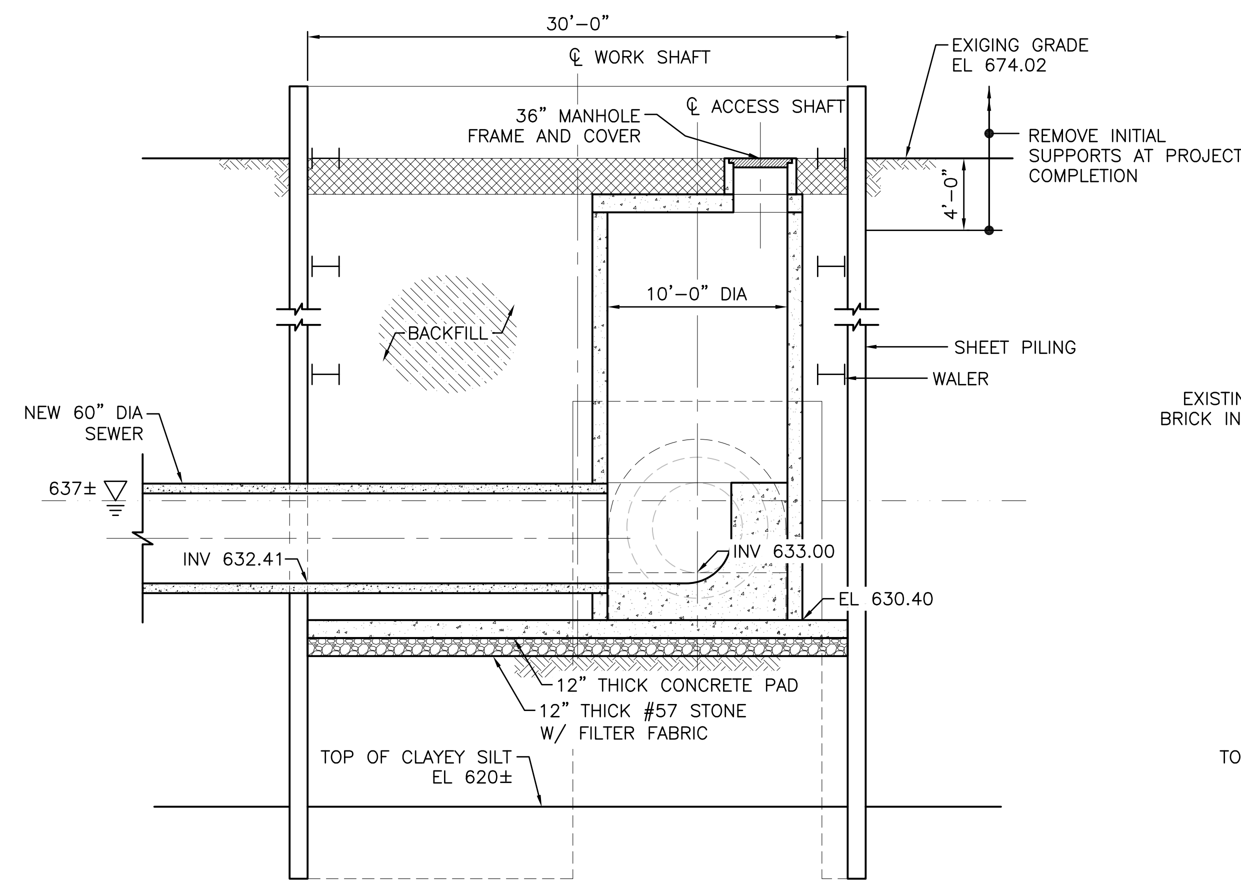
WORK SHAFT
JUNCTION CHAMBER No. 2
INITIAL SUPPORTS

PROJECT NO.:
SHEET:
SCALE: 3/16"=1'–0"
SHEET NO.: TU–3



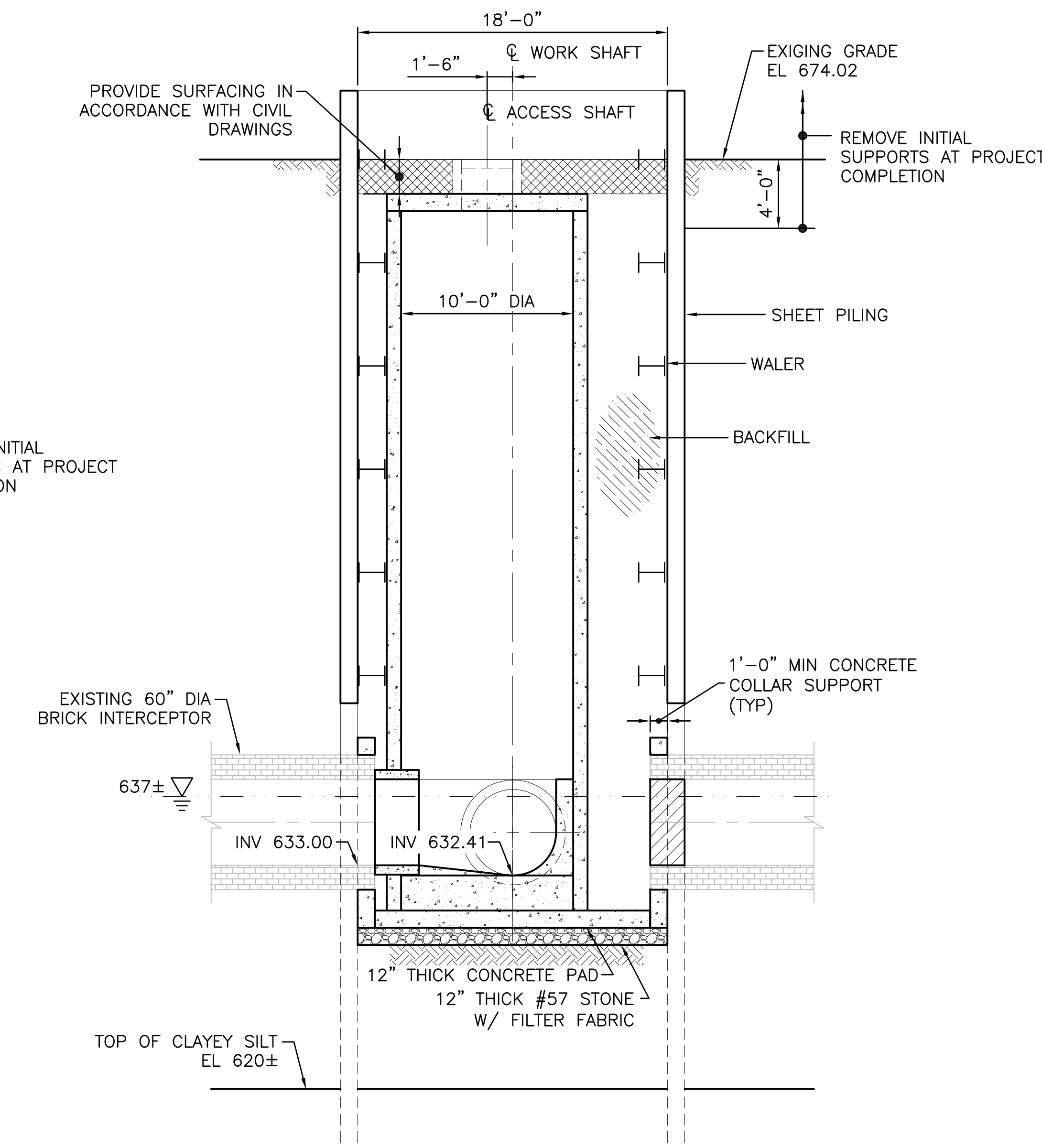
PLAN VIEW – TUNNEL LEVEL

SCALE: 3/16" = 1'-0"



SECTION 1

SCALE: 3/16" = 1'-0"



SECTION 2

SCALE: 3/16" = 1'-0"

3/16"=1'-0" 6 4 2 0 5'

50% DESIGN SUBMITTAL

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1

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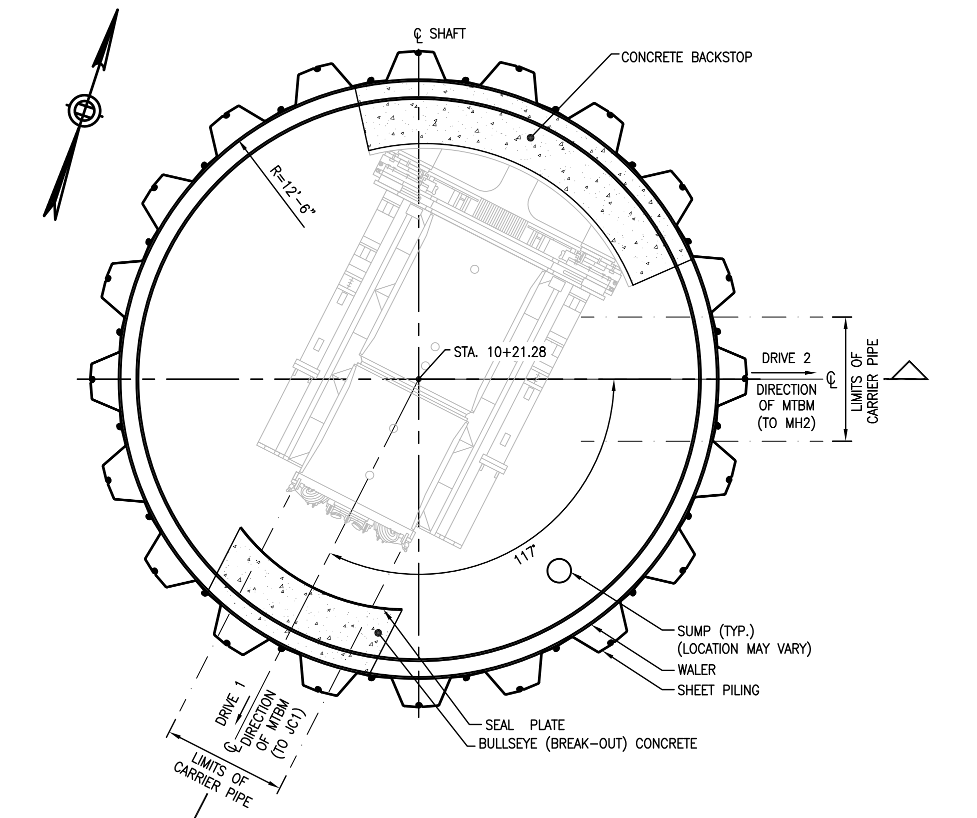
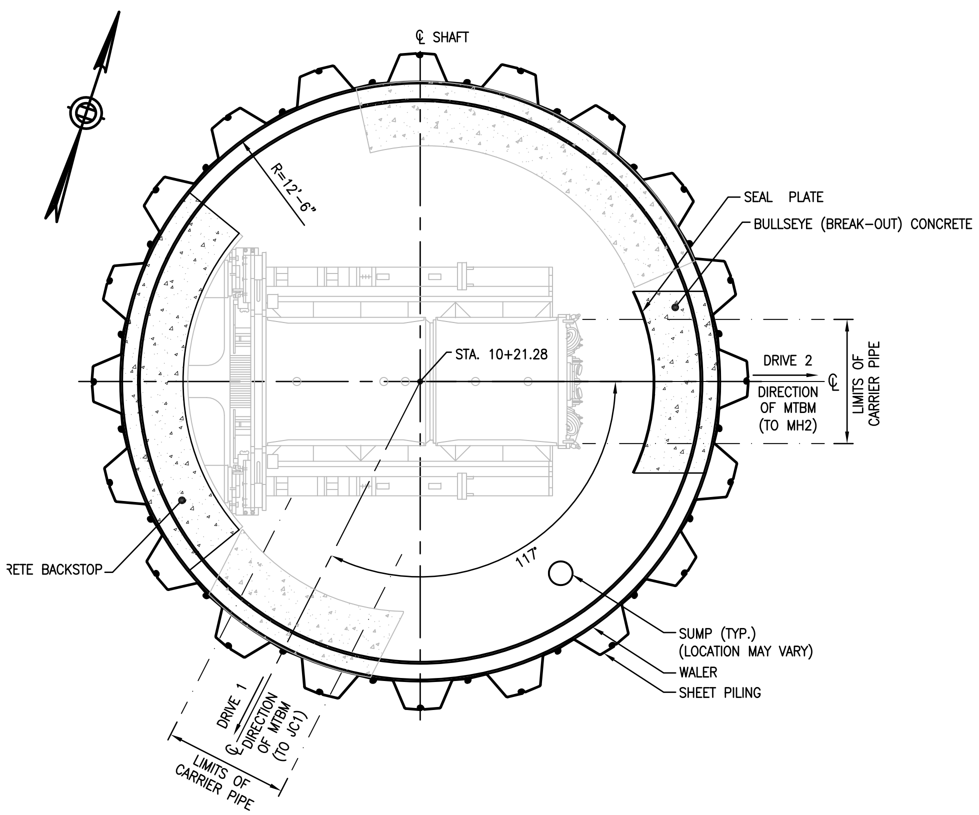
WALWORTH RUN INTERCEPTOR REALIGNMENT

JUNCTION CHAMBER No. 2 FINAL SUPPORTS

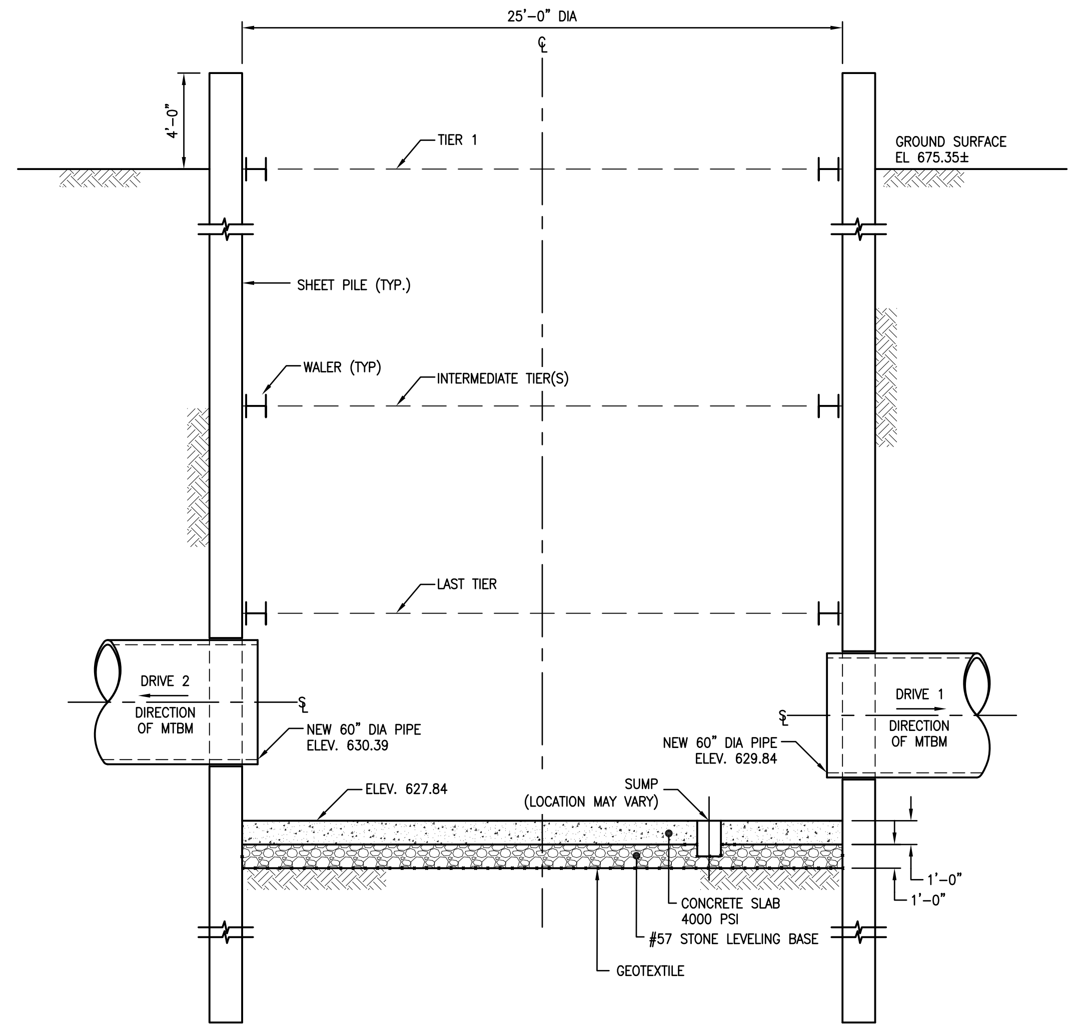
PROJECT NO.:
SHEET:
SCALE: 3/16"=1'-0"
SHEET NO.: TU-4



PLAN VIEW – DRIVE 1
SCALE: 1/4" = 1'-0"



PLAN VIEW – DRIVE 2
SCALE: 1/4" = 1'-0"



SECTION 1
SCALE: 1/4" = 1'-0"

GENERAL NOTES:
1. ALL STRUCTURAL STEEL MEMBERS ARE FY = 50 KSI.
2. STEEL SHEETING IS PZ27 OR EQUAL (FY = 50 KSI))
3. USE E70XX ELECTRODES FOR ALL WELDS.
4. THE MAX. THRUST LOAD FROM MTBM ON TUNNEL BREAK–IN CONCRETE SHALL NOT EXCEED 50 TONS.

SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MANHOLE NO. 1 (MH1)
THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MH1 IS PREPARED CONSIDERING THAT MICROTUNNEL DRIVE 1 WILL BE COMPLETED FIRST AND THEN DRIVE 2 WILL BE COMPLETED.

TO MAINTAIN THE EXCAVATION AND SUPPORT STABILITY, THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR THE WORK SHAFT SHALL BE FOLLOWED:
1. INSTALL SHEET PILES TO THE DEPTH SHOWN FOR THE CIRCULAR SHAFT.
2. INSTALL SECOND (OUTER) ROW OF SHEET PILES AT TUNNEL BREAK–OUT LOCATIONS WITHIN LIMITS INDICATED.
3. EXCAVATE PIT "IN DRY" TO MAXIMUM OF 2 FEET DEPTH BELOW TIER 1 LEVEL AND INSTALL TIER 1 STEEL SUPPORTS.
4. CONTINUE TO EXCAVATE PIT "IN DRY" IN STEPS TO MAXIMUM OF 2 FEET DEPTH FOR EACH OF THE REMAINING TIER LEVEL AND INSTALL REMAINING TIER STEEL SUPPORTS.
5. AFTER INSTALLATION OF THE LAST TIER, CONTINUE TO EXCAVATE THE PIT "IN DRY" DOWN TO THE BOTTOM OF EXCAVATION.
6. CLEAN THE BOTTOM OF EXCAVATION AND PLACE GEOTEXTILE FABRIC, CRUSHED STONE BASE AND CONCRETE SLAB. PROVIDE SUMP PIT AS SHOWN ON THE DRAWINGS. ALLOW THE CONCRETE SLAB TO GAIN THE DESIGN STRENGTH.
7. IF GROUND WATER IS IN–FILTERING INTO THE SUMP PIT, CONTINUOUSLY PUMP OUT THE WATER FROM THE SUMP PIT FOR THE ENTIRE DURATION OF WORK.

PREPARATION FOR BREAK–OUT FOR DRIVE 1 AND DRIVE 2
8. PLACE SUITABLE GROUT BETWEEN TWO ROWS OF SHEETING AT TUNNEL BREAK–OUT LOCATIONS TO PREVENT GROUNDWATER OR SOIL INFILTRATION WHEN MAIN SHEET PILES ARE CUT FOR MICROTUNNEL BORING MACHINE (MTBM) BULLS EYE.
9. CUT THE SHEET PILES (INSTALLED FOR THE SHAFT) IN THE MICROTUNNEL BREAK–OUT AREAS (BULLSEYE). IF DURING CUTTING OF SHEET PILES, GROUNDWATER OR SOIL INFILTRATION IS OBSERVED, PROVIDE SECONDARY GROUT TO COMPLETELY SEAL BULLSEYE ZONE AS NECESSARY. APPLY A BOND BREAKER AGAINST SHEET PILES IN THE BULLSEYE ZONE.

PROCEDURE FOR BREAK–OUT FOR DRIVE1 AND DRIVE 2
10. INSTALL STEEL BULLSEYE SEAL PLATE AND PLACE CONCRETE FOR THE TUNNEL BREAK–OUT BETWEEN SEAL PLATE AND SHEET PILES FOR DRIVE 1. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICRO TUNNEL BORING MACHINE (MTBM) FOR DRIVE 1.
11. ON COMPLETION OF DRIVE1, INSTALL BREAK–OUT FOR DRIVE 2 SIMILAR TO THE BREAK–OUT PROCEDURE FOR DRIVE 1. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICROTUNNEL BORING MACHINE (MTBM) FOR DRIVE 2.

CONCRETE BACKSTOP CONSTRUCTION FOR DRIVE 1 AND DRIVE 2
12. CONSTRUCT THE CONCRETE BACK STOP AS SHOWN ON THE DRAWING FOR DRIVE 1.
13. ON COMPLETION OF DRIVE1, CONSTRUCT THE CONCRETE BACK STOP FOR DRIVE 2.

1/4"=1'-0" 1 0 1 2 3

50% DESIGN SUBMITTAL

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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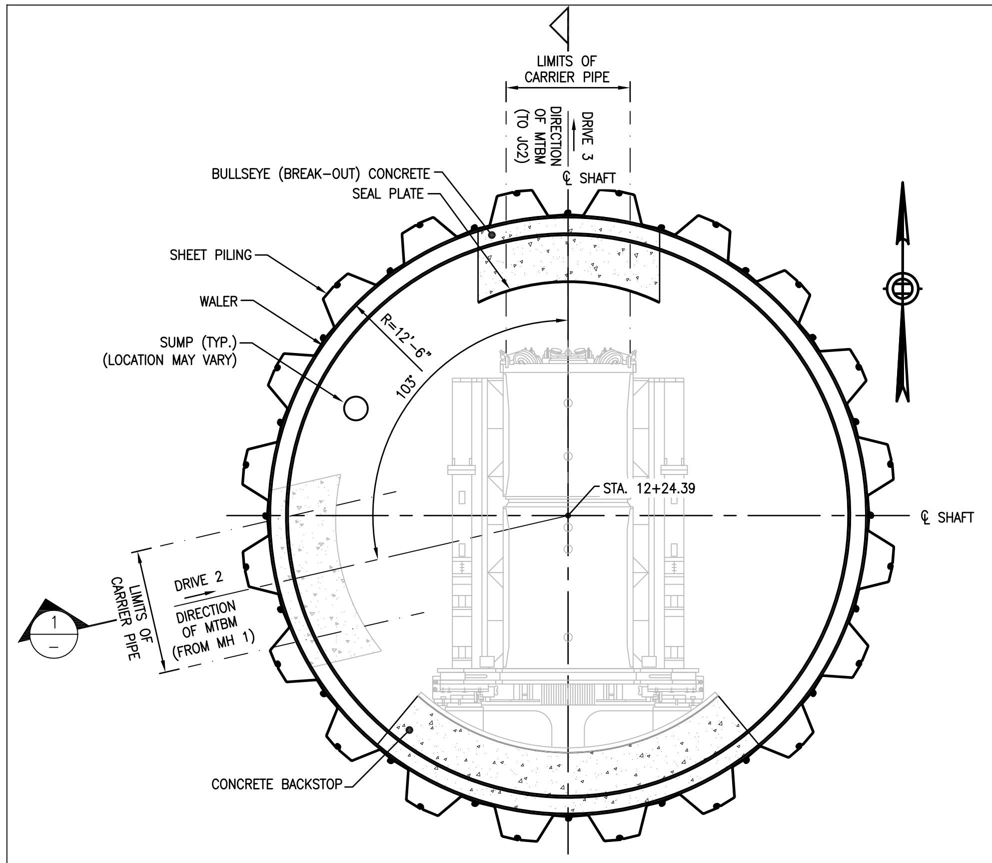
WALWORTH RUN INTERCEPTOR REALIGNMENT

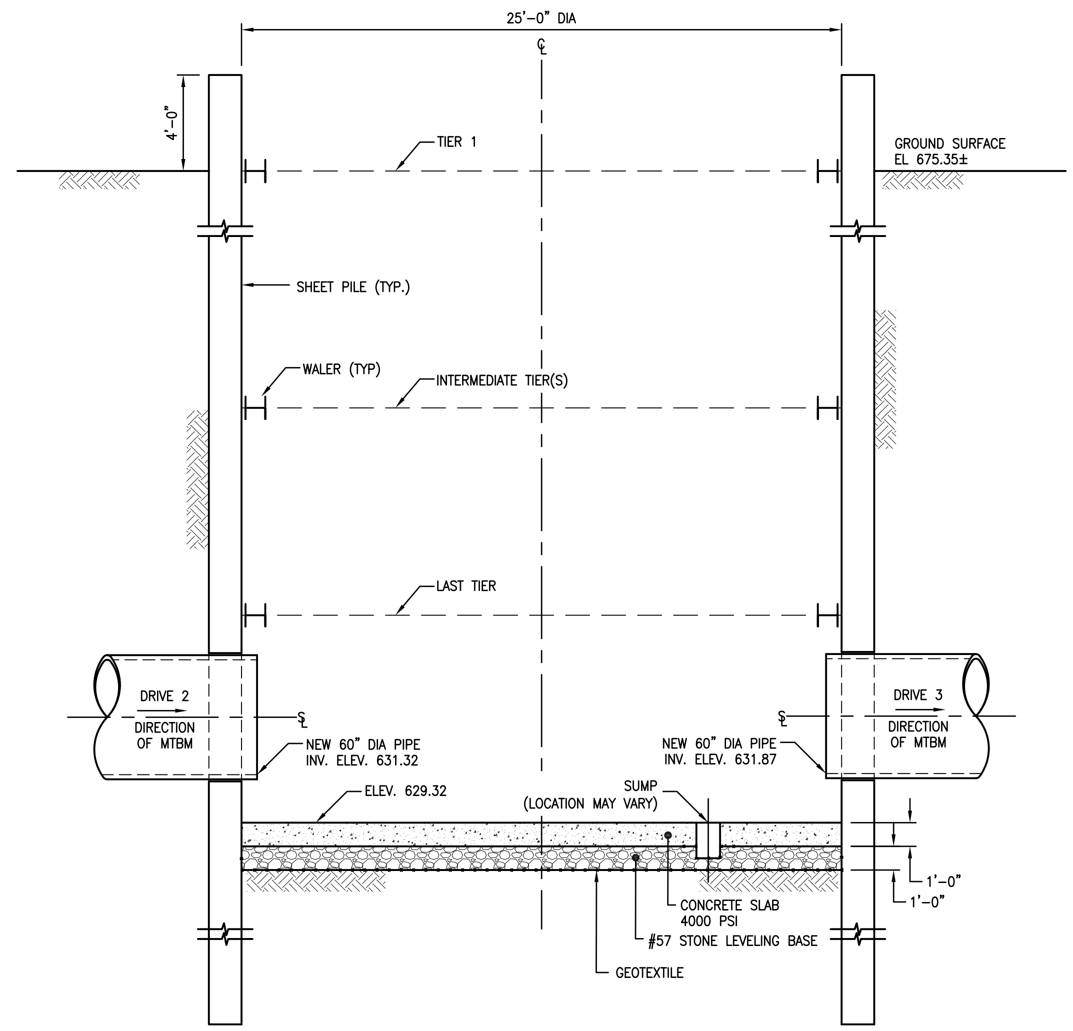
WORK SHAFT
MANHOLE No.1
INITIAL SUPPORTS

PROJECT NO.:
SHEET:
SCALE: AS NOTED
SHEET NO.: TU-5



PLAN VIEW – DRIVE 3

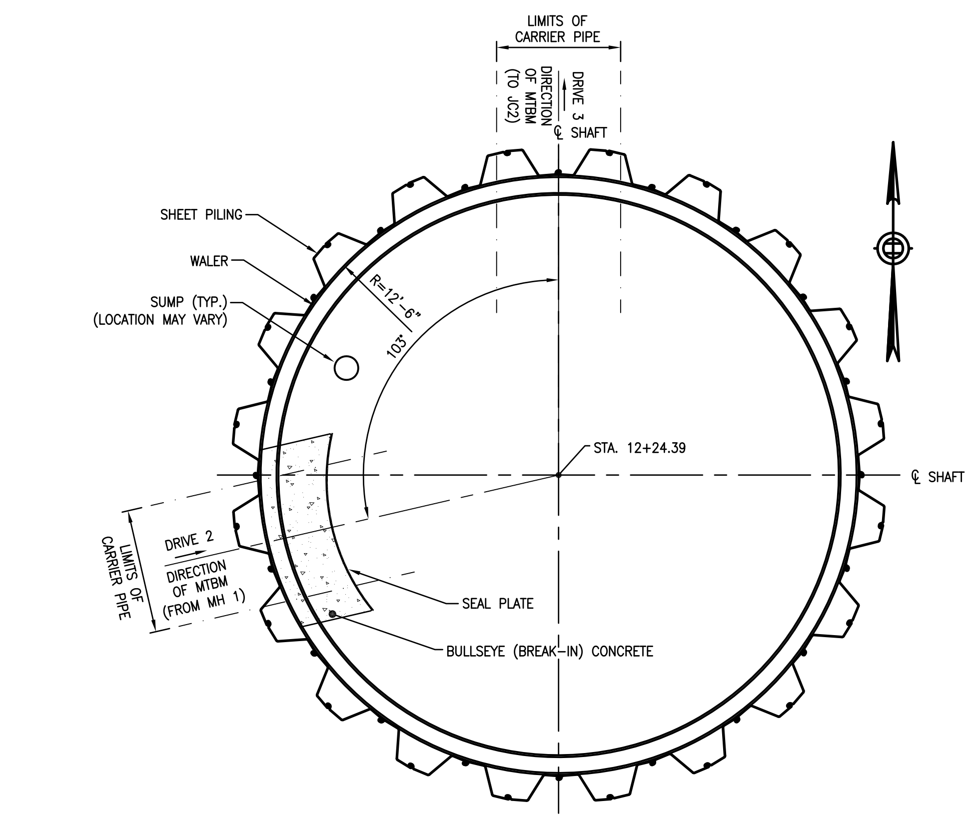
SCALE: 1/4" = 1'-0"



SECTION

SCALE: 1/4" = 1'-0"

1
–



PLAN VIEW – DRIVE 2

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. ALL STRUCTURAL STEEL MEMBERS ARE FY = 50 KSI.
2. STEEL SHEETING IS PZ27 OR EQUAL (FY = 50 KSI))
3. USE E70XX ELECTRODES FOR ALL WELDS.
4. THE MAX. THRUST LOAD FROM MTBM ON TUNNEL BREAK–IN CONCRETE SHALL NOT EXCEED 50 TONS.

SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MANHOLE NO. 2 (MH2)

THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR WORK SHAFT AT MH2 IS PREPARED CONSIDERING THAT MICROTUNNEL DRIVE 2 WILL BE COMPLETED FIRST AND THEN DRIVE 3 WILL BE COMPLETED.

TO MAINTAIN THE EXCAVATION AND SUPPORT STABILITY, THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR THE WORK SHAFT SHALL BE FOLLOWED:

1. INSTALL SHEET PILES TO THE DEPTH SHOWN FOR THE CIRCULAR SHAFT.
2. INSTALL SECOND (OUTER) ROW OF SHEET PILES AT TUNNEL BREAK–IN AND BREAK–OUT LOCATION WITHIN LIMITS INDICATED.
3. EXCAVATE PIT "IN DRY" TO MAXIMUM OF 2 FEET DEPTH BELOW TIER 1 LEVEL AND INSTALL TIER 1 STEEL SUPPORTS.
4. CONTINUE TO EXCAVATE PIT "IN DRY" IN STEPS TO MAXIMUM OF 2 FEET DEPTH FOR EACH OF THE REMAINING TIER LEVEL AND INSTALL REMAINING TIER STEEL SUPPORTS.
5. AFTER INSTALLATION OF THE LAST TIER, CONTINUE TO EXCAVATE THE PIT "IN DRY" DOWN TO THE BOTTOM OF EXCAVATION.
6. CLEAN THE BOTTOM OF EXCAVATION AND PLACE GEOTEXTILE FABRIC, CRUSHED STONE BASE AND CONCRETE SLAB. PROVIDE SUMP PIT AS SHOWN ON THE DRAWINGS. ALLOW THE CONCRETE SLAB TO GAIN THE DESIGN STRENGTH.
7. IF GROUND WATER IS IN–FILTERING INTO THE SUMP PIT, CONTINUOUSLY PUMP OUT THE WATER FROM THE SUMP PIT FOR THE ENTIRE DURATION OF WORK.

PREPARATION FOR BREAK–IN FOR DRIVE 2 AND BREAK–OUT FOR DRIVE 3

8. PLACE SUITABLE GROUT BETWEEN THE TWO ROWS OF SHEET PILING AT TUNNEL BREAK–IN AND BREAK–OUT LOCATIONS TO PREVENT GROUNDWATER OR SOIL INFILTRATION WHEN MAIN SHEET PILES ARE CUT FOR MICROTUNNEL BORING MACHINE (MTBM) BULLS EYE.
9. CUT THE SHEET PILES (INSTALLED FOR THE SHAFT) IN THE MICROTUNNEL BREAK–IN AND BREAK–OUT AREA (BULLSEYE). IF DURING CUTTING OF SHEET PILES, GROUNDWATER OR SOIL INFILTRATION IS OBSERVED, PROVIDE SECONDARY GROUT TO COMPLETELY SEAL BULLSEYE ZONE AS NECESSARY. APPLY A BOND BREAKER AGAINST SHEET PILES IN THE BULLSEYE ZONE.

PROCEDURE FOR BREAK–IN FOR DRIVE 2

10. INSTALL STEEL BULLSEYE SEAL PLATE AND PLACE CONCRETE FOR THE TUNNEL BREAK–IN FOR DRIVE2. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICROTUNNEL BORING MACHINE (MTBM) FOR DRIVE 2.
11. RECEIVE THE MTBM IN THE SHAFT AND GROUT THE ANNULUS AROUND THE CARRIER PIPE THROUGH THE GROUT PORTS.

PROCEDURE FOR BREAK–OUT FOR DRIVE 3

12. ON COMPLETION OF DRIVE 2, INSTALL STEEL BULLSEYE SEAL PLATE AND PLACE CONCRETE FOR THE TUNNEL BREAK–OUT FOR DRIVE 3. ALLOW THE CONCRETE TO GAIN THE DESIGN STRENGTH. JUST BEFORE COMMENCING THE WORK ON MICROTUNNELING FOR DRIVE 3, PULL UP THE SECOND (OUTER) ROW OF SHEET PILES JUST ENOUGH TO CLEAR THE MICROTUNNEL BORING MACHINE (MTBM) FOR DRIVE 3.

CONCRETE BACKSTOP CONSTRUCTION FOR DRIVE 3

13. ON COMPLETION OF DRIVE 2, CONSTRUCT THE CONCRETE BACK STOP AS SHOWN ON THE DRAWING FOR DRIVE 3.

1/4"=1'-0" 1 0 1 2 3

50% DESIGN SUBMITTAL

BAR IS ONE INCH ON ORIGINAL DRAWING
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DATE:

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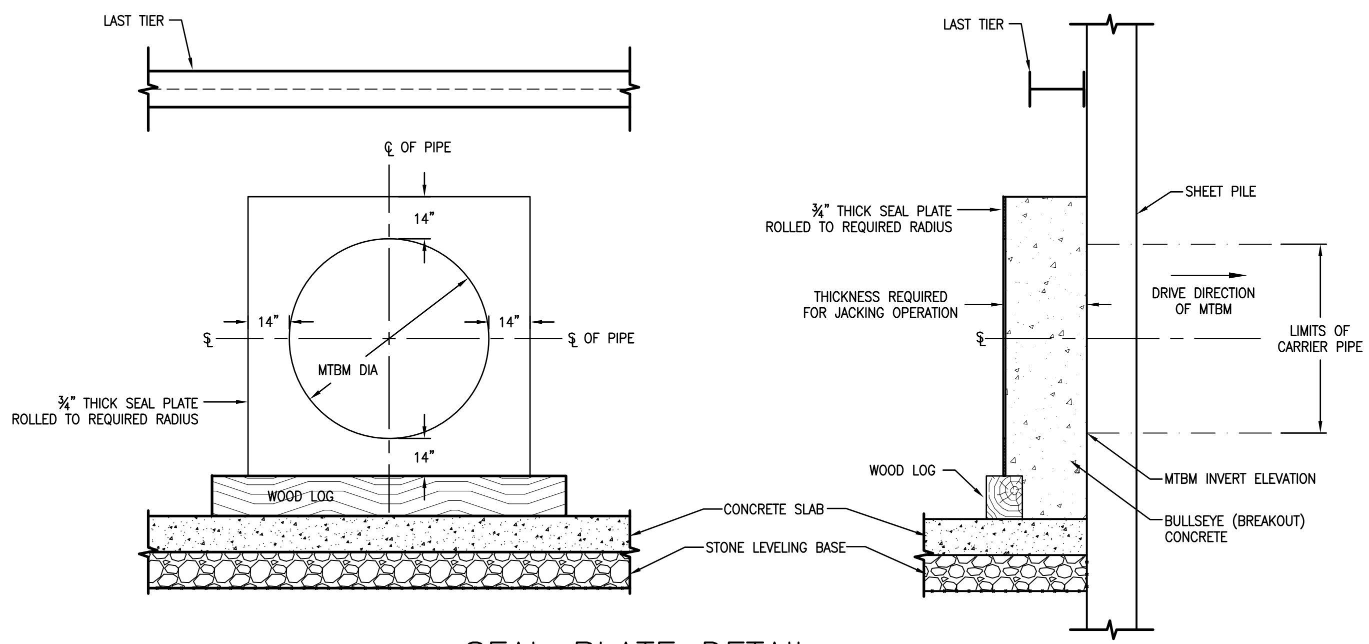
WALWORTH RUN INTERCEPTOR REALIGNMENT

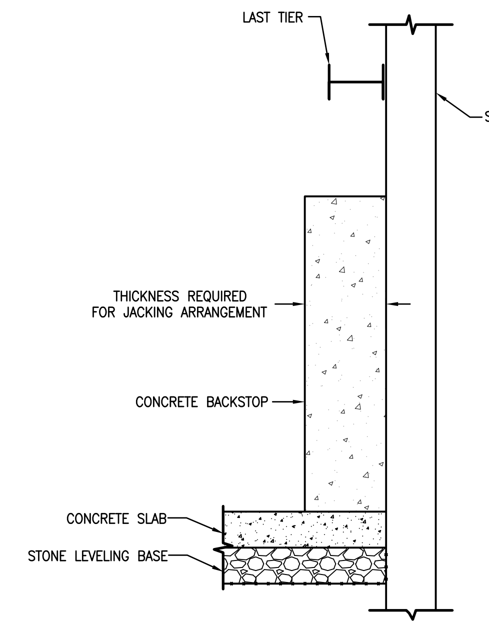
WORK SHAFT MANHOLE No.2 INITIAL SUPPORTS

PROJECT NO.:
SHEET:
SCALE: AS NOTED
SHEET NO.: TU-6



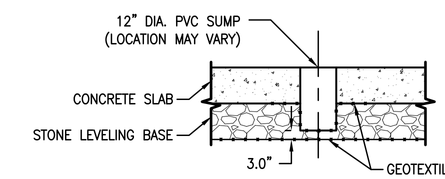
SEAL PLATE DETAIL

SCALE: N.T.S.



BACKSTOP DETAIL

SCALE: N.T.S.



SUMP DETAIL

SCALE: N.T.S.

50% DESIGN SUBMITTAL

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WALWORTH RUN INTERCEPTOR REALIGNMENT

BREAK-IN, BREAK-OUT, BACKSTOP AND SUMP DETAIL

PROJECT NO.:
SHEET:
SCALE: AS NOTED
SHEET NO.: TU-7

WALWORTH RUN INTERCEPTOR REALIGNMENT PROJECT - CONTRACT WRIR

DRAFT
BASIS OF DESIGN REPORT

February 4, 2010

Prepared for

Northeast Ohio Regional Sewer District

Prepared by

DLZ Ohio, Inc. in Conjunction with
Dawn Underground Engineering, Inc.

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 Background

1.1 General

This Basis of Design Report summarizes the features of the Walworth Run Interceptor Realignment (WRIR) Project. This project involves the relocation of the Walworth Run Interceptor (WRI) to accommodate the future Interstate 90 Innerbelt Bridge Project by the Ohio Department of Transportation (ODOT). The affected segment of the WRI commences at Regulator WR-27A at the intersection of University Road and West 10th Street. The section to be realigned is from Regulator WR-27A to Regulator WR-24 at Fairfield Avenue. The relocated WRI will be constructed entirely within the City of Cleveland.

1.2 Background Information

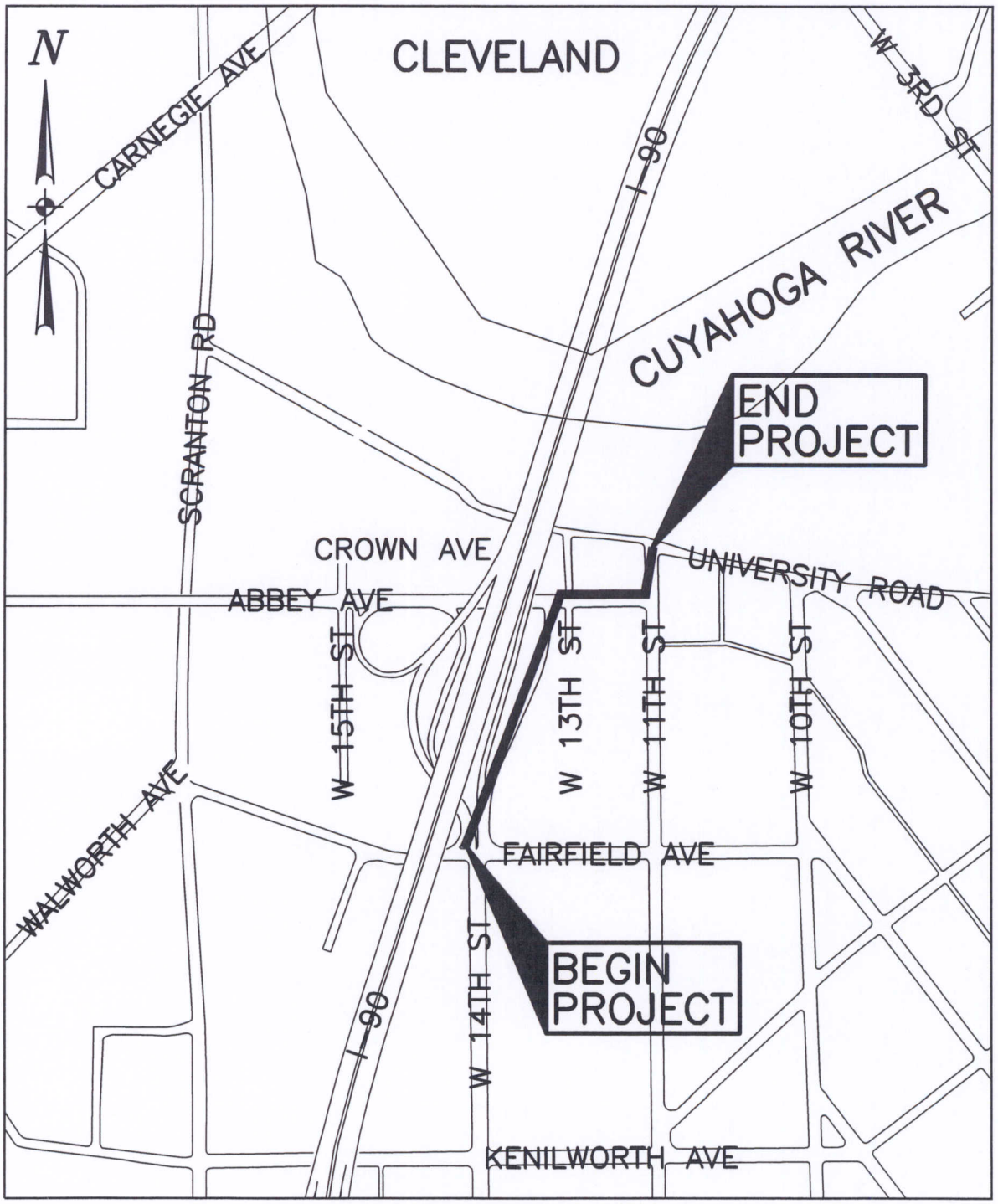
The Interstate 90 Innerbelt Bridge Project provides for the phased replacement of the existing Central Viaduct (Innerbelt Bridge) through the construction of a new westbound bridge to the north of the existing bridge, followed by the construction of a new eastbound bridge on essentially the same alignment as the existing bridge. The project requires the relocation of the 5 ft diameter Walworth Run Interceptor (WRI) and several local sewer utilities in the area of the new I-90 bridge replacement. Figure 1 shows the general location of the WRI relocation.

The area where the I-90 bridge replacement will impact the NEORSD utilities is located at the west bank of the Cuyahoga River under the existing Innerbelt Bridge, approximately north of Fairfield Avenue between West 15th and West 11th Streets.

In general, the new I-90 Innerbelt Bridge is to be located approximately 210 ft west of the existing I-90 bridge at the west bank of the Cuyahoga River. ODOT anticipates one of the first construction activities being the slope stabilization of the west bank of the Cuyahoga River. The stabilization consists of cutting and benching the existing slope starting just north of Abbey Avenue between West 13th and West 15th Streets.

Figure 2 depicts the proposed re-grading plan of the west bank of the Cuyahoga River at the I-90 Bridge.

BASIS OF DESIGN
FOR THE
WALWORTH RUN INTERCEPTOR REALIGNMENT (WRIR)



VICINITY PLAN

SCALE: 1"=500'

DLZ

FIGURE 1

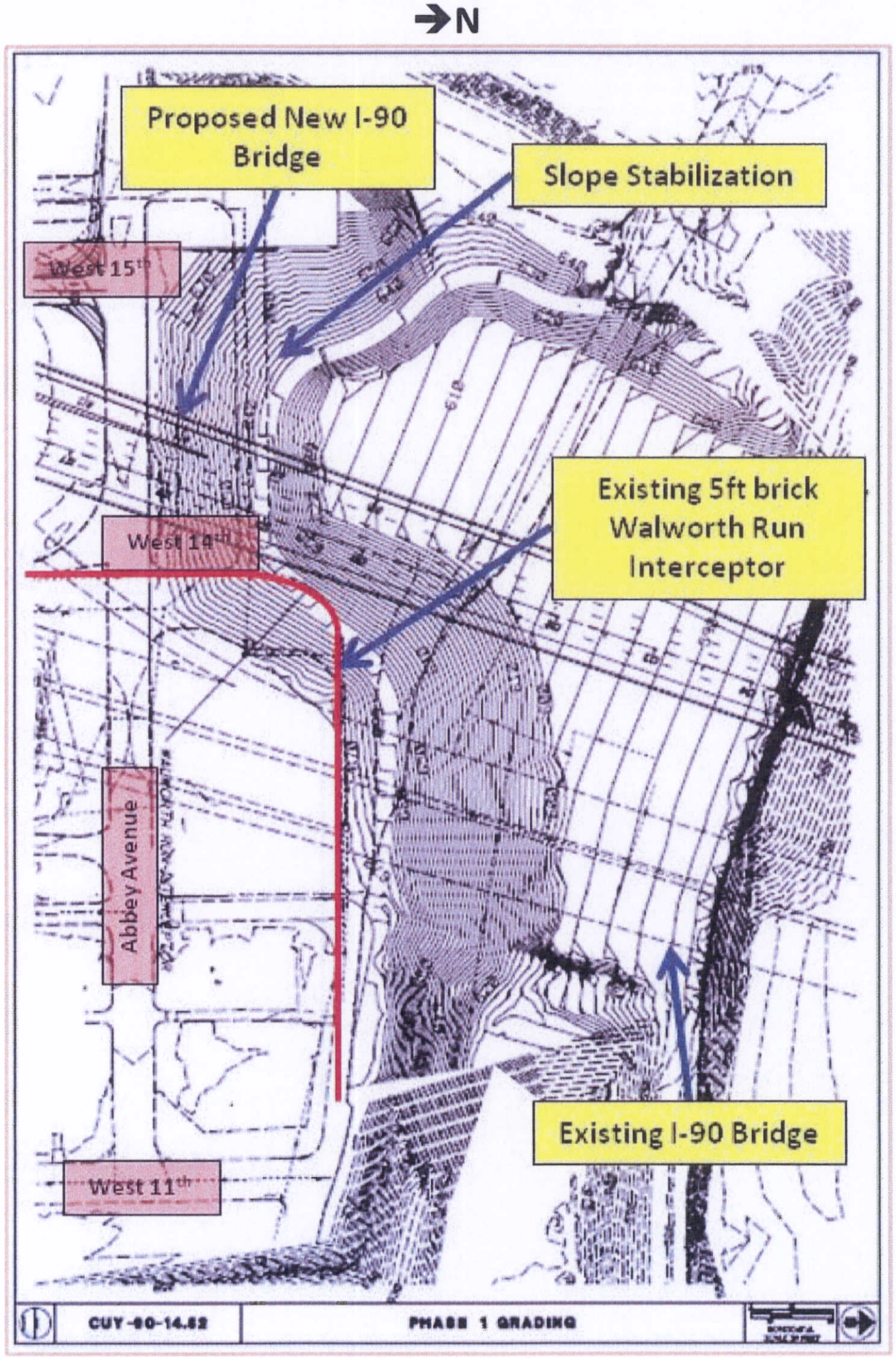


FIGURE 2

PROPOSED FUTURE WORK AT WEST BANK OF CUYAHOGA RIVER AT THE I-90 BRIDGE

1.3 Existing Walworth Run Interceptor (WRI)

1.3.1 Alignment

Most of the combined sewer overflow during both dry and wet weather goes to the WRI. The WRI is the oldest of the four interceptors in the Westerly District. The initial purpose of the interceptor was to collect the combined sewer overflow from the local sewers and transport that flow to the Cuyahoga River.

The affected WRI segment begins at the dry weather outlet Regulator WR-27A. The regulator directs flow from the Tremont Bluff area to either the head of the WRI or CSO 81. The interceptor runs down University Road as a 5 ft tunnel to West 14th Street. After turning south on West 14th Street, flow from the local sewer drops in at Crown Avenue through the leaping weir regulator WR-25. The interceptor continues on West 14th Street to Kenilworth Avenue. WRI then turns west onto Kenilworth Avenue, crosses Scranton Avenue, where Kenilworth Avenue becomes Willey Avenue and heads down the hill. Near the Animal Protective League facility, the interceptor turns south and then west along the route that used to be Shay Court and Brevier Avenue. The interceptor then turns west continuing to Train Avenue.

WRI reaches the bottom of the hill and turns southwest, crossing over the larger Walworth Run Overflow sewer (CSO 080). A 24 inch pipe connects the interceptor and the overflow pipe at the turn. The connection was constructed to relieve surcharging in the interceptor.

Once on Train Avenue, the interceptor decreases from a 5 ft circular sewer to a No 4 egg-shaped sewer and accepts dry weather flow from the regulator WR-22. The WRI continues on a southerly path, picking up flow from regulator WR-21 on West 25th Street. The interceptor stays on Train Avenue until turning north at West 30th Street. WRI enters the intersection of Train Avenue and West 30th Street and combines with dry weather flows from other sewer branches. Figure 3 shows the alignment of the WRI within Branch A of the sewer system.

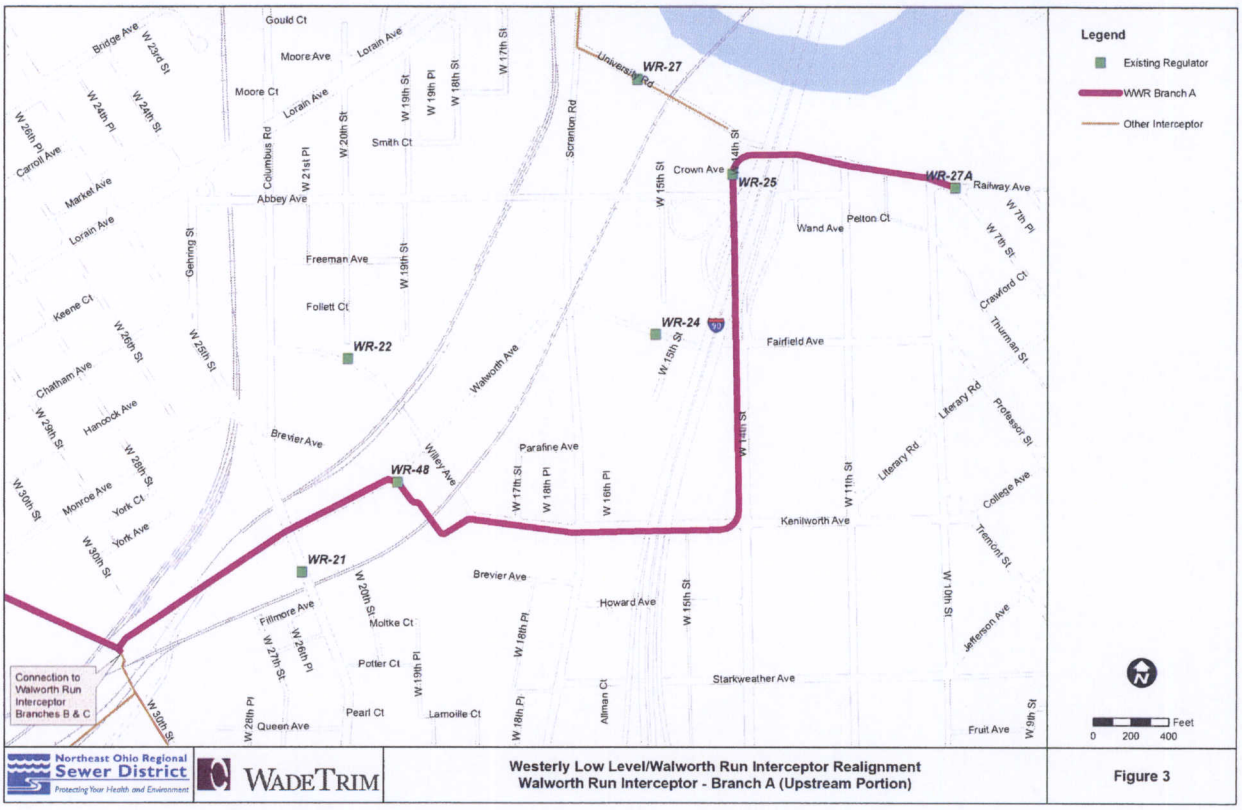


FIGURE 3

WALWORTH RUN INTERCEPTOR - BRANCH A

Table 1.3.1 summarizes existing design criteria for the Walworth Run Interceptor.

Table 1.3.1 – Existing WRI Design Criteria

Interior Diameter	5 ft
Maximum Flow (manning's full pipe capacity)	185 cfs flowing full
10-yr, 6-hr flow[(1)]	109 cfs
Dry Weather Flow (DWF) flow[(1)]	6.85 cfs
Slope	0.43%
Pipe Material	Brick
Average Invert Depth at the Project Area	Approx. 45 ft

(1) *Estimates based on Westerly CSO Phase II Facilities Plan models (Feb 2000)*

1.4 Walworth Run Interceptor Realignment (WRIR)

1.4.1 Option Evaluation

Five (5) conceptual relocation options for a portion of the WRIR were considered to accommodate the future design of the Interstate 90 Innerbelt Bridge. Options 1 and 2 were presented by NEORSD during the proposal stage. Options 3 through 5 were developed by DLZ as potential alternates and included in the proposal submission. Based on project goals, cost and schedule, DLZ concurred with the original NEORSD recommendation that Option 2 be selected as the preferred alternate for the WRIR. The updated WRIR Draft Technical Memorandum dated January 11, 2010 and February 4, 2010 (Revision No. 1), prepared by DLZ, is included as Appendix A.

1.4.2 Alignment

The WRIR begins by connecting to the existing WRI at the intersection of University Road and West 11th Street. Approximately 140' of 60" tunneled pipe runs southbound from the connection point along West 11th Street to an installed manhole at the intersection of Abbey Avenue. The alignment of the 60" tunneled pipe then runs westbound approximately 275' along Abbey Avenue to an installed manhole at the West 14th Street intersection. From this point, the alignment of the 60" tunneled pipe proceeds along the West 14th connector ramp within the ODOT limited access (LA) for approximately 900' to the intersection of West 14th Street and Fairfield Avenue. At this point, the 60" tunneled pipe connects to the existing WRI with a connecting structure.

FIGURE 4

WRIR GENERAL ROUTE

1.4.3 Interceptor and Regulator Structures

The WRIR design includes four (4) major interceptor structures to be constructed within tunnel/work shafts. Two of the structures will be cast in place concrete junction chambers constructed to temporarily bypass flow from WRI. The junction chambers will be located at University Road and West 11th Street and Fairfield Avenue and West 14th Street. The two remaining structures at the turning points will be manholes and will be located at Abbey Avenue & West 11th Street and at Abbey Avenue & West 14th Street. DLZ will determine if the manholes will be entirely pre-cast or have cast-in-place components. Additionally, Regulator WR-25 at Crown Avenue & West 14th Street will be abandoned and Regulator WR-24 on Fairfield Avenue will be rebuilt.

Table 1.4.3 shows the proposed design summary for the Walworth Run Interceptor Realignment Project.

Table 1.4.3 – Proposed WRIR Design Summary

Interior Diameter[1]	60 inches
Full Flow Capacity[2]	187 cfs
Design Slope[3]	0.51%
Pipe Material	To be determined
Average Invert Depth at the Project Area	Approximately 45 ft

(1) *Interior diameter may need to increase if surveyed inverts are different than what has been presented in the RFP.*

(2) *Full Flow Capacity is based on 60" diameter pipe with a Manning's n=0.013, and 0.51% slope.*

(3) *Design Slope is based on inverts determined by field investigation and record data. Additional field information is necessary at the WRI downstream connection point for verification of all design assumptions.*

2.0 Permits

2.1 General

The WRIR alignment will require significant permitting coordination. Construction permits will be required from the City of Cleveland for work located within city street right-of-way such as University Road, West 11th Street, Abbey Avenue, Crown Avenue, West 14th Street, and Fairfield Avenue. These construction permits will require considerations for traffic control and other potential construction disturbances.

In addition to permitting coordination normally associated with the City of Cleveland, there will be activity associated with acquiring a permit from ODOT. All portions of the WRIR in the Interstate 90 LA will require the acquisition of an ODOT MR 509 Permit for permission to perform the necessary work.

Additional permitting will be necessary to meet the Ohio EPA regulations for the Permit to Install, and it may become necessary to apply for coverage under a National Pollutant Discharge Elimination System (NPDES) general permit if one or more acres of land is disturbed. Additional agencies may become involved as the work is better defined.

3.0 Local Sewers and Hydraulics

3.1 Local Sewers

Local sewers are impacted by the proposed Innerbelt work. Table 3.1 lists the impacted sewers and their disposition. DLZ will contact the appropriate agencies to coordinate the necessary work on the impacted sewers. This work will require the re-direction of flows at MH No. 5 and at the Crown Avenue Animal Hospital, and the assessment of pipe capacities.

Table 3.1 – WRIR Sewer Impacts

Identification	Impacted Section
No 4 - No 5 existing 48" diameter brick combined sewer running north along West 14th Street.	Remove or Abandon from MH 5 located at the intersection West 14th Street and Fairfield Avenue to regulator WR 27 located at intersection of University Road and the Walworth Run overflow sewer (CSO 080).
12" diameter existing combined sewer running east along Abbey Avenue from approximately West 15th to West 14th Street.	The complete sewer line is to be abandoned.
12" diameter existing combined sewer running east along Crown Avenue from approximately West 15th to West 14th Street.	The complete sewer line is to be abandoned.
36" diameter existing combined sewer - Running west along University Road.	Remove or abandoned from MH located at the intersection of West 13th and University Road. to regulator WR-25 located at the intersection of West 14th Street and Crown Avenue.
Existing Storm sewer draining into MH 5 located at the intersection of West 14th Street and Fairfield Avenue.	Abandon or remove all of this sewer line. This storm sewer runs in a southeast direction and ends at MH 5.
Existing 12" storm sewer draining into MH 3. This storm sewer runs in a northwest direction and ends at MH 3.	Abandon or remove the complete sewer line.
Existing storm sewers running east and draining into MH 2.	Abandon or remove all the storm sewers connected to MH 2.

Table 3.1 – WRIR Sewer Impacts (Continued)

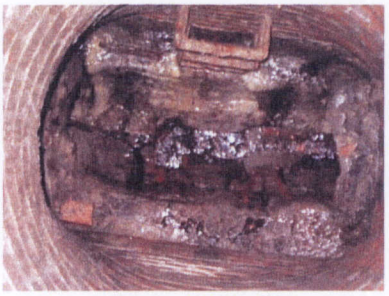
Identification	Impacted Section
Existing 12" storm sewer running west and draining into MH 2.	Abandon or remove all the storm sewers connected to MH 2.
Existing 15" storm sewer running west along Abbey Avenue and draining into MH 1.	Abandon or remove all of this sewer line.
Existing 18" storm sewer running west along University Road. This 18" storm line connects to the 24" combined sewer at the intersection of West 14th Street and University Road.	To be removed by the stabilization works of the east bank slope.
Existing storm sewers north of the intersection between West 14th Street and University Road discharging on the Cuyahoga River.	These sewers v. will be removed during the stabilization of the Cuyahoga River west bank.
Dry weather outlet from WR-24 to West 14th Street.	May need to be upsized.
Combined sewer on Fairfield Avenue connecting to Regulator WR-24.	May need to be upsized.

3.2 Local Sewer Regulators

There are two regulators in the project area that are impacted by the Innerbelt Bridge project.

Table 3.2 – WRI Regulator Impacts

Regulator ID	Location	DWO Destination	Wet Weather Destination	Regulator Type	Proposed Dispensation
WR-24	West 15th Place – 1515 Fairfield Avenue	WRI – Branch A	Regulator WR-27	Leaping Weir	Modify and Rebuild
WR-25	Crown Ave at West 14th Street	WRI – Branch A	Westerly Low Level Interceptor	Leaping Weir	Abandon



Regulator WR-24

Regulator WR-25

3.3 Flow Characteristics

The relocated segment of Walworth Run Interceptor is required to convey the flows contained in Table 1.2 of the RFP including the maximum flow of 185 cfs. The surveying work has been completed, and the inverts and slopes of the existing Walworth Run Interceptor have been confirmed, except at the proposed downstream connection point. Apparently, there is no existing structure at the connection of the 60" overflow from WR-24 at the Interceptor. Based on the confirmed inverts, a conservative approximation of the invert of the proposed connection point using existing drawings, and an anticipated length of 1,315 lineal feet, it has been determined that the relocated segment of Walworth Run Interceptor can be designed at a slope of 0.51% (6.81 feet of drop over 1,315 lineal feet), which is greater than the slope of 0.47% that was listed in the RFP. The full-flow capacity of the relocated segment using a Manning's n-factor of 0.013 would be approximately 187 cfs, which is greater than the maximum design flow of 185 cfs. Once the proposed connection point invert is confirmed, the design slope will be updated accordingly.

4.0 Geotechnical Considerations

4.1 Project Geologic Setting

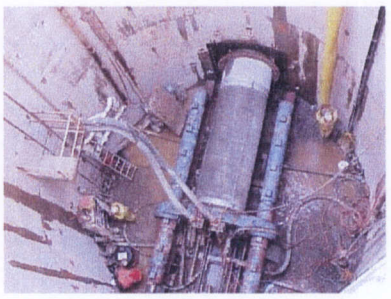
The Walworth Interceptor Realignment Project (WRIR) is within the northern section of the Cuyahoga River Valley. Geologically, most of this area is classified as "made land" composed of fill materials of variable source, composition and depth.

A total of eight (8) soil borings have been taken along the Option 2 alignment at this writing. Figure 5 shows the locations of the borings. The draft boring logs are included as Appendix "B." The borings reveal that the fill layer varies from a couple of feet to as much as 19 feet (Boring B - 7). Brick pieces were recovered while sampling the fill layer in this boring. Beneath the fill materials, alluvium deposits extend consisting mostly of very loose to medium dense sands and silts; and medium stiff silty clay lenses (Boring B-3 and B-8). Most of the deposits show a stratified or inter-layered structure containing fine sands and silts. The alluvium materials were deposited prior to the Cuyahoga River. Beneath the alluvium deposits, lacustrine deposits start approximately 55 feet below the surface and consist mostly of medium stiff to very stiff silty clays stratified with silt layers.

Based on preliminary information, the ground water table has been estimated to be between 30 to 35 feet below ground surface.

4.2 Subsurface Conditions Along the Tunnel

The proposed tunnel construction will be below ground water and through sandy and silty soils. In the past, these soil deposits were most troublesome for tunneling projects in Cleveland. In the WRIR case, soils within the tunnel zone will be dense to very dense and below ground water. This setting will make the soil susceptible to uncontrollable flow unless proper tunnel techniques for supporting the tunnel face are employed. Slurry shields with one-pass concrete segmental linings or microtunneling



Microtunneling from a caisson

with pipe jacking will be evaluated given the subsurface conditions anticipated at the site. Based on the short length of the project and the 90 degree turns required to negotiate the alignment, it appears that microtunneling will be the most cost effective solution.

Shafts for the WRIR will be constructed through all of the soil deposits mentioned above. Shafts at Borings B-1, B-3 and B-4 will terminate in silt deposits and the Shaft at B-8 (the down stream connection) will terminate in silty clay or clay. Excavating shafts below the water table through the upper deposits of lose sands and silts may present unstable side and bottom conditions unless water tight supports are employed. These supports must be pre-installed ahead of the shaft excavations and extend deep enough to prevent boiling and bottom heave. Currently, the design team is investigating the use of pre-driven steel sheet piles, secant piles, precast concrete caissons, slurry walls and jet grouting as methods for excavating the shafts.

A soil profile of the WRIR is shown on Sheets 1-6 of 6 following Section 4.5 of this report. A jacking pit concept plan is also included following Section 4.5.

4.3 Tunnel Support

Based on microtunneling appearing to be the most effective tunneling method for the replacement sewer installation, reinforced concrete pipe, centrifugally cast fiberglass reinforced polymer mortar pipe (CCFRPM) such as produced by HOBAS, and clay pipe can be suitable candidates for this project since they are all specifically designed and produced for installation by jacking. Microtunneling methods of tunneling provide immediate initial support for the tunnel since the final carrier pipes are jacked behind a TBM or MTBM.

CCFRPM Pipe

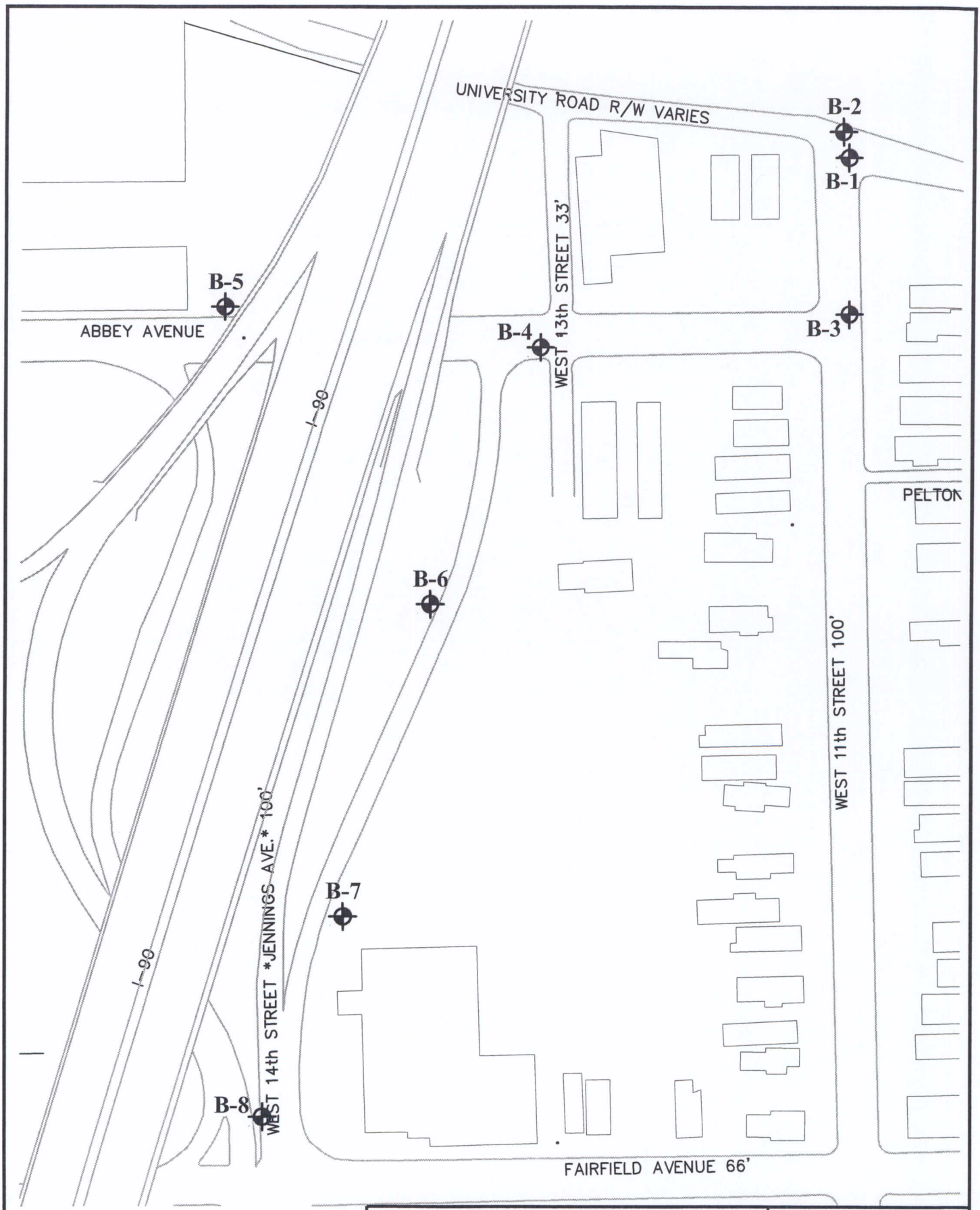
Reinf. Conc. Jacking Pipe

4.4 Additional Borings

Boring B-7 shows 19 feet of fill. Two adjacent borings (B-6 and B-8) show only a couple feet of fill. This indicates that the fill depth may vary greatly within the project area. Currently it is contemplated that the downstream connection may be moved to the south-west corner of the Fairfield Avenue and West 14th Street intersection. This will require the shaft construction to place a connection structure and also to retrieve the MTBM or TBM. If the connection point is moved, DUE recommends that an additional boring be taken near the new location. Sampling in this boring may only extend to the bottom of fill or the first 25 feet (whichever is greater) and the remainder of the boring extended only for placement of the piezometer.

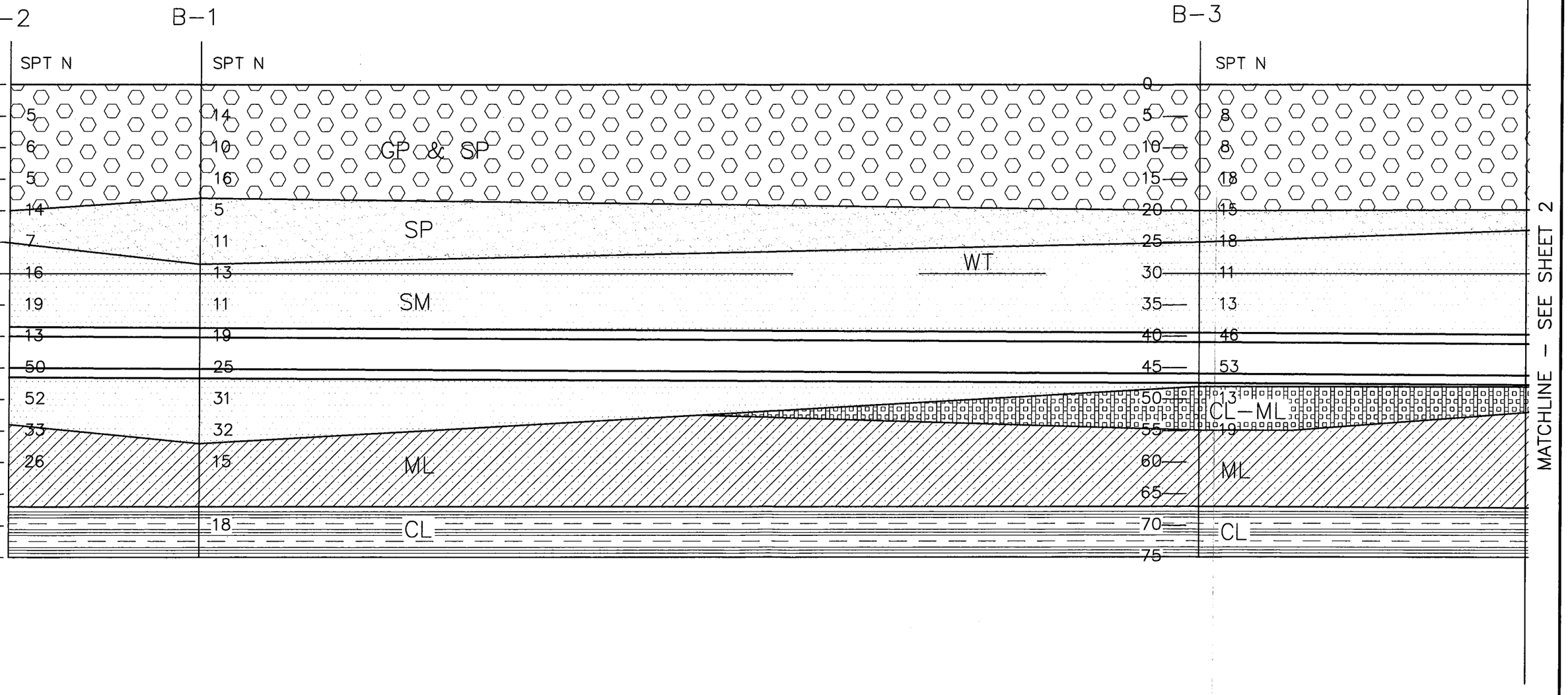
4.5 Long-Term Ground Water Observation

The Design Team recommends that long term observation of ground water levels be conducted at each shaft location. Currently there are only two piezometers at the site – one near boring B-3 marked W-1 and one near boring B-5 marked W-2. Additional piezometers should be installed near the planned connection point on University Road, near Boring B-4 and near the connection point downstream at Fairfield Avenue and W 14th Street (three additional piezometers). The piezometers should be located where they will not be damaged later by construction. This will allow the Design Team to monitor the ground water during construction should the need arise to confirm design assumptions. Water levels should be monitored on a monthly basis until the project bidding period. The Design Team will coordinate the location of the piezometer tip elevations and location of the screens.

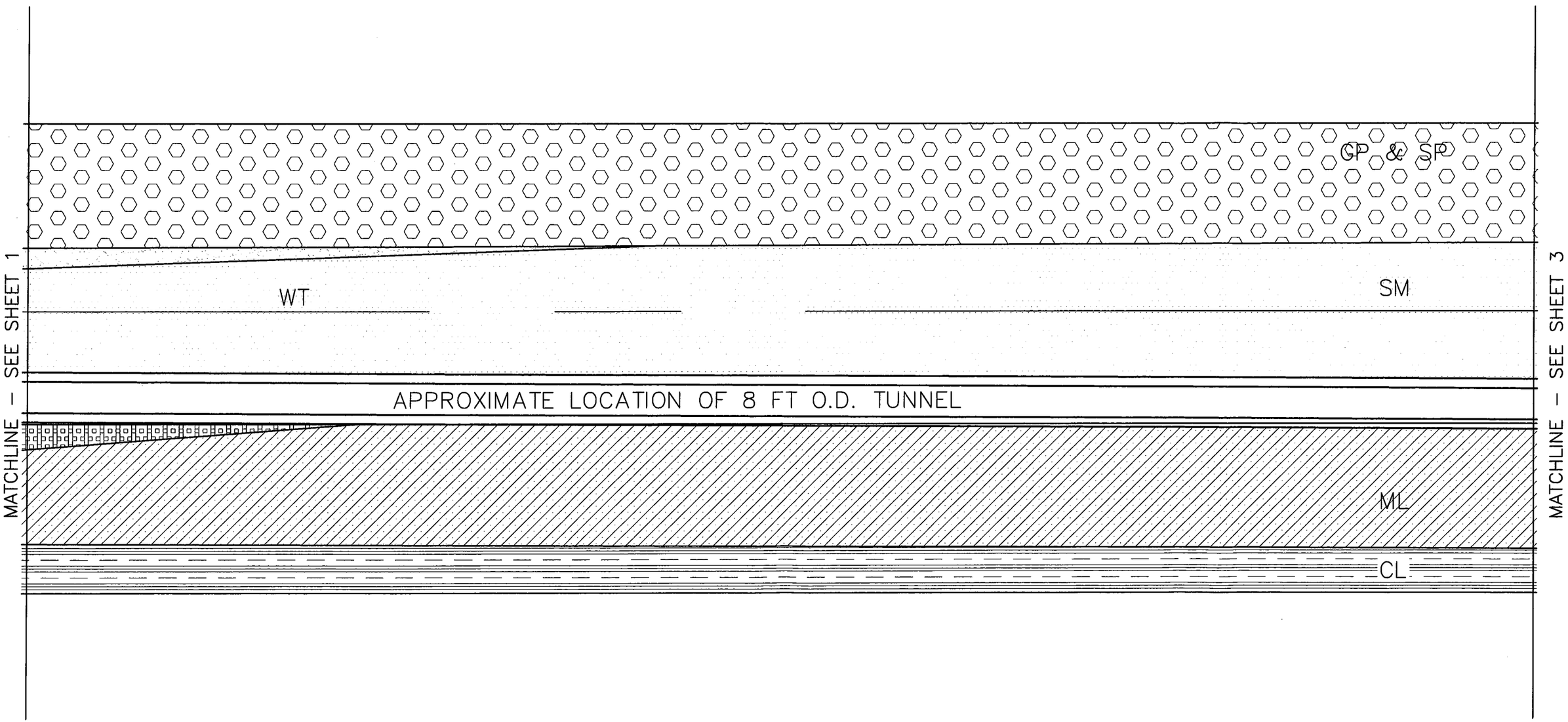


WRIR
BORING LOCATION MAP

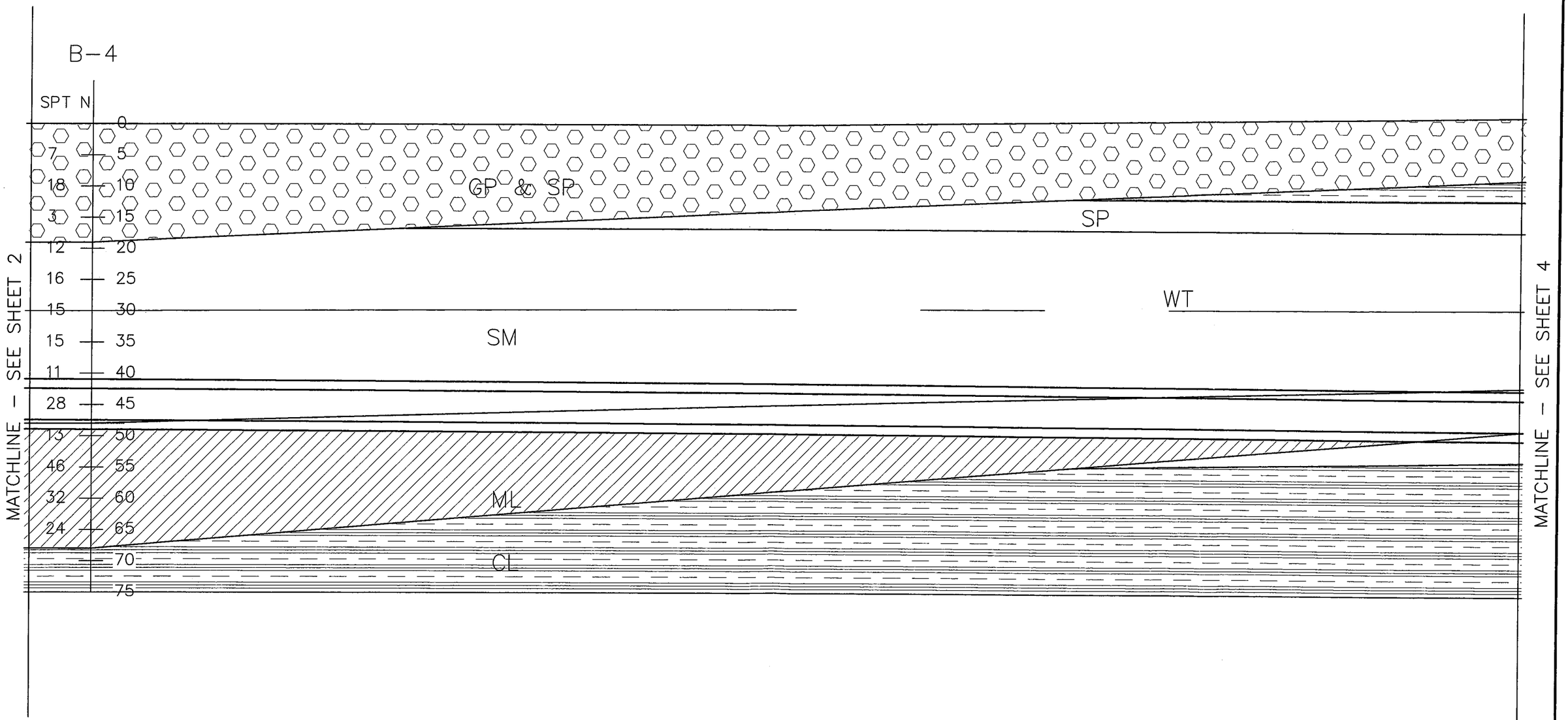
FIGURE 5



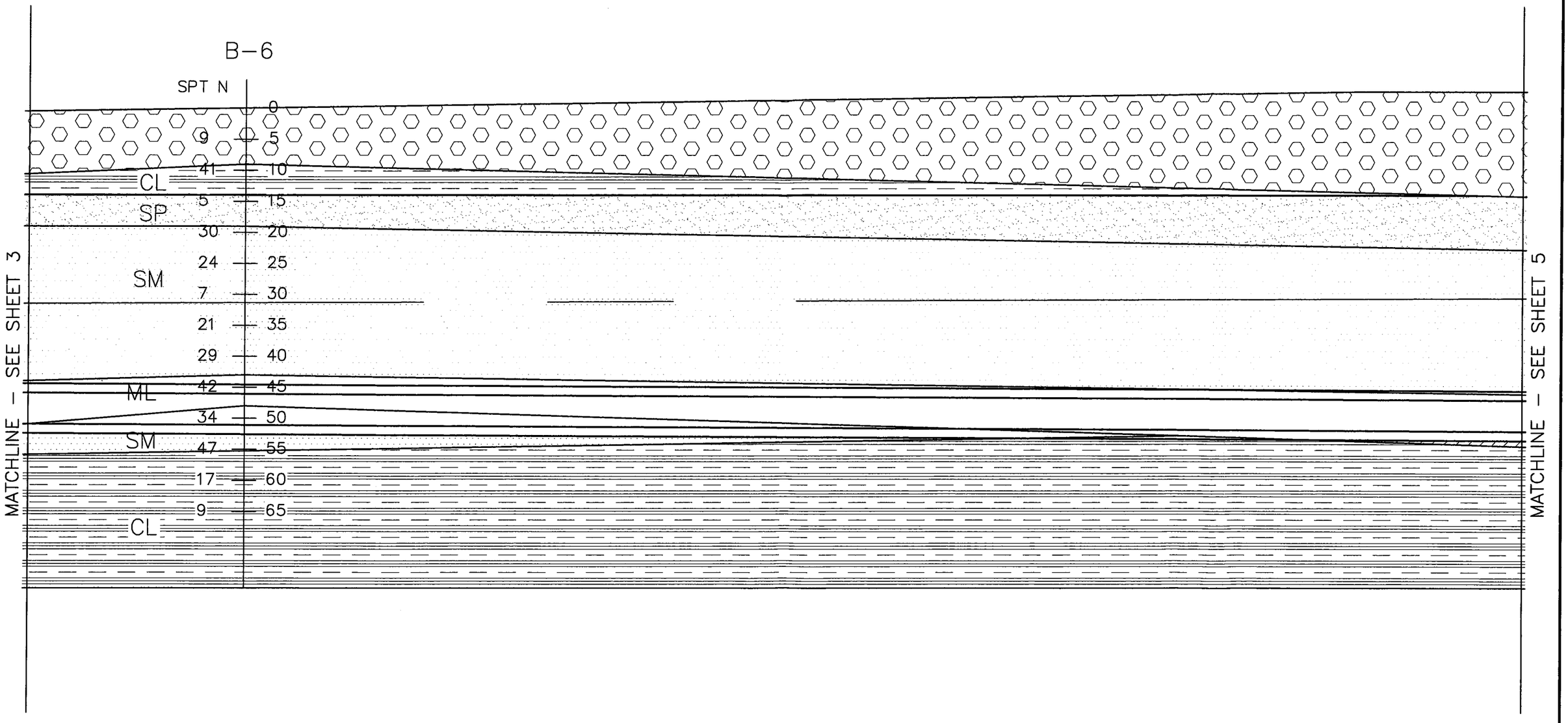
WRIR SOIL PROFILE	SHEET 1 OF 6



WRIR SOIL PROFILE	SHEET 2 OF 6



WRIR SOIL PROFILE	SHEET 3 OF 6



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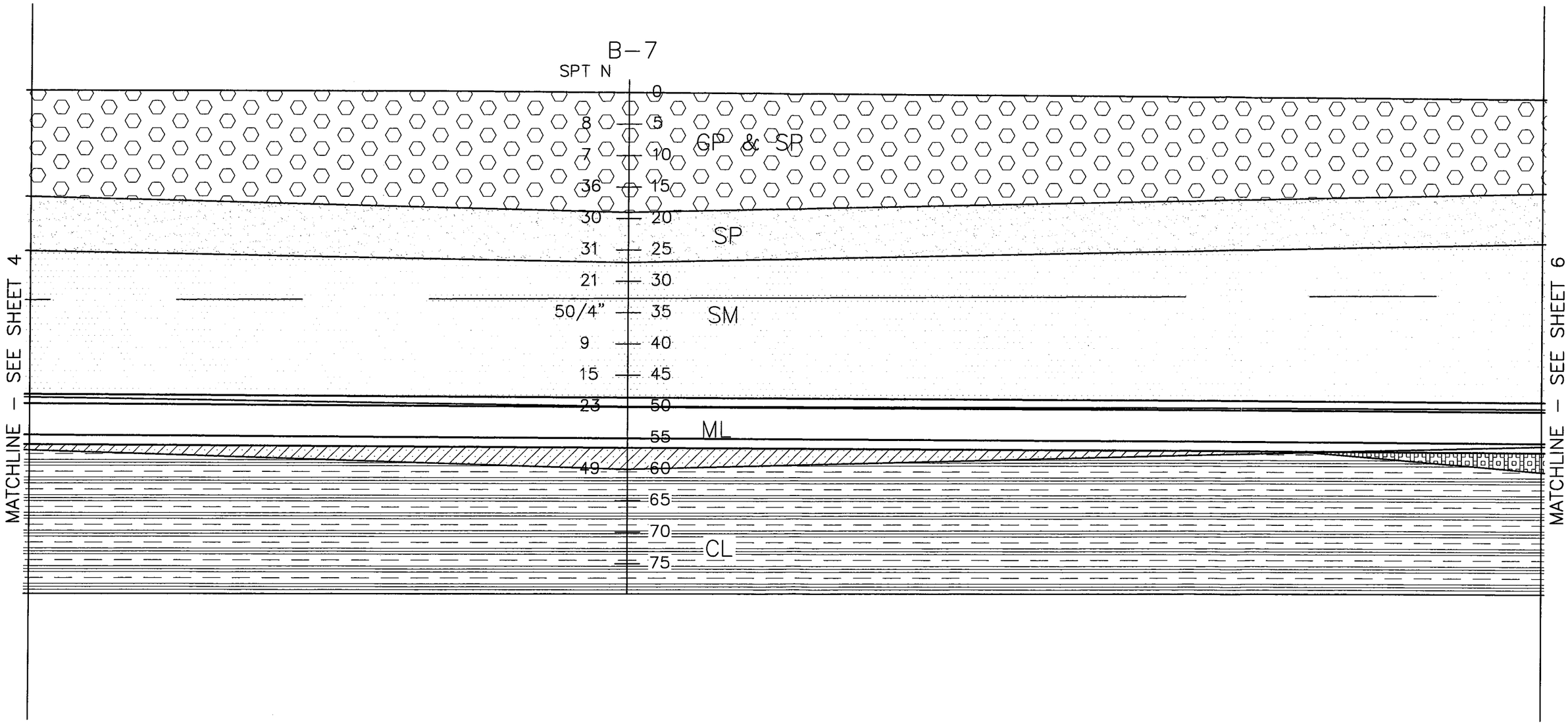
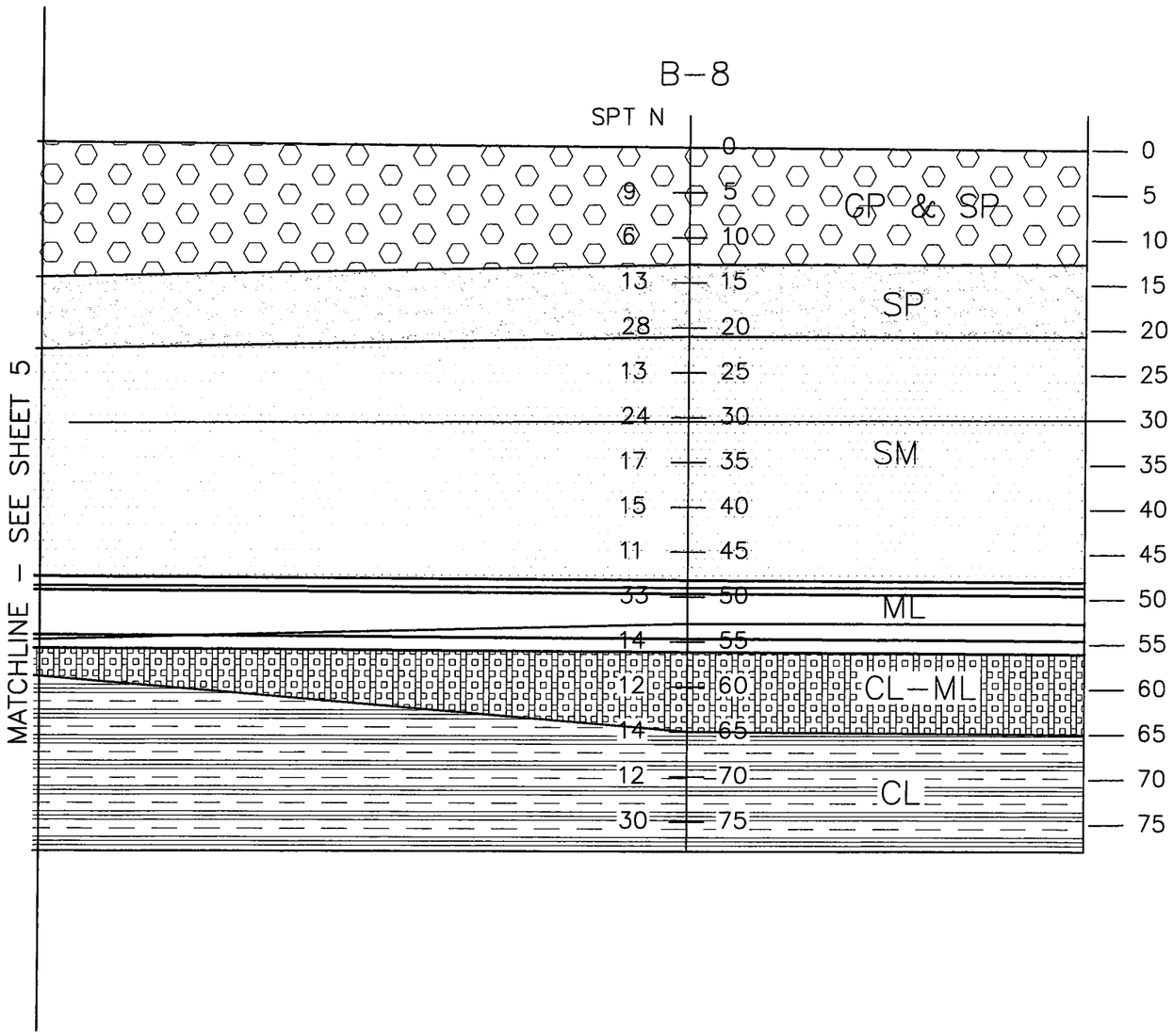
WRIR SOIL PROFILE	SHEET 4 OF 6

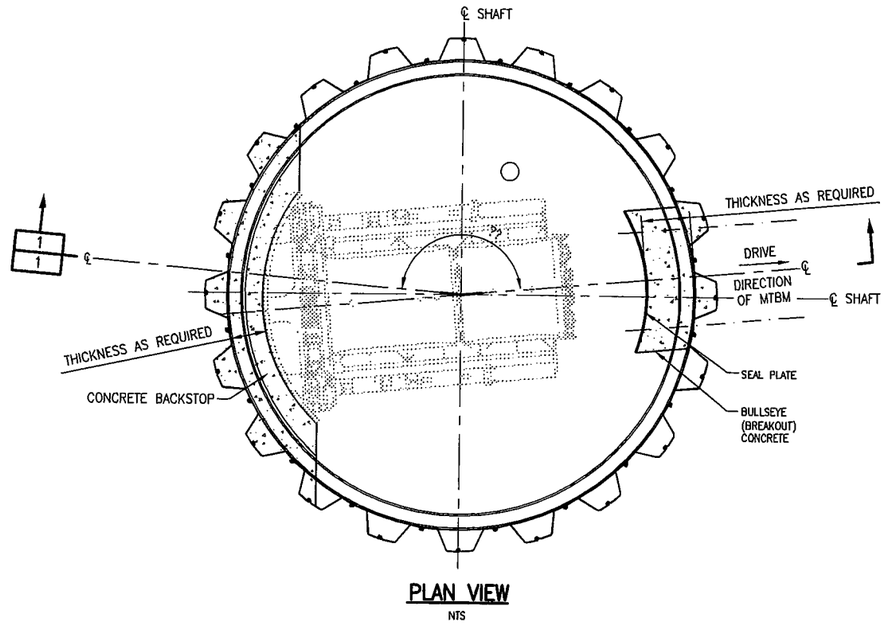


WRIR
SOIL PROFILE

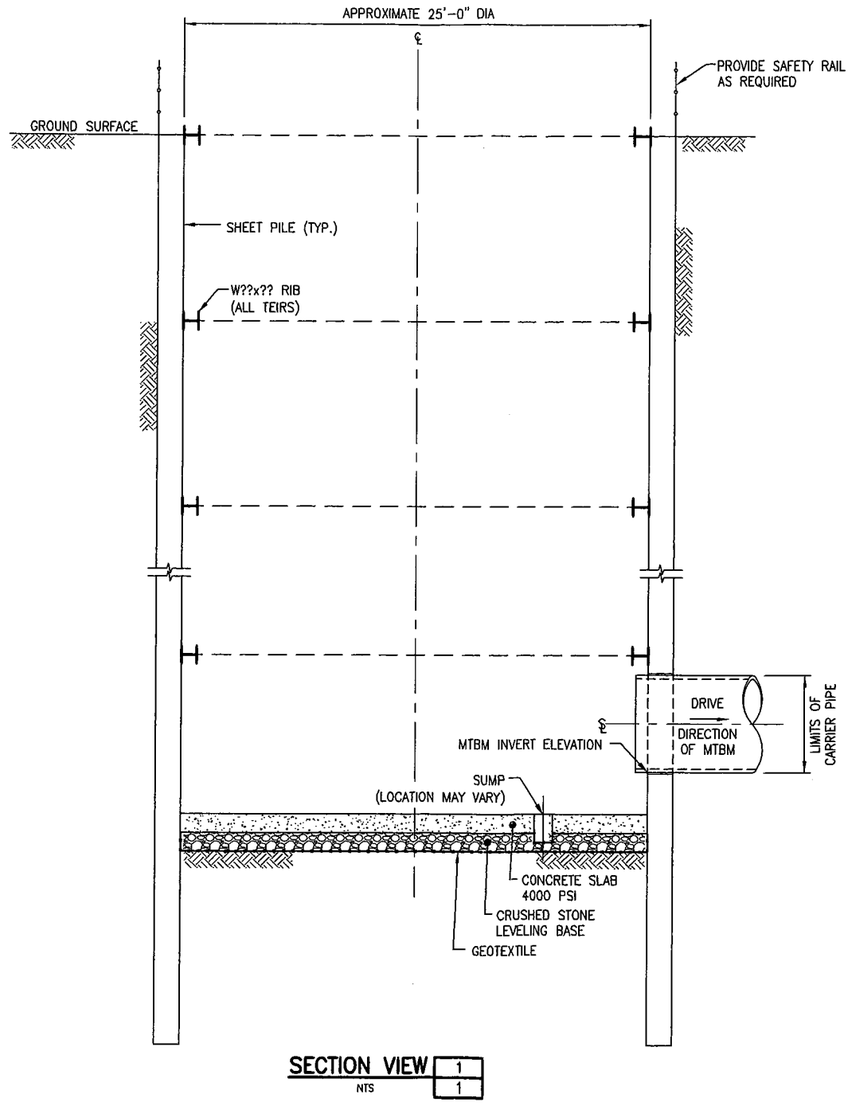
SHEET 5 OF 6



WRIR SOIL PROFILE	SHEET 6 OF 6



PLAN VIEW
NTS



SECTION VIEW 1/1
NTS

CONCEPT OF JACKING PIT
PLAN AND SECTION

WALWORTH RUN INTERCEPTOR REALIGNMENT

Dawn Underground Engineering, Inc.
Tunnel and Underground Structures Consultants
10 Village Court· Hazlet· New Jersey 07730
Tel: 732-739-8840 Fax: 732-739-8870

APPENDIX "A"

Draft Technical Memorandum

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS

DRAFT TECHNICAL MEMORANDUM

To: Mr. Brian Page, PE

From: Mr. Thomas Hessler, PE, PS

Date: January 11, 2010 (1st Issue)
February 4, 2010 (Revision No. 1)

Subject: Walworth Run Interceptor Relocation Alignment Option Evaluation

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Section 1 - Project Description

The Ohio Department of Transportation (ODOT) is designing the future Interstate 90 Innerbelt Bridge Project. The design of the new westbound structure adversely impacts the existing Walworth Run Interceptor (WRI) and several local storm and sanitary sewers in the project area. The new Innerbelt Bridge will require the regrading of the west bank of the Cuyahoga River. This regrading work requires the relocation of the WRI. ODOT is also evaluating several options with respect to the existing Innerbelt Bridge that will impact the WRI relocation.

The WRI is divided into three (3) branches; A, B, and C. This project involves the relocation of a section of Branch A. Branch A commences at Regulator WR-27A at the intersection of University Road and West 10th Street. The area to be evaluated is from Regulator WR-27A to Regulator WR-24 at Fairfield Avenue.

Section 2 - Option Evaluations

The relocation options for a portion of the WRI Branch A must consider the future design of the Interstate 90 Innerbelt Bridge. Five (5) conceptual options are discussed in this section. Options 1 and 2 were presented by NEORSD during the proposal stage. Options 3 through 5 were developed by DLZ as potential alternates and included in our proposal submission.

2.1 Option 1

Conceptual Option 1, shown in Figure A, consists of approximately 900' of 60" diameter tunneled pipe and three (3) major interceptor structures. This option would begin at a connection to the existing WRI at the intersection of University Road and West 11th Street. Approximately 200' of 60" tunneled pipe would run southbound from the connection point along West 11th Street to the intersection of Abbey Avenue where a manhole would be installed. The 60" tunneled pipe alignment would then run westbound for a distance of approximately 700' along Abbey Avenue to the West 14th Street intersection. At this point, it would tap into the existing WRI alignment with a connecting structure.

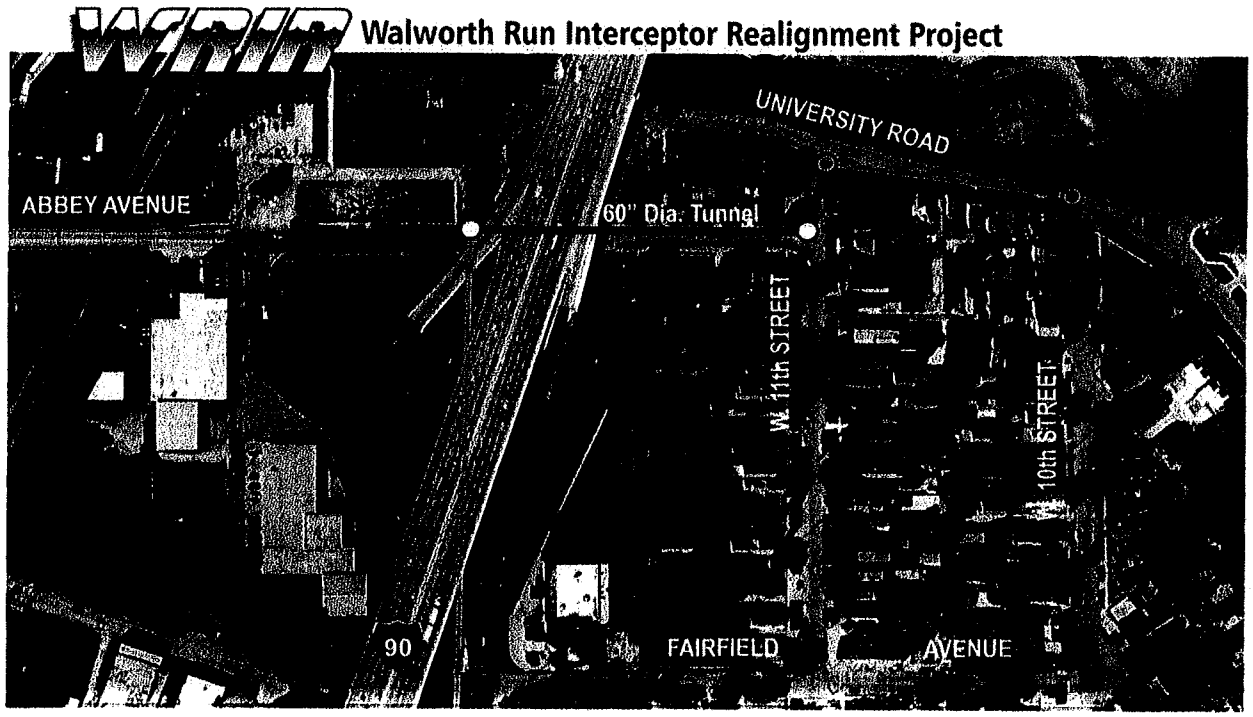

Figure A - Conceptual Option 1

Several local sewers will be removed or abandoned with this option. Additionally, Regulator WR-25 at Crown Avenue and West 14th Street would be abandoned and Regulator WR-24 on Fairfield Avenue would be rebuilt. The existing 190' run of 12" sanitary sewer on Crown

Avenue for the Animal Hospital will be relocated. Also, the combined sewer on Fairfield Avenue connecting to Regulator WR-24 may need to be upsized. The dry weather outlet from Regulator WR-24 to West 14th Street may also need to be upsized.

Option 1 removes the WRI from the westbound Innerbelt bridge slope regrading area, and provides a relatively short relocation run of tunnel to the connection at Abbey Avenue and West 14th Street. However, a significant portion of the relocated WRI is still in the footprint of the eastbound Innerbelt Bridge and passes under the current Innerbelt alignment. This alignment maintains a section of existing WRI along West 14th Street under the current Innerbelt Bridge and therefore limits options regarding the potential alignment or subsurface needs of a future eastbound bridge.

2.2 Option 2

Conceptual Option 2 is shown in Figure B. This option consists of approximately 1,400' of 60" diameter tunneled pipe and four (4) major interceptor structures. This option would begin by connecting to the existing WRI at the intersection of University Road and West 11th Street. Approximately 140' of 60" tunneled pipe would run southbound from the connection point along West 11th Street to the intersection of Abbey Avenue where a manhole would be installed. The alignment of the 60" tunneled pipe would then run westbound approximately 275' along Abbey Avenue to the West 14th Street intersection where a manhole would be installed. From this point, the alignment of the 60" tunneled pipe would proceed along the West 14th connector ramp within the ODOT limited access for approximately 900' to the intersection of West 14th Street and Fairfield Avenue. At this point, the 60" tunneled pipe would connect to the existing WRI at a connecting structure.

As with Option 1, several local sewers will be removed or abandoned. Additionally, Regulator WR-25 at Crown Avenue and West 14th Street would be abandoned and Regulator WR-24 on Fairfield Avenue would be rebuilt. The existing 190' run of 12" sanitary sewer on Crown

Avenue for the Animal Hospital will be relocated. Also, the combined sewer on Fairfield Avenue connecting to Regulator WR-24 may need to be upsized. The dry weather outlet from Regulator WR-24 to West 14th Street may also need to be upsized.

Option 2 provides for the complete removal of the WRI from the Innerbelt project footprint. The relocated WRI will not be in conflict with any slope modifications that may be necessary for the existing eastbound Innerbelt Bridge along Abbey Avenue or West 13th Street. This Option meets the objectives of the WRI relocation.

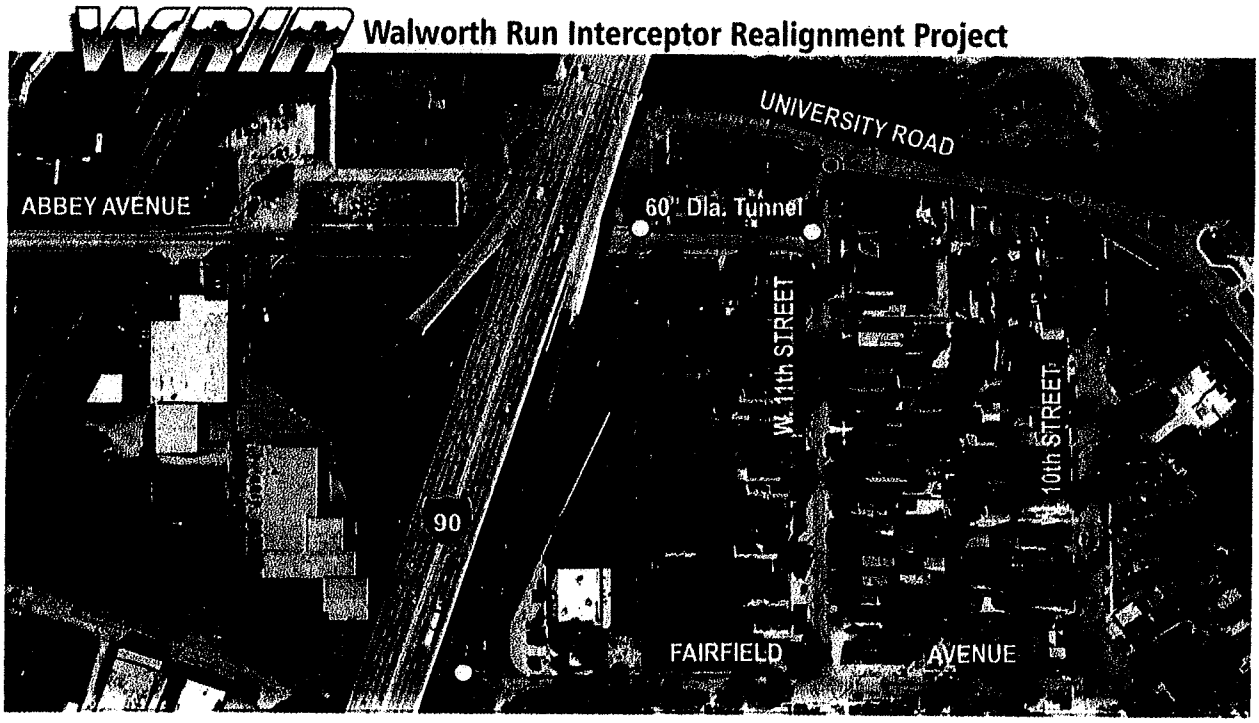

Figure B - Conceptual Option 2

2.3 Option 3

Figure C shows Conceptual Option 3, which is a variation of Option 2. This option consists of approximately 1,000' of 60" diameter tunneled pipe and three (3) major interceptor structures. It would begin at a connection to the existing WRI on University Road near West 13th Street. The alignment of the 60" tunneled pipe would then run south approximately 200' to the

intersection of Abbey Avenue and West 14th Street where a work shaft and a manhole would be installed. The 60" tunneled pipe would then run southwest along the West 14th St. / Abbey Avenue access ramp for a distance of approximately 800' to the intersection of Fairfield Avenue and West 14th Street where it would connect to the existing WRI with a connecting structure.

As with Options 1 and 2, several sewer pipes would be removed or abandoned with this option. Additionally, Regulator WR-25 at Crown Avenue and West 14th Street would be abandoned and Regulator WR-24 on Fairfield Avenue would be rebuilt. The existing 190' run of 12" sanitary sewer on Crown Avenue for the Animal Hospital will be relocated. Also, the combined sewer on

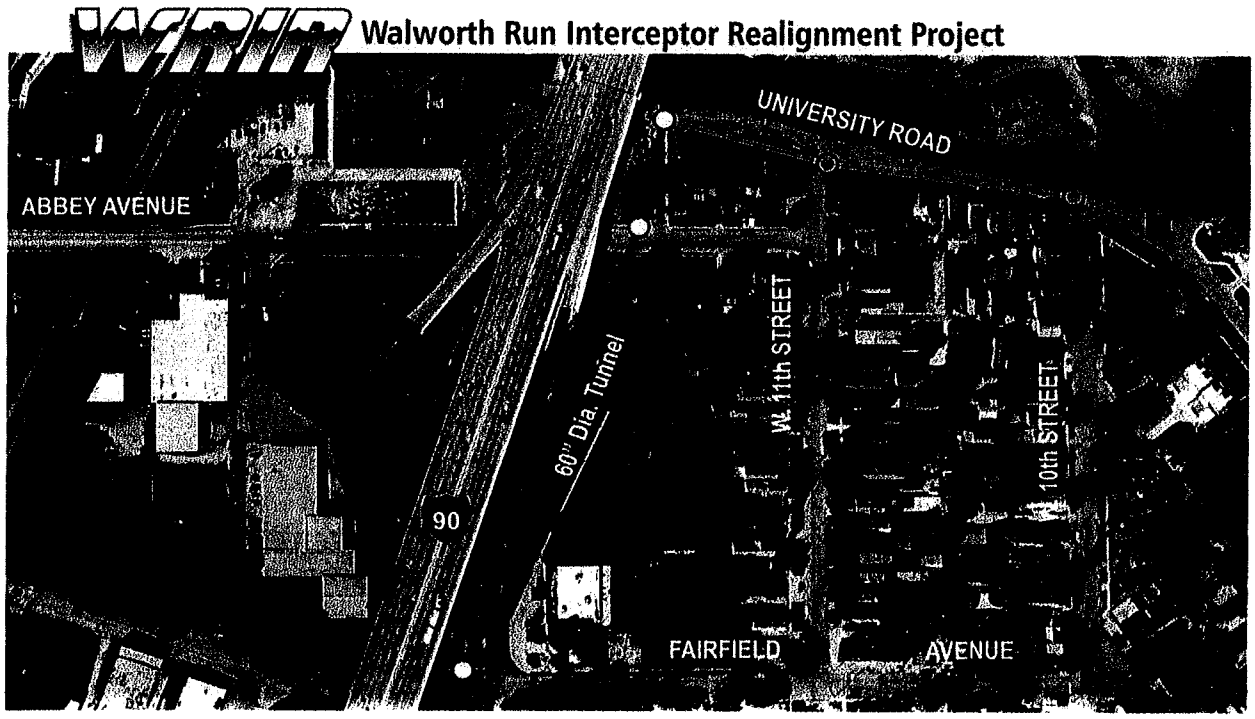

Figure C - Conceptual Option 3

Fairfield Avenue connecting to Regulator WR-24 may need to be upsized. The dry weather outlet from Regulator WR-24 to West 14th Street may also need to be upsized.

The major advantage of Option 3 is only one shaft is needed as the drive shaft for the microtunnel (tunnel) operation. This shaft would be located at Abbey Avenue. Also, this option

only has two (2) tunnel shafts, therefore reducing the number of tunnel shafts necessary for the run when compared to the other options. Option 3 meets the requirement to remove the WRI from the future Innerbelt Project area. This alternative also has less traffic conflicts.

However, there are some disadvantages with Conceptual Option 3. The existing WRI would remain along a longer portion of University Road, which may be a concern regarding future slope failures or movements. Another disadvantage is that the starting point of Option 3 is very close to the final Innerbelt grading at the corner of University Road and West 13th Street and may conflict with the future grading plan for the eastbound bridge.

2.4 Option 4

Conceptual Option 4 is shown in Figure D, and is a variation of Option 1. Conceptual Option 4 consists of 500' of 60" diameter tunneled pipe and three (3) structures. The 60" tunneled pipe would begin by connecting to the existing WRI at University Road and West 13th Street and run south approximately 200' to Abbey Avenue near West 13th Street in to a manhole. The alignment would then travel westbound along Abbey Avenue for a distance of approximately 300' to the intersection of Abbey Avenue and West 14th Street. At this point, the 60" tunneled pipe would connect to the existing WRI with a connecting structure.

As with the other options, several sewer pipes would be removed or abandoned with this option. Additionally, Regulator WR-25 at Crown Avenue and West 14th Street would be abandoned and Regulator WR-24 on Fairfield Avenue would be rebuilt. The existing 190' run of 12" sanitary sewer on Crown Avenue for the Animal Hospital will be relocated. Also, the combined sewer on Fairfield Avenue connecting to Regulator WR-24 may need to be upsized. The dry weather outlet from Regulator WR-24 to West 14th Street may also need to be upsized.

Option 4 removes the WRI from the westbound Innerbelt Bridge slope regrading area, and similar to Option 1 provides a relatively short relocation run of tunnel to the connection at Abbey Avenue and West 14th Street. However, a significant portion of the relocated WRI is still

in the footprint of the eastbound Innerbelt Bridge and passes under the current Innerbelt alignment. This alignment maintains a section of existing WRI along West 14th Street under the current Innerbelt Bridge and therefore limits options regarding the potential alignment or subsurface needs of a future eastbound bridge. The existing WRI would remain along a longer portion of University Road, which may be a concern regarding future slope failures or movements. Another disadvantage is that the starting point of Option 4 is very close to the final Innerbelt grading at the corner of University Road and West 13th Street and may conflict with the future grading plan for the eastbound bridge.

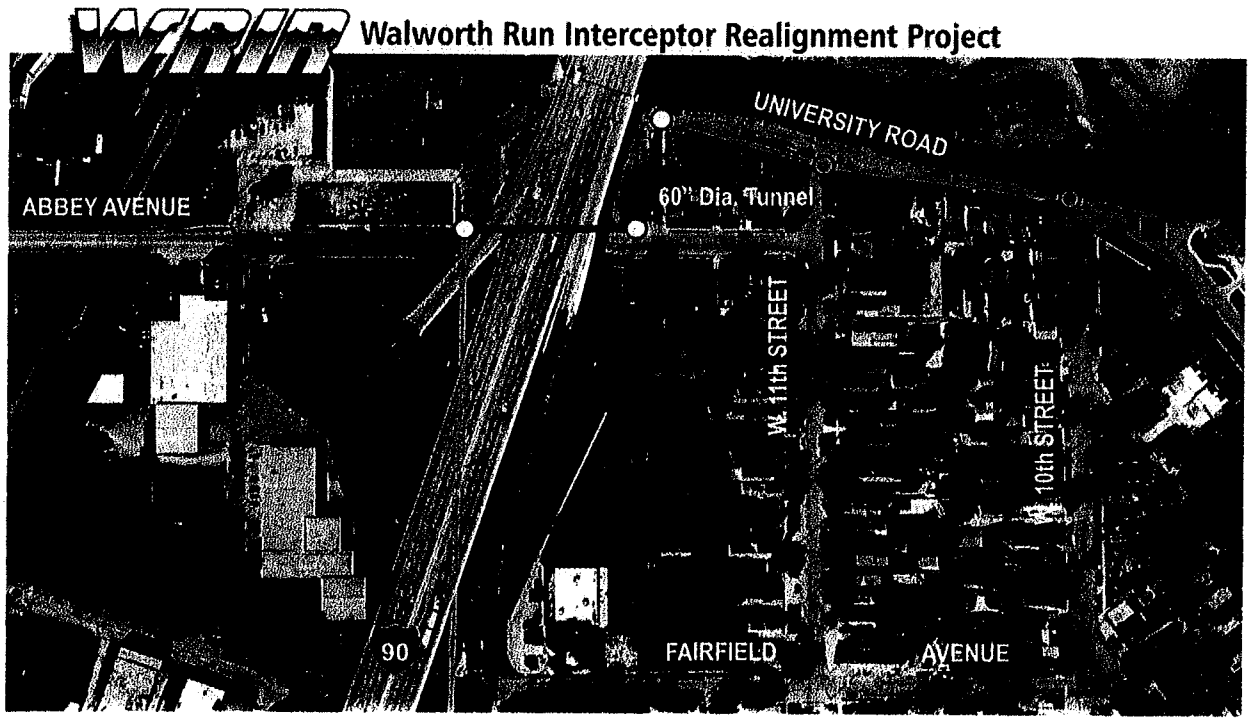

Figure D - Conceptual Option 4

2.5 Option 5

Conceptual Option 5 is shown in Figure E. This option consists of approximately 1,900' of 60" diameter tunneled pipe and four (4) major interceptor structures. The 60" tunneled pipe would begin by connecting to the existing WRI near Regulator WR-27A located on University Road, close to West 10th Street. From this point, the alignment would run southwest for

approximately 200' in to a manhole located on West 10th Street. From this point, the 60" tunneled pipe alignment would run southward along West 10th Street for a distance of approximately 600' to the intersection of West 10th Street and Fairfield Avenue. At this intersection, a manhole would be installed. From this structure, the alignment would run westbound for approximately 1,100' along Fairfield Avenue to the connection point at the intersection of Fairfield Avenue and West 14th Street. At this point, the 60" tunneled pipe would connect to the existing WRI with a connecting structure. As with the other options, several sewer pipes would be removed or abandoned with this option. Additionally, Regulator WR-25 at Crown Avenue and West 14th Street would be abandoned and Regulator WR-24 on Fairfield Avenue would be rebuilt. The existing 190' run of 12" sanitary sewer on Crown Avenue for the Animal Hospital will be relocated. Also, the combined sewer on Fairfield Avenue connecting to Regulator WR-24 may need to be upsized. The dry weather outlet from Regulator WR-24 to West 14th Street may also need to be upsized.

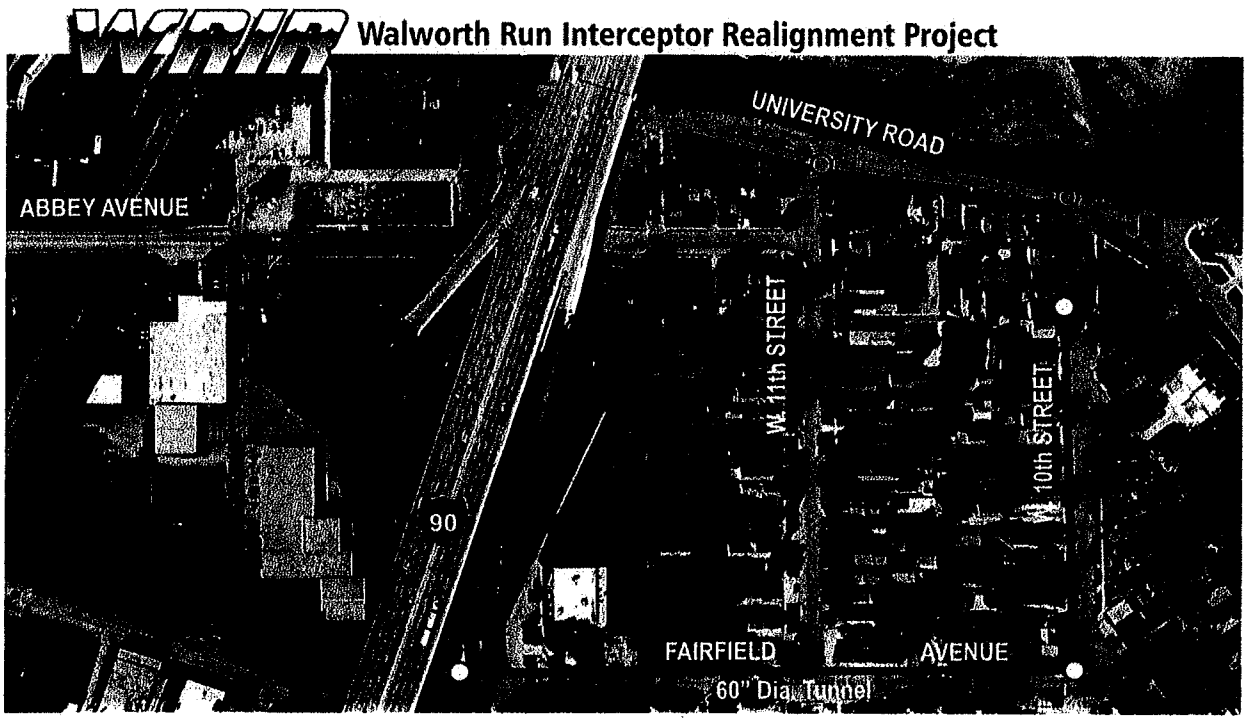

Figure E - Conceptual Option 5

Option 5 completely removes the WRI from the University Road area, which may be a long term slope failure concern. There could also be a possible reduction in flow to CSO-081, near the Cuyahoga River, based on favorable hydraulic evaluations. In addition, Option 5 meets the requirement to remove the WRI from the future Innerbelt Project area.

Option 5 is estimated to be the most costly option. It has a total length of 1,900 feet. Because the beginning and ending inverts are controlled by the existing WRI sewer, the proposed pipe may need to be larger than 60" diameter due to a lesser slope. The proposed diameter of the pipe would need to be evaluated. Additional soil borings would be required, adding to the total design cost. Also, two of the work shafts for Option 5 would be located in the Tremont neighborhood and may have stakeholder concerns. This option exceeds the original intent of the WRI relocation project.

Section 3 – Table 3.1 - Estimate of Probable Construction Cost (2010 Dollars)

Table 3.1 on the following pages lists estimated probable construction costs for the proposed WRI construction options. These costs are preliminary budgetary estimates based on comparison with recently completed projects. They do not include design engineering, construction administration, field inspection, legal review, easement acquisition, or property procurements costs that may be associated with the construction project.

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Option 1	Qty.	Unit	Unit Cost	Total
Mobilization	1	LS	$200,000	$200,000
Tunnel Shaft w/Junction Chamber No. 1	1	Ea.	$750,000	$750,000
Tunnel Shaft w/ Manhole	1	Ea.	$400,000	$400,000
Tunnel Shaft w/Junction Chamber No. 2	1	Ea.	$750,000	$750,000
60" Tunneled Pipe	900	LF	$2,500	$2,250,000
Utility Relocations	1	LS	$250,000	$250,000
Remove / Abandon Sewer Pipes 24" & Smaller	3,400	LF	$100	$340,000
Remove / Abandon Sewer Pipes 30" & Larger	1,100	LF	$200	$220,000
Remove / Abandon Exist. 64" WRI	800	LF	$500	$400,000
Abandon Regulator WR-25	1	Ea.	$20,000	$20,000
Rebuild Existing Regulator WR-24	1	Ea.	$30,000	$30,000
Upsize WR-24 DWO Alignment	450	LF	$200	$90,000
Relocate Exist. 12" Sanitary to Animal Hospital	190	LF	$150	$28,500
Upsize Combined Sewer to WR-24	260	LF	$200	$52,000
Subtotal				$5,780,500
Contingency (30%)				$1,734,150
Option 1 Total				$7,514,650
			USE	**$7.5 M**

Option 2	Qty.	Unit	Unit Cost	Total
Mobilization	1	LS	$200,000	$200,000
Tunnel Shaft w/Junction Chamber No. 1	1	Ea.	$750,000	$750,000
Tunnel Shaft w/Junction Chamber No. 2	1	Ea.	$750,000	$750,000
Tunnel Shaft w/ Manhole No. 1	1	Ea.	$400,000	$400,000
Tunnel Shaft w/ Manhole No. 2	1	Ea.	$400,000	$400,000
60" Tunneled Pipe	1,400	LF	$2,500	$3,500,000
Utility Relocations	1	LS	$250,000	$250,000
Remove / Abandon Sewer Pipes 24" & Smaller	3,400	LF	$100	$340,000
Remove / Abandon Sewer Pipes 30" & Larger	1,100	LF	$200	$220,000
Remove / Abandon Exist. 64" WRI	1,500	LF	$500	$750,000
Abandon Regulator WR-25	1	Ea.	$20,000	$20,000
Rebuild Existing Regulator WR-24	1	Ea.	$30,000	$30,000
Upsize WR-24 DWO Alignment	450	LF	$200	$90,000
Relocate Exist. 12" Sanitary to Animal Hospital	190	LF	$150	$28,500
Upsize Combined Sewer to WR-24	260	LF	$200	$52,000
Subtotal				$7,780,500
Contingency (30%)				$2,334,150
Option 2 Total				$10,114,650
			USE	**$10.1 M**

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Option 3	Qty.	Unit	Unit Cost	Total
Mobilization	1	LS	$200,000	$200,000
Tunnel Shaft w/Junction Chamber No. 1	1	Ea.	$750,000	$750,000
Tunnel Shaft w/Junction Chamber No. 2	1	Ea.	$750,000	$750,000
Tunnel Shaft w/ Manhole	1	Ea.	$400,000	$400,000
60" Tunneled Pipe	1,000	LF	$2,500	$2,500,000
Utility Relocations	1	LS	$250,000	$250,000
Remove / Abandon Sewer Pipes 24" & Smaller	3,400	LF	$100	$340,000
Remove / Abandon Sewer Pipes 30" & Larger	1,100	LF	$200	$220,000
Remove / Abandon Exist. 64" WRI	1,200	LF	$500	$600,000
Abandon Regulator WR-25	1	Ea.	$20,000	$20,000
Rebuild Existing Regulator WR-24	1	Ea.	$30,000	$30,000
Upsize WR-24 DWO Alignment	450	LF	$200	$90,000
Relocate Exist. 12" Sanitary to Animal Hospital	190	LF	$150	$28,500
Upsize Combined Sewer to WR-24	260	LF	$200	$52,000
Subtotal				$6,230,500
Contingency (30%)				$1,869,150
Option 3 Total				$8,099,650
			USE	**$8.1 M**

Option 4	Qty.	Unit	Unit Cost	Total
Mobilization	1	LS	$200,000	$200,000
Tunnel Shaft w/Junction Chamber No. 1	1	Ea.	$750,000	$750,000
Tunnel Shaft w/Junction Chamber No. 2	1	Ea.	$750,000	$750,000
Tunnel Shaft w/ Manhole	1	Ea.	$400,000	$400,000
60" Tunneled Pipe	500	LF	$2,500	$1,250,000
Utility Relocations	1	LS	$250,000	$250,000
Remove / Abandon Sewer Pipes 24" & Smaller	3,400	LF	$100	$340,000
Remove / Abandon Sewer Pipes 30" & Larger	1,100	LF	$200	$220,000
Remove / Abandon Exist. 64" WRI	400	LF	$500	$200,000
Abandon Regulator WR-25	1	Ea.	$20,000	$20,000
Rebuild Existing Regulator WR-24	1	Ea.	$30,000	$30,000
Upsize WR-24 DWO Alignment	450	LF	$200	$90,000
Relocate Exist. 12" Sanitary to Animal Hospital	190	LF	$150	$28,500
Upsize Combined Sewer to WR-24	260	LF	$200	$52,000
Subtotal				$4,580,500
Contingency (30%)				$1,374,150
Option 4 Total				$5,954,650
			USE	**$6.0 M**

Option 5	Qty.	Unit	Unit Cost	Total
Mobilization	1	LS	$200,000	$200,000
Tunnel Shaft w/Junction Chamber No. 1	1	Ea.	$750,000	$750,000
Tunnel Shaft w/Junction Chamber No. 2	1	Ea.	$750,000	$750,000
Tunnel Shaft w/ Manhole No. 1	1	Ea.	$400,000	$400,000
Tunnel Shaft w/ Manhole No. 2	1	Ea.	$400,000	$400,000
60" Tunneled Pipe	1,900	LF	$2,500	$4,750,000
Utility Relocations	1	LS	$250,000	$250,000
Remove / Abandon Sewer Pipes 24" & Smaller	3,400	LF	$100	$340,000
Remove / Abandon Sewer Pipes 30" & Larger	1,100	LF	$200	$220,000
Remove / Abandon Exist. 64" WRI	2,000	LF	$500	$1,000,000
Abandon Regulator WR-25	1	Ea.	$20,000	$20,000
Rebuild Existing Regulator WR-24	1	Ea.	$30,000	$30,000
Upsize WR-24 DWO Alignment	450	LF	$200	$90,000
Relocate Exist. 12" Sanitary to Animal Hospital	190	LF	$150	$28,500
Upsize Combined Sewer to WR-24	260	LF	$200	$52,000
Subtotal				$9,280,500
Contingency (30%)				$2,784,150
Option 5 Total				$12,064,650
			USE	**$12.1 M**

Section 4 – Comparison of Sewer Construction Options

Five (5) general WRI construction options were described and evaluated. Table 4.1 summarizes these options and presents estimated probable construction costs, advantages, and disadvantages associated with each option.

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Table 4.1 – Summary of WRI Construction Options

Description	Estimated Probable Construction Cost (2010 Dollars)	Advantages	Disadvantages
Option 1	$7.5 Million	❖ Removes WRI from westbound bridge grading area. ❖ Relatively short tunnel run ❖ Meets required schedule	❖ Relocated WRI is in the eastbound Innerbelt Bridge footprint and may conflict with future eastbound bridge needs.
Option 2	$10.1 Million	❖ Relocated WRI is completely removed from the Innerbelt footprint ❖ Meets required schedule	❖ Longer project length with respect to other options (except Option 5)
Option 3	$8.1 Million	❖ Relocated WRI is completely removed from the Innerbelt footprint. ❖ Only 2 tunnel shafts necessary ❖ Only 1 drive shaft needed ❖ Minimal traffic conflicts ❖ Meets required schedule	❖ Long length of existing WRI run on University Rd. may be future concern for slope failures ❖ Connection point very close to final Innerbelt grading at University Rd. and West 13th St.
Option 4	$6.0 Million	❖ Removes WRI from westbound bridge grading area. ❖ Minimal traffic conflicts ❖ Meets required schedule	❖ Long length of existing WRI run on University Rd. may be future concern for slope failures ❖ Connection point very close to final Innerbelt grading at University Rd. and West 13th St.
Option 5	$12.0 Million	❖ WRI not in conflict with future Innerbelt Project area ❖ Completely removes WRI from University Rd. area, thus easing future slope failure concern ❖ Possible reduction in flow to CSO-081 based on favorable hydraulic evaluation ❖ Most likely will have schedule implications	❖ 2 work shafts located in Tremont neighborhood may have Stakeholder concerns ❖ May need larger diameter pipe than 60" due to long length of run and pipe grades. ❖ Additional soil borings required ❖ Most costly option

Section 5 – ODOT's Comments and Concerns

ODOT reviewed DLZ's Technical Memorandum dated Jan 11, 2010 and provided comments. DLZ's responses are as follows:

ODOT District 12 Comments (By David Lastovka):
Comments Dated 1/20/2010

1. Alignment Recommendation

   Comment 1A: ODOT concurs with the recommended Option #2 alignment (University-W11th-Abbey-frontage road between Abbey & Fairfield)

   DLZ Response: Comment Noted.

2. Phasing

   Comment 2A: D uring detail design, ODOT requests consideration for project phasing that considers earlier abandonment/removal of the Westerly Low Level Interceptor between Abbey and the NS overpass in the project construction schedule. If the Westerly Low Level Interceptor can be abandoned early, then the ODOT project can begin removal of the Cold Storage building, along with initial slope excavation, in advance of completion of the Walworth Run Interceptor relocation. This strategy would allow some overlap in both ODOT's and NEORSD's construction schedules.

   DLZ Response: DLZ will investigate the hydraulic impacts of abandoning or removing the Westerly Low Level Interceptor between Abbey Avenue and the NS overpass as an early phase of construction. Please note that earlier abandonment/removal would require an elaborate bypass pumping plan.

3. Right of Way

   Comment 3A: As previously discussed, early identification of any needed project right of way is critical to maintaining the project schedule.

   DLZ Response: DLZ understands that early identification of any needed project right-of-way is critical to maintaining the project schedule. As of this report, it appears that the main sewer tunnel will be constructed without the need of right-

of-way. However, it should be noted that as the project progresses it may become necessary to obtain additional right-of-way for construction staging areas or other reasons.

Comment 3B: Additionally, since this relocation is within the Tremont Historic District, any additional RW needs may require additional Environmental coordination with the Federal Highway Administration (FHWA). If at all possible, the relocation work should be designed within the existing public right of way.

DLZ Response: Comment Noted.

Comment 3C: ODOT's record right of way plans were emailed to DLZ on 1-15-2010.

DLZ Response: DLZ has received ODOT's record right of way plans.

4. Access Shaft Locations

Comment 4A: Maintenance of Traffic (MOT) - During detail design, consideration should be given to minimizing local traffic impacts.

DLZ Response: DLZ will investigate ways to minimize local traffic impacts. One example is the relocation of the downstream connection away from the Fairfield Avenue/West 14th Street intersection to a location in the ODOT property on the southwest corner.

Comment 4B: W14th/Fairfield Shaft Location - ODOT's record information for the existing 60" Walworth run interceptor reflects that the sewer is east of the location shown on the Conceptual Plan graphic. Depending on the exact location of the existing sewer, consideration should be given to moving the access shaft either north or south of the Fairfield/W14th intersection, in order to minimize the work area's impact on traffic. See attached screen capture from the project's DGN basemap file.

DLZ Response: The field survey recently completed by DLZ shows the WRI on the west side of West 14th Street in the tree lawn. Currently it is contemplated that the downstream connection may be moved to the southwest corner of the Fairfield Avenue and West 14th Street intersection.

5. City of Cleveland Coordination

Comment 5A: The Innerbelt project has had significant coordination with Cleveland Engineering & Construction (Rob Mavec), Traffic (Andy Cross), and Water Pollution Control (Rachid Zoghaib). These offices should be coordinated with during project development.

DLZ Response: Coordinating with the aforementioned offices is standard operating procedure. DLZ is very familiar with the City of Cleveland and will coordinate as necessary.

6. Interim Condition

Comment 6A: There is a need to coordinate the existing I90 and local storm drainage (mainly west of W13th and north of Fairfield) with the proposed work. As you progress in detail design we will need to determine the disposition of this storm water, both in the interim condition and permanently.

DLZ Response: DLZ will address this issue during the design phase and work with ODOT.

7. Survey Control

Comment 7A: Confirmation that both projects are on the same survey control and all questions related to this topic are resolved.

DLZ Response: DLZ's survey will show elevations and horizontal coordinates referenced to the Ohio State Plane North Zone NAD 83 and NAVD 88 Datums as the primary system with the Cleveland Regional Geodetic Survey (CRGS) Datum as the secondary system.

8. As-Built Plans

Comment 8A: Does NEORSD have as-built plans created for projects? Coordination between the as-constructed NEORSD project and the ODOT design-build team will be very important.

DLZ Response: Yes, the design team will provide ODOT with all available as-builts at the completion of the project.

9. Haul Roads for NEORSD Project

Comment 9A: In coordination with Cleveland, our Design-Build project is not allowing Scranton or West 14th to be project haul roads. These same restrictions should be in place for the NEORSD project.

DLZ Response: DLZ will take these restrictions into account.

10. Vibration Monitoring

Comment 10A: We recommend requiring vibration monitoring of properties adjacent to the NEORSD work locations. Section 9.3.4 of the Design-Build scope addresses ODOT's approach to Vibration Monitoring and Control. This scope language can be provided upon request.

DLZ Response: DLZ will investigate vibration monitoring of properties adjacent to the NEORSD work locations.

Section 6 – Recommendation

Based on the evaluation of the above options, considering the project goals, cost and schedule, DLZ concurs with the original NEORSD recommendation that **Option 2** be selected as the preferred alternate for the WRIR. The estimated probable construction cost for the recommended sewer construction plan is $10,100,000 (2010 Dollars). This plan is shown on the attached plan view exhibit previously prepared by NEORSD and Wade Trim. This estimate should be regarded as a budgetary planning estimate. The estimate will be revised and updated throughout the project's design as more detailed design information becomes available.

CSO-080

CSO-081

24" 24" 60" University Rd WR-27

Scranton Rd

Relocate Sanitary Service
Connection of Existing Animal Hospital
Proposed 12" - 190 lf

Abandoned
WR-25

Crown Ave

Rebuild Existing Manhole (WRA00110)
Rim Elevation = 674.84
Existing Invert = 633.84

Railway Ave

Abbey Ave

Proposed Connection
Ground Elevation ~ 675.5
Invert = 627.93

Proposed Tunnel Shaft
Ground Elevation ~ 676
Proposed Invert = 633.15

Proposed Tunnel Shaft
Ground Elevation ~ 676
Proposed Invert = 631.84

Route Combined Sewer
Flows West to WR-24
Proposed XX" - 260 lf
(May need to upsize
downstream existing sewer)

Proposed Relocation Route
60" Diameter Tunnel
Slope = 0.47%
Total Length = 1,240 ft

Walworth Ave

Rebuild Existing
WR-24

Fairfield Ave

W 14th St

W 11th St

W 10th St

W 7th St

W 7th Pl

Crawford Ct

Thurman St

Professor St

Literary Rd

Maintain Existing
WR-24 DWO Alignment
(May need to upsize)

Legend

- Proposed Manhole
- Proposed Tunnel Shaft
- Rebuild Regulator
- Proposed Interceptor
- Proposed Local Sewer
- To Be Abandoned
- Proposed Road Work
- Construction Limits
- To Be Demolished
- NEORSD CSO Outfall
- Existing Regulator
- Existing Interceptor Manhole
- Existing Local Manhole
- Existing Interceptor
- Existing Combined
- Existing Sanitary
- Existing Storm
- Existing Building

N

Feet
0 100 200

Northeast Ohio Regional Sewer District
Protecting Your Health and Environment

WADE TRIM

Westerly Low Level/Walworth Run Interceptor Realignment
Conceptual Plan No 2

APPENDIX "B"

Draft Soil Boring Logs

ADD [redacted] PUSHING PRESSURES. (SHELBY)
PP READINGS WHERE APPLICABLE.

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-1

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/18/09 COMPLETED 11/18/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 11th & University
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy DRILLER J. Deranek
▽ WATER ON ENCOUNTER 38.8 ft
NOTES
▼ WATER ON COMPLETION 38.8 ft
HOLE SIZE AUGER SIZE 4.25 I.D.
WATER AFTER ___ HRS: ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTICITY INDEX	PLASTIC LIMIT
0				0.6 3" ASPHALT, 4" BRICK.								
				1.4 SOLIDIFIED BASE.								
	SS			FILL: Brown SAND, little gravel, trace silt, brick. (Moist)	4-4-5 (9)							
	SS				11-17-7-6 (24)		4.7					
5				5.0								
	SS			Loose to medium dense brown medium to fine SAND, little gravel, trace silt. (Moist) ↓ -GRAINED	2-3-4-4 (7)							
	SS			4" layer of SILTY CLAY at 7.3'. 4" layer of SILTY CLAY at 7.7'.	4-5-6-9 (11)							
10	SS	SP			3-2-3-4 (5)							
	SS				4-4-6-7 (10)							
	SS				5-8-8-9 (16)							
15												
	SS				8-6-8-7 (14)		4.2					
	SS	SM		17.0 Loose brown FINE SAND, little [redacted] (Moist) → SILTY SAND	2-2-3-4 (5)							
20	SS			19.0 Loose to medium dense brown MEDIUM SAND, little gravel, trace silt. (Moist) ? -GRAINED	4-4-4-4 (8)		5.7					
	SS	SP			3-4-7-9 (11)							
	SS				6-7-6-8 (13)							
25				25.0								
	SS			Medium dense brown FINE SAND, some silt, few sandy silt layers. (Moist)	4-5-6-6 (11)							
	SS				5-6-5-7 (11)							
30	SS	SM		↳ SILTY SAND	6-6-5-6 (11)		9.4					
	SS				6-6-7-7 (13)							
	SS				6-6-6-7 (12)							
35												

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-1

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/18/09 **COMPLETED** 11/18/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 11th & University
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 38.8 ft
NOTES
▼ **WATER ON COMPLETION** 38.8 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ____ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				0.6 3" ASPHALT, 4" BRICK.								
				1.4 SOLIDIFIED BASE.								
	SS			FILL: Brown SAND, little gravel, trace silt, brick. (Moist)	4-4-5 (9)							
5	SS			5.0	11-17-7-6 (24)		4.7					
	SS			Loose to medium dense brown medium to fine SAND, little gravel, trace silt. (Moist)	2-3-4-4 (7)							
	SS			4" layer of SILTY CLAY at 7.3'. 4" layer of SILTY CLAY at 7.7'.	4-5-6-9 (11)							
10	SS	SP			3-2-3-4 (5)							
	SS				4-4-6-7 (10)							
15	SS				5-8-8-9 (16)							
	SS			17.0	8-6-8-7 (14)		4.2					
	SS	SM		Loose brown FINE SAND, little silt. (Moist)	2-2-3-4 (5)							
20	SS			19.0 Loose to medium dense brown MEDIUM SAND, little gravel, trace silt. (Moist)	4-4-4-4 (8)		5.7					
	SS	SP			3-4-7-9 (11)							
25	SS			25.0	6-7-6-8 (13)							
	SS			Medium dense brown FINE SAND, some silt, few sandy silt layers. (Moist)	4-5-6-6 (11)							
	SS				5-6-5-7 (11)							
30	SS	SM			6-6-5-6 (11)		9.4					
	SS				6-6-7-7 (13)							
35	SS				6-6-6-7 (12)							

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Telephone: 216-741-7007
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BORING NUMBER B-1

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35				SILTY SAND									
	SS	SM		Medium dense brown FINE SAND, some silt, few sandy silt layers. *(continued)*	(Moist)	6-8-9-10 (17)							
				37.0									
	SS	SP		Medium dense brown medium to fine SAND, trace silt.	(Wet)	7-5-6-7 (11)							
				GRAINED									
				39.0 ▼									
40	SS			Medium dense to dense gray SILTY FINE SAND.	(Moist)	9-9-10-11 (19)		20.7					
				SILTY SAND.									
	SS	SM				10-15-21-27 (36)							
	SS					10-12-13-16 (25)							
45				BECOMES MEDIUM DENSE WITH									
				45.0									
	SS	SM		~~Medium dense gray SILTY FINE SAND~~, few silt interlayers.	(Moist)	7-10-11-15 (21)							
				47.0									
	SS	SM		~~Dense gray FINE SAND, little silt.~~	(Moist)	16-23-27-29 (50)							
				BECOMES DENSE									
				49.5									
50	SS			Medium dense to dense gray ~~SILTY FINE SAND, silt and~~ clayey silt interlayers (stratified).	(Wet)	12-14-17-21 (31)							
				SILTY SAND TO SILT. ??									
	SS	SM-ML		CHECK ??		3-7-9-11 (16)							
	SS				(Moist)	10-14-18-20 (32)							
55													
	SS				(Wet)	12-18-20-25 (38)							
				57.0									
	SS			Medium dense gray SILT, little sand, trace clay, few silty clay interlayers (stratified).	(Moist)	7-8-9-11 (17)							
60	SS			CL-ML		4-6-9-10 (15)		24.9			25	5	20
				SILTY CLAY.									
	SS	ML			(Wet)	4-5-7-9 (12)							
				(TESTING									
	SS			CLASSIFIES AS CL-ML	(Moist)	8-9-10-12 (19)							
65													
		ST				POSITIVE PRESSURE ??					26	7	19
				67.0									
	SS			Stiff to very stiff gray SILTY CLAY, little sand, few silt interlayers (laminated).	(Moist)	6-9-9-11 (18)		23					
70													
	SS					8-11-12-14 (23)							
		CL		LEAN CLAY									
	SS					6-7-7-9 (14)		25.7			31	11	20
75	SS					5-6-7-9 (13)							
				75.0									

Bottom of hole at 75.0 feet.

Solar Testing Laboratories, Inc.
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BORING NUMBER B-1

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35													
	SS	SM		Medium dense brown FINE SAND, some silt, few sandy silt layers. *(continued)*	(Moist)	6-8-9-10 (17)							
				37.0									
	SS	SP		Medium dense brown medium to fine SAND, trace silt.	(Wet)	7-5-6-7 (11)							
				39.0 ▼									
40	SS	SM		Medium dense to dense gray SILTY FINE SAND.	(Moist)	9-9-10-11 (19)		20.7					
	SS					10-15-21-27 (36)							
	SS					10-12-13-16 (25)							
45				45.0									
	SS	SM		Medium dense gray SILTY FINE SAND, few silt interlayers.	(Moist)	7-10-11-15 (21)							
				47.0									
	SS	SM		Dense gray FINE SAND, little silt.	(Moist)	16-23-27-29 (50)							
				49.5									
50	SS	SM-ML		Medium dense to dense gray SILTY FINE SAND, silt and clayey silt interlayers (stratified).	(Wet)	12-14-17-21 (31)							
	SS					3-7-9-11 (16)							
	SS				(Moist)	10-14-18-20 (32)							
55	SS				(Wet)	12-18-20-25 (38)							
				57.0									
	SS	ML		Medium dense gray SILT, little sand, trace clay, few silty clay interlayers (stratified).	(Moist)	7-8-9-11 (17)							
60	SS					4-6-9-10 (15)		24.9					
	SS				(Wet)	4-5-7-9 (12)							
	SS				(Moist)	8-9-10-12 (19)							
65													
	ST			67.0									
	SS	CL		Stiff to very stiff gray SILTY CLAY, little sand, few silt interlayers (laminated).	(Moist)	6-9-9-11 (18)		23					
70	SS					8-11-12-14 (23)							
	SS					6-7-7-9 (14)		25.7					
	SS					5-6-7-9 (13)							
75				75.0									

Bottom of hole at 75.0 feet.

• MISSING SOME OF THE SOIL TESTING

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-2

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/19/09 COMPLETED 11/19/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 11th & University
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY C. Bangerter DRILLER J. Deranek
▽ WATER ON ENCOUNTER 37.0 ft
NOTES
▼ WATER ON COMPLETION 37.0 ft
HOLE SIZE AUGER SIZE 2.25 I.D.
WATER AFTER HRS: ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				5" ASPHALT, 4¾" BRICK PAVER, 3" BASE, 6" CONCRETE.								
				1.6								
	SS			FILL: CINDERS & SAND.	9-6-5 (11)							
				2.5								
	SS			Loose brown SAND, little gravel, trace silt, few silty clay interlayers. (Moist)	4-2-3 (5)							
5												
	SS				4-4-4 (8)							
	SS				3-3-3 (6)		7.7					
10		SP										
	SS				3-3-2 (5)		6.8					
15												
				18.5								
	SS			~~Brown~~ Medium dense ~~brown SAND, trace silt.~~ TRACE SILT (Moist)	5-6-8 (14)		5.5					
20		SP		BECOMES								
				23.5								
	SS			Loose ~~brown SAND~~, little gravel, trace silt, few silty clay interlayers. (Moist)	2-3-4 (7)		11.9					
25		SP		BECOMES.								
				28.5								
	SS			Medium dense brown FINE SAND, ~~little silt~~ (Moist)	5-7-9 (16)							
30		SM		SILTY SAND.								
	SS				7-8-11 (19)							
35												

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BORING NUMBER B-2

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/19/09 **COMPLETED** 11/19/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 11th & University
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY C. Bangerter **DRILLER** J. Deranek
WATER ON ENCOUNTER 37.0 ft
NOTES
WATER ON COMPLETION 37.0 ft
HOLE SIZE **AUGER SIZE** 2.25 I.D.
WATER AFTER **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				5" ASPHALT, 4¾" BRICK PAVER, 3" BASE, 6" CONCRETE.								
				1.6								
	SS			FILL: CINDERS & SAND.	9-6-5 (11)							
				2.5								
				Loose brown SAND, little gravel, trace silt, few silty clay interlayers. (Moist)								
5	SS				4-2-3 (5)							
	SS				4-4-4 (8)							
10	SS	SP			3-3-3 (6)		7.7					
15	SS				3-3-2 (5)		6.8					
				18.5								
20	SS	SP		Medium dense brown SAND, trace silt. (Moist)	5-6-8 (14)		5.5					
				23.5								
25	SS	SP		Loose brown SAND, little gravel, trace silt, few silty clay interlayers. (Moist)	2-3-4 (7)		11.9					
				28.5								
30	SS	SM		Medium dense brown FINE SAND, little silt. (Moist)	5-7-9 (16)							
35	SS				7-8-11 (19)							

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BORING NUMBER B-2

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35				SILTY SAND								
		SM		Medium dense brown FINE SAND, little silt. *(continued)* (Moist)								
				37.0 ▼								
				Medium dense brown FINE SAND, trace silt. (Wet)								
				-GRAINED								
40	SS	SP			3-5-8 (13)							
				43.5								
				Dense to very dense gray SILTY FINE SAND. (Moist)	15-22-28 (50)		23.3					
45	SS			SILTY SAND.								
50	SS	SM			16-22-30 (52)							
				54.0								
55	SS			Medium dense to dense gray SILT, some sand, few thin silty clay interlayers. (Moist)	11-16-17 (33)							
		ML										
60	SS			60.0	10-15-11 (26)		19.8			NP	NP	NP
				Bottom of hole at 60.0 feet.								

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BORING NUMBER B-2

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35		SM		Medium dense brown FINE SAND, little silt. *(continued)* (Moist)								
				37.0 ▼								
				Medium dense brown FINE SAND, trace silt. (Wet)								
40	SS	SP			3-5-8 (13)							
				43.5								
45	SS	SM		Dense to very dense gray SILTY FINE SAND. (Moist)	15-22-28 (50)		23.3					
50	SS				16-22-30 (52)							
				54.0								
55	SS	ML		Medium dense to dense gray SILT, some sand, few thin silty clay interlayers. (Moist)	11-16-17 (33)							
60	SS			60.0	10-15-11 (26)		19.8					
				Bottom of hole at 60.0 feet.								

ADD PP — WHERE APPLICABLE

Solar Testing Laboratories, Inc.
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BORING NUMBER B-3

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/20/09 **COMPLETED** 11/23/09
GROUND ELEVATION ____
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 11th & Abbey
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 32.5 ft
NOTES ____
▼ **WATER ON COMPLETION** 60.0 ft
HOLE SIZE ____ **AUGER SIZE** 4.25 I.D.
WATER AFTER ____ **HRS:** —

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				2¾" ASPHALT, 4¾" BRICK PAVER, 4" Gray CLAYEY SILT.									
				1.0									
	SS			Loose to medium dense brown SAND & GRAVEL, trace silt.	(Moist)	4-4-4-3 (8)							
	SS	SP-GP		CHECK.		3-4-4-6 (8)							
5	SS					7-9-12-10 (21)		4.4					
				7.0									
	SS			Loose to medium dense brown MEDIUM SAND, little gravel, trace silt, few silty clay interlayers. GRAINED	(Moist)	3-3-3-5 (6)							
	SS					2-3-5-5 (8)							
10	SS	SP			(Wet)	3-6-6-10 (12)							
				13.0									
	SS			Medium dense brown SAND & GRAVEL, trace silt.	(Moist)	7-7-11-8 (18)							
15	SS	SP-GP		CHECK.		5-8-9-9 (17)							
	SS					6-7-8-10 (15)		4.8					
20	SS					7-7-8-11 (15)							
				20.3									
	SS			Medium dense brown FINE SAND, trace gravel, silt. GRAINED	(Moist)	8-9-11-12 (20)							
	SS	SP				7-9-9-10 (18)							
25				25.0									
	SS			Medium dense brown SILTY FINE SAND, few thin interlayers of sandy silt. SILTY SAND	(Moist)	10-11-12-13 (23)							
	SS	SM				8-8-8-10 (16)							
30	SS					5-5-6-11 (11)							
				31.0									
	SS			Medium dense to dense brown SANDY SILT, interlayers of FINE SAND, trace silt, stratified.	(Wet)	6-8-9-11 (17)							
	SS	ML-SP	▽	CHECK.		4-5-8-9 (13)							
35													

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BORING NUMBER B-3

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/20/09 **COMPLETED** 11/23/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 11th & Abbey
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 32.5 ft
NOTES
▼ **WATER ON COMPLETION** 60.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ___ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				2¾" ASPHALT, 4¾" BRICK PAVER, 4" Gray CLAYEY SILT.									
				1.0									
	SS	SP-GP		Loose to medium dense brown SAND & GRAVEL, trace silt.	(Moist)	4-4-4-3 (8)							
5	SS	SP-GP				3-4-4-6 (8)							
	SS	SP-GP				7-9-12-10 (21)		4.4					
				7.0									
	SS	SP		Loose to medium dense brown MEDIUM SAND, little gravel, trace silt, few silty clay interlayers.	(Moist)	3-3-3-5 (6)							
10	SS	SP				2-3-5-5 (8)							
	SS	SP			(Wet)	3-6-6-10 (12)							
				13.0									
	SS	SP-GP		Medium dense brown SAND & GRAVEL, trace silt.	(Moist)	7-7-11-8 (18)							
15	SS	SP-GP				5-8-9-9 (17)							
	SS	SP-GP				6-7-8-10 (15)		4.8					
20	SS	SP-GP				7-7-8-11 (15)							
				20.3									
	SS	SP		Medium dense brown FINE SAND, trace gravel, silt.	(Moist)	8-9-11-12 (20)							
	SS	SP				7-9-9-10 (18)							
25				25.0									
	SS	SM		Medium dense brown SILTY FINE SAND, few thin interlayers of sandy silt.	(Moist)	10-11-12-13 (23)							
	SS	SM				8-8-8-10 (16)							
30	SS	SM				5-5-6-11 (11)							
				31.0									
	SS	ML-SP		▽ Medium dense to dense brown SANDY SILT, interlayers of FINE SAND, trace silt, stratified.	(Wet)	6-8-9-11 (17)							
	SS	ML-SP				4-5-8-9 (13)							
35													

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BORING NUMBER B-3

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35													
	SS	ML-SP		Medium dense to dense brown SANDY SILT, interlayers of FINE SAND, trace silt, stratified. *(continued)*	(Wet)	7-8-23-27 (31)							
				37.0									
	SS			Dense gray SILTY FINE SAND, few silt interlayers.	(Moist)	12-20-29-38 (49)							
	SS	SM				13-20-26-32 (46)							
40				41.0									
	SS	SP		Very dense gray MEDIUM SAND, trace silt.	(Moist)	9-24-32-39 (56)		18.4			NP	NP	NP
				43.0									
	SS			Medium dense to very dense gray SILT, some sand, with SILTY SAND interlayers.	(Moist)	20-25-28-31 (53)							
45													
	SS	ML-SM				17-25-31-34 (56)							
	SS					10-14-16-22 (30)							
				49.0									
50	SS			Medium dense to dense gray SILT, little clay, sand.	(Moist)	5-6-7-9 (13)		22			24	5	19
	SS	CL-ML				5-6-8-9 (14)							
	SS					4-6-13-14 (19)							
55													
		ST	ML	→ PUSHING PRESSURES							NP	NP	NP
	SS					10-9-11-14 (20)							
60	SS			▼		10-15-17-20 (32)		17					
	SS					9-12-16-19 (28)							
				63.0									
	SS	SP		Dense gray SAND, trace silt.	(Moist)	20-19-28-34 (47)							
65				65.0									
	SS	ML		Dense gray SANDY SILT.	(Moist)	15-20-23-30 (43)							
				67.0									
	SS			Stiff to very stiff gray SILTY CLAY, little sand, stratified, few silt interlayers.	(Moist)	6-7-8-9 (15)		23					
70	SS				(Wet)	7-9-12-14 (21)							
	SS	CL				6-9-11-12 (20)							
	SS					6-7-11-13 (18)		25.6					
75				75.0									

Bottom of hole at 75.0 feet.

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BORING NUMBER B-3

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35													
	SS	ML-SP		Medium dense to dense brown SANDY SILT, interlayers of FINE SAND, trace silt, stratified. *(continued)*	(Wet)	7-8-23-27 (31)							
				37.0									
	SS	SM		Dense gray SILTY FINE SAND, few silt interlayers.	(Moist)	12-20-29-38 (49)							
40	SS					13-20-26-32 (46)							
				41.0									
	SS	SP		Very dense gray MEDIUM SAND, trace silt.	(Moist)	9-24-32-39 (56)		18.4					
				43.0									
	SS	ML-SM		Medium dense to very dense gray SILT, some sand, with SILTY SAND interlayers.	(Moist)	20-25-28-31 (53)							
45	SS					17-25-31-34 (56)							
	SS					10-14-16-22 (30)							
				49.0									
50	SS	ML		Medium dense to dense gray SILT, little clay, sand.	(Moist)	5-6-7-9 (13)		22					
	SS					5-6-8-9 (14)							
	SS					4-6-13-14 (19)							
55	ST												
	SS					10-9-11-14 (20)							
60	SS			▼		10-15-17-20 (32)		17					
	SS					9-12-16-19 (28)							
				63.0									
	SS	SP		Dense gray SAND, trace silt.	(Moist)	20-19-28-34 (47)							
65				65.0									
	SS	ML		Dense gray SANDY SILT.	(Moist)	15-20-23-30 (43)							
				67.0									
	SS	CL		Stiff to very stiff gray SILTY CLAY, little sand, stratified, few silt interlayers.	(Moist)	6-7-8-9 (15)		23					
70	SS				(Wet)	7-9-12-14 (21)							
	SS					6-9-11-12 (20)							
	SS					6-7-11-13 (18)		25.6					
75				75.0									

Bottom of hole at 75.0 feet.

ADD PP WHERE APPLICABLE.

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BORING NUMBER B-4

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/30/09 COMPLETED 11/30/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION Abbey at W. 14th Ramp
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy DRILLER J. Deranek
WATER ON ENCOUNTER 34.0 ft
NOTES
WATER ON COMPLETION 34.0 ft
HOLE SIZE AUGER SIZE 4.25 I.D.
WATER AFTER ___ HRS: ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTICITY INDEX	PLASTIC LIMIT
0				0.8 9¾" CONCRETE.								
				1.5 FILL: Brown SAND, little gravel (BASE).								
	SS			POSSIBLE FILL: Loose to medium dense brown SAND & GRAVEL, trace silt. (Moist)	4-7-8-7 (15)							
	SS	SP-GP		CHECK	3-4-3-4 (7)							
5				6.0								
	SS	SM		POSSIBLE FILL: Medium dense brown SAND, little gravel, silt, trace clay. (Moist) SILTY SAND	5-7-9 (16)							
				8.5								
	SS			Very loose to medium dense brown medium to coarse SAND & GRAVEL, trace silt, organics, thin silty clay layer. (Moist) CHANGED	6-8-10 (18)		6.4					
10												
		SP-GP		CHECK								
15	SS				2-1-2 (3)		7.6					
				19.2								
20	SS	ML		20.0 Medium dense brown SILT, little sand, clay. (Moist)	5-5-7 (12)		21.8					
				Medium dense brown ~~FINE SAND~~, little silt. (Moist) CHANGED								
25	SS			SILTY SAND	5-6-10 (16)		10.1					
		SM		SOIL DISTRIBUTION → B-4 23.5' TO 25 FT % GRAVEL 0.4 % SAND 79.1								
30	SS				7-7-8 (15)							
				SAND								
				CHECK								
				33.8								
35	SS	ML-SM		Medium dense brown SILT, little sand, interlayers of silty fine sand. (Wet)	5-6-9 (15)							

PLEASE MATCH SOIL TESTING WITH BORING.

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BORING NUMBER B-4

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/30/09 **COMPLETED** 11/30/09
GROUND ELEVATION ---
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION Abbey at W. 14th Ramp
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 34.0 ft
NOTES
▼ **WATER ON COMPLETION** 34.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ___ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				0.8 9¾" CONCRETE.								
				1.5 FILL: Brown SAND, little gravel (BASE).								
	SS	SP-GP		POSSIBLE FILL: Loose to medium dense brown SAND & GRAVEL, trace silt. (Moist)	4-7-8-7 (15)							
5	SS	SP-GP			3-4-3-4 (7)							
				6.0								
	SS	SM		POSSIBLE FILL: Medium dense brown SAND, little gravel, silt, trace clay. (Moist)	5-7-9 (16)							
				8.5								
10	SS	SP-GP		Very loose to medium dense brown medium to coarse SAND & GRAVEL, trace silt, organics, thin silty clay layer. (Moist)	6-8-10 (18)		6.4					
15	SS	SP-GP			2-1-2 (3)		7.6					
				19.2								
20	SS	ML		20.0 Medium dense brown SILT, little sand, clay. (Moist)	5-5-7 (12)		21.8					
		SM		Medium dense brown FINE SAND, little silt. (Moist)								
25	SS				5-6-10 (16)		10.1					
30	SS				7-7-8 (15)							
				33.8 ▼								
35	SS	ML-SM		Medium dense brown SILT, little sand, interlayers of silty fine sand. (Wet)	5-6-9 (15)							

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-4

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35		ML-SM		CHECK Medium dense brown SILT, little sand, interlayers of silty fine sand. *(continued)* (Wet)								
				37.0 Medium dense gray SILTY FINE SAND, few silt interlayers. (Wet)								
40	SS	SM			2-4-7 (11)		29.3					
45	SS				8-12-16 (28)							
				48.0 Medium dense to dense gray SILT, little sand, trace clay, some clayey silt interlayers. (Wet)								
50	SS				5-5-8 (13)							
55	ST									NP	NP	NP
	SS				17-19-27 (46)		18.6					
60	SS	ML			13-15-17 (32)		19					
65	SS				13-14-10 (24)		16.9					
				ACCORDING TO TESTING @ 68FT.								
70	ST			SHELBY PUSHING PRESSURES.						28	9	19
				72.0 Very stiff gray SILTY CLAY, little sand. (Wet)								
75	SS	CL		LEAN CLAY 75.0	7-11-14 (25)		22.6					

Bottom of hole at 75.0 feet.

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BORING NUMBER B-4

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35		ML-SM		Medium dense brown SILT, little sand, interlayers of silty fine sand. *(continued)* (Wet)								
				37.0								
				Medium dense gray SILTY FINE SAND, few silt interlayers. (Wet)								
40	SS	SM			2-4-7 (11)		29.3					
45	SS				8-12-16 (28)							
				48.0								
50	SS			Medium dense to dense gray SILT, little sand, trace clay, some clayey silt interlayers. (Wet)	5-5-8 (13)							
55	ST											
60	SS	ML			17-19-27 (46)		18.6					
	SS				13-15-17 (32)		19					
65	SS				13-14-10 (24)		16.9					
70	ST											
				72.0								
		CL		Very stiff gray SILTY CLAY, little sand. (Wet)								
75	SS			75.0	7-11-14 (25)		22.6					

Bottom of hole at 75.0 feet.

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BORING NUMBER B-5

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/23/09 **COMPLETED** 11/27/09
GROUND ELEVATION ---
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th & Abbey
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 32.0 ft
NOTES
▼ **WATER ON COMPLETION** 48.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ___ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTICITY INDEX	PLASTIC LIMIT
0				0.6 3" ASPHALT, 4" BRICK PAVER.								
	SS			FILL: Brown SAND, little silt, trace gravel, coal, few thin silty clay layers. (Moist)	11-9-8 (17)							
	SS			4.5': STORM SEWER at edge of hole. Could not auger past. Moved hole 2 feet east.	4-3-4-4 (7)							
5				5.0								
	SS			FILL Brown SAND & GRAVEL, trace silt, few thin silty clay layers. (Moist)	4-3-3-3 (6)							
	SS			8.5': Abandoned METAL PIPE.	1-1-1-50/2"							
				9.0								
10	SS			Loose to medium dense brown medium to coarse SAND, some gravel, trace silt. (Moist)	5-7-4-3 (11)							
	SS	SP		11.3': 8-inch-thick layer of SILTY CLAY.	3-4-6-7 (10)							
	SS				3-6-9-9 (15)		5.9					
15				15.0								
	SS			~~Loose to medium dense brown fine to medium SAND, trace silt.~~ (Moist)	7-7-9-13 (16)							
	SS	SP			7-5-4-4 (9)							
				19.0								
20	SS	SM		20.0 Loose brown SILTY SAND, trace gravel. (Moist)	6-5-5-6 (10)							
	SS	SP		~~Loose~~ to medium dense brown fine to medium SAND, trace silt. (Moist)	6-8-8-9 (16)							
				23.0								
	SS	SP		Loose brown fine to medium SAND, little gravel, trace silt. (Moist)	4-3-4-4 (7)							
25				25.0								
	SS			Loose to medium dense brown FINE SAND, little silt, trace gravel. (Moist)	4-3-5-6 (8)		7.4					
	SS	SM			3-4-6-6 (10)							
30	SS				6-9-10-12 (19)							
				31.0								
	SS		▽	Loose to medium dense brown FINE SAND, trace silt. (Moist) (Wet)	3-2-3-5 (5)							
	SS	SP		(Moist)	8-10-12-15 (22)							
35												

SP OR SW?
SP ACCORDING TO GRAIN DISTRIBUTION TEST.
SILTY SAND

Solar Testing Laboratories, Inc.
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Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-5

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/23/09 **COMPLETED** 11/27/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th & Abbey
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 32.0 ft
NOTES
▼ **WATER ON COMPLETION** 48.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ____ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTICITY INDEX	PLASTIC LIMIT
0				0.6 3" ASPHALT, 4" BRICK PAVER.								
	SS			FILL: Brown SAND, little silt, trace gravel, coal, few thin silty clay layers. (Moist)	11-9-8 (17)							
	SS			4.5': STORM SEWER at edge of hole. Could not auger past. Moved hole 2 feet east.	4-3-4-4 (7)							
5				5.0								
	SS			FILL Brown SAND & GRAVEL, trace silt, few thin silty clay layers. (Moist)	4-3-3-3 (6)							
	SS			8.5': Abandoned METAL PIPE.	1-1-1-50/2"							
				9.0								
10	SS			Loose to medium dense brown medium to coarse SAND, some gravel, trace silt. (Moist)	5-7-4-3 (11)							
	SS	SP		11.3': 8-inch-thick layer of SILTY CLAY.	3-4-6-7 (10)							
	SS				3-6-9-9 (15)		5.9					
15				15.0								
	SS			Loose to medium dense brown fine to medium SAND, trace silt. (Moist)	7-7-9-13 (16)							
	SS	SP			7-5-4-4 (9)							
				19.0								
20	SS	SM		20.0 Loose brown SILTY SAND, trace gravel. (Moist)	6-5-5-6 (10)							
	SS	SP		Loose to medium dense brown fine to medium SAND, trace silt. (Moist)	6-8-8-9 (16)							
				23.0								
	SS	SP		Loose brown fine to medium SAND, little gravel, trace silt. (Moist)	4-3-4-4 (7)							
25				25.0								
	SS			Loose to medium dense brown FINE SAND, little silt, trace gravel. (Moist)	4-3-5-6 (8)		7.4					
	SS	SM			3-4-6-6 (10)							
30	SS				6-9-10-12 (19)							
				31.0								
	SS			▽ Loose to medium dense brown FINE SAND, trace silt. (Moist) (Wet)	3-2-3-5 (5)							
	SS	SP		(Moist)	8-10-12-15 (22)							
35												

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Fax: 216-741-7011

BORING NUMBER B-5

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS LIQUID LIMIT	PLASTICITY INDEX	PLASTIC LIMIT
35													
	SS	SP		Loose to medium dense brown FINE SAND, trace silt. *(continued)*	(Moist)	5-8-10-11 (18)							
	SS			38': Heaving SAND.	(Wet)	4-7-9-12 (16)							
	SS			38.2									
40	SS	SM-ML		Medium dense gray SILT, some sand, interlayers of wet FINE SAND, trace silt, stratified.	(Moist)	5-7-11-13 (18)							
	SS			IS THIS OK.?! CHECK		6-9-10-11 (19)							
	SS					3-6-8-9 (14)							
45				45.0									
	SS	SM		Medium dense gray SILTY FINE SAND.	(Moist)	9-12-14-17 (26)							
	SS			48.0 ▼		4-6-9-11 (15)							
50	ST	ML		Medium dense gray SILT, some sand, few silty sand interlayers.	(Moist)						22	3	19
	SS			PUSHING PRESSURES		8-9-15-19 (24)							
	SS					12-15-19-23 (34)							
55	SS			55.0									
				Dense gray SILT, little sand, clay.	(Moist)	11-16-19-26 (35)		20.1					
	ST	ML		PUSHING PRESSURES							NP	NP	NP
60	SS					16-19-21-26 (40)							
	SS					14-17-20-25 (37)		17.6					
				63.0									
65	SS	CL-ML		Stiff to very stiff gray SILTY CLAY, little sand, interlayers of SILT, stratified.	(Moist)	14-11-15-16 (26)							
	SS				(Wet)	5-6-8-10 (14)							
	SS			69-71 — LEAN CLAY			0						
70	ST										29	9	20
	SS					8-11-14-18 (25)		22					
	SS					7-9-12-14 (21)		22.5					
75				75.0									

Bottom of hole at 75.0 feet.

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BORING NUMBER B-5

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35													
	SS	SP		Loose to medium dense brown FINE SAND, trace silt. *(continued)*	(Moist)	5-8-10-11 (18)							
	SS			38': Heaving SAND.	(Wet)	4-7-9-12 (16)							
				38.2									
40	SS	SM-ML		Medium dense gray SILT, some sand, interlayers of wet FINE SAND, trace silt, stratified.	(Moist)	5-7-11-13 (18)							
	SS					6-9-10-11 (19)							
	SS					3-6-8-9 (14)							
45				45.0									
	SS	SM		Medium dense gray SILTY FINE SAND.	(Moist)	9-12-14-17 (26)							
	SS			48.0 ▼		4-6-9-11 (15)							
		ML		Medium dense gray SILT, some sand, few silty sand interlayers.	(Moist)								
50	ST												
	SS					8-9-15-19 (24)							
	SS					12-15-19-23 (34)							
55				55.0									
	SS	ML		Dense gray SILT, little sand, clay.	(Moist)	11-16-19-26 (35)		20.1					
	ST												
60	SS					16-19-21-26 (40)							
	SS					14-17-20-25 (37)		17.6					
				63.0									
65	SS	CL-ML		Stiff to very stiff gray SILTY CLAY, little sand, interlayers of SILT, stratified.	(Moist)	14-11-15-16 (26)							
	SS				(Wet)	5-6-8-10 (14)							
	SS						0						
70	ST												
	SS					8-11-14-18 (25)		22					
	SS					7-9-12-14 (21)		22.5					
75				75.0									

Bottom of hole at 75.0 feet.

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BORING NUMBER B-6

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/28/09 **COMPLETED** 11/28/09
GROUND ELEVATION ---
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th Ramp to Abbey (south end)
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
WATER ON ENCOUNTER 29.0 ft
NOTES
WATER ON COMPLETION 54.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ___ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				0.3 4" TOPSOIL.								
	SS			FILL: Brown SAND, little silt. (Moist)	2-1-2-3 (3)							
				2.5								
				2.8 FILL: Gray SILTY FINE SAND, trace organics. (Moist)								
5	SS	SP-GP		Loose brown SAND & GRAVEL, trace silt. (Moist)	3-4-5 (9)							
				5.5								
	SS	SP		Medium dense brown fine to medium SAND, trace silt, gravel. (Moist) GRAINED	6-8-7 (15)		7.2					
				9.0								
10	SS	CL		Hard brown SILTY CLAY, little sand, trace $CaCO_3$? (Moist) LEAN CLAY	11-18-23 (41)							
				13.6								
15	SS	SP		Loose brown MEDIUM SAND, some gravel, trace silt. (Moist) GRAINED	3-2-3 (5)							
				19.0								
20	SS	SM		Medium dense brown FINE SAND, ~~little silt,~~ few silty clay lenses, trace gravel. (Moist) SILTY SAND	11-16-14 (30)		10.9					
25	SS				13-10-14 (24)							
				29.0 ▽								
30	SS	ML-SP		Loose to medium dense brown SANDY SILT, interlayers of SAND. (Wet)	12-3-4 (7)		30					
35	SS				3-8-13 (21)							

CHECK THIS TEST

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-6

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 11/28/09 **COMPLETED** 11/28/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th Ramp to Abbey (south end)
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 29.0 ft
NOTES
▼ **WATER ON COMPLETION** 54.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ___ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				0.3 4" TOPSOIL.								
	SS			FILL: Brown SAND, little silt. (Moist)	2-1-2-3 (3)							
				2.5								
				2.8 FILL: Gray SILTY FINE SAND, trace organics. (Moist)								
5	SS	SP-GP		Loose brown SAND & GRAVEL, trace silt. (Moist)	3-4-5 (9)							
				5.5								
	SS	SP		Medium dense brown fine to medium SAND, trace silt, gravel. (Moist)	6-8-7 (15)		7.2					
				9.0								
10	SS	CL		Hard brown SILTY CLAY, little sand, trace $CaCO_3$. (Moist)	11-18-23 (41)							
				13.6								
15	SS	SP		Loose brown MEDIUM SAND, some gravel, trace silt. (Moist)	3-2-3 (5)							
				19.0								
20	SS	SM		Medium dense brown FINE SAND, little silt, few silty clay lenses, trace gravel. (Moist)	11-16-14 (30)		10.9					
25	SS				13-10-14 (24)							
				29.0 ▽								
30	SS	ML-SP		Loose to medium dense brown SANDY SILT, interlayers of SAND. (Wet)	12-3-4 (7)		30					
35	SS				3-8-13 (21)							

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Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-6

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35		ML-SP		Loose to medium dense brown SANDY SILT interlayers of SAND. *(continued)* (Wet)								
				37.0 Medium dense to dense gray SILTY FINE SAND. (Wet)								
40	SS	SM			7-13-16 (29)		22.6					
45	SS				7-16-26 (42)		21.2			NP	NP	NP
				48.0 Dense gray FINE SAND, trace silt. (Moist)								
50	SS	SP			8-10-24 (34)		22.3			NP	NP	NP
				54.0 ▼								
55	SS	ML		Dense gray SILT, little sand. (Moist)	13-19-28 (47)		18					
				57.0 Very stiff gray CLAYEY SILT, little sand. (Moist)								
60	SS	ML			7-8-9 (17)		21.1			24	5	19
				63.5								
65	SS	CL		Stiff gray SILTY CLAY, little sand, few silt interlayers. (Moist)	4-4-5 (9)		28.6					
				65.0 Bottom of hole at 65.0 feet.								

cheese

SILTY SAND

SILT (ML)

(SM) SILTY SAND

THIS TEST IS MISSING

LEAN CLAY

REVISE THIS BORING LOG

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-6

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35		ML-SP		Loose to medium dense brown SANDY SILT, interlayers of SAND. *(continued)* (Wet)								
				37.0								
				Medium dense to dense gray SILTY FINE SAND. (Wet)								
40	SS	SM			7-13-16 (29)		22.6					
45	SS				7-16-26 (42)		21.2					
				48.0								
50	SS	SP		Dense gray FINE SAND, trace silt. (Moist)	8-10-24 (34)		22.3					
				54.0 ▼								
55	SS	ML		Dense gray SILT, little sand. (Moist)	13-19-28 (47)		18					
				57.0								
				Very stiff gray CLAYEY SILT, little sand. (Moist)								
60	SS	ML			7-8-9 (17)		21.1					
				63.5								
65	SS	CL		Stiff gray SILTY CLAY, little sand, few silt interlayers. (Moist)	4-4-5 (9)		28.6					
				65.0								
				Bottom of hole at 65.0 feet.								

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-7

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey; W 14th Streets, Cleveland, Ohio
DATE STARTED 12/3/09 **COMPLETED** 12/3/09
GROUND ELEVATION ____
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th Ramp to Abbey (north end)
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 27.0 ft
NOTES ____
▼ **WATER ON COMPLETION** 27.0 ft
HOLE SIZE ____ **AUGER SIZE** 4.25 I.D.
WATER AFTER ____ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				0.8 10" TOPSOIL.								
	SS			FILL: Brown SAND, little silt, trace gravel, brick. (Moist)	2-2-3-4 (5)							
				3.5								
5	SS			FILL: Brown SAND & GRAVEL, trace silt, brick. (Moist)	3-3-5 (8)							
	SS				4-3-3 (6)							
10	SS				3-3-4 (7)		7					
15	SS				10-16-20 (36)		5					
				19.0								
20	SS	SM		19.5 Medium dense brown SILTY SAND. (Moist)	9-13-17 (30)		14.5					
		ML		20.5 Medium dense brown SILT, little sand. (Moist)								
				Dense brown fine to medium SAND, trace silt. (Moist)								
25	SS	SP			12-15-16 (31)							
				27.0 ▼								
				Loose to very dense brown FINE SAND, little silt few thin silt layers. (Wet)								
30	SS				9-9-12 (21)		22.1					
		SM		SILTY SAND								
35	SS				18-19-50/4"							

Solar Testing Laboratories, Inc.
1125 Valley Belt Road
Brooklyn Heights, Ohio 44131
Telephone: 216-741-7007
Fax: 216-741-7011

BORING NUMBER B-7

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 12/3/09 **COMPLETED** 12/3/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th Ramp to Abbey (north end)
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
WATER ON ENCOUNTER 27.0 ft
NOTES
WATER ON COMPLETION 27.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ____ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				0.8 10" TOPSOIL.								
	SS			FILL: Brown SAND, little silt, trace gravel, brick. (Moist)	2-2-3-4 (5)							
				3.5								
5	SS			FILL: Brown SAND & GRAVEL, trace silt, brick. (Moist)	3-3-5 (8)							
	SS				4-3-3 (6)							
10	SS				3-3-4 (7)		7					
	SS				10-16-20 (36)		5					
15												
	SS			19.0	9-13-17 (30)		14.5					
20		SM		19.5 Medium dense brown SILTY SAND. (Moist)								
		ML		20.5 Medium dense brown SILT, little sand. (Moist)								
				Dense brown fine to medium SAND, trace silt. (Moist)								
	SS	SP			12-15-16 (31)							
25				27.0 ▼								
				Loose to very dense brown FINE SAND, little silt few thin silt layers. (Wet)								
	SS				9-9-12 (21)		22.1					
30		SM										
	SS				18-19-50/4"							
35												

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BORING NUMBER B-7

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35				Loose to very dense brown FINE SAND, little silt few thin silt layers. *(continued)* (Wet) SILTY SAND.								
40	SS	SM			3-4-5 (9)							
45	SS			SILTY SAND	5-6-9 (15)		25.3					
		SM		47.0 Medium dense gray FINE SAND, little silt. (Wet)								
50	SS			49.8 Dense gray SILT, little sand, clay. (Wet)	7-10-13 (23)							
	ST									24	4	20
55	ST	ML		(PP=4.5+)		13	18.1			23	3	20
60	SS			60.0 Bottom of hole at 60.0 feet.	16-24-25 (49)		21.2					

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BORING NUMBER B-7

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35				Loose to very dense brown FINE SAND, little silt few thin silt layers. *(continued)* (Wet)								
40	SS	SM			3-4-5 (9)							
45	SS				5-6-9 (15)		25.3					
				47.0								
		SM		Medium dense gray FINE SAND, little silt. (Wet)								
50	SS			49.8	7-10-13 (23)							
				Dense gray SILT, little sand, clay. (Wet)								
	ST											
55	ST	ML		(PP=4.5+)		13	18.1					
60	SS			60.0	16-24-25 (49)		21.2					
				Bottom of hole at 60.0 feet.								

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BORING NUMBER B-8

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 12/1/09 **COMPLETED** 12/2/09
GROUND ELEVATION ---
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th & Fairfield
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 26.0 ft
NOTES
▼ **WATER ON COMPLETION** 44.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ___ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTICITY INDEX	PLASTIC LIMIT
0				0.9 2½" ASPHALT, 7¾" CONCRETE.								
	SS			FILL: Brown SAND & GRAVEL, trace silt, few thin layers of black sandy silt with little clay. (Moist)	5-6-7-8 (13)							
				3.0								
5	SS			Loose to medium dense brown SAND & GRAVEL, trace silt. (Moist)	3-5-4-4 (9)							
	SS				4-2-2-3 (4)							
	SS	SP, GP			2-2-1-2 (3)							
10	SS				2-2-4-6 (6)		5.7					
	SS				4-5-6-8 (11)							
				13.2								
	SS	ML		14.0 Medium dense brown SILT, little sand, clay. (Moist)	3-5-8-13 (13)							
15				Medium dense brown fine to medium SAND, trace gravel, silt. (Moist) GRAINED								
	SS	SP			8-10-11-14 (21)							
				17.0								
	SS	ML		18.0 Medium dense brown SILT, little sand, trace clay. (Moist)	4-6-7-10 (13)							
				Medium dense brown fine to medium SAND, trace silt. (Moist)								
20	SS	SP		20': 2-inch SILT layer.	10-13-15-20 (28)		8.3					
				21.0								
	SS			Medium dense brown ~~SILTY FINE~~ SILTY SAND, ~~few silt~~ interlayers. (Moist) SILTY SAND	10-11-10-10 (21)							
	SS	SM			4-6-7-9 (13)							
25												
	SS			26.5 ▽ (Wet)	5-6-7-9 (13)							
				Medium dense brown SILT, little sand. (Moist)								
	SS	ML		29.0	7-12-11-14 (23)							
30	SS	SM		Medium dense brown ~~FINE SAND~~, little silt. (Wet) SILTY SAND	9-11-13-14 (24)							
				31.0 ~~Medium dense brown SILTY FINE SAND~~, few thin silt interlayers, stratified. (Wet)	7-8-10-11 (18)							
	SS	SM			4-8-9-11 (17)							
35												

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BORING NUMBER B-8

CLIENT Northeast Ohio Regional Sewer District
PROJECT NAME Walworth Run Interceptor Realignment (WRIR) Project
PROJECT NUMBER A09570x10
PROJECT LOCATION W 11th, Abbey, W 14th Streets, Cleveland, Ohio
DATE STARTED 12/1/09 **COMPLETED** 12/2/09
GROUND ELEVATION
DRILLING CONTRACTOR Solar Testing Laboratories, Inc.
BORING LOCATION W. 14th & Fairfield
DRILLING METHOD Hollow Stem Auger
GROUND WATER LEVELS:
LOGGED BY R. Spellacy **DRILLER** J. Deranek
▽ **WATER ON ENCOUNTER** 26.0 ft
NOTES
▼ **WATER ON COMPLETION** 44.0 ft
HOLE SIZE **AUGER SIZE** 4.25 I.D.
WATER AFTER ____ **HRS:** ---

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
0				0.9 2½" ASPHALT, 7¾" CONCRETE.								
	SS			FILL: Brown SAND & GRAVEL, trace silt, few thin layers of black sandy silt with little clay. (Moist)	5-6-7-8 (13)							
				3.0								
5	SS			Loose to medium dense brown SAND & GRAVEL, trace silt. (Moist)	3-5-4-4 (9)							
	SS				4-2-2-3 (4)							
	SS	SP-GP			2-2-1-2 (3)							
10	SS				2-2-4-6 (6)		5.7					
	SS				4-5-6-8 (11)							
				13.2								
	SS	ML		14.0 Medium dense brown SILT, little sand, clay. (Moist)	3-5-8-13 (13)							
15		SP		Medium dense brown fine to medium SAND, trace gravel, silt. (Moist)								
	SS				8-10-11-14 (21)							
				17.0								
	SS	ML		18.0 Medium dense brown SILT, little sand, trace clay. (Moist)	4-6-7-10 (13)							
		SP		Medium dense brown fine to medium SAND, trace silt. (Moist)								
20	SS			20': 2-inch SILT layer.	10-13-15-20 (28)		8.3					
				21.0								
	SS	SM		Medium dense brown SILTY FINE SAND, few silt interlayers. (Moist)	10-11-10-10 (21)							
	SS				4-6-7-9 (13)							
25												
	SS			26.5 ▽ (Wet)	5-6-7-9 (13)							
	SS	ML		Medium dense brown SILT, little sand. (Moist)	7-12-11-14 (23)							
				29.0								
30	SS	SM		Medium dense brown FINE SAND, little silt. (Wet)	9-11-13-14 (24)							
				31.0								
	SS	SM		Medium dense brown SILTY FINE SAND, few thin silt interlayers, stratified. (Wet)	7-8-10-11 (18)							
	SS				4-8-9-11 (17)							
35												

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BORING NUMBER B-8

CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35	SS	SM		36.0	(Wet)	5-8-13-15 (21)							
	SS	SP		Medium dense brown fine to medium SAND, trace silt, few silt layers. Heaving Sand.	(Wet)	5-7-9-8 (16)		18.8					
40	SS					4-9-6-7 (15)							
	SS			41.0 Medium dense brown FINE SAND, little silt.	(Wet)	9-12-11-16 (23)							
	SS	SM		SILTY SAND		4-5-6-4 (11)							
45	SS					4-5-6-4 (11)							
	SS					6-7-10-11 (17)							
50	SS			49.5									
	SS	ML		Dense gray SILT, little sand. PRESSURES	(Wet)	9-15-18-21 (33)		20.5			NP	NP	NP
	SS					14-19-25-28 (44)							
	ST			53.0 Stiff gray CLAYEY SILT, little sand. SILTY CLAY	(Wet)						24	4	20
55		CL-ML											
	SS					5-6-8-10 (14)		19.3					
	SS			59.0 Stiff gray silt, little sand, interlayers of SILT, stratified.	(Wet)	4-5-7-7 (12)							
60		ST	CL-ML								25	5	20
	SS					5-7-7-8 (14)							
65	SS			65.0 Stiff gray SILTY CLAY, little sand, laminated.	(Wet)	3-4-4-5 (8)		24.1					
	SS	CL		LEAN CLAY		5-6-6-8 (12)							
70		ST		PRESSURES							30	10	20
	SS			71.0 Very stiff gray CLAYEY SILT, little sand.	(Wet)	9-10-14-16 (24)		21.1					
	SS	ML		CHECK THIS		10-14-16-17 (30)		20.2					
75				75.0 CL-ML									

Bottom of hole at 75.0 feet.

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BORING NUMBER B-8

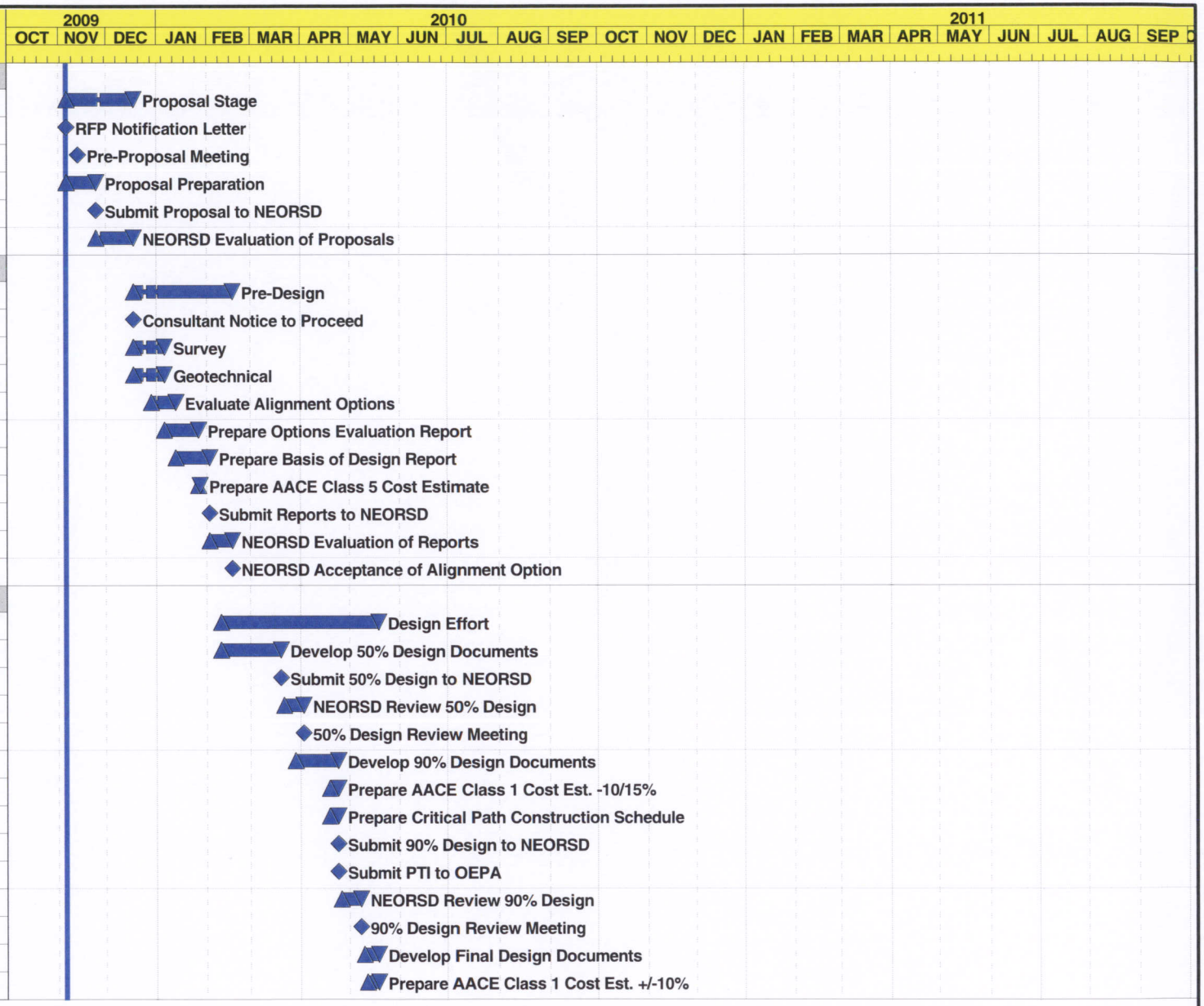
CLIENT Northeast Ohio Regional Sewer District **PROJECT NAME** Walworth Run Interceptor Realignment (WRIR) Project

PROJECT NUMBER A09570x10 **PROJECT LOCATION** W 11th, Abbey, W 14th Streets, Cleveland, Ohio

DEPTH (ft)	SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	MOISTURE CONTENT (%)	UN. COMP. STRENGTH (tsf)	DRY UNIT WT. (pcf)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: PLASTIC LIMIT
35													
	SS	SM		36.0	(Wet)	5-8-13-15 (21)							
	SS	SP		Medium dense brown fine to medium SAND, trace silt, few silt layers. Heaving Sand.	(Wet)	5-7-9-8 (16)		18.8					
40	SS			41.0		4-9-6-7 (15)							
	SS	SM		Medium dense brown FINE SAND, little silt.	(Wet)	9-12-11-16 (23)							
	SS					4-5-6-4 (11)							
45	SS					4-5-6-4 (11)							
	SS					6-7-10-11 (17)							
				49.5									
50	SS	ML		Dense gray SILT, little sand.	(Wet)	9-15-18-21 (33)		20.5					
	SS					14-19-25-28 (44)							
	ST			53.0 Stiff gray CLAYEY SILT, little sand.	(Wet)								
55													
	SS					5-6-8-10 (14)		19.3					
	SS			59.0									
60		CL-ML		Stiff gray SILTY CLAY, little sand, interlayers of SILT, stratified.	(Wet)	4-5-7-7 (12)							
	ST												
	SS					5-7-7-8 (14)							
65				65.0									
	SS	CL		Stiff gray SILTY CLAY, little sand, laminated.	(Wet)	3-4-4-5 (8)		24.1					
	SS					5-6-6-8 (12)							
70	ST												
				71.0									
	SS	ML		Very stiff gray CLAYEY SILT, little sand.	(Wet)	9-10-14-16 (24)		21.1					
	SS					10-14-16-17 (30)		20.2					
75				75.0									

Bottom of hole at 75.0 feet.

Activity ID	Early Start	Early Finish	Orig Dur
Proposal Stage			
1000	06NOV09	17DEC09	28*
1010	06NOV09		0
1020	13NOV09*		0
1030	06NOV09	24NOV09	13
1040		24NOV09	0
1050	25NOV09	17DEC09	15
Pre-Design			
2000	18DEC09	16FEB10	40*
2010	18DEC09		0
2020	18DEC09	05JAN10	10
2030	18DEC09	05JAN10	10
2040	29DEC09	12JAN10	10
2050	06JAN10	26JAN10	15
2060	13JAN10	02FEB10	15
2070	27JAN10	27JAN10	1
2080		02FEB10	0
2090	03FEB10	16FEB10	10
2100		16FEB10	0
Design			
3000	10FEB10	18MAY10	70*
3010	10FEB10	19MAR10	28
3020		19MAR10	0
3030	22MAR10	02APR10	10
3040		02APR10	0
4000	29MAR10	23APR10	20
4010	19APR10	23APR10	5
4020	19APR10	23APR10	5
4030		23APR10	0
4040		23APR10	0
4050	26APR10	07MAY10	10
4060		07MAY10	0
5000	10MAY10	18MAY10	7
5010	12MAY10	18MAY10	5



Start Date	06NOV09
Finish Date	17AUG11
Data Date	06NOV09
Run Date	23MAR10 10:20

Early Bar
Progress Bar
Critical Activity

WRIR

Sheet 1 of 2

NEORSD

Walworth Run Interceptor

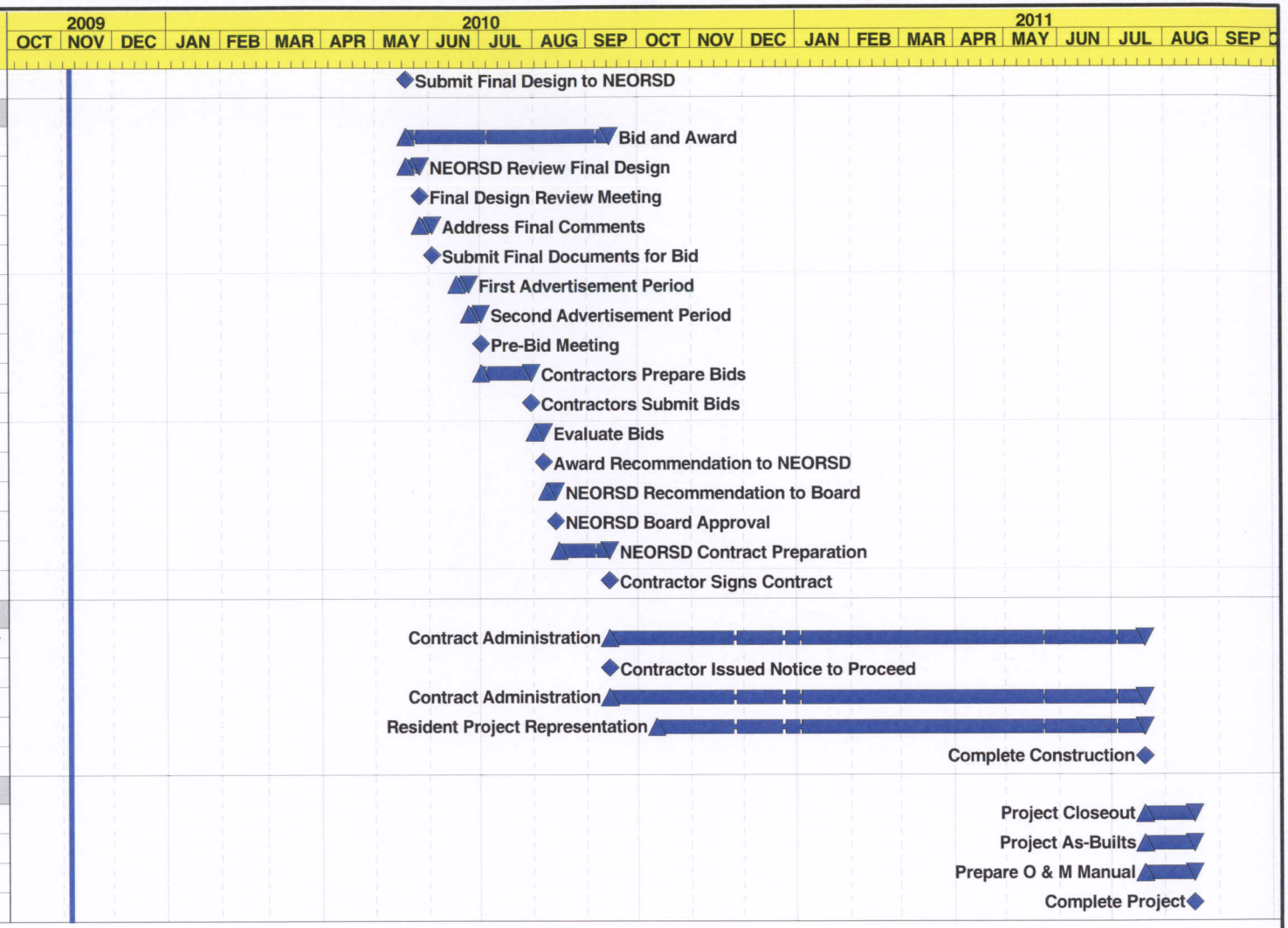
Classic Schedule Layout

Date	Revision	Checked	Approved

DLZ

Rcd 3/23/2010

Activity ID	Early Start	Early Finish	Orig Dur
5020		18MAY10	0
Bidding			
5025	19MAY10	13SEP10	81*
5030	19MAY10	26MAY10	5
5040		26MAY10	0
5050	27MAY10	02JUN10	5
5060		02JUN10	0
6010	18JUN10	24JUN10	5
6020	25JUN10	01JUL10	5
6030		01JUL10	0
6040	02JUL10	30JUL10	20
6050		30JUL10	0
6060	02AUG10	06AUG10	5
6070		06AUG10	0
6080	09AUG10	13AUG10	5
6090		13AUG10	0
6100	16AUG10	13SEP10	20
6110		13SEP10	0
Construction			
7000	14SEP10	20JUL11	215*
7010	14SEP10		0
7020	14SEP10	20JUL11	215
7030	12OCT10	20JUL11	195
7040		20JUL11	0
Closeout			
8000	21JUL11	17AUG11	20*
8010	21JUL11	17AUG11	20
8020	21JUL11	17AUG11	20
8030		17AUG11	0



Start Date	06NOV09
Finish Date	17AUG11
Data Date	06NOV09
Run Date	23MAR10 10:20

Early Bar
Progress Bar
Critical Activity

WRIR

Sheet 2 of 2

NEORSD

Walworth Run Interceptor

Classic Schedule Layout

Date	Revision	Checked	Approved