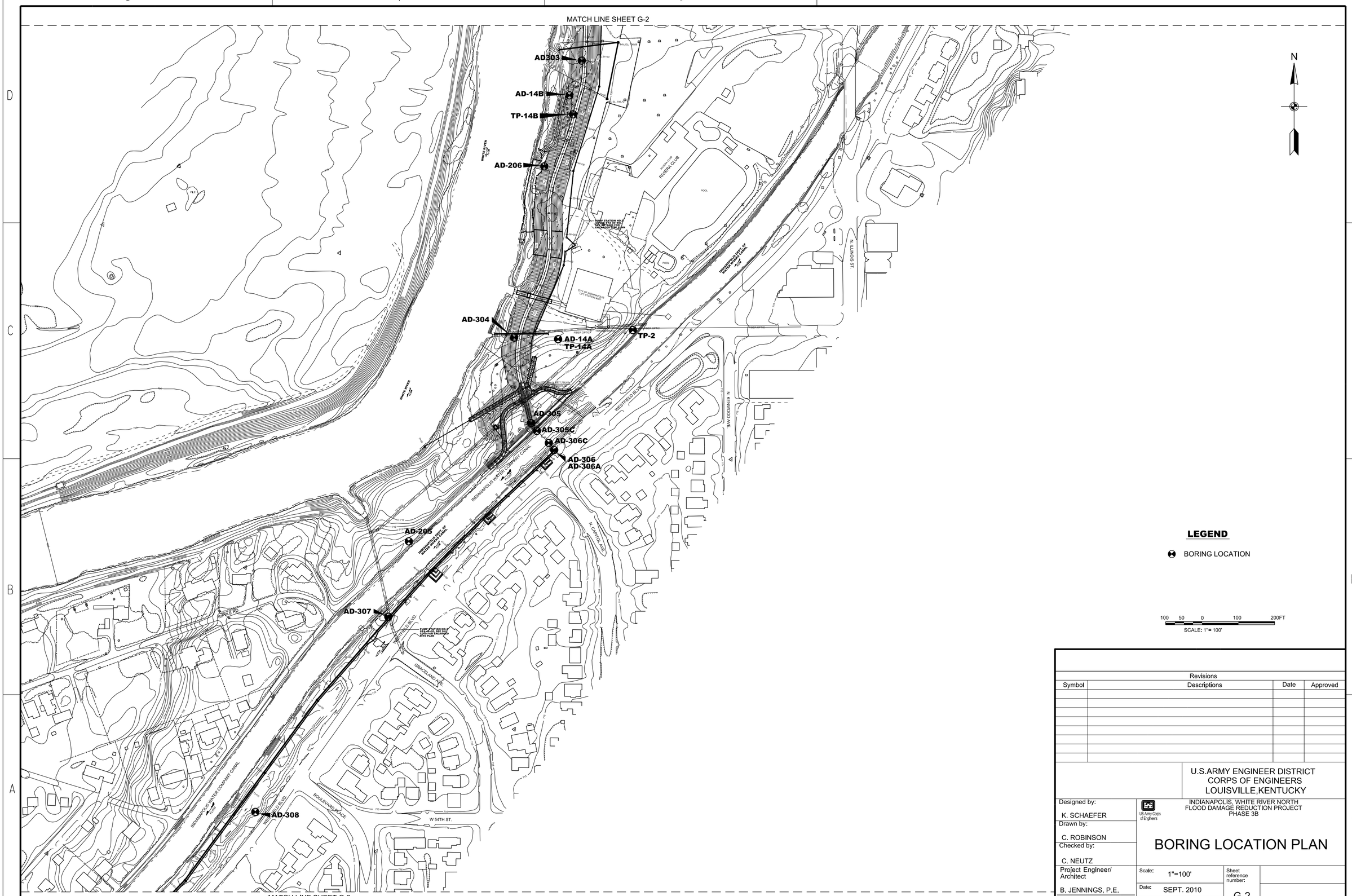

LEGEND

BORING LOCATION

100 50 0 100 200FT

SCALE: 1"= 100'

Revisions			
Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOCATION PLAN

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date

Scale: 1"=100'
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-2
Sheet 153 of 191

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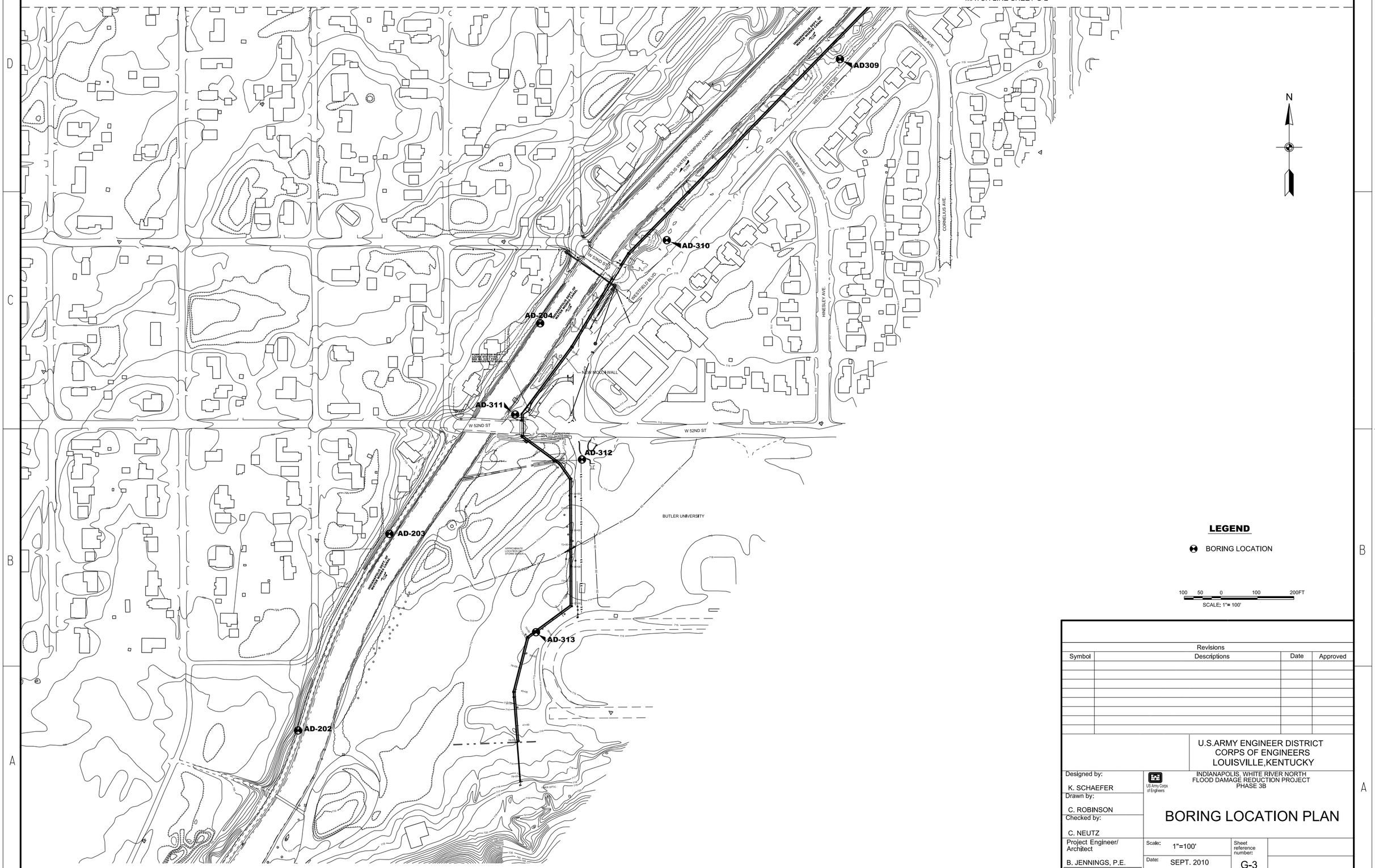
DATE: 29-AUG-2011 07:26
FILE: \\lrl-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g002.dgn



Revisions			
Symbol	Descriptions	Date	Approved

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Sheet 154 of 191

READY TO ADVERTISE

DATE: 29-AUG-2011 07:26
FILE: \\lrl-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g003.dgn

UNIFIED SOIL CLASSIFICATION
(INCLUDING IDENTIFICATION AND DESCRIPTION)

MAJOR DIVISIONS (1)	(2)		GROUP SYMBOLS (3)	TYPICAL NAMES (4)	FIELD IDENTIFICATION PROCEDURES (EXCLUDING PARTICLES LARGER THAN 3 INCHES AND BASING FRACTIONS ON ESTIMATED WEIGHTS) (5)		
COARSE-GRAINED SOILS. MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE.	GRAVELS. MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE. (FOR VISUAL CLASSIFICATION, THE 1/4 IN.(6.35 MM) MAY BE USED AS EQUIVALENT TO THE NO.4 SIEVE SIZE)	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OF NO FINES.	WIDE RANGE IN GRAIN SIZES AND SUBSTANTIAL AMOUNTS OF ALL INTERMEDIATE PARTICLE SIZES.		
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.	PREDOMINANTLY ONE SIZE OR A RANGE OF SIZES WITH SOME INTERMEDIATE SIZES MISSING.		
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES.	NONPLASTIC FINES OF FINES WITH LOW PLASTICITY (FOR IDENTIFICATION PROCEDURES SEE ML BELOW)		
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES.	PLASTIC FINES (FOR IDENTIFICATION PROCEDURES SEE CL BELOW).		
	SANDS. MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO.4 SIEVE SIZE.	CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.	WIDE RANGE IN GRAIN SIZE AND SUBSTANTIAL AMOUNTS OF ALL INTERMEDIATE PARTICLE SIZES.		
			SP	POORLY-GRADED SANDS,GRAVELLY SANDS, LITTLE OR NO FINES.	PREDOMINANTLY ONE SIZE OR A RANGE OF SIZES WITH SOME INTERMEDIATE SIZES MISSING.		
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES.	NONPLASTIC FINES OR FINES WITH PLASTICITY (FOR IDENTIFICATION PROCEDURES SEE ML BELOW).		
			SC	CLAYEY SANDS, AND-CLAY MIXTURES.	PLASTIC FINES (FOR IDENTIFICATION PROCEDURES SEE CL BELOW).		
					IDENTIFICATION PROCEDURES ON FRACTION SMALLER THAN NO. 40 SIEVE SIZE.		
					DRY STRENGTH (CRUSHING CHARACTERISTICS)	DILATANCY (REACTION TO SHAKING)	TOUGHNESS (CONSISTENCY NEAR PL)
FINE-GRAINED SOILS. MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE. THE NO. 200 SIEVE SIZE IS ABOUT THE SMALLEST PARTICLE VISIBLE TO THE NAKED EYE.	SILTS AND CLAYS. LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS,ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY.	NONE TO SLIGHT	QUICK TO SLOW	NONE
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.	MEDIUM TO HIGH	NONE TO VERY SLOW	MEDIUM
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY.	SLIGHT TO MEDIUM	SLOW	SLIGHT
	SILTS AND CLAYS. LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS.	SLIGHT TO MEDIUM	SLOW TO NONE	SLIGHT TO MEDIUM
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.	HIGH TO VERY HIGH	NONE	HIGH
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASITICITY, ORGANIC SILTS.	MEDIUM TO HIGH	NONE TO VERY SLOW	SLIGHT TO MEDIUM
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS.	READILY IDENTIFIED BY COLOR, ODOR, SPONGY FEEL AND FREQUENTLY BY FIBROUS TEXTURE.		

LABORATORY CLASSIFICATION CRITERIA (6)

USE GRAIN-SIZE CURVE IN IDENTIFYING THE FRACTIONS AS GIVEN UNDER FIELD IDENTIFICATION.

DETERMINE PERCENTAGES OF GRAVEL AND SAND FROM GRAIN-SIZE CURVE. DEPENDING ON PERCENTAGE OF FINES (FRACTION SMALLER THAN NO. 200 SIEVE SIZE) COARSE-GRAINED SOILS ARE CLASSIFIED AS FOLLOWS:

- LESS THAN 5% — GW, GP, SW, SP.
- MORE THAN 12% — GM, GC, SM, SC.
- 5% TO 12% — BORDERLINE CASES REQUIRING USE OF DUAL SYMBOLS.

GW: $C_U = \frac{D_{60}}{D_{10}}$ GREATER THAN 4; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ BETWEEN ONE AND 3

NOT MEETING ALL GRADATION REQUIREMENTS FOR GW

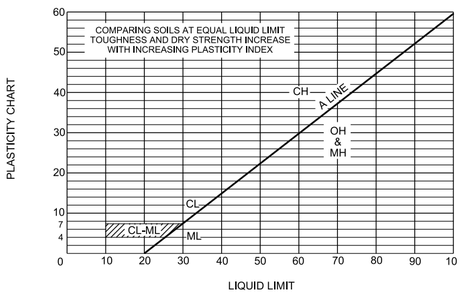
- ATTERBERG LIMITS BELOW "A" LINE WITH PI LESS THAN 4
- ATTERBERG LIMITS ABOVE "A" LINE WITH PI GREATER THAN 7
- ABOVE "A" LINE WITH PI BETWEEN 4 AND 7 ARE BORDERLINE CASES REQUIRING USE OF DUAL SYMBOLS.

SW: $C_U = \frac{D_{60}}{D_{10}}$ GREATER THAN 6; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ BETWEEN ONE AND 3

NOT MEETING ALL GRADATION REQUIREMENTS FOR SW

- ATTERBERG LIMITS BELOW "A" LINE WITH PI LESS THAN 4
- ATTERBERG LIMITS ABOVE "A" LINE WITH PI GREATER THAN 7
- LIMITS PLOTTING IN HTCHED ZONE WITH PI BETWEEN 4 AND 7 ARE BORDERLINE CASES REQUIRING USE OF DUAL SYMBOLS.

PLASTICITY CHART



FOR LABORATORY CLASSIFICATION OF FINE-GRAINED SOILS

GENERAL NOTES

1. REFUSAL IS DEFINED AS THE POINT BEYOND WHICH FURTHER PENETRATION WAS IMPRACTICAL WITH THE EXPLORATION METHOD USED. SEE "METHODS OF EXPLORATION" THIS SHEET INDICATING MEANS BY WHICH THE BORINGS WERE ADVANCED.
2. WATER ELEVATIONS INDICATED (V)IN CORE (C), STANDARD PENETRATION (SPT), FISHTAIL (F), DENISON (U) AND WASH (W) BORINGS MAY HAVE BEEN INFLUENCED BY DRILLING OPERATIONS AND SHOULD NOT BE CONSTRUED AS INDICATING THE TRUE GROUND WATER LEVEL.
3. GROUND WATER LEVELS WILL VARY IN ACCORDANCE WITH RAINFALL AND STREAM STAGES, THEREFORE, ACTUAL LEVEL OF GROUND WATER ON ANY DATE OTHER THAN THAT SHOWN ON THE LOGS MUST BE DETERMINED BY SEPARATE OBSERVATIONS. THE OMISSION OF GROUND WATER ELEVATIONS SHALL NOT NECESSARILY BE CONSTRUED AS INDICATING THE ABSENCE OF GROUND WATER AT A PARTICULAR BORING LOCATION.
4. WHEREVER THE METHOD OF EXPLORATION PRECLUDED THE POSSIBILITY OF RECOVERING SAMPLES ABOVE ROCK, SUITABLE FOR EXAMINATION OR TESTS, THE MATERIAL IS DENOTED AS OVERBURDEN.
5. CLASSIFICATIONS AND PHYSICAL CHARACTERISTICS OF SOIL AND ROCK AS SHOWN ON THE LOGS WERE DETERMINED IN THE FIELD AND LATER SUPPLEMENTED BY ANALYSIS MADE BY THE DISTRICT GEOLOGIST AND THE LABORATORY TECHNICANS.
6. FIELD BOOKS, FIELD LOGS, LABORATORY LOGS (PRESENTING THE RESULTS OF LABORATORY TESTS FOR SHEAR, CONSOLIDATION, PERMEABILITY, ETC, WHEN PERFORMED) AND EDITED LOGS MAY BE VIEWED IN THE OFFICE OF THE DISTRICT ENGINEER, U.S. ARMY ENGINEER DISTRICT, LOUISVILLE, CORPS OF ENGINEERS, FEDERAL OFFICE BUILDING, LOUVILLE, KY.,FAILURE OF THE CONTRACTOR TO AVAIL HIMSELF OF THE INFORMATION REPRESENTED BY THE BORING LOGS, INCLUDING LABORATORY TEST RESULTS, SHALL NOT BE GROUNDS FOR A CLAIM THAT THE GOVERNMENT WITHELD INFORMATION ON SUBSURFACE CONDITIONS.
7. THE TERM "LOST WATER" AS SHOWN ON THE LOGS INDICATES A QUANTITY OF DRILLING WATER LOST IN THE DRILL HOLE.
8. DRIVE SAMPLES WERE TAKEN WITH A 1 3/8" I.D.-2" O.D. X 2'-8" SPLIT SPOON SAMPLER USING A 140# HAMMER WITH A 30" DROP, UNLESS OTHERWISE INDICATED ON GRAPHIC LOGS.
9. CORE HOLES WERE COMPLETED BY AN NXM OR NQ WIRE LINE SIZE CORE BARREL WITH DIAMOND BIT, UNLESS OTHERWISE INDICATED ON THE GRAPHIC LOG.
10. WATER CONTENT (WC) AS SHOWN ON GRAPHIC LOG REPRESENTS THE MOISTURE CONTENT OF MATERIAL ON DATE MADE.
11. "X-RAY DIFFRACTION ANALYSIS" PERFORMED ON SAMPLES DENOTED BY DOUBLE ASTERISK.
12. TOP OF GROUND SHOWN ON THE GRAPHIC LOGS IS THE ELEVATION AT THE TIME OF DRILLING. THE ELEVATION MAY HAVE CHANGED SINCE THAT TIME.
13. OPTIMUM MOISTURE WAS OBTAINED BY STANDARD PROCTOR OR CE 55 COMPACTION TESTS IN ACCORDANCE WITH EM 1110-2-1906, APP. VI OR MIL. STD. 621 A METHOD 100; RESPECTIVELY. AS NOTED ON BORING LOG.
14. THE LETTER DESIGNATION USED BEFORE BORING NUMBER INDICATES THE METHOD OF EXPLORATION FOR EXAMPLE: DC=DRIVE SAMPLER AND CORE BORING.

    DC-10 / 7-26-56 =BORING NO. & DATE MADE

15. GENERAL NOTES 5 AND 6 MAY NOT BE APPLICABLE WHEN EXPLORATION AND TESTING IS PERFORMED BY OTHERS.

WEATHERING

- SEVERE WEATHERING - LOSS OF ROCK COHERANCE, MATERIAL CAN BE REMOVED BY HAND TOOLS. RETAINES SOME EVIDENCE OF ROCK STRUCTURE
- MODERATE WEATHERING- MATERIAL MAY BE OXIDIZED BUT MOST PHYSICAL CHARACTERISTIC REMAIN. OCCASIONAL BLOCKS MAY BE REMOVED WITH HAND TOOLS.
- SLIGHT WEATHERING - MATERIAL GENERALLY FRESH, WITH VARIOUS DEGREES OF WEATHERING ALONG JOINTS AND BEDDING.

TERMS FOR HARDNESS OF BEDROCK

VERY SOFT OR PLASTIC- CAN BE INDENTED EASILY WITH THUMB.

SOFT- CAN BE SCRATCHED WITH FINGERNAIL.

MODERATELY HARD- CAN BE SCRATCHED EASILY WITH KNIFE; CANNOT BE SCRATCHED WITH FINGERNAIL.

HARD- DIFFICULT TO SCRATCH WITH KNIFE.

VERY HARD- CANNOT BE SCRATCHED WITH KNIFE.

TERMS FOR THICKNESS OF ROCK BEDDING

PARTING	0-½"
BAND	0.02'-0.2'
THIN BED	0.2'-0.5'
MEDIUM BED	0.5'-1.0'
THICK BED	1.0'-3.0'
MASSIVE	> 3.0'

CORRELATION OF PENETRATION RESISTANCE (ASTM D 1586) WITH RELATIVE DENSITY AND CONSISTENCY

PENETRATION RESISTANCE,N Blows per foot	RELATIVE DENSITY	PENETRATION RESISTANCE,N Blows per foot	
0 - 4	Very Loose	0 - 2	Very Soft
5 - 10	Loose	3 - 4	Soft
SANDS AND 11 - 30	Med Dense	SANDS AND 5 - 8	Med Stiff
GRAVELS 31 - 50	Dense	CLAYS 9 - 15	Stiff
Over 50	Very Dense	16 - 30	Very Stiff
		31+	Hard

LEGEND

F = FILL
T = TOP SOIL
OB = OVERBURDEN (SEE GENERAL NOTE 4)
SS = SANDSTONE
SH = SHALE
SLS = SILTSTONE
LS = LIMESTONE
CO = COAL
UC = UNDERCLAY
IC = INDURATED CLAY
DOL = DOLOMITE
CON = CONGLOMERATE
OTZ = QUARTZ
RQD = ROCK QUALITY DESIGNATION
NOD = NODULES
GRAV = GRAVEL OR GRAVELLY
LT = LIGHT
DK = DARK
SL = SLIGHTLY
MOD = MODERATELY
MED = MEDIUM
TR = TRACE
HD = HARD
NUM = NUMEROUS
WOR = WEIGHT OF RODS
WOH = WEIGHT OF HAMMER
WT = WEIGHT
VIS = VISCOSITY (MARSH)

WP = WELL POINT
(W) = WEATHERED
W/ = WITH
GR = GRAIN
OCC = OCCASIONAL
BD = BEDDED OR BEDS
INTBD = INTERBEDDED
LAM = LAMINAE
XLYN = CRYSTALLINE
ARGIL = ARGILLACEOUS
V = VERY
BLK = BLACK
BR = BROWN
GRY = GRAY
BLU = BLUE
GRN = GREEN
YEL = YELLOW
OB/P = OPEN BEDDING PLANE
CAL = CALCAREOUS
CARBO = CARBONACEOUS
FREQ = FREQUENT
FOS = FOSSILIFEROUS
CMTD = CEMENTED
MOT = MOTTLED
FRAG = FRAGMENTS

DIAG = DIAGONAL
ALT = ALTERNATING
VERT = VERTICAL
HOR = HORIZONTAL
FRAC = FRACTURE
X=BD = CROSSBEDDING
SP = SHEAR PLANE
V/J = VERTICAL JOINT
JT = JOINT
SOL = SOLUTION
= CAVITY (OPEN OR FILLED)
MICA = MICACEOUS
STY = STYLOLITIC
B/P = BEDDING PLANE
F/W = FREE WATER
H/A = HIGH ANGLE
PIEZ = PIEZOMETER
BOH = BOTTOM OF HOLE
TOR = TOP OF ROCK
ST = STAIN, STAINED
ANG = ANGULAR
RND = ROUNDED
** = X=RAY DIFFRACTION ANALYSIS (SEE GENERAL NOTE 11)

METHODS OF EXPLORATION

VEL = SEISMIC
S = SHELBY TUBE OR PISTON SAMPLER
HA = HAND AUGER
A = POWER AUGER
C = CORE BORING
D = DRIVE SAMPLER
F = FISHTAIL
U = UNDISTURBED DENSION
W = WASH BORING
T = TRENCH
TP = TEST PIT
R = ROCK BIT
P = STANDARD PENETRATION TEST

SOIL DESCRIPTIVE TERMS / SIZE

BOULDER		>8 INCHES
COBBLE		3 INCHES TO 8 INCHES
COARSE GRAVEL		3/4 INCH TO 3 INCH
FINE GRAVEL		1/4 INCH TO 3/4 INCH
COARSE SAND		2 MM TO 1/4 INCH
MEDIUM SAND		0.4 MM TO 2 MM
FINE SAND		0.075 MM TO 0.4 MM
TRACE	1 TO 10%	
OCCASIONAL	11 TO 35%	
AND		36 TO 50%
LAMINAE	0 TO 10 MM	
LENSE	10 MM TO 50 MM	
BAND		50 MM TO 2.5 INCH
LAYER		2.5 INCH TO 6 INCH+

SAMPLE TYPE

DS = DRIVE SAMPLE (STANDARD PENETRATION TEST)
S = UNDISTURBED SHELBY TUBE
A = AUGER
F = FISHTAIL
U = UNDISTURBED DENISON
CU = UNDISTURBED CUBE
C = CORE
J = JAR
BX = BOX (CORE)

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

SOIL CLASSIFICATION

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date

Scale: NONE
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-4
Sheet 155 of 191

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*** SAFETY PAYS ***

BORING N0. AD-302A	SHEET 1 OF 1
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1679452.222 E 189239.860	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD SAMPLE & AUGER
4. NAME OF DRILLER STEVE BRADFORD	13. ELEVATION TOP OF HOLE 705.3
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/2/09 COMPLETED 4/3/08
8. TOTAL DEPTH OF HOLE 5	
9. DIRECTION OF HOLE VERTICAL ☐ INCLINED ☐ _____ DEG. FROM VERT	17. INSPECTOR ADAM SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
705.3	AUGER, NO SAMPLE											0
702.3	LEAN CLAY, DARK BROWN, MOIST, STIFF		CL	1	S			2.0	1.3			3
700.3	BOTTOM OF HOLE AT 5.0'											5

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO. AD-302A

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

BORING N0. AD-306A	SHEET 1 OF 1
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1677601.222 E 188901.704	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD AUGER DRILL AND SAMPLE
4. NAME OF DRILLER S. BRADFORD	13. ELEVATION TOP OF HOLE 712.7
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/7/09 COMPLETED 4/7/09
8. TOTAL DEPTH OF HOLE 7	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ _____ DEG. FROM VERT	17. INSPECTOR ADAM SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
712.7	AUGER, NO SAMPLE											0
707.7	LEAN CLAY, DARK BROWN, MOIST, MEDIUM STIFF.		CL	1	S			2.0	1.6			5
705.7	BOTTOM OF HOLE AT 7.0'											7

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO. AD-306A

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-302A, AD-306A

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-10
Sheet 161 of 191

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DATE: 29-AUG-2011 07:27
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BORING NO. AD-14A

PROJECT INDY NORTH (WARFLEIGH) LEVEE
DATE START:07/20/93 COMPLETE:07/20/93
LOCATION: N 1677906.840 E 188912.500
DRILLING AGENCY ATEC ASSOCIATES INC
DRILLER:E. BATES INSPECTOR:
DRILL TYPE:
DRILL METHOD: HSA
THICKNESS OF OVERBURDEN: 30
DEPTH CORED INTO ROCK:
TOTAL DEPTH OF BORING: 30.0'
DIR. OF BORING X VERT. INCLINED DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 710.00'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
710.0	SURFACE COVER-									
	BROWN CLAYEY SAND W/ OCC. GRAVEL, MOIST, MED. DENSE	SC				A				1
			6 7 7	50	1	DS	16			2
						A				3
			7 7 8	100	2	DS	14		GRADATION MAX GRAV SAND FINE .75" 22 47 31	4
704.0						A				5
	BROWN F. SAND, MOIST - WET, MED.DENSE	SP	2 2 3	100	3	DS	12			6
						A				7
			3 3 4	100	4	DS	21			8
699.0						A				9
	GRAY, VERY SANDY CLAY, WET, STIFF	CL	1 2 2	100	5	DS	29			10
						A				11
			1 2 7	100	6	DS	62			12
694.0						A				13
	BROWN SAND W/ TR. GRAVEL, MOIST, MED. DENSE	SP	5 4 10	100	7	DS	16		CONCRETE PLUG	14
						A				15
			6 10 18	100	8	DS	14			16
689.0						A				17
	BROWN SILTY CLAY W/ SAND SEAM, WET, V. STIFF	CL	11 5 5	100	9	DS	27			18
						A				19
			7 9 18	100	10	DS	25			20
684.0						A				21
	GRAY SILTY CLAY (TILL), MOIST - WET, V. STIFF	CL	12 10 21	100	11	DS	12			22
						A				23
			50 4	100	12	DS	20			24
680.0	BORING TERMINATED									25

SHEET 1 OF 1

BORING NO. AD-14A

BORING NO. TP-14A

PROJECT WARFLEIGH LEVEE, WHITE RIVER, IN.
DATE START:12/08/93 COMPLETE:12/08/93
LOCATION: N 1677906.840 E 188912.500
DRILLING AGENCY GLOBAL CONTRACTORS
DRILLER: S. WILSON INSPECTOR: HB
DRILL TYPE: CASE 580 SUPER E
DRILL METHOD:
THICKNESS OF OVERBURDEN:
DEPTH CORED INTO ROCK:
TOTAL DEPTH OF BORING: 7.2'
DIR. OF BORING X VERT. INCLINED DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 710.0'
DATUM FOR ELEVATION CONTOUR

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
710.0	SURFACE COVER-									
708.8	FILL - CLAYEY W/ ASPHALT, SANDY GRAVELS - SOFT, LOOSE	CL F CL							*SEE MAP - RIVERA CLUB 200' SW OF CLUB HOUSE	1 2 3 4
705.0	BRN. CLAYEY SAND /W TR. GRAVEL, DAMP	SC			1	BAG			GRADATION GRAVEL SAND FINE 9 46 45	5 6
702.8	BOTTOM OF PIT								NO GROUND WATER	7

PIT DID NOT CAVE IN

SHEET 1 OF 1

BORING NO. TP-14A

BORING NO. TP-2

PROJECT WARFLEIGH LEVEE, INDIANAPOLIS
DATE START: 2/24/94 COMPLETE: 2/24/94
LOCATION: N 1677931.799 E 189118.293
DRILLING AGENCY GLOBAL CONTRACTORS
DRILLER:K. DICKERSON INSPECTOR: HB
DRILL TYPE: CASE 580E /W 36" BUCKET
DRILL METHOD: BACK HOE
THICKNESS OF OVERBURDEN:
DEPTH CORED INTO ROCK:
TOTAL DEPTH OF BORING: 11.0'
DIR. OF BORING X VERT. INCLINED DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 713.0'
DATUM FOR ELEVATION CONTOUR

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
713.0	SURFACE COVER-									
	FILL - BRN V GRAVELLY CLAY /W LARGE MED ROUNDED GRAVEL, WASTE CONCRETE SLABS, ASPHALT FRAGMENTS - MOSTLY GRAVELLY CLAY FILL	F GC GP			1	B			*STATION 9+40, RT 130', ABOUT 30' FROM EDGE OF CANAL JUST UNDER EDGE OF TREES, FROM PUMP STATION BUILDING 145' SOUTH. (FROM EAST SIDE OF BUILDING)	1 2 3 4 5
707.0	LT BRN GRAVELLY CLAY, DAMP , SOFT - PROBABLY ORIGINAL CLAYS	CL			2	B			NO GROUND WATER	6 7 8 9 10
702.0	BORING TERMINATED									

SHEET 1 OF 1

BORING NO. TP-2

BORING NO. AD-206

PROJECT INDY NORTH, RIVIERA CLUB
DATE START:09/09/98 COMPLETE:09/09/98
LOCATION: N 1678382.794 E 188874.168
DRILLING AGENCY FMSM
DRILLER: CANTRILL INSPECTOR: CROUCH
DRILL TYPE: CME 45C #2
DRILL METHOD: AUGER & SPT
THICKNESS OF OVERBURDEN: 32.0
DEPTH CORED INTO ROCK: 0.6
TOTAL DEPTH OF BORING: 32.6'
DIR. OF BORING X VERT. INCLINED DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 709.50'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
709.5	SURFACE COVER-									
	BROWN SILTY CLAY W/ OCC. CRUSHED STONE AND COBBLES, MOIST, HARD	F				A				1
			10 25 35		1	DS				2 3 4
						A				5
			28 31 33		2	DS				6
702.5						A				7
	BROWN SANDY SILTY CLAY, MOIST, V STIFF	CL	14 16 8		3	DS				8 9
						A				10
			7 8 9		4	DS				11
						A				12
			14 14 16		5	DS				13 14
						A				15
			12 12 10		6	DS				16
						A		▽		17
	COARSE SAND AND GRAVEL, MOIST, MED DENSE TO DENSE	SP/ GP	8 8 10		7	DS				18
						A				19
			8 8 12		8	DS				20
						A				21
			9 13 24		9	DS				22
						A				23
			18 6 21		10	DS				24
						A				25
681.6			6 6 6		11	DS				26
	BROWN SILTY CLAY W/ TR. CRUSHED STONE, STIFF	CL				A				27
			7 7 4		12	DS				28
677.5	TOP OF ROCK									29
676.9	BORING TERMINATED									30 31 32

>-PARTIAL LOSS OF DRILL FLUID

SYMBOLS: ▽- WATER LEVEL AT COMPLETION

SHEET 1 OF 1

BORING NO. AD-206

Revisions			
Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-14A, TP-14A, TP-2, AD-206

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date

Scale: NONE
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-14
Sheet 165 of 191

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*** SAFETY PAYS ***

BORING N0. AD305	SHEET 1 OF 3
1. PROJECT INDY NORTH IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1677675.532 E 188838.181	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD SAMPLE & AUGER
4. NAME OF DRILLER D JESSIE	13. ELEVATION TOP OF HOLE 714.3
5. DRILL TYPE CME 45 TRUCK	14. TOTAL NUMBER CORE BOXES 1
6. THICKNESS OF OVERBURDEN 44.5'	15. ELEVATION GROUND WATER 7.0'
7. DEPTH DRILLED INTO ROCK 117'	16. DATE HOLE STARTED 5/13/09 COMPLETED 5/13/09
8. TOTAL DEPTH OF HOLE 56.2	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR ADAM SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
714.3	LEAN CLAY, LIGHT BROWN, MOIST, MED STIFFNESS, WITH ROOTS AND ORGANICS IN UPPER/		CL	1	P	2 3 2	21	1.5	0.7			0
712.8	GRAVELLY LEAN CLAY W/ SAND, DARK BROWN MOIST, SOFT TO MED. STIFF		CL	ST 1	S	DP 500		2.0	1.3			2
				2	P	2 2 2	14	1.5	0.5		COBBLE BLOCK @ 4.0'	4
				ST 2	S	DP 500		2.0	1.3			6
707.3	GRAVELLY SAND, COARSE GRAINED, LIGHT BROWN, POORLY GRADED, LOOSE, WET, SUBROUNDED TO ROUNDED WITH GRAVELS GREATER THAN 3"		SP	3	P	4 2 1	16	1.5	1.2			8
705.8	SANDY LEAN CLAY, DARK BROWN, WET, SOFT TO MED STIFF		CL	4	P	3 2 2	36	1.5	0.4			9
				5	P	4 2 2	30	1.5	0.9			11
				6	P	5 4 4	25	1.5	0.7			12
				7	P	5 4 3	27	1.5	0.8			14
				8	P	3 2 3	23	1.5	1.0			15
				9	P	WH WH WH	28	1.5	1.5			17
				10	P	WH 2 2	30	1.5	1.4			18
				11	P	3 5	27	1.5	1.0			20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID — PROJECT INDY NORTH IIIB — HOLE NO. AD305

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 714.3	HOLE NO. AD305
1. PROJECT INDY NORTH IIIB		SHEET 2 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
						4						20
693.8	GRAVELLY SAND, COARSE GRAINED, LIGHT BROWN, POORLY GRADED, MED, DENSE, WET, SUBROUNDED TO ROUNDED WITH GRAVELS GREATER THAN 2"		SP	12	P	3 6 6	15	1.5	0.8			21
				13	P	11 8 9	10	1.5	1.4			23
				14	P	4 9 3	16	1.5	1.2			24
689.3	AUGER W/O SAMPLE											26
685.3	GRAVELLY SAND CONT'D		SP	15	P	10 11 10	18	1.5	1.1			30
683.8	AUGER W/O SAMPLE											32
680.3	GRAVELLY SAND CONT'D		SP	16	P	10 15 14	18	1.5	1.4			35
678.8												36
675.3	GRAVELLY LEAN CLAY W/ SAND, BROWN, MOIST, STIFF		SP	17	P	6 9	10	1.5	1.1			39

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID — PROJECT INDY NORTH IIIB — HOLE NO. AD305

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 714.3	HOLE NO. AD305
1. PROJECT INDY NORTH IIIB		SHEET 3 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
						10						40
673.8	TOR @ 44.5 /BEGAN CORING											41
												44
669.8	LIMESTONE, LIGHT GRAY, MED. BEDDED, HARD, MICRO CRYSTALLINE		LS									45
				RUN1	R			2.5	2.5	76		46
				RUN2	R			5.0	100	48		49
				RUN3	R			4.0	100	93		54
658.1	BOTTOM OF HOLE @ 56.2'											57
												60

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID — PROJECT INDY NORTH IIIB — HOLE NO. AD305

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-305

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-16
Sheet 167 of 191

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*** SAFETY PAYS ***

BORING NO. AD-305C	SHEET 1 OF 3
1. PROJECT	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL) MSL
2. LOCATION N 1677654.097 E 188854.143	12. DRILL METHOD 3 1/4" ID H.S.A
3. DRILLING AGENCY	13. ELEVATION TOP OF HOLE 713.3
4. NAME OF DRILLER R. WARREN	14. TOTAL NUMBER CORE BOXES
5. DRILL TYPE DIEDRICH D-50 SKID	15. ELEVATION GROUND WATER 711
6. THICKNESS OF OVERBURDEN	16. DATE HOLE STARTED 12/3/09 COMPLETED 24/4/09
7. DEPTH DRILLED INTO ROCK 0	
8. TOTAL DEPTH OF HOLE 41	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR J. BLACK

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
	DECK TO WATER											0
	WATER TO CANAL BOTTOM											1, 2, 3, 4
708.2	SILT, BLACK, SOME GRAVEL, WET, EXTRA SOFT.		ML									5
707.8	LEAN CLAY, GRAY TO BROWN WITH GRAY, MOIST, MEDIUM STIFF, SAND AND GRAVEL INCREASE, PIECE OF RUBBER AT END OF SHELBY TUBE.		CL	1	P	4 3 3		1.5	1.5			6
											POCKET PENETROMETER = 1.25	7
				2	S			2.0	2.0			8
704.3	SANDY SILT, BROWN, WET, MEDIUM STIFF.		SM								PP = 1.0	9
				3	S			2.0	1.9			10, 11
700.8	LEAN CLAY, BROWN AND GRAY, MOTTLED, MOIST, MEDIUM STIFF, SANDY ZONES, LARGE GRAVELS AT INTERFACE.		CL	4 5	P	3 5 6		1.5	1.2			12
699.9	SAND WITH GRAVEL, BROWN, WET, MEDIUM DENSE.		GP-SP									13
	MEDIUM TO COURSE GRAINED.			6	P	6 8 10		1.5	0.6			14, 15
					P	13 15 16		1.5	0		DRILLER NOTED GRAVELS, PROBABLY DROVE COBBLE.	16, 17, 18, 19, 20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE.
SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID
PROJECT HOLE NO. AD-305C

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 713.3	HOLE NO. AD-305C
1. PROJECT		SHEET 2 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
	TRACES OF SOME SILT											20
				7	P	9 11 11		1.5	0.8			21
												22
	LARGE GRAVEL IN RECOVERY.			8	P	17 10 9		1.5	0.2			23, 24
												25
	NO MORE SILT			9	P	9 12 12		1.5	0.7			26
												27
685.8	SILTY SAND, VERY FINE TO MEDIUM GRAINED, BROWN TO GRAY, WET, MEDIUM DENSE TO DENSE, OCCASIONAL GRAVEL.		SM	10	P	9 10 14		1.5	1.0			28
												29
				11	P	14 10 11		1.5	0.8			30, 31
												32
												33
											CLAY LENS AT 35.0 TO 35.2	34
				12	P	8 14 16		1.5	1.2			35, 36
												37
												38
												39
												40

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE.
SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID
PROJECT HOLE NO. AD-305C

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 713.3	HOLE NO. AD-305C
1. PROJECT		SHEET 3 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
673.3	LEAN CLAY, MODERATE TO HIGH PLASTIC, GRAY, MOIST, MEDIUM STIFF, OCCASIONAL GRAVEL.		CH	13	P	5 50+/5"		1	0.9			40, 41
672.3	AUGGER REFUSAL/BOTTOM OF HOLE.											42
	BACKFILL: 7 BUCKETS OF BENTONITE PELLETS, SOUNDED TO TOP, COMPRESSED TOP WITH WEIGHT OF PLUG.											43, 44
	* RUBBER ON AUGER NOTED WHEN PULLED.											45
												46
												47
												48
												49
												50
												51
												52
												53
												54
												55
												56
												57
												58
												59
												60

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE.
SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID
PROJECT HOLE NO. AD-305C

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-305-C

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date

Scale: NONE
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-17
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DATE: 29-AUG-2011 07:27
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BORING N0. AD-306C	SHEET 1 OF 3
1. PROJECT	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL) MSL
2. LOCATION N 1677620.883 E 188886.891	
3. DRILLING AGENCY	12. DRILL METHOD 3 1/4" ID H,S,A
4. NAME OF DRILLER R. WARREN	13. ELEVATION TOP OF HOLE 713.3
5. DRILL TYPE DIEDRICH D-50 SKID	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER 711
7. DEPTH DRILLED INTO ROCK 0	16. DATE HOLE STARTED 12/2/09 COMPLETED 12/3/09
8. TOTAL DEPTH OF HOLE 43.2	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR J. BLACK

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
	DECK TO WATER.											0
	WATER TO CANAL BOTTOM.											3
709.3	SILT, BLACK TO GRAY, WET, VERY SOFT, SOME GRAVEL.		GM	1								4
				2	P	1 2 1		1.5	1.5			
708.3	LEAN CLAY, BROWN WITH LITTLE GRAY,MOIST, SOFT, TRACE SAND.		SC	3								5–6
				4	S			2	2			7
706.3	SILTY SANDY CLAY, GRAY TO DARK GRAY, TRACE GRAVEL, ORGANIC SMELL, WET, MEDIUM DENSE.		CL		S			1.3	0			8–9
703.3	CLAYEY SAND, BROWN, WET, MEDIUM DENSE, O.Z. CLAY LAYER.		SC									10
702.6	SAND WITH GRAVELS, BROWN, WET, MEDIUM DENSE, SOME SILT.		GM-SM	5	P	4 11 10		1.5	1.3			11
				6								12
700.8	WELL GRADED SAND WITH SILT AND GRAVEL, BROWN, WET, MEDIUM DENSE, GRAVEL IN LAYERS.		SW-SM	7	P	8 8 8		1.5	1.4			13
				8	P	8 8 9		1.5	0.7			16
				9	P	12 6 7		1.5	0.8			18

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT — HOLE NO. AD-306C

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 713.3	HOLE NO. AD-306C
1. PROJECT		SHEET 2 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				10	P	8 10 8		1.5	1.2			20–21
690.8	POORLY GRADED SAND WITH SILT AND GRAVEL, BROWN, WET, MEDIUM DENSE, GRAVEL IN LAYERS.		SP-SM	11	P	14 10 11		1.5	0.9			23
				12	P	16 10 9		1.5	1.0			25–26
				13	P	12 9 9		1.5	0.8			28
				14	P	10 10 10		1.5	1.0			30–31
				15	P	11 10 12		1.5	1.0			36

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT — HOLE NO. AD-306C

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 713.3	HOLE NO. AD-306C
1. PROJECT		SHEET 3 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
673.3	LEAN CLAY, MEDIUM TO HIGHLY PLACTICY, GRAY BROWN, MOIST, STIFF, GRAVEL AND SAND LENS, HIGHLY WEATH.		CL	16	P	4 6 7		1.5	1.3			40–41
				17	P	50+			<0.1			43
670.1	BORING TERMINATED AT 43.2 FEET.											44–60

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT — HOLE NO. AD-306C

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-306-C

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date

Scale: NONE
Date: SEPT. 2010
Drawing Code: WW 238-12.3
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Sheet 169 of 191

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*** SAFETY PAYS ***

BORING N0. AD-306	SHEET 1 OF 3
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL) TBM
2. LOCATION N 1677601.222 E 188901.704	12. DRILL METHOD AUGER DRILL AND SAMPLE
3. DRILLING AGENCY STANTEC	13. ELEVATION TOP OF HOLE 712.4
4. NAME OF DRILLER S. BRADFORD	14. TOTAL NUMBER CORE BOXES 1
5. DRILL TYPE CME 45 TRACK	15. ELEVATION GROUND WATER 13.2
6. THICKNESS OF OVERBURDEN 44.8	16. DATE HOLE STARTED 4/6/09 COMPLETED 4/7/09
7. DEPTH DRILLED INTO ROCK 10.1	17. INSPECTOR ADAM SMITH
8. TOTAL DEPTH OF HOLE 55.1	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
712.4	TOPSOIL		OH	1	P	1 1 1		1.5	1.1			0
710.9	GRAVELLY LEAN CLAY, DARK BROWN, MOIST, VERY SOFT TO MEDIUM STIFF.		CL	2	P	1 1 1		1.5	0.5		COBBLE BLOCK AT 2.0'	2
709.0	GRAVELLY SAND, MEDIUM COARSE GRAINED, LIGHT BROWN, POORLY GRADED, LOOSE, MOIST, SUBROUNDED TO ANGULAR		SP	3 4	P	3 3 3		1.5	1.2			4
707.9	LEAN CLAY, DARK BROWN, MOIST, MEDIUM STIFF TO STIFF.		CL	5	P	2 3 4		1.5	1.2			5
				6	P	4 4 7		1.5	.9			7
				7	P	2 4 6		1.5	.7			8
703.4	GRAVELLY SAND, MEDIUM COARSE GRAINED, LIGHT BROWN, POORLY GRADED, MEDIUM DENSE TO LOOSE, MOIST TO WET, SUBROUNDED TO SUBANGULAR WITH GRAVELS LESS THAN 1.5"		SP	8	P	1 2 4		1.5	1.0			9
				9	P	4 5 6		1.5	1.1			11
				10	P	6 10 9		1.5	1.3		WATER AT 13.2'	12
				11	P	8 8 10		1.5	1.5			14
				12	P	6 7 6		1.5	1.0			16
				13	P	4 8 8		1.5	1.4			17
				14	P	2 4 5		1.5	0.9			19
												20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-306

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET) — ELEVATION TOP OF HOLE 712.4 — HOLE NO. AD-306

1. PROJECT INDY NORTH PHASE IIIB — SHEET 2 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				15	P	4 6 6		1.5	1.5			20
				16	P	1 5 7		1.5	1.5			21
				17	P	8 10 10		1.5	1.5			23
				18	P	16 13 8		1.5	1.1			25
686.9	AUGER, NO SAMPLE											26
683.4	GRAVELLY SAND, CONTINUED		SP	19	P	8 22 9		1.5	1.5			29
681.9	AUGER, NO SAMPLE											31
678.4	GRAVELLY SAND, CONTINUED		SP	20	P	9 18 20		1.5	1.5			34
676.9	AUGER, NO SAMPLE											36
673.4	SAND, MEDIUM COARSE GRAINED, LIGHT BROWN TO GRAY, WELL GRADED,VERY DENSE, WET, SUBROUNDED.		SW	21	P	7 18		1.5	1.5			39
												40

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-306

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET) — ELEVATION TOP OF HOLE 712.4 — HOLE NO. AD-306

1. PROJECT INDY NORTH PHASE IIIB — SHEET 3 OF 3 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
						22						40
671.9	AUGER, NO SAMPLE											41
667.6	ROCK FRAGMENTS		LS	22		50+		.2	.2		TOP OF ROCK AT 44.8	45
667.4	LIMESTONE, LIGHT GRAY, MEDIUM BEDDED, HARD TO VERY HARD, CALCAREOUS, NON-CRYSTALLINE, (CALCAREOUS MUDSTONE)		LS	1	R			9.1	9.1	46.2		49
				1	R			1	1	50		54
657.3	BOTTOM OF HOLE											55
												60

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-306

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-306

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-19
Sheet 170 of 191

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*** SUPPORT VALUE ENGINEERING - IT PAYS ***

DATE: 29-AUG-2011 07:27
FILE: \\lrl-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g019.dgn

BORING NO. AD-203

PROJECT INDY NORTH, TOW PATH SECTION
DATE START:09/17/98 COMPLETE:09/17/98
LOCATION: N 1674941.372 E 186542.965
DRILLING AGENCY FMSM
DRILLER: CANTRILL INSPECTOR: CROUCH
DRILL TYPE: CME 45C #2
DRILL METHOD: AUGER & SPT
THICKNESS OF OVERBURDEN: 27.0
DEPTH CORED INTO ROCK: 0.6
TOTAL DEPTH OF BORING: 27.6'
DIR. OF BORING X VERT. INCLINED DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 714.70'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
714.7	SURFACE COVER-									
714.3	DGA	GW								
						A				1
										2
			12 8 8	1.00	1	DS				3
	FILL: BROWN CLAYEY SAND AND SILTY SANDY CLAY W/ GRAVEL, DRY, MED DENSE AND V STIFF	F								4
						A				5
			5 11 12	1.00	2	DS				6
						A				7
			0 0 0	0.90	3	DS				8
705.9										9
						A				10
			12 14 14	0.30	4	DS				11
						A				12
	COARSE SAND AND GRAVEL, MOIST, MED DENSE TO DENSE	SP/ SW	13 14 16	1.10	5	DS				13
						A				14
			11 18 22	0.90	6	DS				15
697.7										16
						A				17
			13 14 20	0.00	7	DS				18
						A				19
			12 21 24	0.00	8	DS				20
	SAND AND GRAVEL	SW/ GW								21
						A				22
			22 22 15	0.00	9	DS	▽			23
						A				24
688.9			9 19 30	1.30	10	DS				25
687.7	GRAY WEATHERED SHALE W/ TR. SILT, MOIST, HARD	SH								26
687.1	TOP OF ROCK									27

BORING TERMINATED

>-PARTIAL LOSS OF DRILL FLUID

SYMBOLS: ▽ - WATER LEVEL AT COMPLETION

SHEET 1 OF 1

BORING NO. AD-203

BORING NO. AD-204

PROJECT INDY NORTH, TOW PATH SECTION
DATE START:09/16/98 COMPLETE:09/16/98
LOCATION: N 1675518.237 E 186955.881
DRILLING AGENCY FMSM
DRILLER: CANTRILL INSPECTOR: CROUCH
DRILL TYPE: CME 45C #2
DRILL METHOD: AUGER & SPT
THICKNESS OF OVERBURDEN: 34.1
DEPTH CORED INTO ROCK: 0.3
TOTAL DEPTH OF BORING: 34.4'
DIR. OF BORING X VERT. INCLINED DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 715.50'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
715.5	SURFACE COVER-									
715.0	DGA	GW								
						A				1
										2
			7 7 9	0.90	1	DS				3
	BROWN SANDY CLAY W/ TR. GRAVEL, MOIST, STIFF TO V STIFF	F				A				4
			7 8 9	1.00	2	DS				5
						A				6
			7 11 11	0.80	3	DS				7
706.9										8
						A				9
			13 18 21	0.40	4	DS				10
	COARSE SAND TO SILTY SAND AND GRAVEL, WET, MED DENSE TO DENSE	SW/ SM								11
						A				12
			18 18 21	1.40	5	DS				13
701.9										14
						A				15
	GRAY SILTY CLAY, MOIST, HARD TO V STIFF	CL	12 12 14	1.10	6	DS				16
699.6										17
						A				18
	GRAY COARSE TO FINE SAND, MOIST TO WET, MED DENSE	SP	11 9 9	1.00	7	DS				19
						A				20
			8 11 18	1.40	8	DS	▽			21
694.7										22
						A				23
			7 7 11	1.30	9	DS				24
						A				25
			7 9 13	1.40	10	DS				26
	GRAY SILTY TO SANDY CLAY, MOIST, V STIFF TO HARD	CL				A				27
			9 15 21	1.30	11	DS				28
						A				29
			15 26 42	1.00	12	DS				30
						A				31
			18 26 45	1.50	13	DS				32
681.7										33
681.4	WEATHERED SHALE, MOIST, HARD	SH								34
681.1	TOP OF ROCK									

BORING TERMINATED

>-PARTIAL LOSS OF DRILL FLUID

SYMBOLS: ▽ - WATER LEVEL AT COMPLETION

SHEET 1 OF 1

BORING NO. AD-204

BORING NO. AD-205

PROJECT INDY NORTH, TOW PATH SECTION
DATE START:09/16/98 COMPLETE:09/16/98
LOCATION: N 167349.871 E 188501.210
DRILLING AGENCY FMSM
DRILLER: CANTRILL INSPECTOR: CROUCH
DRILL TYPE: CME 45C #2
DRILL METHOD: AUGER & SPT
THICKNESS OF OVERBURDEN: 32.0
DEPTH CORED INTO ROCK: 0.4
TOTAL DEPTH OF BORING: 32.4'
DIR. OF BORING X VERT. INCLINED DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 716.00'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
716.0	SURFACE COVER-									
715.6	DGA	GW								
						A				1
										2
			15 22 25	1.10	1	DS				3
	BROWN CLAYEY SAND, DRY, HARD	F								4
						A				5
			18 18 22	1.30	2	DS				6
710.2										7
						A				8
			10 10 18	1.30	3	DS				9
						A				10
			6 6 9	1.00	4	DS				11
						A				12
			6 9 12	1.40	5	DS				13
						A				14
			9 7 9	0.90	6	DS	▽			15
						A				16
			7 7 11	1.10	7	DS				17
	MEDIUM TO COARSE SAND AND GRAVEL, MOIST TO WET, MED DENSE TO V DENSE	SP/ GP								18
						A				19
			7 9 11	1.50	8	DS				20
						A				21
			6 6 7	1.40	9	DS				22
						A				23
			21 21 33	1.30	10	DS				24
						A				25
			14 18 18	1.50	11	DS				26
						A				27
			21 21 33	1.40	12	DS				28
684.0										29
683.6	TOP OF ROCK									30
										31
										32

BORING TERMINATED

>-PARTIAL LOSS OF DRILL FLUID

SYMBOLS: ▽ - WATER LEVEL AT COMPLETION

SHEET 1 OF 1

BORING NO. AD-205

Revisions			
Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-203, AD-204, AD-205

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date

Scale: NONE
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-20
Sheet 171 of 191

DATE: 29-AUG-2011 07:27
FILE: \\lrl-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g020.dgn

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*** SAFETY PAYS ***

BORING NO. AD-307	SHEET 1 OF 2
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1677142.176 E 188444.656	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD AUGER DRILL AND SAMPLE
4. NAME OF DRILLER S. BRADFORD	13. ELEVATION TOP OF HOLE 714.8
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER 12.1
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/7/09 COMPLETED 4/7/09
8. TOTAL DEPTH OF HOLE 25.5	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR A. SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
714.8	TOPSOIL		OH									0
714.0	GRAVELLY SAND, MEDIUM COARSE GRAINED, LIGHT BROWN TO BROWN, POORLY GRADED, LOOSE TO DENSE, MOIST TO WET, SUBROUNDED TO ROUNDED, WITH GRAVELS LESS THAN 1.5" AND OCCASIONAL CLAYEY LENSES THROUGHOUT LESS THAN 0.1'		SP	1/2	P	3 6 6		1.5	1.5			1
				3	P	4 2 4		1.5	1.0			2
				4	P	2 4 3		1.5	1.0			3 4
				5	P	2 4 3		1.5	.9			5
				6	P	2 3 3		1.5	1.3			6 7
				7	P	3 3 1		1.5	1.2			8
				8	P	1 1 2		1.5	.8			9 10
				9	P	2 2 2		1.5	1.1			11
	OCCASIONAL CLAYEY LENSES STOP AT 12.0'			10	P	2 6 7		1.5	.9		WATER AT 12.1	12 13
				11	P	3 4 5		1.5	.7			14
				12	P	2 6 6		1.5	1.2			15 16
				13	P	2 4 7		1.5	.7		COBBLE BLOCK AT 17.2'	17
				14	P	7 9 9		1.5	1.5			18 19 20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-307

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 714.8	HOLE NO. AD-307
1. PROJECT INDY NORTH PHASE IIIB		SHEET 2 OF 2 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				15	P	2 5 7		1.5	.7			20
				16	P	2 2 2		1.5	.5		COBBLE BLOCK AT 21.5'	21 22
				17	P	14 26 8		1.5	1.1			23 24
				18	P	6 7 10		1.5	1.5			25
689.3	BOTTOM OF HOLE											26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-307

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-307

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-21
Sheet 172 of 191

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*** SUPPORT VALUE ENGINEERING - IT PAYS ***

DATE: 29-AUG-2011 07:27
FILE: \\lrd-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g021.dgn

BORING N0. AD-308	SHEET 1 OF 2
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1676604.425 E 188078.298	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD AUGER DRILL AND SAMPLE
4. NAME OF DRILLER S. BRADFORD	13. ELEVATION TOP OF HOLE 717.8
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER 13.5
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/7/09 COMPLETED 4/7/09
8. TOTAL DEPTH OF HOLE 25.5	
9. DIRECTION OF HOLE VERTICAL ☐ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR A. SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
717.8	TOPSOIL		OH	1								0
717.5	SAND WITH GRAVEL, MEDIUM COARSE GRAINED, LIGHT BROWN, WELL GRADED, VERY LOOSE TO LOOSE DRY TO MOIST, SUBROUNDED TO ROUNDED WITH SUBROUNDED GRAVEL LESS THAN 1".		SW	2	P	WH WH WH		1.5	0.5		COBBLE BLOCK AT 0.4	1
				3	P	WH 1 2		1.5	1.1			2
				4	P	1 2 2		1.5	.9			3 4
713.1	GRAVELLY LEAN CLAY, DARK BROWN, MOIST, MEDIUM STIFF TO STIFF		CL	5 6	P	1 3 4		1.5	.9			5
				7	P	3 3 6		1.5	1.3			6 7
				8	P	5 7 5		1.5	.6		COBBLE BLOCK AT 8.3'	8
708.1	GRAVELLY SAND, MEDIUM COARSE GRAINED, GRAY TO LIGHT BROWN, POORLY GRADED, LOOSE TO MEDIUM DENSE, MOIST TO ???? , SUBROUNDED TO ROUNDED WITH ANGULAR TO SUBROUNDED GRAVEL LESS THAN 2.5".		SP	9 10	P	4 4 3		1.5	1.3			9 10
				11	P	3 6 6		1.5	1.1			11
				12	P	5 8 10		1.5	1.2			12
				13	P	3 6 6		1.5	.8		WATER AT 13.5'	13 14
				14	P	5 8 6		1.5	0.0		COBBLE BLOCK AT 15.0', NO RECOVERY	15
				15	P	6 9 10		1.5	1.5			16 17
				16	P	5 6 6		1.5	.8			18 19
												20

LRL FORM 1202 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO.
JUNE 2000 SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID AD-308

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 717.8	HOLE NO. AD-308
1. PROJECT INDY NORTH PHASE IIIB		SHEET 2 OF 2 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				17	P	6 9 8		1.5	1.4			20
				18	P	4 4 4		1.5	1.2			21 22
				19	P	7 9 10		1.5	1.3			23
				20	P	8 10 13		1.5	1.3			24 25
692.3	BOTTOM OF HOLE											26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

LRL FORM 1202 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO.
JUNE 2000 SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID AD-308

Revisions			
Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-308

Designed by:
Drawn by: C. ROBINSON
Checked by:
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-22
Sheet 173 of 191
K. SCHAEFER

READY TO ADVERTISE

DATE: 29-AUG-2011 07:28
FILE: \\lrl-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g022.dgn

*** SAFETY PAYS ***

BORING N0. AD-309	SHEET 1 OF 2
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1676242.055 E 187776.573	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD AUGER DRILL AND SAMPLE
4. NAME OF DRILLER S. BRADFORD	13. ELEVATION TOP OF HOLE 716.3
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER 12.0
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/8/09 COMPLETED 4/8/09
8. TOTAL DEPTH OF HOLE 25.5	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR A. SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
716.3	SAND, MEDIUM COARSE GRAINED, DARK BROWN, WELL GRADED, VERY LOOSE, MOIST, SUBROUNDED TO ROUNDED.		SW	1	P	1 1 1		1.5	1.4			0
714.6	SANDY LEAN CLAY, LIGHT BROWN, MOIST, MEDIUM STIFF		CL	2 3	P	1 2 3		1.5	1.0			2
				4	P	1 4 5		1.5	1.2			4
711.8	GRAVELLY SAND, MEDIUM COARSE GRAINED, GRAY TO LIGHT BROWN, POORLY GRADED, DENSE, MOIST TO WET, SUBROUNDED TO ROUNDED WITH ANGULAR TO SUBROUNDED GRAVELS LESS THAN 2".		SP	5	P	7 11 14		1.5	1.3			5
				6	P	9 11 9		1.5	1.3			6
				7	P	9 11 10		1.5	1.2			8
				8	P	5 8 9		1.5	1.5			10
				9	P	7 8 7		1.5	1.5			11
				10	P	5 8 7		1.5	1.1		WATER AT 12.0'	12
				11	P	5 7 11		1.5	1.4			14
				12	P	6 9 10		1.5	1.1			16
				13	P	16 16 14		1.5	1.5			17
				14	P	7 9 12		1.5	1.4			19
												20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-309

SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 716.3	HOLE NO. AD-309
1. PROJECT INDY NORTH PHASE IIIB		SHEET 2 OF 2 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				15	P	4 9 6		1.5	1.0			20
				16	P	7 8 7		1.5	0.7			22
				17	P	15 13 13		1.5	1.5			23
				18	P	5 9 13		1.5	1.5			25
690.8	BOTTOM OF HOLE AT 25.5'											26
												27
												28
												29
												30
												31
												32
												33
												34
												35
												36
												37
												38
												39
												40

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-309

SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-309

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-23
Sheet 174 of 191

READY TO ADVERTISE

*** SUPPORT VALUE ENGINEERING - IT PAYS ***

DATE: 29-AUG-2011 07:28
FILE: \\lrd-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g023.dgn

*** SAFETY PAYS ***

BORING N0. AD-310	SHEET 1 OF 2
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1675745.861 E 187302.434	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD AUGER DRILL AND SAMPLE
4. NAME OF DRILLER S. BRADFORD	13. ELEVATION TOP OF HOLE 713.5
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER 7.5
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/8/09 COMPLETED 4/8/09
8. TOTAL DEPTH OF HOLE 25.5	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR A. SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
	TOPSOIL			1	P	1 2 3		1.5	0.4		COBBLE BLOCK AT 0.4'	0
712	LEAN CLAY, DARK BROWN, MOIST, STIFF		CL	2	P	3 4 5		1.5	0.8			2
710.5	GRAVELLY SAND, MEDIUM COARSE GRAINED, POORLY GRADED, LOOSE TO MEDIUM DENSE, MOIST TO WET, WITH ANGULAR TO SUBROUNDED GRAVELS,		SP	3	P	3 3 5		1.5	0.6			3
				4	P	8 5 5		1.5	0.9			5
				5	P	5 10 11		1.5	1.1			6
											WATER AT 7.5'	7
				6	P	6 8 12		1.5	1.2			8
				7	P	5 8 8		1.5	1.5			9
				8	P	6 8 8		1.5	1.5			11
				9	P	5 8 11		1.5	1.0			12
				10	P	7 8 9		1.5	1.4			14
				11	P	7 6 9		1.5	1.0			15
				12	P	6 8 10		1.5	1.5			16
				13 14	P	8 8 9		1.5	1.1			18
694.8	FAT CLAY, DARK BROWN WET, VERY STIFF, SILTY ZONES FAT CLAY (CONTINUED)		CH									19
												20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-310

SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 713.5	HOLE NO. AD-310
1. PROJECT INDY NORTH PHASE IIIB		SHEET 2 OF 2 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				15	P	7 7 9		1.5	1.1			20
				16	P	7 9 9		1.5	1.5			21
				17	P	8 9 10		1.5	1.3			22
				18	P	5 10 8		1.5	1.1			23
688.0	BOTTOM OF HOLE AT 25.5'											24
												25
												26
												27
												28
												29
												30
												31
												32
												33
												34
												35
												36
												37
												38
												39
												40

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT INDY NORTH PHASE IIIB — HOLE NO. AD-310

SYMBOLS: V - WATER LEVEL AT COMPLETION; > - PARTIAL LOSS OF DRILL FLUID

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS

AD-310

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-24
Sheet 175 of 191

READY TO ADVERTISE

*** SUPPORT VALUE ENGINEERING - IT PAYS ***

DATE: 29-AUG-2011 07:28
FILE: \\lrd-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g024.dgn

*** SAFETY PAYS ***

BORING N0. AD-311	SHEET 1 OF 2
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1675268.437 E 186887.335	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD AUGER DRILL AND SAMPLE
4. NAME OF DRILLER S. BRADFORD	13. ELEVATION TOP OF HOLE 713.2
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER 7.5
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/8/09 COMPLETED 4/8/09
8. TOTAL DEPTH OF HOLE 25.5	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR A. SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
713.2	TOPSOIL		OH	1								0
712.8	GRAVELLY SAND, MEDIUM COARSE GRAINED LIGHT BROWN, POORLY GRADED, LOOSE, MOIST, SUBROUNDED TO ROUNDED		FILL	2	P	5 2 3		1.5	1.2			1
711.7	SANDY LEAN CLAY		FILL	3	P	2 3 3		1.5	1.2			2
				4								3
709.7	ASPHALT, FILL MATERIAL		FILL	5	P	5 8 6		1.5	1.4			4
708.5	GRAVELLY SAND, MEDIUM COARSE GRAINED, LIGHT BROWN, POORLY GRADED, MEDIUM TO DENSE, MOIST, SUBROUNDED TO ROUNDED, WITH ANGULAR TO SUBROUNDED GRAVEL LESS THAN 2".		SP	6 7	P	7 11 7		1.5	1.3			5
				8	P	7 12 22		1.5	1.5			6 7
705.7	SANDY SILT, GRAY, MOIST TO WET, MEDIUM TO DENSE, WITH VERY FINE GRAINED SAND LENSES THROUGHOUT.		ML	9	P	12 13 13		1.5	0.7			8
				10	P	13 14 12		1.5	1.1			9 10
				11	P	9 15 22		1.5	1.2			11
				12	P	13 15 10		1.5	0.5		COBBLE BLOCK AT 12.5'	12 13
				13	P	15 19 22		1.5	1.1			14
				14	P	15 20 16		1.5	1.1			15 16
				15	P	15 18 22		1.5	0.7			17
695.2	SILTY FAT CLAY, GRAY TO DARK BROWN, VERY STIFF, MOIST		CH	16	P	7 11 13		1.5	1.5			18 19
												20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO. AD-311

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 713.2	HOLE NO. AD-311
1. PROJECT INDY NORTH PHASE IIIB		SHEET 2 OF 2 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				17	P	15 18 11		1.5	1.5			20
				18	P	14 16 17		1.5	1.5			21 22
				19	P	10 12 15		1.5	1.5			23
				20	P	11 17 16		1.5	1.4			24 25
687.7	BOTTOM OF HOLE AT 25.5'											26
												27 28 29 30 31 32 33 34 35 36 37 38 39 40

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO. AD-311

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

Revisions			
Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

BORING LOGS
AD-311

Designed by: K. SCHAEFER	Scale:	Sheet reference number:	
Drawn by: C. ROBINSON	Date: SEPT. 2010	G-25	
Checked by: C. NEUTZ	Drawing Code: WW 238-12.3		Sheet 176 of 191
Project Engineer/ Architect B. JENNINGS, P.E. Date			

READY TO ADVERTISE

*** SUPPORT VALUE ENGINEERING - IT PAYS ***

DATE: 29-AUG-2011 07:28
FILE: \\lrl-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g025.dgn

BORING N0. AD-312	SHEET 1 OF 2
1. PROJECT INDY NORTH PHASE IIIB	11. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION N 1675144.986 E 187070.314	
3. DRILLING AGENCY STANTEC	12. DRILL METHOD AUGER DRILL AND SAMPLE
4. NAME OF DRILLER S. BRADFORD	13. ELEVATION TOP OF HOLE 714
5. DRILL TYPE CME 45 TRACK	14. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN	15. ELEVATION GROUND WATER 7.5
7. DEPTH DRILLED INTO ROCK	16. DATE HOLE STARTED 4/9/09 COMPLETED 4/9/09
8. TOTAL DEPTH OF HOLE 25.5	
9. DIRECTION OF HOLE VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT	17. INSPECTOR A. SMITH

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
714	TOPSOIL		OH	1								0
713.4	SANDY LEAN CLAY WITH GRAVEL, LIGHT BROWN, MOIST, MEDIUM STIFF TO STIFF		CL	2	P	2 2 3		1.5	1.3			1
				3	P	3 5 4		1.5	1.2			2
				4	P	2 3 2		1.5	1.1			3 4
709.5	GRAVELLY SAND, MEDIUM COARSE GRAINED, LIGHT BROWN, POORLY GRADED, DENSE, MOIST TO WET, SUBROUNDED TO ROUNDED, WITH GRAVELS LESS THAN 2.5".		SP	5	P	10 21 22		1.5	1.5			5
				6	P	10 20 18		1.5	1.4			6 7
				7	P	21 20 20		1.5	1.1		WATER AT 7.5'	8
				8	P	20 20 15		1.5	0.0		NO RECOVERY, COBBLE BLOCK AT 9.0'	9 10
703.0	SANDY SILT, GRAY, WET, MEDIUM TO DENSE.		ML	9 10	P	15 16 15		1.5	1.5			11
				11	P	9 15 9		1.5	0.0		NO RECOVERY, COBBLE BLOCK AT 12.0'	12
				12	P	9 14 21		1.5	1.5			13 14
				13	P	9 15 12		1.5	1.4			15 16
696.9	SAND, MEDIUM COARSE GRAINED, GRAY, WET.		SP	14 15	P	19 22 26		1.5	1.3			17
696.4	FAT CLAY, DARK GRAY, WET, HARD TO VERY STIFF WITH SILTY ZONES THROUGHOUT.		CH	16								18
				17	P	15 16 18		1.5	1.5			19 20

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO. AD-312

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

BORING LOG (CONT SHEET)	ELEVATION TOP OF HOLE 714	HOLE NO. AD-312
1. PROJECT INDY NORTH PHASE IIIB		SHEET 2 OF 2 SHEETS

ELEVATION	CLASSIFICATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY	RQD	REMARKS	DEPTH SCALE
				18	P	9 10 15		1.5	1.5			20 21
				19	P	12 11 8		1.5	1.5			22
				20	P	7 6 11		1.5	1.5			23 24
				21	P	8 7 10		1.5	1.5			25
688.5	BOTTOM OF HOLE AT 25.5'											26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

LRL FORM 1202 JUNE 2000 — PREVIOUS EDITIONS ARE OBSOLETE. PROJECT INDY NORTH PHASE IIIB HOLE NO. AD-312

SYMBOLS: V - WATER LEVEL AT COMPLETION > - PARTIAL LOSS OF DRILL FLUID

Revisions

Symbol	Descriptions	Date	Approved

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE,KENTUCKY

US Army Corps of Engineers

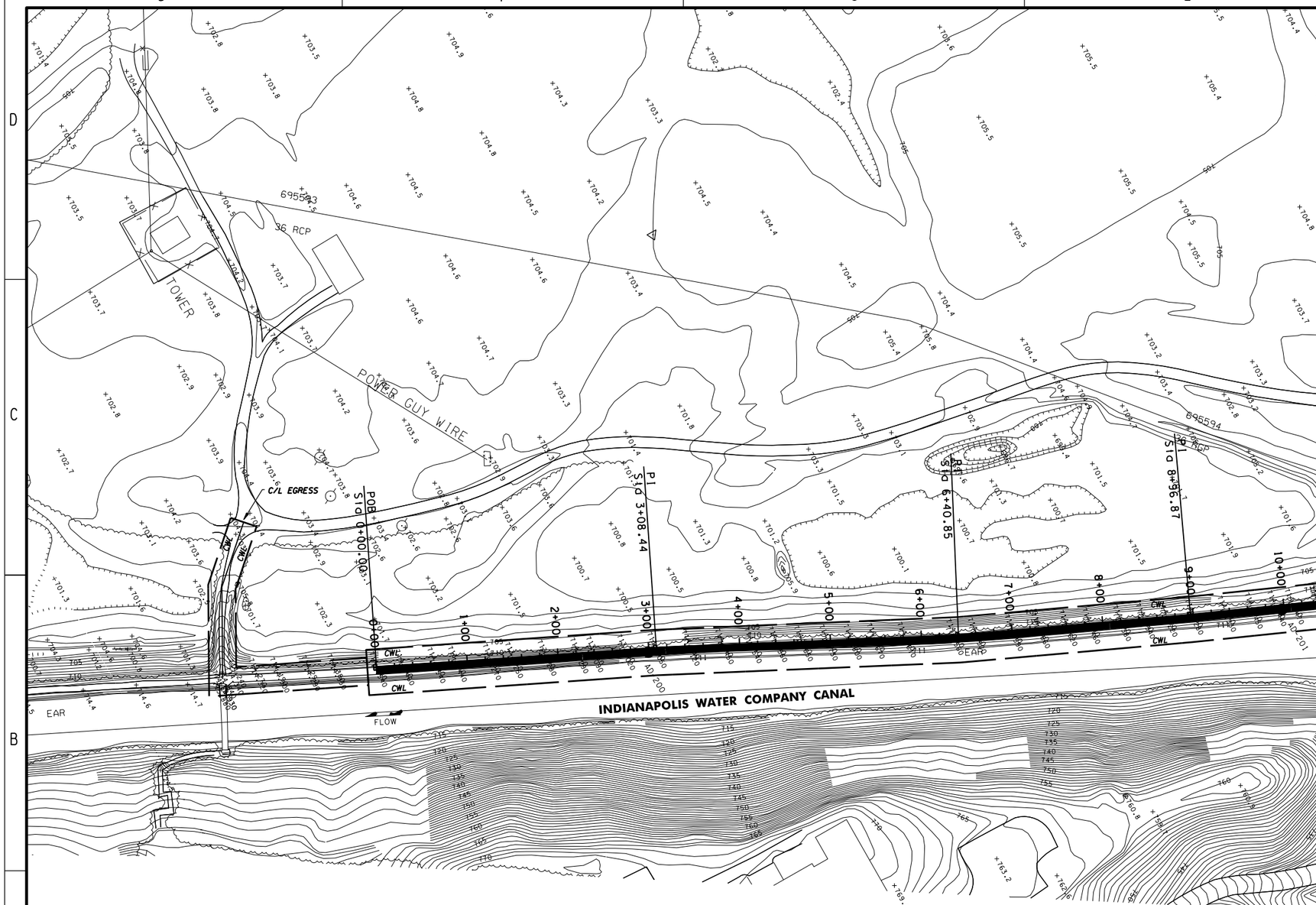
INDIANAPOLIS, WHITE RIVER NORTH
FLOOD DAMAGE REDUCTION PROJECT
PHASE 3B

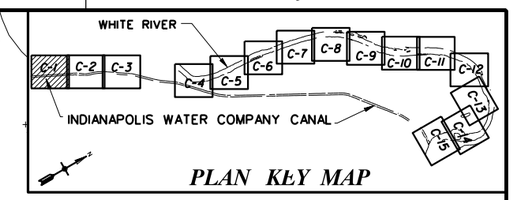
BORING LOGS
AD-312

Designed by: K. SCHAEFER
Drawn by: C. ROBINSON
Checked by: C. NEUTZ
Project Engineer/ Architect: B. JENNINGS, P.E.
Date
Scale:
Date: SEPT. 2010
Drawing Code: WW 238-12.3
Sheet reference number: G-26
Sheet 177 of 191

READY TO ADVERTISE

DATE: 29-AUG-2011 07:28
FILE: \\lrl-dfs1\organization\ED2\Public\CAD\civil\ina9\CADD\ina9g026.dgn





NOTES:

1. SHEETPILE W/ TEXTURED CONCRETE CAP OR MODIFIED SHEETPILE I-WALL W/ TEXTURED CONCRETE FORM LINER STA. 0+00 - 26+32±, 26+80± - 32+16± 32+66± - 34+70.
2. NO WORK STA. 26+32± - 26+80± (52nd ST.).
3. SANDBAG CLOSURE STA.32+16± - 32+66± (53rd ST.)
4. FOR TYPICAL SECTION, SEE SHEET C-20.
5. FOR PROFILE, SEE SHEET C-16.

CONTRACTOR WORK LIMITS LEGEND

CWL

50 0 50 100'
SCALE: 1"=50'

Revisions			
Symbol	Descriptions	Date	Approved

ALL DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO 1/2 THE ORIGINAL SCALE

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

Designed by: C. JONES, J. EMLY
Drawn by: D. SHAFFER, C. ROBINSON
Checked by: M. KING

US Army Corps of Engineers

METRO INDIANAPOLIS NORTH
LOCAL FLOOD PROTECTION PROJECT
PHASE III

INDIANAPOLIS WATER COMPANY CANAL TOWPATH

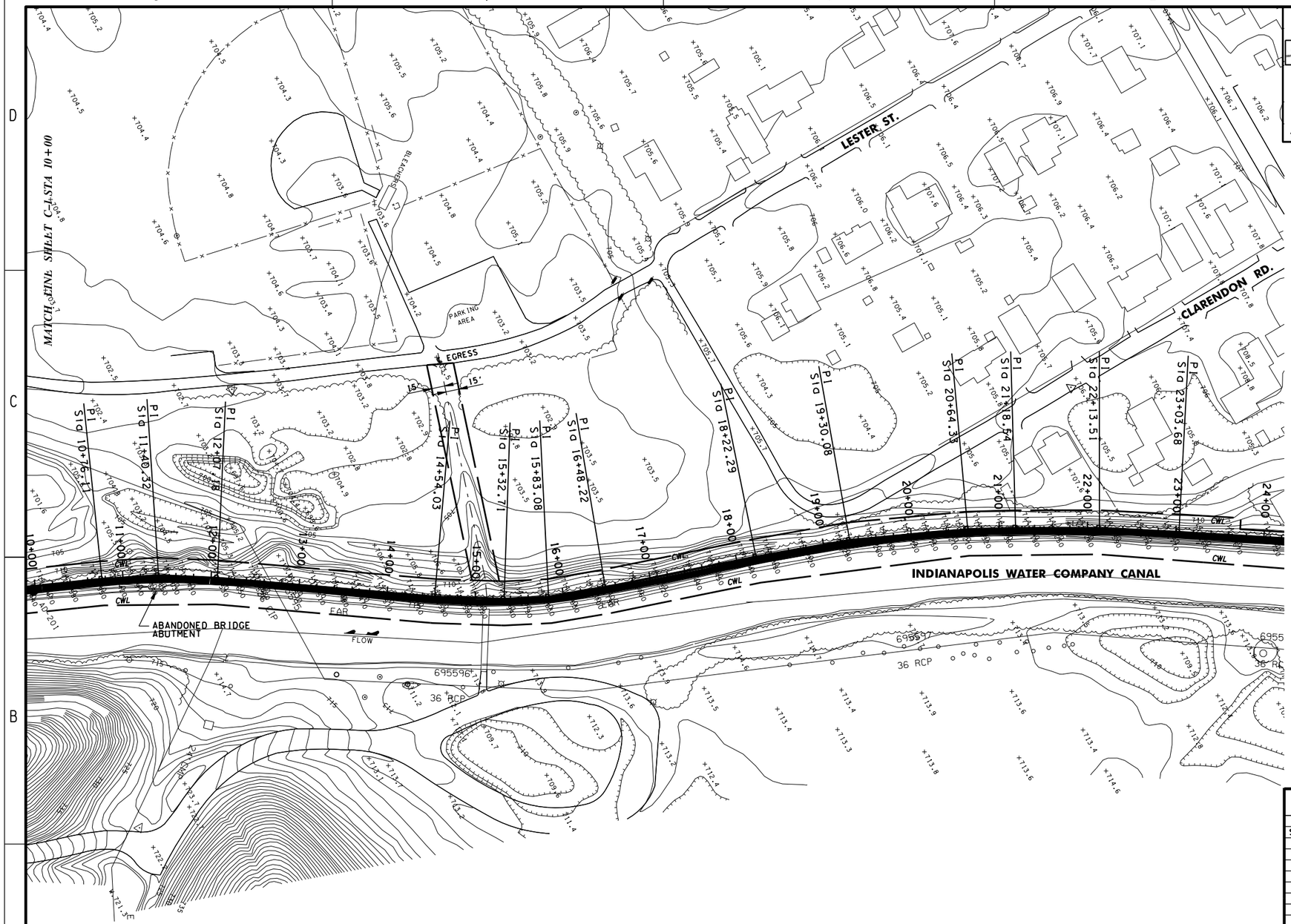
PLAN

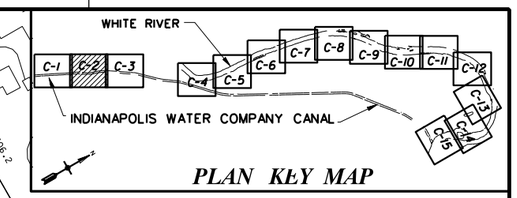
PERMIT COPY

Scale: 1"=50'
Date: JAN 99
Drawing Code:
Sheet reference number: C-1
Sheet ____ of ____

IN-PROGRESS P & S

Plot Date: FILE: S:°proj°ina4°INA4C01.dgn
DATE: 13-Jan-99 15:55





NOTES:

1. SHEETPILE W/ TEXTURED CONCRETE CAP OR MODIFIED SHEETPILE I-WALL W/ TEXTURED CONCRETE FORM LINER STA. 0+00 - 26+32±, 26+80± - 32+16± 32+66± - 34+70.
2. NO WORK STA. 26+32± - 26+80± (52nd ST.).
3. SANDBAG CLOSURE STA.32+16± - 32+66± (53rd ST.)
4. FOR TYPICAL SECTION, SEE SHEET C-20.
5. FOR PROFILE, SEE SHEET C-16.

CONTRACTOR WORK LIMITS LEGEND

CWL

50 0 50 100'
SCALE: 1"=50'

Revisions			
Symbol	Descriptions	Date	Approved

ALL DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO 1/2 THE ORIGINAL SCALE

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

Designed by: C. JONES, J. EMLY
Drawn by: D. SHAFFER, C. ROBINSON
Checked by: M. KING

US Army Corps of Engineers

METRO INDIANAPOLIS NORTH
LOCAL FLOOD PROTECTION PROJECT
PHASE III

INDIANAPOLIS WATER COMPANY CANAL TOWPATH

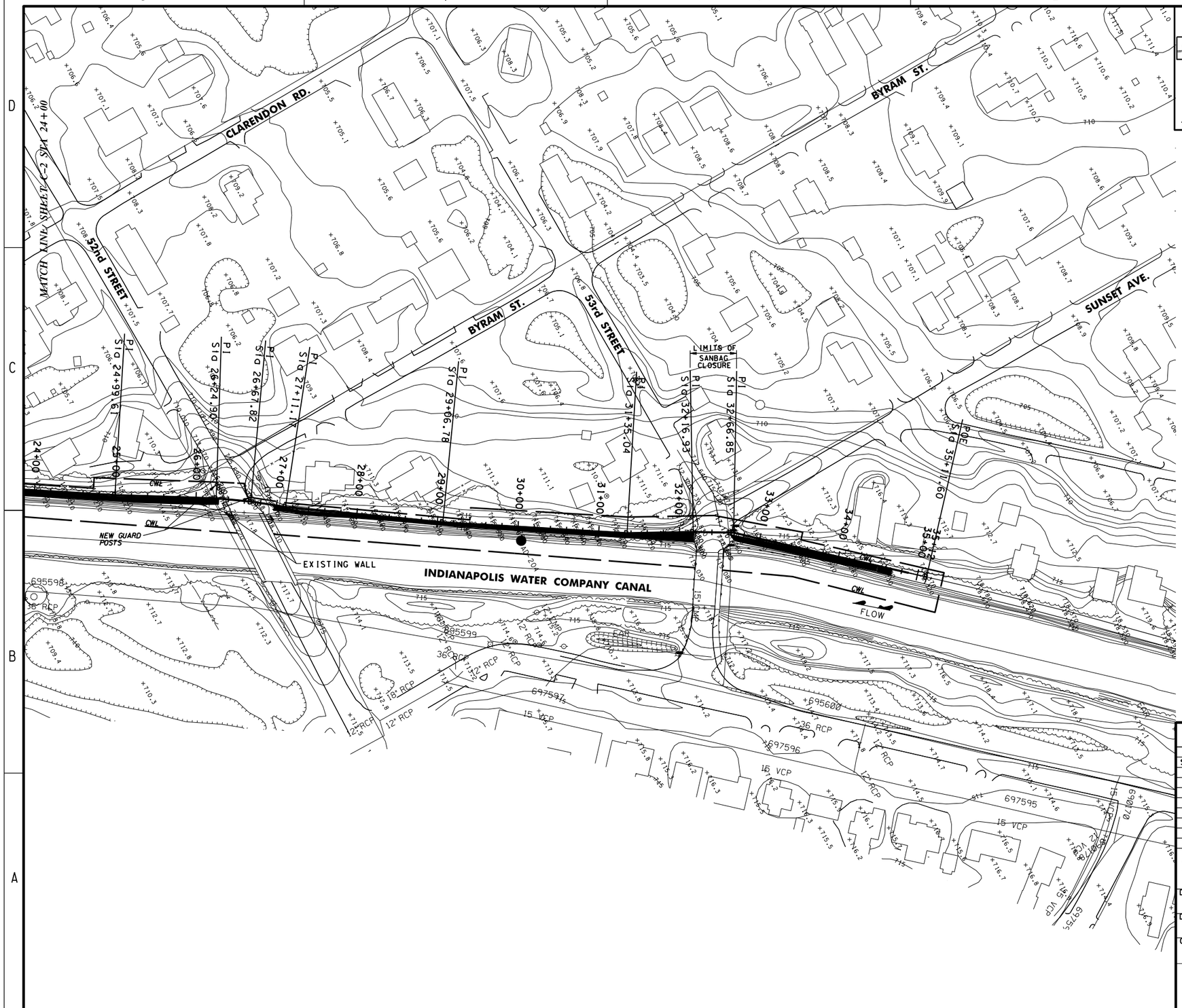
PLAN

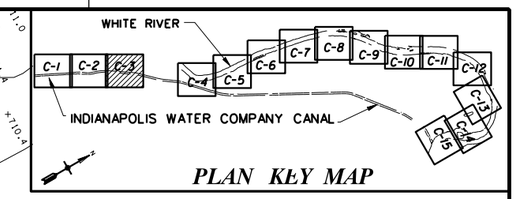
PERMIT COPY

Scale: 1"=50'
Date: JAN 99
Drawing Code:
Sheet reference number: C-2
Sheet ____ of ____

IN-PROGRESS P & S

Plot Date: FILE: S:°proj°ina4°INA4C02.dgn
DATE: 13-Jan-99 15:55





NOTES:

1. SHEETPILE W/ TEXTURED CONCRETE CAP OR MODIFIED SHEETPILE I-WALL W/ TEXTURED CONCRETE FORM LINER STA. 0+00 - 26+32±, 26+80± - 32+16± 32+66± - 34+70.
2. NO WORK STA. 26+32± - 26+80± (52nd ST.).
3. SANDBAG CLOSURE STA.32+16± - 32+66± (53rd ST.)
4. FOR TYPICAL SECTION, SEE SHEET C-20.
5. FOR PROFILE, SEE SHEET C-16.

CONTRACTOR WORK LIMITS LEGEND

CWL

50 0 50 100'
SCALE: 1"=50'

Revisions			
Symbol	Descriptions	Date	Approved

ALL DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO 1/2 THE ORIGINAL SCALE

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

Designed by: C. JONES, J. EMLY
Drawn by: D. SHAFFER, C. ROBINSON
Checked by: M. KING

US Army Corps of Engineers

METRO INDIANAPOLIS NORTH
LOCAL FLOOD PROTECTION PROJECT
PHASE III

INDIANAPOLIS WATER COMPANY CANAL TOWPATH

PLAN

PERMIT COPY

Scale: 1"=50'
Date: JAN 99
Drawing Code:
Sheet reference number: C-3
Sheet ____ of ____

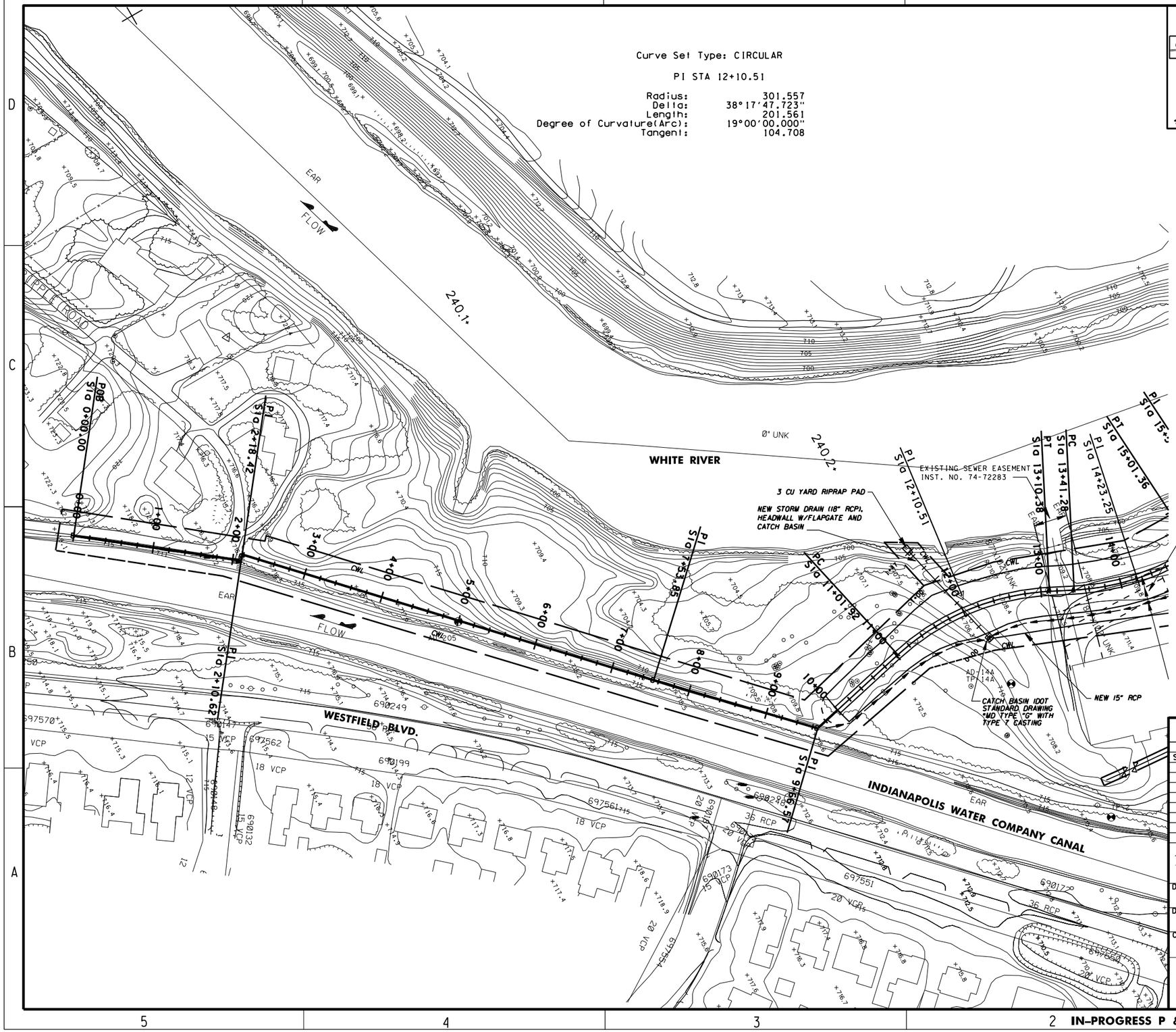
IN-PROGRESS P & S

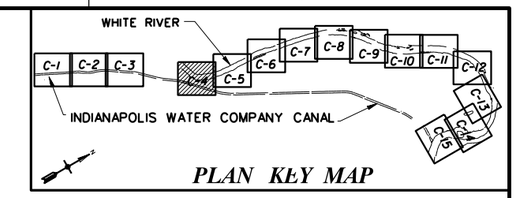
Plot Date: FILE: S:°proj°ind4°INA4C03.dgn
DATE: 13-Jan-99 15:56

Curve Set Type: CIRCULAR

PI STA 12+10.51

Radius:	301.557
Delta:	38°17'47.723"
Length:	201.561
Degree of Curvature(Arc):	19°00'00.000"
Tangent:	104.708





NOTES:

1. SHEET PILING W/ TEXTURED CONCRETE CAP STA. 0+00 - 5+00 FOR TYPICAL SECTION, SEE SHEET C-20
2. MODIFIED SHEETPILE I-WALL W/ TEXTURED CONCRETE FORM LINER STA. 5+00 - 10+00 FOR TYPICAL SECTION SEE SHEET C-20
3. EARTH LEVEE STA. 10+00 - 15+56±. FOR TYPICAL SECTION SEE SHEET C-20
4. ALIGNMENT, PROFILE AND STATIONING BASED ON ℄ OF PROTECTION (WALL OR LEVEE)
5. REMOVE SEPTIC TANK LEACH FIELD, LINES AND GRAVEL WITHIN THE LIMITS OF THE INSPECTION TRENCH OF LEVEE.
6. FOR TYPICAL SECTIONS, SEE SHEET C-20

LEGEND

CWL — CONTRACTOR WORK LIMITS

12" TOE DRAIN

50 0 50 100'
SCALE: 1"=50'

Revisions			
Symbol	Descriptions	Date	Approved

ALL DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO 1/2 THE ORIGINAL SCALE

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

Designed by: C. JONES, J. EMLY
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Checked by: M. KING

US Army Corps of Engineers

METRO INDIANAPOLIS NORTH
LOCAL FLOOD PROTECTION PROJECT
PHASE III

WARFLEIGH
SOUTH WARFLEIGH SECTION
PLAN

PERMIT COPY

Scale: 1"=50'
Date: JAN 99
Drawing Code:
Sheet reference number: C-4
Sheet ____ of ____

IN-PROGRESS P & S

Plot Date: FILE: S:°proj°ina4°INA4C04.dgn
DATE: 13-Jan-99 15:56

BORING NO. AD-200

PROJECT INDY NORTH, TOW PATH SECTION
DATE START: 09/17/98 COMPLETE: 09/17/98
LOCATION: N 0 E 0
DRILLING AGENCY FMSM
DRILLER: CANTRILL INSPECTOR: CROUCH
DRILL TYPE: CME 45C #2
DRILL METHOD: AUGER & SPT
THICKNESS OF OVERBURDEN: 29.0
DEPTH CORED INTO ROCK: 0.5
TOTAL DEPTH OF BORING: 29.5'
DIR. OF BORING X VERT. _INCLINED__ DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 714.20'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
714.2	SURFACE COVER-									
713.9	DGA	GW								
						A				1
										2
	FILL: Brown silty CLAY w/ DGA, moist, STIFF to VERY STIFF	F	11 6 6	1.20	1	DS				3
						A				4
			6 8 8	0.95	2	DS				5 6
707.2						A				7
			2 3 3	0.30	3	DS		▽		8 9
						A				10
			2 4 4	0.40	4	DS				11
						A				12
			3 5 6	1.20	5	DS				13 14
						A				15
	Brown to gray silty CLAY w/ tr. sand, moist, MED STIFF to V STIFF	CL	3 7 9	1.10	6	DS				16
						A				17
			4 7 9	1.30	7	DS				18 19
						A				20
			2 2 3	0.90	8	DS				21
						A				22
			7 7 7	1.20	9	DS				23 24
689.7						A				25
	Weathered SHALE, moist, HARD	SH	10 14 26	0.85	10	DS				26
						A				27
			0 0 0	1.30	11	DS				28 29
685.2										
684.7	TOP OF ROCK									

BORING TERMINATED

SYMBOLS: ▽ - WATER LEVEL AT COMPLETION

>-PARTIAL LOSS OF DRILL FLUID

SHEET 1 OF 1

BORING NO. AD-200

BORING NO. AD-201

PROJECT INDY NORTH, TOW PATH SECTION
DATE START: 09/17/98 COMPLETE: 09/17/98
LOCATION: N 0 E 0
DRILLING AGENCY FMSM
DRILLER: CANTRILL INSPECTOR: CROUCH
DRILL TYPE: CME 45C #2
DRILL METHOD: AUGER & SPT
THICKNESS OF OVERBURDEN: 26.9
DEPTH CORED INTO ROCK: 0.6
TOTAL DEPTH OF BORING: 27.5'
DIR. OF BORING X VERT. _INCLINED__ DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 714.40'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
714.4	SURFACE COVER-									
714.1	DGA	GW								
						A				1
	Gray silty sandy GRAVEL	GM								2
711.2			6 5 6	1.10	1	DS				3
						A				4
			3 3 5	0.90	2	DS				5 6
						A				7
			2 2 3	1.00	3	DS				8 9
						A				10
			1 2 3	0.80	4	DS				11
	Brown sandy silty CLAY w/ tr. gravel fragments, moist, MED STIFF to V STIFF	CL								12
			3 4 3	0.90	5	DS		▽		13 14
						A				15
			4 4 7	1.00	6	DS				16
						A				17
			7 7 9	1.10	7	DS				18 19
694.9						A				20
	Clayey SAND	SC	6 11 13	0.90	8	DS				21
693.5						A				22
			5 9 5	1.30	9	DS				23 24
	Gray mottled silty CLAY, moist, STIFF to HARD	CL/ CH								25
			9 14 28	1.10	10	DS				26
687.5										27
686.9	TOP OF ROCK									

BORING TERMINATED

SYMBOLS: ▽ - WATER LEVEL AT COMPLETION

>-PARTIAL LOSS OF DRILL FLUID

SHEET 1 OF 1

BORING NO. AD-201

BORING NO. AD-202

PROJECT INDY NORTH, TOW PATH SECTION
DATE START: 09/17/98 COMPLETE: 09/17/98
LOCATION: N 0 E 0
DRILLING AGENCY FMSM
DRILLER: CANTRILL INSPECTOR: CROUCH
DRILL TYPE: CME 45C #2
DRILL METHOD: AUGER & SPT
THICKNESS OF OVERBURDEN: 24.0
DEPTH CORED INTO ROCK: 0.4
TOTAL DEPTH OF BORING: 24.4'
DIR. OF BORING X VERT. _INCLINED__ DEG

INSTRUMENT INSTALLED NONE
SURFACE ELEVATION: 714.60'
DATUM FOR ELEVATION

ELEV.	SOIL CLASSIFICATION	USCS CLASSIFICATION	BLOWS PER 6-INCH	RECOVERY	SAMPLE NUMBER	SAMPLE TYPE	MOISTURE CONTENT (%)	GROUNDWATER-FLUID LOSS	LABORATORY RESULTS AND REMARKS	DEPTH SCALE (FT)
714.6	SURFACE COVER-									
714.2	DGA	GW								
						A				1
			2 4 4	0.50	1	DS				2 3
	Coarse SAND, moist, LOOSE	SP				A				4
			2 3 4	0.70	2	DS				5 6
						A				7
			4 4 6	1.10	3	DS				8 9
706.0						A				10
	Brown clayey SAND w/ tr. gravel, moist, MED DENSE	SC	5 5 9	0.90	4	DS				11
702.6						A				12
			0 0 0	1.00	5	DS		▽		13 14
						A				15
	Brown coarse SAND w/ tr. gravel, moist, MED DENSE	SP/ SW	8 10 10	1.20	6	DS				16
						A				17
696.5			6 11 11	1.30	7	DS				18 19
						A				20
	Brown to gray sandy silty CLAY w/ tr. gravel fragments, moist, V STIFF to HARD	CL	16 17 24	0.90	8	DS				21
						A				22
691.1			6 7 24		9	DS				23 24
690.6	Brown weathered SHALE, moist, HARD	SH								
690.2	TOP OF ROCK									

BORING TERMINATED

SYMBOLS: ▽ - WATER LEVEL AT COMPLETION

>-PARTIAL LOSS OF DRILL FLUID

SHEET 1 OF 1

BORING NO. AD-202

Revisions			
Symbol	Descriptions	Date	Approved

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

Designed by: W. E. HOARD
Drawn by:
Checked by:
Project Engineer/ Architect
W.E. HOARD, P.E. Date

US Army Corps of Engineers

METRO INDIANAPOLIS NORTH
FLOOD DAMAGE REDUCTION PROJECT
SOUTH WARFLEIGH AND CANAL TOWPATH
PHASE IIIB

BORING LOGS

AD-200, AD-201, AD-202

Scale: NONE
Date: JULY 2006
Drawing Code: WW 238-12.3
Sheet reference number: G-6
Sheet ____ of XXX

IN-PROGRESS

FILE: S:°proj°ina9°CADD°ina9g006.dgn
DATE: 14-Apr-20 08:47