OHIO TURNPIKE AND
INFRASTRUCTURE COMMISSION

ADDENDUM NO. 3

PROJECT NO. 43-19-07
BRIDGE REHABILITATION AND 3RD LANE WIDENING
OHIO TURNPIKE OVER AI CREEK M.P. 47.4,
OHIO TURNPIKE OVER S.R. 64 (N. MAIN ST.) M.P. 47.5
MILEPOST 46.50 TO MILEPOST 50.92
FULTON AND LUCAS COUNTIES, OHIO

PREVIOUSLY EXTENDED TO 2:00 P.M. (EASTERN TIME), JANUARY 10, 2019

ATTENTION OF BIDDERS IS DIRECTED TO:
ANSWERS TO QUESTIONS RECEIVED THROUGH 1:30 P.M. ON DECEMBER 27, 2018
-AND-
MODIFICATIONS TO THE CONTRACT DOCUMENTS
Plan Sheets: 1, 18, 19, 109, 111, 112, 115, 116, 117, 118, 133, 134, 154, 155, 164, 165 and 172 of 349
-AND-
Special Provisions: SP 103
-AND-
Supplemental Specifications: SS832 (January 17, 2014)
-AND-
Contract Form: OTIC-CF-2
-AND-
Bid Schedule of Items and Estimated Quantities Worksheet
Ref. Nos.: 3, 6, 10, 16, 17, 76, 77, 82, 83, 94, 103, and 116
-AND-
BORING LOGS

Issued by the Ohio Turnpike and Infrastructure Commission by Anthony D. Yacobucci, Chief Engineer, and Mark R. Musson, Director of Contracts Administration.

Anthony D. Yacobucci 12/27/18 Date

Mark R. Musson 12/27/18 Date

ANSWERS TO QUESTIONS RECEIVED THROUGH 1:30 P.M. ON DECEMBER 27, 2018:

Q#15 Would it be permissible to place construction access points between the structures for Phases 3 & 4?

A#15 The Commission amends the Bid Schedule of Items and Estimated Quantities Worksheet through Addendum No. 3 to provide for the "Temporary Access Deduct Alternate" Credit discussed in Addendum No. 2.

Q#18 Please provide all available bridge and roadway soil borings.

A#18 Soil Borings provided in accordance with IB. Art. 7.3.1 with this Addendum No. 3 are as follows: Three original Ohio Turnpike Projects (C-49, C-50 and C-51) and Resource International Report N-14-020(11) (3rd Lane/Median borings). No new borings were taken at the bridge locations. The original borings were used to design the bridge foundations.

Q#20 Page 134 Please clarify where D-1 is not shown on the Plan and Profile

A#20 This Addendum No. 3 revises Plan Sheet 134 of 349 to reflect the location of D-1. No quantity revisions are required as a result of this revision.

Q#21 D-12 on sheet 139/349 shows an existing 15" cross over pipe, and Sheet 172 shows a 18" pipe? please confirm pipe size.

A#21 This Addendum No. 3 revises Plan Sheets 111, 116, 117 and 172 of 349; and Ref Nos. 82 and 83 on the *Bid Form and Estimated Quantities Worksheet to reflect that the existing and proposed conduit is 15" diameter.*

Q#22 D-55 on sheet 147 It appears that the 50' of Bore and Jack pipe is not enough length to get under both the ramp and the mainline pavements. How is pavement removed and replaced being paid for.

A#22 The 50' bore is of sufficient length because the ramp pavement is currently not used and will be removed in a future project. Necessary pavement removal can be performed using the quantities provided on Plan Sheet 19 of 349. Pavement replacement is not necessary. This Addendum No. 3 revises Plan Sheets 19, 109 and 112 of 349; and Ref Nos. 10, 103 and 116 on the *Bid Form and Estimated Quantities Worksheet to revise quantities.*

Q#23 The Ref. No. show on sheet 154 of the plan and profile at station 126+64 shows D-70. Should this be D-71

A#23 This Addendum No. 3 revises Plan Sheets 109, 111, 117, and 154 of 349; and Ref Nos. 3, 6, 82 and 94 on the *Bid Form and Estimated Quantities Worksheet to add the items of work associated with the new drainage Reference D-74 for the inlet and 15" conduit at STA 126+94.*

Q#24 Inlet at station 126+94 is missing the quantity for the 15" outlet pipe (4') and also the removal of this pipe

A#24 See the response to Q#23.

Q#25 Inlet shown at station 129+75 is missing from the Sub Summary page

A#25 The inlet at Sta. 129+75 and the conduit from Sta. 126+94 to Sta. 129+75 are included in Reference D-70.

Q#26 X-Section sheet 164 Please review stations 1299+00 and 1300+00. It appears that the area in the center is listed as a fill, in the end area calculation and should be listed as a cut.

A#26 This Addendum No. 3 revises Plan Sheets 109, 115, 164 and 165 of 349; and Ref Nos. 16 and 17 on the *Bid Form and Estimated Quantities Worksheet to revise the cut and fill quantities.*

Q#27 Please review the completion date for this project, looking at some of the major items of work you have 252 shifts. If the contractor is allowed to start work on February 1st there is 259 calendar days to the October 18th completion date. Per SP120A you are to build 42 weather days into your schedule from February to October, leaving you with 217 days to complete work on this project. Also, holiday restrictions could potentially cut this down by another 14 days.

A#27 As stated in SP 103, "It shall be noted that in order to meet the above referenced dates, the Contractor may be required to Work additional shifts and/or extended hours as well as periodic holidays and weekends. These additional forces shall be included in their Bid and there shall be no additional cost to the Commission."

This Addendum No. 3 revises SP 103 to provide two (2) additional weeks to SP 103D, SP 103E and SP 103F.

Q#28 Will the guardrail height need to be adjusted after placing Class A, Type 2 Pavement on the existing shoulder? If so, please add a bid item for this work.

A#28 Guardrail height will not be adjusted after placing the Class A, Type 2 Pavement on the existing shoulder.

Q#29 Please provide more detail for Ref. 97 – Covering of Existing Catch Basin Grate. There are no notes or details for this work in the plan set.

A#29 This Addendum No. 3 revises Plan Sheets 18 and 109 of 349 to add a general note to describe the work required for this item. No quantity revisions are required as a result of this revision.

Q#30 Can ODOT asphalt mixes be used in lieu of OTIC asphalt mixes called out in OTIC Standard Drawing XOV-2?

A#30 Yes. In lieu of OTIC asphalt mixes, flexible mixes as specified in ODOT 615 may be used to construct crossovers in accordance with OTIC Standard Drawing XOV-2. The Contractor may substitute Item 441 – Asphalt Concrete Surface Course, Type 1, PG 64-22 (1-3/4") for SP 404 - Asphalt Concrete Surface Course Using Crushed Stone, PG 64-22 (1-3/4"). The Contractor may substitute Item 441 – Asphalt Concrete Intermediate Course, Type 2, PG 64-22 (2") for SP 402 - Asphalt Concrete Intermediate Course, PG 64-22 (2"). The Contractor may substitute Item 302 – Asphalt Concrete Base, PG 64-22 (5") for SP 302 - Asphalt Concrete Base, PG 64-22 (5")

Q#31 Sheet 1 of the plans calls out ODOT Supplemental Specification 832 dated 10/19/18. This version of the supplemental spec requires the use of SWPPPTrack Software. Is the intent to mandate the Contractor use SWPPPTrack and the current ODOT 832 inspection requirements?

A#31 The intent of the Project is to utilize the January 17, 2014 version of SS 832 which does not require the use of SWPPPTrack software. The entire Supplemental Specification 832, dated Janyuary 17, 2014, is included as part of this Addendum No. 3 and the Title Sheet is modified accordingly.

Q#32 This project bids on January 4, 2019. The Commission's Award/Resolution meeting is scheduled for January 28, 2019. SP103 Items A through C are all time-sensitive milestone dates for starting work on this project (item A calls for the NTP upon receipt of fully executed contract, item B calls for Baseline Schedule submitted within 14 days of NTP and accepted within 30 calendar days of NTP, and item C gives early access to the contractor on February 1, 2019 based on items A and B being in complete order. Will the Commission consider an earlier special award meeting date for this contract in order to give this schedule-critical project an opportunity for the February 1, 2019 start date?

A#32 Through this Addendum No. 3, the Commission modifies the Form Contract to provide that Liquidated Damanges will not commence for failure to submit an acceptable baseline schedule until 31 days after the Notice to Proceed issues. This change allows the Contractor to commence work onsite before submitting an acceptable baseline schedule without incurring Liqudiated Damages. Staff anticiapates the Commission approving authorization to select the Contractor at its meeting on January 28, 2019 after the meeting's agenda is finalized and published on or

about January 22, 2019. The Commission will expedite contract execution; however, the burden remains on the selected bidder to timely fulfill the conditions precedent for contract execution identified in Instructions to Bidders Article 7.3.

Q#33 Is there lead paint on the existing bridges?

A#33 The Contactor shall assume there was or is lead paint on these bridges. Ref. Nos. 197 to 201 on the Bid Form and Estimated Quantities Worksheet are provided for SP 525A Lead Paint Removal on both bridges.

Q#34 Can we use QC2 concrete in lieu of HP4 as has been considered on recent projects?

A#34 Class QC2 concrete is acceptable as a replacement for Class HP4 concrete at no additional cost to the Commission. Where appearing throughout the Contract Documents "Class HP 4 Concrete" is supplemented with "or Class QC2 Concrete" through this Addendum No. 3. All applicable provisions of Item 511 of the Specifications shall apply except as modified in SP 511B for both HP4 and QC2.

Q#35 According to Standard Drawing CR-2, apply SP404A to the face of new barrier wall. The typical sections do not show SP404A at the barrier wall. If required, this will add over 40,000 ft of joint sealer. Will this be added to the contract quantity?

A#35 The SP 404A joint seal specified in Standard Drawing CBR-2 is included in the unit price bid for Concrete Barrier, Single Slope, Type B-50 and Type C-50, As Per Plan.

Q#36 The structural steel details for both structures show new 3/8" x 5" stiffener plates and MC18x42.7 diaphragms being installed on and between the existing beams. Will the Commission be providing all new stiffener plates and diaphragms? Which stiffener plates are being shop welded and which stiffener plates are being shipped loose to the project? Are all of the existing stiffener plates on Beams E, F, N, & P to be completely removed and replaced with new stiffener plates?

A#36 The Commission will provide new stiffener plates and MC18x42.7 diaphragms for all locations where new stiffener plates and diaphragms are shown in the Plans. Stiffener plates will be shop welded to proposed beams only. Stiffener plates to be attached to existing beams will be shipped loose. All existing stiffener plates in the bays between existing beams E and F and existing beams N and P are to be removed and replaced.

Q#37 The flange plate details for both structures show the 3/4" x 11" x 12-1/2" plate being attached to the proposed beams with a 5/16" fillet weld in the field, can the Commission confirm that this plate will be shipped loose to the project by the fabricator?

A#37 The flange plates will be shop welded to the rocker bearings by the rocker bearing fabricator.

Q#38 Will the Commission's fabricator be shop drilling all of the bolt holes for the field splices and diaphragm connections? If so who will be responsible for any field modifications required to ensure proper fit up of the beams and diaphragms?

A#38 The Commission's fabricator will be shop drilling all bolt holes in the proposed beams, diaphragms, and stiffener plates. The Contractor will be responsible for any modifications required for fit-up in the field. If, in the opinion of the Chief Engineer, the required modifications are caused by the Commission's fabricator, the modifications may be eligible for extra compensation, but only with the prior approval of the Chief Engineer.

Q#39 The existing beams have bolted field splices at the Piers, how are the stiffener plates for the Pier Diaphragms to be installed at these locations?

A#39 The existing diaphragm stiffener plates at the piers are offset approximately 8" from the center of the splice per the existing plans. The proposed diaphragm stiffener plates at the pier may be installed in approximately same location as the existing diaphragm stiffener plates.

Q#40 Standard drawing XOV-2 note 1, states that the following item will be paid separately from the crossover. SP611 12" conduit Type B 707.33, and 605 6" pipe underdrains with fabric Wrap (30") no quantities are in the bid form for these items of work?

A#40 This Addendum No. 3 revises Plan Sheets 111, 118, 133, 134 and 155 of 349; and Ref Nos. 76 and 77 on the *Bid Form and Estimated Quantities Worksheet to add underdrain quantities associated with the XOV-2 Standard Drawing. The 12" Conduit, Type B, 707.33 is not required for the crossover at MP 46.23 or MP 51.03. Any proposed drainage required for these crossovers has been shown and paid for under the roadway plans.*

To clarify the payment for the various items related to the construction of the crossovers, the pavement, including aggregate and sand layers, will be paid for as Pavement for Maintaining Traffic, Class A, Type 1, As Per Plan. Any earthwork required for the construction of the crossover will be paid for under Roads for Maintaining Traffic.

MODIFIED CONTRACT DOCUMENTS

With this Addendum No. 3, the Commission substitutes the enclosed material for the following Contract Documents:

Plan Sheets: 1, 18, 19, 109, 111, 112, 115, 116, 117, 118, 133, 134, 154, 155, 164, 165, and 172 of 349 with additions to the Plan Drawings are called out with a cloud and a revision triangle as thus:

Supplemental Specifications: SS832, dated January 17, 2014

Special Provisions: SP 103

Contract Form: OTIC-CF-2

With this Addendum No. 3, the Commission modifies the Bid Schedule of Items for the following Reference Numbers: 3, 6, 10, 16, 17, 76, 77, 82, 83, 94, 103, and 116.

Receipt of Addendum No. 3
Project No. 43-19-07 is hereby acknowledged:

(Firm Name) _____

(Signature) _____

(Printed Name) _____

(Date) _____

BIDDERS MUST RETURN THE ABOVE ACKNOWLEDGEMENT OF RECEIPT OF ADDENDUM NO. 3 WITH THEIR BID.

THE OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

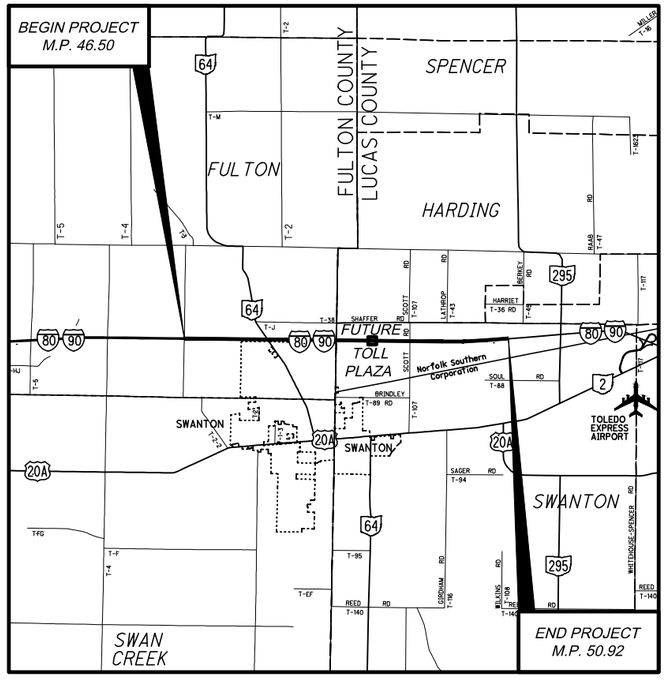
JAMES W. SHOCKNESSY OHIO TURNPIKE

OHIO TURNPIKE AND INFRASTRUCTURE STANDARD DRAWINGS					
AS-1	09-19-18	DJ-1	10-20-17	TC-1	10-20-17
CB-1	10-20-17	DJ-2	10-20-17	TC-3	10-20-17
CB-2	10-20-17				
CB-3	10-20-17	DR-1	10-20-17	TCB-1	10-20-17
CB-4A	09-19-18				
CB-5A	09-19-18	F-1	10-20-17	TCR-1	10-20-17
				TCR-2	10-20-17
CBR-1	06-25-07			TCR-9	10-20-17
CBR-2	09-19-18			TCR-11MZ	10-20-17
CBR-3	06-25-07			TCR-11PS	10-20-17
		RPM-1	10-20-17	TCR-12	10-20-17
				TCR-14	10-20-17
		SBR-50	09-19-18	TCR-15	10-20-17
		UD-1	09-19-18		
				XOV-2	10-15-18
				XOV-4	10-15-18

OHIO DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS					
BP-3.1	7/18/2014	MT-95.30	7/21/2017	TC-21.10	7/21/2017
BP-5.1	7/20/2018	MT-95.31	7/21/2017	TC-21.20	7/20/2018
		MT-95.40	1/20/2017	TC-21.50	7/15/2016
CB-1.1	7/20/2018	MT-95.70	7/20/2018	TC-41.20	10/18/2013
CB-3.3	1/15/2016	MT-97.10	7/18/2014	TC-42.20	10/18/2013
		MT-99.30	1/19/2018	TC-52.20	7/20/2018
MH-1.2	1/15/2016	MT-100.00	1/15/2016	TC-61.10	1/17/2014
		MT-101.60	1/20/2017		
DM-1.1	7/21/2017	MT-101.70	7/20/2018		
DM-4.3	1/15/2016	MT-101.75	7/15/2016		
DM-4.4	1/15/2016	MT-101.90	7/21/2017		
		MT-102.10	1/20/2017		
F-3.1	7/19/2013	MT-105.10	7/19/2013		
F-3.3	7/19/2013				
F-3.4	7/19/2013				
MGS-1.1	1/19/2018				
MGS-2.1	1/19/2018	PCB-91	1/18/2013	SUPPLEMENTAL SPECIFICATIONS	
MGS-3.1	1/19/2018	RB-1-55	7/19/2013		
MGS-3.2	1/18/2013	SBR-1-13	7/20/2018	800	10/19/2018
MGS-4.2	7/19/2013			821	4/20/2012
MGS-4.3	1/18/2013			832	1/17/2014 2
				861	1/16/2015
				921	4/20/2012
RM-1.1	4/18/2014				
RM-4.2	4/18/2014			SUPPLEMENT	
				1122	7/20/2018

PROJECT NO. 43-19-07
BRIDGE REHABILITATION AND 3RD LANE WIDENING

OHIO TURNPIKE OVER AI CREEK M.P. 47.4,
OHIO TURNPIKE OVER S.R. 64 (N. MAIN ST.) M.P. 47.5
MILEPOST 46.50 TO MILEPOST 50.92
FULTON AND LUCAS COUNTIES, OHIO



INDEX OF SHEETS

APPROVED FOR
THE OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION
BY
CHIEF ENGINEER
12-6-18
DATE

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
OR 811 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OHIO OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE CALL: 614-715-2984 OR 811

OTIC DIVISION TRADES SUPERVISOR:
440-971-2731 - WEST (M.P. 0.0 - M.P. 126.4)
440-971-2781 - EAST (M.P. 126.4 - M.P. 241.26)

ENGINEERS SEAL:
ROADWAY

STATE OF OHIO · WILLIAM D. BAKER, JR. · 59412 · REGISTERED PROFESSIONAL ENGINEER

SIGNED:
DATE: 12/6/18

ENGINEERS SEAL:
STRUCTURES

STATE OF OHIO · KENNETH J. JANSING, JR. · 70388 · REGISTERED PROFESSIONAL ENGINEER

SIGNED:
DATE: 12/06/2018

DESIGN CONTRACT:	71-18-02

PLAN PREPARED BY:
your trusted advisor consultants engineers architects planners

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 1	KPA	12/19/18
2	ADDENDUM NO. 3	KPA	12/27/18

C_180192 - Title Sheet.dwg; 12/27/18 - 1:16pm

DRAINAGE (CONTINUED)

SP 611 - 48" CONDUIT, TYPE A, 706.02, AS PER PLAN

THE WORK SHALL INCLUDE THE TEMPORARY WATER-TIGHT CONNECTION OF THE NEW CULVERT TO THE EXISTING CMP CULVERT AT THE PHASED CONSTRUCTION LIMITS. THE TEMPORARY CONNECTION SHALL BE ABLE TO BE REMOVED WITHOUT DAMAGE TO THE NEW CONDUIT. THE METHOD OF TEMPORARY CONNECTION SHALL BE APPROVED BY THE CHIEF ENGINEER.

THE WORK SHALL ALSO INCLUDE ANY NECESSARY GRADING AROUND THE PRECAST CONCRETE END SECTIONS.

SP 611 - CONDUIT, BORED OR JACKED, AS PER PLAN, SIZE, TYPE

THIS ITEM IS FOR THE INSTALLATION OF CONDUIT, OF THE TYPE AND SIZE SPECIFIED, IN A CASING PIPE, BY AUGER BORING OR JACKING. THE CONTRACTOR SHALL PROVIDE A 0.50-INCH UNGALVANIZED STEEL CASING PIPE CONFORMING TO 748.06 HAVING JOINTS WITH A CIRCUMFERENCIAL FULLY PENETRATING B-U4B WELD THAT IS PERFORMED BY AN O.D.O.T. APPROVED FIELD WELDER. THE SIZE OF THE CASING PIPE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE CHIEF ENGINEER.

NO EXCAVATION SHALL BE CLOSER THAN 8 FEET TO THE EDGE OF PAVEMENT.

DURING THE BORING OR JACKING OF THE CONDUIT, THE CONTRACTOR SHALL EXERCISE CARE TO ELIMINATE DISPLACEMENTS IN THE PAVEMENT, SUCH AS HEAVING OR SETTLEMENT. THE PAVEMENT SHALL BE MONITORED DURING AND AFTER THE BORING OR JACKING OPERATION UTILIZING A 10 FOOT STRAIGHT EDGE TO MEASURE, THE PAVEMENT SHALL BE MEASURED FOR ANY DISPLACEMENTS. A DISPLACEMENT IN THE PAVEMENT OF 1/8 INCH OR MORE IS UNACCEPTABLE. IN THE CASE OF UNACCEPTABLE DISPLACEMENT, THE CONTRACTOR SHALL IMMEDIATELY SUBMIT A PAVEMENT REPAIR PLAN TO THE CHIEF ENGINEER FOR APPROVAL. THE PAVEMENT REPAIR SHALL ELIMINATE THE 1/8 INCH OR MORE DISPLACEMENT OR REDUCE IT TO LESS THAN 1/8 INCH. UPON APPROVAL BY THE CHIEF ENGINEER, THE CONTRACTOR SHALL COMPLETE THE PAVEMENT REPAIR AS SOON AS POSSIBLE AND TO THE SATISFACTION OF THE CHIEF ENGINEER.

THE VOID BETWEEN THE CASING PIPE AND THE CARRIER PIPE SHALL BE FILLED WITH ITEM 613 - LOW STRENGTH MORTAR BACKFILL AND THE ENDS SEALED WITH A MASONRY BULKHEAD.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID PER FOOT OF SP 611, CONDUIT BORED OR JACKED, AS PER PLAN, SIZE, TYPE.

PAYMENT SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS DESCRIBED AND SHALL INCLUDE EXCAVATION AND BRACING OF BORING AND RECEIVING PITS, BACKFILLING, INSTALLATION OF THE CASING PIPE, CARRIER PIPE, FILLING AND BULKHEADING THE VOID AND PAVEMENT REPAIRS AS DIRECTED BY THIS NOTE AND ITEM.

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 503.03, THIS ITEM SHALL CONSIST OF THE CONTRACTOR DESIGNING AND INSTALLING THE NECESSARY EXCAVATION BRACING FOR REPLACEMENT OF THE CULVERT AT MP 49.34 AND PREPARING PLANS IN ACCORDANCE WITH ODOT CMS 501.05. THIS DESIGN SHALL SUPPORT THE SIDES OF THE EXCAVATIONS ADJACENT TO THE MAINTAINED TRAFFIC LANES. THE LOCATIONS AND APPROXIMATE LIMITS OF THE EXCAVATION BRACING ARE SHOWN ON THE CULVERT DETAIL SHEET 254. THE TEMPORARY SUPPORT LOCATED BETWEEN PHASE LINES MAY BE LEFT IN PLACE TO BE USED IN BOTH ADJACENT PHASES; HOWEVER, THIS TEMPORARY SUPPORT SHALL BE REMOVED AFTER THE FINAL PHASE IS COMPLETE. PAYMENT FOR THE CONTRACTOR DESIGNED EXCAVATION BRACING SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN AND SHALL INCLUDE THE CONTRACTOR PROVIDING THE DESIGN IN ACCORDANCE WITH ODOT CMS 501.05, ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE WORK AS DESCRIBED ABOVE.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK REQUIRED TO INSTALL THE CULVERT IN PHASES:

ITEM 503 -- COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN 1 LUMP

SP 611 - CONDUIT MISC.: INTERNAL VIDEO INSPECTION

THIS ITEM SHALL CONSIST OF VISUAL INSPECTION OF PIPE SECTIONS BY MEANS OF A CLOSED-CIRCUIT VIDEO CAMERA. THIS WORK SHALL BE PERFORMED AFTER PIPE CLEANOUT AND PRIOR TO ANY WORK OR CONSTRUCTION INVOLVING THE EXISTING DRAINAGE SYSTEM.

EQUIPMENT

1. THE CONTRACTOR SHALL PROVIDE A CAMERA FOR THE INSPECTION WITH PAN AND TILT CAPABILITIES ALONG WITH LIGHTING SUITABLE TO ALLOW A CLEAR PICTURE OF THE ENTIRE PERIPHERY OF THE PIPE. THE CAMERA SHALL BE OPERATIVE IN 100 PERCENT HUMIDITY AND HAVE A SUITABLE MEANS OF PROPULSION INCLUDING TRACTOR, OR SKID AND WINCH.
2. THE RECORDED VIDEO SHALL HAVE THE CAPABILITY TO BE NARRATED AND/OR ANNOTATED WITH PRODUCTION OF DIGITAL PHOTOGRAPHS AS NECESSARY.

PROCEDURE

1. THE CONTRACTOR SHALL START THE INSPECTION AT THE UPSTREAM MANHOLE OR END WITH THE CAMERA LENS LOCATED AT THE CENTER OF THE PIPE. THE CONTRACTOR SHALL THEN MOVE THE CAMERA ALONG THE PIPE AT NO GREATER THAN 30 FEET PER MINUTE, STOPPING AS NECESSARY TO DOCUMENT THE LINE'S CONDITION AND LOCATIONS OF DEFECTS ANDS CONNECTIONS.
2. CONNECTIONS TO THE LINE SHALL BE TELEVISED TO NO LESS THAN SIX FEET, TO THE END OF A CAPPED PIPE, OR TO THE FIRST BEND.
3. IF THE ENTIRE SECTION CAN NOT BE TELEVISED FROM THE UPSTREAM MANHOLE OR END, THE CONTRACTOR SHALL ATTEMPT THE INSPECTION FROM THE DOWNSTREAM MANHOLE OR END. IF THE CAMERA FAILS TO TRAVERSE THE ENTIRE SECTION AGAIN, THE SECTION SHALL BE REFERRED TO THE ENGINEER.
4. THE IMPORTANCE OF ACCURATE DISTANCE MEASUREMENTS IS EMPHASIZED. MEASUREMENT FOR LOCATION OF DEFECTS SHALL BE BY MEANS OF A FOOTAGE COUNTER WITH THE VALUE DISPLAYED ON THE VIDEO RECORDING. THE FOOTAGE COUNTER SHALL BE SET SUCH THAT ZERO IS THE CENTER OF THE BEGINNING MANHOLE OR END. ACCURACY OF THE FOOTAGE COUNTER SHALL BE CHECKED ABOVE GROUND BY USE OF A WALKING METER, ROLL A TAPE, OR OTHER SUITABLE DEVICE. THE FOOTAGE COUNTER SHALL BE CALIBRATED TO AN ACCURACY THAT IS SATISFACTORY TO THE ENGINEER.

DOCUMENTATION

1. INSPECTION LOGS CLEARLY SHOWING THE LOCATION OF INFILTRATION POINTS, ROOTS, CONNECTIONS, BROKEN PIPE SECTIONS, PRESENCE OF SCALE AND CORROSION, AND OTHER UNUSUAL CONDITIONS SHALL BE RECORDED BY THE CONTRACTOR AND COPIES PROVIDED TO THE OWNER.
2. PHOTOGRAPHS OF PROBLEMS SHALL BE TAKEN AND PROVIDED TO THE OWNER BY THE CONTRACTOR AT THE REQUEST OF THE ENGINEER.
3. VIDEO RECORDINGS OF THE INSPECTION SHALL BE PROVIDED TO THE OWNER FOR A VISUAL RECORD OF PROBLEMS AND SHALL BE AVAILABLE FOR REVIEW BY THE OWNER DURING THE PROJECT.

INTERNAL VIDEO INSPECTION OF CONDUIT SHALL BE MEASURED BY THE NUMBER OF FEET CLEANED, MEASURED FROM CENTER TO CENTER OF MANHOLES AND STRUCTURES.

PAYMENT FOR ALL ACTIVITIES DESCRIBED SHALL INCLUDE ALL LABOR MATERIALS AND INCIDENTAL ITEMS OF WORK NECESSARY TO COMPLETE THE INTERNAL VIDEO INSPECTION OF CONDUIT AND SHALL BE PAID UNDER SP 611 CONDUIT MISC.: INTERNAL VIDEO INSPECTION, FOOT.

EXCAVATION IN CHANNEL / DITCH AREAS

MATERIAL WHICH IS EXCAVATED FROM THE CHANNEL / DITCH AREA TO INSTALL NEW CULVERT PIPES AND PRECAST FLARED END SECTIONS, AND WHICH IS NOT SUITABLE FOR USE AS BEDDING, BACKFILL OR EMBANKMENT SHALL BE DISPOSED OF IN ACCORDANCE WITH SP-105 OR IN A WASTE SITES AREA, IF BEING UTILIZED BY THE CONTRACTOR. EXCESS MATERIAL SHALL NOT BE DUMPED INTO OR ADJACENT TO THE CHANNEL / DITCH AREAS.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING 15 INCH DIAMETER CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH ITEM 613 LOW STRENGTH MORTAR BACKFILL, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

1 SP 611 - DRAINAGE STRUCTURE MISC.: COVERING OF EXISTING CATCH BASIN GRATE

THIS ITEM SHALL CONSIST OF PLACING A 1.25" THICK STEEL ROAD PLATE OVER THE EXISTING CATCH BASIN GRATE PRIOR TO PERFORMING EARTHWORK OR PLACEMENT OF PAVEMENT FOR MAINTAINING TRAFFIC.

THIS ITEM SHALL BE PAID FOR EACH CATCH BASIN GRATE COVERED.

DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/7/18

DESIGNED J.M.P. | DRAWN K.P.A. | CHECKED W.D.B. | IN CHARGE W.D.B.

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

GENERAL NOTES

PROJECT 43-19-07

DATE: 12/06/18

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OHIO TURNPIKE

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PAVEMENT

SP 302 - BITUMINOUS AGGREGATE BASE, PG 64-22 (2 EQUAL LIFTS)

THE CONTRACTOR SHALL BE REQUIRED TO CONSTRUCT SP302 ITEM IN TWO (2) EQUAL LIFTS WHEN SPECIFIED. THE CONTRACTOR SHALL ALSO BE REQUIRED TO APPLY ITEM 407 - NON-TRACKING TACK COAT (APPLIED @ 0.075 GAL./SQ.YD.) PRIOR TO CONSTRUCTING THE SECOND LIFT.

ITEM 252 - FULL DEPTH PAVEMENT SAWING

THE FOLLOWING ITEM HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE BY THE CHIEF ENGINEER TO MAKE TRANSVERSE SAW CUTS WHERE PROPOSED FULL DEPTH PAVEMENT WILL MEET EXISTING PAVEMENT AT THE PROJECT LIMITS, RAMPS AND EXISTING BRIDGES.

ITEM 252 - FULL DEPTH PAVEMENT SAWING	1,000 FT

PAVEMENT RESTORATION FOR CULVERT REPLACEMENT

THE FOLLOWING QUANTITY HAS BEEN PROVIDED FOR PAVEMENT REMOVAL AND RESTORATION FOR THE CULVERT REPLACEMENT AT AT MP 49.34 IN EXISTING PAVEMENT LANES AND OUTSIDE SHOULDERS.

THESE QUANTITIES MAY ALSO BE USED ELSEWHERE WITHIN THE PROJECT LIMITS AT THE DIRECTION OF THE CHIEF ENGINEER.

ITEM 202 - PAVEMENT REMOVED, AS PER PLAN	650 SY
ITEM 252 - FULL DEPTH PAVEMENT SAWING	300 FT
ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	650 SY

1

RESURFACING AT LIMITS OF FULL WIDTH REPLACEMENT

THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED TO MAKE MINOR GRADE ADJUSTMENTS IN THE EXISTING PAVEMENT AT THE FULL WIDTH PAVEMENT REPLACEMENT LIMITS FROM STA 1326+50 TO STA 1327+50 AND FROM STA 1345+50 TO STA 1346+50.

ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (VARIABLE DEPTH)	3000 SY
SP 404 - ASPHALT CONCRETE SURFACE COURSE, USING CRUSHED SLAG, PG 76-22 (FR) (T=2")	120 CY
SP 404 - ASPHALT CONCRETE SURFACE COURSE, USING CRUSHED STONE, PG 64-22 (T=2")	50 CY
ITEM 407 - NON-TRACKING TACK COAT (APPLIED @ 0.075 GAL /SY)	230 GAL

WATERWORK

ITEM 638 - 8" WATER MAIN DUCTILE IRON ANSI CLASS 53, MECHANICAL JOINTS AND FITTINGS, AS PER PLAN

ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ITEM 638, AND SHALL ALSO INCLUDE THE FOLLOWING:

1. NOTIFY THE VILLAGE OF SWANTON SUPERINTENDENT OF WATER PURIFICATION AND DISTRIBUTION, RYAN YACKEE, AT 419-826-2531, 48 HOURS IN ADVANCE OF ANY WORK ON THE WATER SYSTEM.
2. ALL SHOP DRAWINGS AND SUBMITTALS SHALL BE APPROVED BY BOTH THE CHIEF ENGINEER AND THE VILLAGE OF SWANTON.
3. ALL WATER MAIN PIPE SHALL BE DUCTILE IRON PIPE, ANSI A21.51, THICKNESS CLASS 53, WITH MECHANICAL JOINTS, ANSI A21.11, CEMENT LINED, ANSI A21.4. COMPACT FITTINGS ARE NOT PERMITTED.
4. RESTRAIN ALL JOINTS WITH EBAA IRON MEGALUG SERIES 1100 JOINT RESTRAINTS, FORD UNI-FLANGE 1400 SERIES JOINT RESTRAINTS, OR APPROVED EQUAL.
5. CONNECTIONS TO THE EXISTING A.C. WATERLINE SHALL BE MADE USING OMNI 441 COUPLINGS, DRESSER 253 COUPLINGS, OR APPROVED EQUAL.
6. LOCATION OF STERILIZATION AND TESTING CONNECTIONS SHALL BE AS DIRECTED BY THE VILLAGE OF SWANTON. ALL COSTS ASSOCIATED WITH PLACING AND UTILIZING STERILIZATION AND TESTING CONNECTIONS SHALL BE INCLUDED IN THE UNIT PRICE FOR WATER MAIN. BACTERIA SAMPLES SHALL NOT BE TAKEN FROM HYDRANTS.

DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | CHECKED W.D.B.
DRAWN K.P.A. | IN CHARGE W.D.B.

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

GENERAL NOTES

PROJECT 43-19-07
DATE: 12/06/18

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OHIO TURNPIKE

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SHEET NUMBER																ITEM	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
14	15	16	17	18	19	113	114	115	117	118	120	121	124	254						
																			ROADWAY	
1																201	1	LS	CLEARING AND GRUBBING	
									18							202	18	EACH	HEADWALL REMOVED	
									(1,228)							202	(1) 1,228	FT	PIPE REMOVED, 24" AND UNDER	
									(1)					213		202	213	FT	PIPE REMOVED, OVER 24"	
						218										202	218	FT	ASBESTOS PIPE REMOVED	
									53							202	(1) 53	EACH	CATCH BASIN OR INLET REMOVED	
									(1)											
	600															202	600	FT	FENCE REMOVED	
						8,368										202	8,368	FT	GUARDRAIL REMOVED, AS PER PLAN	15
						1,075										202	1,075	FT	CABLE BARRIER REMOVED	
					650						74,839					202	(1) 75,489	SY	PAVEMENT REMOVED, AS PER PLAN	15
					(1)	126										202	126	FT	CONCRETE BARRIER REMOVED	
														2		202	2	EACH	STRUCTURE REMOVED	
	10															202	10	CY	PORTIONS OF STRUCTURES REMOVED, AS PER PLAN	15
			500						2,184							SPECIAL	2,684	FT	PIPE CLEANOUT, 24" DIA AND UNDER	17
									427							SPECIAL	427	FT	FILL AND PLUG EXISTING CONDUIT	18
								(36,686)								203	(36,686)	CY	EXCAVATION	
							(1)	(12,984)								203	(1) 12,984	CY	EMBANKMENT, AS PER PLAN	14
		1,800														203	1,800	CY	ROADWAY EXCAVATION AND EMBANKMENT	14
		178														204	178	CY	EXCAVATION	
		227														204	227	SY	GEOTEXTILE FABRIC, 712.09, TYPE D	
		227														204	227	SY	SUBGRADE COMPACTION	
		155,282														206	155,282	SY	CEMENT STABILIZED SUBGRADE, 16 INCHES DEEP, AS PER PLAN	16
		12,000														206	12,000	SY	CEMENT STABILIZED SUBGRADE, 16 INCHES DEEP	
		7,300														206	7,300	TON	CEMENT	
		9,800														206	9,800	GAL	CURING COAT, AS PER PLAN	16
		100														206	100	HOUR	TEST ROLLING	
												8088				209	8,088	FT	LINER GRADING, AS PER PLAN	15
1,000						3,430										209	4,430	FT	DITCH CLEANOUT	14
		178														SP 304	178	CY	GRANULAR MATERIAL	
				1												503	1	LS	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	18
							6,018									606	6,018	FT	GUARDRAIL, TYPE MGS, WITH LONG STEEL POSTS	
							2									606	2	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
							4									606	4	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1, WITH LONG STEEL POSTS	
							4									606	4	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	
							200									606	200	FT	GUARDRAIL REBUILT	
							1									606	1	EACH	FLARED END SECTION	
							8									SP 606A	8	EACH	ANCHOR ASSEMBLY, MGS TYPE E	
							2									SP 606B	2	EACH	IMPACT ATTENUATOR, TYPE 2 (BI-DIRECTIONAL)	
	600															607	600	FT	FENCE, TYPE 47, AS PER PLAN	14
												2,798				609	2,798	FT	ASPHALT CONCRETE CURB, TYPE 1, PG64-22	
												10				609	10	FT	CURB, TYPE 4-C	

DESIGN AGENCY: Gannett Fleming Consultants

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED: J.M.P. | DRAWN: K.P.A. | CHECKED: W.D.B. | IN CHARGE: W.D.B.

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

GENERAL SUMMARY

PROJECT 43-19-07

DATE: 12/06/18

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OHIO TURNPIKE

H:\2018\180192\DWG\SHEETS\C_180192- GENERAL SUMMARY.DWG - 1 - 12/27/2018 8:15:00 AM - KEVIN ABRAMS

SHEET NUMBER																	ITEM	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
14	15	16	17	18	19	113	114	115	117	118	120	121	124	254							
																				DRAINAGE	
										46,652							SP 605	46,652	FT	6" BASE PIPE UNDERDRAIN, WITH FABRIC WRAP (18")	
										5,158							SP 605	5,158	FT	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP (24")	
										42,474							SP 605	42,474	FT	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP (30")	
										5,223							SP 605	5,223	FT	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	
										2,423							SP 605	2,423	FT	6" UNDERDRAIN OUTLET PIPE	
			200														SP 605	200	FT	AGGREGATE DRAIN, TYPE 1, WITH FABRIC WRAP	
			200														SP 605	200	FT	AGGREGATE DRAIN, TYPE 2, WITH FABRIC WRAP	
									20								SP 611	20	FT	12" CONDUIT, TYPE C, 707.33	
									870								SP 611	870	FT	12" CONDUIT, TYPE F, 707.33	
									824								SP 611	824	FT	15" CONDUIT, TYPE B, 706.02	
									911								SP 611	911	FT	18" CONDUIT, TYPE B, 706.02	
									763								SP 611	763	FT	24" CONDUIT, TYPE B, 706.02	
									927								SP 611	927	FT	30" CONDUIT, TYPE B, 706.02	
														204			SP 611	204	FT	48" CONDUIT, TYPE A, 706.02, AS PER PLAN	18
									50								SP 611	50	FT	CONDUIT, BORED OR JACKED, AS PER PLAN, 15" ,TYPE B, 706.02	18
									100								SP 611	100	FT	CONDUIT, BORED OR JACKED, AS PER PLAN, 18" ,TYPE B, 706.02	18
									50								SP 611	50	FT	CONDUIT, BORED OR JACKED, AS PER PLAN, 30" ,TYPE B, 706.02	18
									2,184								SP 611	2,184	FT	CONDUIT MISC.: INTERNAL VIDEO INSPECTION	18
									17								SP 611	17	EACH	CATCH BASIN, NO. CB-1	17
									1								SP 611	1	EACH	CATCH BASIN, NO. 2-2B	
									5								SP 611	5	EACH	CATCH BASIN, NO. 8	
									33								SP 611	33	EACH	INLET, NO. I-3B50	
									4								SP 611	4	EACH	INLET, NO. I-3C50	
									9								SP 611	9	EACH	MANHOLE, NO. 3	
									1								SP 611	1	EACH	DRAINAGE STRUCTURE MISC.: COVERING OF EXISTING CATCH BASIN GRATE	18
									17								SPECIAL	17	EACH	12" PRECAST CONCRETE END SECTION	17
									3								SPECIAL	3	EACH	15" PRECAST CONCRETE END SECTION	17
									2								SPECIAL	2	EACH	18" PRECAST CONCRETE END SECTION	17
														2			SPECIAL	2	EACH	48" PRECAST CONCRETE END SECTION	17
			500														SPECIAL	500	FT	PIPE CLEANOUT, 24" DIA AND UNDER	17

DESIGN AGENCY

consultants

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | CHECKED W.D.B.

DRAWN K.P.A. | IN CHARGE W.D.B.

GENERAL SUMMARY

PROJECT 43-19-07

DATE: 12/06/18

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OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

OHIO TURNPIKE

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SHEET NUMBER																	ITEM	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
14	15	16	17	18	19	113	114	115	117	118	120	121	124	254							
																				PAVEMENT	
					1,300 (1)						43,238						252	44,538 (1)	FT	FULL DEPTH PAVEMENT SAWING	
					3,000												254	3,000	SY	PAVEMENT PLANING, ASPHALT CONCRETE (VARIABLE DEPTH)	
											663	98					SP 302	761	CY	ASPHALT CONCRETE BASE, PG64-22 (SHOULDER)	
											49,485	77					SP 302	49,562	CY	ASPHALT CONCRETE BASE, PG64-22	
											781	166					SP 304	947	CY	AGGREGATE BASE (SHOULDER)	
											25,167	257					SP 304	25,424	CY	AGGREGATE BASE	
												365					SP 304	365	CY	AGGREGATE BASE (VARIABLE THICKNESS)	
											3,484	16					SP 402	3,500	CY	ASPHALT CONCRETE INTERMEDIATE COURSE OR RECYCLED ASPHALT CONCRETE	
																				INTERMEDIATE COURSE, PG64-22	
											3,619						SP 402	3,619	CY	ASPHALT CONCRETE INTERMEDIATE COURSE OR RECYCLED ASPHALT CONCRETE	
																				INTERMEDIATE COURSE, PG76-22 (FR)	
					50						2,987	13					SP 404	3,050	CY	ASPHALT CONCRETE SURFACE COURSE, USING CRUSHED STONE, PG64-22	
					120						3,103						SP 404	3,223	CY	ASPHALT CONCRETE SURFACE COURSE, USING CRUSHED SLAG, PG76-22 (FR)	
											45,821						SP 404A	45,821	FT	JOINT SEALER	
					230						30,607	58					407	30,895	GAL	NON -TRACKING TACK COAT	
					650 (1)												615	650 (1)	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	
												130					SP 627	130	CY	STONE SHOULDER PROTECTION	
																				WATER WORK	
							220										638	220	FT	8" WATER MAIN DUCTILE IRON ANSI CLASS 53, MECHANICAL	19
																				JOINTS AND FITTINGS, AS PER PLAN	
							2										638	2	EACH	8" GATE VALVE AND VALVE BOX	
																				MAINTENANCE OF TRAFFIC	
																				FOR MAINTENANCE OF TRAFFIC GENERAL SUMMARY SEE SHEET 38	
																				TRAFFIC CONTROL	
																				FOR TRAFFIC CONTROL GENERAL SUMMARY SEE SHEET 259	
																				STRUCTURES	
																				FOR STRUCTURE GENERAL SUMMARY SEE SHEET 289	
																				GENERAL	
																	IB,ART.6	1	LS	PREMIUM FOR CONTRACT PERFORMANCE BOND AND PAYMENT BOND	
																	SP 614	1	LS	MAINTAINING TRAFFIC	
																	614	1	LS	MAINTAINING TRAFFIC (LOCAL ROADS)	
																	SP 619	1	LS	FIELD OFFICE	
																	SP 623	1	LS	CONSTRUCTION LAYOUT SURVEY	
																	624	1	LS	MOBILIZATION	

DESIGN AGENCY: Consultants

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED: J.M.P. | DRAWN: K.P.A. | CHECKED: W.D.B. | IN CHARGE: W.D.B.

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

GENERAL SUMMARY

PROJECT 43-19-07

DATE: 12/06/18

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OHIO TURNPIKE

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O	BEGIN STATION	END STATION	203 EXCAVATION	203 EMBANKMENT, AS PER PLAN	659 SEEDING AND MULCHING
			CY	CY	SY
157	1277+00.00	1279+00.00	59	24	144
158	1279+00.00	1282+00.00	353	245	867
159	1282+00.00	1285+00.00	343	257	867
160	1285+00.00	1288+00.00	349	193	867
161	1288+00.00	1291+00.00	345	280	867
162	1291+00.00	1294+00.00	335	287	867
163	1294+00.00	1297+00.00	335	237	867
164	1297+00.00	1300+00.00	592	81	867
165	1300+00.00	1303+00.00	1 602	90	867
166	1303+00.00	1306+00.00	339	217	867
167	1306+00.00	1309+00.00	404	206	144
168	1309+00.00	1312+00.00	446	187	
169	1312+00.00	1315+00.00	383	213	
170	1315+00.00	1318+00.00	411	115	
171	1318+00.00	1321+00.00	392	183	
172	1321+00.00	1324+00.00	356	249	
173	1324+00.00	1327+00.00	394	181	
174	1327+00.00	1330+44.57	435		127
175	1331+00.00	1334+00.00	488	191	340
176	1334+00.00	1335+41.75	423	68	322
177	1337+41.54	1339+00.00	632	5	211
178	1339+00.00	1342+00.00	966	124	399
179	1342+00.00	1345+00.00	1217	52	399
180	1345+00.00	1348+00.00	925	17	67
181	1348+00.00	1351+00.00	337	194	
182	1351+00.00	1354+00.00	346	203	
183	1354+00.00	1357+00.00	346	206	
184	1357+00.00	1360+00.00	342	217	
185	1360+00.00	1363+00.00	347	208	
186	1363+00.00	1366+00.00	333	312	
187	1366+00.00	1369+00.00	363	157	
188	1369+00.00	1372+00.00	358	216	
189	1372+00.00	1375+00.00	374	153	
190	1375+00.00	1378+00.00	354	201	
191	1378+00.00	1381+00.00	361	156	
192	1381+00.00	1384+00.00	396	119	
193	0+30.00	2+00.00	302	13	
194	2+00.00	5+00.00	378	126	
195	5+00.00	8+00.00	369	186	
196	8+00.00	11+00.00	861	22	
197	11+00.00	14+00.00	469	129	
198	14+00.00	17+00.00	305	260	
199	17+00.00	20+00.00	365	85	
200	20+00.00	23+00.00	358	106	
201	23+00.00	26+00.00	345	207	
SUBTOTAL COLUMN 1			19,533	7,178 1	9,956

SHEET NO.	BEGIN STATION	END STATION	203 EXCAVATION	203 EMBANKMENT, AS PER PLAN	659 SEEDING AND MULCHING
			CY	CY	SY
202	26+00.00	29+00.00	347	207	
203	29+00.00	32+00.00	356	169	
204	32+00.00	35+00.00	349	244	
205	35+00.00	38+00.00	337	298	
206	38+00.00	41+00.00	382	122	
207	41+00.00	44+00.00	368	194	
208	44+00.00	47+00.00	355	258	
209	47+00.00	50+00.00	399	226	
210	50+00.00	53+00.00	471	23	
211	53+00.00	56+00.00	371	156	
212	56+00.00	59+00.00	458	203	
213	59+00.00	62+00.00	894		
214	62+00.00	65+00.00	417	116	
215	65+00.00	68+00.00	339	202	
216	68+00.00	71+00.00	384	137	
217	71+00.00	74+00.00	411	65	
218	74+00.00	77+00.00	364	154	
219	77+00.00	80+00.00	343	196	
220	80+00.00	83+00.00	378	138	
221	83+00.00	86+00.00	374	207	
222	86+00.00	89+00.00	353	211	
223	89+00.00	92+00.00	345	218	
224	92+00.00	95+00.00	331	259	
225	95+00.00	98+00.00	333	233	
226	98+00.00	101+00.00	327	250	
227	101+00.00	104+00.00	374	60	
228	104+00.00	107+00.00	336	170	
229	107+00.00	110+00.00	385	74	
230	110+00.00	113+00.00	350	209	
231	113+00.00	116+00.00	356	201	
232	116+00.00	119+00.00	307	93	
233	119+00.00	122+00.00	465	170	
234	122+00.00	125+00.00	845	17	
235	125+00.00	128+00.00	363	248	
236	128+00.00	131+00.00	246	78	
146	TEMPORARY DITCH		3340		
SUBTOTAL COLUMN 2			17,153	5,806	
SUBTOTAL COLUMN 1			19,533	7,178	9,956
TOTALS CARRIED TO GENERAL SUMMARY			1 36,686	12,984	9,956 *

* TOTAL IS INCLUDED IN THE CALCULATION ON THIS SHEET.

ADDITIONAL SEEDING AND MULCHING CALCULATIONS

DITCH CLEANOUT
3430 FT X 20 FT (ASSUMED WIDTH) / 9 SF/SY = 7622 SY

PIPE OUTLETS
24 EACH X 60 FT X 15 FT / 9 SF/SY = 2400 SY

CULVERT REPLACEMENT
2 SIDES X 60 FT X 70 FT / 9 SF/SY = 933 SY

MEDIAN PAVEMENT FOR MAINTAINING TRAFFIC AREAS
9405 FT X 13 FT / 9 SF/SY = 13,585 SY

TOTAL SEEDING AND MULCHING AREA

9956 SY + 7622 SY + 2400 SY + 933 SY + 13,585 = 34,496 SY

ROUND TO 34,500 SY
TOTAL CARRIED TO GENERAL NOTE ON SHEET 17.

DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | CHECKED W.D.B. | IN CHARGE W.D.B. | DRAWN K.P.A.

EARTHWORK SUB SUMMARY

PROJECT 43-19-07
DATE: 12/06/18

3 / 9

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OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

H:\2018\180192\DWG\SHEETSIC_180192 - ROADWAY SUBSUMMARY.DWG - EARTHWORK - 12/27/2018 8:15:14 AM - KEVIN ABRAMS

REF NO.	SHEET NO.	STATION TO STATION		SIDE	202 HEADWALL REMOVED	202 PIPE REMOVED, 24" AND UNDER	202 CATCH BASIN OR INLET REMOVED	SPECIAL PIPE CLEANOUT, 24" DIA AND UNDER	SPECIAL FILL AND PLUG EXISTING CONDUIT	601 ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	SP 611 CONDUIT MISC.: INTERNAL VIDEO INSPECTION	SP 611 12" CONDUIT, TYPE C, 707.33	SP 611 12" CONDUIT, TYPE F, 707.33	SP 611 15" CONDUIT, TYPE B, 706.02	SP 611 18" CONDUIT, TYPE B, 706.02	SP 611 24" CONDUIT, TYPE B, 706.02	SP 611 30" CONDUIT, TYPE B, 706.02	SP 611 CONDUIT BORED OR JACKED, AS PER PLAN, 15", TYPE B, 706.02	SP 611 CONDUIT BORED OR JACKED, AS PER PLAN, 18", TYPE B, 706.02	SP 611 CONDUIT BORED OR JACKED, AS PER PLAN, 30", TYPE B, 706.02	SP 611 DRAINAGE STRUCTURE MISC.: COVERING OF EXISTING CATCH BASIN GRATE	SP 611 CATCH BASIN, NO. CB-1	SP 611 CATCH BASIN, NO. 2-2B	SP 611 CATCH BASIN, NO. 8	SP 611 INLET, NO. I-3B50	SP 611 INLET, NO. I-3C50		SP 611 MANHOLE, NO. 3	SPECIAL 12" PRECAST CONCRETE END SECTION	SPECIAL 15" PRECAST CONCRETE END SECTION	SPECIAL 18" PRECAST CONCRETE END SECTION
					EACH	FT	EACH	FT	FT	CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH		EACH	EACH	EACH	EACH
D-1	134	1263+81	1263+99	RT								20		9										1								
D-2	134	1268+99		RT																		1										
D-3	135	1281+88		RT		4	1	85			85			4										1								
D-4	136	1287+59		RT		4	1	88			88			4										1								
D-5	136	1293+19		RT		4	1	88			88			4										1								
D-6	137	1303+19		RT		4	1	88			88			4										1								
D-7	137	1306+00		RT						1.3				32				50						1							1	
D-8	138	1313+18		RT		4	1	82			82				4										1							
D-9	138	1319+00	1320+00	CL											100										1							
D-10	138	1320+00	1321+03	CL											103										1							
D-11	138	1321+03		RT		4	1	81			81				4										1							
D-12	139	1324+00		RT		4	1	97			97				1 4										1							
D-13	139	1327+60		LT						1.3			53										1							1		
D-14	139	1327+60		RT						1.3			43										1							1		
D-15	139	1328+54		RT	1	90	2																									
D-16	139	1328+09		LT	1	100	2																									
D-17	139	1330+35		LT									63										1							1		
D-18	139	1331+00		RT	1	10	1	130		1.3	130			4											1						1	
D-19	139	1330+84		RT	1	70	1																									
D-20	139	1330+84		RT						1.3			57										1							1		
D-21	139	1331+25		RT	1	45																										
D-22	139	1333+00		LT	1	57	1			1.3			57										1							1		
D-23	139	1333+28		RT	1	70	1			1.3			64										1							1		
D-24	139	1334+93		LT	1	92	2						54										1							1		
D-25	140	1335+53		RT	1	100	2			1.3			64										1							1		
D-26	140	1337+28		LT	1	90	2			1.3			55										1							1		
D-27	140	1337+91		RT	1	92	2			1.3			52										1							1		
D-28	140	1339+00		LT	1	49	1			1.3			49										1							1		
D-29	140	1340+27		RT	1	50	1			1.3			50										1							1		
D-30	140	1341+00		LT	1	45	1			1.3			41										1							1		
D-31	140	1342+20		RT	1	10	1	108			108			4											1						1	
D-32	140	1342+51		RT	1	45	1			1.3			47										1							1		
D-33	140	1342+98		LT	1	45	1			1.3			45										1							1		
D-34	140	1345+17		LT	1	36	1																									
D-35	140	1345+40		LT						1.3			36										1							1		
D-36	140	1345+40		RT						1.3			40										1							1		
D-37	141	1352+01		RT		4	1	92			92			4												1						
D-38	141	1357+43		RT		4	1	90			90			4												1						
D-39	142	1364+00		RT		4	1	83			83			4												1						
D-40	142	1370+60		RT		4	1	75			75			4												1						
D-41	143	1377+19		RT		4	1	75			75			4												1						
D-42	143	1381+75		RT		4	1	75			75			4												1						
D-43	144	6+50		RT		4	1	78			78			4												1						
D-44	145	16+10	19+00	LT		4	1								5	290										1			1			
D-45	145	19+00	22+00	LT												300													1			
D-46	145	23+73		L/R											59											1						
D-47	146	22+00	23+73	LT												173													1			
D-48	146	23+73	27+00	LT													327												1			
D-49	146	27+00	30+00	LT													300												1			
D-50	146	30+00	32+00	LT											5		200									1			1			
D-51	146	32+00		LT													100			50									1			
D-52	146	32+00	34+50	LT											250														1			
D-53	147	34+50	36+97	LT											252											1			1			
D-54	147	35+28	36+97	LT		8	1		185																							
TOTALS CARRIED TO SHEET117					18	1,164	39	1,415	185	23	1,415	20	870	1 97	782	763	927	50		50	1	17	1	5	18			9	17	3	

H:\2018\180192\DWG\SHEETS\C_180192 - ROADWAY SUBSUMMARY DWG - DR-1 - 12/27/2018 8:15:16 AM - KEVIN ABRAMS

DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

CHECKED W.D.B. | IN CHARGE W.D.B.

DESIGNED J.M.P. | DRAWN K.P.A.

DRAINAGE SUB SUMMARY

PROJECT 43-19-07

DATE: 12/06/18

4 / 9

116 / 349

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

REF NO.	SHEET NO.	STATION TO STATION		SIDE	202 HEADWALL REMOVED	202 PIPE REMOVED, 24" AND UNDER	202 CATCH BASIN OR INLET REMOVED	SPECIAL PIPE CLEANOUT, 24" DIA AND UNDER	SPECIAL FILL AND PLUG EXISTING CONDUIT	601 ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	SP 611 CONDUIT MISC.: INTERNAL VIDEO INSPECTION	SP 611 12" CONDUIT, TYPE C, 707.33	SP 611 12" CONDUIT, TYPE F, 707.33	SP 611 15" CONDUIT, TYPE B, 706.02	SP 611 18" CONDUIT, TYPE B, 706.02	SP 611 24" CONDUIT, TYPE B, 706.02	SP 611 30" CONDUIT, TYPE B, 706.02	SP 611 CONDUIT BORED OR JACKED, AS PER PLAN, 15", 706.02	SP 611 CONDUIT BORED OR JACKED, AS PER PLAN, 18", 706.02	SP 611 CONDUIT BORED OR JACKED, AS PER PLAN, 30", 706.02	SP 611 DRAINAGE STRUCTURE MISC.: COVERING OF EXISTING CATCH BASIN GRATE	SP 611 CATCH BASIN, NO. CB-1	SP 611 CATCH BASIN, NO. 2-2B	SP 611 CATCH BASIN, NO. 8	SP 611 INLET, NO. I-3B50	SP 611 INLET, NO. I-3C50		SP 611 MANHOLE, NO. 3	SPECIAL 12" PRECAST CONCRETE END SECTION	SPECIAL 15" PRECAST CONCRETE END SECTION	SPECIAL 18" PRECAST CONCRETE END SECTION
					EACH	FT	EACH	FT	FT	CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH		EACH	EACH	EACH	EACH
D-55	147	43+00		RT						1.3					48				50							1						1
D-56	148	48+16		LT		16	1								16											1						
D-57	148	53+00		RT											36				50							1						1
D-58	148	57+87		RT		4	1	85			85			4												1						
D-59	149	68+29		RT		4	1	74			74				5											1						
D-60	149	70+75	72+25	CL										168												2						
D-61	150	75+21		LT		4	1	74			74			4												1						
D-62	150	78+65		LT		4	1	74			74				4											1						
D-63	151	85+47		RT		4	1	74			74				8												1					
D-64	151	92+27		LT		4	1	72			72				4												1					
D-65	152	97+50	99+13	CL										163													1					
D-66	152	99+13		LT		4	1	67			67				4												1					
D-67	152	99+13	100+00	CL										87												1						
D-68	152	105+93		RT		6	1	88			88				4											1						
D-69	153	112+74		RT		6	1	86			86			4												1						
D-70	154	120+26		LT		4	1	75			75			8												1						
D-71	154	126+94	129+75	CL										281												1						
D-72	145	16+10		RT			1		95																							
D-73	146	26+53		RT			1		147																							
D-74	154	126+94		RT		4	1 (1)							8 (1)												1 (1)						
TOTALS THIS SHEET						64	14 (1)	769	242	2	769			727 (1)	129				100							15 (1)	4					2
TOTALS FROM SHEET116					18	1,164	39	1,415	185	23	1,415	20	870	97	782	763	927	50		50	1	17	1	5	18			9	17	3	
TOTALS CARRIED TO GENERAL SUMMARY					18	1,228	53 (1)	2,184	427	25	2,184	20	870	824	911	763	927	50	100	50	1	17	1	5	33 (1)	4		9	17	3	2

REVISIONS	NO.	BY	DATE
ADDENDUM NO. 3	1	KPA	12/27/18

DESIGNED J.M.P. | DRAWN K.P.A. | CHECKED W.D.B. | IN CHARGE W.D.B.

DESIGN AGENCY

DRAINAGE SUB SUMMARY

PROJECT 43-19-07

DATE: 12/06/18

5 / 9

117 / 349

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

H:\2018\180192\DWG\SHEETS\C_180192 - ROADWAY SUBSUMMARY.DWG - DR-2 - 12/27/2018 8:15:17 AM - KEVIN ABRAMS

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	OUTSIDE/INSIDE	LENGTH		SP 605 6" UNDERDRAIN OUTLET PIPE	SP 605 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP (30")	SP 605 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP (24")	SP 605 6" BASE PIPE UNDERDRAIN, WITH FABRIC WRAP (18")	SP 605 6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	INFO ONLY CROSSES, BENDS, ELBOWS AND TEES
		FROM	TO			FT		FT	FT	FT	FT	FT	EACH
UD-1	135	1281+00	1287+59	LT	I	659		25	659		659		2
UD-2	135	1281+00	1287+59	RT	I	659		30	654		654		3
UD-3	136	1287+60	1293+19	LT	I	559		25	559		559		2
UD-4	136	1287+60	1293+19	RT	I	559		30	559		559		3
UD-5	136	1293+20	1303+19	LT	I	999		25	999		999		2
UD-6	136	1293+20	1303+19	RT	I	999		30	994		994		2
UD-7	139	1331+00	1335+39	LT	I	439		25	439		429		1
UD-8	139	1331+00	1335+52	RT	I	452		25	447		437		2
UD-9	137	1306+01	1313+18	LT	I	717		25	717		707		1
UD-10	137	1306+01	1313+18	RT	I	717		20	712		712		2
UD-11	138	1313+19	1319+00	LT	I	581		25		581	571		1
UD-12	138	1313+19	1319+00	RT	I	581		25		581	571		2
UD-13	138	1319+01	1320+00	LT	I	99		25		99	89		1
UD-14	138	1319+01	1320+00	LT	I	99		25		99	89		1
UD-15	138	1320+00	1321+02	LT	I	102		25	102		92		1
UD-16	138	1320+00	1321+07	RT	I	107		25	107		97		1
UD-17	138	1321+03	1323+99	LT	I	296		25	296		286		1
UD-18	138	1321+03	1323+99	RT	I	296		25	296		286		2
UD-19	139	1324+00	1328+43	LT	I	443		25	443		433		1
UD-20	139	1324+00	1328+53	RT	I	453		25	448		438		2
UD-21	139	1327+60	1328+15	LT	O	55		18	55		45		1
UD-22	139	1327+60	1328+79	RT	O	119		18	119		109		1
UD-23	139	1330+35	1332+99	LT	O	264		18	264		254		1
UD-24	139	1330+84	1333+28	RT	O	244		18	244		234		1
UD-25	139	1333+00	1334+88	LT	O	188		18	188		178		1
UD-26	139	1333+28	1335+48	RT	O	220		18	220		210		1
UD-27	140	1337+28	1339+00	LT	O	172		25	172		162		1
UD-28	140	1337+95	1340+27	RT	O	232		25	232		222		1
UD-29	140	1339+00	1341+00	LT	O	200		18	200		190		1
UD-30	140	1340+27	1342+51	RT	O	224		18	224		214		1
UD-31	140	1341+01	1342+98	LT	O	197		18	197		187		1
UD-32	140	1342+20	1352+01	RT	I	981		25	981		971		2
UD-33	140	1342+20	1352+01	LT	I	981		25	981		971		1
UD-34	140	1342+52	1345+40	RT	O	288		18	288		278		1
UD-35	140	1343+00	1345+40	LT	O	240		18	240		230		1
UD-36	141	1357+43	1364+00	LT	I	657		25	657		547		1
UD-37	141	1357+43	1364+00	RT	I	657		25	657		647		2
UD-38	142	1364+01	1370+60	RT	I	659		25		659	649		2
UD-39	142	1364+01	1370+60	LT	I	659		25		659	649		1
UD-40	142	1370+61	1377+19	RT	I	658		25	658		648		1
UD-41	142	1370+61	1377+19	LT	I	658		25	658		648		2
UD-42	143	1377+19	1381+75	RT	I	456		25	456		446		2
UD-43	143	1377+19	1381+75	LT	I	456		25	456		446		1
UD-44	143	1381+76	6+50	RT	I	860		25	860		850		2
UD-45	143	1381+76	6+50	LT	I	860		25	860		850		1
UD-46	144	6+51	16+10	RT	I	959		25	959		949		1
UD-47	144	6+51	16+10	LT	I	959		25	959		949		2
UD-48	145	16+11	23+73	RT	I	762		25	762		752		1
UD-49	145	16+11	23+73	LT	I	762		25	762		752		2
UD-50	146	23+74	30+00	RT	I	626		25	626		616		1
UD-51	146	23+74	30+00	LT	I	626		25	626		616		2
UD-52	146	30+01	36+97	RT	I	696		25		696	686		2
UD-53	146	30+01	36+97	LT	I	696		25		696	686		2
UD-54	147	36+98	43+00	RT	I	602		25	602		592		2
UD-55	147	36+98	43+00	LT	I	602		25	602		592		1
UD-56	147	43+01	48+16	RT	I	515		25	515		505		2
UD-57	147	43+01	48+16	LT	I	515		25	515		505		1
UD-58	148	48+17	53+00	RT	I	483		25	483		473		2
UD-59	148	48+17	53+00	LT	I	483		25	483		473		1
UD-60	148	53+01	57+87	RT	I	486		25	486		476		2
SUBTOTAL COLUMN 1								1,433	26,678	4,070	30,118		88

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	OUTSIDE/INSIDE	LENGTH		SP 605 6" UNDERDRAIN OUTLET PIPE	SP 605 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP (30")	SP 605 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP (24")	SP 605 6" BASE PIPE UNDERDRAIN, WITH FABRIC WRAP (18")	SP 605 6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	INFO ONLY CROSSES, BENDS, ELBOWS AND TEES
		FROM	TO			FT		FT	FT	FT	FT	FT	EACH
UD-61	148	53+01	57+87	LT	I	486		25	486		476		1
UD-62	148	57+88	68+29	RT	I	1041		22	1,041		1,031		2
UD-63	148	57+88	68+29	LT	I	1041		25	1,041		1,031		1
UD-64	149	68+30	70+75	RT	I	245		25	245		235		1
UD-65	149	68+30	70+75	LT	I	245		25	245		235		1
UD-66	150	70+75	72+24	RT	I	149		10	149		139		
UD-67	150	70+75	72+24	LT	I	149		10	149		139		
UD-68	150	72+25	75+20	RT	I	295		25		295	285		1
UD-69	150	72+25	75+20	LT	I	295		25		295	285		1
UD-70	150	75+21	78+64	RT	I	343		25	343		333		1
UD-71	150	75+21	78+64	LT	I	343		25	343		333		2
UD-72	150	78+65	85+46	RT	I	681		25	681		671		1
UD-73	150	78+65	85+46	LT	I	681		25	681		671		2
UD-74	151	85+47	92+26	RT	I	679		25	679		669		1
UD-75	151	85+47	92+26	LT	I	679		25	679		669		2
UD-76	151	92+27	97+49	RT	I	522		25	522		512		1
UD-77	151	92+27	97+49	LT	I	522		25	522		512		2
UD-78	152	97+50	99+99	LT	I	249		25		249	239		1
UD-79	152	97+50	99+99	RT	I	249		25		249	239		1
UD-80	152	100+00	105+92	RT	I	592		25	592		582		1
UD-81	152	100+00	105+92	LT	I	592		25	592		582		1
UD-82	153	105+93	112+73	RT	I	680		25	680		670		2
UD-83	153	105+93	112+73	LT	I	680		25	680		670		1
UD-84	153	112+74	120+25	RT	I	751		25	751		741		2
UD-85	153	112+74	120+25	LT	I	751		25	751		741		1
UD-86	154	120+26	121+50	RT	I	124		25	124		114		1
UD-87	154	120+26	121+50	LT	I	124		25	124		114		2
UD-88	154	121+50	126+94	RT	I	544		25	544		534		2
UD-89	154	121+50	126+94	LT	I	544		25	544		534		1
UD-90	154	126+94	130+70	RT	I	376		25				742	2
UD-91	154	126+94	130+70	LT	I	376		25				742	1
UD-92	140	1337+31	1342+20	LT	I	489		25	489		479		1
UD-93	140	1337+45	1342+20	RT	I	475		25	475		465		2
UD-94	141	1352+01	1357+43	LT	I	542		25	542		532		1
UD-95	141	1352+01	1357+43	RT	I	542		25	542		532		2
UD-96	137	1303+20	1306+00	LT	I	280		25	280		270		2
UD-97	137	1303+20	1306+00	RT	I	280		25	280		270		3
UD-98	139	1330+21	1331+00	LT	I	79		25				129	2
UD-99	139	1330+31	1331+00	RT	I	69		25				110	2
UD-100	133	1262+25	1270+75	LT	I	850		12				875	1
UD-101	133	1262+25	1270+75	RT	I	850		12				875	1
UD-102	155	132+81	141+50	LT	I	850		12				875	1
UD-103	155	132+81	141+50	RT	I	850		12				875	1
SUBTOTAL COLUMN 2								990	15,796	1,088	16,534	5,223	58
SUBTOTAL COLUMN 1								1,433	26,678	4,070	30,118		88
TOTALS CARRIED TO GENERAL SUMMARY								2,423	42,474	5,158	46,652	5,223	146

DESIGN AGENCY

Transportation Consultants

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | DRAWN K.P.A. | CHECKED W.D.B. | IN CHARGE W.D.B.

OHIO TURNPIKE

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

UNDERDRAIN SUB SUMMARY

PROJECT 43-19-07

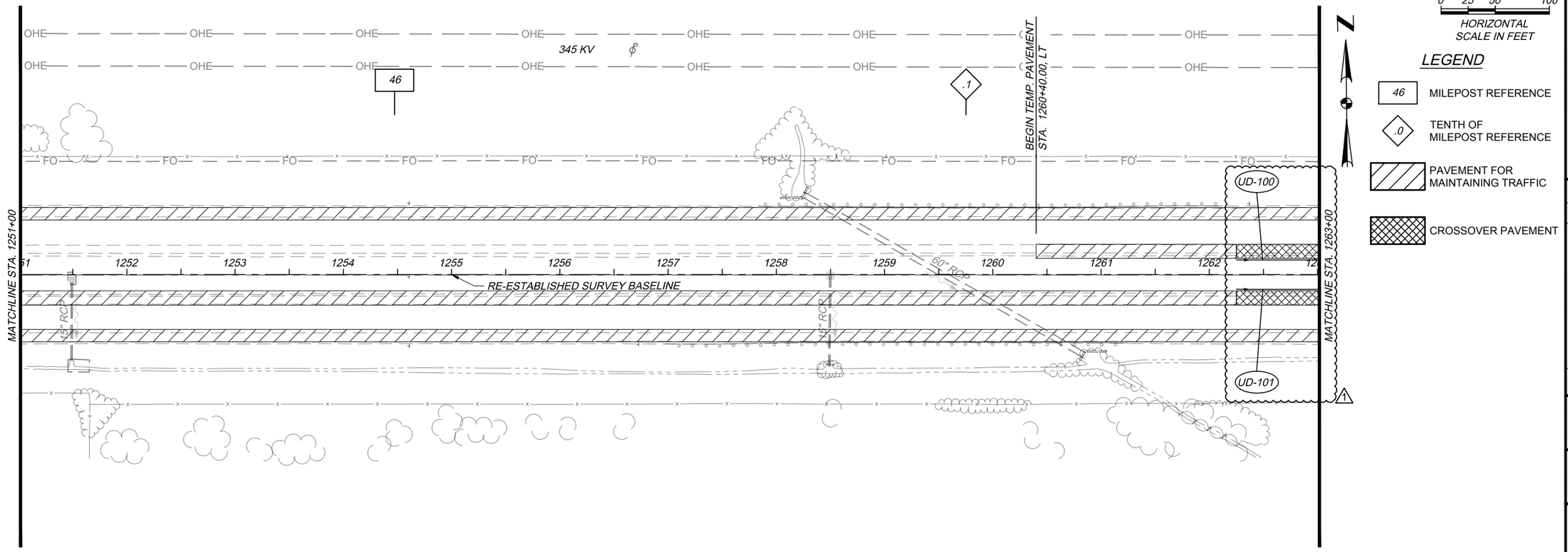
DATE: 12/06/18

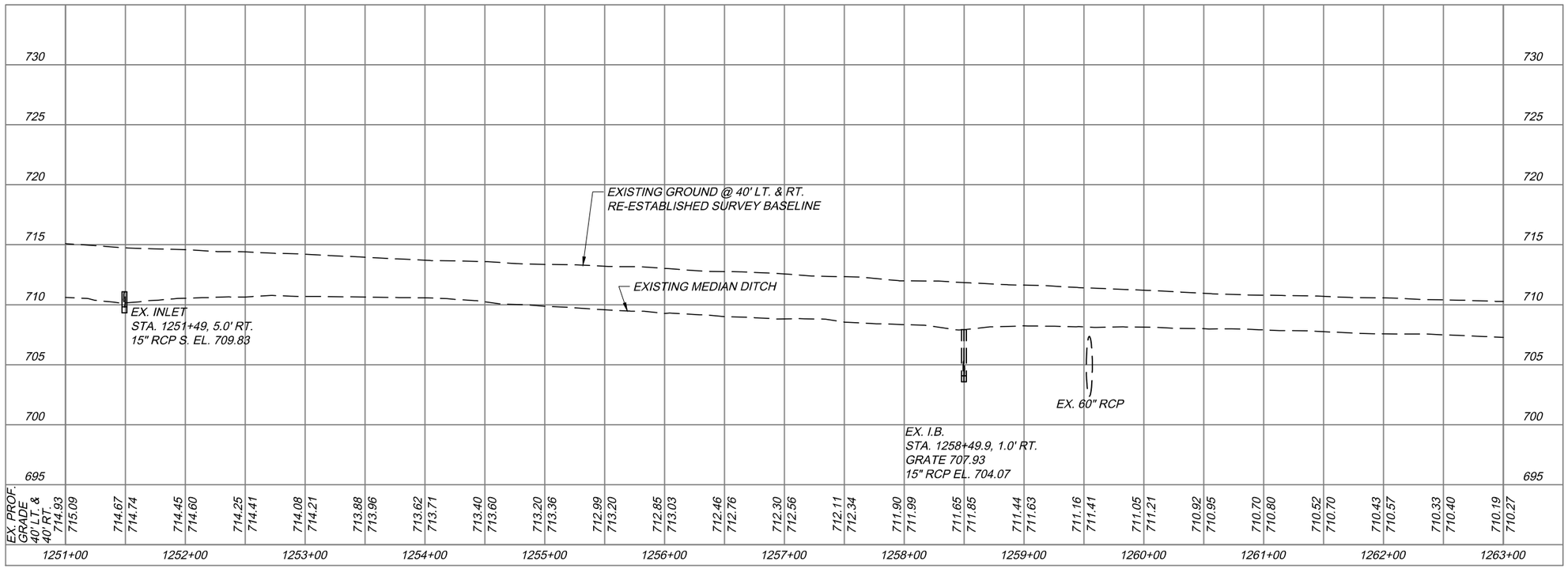
6 / 9

118 / 349

OHIO TURNPIKE

H:\2018\180192\DWG\SHEETS\C_180192 - ROADWAY SUBSUMMARY.DWG - UNDERDRAIN - 12/27/2018 8:15:19 AM - KEVIN ABRAMS





DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | DRAWN K.P.A. | CHECKED W.D.B. | IN CHARGE W.D.B.

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

PLAN AND PROFILE
STA. 1251+00 TO STA. 1263+00

PROJECT 43-19-07
DATE: 12/06/18

2 / 25

133 / 349

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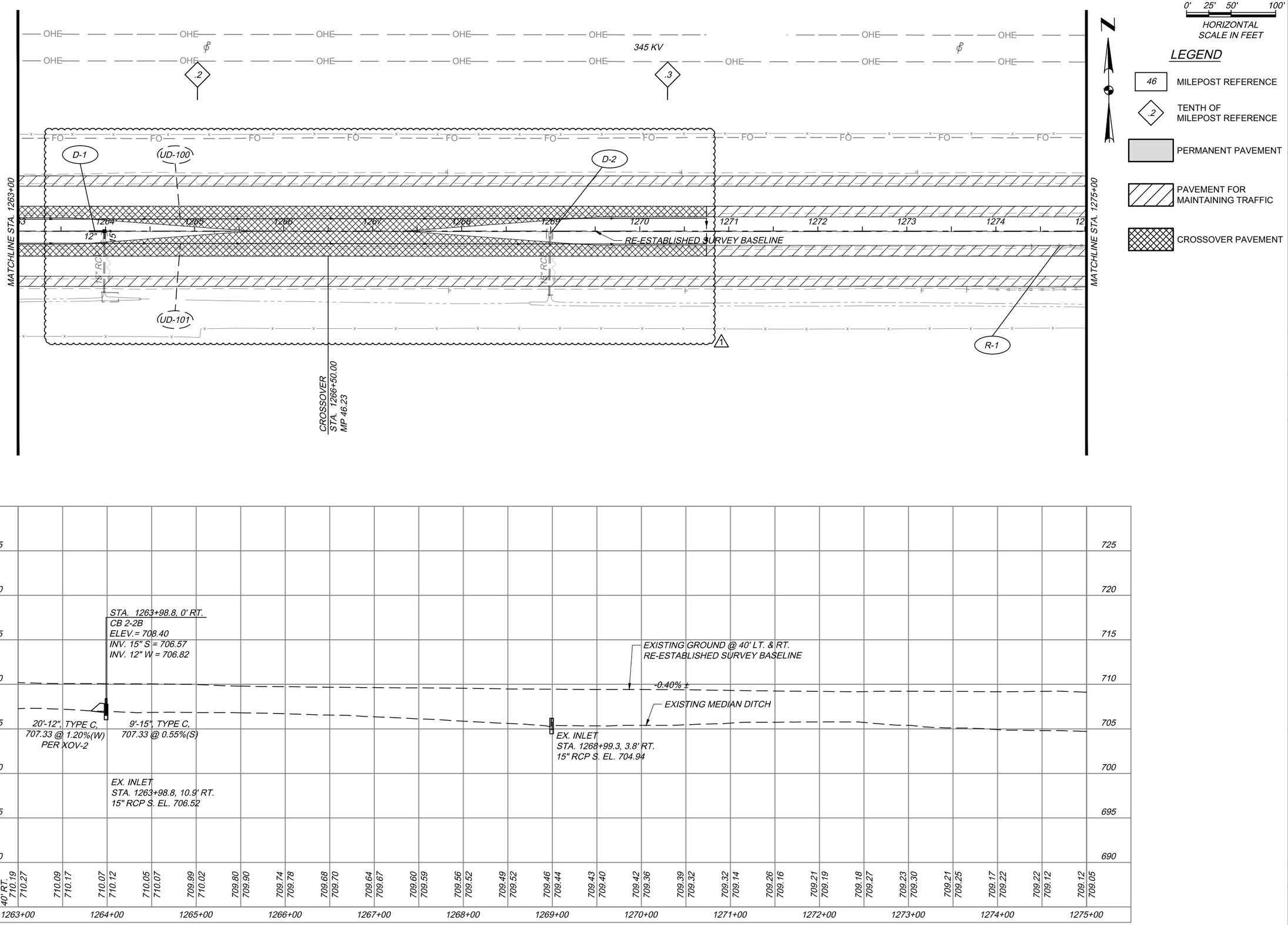

DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | DRAWN K.P.A. | CHECKED W.D.B. | IN CHARGE W.D.B.

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

PLAN AND PROFILE
STA. 1263+00 TO STA. 1275+00

PROJECT 43-19-07

DATE: 12/06/18

3 / 25

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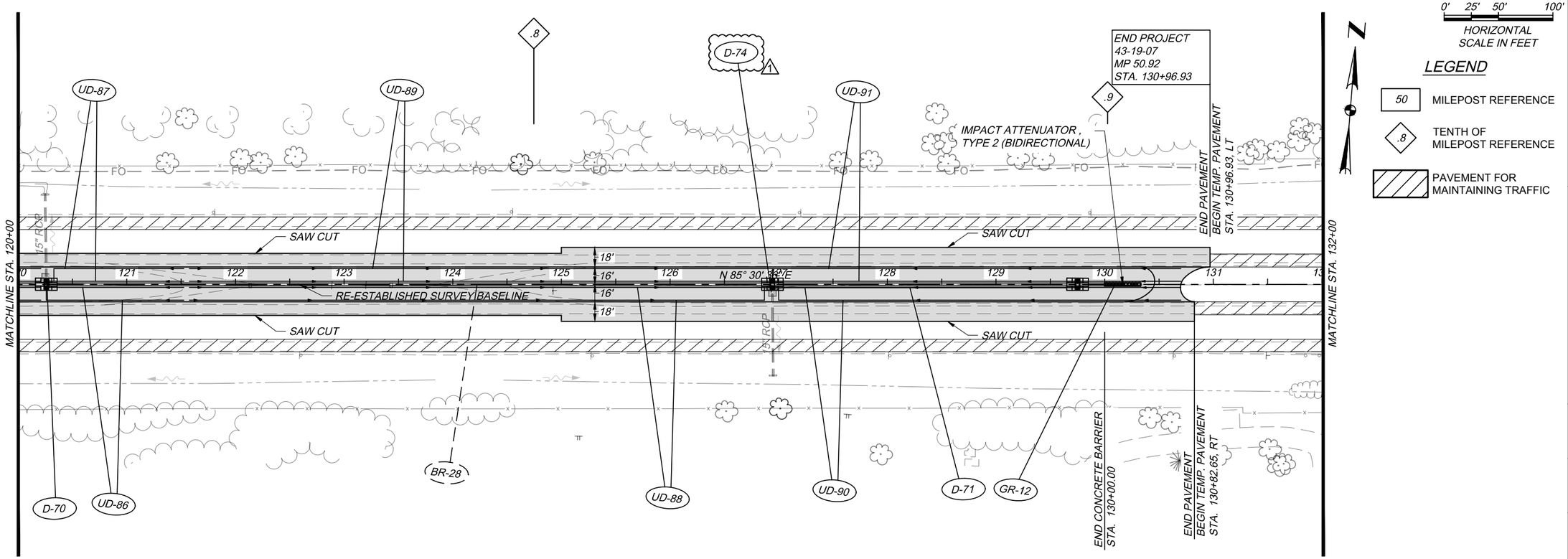

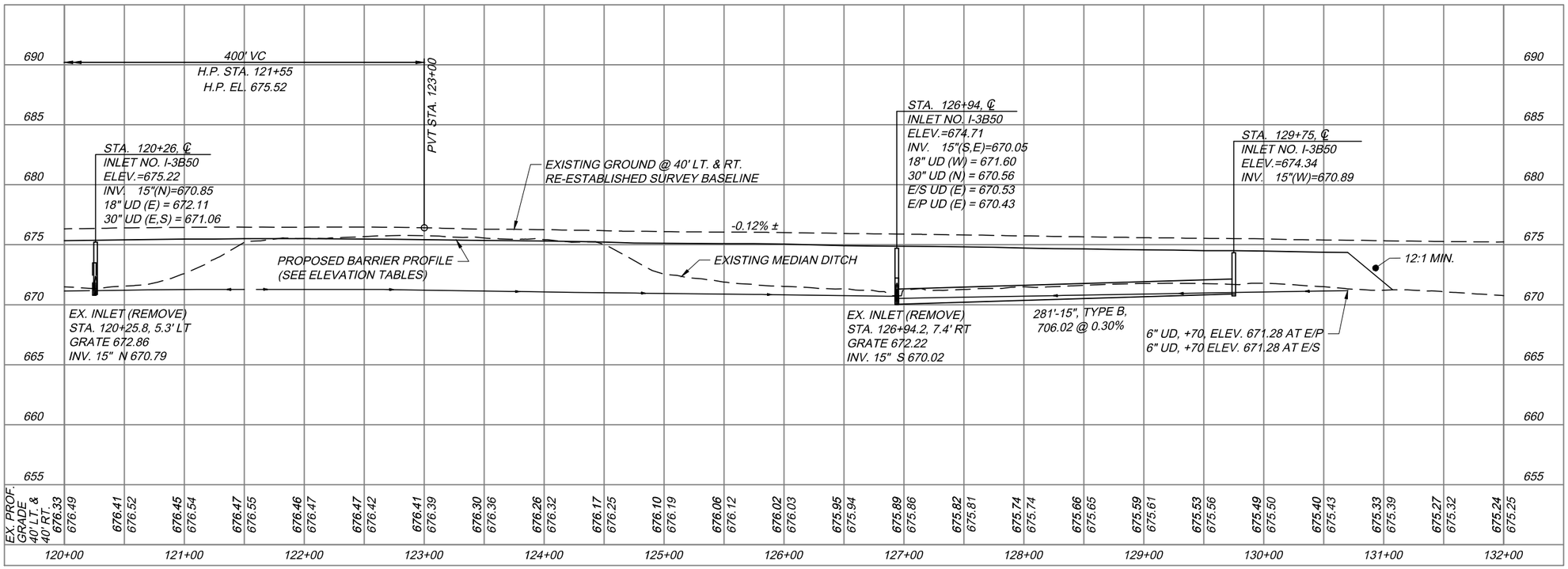

DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED	CHECKED
J.M.P.	W.D.B.
DRAWN	IN CHARGE
K.P.A.	W.D.B.

PLAN AND PROFILE
STA. 120+00 TO STA. 132+00

PROJECT 43-19-07
DATE: 12/06/18

23 | 25

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349

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

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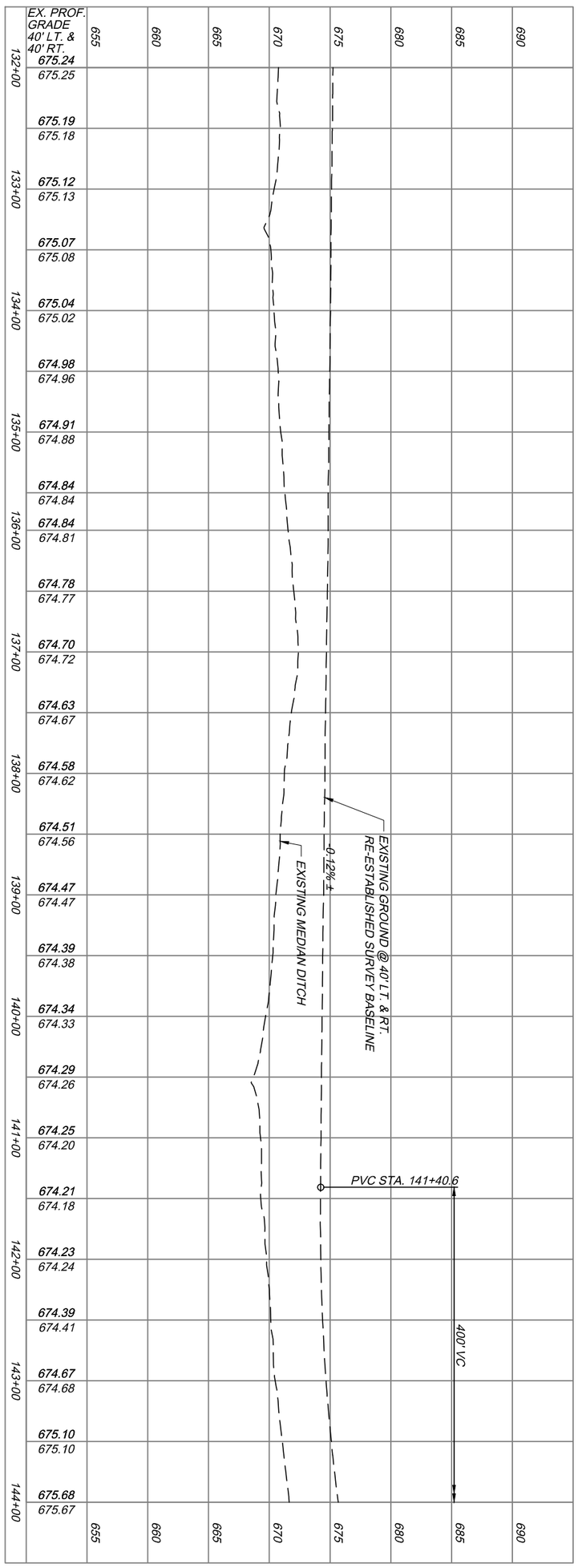

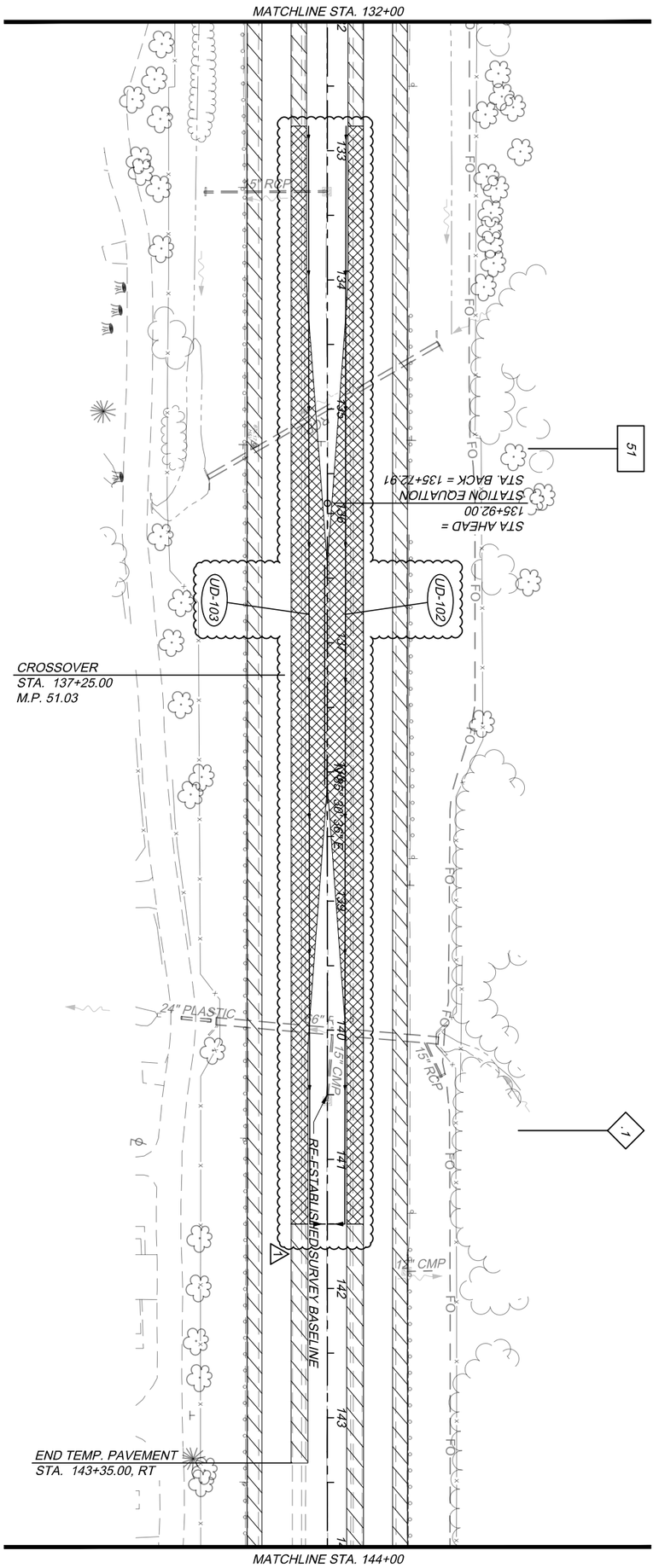

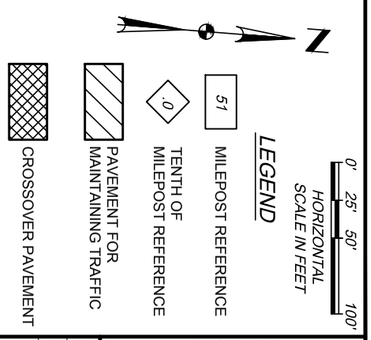

155/349	24/25	PROJECT 43-19-07	PLAN AND PROFILE	DESIGNED J.M.P.	CHECKED W.D.B.	NO.	REVISIONS	BY	DATE
		DATE: 12/06/18	STA. 132+00 TO STA. 144+00	DRAWN K.P.A.	IN CHARGE W.D.B.	1	ADDENDUM NO. 3	KPA	12/27/18

DESIGN AGENCY

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

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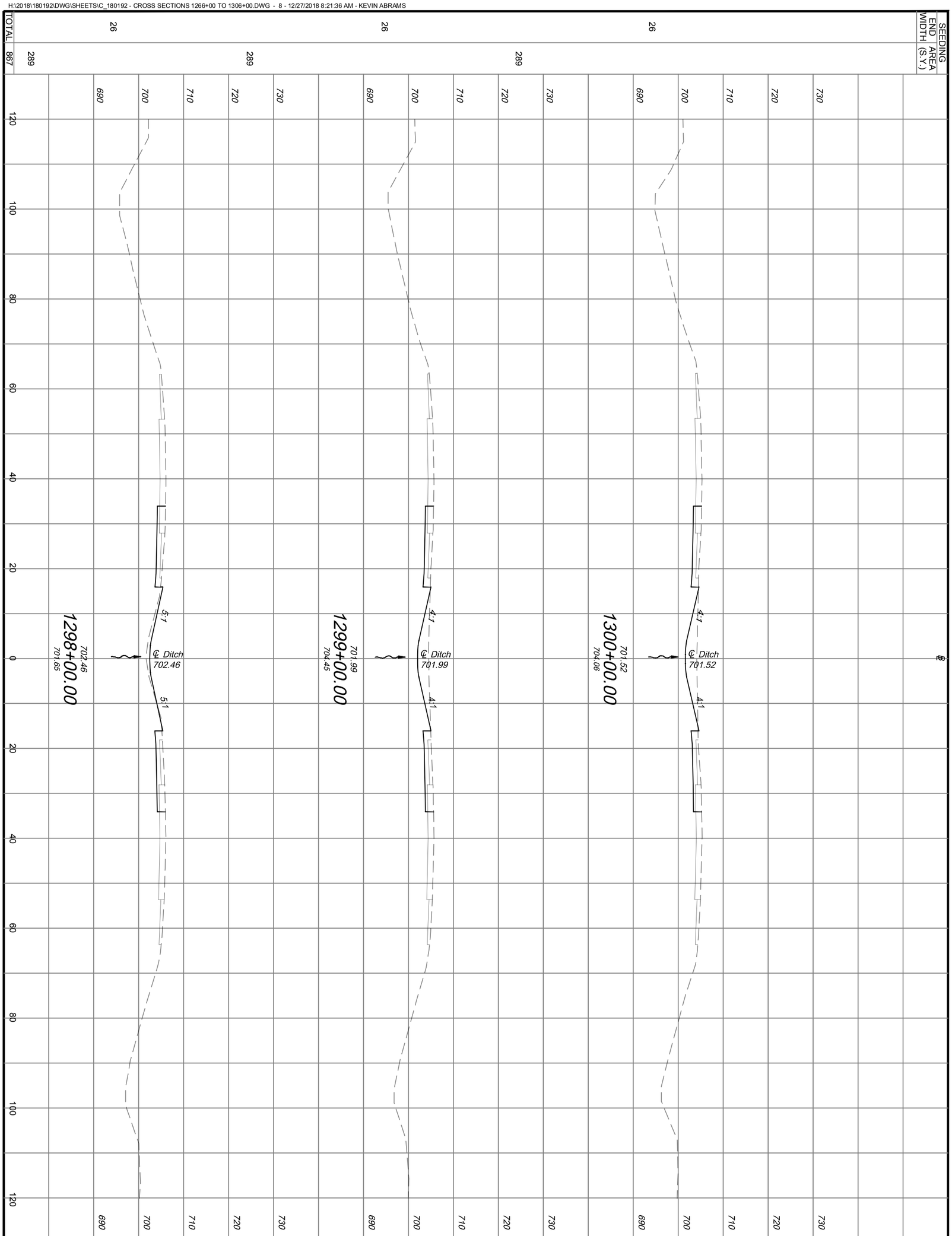

SEEDING END AREA WIDTH	SEEDING AREA (S.Y.)
26	289
26	289
26	289
TOTAL	867

EARTHWORK END AREA VOLUME (S.F.) CUT	EARTHWORK END AREA VOLUME (S.F.) FILL	EARTHWORK VOLUME (C.Y.) CUT	EARTHWORK VOLUME (C.Y.) FILL
77	0	283	0
76	0	196	24
30	13	113	57
TOTAL		341	333

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | CHECKED W.D.B. | DRAWN B.A.G. | IN CHARGE W.D.B.

DESIGN AGENCY

PROJECT 43-19-07

DATE: 12/06/18

CROSS SECTIONS
1298+00 TO 1300+00

8 / 80

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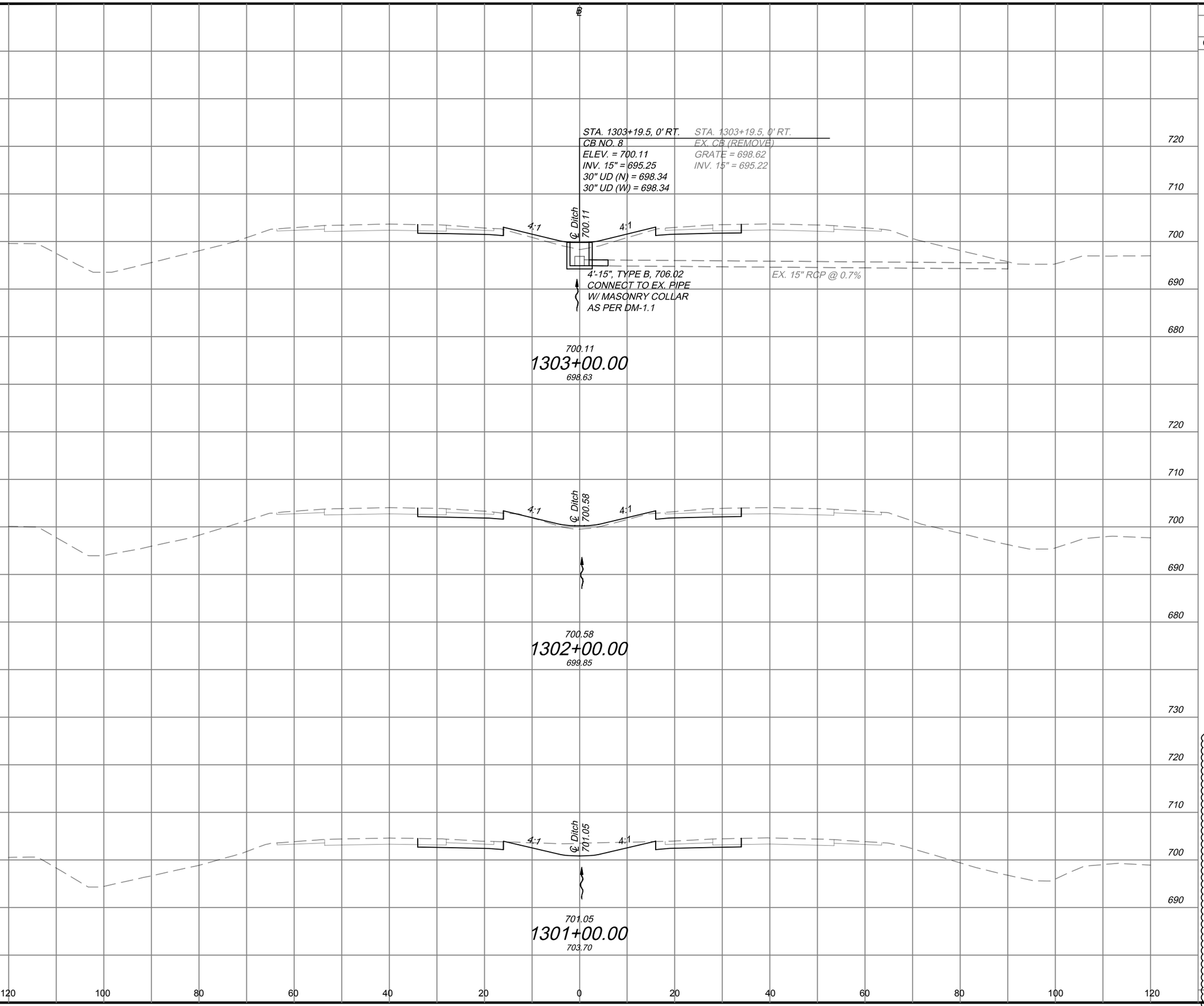
OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

SEEDING		EARTHWORK			
END WIDTH	AREA (S.Y.)	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
26	289	30	27	111	70
26	289	30	11		
26	289	79	0	202	20
	289			289	0
TOTAL	867	TOTAL		602	90



NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/27/18

DESIGNED J.M.P. | DRAWN B.A.G. | CHECKED W.D.B. | IN CHARGE W.D.B.

DESIGN AGENCY

OHIO TURNPIKE

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

CROSS SECTIONS
1301+00 TO 1303+00

PROJECT 43-19-07

DATE: 12/06/18

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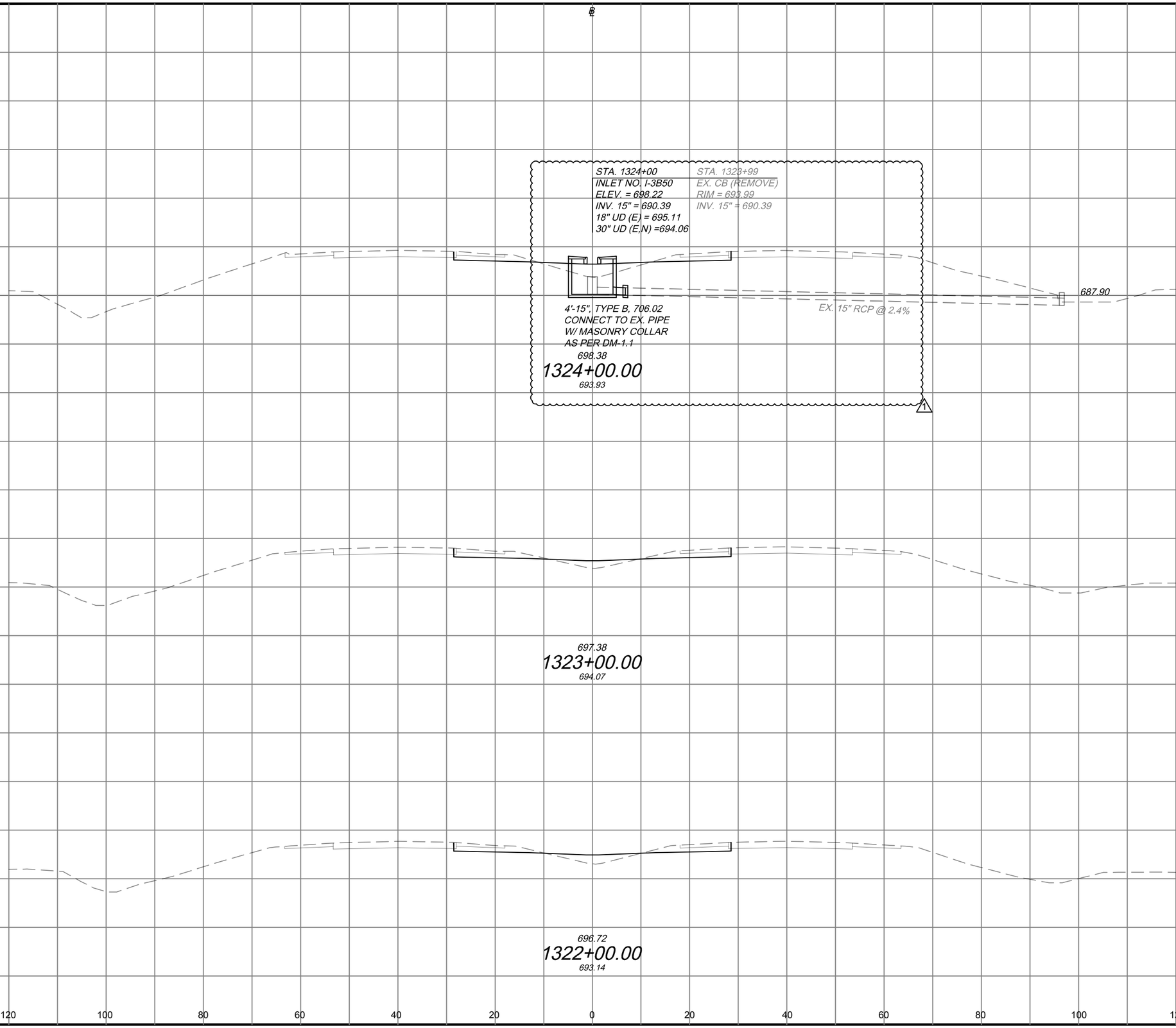
SEEDING		EARTHWORK			
END WIDTH	AREA (S.Y.)	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
0	0	29	34	115	91
0	0	33	15	122	65
0	0	33	20	119	93
TOTAL	0	TOTAL		356	249



DESIGN AGENCY

NO.	REVISIONS	BY	DATE
1	ADDENDUM NO. 3	KPA	12/7/18

DESIGNED J.M.P. | DRAWN B.A.G. | CHECKED W.D.B. | IN CHARGE W.D.B.

CROSS SECTIONS
1322+00 TO 1324+00

PROJECT 43-19-07
DATE: 12/06/18

16 / 80

172 / 349

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

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SP 102 SPECIFICATIONS

All Work under this Project is to be constructed under the applicable sections of the Construction and Material Specifications ("CMS") of the State of Ohio Department of Transportation ("ODOT"), dated January 1, 2016 and Supplemental Specifications unless an earlier edition is specified on an Ohio Turnpike Standard drawing, excepting Section 100 thereof - General Provisions, and in accordance with the General Conditions of the Commission, these Special Provisions, the payment items listed on the Bid Form, and the terms and conditions of the Contract Documents. If there is reference to Section 100 of the ODOT CMS in other sections of the CMS, the appropriate provision of Section 100 shall apply and be operative, unless there is a specific statement to the contrary in the General Conditions, Special Provisions, and terms and conditions of the Contract Documents of the Commission. Whenever the word "Director" appears in the ODOT CMS, it shall be construed to mean the "Commission" or the "Chief Engineer" of the Commission, as set forth in the definitions of the Standard Conditions.

SP 103 CONSTRUCTION PHASING AND TIME OF COMPLETION

(11/15/2018)

The Work shall be performed and completed in its entirely in strict accordance with the Plans, Specifications, Special Provisions and other Contract Documents as follows:

A. Notice to Proceed (NTP): The Commission will issue the Contractor the Notice to Proceed (NTP) by the Chief Engineer after the Contract is fully executed. Upon receipt of the NTP, the Contractor shall begin performance of preliminary investigations and survey layout work, as approved by the Chief Engineer, and preparation of the Construction Schedule, Shop Drawings and submittals for this Project.

B. Baseline Construction Schedule: The Baseline Construction Schedule for this Project shall be submitted within 14 calendar days of the NTP and accepted by the Chief Engineer within 30 calendar days of the NTP in accordance with the General Condition Articles 4.2 and 4.3 and SP 120A to the extent made applicable through incorporation in the Contract Documents. Liquidated damages for failure to submit an accepted Construction Schedule shall commence 31 Calendar days after the NTP.

C. Construction Access: The Commission anticipates providing the Contractor access to the Turnpike on or about **February 1, 2019** at which time the Contractor may begin the Work for this Project. Mainline lane closures between February 1, 2019 and April 1, 2019 may be restricted by the Chief Engineer due to current or forecasted snow and ice weather conditions.

D. Pavement and Bridge Completion Interim Milestone: The Pavement and Bridge Completion Interim Milestone shall be defined as completing all asphalt paving, approach slabs, abutment slabs bridge decks and parapets by ~~**October 18**~~ **November 1, 2019.** Liquidated Damages for failure to complete this Interim Milestone as described above shall commence on ~~**October 19**~~ ***November 2*****, 2019.**

E. Substantial Completion: The Work, ***with the exception of the painting items***, shall be substantially complete **by November ~~8~~ *22*, 2019**. Substantially completed shall mean all Work, as described in the Contract Documents, excluding punch list items and painting items, have been completed including that all Local Roads and the Turnpike roadway (all traffic lanes and shoulders) are open to traffic, as well as all

traffic control and safety devices in place and approved by the Chief Engineer. Liquidated damages for failure to substantially complete the Work described in Part E herein shall commence **on November ~~9~~ *23*, 2019.**

F. 2019 Final Completion: All Punch List items excluding painting of the structures for this Project shall be completed in strict accordance with the Plans, Specifications, Special Provisions, and other Contract Documents **by December ~~9~~ 23, 2019**. Liquidated damages for failure to meet the 2019 Final Completion Date shall commence **on December ~~10~~ *24*, 2019**.

G. 2020 Final Completion: All painting of the structures and painting Punch List items for this Project shall be completed in strict accordance with the Plans, Specifications, Special Provisions, and other Contract Documents **by June 15, 2020**. Liquidated damages for failure to meet the 2020 Final Completion Date shall commence **on June 16, 2020**.

It shall be noted that in order to meet the above referenced dates, the Contractor may be required to Work additional shifts and/or extended hours as well as periodic holidays and weekends. These additional forces shall be included in their Bid and there shall be no additional cost to the Commission.

SP 104 ACCESS TO TURNPIKE AND RESTRICTIONS

(05/17/2017)

The Contractor will be provided access and use of Turnpike roadways during the progress of the Work under this Project as follows:

A. Toll-free access for the Contractor's equipment and vehicles may be granted. A limited number of construction transponders will be issued for the Contractor's motor vehicles. A detailed request outlining the quantity and need for toll-free transponders must be submitted to and approved by the Chief Engineer.

B. It shall be the Contractor’s responsibility to manage the issuance and use of all construction transponders for performing the Work under the Project. The Contractor shall be liable for any misuse of said transponders whether it is by the Contractor’s forces or those of a subcontractor. Use of these transponders for personal travel or other travel not associated with this Project is strictly forbidden. The Contractor shall be advised that any personal or company transponders issued for use other than on this Project, must be removed from Project vehicles or properly stored in protective mylar bags provided. It is the responsibility of the Contractor to advise all subcontractors of the same requirements. The Commission will not be responsible for providing credit to accounts that are billed due to improper storage of personal or company transponders. Upon the completion of the Project, ALL transponders shall be returned to the Commission. Should the Contractor return less than the number issued to them, the Commission shall withhold the sum of one hundred ($100.00) dollars per transponder not returned from any monies due the Contractor.

C. The toll-free access, if granted, will be limited to a specified range of gates on each side of the Project limits. The Contractor will be charged a toll for all Turnpike

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION 832
TEMPORARY SEDIMENT AND EROSION CONTROL

January 17, 2014

832.01 Description. This work consists of locating, furnishing, installing, and maintaining temporary sediment and erosion control Best Management Practices (BMP) for earth disturbing activity areas, developing a Storm Water Pollution Prevention Plan, and filing a Co-Permittee form as required. Furnish a Storm Water Pollution Prevention Plan if required prior to any earth disturbing activity. Furnish and install temporary sediment and erosion control best management practices in compliance with all NPDES and surface water permits. Amend the Storm Water Pollution Prevention Plan in accordance with the OEPA NPDES Permit. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, State, or local agencies, adhere to the more restrictive laws, rules, or regulations.

832.02 Definitions

BMP. Temporary sediment and erosion control best management practices designed and installed by methods compliant with the Ohio NPDES Permit (Appendix E of this specification Part III. G. 2.), by this specification and location shown on the SWPPP. .

C&MS. Construction and Material Specifications of the Ohio Department of Transportation dated as shown on the plans.

CECI. Contractor's Erosion Control Inspector. Must have active CESSWI or CPESC certification.

CESSWI. Certified Erosion, Sediment, and Storm Water Inspector sponsored by the Soil and Water Conservation Society and International Erosion Control Association. Information on certified individuals is available at *www.cesswi.org*.

CPESC. Certified Professional in Erosion and Sediment Control as sponsored by the Soil and Water Conservation Society and International Erosion Control Association. Information on certified individuals is available at *www.cpesc.net*.

Co-Permittee. A requirement of OEPA NPDES Permit (Appendix E of this specification, Part I. F. Notice of Intent Requirements).

EDA. Earth Disturbing Activity is any activity that exposes bare ground or an erodible material to storm water, including any "Disturbance" as defined in OEPA NPDES Permit, Part VII, Definition H.

Contractor EDA. Any EDA that is not shown on the plans as part of the project. EDA not shown on the plans and occurring within the project limits is also Contractor EDA.

Project EDA. Any EDA that is shown on the plans as part of the project.

Total EDA. Combined Project EDA and Contractor EDA.

EPA. Environmental Protection Agency.

Isolated Wetland Permit. Ohio EPA permit allowing the discharge of fill material into an isolated wetland.

NOI. Notice of Intent.

NOT. Notice of Termination.

NPDES. National Pollutant Discharge Elimination System.

OEPA. Ohio Environmental Protection Agency.

OEPA NPDES Permit. Ohio EPA Storm Water Construction General Permit (OHC 000004) Appendix E of this specification.

OES. Office of Environmental Services-ODOT.

OHWM. The line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas or defined in accordance with the most current version of 33 CFR 328.

Operator. As defined in OEPA NPDES Permit (Appendix E of this specification, Part VII. Definitions, Q.)

OWPCA. Ohio Water Pollution Control Act (Ohio Revised Code 6111.01 et seq.).

PCN. Pre-Construction Notification for 404 permit.

SCD. Standard Construction Drawing.

SWPPP. Storm Water Pollution Prevention Plan.

USACE. United States Army Corps of Engineers.

404 Permit. USACE permit authorizing discharge of fill material into Waters of the US, per Section 404 of the Clean Water Act.

401 Water Quality Certification (401 WQC). Ohio EPA permit authorizing discharge of fill material, per Section 401 of the Clean Water Act.

Waters of the United States. Defined in Code of Federal Regulations, 33 CFR Part 328.

832.03 SCD References. Construct the following features according to the SCDs as listed on the plan title sheet.

Construction Fence DM-4.3
Dikes DM-4.3
Filter Fabric Ditch Check DM-4.4
Inlet Protection.....DM-4.4
Perimeter Filter Fabric Fence DM-4.4
Rock Channel Protection Type C or D with/without Filter
.....DM-4.3/4.4
Sediment Basins and Dams DM-4.3
Slope Drains.....DM-4.3
Construction Entrance (Type 1 Driveway).....BP 4.1

832.04 Requirements and Provisions. Furnish a SWPPP to represent compliance with OEPA NPDES Permit (See Appendix E), related rules, specifications, SCD, and permits. The Department will furnish the Contractor a copy of the NOI and the OEPA approval letter at or before the Pre-Construction meeting.

Locate, furnish, install, and maintain temporary sediment and erosion control Best Management Practices (BMP) that are compliant with the Clean Water Act (33 USC Section 1251 et seq.), the OWPCA, the 404 permit, the 401 WQC, the Isolated Wetland Permit, local government agency requirements, specifications, SCD, and other related rules and permits.

File a Co-Permittee form when the project requires a Notice of Intent (NOI) to the Ohio EPA.. Information about the Co-Permittee form can be found at *http://epa.ohio.gov/Portals/35/storm/StormWater_Co-Permittee_NOI.pdf* For a copy of the Co-Permittee form see Appendix D. When a co-permittee form is required, furnish the Department with a copy of the OEPA Co-permittee NOI approval letter at or before the Pre-Construction meeting.

Post Construction controls described in Appendix E (Part III.G.2.e) are not temporary erosion control features. Construction requirements and compensation for post construction controls are

detailed in the project plans. Provide protective measures that ensures sediment, debris and any contamination will not enter the Post Construction controls. All costs associated with these protective measures are included in the compensation for post construction controls.

The following provisions survive the completion and/or termination of the contract.

Provision 1. If a governmental agency or a local governmental authority finds a violation of the above noted requirements, or that the BMP are incomplete, or that the SWPPP is incomplete or that the implementation of the SWPPP is not being performed correctly or completely, full responsibility is borne by the Contractor to make all corrections.

Provision 2. If a governmental agency or a local governmental authority furnishes an assessment, damage judgment or finding, fine, penalty, or expense for a violation of the above noted requirements, or that the BMP are incomplete, or that the SWPPP is incomplete or that the implementation of the SWPPP is not being performed correctly or completely, the Contractor will reimburse the Department within 10 Calendar Days of the amount for any of the above. The Department may withhold the amount of money requested for the above from the Contractor's next pay estimate and deliver that sum to the governmental agency or local governmental authority issuing the assessment, damage judgment or finding, fine, penalty or expense.

Provision 3. The Contractor agrees to indemnify and hold harmless the Department, and will reimburse the Department for any assessments, damage judgment or finding, fine, penalty, or expense as a result of the failure of performing this portion of the Contract. The Department may withhold the amount of any assessments, damage judgment or finding, fine, penalty or expense from the Contractor's next pay estimate.

Provision 4. If a governmental agency or a local governmental authority furnishes a stop work order for any of the following: a violation of the above noted requirements; BMP are incomplete; SWPPP is incomplete; implementation of the SWPPP is not being performed correctly or completely, the Department will find the Contractor in default.

Provision 5. If the Department or any government regulatory agency finds a violation of the above noted requirements, or that the BMP are incomplete, or that the SWPPP is incomplete or that the implementation of the SWPPP is not being performed correctly or completely, the Contractor shall correct and mitigate the conditions within 48 hours of notification by the Department or regulatory agency. Failure to correct non-compliant site conditions may result in the Department suspending work for the entire project until the corrections are performed. Repeated non-compliance with the SWPPP or failure to regularly update the SWPPP as needed to match the site conditions may result in removal of the Contractors Superintendent in accordance with C&MS 108.05.

EDA Requirements. Furnish appropriate BMP for all EDA. Unless otherwise indicated, BMP will be compensated provided that the BMP are designed, installed and maintained appropriately. For projects that do not require a SWPPP as indicated in the table below, furnish a written plan for acceptance by the Engineer that identifies the location, extent and purpose of the BMP proposed. Compensation will not be provided for the written plan.

An estimated amount is established in the proposal for BMP to be used for project EDA and estimated Contractor EDA as outlined below:

Scenarios for Routine Maintenance Projects
(as identified on the Plan Title Sheet)

Project EDA (acres)	Estimated Contractor EDA (acres) [1]		
	EDA = 0	0 < EDA < 1	1 ≤ EDA < 5
EDA = 0	A	B	C
0 < EDA < 5	B	B	C

Scenarios for Non Routine Maintenance Projects

Project EDA (acres)	Estimated Contractor EDA (acres) [1]		
	EDA = 0	0 < EDA < 1	EDA ≥ 1
EDA = 0	A	B	D
0 < EDA < 1	E	[2]	F
EDA ≥ 1	F	F	F

[1] If the actual Contractor EDA in the SWPPP exceeds the estimated Contractor EDA on the Title Sheet resulting in a Total EDA > 1 acre (0.4 ha), use Scenario D.

[2] If project EDA and estimated Contractor EDA are less than 1 acre (0.4 ha), use Scenario E. If Project EDA and Estimated Contractor EDA are greater than 1 acre (0.4 ha), use Scenario F. If the actual Contractor EDA exceeds the estimated Contractor EDA and results in the Total EDA exceeding 1 acre (0.4 ha), use Scenario D.

Scenario A:	No requirements for SWPPP, NOI and NOT.
Scenario B:	Furnish BMP for Contractor EDA. No SWPPP, NOI or NOT are required. BMP used for Contractor EDA will not be compensated.
Scenario C:	Furnish a BMP, SWPPP, NOI, and NOT for Contractor EDA only. BMP used for Contractor EDA, SWPPP, NOI and NOT will not be compensated.
Scenario D:	Furnish a NOI, SWPPP with BMP, and a NOT for all EDA areas. The NOI, SWPPP, BMP, and the NOT will not be compensated.
Scenario E:	Furnish BMP for all EDA. No SWPPP, NOI or NOT are required. BMP used for the Project EDA will be compensated.
Scenario F:	Furnish a SWPPP with BMP for all EDA areas and file a Co-Permittee form. The SWPPP and these BMP will be compensated. The Department will furnish a NOI and NOT.

832.05 Locate and Furnish BMP. Locate and furnish the BMP in accordance with the OEPA NPDES Permit and the SWPPP.

The Department may accept other materials or alternative controls as BMP provided the Contractor submits a written proposal for the alternatives to the Engineer. Alternative controls, upon acceptance by the Engineer, will be compensated per unit price for the BMP as shown in Appendix F.

Furnish filter fabric ditch checks, inlet protection, perimeter filter fabric fence, sediment basins and dams, dikes, slope drains, construction entrances, erosion control mat and rock channel protection materials as specified on the SCD.

A. Perimeter Controls. Use perimeter filter fabric fence to capture construction related sediment carried in sheet flow runoff. Restrict the use of perimeter filter fabric fence to the extent allowed in the OEPA NPDES Permit.

Use dikes to divert and control surface water and sediment flow to prevent discharge of construction related sediment from the project.

Install perimeter filter fabric fence and dikes before any clearing and grubbing operations.

Ensure that the ponding of water behind the perimeter filter fabric fence or dike will not damage property or threaten human health and safety.

B. Inlet Protection. Construct the inlet protection for existing inlets at the beginning of construction and for new inlets immediately after completing the sump. Ensure that the ponding of water behind the inlet will not damage property or threaten human health and safety.

C. Construction Seeding and Mulching. Furnish commercial fertilizer, seed, and mulch materials conforming to C&MS Item 659. Apply seed and straw mulch materials according to C&MS Item 659 as modified below.

Apply straw mulch at a rate of 3 tons per acre (0.7 metric ton/1000 m2). Seed and mulch during construction. This BMP may only be installed after March 15 and before October 15. Use wood fiber or compost mulch only with concurrence of the Department. Fertilize construction seeding areas at one-half the application rate specified in C&MS Item 659. If project conditions prevent fertilizing the soil and preparing the seed bed, then the fertilizing and preparation requirements of C&MS Item 659 may be waived. Do not place construction seed or fertilizer on frozen ground. Apply seed for this BMP at the rates shown below:

Seed Mixture	Number of Bales
Fawn Tall Fescue 3.0 lb/1000 ft^2 (15 kg/1000 m^2) and Annual Ryegrass 2 lb/1000 ft^2 (10 kg/1000 m^2)	2 / 1000 ft^2 (0.01 ha)

D. Construction Mulch. Construction Mulch is the application of straw mulch applied directly to the disturbed soil surface. Use straw according to C&MS Item 659. C&MS 659 wood fiber or compost mulch may only be used with concurrence of the Department. Apply Construction Mulch only to disturbed areas which will remain idle for 14 days or lessor areas of exposed subgrade that require temporary stabilization. Use a mechanical crimping implement or other suitable implement accepted by the Engineer when installing Construction Mulch on exposed subgrade. Apply Construction Mulch at a rate of 3 tons per acre (0.7 metric ton/1000 m2).

E. Winter Seeding and Mulching. Apply seed and straw mulch materials according to C&MS Item 659 as modified above. Apply straw mulch at a rate of 3 tons per acre (0.7 metric ton/1000 m2). Winter Seed and Mulch is required for EDA operations occurring between October 15 and March 15 and can only be installed during that time. When straw mulch is used in this BMP, it is required to be crimped in place. Crimped mulch is required to be anchored into the soil surface with a mechanical crimping implement or other suitable implement accepted by the Engineer. Bonded Fiber Matrix may be used instead of straw mulch.. All mulch and BFM used in this BMP must be capable of providing sufficient durable protective cover that provides OEPA NPDES Permit compliant erosion control for a minimum of 6 months. Provide maintenance of the BMP throughout the 6 month period. The Department will not provide compensation for reapplication or repair of this BMP during the 6 month period. The use of other seed and/or mulch materials in this time period requires specific Department approval. The use of winter seeding and mulching is not an acceptable practice for protecting the subgrade surface.

F. Slope Protection. Place dikes, install slope drains, and construct ditches to divert water from bare non-vegetated areas and to protect cut and fill slopes. Protect the side slopes from erosion by placing dikes at the top of fill slopes prior to construction of the slope. Construct ditches and dikes prior to construction of cut slopes to divert runoff away from the slope. Ensure that all sediment-laden discharges from slope protection are directed into an appropriate sediment control BMP.

Furnish Construction Slope Protection at the required locations as the slopes are constructed. Furnish all permanent slope protection as shown in the construction plans when final grade is complete.

G. Ditch Checks and Ditch Protection. Place filter fabric ditch checks or rock checks across a ditch and perpendicular to the flow. Use rock checks to protect the ditch from erosion. Use filter fabric ditch checks to filter sediment from the flowing water only when appropriate and when sediment dams/basins are considered a safety hazard or infeasible as determined by the Engineer

Place ditch checks as soon as the ditch is cut. If working on a ditch, replace the ditch checks by the end of the workday.

Install filter fabric ditch checks for drainage areas less than or equal to 2 acres (0.8 ha) as shown in the SCD. Install rock checks for drainage areas between 2 to 5 acres (0.8 to 2.0 ha) as shown in the SCD.

Install ditch checks in conjunction with Sediment Basins and Dams when appropriate.

Furnish Construction Ditch Protection at the required locations as the ditches are cut. Furnish all permanent ditch protection as shown in the construction plans when final grade is complete.

H. Sediment Basins and Dams. Design and construct Sediment Basins and Dams in accordance with and as described in the OEPA NPDES Permit for “sediment settling ponds”. Design and construct Sediment Basins and Dams at concentrated and critical flow locations to settle out sediment before the water leaves the EDA area. Do not construct Sediment Basins and Dams in any jurisdictional waterways .

All sediment basins requiring a dewatering device (riser and outlet pipe) shall incorporate a surface water dewatering device as described in the OEPA NPDES Permit. The Department will provide compensation for appropriately sized outlet pipes and surface dewatering device as described in Appendix F.

Compensation will not be provided for dewatering devices not included in the SWPPP and appropriately sized by the PE/CPESC. Compensation will be provided once for each dewatering device purchased exclusively for the project.

Complete the construction of the Sediment Basins and Dams before starting EDA operations.

When needed or when directed by the Engineer, install construction fence around the Sediment Basins and Dams.

I. River, Stream, and Water Body Protection. Provide appropriate river, stream and water body protection to all surface waters on and, adjacent to the project. River, Stream, and Water Body Protection may include diverting project water flow using dikes and slope protection. The Contractor may use a combination of BMP. Show all surface waters located within & adjacent to Project and Contractor EDA on the SWPPP.

J. Stream Relocation, Temporary Channels and Ditches that carry Waters of the United States. Perform this work in compliance with the OEPA NPDES Permit and any other applicable permits (i.e. 404/401 Permits). Stabilize Stream Relocation, Temporary Channels and Ditches with Construction Slope Protection or 70 percent grass growth before diverting flow into the new channel.

K. Concrete washout areas BMP. Compensation for this BMP is incidental to the concrete work.

L. Construction Entrances. Furnish Construction Entrance materials conforming to C&MS 712.09 Type B Filter Blankets for Rock Channel Protection and C&MS 703.01, Size Number 1 and 2, CCS aggregate. Furnish Construction Entrance protection at the locations shown on the SWPPP and as required below:

1. At locations where construction vehicles enter or leave EDA areas.
2. At all points of egress to public roads.
3. At all access locations where runoff from the construction access road is not protected by sediment controls.

Provide the appropriate size culvert as needed to prevent water from flowing onto paved surfaces and from overtopping the construction entrance surface. Identify the culvert size on the SWPPP. Install a maximum of three Construction Entrances per mile along the length of the project. The length of the project is the plan length along the project's longest axis. Additional construction entrances in excess of the maximum require acceptance from the Engineer.

Locate and identify all Construction Entrances on the SWPPP.

Provide a configuration consisting of 6 inches of aggregate over geotextile fabric. Provide geometry according to a Type 1 Driveway as shown in the SCD. Provide a minimum 10 foot width and length measuring a minimum of 150 feet and not exceeding 200 feet from edge of pavement.

Construction Entrance removal includes the appropriate disposal of geotextile fabric and pipe. Aggregate may be incorporated into embankment work when approved by the Department.

M. Project fueling and refueling BMP locations. Compensation for this BMP is incidental to the project.

The SWPPP shall include BMP to prevent and respond to spills or leaks as required by the OEPA NPDES Permit.

The Contractor will provide a separate Spill Prevention Control & Countermeasure Plan if required for the project as described in 40 CFR Part 112. The Contractor will not be compensated for the SPCC Plan.

N. All other BMP that are required and not specifically referenced in Appendix F will not be paid as a separate item, but will be included by the Contractor as part of the total project cost.

832.06 Causeways and Access Fills (Stream and River Crossings and Fills). Fording of jurisdictional waters, including all streams and rivers is not allowed. Evaluate the 404/401 permits to determine whether or not causeway and access fills are permitted in the contract. If a causeway and access fills have been permitted, construct fill(s) per the 404/401 permits, and the application submitted for those permits. Only the footprint area (acreage) of temporary fill, and volume of temporary fill as permitted and contained in the permit application will be allowed. The footprint area (acreage) of temporary fill, and volume of temporary fill may be furnished in the construction plans. The construction plans may furnish additional information or restrictions for causeways or access fills. If the Contractor proposes a causeway and access fill(s) which has not been permitted through the 404/401 permit process, the Contractor is required to coordinate the request for the causeway and access fill(s) with the project engineer and OES. The Department makes no guarantee to granting the request. The causeway and access fills request will be coordinated by OES with the USACE and OEPA where applicable.

Supply the project engineer/OES with the following information:

A. A plan and profile drawing showing the causeway and access fills with OHWM elevation.
B. Volume of temporary fill below the OHWM.
C. The surface area of temporary fill below the OHWM.
D. A restoration plan for the area affected by the causeway and access fills.
E. Time frames for placement and removal of the causeway and access fills.
F. Temporary Access Fill Checklist

The time frame allowed for the coordination of the causeway and access fill(s) will be 60 days, at a minimum, and the causeway and access fill(s) will not occur prior to the 404 Permit being authorized by the USACE and Ohio EPA, if an individual 401 is required. All coordination with the USACE and/or OEPA will be performed through OES.

832.07 Causeway and Access Fills Construction and Payment. Begin planning and installing causeways and access fills as early in construction as possible to avoid conflicts with 404/401 permits or other environmental commitments that have been included in the construction plans.

Access fills in streams or rivers may include, but are not limited to, cofferdams, access pads, temporary bridges, etc.

Make every attempt to minimize disturbance to water bodies during construction, maintenance and removal of the causeway and access fills. Construct the causeway and access fills as narrow as practical and perpendicular to the stream banks. Make the causeway and access fills in shallow areas rather than deep pools where possible. Minimize clearing, grubbing, and excavation of stream banks, bed, and approach sections. Construct the causeway and access fills as to not erode stream banks or allow sediment deposits in the channel.

Prior to the initiation of any in-stream work, establish a monument upstream of proposed temporary crossing or temporary construction access fill to visually monitor the water elevation in the waterway where the fill is permitted. Maintain the monument throughout the project. Provide a visual mark on the monument that identifies the elevation 1 foot above the Ordinary High Water Mark (OHWM). If the OHWM is not shown on the plans, the Department will establish the OHWM based on the definition of OHWM (832.02) or the peak discharge from the 2 year event, using the method described in the most current version of the Department's Location and Design Manual Volume II.

Ensure that the monument can be read from the bank of the waterway. Have this elevation set and certified by an Ohio Registered Surveyor.

Temporary causeway and access fill placed by the contractor above the OHWM are not subject to the 404/401 permit constraints.

Should the water elevation of the waterway, exceed the elevation 1 foot above OHWM, the Department will compensate the Contractor for repair of any resulting damage to the permitted temporary access fill up to the elevation of 1 foot above the OHWM. The Department will not pay for repair and maintenance of temporary access structures that are related to the construction access fill.

If the pool elevation of the waterway exceeds the 1 foot above the OHWM elevation as read from the monument, the contractor is entitled to an excusable, non-compensable delay in accordance with Section 108.06 of the Construction & Materials Specifications.

All costs associated with furnishing and maintaining the above referenced monument is incidental to the work.

Construct the causeway and access fills to a water elevation at least 1 foot (0.3 m) above the OHWM. If the causeway fills more than one-third the width of the stream, then use culvert pipes to allow the movement of aquatic life. Maintain normal downstream flows. Ensure that any ponding of water behind the causeway and access fills will not damage property or threaten human health and safety.

The following minimum requirements apply to causeways where culverts are used.

A. Furnish culverts on the existing stream bottom.
B. Avoid a drop in water elevation at the downstream end of the culvert.
C. Furnish culverts with a diameter at least two times the depth of normal stream flow measured at the causeway centerline or with a minimum diameter of 18 inches (0.5 m) whichever is greater.
D. Furnish a sufficient number of culverts normal to the flow to completely cross the channel from stream bank to stream bank with no more than 10 feet (3 m) between each culvert.

For all fill and surface material placed in the channel, around the culverts, or on the surface of the causeway and access fills furnish clean, non-erodible, nontoxic dumped rock fill, Type B, C, or D, as specified in C&MS 703.19.B. Extend rock fill up the slope from original stream bank for 50 feet (10 m) to catch and remove erodible material from equipment.

When the work requiring the causeway and access fills all portions of the causeway (including all rock and culverts) and access fills will be removed in its entirety. The material will not be disposed in other waters of the US or isolated wetland. The stream bottom affected by the causeway and access fills will be restored to its pre-construction elevations. The causeway and access fills will not be paid as a separate item but will be included by the Contractor as part of the total project cost.

All environmental protection and control associated with the 404/401 permit activities are incidental to the work within the boundaries of the 404/401 permit or as otherwise identified in the 404/401 permit application.

832.08 Maintenance. Properly maintain all BMP throughout all phases and sequencing of construction activities. Dispose of silt removed from BMP according to C&MS 105.16. When the Contractor properly places the erosion control Items then the Department will pay for the cost to maintain or replace these items of work by the following:

If a recorded rain event is greater than 0.5 inches (13mm), the Department will pay to replace all BMP that have failed during the event at the unit price for those BMP including Sediment Removal as described in Appendix F.

Example: A 0.6 inch rain event damaged a 300 ft. segment of a 900 ft. run of filter fabric fence. The damaged segment was repaired and the sediment was removed. How do we pay for the 300 ft of repair and sediment removed?

Pay for 300 ft. of new Item Perimeter Filter Fabric Fence and Item Miscellaneous Sediment Removal.

If a recorded rain event is less than or equal to 0.5 inches (13mm), the Department will pay to remove the sediment per the unit price for Sediment Removal as described in Appendix F. No compensation will be provided for BMP that fail during rain events of less than equal to 0.5 inches (13mm).

For all Perimeter Filter Fabric Fence, Filter Fabric Ditch Checks, Rock Checks, and Inlet Protection, Dikes, remove trapped sediment and any other debris which has accumulated when sediment reaches a height of one-half the BMP. Compensation will be paid at the unit price for Miscellaneous Sediment Removal as described in Appendix F.

When the sediment fills the sediment storage zone (as described in the OEPA NPDES Permit) of a Sediment Basin or Dam, remove deposited sediment per the unit price for Basin Sediment Removal as described in Appendix F. Remove Sediment Basins and Dams after the contributing drainage area has been stabilized.

When erodible materials accumulate at the surface of the construction entrance, furnish additional stone as needed to prevent tracking. Compensation for additional stone needed to maintain the Construction Entrance will be paid at the unit price for Construction Entrance. If tracking occurs, restore and clean the affected roadway surface at no additional cost to the Department.

Remove all BMP before the project is accepted. Dispose of the removed materials including sediment according to C&MS 105.16 and C&MS 105.17. Maintain the BMP until the up-slope permanent grass coverage is greater than 70% and the site reaches final stabilization in accordance with the OEPA NPDES Permit (See Appendix E, Part VII, J). At this stage, remove the BMP.

832.09 Storm Water Pollution Prevention Plan. If required, prepare the SWPPP as outlined in this specification. All activity identified by the SWPPP that is not specifically identified as a pay item elsewhere shall be included in the Lump Sum price bid for the SWPPP. At a minimum, the design and information requirements that must be included in the SWPPP are as follows:

A. Provide a site specific SWPPP designed and sealed by a Professional Engineer who holds a current CPESC certification.

B. Location of the required BMP for both on and off project EDA areas.

C. Furnish quantity totals for all BMP required for the execution of the proposed plan.

D. Location of a minimum of 100 feet (30 m) from the water's edge of any stream, ephemeral stream, wetland, or body of water:
   1. Concrete or asphalt plant areas
   2. Material and equipment staging or storage areas
   3. Dewatering Areas
   4. Concrete truck wash out BMP areas
   5. Construction access BMP locations
   6. Vehicle fueling and refueling locations

E. Furnish an implementation schedule for each construction sequence.

G. Furnish the total EDA areas in acres and identify each drainage area (watershed) impacted by the proposed construction.

H. Locate all slopes that will be inactive for 14 calendar days or longer.

I. Furnish the names of the individuals on site who will serve as the PE/CPESC SWPPP designer and CECI.

J. Describe the type of construction activities that will be taking place.

K. Furnish an estimated quantity for Basin Sediment Removal and Miscellaneous Sediment Removal for removing sediment from Sediment Basins and Dams, inlet protection, ditch checks, rock checks, perimeter filter fabric fence, and all other types of filter fabrics, straw or hay bales, or any other BMP.

L. Furnish signatures of all contractors and subcontractors involved in BMP practices (see Appendix B).

If there are plan sheets which meet any of the requirements in Appendix E, use that information. Design files may be furnished to the awarded Contractor in electronic form upon request.

832.10 SWPPP Acceptance. Furnish the initial SWPPP to the Department for acceptance. The Department will allow work to begin upon receiving an acceptable SWPPP. See Appendix C for a sample acceptance form. The Department may assess critically the following:

A. The type and location of BMP with totals.

B. The SWPPP is for this project.

C. There is no language in the SWPPP about any BMP being directed for use by the Engineer.

D. The total estimated BMP quantities agree with the (per Each) "Erosion Control" amount identified in the proposal.

E. The SWPPP accounts for the various phases of construction and the associated degree of earthwork disturbance over the life of the project.

F. The SWPPP delineates overall watershed areas and individual BMP watersheds. Enough detail is shown in the SWPPP to verify that the BMP are appropriate for the application. If topographic mapping contained in the plans is not sufficient to identify and delineate the watersheds associated with the work, provide the appropriate mapping. .

G. All perimeter filter fabric fence is identified in the SWPPP and supporting runoff calculations are attached.

H. The SWPPP identifies the locations and specific geometry of the required Sediment Basins and Dams and related control structures. Provide the following information for each Sediment Basin and Sediment Dam:
    1. Calculations demonstrating compliance with the 48 hour draw down time (if required by the OEPA NPDES Permit),
    2. Size of the contributing drainage area,
    3. Volume of the Sediment Storage Zone
    4. Volume of the Dewatering Zone (if required by the OEPA NPDES Permit),
    5. Basin excavation quantity or dam embankment quantity
    6. Quantity of rock channel protection
    7. Riser Pipe and outlet structure details (if required by the OEPA NPDES Permit).

Revise the accepted SWPPP as needed to maintain compliance with OEPA NPDES Permit. Revisions and amendments (See Appendix E, Part III, D) to the accepted SWPPP will be at no additional cost to the Department.

832.11 Inspections and SWPPP Updates. Perform the required OEPA NPDES Permit inspections and prepare inspection reports (see Appendix E).

The inspections must be performed by one of the following parties:

A. The PE/CPESC who signed and sealed the SWPPP.
B. The CPESC inspector who is under the supervision of the Engineer who signed and sealed the SWPPP.
C. The CESSWI inspector who is under the supervision of the Engineer who signed and sealed the SWPPP.

Prepare the inspection reports for projects that have a SWPPP. Submit inspection reports to the Engineer every 7 days and within 24 hours of a 0.5 inch (13 mm) or greater rainfall event throughout the life of the contract. The inspection frequency may be reduced per the Ohio NPDES Permit Part III.G.2.i.

The reporting CECI will update, amend and revise the SWPPP as the contractor's operations and site conditions warrant. Identify all revisions and updates to the SWPPP and indicate what measures will be taken to maintain OEPA NPDES Permit compliance in the report. Include the following in the inspection report; the OEPA NPDES Permit inspection checklist (see appendix E, Part III.G.2.i), a map identifying all BMP needed, installed, maintained or removed since the last inspection report, certification that all construction activities are compliant with the SWPPP and the signature of the CECI responsible for the inspection. Provide a record of all written questions and comments from the Engineer related to the SWPPP. Include all responses to the Engineer's questions and comments in the inspection report. The signature of the PE/CPESC who sealed the SWPPP is required as part of the inspection report, on a monthly basis or when modifications to the SWPPP design are made. Include the certification requirements according to OEPA NPDES Permit (Part V. H.) with all reporting sign offs.

A BMP Inventory form is furnished in Appendix A to assist in documenting and recording the BMP quantities for payment. The BMP inventory form in Appendix A is not a substitute for the inspection report described above.

The CECI is required to notify the Department within 24 hours of any compliance deficiencies or verified complaints related to the SWPPP or OEPA NPDES Permit. Within 48 hours of the Department's or CECI's notice of deficiency, the contractor is required to construct, install, repair or correct the BMP measures needed to resume OEPA NPDES Permit compliance.

832.12 Compensation. The Department will furnish Item 832 Each, Erosion Control with an amount in the proposal to pay for BMP work. The fixed amount shown in the proposal is included (as any other bid items) in the Total Bid Amount. This fixed amount is the Department's estimate of the total cost of BMP work required to be performed for the project. If the BMP work exceeds this amount, the BMP work will still be paid at the pre-determined prices. All BMP work will be paid at the proposal pre-determined unit price times the correctly installed BMP number of units. The payment due will be deducted from Item 832 Each, Erosion Control. C&MS Table 104.02-2 does not apply to reductions in this contract item.

The Lump Sum amount bid for the SWPPP includes all work associated with development, design, NPDES required inspection, modification, revision, updates, amendments and reporting related to the SWPPP. Changes made to the SWPPP, but not caused by the Department, are the financial responsibility of the Contractor. Additional compensation will only be permitted for Department accepted amendments to the SWPPP resulting from revisions to the contract documents as per sections 104.02.B, 104.02.D and 104.02.F. Provide the additional costs for the amended SWPPP to the Department prior to beginning the associated revised work. All costs associated with providing and maintaining the required CPESC and CESSWI personnel, conducting the NPDES required inspections, and support engineering services are included in the contract Lump Sum bid for SWPPP. The Department will only pay for one accepted SWPPP regardless of the number of Construction phases, revisions, amendments or project redesigns.

832.13 Method of Measurement

The Department will measure the SWPPP as a Lump Sum.

The Department will measure Construction Seeding and Mulching by the number of square yards (square meters).

The Department will measure Slope Drains by the number of feet (meters) of conduit.

The Department will measure Sediment Basins by the number of cubic yards (cubic meters) of excavation.

The Department will measure Sediment Basin surface dewatering device by each.

The Department will measure Sediment Dams by the number of cubic yards (cubic meters) of embankment.

Any pipe required for the outlet structure of a sediment basin or dam is incidental to the unit price paid for Sediment Basins and Dams.

The Department will measure Perimeter Filter Fabric Fence, and Construction Fence by the number of feet (meters).

The Department will measure Filter Fabric Ditch Check by the number of feet (meters).

The Department will measure Inlet Protection by the number of feet (meters).

The Department will measure Dikes by the number of cubic yards (cubic meters) of embankment.

The Department will measure Construction Ditch Protection and Construction Slope Protection by the number of square yards (square meters).

The Department will measure Rock Channel Protection, Type C or D (with or without filter) by the number of cubic yards (cubic meters).

The Department will measure Sediment Removal by the number of cubic yards (cubic meters).

The Department will measure Construction Mulching by the number of square yards (square meters) regardless if the application is crimped or not.

The Department will measure Winter Seeding and Mulching by the number of square yards (square meters).

The Department will measure Construction Entrance protection by the number of cubic yards (cubic meters)

832.14 Basis of Payment

The Department will pay the contract Lump Sum price bid for the SWPPP.

The Department will make partial payments for the Storm Water Pollution Prevention Plan according to C&MS Section 109.09 and as modified by the following schedule:

The Department will release 60 percent of the lump sum amount bid for Storm Water Pollution Prevention Plan to the Contractor with the first regular estimate payable after the Engineer has accepted the Storm Water Pollution Prevention Plan submission.

The Department will release 30 percent of the lump sum amount bid for Storm Water Pollution Prevention Plan to the Contractor with the first regular estimate payable after 50 percent of the project is complete.

The Department will release the remaining 10 percent of the lump sum amount bid for Storm Water Pollution Prevention Plan to the Contractor with the first regular estimate payable after 90 percent of the project is complete.

The Department will pay for appropriate, properly installed and accepted BMP per Item 832 Each, Erosion Control. BMP compensation will be based on the unit prices shown in Appendix F.

The Department will not pay for BMP Items which are required as a result of the Contractor's negligence, carelessness, or failure to install permanent controls.

The Department will not pay for BMP that does not provide effective sediment and erosion control for the EDA.

The Department will not pay for any causeway and access fills.

The Department will not pay to replace BMP that have failed as a result of improper maintenance or installation.

The Department will not pay for concrete washout area BMP. Concrete washout area BMP are considered incidental to the concrete work.

The Department will not pay for BMP which are required as a part of the work and are not specifically identified as a separate item. Compensation for BMP that are required for NPDES Permit compliance and are not included in Appendix F of this specification are considered incidental to the work.

Item	Unit	Description
832	Lump Sum	Storm Water Pollution Prevention Plan
832	Each	Erosion Control

Appendix A

Weekly and Rain Event Erosion Control
BMP Inventory

Contractor _____

Project No. _____ Co-Rt-Sec _____ Date _____

R=Replacement W=Working M=Maintenance I=Install D=Delete Rain Amt

Station to Station	Side	Offset	Balloon Ref.	Perimeter Control	Inlet Protection	Constr. Speed	Dikes Fill Slopes	Dikes Cut Slopes	Slope Drains	FF Ditch Checks	Rock Ditch Checks	Sediment Basins	Stream Relocate	Stream Crossing	Date work was Complete

Notes:

_____

_____

_____

_____

This form is furnished to assist in documenting and recording the BMP quantities for payment.
This form is not a substitute for the inspection report described in 832.11.

Appendix B

SIGNATURE LIST

NPDES and Surface Water Pollution Prevention Plan
Contractors and Sub-contactors responsible for any Earth Disturbing Activity
Duty to inform contractors and subcontractors
(Ohio EPA Permit No.:OHC000004 Part III. E)

Signature	Printed Name	Title	Company	Date

Appendix C

Sample SWPPP Acceptance Form

The Department has received the SWPPP for Project: _____

Co-Rt-Sec: _____

The submittal is dated: _____

The Department Accepts the Submittal.

_____ _____

Project Engineer, Project Supervisor Date

Appendix D

Co-Permittee Notice of Intent for Coverage Under Ohio EPA Storm Water Construction General Permit

Submission of this NOI constitutes notice that the party identified in Section I of this form intends to be authorized by Ohio's NPDES general permit for storm water associated with construction activity. Becoming a permittee obligates a discharger to comply with the terms and conditions of the permit. NOTE: All necessary information must be provided on this form. Read the accompanying instructions *carefully* before completing the form. Do not use correction fluid on this form. Forms transmitted by fax will not accepted. There is no fee associated with submitting this form.

I. Applicant Information/Mailing Address

Company (Applicant) Name: _____

Mailing (Applicant) Address: _____

City: _____ State: _____ Zip Code: _____

Contact Person: _____ Phone: _____ Fax: _____

Contact E-Mail Address: _____

II. Facility/Site Location Information

Existing Ohio EPA Facility Permit Number: __ GC __ __ __ __ __ * __ G OR OHR1 __ __ __ __ __

Initial Permittee Name: _____ Phone: _____

Facility/Site Name: _____

City: _____ Township(s): _____

County(ies): _____ State: Ohio Zip Code: _____

Facility Contact Person: _____ Phone: _____ Fax: _____

Facility Contact E-Mail Address: _____

III. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Applicant Name: _____ Title: _____

Applicant Signature: _____ Date: _____

EPA 4496 (Rev. 4/03) Click to clear all entered information CLEAR

Application form available at *http://epa.ohio.gov/Portals/35/storm/StormWater_Co-Permittee_NOI.pdf*

Appendix E

OHIO E.P.A.

APR 11 2013

ENTERED DIRECTOR'S JOURNAL

Issuance Date: April 11, 2013
Effective Date: April 21, 2013
Expiration Date: April 20, 2018

OHIO ENVIRONMENTAL PROTECTION AGENCY

GENERAL PERMIT AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the federal Water Pollution Control Act, as amended (33 U.S.C. Section 1251 et. seq. hereafter referred to as "the Act") and the Ohio Water Pollution Control Act [Ohio Revised Code ("ORC") Chapter 6111], dischargers of storm water from sites where construction activity is being conducted, as defined in Part I.B of this permit, are authorized by the Ohio Environmental Protection Agency, hereafter referred to as "Ohio EPA," to discharge from the outfalls at the sites and to the receiving surface waters of the state identified in their Notice of Intent ("NOI") application form on file with Ohio EPA in accordance with the conditions specified in Parts I through VII of this permit.

It has been determined that a lowering of water quality of various waters of the state associated with granting coverage under this permit is necessary to accommodate important social and economic development in the state of Ohio. In accordance with OAC 3745-1-05, this decision was reached only after examining a series of technical alternatives, reviewing social and economic issues related to the degradation, and considering all public and intergovernmental comments received concerning the proposal.

This permit is conditioned upon payment of applicable fees, submittal of a complete NOI application form and written approval of coverage from the director of Ohio EPA in accordance with Ohio Administrative Code ("OAC") Rule 3745-38-02.

Scott J. Nally
Director

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

By: [signature] Date: 4-11-13

Appendix E

TABLE OF CONTENTS

PART I. COVERAGE UNDER THIS PERMIT

A. Permit Area.

This permit covers the entire State of Ohio.

B. Eligibility.

1. Construction activities covered. Except for storm water discharges identified under Part I.B.2, this permit may cover all new and existing discharges composed entirely of storm water discharges associated with construction activity that enter surface waters of the state or a storm drain leading to surface waters of the state.

   For the purposes of this permit, construction activities include any clearing, grading, excavating, grubbing and/or filling activities that disturb the threshold acreage described in the next paragraph. Discharges from trench dewatering are also covered by this permit as long as the dewatering activity is carried out in accordance with the practices outlined in Part III.G.2.g.iv of this permit.

   Construction activities disturbing one or more acres of total land, or will disturb less than one acre of land but are part of a larger common plan of development or sale that will ultimately disturb one or more acres of land will be eligible for coverage under this permit. The threshold acreage includes the entire area disturbed in the larger common plan of development or sale.

   This permit also authorizes storm water discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:

   a. The support activity is directly related to a construction site that is required to have NPDES permit coverage for discharges of storm water associated with construction activity;

   b. The support activity is not a commercial operation serving multiple unrelated construction projects and does not operate beyond the completion of the construction activity at the site it supports;

   c. Appropriate controls and measures are identified in a storm water pollution prevention plan (SWP3) covering the discharges from the support activity; and

   d. The support activity is on or contiguous with the property defined in the NOI (offsite borrow pits and soil disposal areas, which serve only one project, do not have to be contiguous with the construction site).

2. Limitations on coverage. The following storm water discharges associated with construction activity are not covered by this permit:

   a. Storm water discharges that originate from the site after construction activities have been completed, including any temporary support activity, and the site has achieved

final stabilization. Industrial post-construction storm water discharges may need to be covered by an NPDES permit;

b. Storm water discharges associated with construction activity that the director has shown to be or may reasonably expect to be contributing to a violation of a water quality standard; and

c. Storm water discharges authorized by an individual NPDES permit or another NPDES general permit;

3. Waivers. After March 10, 2003, sites whose larger common plan of development or sale have at least one, but less than five acres of land disturbance, which would otherwise require permit coverage for storm water discharges associated with construction activities, may request that the director waive their permit requirement. Entities wishing to request such a waiver must certify in writing that the construction activity meets one of the two waiver conditions:

a. Rainfall Erosivity Waiver. For a construction site to qualify for the rainfall erosivity waiver, the cumulative rainfall erosivity over the project duration must be five or less and the site must be stabilized with a least a 70 percent vegetative cover or other permanent, non-erosive cover. The rainfall erosivity must be calculated according to the method in U.S. EPA Fact Sheet 3.1 Construction Rainfall Erosivity Waiver dated January 2001 and be found at: http://epa.ohio.gov/portals/35/permits/USEPAfact3-1_s.pdf. If it is determined that a construction activity will take place during a time period where the rainfall erosivity factor is less than five, a written waiver certification must be submitted to Ohio EPA at least 21 days before construction activity is scheduled to begin. If the construction activity will extend beyond the dates specified in the waiver certification, the operator must either: (a) recalculate the waiver using the original start date with the new ending date (if the R factor is still less than five, a new waiver certification must be submitted) or (b) submit an NOI application form and fee for coverage under this general permit at least seven days prior to the end of the waiver period; or

b. TMDL (Total Maximum Daily Load) Waiver. Storm water controls are not needed based on a TMDL approved or established by U.S. EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, and equivalent analysis that determines allocations for small construction sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the director of Ohio EPA that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis. A written waiver certification must be submitted to Ohio EPA at least 21 days before the construction activity is scheduled to begin.

4. Prohibition on non-storm water discharges. All discharges covered by this permit must be composed entirely of storm water with the exception of the following: discharges from firefighting activities; fire hydrant flushings; potable water sources including waterline flushings; irrigation drainage; lawn watering; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water from trench or well point dewatering and foundation or footing drains where flows are not contaminated with process materials such as solvents. Dewatering activities must be done in compliance with Part II.C and Part III.G.2.g.iv of this permit. Discharges of material other than storm water or the authorized non-storm water discharges listed above must comply with an individual NPDES permit or an alternative NPDES general permit issued for the discharge.

   Except for flows from firefighting activities, sources of non-storm water listed above that are combined with storm water discharges associated with construction activity must be identified in the SWP3. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

5. Spills and unintended releases (Releases in excess of Reportable Quantities). This permit does not relieve the permittee of the reporting requirements of Title 40 of the Code of Federal Regulations ("CFR") Part 117 and 40 CFR Part 302. In the event of a spill or other unintended release, the discharge of hazardous substances in the storm water discharge(s) from a construction site must be minimized in accordance with the applicable storm water pollution prevention plan for the construction activity and in no case, during any 24-hour period, may the discharge(s) contain a hazardous substance equal to or in excess of reportable quantities.

   40 CFR Part 117 sets forth a determination of the reportable quantity for each substance designated as hazardous in 40 CFR Part 116. The regulation applies to quantities of designated substances equal to or greater than the reportable quantities, when discharged to surface waters of the state. 40 CFR Part 302 designates under section 102(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, those substances in the statutes referred to in section 101(14), identifies reportable quantities for these substances and sets forth the notification requirements for releases of these substances. This regulation also sets forth reportable quantities for hazardous substances designated under section 311(b)(2)(A) of the Clean Water Act (CWA).

C. Requiring an individual NPDES permit or an alternative NPDES general permit.

1. The director may require an alternative permit. The director may require any operator eligible for this permit to apply for and obtain either an individual NPDES permit or coverage under an alternative NPDES general permit in accordance with OAC Rule 3745-38-04. Any interested person may petition the director to take action under this paragraph.

   The director will send written notification that an alternative NPDES permit is required. This notice shall include a brief statement of the reasons for this decision, an application

form and a statement setting a deadline for the operator to file the application. If an operator fails to submit an application in a timely manner as required by the director under this paragraph, then coverage, if in effect, under this permit is automatically terminated at the end of the day specified for application submittal.

2. Operators may request an individual NPDES permit. Any owner or operator eligible for this permit may request to be excluded from the coverage of this permit by applying for an individual permit. The owner or operator shall submit an individual application with reasons supporting the request to the director in accordance with the requirements of 40 CFR 122.26. If the reasons adequately support the request, the director shall grant it by issuing an individual NPDES permit.

3. When an individual NPDES permit is issued to an owner or operator otherwise subject to this permit or the owner or operator is approved for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of approval for coverage under the alternative general permit, whichever the case may be.

D. Permit requirements when portions of a site are sold

If an operator obtains a permit for a development, and then the operator (permittee) sells off lots or parcels within that development, permit coverage must be continued on those lots until a Notice of Termination (NOT) in accordance with Part IV.B is submitted. For developments which require the use of centralized sediment and erosion controls (i.e., controls that address storm water runoff from one or more lots) for which the current permittee intends to terminate responsibilities under this permit for a lot after sale of the lot to a new owner and such termination will either prevent or impair the implementation of the controls and therefore jeopardize compliance with the terms and conditions of this permit, the permittee will be required to maintain responsibility for the implementation of those controls. For developments where this is not the case, it is the permittee's responsibility to temporarily stabilize all lots sold to individual lot owners unless an exception is approved in accordance with Part III.G.4. In cases where permit responsibilities for individual lot(s) will be terminated after sale of the lot, the permittee shall inform the individual lot owner of the obligations under this permit and ensure that the Individual Lot NOI application is submitted to Ohio EPA.

E. Authorization

1. Obtaining authorization to discharge. Operators that discharge storm water associated with construction activity must submit an NOI application form in accordance with the requirements of Part I.F of this permit to obtain authorization to discharge under this general permit. As required under OAC Rule 3745-38-06(E), the director, in response to the NOI submission, will notify the applicant in writing that he/she has or has not been granted general permit coverage to discharge storm water associated with construction activity under the terms and conditions of this permit or that the applicant must apply for an individual NPDES permit or coverage under an alternate general NPDES permit as described in Part I.C.1.

2. No release from other requirements. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations. Other permit requirements commonly associated with construction activities

include, but are not limited to, section 401 water quality certifications, isolated wetland permits, permits to install sanitary sewers or other devices that discharge or convey polluted water, permits to install drinking water lines, single lot sanitary system permits and disturbance of land which was used to operate a solid or hazardous waste facility (i.e., coverage under this NPDES general permit does not satisfy the requirements of OAC Rule 3745-27-13 or ORC Section 3734.02(H)). The issuance of this permit is subject to resolution of an antidegradation review. This permit does not relieve the permittee of other responsibilities associated with construction activities such as contacting the Ohio Department of Natural Resources, Division of Water, to ensure proper well installation and abandonment of wells.

F. Notice of Intent Requirements

1. Deadlines for notification.

   a. Initial coverage: Operators who intend to obtain initial coverage for a storm water discharge associated with construction activity under this general permit must submit a complete and accurate NOI application form and appropriate fee at least 21 days prior to the commencement of construction activity. If more than one operator, as defined in Part VII of this general permit, will be engaged at a site, each operator shall seek coverage under this general permit. Coverage under this permit is not effective until an approval letter granting coverage from the director of Ohio EPA is received by the applicant. Where one operator has already submitted an NOI prior to other operator(s) being identified, the additional operator shall request modification of coverage to become a co-permittee. In such instances, the co-permittees shall be covered under the same facility permit number. No additional permit fee is required.

   b. Individual lot transfer of coverage: Operators must each submit an individual lot notice of intent (Individual Lot NOI) application form (no fee required) to Ohio EPA at least seven days prior to the date that they intend to accept responsibility for permit requirements for their portion of the original permitted development from the previous permittee. The original permittee may submit an Individual Lot NOT at the time the Individual Lot NOI is submitted. Transfer of permit coverage is not granted until an approval letter from the director of Ohio EPA is received by the applicant.

2. Failure to notify. Operators who fail to notify the director of their intent to be covered and who discharge pollutants to surface waters of the state without an NPDES permit are in violation of ORC Chapter 6111. In such instances, Ohio EPA may bring an enforcement action for any discharges of storm water associated with construction activity.

3. Where to submit an NOI. Operators seeking coverage under this permit must submit a signed NOI form, provided by Ohio EPA, to the address found in the associated instructions.

4. Additional notification. NOIs and SWP3s are considered public documents and shall be made available to the public in accordance with Part III.C.2. The permittee shall make NOIs and SWP3s available upon request of the director of Ohio EPA, local agencies approving sediment and erosion control plans, grading plans or storm water management plans, local governmental officials, or operators of municipal separate storm sewer systems (MS4s) receiving drainage from the permitted site. Each operator

that discharges to an NPDES permitted MS4 shall provide a copy of its Ohio EPA NOI submission to the MS4 in accordance with the MS4's requirements, if applicable.

5. Re-notification. Existing permittees having coverage under the previous generations of this general permit (OHC000003, OHC000002 and OHR100000) shall have continuing coverage under OHC000004 with the submittal of a timely renewal application. Existing permittees will receive a renewal application and instructions for how to continue coverage under OHC000004. Within 90 days of receiving a renewal application from Ohio EPA, existing permittees shall submit the completed renewal application expressing their intent for continued coverage. In accordance with Ohio Administrative Code (OAC) 3745-38-02(E)(2)(a)(i), a renewal application fee will only apply to existing permittees having general permit coverage for 5 or more years as of the effective date of this general permit. Permit coverage will be terminated if Ohio EPA does not receive the renewal application within this 90 day period.

Part II. NON-NUMERIC EFFLUENT LIMITATIONS

You shall comply with the following non-numeric effluent limitations for discharges from your site and/or from construction support activities. Part III of this permit contains the specific design criteria to meet the objectives of the following non-numeric effluent limitations.

A. Erosion and Sediment Controls. You shall design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls shall be designed, installed and maintained to:

1. Control storm water volume and velocity within the site to minimize soil erosion;

2. Control storm water discharges, including both peak flowrates and total storm water volume, to minimize erosion at outlets and to minimize downstream channel and streambank erosion;

3. Minimize the amount of soil exposed during construction activity;

4. Minimize the disturbance of steep slopes;

5. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls shall address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting storm water runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;

6. If feasible, provide and maintain a 50-foot undisturbed natural buffer around surface waters of the state, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration. If it is infeasible to provide and maintain an undisturbed 50-foot natural buffer, you shall comply with the stabilization requirements found in Part II.B for areas within 50 feet of a surface water; and

7. Minimize soil compaction and, unless infeasible, preserve topsoil.

B. **Soil Stabilization**. Stabilization of disturbed areas shall, at a minimum, be initiated in accordance with the time frames specified in the following tables.

Table 1: Permanent Stabilization

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a surface water of the state and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Table 2: Temporary Stabilization

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a surface water of the state and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 14 days
For all construction activities, any disturbed areas that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the state	Within seven days of the most recent disturbance within the area For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed. Permanent and temporary stabilization are defined in Part VII.

C. **Dewatering.** Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.

D. **Pollution Prevention Measures.** Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented and maintained to:

1. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters shall be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;

2. Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to storm water; and

3. Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

E. Prohibited Discharges. The following discharges are prohibited:

1. Wastewater from washout of concrete, unless managed by an appropriate control;

2. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and

4. Soaps or solvents used in vehicle and equipment washing.

F. Surface Outlets. When discharging from sediment basins utilize outlet structures that withdraw water from the surface, unless infeasible. (Note: Ohio EPA believes that the circumstances in which it is infeasible to design outlet structures in this manner are rare. Exceptions may include time periods with extended cold weather during winter months. If you have determined that it is infeasible to meet this requirement, you shall provide documentation in your SWP3 to support your determination.)

PART III. STORM WATER POLLUTION PREVENTION PLAN (SWP3)

A. Storm Water Pollution Prevention Plans.

A SWP3 shall be developed for each site covered by this permit. For a multi-phase construction project, a separate NOI shall be submitted when a separate SWP3 will be prepared for subsequent phases. SWP3s shall be prepared in accordance with sound engineering and/or conservation practices by a professional experienced in the design and implementation of standard erosion and sediment controls and storm water management practices addressing all phases of construction. The SWP3 shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with construction activities. The SWP3 shall be a comprehensive, stand-alone document, which is not complete unless it contains the information required by Part III.G of this permit. In addition, the SWP3 shall describe and ensure the implementation of best management practices (BMPs) that reduce the pollutants in storm water discharges during construction and pollutants associated with post-construction activities to ensure compliance with ORC Section 6111.04, OAC Chapter 3745-1 and the terms and conditions of this permit.

B. Timing

A SWP3 shall be completed prior to the timely submittal of an NOI and updated in accordance with Part III.D. Upon request and good cause shown, the director may waive the requirement to have a SWP3 completed at the time of NOI submission. If a waiver has been granted, the

SWP3 must be completed prior to the initiation of construction activities. The SWP3 must be implemented upon initiation of construction activities.

If you wish to continue coverage from the previous generations of this permit (OHR100000, OHC000002 and OHC000003) you shall review and update your SWP3 to ensure that this permit's requirements are addressed within 180 days after the effective date of this permit. If it is infeasible for you to comply with a specific requirement in this permit because (1) the provision was not part of the permit you were previously covered under (OHR100000, OHC000002 and OHC000003), and (2) because you are prevented from compliance due to the nature or location of earth disturbances that commenced prior to the effective date of this permit, you shall include documentation within your SWP3 of the reasons why it is infeasible for you to meet the specific requirement. (Note: Ohio EPA believes examples of OHC000004 permit conditions that would be infeasible for permittees renewing coverage to comply with include: (1) Post-Construction Storm Water Management requirements, if general permit coverage was obtained prior to April 21, 2003, and (2) Sediment settling pond design requirements, if the general permit coverage was obtained prior to the effective date of this permit and the sediment settling pond has been installed.)

C. SWP3 Signature and Review.

1. Plan Signature and Retention On-Site. The SWP3 shall include the certification in Part V.H, be signed in accordance with Part V.G., and be retained on site during working hours.

2. Plan Availability

   a. On-site: The plan shall be made available immediately upon request of the director or his authorized representative and MS4 operators or their authorized representative during working hours. A copy of the NOI and letter granting permit coverage under this general permit also shall be made available at the site.

   b. By written request: The permittee must provide the most recent copy of the SWP3 within 10 days upon written request by any of the following:

      i. The director or the director's authorized representative;

      ii. A local agency approving sediment and erosion plans, grading plans or storm water management plans; or

      iii. In the case of a storm water discharge associated with construction activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the operator of the system.

   c. To the public: All NOIs, general permit approval for coverage letters, and SWP3s are considered reports that shall be available to the public in accordance with the Ohio Public Records law. The permittee shall make documents available to the public upon request or provide a copy at public expense, at cost, in a timely manner. However, the permittee may claim to Ohio EPA any portion of an SWP3 as confidential in accordance with Ohio law.

3. Plan Revision. The director or authorized representative may notify the permittee at any time that the SWP3 does not meet one or more of the minimum requirements of this part. Within 10 days after such notification from the director or authorized representative (or as otherwise provided in the notification), the permittee shall make the required changes to the SWP3 and, if requested, shall submit to Ohio EPA the revised SWP3 or a written certification that the requested changes have been made.

D. Amendments

The permittee shall amend the SWP3 whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the state or if the SWP3 proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity. Amendments to the SWP3 may be reviewed by Ohio EPA in the same manner as Part III.C.

E. Duty to inform contractors and subcontractors

The permittee shall inform all contractors and subcontractors not otherwise defined as "operators" in Part VII of this general permit who will be involved in the implementation of the SWP3 of the terms and conditions of this general permit. The permittee shall maintain a written document containing the signatures of all contractors and subcontractors involved in the implementation of the SWP3 as proof acknowledging that they reviewed and understand the conditions and responsibilities of the SWP3. The written document shall be created and signatures shall be obtained prior to commencement of work on the construction site.

F. Total Maximum Daily Load (TMDL) allocations

If a TMDL is approved for any waterbody into which the permittee's site discharges and requires specific BMPs for construction sites, the director may require the permittee to revise his/her SWP3.

G. SWP3 Requirements

Operations that discharge storm water from construction activities are subject to the following requirements and the SWP3 shall include the following items:

1. Site description. Each SWP3 shall provide:

   a. A description of the nature and type of the construction activity (e.g., low density residential, shopping mall, highway, etc.);

   b. Total area of the site and the area of the site that is expected to be disturbed (i.e., grubbing, clearing, excavation, filling or grading, including off-site borrow areas);

   c. An estimate of the impervious area and percent imperviousness created by the construction activity;

d. A calculation of the runoff coefficients for both the pre-construction and post-construction site conditions;

e. Existing data describing the soil and, if available, the quality of any discharge from the site;

f. A description of prior land uses at the site;

g. An implementation schedule which describes the sequence of major construction operations (i.e., designation of vegetative preservation areas, grubbing, excavating, grading, utilities and infrastructure installation) and the implementation of erosion, sediment and storm water management practices or facilities to be employed during each operation of the sequence;

h. The name and/or location of the immediate receiving stream or surface water(s) and the first subsequent named receiving water(s) and the areal extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project. For discharges to an MS4, the point of discharge to the MS4 and the location where the MS4 ultimately discharges to a stream or surface water of the state shall be indicated;

i. For subdivided developments where the SWP3 does not call for a centralized sediment control capable of controlling multiple individual lots, a detail drawing of a typical individual lot showing standard individual lot erosion and sediment control practices.

   This does not remove the responsibility to designate specific erosion and sediment control practices in the SWP3 for critical areas such as steep slopes, stream banks, drainage ways and riparian zones;

j. Location and description of any storm water discharges associated with dedicated asphalt and dedicated concrete plants covered by this permit and the best management practices to address pollutants in these storm water discharges;

k. A copy of the permit requirements (attaching a copy of this permit is acceptable);

l. A cover page or title identifying the name and location of the site, the name and contact information of all construction site operators, the name and contact information for the person responsible for authorizing and amending the SWP3, preparation date, and the estimated dates that construction will start and be complete;

m. A log documenting grading and stabilization activities as well as amendments to the SWP3, which occur after construction activities commence; and

n. Site map showing:

i. Limits of earth-disturbing activity of the site including associated off-site borrow or spoil areas that are not addressed by a separate NOI and associated SWP3;

ii. Soils types for all areas of the site, including locations of unstable or highly erodible soils;

iii. Existing and proposed contours. A delineation of drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres;

iv. Surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site, including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA;

v. Existing and planned locations of buildings, roads, parking facilities and utilities;

vi. The location of all erosion and sediment control practices, including the location of areas likely to require temporary stabilization during the course of site development;

vii. Sediment and storm water management basins noting their sediment settling volume and contributing drainage area. Ohio EPA recommends the use of data sheets (see ODNR's Rainwater and Land Development manual for examples) to provide data for all sediment traps, sediment basins and storm water management treatment practices noting important inputs to design and resulting parameters such as their contributing drainage area, disturbed area, water quality volume, sedimentation volume, practice surface area, facility discharge and dewatering time, outlet type and dimensions;

viii. The location of permanent storm water management practices to be used to control pollutants in storm water after construction operations have been completed;

ix. Areas designated for the storage or disposal of solid, sanitary and toxic wastes, including dumpster areas, areas designated for cement truck washout, and vehicle fueling;

x. The location of designated construction entrances where the vehicles will access the construction site; and

xi. The location of any in-stream activities including stream crossings.

2. Controls. In accordance with Part II.A, the SWP3 shall contain a description of the controls appropriate for each construction operation covered by this permit and the operator(s) shall implement such controls. The SWP3 shall clearly describe for each

major construction activity identified in Part III.G.1.g: (a) appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented; and (b) which contractor is responsible for implementation (e.g., contractor A will clear land and install perimeter controls and contractor B will maintain perimeter controls until final stabilization). The SWP3 shall identify the subcontractors engaged in activities that could impact storm water runoff. The SWP3 shall contain signatures from all of the identified subcontractors indicating that they have been informed and understand their roles and responsibilities in complying with the SWP3. Ohio EPA recommends that the primary site operator review the SWP3 with the primary contractor prior to commencement of construction activities and keep a SWP3 training log to demonstrate that this review has occurred.

Ohio EPA recommends that the erosion, sediment, and storm water management practices used to satisfy the conditions of this permit should meet the standards and specifications in the most current edition of Ohio's Rainwater and Land Development (see definitions) manual or other standards acceptable to Ohio EPA. The controls shall include the following minimum components:

a. Non-Structural Preservation Methods. The SWP3 shall make use of practices which preserve the existing natural condition as much as feasible. Such practices may include: preserving existing vegetation and vegetative buffer strips, phasing of construction operations in order to minimize the amount of disturbed land at any one time and designation of tree preservation areas or other protective clearing or grubbing practices. For all construction activities immediately adjacent to surface waters of the state, the permittee shall comply with the buffer non-numeric effluent limitation in Part II.A.6, as measured from the ordinary high water mark of the surface water.

b. Erosion Control Practices. The SWP3 shall make use of erosion controls that are capable of providing cover over disturbed soils unless an exception is approved in accordance with Part III.G.4. A description of control practices designed to restabilize disturbed areas after grading or construction shall be included in the SWP3. The SWP3 shall provide specifications for stabilization of all disturbed areas of the site and provide guidance as to which method of stabilization will be employed for any time of the year. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances and the use of alternative ground cover.

    i. **Stabilization.** Disturbed areas shall be stabilized in accordance with Table 1 (Permanent Stabilization) and Table 2 (Temporary Stabilization) in Part II.B of this permit.

    ii. **Permanent stabilization of conveyance channels**. Operators shall undertake special measures to stabilize channels and outfalls and prevent erosive flows. Measures may include seeding, dormant seeding (as defined in the most current edition of the Rainwater and Land Development manual), mulching, erosion control matting, sodding, riprap, natural channel design with bioengineering techniques or rock check dams.

c. Runoff Control Practices. The SWP3 shall incorporate measures which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may include rock check dams, pipe slope drains, diversions to direct flow away from exposed soils and protective grading practices. These practices shall divert runoff away from disturbed areas and steep slopes where practicable. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

d. Sediment Control Practices. The plan shall include a description of structural practices that shall store runoff allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas. Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days. Such practices may include, among others: sediment settling ponds, silt fences, earth diversion dikes or channels which direct runoff to a sediment settling pond and storm drain inlet protection. All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless those are used in conjunction with a sediment settling pond.

The SWP3 shall contain detail drawings for all structural practices.

i. **Timing.** Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls shall be constructed or existing controls altered to address the changing drainage patterns.

ii. **Sediment settling ponds.** A sediment settling pond is required for any one of the following conditions:

- Concentrated storm water runoff (e.g., storm sewer or ditch);
- Runoff from drainage areas, which exceed the design capacity of silt fence or other sediment barriers;
- Runoff from drainage areas that exceed the design capacity of inlet protection; or
- Runoff from common drainage locations with 10 or more acres of disturbed land.

The permittee may request approval from Ohio EPA to use alternative controls if the permittee can demonstrate the alternative controls are equivalent in effectiveness to a sediment settling pond.

In accordance with Part II.F, if feasible, sediment settling ponds shall be dewatered at the pond surface using a skimmer or equivalent device. The sediment settling pond volume consists of both a dewatering zone and a sediment storage zone. The volume of the dewatering zone shall

be a minimum of 1800 cubic feet (ft^3) per acre of drainage (67 yd^3/acre) with a minimum 48-hour drain time for sediment basins serving a drainage area over 5 acres. The volume of the sediment storage zone shall be calculated by one of the following methods:

Method 1: The volume of the sediment storage zone shall be 1000 ft^3 per disturbed acre within the watershed of the basin. OR

Method 2: The volume of the sediment storage zone shall be the volume necessary to store the sediment as calculated with RUSLE or a similar generally accepted erosion prediction model.

The accumulated sediment shall be removed from the sediment storage zone once it's full. When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity shall be included unless runoff from these areas is diverted away from the sediment settling pond and is not co-mingled with sediment-laden runoff. The depth of the dewatering zone shall be less than or equal to five feet. The configuration between inlets and the outlet of the basin shall provide at least two units of length for each one unit of width (> 2:1 length:width ratio); however, a length to width ratio of 4:1 is recommended. When designing sediment settling ponds, the permittee shall consider public safety, especially as it relates to children, as a design factor for the sediment basin and alternative sediment controls shall be used where site limitations would preclude a safe design. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal is encouraged.

iii. **Silt Fence and Diversions.** Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. Where intended to provide sediment control, silt fence shall be placed on a level contour downslope of the disturbed area. This permit does not preclude the use of other sediment barriers designed to control sheet flow runoff. The relationship between the maximum drainage area to silt fence for a particular slope range is shown in the following table:

Silt Fence Maximum Drainage Area Based on Slope

Maximum drainage area (in acres) to 100 linear feet of silt fence	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

Placing silt fence in a parallel series does not extend the size of the drainage area. Storm water diversion practices shall be used to keep runoff away from disturbed areas and steep slopes where practicable. Such devices, which include swales, dikes or berms, may receive storm water runoff from areas up to 10 acres.

iv. **Inlet Protection.** Other erosion and sediment control practices shall minimize sediment laden water entering active storm drain systems, unless the storm drain system drains to a sediment settling pond. All inlets receiving runoff from drainage areas of one or more acres will require a sediment settling pond.

v. **Surface Waters of the State Protection.** If construction activities disturb areas adjacent to surface waters of the state, structural practices shall be designed and implemented on site to protect all adjacent surface waters of the state from the impacts of sediment runoff. No structural sediment controls (e.g., the installation of silt fence or a sediment settling pond) shall be used in a surface water of the state. For all construction activities immediately adjacent to surface waters of the state, the permittee shall comply with the buffer non-numeric effluent limitation in Part II.A.6, as measured from the ordinary high water mark of the surface water. Where impacts within this buffer area are unavoidable, due to the nature of the construction (e.g., stream crossings for roads or utilities), the project shall be designed such that the number of stream crossings and the width of the disturbance within the buffer area are minimized.

vi. **Modifying Controls**. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the permittee shall replace or modify the control for site conditions.

e. Post-Construction Storm Water Management Requirements. So that receiving stream's physical, chemical and biological characteristics are protected and stream functions are maintained, post-construction storm water practices shall provide perpetual management of runoff quality and quantity. To meet the post-construction requirements of this permit, the SWP3 shall contain a description of the post-construction BMPs that will be installed during construction for the site and the rationale for their selection. The rationale shall address the anticipated impacts on the channel and floodplain morphology, hydrology, and water quality. Post-construction BMPs cannot be installed within a surface water of the state (e.g., wetland or stream) unless it's authorized by a CWA 401 water quality certification, CWA 404 permit, or Ohio EPA non-jurisdictional wetland/stream program approval. Note: localities may have more stringent post-construction requirements.

Detail drawings and maintenance plans shall be provided for all post-construction BMPs. Maintenance plans shall be provided by the permittee to the post-construction operator of the site (including homeowner associations) upon completion of construction activities (prior to termination of permit coverage). For sites located within a community with a regulated municipal separate storm sewer system (MS4), the permittee, land owner, or other entity with legal control of the property may be required to develop and implement a maintenance plan to comply with the requirements of the MS4. Maintenance plans shall ensure that pollutants collected within structural post-construction practices, be disposed of in accordance with local, state, and federal regulations. To ensure that storm water management systems function as they were designed and constructed, the post-construction operation and maintenance plan shall be a stand-alone

document, which contains: (1) a designated entity for storm water inspection and maintenance responsibilities; (2) the routine and non-routine maintenance tasks to be undertaken; (3) a schedule for inspection and maintenance; (4) any necessary legally binding maintenance easements and agreements; and (5) a map showing all access and maintenance easements. Permittees are not responsible under this permit for operation and maintenance of post-construction practices once coverage under this permit is terminated.

Post-construction storm water BMPs that discharge pollutants from point sources once construction is completed, may in themselves, need authorization under a separate NPDES permit (one example is storm water discharges from regulated industrial sites).

Construction activities that do not include the installation of any impervious surface (e.g., soccer fields), abandoned mine land reclamation activities regulated by the Ohio Department of Natural Resources, stream and wetland restoration activities, and wetland mitigation activities are not required to comply with the conditions of Part III.G.2.e of this permit. Linear construction projects, (e.g., pipeline or utility line installation), which do not result in the installation of additional impervious surface, are not required to comply with the conditions of Part III.G.2.e of this permit. However, linear construction projects shall be designed to minimize the number of stream crossings and the width of disturbance and achieve final stabilization of the disturbed area as defined in Part VII.J.1.

Large Construction Activities. For all large construction activities (involving the disturbance of five or more acres of land or will disturb less than five acres, but is a part of a larger common plan of development or sale which will disturb five or more acres of land), the post construction BMP(s) chosen shall be able to detain storm water runoff for protection of the stream channels, stream erosion control, and improved water quality. The BMP(s) chosen must be compatible with site and soil conditions. Structural post-construction storm water treatment practices shall be incorporated into the permanent drainage system for the site. The BMP(s) chosen must be sized to treat the water quality volume (WQ_v) and ensure compliance with Ohio's Water Quality Standards in OAC Chapter 3745-1. The WQ_v shall be equivalent to the volume of runoff from a 0.75-inch rainfall and shall be determined according to the following equation:

$WQ_v = C * P * A / 12$

where:

WQ_v = water quality volume in acre-feet

C = runoff coefficient appropriate for storms less than 1 inch

(Either use the following formula: $C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$, where i = fraction of post-construction impervious surface or use Table 1)

P = 0.75 inch precipitation depth

A = area draining into the BMP in acres

Appendix E

Table 1
Runoff Coefficients Based on the Type of Land Use

Land Use	Runoff Coefficient
Industrial & Commercial	0.8
High Density Residential (>8 dwellings/acre)	0.5
Medium Density Residential (4 to 8 dwellings/acre)	0.4
Low Density Residential (<4 dwellings/acre)	0.3
Open Space and Recreational Areas	0.2

Where the land use will be mixed, the runoff coefficient should be calculated using a weighted average. For example, if 60% of the contributing drainage area to the storm water treatment structure is Low Density Residential, 30% is High Density Residential, and 10% is Open Space, the runoff coefficient is calculated as follows (0.6)(0.3) + (0.3)(0.5) + (0.1)(0.2) = 0.35.

An additional volume equal to 20 percent of the WQ_v shall be incorporated into the BMP for sediment storage. Ohio EPA recommends that BMPs be designed according to the methodology included in the most current edition of the Rainwater and Land Development manual or in another design manual acceptable for use by Ohio EPA.

The BMPs listed in Table 2 below shall be considered standard BMPs approved for general use. However communities with a regulated MS4 may limit the use of some of these BMPs. BMPs shall be designed such that the drain time is long enough to provide treatment, but short enough to provide storage for successive rainfall events and avoid the creation of nuisance conditions. The outlet structure for the post-construction BMP shall not discharge more than the first half of the WQv or extended detention volume (EDv) in less than one-third of the drain time. The EDv is the volume of storm water runoff that must be detained by a structural post-construction BMP. The EDv is equal to 75 percent of the WQv for wet extended detention basins, but is equal to the WQv for all other BMPs listed in Table 2.

Appendix E

Table 2
Structural Post-Construction BMPs & Associated Drain (Drawdown) Times

Best Management Practice	Drain Time of WQv
Infiltration Basin or Trench[1]	48 hours
Permeable Pavement – Infiltration[1]	48 hours
Permeable Pavement – Extended Detention	24 hours
Dry Extended Detention Basin[2]	48 hours
Wet Extended Detention Basin[3]	24 hours
Constructed Wetland (above permanent pool)[4]	24 hours
Sand & Other Media Filtration[5]	24 hours
Bioretention Area/Cell[5,6]	24 hours
Pocket Wetland[7]	24 hours

[1] Practices that are designed to fully infiltrate the WQv (basin, trench, permeable pavement) shall empty within 48 hours to provide storage for the subsequent storm events.
[2] Dry basins must include forebay and micropool each sized at 10% of the WQv.
[3] Provide both a permanent pool and an EDv above the permanent pool, each sized at 0.75 WQv.
[4] Extended detention shall be provided for the WQv above the permanent water pool.
[5] The surface ponding area (WQv) shall completely empty within 24 hours so that there is no standing water. Shorter drawdown times are acceptable as long as design criteria in Ohio's Rainwater and Land Development manual have been met.
[6] This would include Grassed Linear Bioretention which was previously called Enhanced Water Quality Swale.
[7] Pocket wetlands must have a wet pool equal to the WQv, with 25% of the WQv in a pool and 75% in marshes. The EDv above the permanent pool must be equal to the WQv.

The permittee may request approval from Ohio EPA to use alternative structural post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in Table 2 above. Construction activities shall be exempt from this condition if it can be demonstrated that the WQ_v is provided within an existing structural post-construction BMP that is part of a larger common plan of development or if structural post-construction BMPs are addressed in a regional or local storm water management plan. A municipally operated regional storm water BMP can be used as a post-construction BMP provided that the BMP can detain the WQv from its entire drainage area and release it over a 24 hour period.

Transportation Projects. The construction of new roads and roadway improvement projects by public entities (i.e., the state, counties, townships, cities, or villages) may implement post-construction BMPs in compliance with the current version (as of the effective date of this permit) of the Ohio Department of Transportation's "Location and Design Manual, Volume Two Drainage Design" that has been accepted by Ohio EPA as an alternative to the conditions of this permit.

Offsite Mitigation of Post-Construction. Ohio EPA may authorize the offsite mitigation of the post-construction requirements of Part III.G.2.e of this permit on a case by case basis provided the permittee clearly demonstrates the BMPs listed in Table 2 are not feasible and the following criteria is met: (1) a maintenance agreement or policy is established to ensure operations and treatment in perpetuity; (2) the offsite location discharges to the same HUC-14 watershed unit; and (3) the mitigation ratio of the WQv is 1.5 to 1 or the WQv at the point of retrofit, whichever is greater. Requests for offsite mitigation must be received prior to receipt of the NOI applications.

Redevelopment Projects Sites that have been previously developed where no post-construction BMPs were installed shall either ensure a 20 percent net reduction of the site impervious area, provide for treatment of at least 20 percent of the WQv, or a combination of the two. A one-for-one credit towards the 20 percent net reduction of impervious area can be obtained through the use of green roofs. Where projects are a combination of new development and redevelopment, the total WQv that must be treated shall be calculated by a weighted average based on acreage, with the new development at 100 percent WQv and redevelopment at 20 percent WQv.

Non-Structural Post-Construction BMPs The size of the structural post-construction can be reduced by incorporating non-structural post-construction BMPs into the design. Practices such as preserving open space will reduce the runoff coefficient and, thus, the WQv. Ohio EPA encourages the implementation of riparian and wetland setbacks. Practices which reduce storm water runoff include green roofs, rain barrels, conservation development, smart growth, low-impact development, and other site design techniques. For examples, see the Ohio Lake Erie Commission's Balanced Growth Program at http://balancedgrowth.ohio.gov/.

In order to promote the implementation of such practices, the Director may consider the use of non-structural practices to demonstrate compliance with Part III.G.2.e of this permit for areas of the site not draining into a common drainage system of the site, i.e., sheet flow from perimeter areas such as the rear yards of residential lots, for low density development scenarios, or where the permittee can demonstrate that the intent of pollutant removal and stream protection, as required in Part III.G.2.e of this permit is being addressed through non-structural post-construction BMPs based upon review and approval by Ohio EPA.

Use of Alternative Post-Construction BMPs This permit does not preclude the use of innovative or experimental post-construction storm water management technologies. However, the Director may require these practices to be tested using the protocol outlined in the Technology Acceptance Reciprocity Partnership's (TARP) Protocol for Stormwater Best Management Practice Demonstrations or other approvable protocol. For guidance, see the following:

- http://www.njstormwater.org
- http://www.mastep.net/

The Director may require discharges from such structures to be monitored to ensure compliance with Part III.G.2.e of this permit. Permittees shall request

approval from Ohio EPA to use alternative post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in Table 2 above. To demonstrate this equivalency, the permittee shall show that the alternative BMP has a minimum total suspended solids (TSS) removal efficiency of 80 percent under both laboratory and field conditions. Tests shall be conducted by an independent, third party tester. Also, the WQv discharge rate from the practice shall be reduced to prevent stream bed erosion and protect the physical and biological stream integrity unless there will be negligible hydrological impact to the receiving surface water of the state. The discharges will have a negligible impact if the permittee can demonstrate that one of the following four conditions exist:

i. The entire WQv is recharged to groundwater;
ii. The larger common plan of development or sale will create less than one acre of impervious surface;
iii. The project is a redevelopment project within an ultra-urban setting (i.e., a downtown area or on a site where 100 percent of the project area is already impervious surface and the storm water discharge is directed into an existing storm sewer system); or
iv. The storm water drainage system of the development discharges directly into a large river (fourth order or greater) or to a lake and where the development area is less than 5 percent of the watershed area upstream of the development site, unless a TMDL identified water quality problems into the receiving surface waters of the state.

The Director shall only consider the use of alternative BMPs on projects where the permittee can demonstrate that the implementation of the BMPs listed in Table 2 is infeasible due to physical site constraints that prevent the ability to provide functional BMP design. Alternative practices may include, but are not limited to, underground detention structures, vegetated swales and vegetated filter strips designed using water quality flow, natural depressions, rain barrels, green roofs, rain gardens, catch basin inserts, and hydrodynamics separators. The Director may also consider non-structural post-construction approaches where no local requirements for such practices exist.

Small Construction Activities For all small land disturbance activities (which disturb one or more, but less than five acres of land and is not a part of a larger common plan of development or sale which will disturb five or more acres of land), a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed must be included in the SWP3. Structural measures should be placed on upland soils to the degree attainable. Such practices may include, but are not limited to: storm water detention structures (including wet basins); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The SWP3 shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels.

f. Surface Water Protection. If the project site contains any streams, rivers, lakes, wetlands or other surface waters, certain construction activities at the site may be regulated under the CWA and/or state isolated wetland permit requirements. Sections 404 and 401 of the Act regulate the discharge of dredged or fill material into surface waters and the impacts of such activities on water quality, respectively. Construction activities in surface waters which may be subject to CWA regulation and/or state isolated wetland permit requirements include, but are not limited to: sewer line crossings, grading, backfilling or culverting streams, filling wetlands, road and utility line construction, bridge installation and installation of flow control structures. If the project contains streams, rivers, lakes or wetlands or possible wetlands, the permittee shall contact the appropriate U.S. Army Corps of Engineers District Office. (CAUTION: Any area of seasonally wet hydric soil is a potential wetland - please consult the Soil Survey and list of hydric soils for your County, available at your county's Soil and Water Conservation District. If you have any questions about Section 401 water quality certification, please contact the Ohio Environmental Protection Agency, Section 401 Coordinator.)

U.S. Army Corps of Engineers (Section 404 regulation):

- Huntington, WV District (304) 399-5210 (Muskingum River, Hocking River, Scioto River, Little Miami River, and Great Miami River Basins)
- Buffalo, NY District (716) 879-4330 (Lake Erie Basin)
- Pittsburgh, PA District (412) 395-7155 (Mahoning River Basin)
- Louisville, KY District (502) 315-6686 (Ohio River)

Ohio EPA 401/404 and non-jurisdictional stream/wetland coordinator can be contacted at (614) 644-2001 (all of Ohio)

Concentrated storm water runoff from BMPs to natural wetlands shall be converted to diffuse flow before the runoff enters the wetlands. The flow should be released such that no erosion occurs downslope. Level spreaders may need to be placed in series, particularly on steep sloped sites, to ensure non-erosive velocities. Other structural BMPs may be used between storm water features and natural wetlands, in order to protect the natural hydrology, hydroperiod, and wetland flora. If the applicant proposes to discharge to natural wetlands, a hydrologic analysis shall be performed. The applicant shall attempt to match the pre-development hydroperiods and hydrodynamics that support the wetland. The applicant shall assess whether their construction activity will adversely impact the hydrologic flora and fauna of the wetland. Practices such as vegetative buffers, infiltration basins, conservation of forest cover, and the preservation of intermittent streams, depressions, and drainage corridors may be used to maintain wetland hydrology.

g. Other controls.

i. **Non-Sediment Pollutant Controls.** In accordance with Part II.E, no solid (other than sediment) or liquid waste, including building materials, shall be discharged in storm water runoff. The permittee must implement all necessary BMPs to prevent the discharge of non-sediment pollutants to the drainage system of the site or surface waters of the state. Under

no circumstance shall wastewater from the washout of concrete trucks, stucco, paint, form release oils, curing compounds, and other construction materials be discharged directly into a drainage channel, storm sewer or surface waters of the state. Also, no pollutants from vehicle fuel, oils, or other vehicle fluids can be discharged to surface waters of the state. No exposure of storm water to waste materials is recommended. The SWP3 must include methods to minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, and sanitary waste to precipitation, storm water runoff, and snow melt. In accordance with Part II.D.3, the SWP3 shall include measures to prevent and respond to chemical spills and leaks. You may also reference the existence of other plans (i.e., Spill Prevention Control and Countermeasure (SPCC) plans, spill control programs, Safety Response Plans, etc.) provided that such plan addresses conditions of this permit condition and a copy of such plan is maintained on site.

ii. **Off-site traffic.** Off-site vehicle tracking of sediments and dust generation shall be minimized. In accordance with Part II.D.1, the SWP3 shall include methods to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. No detergents may be used to wash vehicles. Wash waters shall be treated in a sediment basin or alternative control that provides equivalent treatment prior to discharge.

iii. **Compliance with other requirements.** The SWP3 shall be consistent with applicable State and/or local waste disposal, sanitary sewer or septic system regulations, including provisions prohibiting waste disposal by open burning and shall provide for the proper disposal of contaminated soils to the extent these are located within the permitted area.

iv. **Trench and ground water control**. In accordance with Part II.C, there shall be no turbid discharges to surface waters of the state resulting from dewatering activities. If trench or ground water contains sediment, it shall pass through a sediment settling pond or other equally effective sediment control device, prior to being discharged from the construction site. Alternatively, sediment may be removed by settling in place or by dewatering into a sump pit, filter bag or comparable practice. Ground water which does not contain sediment or other pollutants is not required to be treated prior to discharge. However, care must be taken when discharging ground water to ensure that it does not become pollutant-laden by traversing over disturbed soils or other pollutant sources.

v. **Contaminated Sediment.** Where construction activities are to occur on sites with contamination from previous activities, operators shall be aware that concentrations of materials that meet other criteria (is not considered a Hazardous Waste, meeting VAP standards, etc.) may still result in storm water discharges in excess of Ohio Water Quality Standards. Such discharges are not authorized by this permit. Appropriate BMPs include, but are not limited to:

- The use of berms, trenches, and pits to collect contaminated runoff and prevent discharges;
- Pumping runoff into a sanitary sewer (with prior approval of the sanitary sewer operator) or into a container for transport to an appropriate treatment/disposal facility; and
- Covering areas of contamination with tarps or other methods that prevent storm water from coming into contact with the material.

Operators should consult with Ohio EPA Division of Surface Water prior to seeking permit coverage.

h. Maintenance. All temporary and permanent control practices shall be maintained and repaired as needed to ensure continued performance of their intended function. All sediment control practices must be maintained in a functional condition until all up slope areas they control are permanently stabilized. The SWP3 shall be designed to minimize maintenance requirements. The applicant shall provide a description of maintenance procedures needed to ensure the continued performance of control practices.

i. Inspections. At a minimum, procedures in an SWP3 shall provide that all controls on the site are inspected at least once every seven calendar days and within 24 hours after any storm event greater than one-half inch of rain per 24 hour period. The inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized or runoff is unlikely due to weather conditions (e.g., site is covered with snow, ice, or the ground is frozen). A waiver of inspection requirements is available until one month before thawing conditions are expected to result in a discharge if all of the following conditions are met: the project is located in an area where frozen conditions are anticipated to continue for extended periods of time (i.e., more than one month); land disturbance activities have been suspended; and the beginning and ending dates of the waiver period are documented in the SWP3. Once a definable area is finally stabilized, the area may be marked on the SWP3 and no further inspection requirements apply to that portion of the site. The permittee shall assign "qualified inspection personnel" to conduct these inspections to ensure that the control practices are functional and to evaluate whether the SWP3 is adequate and properly implemented in accordance with the schedule proposed in Part III.G.1.g of this permit or whether additional control measures are required.

Following each inspection, a checklist must be completed and signed by the qualified inspection personnel representative. At a minimum, the inspection report shall include:

i. the inspection date;
ii. names, titles, and qualifications of personnel making the inspection;
iii. weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
iv. weather information and a description of any discharges occurring at the time of the inspection;

v. location(s) of discharges of sediment or other pollutants from the site;
vi. location(s) of BMPs that need to be maintained;
vii. location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
viii. location(s) where additional BMPs are needed that did not exist at the time of inspection; and
ix. corrective action required including any changes to the SWP3 necessary and implementation dates.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for pollutants entering the drainage system. Erosion and sediment control measures identified in the SWP3 shall be observed to ensure that those are operating correctly. Discharge locations shall be inspected to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to the receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking.

The permittee shall maintain for three years following the submittal of a notice of termination form, a record summarizing the results of the inspection, names(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3 and a certification as to whether the facility is in compliance with the SWP3 and the permit and identify any incidents of non-compliance. The record and certification shall be signed in accordance with Part V.G. of this permit.

i. **When practices require repair or maintenance.** If the inspection reveals that a control practice is in need of repair or maintenance, with the exception of a sediment settling pond, it shall be repaired or maintained within 3 days of the inspection. Sediment settling ponds shall be repaired or maintained within 10 days of the inspection.

ii. **When practices fail to provide their intended function.** If the inspection reveals that a control practice fails to perform its intended function and that another, more appropriate control practice is required, the SWP3 shall be amended and the new control practice shall be installed within 10 days of the inspection.

iii. **When practices depicted on the SWP3 are not installed.** If the inspection reveals that a control practice has not been implemented in accordance with the schedule contained in Part III.G.1.g of this permit, the control practice shall be implemented within 10 days from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record shall contain a statement of explanation as to why the control practice is not needed.

3. Approved State or local plans. All dischargers regulated under this general permit must comply, except those exempted under state law, with the lawful requirements of municipalities, counties and other local agencies regarding discharges of storm water from construction activities. All erosion and sediment control plans and storm water

management plans approved by local officials shall be retained with the SWP3 prepared in accordance with this permit. Applicable requirements for erosion and sediment control and storm water management approved by local officials are, upon submittal of a NOI form, incorporated by reference and enforceable under this permit even if they are not specifically included in an SWP3 required under this permit. When the project is located within the jurisdiction of a regulated municipal separate storm sewer system (MS4), the permittee shall certify that the SWP3 complies with the requirements of the storm water management program of the MS4 operator.

4. Exceptions. If specific site conditions prohibit the implementation of any of the erosion and sediment control practices contained in this permit or site specific conditions are such that implementation of any erosion and sediment control practices contained in this permit will result in no environmental benefit, then the permittee shall provide justification for rejecting each practice based on site conditions. Exceptions from implementing the erosion and sediment control standards contained in this permit will be approved or denied on a case-by-case basis.

   The permittee may request approval from Ohio EPA to use alternative methods to satisfy conditions in this permit if the permittee can demonstrate that the alternative methods are sufficient to protect the overall integrity of receiving streams and the watershed. Alternative methods will be approved or denied on a case-by-case basis.

PART IV. NOTICE OF TERMINATION REQUIREMENTS

A. Failure to notify.

The terms and conditions of this permit shall remain in effect until a signed Notice of Termination (NOT) form is submitted. Failure to submit an NOT constitutes a violation of this permit and may affect the ability of the permittee to obtain general permit coverage in the future.

B. When to submit an NOT.

1. Permittees wishing to terminate coverage under this permit shall submit an NOT form in accordance with Part V.G. of this permit. Compliance with this permit is required until an NOT form is submitted. The permittee's authorization to discharge under this permit terminates at midnight of the day the NOT form is submitted. Prior to submitting the NOT form, the permittee shall conduct a site inspection in accordance with Part III.G.2.i of this permit and have a maintenance agreement in place to ensure all post-construction BMPs will be maintained in perpetuity.

2. All permittees shall submit an NOT form within 45 days of completing all permit requirements. Enforcement actions may be taken if a permittee submits an NOT form without meeting one or more of the following conditions:

   a. Final stabilization (see definition in Part VII) has been achieved on all portions of the site for which the permittee is responsible (including, if applicable, returning agricultural land to its pre-construction agricultural use);

   b. Another operator(s) has assumed control over all areas of the site that have not been finally stabilized;

c. For residential construction only, temporary stabilization has been completed and the lot, which includes a home, has been transferred to the homeowner. (Note: For individual lots without housing, which are sold by the developer, the individual lot permittee shall implement final stabilization prior to the individual lot permittee terminating permit coverage.); or

d. An exception has been granted under Part III.G.4.

C. How to submit an NOT.

Permittees shall use Ohio EPA's approved NOT form. The form shall be completed and mailed according to the instructions and signed in accordance with Part V.G of this permit.

PART V. STANDARD PERMIT CONDITIONS.

A. Duty to comply.

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of ORC Chapter 6111 and is grounds for enforcement action.

Ohio law imposes penalties and fines for persons who knowingly make false statements or knowingly swear or affirm the truth of a false statement previously made.

B. Continuation of an expired general permit.

An expired general permit continues in force and effect until a new general permit is issued.

C. Need to halt or reduce activity not a defense.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to mitigate.

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Duty to provide information.

The permittee shall furnish to the director, within 10 days of written request, any information which the director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the director upon request copies of records required to be kept by this permit.

F. Other information.

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI, SWP3, NOT or in any other report to the director, he or she shall promptly submit such facts or information.

G. Signatory requirements.

All NOIs, NOTs, SWP3s, reports, certifications or information either submitted to the director or that this permit requires to be maintained by the permittee, shall be signed.

1. These items shall be signed as follows:

    a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

        i. A president, secretary, treasurer or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision-making functions for the corporation; or

        ii. The manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

    b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

    c. For a municipality, State, Federal or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

2. All reports required by the permits and other information requested by the director shall be signed by a person described in Part V.G.1 of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Part V.G.1 of this permit and submitted to the director;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator of a well or well field, superintendent, position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

c. The written authorization is submitted to the director.

3. Changes to authorization. If an authorization under Part V.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part V.G.2 of this permit must be submitted to the director prior to or together with any reports, information or applications to be signed by an authorized representative.

H. Certification.

Any person signing documents under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I. Oil and hazardous substance liability.

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the CWA or 40 CFR Part 112. 40 CFR Part 112 establishes procedures, methods and equipment and other requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable surface waters of the state or adjoining shorelines.

J. Property rights.

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

K. Severability.

The provisions of this permit are severable and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

L. Transfers.

Ohio NPDES general permit coverage is transferable. Ohio EPA must be notified in writing sixty days prior to any proposed transfer of coverage under an Ohio NPDES general permit. The transferee must inform Ohio EPA it will assume the responsibilities of the original permittee transferor.

M. Environmental laws.

No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

N. Proper operation and maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWP3s. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

O. Inspection and entry.

The permittee shall allow the director or an authorized representative of Ohio EPA, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment); and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

P. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

Q. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

R. Bypass

The provisions of 40 CFR Section 122.41(m), relating to "Bypass," are specifically incorporated herein by reference in their entirety. For definition of "Bypass," see Part VII.C.

S. Upset

The provisions of 40 CFR Section 122.41(n), relating to "Upset," are specifically incorporated herein by reference in their entirety. For definition of "Upset," see Part VII.GG.

T. Monitoring and Records

The provisions of 40 CFR Section 122.41(j), relating to "Monitoring and Records," are specifically incorporated herein by reference in their entirety.

U. Reporting Requirements

The provisions of 40 CFR Section 122.41(l), relating to "Reporting Requirements," are specifically incorporated herein by reference in their entirety.

PART VI. REOPENER CLAUSE

If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with construction activity covered by this permit, the permittee of such discharge may be required to obtain coverage under an individual permit or an alternative general permit in accordance with Part I.C of this permit or the permit may be modified to include different limitations and/or requirements.

Permit modification or revocation will be conducted according to ORC Chapter 6111.

PART VII. DEFINITIONS

A. "Act" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117 and Pub. L. 100-4, 33 U.S.C. 1251 et. seq.

B. "Best management practices (BMPs)" means schedules of activities, prohibitions of practices, maintenance procedures and other management practices (both structural and non-structural) to prevent or reduce the pollution of surface waters of the state. BMP's also include treatment requirements, operating procedures and practices to control plant and/or construction site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage.

C. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

D. "Commencement of construction" means the initial disturbance of soils associated with clearing, grubbing, grading, placement of fill, or excavating activities or other construction activities.

E. "Concentrated storm water runoff" means any storm water runoff which flows through a drainage pipe, ditch, diversion or other discrete conveyance channel.

F. "Director" means the director of the Ohio Environmental Protection Agency.

G. "Discharge" means the addition of any pollutant to the surface waters of the state from a point source.

H. "Disturbance" means any clearing, grading, excavating, filling, or other alteration of land surface where natural or man-made cover is destroyed in a manner that exposes the underlying soils.

I. "Drainage watershed" means for purposes of this permit the total contributing drainage area to a BMP, i.e., the "watershed" directed to the practice. This would also include any off-site drainage.

J. "Final stabilization" means that either:

1. All soil disturbing activities at the site are complete and a uniform perennial vegetative cover (e.g., evenly distributed, without large bare areas) with a density of at least 70 percent cover for the area has been established on all unpaved areas and areas not covered by permanent structures or equivalent stabilization measures (such as the use of mulches, rip-rap, gabions or geotextiles) have been employed. In addition, all temporary erosion and sediment control practices are removed and disposed of and all trapped sediment is permanently stabilized to prevent further erosion; or

2. For individual lots in residential construction by either:

   a. The homebuilder completing final stabilization as specified above or

   b. The homebuilder establishing temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for and benefits of, final stabilization. (Homeowners typically have an incentive to put in the landscaping functionally equivalent to final stabilization as quick as possible to keep mud out of their homes and off sidewalks and driveways.); or

3. For construction projects on land used for agricultural purposes (e.g., pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were previously used for agricultural activities, such as buffer strips immediately adjacent to surface waters of the state and which are not being returned to their pre-construction agricultural use, must meet the final stabilization criteria in (1) or (2) above.

K. "Individual Lot NOI" means a Notice of Intent for an individual lot to be covered by this permit (see Part I of this permit).

Appendix E

L. "Larger common plan of development or sale"- means a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.

M. "MS4" means municipal separate storm sewer system which means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) that are:

1. Owned or operated by the federal government, state, municipality, township, county, district(s) or other public body (created by or pursuant to state or federal law) including special district under state law such as a sewer district, flood control district or drainage districts or similar entity or a designated and approved management agency under section 208 of the act that discharges into surface waters of the state; and
2. Designed or used for collecting or conveying solely storm water,
3. Which is not a combined sewer and
4. Which is not a part of a publicly owned treatment works.

N. "National Pollutant Discharge Elimination System (NPDES)" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the CWA. The term includes an "approved program."

O. "NOI" means notice of intent to be covered by this permit.

P. "NOT" means notice of termination.

Q. "Operator" means any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with an SWP3 for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

As set forth in Part I.F.1, there can be more than one operator at a site and under these circumstances, the operators shall be co-permittees.

R. "Ordinary high water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

S. "Owner or operator" means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

T. "Permanent stabilization" means the establishment of permanent vegetation, decorative landscape mulching, matting, sod, rip rap and landscaping techniques to provide permanent erosion control on areas where construction operations are complete or where no further disturbance is expected for at least one year.

U. "Percent imperviousness" means the impervious area created divided by the total area of the project site.

V. "Point source" means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or the floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

W. "Qualified inspection personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls, who possesses the skills to assess all conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity.

X. "Rainwater and Land Development" is a manual describing construction and post-construction best management practices and associated specifications. A copy of the manual may be obtained by contacting the Ohio Department of Natural Resources, Division of Soil & Water Conservation.

Y. "Riparian area" means the transition area between flowing water and terrestrial (land) ecosystems composed of trees, shrubs and surrounding vegetation which serve to stabilize erodible soil, improve both surface and ground water quality, increase stream shading and enhance wildlife habitat.

Z. "Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.

AA. "Sediment settling pond" means a sediment trap, sediment basin or permanent basin that has been temporarily modified for sediment control, as described in the latest edition of the Rainwater and Land Development manual.

BB. "State isolated wetland permit requirements" means the requirements set forth in Sections 6111.02 through 6111.029 of the ORC.

CC. "Storm water" means storm water runoff, snow melt and surface runoff and drainage.

DD. "Steep slopes" means slopes that are 15 percent or greater in grade. Where a local government or industry technical manual has defined what is to be considered a "steep slope," this permit's definition automatically adopts that definition.

EE. "Surface waters of the state" or "water bodies" means all streams, lakes, reservoirs, ponds, marshes, wetlands or other waterways which are situated wholly or partially within the boundaries of the state, except those private waters which do not combine or effect a junction with natural surface or underground waters. Waters defined as

sewerage systems, treatment works or disposal systems in Section 6111.01 of the ORC are not included.

FF. "SWP3" means storm water pollution prevention plan.

GG. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

HH. "Temporary stabilization" means the establishment of temporary vegetation, mulching, geotextiles, sod, preservation of existing vegetation and other techniques capable of quickly establishing cover over disturbed areas to provide erosion control between construction operations.

II. "Water Quality Volume (WQ_v)" means the volume of storm water runoff which must be captured and treated prior to discharge from the developed site after construction is complete. WQ_v is based on the expected runoff generated by the mean storm precipitation volume from post-construction site conditions at which rapidly diminishing returns in the number of runoff events captured begins to occur.

Temporary Sediment and Erosion Control Best Management Practices (BMP)
Unit Price Schedule, October 2013

EROSION CONTROL PRICES

			Project Identified EDA (acres)					Fixed Price	Comment
			<5	5 to 10	10 to 15	15 to 20	>20		
Item	**Unit**	**Description**	Price ($)						
832	Sq. Yd.	Construction Seeding and Mulching	1.00	0.92	0.83	0.75	0.74		Based on NOI acres
832	Feet	Slope Drains						12.00	
832	Cu. Yd.	Sediment Basins and Dams						13.50	[3]
832	Feet	Perimeter Filter Fabric Fence	4.05	3.10	2.85	2.55	2.30		Based on NOI acres
832	Feet	Filter Fabric Ditch Check						11.00	
832	Feet	Inlet Protection						11.25	
832	Cu. Yd.	Dikes						3.00	
832	Sq. Yd.	Construction Ditch Protection						2.50	
832	Cu. Yd.	Rock Channel Protection, Type C or D with Filter						55.00	[1]
832	Cu. Yd.	Rock Channel Protection, Type C or D without Filter						50.00	[1]
832	Cu. Yd.	Basin Sediment Removal						10.00	
832	Cu. Yd.	Miscellaneous Sediment Removal						15.50	
832	Feet	Construction Fence						5.75	
832	Sq. Yd.	Construction Mulching	0.79	0.71	0.58	0.56	0.54		Based on NOI acres
832	Sq. Yd.	Winter Seeding and Mulching	1.08	1.00	0.92	0.85	0.81		Based on NOI acres
832	Cu. Yd.	Construction Entrance						75.25	

[1] Add the following amount per cubic yard for the cost of Type C or D Rock materials.
[3] Add the amount for the appropriately sized surface dewatering device for sediment basin outlet.

BMP ROCK MATERIAL SCHEDULE

District [2]	Purchase & Delivered to Job		Produced on Job	
	Type C	Type D	Type C	Type D
1	$ 60.00	$ 58.00	$ 27.50	$ 27.50
2	$ 60.00	$ 58.00	$ 27.50	$ 27.50
3	$ 67.00	$ 65.00	$ 27.50	$ 27.50
4	$ 71.00	$ 68.00	$ 27.50	$ 27.50
5	$ 63.00	$ 60.00	$ 27.50	$ 27.50
6	$ 65.00	$ 63.00	$ 27.50	$ 27.50
7	$ 65.00	$ 63.00	$ 27.50	$ 27.50
8	$ 65.00	$ 63.00	$ 27.50	$ 27.50
9	$ 66.00	$ 65.00	$ 27.50	$ 27.50
10	$ 70.00	$ 68.00	$ 27.50	$ 27.50
11	$ 65.00	$ 63.00	$ 27.50	$ 27.50
12	$ 71.00	$ 68.00	$ 27.50	$ 27.50

[2] Based on the District in which the project is administered.

SEDIMENT BASIN SURFACE DEWATERING DEVICE

Device Size	Purchase & Delivered to Job
1 1/2”	$598.00
2”	$750.00
2 1/2”	$915.00
3”	$1,100.00
4”	$1,590.00
5”	$2,375.00
6”	$3,650.00
8”	$6,000.00

[3] Surface dewatering device sized appropriately for sediment basin

ARTICLE 3

3.1 The Contractor shall diligently prosecute the Work and shall achieve each completion milestones prior to the deadlines specified in the Special Provisions for Construction Phasing and Time of Completion at SP 103, unless an extension of time is approved through the process established under Article 6 of the General Conditions.

3.2 Time is of the essence and the Work to be performed under the Contract shall be completed within the times provided above, unless the Contractor timely requests and the Commission grants an extension of time in accordance with the Contract Documents.

3.3 Failure to have the Work completed within the times provided, shall entitle the Commission to retain or recover from the Contractor, as Liquidated Damages, and not as a penalty, the applicable amount set forth in the following table for each and every day thereafter until Substantial Completion, Final Completion or any additional milestone, as applicable, is achieved:

LIQUIDATED DAMAGES

Completion Milestone	Liquidated Damages
Submitting an acceptable Baseline Construction Schedule ~~prior to beginning the Work except that described in Article 4.2.4.2 of the General Conditions~~ ***within 30 days after the Commission issues Notice to Proceed***	$1,000.00 for each day ~~after beginning the Work other than that described in Article 4.2.4.2 is performed without submitting an~~ ***that the failure to submit an*** acceptable Baseline Construction Schedule ***continues beyond the time described in SP103***.
Pavement and Bridge Completion Interim Milestone	$1,000.00 for each day that the failure to achieve the Interim Completion continues beyond the time described in SP 103.
Substantial Completion	$2,000.00 for each day that the failure to achieve the Substantial Completion continues beyond the time described in SP 103.
2019 Final Completion	$1,000.00 for each day that the failure to achieve the 2019 Final Completion continues beyond the time described in SP 103.
2020 Final Completion	$1,000.00 for each day that the failure to achieve the 2020 Final Completion continues beyond the time described in SP 103.

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-01**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1	
START: 6/27/18 END: 6/27/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	0.0																	
	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
0.1' - AGGREGATE BASE (1.0")	-1.4																	
VERY STIFF TO HARD, GRAY **SANDY SILT**, SOME CLAY, TRACE FINE GRAVEL, MOIST.		2	2 2 3	6	67	SS-1	3.25	6	7	47	19	21	19	12	7	13	A-4a (1)	
		3	3 4 6	13	94	SS-2	4.25	9	8	31	23	29	23	13	10	14	A-4a (3)	
	-4.4	4																
LOOSE, DARK GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST.	-5.9	5	3 3 3	8	78	SS-3	-	-	-	-	-	-	-	-	-	16	A-2-4 (V)	
VERY LOOSE, BROWN **FINE SAND**, TRACE SILT, TRACE FINE GRAVEL, MOIST TO WET.	-7.4	6																
		7	2 2 3	6	83	SS-4	-	-	-	-	-	-	-	-	-	22	A-3 (V)	
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-02**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1	
START: 2/28/18 END: 2/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	0.0																	
0.8' - CONCRETE (10.0")	-0.5																	
0.1' - AGGREGATE BASE (1.0")	-1.3																	
STIFF, BROWNISH DARK GRAY **SANDY SILT**, SOME CLAY, TRACE FINE GRAVEL, MOIST.	-1.4	1	2 2 1	4	44	SS-1	1.25	5	8	50	16	21	21	14	7	16	A-4a (0)	
STIFF, DARK GRAYISH BROWN **COARSE AND FINE SAND**, LITTLE SILT, LITTLE CLAY, TRACE FINE GRAVEL, WET.	-2.9	2	1 3 6	12	56	SS-2	-	2	10	62	12	14	NP	NP	NP	15	A-3a (0)	
VERY LOOSE TO LOOSE, BROWN **FINE SAND**, TRACE SILT, TRACE FINE GRAVEL, MOIST TO WET.	-4.4	3	2 2 2	5	100	SS-3	-	-	-	-	-	-	-	-	-	16	A-3 (V)	
		4	2 3 4	9	78	SS-4	-	-	-	-	-	-	-	-	-	27	A-3 (V)	
	-7.4	5																
	EOB	6																
		7																

F S

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-03**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/27/18 END: 6/27/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (5.5")	-0.5																	
0.8' - CONCRETE (10.0")	-1.2	1																
0.1' - AGGREGATE BASE (0.5")	-1.3																	
POSSIBLE FILL: VERY STIFF, GRAY TO BROWN **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.		2	1 2 4	8	61	SS-1	4.00	2	5	15	28	50	31	15	16	16	A-6b (10)	
		3	3 4 4	10	67	SS-2	4.00	4	4	11	31	50	32	16	16	17	A-6b (10)	
		5	3 3 4	9	67	SS-3	3.25	-	-	-	-	-	-	-	-	16	A-6b (V)	
	-5.8	6																
VERY STIFF, BROWNISH GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.			4 5 6	14	78	SS-4	2.75	-	-	-	-	-	-	-	-	17	A-6b (V)	
-ORGANIC ODOR PRESENT IN SS-4	-7.3	7 EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-04**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.	PAGE 1 OF 1	
START: 2/28/18 END: 2/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
VERY STIFF, BROWN **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	-2.8	2	1 2 4	8	56	SS-1	3.00	4	5	12	29	50	30	15	15	15	A-6a (10)	
VERY STIFF, BROWNISH GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.		3	1 3 5	10	72	SS-2	3.50	1	4	13	30	52	36	16	20	17	A-6b (12)	
		4																
		5	3 3 4	9	67	SS-3	3.50	-	-	-	-	-	-	-	-	16	A-6b (V)	
		6																
	-7.3	7	4 5 7	16	100	SS-4	4.00	-	-	-	-	-	-	-	-	15	A-6b (V)	
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-05**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1	
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.8' - CONCRETE (10.0")	-1.4	1																
FILL: LOOSE, BROWN **FINE SAND**, TRACE SILT, TRACE FINE GRAVEL, DAMP. 0.5' - AGGREGATE BASE (6.0")	-1.9		1 2 3	6	89	SS-1A	-	-	-	-	-	-	-	-	-	12	A-3 (V)	
VERY STIFF TO HARD, GRAYISH BROWN TO BROWN **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP. -SLAG FRAGMENTS PRESENT IN SS-1A		2				SS-1B	4.00	2	4	16	29	49	28	15	13	15	A-6a (9)	
		3	4 3 6	12	61	SS-2	4.5+	3	5	11	30	51	30	16	14	16	A-6a (10)	
		4	1 2 3	6	78	SS-3	4.00	-	-	-	-	-	-	-	-	17	A-6a (V)	
		5																
		6	3 5 9	18	56	SS-4	4.25	-	-	-	-	-	-	-	-	14	A-6a (V)	
	-7.4	7 EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-06**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 2/28/18 END: 2/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.4' - ASPHALT (5.0")	-0.4																	
0.8' - CONCRETE (10.0")	-1.2	1																
0.1' - AGGREGATE BASE (1.0")	-1.3																	
VERY STIFF, BROWN **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.		2	0 3 2	6	67	SS-1	3.50	4	5	12	29	50	28	15	13	17	A-6a (9)	
		3	2 2 3	6	72	SS-2	3.25	3	4	11	30	52	31	16	15	17	A-6a (10)	
		4																
		5	0 2 2	5	89	SS-3	3.00	-	-	-	-	-	-	-	-	17	A-6a (V)	
		6	3 3 4	9	67	SS-4	3.00	-	-	-	-	-	-	-	-	18	A-6a (V)	
	-7.3	7																
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-07**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (5.5")	0.0																	
0.8' - CONCRETE (10.0")	-0.5	1																
FILL: LOOSE, BROWN **FINE SAND**, TRACE SILT, WET.	-1.3		1			SS-1A	-	-	-	-	-	-	-	-	-	11	A-3 (V)	
VERY STIFF TO HARD, BROWN TO GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE TO LITTLE GRAVEL, DAMP.	-1.8	2	2 3	6	83	SS-1B	4.25	16	5	11	28	40	30	15	15	15	A-6a (9)	
		3	3 5 8	17	72	SS-2	4.25	6	5	10	32	47	27	14	13	13	A-6a (9)	
		4																
		5	3 3 4	9	100	SS-3	3.50	-	-	-	-	-	-	-	-	15	A-6a (V)	
		6																
	-7.3	7 EOB	3 5 7	16	72	SS-4	3.25	-	-	-	-	-	-	-	-	16	A-6a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-08**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1	
START: 2/28/18 END: 2/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.6' - ASPHALT (7.0")	0.0																	
	-0.6																	
0.8' - CONCRETE (10.0")	-1.4	1																
POSSIBLE FILL: HARD, GRAY **SILT AND CLAY**, SOME COARSE TO FINE SAND, TRACE GRAVEL, DAMP.	-2.9	2	WOH 3 6	12	67	SS-1	4.5+	7	5	27	25	36	24	13	11	13	A-6a (6)	
POSSIBLE FILL: VERY STIFF TO HARD, BROWN TO GRAY **SILTY CLAY**, SOME COARSE TO FINE SAND, TRACE GRAVEL, MOIST.	-5.9	3 4 5	6 6 8	18	61	SS-2	4.00	3	5	18	29	45	31	15	16	17	A-6b (10)	
		5 6	3 5 5	13	100	SS-3	4.5+	-	-	-	-	-	-	-	-	19	A-6b (V)	
VERY STIFF, BROWNISH GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	-7.4	6 7	4 5 6	14	100	SS-4	3.00	-	-	-	-	-	-	-	-	20	A-6b (V)	
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-09**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.1 ft.	PAGE 1 OF 1	
START: 2/28/18 END: 2/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.9' - ASPHALT (10.5")	0.0																	
	-0.9																	
0.2' - AGGREGATE BASE (2.5")	-1.1																	
HARD, GRAY **SILT AND CLAY**, SOME COARSE TO FINE SAND, TRACE TO LITTLE FINE GRAVEL GRAVEL, DAMP TO MOIST. -TRACE ORGANICS PRESENT IN SS-1		1	4 6 6	16	33	SS-1	4.5+	13	5	18	24	40	30	15	15	13	A-6a (8)	
		2																
		3	4 8 9	22	67	SS-2	4.5+	4	4	22	25	45	28	14	14	13	A-6a (9)	
		4																
		5	4 5 7	16	56	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	
		6																
	-7.1	EOB 7	8 9 9	23	56	SS-4	4.5+	-	-	-	-	-	-	-	-	17	A-6a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-10**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.4' - ASPHALT (5.5")	-0.4																	
0.8' - CONCRETE (10.0")	-1.2	1																
0.1' - AGGREGATE BASE (1.0")	-1.3																	
HARD, GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE GRAVEL, DAMP TO MOIST.		2	1 3 7	13	61	SS-1	4.5+	5	4	11	28	52	31	15	16	12	A-6b (10)	
		3	6 6 8	18	61	SS-2	4.5+	4	5	12	27	52	32	15	17	16	A-6b (11)	
		4																
		5	2 5 7	16	89	SS-3	4.5+	-	-	-	-	-	-	-	-	13	A-6b (V)	
	-5.8	6																
DENSE, GRAY **FINE SAND**, TRACE SILT, WET.			8 10 14	31	100	SS-4	-	-	-	-	-	-	-	-	-	13	A-3 (V)	
	-7.3	7 EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-11**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
1.0' - GRAVEL BERN (12.0")	-1.0																	
HARD, GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	-2.5	1 2	2 2 4	8	56	SS-1	4.25	10	7	13	24	46	30	14	16	13	A-6b (9)	
HARD, GRAY **SILT AND CLAY**, SOME COARSE TO FINE SAND, TRACE GRAVEL, MOIST.	-4.0	3 4	3 4 8	16	56	SS-2	4.5+	2	5	22	31	40	27	14	13	14	A-6a (8)	
HARD, GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE TO LITTLE FINE GRAVEL, MOIST.	-5.5	5	3 7 8	19	83	SS-3	4.25	-	-	-	-	-	-	-	-	19	A-6b (V)	
MEDIUM DENSE, GRAY **FINE SAND**, TRACE SILT, TRACE FINE GRAVEL, WET.	-10.0 EOB	6 7 8 9 10	6 8 10	23	89	SS-4	-	-	-	-	-	-	-	-	-	13	A-3 (V)	
			5 10 10	26	78	SS-5	-	-	-	-	-	-	-	-	-	17	A-3 (V)	

F-S

W

NOTES: ENCOUNTERED WATER SEEPAGE @ 8.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-12**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 2/28/18 END: 2/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
1.0' - SAND + GRAVEL (12.0")	0.0																	
	-1.0																	
VERY STIFF TO HARD, GRAY **SILTY CLAY**, LITTLE FINE SAND, TRACE GRAVEL, DAMP TO MOIST.		1	3 5 6	14	67	SS-1	4.5+	5	5	17	23	50	30	14	16	14	A-6b (10)	
		2																
		3	6 5 7	16	78	SS-2	4.5+	5	5	12	27	51	31	15	16	16	A-6b (10)	
	-4.5	4				SS-3A	3.50	-	-	-	-	-	-	-	-	15	A-6b (V)	
MEDIUM DENSE, BLACK TO GRAY **FINE SAND**, TRACE TO LITTLE SILT, MOIST.		5	3 6 6	16	78	SS-3B	-	-	-	-	-	-	-	-	-	16	A-3 (V)	
	-5.5																	
VERY STIFF, BROWNISH GRAY **SANDY SILT**, LITTLE CLAY, TRACE TO LITTLE FINE GRAVEL, MOIST.		6	8 8 8	21	89	SS-4	3.50	-	-	-	-	-	-	-	-	17	A-4a (V)	
	-8.0	7																
		8																
HARD, GRAY **SILT AND CLAY**, TRACE TO LITTLE FINE GRAVEL, DAMP.		W 9	5 5 7	16	78	SS-5	4.25	-	-	-	-	-	-	-	-	14	A-6a (V)	
	-10.0	EOB 10																

NOTES: ENCOUNTERED WATER @ 8.5' WHILE DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-13**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1	
START: 7/8/18 END: 7/8/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
0.1' - AGGREGATE BASE (0.5")	-1.4																	
HARD, GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE GRAVEL, DAMP.	-2.9	2	3 3 2	6	56	SS-1	4.5+	7	4	12	27	50	29	15	14	15	A-6a (10)	
HARD, BROWNISH GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE GRAVEL, DAMP.	-4.9	3 4	3 5 6	14	50	SS-2	4.5+	8	5	13	26	48	34	16	18	16	A-6b (11)	
						SS-3A	4.25	-	-	-	-	-	-	-	-	16	A-6b (V)	
MEDIUM DENSE, DARK GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST.	-5.9	5	5 6 9	19	56	SS-3B	-	-	-	-	-	-	-	-	-	17	A-2-4 (V)	
MEDIUM DENSE, GRAY **GRAVEL AND SAND**, TRACE TO LITTLE SILT, MOIST.	-7.4	6 7	4 6 6	16	67	SS-4	-	-	-	-	-	-	-	-	-	14	A-1-b (V)	
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-14**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.0 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - ASPHALT (10.0")	-0.8																	
0.2' - AGGREGATE BASE (2.0")	-1.0																	
FILL: MEDIUM DENSE, BROWN **FINE SAND**, TRACE SILT, TRACE CLAY, TRACE GRAVEL, MOIST.	-1.5	1	3	14	78	SS-1A	-	-	-	-	-	-	-	-	-	9	A-3 (V)	
HARD, DARK BROWN TO GRAY **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE TO LITTLE FINE GRAVEL, DAMP TO MOIST.		2	5 6			SS-1B	4.5+	14	4	13	24	45	30	14	16	13	A-6b (9)	
		3	4	12	67	SS-2	4.5+	5	5	12	27	51	31	15	16	16	A-6b (10)	
	-4.6		4 5															
						SS-3A	4.25	-	-	-	-	-	-	-	-	20	A-6b (V)	
MEDIUM DENSE, DARK GRAY **GRAVEL WITH SAND AND SILT**, MOIST.	-5.5	5	2 6 8	18	78	SS-3B	-	-	-	-	-	-	-	-	-	14	A-2-4 (V)	
MEDIUM DENSE, GRAY **FINE SAND**, TRACE SILT, MOIST.	-7.0	6	6 5 7	16	78	SS-4	-	-	-	-	-	-	-	-	-	16	A-3 (V)	
	EOB	7																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-15**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1	
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
	0.0																	
0.7' - ASPHALT (8.0")	-0.7																	
0.3' - AGGREGATE BASE (4.0")	-1.0																	
VERY STIFF TO HARD, GRAY TO BROWNISH GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.		1	5 3 5	10	33	SS-1	4.5+	6	6	14	25	49	28	15	13	12	A-6a (9)	
		2																
		3	5 5 8	17	83	SS-2	4.5+	3	5	15	27	50	30	16	14	14	A-6a (10)	
		4																
	-4.5					SS-3A	3.50	-	-	-	-	-	-	-	-	16	A-6a (V)	
MEDIUM DENSE, DARK GRAY **FINE SAND**, TRACE SILT, WET.		5	3 6 7	17	89	SS-3B	-	-	-	-	-	-	-	-	-	14	A-3 (V)	
F.S.		6	6 5 4	12	100	SS-4	-	-	-	-	-	-	-	-	-	17	A-3 (V)	
	-7.0	EOB 7						-	-	-	-	-	-	-	-	-		

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-16**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1	
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (5.5")	-0.5																	
0.9' - CONCRETE (10.5")	-1.3	1																
0.1' - AGGREGATE BASE (1.0")	-1.4																	
HARD, BROWN **SILT AND CLAY**, SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	-2.9	2	3 4 6	13	72	SS-1	4.5+	3	5	23	30	39	26	14	12	15	A-6a (8)	
DENSE, GRAY **SILT**, LITTLE CLAY, LITTLE COARSE TO FINE SAND, MOIST.	-4.4	3 4	12 12 18	39	83	SS-2	-	0	1	18	65	16	NP	NP	NP	17	A-4b (8)	
MEDIUM DENSE, DARK GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST.	-5.9	5	7 8 8	21	100	SS-3	-	-	-	-	-	-	-	-	-	13	A-2-4 (V)	
MEDIUM DENSE, BROWN **FINE SAND**, TRACE SILT, MOIST.	-7.4	6 7	6 7 7	18	89	SS-4	-	-	-	-	-	-	-	-	-	14	A-3 (V)	
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-17**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - GRAVEL BERM (10.0")	0.0																	
	-0.8																	
HARD, GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE GRAVEL, DAMP.		1	2 3 7	13	56	SS-1	4.25	5	6	15	29	45	26	15	11	14	A-6a (8)	
	-2.5	2																
MEDIUM DENSE, GRAY **SANDY SILT**, LITTLE CLAY, MOIST.		3	5 7 12	25	67	SS-2	-	0	2	50	33	15	NP	NP	NP	16	A-4a (3)	
	-4.0	4																
MEDIUM DENSE, GRAY TO DARK GRAY **FINE SAND**, TRACE TO LITTLE SILT, MOIST TO WET.		5	8 11 11	29	94	SS-3	-	-	-	-	-	-	-	-	-	13	A-3 (V)	
		6	7 9 9	23	100	SS-4	-	-	-	-	-	-	-	-	-	15	A-3 (V)	
F S		7																
W		8																
		9	6 8 8	21	78	SS-5	-	-	-	-	-	-	-	-	-	21	A-3 (V)	
	-10.0	EOB 10																

NOTES: ENCOUNTERED WATER SEEPAGE @ 8.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-18**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
1.0' - GRAVEL (12.0")	0.0																	
	-1.0	1																
MEDIUM DENSE, GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.	-2.0	2	8 5 4	12	89	SS-1A	-	7	13	58	13	9	NP	NP	NP	11	A-3a (0)	
HARD, BROWN **SANDY SILT**, TRACE CLAY, MOIST.	-2.5					SS-1B	-	-	-	-	-	-	-	-	-	15	A-3 (V)	
MEDIUM DENSE TO DENSE, GRAY TO BROWNISH BLACK **FINE SAND**, TRACE TO LITTLE SILT, TRACE FINE GRAVEL, MOIST TO WET.		3	10 10 12	29	61	SS-2	-	0	1	44	47	8	NP	NP	NP	14	A-4a (4)	
F S		4	10 13 16	38	100	SS-3	-	-	-	-	-	-	-	-	-	11	A-3 (V)	
		5																
		6	15 15 15	39	100	SS-4	-	-	-	-	-	-	-	-	-	10	A-3 (V)	
	-8.0	7																
MEDIUM DENSE, BROWNISH GRAY **SANDY SILT**, TRACE FINE GRAVEL, MOIST.		8																
W		9	3 6 4	13	100	SS-5	-	-	-	-	-	-	-	-	-	22	A-4a (V)	
	-10.0 EOB	10																

NOTES: ENCOUNTERED WATER SEEPAGE @ 8.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-19**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	0.0																	
	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE, TAN TO DARK BROWN **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, WET.	-2.8	2	4 5 8	17	83	SS-1	-	1	6	75	12	6	NP	NP	NP	14	A-3a (0)	
DENSE, GRAY **SANDY SILT**, TRACE CLAY, DAMP.	-6.7	3	12 14 13	35	89	SS-2	-	0	2	58	31	9	NP	NP	NP	14	A-4a (1)	
		4																
		5	8 9 5	18	100	SS-3	-	-	-	-	-	-	-	-	-	13	A-4a (V)	
		6	2 2 5	50		SS-4A	-	-	-	-	-	-	-	-	-	16	A-4a (V)	
VERY STIFF, GRAY **SILTY CLAY**, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	-7.3	7 EOB	2			SS-4B	3.25	-	-	-	-	-	-	-	-	18	A-6b (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-20**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.0 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - ASPHALT (10.0")	-0.8																	
0.2' - AGGREGATE BASE (2.0")	-1.0																	
MEDIUM DENSE, BROWN **COARSE AND FINE SAND**, LITTLE SILT, LITTLE CLAY, MOIST.	-2.5	1	3 5 6	14	67	SS-1	-	2	4	62	20	12	NP	NP	NP	12	A-3a (0)	
DENSE, GRAY **SILT**, AND COARSE TO FINE SAND, TRACE CLAY, MOIST.	-4.0	2 3	7 11 14	32	89	SS-2	-	0	1	38	51	10	NP	NP	NP	17	A-4b (5)	
MEDIUM DENSE, GRAY **FINE SAND**, TRACE SILT, TRACE FINE GRAVEL, MOIST.	-4.7	4	7	17	89	SS-3A	-	-	-	-	-	-	-	-	-	12	A-3 (V)	
HARD, GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, DAMP.	-7.0	5	7 6			SS-3B	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	
	EOB	6 7	4 6 7	17	89	SS-4	4.5+	-	-	-	-	-	-	-	-	16	A-6a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-21**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.0 ft.		PAGE 1 OF 1
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.7' - ASPHALT (8.0")	0.0																	
	-0.7																	
0.3' - AGGREGATE BASE (4.0")	-1.0																	
LOOSE TO MEDIUM DENSE, GRAY TO BROWN **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, MOIST.		1	4 5 6	14	67	SS-1	-	0	3	73	18	6	NP	NP	NP	13	A-3a (0)	
		2																
		3	5 4 4	10	100	SS-2	-	0	3	79	14	4	NP	NP	NP	13	A-3a (0)	
		4 W																
		5	2 3 3	8	72	SS-3	-	-	-	-	-	-	-	-	-	16	A-3a (V)	
		6																
	-7.0	EOB 7	3 3 5	10	100	SS-4	-	-	-	-	-	-	-	-	-	12	A-3a (V)	

NOTES: ENCOUNTERED WATER SEEPAGE @ 4.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-22**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.9' - CONCRETE (10.0")	-1.4	1																
LOOSE TO MEDIUM DENSE, DARK GRAY TO BROWN **COARSE AND FINE SAND**, TRACE SILT, TRACE CLAY, MOIST TO WET.		2	2 4 6	13	72	SS-1	-	3	4	75	10	8	NP	NP	NP	13	A-3a (0)	
		3	5 6 7	17	94	SS-2	-	0	2	85	7	6	NP	NP	NP	17	A-3a (0)	
		5	2 2 3	6	89	SS-3	-	-	-	-	-	-	-	-	-	16	A-3a (V)	
	-5.9	6																
MEDIUM DENSE, GRAY **GRAVEL WITH SAND AND SILT**, WET.		7	4 9 10	25	78	SS-4	-	-	-	-	-	-	-	-	-	23	A-2-4 (V)	
	-7.4	EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-23**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - GRAVEL (9.0")	0.0																	
	-0.8																	
MEDIUM DENSE, BROWN TO DARK BROWN **COARSE AND FINE SAND**, TRACE SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		1	2 4 5	12	72	SS-1	-	3	6	79	5	7	NP	NP	NP	13	A-3a (0)	
	-2.5	2																
LOOSE TO MEDIUM DENSE, BROWN TO GRAY **FINE SAND**, TRACE SILT, TRACE CLAY, MOIST TO WET.		3	4 6 7	17	100	SS-2	-	0	1	93	2	4	NP	NP	NP	16	A-3 (0)	
		W 4																
		5	2 2 2	5	67	SS-3	-	-	-	-	-	-	-	-	-	24	A-3 (V)	
		6	4 6 6	16	78	SS-4	-	-	-	-	-	-	-	-	-	25	A-3 (V)	
		7																
	-8.5	8																
LOOSE, GRAY **SANDY SILT**, WET.		9	2 4 4	10	100	SS-5	-	-	-	-	-	-	-	-	-	24	A-4a (V)	
	-10.0	EOB 10																

NOTES: ENCOUNTERED WATER SEEPAGE @ 4.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-24**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
1.0' - GRAVEL (12.0")	0.0																	
	-1.0	1																
MEDIUM DENSE, DARK BROWN TO BROWNISH GRAY **COARSE AND FINE SAND**, LITTLE FINE GRAVEL, LITTLE SILT, TRACE CLAY, MOIST TO WET.		2	4 5 6	14	50	SS-1	-	19	8	54	12	7	NP	NP	NP	11	A-3a (0)	
		3	4 4 5	12	56	SS-2	-	0	3	75	12	10	NP	NP	NP	19	A-3a (0)	
		4	6 8 9	22	67	SS-3	-	-	-	-	-	-	-	-	-	20	A-3a (V)	
	-5.5	5																
STIFF TO VERY STIFF, GRAY **SANDY SILT**, LITTLE CLAY, TRACE FINE GRAVEL, MOIST.		6	5 8 12	26	100	SS-4	1.75	-	-	-	-	-	-	-	-	19	A-4a (V)	
		7																
		8																
		9	3 5 5	13	100	SS-5	2.50	-	-	-	-	-	-	-	-	22	A-4a (V)	
	-10.0	EOB 10																

W

NOTES: ENCOUNTERED WATER @ 6.5' WHILE DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-25**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (5.5")	0.0																	
	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE, LIGHT GRAY **COARSE AND FINE SAND**, TRACE SILT, TRACE CLAY, DAMP.	-2.8	2	5 8 12	26	89	SS-1	-	1	2	83	10	4	NP	NP	NP	9	A-3a (0)	
MEDIUM DENSE, LIGHT GRAY **SANDY SILT**, TRACE CLAY, MOIST.	-4.3	3 4	10 11 12	30	100	SS-2	-	0	1	57	40	2	NP	NP	NP	16	A-4a (1)	
STIFF TO VERY STIFF, GRAY **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, DAMP TO MOIST.	-7.3 EOB	5 6 7	7 5 7	16	67	SS-3	3.50	-	-	-	-	-	-	-	-	20	A-4a (V)	
			7 11 10	27	78	SS-4	1.75	-	-	-	-	-	-	-	-	23	A-4a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-26**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.1 ft.	PAGE 1 OF 1	
START: 6/26/18 END: 6/26/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - ASPHALT (10.0")	-0.8																	
0.3' - AGGREGATE BASE (3.0")	-1.1	1																
MEDIUM DENSE, DARK BROWN TO DARK GRAY **COARSE AND FINE SAND**, TRACE TO SOME SILT, TRACE TO LITTLE CLAY, TRACE FINE GRAVEL, MOIST TO WET.		2	3 8 11	25	78	SS-1	-	1	6	76	6	11	NP	NP	NP	13	A-3a (0)	
		3	5 8 11	25	83	SS-2	-	0	0	71	23	6	NP	NP	NP	21	A-3a (0)	
	-5.1	4	4 8 7	19	100	SS-3A	-	-	-	-	-	-	-	-	-	24	A-3a (V)	
						SS-3B	-	-	-	-	-	-	-	-	-	20	A-4a (V)	
MEDIUM DENSE, GRAY **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		5																
		6	4 8 12	26	100	SS-4	-	-	-	-	-	-	-	-	-	22	A-4a (V)	
	-7.1	7																
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-27**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.1 ft.	PAGE 1 OF 1	
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.7' - ASPHALT (8.0")	0.0																	
	-0.7																	
0.3' - AGGREGATE BASE (4.0")	-1.0																	
LOOSE, DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, MOIST.		1	3 3	8	44	SS-1	-	0	4	77	14	5	NP	NP	NP	15	A-3a (0)	
	-2.6	2																
MEDIUM DENSE TO DENSE, BROWNISH GRAY TO DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY. TRACE FINE GRAVEL, MOIST.		3	7 9 12	27	89	SS-2	-	1	1	76	17	5	NP	NP	NP	14	A-3a (0)	
		4																
		5	9 11 9	26	83	SS-3	-	-	-	-	-	-	-	-	-	12	A-3a (V)	
		6	15 16 12	36	61	SS-4	-	-	-	-	-	-	-	-	-	12	A-3a (V)	
	-7.1	EOB 7																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-28**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (5.5")	0.0																	
0.8' - CONCRETE (10.5")	-0.5																	
MEDIUM DENSE TO VERY DENSE, BROWNISH GRAY TO GRAY **COARSE AND FINE SAND**, LITTLE SILT, LITTLE CLAY, TRACE FINE GRAVEL, MOIST.	-1.3	1	3 7 10	22	61	SS-1	-	1	2	67	18	12	NP	NP	NP	12	A-3a (0)	
		2																
		3	8 12 19	40	100	SS-2	-	1	5	66	16	12	NP	NP	NP	13	A-3a (0)	
		4																
		5	8 22 25	61	89	SS-3	-	-	-	-	-	-	-	-	-	9	A-3a (V)	
		6																
	-7.3	7 EOB	8 17 21	49	100	SS-4	-	-	-	-	-	-	-	-	-	13	A-3a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-29**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - GRAVEL (9.0")	0.0																	
	-0.8																	
MEDIUM DENSE, DARK BROWN TO BROWN **COARSE AND FINE SAND**, LITTLE FINE GRAVEL, LITTLE SILT, LITTLE CLAY, MOIST.		1	5 6 8	18	0	SS-1	-	-	-	-	-	-	-	-	-	-		
	-3.0	2			100	2S-1A	-	11	7	51	20	11	NP	NP	NP	14	A-3a (0)	
DENSE, DARK BROWNISH GRAY **SILT**, SOME COARSE TO FINE SAND, LITTLE CLAY, MOIST.		3	9 11 16	35	67	SS-2	-	0	2	28	53	17	16	17	NP	15	A-4b (7)	
	-4.5	4																
DENSE, GRAY TO DARK BROWNISH GRAY **GRAVEL WITH SAND AND SILT**, MOIST TO WET.		5	12 12 12	31	89	SS-3	-	-	-	-	-	-	-	-	-	14	A-2-4 (V)	
		6																
		7	10 11 13	31	67	SS-4	-	-	-	-	-	-	-	-	-	21	A-2-4 (V)	
	-8.0	8																
LOOSE, GRAY **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, DAMP.		9	1 2 3	6	100	SS-5	3.00	-	-	-	-	-	-	-	-	23	A-4a (V)	
	-10.0 EOB	10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-30**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
	0.0																	
0.7' - GRAVEL (8.0")	-0.7																	
MEDIUM DENSE, BROWN TO DARK BROWN **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, DAMP.	-2.5	1	4 4 6	13	67	SS-1	-	3	4	41	45	7	NP	NP	NP	13	A-4a (3)	
MEDIUM DENSE, BROWN TO DARK BROWN **SILT**, TRACE CLAY, TRACE FINE SAND, WET.	-4.0	3	5 5 4	12	78	SS-2	-	0	0	13	79	8	NP	NP	NP	26	A-4b (8)	
STIFF, BROWN **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, WET.	-5.5	5	1 2 1	4	67	SS-3	1.25	-	-	-	-	-	-	-	-	26	A-4a (V)	
MEDIUM DENSE, BROWN TO GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST TO WET.	-10.0 EOB	6 W 8	4 6 7	17	100	SS-4	-	-	-	-	-	-	-	-	-	26	A-2-4 (V)	
		9 10	4 5 4	12	100	SS-5	-	-	-	-	-	-	-	-	-	26	A-2-4 (V)	

NOTES: ENCOUNTERED WATER SEEPAGE @ 8.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-31**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.		PAGE 1 OF 1
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.9' - CONCRETE (10.5")	-1.4	1																
MEDIUM DENSE, DARK BROWN **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.	-2.9	2	1 5 6	14	56	SS-1	-	1	4	73	18	4	NP	NP	NP	12	A-3a (0)	
MEDIUM DENSE, BROWN AND DARK GRAY **SILT**, SOME COARSE TO FINE SAND, TRACE CLAY, MOIST.	-4.4	3 4	8 8 7	19	78	SS-2	-	0	1	31	59	9	NP	NP	NP	18	A-4b (7)	
STIFF, GRAYISH BROWN **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, MOIST.	-7.4	5	1 3 6	12	89	SS-3	1.50	-	-	-	-	-	-	-	-	20	A-4a (V)	
EOB		6 7	7 5 6	14	100	SS-4	1.75	-	-	-	-	-	-	-	-	21	A-4a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-32**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.1 ft.	PAGE 1 OF 1	
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - ASPHALT (10.0")	0.0																	
	-0.8																	
0.3' - AGGREGATE BASE (3.0")	-1.1	1																
MEDIUM DENSE, BROWN **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		2	4 4 6	13	39	SS-1	-	6	8	57	18	11	NP	NP	NP	15	A-3a (0)	
	-2.6																	
VERY STIFF, GRAY **SILT**, SOME COARSE TO FINE SAND, LITTLE CLAY, DAMP.		3	6 9 14	30	67	SS-2	3.00	0	1	23	61	15	22	19	3	14	A-4b (8)	
	-4.1	4																
DENSE, GRAYISH BROWN **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST.		5	7 13 11	31	78	SS-3	-	-	-	-	-	-	-	-	-	17	A-2-4 (V)	
	-5.6																	
HARD, BROWN **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, DAMP.		6	5 7 7	18	94	SS-4	4.5+	-	-	-	-	-	-	-	-	21	A-4a (V)	
	-7.1	EOB 7																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-33**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.7 ft.	PAGE 1 OF 1	
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - ASPHALT (10.0")	0.0																	
	-0.8																	
0.5' - GRAVEL BASE (6.0")	-1.3	1																
LOOSE, DARK BROWN **SILT**, SOME COARSE TO FINE SAND, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		2	4 4 3	9	83	SS-1	-	2	2	21	68	7	NP	NP	NP	17	A-4b (8)	
	-3.2	3																
MEDIUM DENSE TO DENSE, BROWNISH GRAY TO BROWN **SILT**, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		4	5 9 11	26	89	SS-2	-	0	0	3	88	9	NP	NP	NP	17	A-4b (8)	
		5	2 8 8	21	67	SS-3	-	-	-	-	-	-	-	-	-	17	A-4b (V)	
		6																
		7	11 12 13	32	100	SS-4	-	-	-	-	-	-	-	-	-	22	A-4b (V)	
	-7.7	EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-34**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE, BROWN **SANDY SILT**, LITTLE CLAY, DAMP.	-2.8	2	2 5 8	17	44	SS-1	-	0	2	56	29	13	NP	NP	NP	14	A-4a (1)	
MEDIUM DENSE, GRAY **SILT**, LITTLE CLAY, MOIST.	-4.3	3 4	2 8 10	23	89	SS-2	3.00	0	0	2	80	18	20	16	4	17	A-4b (8)	
DENSE, GRAY **SANDY SILT**, TRACE FINE GRAVEL, DAMP.	-7.3	5	9 13 12	32	94	SS-3	3.00	-	-	-	-	-	-	-	-	14	A-4a (V)	
EOB		6 7	7 10 14	31	78	SS-4	3.00	-	-	-	-	-	-	-	-	15	A-4a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-35**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.7' - GRAVEL (8.0")	0.0																	
	-0.7																	
LOOSE, BROWN **COARSE AND FINE SAND**, SOME SILT, LITTLE CLAY, TRACE FINE GRAVEL, MOIST.		1	2 2 3	6	56	SS-1	-	8	3	54	23	12	NP	NP	NP	13	A-3a (0)	
	-2.5	2																
MEDIUM DENSE, GRAY **SILT**, LITTLE CLAY, TRACE FINE SAND, DAMP TO MOIST.		3	3 6 8	18	67	SS-2	4.25	0	0	2	80	18	20	16	4	17	A-4b (8)	
		4																
		5	6 13 15	36	72	SS-3	2.75	-	-	-	-	-	-	-	-	17	A-4b (V)	
		6	6 11 16	35	83	SS-4	3.75	-	-	-	-	-	-	-	-	14	A-4b (V)	
		7																
		8																
		9	10 12 17	38	100	SS-5	3.75	-	-	-	-	-	-	-	-	15	A-4b (V)	
	-10.0	EOB 10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-36**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.7' - GRAVEL (8.0")	0.0																	
	-0.7																	
MEDIUM DENSE, DARK BROWN **COARSE AND FINE SAND**, SOME SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		1	5 5 4	12	56	SS-1	-	3	7	58	26	6	NP	NP	NP	13	A-3a (0)	
	-2.5	2																
MEDIUM DENSE, BROWN TO GRAY **SILT**, SOME COARSE TO FINE SAND, TRACE CLAY, DAMP TO MOIST.		3	5 8 10	23	67	SS-2	-	0	1	32	59	8	NP	NP	NP	16	A-4b (6)	
		4	4 6 9	19	50	SS-3	-	-	-	-	-	-	-	-	-	15	A-4b (V)	
		5																
		6	10 10 10	26	89	SS-4	-	-	-	-	-	-	-	-	-	13	A-4b (V)	
		7																
		8																
		9	6 5 5	13	78	SS-5	-	-	-	-	-	-	-	-	-	17	A-4b (V)	
	-10.0	EOB 10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-37**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.4' - ASPHALT (5.0")	-0.4																	
0.9' - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE, GRAYISH TAN **SANDY SILT**, TRACE CLAY, MOIST.	-2.8	2	1 10 9	25	56	SS-1	-	0	0	49	48	3	NP	NP	NP	15	A-4a (3)	
VERY STIFF, GRAY **SILT**, LITTLE CLAY, TRACE FINE SAND, WET.	-4.3	3 4	10 14 7	27	89	SS-2	3.00	0	0	9	77	14	21	18	3	22	A-4b (8)	
MEDIUM DENSE, GRAY **GRAVEL WITH SAND AND SILT**, WET.	-5.8	5	5 9 9	23	100	SS-3	-	-	-	-	-	-	-	-	-	25	A-2-4 (V)	
VERY STIFF, GRAY **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, WET.	-7.3	6 7 EOB	5 7 7	18	78	SS-4	2.25	-	-	-	-	-	-	-	-	22	A-4a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-38**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 6.9 ft.	PAGE 1 OF 1	
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.7' - ASPHALT (8.0")	0.0																	
	-0.7																	
0.2' - AGGREGATE BASE (3.0")	-0.9																	
MEDIUM DENSE, BROWN **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		1	5 7 9	21	61	SS-1	-	2	3	53	32	10	NP	NP	NP	15	A-4a (1)	
	-2.4	2																
MEDIUM DENSE TO DENSE, BROWNISH GRAY TO GRAY **SILT**, "AND" FINE SAND, TRACE CLAY, WET.		3	8 11 6	22	67	SS-2	-	0	0	38	57	5	NP	NP	NP	21	A-4b (5)	
	-3.9	4	6 12 13	32	89	SS-3	-	-	-	-	-	-	-	-	-	24	A-4b (V)	
		5																
		6	4 7 6	17	72	SS-4	-	-	-	-	-	-	-	-	-	24	A-4b (V)	
EOB																		

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-39**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.6' - ASPHALT (7.0")	-0.6																	
0.4' - AGGREGATE BASE (5.0")	-1.0																	
MEDIUM DENSE, GRAY **SANDY SILT**, SOME FINE GRAVEL, TRACE CLAY, DAMP.	-2.8	1	1 4 7	14	56	SS-1	-	24	11	23	38	4	NP	NP	NP	12	A-4a (1)	
MEDIUM DENSE, GRAY **SILT**, TRACE CLAY, TRACE FINE SAND, WET.	-4.3	3	8 8 9	22	78	SS-2	-	0	0	6	88	6	NP	NP	NP	22	A-4b (8)	
MEDIUM DENSE, GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, WET.	-7.3	5	4 8 9	22	94	SS-3	-	-	-	-	-	-	-	-	-	25	A-2-4 (V)	
EOB		6 7	8 9 10	25	89	SS-4	-	-	-	-	-	-	-	-	-	27	A-2-4 (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-40**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	0.0																	
	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE, BROWN TO DARK BROWN **COARSE AND FINE SAND**, SOME SILT, TRACE CLAY, MOIST.		2	2 6 10	21	56	SS-1	-	0	1	68	23	8	NP	NP	NP	13	A-3a (0)	
	-3.3	3	10			SS-2A	-	-	-	-	-	-	-	-	-	13	A-3a (V)	
DENSE, GRAY **SANDY SILT**, MOIST TO WET.		4	17 20	48	83	SS-2B	-	0	0	56	44	0	NP	NP	NP	16	A-4a (2)	
		5	7 11 12	30	78	SS-3	-	-	-	-	-	-	-	-	-	25	A-4a (V)	
		6	3 4 8	16	78	SS-4	-	-	-	-	-	-	-	-	-	22	A-4a (V)	
	-7.3	7 EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	EXPLORATION ID B-10-41
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1
START: 7/17/18 END: 7/17/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED	

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.9' - AGGREGATE BASE (10.0")	-1.4	1																
MEDIUM DENSE, BROWN TO GRAY **COARSE AND FINE SAND**, TRACE TO SOME SILT, TRACE CLAY, MOIST TO WET.		2	1 4 11	19	44	SS-1	-	0	1	69	21	9	NP	NP	NP	14	A-3a (0)	
		3	6 9 9	23	78	SS-2	-	0	2	81	9	8	NP	NP	NP	13	A-3a (0)	
		4																
		5	2 3 6	12	100	SS-3	-	-	-	-	-	-	-	-	-	21	A-3a (V)	
		6	6 12 11	30	83	SS-4	-	-	-	-	-	-	-	-	-	22	A-3a (V)	
	-7.4	7 EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-42**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	0.0																	
	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE TO DENSE, DARK BROWN TO DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, MOIST.		2	3 7 16	30	50	SS-1	-	0	1	82	15	2	NP	NP	NP	12	A-3a (0)	
		3	10 16 20	47	67	SS-2	-	0	1	81	18	0	NP	NP	NP	12	A-3a (0)	
		4 5	4 6 7	17	72	SS-3	-	-	-	-	-	-	-	-	-	13	A-3a (V)	
		6	5 5 5	13	83	SS-4	-	-	-	-	-	-	-	-	-	15	A-3a (V)	
	-7.3	7 EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-43**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.4' - ASPHALT (5.0")	-0.4																	
0.9 - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE, BROWN TO DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, DAMP.	-2.8	2	2 4 7	14	78	SS-1	-	0	1	75	16	8	NP	NP	NP	10	A-3a (0)	
DENSE, BROWNISH GRAY TO GRAY **SANDY SILT**, TRACE CLAY, DAM PTO MOIST.	-7.3	3 4	10 15 20	45	100	SS-2	-	0	1	50	43	6	NP	NP	NP	14	A-4a (3)	
		5	5 12 15	35	100	SS-3	-	-	-	-	-	-	-	-	-	11	A-4a (V)	
		6	5 10 10	26	100	SS-4	-	-	-	-	-	-	-	-	-	13	A-4a (V)	
		EOB 7																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-44**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.4 ft.	PAGE 1 OF 1	
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.5")	-0.5																	
0.8' - CONCRETE (10.5")	-1.4	1																
MEDIUM DENSE, BROWN TO DARK BROWN **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, WET.	-2.9	2	2 5 9	18	56	SS-1	-	1	1	78	18	2	NP	NP	NP	14	A-3a (0)	
LOOSE TO DENSE, GRAY TO DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, MOIST TO WET.		3			0	SS-2	-	-	-	-	-	-	-	-	-	-	A-3 (V)	
F.S.		4																
		5	8 11 15	34	100	SS-3	-	-	-	-	-	-	-	-	-	12	A-3 (V)	
		6																
		7	4 5 3	10	83	SS-4	-	-	-	-	-	-	-	-	-	15	A-3 (V)	
	-7.4	EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-45**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 8.0 ft.	PAGE 1 OF 1	
START: 7/11/18 END: 7/11/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
0.7' - AGGREGATE BASE (8.0")	-2.0																	
DENSE TO VERY DENSE, GRAY TO BROWNISH GRAY **FINE SAND**, TRACE COARSE SAND, TRACE SILT, TRACE CLAY, DAMP TO MOIST.		2	9 15 21	47	100	SS-1	-	0	3	87	4	6	NP	NP	NP	7	A-3 (0)	
		3																
		4	20 27 27	70	67	SS-2	-	0	2	89	3	6	NP	NP	NP	7	A-3 (0)	
		5																
		6	10 14 26	52	100	SS-3	-	-	-	-	-	-	-	-	-	9	A-3 (V)	
		7	22 24 21	58	100	SS-4	-	-	-	-	-	-	-	-	-	11	A-3 (V)	
	-8.0	EOB 8																

F.S.

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-46**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 8.2 ft.	PAGE 1 OF 1	
START: 6/25/18 END: 6/25/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (5.5")	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
0.9' - AGGREGATE BASE (11.0")	-2.2	2																
VERY DENSE, BROWNISH GRAY **COARSE AND FINE SAND**, LITTLE SILT, DAMP TO MOIST.		3	9 22 28	65	89	SS-1	-	0	2	86	12	0	NP	NP	NP	5	A-3a (0)	
		4	9 21 29	65	94	SS-2	-	0	2	83	15	0	NP	NP	NP	11	A-3a (0)	
		5 6	14 24 37	79	100	SS-3	-	-	-	-	-	-	-	-	-	12	A-3a (V)	
		7	14 20 25	58	94	SS-4	-	-	-	-	-	-	-	-	-	13	A-3a (V)	
	-8.2	EOB 8																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-47**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 7.3 ft.		PAGE 1 OF 1
START: 6/27/18 END: 6/27/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.4' - ASPHALT (5.0")	-0.4																	
0.8' - CONCRETE (10.0")	-1.2	1																
0.1' - AGGREGATE BASE (0.5")	-1.3																	
DENSE TO VERY DENSE, BROWN **FINE SAND**, TRACE COARSE SAND, TRACE SILT, DAMP TO MOIST.		2	3 9 16	32	44	SS-1	-	0	4	87	9	0	NP	NP	NP	6	A-3 (0)	
		3	22 27 39	86	78	SS-2	-	0	3	89	8	0	NP	NP	NP	13	A-3 (0)	
		4 5	17 27	57	94	SS-3	-	-	-	-	-	-	-	-	-	7	A-3 (V)	
		6	21 27 34	79	100	SS-4	-	-	-	-	-	-	-	-	-	8	A-3 (V)	
	-7.3	7 EOB																

F.S.

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-48**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 6/29/18 END: 6/29/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - ASPHALT (10.0")	0.0																	
	-0.8																	
0.2' - AGGREGATE BASE (2.0")	-1.0	1																
MEDIUM DENSE, DARK BROWNISH GRAY **COARSE AND FINE SAND**, SOME SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		2	3 7 9	21	67	SS-1	-	1	3	64	27	5	NP	NP	NP	12	A-3a (0)	
	-2.5	3																
DENSE, DARK GRAY **SANDY SILT**, TRACE CLAY, DAMP.			11 16 16	42	100	SS-2	-	0	2	59	32	7	NP	NP	NP	11	A-4a (1)	
	-4.0	4																
LOOSE TO MEDIUM DENSE, BROWNISH GRAY TO DARK BROWN **COARSE AND FINE SAND**, SOME SILT, TRACE FINE GRAVEL, MOIST TO WET.		5	7 7	18	100	SS-3	-	-	-	-	-	-	-	-	-	9	A-3a (V)	
		6	6 4 9 3	9	100	SS-4	-	-	-	-	-	-	-	-	-	9	A-3a (V)	
		7																
W		8																
		9	0 3 3	8	67	SS-5	-	-	-	-	-	-	-	-	-	15	A-3a (V)	
	-10.0	EOB 10																

NOTES: ENCOUNTERED WATER SEEPAGE @ 8.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-49**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.3' - TOPSOIL (4.0")	-0.3																	
MEDIUM DENSE TO DENSE, BROWN TO GRAY **COARSE AND FINE SAND**, TRACE TO LITTLE SILT, TRACE TO LITTLE CLAY, TRACE FINE GRAVEL, MOIST TO WET.		1	5 6 6	16	78	SS-1	-	0	3	70	16	11	NP	NP	NP	8	A-3a (0)	
		2																
		3	6 12 14	34	67	SS-2	-	1	2	81	10	6	NP	NP	NP	19	A-3a (0)	
	-4.0	4																
VERY STIFF, GRAY **SANDY SILT**, LITTLE CLAY, TRACE FINE GRAVEL, MOIST.		5	5 4 5	12	67	SS-3	2.50	-	-	-	-	-	-	-	-	17	A-4a (V)	
		6	5 11 12	30	83	SS-4	-	-	-	-	-	-	-	-	-	26	A-4a (V)	
		7																
W		8																
		9	4 4 3	9	94	SS-5	2.25	-	-	-	-	-	-	-	-	23	A-4a (V)	
	-10.0 EOB	10																

NOTES: ENCOUNTERED WATER SEEPAGE @ 8.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-50**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 6/29/18 END: 6/29/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
1.0' - ASPHALT (12.0")	0.0																	
	-1.0	1																
MEDIUM DENSE, GRAY **COARSE AND FINE SAND**, SOME SILT, TRACE FINE GRAVEL, WET.		2	3 6 8	18	44	SS-1	-	1	6	58	35	0	NP	NP	NP	20	A-3a (0)	
	-2.5	3																
MEDIUM DENSE TO DENSE, GRAY **SILT**, LITTLE FINE SAND, TRACE CLAY, WET.		4	4 6 10	21	94	SS-2	-	0	0	17	77	6	NP	NP	NP	19	A-4b (8)	
		W 4																
		5	3 5 6	14	89	SS-3	-	-	-	-	-	-	-	-	-	18	A-4b (V)	
		6	6 8 9	22	100	SS-4	-	-	-	-	-	-	-	-	-	17	A-4b (V)	
		7																
		8																
		9	15 18 20	49	44	SS-5	-	-	-	-	-	-	-	-	-	17	A-4b (V)	
	-10.0	EOB 10																

NOTES: ENCOUNTERED WATER @ 4.0' WHILE DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / S.B.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-51**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 7/9/18 END: 7/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.3' - TOPSOIL (4.0")	0.0																	
	-0.3																	
MEDIUM DENSE, BROWNISH GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, TRACE FINE GRAVEL, WET.		1	3 4 5	12	83	SS-1	-	1	2	69	18	10	NP	NP	NP	15	A-3a (0)	
	-2.5	2																
MEDIUM DENSE, GRAY **SILT**, LITTLE CLAY, TRACE FINE SAND, WET.		3	6 5 7	16	72	SS-2	-	0	0	7	75	18	NP	NP	NP	19	A-4b (8)	
		4	6 6 4	13	89	SS-3	-	-	-	-	-	-	-	-	-	21	A-4b (V)	
		5 6 7	5 6 8	18	83	SS-4	-	-	-	-	-	-	-	-	-	22	A-4b (V)	
		8																
		9	3 5 5	13	100	SS-5	-	-	-	-	-	-	-	-	-	23	A-4b (V)	
	-10.0	EOB 10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-52**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.3' - ASPHALT (4.0")	-0.3																	
0.9' - CONCRETE (10.0")	-1.2	1																
MEDIUM DENSE, GRAY **SANDY SILT**, TRACE CLAY, DAMP.	-2.7	2	3 4 5	12	56	SS-1	-	0	2	45	46	7	NP	NP	NP	13	A-4a (4)	
MEDIUM DENSE, GRAY **COARSE AND FINE SAND**, SOME SILT, TRACE FINE GRAVEL, MOIST.	-5.7	3 4 5	9 10 12	29	100	SS-2	-	1	2	74	23	0	NP	NP	NP	12	A-3a (0)	
		5 6	9 9 10	25	100	SS-3	-	-	-	-	-	-	-	-	-	12	A-3a (V)	
MEDIUM DENSE, GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, MOIST.	-8.0	6 7 8	8 10 12	29	61	SS-4	-	-	-	-	-	-	-	-	-	19	A-2-4 (V)	
MEDIUM DENSE, GRAY TO DARK GRAY **SANDY SILT**, TRACE CLAY, TRACE FINE GRAVEL, DAMP.	-10.0 EOB	8 9 10	8 7 7	18	100	SS-5	3.00	-	-	-	-	-	-	-	-	21	A-4a (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-53**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 7/10/18 END: 7/10/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.5' - ASPHALT (6.0")	-0.5																	
0.8' - CONCRETE (10.0")	-1.3	1																
MEDIUM DENSE, BROWN TO DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST TO WET.		2	9 11	26	67	SS-1	-	1	2	76	19	2	NP	NP	NP	11	A-3a (0)	
		3	5 6	14	72	SS-2	-	0	3	78	18	1	NP	NP	NP	16	A-3a (0)	
	-4.3	4																
MEDIUM DENSE, GRAY TO DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE CLAY, MOIST TO WET.		5	3 4 8	16	89	SS-3	-	-	-	-	-	-	-	-	-	13	A-3 (V)	
		6	3 6 6	16	61	SS-4	-	-	-	-	-	-	-	-	-	19	A-3 (V)	
F S		7																
		8																
		9	5 7 9	21	100	SS-5	-	-	-	-	-	-	-	-	-	26	A-3 (V)	
	-10.0	EOB 10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-54**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 6/28/18 END: 6/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.8' - ASPHALT (10.0")	0.0																	
	-0.8																	
0.4' - AGGREGATE BASE (4.5")	-1.2	1																
MEDIUM DENSE TO DENSE, BROWN TO DARK BROWN **COARSE AND FINE SAND**, SOME SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.		2	5 5 8	17	94	SS-1	-	0	4	64	26	6	NP	NP	NP	11	A-3a (0)	
		3	10 11 14	32	100	SS-2	-	1	7	61	23	8	NP	NP	NP	12	A-3a (0)	
		4	4 5 7	16	83	SS-3	-	-	-	-	-	-	-	-	-	19	A-3a (V)	
		5																
		6	9 11 13	31	44	SS-4	-	-	-	-	-	-	-	-	-	18	A-3a (V)	
		7 W																
	-8.0	8																
MEDIUM DENSE, GRAY **SANDY SILT**, TRACE FINE GRAVEL, MOIST.		9	3 4 7	14	56	SS-5	-	-	-	-	-	-	-	-	-	20	A-4a (V)	
	-10.0	10 EOB																

NOTES: ENCOUNTERED WATER @ 7.2' WHILE DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID B-10-55**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:		
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.		PAGE 1 OF 1
START: 6/27/18 END: 6/27/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV. 0.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.3' - TOPSOIL (3.0")	-0.3																	
VERY STIFF, GRAY **SANDY SILT**, SOME FINE GRAVEL, TRACE CLAY, DAMP.		1	4 4 5	12	61	SS-1	3.00	24	4	30	32	10	17	14	3	8	A-4a (1)	
	-2.5	2																
MEDIUM DENSE, GRAY **COARSE AND FINE SAND**, TRACE SILT, TRACE CLAY, MOIST.		3	5 9 10	25	72	SS-2	-	0	2	84	10	4	NP	NP	NP	11	A-3a (0)	
		4	8 8 10	23	100	SS-3	-	-	-	-	-	-	-	-	-	12	A-3a (V)	
		5																
		6	5 9 9	23	100	SS-4	-	-	-	-	-	-	-	-	-	15	A-3a (V)	
		7																
		8																
		9	5 6 6	16	100	SS-5A	-	-	-	-	-	-	-	-	-	18	A-3a (V)	
						SS-5B	-	-	-	-	-	-	-	-	-	-	A-3a (V)	
	-10.0	EOB 10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-56**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 6/28/18 END: 6/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.3' - TOPSOIL (4.0")	0.0																	
MEDIUM DENSE, BROWN **COARSE AND FINE SAND**, SOME SILT, TRACE CLAY, TRACE FINE GRAVEL, MOIST.	-0.3	1	3 4 5	12	72	SS-1	-	3	4	63	21	9	NP	NP	NP	11	A-3a (0)	
	-2.5	2																
STIFF, DARK GRAY **SANDY SILT**, LITTLE CLAY, TRACE FINE GRAVEL, DAMP TO MOIST.		3	4 4 8	16	72	SS-2	1.50	3	3	33	49	12	NP	NP	NP	14	A-4a (5)	
		4																
		5	3 5 6	14	100	SS-3	1.50	-	-	-	-	-	-	-	-	21	A-4a (V)	
		6	6 7 6	17	89	SS-4	1.00	-	-	-	-	-	-	-	-	24	A-4a (V)	
		7																
		8																
		9	3 5 6	14	94	SS-5	1.00	-	-	-	-	-	-	-	-	24	A-4a (V)	
	-10.0	EOB 10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-57**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 6/27/18 END: 6/27/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.2' - TOPSOIL (3.0")	0.0																	
	-0.2																	
MEDIUM DENSE, BROWN **COARSE AND FINE SAND**, TRACE SILT, TRACE CLAY, MOIST.		1																
		2	2 5 6	14	100	SS-1	-	0	0	87	7	6	NP	NP	NP	12	A-3a (0)	
		3	8	26	78	SS-2A	-	-	-	-	-	-	-	-	-	21	A-3a (V)	
	-3.3		10 10			SS-2B	-	0	1	16	69	14	17	17	NP	19	A-4b (8)	
MEDIUM DENSE, GRAY **SILT**, LITTLE CLAY, LITTLE COARSE TO FINE SAND, WET.	-4.0	W 4																
VERY STIFF, GRAY **SANDY SILT**, TRACE FINE GRAVEL, MOIST.		5	5 4	12	100	SS-3	2.50	-	-	-	-	-	-	-	-	23	A-4a (V)	
		6	4 6 7	17	67	SS-4	2.00	-	-	-	-	-	-	-	-	23	A-4a (V)	
		7																
		8																
		9	3 6 9	19	83	SS-5	3.25	-	-	-	-	-	-	-	-	20	A-4a (V)	
	-10.0	EOB 10																

NOTES: ENCOUNTERED WATER @ 4.0' WHILE DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

RESOURCE INTERNATIONAL, INC.

PROJECT: PAV. RECONS. MP 46.5 TO MP 51.5	DRILLING FIRM / OPERATOR: RII / L.K.	DRILL RIG: MOBILE B-53 (SN 624400)	STATION / OFFSET: '	**EXPLORATION ID**	
CLIENT: OTIC	SAMPLING FIRM / LOGGER: RII / J.P.	HAMMER: AUTOMATIC	ALIGNMENT: MP:	**B-10-58**	
OTP NO.: RII NO.: N-14-020 (11)	DRILLING METHOD: 4.5" - CFA	CALIBRATION DATE: 9/22/16	ELEVATION: 0.0 (MSL) EOB: 10.0 ft.	PAGE 1 OF 1	
START: 6/28/18 END: 6/28/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.9	LAT / LONG: NOT RECORDED		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
0.4' - ASPHALT (5.5")	0.0																	
0.8' - CONCRETE (10.0")	-0.4																	
0.1' - AGGREGATE BASE (0.5")	-1.2	1																
MEDIUM DENSE, DARK GRAY **COARSE AND FINE SAND**, LITTLE SILT, TRACE TO LITTLE CLAY, MOIST.	-1.3	2	3 5 7	16	61	SS-1	-	0	5	70	14	11	NP	NP	NP	13	A-3a (0)	
		3	8 10 11	27	100	SS-2	-	0	1	74	16	9	NP	NP	NP	13	A-3a (0)	
		4 5	3 5 6	14	100	SS-3	-	-	-	-	-	-	-	-	-	16	A-3a (V)	
		6 7	11 17 14	40	100	SS-4	-	-	-	-	-	-	-	-	-	12	A-3a (V)	
	-8.0	8																
VERY LOOSE, DARK GRAY **GRAVEL WITH SAND AND SILT**, MOIST.		9	WOH 1 2	4	100	SS-5	-	-	-	-	-	-	-	-	-	22	A-2-4 (V)	
	-10.0 EOB	10																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED BY OTIC PERSONNEL

LEGEND

Blows on Casing *	Pen. Sample Number	Elevation	Blows on Spoon	Material Designation	Description of Material
					Topsoil
					Gravel
					Sand
					Silt
					Clay
					Shale
					Dolomite
					Organic Matter
					Silty Clay
					Sandy Gravel
					Shaley Clay
					Interbedded Layers of Dolomite and Shale

* Denotes number of blows required to advance 3½ O.D. Casing 6'-0" under 300 lb. hammer dropped 18". 3⅛" O.D. Casing was used unless otherwise specified. 2 ⅜" I.D. Core drill used for all coring.

Notes:

Undisturbed Samples taken with 3" O.D. Shelby Tube Sampler pushed into material by hydraulic jack.

Earth Samples taken with 12" Split Tube Sampler 2" O.D., 1⅜" I.D. Driven into material by 300 lb. hamer dropped 18".

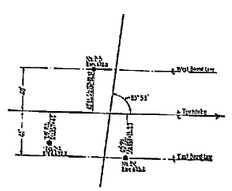
Material Description given is that of the sample and is not the description of subsurface bulk/core samples.

From last sample to bottom of boring, subsurface assumed to be same as last sample.

Where blows on casing are not given, hole was made by coring, unless otherwise noted.

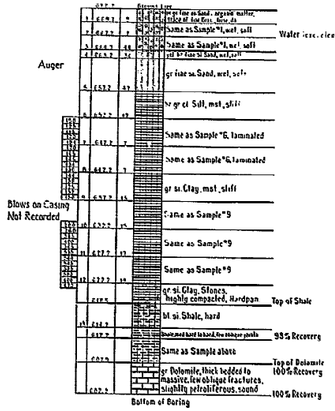
PLAN

Location of Trial Borings for Structure at S.R. No. 295
Elevations given are ground elevations
Scale: 1"=50'



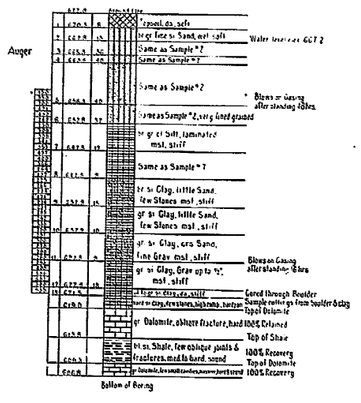
Boring No. 2-A

28° Rt. & at Sta. 157+44
Hole Started: 10-12-52
Hole Completed: 10-27-52



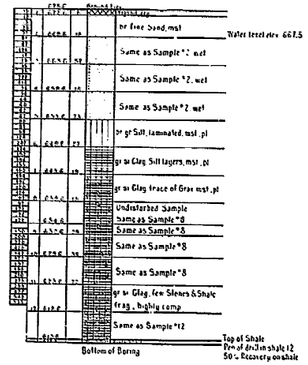
Boring No. 2-B

40° Lt. & at Sta. 157+82.37
Hole Started: 10-17-52
Hole Completed: 10-27-52



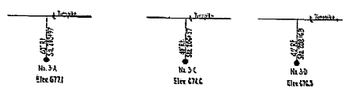
Boring No. 2-C

40° Rt. & at Sta. 158+13.27
Hole Started: 10-21-52
Hole Completed: 10-26-52



PLAN

Location of Test Borings for Structure at N.Y.C. R.R.
Elevations given are ground elevations
Scales 1"=50'

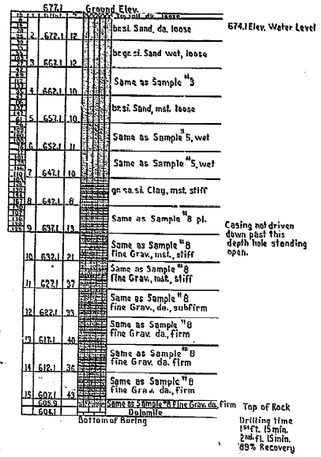


Abbreviations

cl.	clayey
grav.	gravelly
sa.	sandy
si.	silty
br	brown
gr	gray
bl.	black
yel.	yellow
da.	damp
mst.	moist
crs	coarse
comp.	compact
med.	medium
hd.	hard
fi.	fine
so.	soft
stf.	stiff

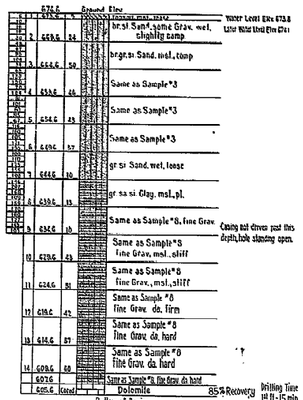
Boring No. 3A

40° Rt. & at Sta. 203+97
Hole Started: 12-30-52
Hole Completed: 1-1-53



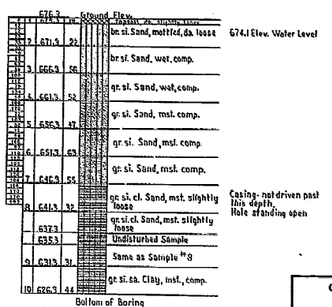
Boring No. 3C

40° Rt. & at Sta. 209+37
Hole Started: 1-1-53
Hole Completed: 1-5-53



Boring No. 3-D

40° Rt. & at Sta. 208+69
Hole Started: 1-5-53
Hole Completed: 1-7-53



CUNNINGHAM CORE DRILLING & GROUTING CORP.
P. O. BOX 513
SALEM, VA.

OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. .....
LOGS OF CORE DRILL HOLES
AT STATE RD. NO. 295 & N.Y.C. R.R.

ALDEN E. STILSON & ASSOCIATES, LTD.
CONSULTING ENGINEERS
COLUMBUS, OHIO

DESIGNED: M.S.W. CHECKED: J.W.M. DATE: MAR. 24, 1953
DRAWN: F.K.R. IN CHARGE: S.B.C. SCALE: AS SHOWN
CONTRACT NO. C-49 SHEET 18 OF 21

Boring No. 4-D
66' Rt. ℄ at Sta. 236+16
Hole Started 1-10-53
Hole Completed 1-12-53

Sample	Elev.	Blows	Description	Remarks
	670.5		Ground Elev.	
1	669.5	8	Topsoil da.	
2	665.5	10	bl br. si Sand, humus da loose.	Water Level Elev 666.5 Hole caved in 666.9
3	660.5	51	br gr. si Sand, fine to med wet, comp.	
4	655.5	40	Same as Sample #3, becoming gray	
5	650.5	37	Same as Sample #3, gray	
6	645.5	44	gr si Sand, fine to med wet. comp.	
7	640.5	27	gr si sa. Clay mst pl	
8	635.5	17	Same as Sample #7	Stopped driving casing at 35'. Hole standing open
9	630.5	29	Same as Sample #7 slightly comp.	
10	625.5	35	Same as Sample #7 slightly comp.	
11	620.5	47	Same as Sample #7, fine Grav slightly comp.	
12	615.5	37	Same as Sample #7, fine Grav. slightly comp	
13	610.5	29	Same as Sample #7, fine Grav slightly comp.	Drilling Time 1st ft 8 min. 2nd ft 8 min. 3rd ft. 8 min.
14	605.5	43	Same as Sample #7, fine Grav. firm	
	603.8		Same as Sample #7, fine Grav. firm	Top of Rock
	600.8	Cored	Dolomite	97% Rec.

Bottom of Boring

Boring No. 4-C
18' Lt. ℄ at Sta. 236+26
Hole Started 1-7-53
Hole Completed 1-9-53

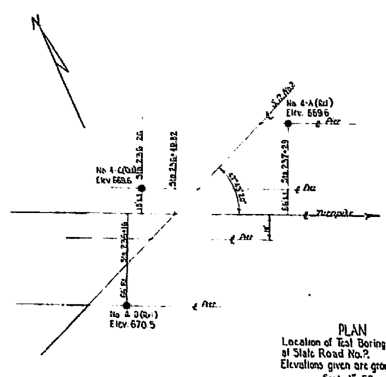
Sample	Elev.	Blows	Description	Remarks
	669.6		Ground Elev.	
1	668.6	6	Topsoil, da. loose	
2	664.6	22	br gr si Sand mst loose	Water Level Elev. 665.6
3	659.6	63	gr si Sand mst comp	
4	654.6	34	Same as Sample #3 becoming very fine	
5	649.6	30	Same as Sample #3 very fine	
6	644.6	41	Same as Sample #3 very fine	
7	639.6	31	gr si sa Clay mst pl	
8	634.6	26	Same as Sample #7	
9	629.6	17	Same as Sample #7	Casing not driven below this depth. Hole standing open.
10	624.6	15	Same as Sample #7, fine Grav.	
11	619.6	18	Same as Sample #7, fine Grav.	
12	614.6	27	Same as Sample #7, fine Grav	
13	609.6	40	Same as Sample #7 with Grav mst stiff	
14	604.6	46	Same as Sample #7 with Grav. da. comp	Drilling time 1st ft. 16 min. 2nd ft 16 min.
	602.6		Same as Sample #7 with Grav. da. comp.	Top of Rock
	600.6	Cored	Dolomite	95% Rec.

Bottom of Boring

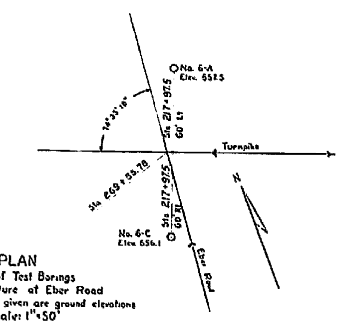
Boring No. 4-A
66' Lt. ℄ at Sta 237+29
Hole Started 1-13-53
Hole Completed 1-14-53

Sample	Elev.	Blows	Description	Remarks
	669.6		Ground Elev.	
1	668.6	8	Topsoil da loose	
2	664.6	10	br si Sand, Humus da loose	Water Level Elev 665.6 Hole caved in 666.2
3	659.6	16	br gr si Sand, fine to med mst. loose	
4	654.6	14	Same as Sample #3 wet	
5	649.6	21	gr si Sand, fine to med wet loose.	
6	644.6	19	Same as Sample #5	
7	639.6	25	gr si sa Clay mst slightly comp	
	633.6	Pushed	Undisturbed Sample	Stopped driving casing at 34' Hole standing open
8	629.6		Same as Sample #7	
9	624.6	27	Same as Sample #7	
10	619.6	22	Same as Sample #7	

Bottom of Boring



PLAN
Location of Test Borings for Structure at State Road No. 2.
Elevations given are ground elevations
Scale: 1" = 50'



PLAN
Location of Test Borings for Structure at Eber Road
Elevations given are ground elevations
Scale: 1" = 50'

Boring No. 6-A
60' Lt. ℄ at Sta 269+60
Hole Started 1-16-53
Hole Completed 1-19-53

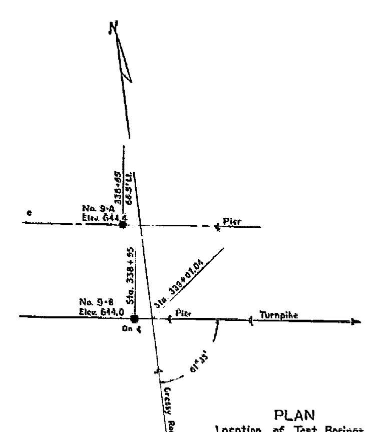
Sample	Elev.	Blows	Description	Remarks
	657.5		Ground Elev.	
1	656.5	7	Topsoil, da. loose	
2	652.5	8	bl. si. Sand, humus, da. loose	Water Level Elev. 653.5
3	647.5	20	br. si. sa. Clay, da. loose.	
4	642.5	28	gr. si. Sand. mst. loose.	
5	637.5	25	br. gr. si sa. Clay mst. pl.	
6	632.5	22	gr si. sa. Clay. mst. pl.	Casing not driven below 33' Hole standing open.
7	627.5	16	gr. si. sa. Clay, stiff. mst.	
	623.5		gr. si. sa. Clay, stiff. mst.	
	621.5	Pushed	Undisturbed Sample	
8	617.5	23	gr si. sa. Clay, some fine Grav. mst. pl.	
9	612.5	29	Same as Sample #8	
10	607.5	32	Same as Sample #8	
11	602.5	55	gr. si. sa. Clay Grav. & stone mst. sub-firm	
12	597.5	61	gr. si. sa. Clay fine Grav. mst. firm.	

Bottom of Boring

Boring No. 6-C
66' Rt. ℄ at Sta 269+60
Hole Started 1-14-53
Hole Completed 1-15-53

Sample	Elev.	Blows	Description	Remarks
	656.1		Ground Elev.	
1	655.1	6	Topsoil da. loose.	
2	651.1	14	br. si Sand. mst. loose	Water Level Elev. 652.1
3	646.1	22	br si Sand. wet. loose	
4	641.1	35	gr. si. sa. Clay, mst, slightly comp.	
5	636.1	50	gr cl. si Sand, mst. comp.	Casing not driven below 34'. Hole Standing open.
6	631.1	18	gr si. sa Clay, mst. med. soft.	
7	626.1	13	Same as Sample #6 becoming stiff.	
8	621.1	18	Same as Sample #6. stiff	
9	616.1	21	gr. si. sa. Clay, some fine Grav mst. stiff.	
10	611.1	27	Same as Sample #9. sub-firm	
11	606.1	50	Same as Sample #9 sub-firm	
12	601.1	56	Same as Sample #9 firm	
13	596.1	52	Same as Sample #9 firm	

Bottom of Boring



PLAN
Location of Test Borings for Structure at Cressy Road
Elevations given are ground elevations
Scale: 1" = 50'

Boring No. 9-A
66.5' Lt. ℄ at Sta 338+95
Hole Started 10-28-52
Hole Completed 10-30-52

Sample	Elev.	Blows	Description	Remarks
	644.4		Ground Elev.	
1	643.4	5	Topsoil, da.	
2	639.4	7	bl. cl si. fine Sand, some organic matter, da loose.	Water Level Elev. 639.3
3	634.4	12	br gr. cl. Silt, laminated, mst. comp.	
4	629.4	13	br. gr si. Clay & cl. Silt, mst comp.	
5	624.4	15	gr. si Clay, trace of Grav. mst. pl.	
6	619.4	11	Same as Sample #5	
7	614.4	40	gr. si sa. Clay & Grav. mst. pl.	
	607.8		Same as Sample #7	Top of Rock
	605.5	Cored	Dolomite, Many Clay filled oblique joints & horz. bedding planes. Slightly weathering	50% Rec. 60% Rec.
	602.4	Cored	gr. Dolomite, thin to med. bedding. Few	100% Rec. No Water Loss while Coring Cutting 1 ft. in 5 min.

Bottom of Boring

Boring No. 9-B
On ℄ at Sta. 338+95
Hole Started 10-27-52
Hole Completed 10-28-52

Sample	Elev.	Blows	Description	Remarks
	644.0		Ground Elev.	
1	643.0	14	Topsoil	
2	639.0	13	br. si. cl. Sand, bl. Organic matter mst.	Water Level Elev. 639.0
3	634.0	15	br. gr. cl. Silt, laminated, mst. pl.	
4	629.0	14	gr. si Clay laminated, mst., stiff	
5	624.0	17	Same as Sample #4	
6	619.0	19	gr. si. Clay, trace of Grav. mst. stiff.	
7	614.0	38	Same as Sample #6	Hit Boulder Could not Drive Casing.
	609.2	Cored	Same as Sample #6	3% Rec. Top of Rock
	605.8	Cored	gr. Dolomite, oblique fractures & joints, horz. bedding planes	Core would not hold together
	599.2	Cored	gr. Dolomite, thin & med. bedded, hard, few oblique & vert. joints, sound	75% Rec. No water Loss Cored 1' per min.

Bottom of Boring

CUNNINGHAM CORE DRILLING & GROUTING CORP.
P. O. BOX 513
SALEM, VA.

OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1

LOGS OF CORE DRILL HOLES AT STATE RD. NO. 2, EBER RD, & CRESSY RD.

ALDEN E. STILSON & ASSOCIATES, LTD.
CONSULTING ENGINEERS
COLUMBUS, OHIO

DESIGNED M.S.W. CHECKED J.M.B. DATE Mar. 22, 1953
DRAWN M.I.G. IN CHARGE S.R.R. SCALE Ver.: 1"=10'

CONTRACT No. C-49 SHEET 28 OF 2

SUMMARY OF TESTS ON SOIL PROFILE SUBGRADE SAMPLES

OHIO TURNPIKE PROJECT NO. 1

DESIGN SECTION 17 CONSTRUCTION CONTRACT 49

LAB NO. SOIL	FIELD NO.	ELEVATION BOTTOM OF SAMPLE	MECHANICAL ANALYSIS H.R.B. % C. SAND	% F. SAND	% SILT-CLAY	PHYSICAL CHARACTERISTICS LIQUID LIMIT	PLASTICITY INDEX	SHRINKAGE LIMIT	WATER CONTENT	SPECIFIC GRAVITY	H.R.B. CLASS*
1(2)	135+12 (2)	668.7	1.14	90.01	8.85				7.51 AUG	2.63	A-3
1(3)	135+12 (3)	667.4	1.44	94.08	4.48				7.36	2.66	A-3
1(4)	135+12 (4)	666.8	1.23	90.03	9.74				13.05	2.67	A-3
1(5)	135+12 (5)	664.7	0.78	33.94	5.28				18.83	2.63	A-3
1(6)	135+12 (6)	664.2	0.64	89.54	9.82				26.28	2.68	A-3
4(2)	150+00 (2)	669.2	4.14	87.01	8.85				4.03 AUG	2.60	A-3
4(3)	150+00 (3)	668.1	2.17	93.81	4.02				10.28	2.69	A-3
4(4)	150+00 (4)	667.6	1.04	93.68	5.28				14.40	2.68	A-3
4(5)	150+00 (5)	666.6	0.69	90.57	8.74				15.59	2.68	A-3
4(6)	150+00 (6)	665.3	1.02	88.09	10.89				22.95	2.66	A-3
7(2)	165+00 (2)	680.2	3.45	91.56	4.99				4.24 AUG	2.65	A-3
7(3)	165+00 (3)	677.2	2.90	93.34	3.76				1.40	2.69	A-3
9(2)	175+02 (2)	681.1	0.94	90.21	8.85				3.04 AUG	2.68	A-3
9(3)	175+02 (3)	677.6	3.17	92.81	4.02				4.55	2.69	A-3
9(4)	175+02 (4)	677.1	1.50	92.05	6.45				10.82	2.66	A-3
11(2)	185+00 (2) 30.0Rt	677.1	8.60	89.68	1.72				9.34 AUG	2.68	A-3
11(3)	185+00 (2) 30.0Rt	675.6	6.88	91.65	1.47				18.89	2.67	A-3
15A(6)	205+00(4)	673.7	15.6	83.4	1.0						
16A(3)	210+00(3)	671.1	5.0	94.2	0.8				25.2 JAN		A-3
18A(7)	220+00(7)	668.9	2.2	96.4	1.4				Free Water		A-3
19A(3)	225+00(3)	669.7	19.4	75.4	5.2				20.0 JAN		A-3
19A(5)	225+00(5)	667.0	32.6	66.4	1.0				Free Water		A-3
20A(6)	230+00(6)	667.5	7.9	88.8	3.3				21.1 JAN		A-3
20A(5)	230+00(5)	666.3	3.1	94.1	2.8	23.0	2.4		Free Water		A-2-4
23A(5)	250+00(5)	662.5	16.2	80.4	3.4				18.1 JAN		A-3
23A(7)	250+00 (7)	661.3	3.4	89.4	7.2	18.9	1.3		22.9 JAN		A-2-4
25A(7)	255+00(7)	656.5	5.4	93.1	1.5	22.0	6.3		Free Water		A-2-4
26A(3)	260+22(3)	652.0	0.6	61.7	37.7	25.6	5.6		Free Water		A-4(1)
			No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE						

LAB NO. SOIL	FIELD NO	ELEVATION BOTTOM OF SAMPLE	MECHANICAL ANALYSIS H.R.B. % C. SAND	% F. SAND	% SILT-CLAY	PHYSICAL CHARACTERISTICS LIQUID LIMIT	PLASTICITY INDEX	SHRINKAGE LIMIT	WATER CONTENT	SPECIFIC GRAVITY	H.R.B. CLASS*
27A(5)	265+00(5)	651.1	0.2	48.7	51.1	25.7	4.6		Free Water		A-4
28A(3)	270+00(3)	653.8	11.70	84.5	3.8				14.5 JAN		A-3
28A(5)	270+00(5)	652.0	1.2	96.3	2.5	21.6	5.1		Free Water		A-2-4
30A(6)	280+00(6)	652.0	4.0	94.3	1.7	22.5	6.0		Free Water		A-2-4
31A(6)	285+00(6)	653.1	7.0	91.1	1.9				15.50		A-3
31A(7)	285+00(7)	652.1	9.8	88.4	1.8				Free Water		A-2-4
33(2)	295+04 (2)	653.4	6.71	91.05	2.24				2.96 AUG	2.72	A-3
33(3)	295+04 (3)	651.9	2.72	95.21	2.07				4.62	2.75	A-3
35(2)	305+02 (2)	648.5	6.07	90.73	3.20				6.58 AUG	2.70	A-3
35(3)	305+02 (3)	646.0	6.76	91.30	1.94				6.77	2.69	A-3
35(4)	305+02 (4)	645.8	5.52	93.47	1.01				3.69	2.68	A-3
37(2)	315+00 (2)	65..2	3.97	94.36	1.67				5.91 AUG	2.71	A-3
38(2)	320+00(2)	644.4	6.04	88.11	5.85				3.14 AUG	2.62	A-3
40(2)	330+00(2)	643.3	6.57	88.86	4.57				4.78 AUG	2.76	A-3
41(2)	335+00(2)	641.4	3.50	81.50	14.60	18.10	2.40	14.80	10.17 AUG	2.73	A-2-4(0)
41(3)	335+00(3)	639.9	4.40	63.10	32.50	19.90	4.71		18.91	2.67	A-2-4(0)
42(4)	340+00(4)	639.1	11.46	85.0?	3.45				8.39 AUG	2.68	A-3
43(5)	345+00(5)	637.7	2.20	11.70	86.10	27.10	11.39	10.80	25.88 AUG	2.71	A-6(8)
44(2)	350+00(2)	640.7	3.70	73.50	22.80	21.10	5.60	15.80	8.06 AUG	2.65	A-2-4(0)
44(5)	350+00(5)	637.5	5.43	90.85	3.72				20.08	2.68	A-3
			No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE						

LEGEND

- TOPSOIL
- MUCK
- Natural Moisture Content 20 — Free Water — HAND OR POWER AUGER BORING
- A-2-4 (SILTY SAND)
- A-3 (FINE SAND)
- A-4 (SILTY SOILS)
- A-6 (CLAYEY SOILS)
- Sample — CASED DEEP BORING — WEIGHT OF HAMMER ON SPOON - 300# DROP OF HAMMER ON SPOON - 14"
- * HIGHWAY RESEARCH BOARD

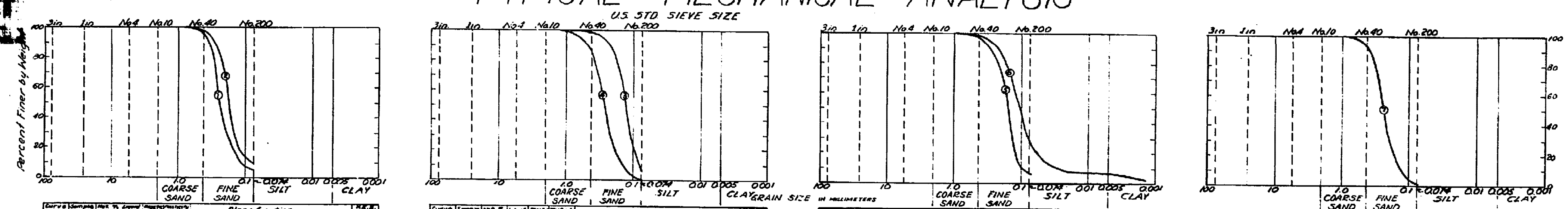
Note: The data shown or indicated on the Soil Profile Sheets are approximate only and are not guaranteed, and no responsibility by the Commission is assumed for their correctness. This information is furnished to the Bidders and Contractor for whatever value they may derive therefrom, and it is to be used solely at their own risk.

SAMPLES TESTED & STORED BY TOLEDO TESTING LABORATORY, TOLEDO, OHIO

No.	Revision	By	Date

OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1
MASTER SOIL PROFILE SUMMARY OF TESTS
ALDEN E. STILSON & ASSOCIATES, LIMITED CONSULTING ENGINEERS DESIGN SECTION 6-17
DESIGNED: DRAWN: CHECKED: IN CHARGE: DATE: SCALE:
CONTRACT NO. C. 49 SHEET 15 OF 6

TYPICAL MECHANICAL ANALYSIS



Curve No.	Sample No.	Nat. % Moisture	Liquid Limit	Plastic Limit	Plasticity Index	Classification	H.R.B. Group
1	TB-1(3)	7.36				Dark gray - fine grained sand	A-3
2	TB-1(4)	13.05				Yellowish brown - fine grained sand	A-3

Curve No.	Station & Field Number	Distance Rt. or Lt.	Elevation of Bottom of Sample
1	135+12 (3)	0	667.4
2	135+12 (4)	0	666.8

Curve No.	Sample No.	Nat. % Moisture	Liquid Limit	Plastic Limit	Plasticity Index	Classification	H.R.B. Group
3	TB-4(6)	22.95				Gray - fine grained sand	A-3
4	TB-19(3)	3.67				Reddish yellow - fine grained sand, roots	A-3

Curve No.	Station & Field Number	Distance Rt. or Lt.	Elevation of Bottom of Sample
3	150+00 (6)	1' Rt.	665.3
4	284+80 (3)	0	673.2

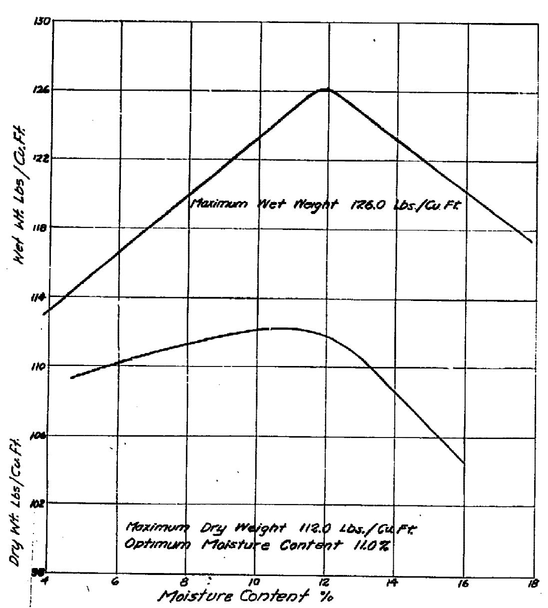
Curve No.	Sample No.	Nat. % Moisture	Liquid Limit	Plastic Limit	Plasticity Index	Classification	H.R.B. Group
5	TB-25(3)	21.36				Gray - fine grained sand, little organic matter	A-3
6	TB-27(5)	[illegible]	22.31	16.6	5.71	Gray - fine grained silty sand	A-2-4(0)

Curve No.	Station & Field Number	Distance Rt. or Lt.	Elevation of Bottom of Sample
5	255+00 (3)	2' Lt.	654.7
6	265+00 (5)	2' Lt.	652.0

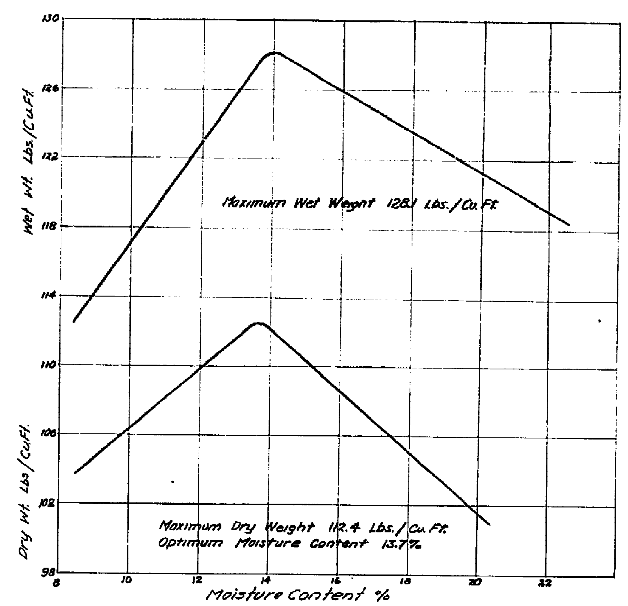
Curve No.	Sample No.	Nat. % Moisture	Liquid Limit	Plastic Limit	Plasticity Index	Classification	H.R.B. Group
7	TB-33(2)	2.96				Yellow - fine grained sand	A-3

Curve No.	Station & Field Number	Distance Rt. or Lt.	Elevation of Bottom of Sample
7	295+04 (2)	0	653.4

TYPICAL MOISTURE DENSITY CURVES
(STANDARD TEST A.A.S.H.O. DESIGNATION T-147)



Location: Sta 290+00 on ℄
Description of soil: Brown sand
Depth of test: 13" to 18"
Natural dry density: 95.93 Lbs.
Natural moisture content: 7.74%
% Compaction (natural soil): 85.6%



Location: Sta 201+00 on ℄
Description of soil: Dark brown sand
Depth of test: 17" to 22"
Natural dry density: 93.76 Lbs.
Natural moisture content: 15.14%
% Compaction (natural soil): 83.4%

AS-BUILT PLANS

No.	Revision	By	Date

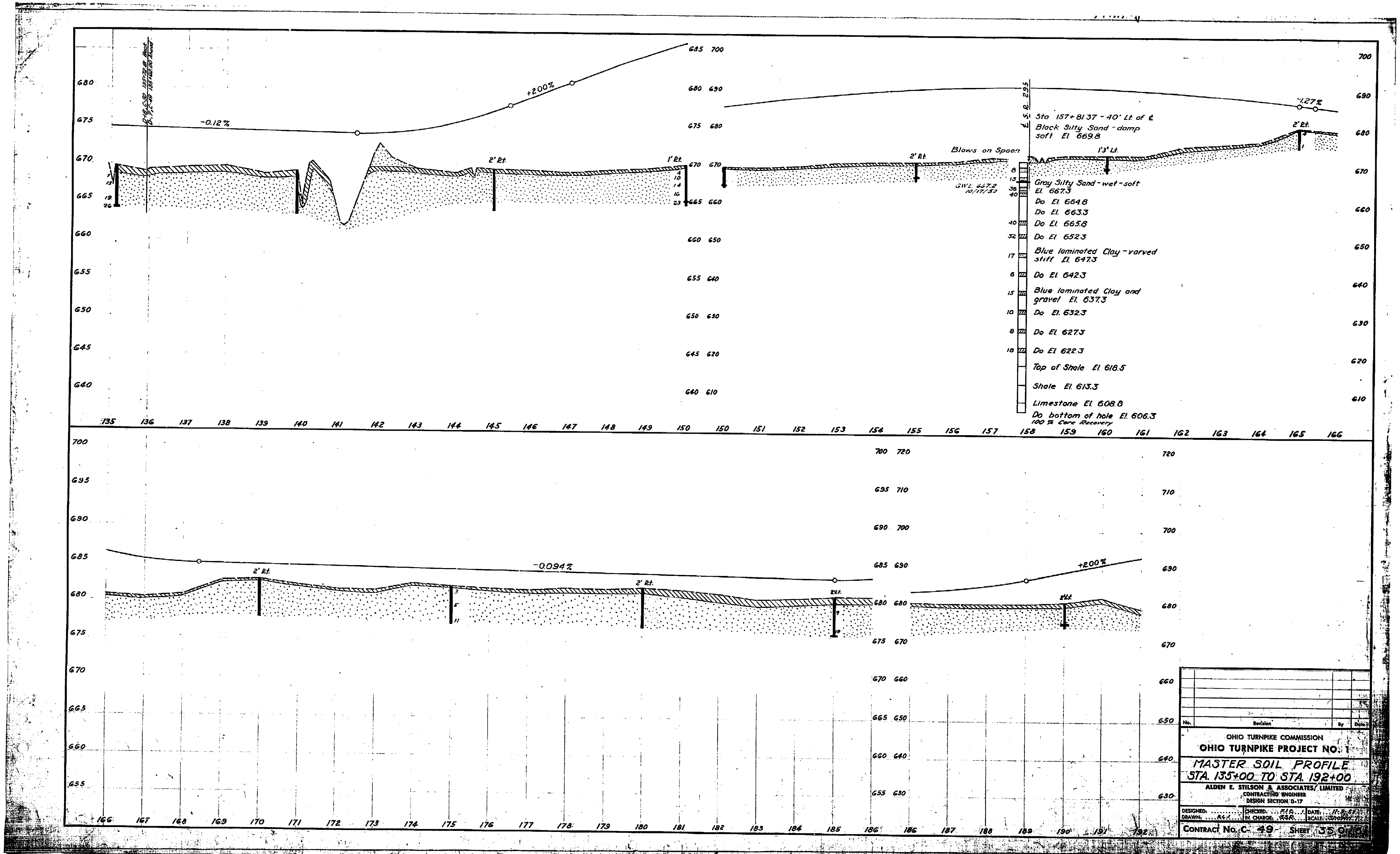
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1

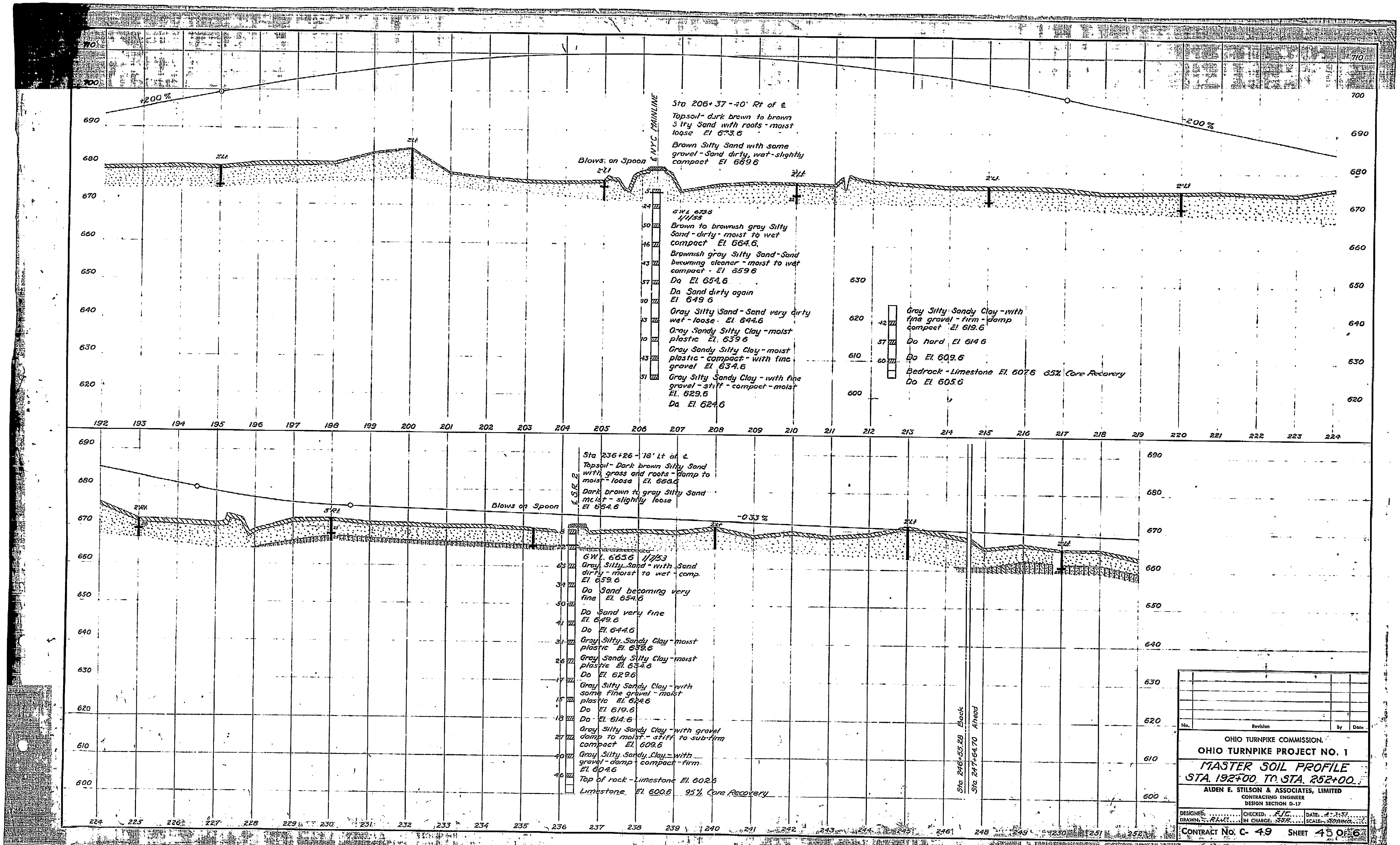
TYPICAL SOIL ANALYSIS CURVES

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONTRACTING ENGINEER
DESIGN SECTION D-17

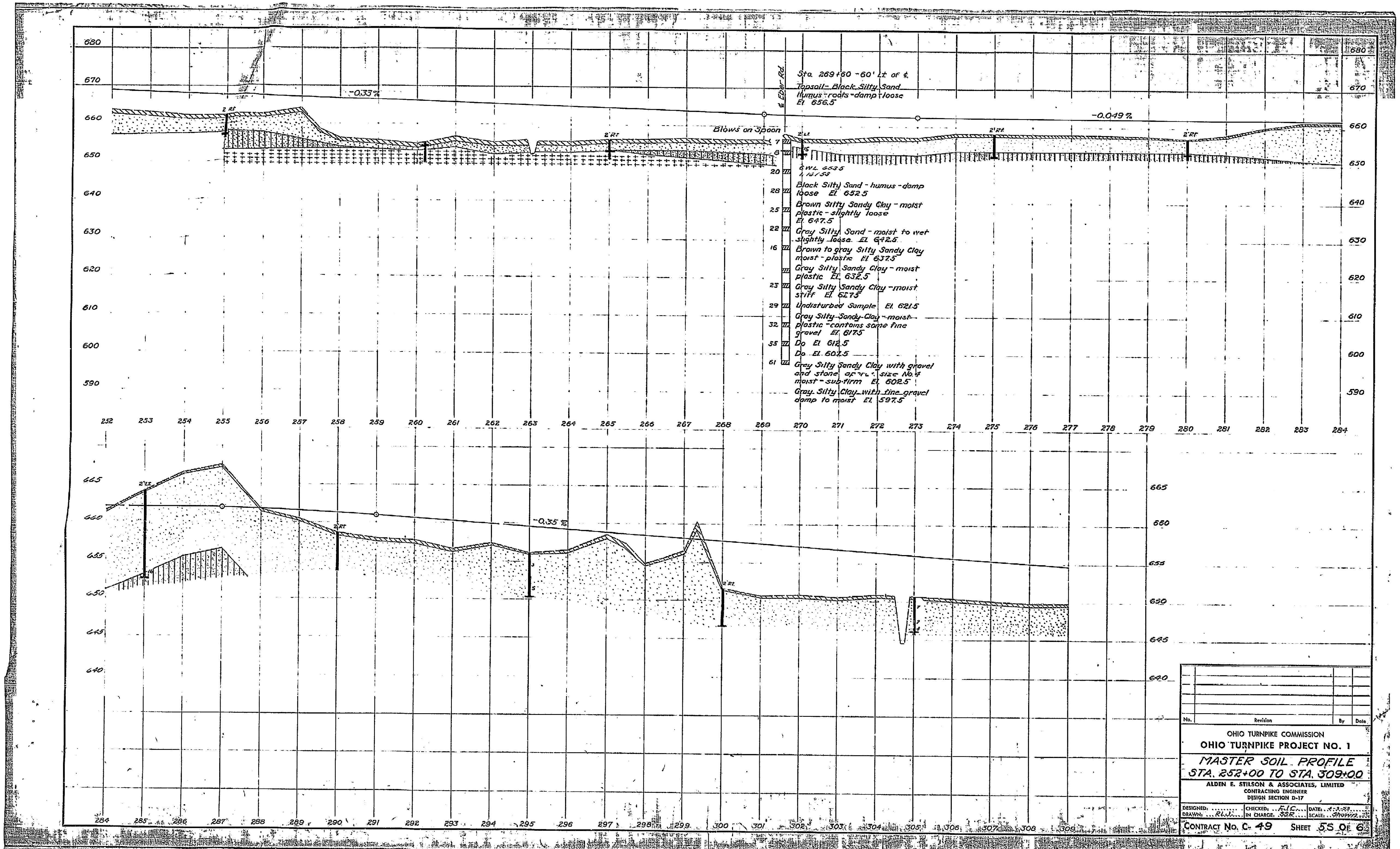
DESIGNED: .... CHECKED: F.J.C. DATE: 6-1-53
DRAWN: R.L.J. IN CHARGE: S.R.R. SCALE: SHOWN

CONTRACT No. C-49 SHEET 25 OF 6


-0.12%
+2.00%
2' Rt.
1' Rt.
Blows on Spoon
E. S. R. 295
Sta 157+81.37 - 40' Lt. of ℄
Black Silty Sand - damp soft El. 669.8
Gray Silty Sand - wet - soft El. 667.3
Do El. 664.8
Do El. 663.3
Do El. 665.8
Do El. 652.3
Blue laminated Clay - varved stiff El. 647.3
Do El. 642.3
Blue laminated Clay and gravel El. 637.3
Do El. 632.3
Do El. 627.3
Do El. 622.3
Top of Shale El. 618.5
Shale El. 613.3
Limestone El. 608.8
Do bottom of hole El. 606.3
100 % Core Recovery
GWL 667.2 10/17/52
1'3" Lt.
-1.27%
-0.094%
+2.00%
No.
Revision
By
Date
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1
MASTER SOIL PROFILE
STA. 135+00 TO STA. 192+00
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONTRACTING ENGINEER
DESIGN SECTION D-17
DESIGNED:
DRAWN: R.C.J.
CHECKED: F.J.G.
IN CHARGE: S.S.R.
DATE: 11-5-52
SCALE: Shown
CONTRACT No. C-49
SHEET 35 OF 6

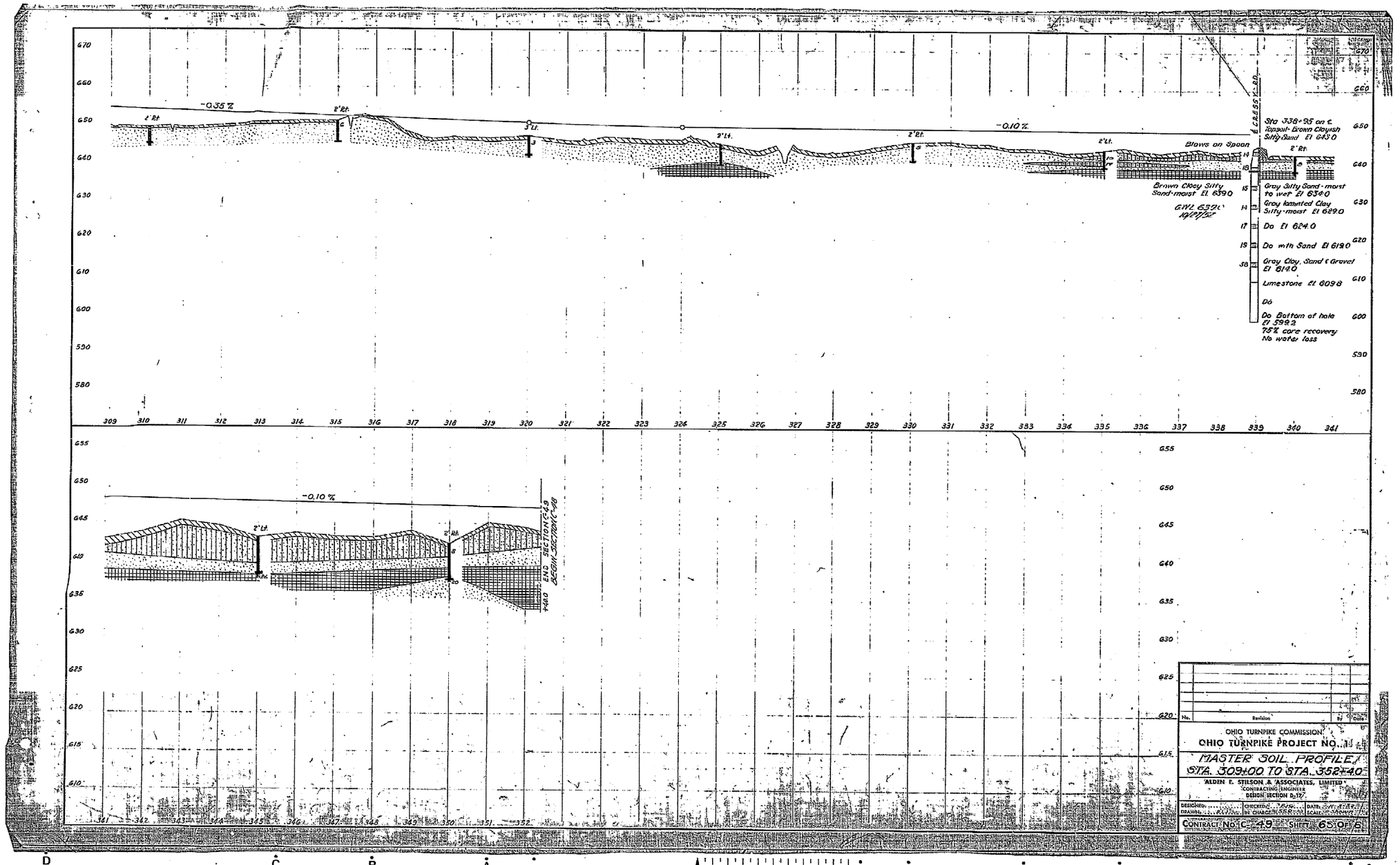


+2.00 %
-2.00 %
-0.33 %
Sta 206+37 - 40' Rt of ℄
Topsoil - dark brown to brown Silty Sand with roots - moist loose El 673.6
Brown Silty Sand with some gravel - Sand dirty, wet - slightly compact El 669.6
Blows on Spoon
℄ NYC MAINLINE
GWL 673.6 1/1/53
Brown to brownish gray Silty Sand - dirty - moist to wet compact El 664.6
Brownish gray Silty Sand - Sand becoming cleaner - moist to wet compact - El 659.6
Do El 654.6
Do Sand dirty again El 649.6
Gray Silty Sand - Sand very dirty wet - loose El 644.6
Gray Sandy Silty Clay - moist plastic El 639.6
Gray Sandy Silty Clay - moist plastic - compact - with fine gravel El 634.6
Gray Silty Sandy Clay - with fine gravel - stiff - compact - moist El 629.6
Do El 624.6
Gray Silty Sandy Clay - with fine gravel - firm - damp compact El 619.6
Do hard El 614.6
Do El 609.6
Bedrock - Limestone El 607.6 85% Core Recovery
Do El 605.6
Sta 236+26 - 18' Lt of ℄
Topsoil - Dark brown Silty Sand with grass and roots - damp to moist - loose El 668.6
Dark brown to gray Silty Sand moist - slightly loose El 664.6
Blows on Spoon
GWL 665.6 1/7/53
Gray Silty Sand - with Sand dirty - moist to wet - comp. El 659.6
Do Sand becoming very fine El 654.6
Do Sand very fine El 649.6
Do El 644.6
Gray Silty Sandy Clay - moist plastic El 639.6
Gray Sandy Silty Clay - moist plastic El 634.6
Do El 629.6
Gray Silty Sandy Clay - with some fine gravel - moist plastic El 624.6
Do El 619.6
Do El 614.6
Gray Silty Sandy Clay - with gravel damp to moist - stiff to sub-firm compact El 609.6
Gray Silty Sandy Clay - with gravel - damp - compact - firm El 604.6
Top of rock - Limestone El 602.6
Limestone El 600.6 95% Core Recovery
Sta 246+55.28 Back
Sta 247+64.70 Ahead
No. | Revision | By | Date
OHIO TURNPIKE COMMISSION.
OHIO TURNPIKE PROJECT NO. 1
MASTER SOIL PROFILE
STA. 192+00 TO STA. 252+00
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONTRACTING ENGINEER
DESIGN SECTION D-17
DESIGNED: ....
DRAWN: RLW
CHECKED: FJC
IN CHARGE: SSR
DATE: 4-3-53
SCALE: Shown
CONTRACT NO. C- 49
SHEET 45 OF 6



-0.33%
-0.049%
-0.35%
2' Rt
2' Lt
℄ Eber Rd.
Sta. 269+60 - 60' Lt of ℄
Topsoil - Black Silty Sand humus - roots - damp - loose El. 656.5
Blows on Spoon
G.W.L. 653.5 1/16/53
Black Silty Sand - humus - damp loose El. 652.5
Brown Silty Sandy Clay - moist plastic - slightly loose El. 647.5
Gray Silty Sand - moist to wet slightly loose El. 642.5
Brown to gray Silty Sandy Clay moist - plastic El. 637.5
Gray Silty Sandy Clay - moist plastic El. 632.5
Gray Silty Sandy Clay - moist stiff El. 627.5
Undisturbed Sample El. 621.5
Gray Silty Sandy Clay - moist plastic - contains some fine gravel El. 617.5
Do El. 612.5
Do El. 607.5
Gray Silty Sandy Clay with gravel and stone size No. 4 moist - sub-firm El. 602.5
Gray Silty Clay with fine gravel damp to moist El. 597.5
7
8
20
28
25
22
16
23
29
32
55
61
680
670
660
650
640
630
620
610
600
590
252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284
665
660
655
650
645
640
284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309
No. Revision By Date
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1
MASTER SOIL PROFILE
STA. 252+00 TO STA. 309+00
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONTRACTING ENGINEER
DESIGN SECTION D-17
DESIGNED:
CHECKED: F.J.C.
DATE: 4-3-53
DRAWN: R.L.J.
IN CHARGE: S.S.R.
SCALE: Shown
CONTRACT No. C-49
SHEET 55 OF 6

D C B A A B C D E



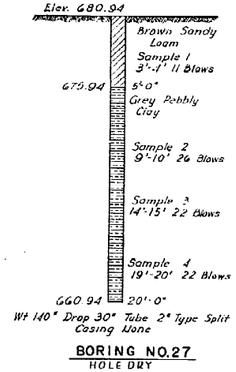
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 11

MASTER SOIL PROFILE
STA. 309+00 TO STA. 352+40

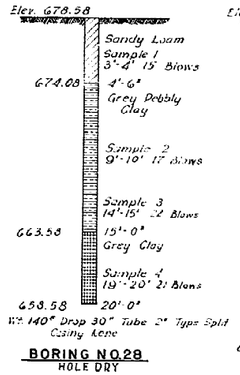
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
DESIGN SECTION D-17

DESIGNED: ... CHECKED: ... DATE: ...
DRAWN: ... IN CHARGE: ... SCALE: ...

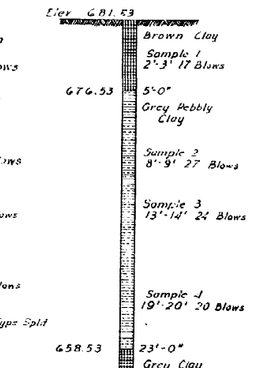
CONTRACT NO. C-49 SHEET 65 OF 67



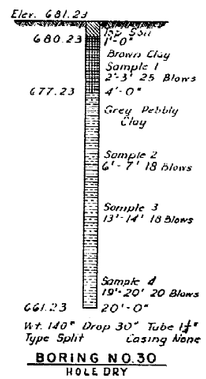
BORING NO.27
HOLE DRY



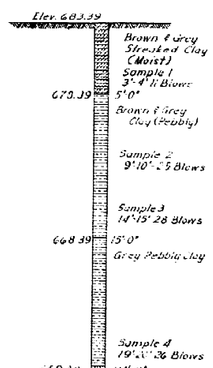
BORING NO.28
HOLE DRY



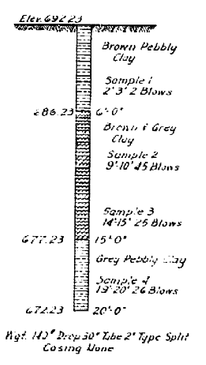
BORING NO.29
HOLE DRY



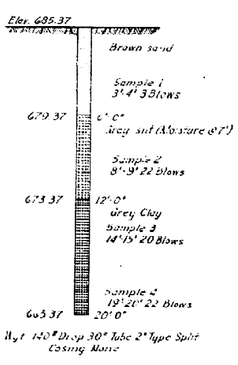
BORING NO.30
HOLE DRY



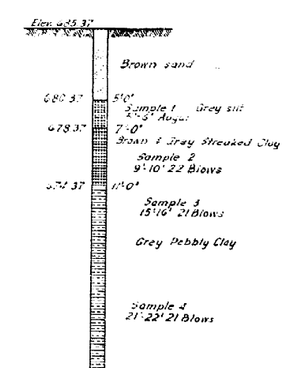
BORING NO. 31
HOLE DRY



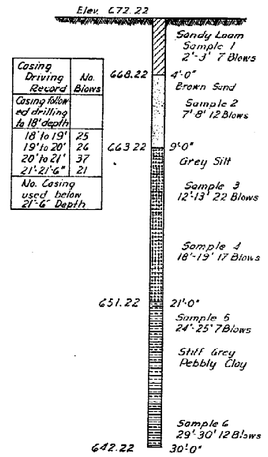
BORING NO.32
HOLE DRY



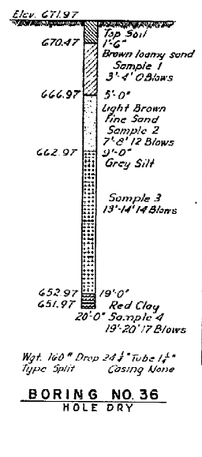
BORING NO. 33
HOLE DRY



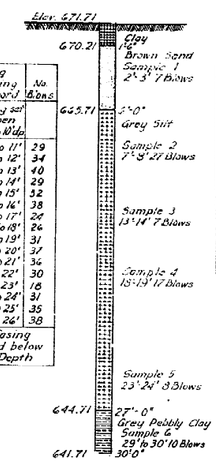
BORING NO. 34
HOLE DRY



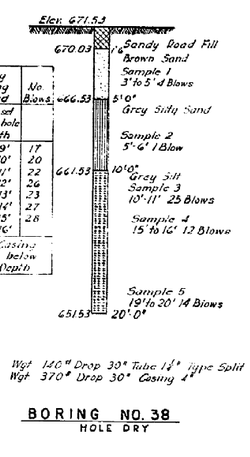
BORING NO 35
HOLE DRY



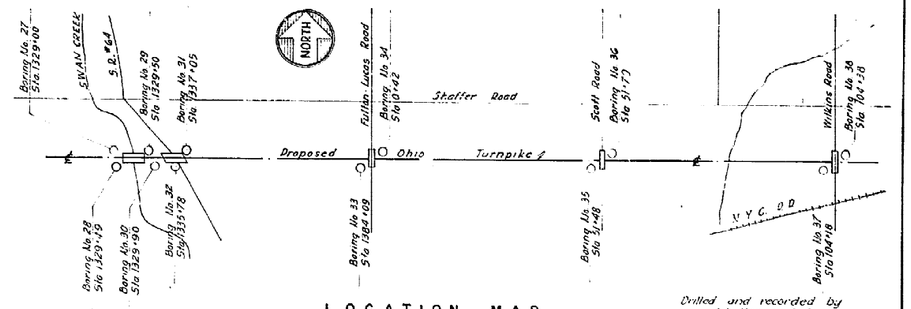
BORING NO. 36
HOLE DRY



BORING NO. 37
HOLE DRY



BORING NO. 38
HOLE DRY



LOCATION MAP

Drilled and recorded by
J. L. Harper & Co.
Cleveland, Ohio

DRILLERS
G. M. DAY
A. E. HARPER

No.	Revision	By	Date

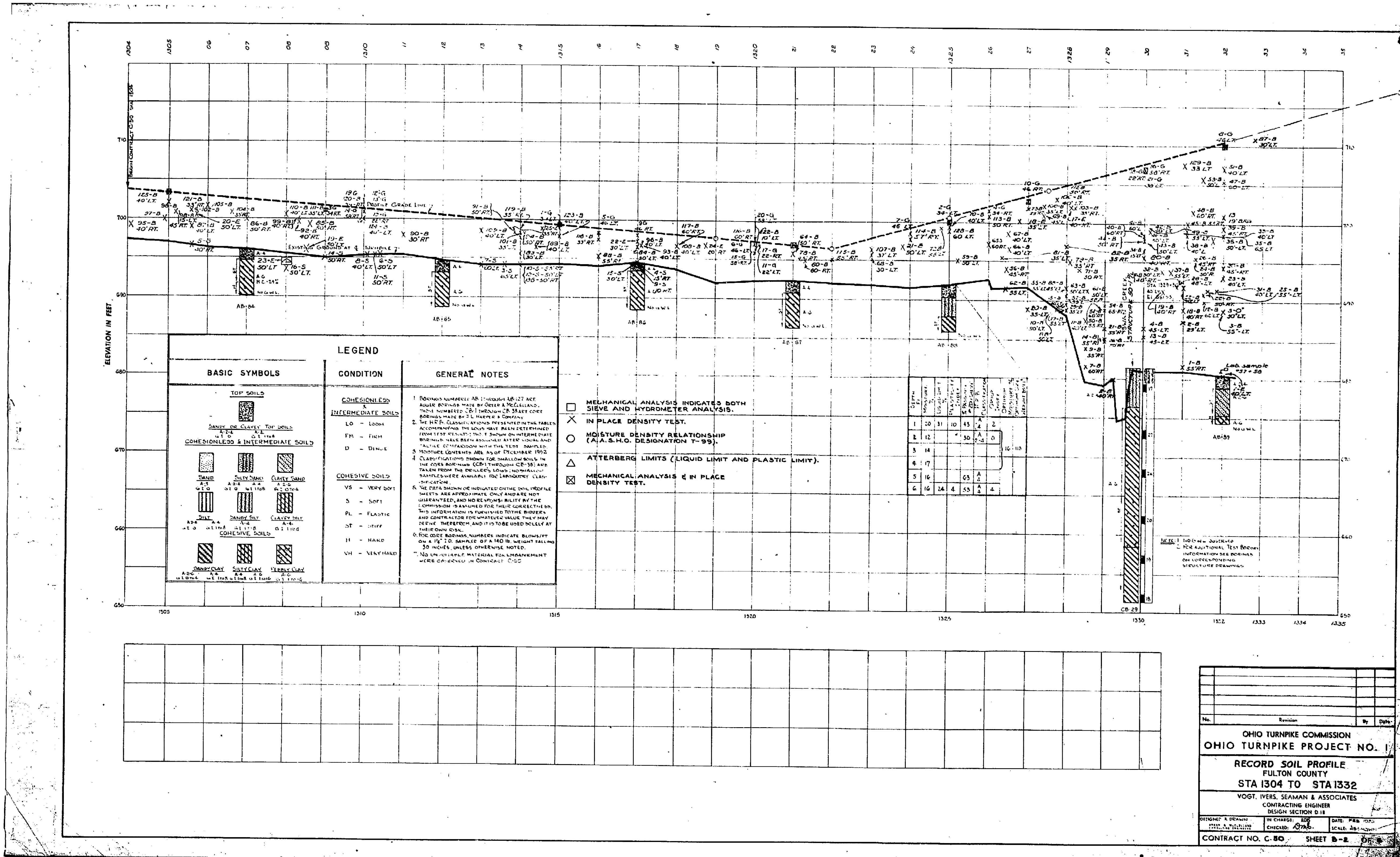
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1

CORE BORINGS

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

DESIGNED R.K.L.	BY CHARGE W.J.I.	DATE FEB 1953
DRAWN R.K.L. - B.H.	CHECKED khs	SCALE VERT 1"=10'

CONTRACT NO. C-50 SHEET B-1 OF 6



ELEVATION IN FEET
LEGEND
BASIC SYMBOLS
TOP SOILS
SANDY OR CLAYEY TOP SOILS
COHESIONLESS & INTERMEDIATE SOILS
SAND
SILTY SAND
CLAYEY SAND
SILT
SANDY SILT
CLAYEY SILT
COHESIVE SOILS
SANDY CLAY
SILTY CLAY
PEBBLY CLAY
CONDITION
COHESIONLESS & INTERMEDIATE SOILS
LO - LOOSE
FM - FIRM
D - DENSE
COHESIVE SOILS
VS - VERY SOFT
S - SOFT
PL - PLASTIC
ST - STIFF
H - HARD
VH - VERY HARD
GENERAL NOTES
1. BORINGS NUMBERED AB-1 THROUGH AB-127 ARE AUGER BORINGS MADE BY GREER & McCLELLAND. THOSE NUMBERED CB-1 THROUGH CB-38 ARE CORE BORINGS MADE BY J.L. HARPER & COMPANY.
2. THE H.R.B. CLASSIFICATIONS PRESENTED IN THE TABLES ACCOMPANYING THE LOGS HAVE BEEN DETERMINED FROM TEST RESULTS. THOSE SHOWN ON INTERMEDIATE BORINGS HAVE BEEN ASSIGNED AFTER VISUAL AND TACTILE COMPARISON WITH THE TEST SAMPLES.
3. MOISTURE CONTENTS ARE AS OF DECEMBER 1952.
4. CLASSIFICATIONS SHOWN FOR SHALLOW SOILS IN THE CORE BORINGS (CB-1 THROUGH CB-38) ARE TAKEN FROM THE DRILLER'S LOGS; NO SHALLOW SAMPLES WERE AVAILABLE FOR LABORATORY CLASSIFICATION.
5. THE DATA SHOWN OR INDICATED ON THE SOIL PROFILE SHEETS ARE APPROXIMATE ONLY AND ARE NOT GUARANTEED, AND NO RESPONSIBILITY BY THE COMMISSION IS ASSUMED FOR THEIR CORRECTNESS. THIS INFORMATION IS FURNISHED TO THE BIDDERS AND CONTRACTOR FOR WHATEVER VALUE THEY MAY DERIVE THEREFROM, AND IT IS TO BE USED SOLELY AT THEIR OWN RISK.
6. FOR CORE BORINGS, NUMBERS INDICATE BLOWS/FT ON A 1¼" I.D. SAMPLER OF A 140 lb. WEIGHT FALLING 30 INCHES, UNLESS OTHERWISE NOTED.
7. NO UNSUITABLE MATERIAL FOR EMBANKMENT WERE ENCOUNTERED IN CONTRACT C-50
MECHANICAL ANALYSIS INDICATES BOTH SIEVE AND HYDROMETER ANALYSIS.
IN PLACE DENSITY TEST.
MOISTURE DENSITY RELATIONSHIP (A.A.S.H.O. DESIGNATION T-99).
ATTERBERG LIMITS (LIQUID LIMIT AND PLASTIC LIMIT).
MECHANICAL ANALYSIS & IN PLACE DENSITY TEST.
PROFILE GRADE LINE
EXISTING GROUND AT ⊄
AB-84
AB-85
AB-86
AB-87
AB-88
AB-89
CB-29

No.	Revision	By	Date

OHIO TURNPIKE COMMISSION

OHIO TURNPIKE PROJECT NO. 1

RECORD SOIL PROFILE

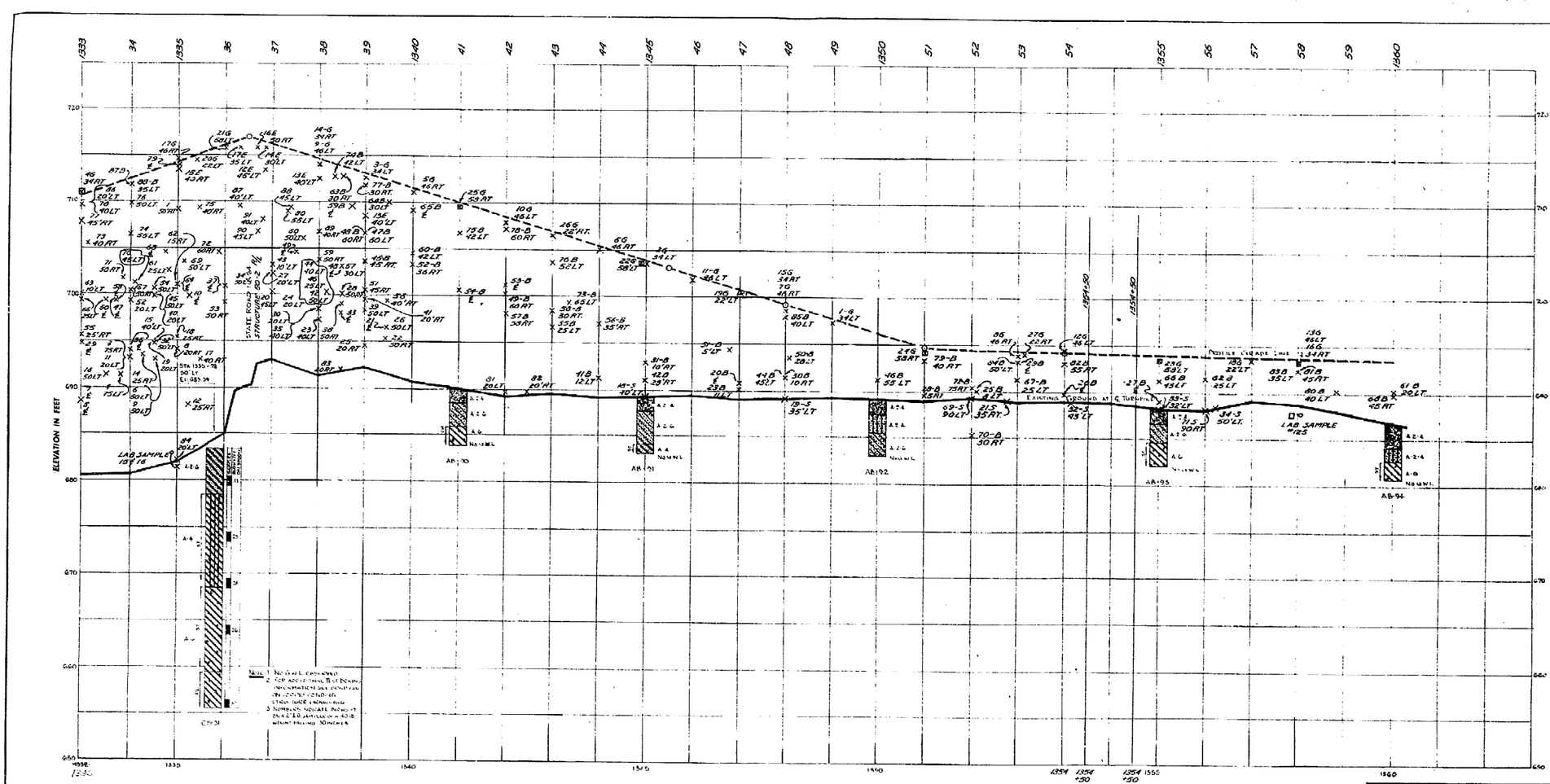
FULTON COUNTY

STA 1304 TO STA 1332

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

DESIGNED & DRAWN: GREER & McCLELLAND CONSULTING ENGINEERS | IN CHARGE: ACB | CHECKED: DMB | DATE: FEB 1953 | SCALE: AS SHOWN

CONTRACT NO. C-50 SHEET B-2 OF 8



No.	Revision	By	Date

OHIO TURNPIKE COMMISSION

OHIO TURNPIKE PROJECT NO. 1

RECORD SOIL PROFILE

FULTON COUNTY

STA 1332 TO STA 1360

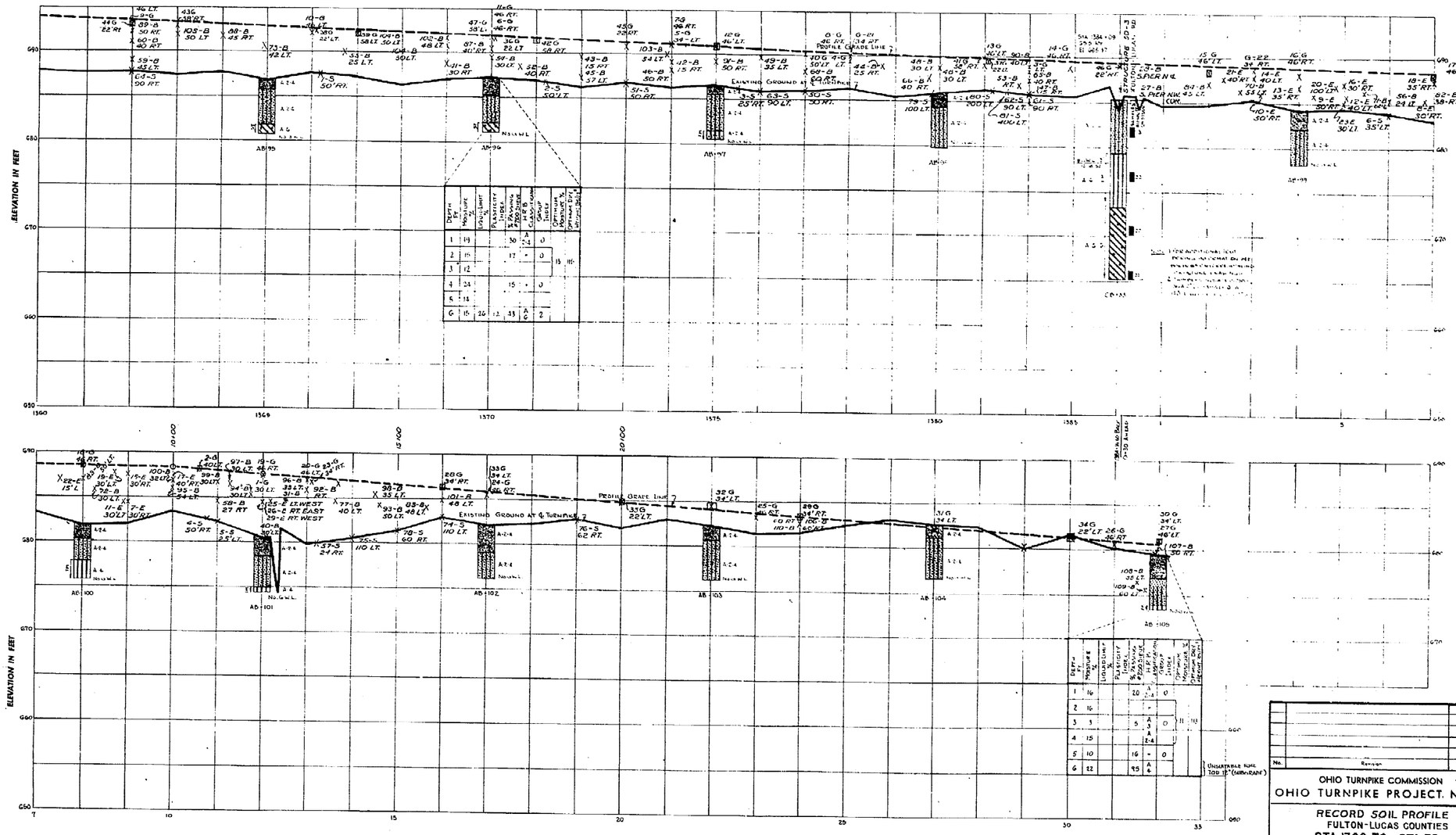
VOGT, IVERS, SEAMAN & ASSOCIATES

CONTRACTING ENGINEER

DESIGN SECTION D-18

DESIGNED & DRAWN	IN CHARGE	DATE: FEB. 1958
CHECKED	SCALE: As Shown	

CONTRACT NO. C-50 SHEET B-8 OF



OHIO TURNPIKE COMMISSION

OHIO TURNPIKE PROJECT. NO. 1

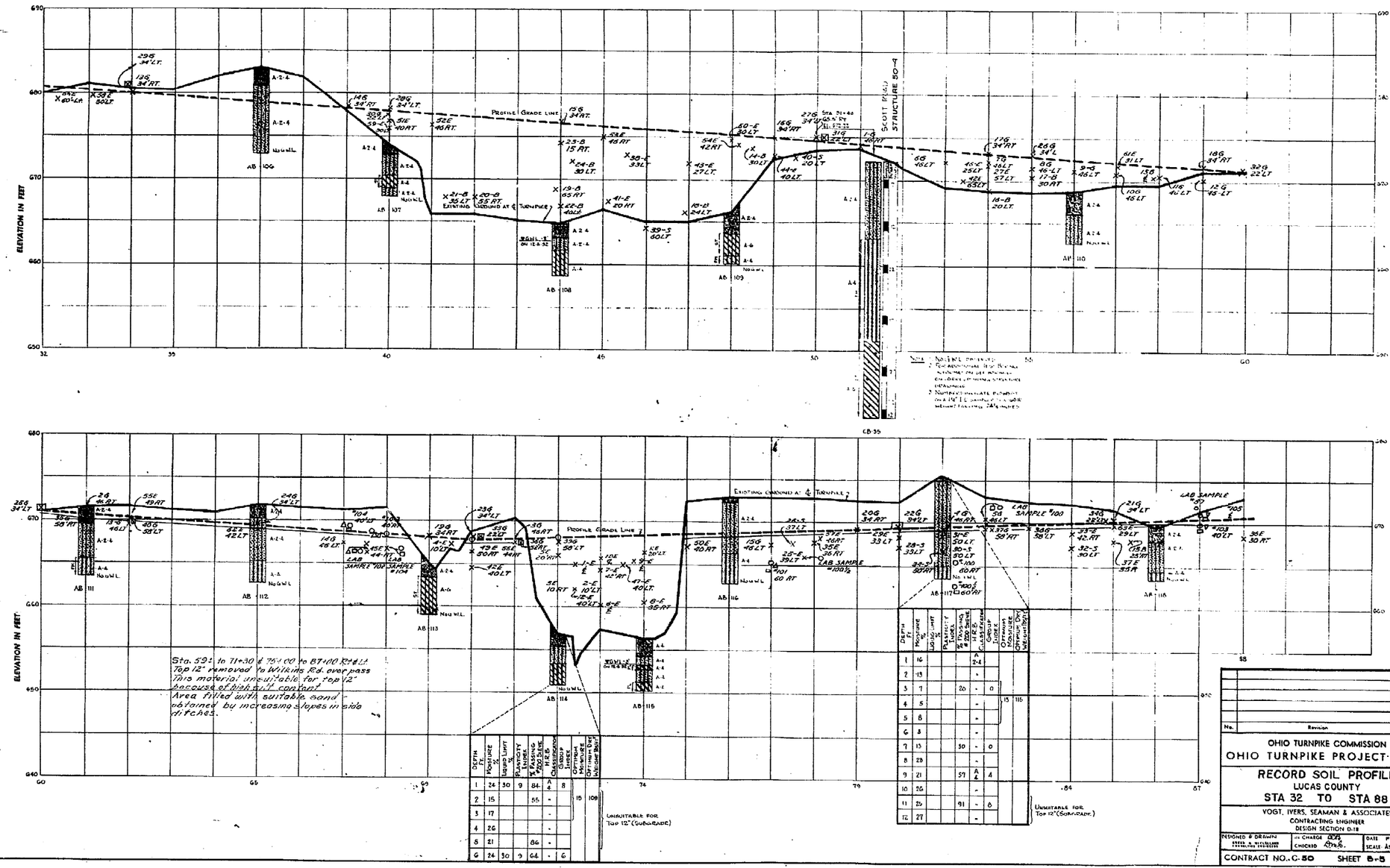
RECORD SOIL PROFILE
FULTON-LUCAS COUNTIES
STA 1360 TO STA 32

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

No.	Revision	By	Date

DESIGNED & DRAWN	IN CHARGE BGS.	DATE FEB. 1953.
CHECKED	CHECKED	SCALE AS SHOWN.

CONTRACT NO. C-50 SHEET D-4 OF 8



No.	Revision	By	Date

OHIO TURNPIKE COMMISSION

OHIO TURNPIKE PROJECT NO. 1

RECORD SOIL PROFILE

LUCAS COUNTY

STA 32 TO STA 88

VOGT, IVERS, SEAMAN & ASSOCIATES

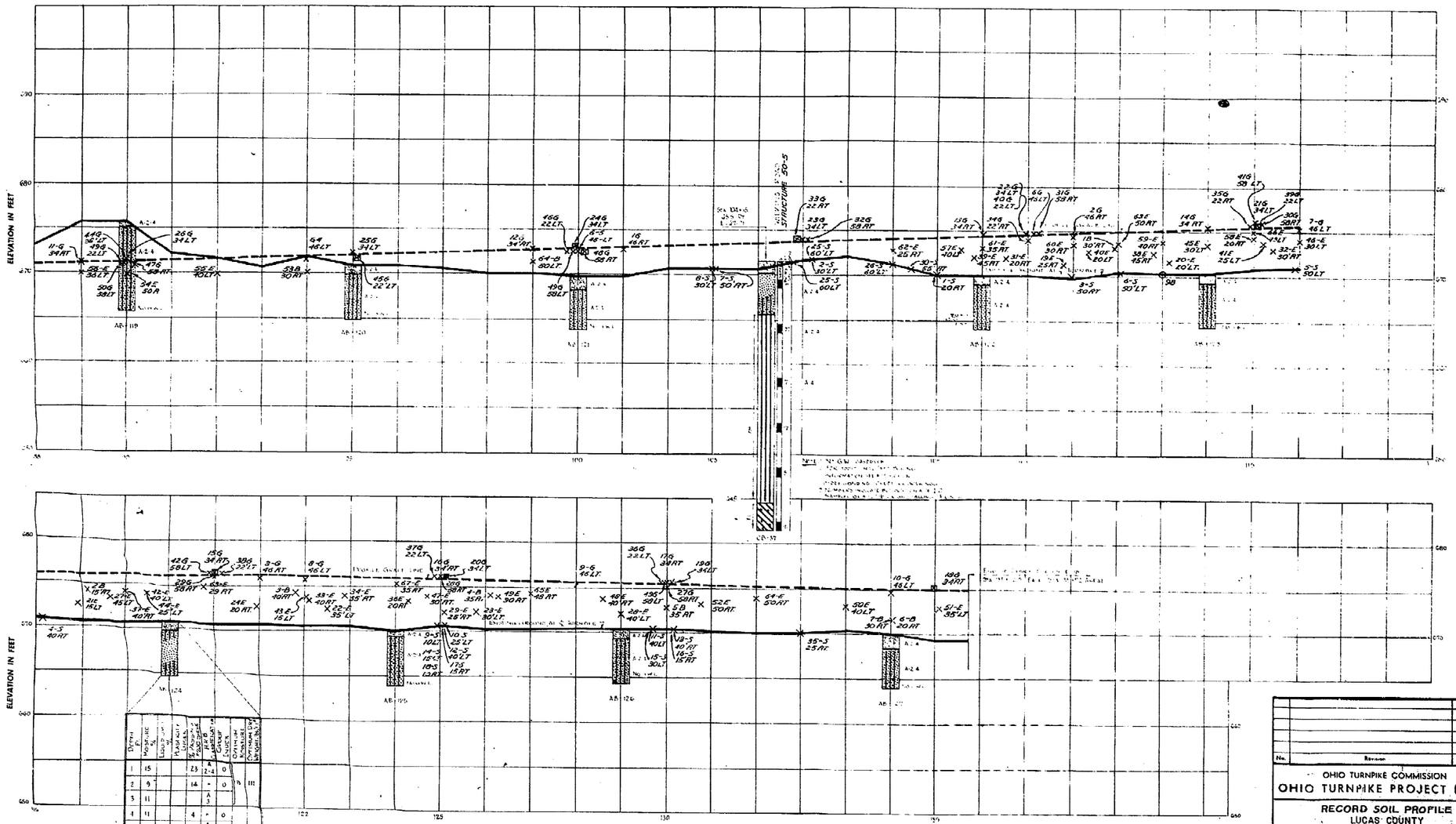
CONTRACTING ENGINEER

DESIGN SECTION D-18

DESIGNED & DRAWN — IN CHARGE — DATE FEB. 1955

SCALE AS SHOWN

CONTRACT NO. C-50 SHEET B-5 OF 6



No.	Revision	By	Date

OHIO TURNPIKE COMMISSION

OHIO TURNPIKE PROJECT NO. 1

RECORD SOIL PROFILE

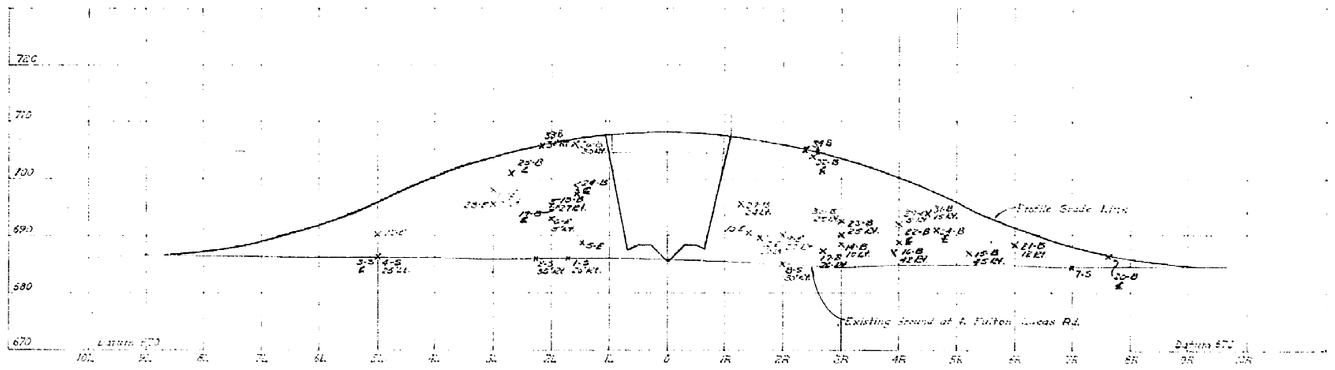
LUCAS COUNTY

STA 88 TO STA 135+72.91

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

DESIGNED & DRAWN	DATE FEB. 1955	
CHECKED	SCALE AS SHOWN	

CONTRACT NO. C-80 SHEET B-5 OF 6



PROFILE FULTON-LUCAS OVERPASS EMBANKMENTS

Note:
All field density tests plotted hereon were made at the approximate location of the roadway C, unless otherwise indicated.

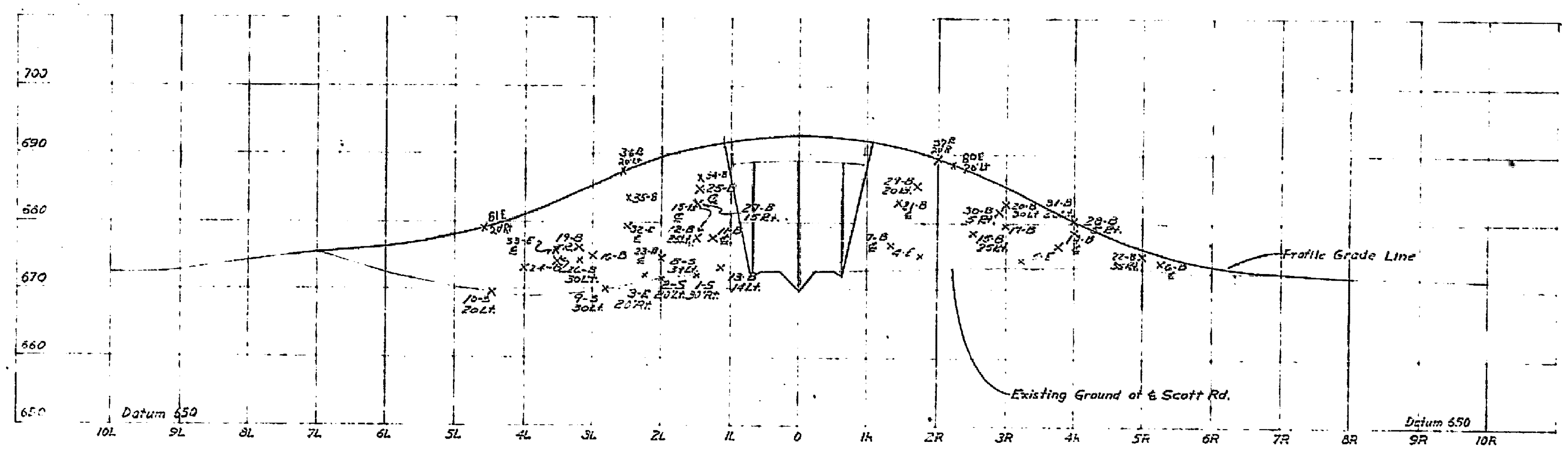
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NUMBER ONE

COMPACTION CONTROL PROFILE
FULTON-LUCAS RD.

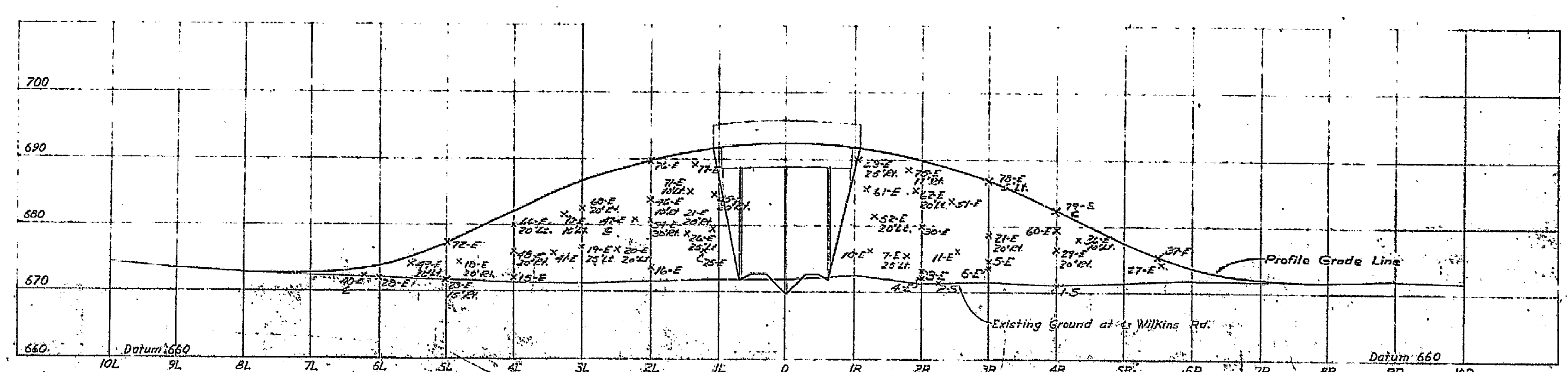
VOGT, IVERS, SEAMAN, & ASSOCIATES
CONTRACTING ENGINEERS
DESIGN SECTION OHIO

IN CHARGE: RWD | DATE: SEPT. '54
CHECKED: MPW | SCALE: HOR. 1"=10' VERT. 1"=10'

CONTRACT C-50 SUPPLEMENT TO SHEET 11 OF 36



PROFILE SCOTT RD. OVERPASS EMBANKMENTS



PROFILE WILKINS RD. OVERPASS EMBANKMENTS

Note:
All field density tests plotted hereon were made at the approximate location of the roadway ℄ unless otherwise indicated.

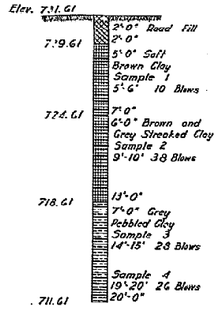
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1

COMPACTION CONTROL PROFILES
SCOTT RD.
WILKENS RD.

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

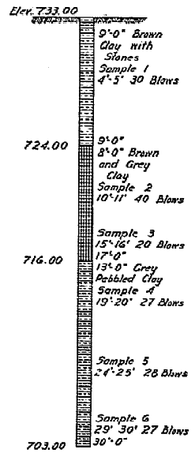
IN CHARGE R.W.D. | CHECKED M.P.W. | DATE SEPT. 1954 | SCALE

CONTRACT NO. C-50 SUPPLEMENT TO SHEET NO. 12, 13 & 13B



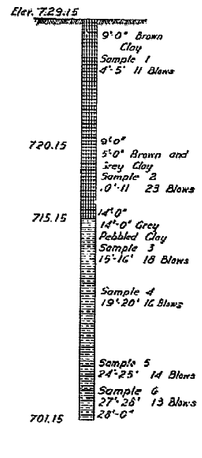
Wgt. 140# Drop 30" Tube 2"
Type Split Casing None

BORING NO. 19
HOLE DRY



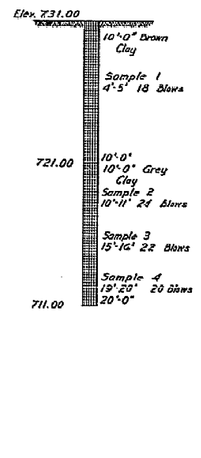
Moran & Proctor Tube #1506
Undisturbed Sample 20'-21', #20-1
Wgt. 140# Drop 30" Tube 2"
Type Split Casing None

BORING NO. 20
HOLE DRY



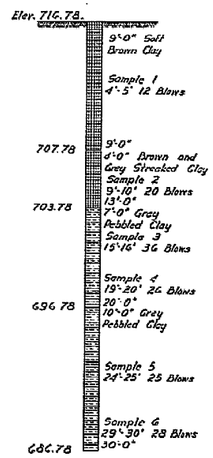
Boulders at 23'
Wgt. 140# Drop 30" Tube 1¾"
Type Split Casing None

BORING NO. 21
HOLE DRY



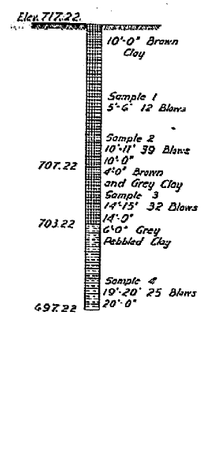
Wgt. 140# Drop 30" Tube 1¾"
Type Split Casing None

BORING NO. 22
HOLE DRY



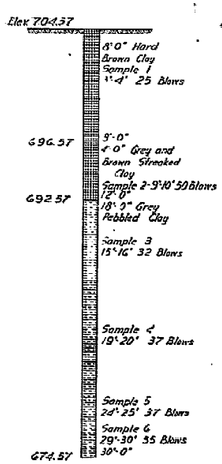
Moran & Proctor Tube #1506
Undisturbed Sample 21'-22', #23-1
Wgt. 140# Drop 30" Tube 2"
Type Split Casing None

BORING NO. 23
HOLE DRY



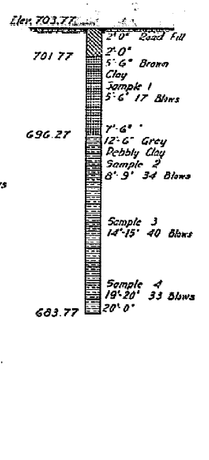
Wgt. 140# Drop 30" Tube 1¾"
Type Split Casing None

BORING NO. 24
HOLE DRY



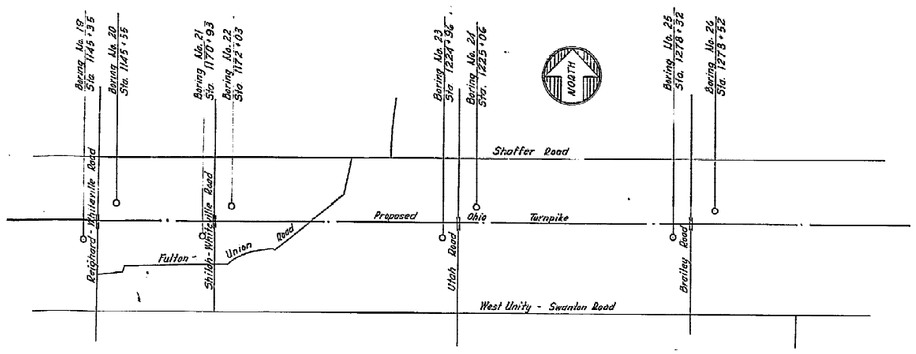
Wgt. 140# Drop 30" Tube 2"
Type Split Casing None

BORING NO. 25
HOLE DRY



Wgt. 140# Drop 30" Tube 2"
Type Split Casing None

BORING NO. 26
HOLE DRY



LOCATION MAP

Drilled and recorded by
J. L. Harper & Co.
Cleveland, Ohio

Note:
Drillers - G.M. Day
A.E. Harper

No.	Revision	By	Date

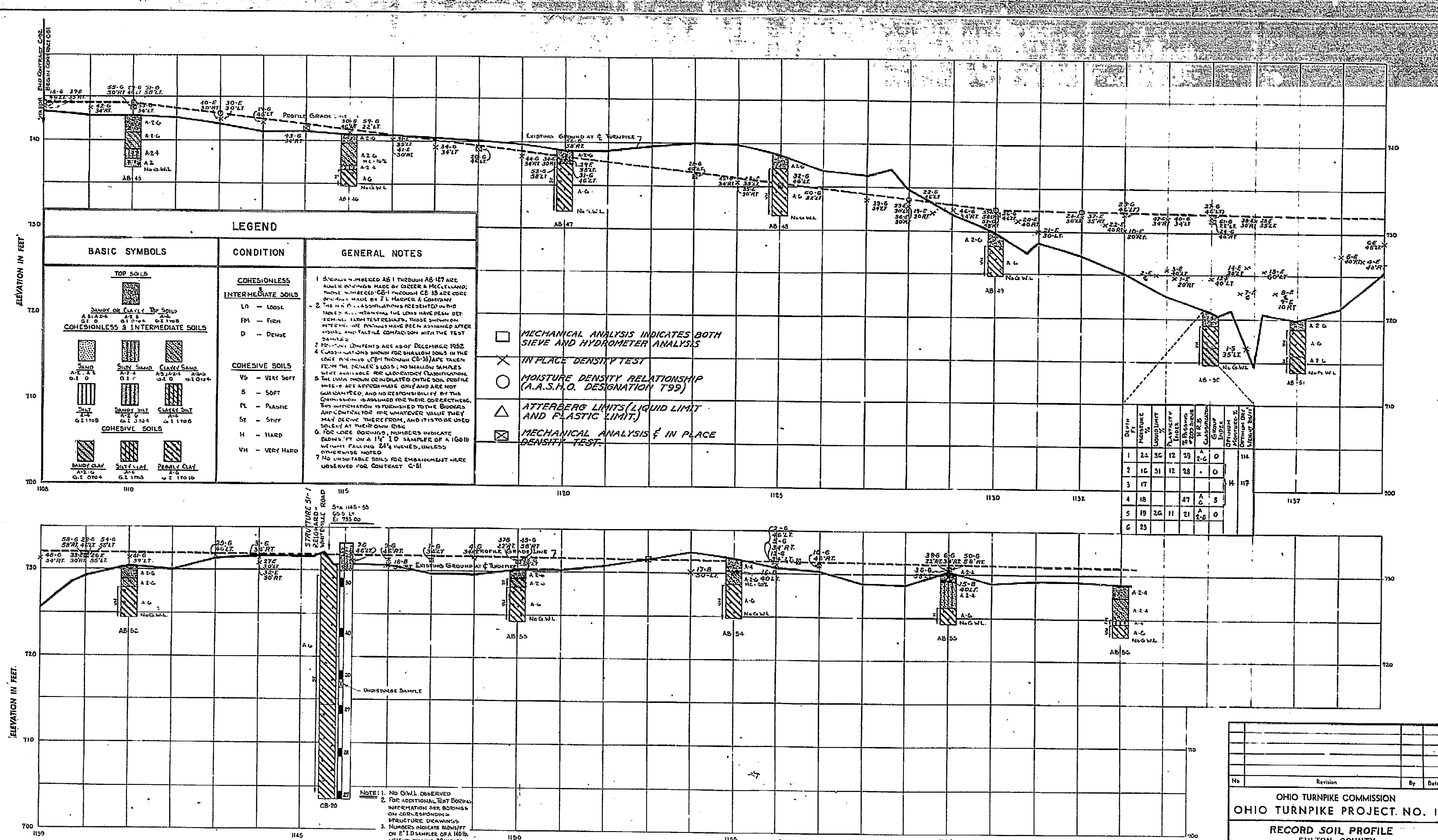
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1

CORE BORINGS

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

DESIGNED: E.R.D.	IN CHARGE: W.J.L.	DATE: FEB. 1953
DRAWN: E.R.D.-B.M.	CHECKED: L.H.S.	SCALE: VERT. 1"=10'-0"

CONTRACT NO. C-51 SHEET B-1 OF 5



LEGEND

BASIC SYMBOLS

TOP SOILS

SANDY OR CLAYEY TOP SOILS
A-3 A-2-4 G.I. 0 — A-2-6 G.I. 0 TO 4 — A-4 G.I. 1 TO 8

COHESIONLESS & INTERMEDIATE SOILS

SAND A-2, A-3 G.I. 0 — SILTY SAND A-2-4 G.I. 0 — CLAYEY SAND A-2-4 G.I. 0 / A-2-6 G.I. 0 TO 4

SILT A-4 G.I. 1 TO 8 — SANDY SILT A-2-6 G.I. 0 TO 4 — CLAYEY SILT A-4 G.I. 1 TO 8

COHESIVE SOILS

SANDY CLAY A-2-6 G.I. 0 TO 4 — SILTY CLAY A-4 G.I. 1 TO 8 — PEBBLY CLAY A-6 G.I. 1 TO 10

CONDITION

COHESIONLESS & INTERMEDIATE SOILS

LO — LOOSE
FM — FIRM
D — DENSE

COHESIVE SOILS

VS — VERY SOFT
S — SOFT
PL — PLASTIC
ST — STIFF
H — HARD
VH — VERY HARD

GENERAL NOTES

1. BORINGS NUMBERED AB 1 THROUGH AB 127 ARE AUGER BORINGS MADE BY GREER & McCLELLAND; THOSE NUMBERED CB-1 THROUGH CB 35 ARE CORE BORINGS MADE BY J.L. HARPER & COMPANY
2. THE H.R.B. CLASSIFICATIONS PRESENTED IN THE TABLES ACCOMPANYING THE LOGS HAVE BEEN DETERMINED FROM TEST RESULTS. THOSE SHOWN ON INTERMEDIATE BORINGS HAVE BEEN ASSIGNED AFTER VISUAL AND TACTILE COMPARISON WITH THE TEST SAMPLES
3. MOISTURE CONTENTS ARE AS OF DECEMBER 1952
4. CLASSIFICATIONS SHOWN FOR SHALLOW SOILS IN THE CORE BORINGS (CB-1 THROUGH CB-35) ARE TAKEN FROM THE DRILLER'S LOGS; NO SHALLOW SAMPLES WERE AVAILABLE FOR LABORATORY CLASSIFICATION.
5. THE DATA SHOWN OR INDICATED ON THE SOIL PROFILE SHEETS ARE APPROXIMATE ONLY AND ARE NOT GUARANTEED, AND NO RESPONSIBILITY BY THE COMMISSION IS ASSUMED FOR THEIR CORRECTNESS. THIS INFORMATION IS FURNISHED TO THE BIDDERS AND CONTRACTOR FOR WHATEVER VALUE THEY MAY DERIVE THEREFROM, AND IT IS TO BE USED SOLELY AT THEIR OWN RISK
6. FOR CORE BORINGS, NUMBERS INDICATE BLOWS/FT ON A 1¼" I.D. SAMPLER OF A 160 lb WEIGHT FALLING 24¼ INCHES, UNLESS OTHERWISE NOTED.
7. NO UNSUITABLE SOILS FOR EMBANKMENT WERE OBSERVED FOR CONTRACT C-51

□ MECHANICAL ANALYSIS INDICATES BOTH SIEVE AND HYDROMETER ANALYSIS
× IN PLACE DENSITY TEST
○ MOISTURE DENSITY RELATIONSHIP (A.A.S.H.O. DESIGNATION T99)
△ ATTERBERG LIMITS (LIQUID LIMIT AND PLASTIC LIMIT)
⊠ MECHANICAL ANALYSIS & IN PLACE DENSITY TEST.

AB-50

DEPTH FT	MOISTURE %	LIQUID LIMIT %	PLASTICITY INDEX	% PASSING #200 SIEVE	H.R.B. CLASSIFICATION	GROUP INDEX	OPTIMUM MOISTURE %	OPTIMUM DRY WEIGHT lbs/cu ft
1	24	36	12	29	A 2-6	0		114
2	16	31	12	28	"	0	14	117
3	17							
4	18			47	A 6	5		
5	19	26	11	21	A 2-6	0		
6	23							

NOTE: 1. NO G.W.L. OBSERVED
2. FOR ADDITIONAL TEST BORING INFORMATION SEE BORINGS ON CORRESPONDING STRUCTURE DRAWINGS
3. NUMBERS INDICATE BLOWS/FT ON 2" I.D. SAMPLER OF A 140 lb. WEIGHT FALLING 30 INCHES.

No.	Revision	By	Date

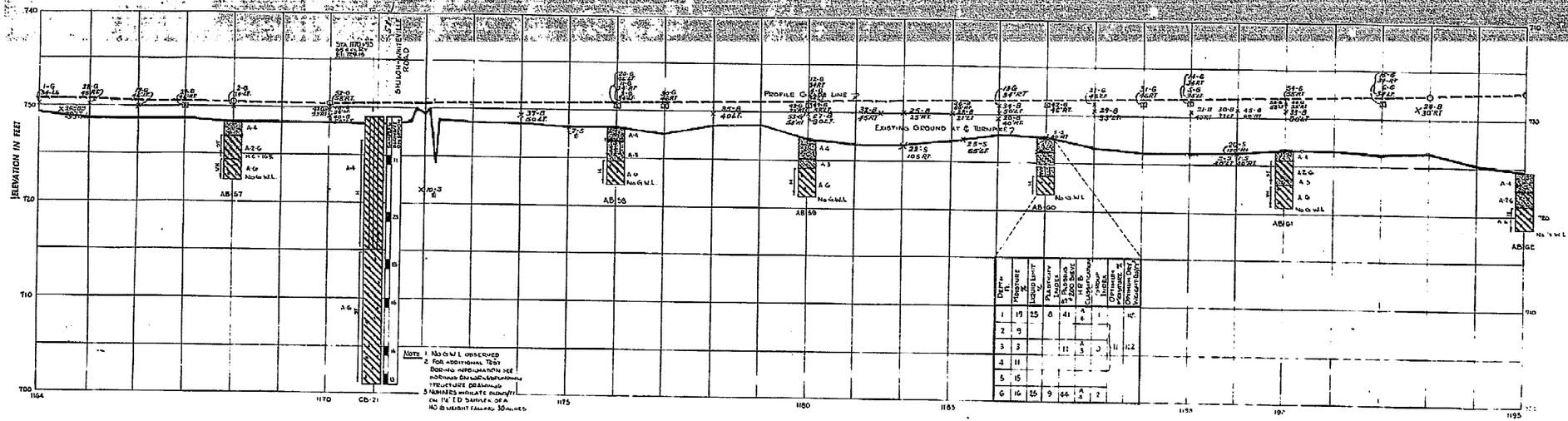
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT. NO. 1

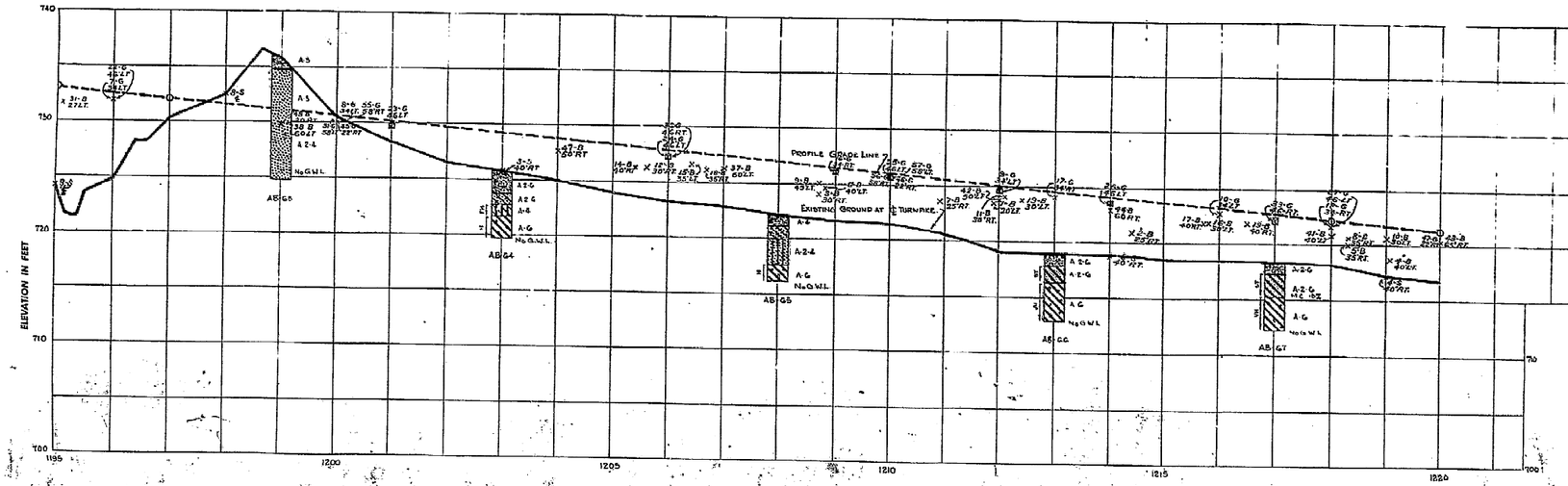
RECORD SOIL PROFILE
FULTON COUNTY
STA 1108 TO STA 1164

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

DESIGNED & DRAWN GREER & McCLELLAND CONSULTING ENGINEERS — IN CHARGE: ACS. CHECKED: [signature] — DATE: FEB. 1953 SCALE: AS SHOWN

CONTRACT NO. C-51 — SHEET B-2 OF 5





No. | Revision | By | Date

OHIO TURNPIKE COMMISSION

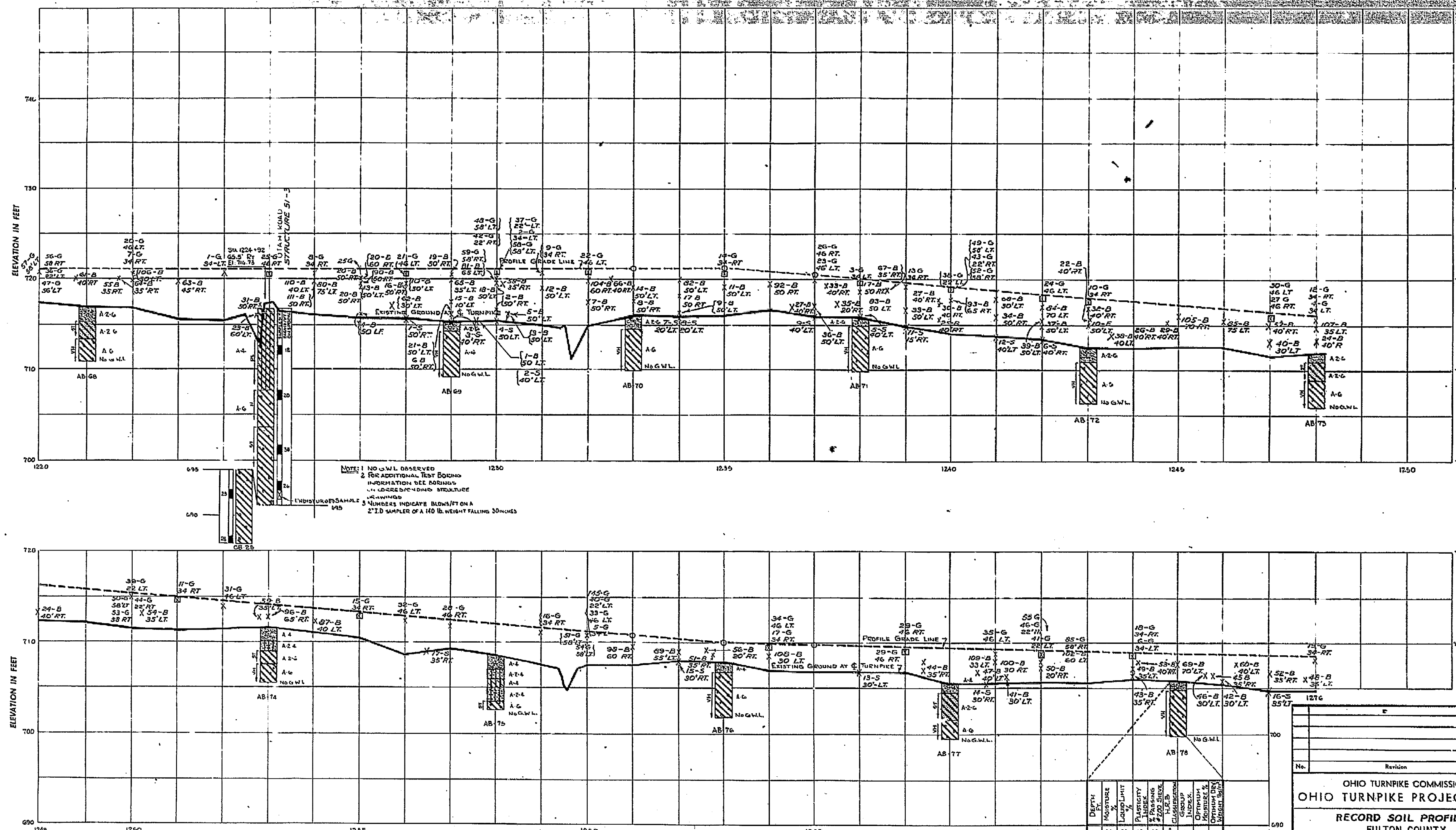
OHIO TURNPIKE PROJECT NO. 1

RECORD SOIL PROFILE
FULTON COUNTY
STA 1164 TO STA 1220

VOGT, IVERS, SEAMAN & ASSOCIATES
CONSULTING ENGINEER
DESIGN SECTION D-18

DESIGNED & DRAWN | IN CHARGE | DATE: FEB. 1958
CHECKED | SCALE: AS NOTED

CONTRACT NO. C-51 | SHEET 5 OF 5 SHEETS



NOTE: 1 NO G.W.L. OBSERVED
2. FOR ADDITIONAL TEST BORING INFORMATION SEE BORINGS ON CORRESPONDING STRUCTURE DRAWINGS
3. NUMBERS INDICATE BLOWS/FT ON A 2" I.D SAMPLER OF A 140 lb. WEIGHT FALLING 30 INCHES

DEPTH FT.	MOISTURE %	LIQUID LIMIT %	PLASTICITY INDEX	% PASSING #200 SIEVE	H.R.B. CLASSIFICATION	GROUP INDEX	OPTIMUM MOISTURE %	OPTIMUM DRY WEIGHT lbs/ft³
1	21	28	10	40	A-4	1		
2	21						17	114
3	16							
4	14			75	A-6			
5	14	32	14	54	A-6	5		
6	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

No.	Revision	By	Date

OHIO TURNPIKE COMMISSION

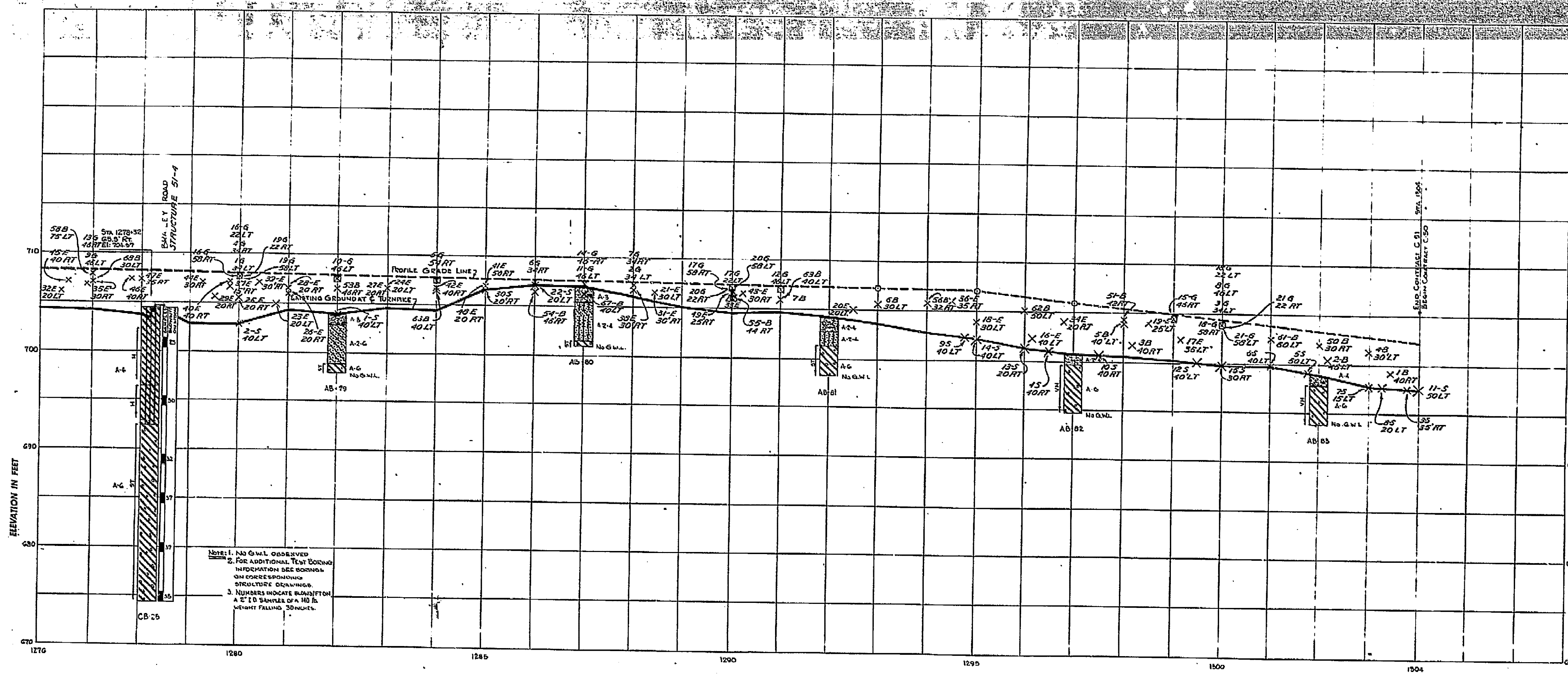
OHIO TURNPIKE PROJECT NO. 1

RECORD SOIL PROFILE
FULTON COUNTY
STA 1220 TO STA 1276

VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

DESIGNED & DRAWN | IN CHARGE: | DATE: FEB. 1953
CHECKED: | SCALE: AS SHOWN

CONTRACT NO. C-51 SHEET B-4 OF 5



No.	Revision	By	Date

OHIO TURNPIKE COMMISSION

OHIO TURNPIKE PROJECT NO. 1

RECORD SOIL PROFILE

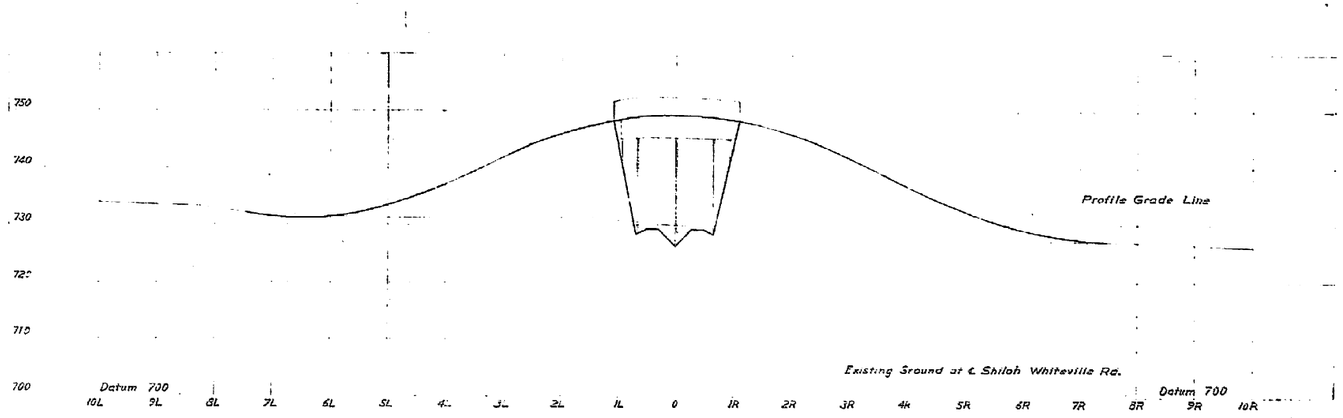
FULTON COUNTY

STA 1276 TO STA 1304

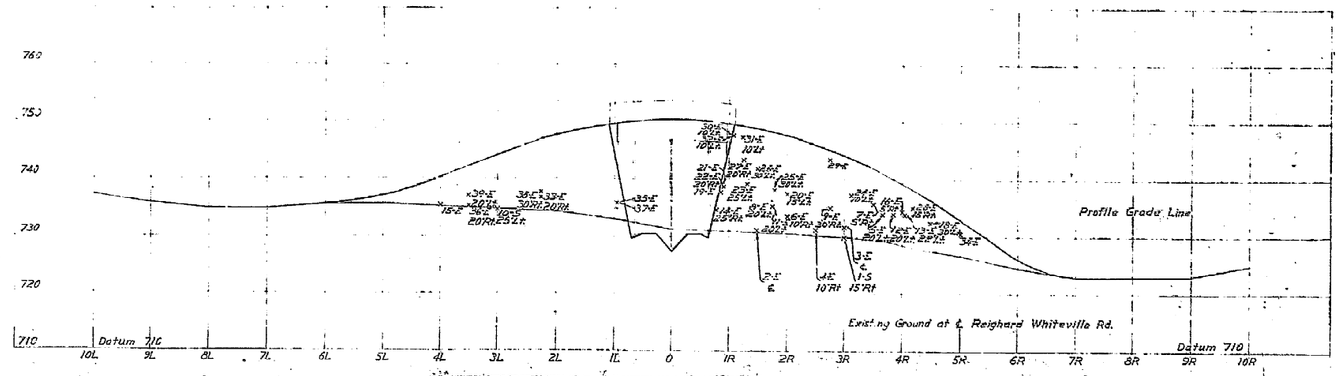
VOGT, IVERS, SEAMAN & ASSOCIATES
CONTRACTING ENGINEER
DESIGN SECTION D-18

DESIGNED & DRAWN | IN CHARGE | DATE FEB. 1953
CHECKED: | SCALE: AS SHOWN

CONTRACT NO. C-51 SHEET B-5 OF 5



PROFILE SHILOH WHITEVILLE RD. OVERPASS EMBANKMENTS



PROFILE REIGHARD WHITEVILLE RD. OVERPASS EMBANKMENTS

Note:
All field density test plotted hereon were made at the approximate location of the roadway ℄ unless otherwise indicated.

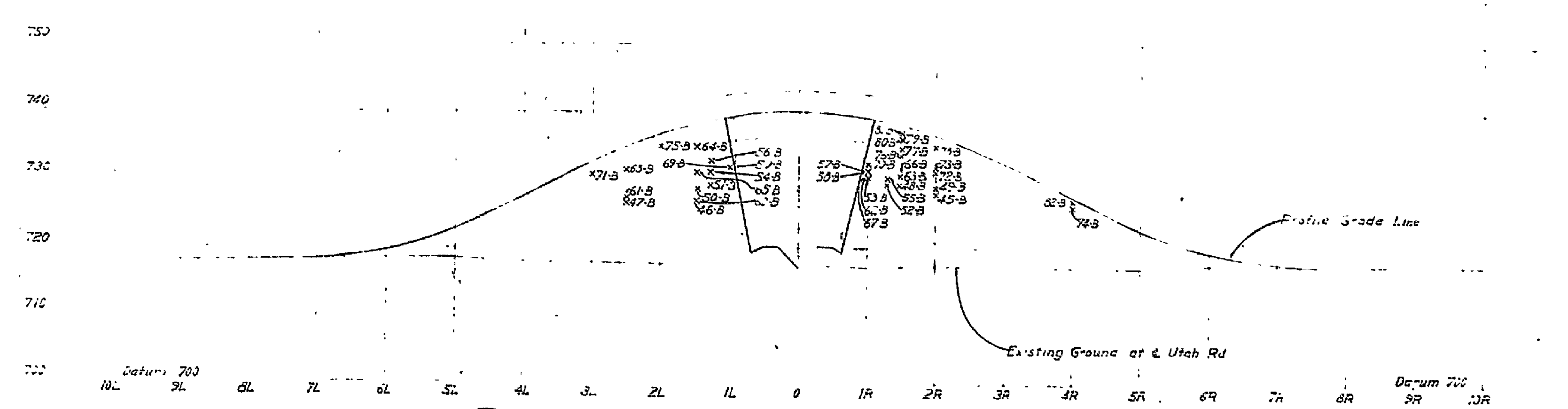
OHIO TURNPIKE COMMISSION
OHIO TURNPIKE PROJECT NO. 1

COMPACTION CONTROL PROFILES
SHILOH WHITEVILLE RD.
REIGHARD WHITEVILLE RD.

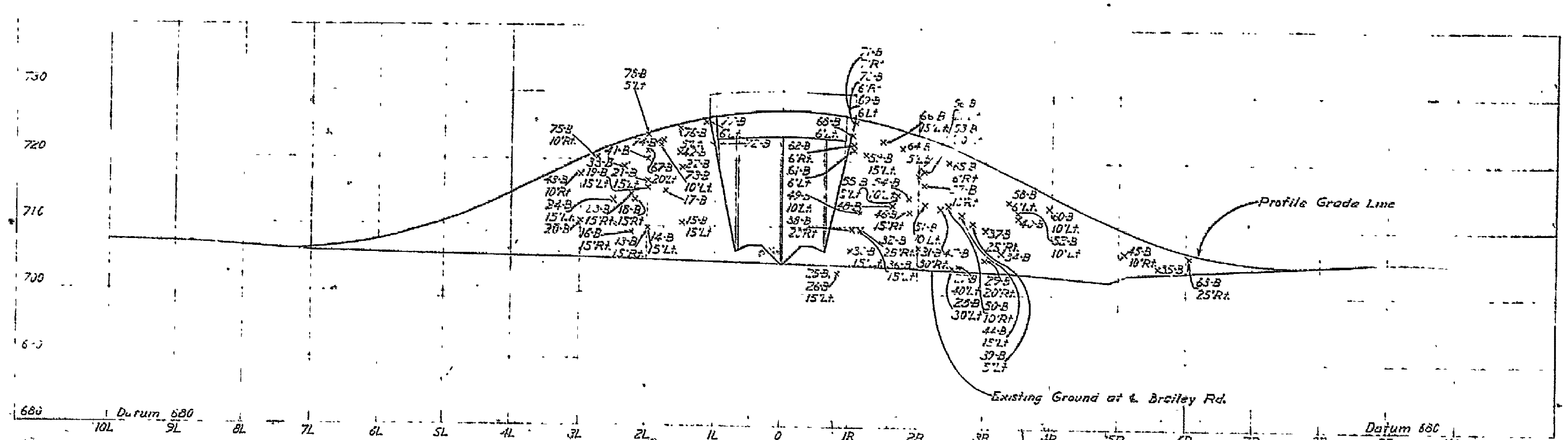
VOGT IVERS SEAMAN & ASSOCIATES
CONTRACTING ENGINEERS
DESIGN SECTION DIES

DRAWN BY: ERH	IN CHARGE: RWD	DATE: SEPT. 54
LETTERING: DRK	CHECKED: MRW	SCALE: AS SHOWN

CONTRACT C-51 SUPPLEMENT TO SHTS. 106 OF 107



PROFILE UTAH RD. OVERPASS EMBANKMENTS



PROFILE BRAILEY RD. OVERPASS EMBANKMENTS

Note.
All field density tests plotted hereon were made in the approximate location of the roadway ℄ unless otherwise indicated.

OHIO TURNPIKE COMMISSION OHIO TURNPIKE PROJECT NO 1
COMPACTION CONTROL PROFILES UTAH RD. BRAILEY R.D.
VOGT, IVERS, SEAMAN & ASSOCIATES CONTRACTING ENGINEER DESIGN SECTION D-18
IN CHARGE R.W.D. · CHECKED: M.P.W. · DATE: SEPT. 54 · SCALE: HOR. 1"=100' VERT. 1"=10'
CONTRACT C-51 SUPPLEMENT SHEETS 12 & 13 OF 97