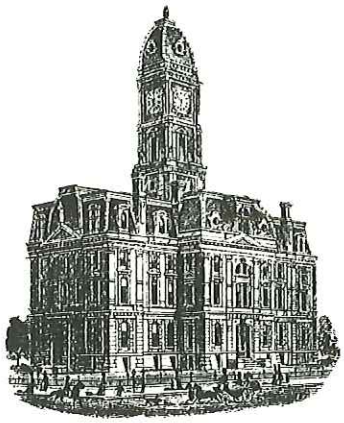

SURVEYOR'S OFFICE

Hamilton County

Kenton C. Ward, CFM
Surveyor of Hamilton County
Phone (317) 776-8495
Fax (317) 776-9628

Suite 188
One Hamilton County Square
Noblesville, Indiana 46060-2230

April 7, 2015

To: Hamilton County Drainage Board

Re: Clara Knotts Regulated Drain
Delaware Street/Washington Blvd Arm

Attached are the petition, plans, drainage shed map and schedule of assessments for the construction of the Delaware Street/Washington Blvd Arm to the Clara Knotts Regulated Drain. This drain was petitioned for by the Hamilton County Commissioners. The petition was referred to the Surveyor for report by the Drainage Board September 12, 2011 (Hamilton County Drainage Board Minutes Book 13, Page 554). I have reviewed the petition and found it to be in proper form.

I have made a personal inspection of the land described in the petition. Upon doing so, I believe that the drain is practicable, will improve the public health, benefit a public highway and be of public utility; and that the costs, damages and expenses of the proposed drain will probably be less than the benefits accruing to the owners of land likely to be benefited.

Plans being used are Sheets 1, 8, 9, 12 & 16 of the plans by Weihe Engineering dated December 10, 1987. These are part of Phase II of the Clara Knotts Reconstruction, which was dismissed at hearing on June 5, 1989.

The project will provide drainage for the north end of Delaware Street and all of Washington Blvd. This project will be installed within the existing rights-of-way of Delaware Street, Washington Blvd and drainage easements purchased from homeowners for the express purpose of installing this drainage system.

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Station 6+42. (Approximate)	The project will begin on the east side of Pennsylvania Street at an existing 30 inch RCP installed by Carmel's upgrade of Pennsylvania Street. This 30 inch RCP was stubbed out of manhole #55 to allow for this project to be completed. 314 feet of 30 inch RCP will be connected and extended east to manhole #56 at Station 9+56. The project will proceed to the east and be placed in easements purchased from homeowners to the platted right-of-way of Delaware Street.
Station 9+56 Structure 56	At Station 9+56 a manhole structure with beehive inlet will be placed in the centerline of the west sideditch of Delaware Street. The project will proceed to the east with 30 feet of 30 inch RCP placed in the platted right-of-way of Delaware Street. A manhole structure with beehive inlet will be installed to the centerline of the east sideditch of Delaware Street at Station 9+86.
Station 9+86 Structure 57	The project will continue east being placed in easements purchased from homeowners. 218 feet of 30 inch RCP will be installed to a manhole structure with beehive inlet that will be located in the centerline of the west sideditch of Washington Blvd at Station 12+04.
Station 12+04 Structure 78	The project will proceed north along the centerline of the west sideditch and within the existing platted right-of-way of Washington Blvd with 450 feet of 24 inch RCP to a point where a manhole structure with beehive inlet will be installed at Station 16+54.
Station 16+54 Structure 49	The project will continue north along the west right-of-way of Washington Blvd with 423 feet of 24 inch RCP to a point where a manhole structure with beehive inlet will be installed in the centerline of the west sideditch of Washington Blvd at Station 20+77.
Station 20+77 Structure 51	The project will then proceed west, being placed in easements purchased from homeowners, with 253 feet of 15 inch RCP to the east right-of-way of Delaware Street where a manhole structure with beehive inlet will be installed in the centerline of the east sideditch of Delaware Street at Station 23+30.
Station 23+30 Structure 53	The project will proceed west with 35 feet of 12 inch RCP to the west side of Delaware where a manhole structure with a beehive inlet will be installed in the centerline of the west side ditch at Station 23+65 (Structure 54).
Station 16+54 Structure 50	At the beehive structure located at Station 16+54, 35 feet of 18 inch RCP will be installed to the east side of Washington Blvd to a point where a manhole structure with a beehive inlet will be installed in the centerline of the east side ditch.
Station 20+77 Structure 52	At the beehive structure located at Station 20+77, 35 feet of 21 inch RCP will be installed to the east side of Washington Blvd to a point where a manhole structure with a beehive inlet will be installed in the centerline of the east side ditch.

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The roadside ditches along Delaware Street and Washington Blvd. where the new storm sewer will be installed will be re-graded and new drive culverts installed. The remaining sections of roadside ditch will not be re-graded with this project. The proposed inlets will provide an outlet for future re-grading of these ditches by the Hamilton County Highway Department at a later date.

According to FEMA Flood Insurance Rate Map Number 18057C0209F dated November 19, 2014, this area is not within floodplain.

This proposed extension will affect the tracts listed on the attached drainage shed & assessment roll.

The driveways of the following homeowners will be affected by the construction:

James & Linda Bushre:	10335 Delaware Street N
Arthur Lee & Colleen Brannon:	10500 Washington Blvd
Thomas L. Caldwell:	10510 Washington Blvd
Robert D. Marshall:	10520 Washington Blvd
Kathleen A. Trittipo:	10530 Washington Blvd
Mary Ellen Garber:	10540 Washington Blvd
PNC Bank:	10550 Washington Blvd
Eric D. Lee:	10560 Washington Blvd
Marla Steed:	10570 Washington Blvd

The storm sewer is to be constructed in easements obtained by the City of Carmel (1) and the Hamilton County Drainage Board (9) and by platted easement (1) through the following parcels:

30 feet off the north end of Parcel Number 16-13-11-02-15-001.000, owned by Schneider Management Corp, Easement Instrument Number 2008013664; (Easement obtained by City of Carmel.)
25 feet off the north side of Parcel Number 17-13-11-02-15-002.000, owned by Gabriel D. Focke, Easement Instrument Number 2011044201 (Now owned by Nicholas Carter);
5 feet off the south side of Parcel Number 17-13-11-02-01-016.000, owned by Scott C. & Kristina A. Brannan, Easement Instrument Number 2011047867;
15 feet off the south side of Parcel Number 17-13-11-02-02-014.000, owned by Ryan A. & Heather D. Micheel, Easement Instrument Number 2014030303;
15 feet off the north side of Parcel Number 17-13-11-02-15-003.000, owned by James N. & Linda N. Bushre, Easement Instrument Number 2014033098;
15 feet off the south side of Parcel Number 17-13-11-02-02-013.000, owned by Arthur Lee III & Colleen Brannon, Easement Instrument Number 2014033097;
30 feet through the middle of Parcel Number 17-13-11-02-02-005.000, owned by Paul J. Fessel, Easement Number 2014040959; (15 feet off the south side of Lot Number 4 & 15 feet off the north side of Lot Number 5 in Washington Boulevard Meadows)
15 feet off the north side of Parcel Number 17-13-11-02-02-021.000, owned by George & Alvina M. Dellinger, Easement Instrument Number 2013059659.

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15 feet off the south side of Parcel Number 17-13-11-02-02-022.000, owned by Brenda Marshall, Easement Instrument Number 2013059658.

An existing platted drainage easement on Parcel Number 17-13-11-02-17-006.000, owned by Bradley D. & Julie R. Carnes, and recorded as a drainage easement 20 feet in width off the north side of Lot 6 in Foxwood Section One. Foxwood Section One Plat – Instrument Number 1993009843.

The associated costs in acquiring these easements are as follows:

Appraisal Fees

Juday Appraisal Services	$ 2,550.00
Burrell Appraisal Service	$ 1,200.00
	$ 3,750.00

Amount paid for easements

Brannan, Scott & Kristina	$ 2,500.00
Brannon, Arthur & Colleen	$ 5,400.00
Bushre, James & Linda	$ 3,100.00
Dellinger, George & Alvina	$ 8,800.00
Fessel, Paul	$ 8,500.00
Focke, Gabriel	$ 17,555.00
Marshall, Brenda	$ 11,600.00
Micheel, Ryan & Heather	$ 3,100.00
	$ 60,555.00

Total cost to acquire easements $ 64,305.00

The drain will consist of:

30" RCP	562 ft.	24" RCP	873 ft.
21" RCP	35 ft.	18" RCP	35 ft.
15" RCP	253 ft.	12" RCP	35 ft.
9 Manhole Structures			

The total length of new drain will be 1,793.00 feet.

The cost estimate for this work is as follows:

Item	Quantity	Unit Price	Total Cost
30" RCP	562 LF	$ 65.00 LF	$ 36,530.00
24" RCP	873 LF	$ 47.50 LF	$ 41,467.50
21" RCP	35 LF	$ 44.00 LF	$ 1,540.00

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18" RCP	35 LF	$ 38.00 LF	$ 1,330.00
15" RCP	253 LF	$ 33.00 LF	$ 8,349.00
12" RCP	35 LF	$ 30.50 LF	$ 1,067.50
C4 Manhole Structures	9 EA	$ 5,000.00 EA	$ 45,000.00
Nenah 4342 w/ring or equal	9 EA	$ 395.00 EA	$ 3,555.00
Clearing	1 LS	$15,140.49 LS	$ 15,140.49
Stone Backfill	1,250 TONS	$ 22.00 TON	$ 27,500.00
Driveway Cuts including CMP	8 EA	$ 2,500.00 EA	$ 20,000.00
Roadway Cuts	4 EA	$ 5,000.00 EA	$ 20,000.00
Erosion Protection	1 LS	$10,000.00 LS	$ 10,000.00
Construction Staking	1 LS	$12,500.00 LS	$ 12,500.00
Grading & Seeding	1 LS	$ 6,850.00 LS	$ 6,850.00
Mailbox Replacement	9 EA	$ 500.00 EA	$ 4,500.00
Removal & Replacement of Bike Path on Pennsylvania	1 LS	$ 2,500.00 LS	$ 2,500.00

CONSTRUCTION COSTS	$257,829.49
15% Contingency	38,674.42
Construction Subtotal	$296,503.91
EASEMENT ACQUISITION	$ 64,305.00
TOTAL	$360,808.91

In an effort to offset the cost to the homeowners the Surveyor's Office has applied for and received a Community Development Block Grant from HUD. The grant is for $204,481.

Results of applying for said grant have been an increase in the cost of the construction of $64,305.00 and not being able to assess the benefited owners in the watershed.

In my opinion, the maintenance fund balance for the Clara Knotts Drain (#210) is in excess of the amount reasonably needed in that fund for maintenance work in the foreseeable future; therefore, I recommend that 75% of this balance be transferred to this reconstruction fund. The maintenance fund transfer is as outlined in I.C. 36-9-27-45.5. The current maintenance fund balance for Clara Knotts is $109,180.54 and $81,885.41 will be transferred for this project.

Per IC 36-9-27-71, the costs for the sections of drain crossing under Washington Blvd. and Delaware Street shall be billed to the Hamilton County Highway. Those costs are as follows:

Item	Quantity	Unit Price	Total Cost
30" RCP	30 LF	$ 65.00 LF	$ 1,950.00
21" RCP	35 LF	$ 44.00 LF	$ 1,540.00
18" RCP	35 LF	$ 38.00 LF	$ 1,330.00

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12" RCP	35 LF	$ 30.50 LF	$ 1,067.50
C4 Manhole Structures	9 EA	$ 5,000.00 EA	$ 45,000.00
Nenah 4342 w/ring or equal	9 EA	$ 395.00 EA	$ 3,555.00
Roadway Cuts	4 EA	$ 5,000.00 EA	$ 20,000.00

Highway Constructions Costs $ 74,442.50

The costs for this project will be covered as follows:

Maintenance Fund Transfer		$ 81,885.41
Community Development Block Grant		$204,481.00
Hamilton County Highway		$ 74,442.50
	Total	$360,808.91

I have reviewed the drainage shed for the Clara Knotts Drain and upon considering each parcel individually; I believe that each parcel within the sub-area of the drainage shed will have equal benefits, by land use, as provided by the drain. I believe that no damages will result to landowners by the construction of this drain.

I believe this proposed drain meets the requirements for Urban Drain classification as set out in IC 36-9-27-67 to 69. Therefore this drain shall be designated as an Urban Drain.

I recommend the Board set a hearing for this proposed drain for May 26, 2015.

Sincerely,

Kenton C. Ward, CFM
Hamilton County Surveyor

KCW/pll

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STATE OF INDIANA)
) ss:
COUNTY OF HAMILTON)

BEFORE THE HAMILTON COUNTY
DRAINAGE BOARD
NOBLESVILLE, INDIANA

IN THE MATTER OF THE
RECONSTRUCTION OF THE
Clara Knotts Regulated Drain, Delaware Street/Washington Boulevard Arm

FINDINGS AND ORDER FOR RECONSTRUCTION

The matter of the proposed Reconstruction of the ***Clara Knotts Regulated Drain, Delaware Street/Washington Boulevard Arm*** came before the Hamilton County Drainage Board for hearing ***on May 26, 2015,*** on the Reconstruction Report consisting of the report and the Schedule of Damages and Assessments. The Board also received and considered the written objection of an owner of certain lands affected by the proposed Reconstruction, said owner being:

Evidence was heard on the Reconstruction Report and on the aforementioned objections.

The Board, having considered the evidence and objections, and, upon motion duly made, seconded and unanimously carried, did find and determine that the costs, damages and expenses of the proposed Reconstruction will be less than the benefits accruing to the owners of all land benefited by the Reconstruction.

The Board having considered the evidence and objections, upon motion duly made, seconded and unanimously carried, did adopt the Schedule of Assessments as proposed, subject to amendment after inspection of the subject drain as it relates to the lands of any owners which may have been erroneously included or omitted from the Schedule of Assessments.

The Board further finds that it has jurisdiction of these proceedings and that all required notices have been duly given or published as required by law.

Wherefore, it is ORDERED, that the proposed Reconstruction of the ***Clara Knotts Regulated Drain, Delaware Street/Washington Boulevard Arm*** be and is hereby declared established.

Thereafter, the Board made inspection for the purpose of determining whether or not the lands of any owners had been erroneously included or excluded from the Schedule of Assessments. The Board finds on the basis of the reports and findings at this hearing as follows:

HAMILTON COUNTY DRAINAGE BOARD

PRESIDENT

Member

Member

ATTEST:
Executive Secretary

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RETURNED

OFFICE OF

HAMILTON COUNTY DRAINAGE BOARD

April 24, 2015

Notice of Hearing on Reconstruction & Schedule of Assessments and Damages on the **Clara Knotts Drain, Delaware Street / Washington Blvd Arm.**

Lee, Eric D
10560 WASHINGTON BLVD
Indianapolis, IN 46280

Under the Indiana Drainage Code, all land which drains directly, or indirectly, may be assessed for either maintenance cost or reconstruction cost within the drain. In making the calculation for each parcel, the Drainage Board must calculate the percentage of the cost attributable to each parcel of land benefitted. The Drainage Board has received a reconstruction report and schedule of assessments which affects your land. The purpose of the reconstruction project is to perform work which will substantially improve the drainage for the entire watershed served by the drain.

You are hereby notified that the reconstruction report of the County Surveyor and the schedule of assessments made by the Drainage Board have been filed and are available for public inspection in the office of the County Surveyor. The chart below contains your proposed assessment and your percentage of the total reconstruction assessment.

The reconstruction report of the Surveyor and schedule of damages and benefits as determined by the Drainage Board for the proposed improvement known as the **Clara Knotts Drain, Delaware Street / Washington Blvd Arm** have been filed and are available for inspection in the office of the County Surveyor. The schedule of assessments shows the following lands in your name are affected as follows. <u>This assessment is not a charge for services associated with regulating the quality of storm water within your city or town.</u>

Description of Land	Acres Benefited	Damages	Reconst. Assmt.	% of Total	Maint. Assmt.
17-13-11-02-02-007.000					
S11 T17 R3 Wash Blvd Meadows Lot 7	One Lot	Zero	*	*	*
*To be paid with Grant Funds, Drain Maintenance Funds & assessment to County Highway.					
*No change in current maintenance assessment rate.					

The hearing on the Surveyor's reconstruction report and on the schedules of damages and assessments are set for hearing at **9:05 A.M. on May 26, 2015**, in the Commissioner's Court. The law provides that objections must be written and filed not less than 5 days before the date of the hearing. Objections may be for causes as specified by law and which are available at the Surveyor's Office. Written evidence in support of objections may be filed. The failure to file objections constitutes a waiver of your right to thereafter object, either before the Board or in court on such causes, to any final action of the Board. On or before the day of the hearing before the Board, the Surveyor shall and any owner of affected lands may cause written evidence to be filed in support of or in rebuttal to any filed objections.

HAMILTON COUNTY DRAINAGE BOARD
One Hamilton County Square, Ste. 188
Noblesville, IN 46060-2230

For a copy of the Surveyor's Report to the Drainage Board and a copy of the map, if applicable, please go to <u>www.hamiltoncounty.in.gov/drainageboardnotices</u>.

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BEFORE THE HAMILTON COUNTY DRAINAGE BOARD
IN THE MATTER OF

Clara Knotts Drain,
Delaware Street / Washington Boulevard Arm

NOTICE

To Whom It May Concern and: Lee, Eric D.

Notice is hereby given of the hearing of the Hamilton County Drainage Board concerning the reconstruction of the **Clara Knotts Drain, Delaware Street / Washington Boulevard Arm** on **May 26, 2015** at **9:05 A.M.** in Commissioners Court, Hamilton County Judicial Center, One Hamilton County Square, Noblesville, Indiana. Construction and maintenance reports of the Surveyor and the Schedule of Assessments proposed by the Drainage Board have been filed and are available for public inspection in the office of the Hamilton County Surveyor.

Hamilton County Drainage Board

Attest: Lynette Mosbaugh

ONE TIME ONLY

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STATE OF INDIANA)
) SS BEFORE THE HAMILTON
)
COUNTY OF HAMILTON) DRAINAGE BOARD

IN THE MATTER OF **Clara Knotts Drain, Delaware Street / Washington Boulevard Arm**

NOTICE

Notice is hereby given that the Hamilton County Drainage Board at its regular meeting **May 26, 2015** adopted the reconstruction report of the Surveyor and the Amended Schedule of damages and assessments including annual assessment for periodic maintenance, finding that the costs, damages and expense of the proposed improvement would be less than the benefits which will result to the owner of lands benefited thereby.

The Board issued an order declaring the proposed improvement established. Such findings and order were marked filed and are available for inspection in the Office of the Hamilton County Surveyor.

If judicial review of the findings and order of the Board is not requested pursuant to Article VIII of the 1965 Indiana Drainage Code as amended within twenty (20) days from the date of publication of this notice, the findings and order shall become conclusive.

HAMILTON COUNTY DRAINAGE BOARD

BY: Steven C. Dillinger
PRESIDENT

ATTEST: Lynette Mosbaugh
SECRETARY

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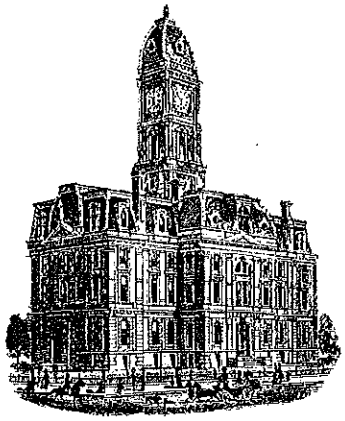
KCW



SURVEYOR'S OFFICE

Hamilton County

Kenton C. Ward, CFM
Surveyor of Hamilton County
Phone (317) 776-8495
Fax (317) 776-9628

Suite 188
One Hamilton County Square
Noblesville, Indiana 46060-2230

October 25, 2016

To: Hamilton County Drainage Board

Re: Delaware & Washington Arm
Clara Knots Reconstruction Project
Final Inspection Report

FINAL REPORT

This letter is the inspector's final report on the Delaware Street & Washington Blvd. Arm to the Clara Knotts Drain Reconstruction, located in Sections 11, Township 17 North, Range 3 East, in Clay Township, Hamilton County, Indiana.

The Surveyor's Report for the Delaware Street & Washington Blvd. Arm to the Clara Knotts Regulated Drain dated April 7, 2015 was approved by the Board at hearing on May 26, 2015 (Hamilton County Drainage Board Minute Book 16, Page 198 - 204.) The Engineer's Estimate for the construction was $360,808.91.

Bids were opened at the October 26, 2015 meeting, (Drainage Board Record Book 16, Page 331). The Hamilton County Drainage Board awarded the contract for the Delaware Street & Washington Blvd Arm to the Clara Knotts Regulated Drain to Morphey Construction at the November 9, 2016 Drainage Board meeting, for the amount of $249,960.00. (Book 16, Page 345)

There was one change order made to the plan quantities for field revisions as allowed under IC 36-9-27-80.5.

Change Order #1 was required due to changes in side ditch and driveway elevations. To provide proper drainage of the side ditch along the west side of Washington Blvd. the driveway culverts were deleted from the project and area inlets were added between driveways. There was no change in cost for Change Order #1.

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The final construction costs for the Reconstruction are as follows:

Morphey's Bid ----------	$249,960.00
Change Order #1 ----------	$ 00.00
Total Reconstruction Costs ----------	$249,960.00

Engineer's Estimate ----------	$360,808.91
Reconstruction Costs ----------	$249,960.00
Difference ----------	$110,848.91

Community Block Grant ----------	$204,481.00
Hamilton County Highway Assessment ----------	$ 45,479.00
	$249,960.00

Partial Pay Request	**Amount**	**Retainage Withheld**	**Date & Amount Paid**
#1	$ 35,000.00	$ 5,250.00	3/29/16 $ 29,750.00
#2	$202,535.00	$30,380.25	7/12/16 $172,154.75
#3 Final	$ 12,425.00	$ 1,863.75	8/9/16 $ 1,863.75
Totals	**$249,960.00**	**$37,494.00**	**$212,466.00**

Total Costs Incurred

Morphey's Bid ----------	$249,960.00
Easement Acquisition Cost – Paid for from the Knotts Maintenance Fund ---	$ 64,305.00
Total Cost ----------	$304,265.00

Easement Acquisition was paid for by the Clara Knotts Drain Fund. Reconstruction Costs were paid for by a HUD Community Development Block Grant & the Hamilton County Highway Department.

Form E-1 stating that all expenses for labor & materials has been paid as required by IC 36-9-27-82(b) has been received and retainage withheld was released September 27, 2016.

The construction staking and asbuilt (record) drawings were prepared by the Hamilton County Surveyor's Office.

I recommend the Board approve the drain's reconstruction as complete and acceptable.

Respectfully

Luther M. Cline

Luther M. Cline
Inspector
Hamilton County Surveyor's Office

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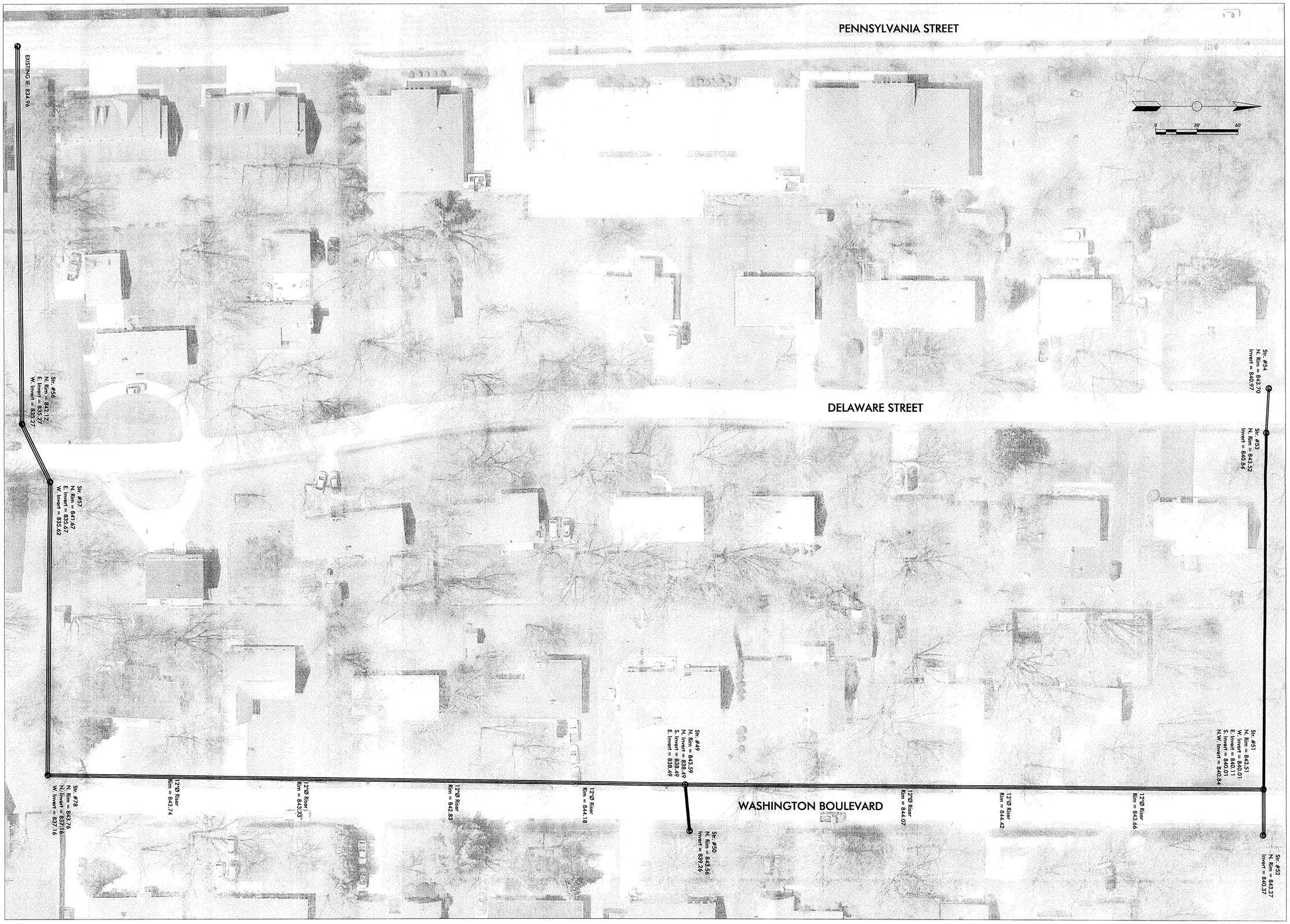

HAMILTON COUNTY, INDIANA

HAMILTON COUNTY SURVEYOR'S OFFICE
HAMILTON COUNTY GOVERNMENT/JUDICIAL CENTER
ONE HAMILTON COUNTY SQUARE, SUITE 188
NOBLESVILLE, IN 46060
PHONE: (317) 776-8495
FAX: (317) 776-9628
SURVEYOR@HAMILTONCOUNTY.IN.GOV

PROJECT NO:	
WATERSHED NO:	210
FIELD BY:	SF
DRAWN BY:	BR
CHECKED BY:	GD
DATE:	09/30/16

REVISIONS:	DATE:	BY:
-	-	-

GARY R. DUNCAN JR. REGISTERED PE19900146 STATE OF INDIANA PROFESSIONAL ENGINEER

CERTIFIED BY:

GARY R. DUNCAN, JR., P.E.

PROJECT NAME:

CLARA KNOTTS DELAWARE WASHINGTON ARM

AS-BUILT DRAWING

PLOT DATE: Sep 30, 2016 - 3:39 pm

SHEET NO.

1 OF 1

S:\E-Surv\Projects\Regulated Drains\Clara Knotts\DWG\ \ Clara Knotts Delaware Washington As-Builts.dwg

Sep 30, 2016 - 3:39 pm

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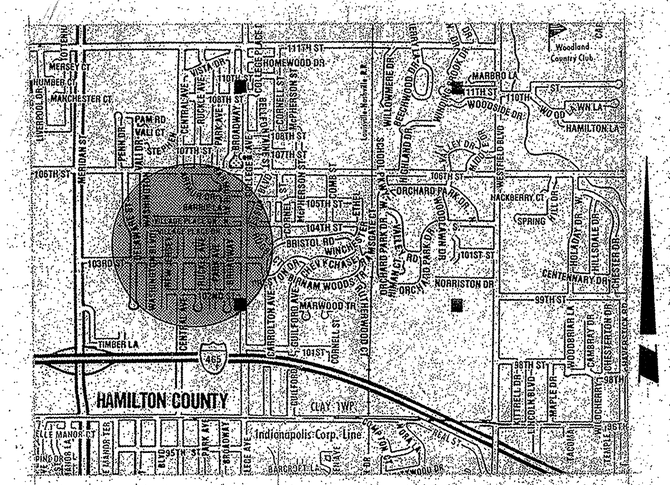
~~PHASE TWO~~

CLARA KNOTTS DRAIN CONSTRUCTION

DELAWARE STREET / WASHINGTON BOULEVARD ARM
STATE OF INDIANA
COUNTY OF HAMILTON



AREA MAP

	INDEX
SHEET	DESCRIPTION
1	TITLE SHEET
2	OVERALL LAYOUT/KEY MAP
3-11	STORM SEWER PLAN & PROFILE SHEETS
12	DETAIL SHEET
13-16	MISC. SIDE DITCH PROFILE

CERTIFIED BY:

ALLAN H. WEIHE, REG. P.E., INDIANA 8827

It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of the work. It shall also be the contractors responsibility to contact the owners of the various utilities before work is started. The contractor shall notify in writing the owners and/or the engineers of any changes, errors, or omissions found on these plans or in the field before work is started or resumed.

WEIHE ENGINEERS INC.
10505 NORTH COLLEGE AVENUE
INDIANAPOLIS, INDIANA 46280
(317) 846-6611
CIVIL ENGINEERS LAND SURVEYORS LAND PLANNERS
ALLAN H. WEIHE, P.E., L.S.
PRESIDENT

JOB NO. 85-530
DRAWN BY
CHECKED BY
DATE
REVISIONS General revisions
F.F. PAGE

PREPARED FOR
HAMILTON COUNTY DRAINAGE BOARD

TITLE SHEET CLARA KNOTTS DRAIN CONSTRUCTION HAMILTON COUNTY INDIANA

SHEET NO. 1 OF 16

AS BUILT

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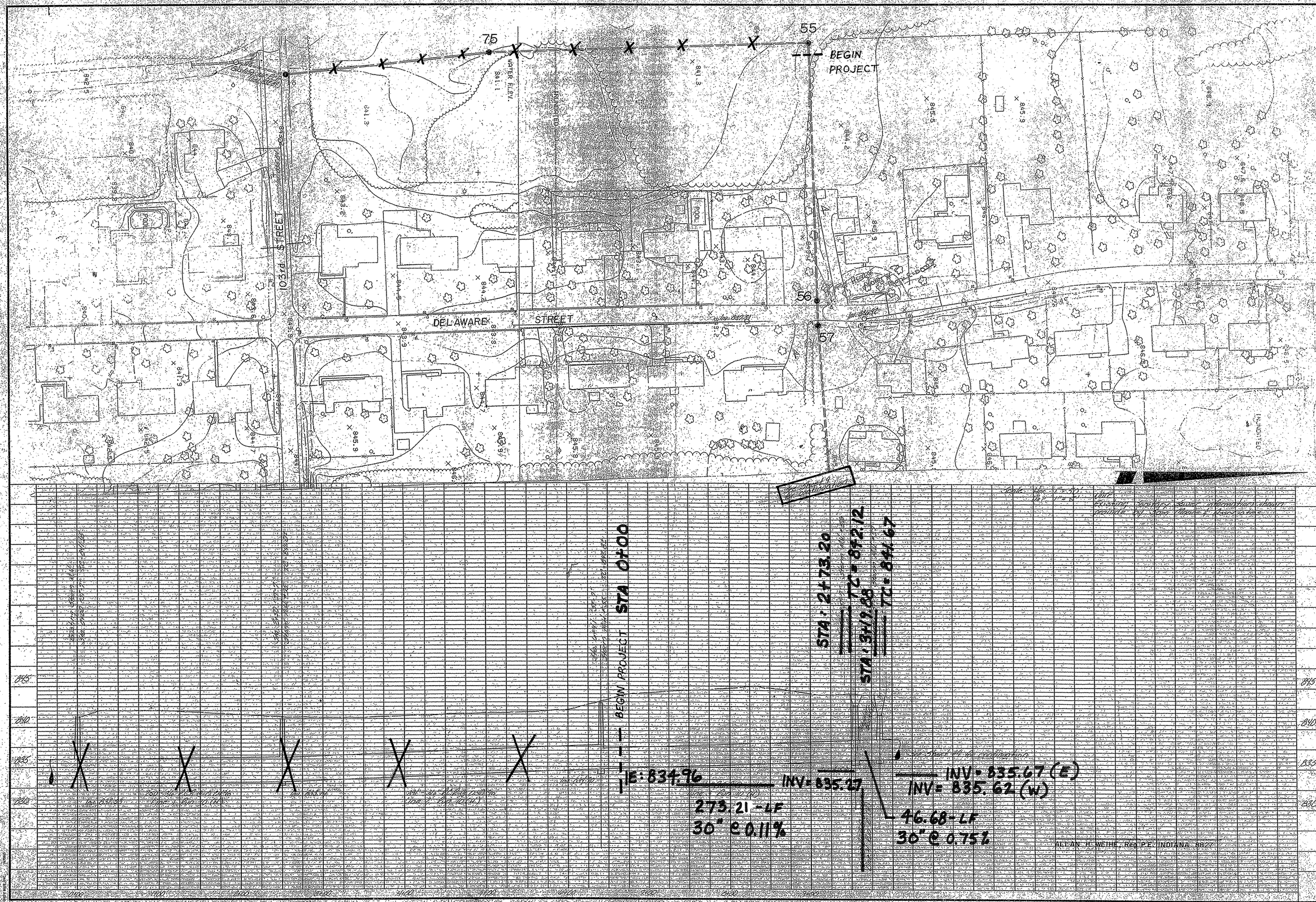

WEIHE ENGINEERS INC.
10505 NORTH COLLEGE AVENUE
INDIANAPOLIS, INDIANA 46280
(317) 846-6611
CIVIL ENGINEERS LAND SURVEYORS LAND PLANNERS
ALLAN H. WEIHE, P.E., L.S.
PRESIDENT

JOB NO.	85-530
DRAWN BY	D.B.
CHECKED BY	
DATE	12/10/87
REVISIONS	General Revisions
DATE	3/11/88
BY	D.B.
F.B.	
PAGE	

Prepared for Hamilton County Drainage Board
Sam Clauser Non & Profile Sheet

SHEET NO. 8 OF 16

AS BUILT

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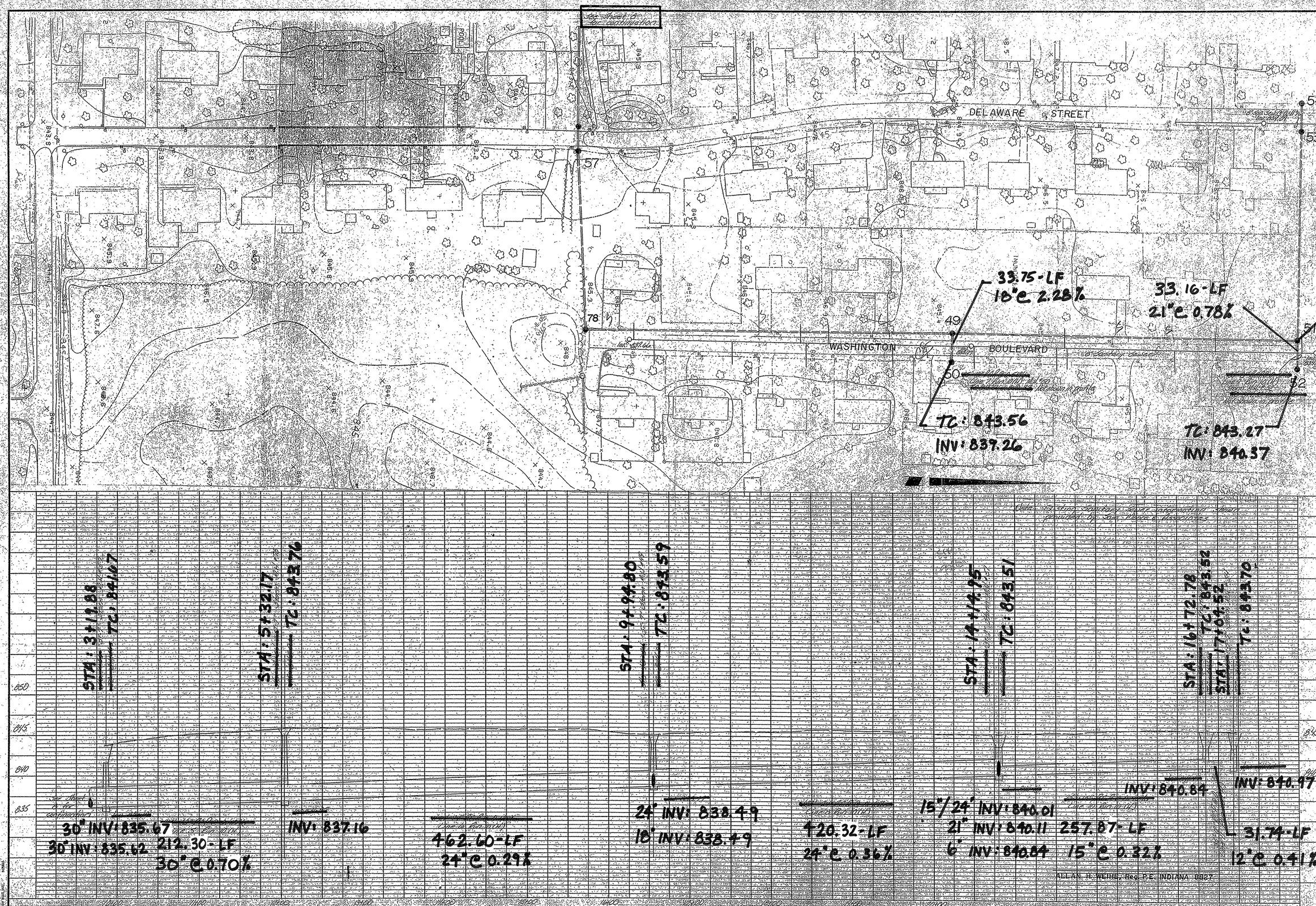

ALLAN H. WEIHE, Reg. P.E. INDIANA 8827

WEIHE ENGINEERS INC.

10505 NORTH COLLEGE AVENUE
INDIANAPOLIS, INDIANA 46280
(317) 846-6611

ALLAN H. WEIHE, P.E., L.S.
PRESIDENT

LAND PLANNERS
LAND SURVEYORS
CIVIL ENGINEERS

REVISIONS

DATE | BY

JOB NO. 85-530
DRAWN BY
CHECKED BY
DATE 12/10/87

F.B. | PAGE

Prepared for: Hamilton County Drainage Board
Storm Sewer Plan & Profile Sheet

SHEET NO. 9 OF 16

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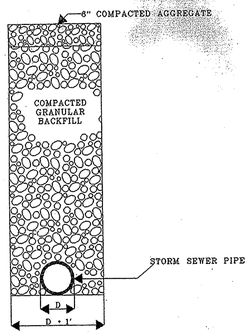
OFFICE OF THE HAMILTON COUNTY SURVEYOR



1. NEW SURFACE IS TO BE SLOPED AT THE SAME RATE AS THE EXISTING SURFACE.
2. COMPACTED AGGREGATE IS TO BE LAID AT 6" LIFTS AND IS TO BE COMPACTED TO A MINIMUM OF 95%.
3. TRENCH SPOIL IS TO BE REMOVED FROM THE WORK SITE.

STONE DRIVE REPAIR

(DRAWING NOT TO SCALE)

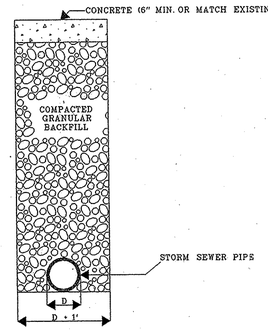
HAMILTON COUNTY SURVEYOR'S OFFICE

REVISED: 1 JAN 2000

APPROVED: KENTON C. WARD, HAMILTON COUNTY SURVEYOR — DATE 4JAN00

STANDARD PLAN M-3

OFFICE OF THE HAMILTON COUNTY SURVEYOR



1. NEW SURFACE IS TO BE SLOPED AT THE SAME RATE AS THE EXISTING SURFACE.
2. EXISTING PAVEMENT IS TO BE SAW CUT FOR A CLEAN BREAK.
3. COMPACTED AGGREGATE IS TO BE LAID AT 6" LIFTS AND IS TO BE COMPACTED TO A MINIMUM OF 95%.
4. TRENCH SPOIL IS TO BE REMOVED FROM THE WORK SITE.

CONCRETE DRIVE REPAIR

(DRAWING NOT TO SCALE)

HAMILTON COUNTY SURVEYOR'S OFFICE

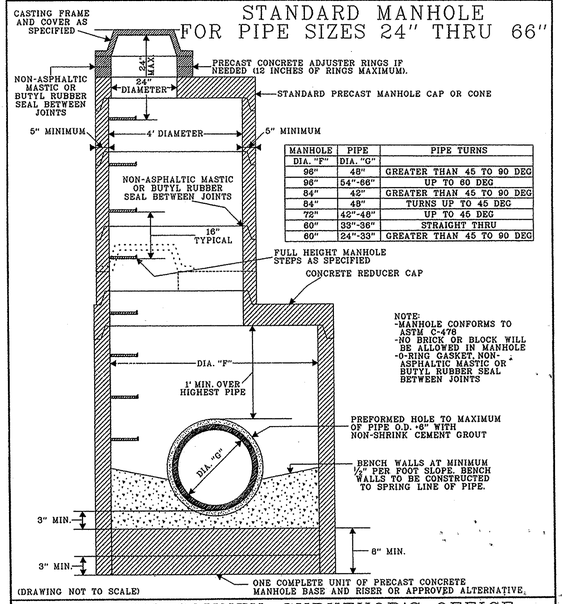
REVISED: 1 JAN 2000

APPROVED: KENTON C. WARD, HAMILTON COUNTY SURVEYOR — DATE 4JAN00

STANDARD PLAN M-2

OFFICE OF THE HAMILTON COUNTY SURVEYOR

STANDARD MANHOLE FOR PIPE SIZES 24" THRU 66"



MANHOLE DIA. "F"	PIPE DIA. "G"	PIPE TURNS
96"	48"	GREATER THAN 45 TO 90 DEG
96"	54"-66"	UP TO 60 DEG
84"	42"	GREATER THAN 45 TO 90 DEG
84"	48"	TURNS UP TO 45 DEG
72"	42"-48"	UP TO 45 DEG
60"	33"-36"	STRAIGHT THRU
60"	24"-33"	GREATER THAN 45 TO 90 DEG

NOTE
- MANHOLE CONFORMS TO ASTM C-478
- NO BRICK OR BLOCK WILL BE ALLOWED IN MANHOLE
- O-RING GASKET, NON-ASPHALTIC MASTIC OR BUTYL RUBBER SEAL BETWEEN JOINTS

(DRAWING NOT TO SCALE)

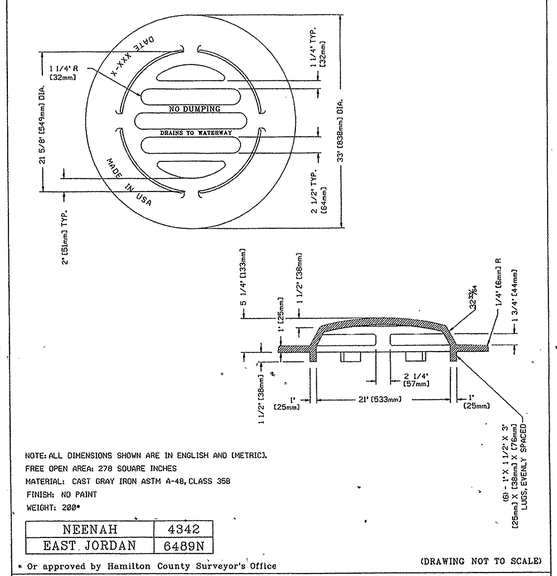
HAMILTON COUNTY SURVEYOR'S OFFICE

REVISED: 1 FEB 2002

APPROVED: KENTON C. WARD, HAMILTON COUNTY SURVEYOR — DATE 2/1/02

STANDARD PLAN D-21

OFFICE OF THE HAMILTON COUNTY SURVEYOR



NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH AND (METRIC).
FREE OPEN AREA: 278 SQUARE INCHES
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: 200*

NEENAH	4342
EAST JORDAN	6489N

* Or approved by Hamilton County Surveyor's Office

(DRAWING NOT TO SCALE)

HAMILTON COUNTY SURVEYOR'S OFFICE

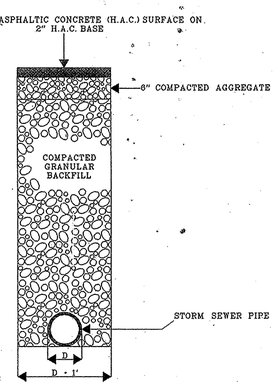
BEEHIVE INLET CASTING

REVISED: 11/16/2004

APPROVED: KENTON C. WARD, HAMILTON COUNTY SURVEYOR — DATE MAR2005

STANDARD PLAN CT-10

OFFICE OF THE HAMILTON COUNTY SURVEYOR



1. NEW SURFACE IS TO BE SLOPED AT THE SAME RATE AS THE EXISTING SURFACE.
2. EXISTING PAVEMENT IS TO BE SAW CUT FOR A CLEAN BREAK.
3. COMPACTED AGGREGATE IS TO BE LAID AT 6" LIFTS AND IS TO BE COMPACTED TO A MINIMUM OF 95%.
4. TRENCH SPOIL IS TO BE REMOVED FROM THE WORK SITE.
5. 1.5" H.A.C. #11 SURFACE.
6. BITUMINOUS TACK APPLIED.

AS PER INDIANA DEPT OF HIGHWAYS STANDARD SPECIFICATIONS - 1993 SECTIONS 409 & 902.

ASPHALT DRIVE REPAIR

(DRAWING NOT TO SCALE)

HAMILTON COUNTY SURVEYOR'S OFFICE

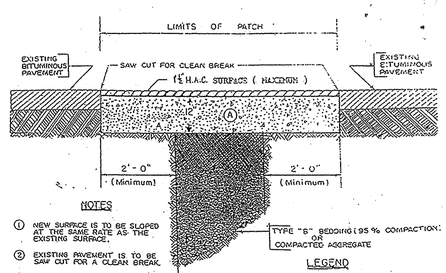
REVISED: 1 JAN 2000

APPROVED: KENTON C. WARD, HAMILTON COUNTY SURVEYOR — DATE 4JAN00

STANDARD PLAN M-1

DETAIL FOR CUT ROAD PATCHING

ON ALL CUTS, ROADS THAT REQUIRE THE EXISTING PAVEMENT TO BE REMOVED. THE DETAIL AS SHOWN BELOW SHALL BECOME A PART OF THIS PERMIT.



NOTES

1. NEW SURFACE IS TO BE SLOPED AT THE SAME RATE AS THE EXISTING SURFACE.
2. EXISTING PAVEMENT IS TO BE SAW CUT FOR A CLEAN BREAK.
3. COMPACTED AGGREGATE IS TO BE LAID AT 6" LIFTS AND IS TO BE COMPACTED TO A MINIMUM OF 95%.
4. TRENCH SPOIL IS TO BE REMOVED FROM THE WORK SITE.
5. 1½" H.A.C. #11 SURFACE.
6. BITUMINOUS TACK APPLIED AS PER "INDIANA DEPT. OF HIGHWAYS STANDARD SPECIFICATIONS-1996" SECTION 409 & 902.

LEGEND

(A) PLAIN CONCRETE IS TO BE FINISHED 1½" BELOW THE EXISTING PAVEMENT.

HAMILTON COUNTY HIGHWAY DEPARTMENT

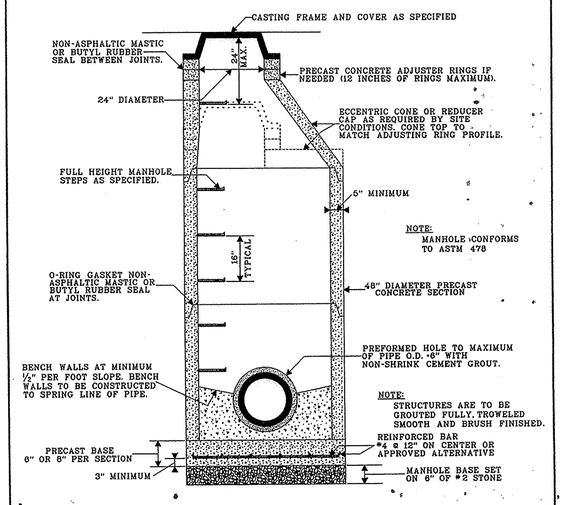
REVISED: 1-14-92

RECOMENDED: HAMILTON COUNTY ENGINEER — DATE 6-17-91

APPROVED: HAMILTON COUNTY DIRECTOR — DATE 6-28-91

STANDARD PLAN U-1

OFFICE OF THE HAMILTON COUNTY SURVEYOR



NOTE:
MANHOLE CONFORMS TO ASTM 478

NOTE:
STRUCTURES ARE TO BE GROUTED FULLY, TROWELED SMOOTH AND BRUSH FINISHED.

STANDARD MANHOLE FOR PIPE SIZES 12" THRU 24"

(DRAWING NOT TO SCALE)

HAMILTON COUNTY SURVEYOR'S OFFICE

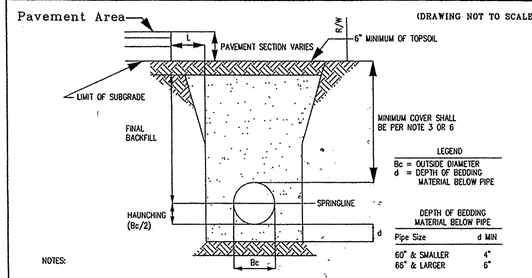
REVISED: 1 FEB 2002

APPROVED: KENTON C. WARD, HAMILTON COUNTY SURVEYOR — DATE 2/1/02

STANDARD PLAN D-20

OFFICE OF THE HAMILTON COUNTY SURVEYOR

(DRAWING NOT TO SCALE)



DEPTH OF BEDDING MATERIAL BELOW PIPE

Pipe Size	d MIN
60" & SMALLER	4"
66" & LARGER	6"

NOTES:

1. BEDDING AND HAUNCHING FOR ALL RCP INSTALLATIONS SHALL BE #8 STONE MEETING THE MATERIAL REQUIREMENTS OF THE INDOT. BEDDING SHALL BE PLACED IN THE TRENCH BOTTOM SUCH THAT AFTER THE PIPE IS INSTALLED TO GRADE AND LINE, THERE REMAINS A 4" MINIMUM DEPTH OF MATERIAL BELOW THE PIPE BARREL AND A MINIMUM OF 3" BELOW THE BELL. FOR PIPE SIZES 66" AND LARGER, THE MINIMUM DEPTH OF MATERIAL BELOW THE PIPE BAREL SHALL BE 6". BEDDING SHALL BE PLACED TO BE UNIFORM AS POSSIBLE, BUT SHALL BE LOOSELY PLACED UNCOMPACTED MATERIAL UNDER THE MIDDLE THIRD OF THE PIPE PRIOR TO PLACEMENT OF THE PIPE. IF THE UNDERLYING SOILS OF THE TRENCH BOTTOM ARE SOFT OR YEALDING, THE SOIL SHALL BE UNDERCUT TO SUCH A DEPTH THAT WHEN REPAIRED WITH #2 STONE IT WILL PRODUCE A UNIFORM AND STABLE FOUNDATION ALONG THE ENTIRE LENGTH OF THE PIPE. HAUNCHING AND INITAIL BACKFILL SHALL BE COMPACTED IN 8" MAXIMUM LIFTS TO NOT LESS THAN 90% STANDARD PROCTOR DENSITY FOR THE ENTIRE DEPTH OF THE MATERIAL PLACED. THE BACKFILL SHALL BE BROUGHT UP EVENLY ON BOTH SIDES OF THE PIPE FOR THE FULL LENGTH OF THE PIPE. HAUNCHING SHALL EXTEND TO THE SPRINGLINE OF THE PIPE. MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 18".
2. FINAL BACKFILL FOR ALL RCP INSTALLATIONS WHERE "L" IS 5' OR LESS SHALL BE B-BORROW FOR STRUCTURE BACKFILL MEETING THE MATERIAL REQUIREMENTS OF THE INDOT AND SHALL BE COMPACTED IN 6" MAXIMUM LIFTS TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY FOR THE ENTIRE DEPTH OF THE MATERIAL PLACED. THE BACKFILL FOR THE TOP 6" OF THE EXCAVATION BELOW THE START OF THE AGGREGATE SUBBASE OF THE PAVEMENT SHALL BE #53 STONE MEETING THE MATERIAL REQUIREMENT OF THE INDOT AND SHALL BE COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY. FINAL BACKFILL FOR ALL RCP INSTALLATIONS WHERE "L" IS GREATER THAN 5' SHALL BE CLEAN FILL MATERIAL FREE OF ROCKS LARGER THAN 6" IN DIAMETER, FROZEN LUMPS OF SOIL, WOOD, OR OTHER EXTRANEOUS MATERIAL. COMPACTED IN 12" MAXIMUM LIFTS TO NOT LESS THAT 90% STANDARD PROCTOR DENSITY FOR THE ENTIRE DEPTH OF THE EXCAVATION. THE FINAL 6 INCHES OF THE EXCAVATION SHALL CONSIST OF TOPSOIL.
3. THE MINIMUM COVER FROM THE TOP OF THE INSTALLED PAVEMENT TO THE TOP OF THE INSTALLED PIPE SHALL BE THE PAVEMENT SECTION THICKNESS (ALL BITUMINOUS AND AGGREGATE MATERIAL ABOVE THE SUBGRADE) PLUS 1'-0", BUT UNDER NO CIRCUMSTANCES SHALL THE COVER ALONG ANY PART OF THE PIPE FROM THE FINAL PAVEMENT ELEVATION TO THE TOP OF THE PIPE BE LESS THAT 2.5 FEET.
4. IF EXISTING SUBGRADE HAS BEEN LIME STABILIZED, BACKFILL WITH B-BORROW UP TO BOTTOM OF UNTREATED EXISTING SUBGRADE AND FILL TO TOP OF TREATED SUBGRADE WITH LIME STABALIZED SOIL
5. THESE STANDARDS SHALL APPLY FOR ALL REGULATED DRAIN STORM SEWERS UNLESS THE ENTITY HAVING CONTROL OVER THE RIGHT OF WAY HAS A MORE STRINGENT STANDARD, IN WHICH CASE THE HIGHER STANDARD SHALL APPLY.
6. THE MINIMUM COVER FROM THE FINAL GRADE TO THE TOP OF THE PIPE SHALL BE NOT LESS THAN 2 FEET OUTSIDE OF PAVEMENT AREAS.

HAMILTON COUNTY SURVEYOR'S OFFICE

RCP Bedding and Backfill Standard

REVISED: 18 DEC 2006

APPROVED: KENTON C. WARD, HAMILTON COUNTY SURVEYOR — DATE 8MAR07

STANDARD PLAN D-23

WEIHE ENGINEERS INC.
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(317) 846-6611
ALLAN D. WEIHE, P.E., L.S. PRESIDENT
CIVIL ENGINEERS · LAND SURVEYORS · LAND PLANNERS

JOB NO. 05-330
DATE 8/1/05
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REVISIONS General Revisions
PAGE
F.B.
SHEET NO. 12 OF 16

Approved for Hamilton County Drainage Board
Robert Wood

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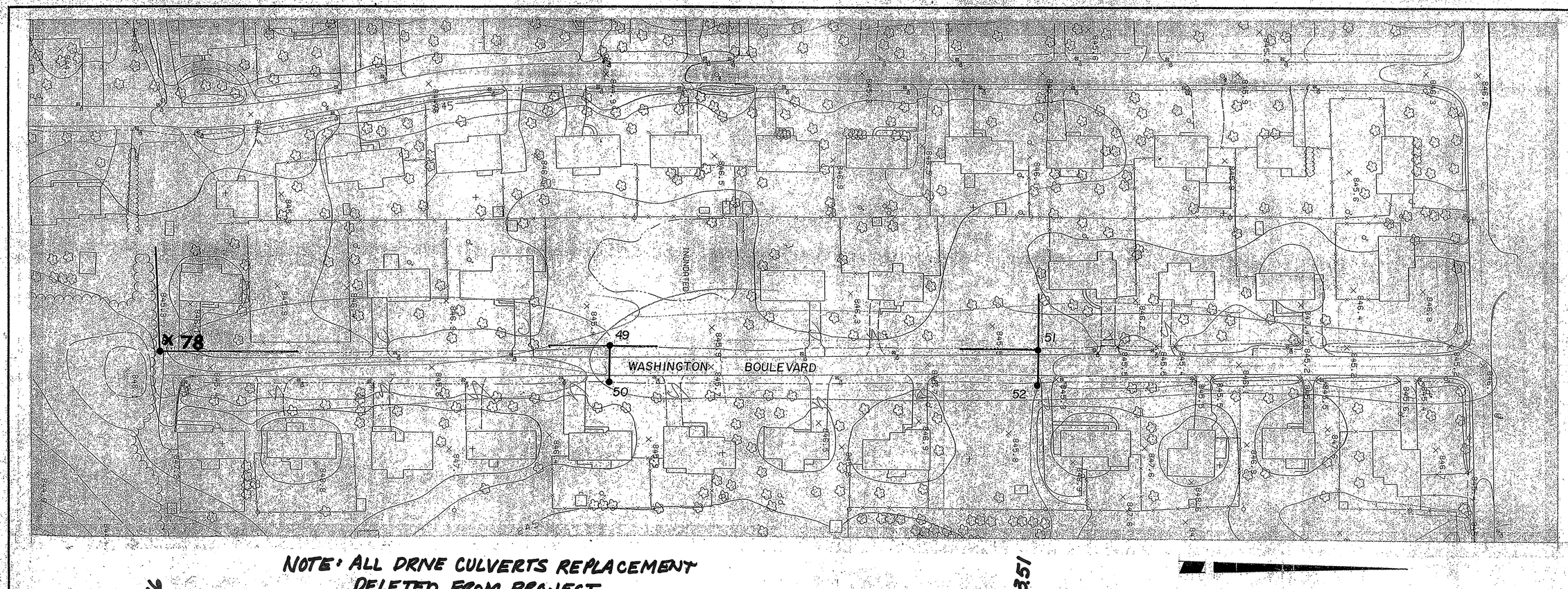
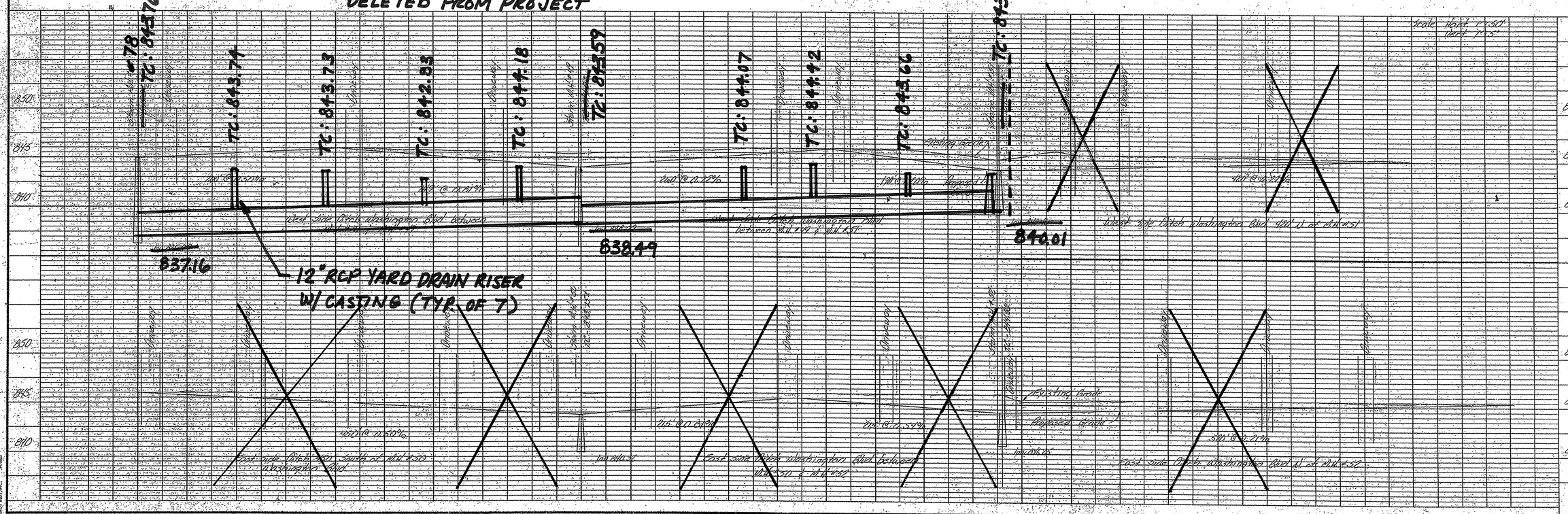


NOTE: ALL DRIVE CULVERTS REPLACEMENT DELETED FROM PROJECT



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ALLAN H. WEIHE, P.E., L.S.
PRESIDENT

JOB NO. 85-530
DRAWN BY DB
CHECKED BY
DATE 2-23-88
DATE 3/11/88 BY D.B.
REVISIONS General Revisions
F.B. PAGE

Prepared For: HAMILTON COUNTY DRAINAGE BOARD
MISC. SIDE DITCH PROFILES

SHEET NO 16 OF 16

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