

	WATER RESOURCES DIVISION RESCISSION OF POLICY AND PROCEDURE		DEPARTMENT OF ENVIRONMENTAL QUALITY
Rescinded Date: March 31, 2014	Subject: Hydraulic Review of Transportation Agency Projects Under the Provisions of the Natural Resources and Environmental Protection Act, Part 31 of Act 451 PA 1994 and the Executive Order 1977-4		Category: <input type="checkbox"/> Internal/Administrative <input checked="" type="checkbox"/> External/Non-Interpretive <input type="checkbox"/> External/Interpretive
	Program Name: Water Resources Program		
	Number: 31-95-04	Page: 1 of 1	

Water Resources Division (formerly Land and Water Management Division) Operating Procedure No. 31-95-04, Hydraulic Review of Transportation Agency Projects Under the Provisions of the Natural Resources and Environmental Protection Act, Part 31 of Act 451 PA 1994 and the Executive Order 1977-4, dated December 7, 1995, is rescinded. This is an old procedure and the process is no longer handled the same way. For instance, there are no technicians as referenced in the document. Staff feels the process is internal only and pretty straight forward and that a formal procedure is not needed.

DIVISION CHIEF APPROVAL:



William Creal, Chief
Water Resources Division

 MICHIGAN DEPARTMENT OF NATURAL RESOURCES	OPERATING PROCEDURE LAND AND WATER MANAGEMENT DIVISION	NUMBER: 31-95-04
		PAGE: 1 of 5
		EFFECTIVE DATE: 12/7/95
SUBJECT: HYDRAULIC REVIEW OF TRANSPORTATION AGENCY PROJECTS UNDER THE PROVISIONS OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, PART 31 OF ACT 451 PA 1994 AND THE EXECUTIVE ORDER 1977-4.		ALSO SEE: 7/11/94 Guidance Memo "Purging of Permit Files Prior to Microfilming".
SECTION AND/OR UNIT: Flood Hazard Management Unit, Transportation Hydraulic Review	APPROVAL SIGNATURE <i>James S. Boulton</i>	
	TITLE: Chief, Land and Water Protection Section	

PURPOSE:

TO PROVIDE FOR CONTROL OVER ALTERATION OF WATERCOURSES AND FLOODPLAINS OF ALL RIVERS AND STREAMS AND TO ENSURE PUBLIC TRANSPORTATION AGENCY (PTA) PROJECTS, LOCATED WITHIN A FLOODPLAIN/FLOODWAY, ARE DESIGNED IN A MANNER WHICH WILL NOT CAUSE AN UNNATURALLY HIGH STAGE OR UNNATURAL DIRECTION OF FLOW ON A RIVER OR STREAM WHICH CAUSES OR MAY CAUSE A HARMFUL INTERFERENCE.

ACRONYMS:

1. Flood Hazard Management, "FHM".
2. Floodplain Regulatory Authority, "FRA".
3. Hydrologic Engineering Center, Water Surface Profiles, "HEC-2".
4. Transportation Hydraulic Review, "THR".
5. Transportation Review Unit, "TRU".

DEFINITIONS:

1. "Floodplain" means that area of land adjoining a river or stream which will be inundated by a 100-year flood.
2. "Floodway" means the channel of a river or stream and those portions of the floodplain adjoining the channel which are reasonably required to carry and discharge a 100-year flood.
3. A "100-year flood" means a flood with a magnitude which has a 1% chance of occurring or being exceeded in any given year.
4. "Harmful interference" means causing an increased stage or a change in the direction of flow of a river or stream which causes, or is likely to cause, any of the following:
 - A. Damage to property.
 - B. A threat to life.
 - C. A threat of personal injury.
 - D. Pollution, impairment, or destruction of the water or other natural resources.
5. "Public Transportation Agency Project" means a transportation related activity submitted by a County Road Commission, Michigan Department of Transportation (MDOT) and/or a Municipality or by their authorized agent. The project must be financed under Act 51 funds and involves a bridge/culvert, public roadway, public railroad and certain airports under MDOT jurisdiction.

FORMS USED:

FORM NUMBER

- | | |
|---|---------------|
| 1. Request for drainage area and peak flows. | 1 |
| 2. Hydraulic analysis guideline. | 2 |
| 3. Damage assessment guideline. | 3 (Pages 1-3) |
| 4. Damage assessment certification. | 4 |
| 5. Hydraulic capacity certification. | 5 |
| 6. Hydraulic capacity certification (New Crossing). | 6 |

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WHO	DOES WHAT	WHEN
THR SUPERVISOR	Upon receiving a permit application, submits application to the Permit Consolidation Unit for processing.	As received.
THR SUPERVISOR	Receives permit application file from Transportation Review Unit (TRU).	After logging by TRU.
THR SUPERVISOR	Submits permit application to THR Technician.	Daily.
THR TECHNICIAN	<p>Conducts preliminary review and checks for duplicate file. Determines authority under the FRA.</p> <p>A. <u>No Authority</u>: Drafts memo for THR Supervisor's signature, to TRU staff assigned the file. Memo must indicate reason for "no authority" determination, as specified in the FRA administrative rules. A file is not kept by THR and computer is noted accordingly.</p> <p>B. <u>Authority</u>: Initiates project review status by date received, determines FRA permit fee and compiles project review list using "Access" relational data base and determines if any additional hydraulic information is required. A check should be made with the TRU staff to determine if file is complete from an environmental and public notice standpoint. If complete, except for hydraulic data, the request should be made by the THR Technician directly to the applicant with a copy to the appropriate TRU staff. If incomplete, TRU staff will combine hydraulic data request, if applicable, with environmental/public notice data request. A copy of the file is kept for Regions I and II and a file folder is made by the THR Technician. Region I and II master files are maintained in the respective Regions. Region III master files are jointly used by THR and TRU and maintained in Lansing.</p>	Within three (3) working days.
THR SUPERVISOR	Receives typed and proofed "No Authority" memo from THR Technician, reviews/signs memo, logs computer closed and submits for mailing.	After preliminary review.
THR TECHNICIAN	Receives additional hydraulic information from TRU staff or directly from applicant. File is noted as active on computer and ready to be worked on. File status, with respect to priority, would be based on original date of receipt.	As received

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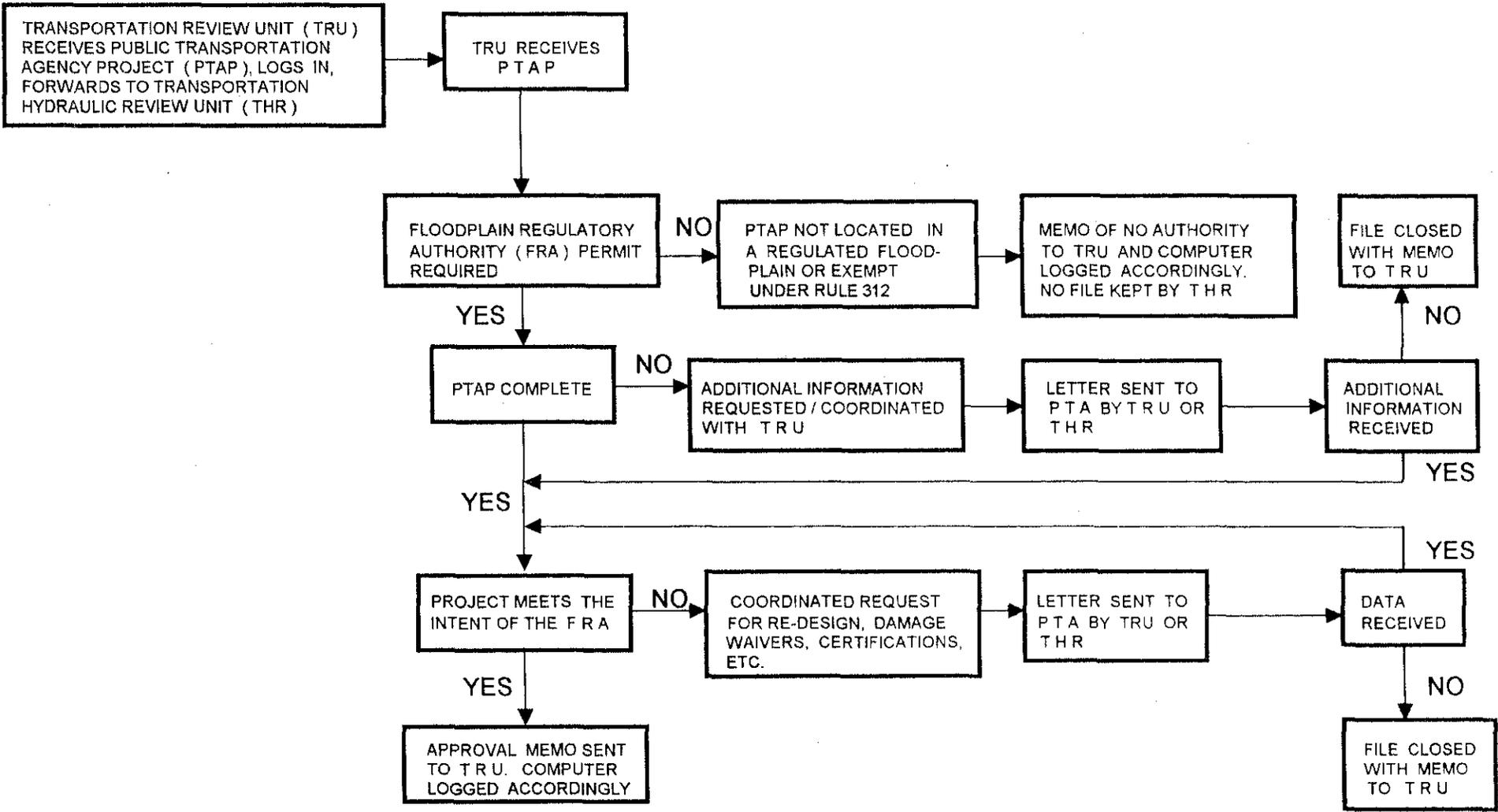
WHO	DOES WHAT	WHEN
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THR STAFF	Selects project from active jobs list and conducts hydraulic review to determine "harmful interference" criteria. As a minimum, each review must take into account all available support information, such as, local ordinances, prior projects, flood studies, preliminary review files, flood history of area and upstream conditions. The depth or detail of the review is dependent on site conditions. Critical areas, such as homes located upstream, may require a HEC-2 or equivalent hydraulic analysis depending on the scope of the project. A range of discharges should be used in the analysis, up to and including the 100-year discharge. The range of discharges are requested by the applicant/agent or by the THR Technician during the preliminary review process.	Forty (40) days maximum.
THR STAFF	<p>Completes review, compiles findings and drafts response as follows:</p> <ol style="list-style-type: none"> 1. Project <u>meets</u> the intent of the FRA. Drafts memorandum of non-objection, to TRU staff assigned the file, with appropriate project description and permit specifications noted. The memo should be drafted for THR supervisor's signature. 2. Project does <u>not</u> meet the intent of the FRA. Drafts memo or letter stating reasons why project does not meet the FRA. Memo or letter should cite alternatives and/or information required to bring project into compliance. A letter directly to the applicant, from THR, is used when a check with TRU staff indicates that there are no environmental problems associated with the project, i.e. they are in a position to issue. The letter should be drafted for the THR supervisor's signature. 	At review completion.
THR STAFF	Submits entire file, findings and draft memo or letter to THR supervisor on projects that fall under the FRA.	As completed.
THR SUPERVISOR	<p>Reviews file, staff findings and responds as follows:</p> <ol style="list-style-type: none"> 1. Project <u>meets</u> the intent of the FRA. <ol style="list-style-type: none"> A. Agrees with staff findings and submits memo of non-objection to TRU secretary for typing. B. Suggests modifications, etc. and confers with staff. Upon resolution of concerns, submits memo of non-objection to TRU secretary for typing. 2. Project does <u>not meet</u> the intent of the FRA. Submits complete file and findings to FHM Unit Supervisor for review. 	As required.
FLOOD HAZARD MANAGEMENT SUPERVISOR	<ol style="list-style-type: none"> 1. Agrees with staff findings and submits letter/memo to TRU secretary for typing, or 2. Suggests modifications, etc. and confers with staff. Upon resolution of concerns, memo/letter is submitted to TRU secretary for typing. 	

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WHO	DOES WHAT	WHEN
TRU SECRETARY	Types memo or letter and returns to staff reviewer.	As required.
THR STAFF	<p>Proofs document and gives to THR supervisor for signing and logs computer accordingly. Projects located in Region I and II and meeting the intent of the FRA, must be purged pursuant to the Division guidance memo, "Purging of Permit Files Prior to Microfilming" dated 7/11/94 and filed in the TRU closed file cabinet. When master file is returned to Lansing for microfilming, generally after or at the end of the third calendar year, THR hydraulic file data is merged with master file. Files not meeting the intent of the FRA are filed in the TRU pending data drawer until a final action can be taken or closed after 60 days if data is not received. Projects located in Region III are maintained by TRU. Hydraulic data will be purged as noted above upon completion of a final action. Purging of hydraulic data, by the THR person responsible for the review, must be completed after a final action has been taken on the project.</p>	As required.
THR OR TRU	Receives additional information, design modification or related data. Supplies copies to appropriate staff and begins review process again, to project review completion.	As required.
TRU	Approves or denies project under appropriate statutes including but not limited to the FRA	Within 60 days of receipt of a completed application.

TRANSPORTATION HYDRAULIC REVIEW FLOW CHART



INTEROFFICE COMMUNICATION

TO: Hydrologic Studies Unit

FROM: Transportation Hydraulic Review, Flood Hazard
Management, Land and Water Management Division.

DATE: April 4, 1995

FILE NO.: «FILENO» («TYPE»)

SUBJECT: Request for 10%, 2%, 1% and .2% Flood Discharges
Current Conditions and Urbanized (if applicable).

WATERCOURSE: «WATERCOURSE»

SECTION: «SEC», T«TWN», R«RNG»

TOWNSHIP/CITY: «CITY_or_TWP»

COUNTY: «COUNTY»

LOCATION: At «PROJECT» crossing

BASIN NO.:

QUAD NO.:

REMARKS:

The Hydraulic Report is to provide an analysis and evaluation of the effects of proposed channel or floodway alterations on the 100-year frequency flood profile and flood plain limits within and upstream of the proposal. The items a report should contain and what each should include are as follows:

1. INTRODUCTION

Watercourse and location of investigation; for whom the report is being prepared and the name and type of development; scope of investigation including conditions analyzed and evaluated, magnitude of discharges and source of information.

2. METHOD OF ANALYSIS

Computational methods used to determine water surface profiles including analysis of expansion and contraction losses, bridges, culverts and weirs. Indicate the limits of computational accuracy and explain any assumptions made in the application of a method. Include references and provide a description and source of any computer programs used.

3. VARIABLES AND COEFFICIENTS

Range of values selected for friction, expansion and contraction loss coefficients; orifice and weir discharge coefficients. Provide representative photographs of present conditions and justify values selected for proposed conditions. Indicate references and explain all assumptions.

4. STARTING POINT

Location where profile computations begin. Explain why the location was selected and the method used to determine the starting elevation.

5. DISCUSSION

Provide a brief discussion and evaluation of the computations and analysis. Include a description of the present channel and floodway, nature and distribution of flow, proposed alterations and their resultant effect. Explain any unusual conditions that occur and all assumptions that were part of the analysis.

6. CONCLUSION

A statement and evaluation of the effects of the proposal.

7. APPENDIX

- (a) Computations.
- (b) Profile Sheet showing the channel invert, water surface and energy grade line for both existing and proposed conditions.
- (c) Site Development Plan or topographic map of the study area showing existing conditions, the proposed channel or floodway alterations and the location of cross-sections.
- (d) Plans or sketches of existing and proposed bridges and culverts including centerline profiles of the road grade. The information provided should be sufficient for analysis of the crossings.
- (e) Cross-Sections showing existing conditions and the proposed alterations, channel and floodway limits, roughness coefficients and the coordinates of plotted points.

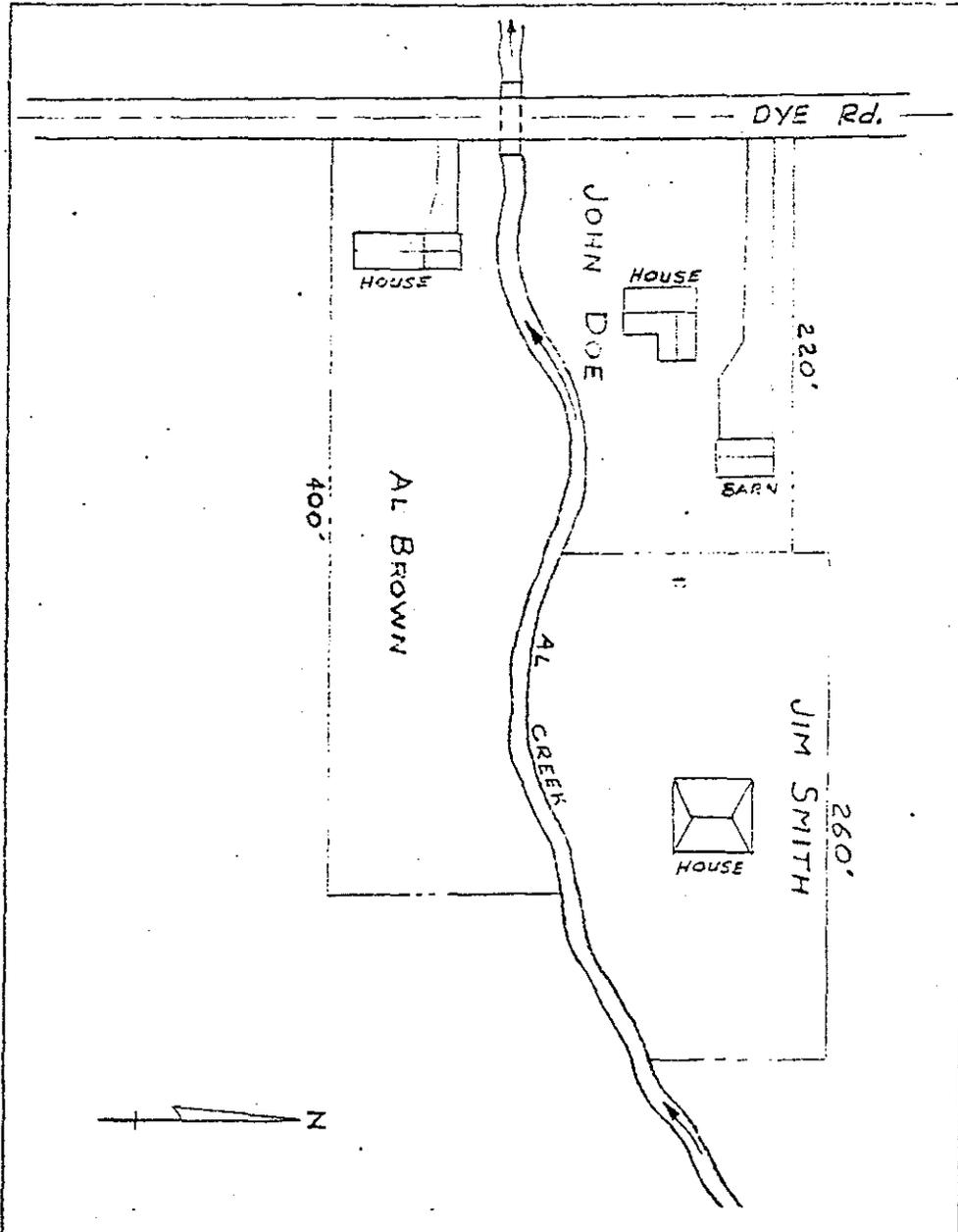
DAMAGE ASSESSMENT GUIDELINES

New or replacement stream crossing which cause an increase in flood stage that is not confined entirely within the limits of the applicant's property, require a damage assessment to be submitted to the Land and Water Management Division of the Michigan Department of Natural Resources. Damage assessments shall contain the following data:

- 1) Property location sketch showing all property owners located within the area effected by the increase in flood stage.
- 2) Location and lowest sill elevation of all structures located within the effected area.
- 3) Written statements from the effected property owners indicating they have been advised of the extent of additional flooding and have no objections.

NOTES: Statements of no objection will not be accepted for properties currently experiencing flood damage.

- 4) Photographs of the effected properties and floodplain areas.



PROPERTY LOCATION SKETCH

SAMPLE

Department of Natural Resources
Land and Water Management Division
Land and Water Protection Section
P.O. Box 30458
Lansing, MI 48909-7958

Re: File _____

Dear _____:

I have been informed by representatives of the _____ County Road Commission of an increased flood risk on my property. The increased risk would be caused by replacing the existing bridge on _____ Road crossing _____ Creek with a _____ multiplate pipe arch culvert. Installation of this culvert will cause an additional backwater effect at the upstream end of the culvert of _____ or elevation _____ over an existing backwater of _____.

I understand that this increased backwater effect could cause flooding on my property during a 100-year flood, which has a 1% chance of occurring or being exceeded in any given year. I also understand that the proposed structure could increase flooding on my property during lesser flood frequencies. I do not object to the increased flood risk.

I can/cannot recall any past flooding which has caused flood damage to my property. I can/cannot recall that water has over topped the existing road grade at the bridge/culvert location.

Should additional information be required of me, I can be reached writing _____ or telephone _____.

Sincerely,

DAMAGE ASSESSMENT CERTIFICATION

RE: ROAD NAME
STREAM NAME
TOWN, RANGE, SECTION
TOWNSHIP
COUNTY

I, Certifying Engineers Name & P.E. # DO HEREBY CERTIFY THAT I HAVE INSPECTED UPSTREAM AND ADJOINING PROPERTIES AND FIND THAT THE REDUCTION IN HYDRAULIC CAPACITY AND RESULTING _____ FOOT INCREASE TO UPSTREAM FLOOD STAGES OR DIVERSION OF FLOW WILL NOT CAUSE A HARMFUL INTERFERENCE TO FLOOD FLOWS OR DAMAGE TO ADJACENT STRUCTURES, CROP LANDS OR POTENTIAL BUILDING SITES. I FURTHER CERTIFY THAT THE EXISTING CROSSING HAS NOT CAUSED ENVIRONMENTAL AND/OR PROPERTY DAMAGE IN THE PAST NOR ARE THERE ANY INDICATIONS THAT THE EXISTING CROSSING IS HYDRAULICALLY INADEQUATE.

HYDRAULIC CAPACITY CERTIFICATION

RE: ROAD NAME
STREAM NAME
TOWN, RANGE, SECTION
TOWNSHIP
COUNTY

I, Certifying Engineers Name & P.E. # DO HEREBY CERTIFY THAT
THE REPLACEMENT CROSSING SHOWN ON PLANS DATED _____
IS DESIGNED WITH AN (EQUAL/GREATER) HYDRAULIC CAPACITY, WHEN
COMPARED TO EXISTING CONDITIONS, AND DELETION OF EXISTING
OPENINGS AND ROAD OVERFLOW AREAS IS NOT PLANNED. I FURTHER
CERTIFY THAT I HAVE INSPECTED UPSTREAM AND ADJOINING PROPERTIES
AND FIND NO EVIDENCE THE EXISTING CROSSING AND ITS APPROACHES
CAUSED EXCESSIVE EROSION AND/OR PROPERTY DAMAGE.

HYDRAULIC CAPACITY CERTIFICATION
(NEW CROSSING)

RE: ROAD NAME
STREAM NAME
TOWN, RANGE, SECTION
TOWNSHIP
COUNTY

I, Certifying Engineers Name & P.E. # DO HEREBY CERTIFY THAT I HAVE INSPECTED UPSTREAM AND ADJOINING PROPERTIES AT THE PROPOSED BRIDGE/CULVERT SITE. I FIND, BASED ON THE ENCLOSED HYDRAULIC ENGINEERING COMPUTATIONS AND SITE INSPECTION, THAT THE PROPOSED CROSSING WILL NOT CAUSE A HARMFUL INTERFERENCE TO FLOOD FLOWS OR DAMAGE TO ADJACENT STRUCTURES, CROP LANDS OR POTENTIAL BUILDING SITES. I FURTHER CERTIFY THAT THERE IS NO EVIDENCE OF EXISTING FLOOD RELATED PROBLEMS AT THE PROPOSED BRIDGE/CULVERT SITE AND THAT THE CROSSING IS DESIGNED TO PASS THE 100 YEAR FLOOD.