

## Bub, Laura A

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**From:** Oldenburg, Patrick S  
**Sent:** Wednesday, March 19, 2003 8:34 AM  
**To:** Bub, Laura A  
**Cc:** LaLiberte, Paul J  
**Subject:** FW: Saputa Foods in Thorp - permit reissuance clarification

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Laura, I'm not exactly sure where we are with the NR 104 revisions, but we have lost the only discharge to a stream listed in NR 104. I previously prepared a WBUD report on the stream and recommended a DFAL classification. Can I get this stream removed from NR 104 in this phase and do you need anything else from me? The stream is McGrogan Creek in Clark Co. The former discharge was Saputa Foods-Thorp.

-----Original Message-----

**From:** Eaton, Holly J  
**Sent:** Tuesday, March 18, 2003 3:28 PM  
**To:** Oldenburg, Patrick S  
**Subject:** RE: Saputa Foods in Thorp - permit reissuance clarification

FYI- we are getting rid of this permit.

Holly Eaton  
Wastewater Specialist/WCR WPDES Permit Coordinator  
Wisconsin Department of Natural Resources  
1300 W. Clairemont Ave  
P.O. Box 4001  
Eau Claire, WI 54702-4001  
(715) 839-1634  
FAX (715) 839-6076  
Holly.Eaton@dnr.state.wi.us

-----Original Message-----

**From:** Oldenburg, Patrick S  
**Sent:** Thursday, March 06, 2003 11:14 AM  
**To:** Eaton, Holly J; Thon, Stephen F; Hayducsko, Judy A  
**Cc:** Hoyt, Lacey C  
**Subject:** RE: Saputa Foods in Thorp - permit reissuance clarification

If we are going to get rid of the permit, then I would also like to have the stream removed from NR 104.

-----Original Message-----

**From:** Eaton, Holly J  
**Sent:** Thursday, March 06, 2003 10:14 AM  
**To:** Thon, Stephen F; Hayducsko, Judy A  
**Cc:** Hoyt, Lacey C; Oldenburg, Patrick S  
**Subject:** RE: Saputa Foods in Thorp - permit reissuance clarification

So should I NPR this permittee then? That makes sense....but let me know for certain.

Thanks-

Holly Eaton  
Wastewater Specialist/WCR WPDES Permit Coordinator  
Wisconsin Department of Natural Resources  
1300 W. Clairemont Ave  
P.O. Box 4001  
Eau Claire, WI 54702-4001  
(715) 839-1634  
Holly.Eaton@dnr.state.wi.us

-----Original Message-----

**From:** Thon, Stephen F  
**Sent:** Thursday, March 06, 2003 8:21 AM  
**To:** Hayducsko, Judy A  
**Cc:** Hoyt, Lacey C; Eaton, Holly J; Oldenburg, Patrick S  
**Subject:** RE: Saputa Foods in Thorp - permit reissuance clarification

I believe that the equipment has been removed from the building and parts of the building sold. As I recall they were "holding on" to the permit just to improve the sale of the building. As I understand it, they have no plans to use the site again.

I would propose that we not reissue the permit--perhaps NPR. But, if they filed a permit application then we should at least ask them why they want a permit.

Did they file a permit application??

Steve Thon PE  
Environmental Engineer  
Lower Chippewa Basin  
Department of Natural Resources  
(715) 839-3776  
email address: thons@dnr.state.wi.us

-----Original Message-----

**From:** Hayducsko, Judy A  
**Sent:** Wednesday, March 05, 2003 2:31 PM  
**To:** Thon, Stephen F  
**Cc:** Hoyt, Lacey C; Eaton, Holly J; Oldenburg, Patrick S  
**Subject:** Saputa Foods in Thorp - permit reissuance clarification

Steve, you have probably answered this question several times already, but just once more:

Should the wastewater permit for this operation be rolled over to allow a new buyer to operate the equipment in the building? I know we rolled over all the old permit conditions for Globe Building Supplies in Cornell for 2 years so the new buyer could purchase and get them out of Chapter 11 (?) bankruptcy. This permit application would be due the end of the month, but I don't think we even mailed the application to the industry.....

So, should this be deleted into never-never land, or should we try to do something with their permit?

Thanks,

Judy Hayducsko  
Water Resources Engineer  
West Central Region - Eau Claire Service Center  
Department of Natural Resources  
1300 W. Clairemont Avenue  
Eau Claire, WI 54702-4001  
Judy.Hayducsko@dnr.state.wi.us  
(715) 831-3268

## CORRESPONDENCE/MEMORANDUM

DATE: December 21, 2000

TO: Steve Thon - WCR  
Greg Searle - WT/2

FROM: Pat Oldenburg - WCR

SUBJECT: Water Quality Standards Review for McGrogan Creek near Thorp, WI

Saputo Cheese (WPDES# 0046370-03) discharges a mixture of COW and non-contact cooling water to a drainageway that flows into McGrogan Creek. Formerly, the stream received treated effluent from the City of Thorp municipal wastewater treatment plant. The City now discharges to the North Fork of the Eau Claire River upstream of its confluence with McGrogan Creek. The last review of the stream was conducted in 1984 as part of the proposal to upgrade the Thorp municipal wastewater treatment plant. The stream was classified as intermediate aquatic life from CTH X downstream to its confluence with the North Fork of the Eau Claire River.

McGrogan Creek originates in a wetland area east of Thorp and flows west, the wetland has few trees and was formerly pastured, but there was no evidence of active pasturing on a 17 August 2000 site visit. The creek flows in a discrete channel near the discharge of a private pond by CTH X at the east edge of the City. McGrogan Creek flows through the city adding aesthetic appeal to a city park. Downstream of the park, a storm water ditch enters McGrogan Creek. Aside from storm water, this ditch carries the discharge from Saputo Cheese. West of Thorp the creek flows through wooded and open pasture until it joins the North Fork of the Eau Claire River.

An electrofishing fishery survey was conducted on 14 September 2000 as part of conducting a waterbody use designation for McGrogan Creek. Fish surveys were conducted at three sites, one upstream of the Saputo Cheese discharge and two downstream. The upstream site was below the Clark Street bridge in the City park. The downstream sites were below the Adams Street bridge and above Tieman Road. Fish survey station lengths were based on 35 times the mean stream width according to Lyons, et al. (1994). Fish were collected using an AbP-3 backpack shocker.

Heavy rains occurred 3 nights earlier and the stream was running clear although still apparently 2-3 inches higher than normal. At all sites substrate was dominated by cobble and gravel substrate, with lesser amounts of sand and boulder. The fish survey results are shown in Table 1. The IBI values at the sample sites ranged from fair to very poor. The heavy rains earlier in the week may have negatively impacted the IBI scores in two ways. First, the high stream flows may have displaced fish from their normal habitats, and they may not have returned at the time of sampling. Second, The higher water levels may have reduced the total numbers of fish captured at the downstream sites, were it may have been more appropriate to use two backpack shockers. Aside from these factors, the discharge from Saputo Cheese, urban storm water runoff, naturally occurring low flows, and former channelization impact the stream biota.

While the IBI scores were relatively low, under the January 2000 draft Guidelines for Designating Fish and Aquatic Life Uses for Wisconsin Streams, the stream does meet the minimum expectations for full fish and aquatic life. Under the draft guidance, one of the minimum expectations for full fish and aquatic life is a non-game fish community with a significant number of individuals (5% or more) belonging to

species not tolerant to low dissolved oxygen. The IBI data suggests that either water quality or habitat is impacting the fishery at the Adams Street site.

**Stream Classification Recommendation:**

When experiencing stream flows at average baseflow conditions and above, McGrogan Creek should be classified as full fish and aquatic life from CTH X downstream to its confluence with the North Fork of the Eau Claire River, based its existing forage fish community.

**Effluent limit development consideration:**

This portion of the state contains streams that exhibit significantly different biological potential in normal and drought years due to natural climactic factors. Effluent limit development should consider the possibility that this stream reach’s potential use may naturally be lower than full fish and aquatic life in drought years.

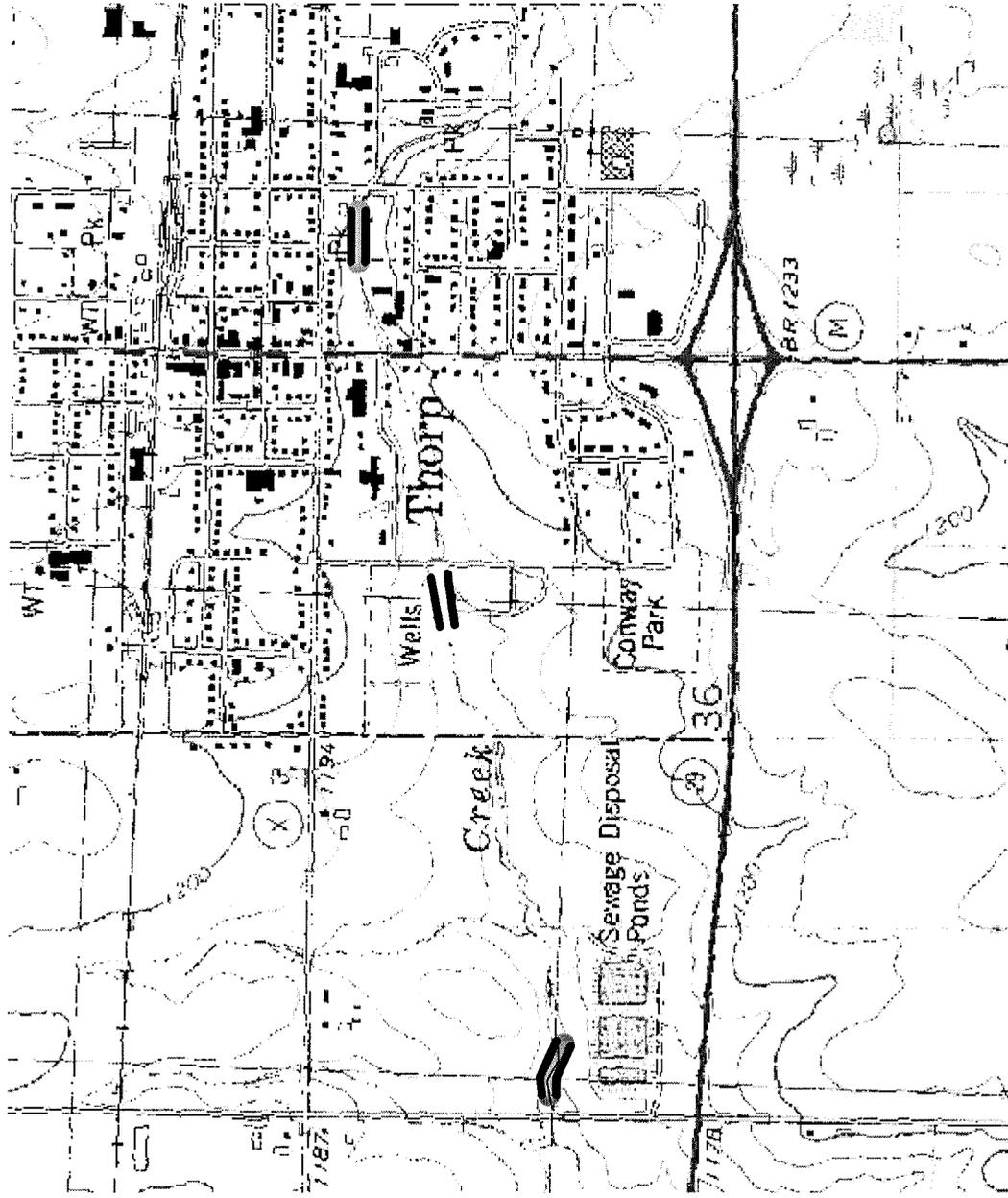
Table 1. Results of 14 September fish survey.

	Number of Individuals by Site		
	Tieman Road	Adams Street	Clark Street
Creek Chub	33	17	38
Pearl Dace	-	3	12
Northern Redbelly Dace	4	-	18
Blacknose Dace	17	13	4
Central Stoneroller	-	4	10
Brassy Minnow	-	1	1
Bluntnose Minnow	1	-	-
Fathead Minnow <sup>(1)</sup>	-	-	7
Mud Minnow <sup>(1)</sup>	37	4	48
White Sucker	8	8	9
Brook Stickleback <sup>(1)</sup>	11	8	85
Bluegill YOY <sup>(2)</sup>	3	2	5
Pumpkinseed YOY <sup>(2)</sup>	1	-	-
Blackside Darter	4	-	-
IBI Rating	22 (Poor)	17 (Very Poor)	45 (Fair)
Percentage of individuals tolerant to low DO	41.7%	20.7%	60.3%

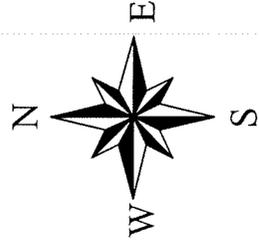
<sup>(1)</sup> Species tolerant to low dissolved oxygen.

<sup>(2)</sup> These fish were excluded from the calculations as their presence was likely do to pond washout.

# McGrogan Creek Fish Survey Sites 14 September 2000



- Site 1 (Tieman Rd)
- Site 2 (Adams St.)
- Site 3 (Clark St.)



Region WCR County Clark Date 2/4/92 Classification LFF

Water Body: ~~Stett~~ McGrogan Creek

Discharger: Stella Foods / Thorp Whey

If classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that apply:

Naturally occurring pollutant concentrations prevent the attainment of use

Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met

Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place

Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use

Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses

Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

**Supporting Evidence included**

- Biological Data (fish/invert)
- Chemical Data (temp, D.O., etc.)
- Physical Data (flow, depth, etc.)
- Habitat Description
- Site Description/Map
- Other:

10/17/89

\* due to low natural stream flow, the stream can not be "upgraded" from LFF.

**Comments:**

- Creek is still being severely impacted by Thorp Whey disch.
- environmentally significant amounts of BOD are being discharged
- similar situations have been resolved by either directing BOD-laden waste to process waste treatment, or by requiring automated, continuous BOD sampling.

- very well documented report

2/4/92 - Paul Laliberte  
10/17/89 - Paul Laliberte  
12/1/84 - Paul Laliberte

~~CORRESPONDENCE/MEMORANDUM~~

*File*

State of Wisconsin

Department of Natural Resources  
Western District

Date: February 4, 1992

File Ref: 3200

To: Mike Blodgett

From: Paul LaLiberte *Paul*

Subject: Discharge at Thorp Whey

On 1-29-92, I examined the drainageway receiving the cooling water discharge from Thorp Whey and the reach of McGrogan Creek into which the ditch flows. The bottom of the ditch above Prospect Street was covered with sewage slime. The entire ditch contained deposits of odorous, anaerobic sludge.

Sewage slime was not noticed in McGrogan Creek, but algal slimes were abundant in the creek below the ditch and not present upstream from the ditch. The condition of McGrogan Creek was comparable to that prevailing on my visit on 10-17-89. The creek is still being severely impacted by the discharge from Thorp Whey via the storm sewer.

The observed conditions clearly indicate that environmentally significant amounts of BOD<sub>5</sub> are being discharged into the storm sewer either continuously or on a frequent, intermittent basis. Other, similar situations in Western District have been resolved by either directing the waste stream containing the BOD<sub>5</sub> to process waste treatment or by requiring automated, continuous sampling coupled to a restrictive BOD<sub>5</sub> limit.

Call me if I can be of further assistance.

c: Jack Sullivan - WR/2  
WR/PL054.sz

## CORRESPONDENCE/MEMORANDUM

Date: October 17, 1989 File Ref: 3200

To: Mike Blodgett

From: Paul LaLiberte *Paul*

Subject: Discharge at Thorp Whey

On September 10, 1989, I visited McGrogan Creek, the receiving water for the cooling water discharge from Thorp Whey. As you suspected, a reach of the stream had been severely impacted. Immediately above and one-half mile below the discharge point, a variety of macroinvertebrates were present including mayflies and caddisflies. Immediately below the discharge point, only organisms tolerant to low oxygen, high organic load situations were present (leaches, isopods). The sewage slime you had observed was no longer present, but profuse growth of aquatic macrophytes were present in the impacted region.

↙ The stream is classified as intermediate fish and aquatic life and the effluent limits in the WPDES permit are based on this classification. Due to low natural stream flow, the stream classification cannot be upgraded and therefore the limits cannot be lowered. I believe the limits in NR 104 were primarily intended to protect streams from municipal dischargers and may not do as good a job on this type of industrial discharge.

However, we should not conclude the limits are inadequate until we are sure that effluent sampling is adequate and representative. The impacts we saw came as a result of either a continuous BOD load or frequent, intermittent slugs of BOD. A slug of high BOD wastewater several times a day would be sufficient to cause the observed impacts. We must make sure the effluent sampling program is capable of documenting intermittent slugs of BOD. I suggest 24-hour composite sampling. Unless the high BOD event would be expected to occur along with increases in flow, I would advise against flow proportional sampling.

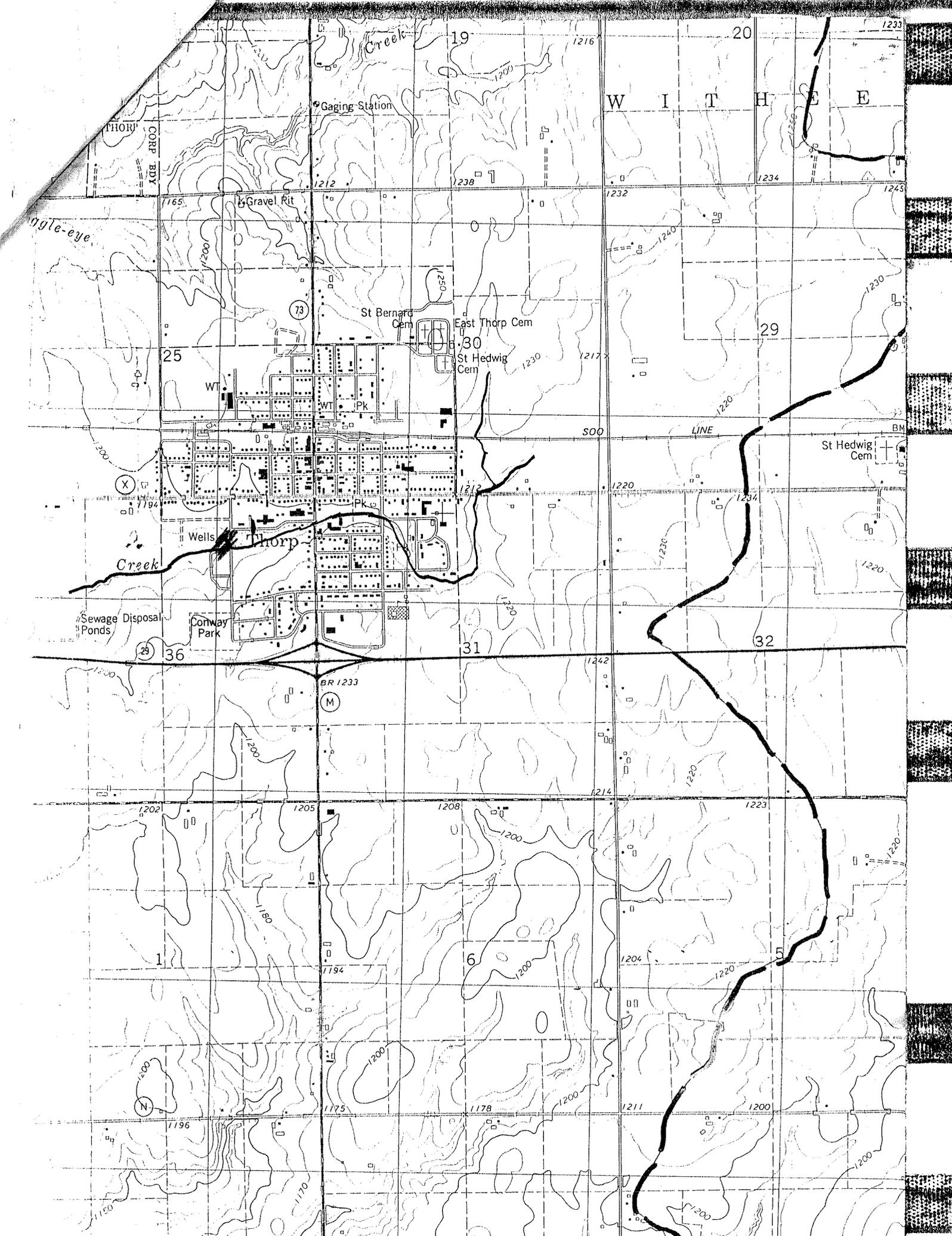
Another point to consider is requiring that the effluent DO be monitored at the end of the storm sewer (if we can legally do that). This would detect oxygen loss due to BOD of the wastewater after leaving the plant but before entering the stream.

We made the City of Thorp move their POTW outfall to protect this stream. I do not like to see an industry come in behind them and degrade water quality.

If I can be of further assistance, give me a call.

c: Duane Schuettpelz - WR/2  
WR6\PL004.plm





A REVIEW OF THE DESIGNATED USES AND WATER QUALITY STANDARDS FOR  
McGROGAN CREEK NEAR THORP, WISCONSIN  
DECEMBER, 1984  
PAUL LALIBERTE

Introduction

The designated uses and water quality standards for McGrogan Creek near Thorp, Wisconsin were reviewed in conjunction with a proposal to upgrade the Thorp sewage treatment plant which discharges into the creek. At a site about 3/4 mile upstream from the outfall, USGS has estimated the  $Q_{7,10}$  and  $Q_{7,2}$  to be 0 CFS. Of eight flows taken by USGS and DNR upstream from the sewage treatment plant under summer conditions, three were below 0.1 CFS and the average was 0.87 CFS. USGS MMQ<sub>10</sub> estimates are: May = 0.5 CFS, April = 1.9 CFS, October = 0.06 CFS, and November = 0.1 CFS.

General Description

McGrogan Creek originates in a wetland area east of Thorp and flows west (Figure 1). The wetland has few trees and shrubs and is pastured in many areas. The water is brown stained and confined to channels primarily near road culverts and where ditching and draining for cropland has occurred. The creek flows in a discrete channel near the discharge of a private pond by Highway X at the east edge of the city. McGrogan Creek flows through Thorp and adds aesthetic appeal to a city park. West of Thorp the creek flows through wooded and open pasture until it joins the North Fork, Eau Claire River. Total stream length is about 3 miles with an elevation change of about 70 feet in the upper 2 miles and about 55 feet in the last mile.

Water Quality

Several water quality studies have been done on McGrogan Creek including brief basin survey studies in 1969 and 1974, a preoperative point source impact study in 1978-1979, and waste load assimilation studies in 1974 and 1982. Representative data from these studies collected upstream from the sewage treatment plant are summarized in attachments.

On one occasion, DO upstream from the Thorp sewage treatment plant was below 5 mg/l. A BOD sample was not taken at the time (6:26 a.m.), but the site was sampled the same day 6 1/2 hours later. At 1:00 p.m. the DO had recovered to 9.3 mg/l and the BOD was 3.3 mg/l. The three other diel DO surveys did not document low DO above the outfall. If the low DO was the result of natural diel DO fluctuation, the other surveys would be expected to show the same problem, especially the 8-12-82 survey which was done under virtually identical flow and water temperature conditions. Therefore, DO is probably not a natural limiting condition in the stream.

Foremost Blue Moon Cheese has a history of discharging high strength waste from a cooling water outfall into a ditch tributary to McGrogan Creek upstream from the Thorp sewage treatment plant. The industry has also contaminated groundwater with high BOD wastes. It is possible the single low DO value above the sewage treatment plant was the result of a slug load of high strength waste discharged from the industry cooling water outfall. This would also explain the occasional high creek BOD data above the Thorp sewage treatment plant (values of 11-17 mg/l).

High fecal coliform counts have often been documented. These may have been caused by the creamery outfall or urban storm water runoff. The creamery is attempting to eliminate the process wastes from its cooling water and is attempting to clean up the groundwater contamination with a recovery well. It is therefore assumed that slug loads of high strength wastes will not occur in McGrogan Creek. However, stream water quality may be altered slightly by the groundwater contamination until the cleanup is completed. It is concluded that the temperature, pH, and DO in McGrogan Creek above the Thorp sewage treatment plant are adequate to support warmwater fish and aquatic life when flow is adequate.

Below the sewage treatment plant, under present conditions, McGrogan Creek is much enriched for about 3500 feet as evidenced by an abundance of filamentous algae and aquatic macrophytes. While a diel DO change occurs under summer low flow conditions in the entire stream, the diel change in this 3500 foot segment is greater. Early morning DO of less than 1 mg/l has been documented below the Thorp sewage treatment plant during all 4 diel surveys.

#### Stream Habitat

Habitat quality in McGrogan Creek was rated by two teams of two biologists each using the procedure of Ball (1982) on two representative sites during low flow conditions (see attachment). The average habitat rating was fair (145) and would definitely be capable of supporting class D aquatic life and possibly class C aquatic life. The main factor limiting habitat availability is low flow. Stable bottom substrate habitat is provided by abundant gravel and rubble. Watershed erosion potential and stream channel configuration were judged good to fair from an aquatic habitat standpoint. Bank erosion is slight in the city but significant in the downstream reach. Stream width is usually 4-8 feet and depth is usually 2-12 inches. Some deeper pools are present.

#### Macroinvertebrates

Two qualitative macroinvertebrate samples were collected in McGrogan Creek upstream from the Thorp sewage treatment plant outfall in 1978 (see attachment). The average Hilsenhoff Biotic Index (HBI) was 2.87, indicating fair water quality with "significant organic pollution." These samples were taken downstream from the creamery outfall. A fairly diverse macroinvertebrate community was present containing 10 pollution intolerant species (HBI = 1 or 2) and 14 tolerant species (HBI = 3 to 5). Water temperature has an important influence on an arthropod's ability to tolerate low DO levels. Because McGrogan Creek experiences water temperature up to 28°C, the "fair" HBI value may be partially due to the high temperature rather than DO.

## Fishery

An electrofishing survey of McGrogan Creek was conducted by Water Resources Management personnel in the summer of 1982. The 1982 survey found nine species of forage fish (see attachment). Fish described as "tolerant or very tolerant" to pollution by Ball (1982) constituted the majority of the fish collected and species found. Minnows have been observed throughout most reaches of McGrogan Creek and were quite abundant immediately above the sewage treatment plant outfall. Below the outfall, in the reach experiencing diel DO levels below 3 mg/l, the fish population was sparse and not what would be expected given available habitat. Downstream from the reach experiencing DO problems minnows appeared quite abundant although no electrofishing was done in this area. The potential for warmwater sport fish to move into the last mile of McGrogan Creek from the North Fork Eau Claire River during spring spawning was not evaluated.

## Existing and Potential Use Classification

With Effluent - McGrogan Creek is too small for swimming or boating but does add aesthetic appeal to a city park. To the east of Thorp, the headwaters of the creek lie in a wetland judged capable of supporting marginal or class E aquatic life. From the vicinity of the Highway X bridge to the Thorp sewage treatment plant outfall, the creek supports intermediate or class D aquatic life - "tolerant or very tolerant fish or tolerant macroinvertebrates." The DO standard for intermediate aquatic life is presently not being attained in an approximate 3500 foot segment of McGrogan Creek below the sewage treatment plant during average summer low flow as a result of effluent nutrients. Downstream from this degraded reach, the stream appears to be capable of supporting a larger population of fish. No biological samples were collected from the last mile of McGrogan Creek.

The primary factors limiting aquatic life in McGrogan Creek are low natural stream flow and the effluent induced diel DO deficit. The present sewage treatment plant effluent, therefore, has the beneficial effect of supplementing stream flow and the detrimental effect of causing a DO deficit in an approximate 3500 foot stream segment. If the Thorp sewage treatment plant were operating at design flow and achieving nearly complete BOD and nutrient removal, it is possible that the additional flow would be sufficient to support an aquatic use classification of C below the outfall.

Without Effluent - In the absence of discharge from the Thorp sewage treatment plant, McGrogan Creek would likely support intermediate or class D aquatic life along its entire length downstream from Highway X.

## Effluent Limit Recommendations

In setting effluent limits for the Thorp sewage treatment plant, the following factors should be considered:

Flow-Related Discharge - Seasonal changes in McGrogan Creek flow are not sufficient to accommodate effective flow-related effluent limits.

BOD Limits - Existing water quality data suggests that the application of the most stringent effluent limit allowed by DNR policy (10 mg/l) will still result in non-attainment of water quality standards for class C or even class D aquatic life immediately below the outfall during average summer low flow conditions. However, the application of a stringent BOD limit will, hopefully, minimize the length of stream in non-attainment.

Ammonia Limit - pH's as high as 9 su have been recorded in McGrogan Creek as a result of diel photosynthetic activity. Existing water quality data suggests that stream pH exceeds 8.0 su on about 1/3 of the days during the summer, and that this exceedance lasts about 9 hours at a time. Diel pH fluctuations should be considered when setting ammonia limits.

Nutrient Limits - Existing water quality data suggests that application of effluent nutrient limits to the Thorp sewage treatment plant may alleviate DO problems in McGrogan Creek.

PLT143

Water Quality Data for McGrogan Creek above the  
Thorp Sewage Treatment Plant Outfall

	DO	T	pH	BOD	NH <sub>3</sub>	FC	FS	Flow
3-23-78	13.6	.5	7.0	--	--	--		
6-29-78	9.3	26.3	7.4	2.5	.13	290	160	0.06
10-2-78	8.6	12.0	7.2	4.9	.09	13000	15000	1.84
1-3-79	10.9	0	--	5.3	--	--		
1-15-74	9.6	1	7.2	17	--	140		
6-5-74	16.5	28	8.9	4.3	--	20		
6-25-74	9.1	16.0	--	2.9	.24	40		.03
7-9-74	12.6	26	8.4	3.1	--	820		
8-7-74	12.1	23	7.8	2.5	--	8200		
8-30-82	9	21	7.5	2.9	.07	--		.441
8-12-82	6.1	12.5	7.2	5.2*	.03	--		.07

\* BOD LT

PLT144

Diel Data for McGrogan Creek Above the Thorp Sewage  
Treatment Plant Outfall

Approx. Time	1982			1978			1974		
	Temp	pH	DO	Temp.	pH	DO	Temp.	pH	DO
3:00	16	7.2	6.4						
	14.3	7.2	5.4						
6:00	15	7.2	6.7	18.7	--	2.8	13.0	--	6.3
	12.5	7.2	6.1						
9:00	15	7.2	7.0				17.5	--	13.2
	13.9	7.4	10.0						
12:00	18.5	7.4	9.1	26.3	7.4	9.3	24.5	--	18.1
	21.0	8.1	13.9						
15:00	22.5	7.6	9.0						
	25.8	8.9	15.4						
18:00	22.5	7.4	8.9						
	24.5	9.0	13.8						
21:00	20.0	7.2	6.3						
	19.0	7.5	7.0						
24:00	17.0	7.2	6.5						
	15.8	7.3	5.7						

PLT144

Fish Species Found in McGrogan Creek on 7/22/82

Tolerant or Very Tolerant \*

Johnny Darter  
Brook Stickleback\*\*  
Common Shiner  
White Sucker  
Fathead Minnow\*\*  
Northern Creek Chub\*\*

Intolerant \*

Blacknose Shiner  
Pearl Dace  
Blacknose Dace\*\*

\* From Ball (1982)

\*\* Constitute majority of samples

per Paul La Liberte - Use this Stream  
Classification for  
Thorp Wwef - discharge  
to same stream

THORP, CLARK COUNTY

WASTEWATER RECEIVING STREAM CLASSIFICATION

Receiving stream - Tributary stream to North Fork Eau Claire River, (McGrogan Creek)  
Q<sub>7,10</sub> at discharge site = 0.00 CFS.

Thorp WWTP discharges to a tributary stream of North Fork Eau Claire River. Stream above the outfall is characterized by clear, cold water with approximate flow of about 0.1 CFS. Organisms observed include snails and Coleopterans. Physical stream conditions below the outfall (approximately 100 yards) are similar to those above the outfall with willow lined grassy banks and sand bottom. Stream flow is increased by sewage effluent addition but maintains capacity for intermediate aquatic life.

At east/west town road section 3-34 land use bordering tributary is agricultural. Banks are heavily eroded by pasturing and water is generally slow moving with few riffle areas. North Fork Eau Claire River is joined about 1/4-mile downstream.



Thorp  
from stabilization



Thorp tributary below stabilization pond at town road, Sec. 35 - 36, looking east

RECOMMENDATIONS:

The tributary stream of North Fork Eau Claire River receiving Thorp WWTP effluent, from outfall to North Fork Eau Claire River, shall be classified noncontinuous, intermediate aquatic life. North Fork Eau Claire River is classified continuous, fish and aquatic life.

EVALUATION DATE: August 27, 1975

PERSONNEL:

Terry A. Moe - Water Pollution Biologist - WCD  
Lewis A. Seymour - Environmental Engineer - WCD  
Stuart Hagen - Area Fish Manager - WCD  
Ron Martin - Biologist - Water Quality Evaluation - Madison

(GILMAN) R. 4 W.

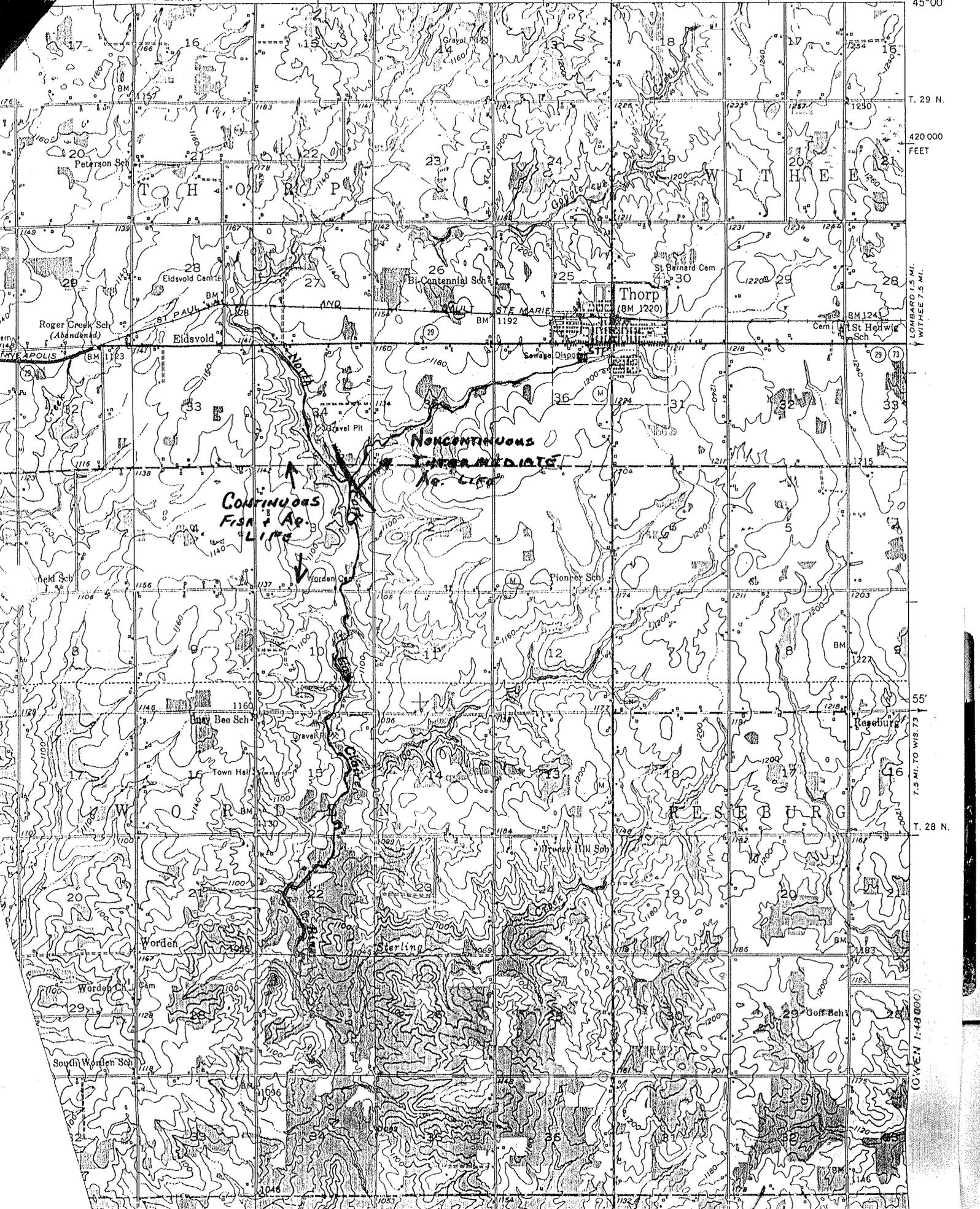
50'

JUMP RIVER 26 MI.  
9.4 MI. TO WISCONSIN 84

1:800 000 FEET

R. 3 W. 90°45'

45°00'



T. 29 N.

420 000  
FEET

LOWERSIDE 12.5 MI.  
WITHEE 7.5 MI.

55'

7.5 MI. TO WIS. 73

T. 28 N.

(G.WEN 1:43 000)

Region WCR County Clark Date 1/1980 Classification LFF

Water Body: North Fork Eau Claire River

Discharger: C. of Thorp (Stella Foods)

If classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that apply:

- Naturally occurring pollutant concentrations prevent the attainment of use
- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met
- Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place
- Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use
- Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses
- Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

**Supporting Evidence included**

- Biological Data (fish/invert)
- Chemical Data (temp, D.O., etc.)
- Physical Data (flow, depth, etc.)
- Habitat Description
- Site Description/Map
- Other:

**Comments:**

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**NORTH FORK, EAU CLAIRE RIVER  
WATER QUALITY STANDARDS REVIEW**

**January, 1986**

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**Bureau of Water Resources Management  
Wisconsin Department of Natural Resources**

## SUMMARY

The North Fork, Eau Claire River was originally classified as capable of supporting a balanced "fish and aquatic life" community, as well as recreational use. This review indicates the existing classification is correct and should remain the same.

## INTRODUCTION

This paper presents the results of an evaluation of the designated uses and water quality standards for the North Fork, Eau Claire River near the City of Thorp, Wisconsin. The evaluation was conducted in conjunction with the proposed upgrading of the Thorp wastewater treatment plant which will discharge to the river.

The objective of this effort is to review and revise, if necessary, the previously designated uses and water quality standards in conformance with Section 144.025(2)(b), Wisconsin Statutes, Section 303(c) of the Federal Clean Water Act, EPA Water Quality standards regulations 40 (CFR part 131), and Section 24 of the Municipal Wastewater Treatment Grant Amendments of 1981. The following issues are considered in the review process:

1. Current and attainable uses of the water body based on its biological, physical, and chemical characteristics

2. Factors impairing attainable uses
  
3. Management necessary to eliminate or control impairing factors considering environmental, technological, and socio-economic consequences of such actions

#### GENERAL DESCRIPTION

The North, Fork, Eau Claire River is a medium hard, light brown colored stream that flows south and then west through the northwest corner of Clark County. Some of its headwaters are in Taylor County. About 75% of the watershed area in Clark County has been cleared and 25% is wooded or wild. Light boat traffic is possible, especially in the lower portion of the stream, and except during high water conditions, portages are frequent.

The reach included in this evaluation is an approximate 6 mile stretch extending from a point 2 miles south of the Taylor County line to the town road bridge 1.5 miles south of Highway 29 (Figure 1). This reach has an overall gradient of 11 feet per mile with the majority of change in elevation occurring in the 2.5-mile segment between the proposed discharge point (site 2) and Highway 29. Land use in the study area is pasture and cropland on the higher elevations. Land within 100 feet of the river is usually pastured with about 75% light use, well-vegetated pasture, and 25% heavy use, close-cropped grass pasture. Bank erosion is worse in the grass pastured areas (see photographs). An active gravel quarry is located near the river on the west bank just south of Highway 29.



Point sources in the study area include Raber Foods and the existing Thorp POTW. Raber Foods operates on a fill and draw basis with very infrequent discharges. This facility has impacted nearby unnamed tributaries with improper whey disposal practices. The Thorp POTW discharges continuously to McGrogan Creek.

At the Highway 29 bridge, the  $Q_{7,10}$  was estimated at 0.5 CFS. Ten-year mean monthly low flows are given in Table 1 (from USGS). Very little drainage area and no significant tributaries are present between the proposed discharge point and Highway 29. Flows measured by the Department were: at site 1 - 2.69 CFS on August 15, 1984, and 70 CFS on October 30, 1984; at site 4 - 25.6 CFS on August 16, 1985, 80 CFS on September 16, 1985, and 10.3 CFS on September 23, 1985.

TABLE 1. Monthly Low Flows, Ten Year Means

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<u>Month</u>	<u>MMQ<sub>10</sub> (cfs)</u>	<u>Month</u>	<u>MMQ<sub>10</sub> (cfs)</u>
January	0.9	July	2.1
February	0.9	August	1.2
March	10.0	September	1.1
April	28.0	October	1.4
May	12.0	November	2.3
June	4.9	December	1.6

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## STREAM HABITAT

In the study reach, the North Fork, Eau Claire River has an estimated average depth of .5 feet near site 1, and 1.75 feet in the lower reaches at normal river stage. Pools 3 to 4 feet in depth are present, especially near bridges. Water depth in riffles is generally 6 to 10 inches. Stream velocities are generally in the .5 to 1.5 FPS range.

Stream substrate is primarily gravel and rubble with sand and silt accumulations in larger pools. Some aquatic macrophytes are present. Sand and silt deposits are more common immediately downstream from the mouth of McGrogan Creek and near site 5. The main factor limiting habitat, when adequate flow is present, appears to be deposition of sediments in pools over the entire reach, and in runs in the downstream portion of the study area. During a storm event on September 23, 1985, tributaries were observed to carry a heavy sediment load and the quarry near Highway 29 was contributing to stream suspended solids. Stream bank erosion is severe only in an estimated 25% of the study area where extensive pasturing has removed bank vegetation.

Available flow also limits habitat. On August 15, 1985, stream flow was 2.69 CFS at site 1. Portions of the streambed were dry on that date. Overall, stream fish and macroinvertebrate habitat is rated fair to good. Habitat rating data is attached as Appendix III. The primary factors limiting habitat are seasonal low flow followed in importance by sedimentation in pools and runs.

## WATER QUALITY

Existing water quality information is listed in Table 2. Sample sites are indicated on Figure 1. McGrogan Creek joins the river between sites 4 and 5 and, prior to 1980, contained very poor water quality due to the Thorp sewage treatment plant effluent. The fecal coliform and BOD<sub>5</sub> data for site 5 may reflect this contribution. Fecal coliforms were high in the river apparently as a result of nonpoint sources. The September 23, 1985, fieldwork was conducted during a storm event. On that day, river fecal coliforms were high and one instance of barnyard runoff into the stream was noticed (see photograph). More sources no doubt exist. The geometric mean fecal coliform count of all river data combined was 240 org/100 ml, and only 66% of the samples were under 400 org/100 ml. Neither figure meets current WDNR bacterial guidelines for recreational use. However, since no significant sources of human wastes are known to be present, the health risk to users should be slight. WDNR is currently considering alternative bacterial guidelines for recreational use.

The lowest summer DO readings occurred at sites 1 and 3 including one value below 5 mg/l at site 3. Sites 1 and 3 are pools, whereas sites 2 and 4 are shallower runs. DO levels at or above saturation were observed in several May through September samples but not in winter samples, suggesting seasonal diel DO fluctuations. It can reasonably be assumed that since all samples were collected during daylight hours, diel DO minima may not have been detected. If significant diel DO change occurs, natural stream DO may drop below 5 mg/l. This would most likely occur during summer low flow conditions. The apparent lower DO in pools could be due to lower reaeration and/or residual effects of low, nighttime DO. Further sampling would be necessary to evaluate the extent, frequency, and magnitude of the diel DO effect.

Table 2. Water Sample Results from the North Fork Eau Claire River  
Near Thorp, WI

Location/ Date	Temp	DO	pH	MFCC/ 100 ml	BOD <sub>5</sub>	NH <sub>3</sub> -N
<u>Site 1 (Town Road)</u>						
2-19-69	2	11.2	7.1	15	4.3	--
7-21-69	27	11.5	8.0	180	2.8	--
8-11-69	26	8.2	7.7	40	<1.0	--
9-23-69	15	7.3	7.4	900	3.1	--
6-5-74	25	12.5	8.3	270	4.3	--
7-9-74	26	6.6	7.4	250	3.4	--
8-7-74	21	6.6	7.8	520	2.5	--
5-20-82	18	9.2	--	--	--	--
8-15-84	22	6.2	6.75	--	--	0.03
10-30-84	5.5	11.2	7.4	--	--	0.02
<u>Site 2 (Town Road)</u>						
2-19-69	2	10.8	7.1	<100	4.3	
7-21-69	26	7.1	7.9	50	1.8	
8-11-69	25	6.9	7.7	40	<1.0	
9-23-69	15	10.6	7.4	280	3.7	
6-5-74	24	10.0	7.9	640	3.7	
7-9-74	27	7.0	7.4	750	4.3	
8-7-74	21	7.7	7.8	180	2.1	
5-20-82	18	9.6	--	--	--	
<u>Site 3 (Hwy X)</u>						
2-19-69	3	11.5	7.1	200	4.0	
7-21-69	26	8.9	7.9	70	1.8	
8-11-69	25	6.2	7.6	50	1.5	
9-23-69	15	8.7	7.5	100	3.7	
1-15-74	1	10.6	7.0	240	3.3	
6-5-74	23	9.3	7.9	320	2.9	
7-9-74	27	5.5	7.6	3700	4.6	
8-7-74	19	2.7	7.2	90	3.1	
<u>Site 5 (Hwy N)</u>						
2-19-69	3	11.9	7.1	<100	3.1	
7-21-69	27	8.9	7.5	480	4.6	
8-11-69	26	7.1	7.6	140	4.3	
9-23-69	15	11.2	7.8	2900	3.7	
1-15-74	1	9.3	7.0	540	6.0	
6-6-74	22	9.1	7.7	370	5.0	
7-9-74	27	7.9	7.6	3500	6.1	
8-7-74	24	12.4	8.8	640	4.3	
<u>Site 4 (Hwy 29)</u>						
9-23-85	14	8.8	7.9	3300	--	0.04

The single DO value below 5 mg/l (2.7 mg/l at site 3) was not matched at the other river stations sampled on the same day. The low value could be the result of a localized, temporary influence such as nonpoint source pollution. Evidence of occasional pollution events in the watershed include known animal waste sources, a history of improper whey disposal by local dairies, and a silage spill. Also, site 3 may be a location which normally experiences lower DO. The average summer DO at site 3, even after omitting the 2.7 value, was lower than the other sites.

As mentioned previously, the greatest stream gradient in the study area is the 2.5 mile segment below the outfall. This should, therefore, be the best overall river segment to receive the wastewater effluent from a reaeration standpoint. However, this segment also contains the pool at site 3 and possibly some other pools.

Two pH values above 8.0 s.u. were observed. The values were probably the result of the diel effect of primary producers. DO saturation was 140% greater at the time the samples were collected.

In general, water quality in the study reach is good and adequate to support fish and aquatic life, as well as recreational use most of the time. Occasional high fecal coliform counts occur and are apparently of nonhuman origin. Diel DO minima may drop below 5 mg/l in some parts of the stream. Stream gradient in the proposed discharge area should promote stream reaeration.

## BIOLOGY

The chemistry data suggests significant diel changes in DO and, therefore, significant primary production in the river. Periphyton growth was described as "slight" and aquatic macrophyte growth as "moderate" at site 1 on August 15, 1984. Observations on periphyton and macrophyte growth at the other sites during the summer are not available.

Surveys of the fishery in the North Fork, Eau Claire River were conducted at sites 1, 3, and 4 (Table 3). Using the classification system of Ball and compositing the data from all sites in the study reach, the fishery consisted of 2% very tolerant forage and rough species, 59% tolerant forage species, 33% intolerant forage species, and 6% sport fish. A total of 26 species were found. Sport fish were primarily smallmouth bass and rock bass. The forage fishery was abundant and diverse, consisting mainly of "tolerant" species.

## ATTAINABLE USES

The North Fork, Eau Claire River currently supports an abundant, diverse forage fishery and a sport fishery consisting primarily of smallmouth bass and rock bass. The sport fishery is an important beneficial use as there are few sport fisheries in the area. Also, much of the river in the study area is wooded or wetland with low intensity pasturing and, as such, has much aesthetic value. The primary factor limiting aquatic habitat is probably low summer stream flow.

Table 3. Fish Survey Data (Results are individuals observed.)

<u>Site Number</u>	<u>1</u>	<u>3</u>	<u>4</u> Upstream	<u>4</u> Downstream
Bigmouth shiner	25			
Black bullhead		1		1
Blacknose dace	6			
Blackside darter	12	12	2	9
Brassy minnow	13			17
Burbot		1		
Common shiner	99	23	54	97
Creek chub	19	6		8
Emerald shiner	5	3		62
Fantail darter	9			
Fathead minnow	15			
Hornyhead chub	20	10	4	18
Johnny darter	8			
Largescale stoneroller	85	4		1
Longnose dace		12	19	3
Musky or northern pike				1*
Northern brook lamprey				2
Northern hogsucker	5	8		2
Rainbow darter	23			6
Rock bass	4	12	1	5
Shorthead redhorse		5		3
Smallmouth bass	3	17	1	6
Southern redbelly dace	9			
White sucker	27	11		24
Yellow perch				1
Total number	387	125	81	266
Number of species	18	14	6	18

\* Observed but escaped capture.

Boating is possible but limited due to low flow. Swimming is possible in the study reach, although it is not well-suited for this use, especially during summer low flow. During rainfall induced summer high flows, river fecal coliforms would probably be above current guidelines due to agricultural nonpoint sources. However, since no significant sources of human waste are known to be present, the health risk to users should be slight.

#### IMPAIRING FACTORS AND MANAGEMENT

The North Fork, Eau Claire River is currently meeting its attainable uses, and supports an abundant, diverse forage fishery, a sport fishery and recreational use. Low stream flow is probably the main limiting factor. BOD<sub>5</sub> and NH<sub>3</sub>-N limitations on the proposed Thorp discharge should protect use attainment in the river. The additional flow from the effluent may be beneficial at certain critical times. The potential effect of effluent nutrients on diel stream DO cannot be estimated. The discharge of the Thorp POTW will be coordinated with that of Raber Foods so they do not discharge at the same time. Both facilities have waste storage capability making it possible for Thorp to shut down while Raber Foods discharges waste from their lagoon system. This management procedure will insure against the impact of multiple point source discharges.

#### CLASSIFICATION AND WATER QUALITY STANDARDS

In Wisconsin, all surface waters are considered to have water quality adequate for the "protection and propagation of fish, shellfish, and wildlife, and for recreation" unless otherwise specified using the variance procedure outlined

in Chapter NR 104, Wisconsin Administrative Code. An evaluation of a stream's designated uses and water quality standards is done when a proposal is made to issue or alter an existing WPDES surface water discharge permit. The North Fork, Eau Claire River in the vicinity of Thorp was determined to be capable of supporting all the above-mentioned uses in 1982 when a WPDES permit was issued to Raber Foods (formerly Wild Cherry Dairy) located about 2 miles northwest of Thorp.

Based on this review of available chemical, physical, and biological data, the North Fork, Eau Claire River is properly classified as a warm water fish and aquatic life and recreational use stream. The stream is supporting a warm water sport fishery and is used for water based recreation.

The Department of Natural Resources believes it is essential to protect water quality to ensure the survival of aquatic life and recreational uses in the North Fork, Eau Claire River. Water quality standards for this class of stream are codified in Chapter NR 102, Wisconsin Administrative Code, which is attached as Appendix I.

Effluent limits for the proposed discharge from the City of Thorp have been developed to maintain water quality standards in the North Fork, Eau Claire River. The limits and method of calculation are attached as Appendix II.

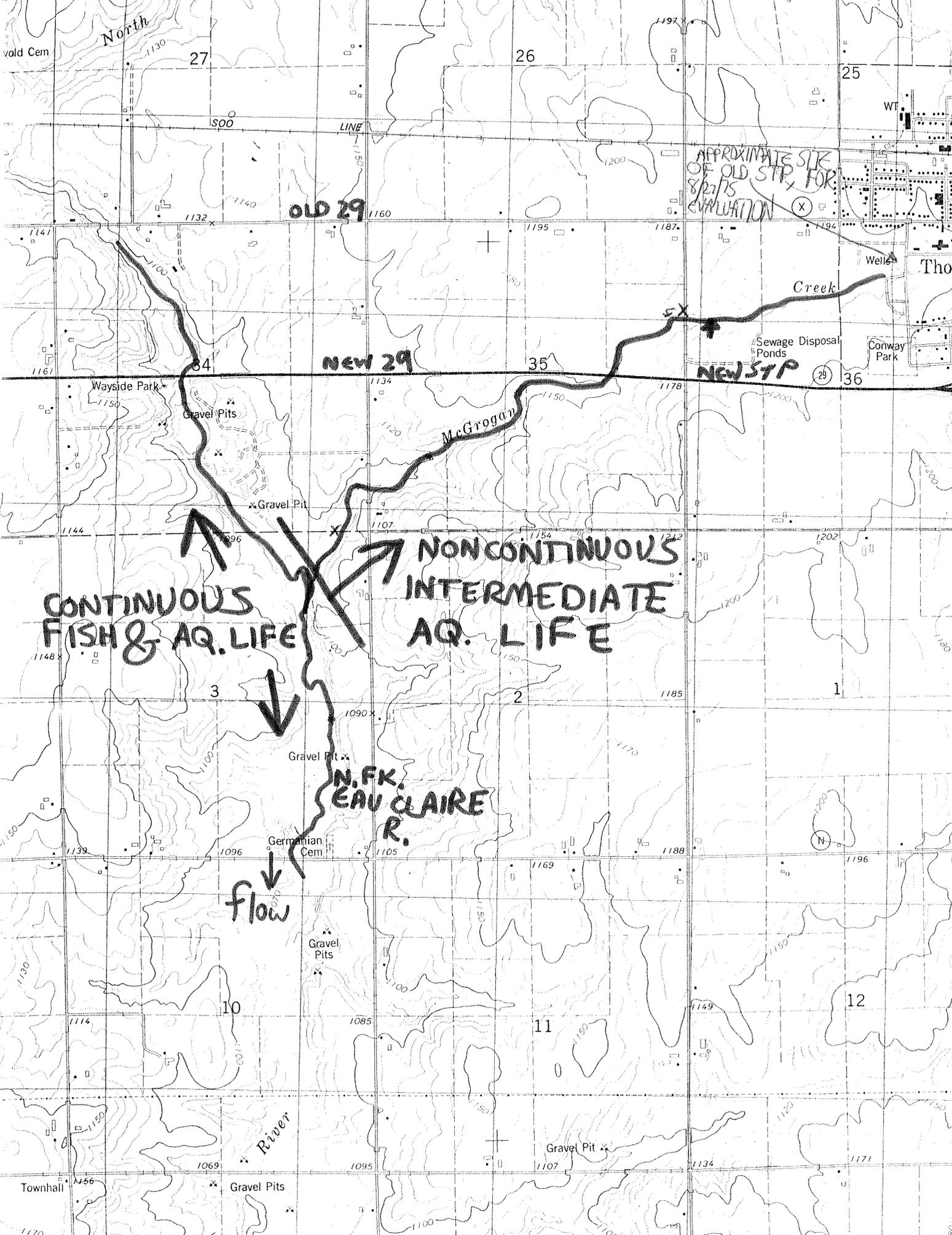
RECOMMENDATIONS:

The tributary stream of North Fork Eau Claire River receiving Thorp WWTP effluent, from outfall to North Fork Eau Claire River, shall be classified noncontinuous, intermediate aquatic life. North Fork Eau Claire River is classified continuous, fish and aquatic life.

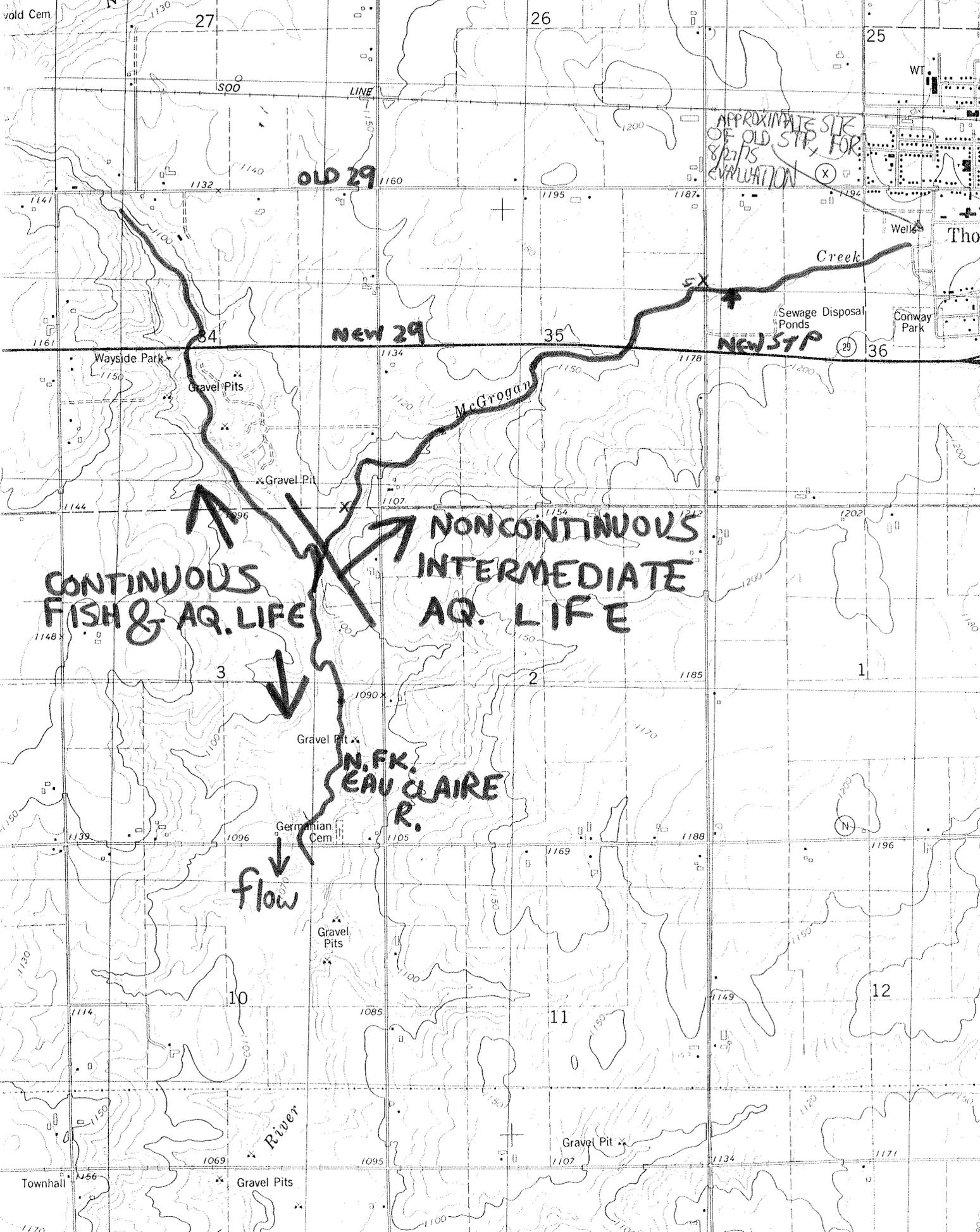
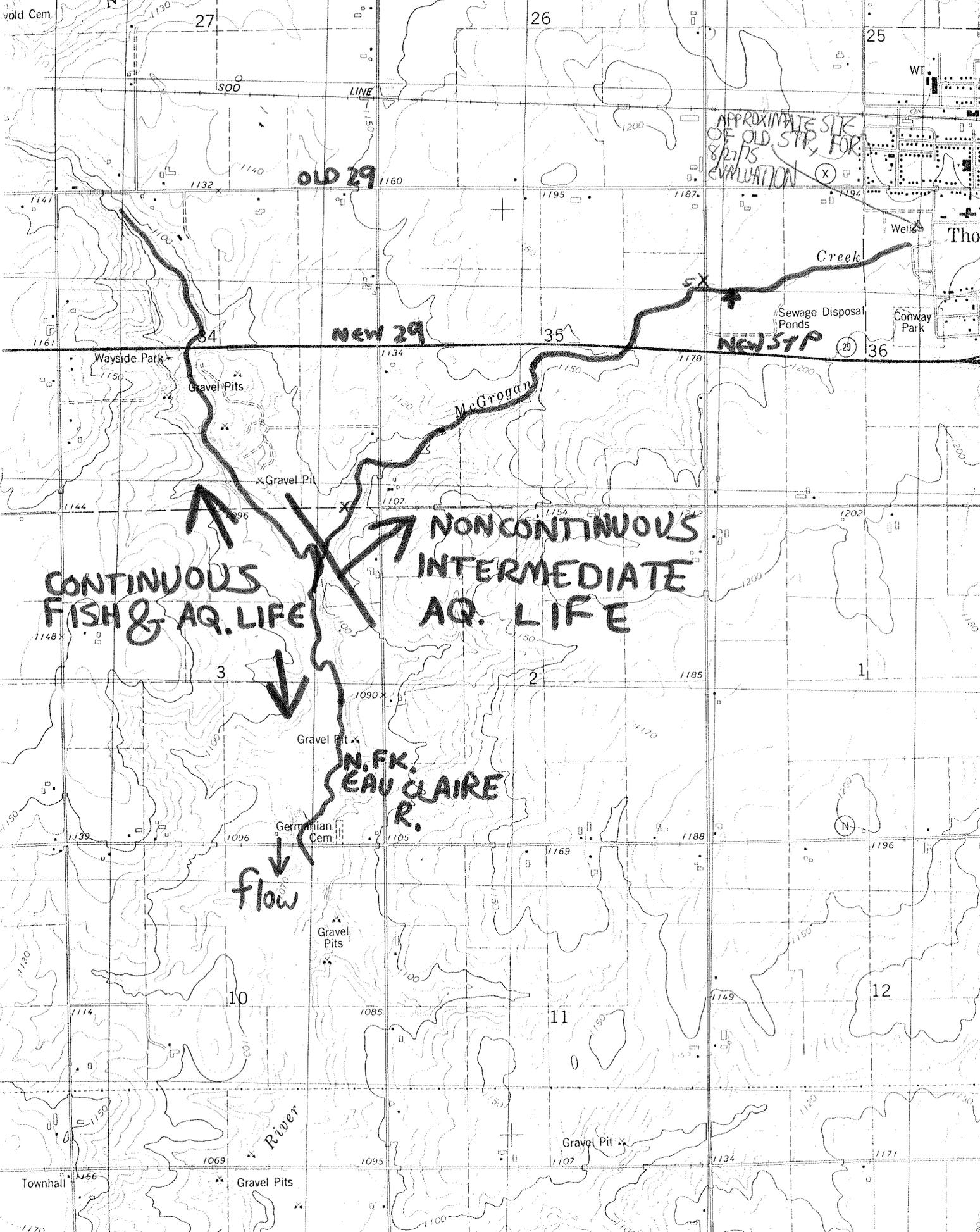
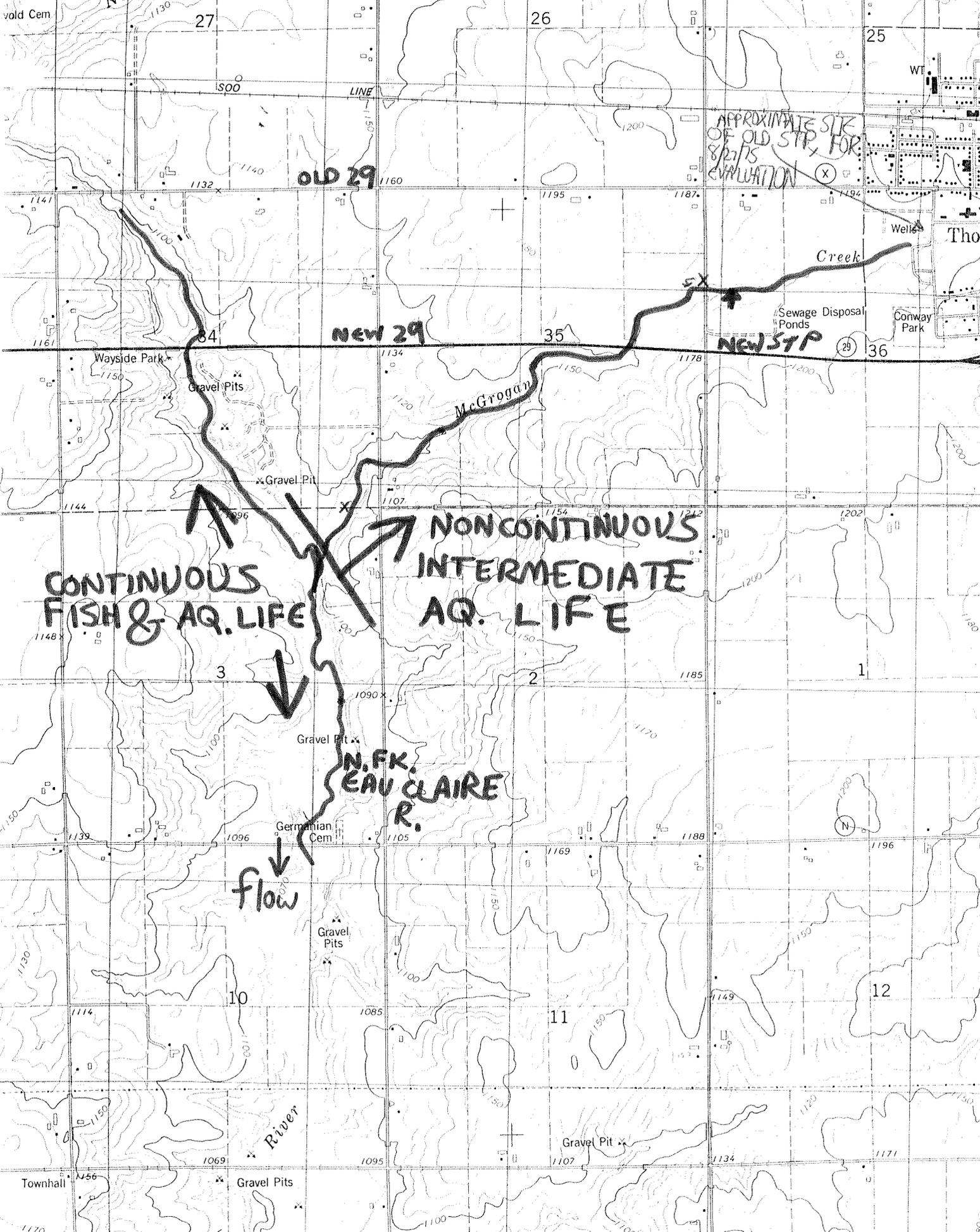
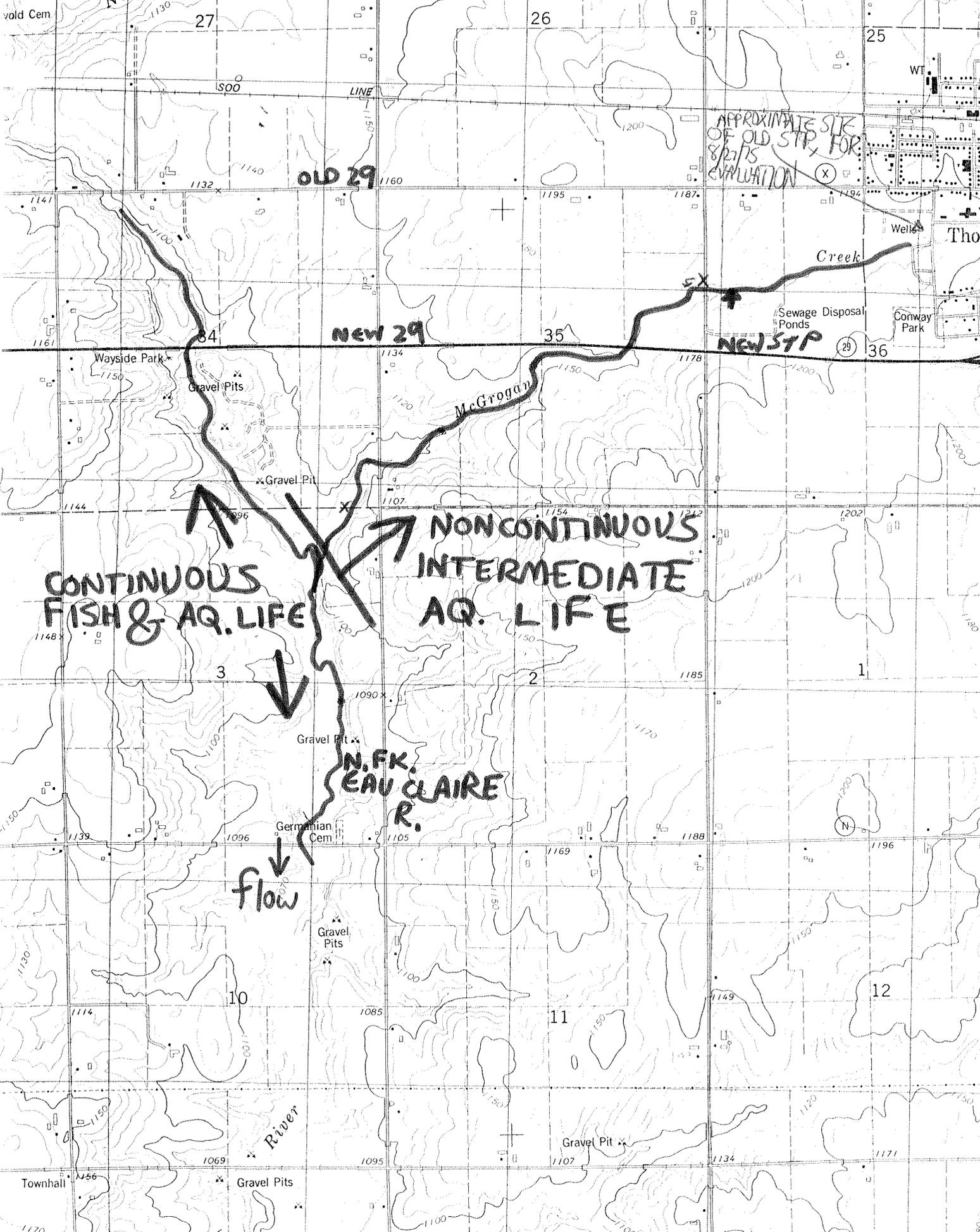
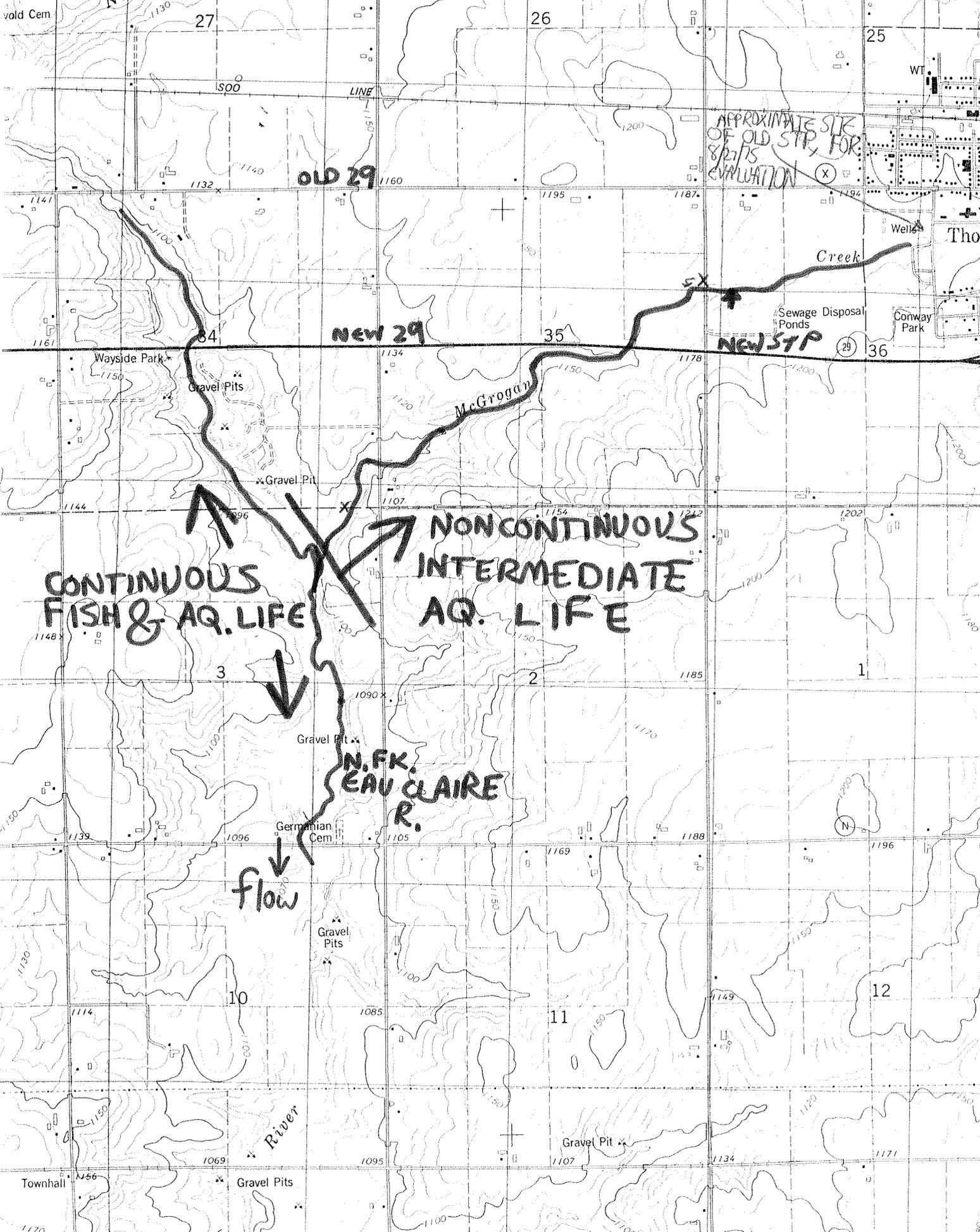
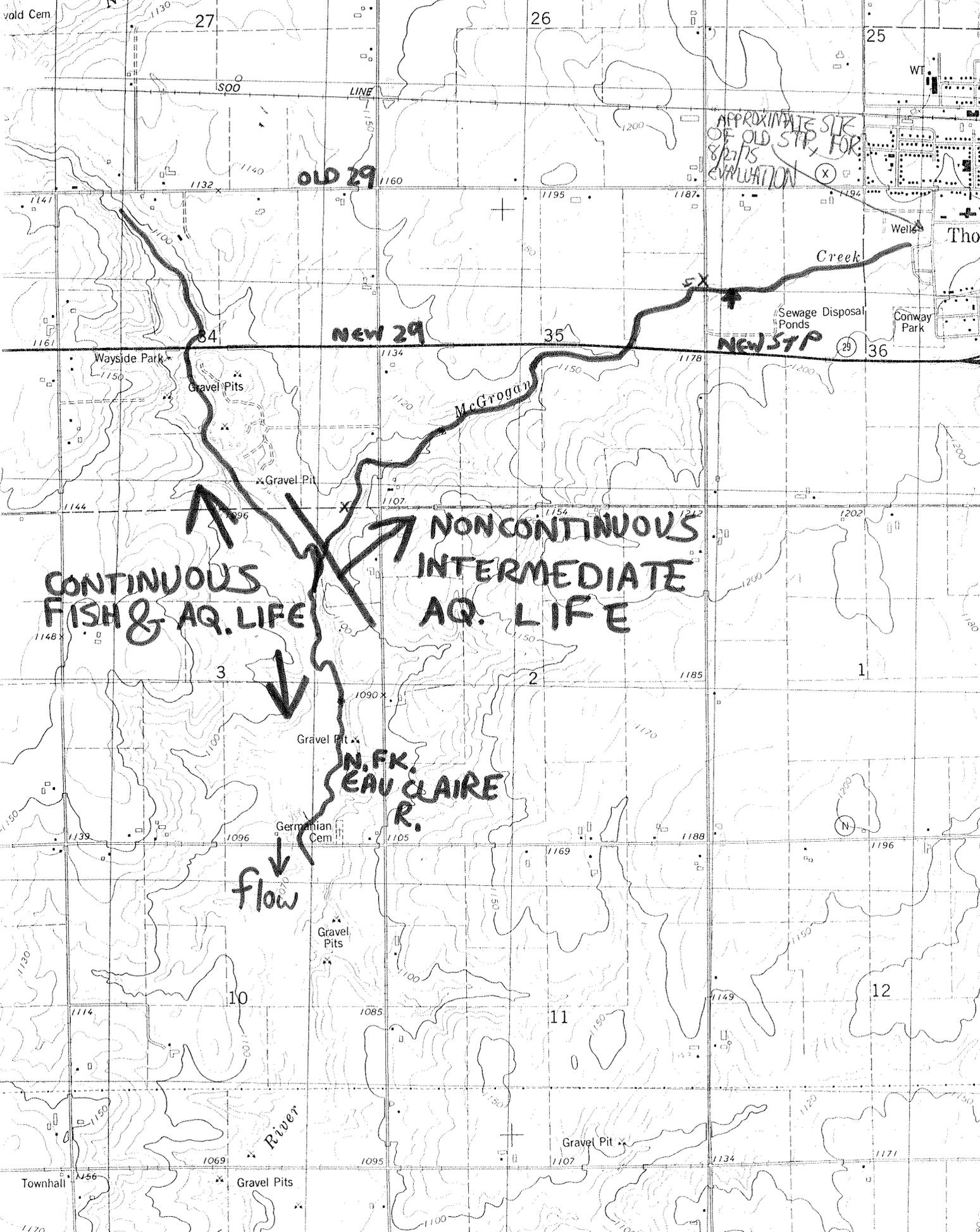
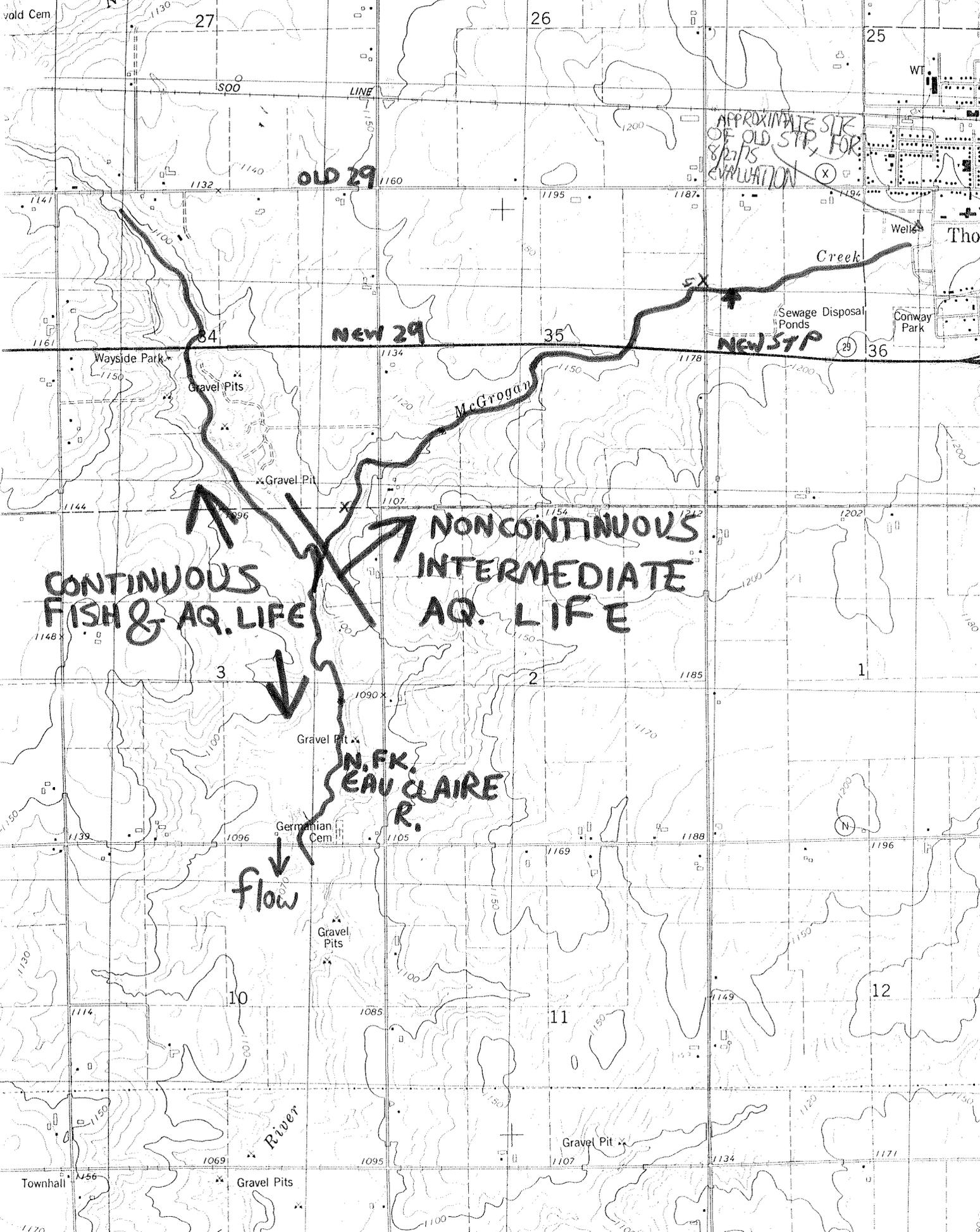
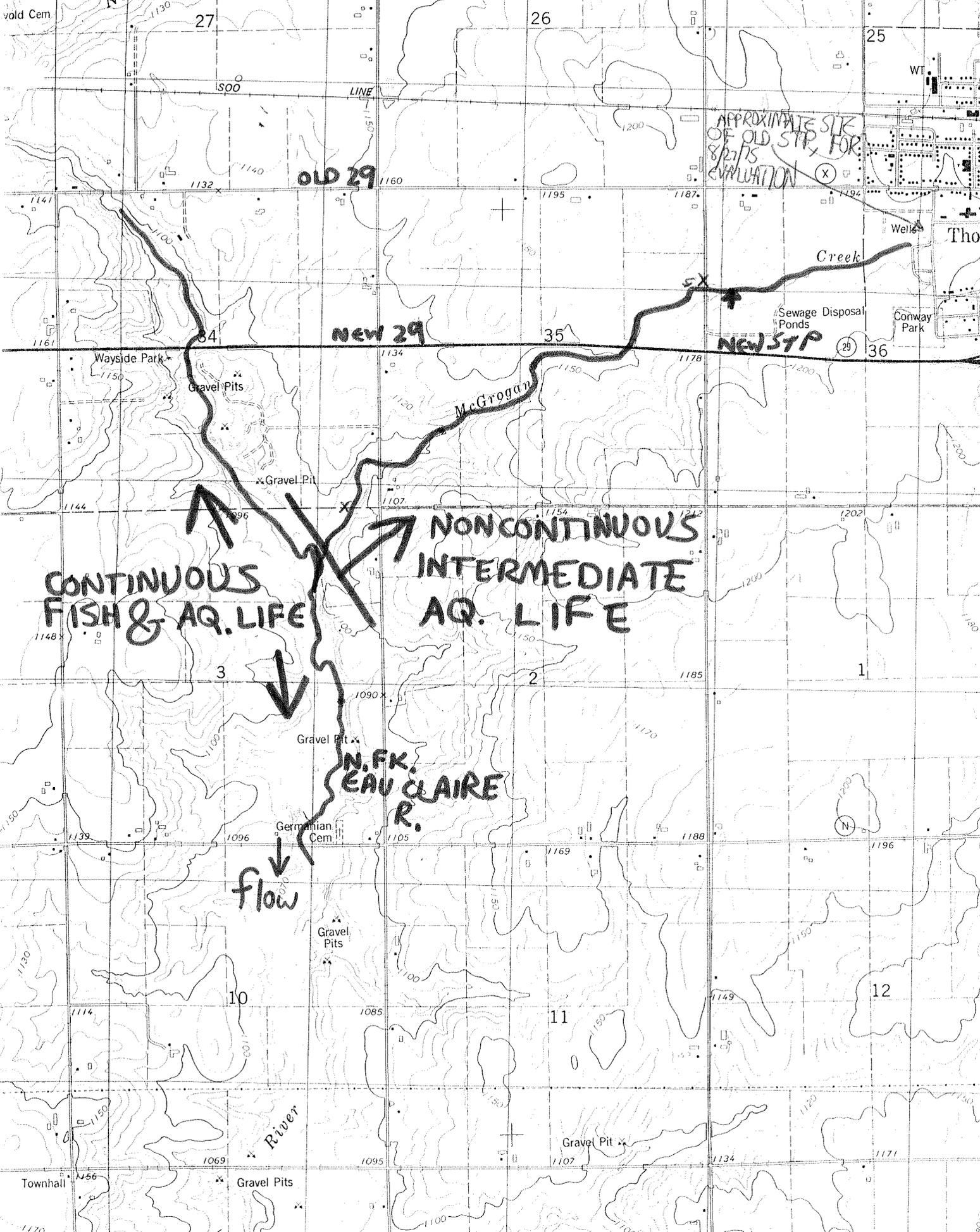
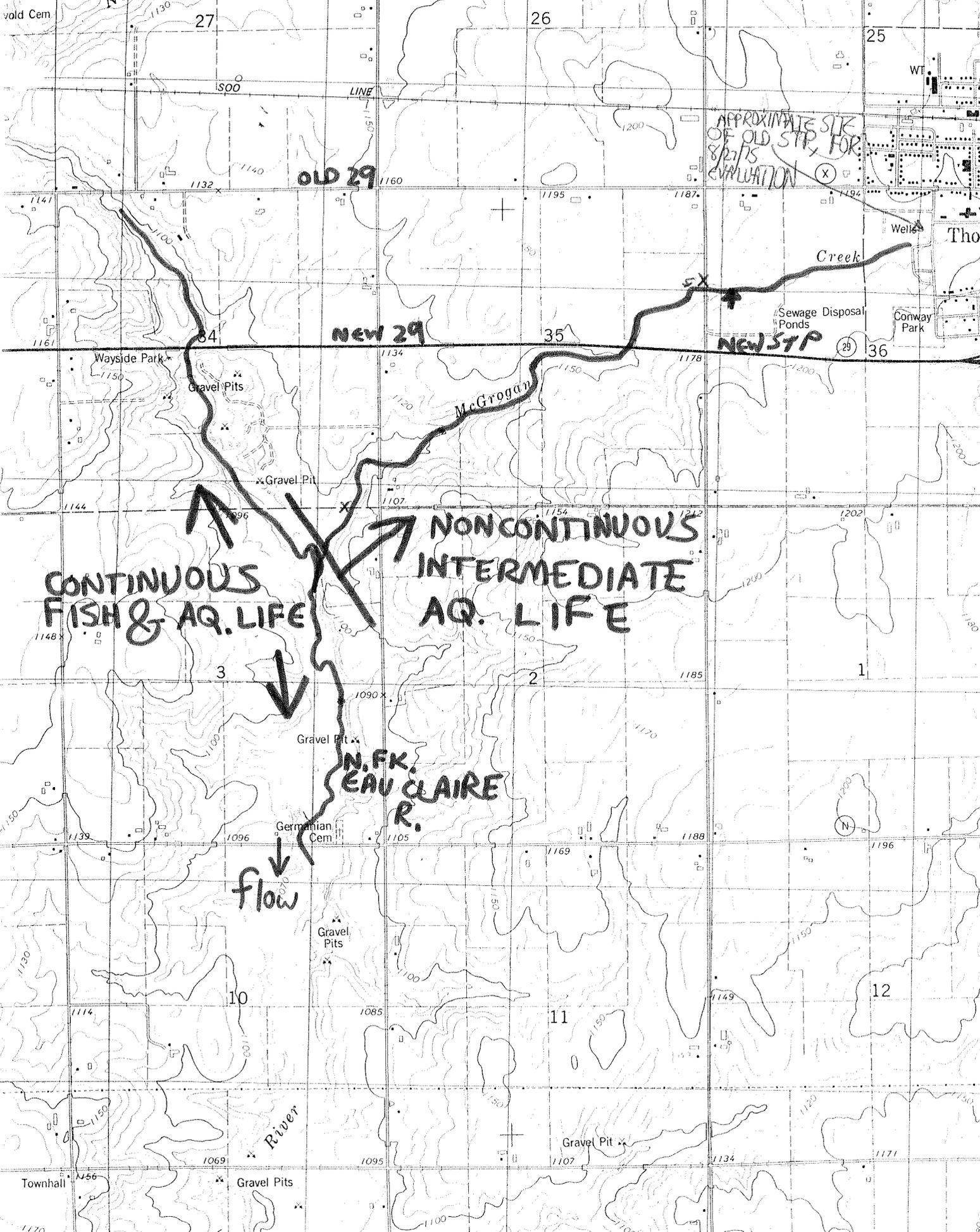
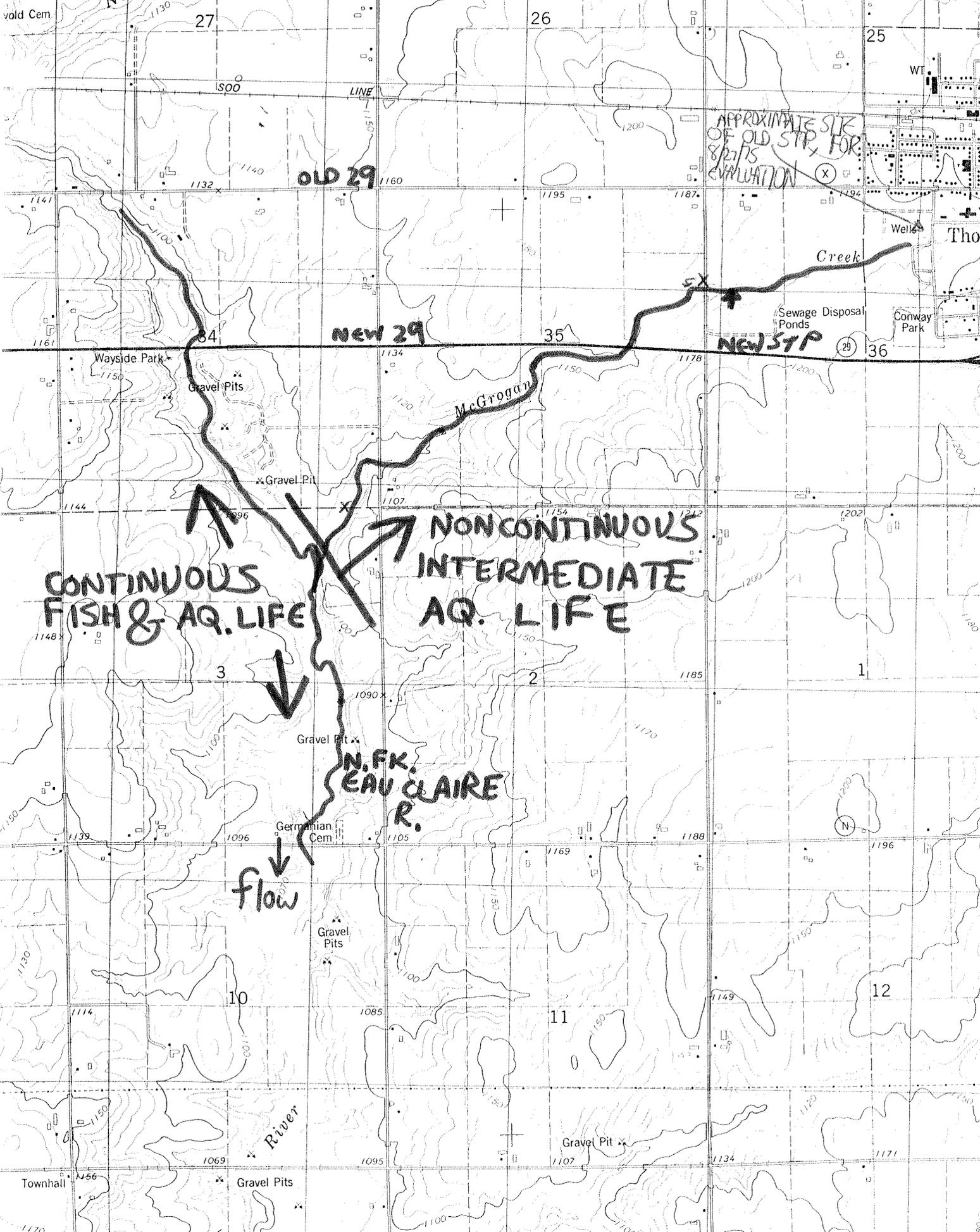
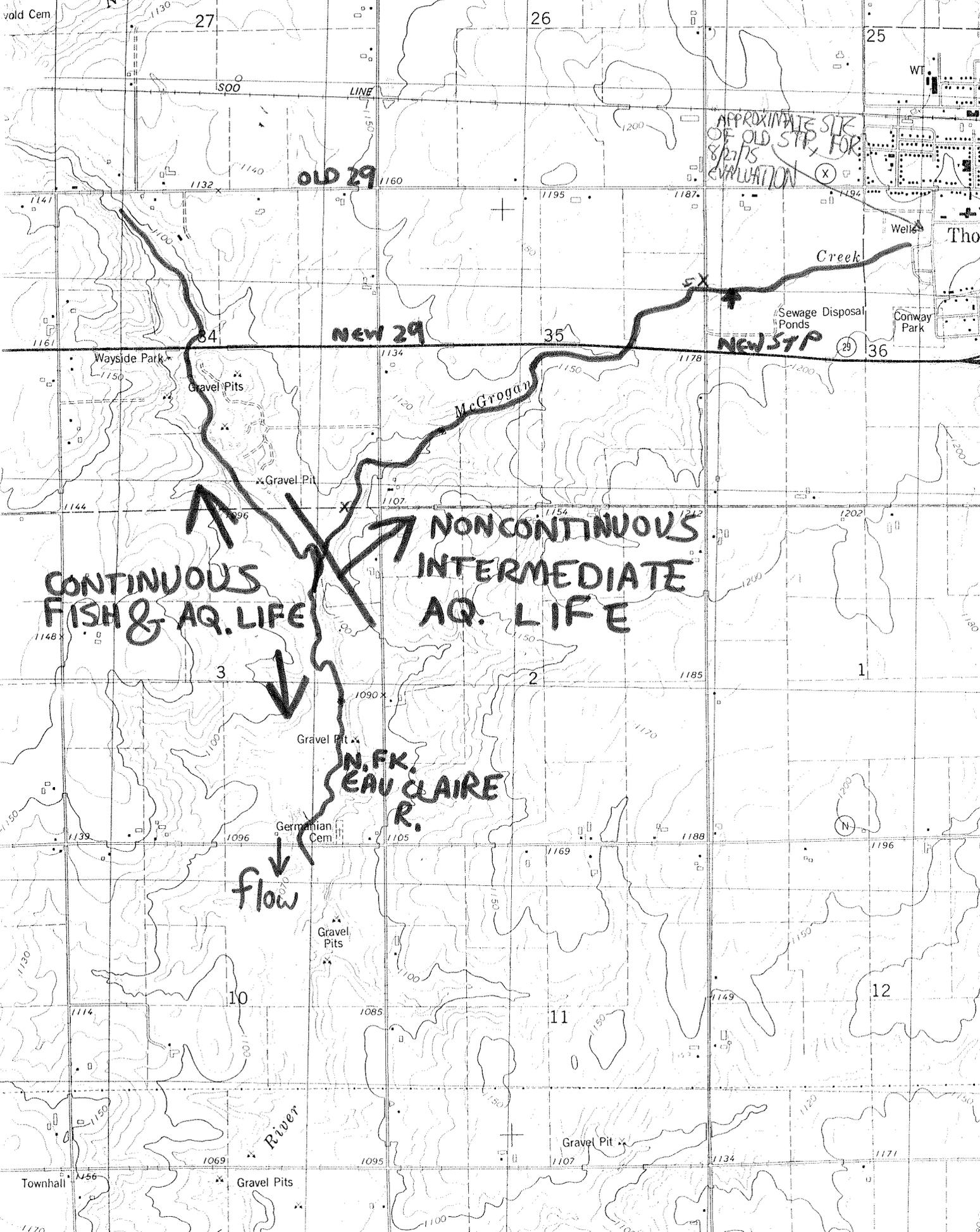
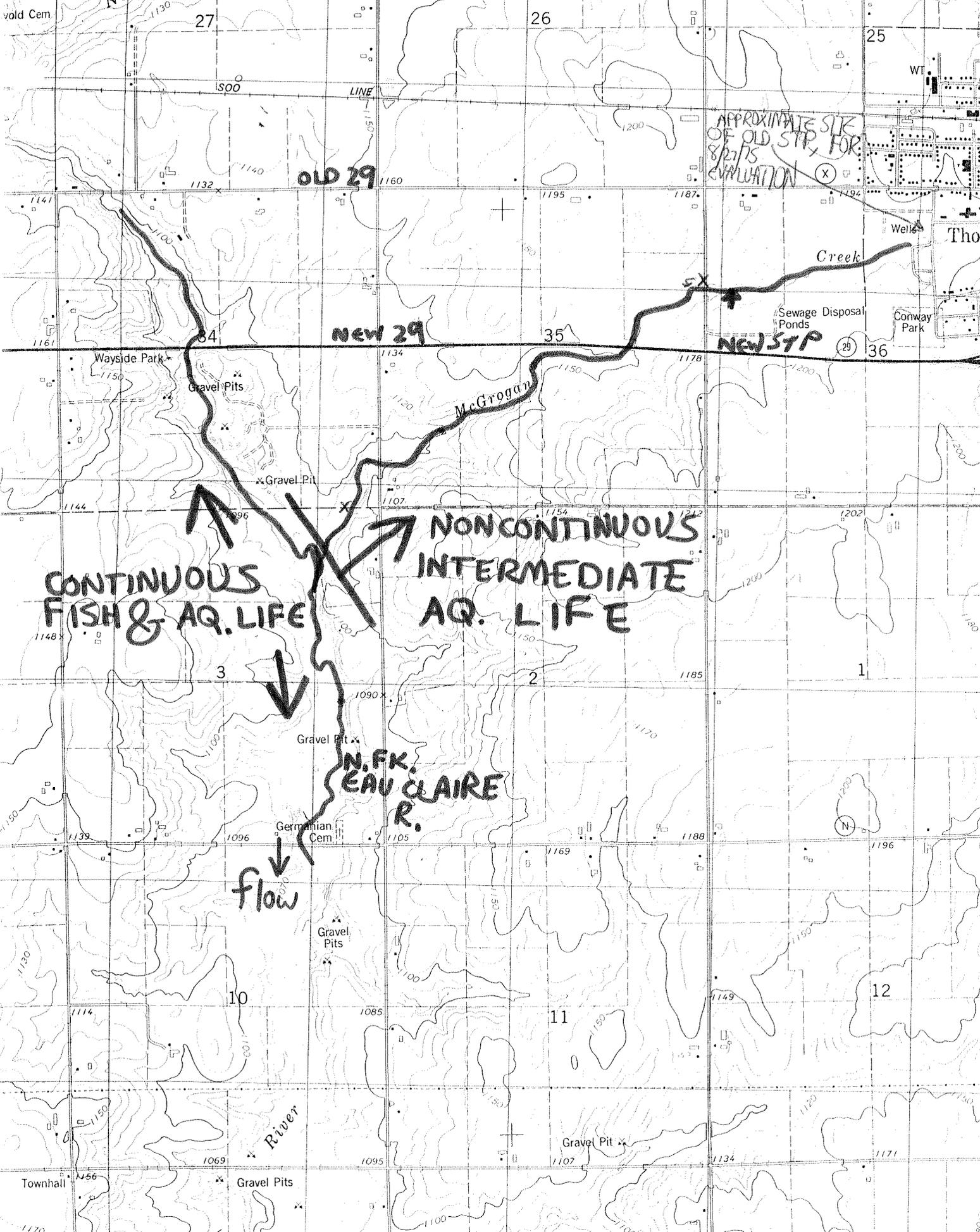
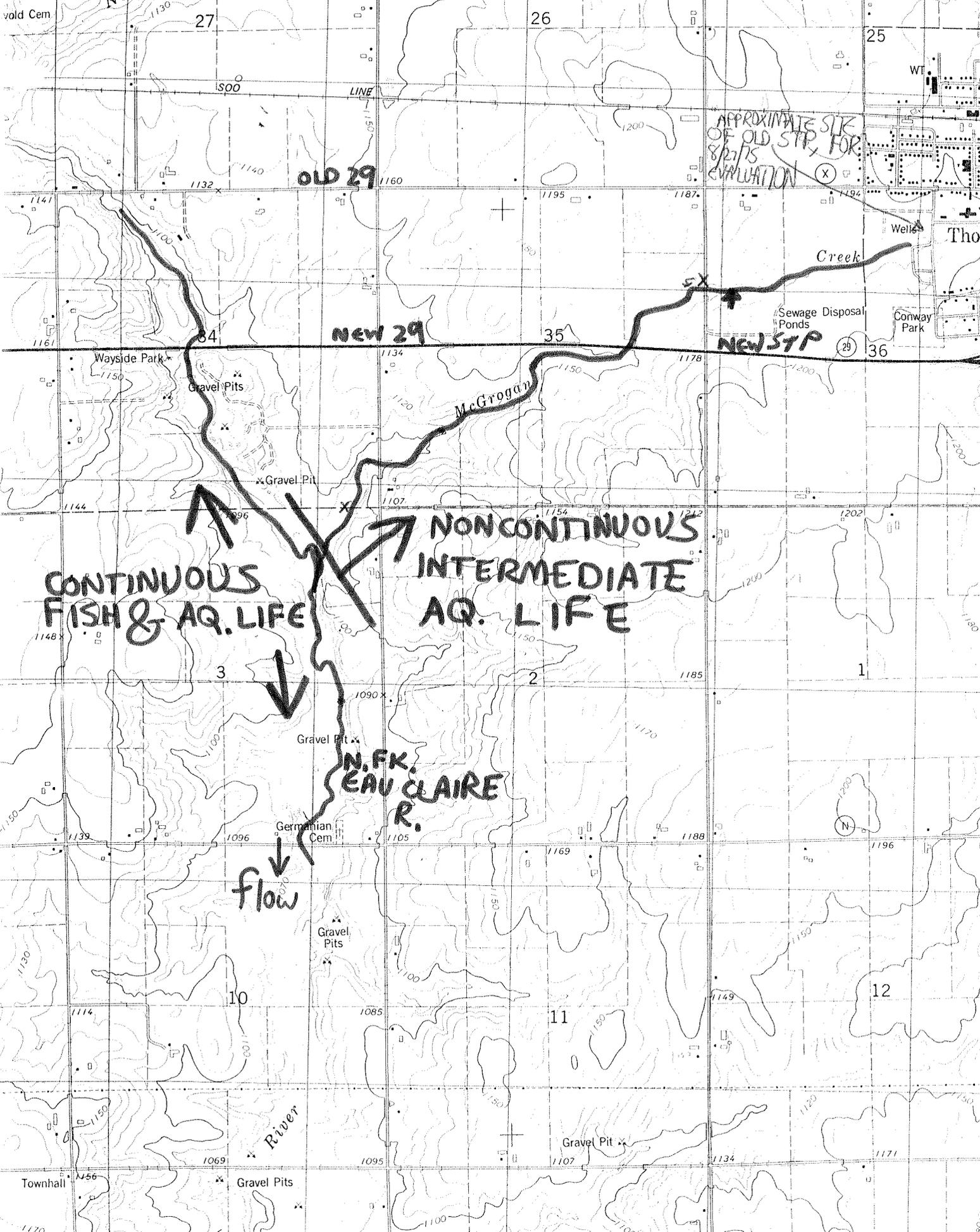
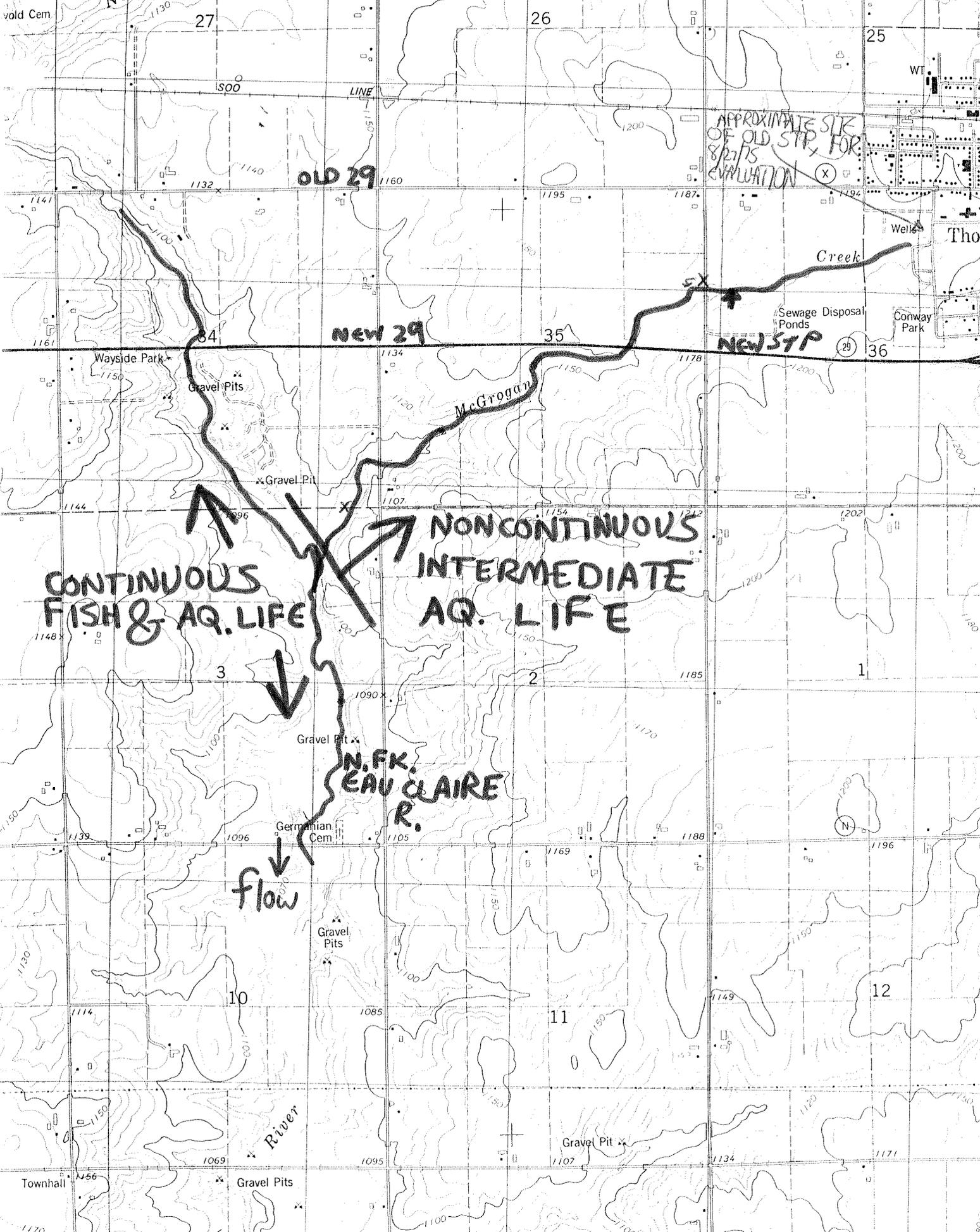
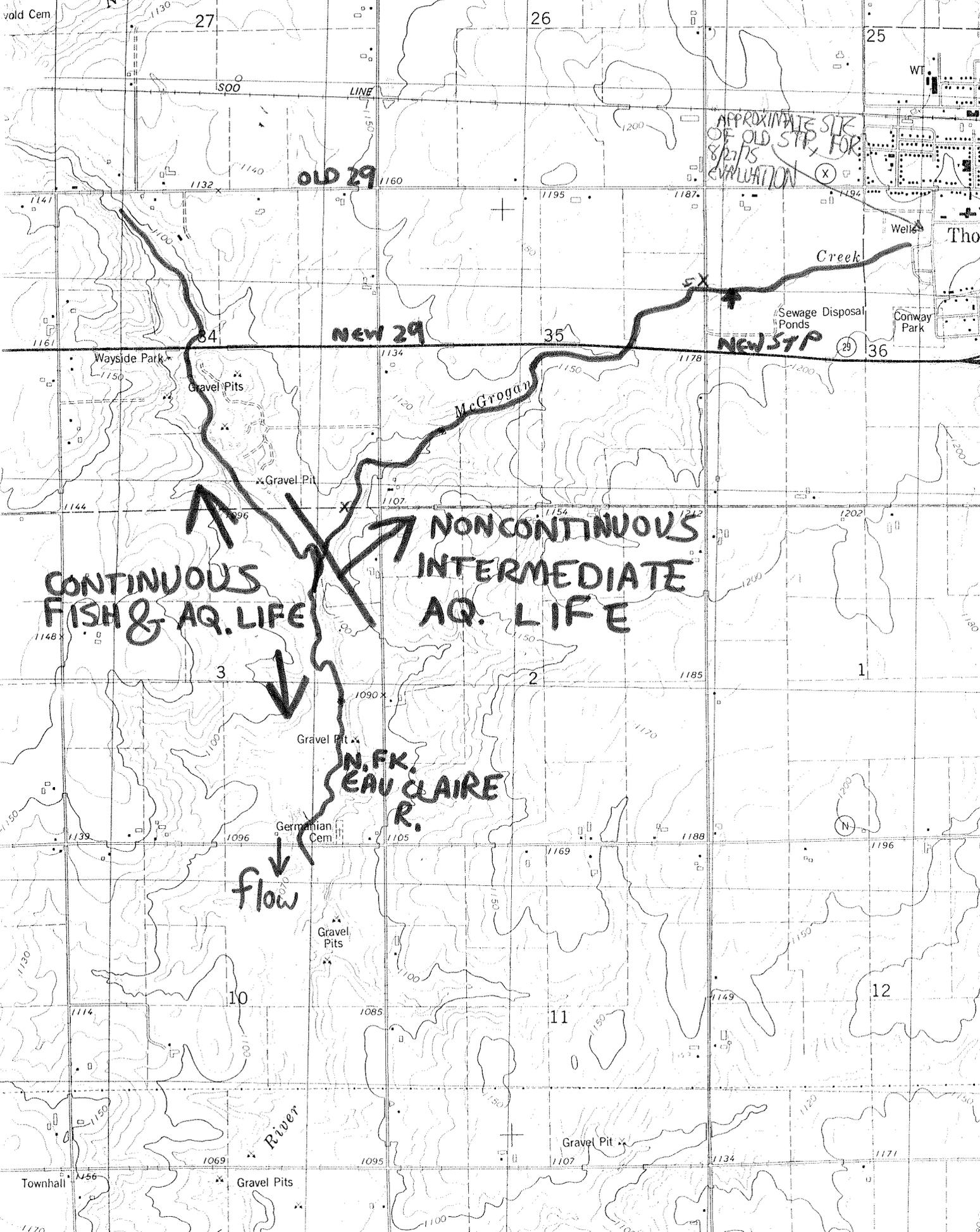
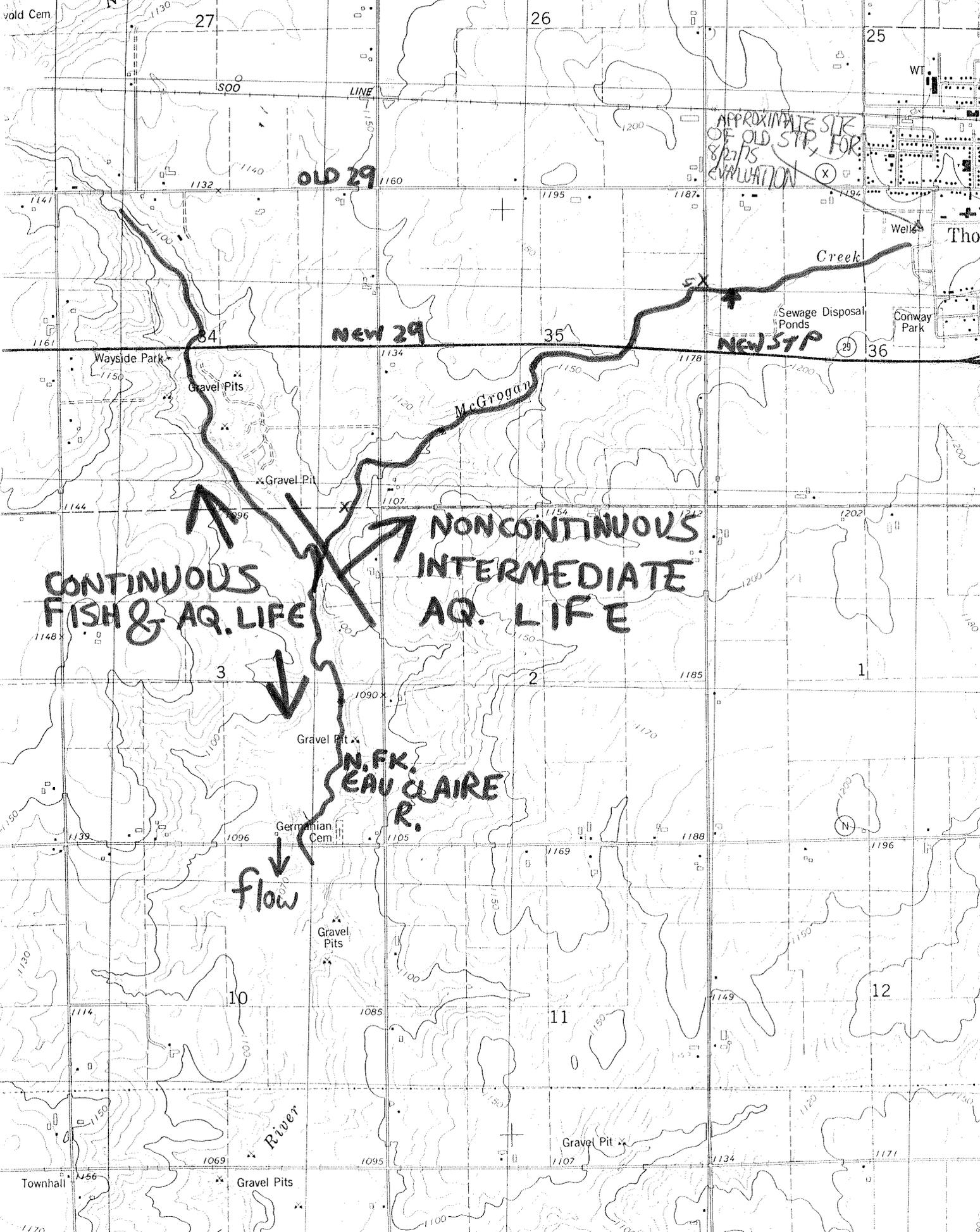
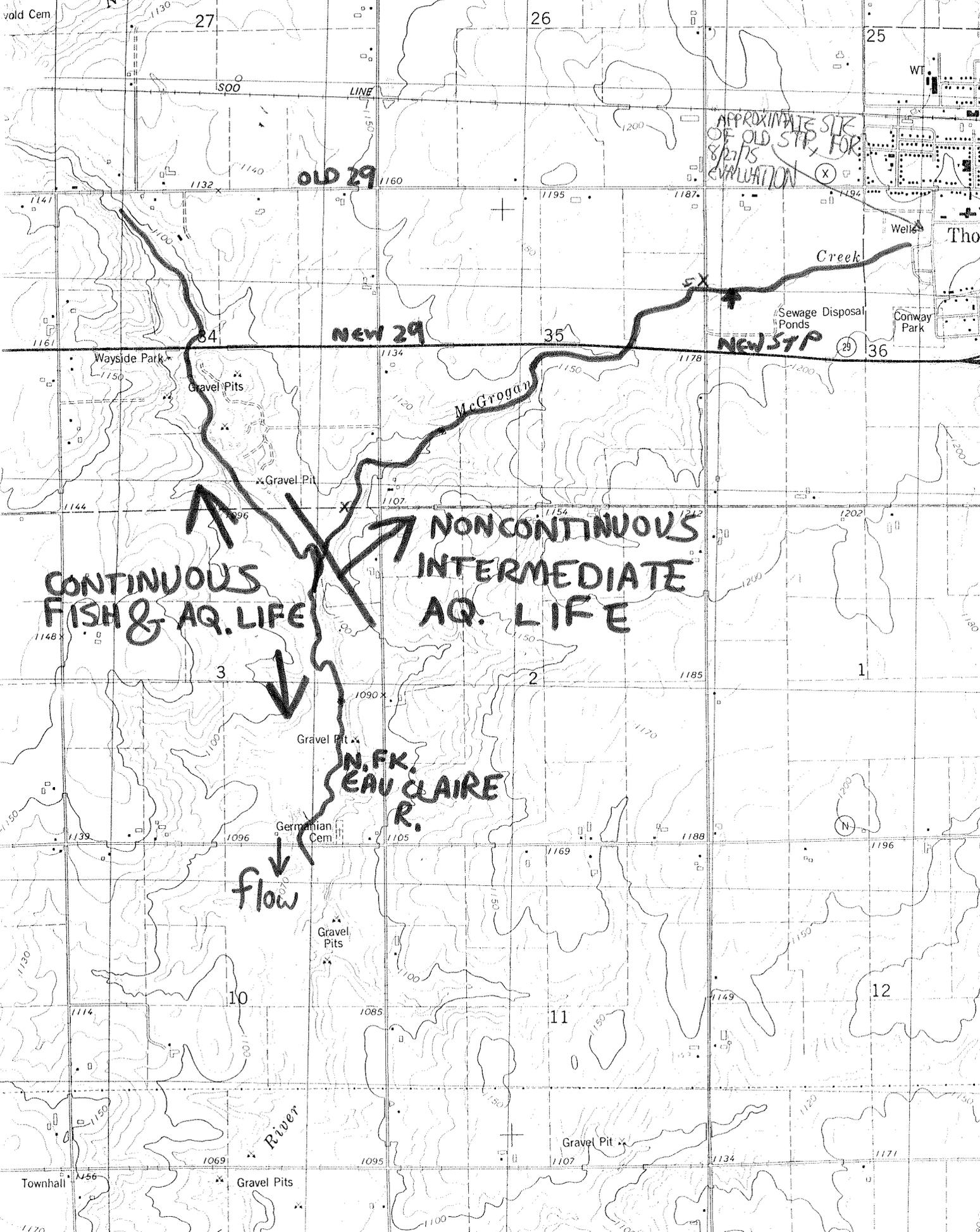
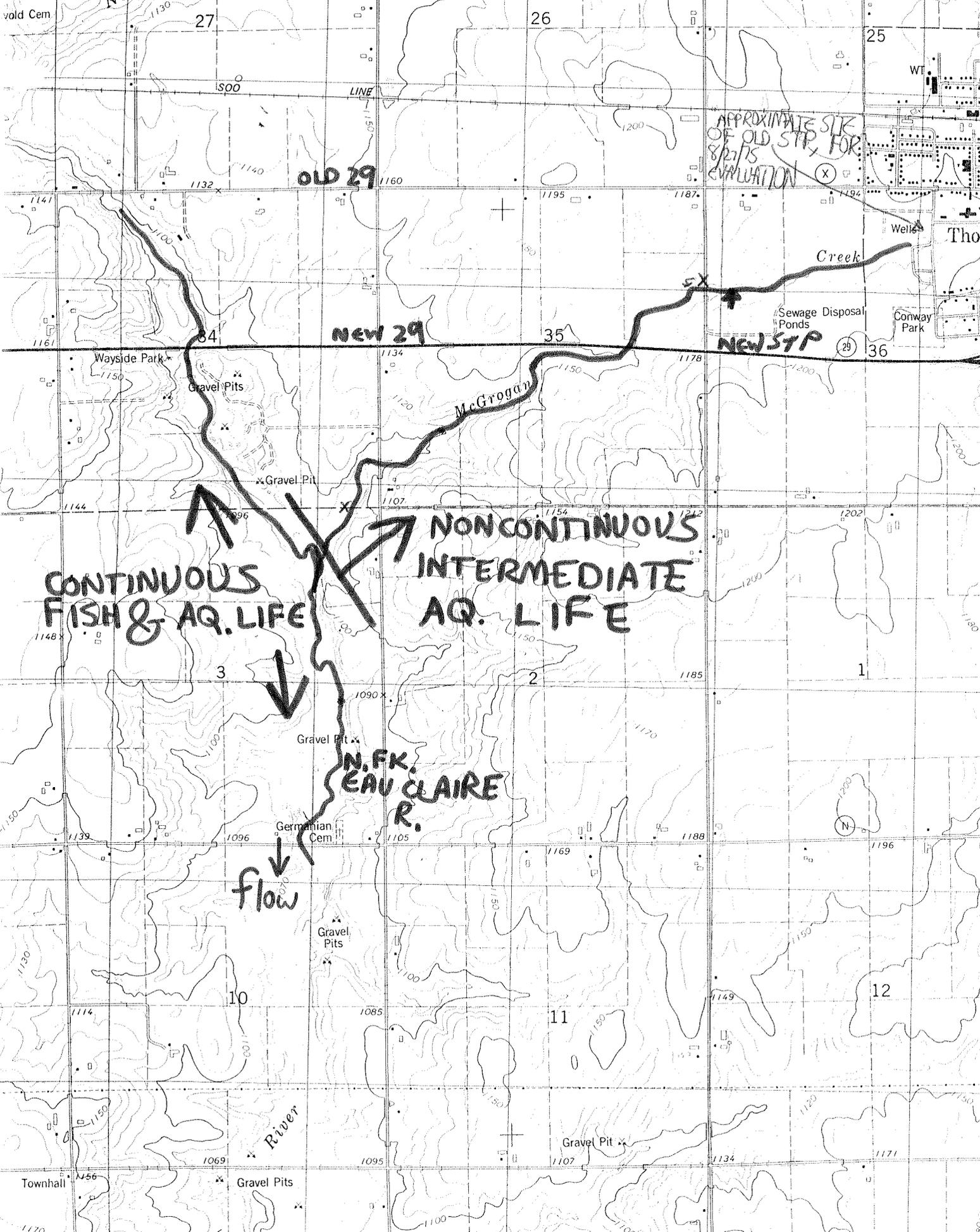
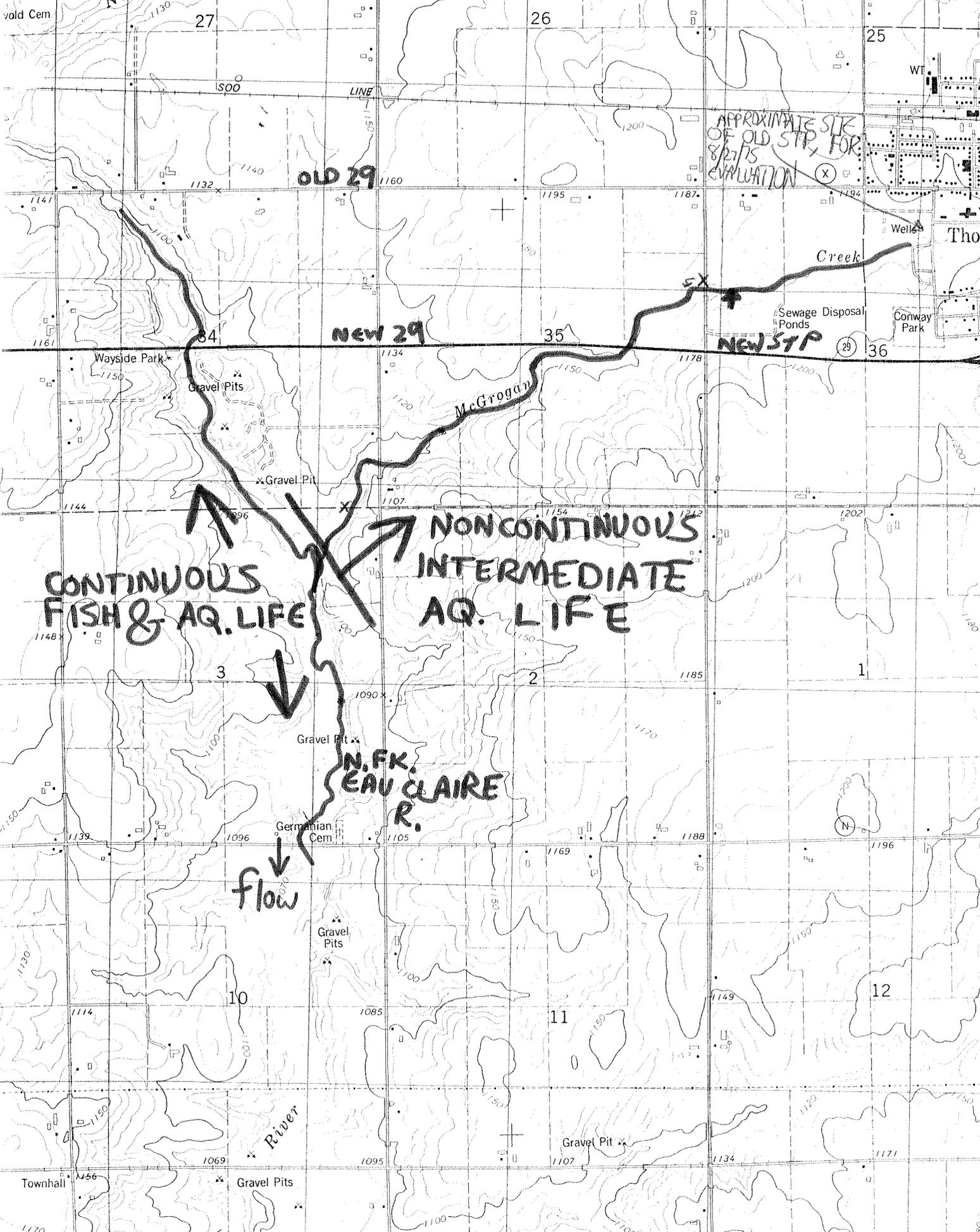
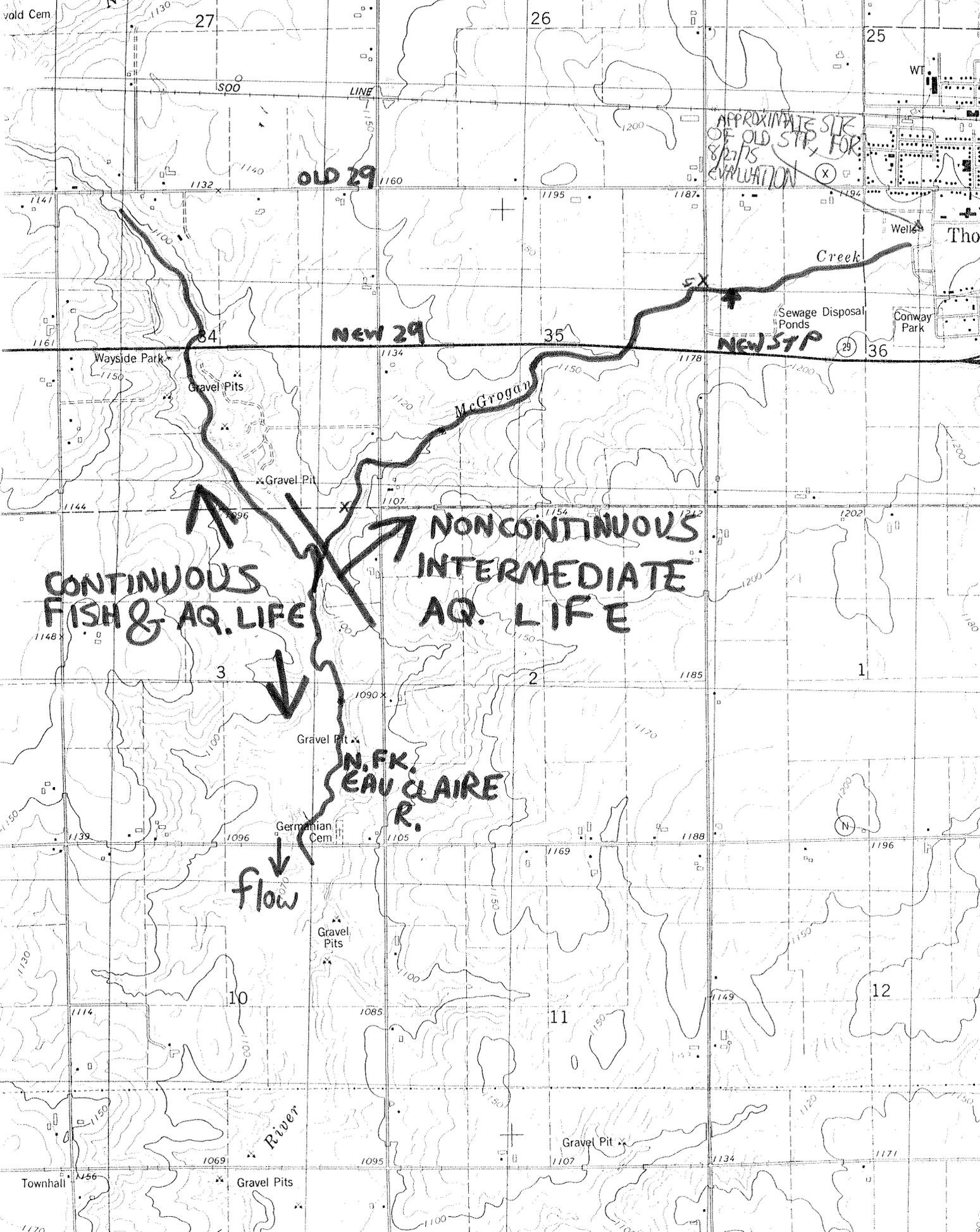
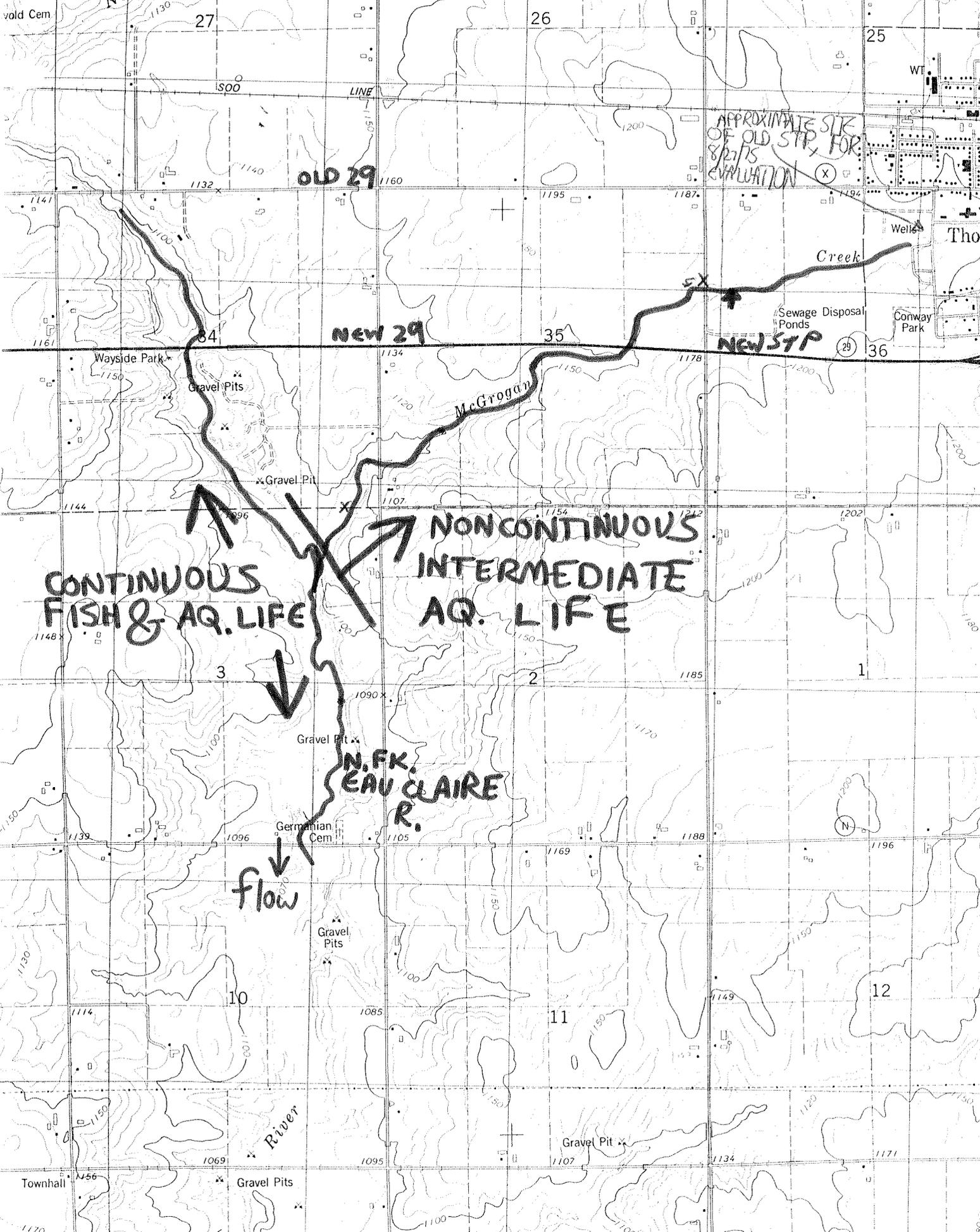
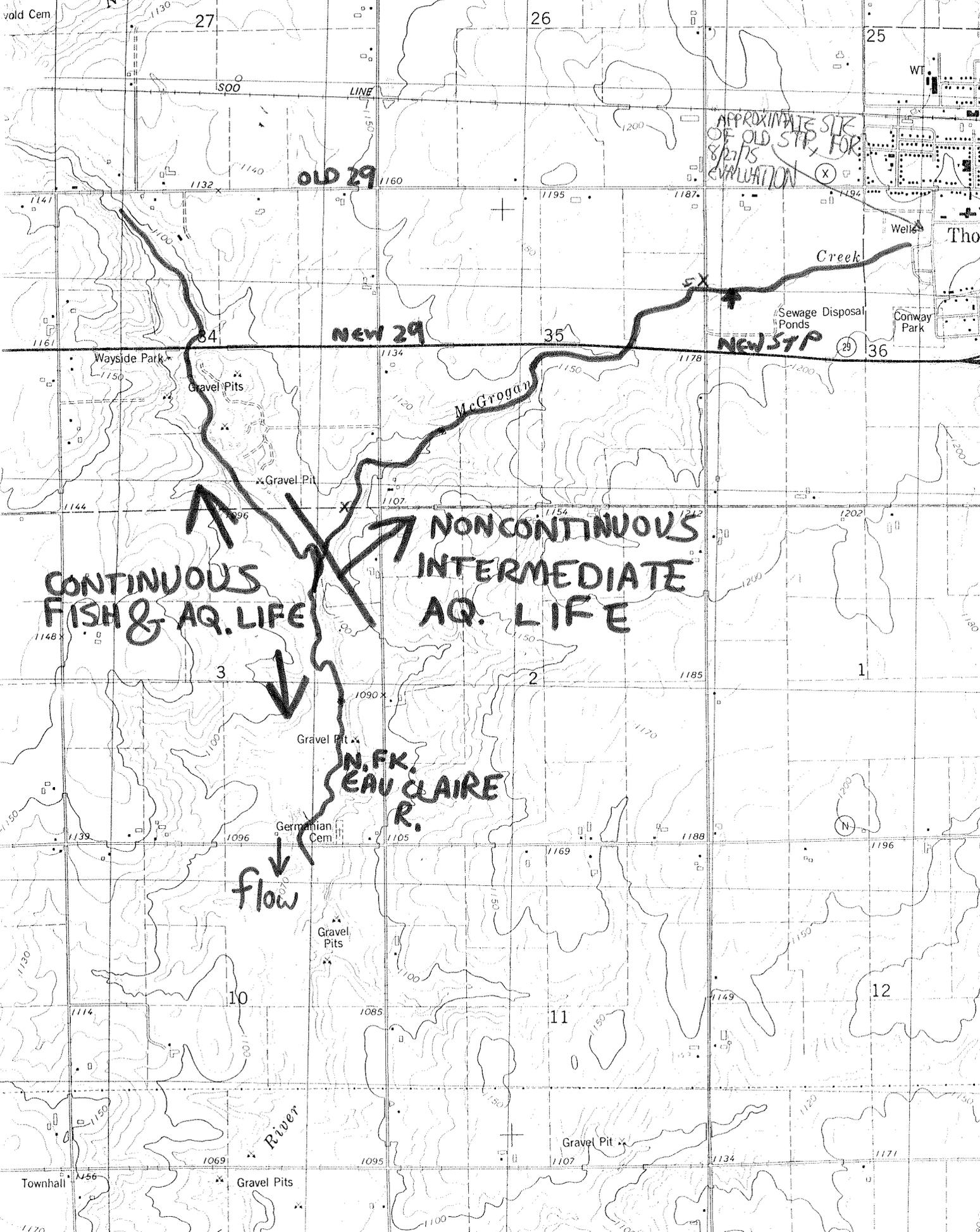
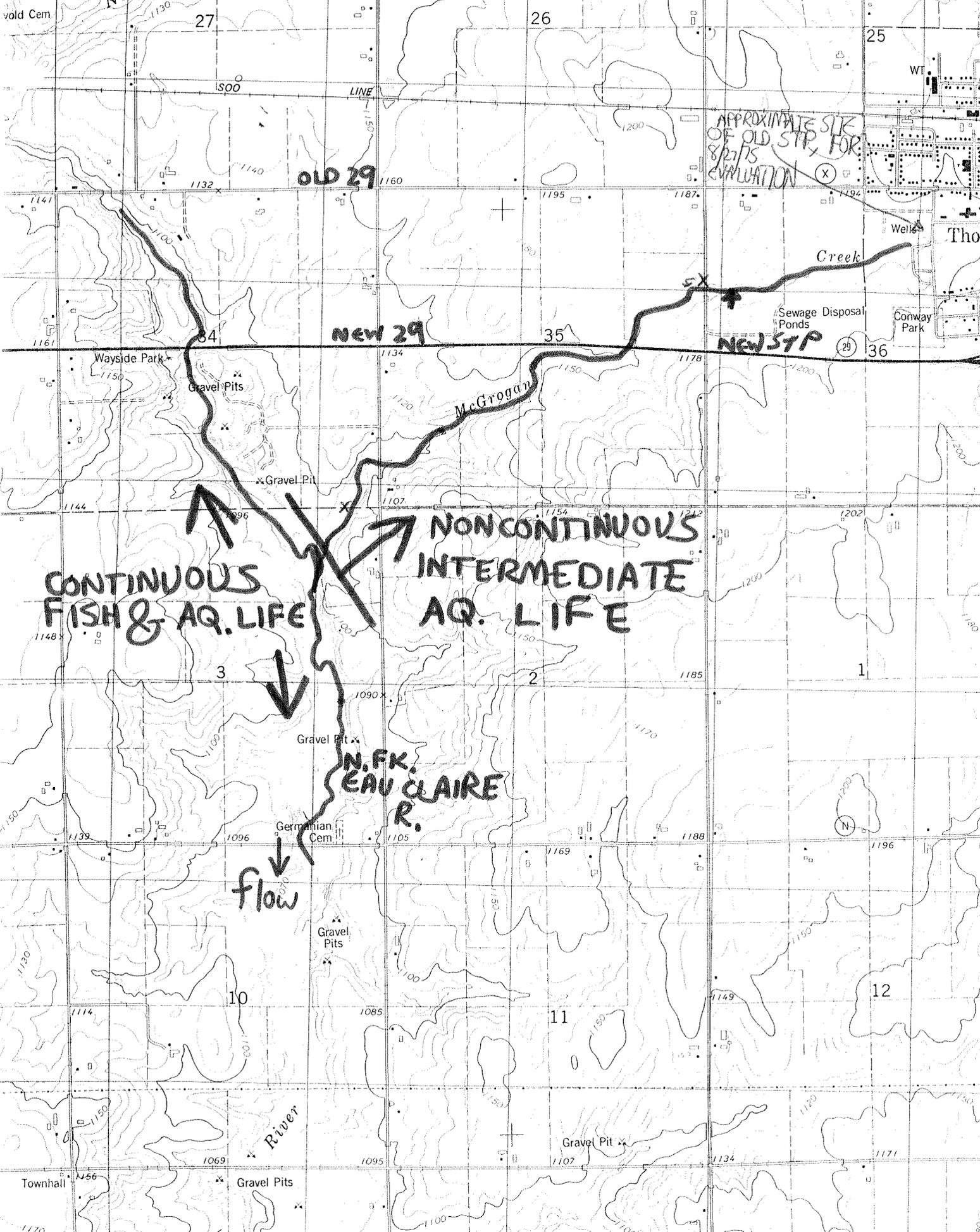
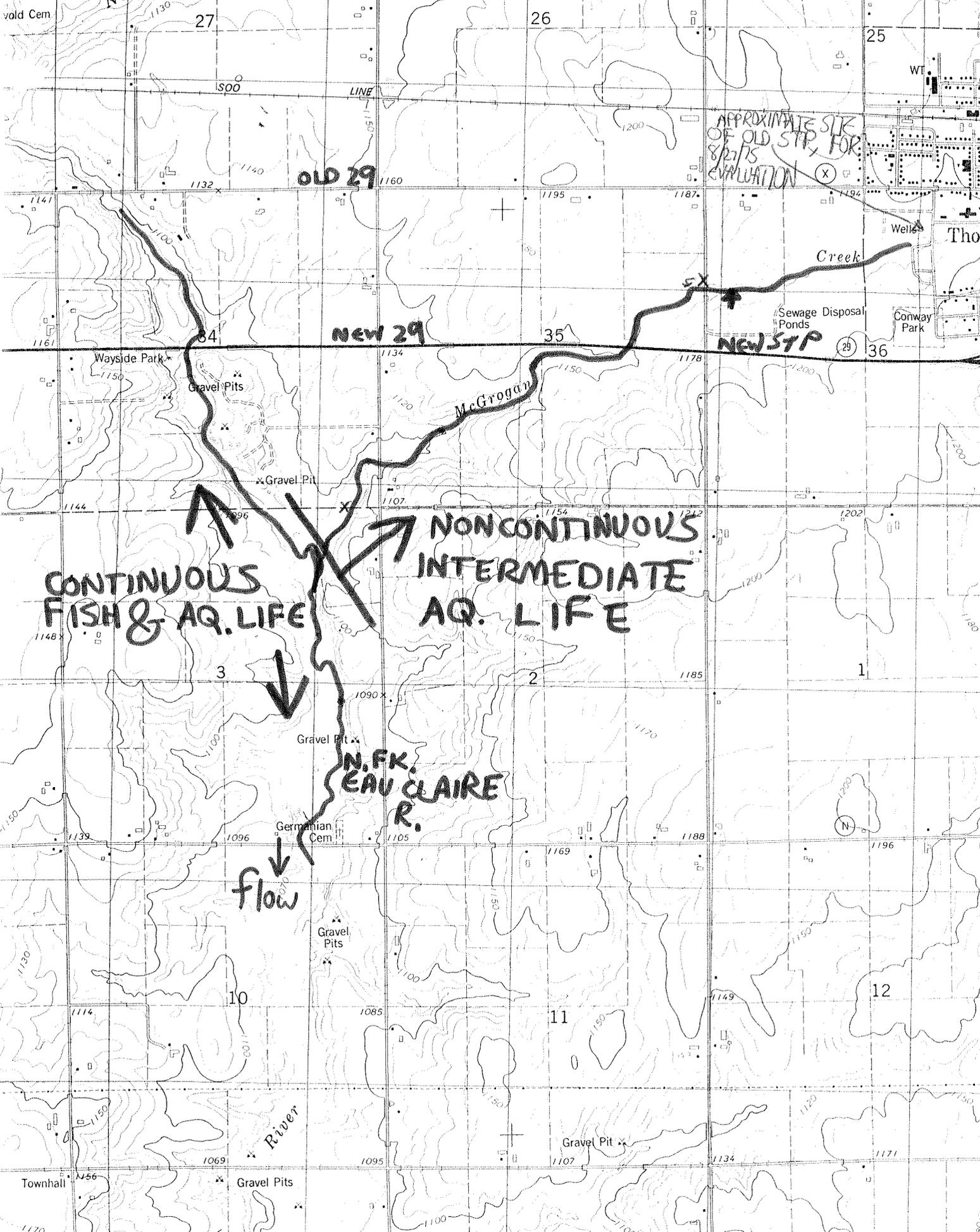
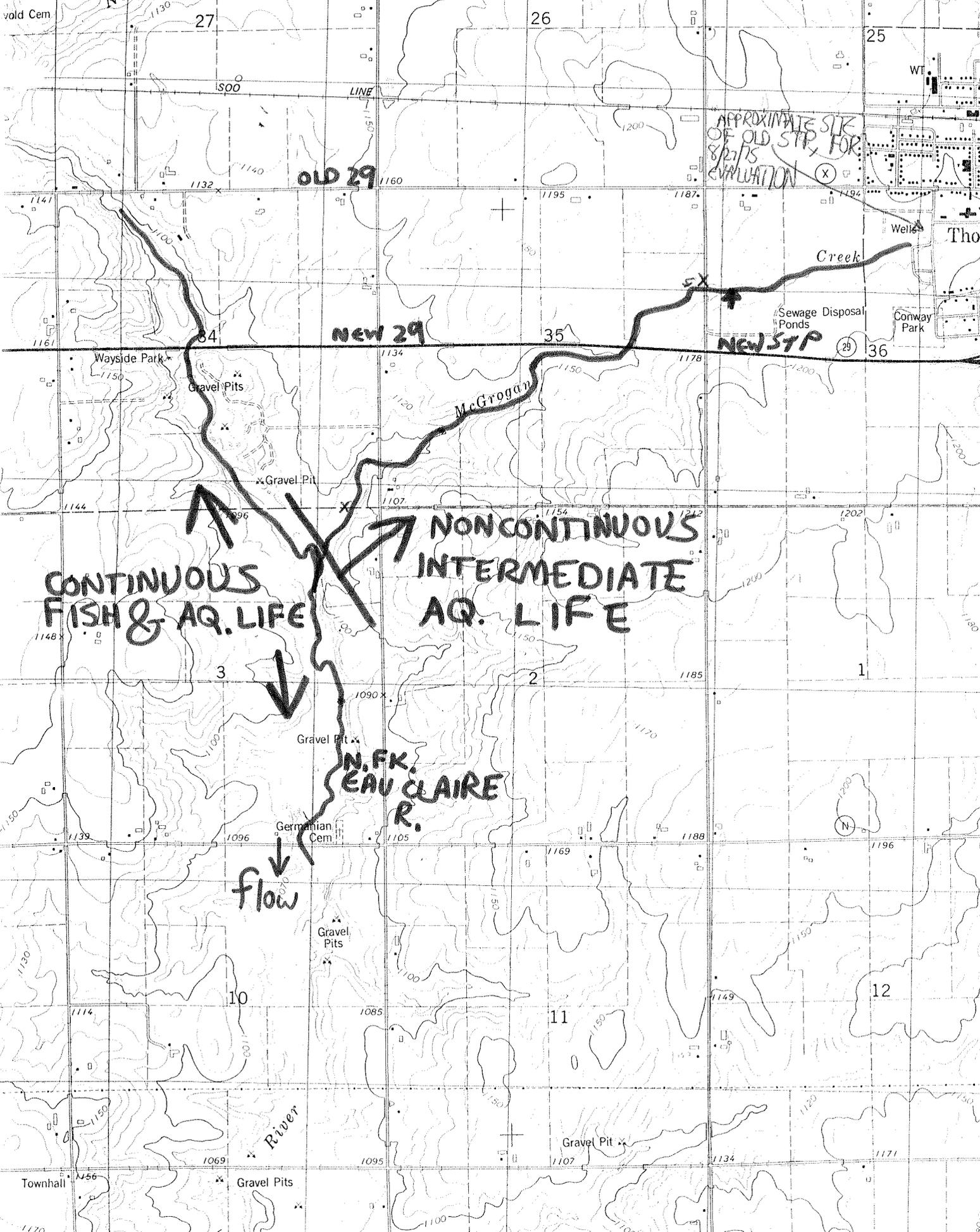
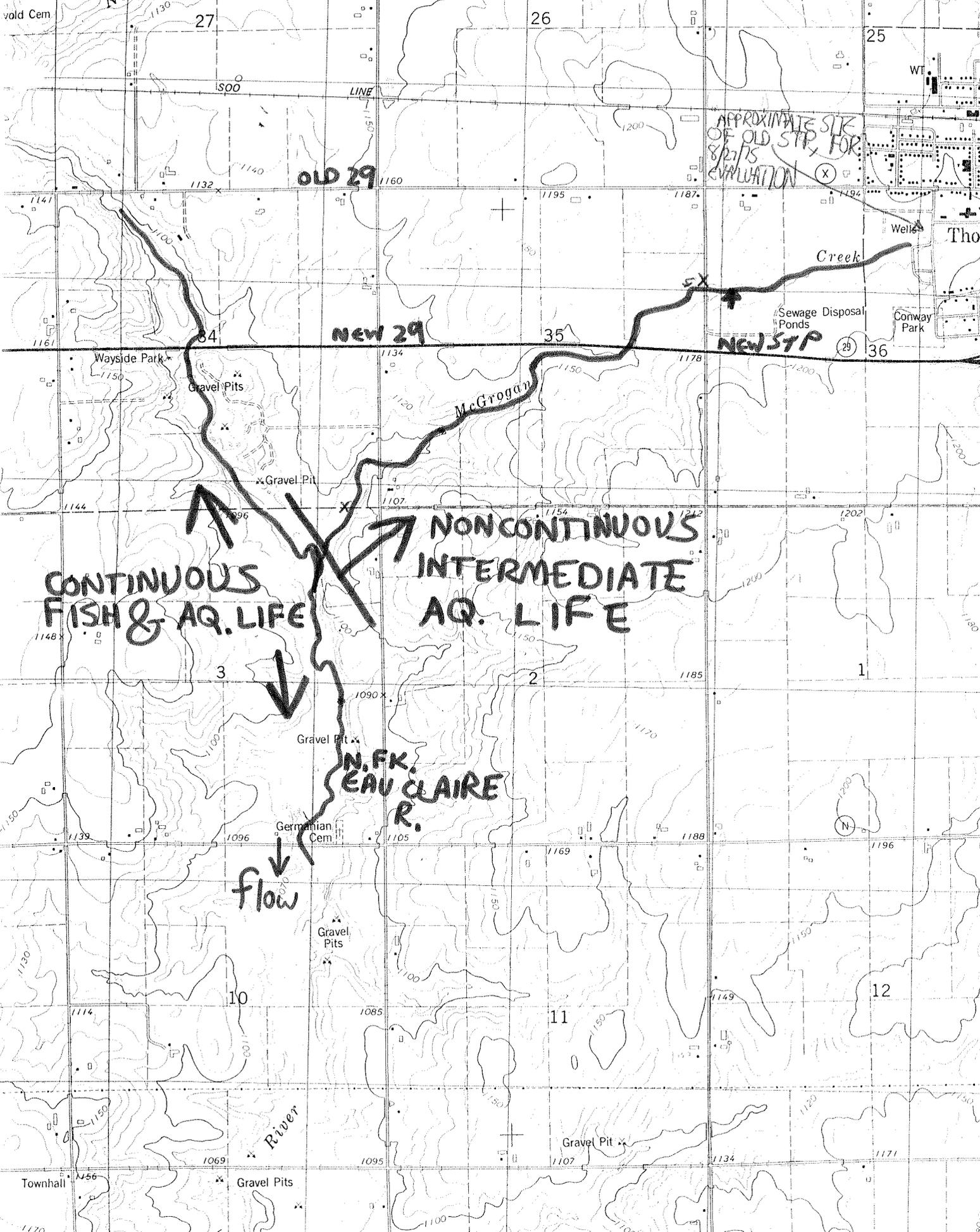
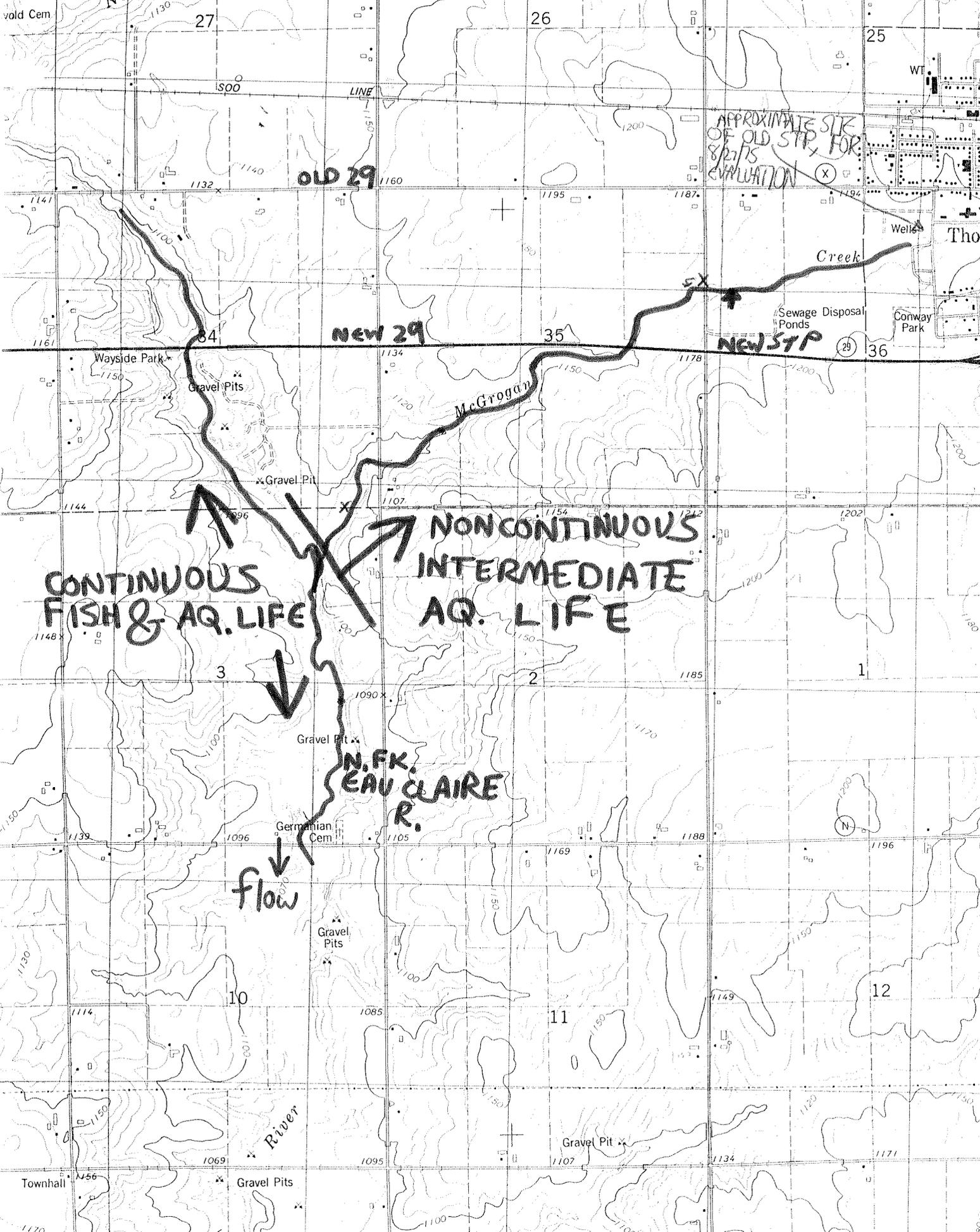
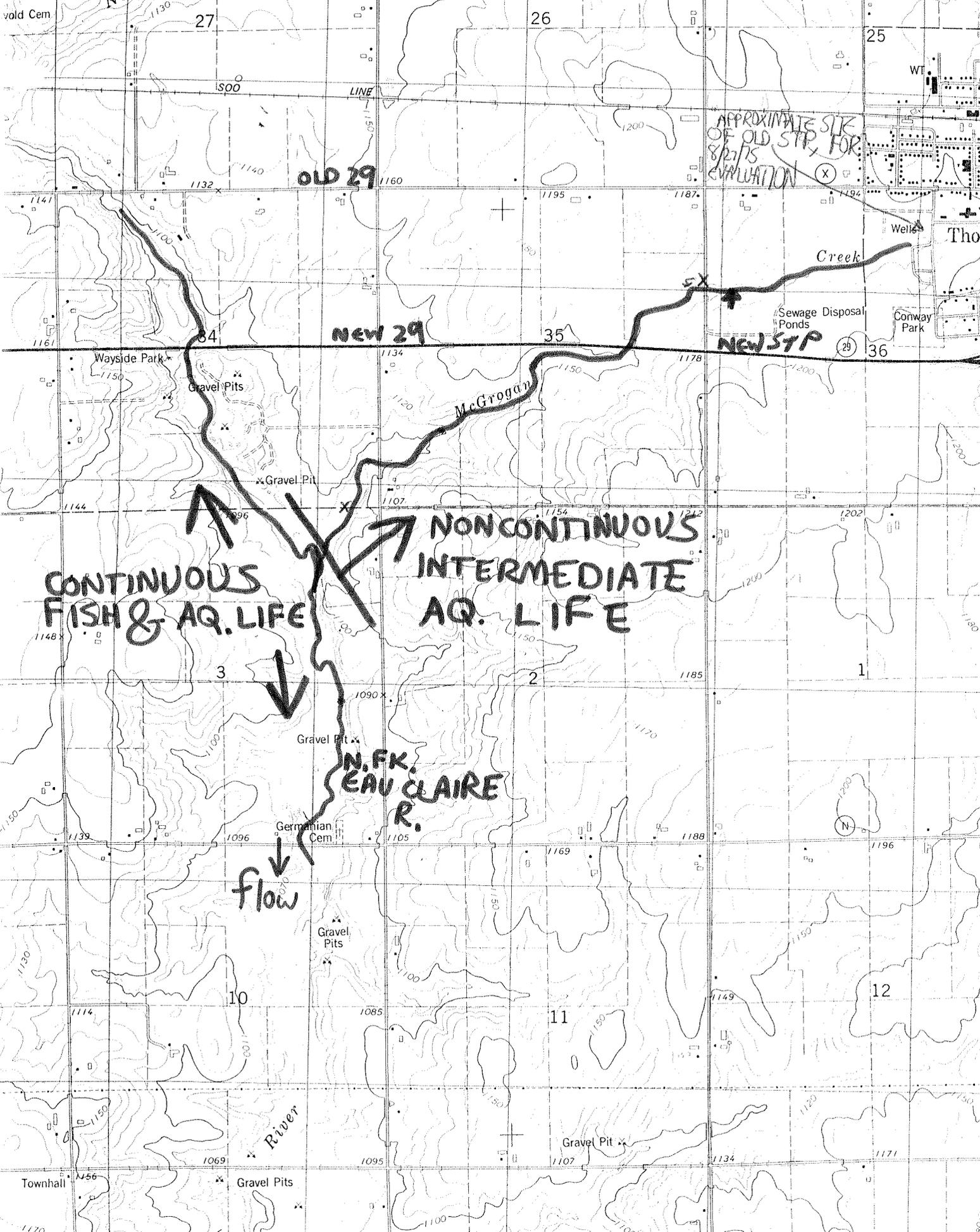
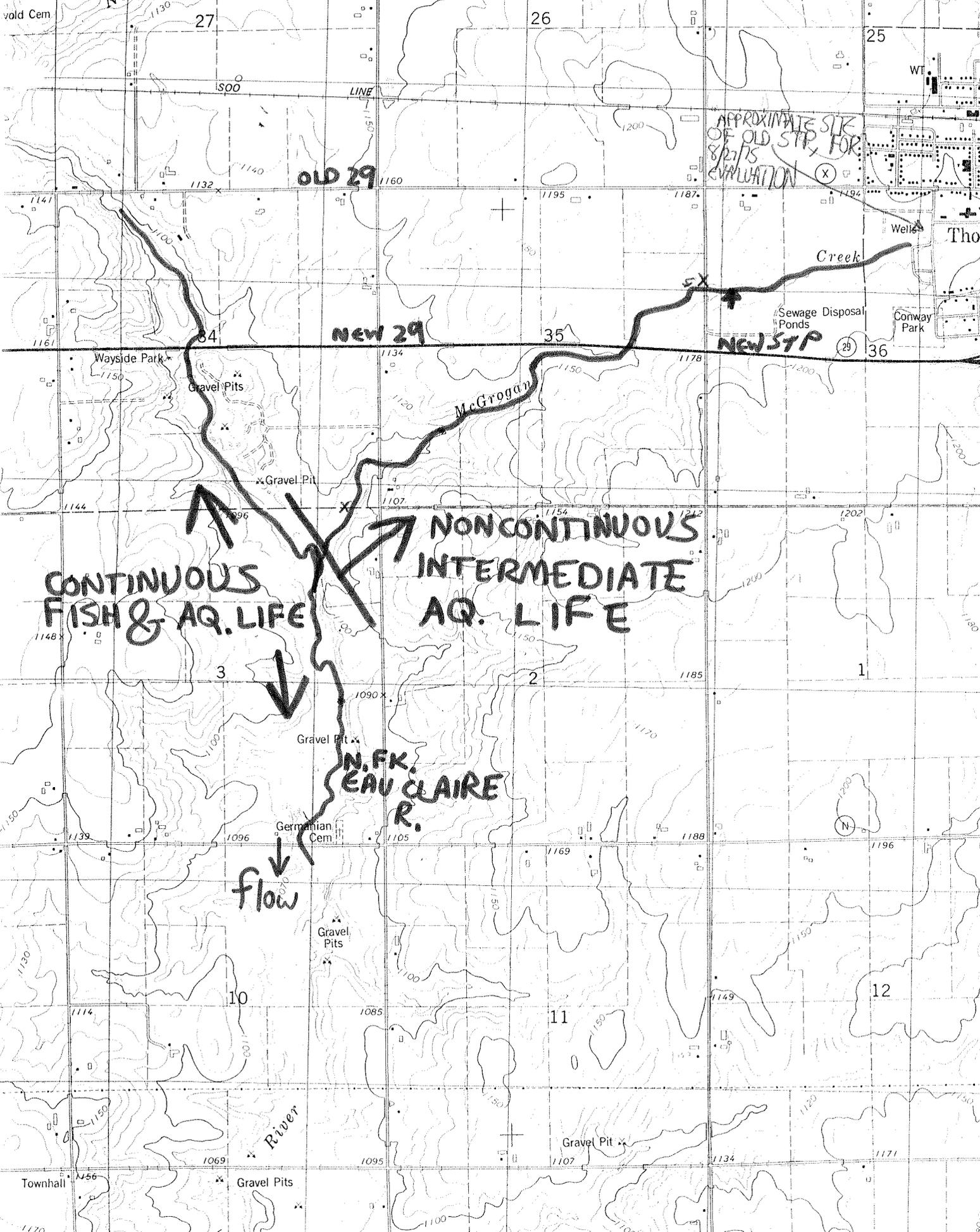
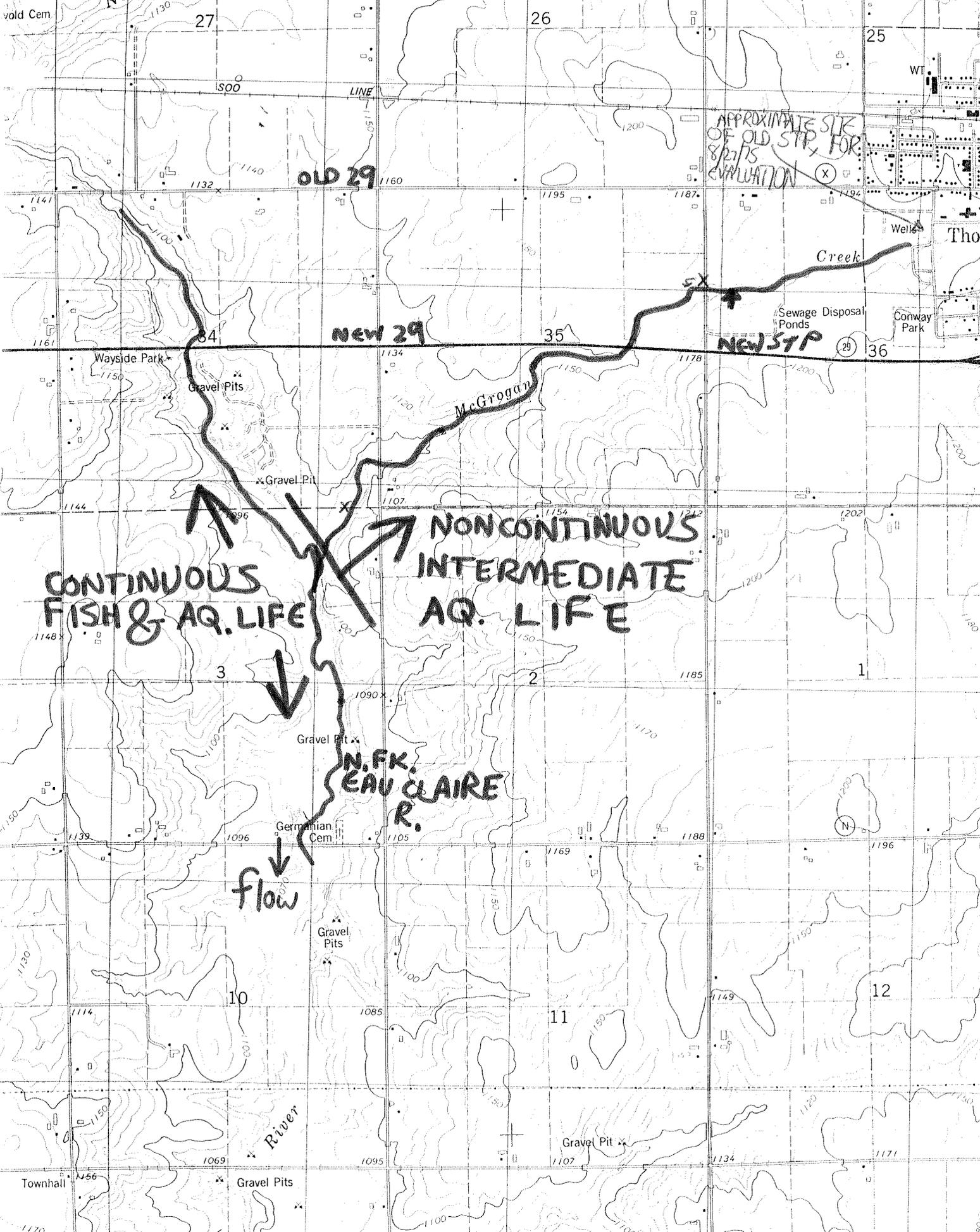
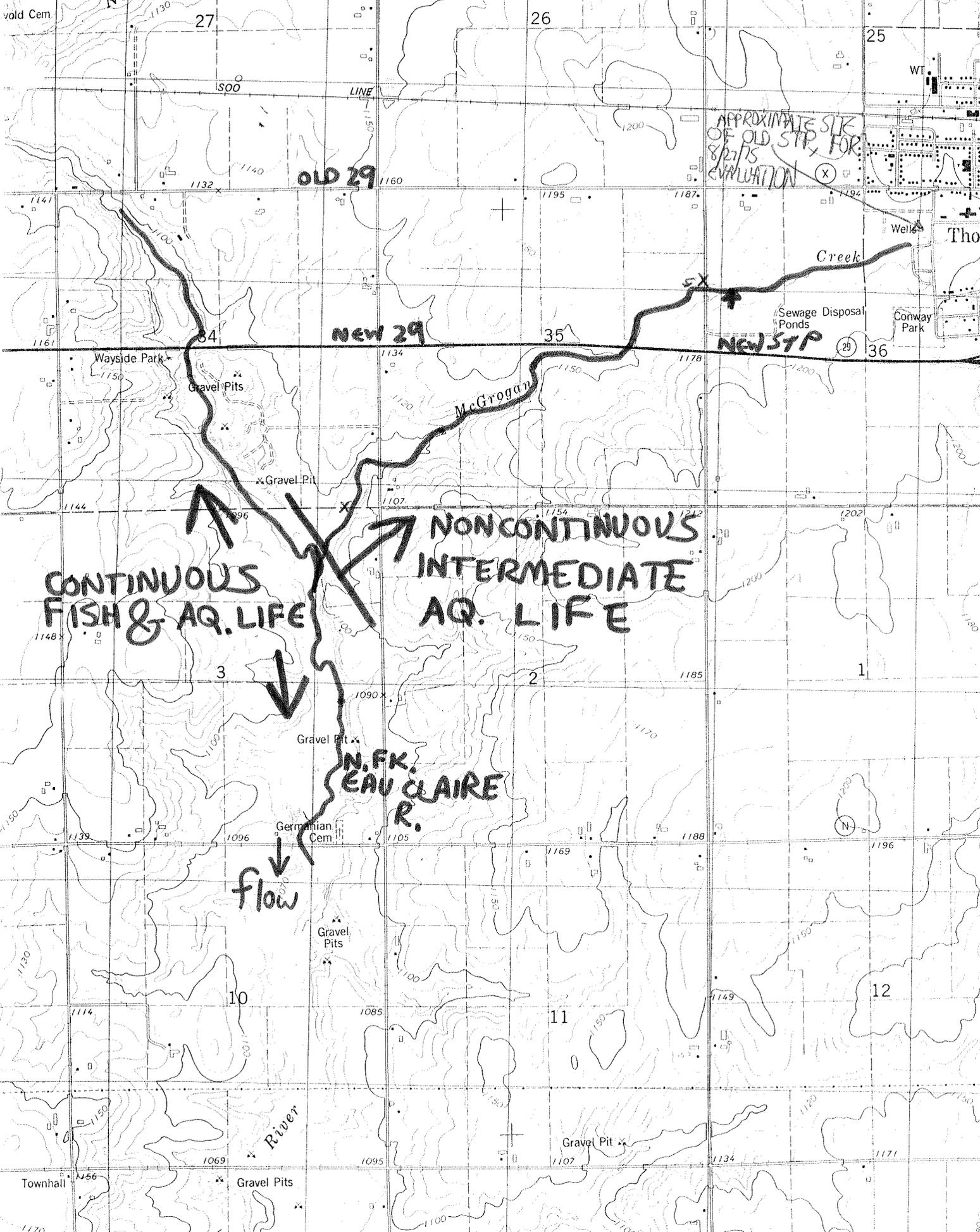
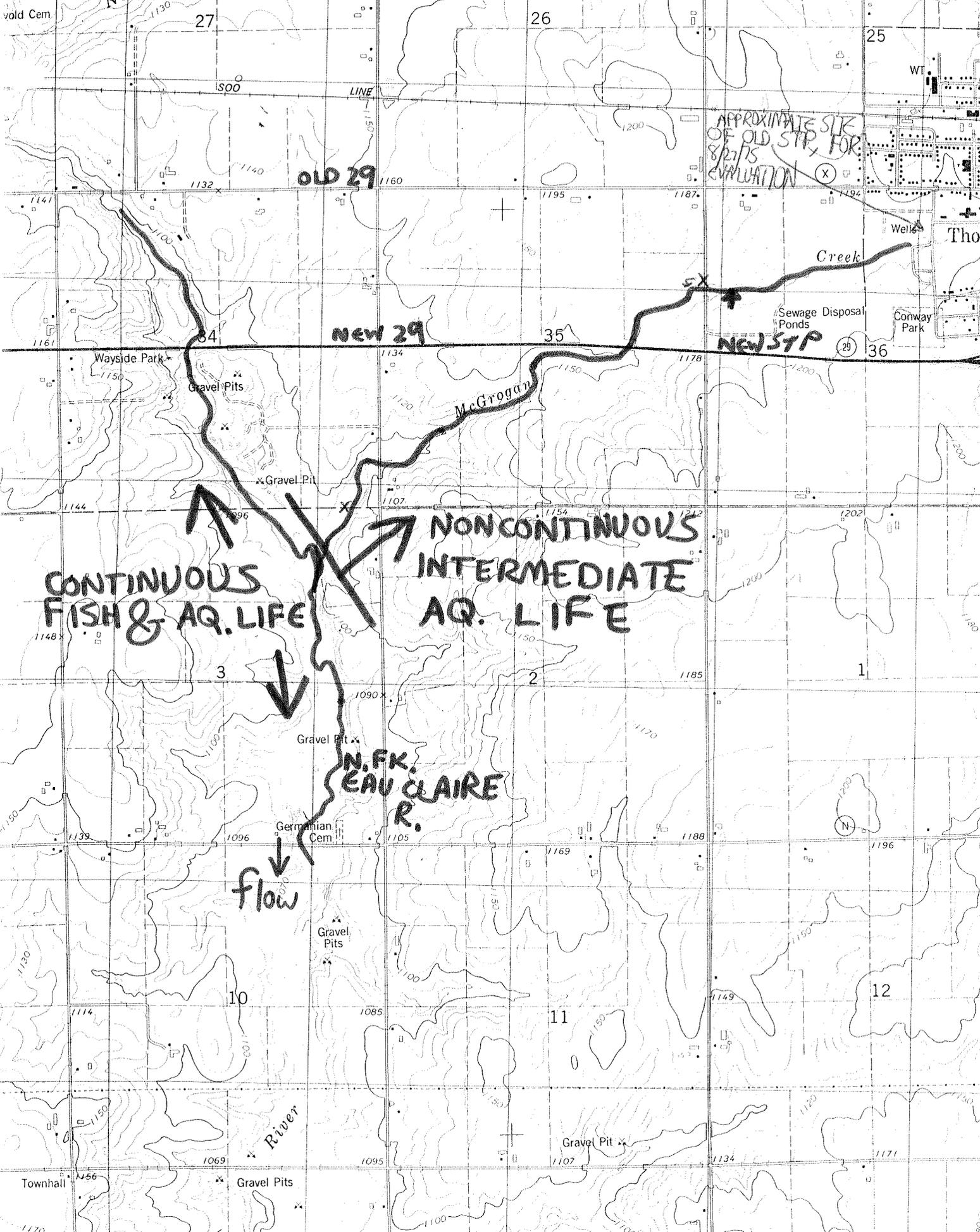
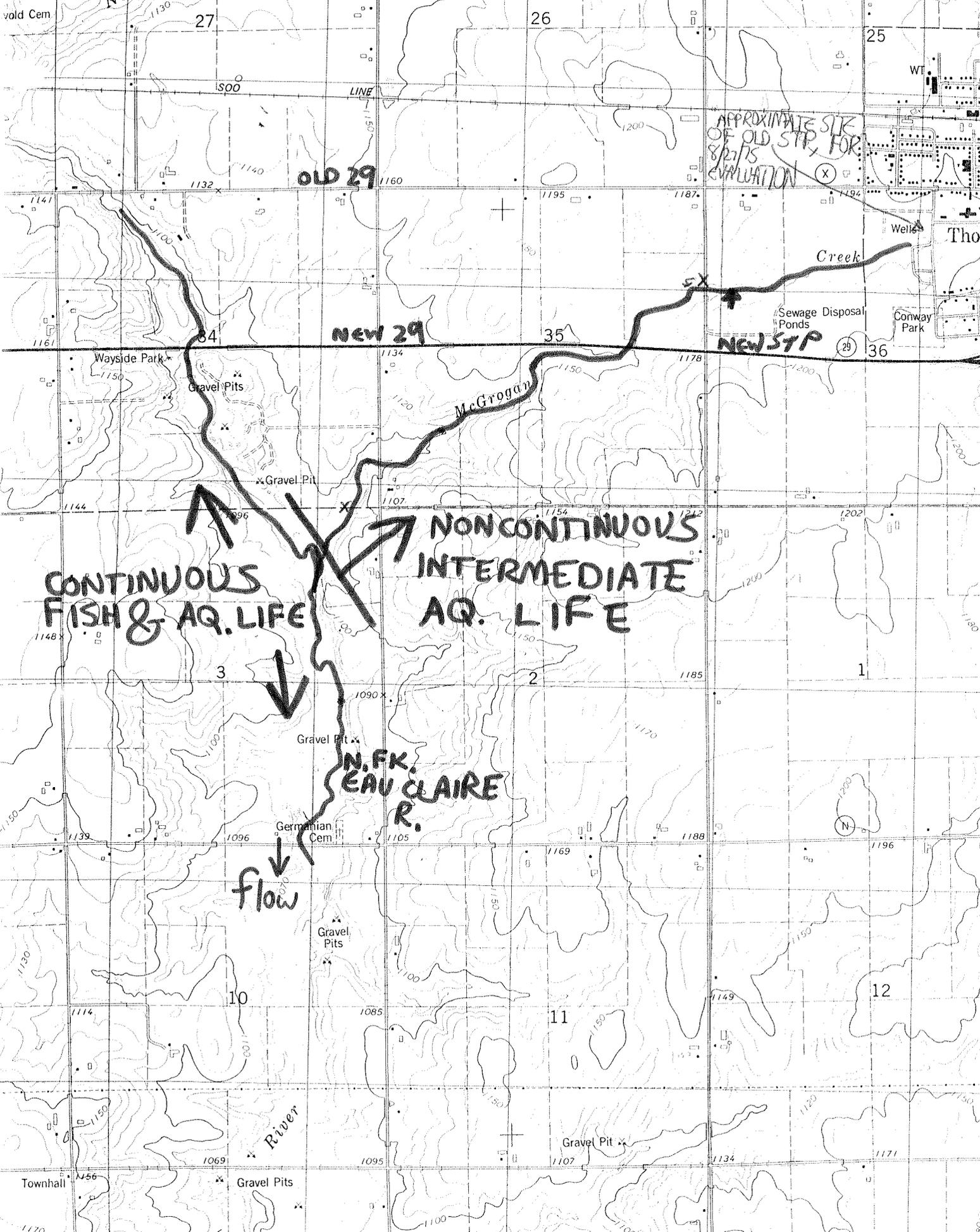
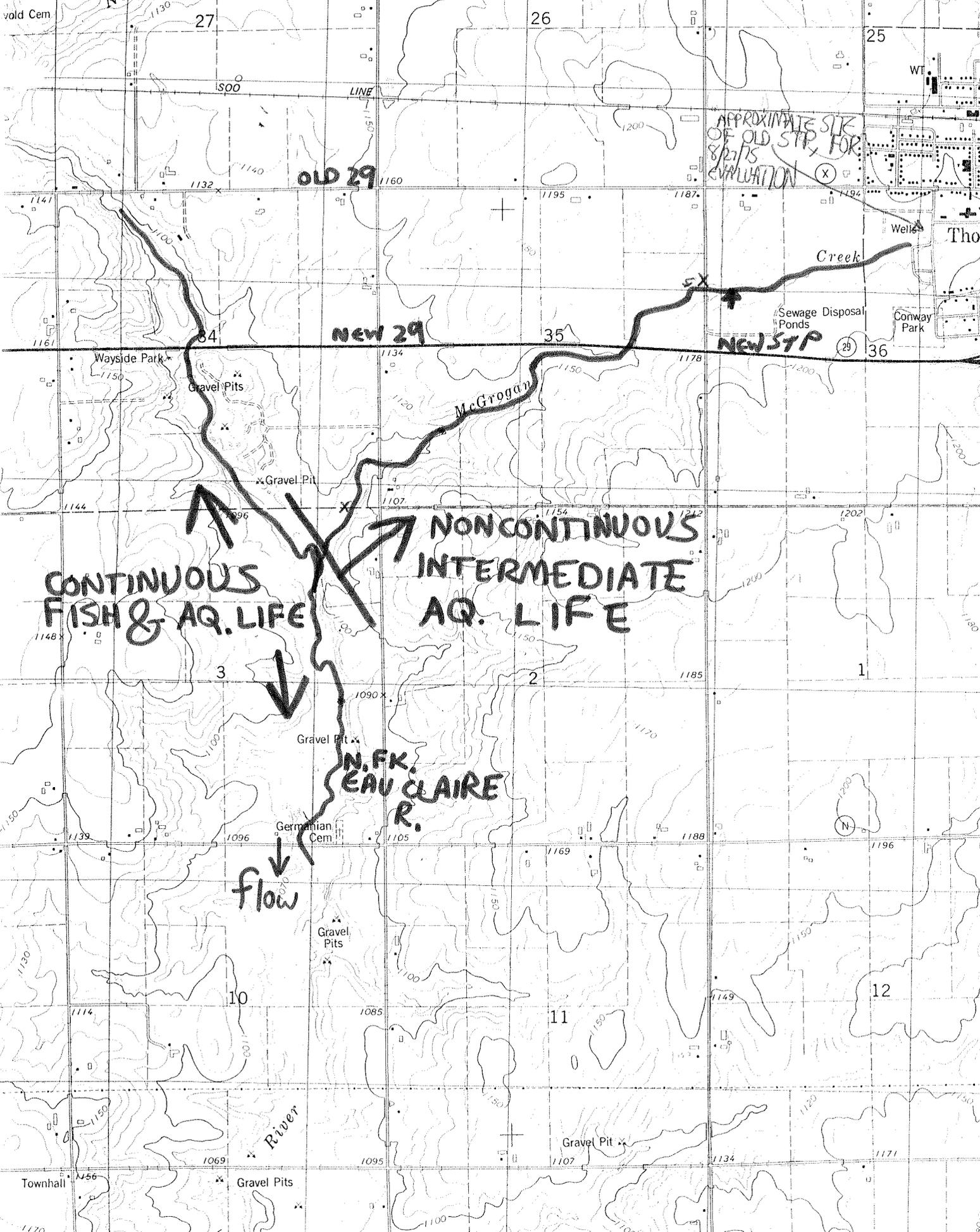
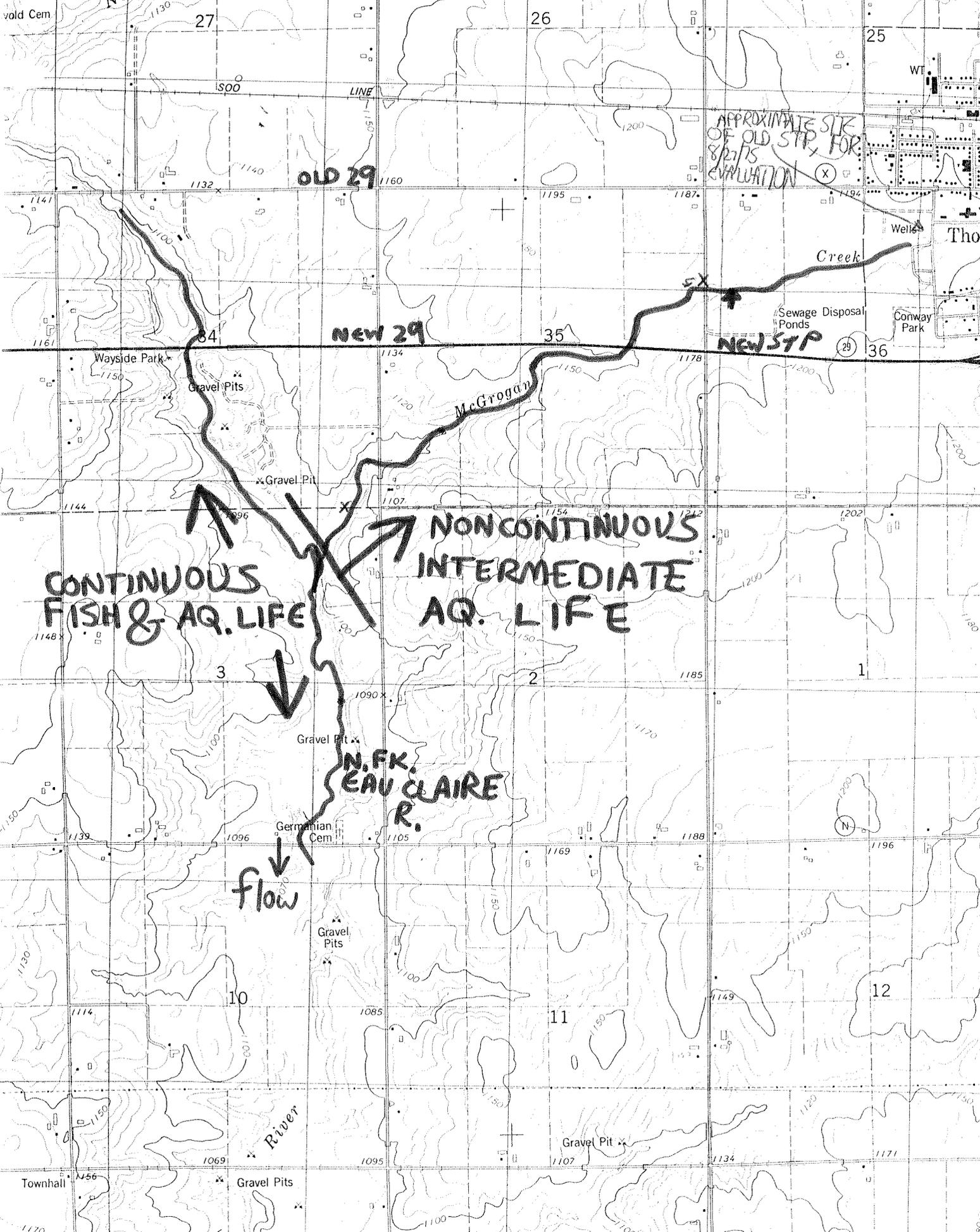
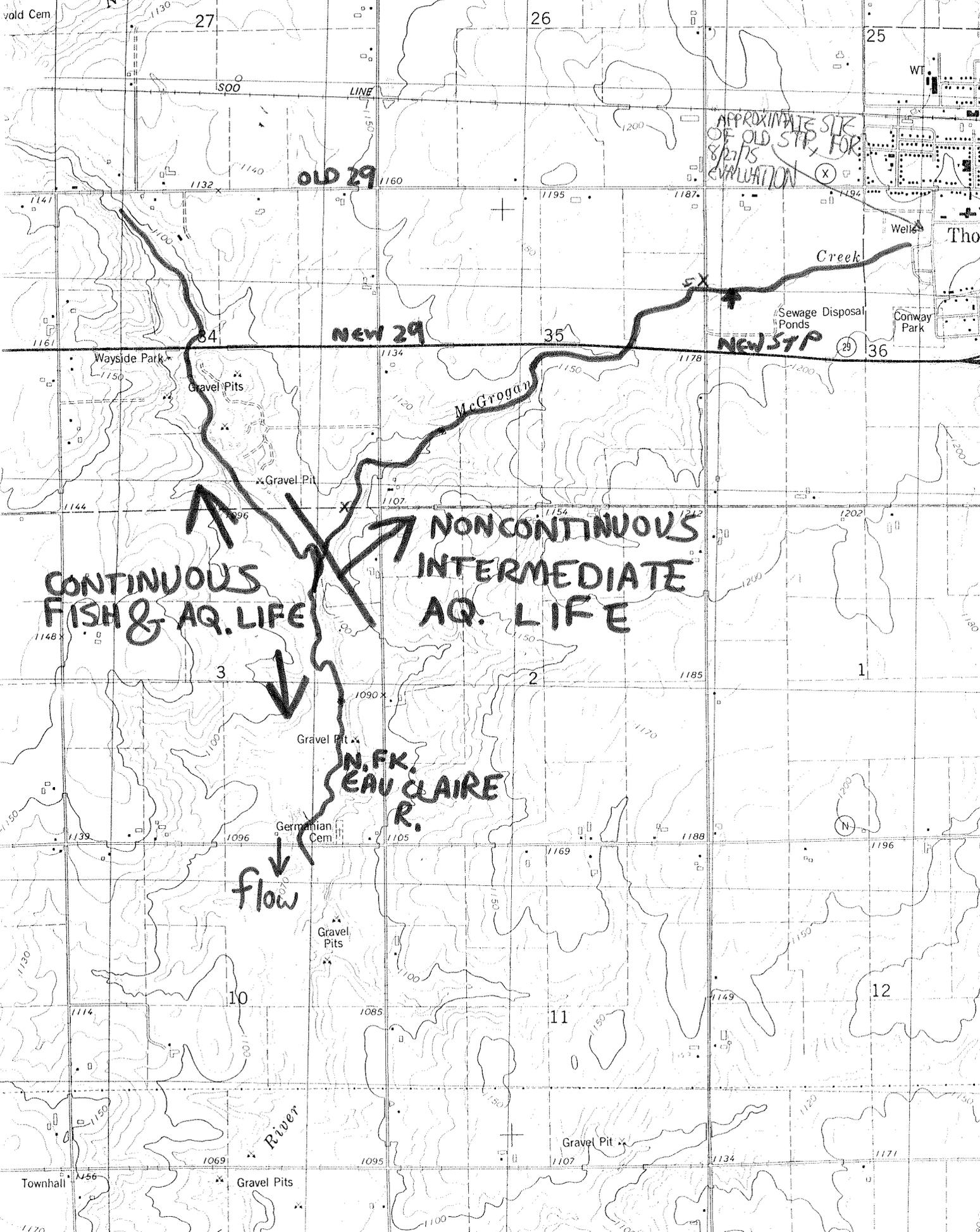
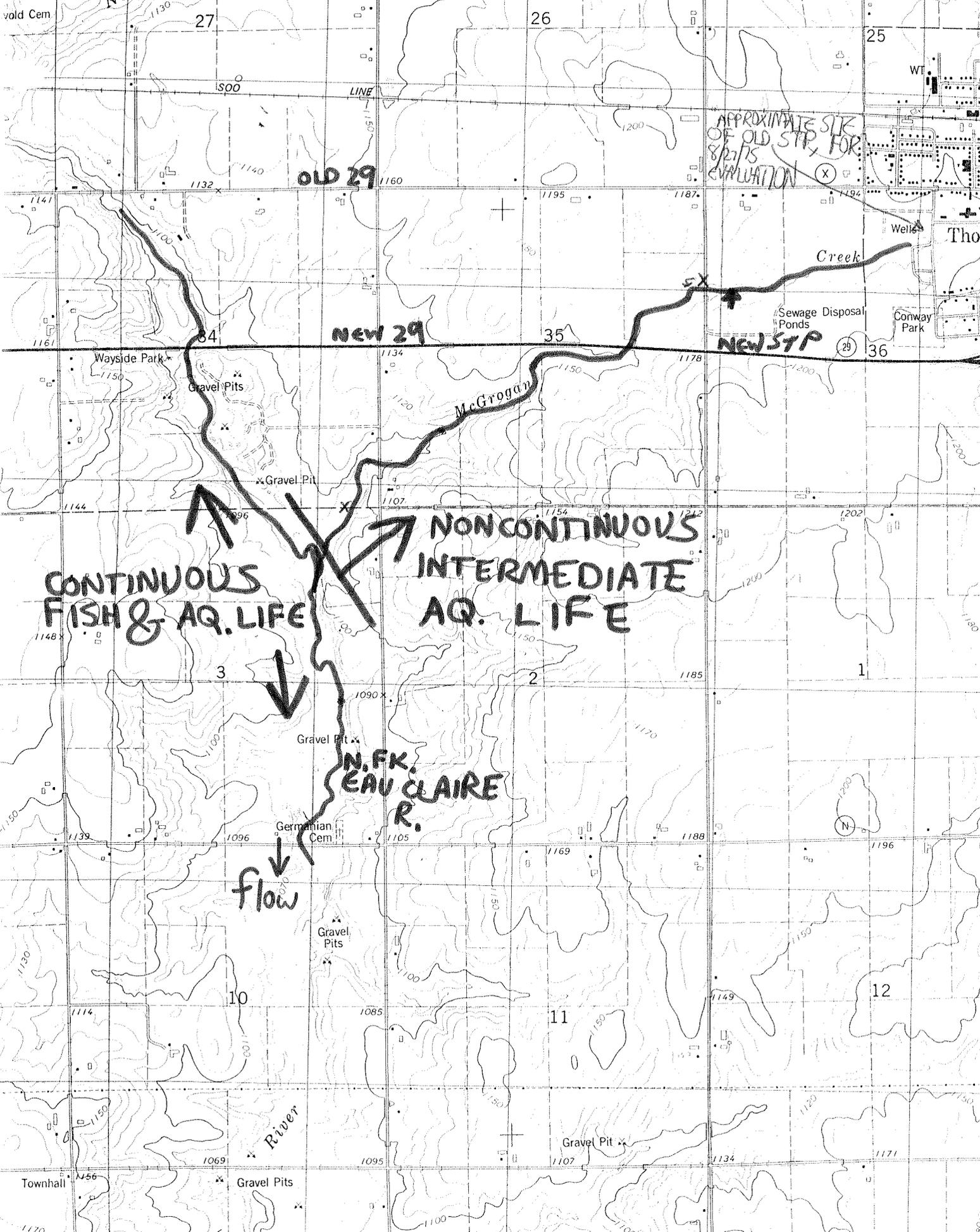
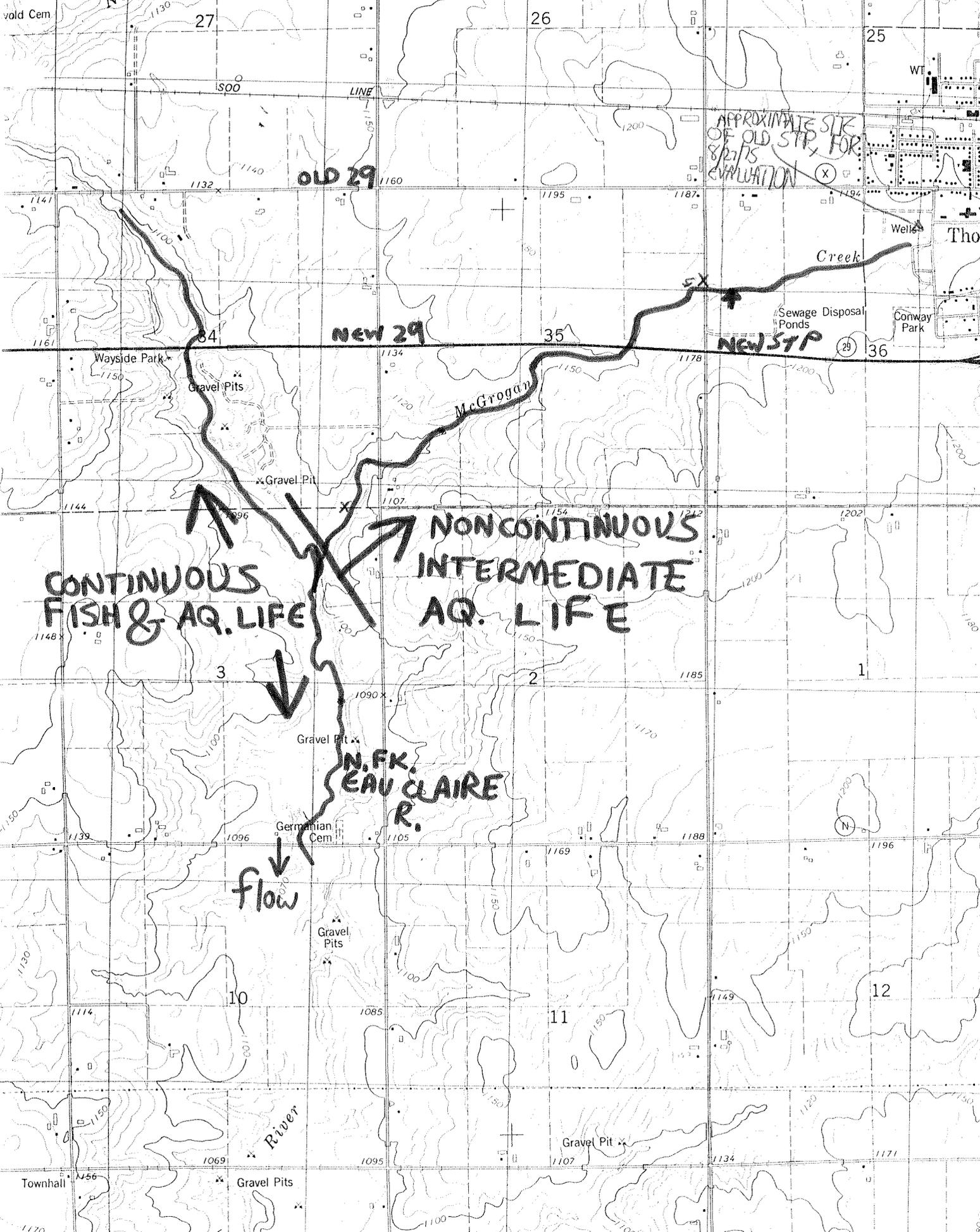
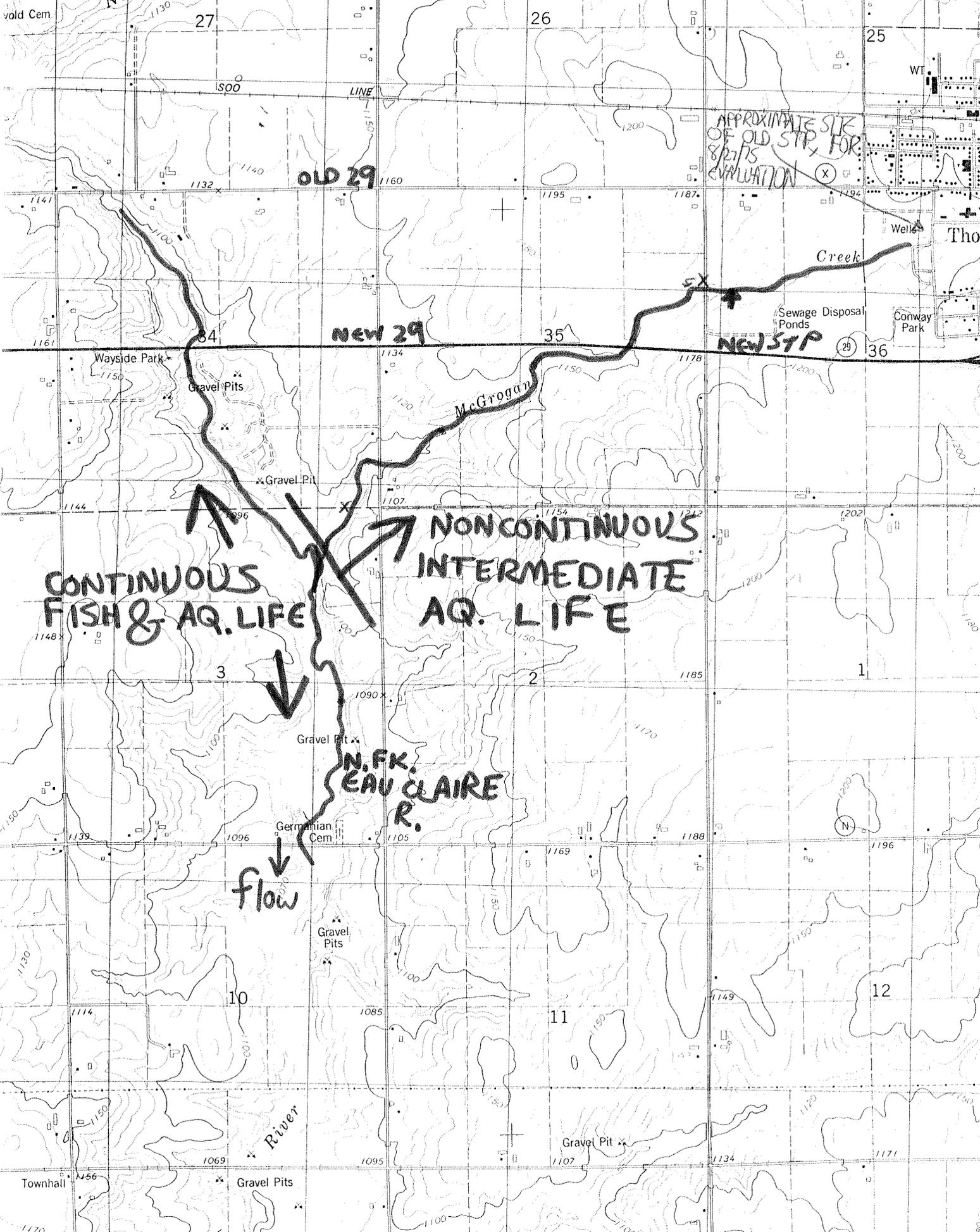
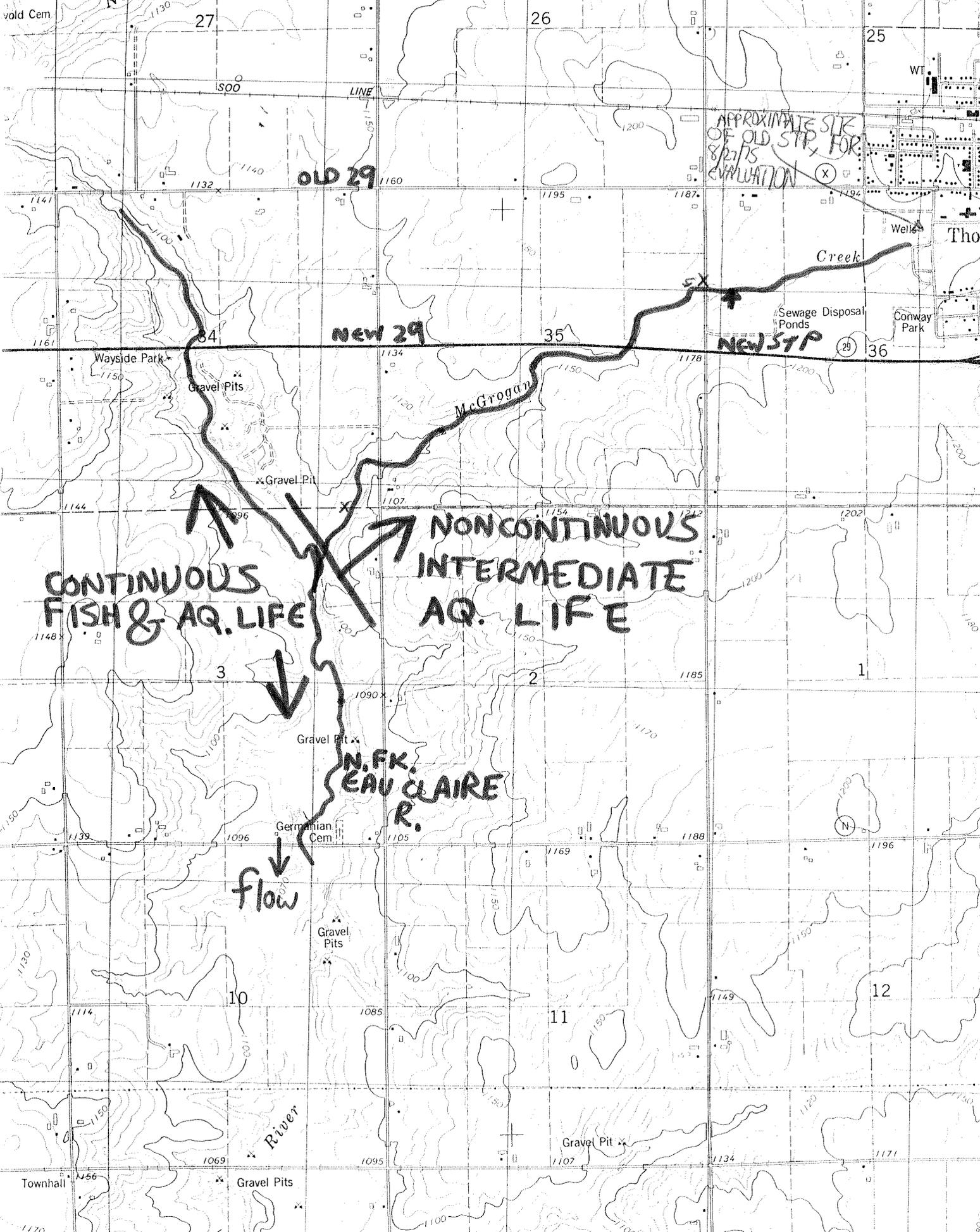
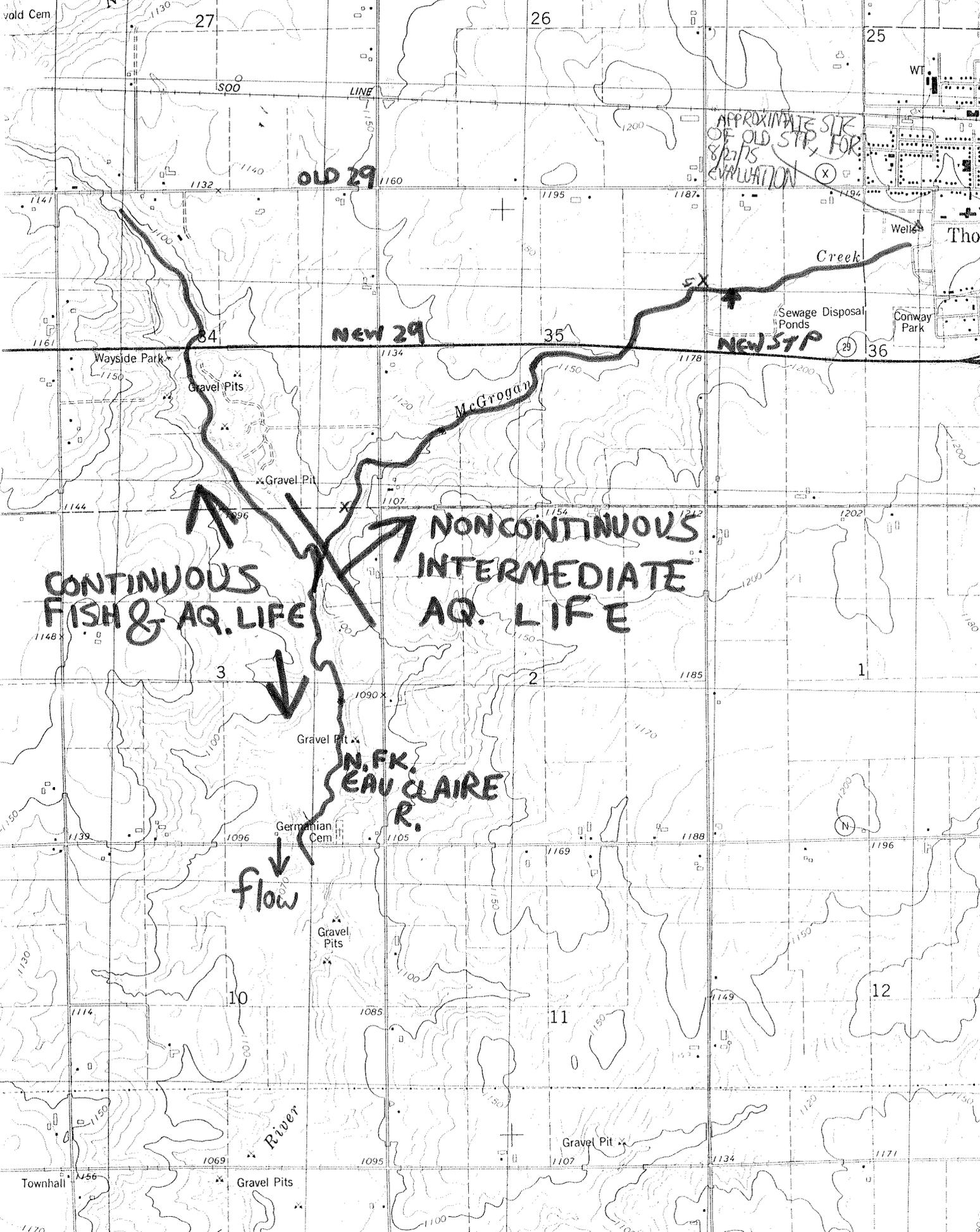
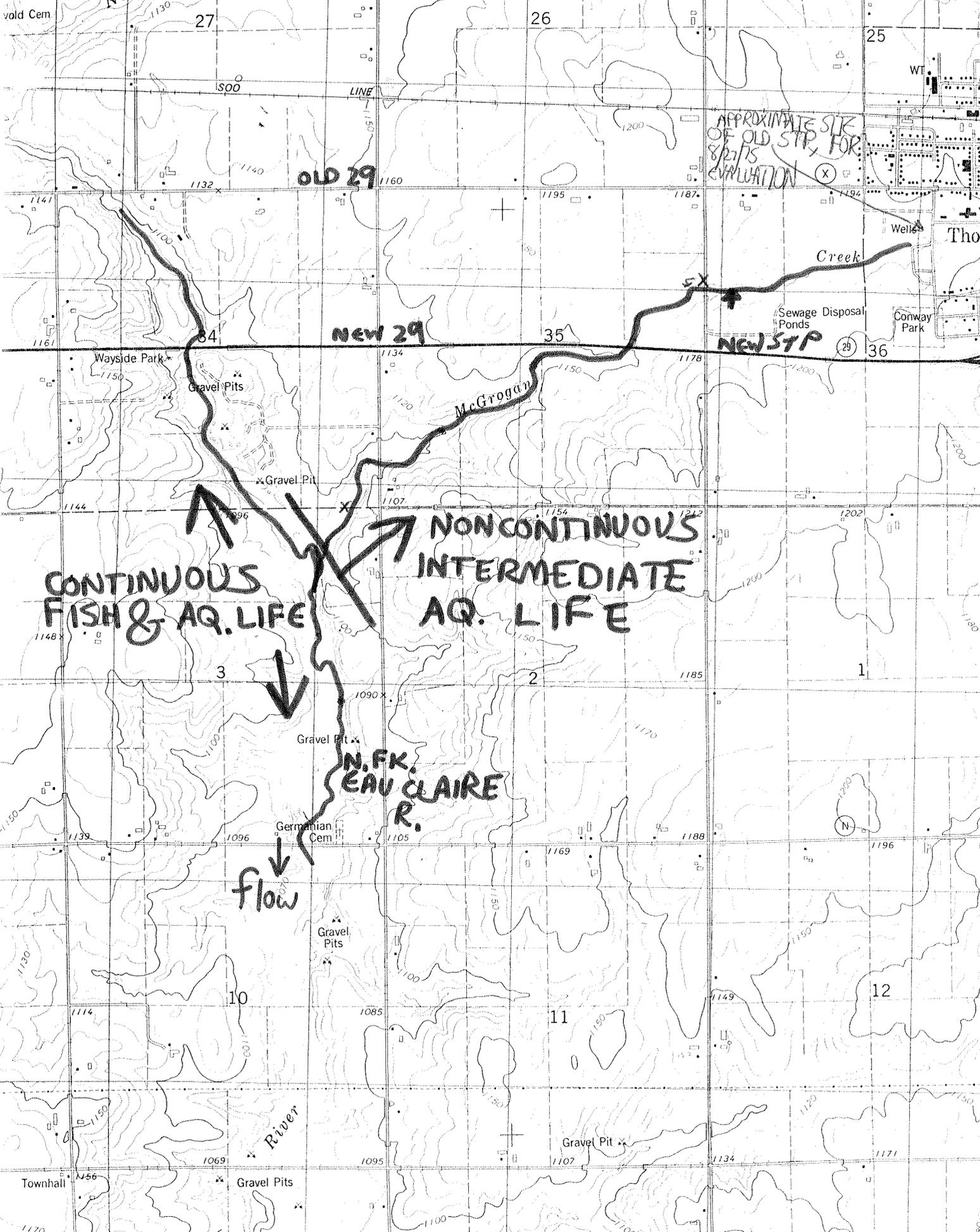
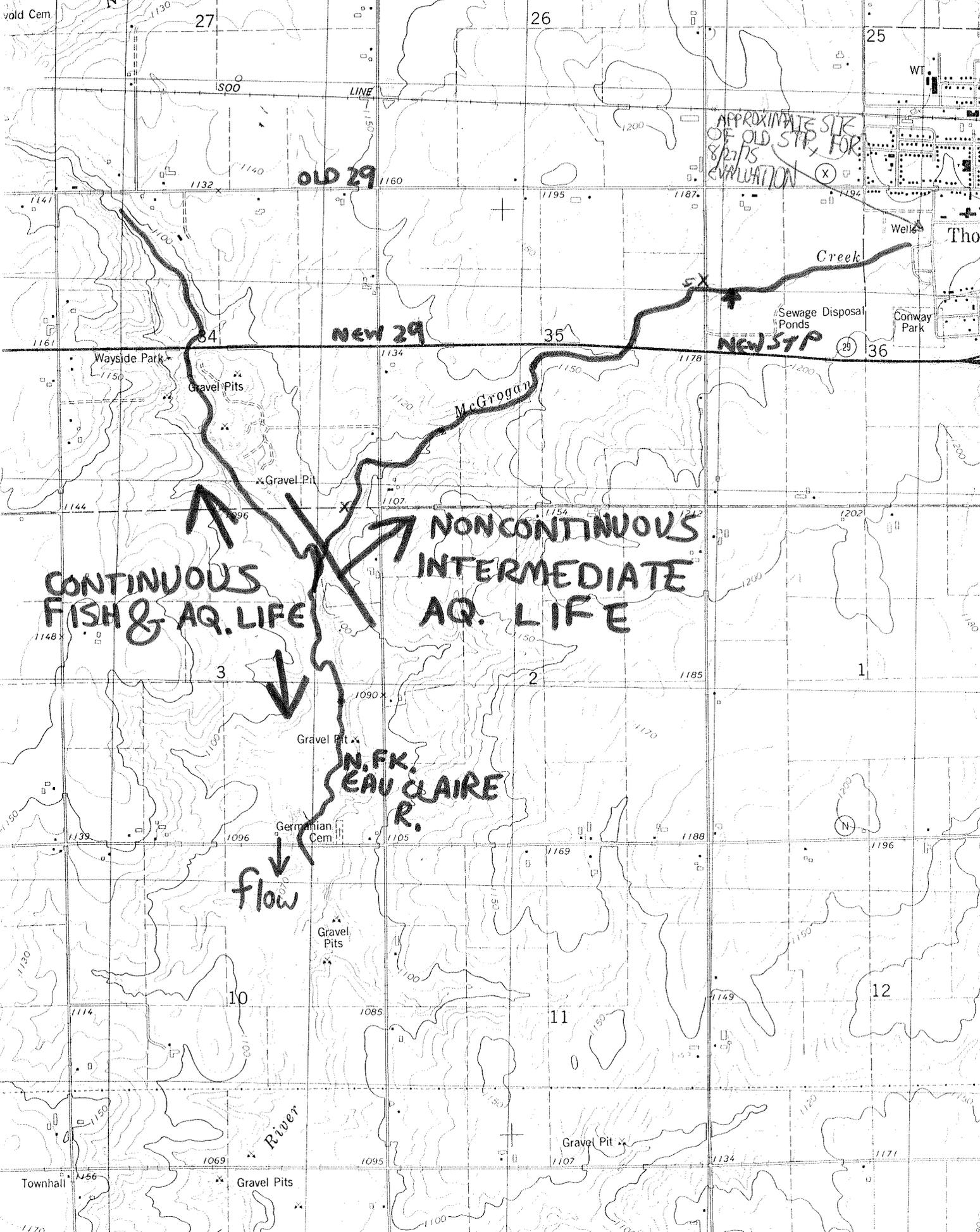
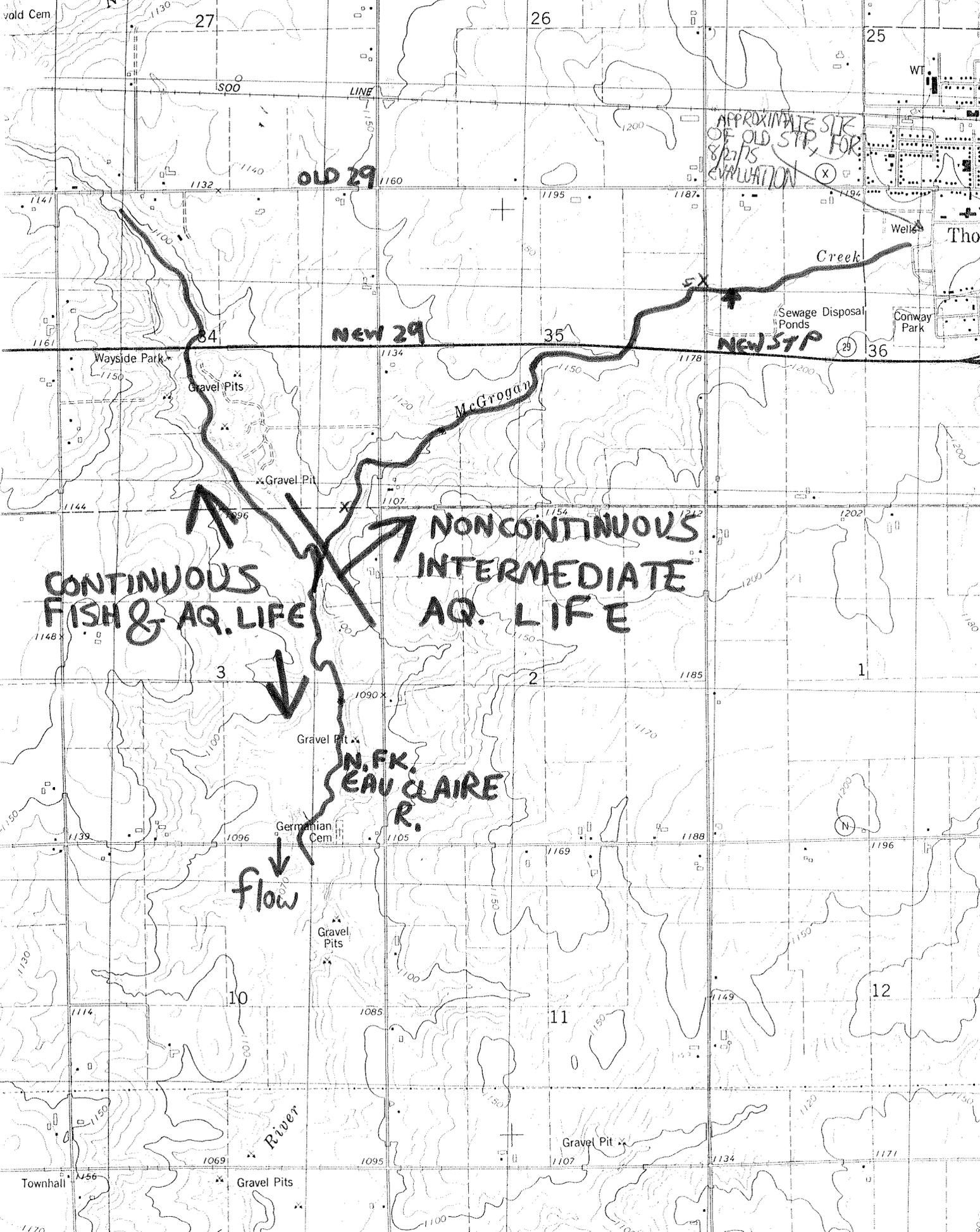
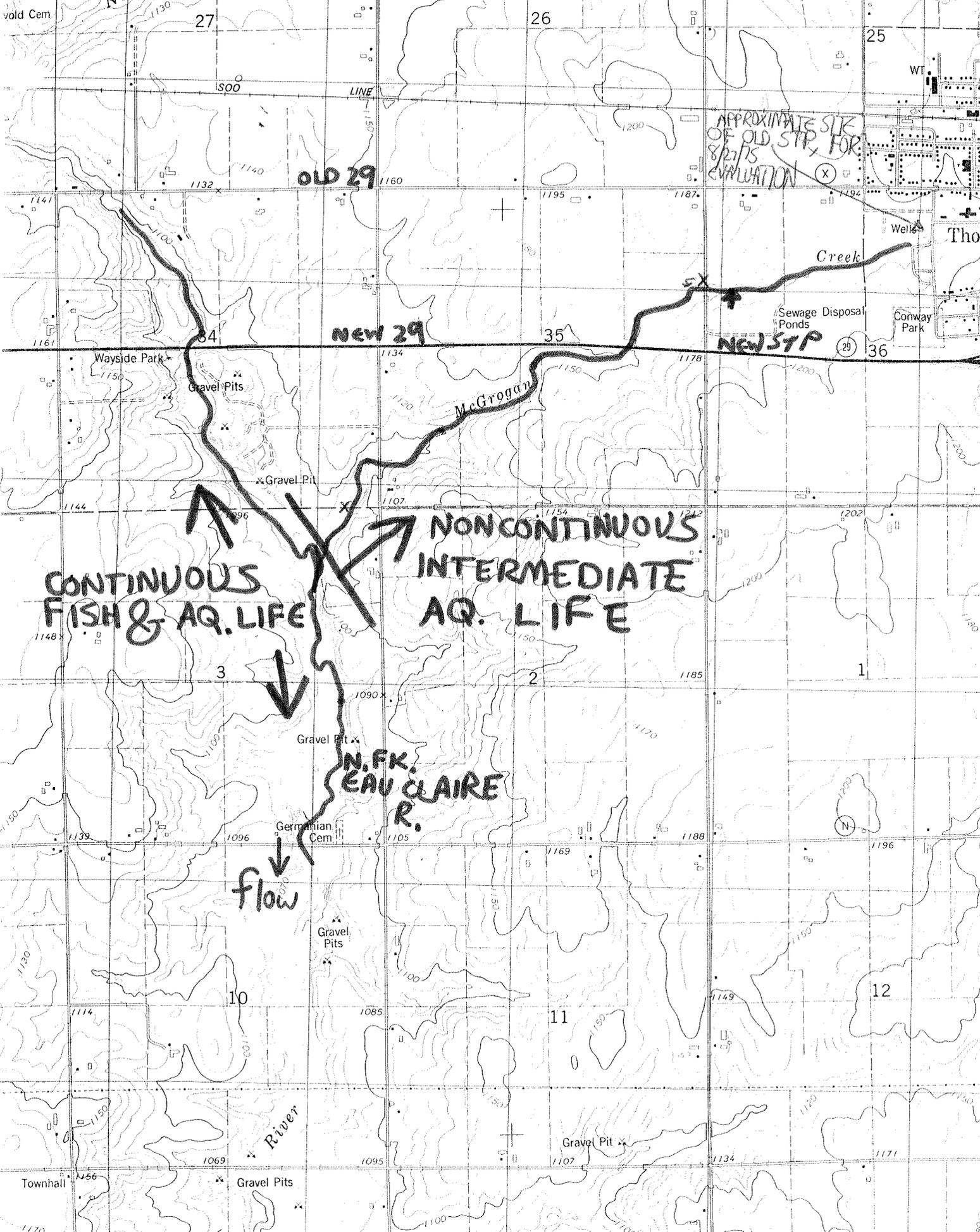
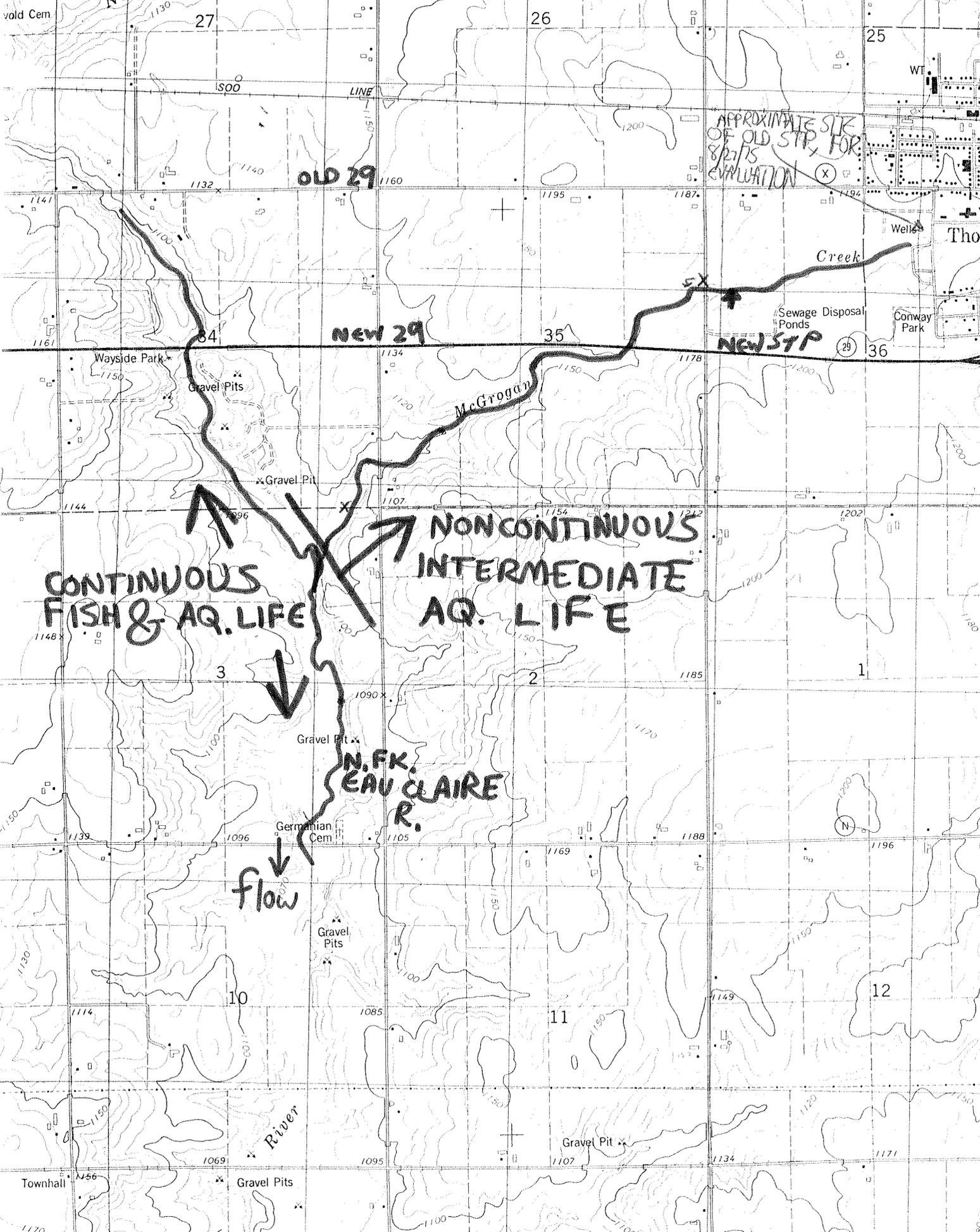
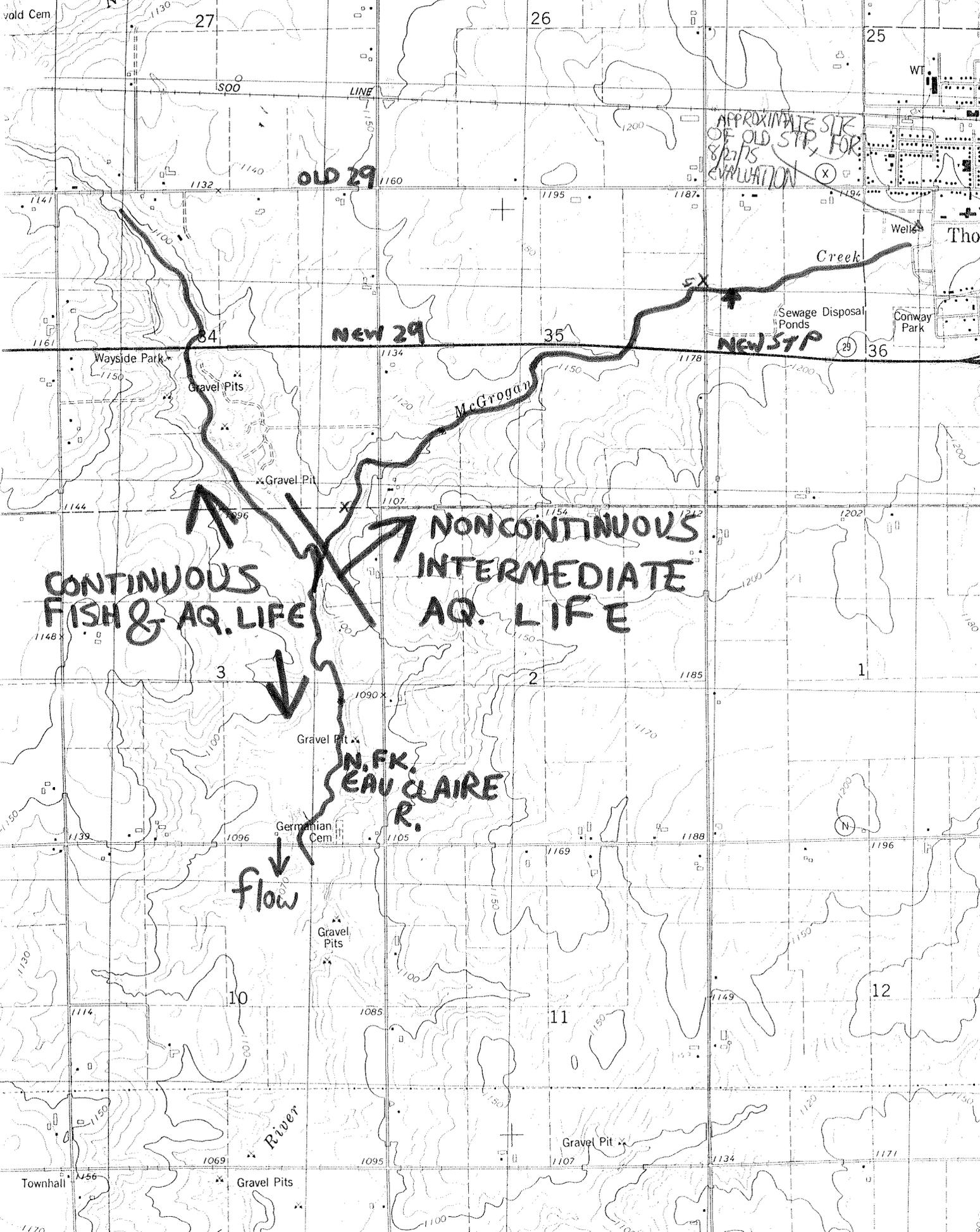
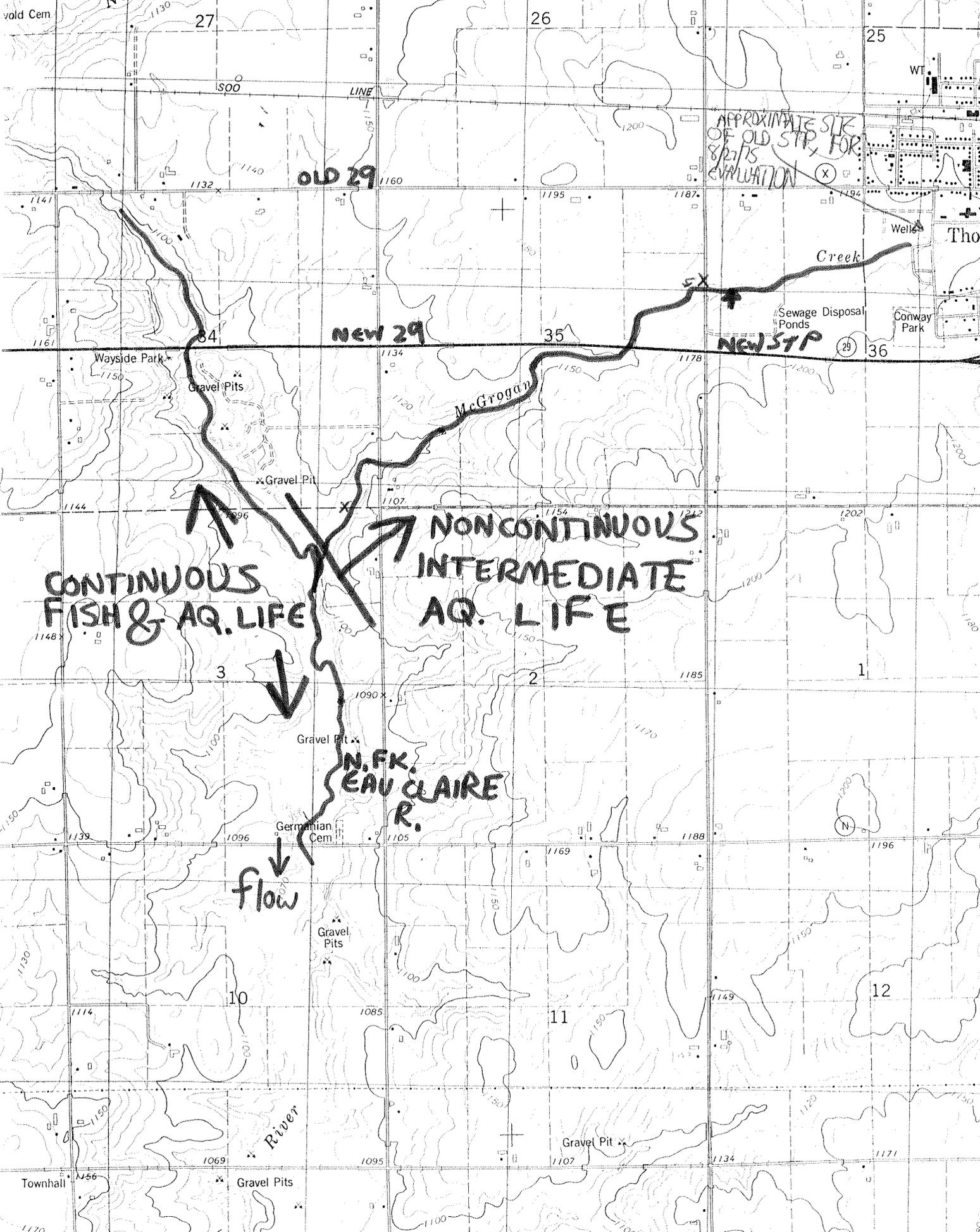
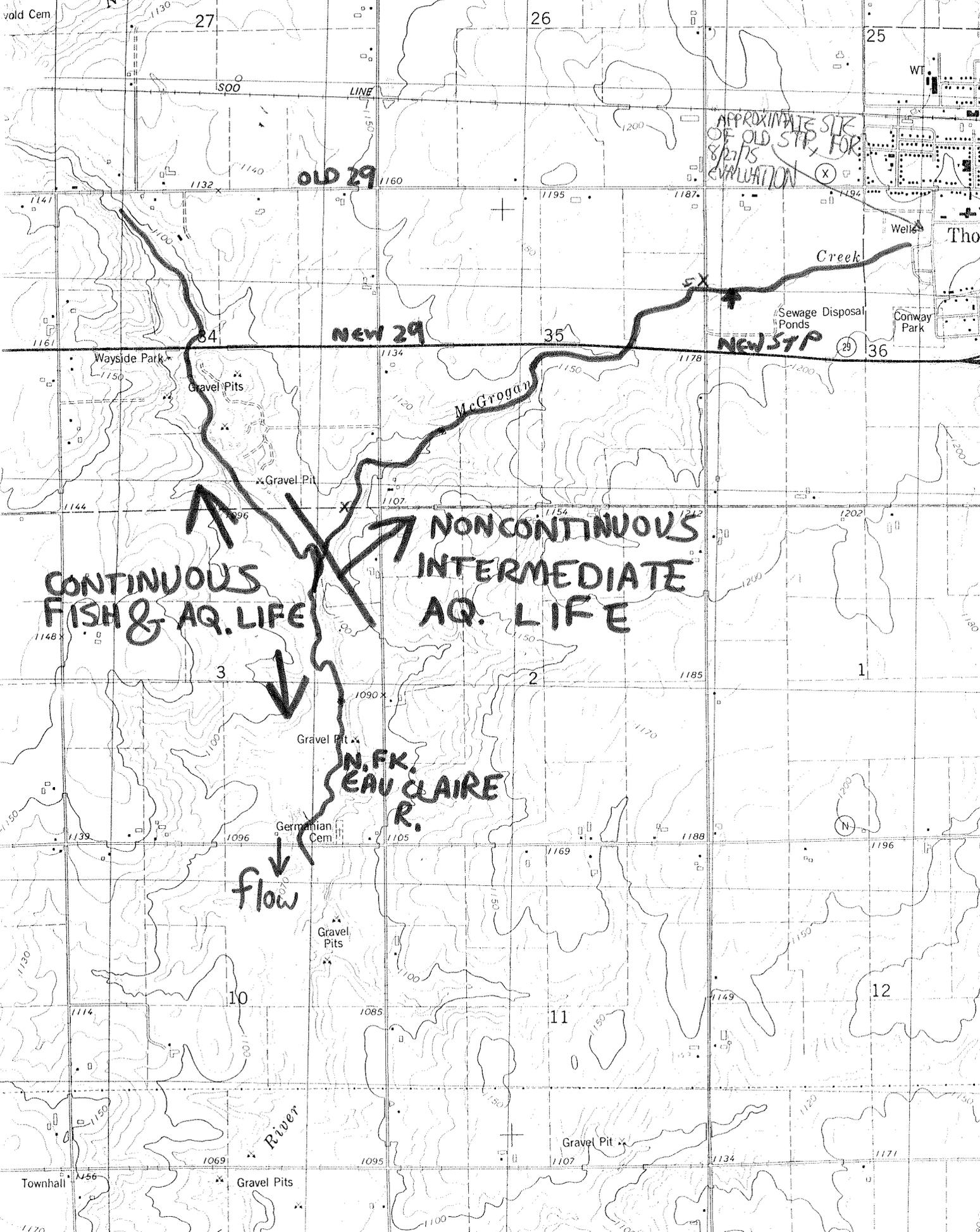
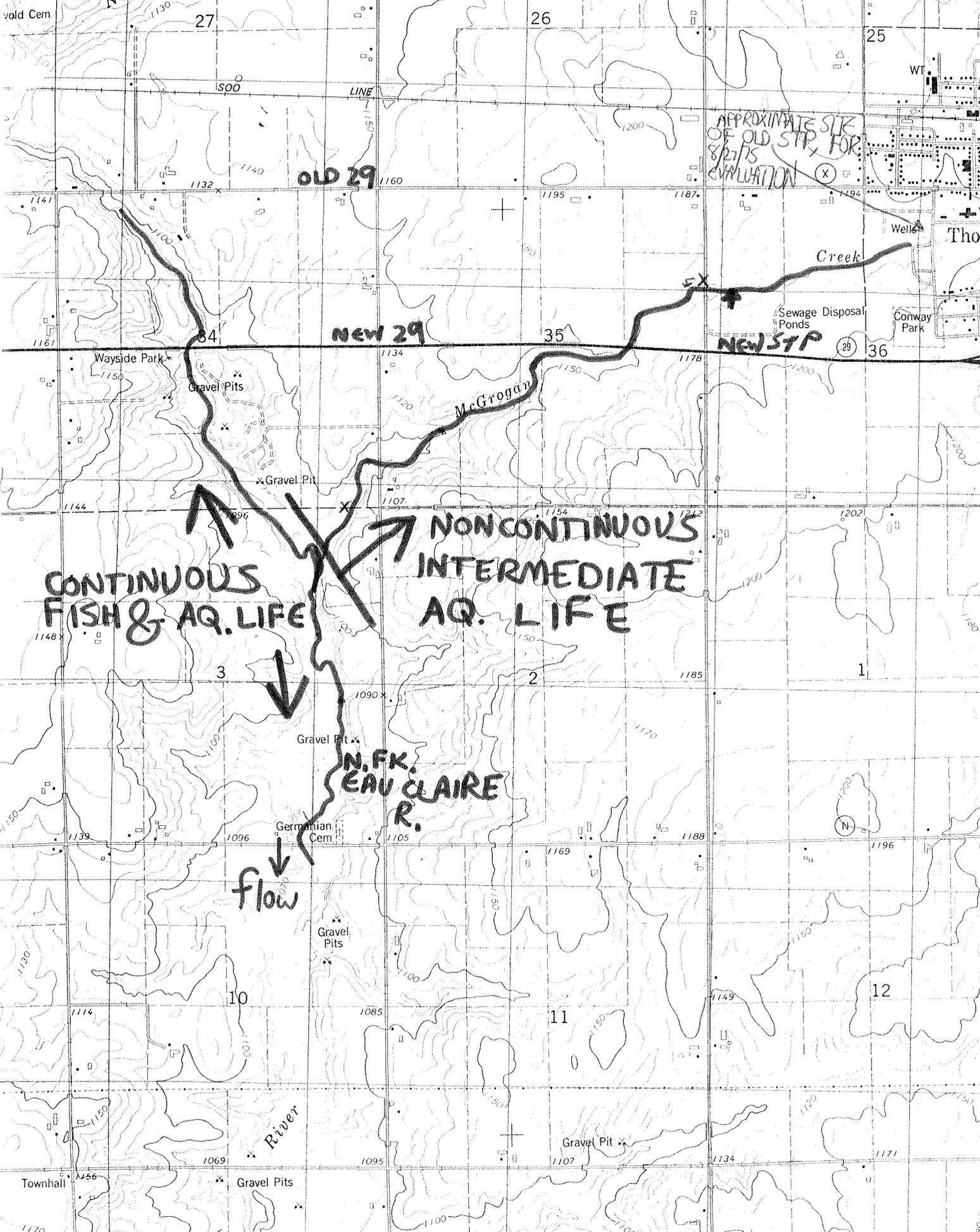
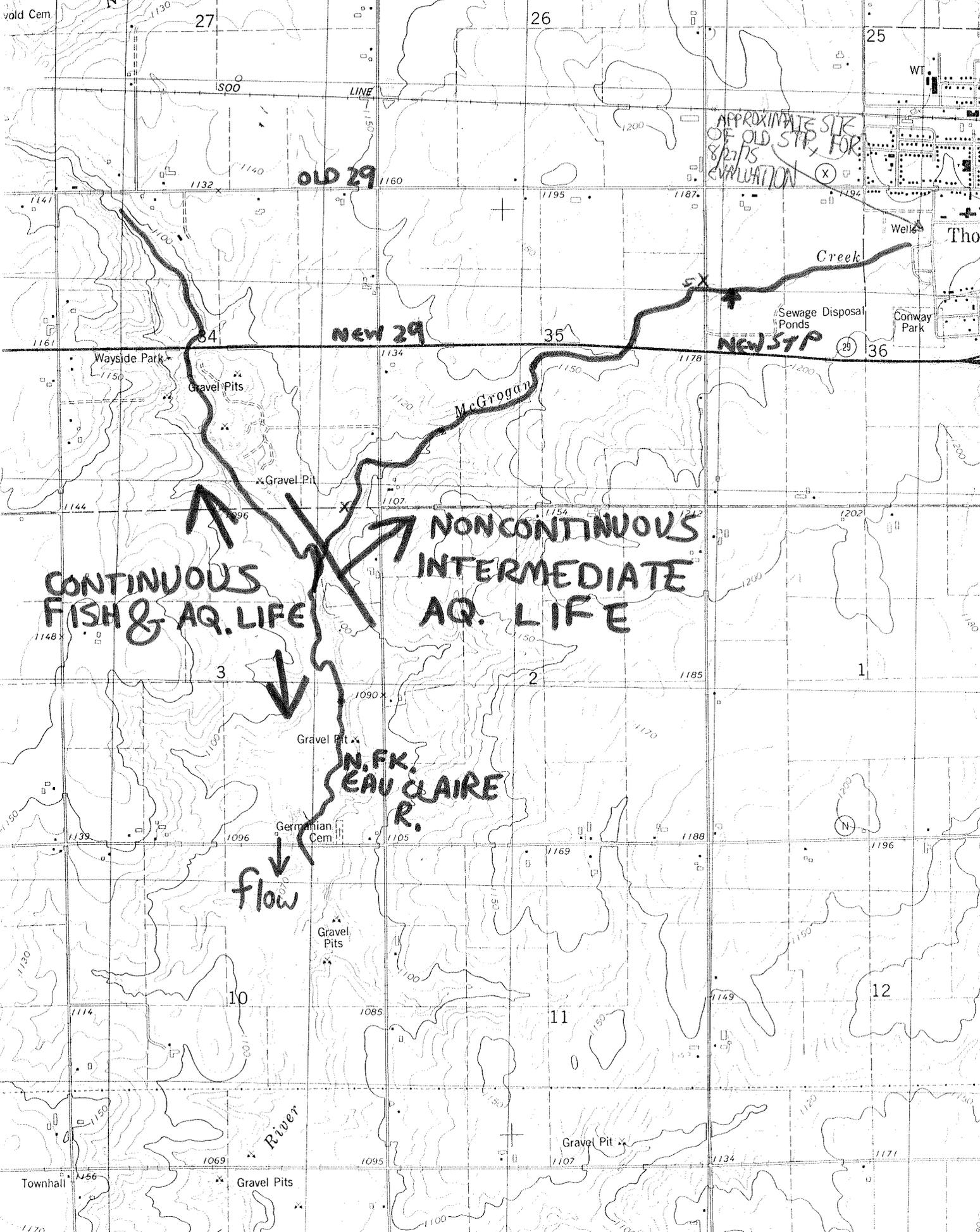
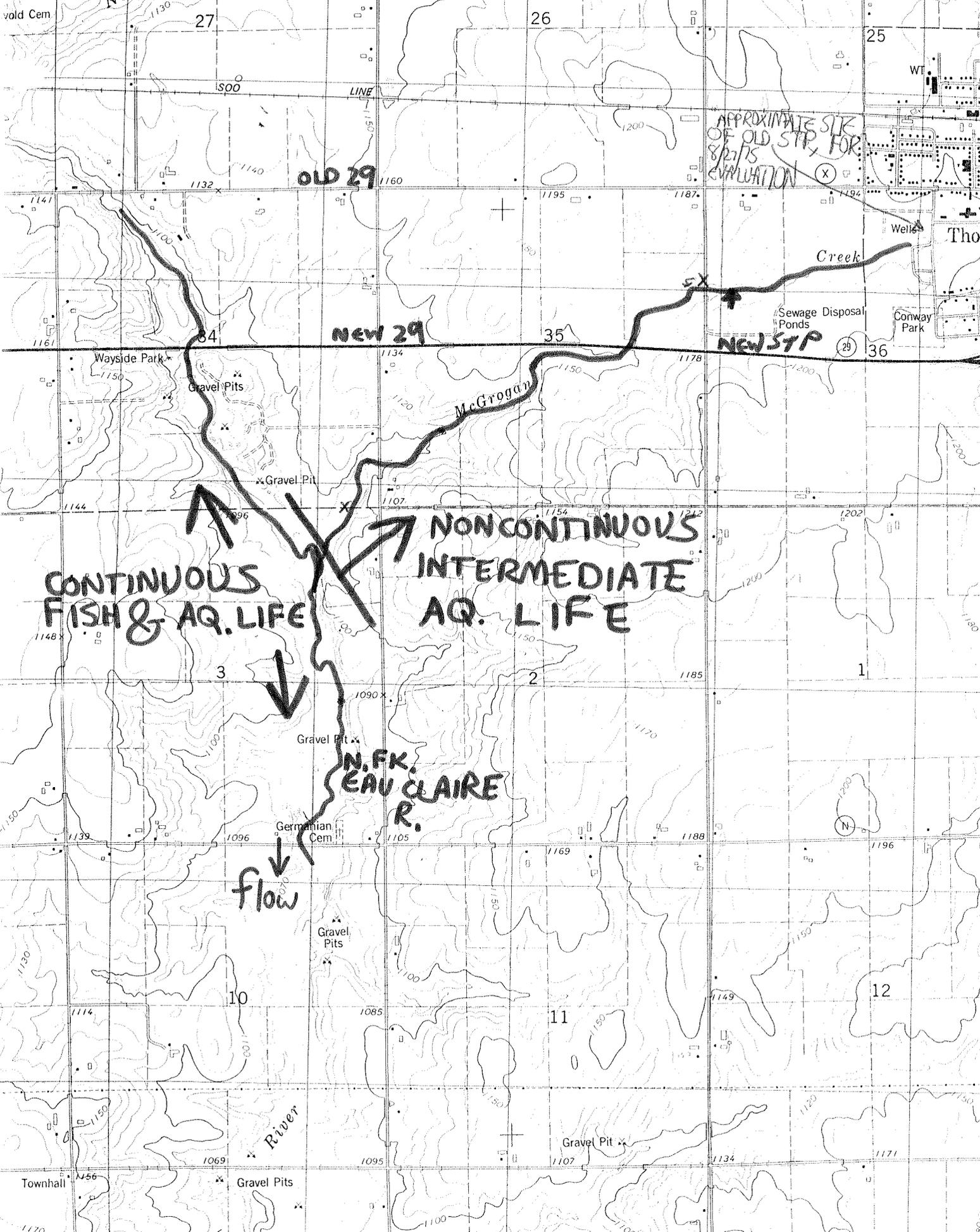
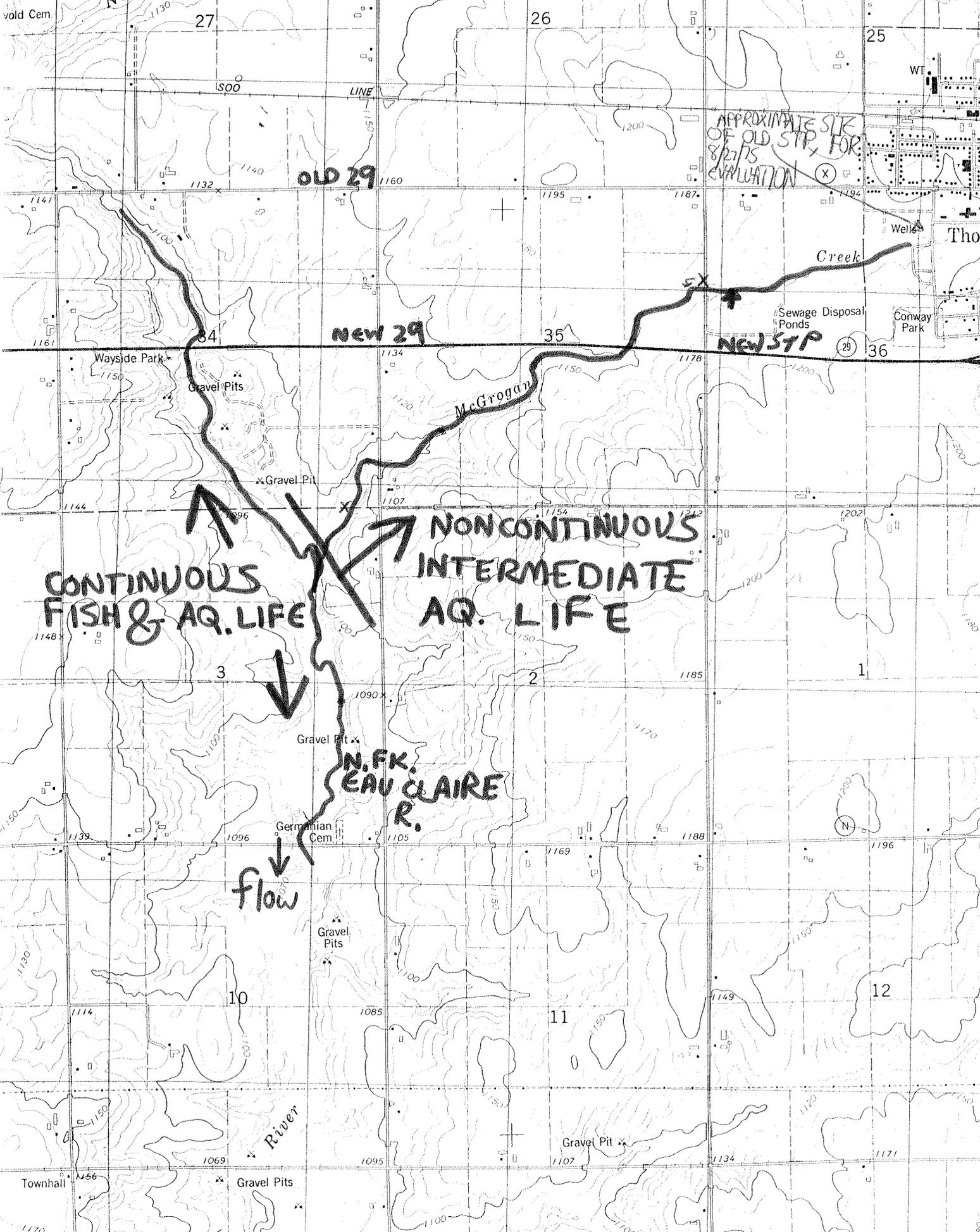
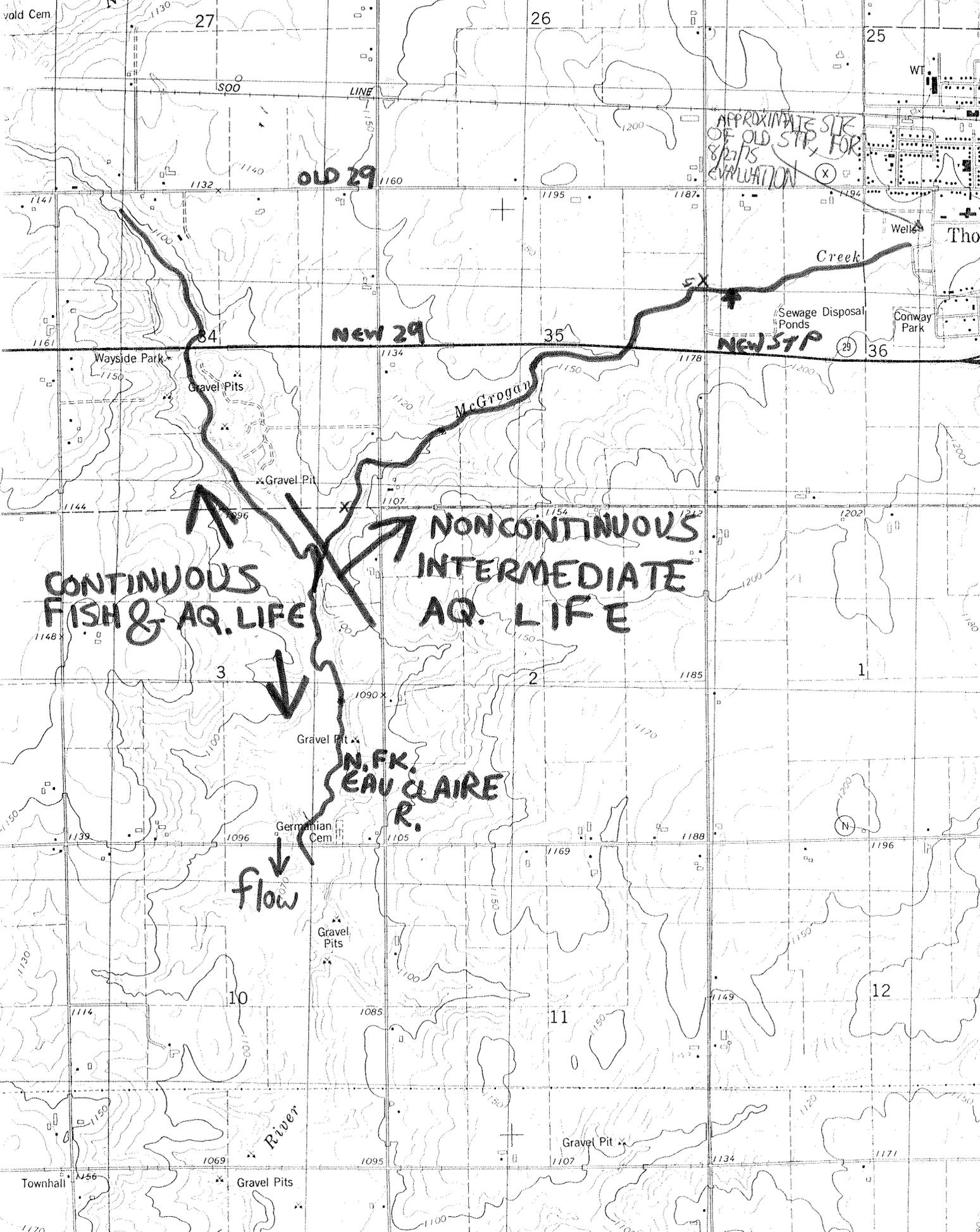
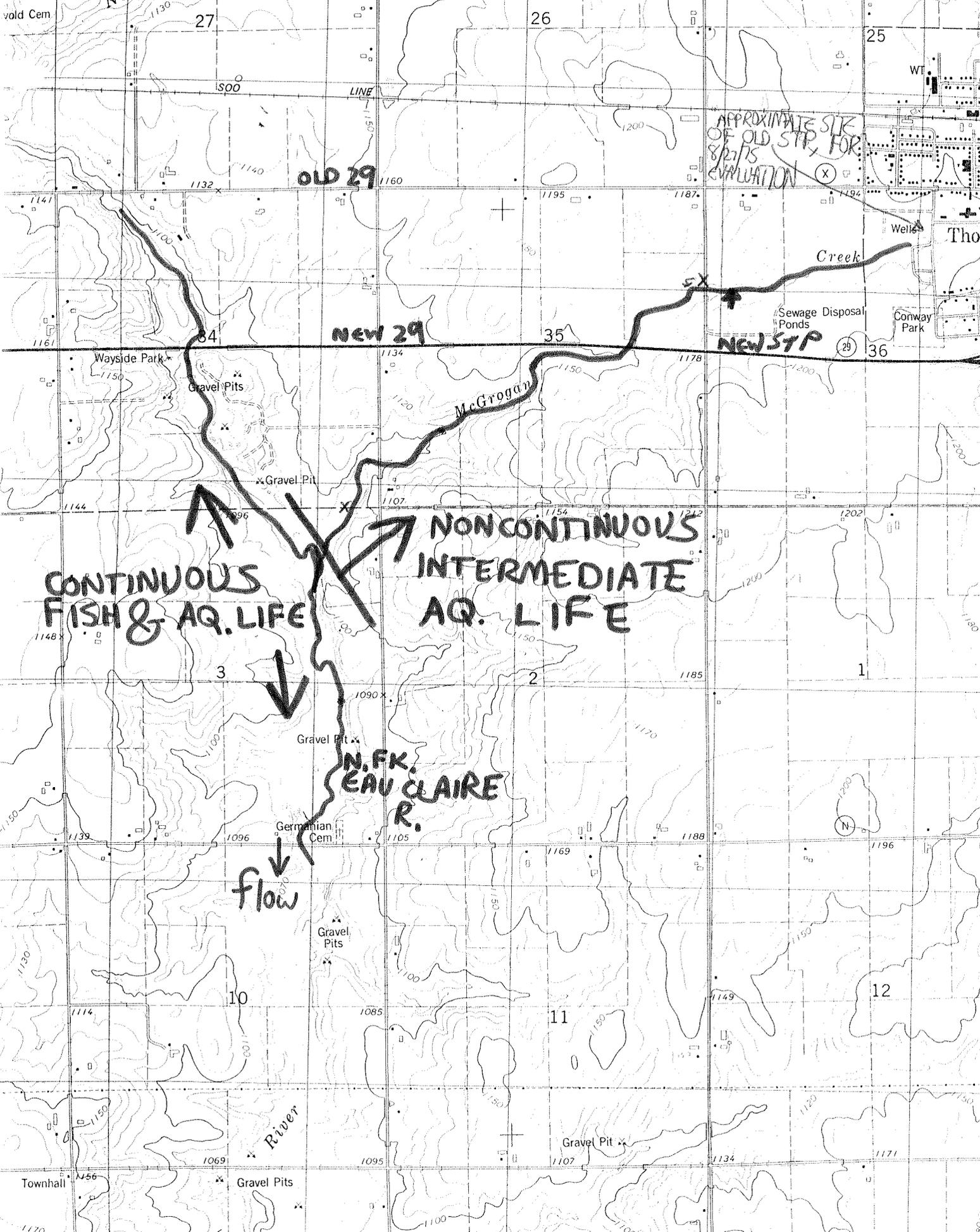
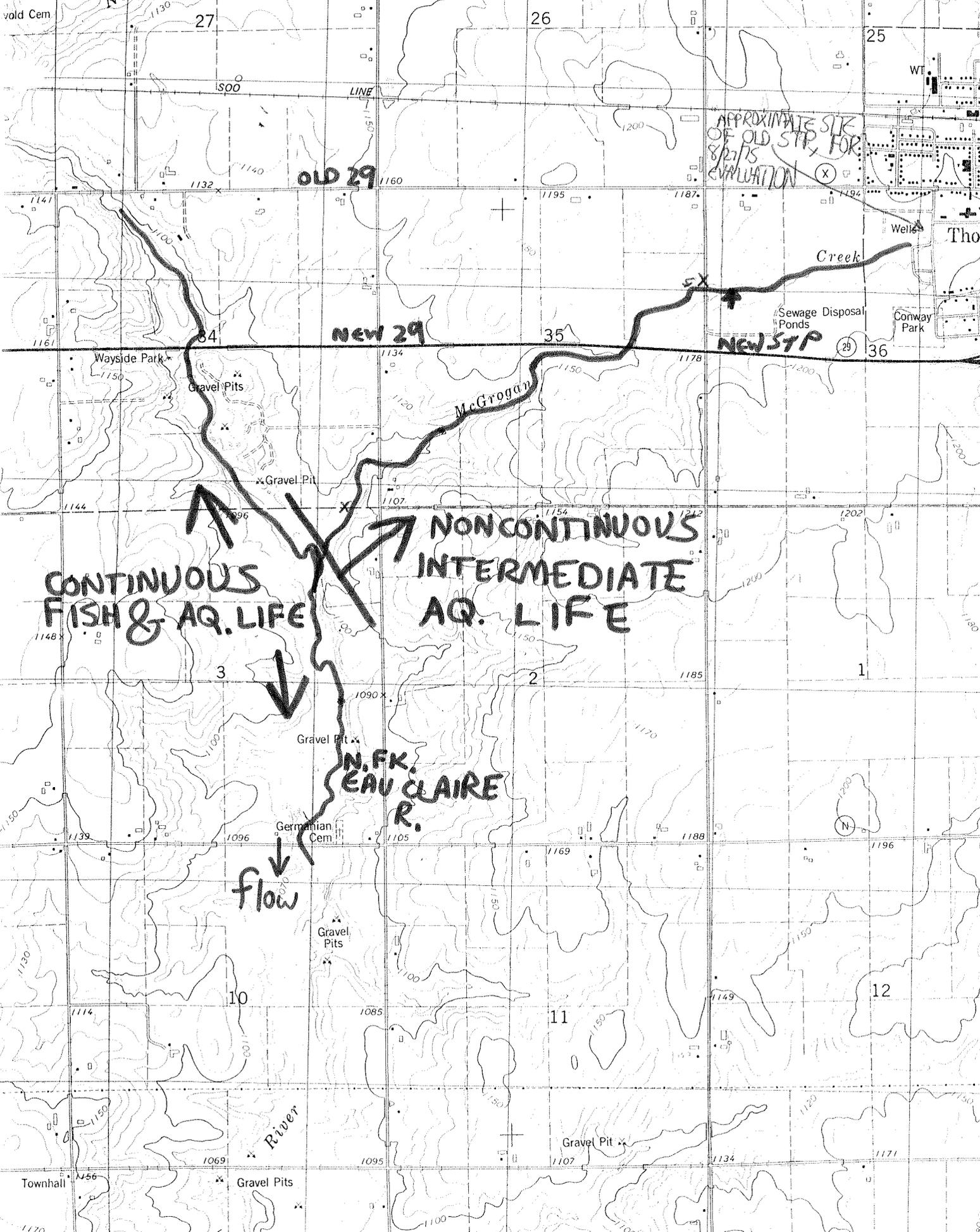
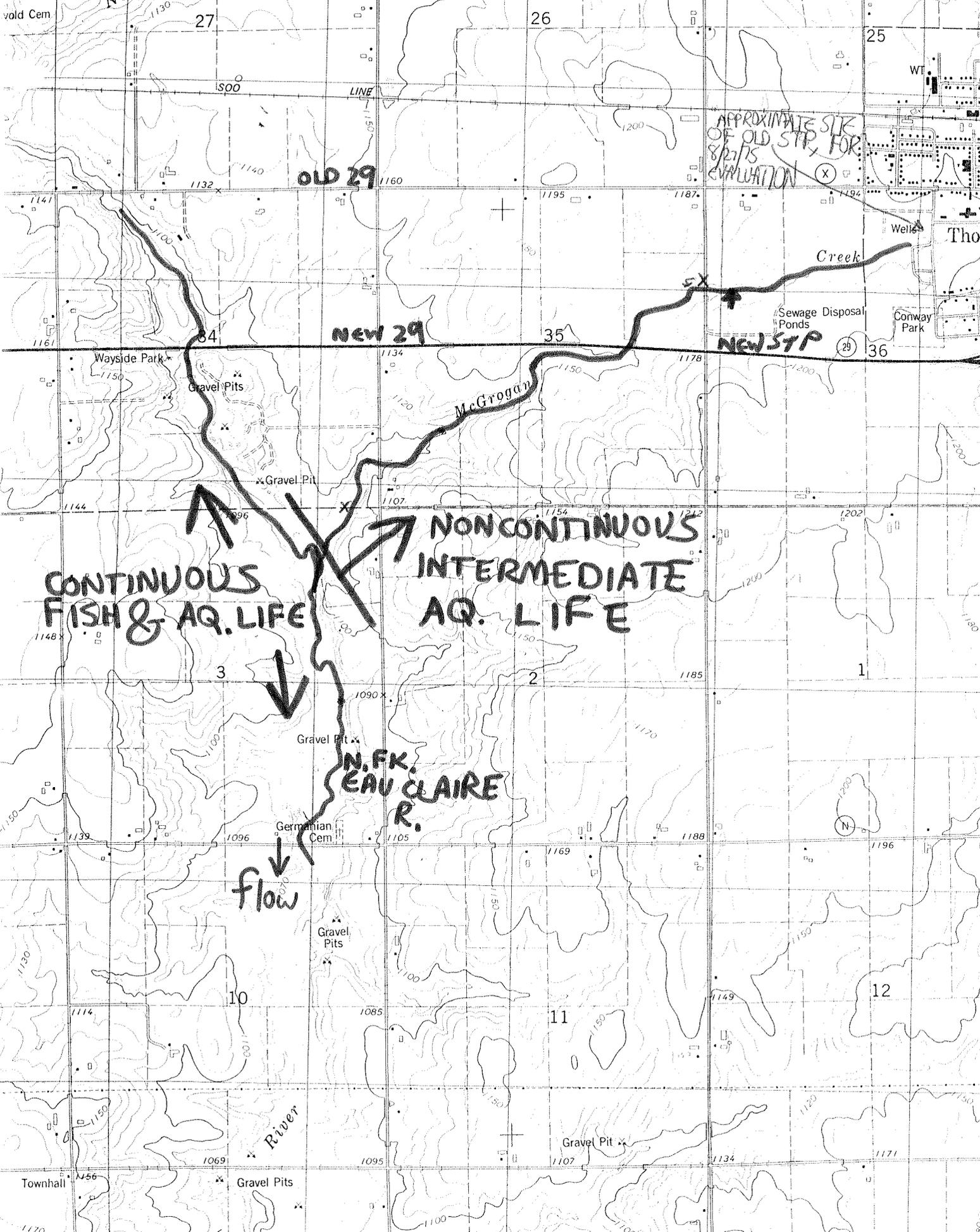
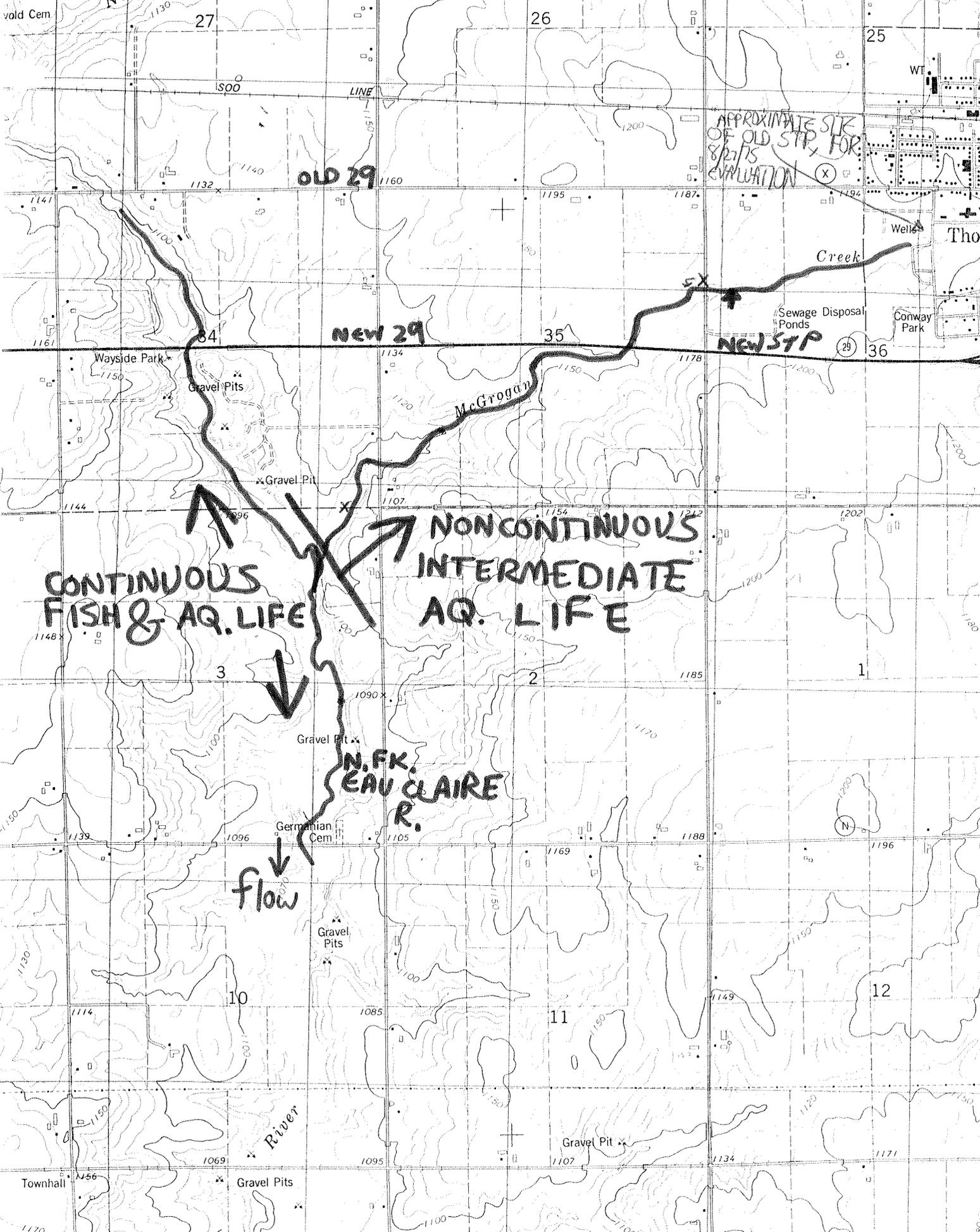
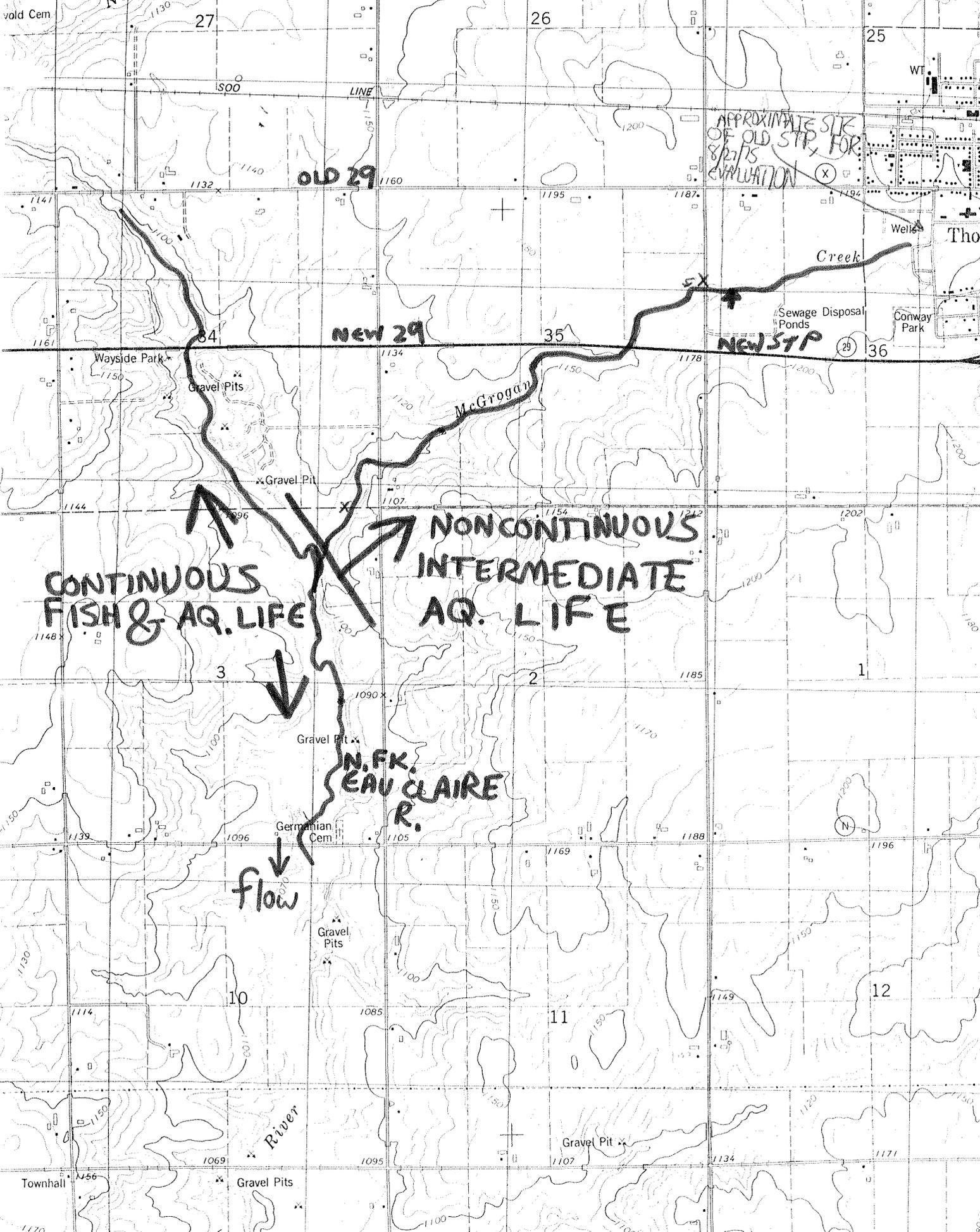
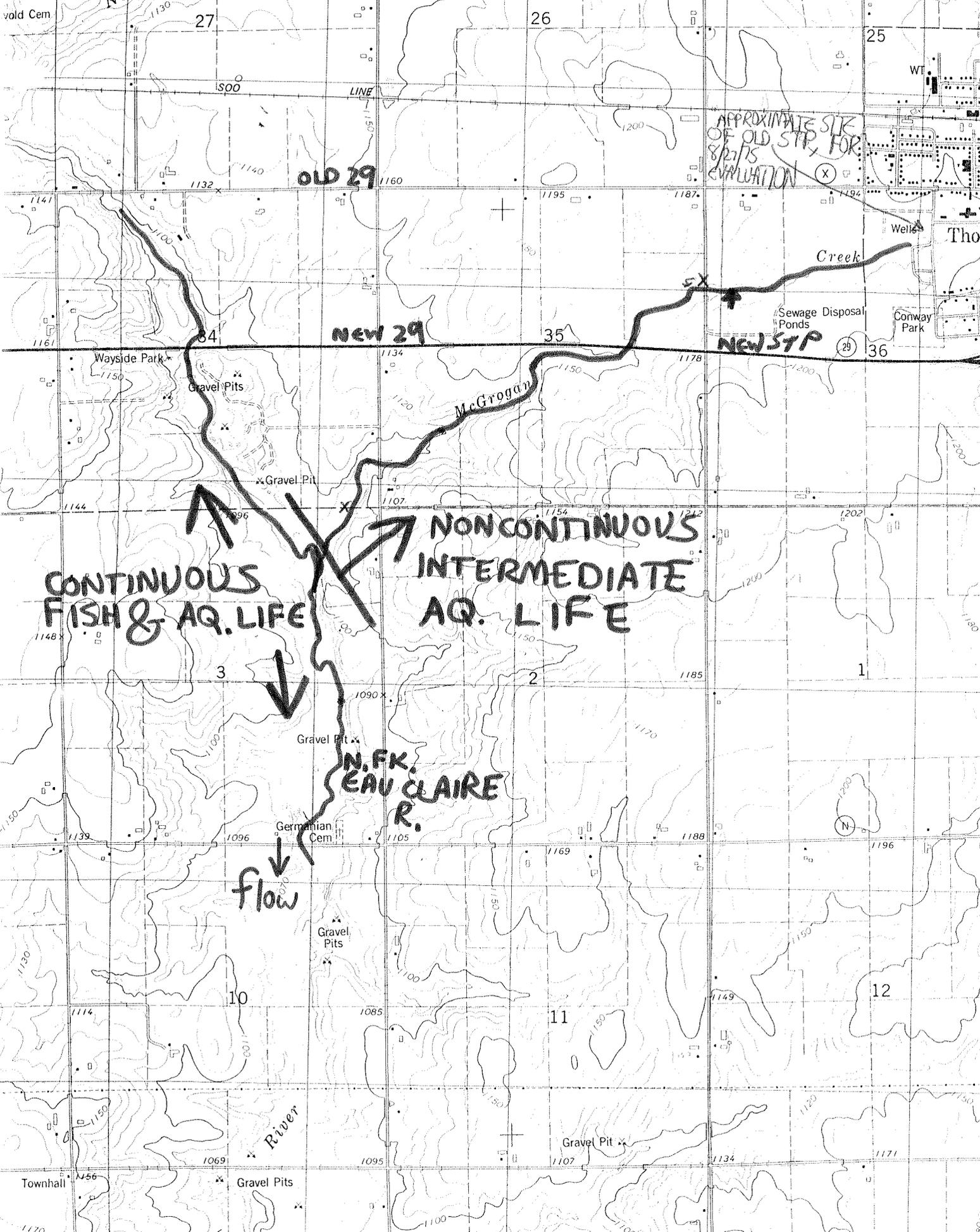
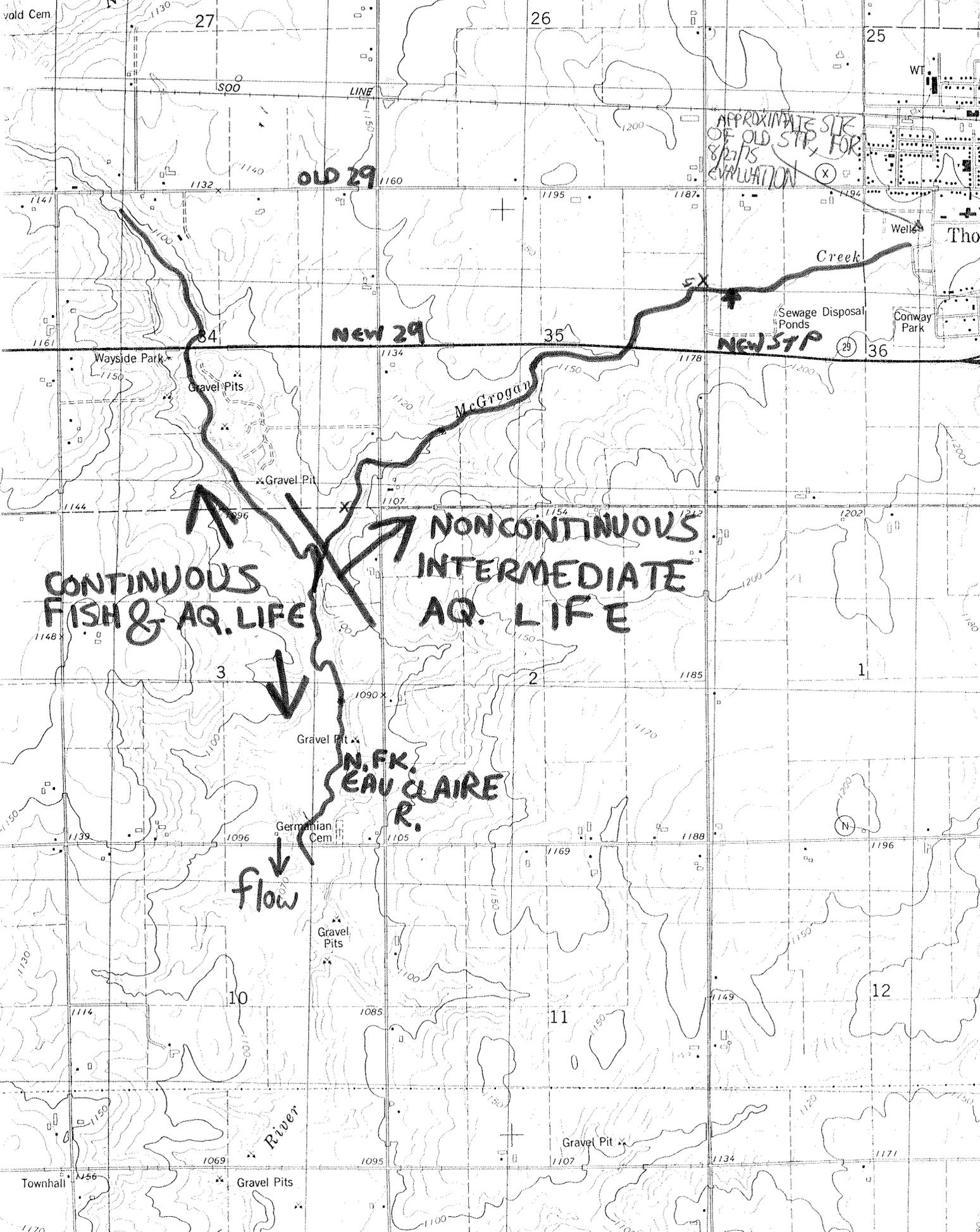
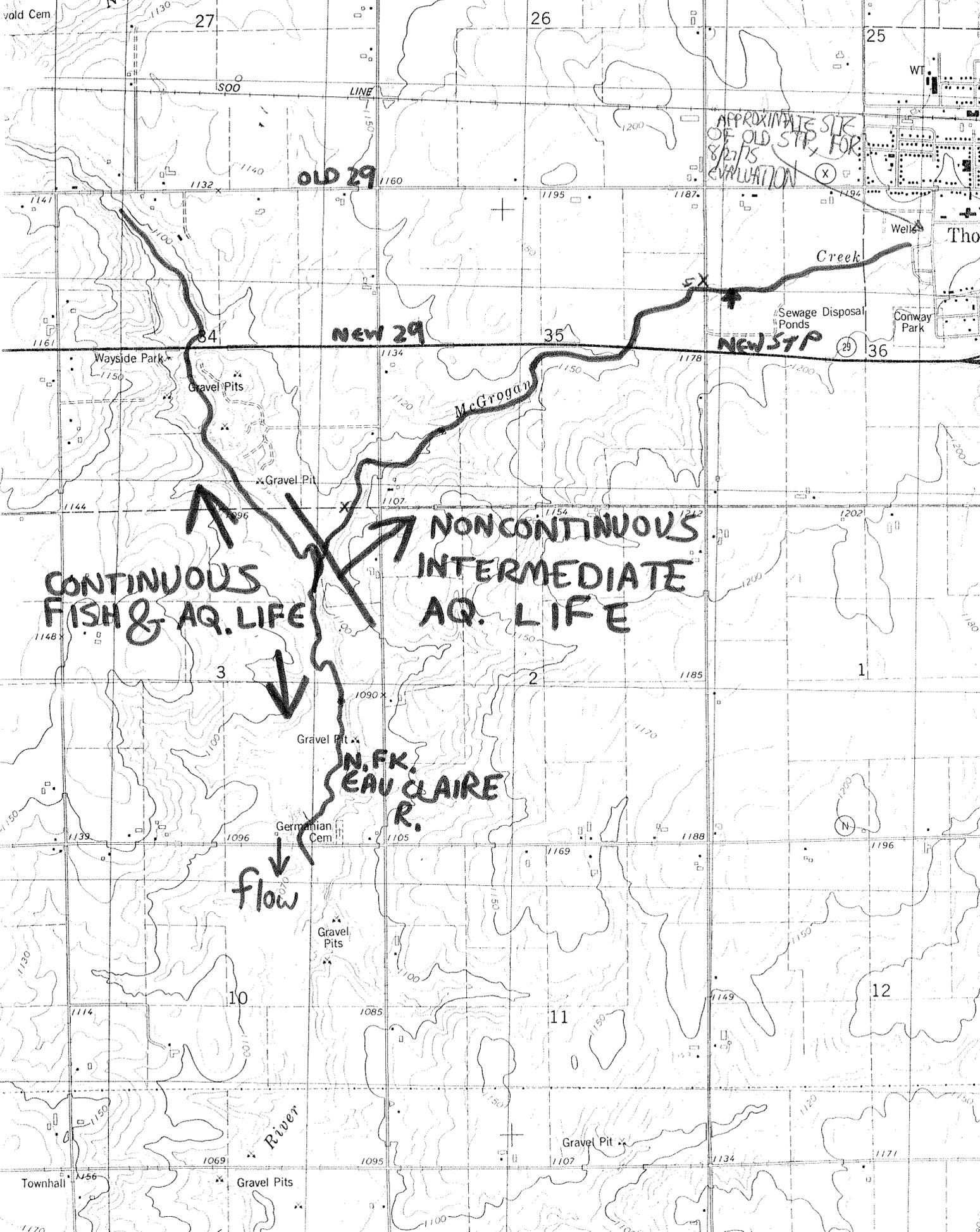
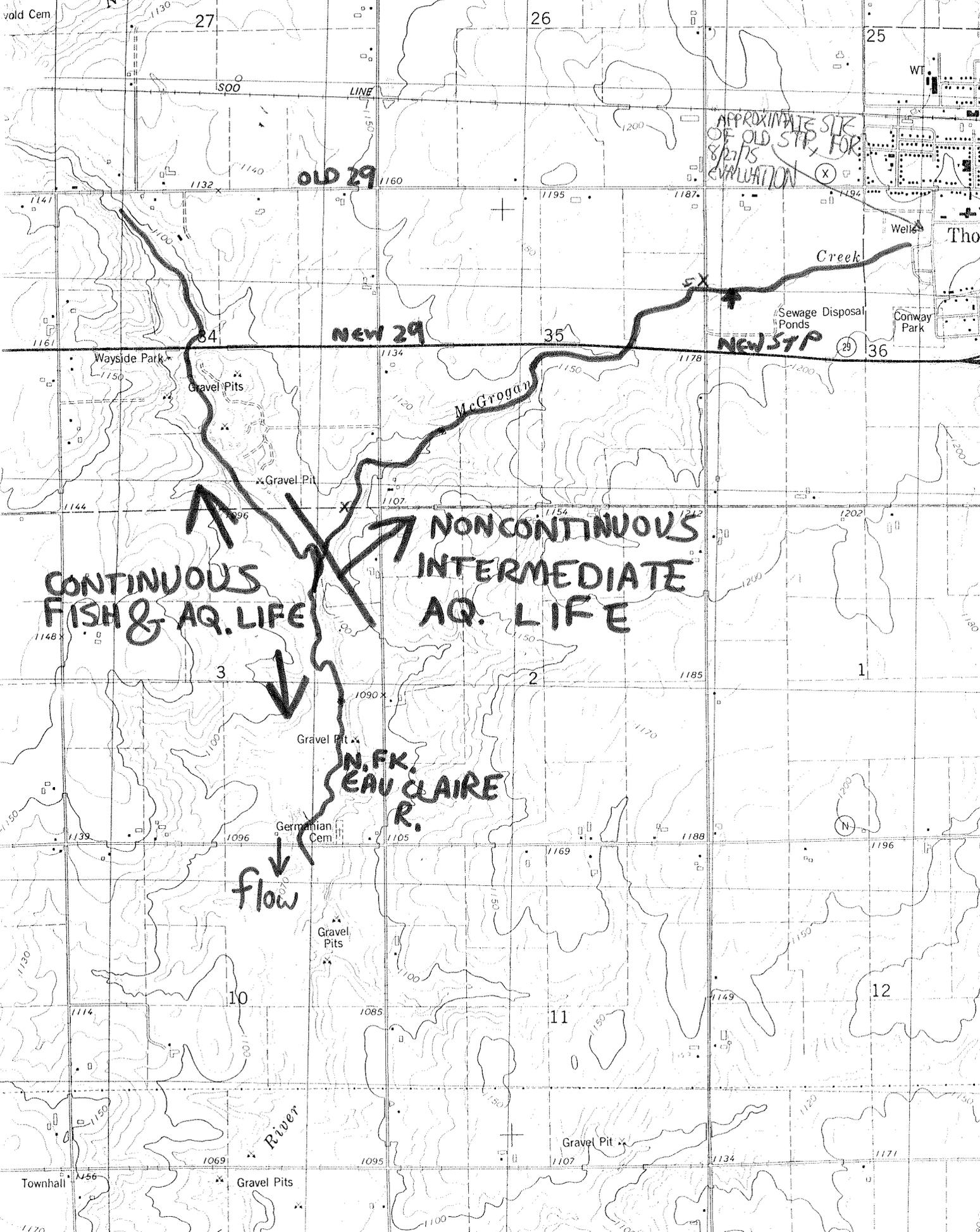
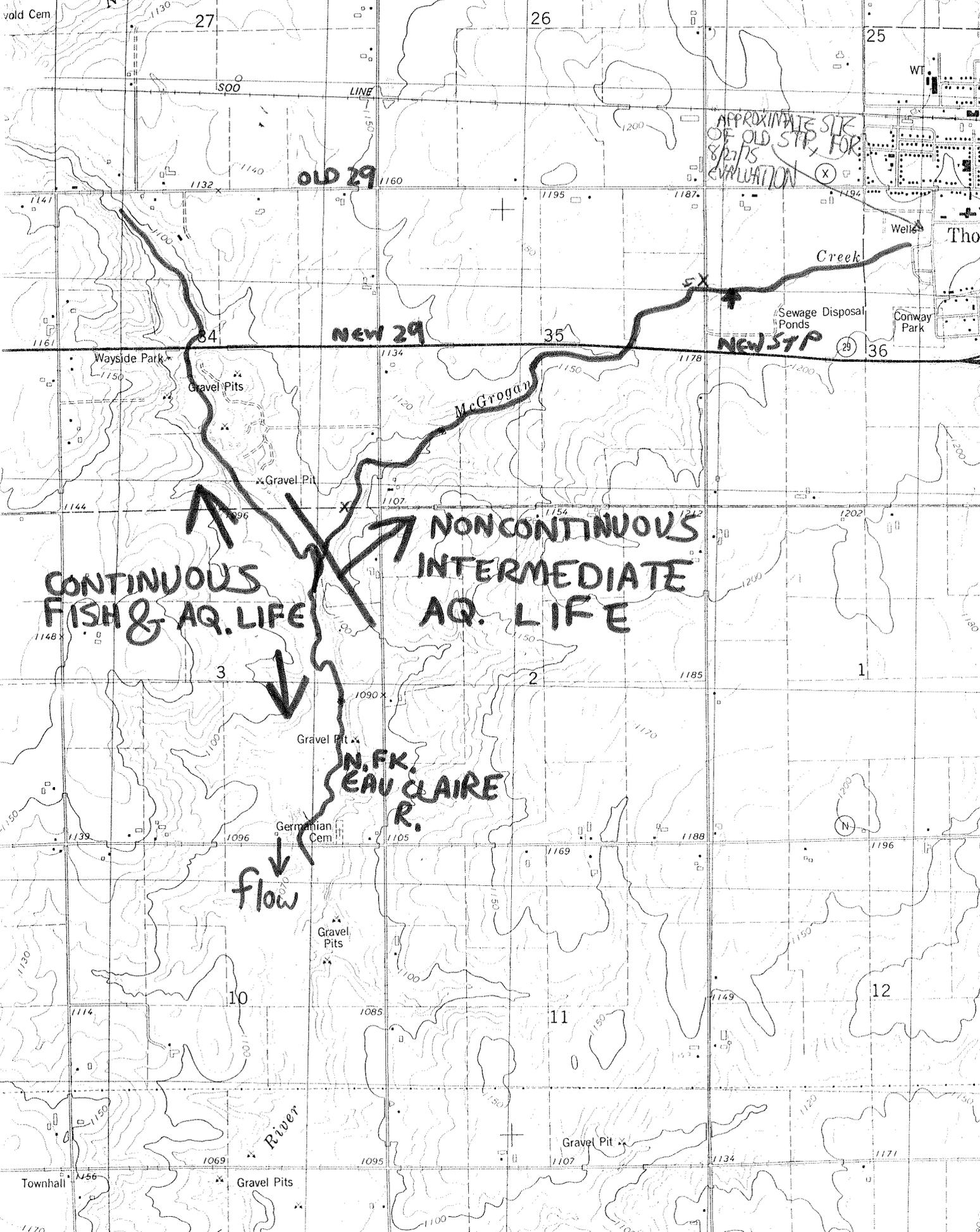
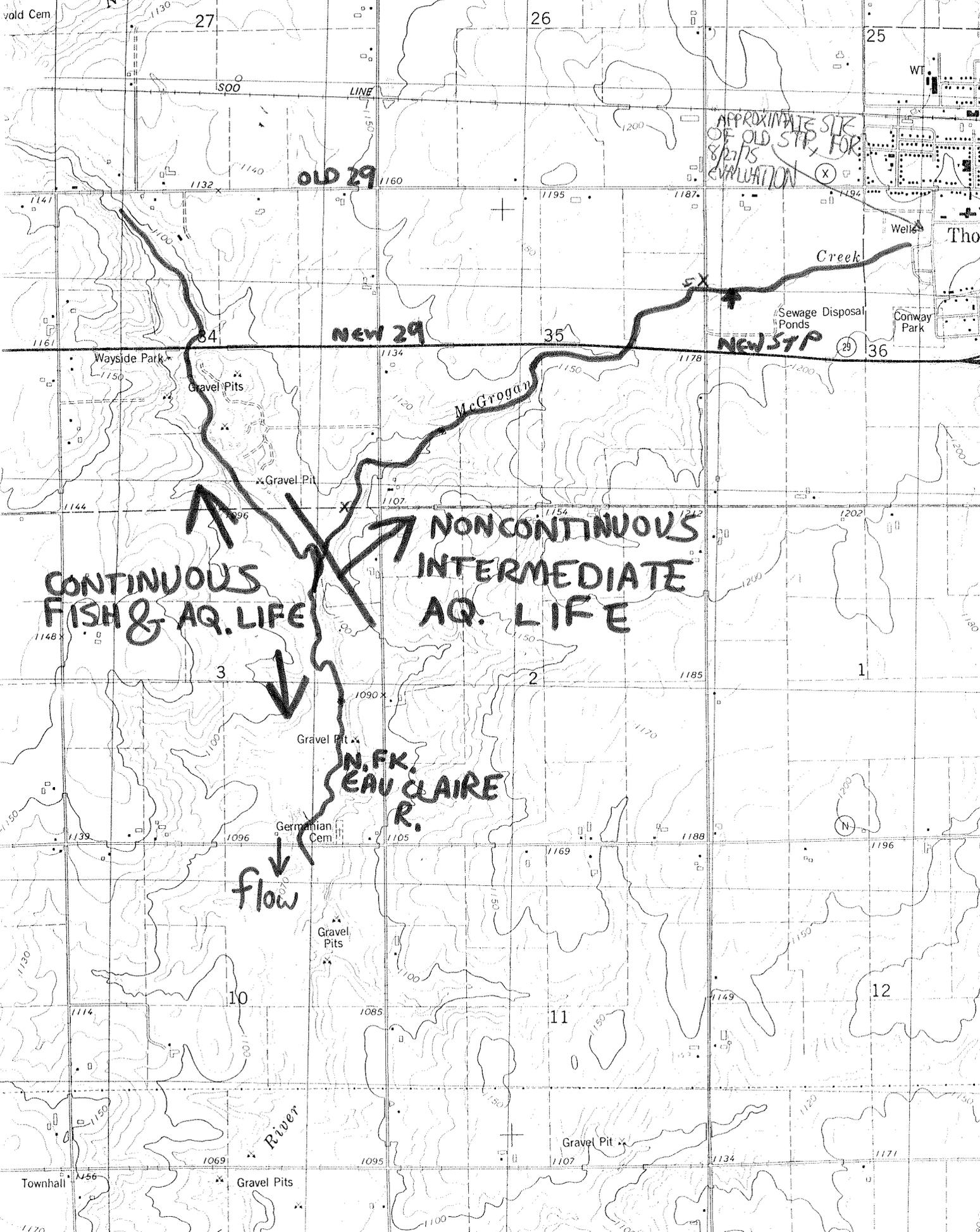
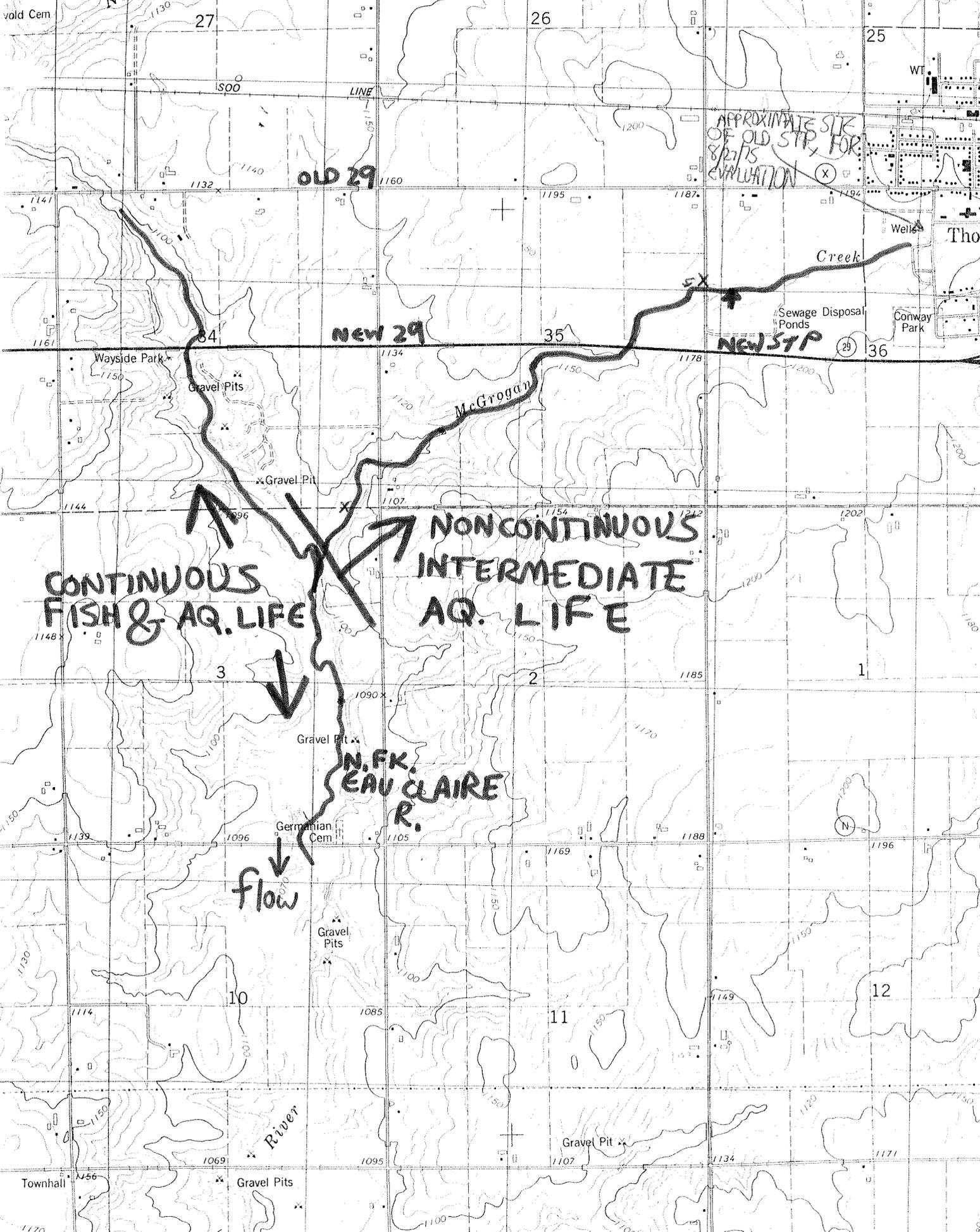
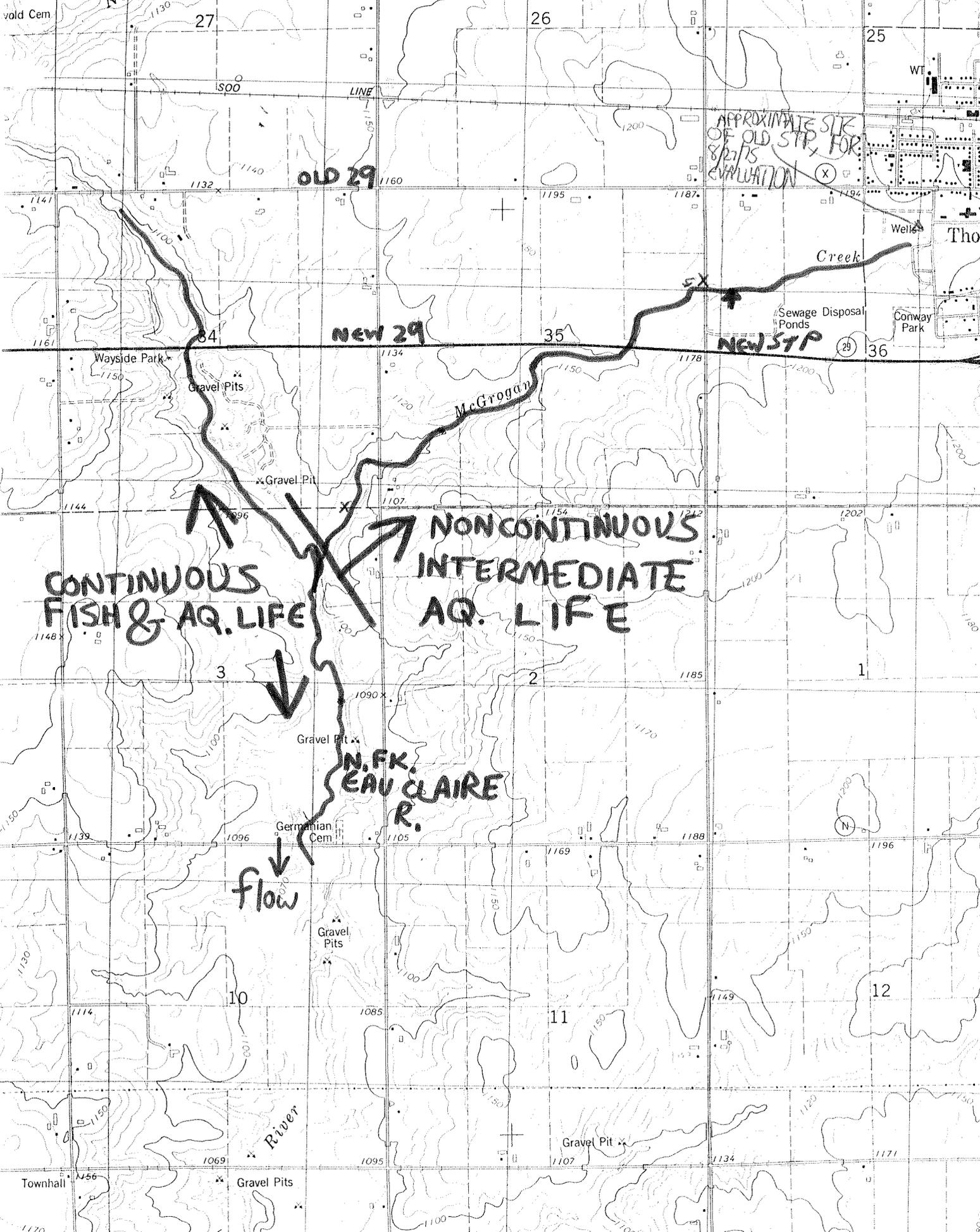
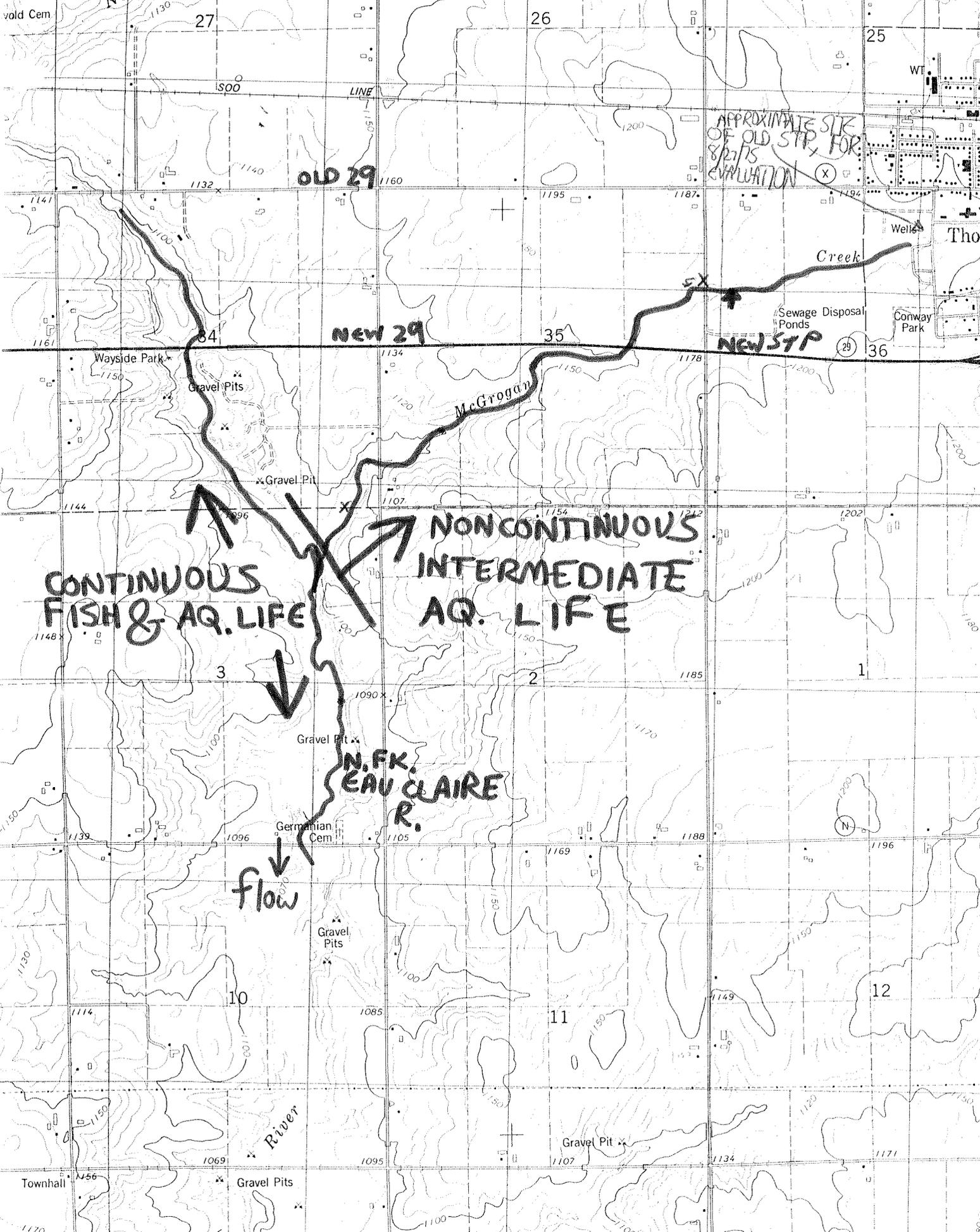
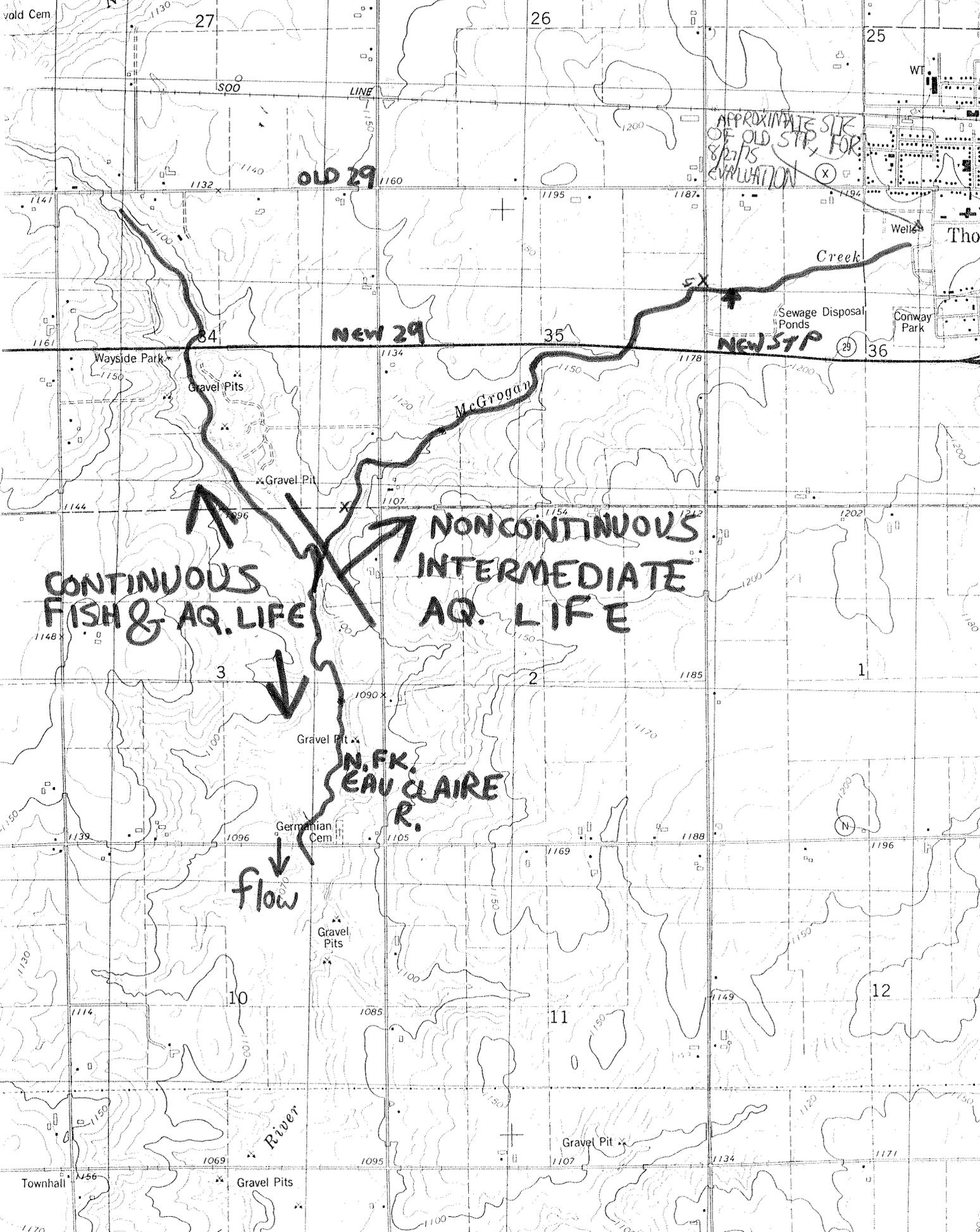
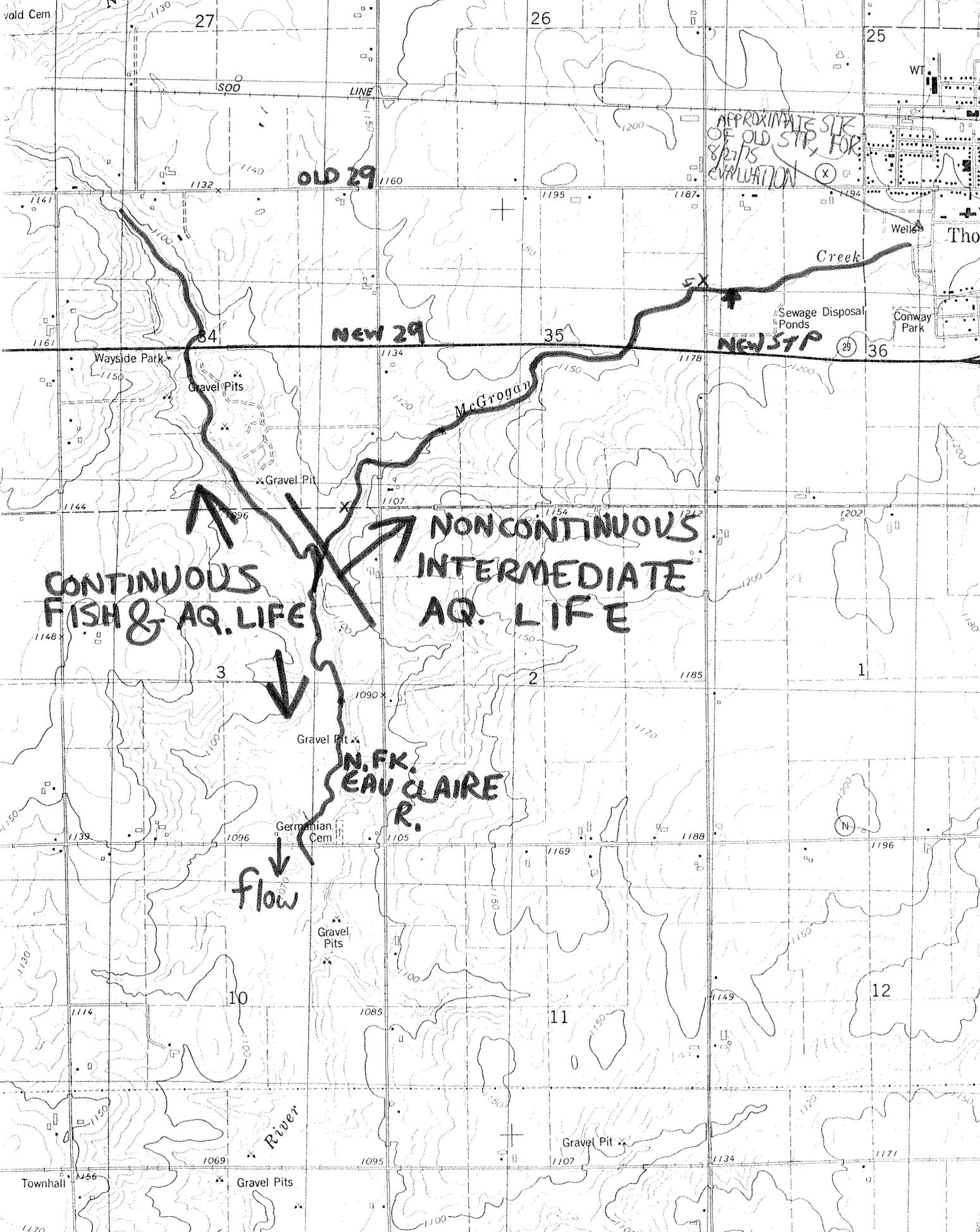
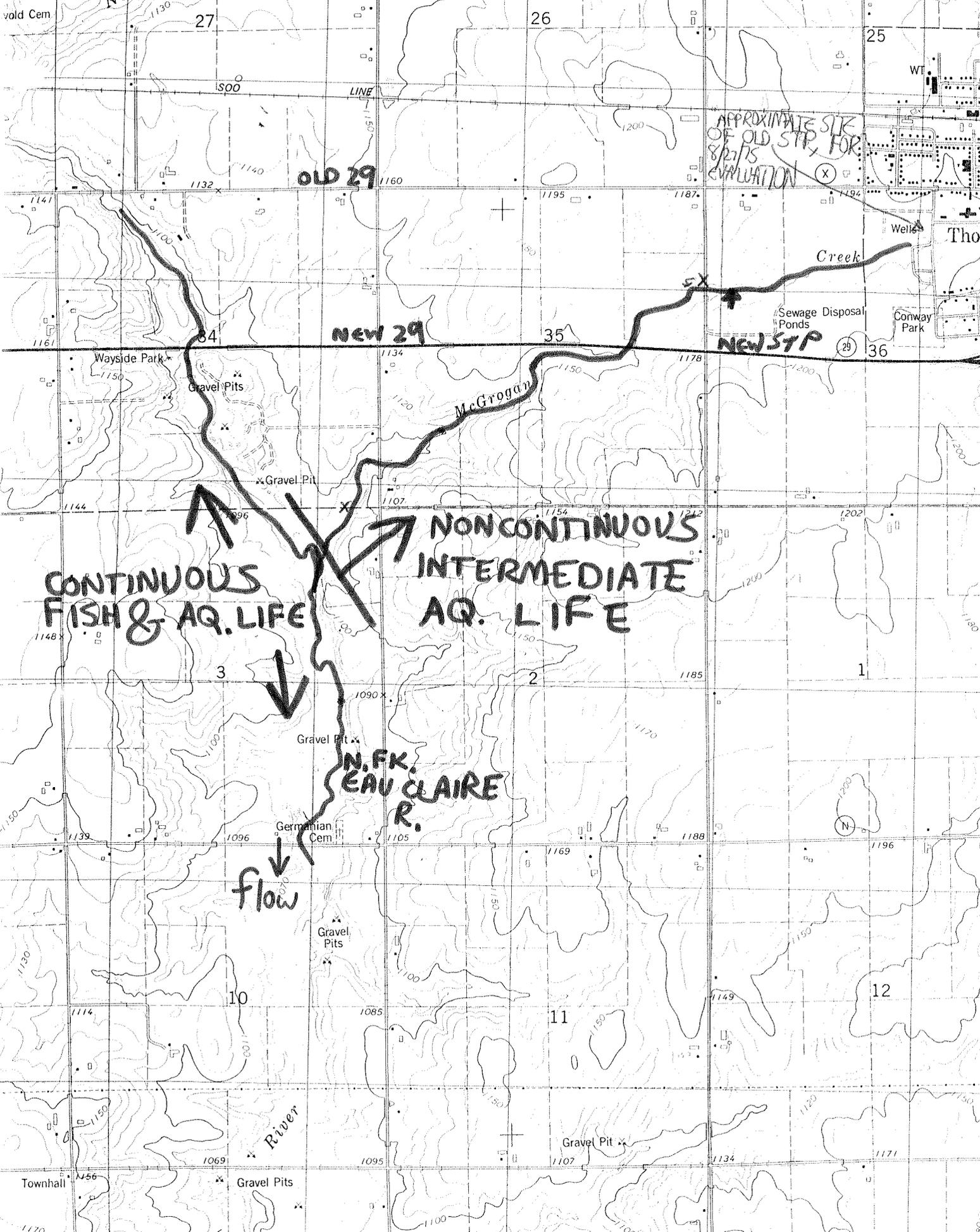
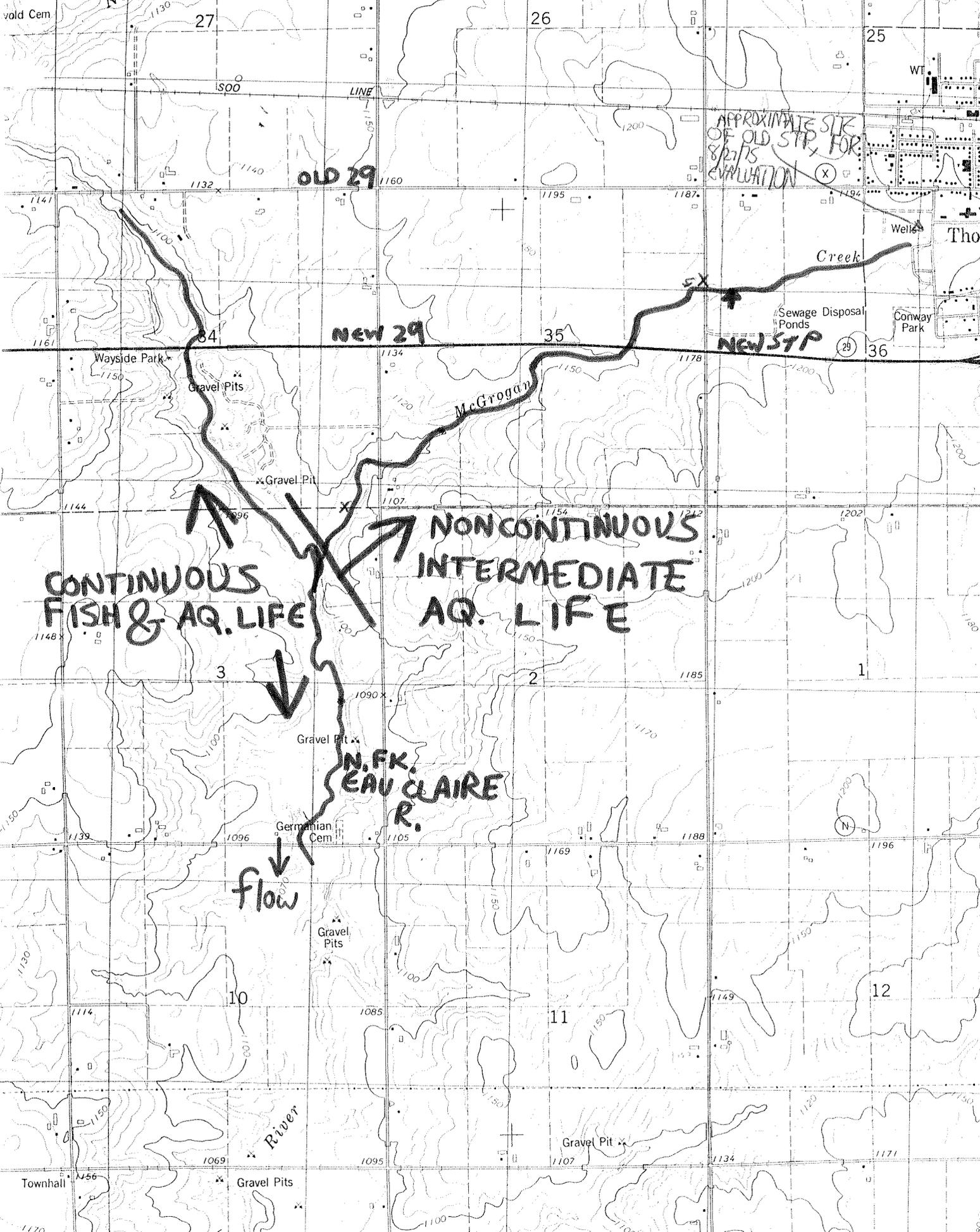
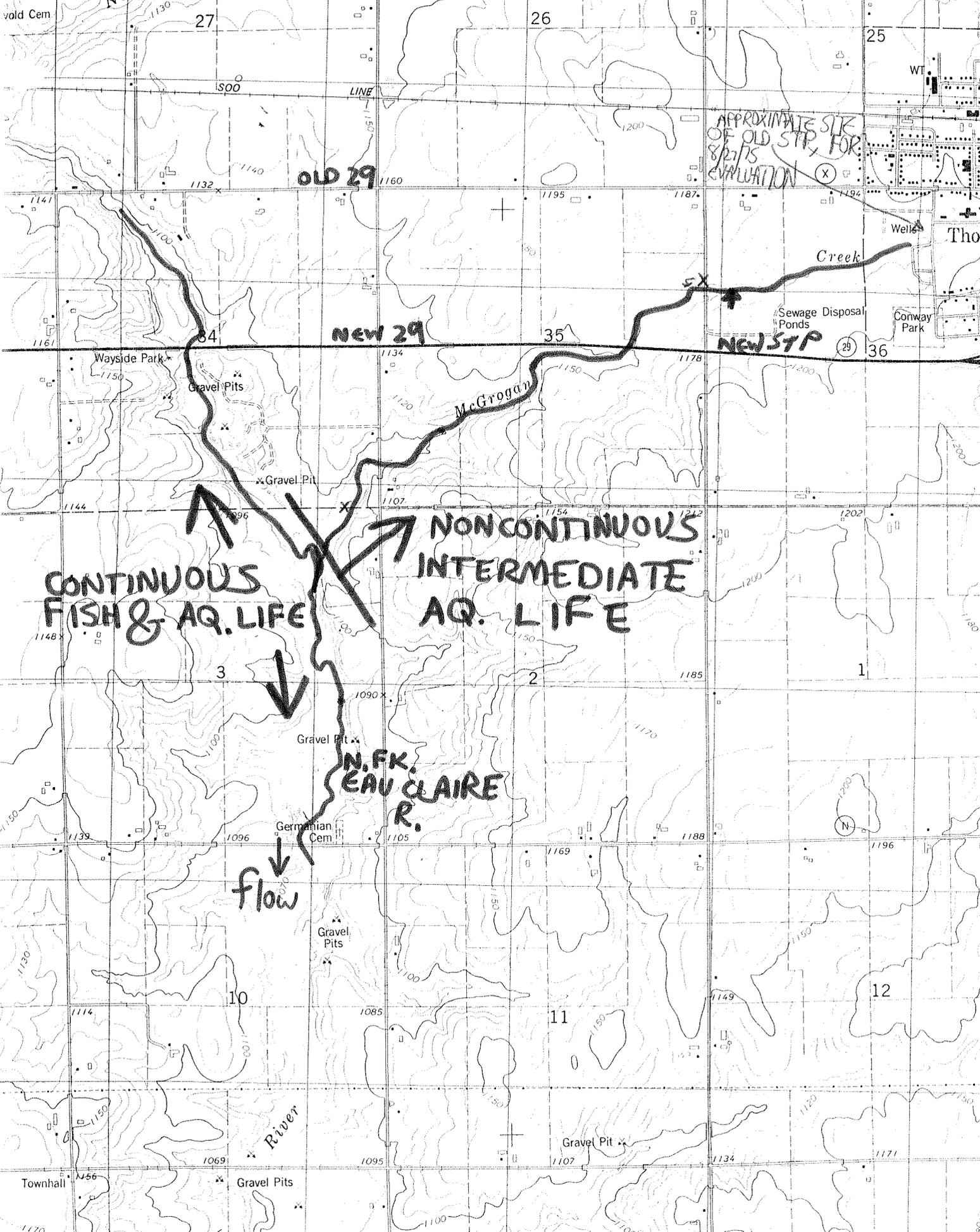
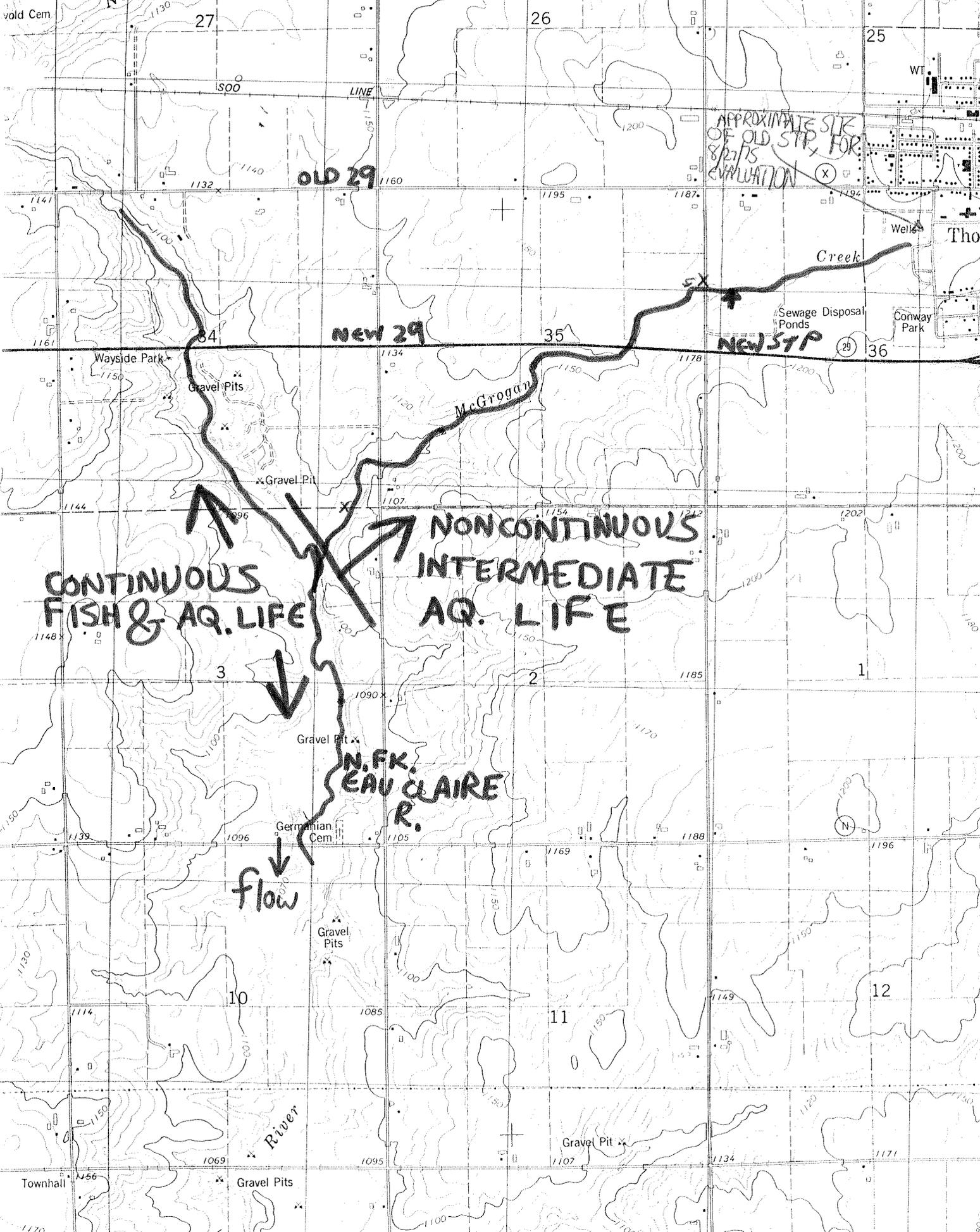
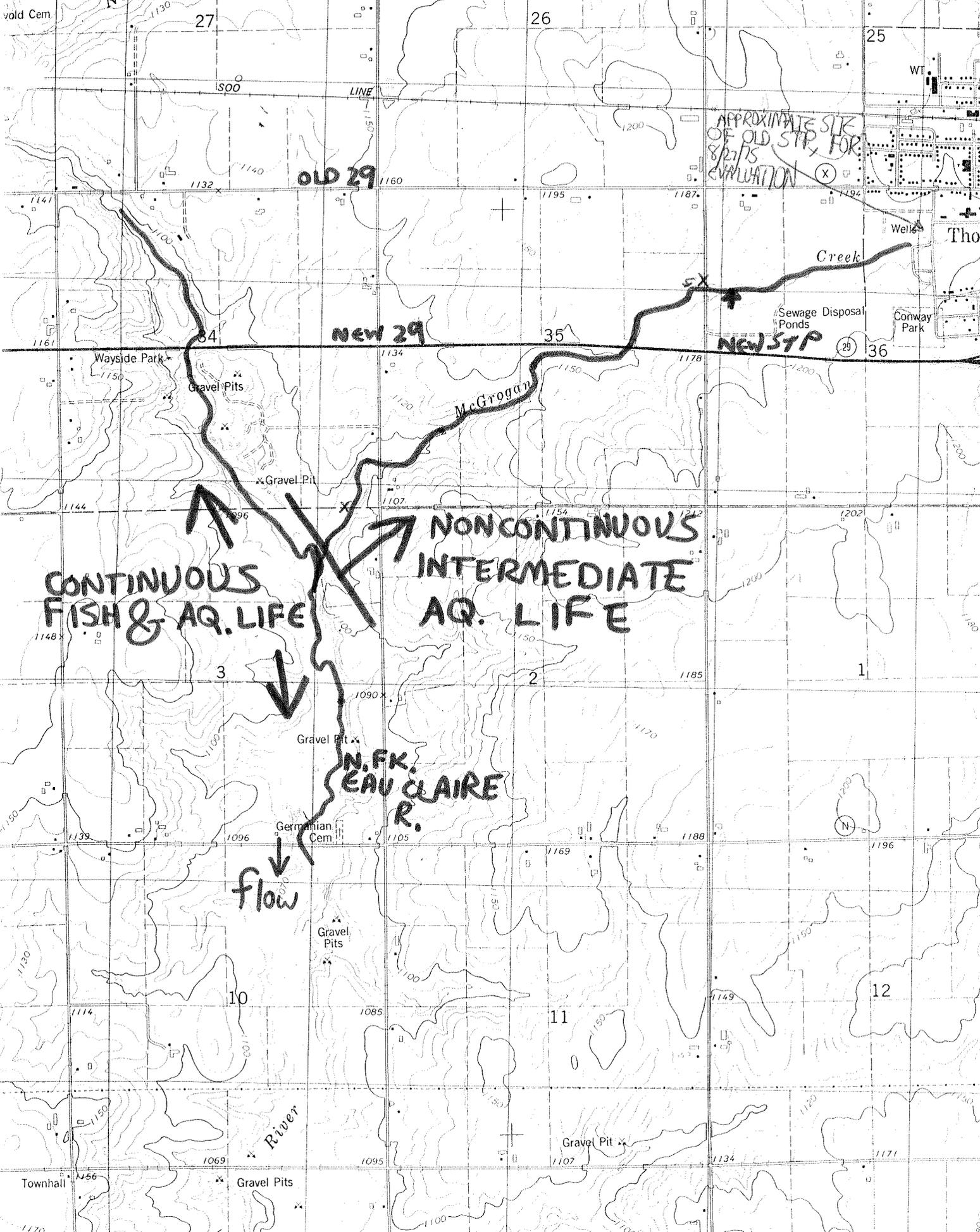
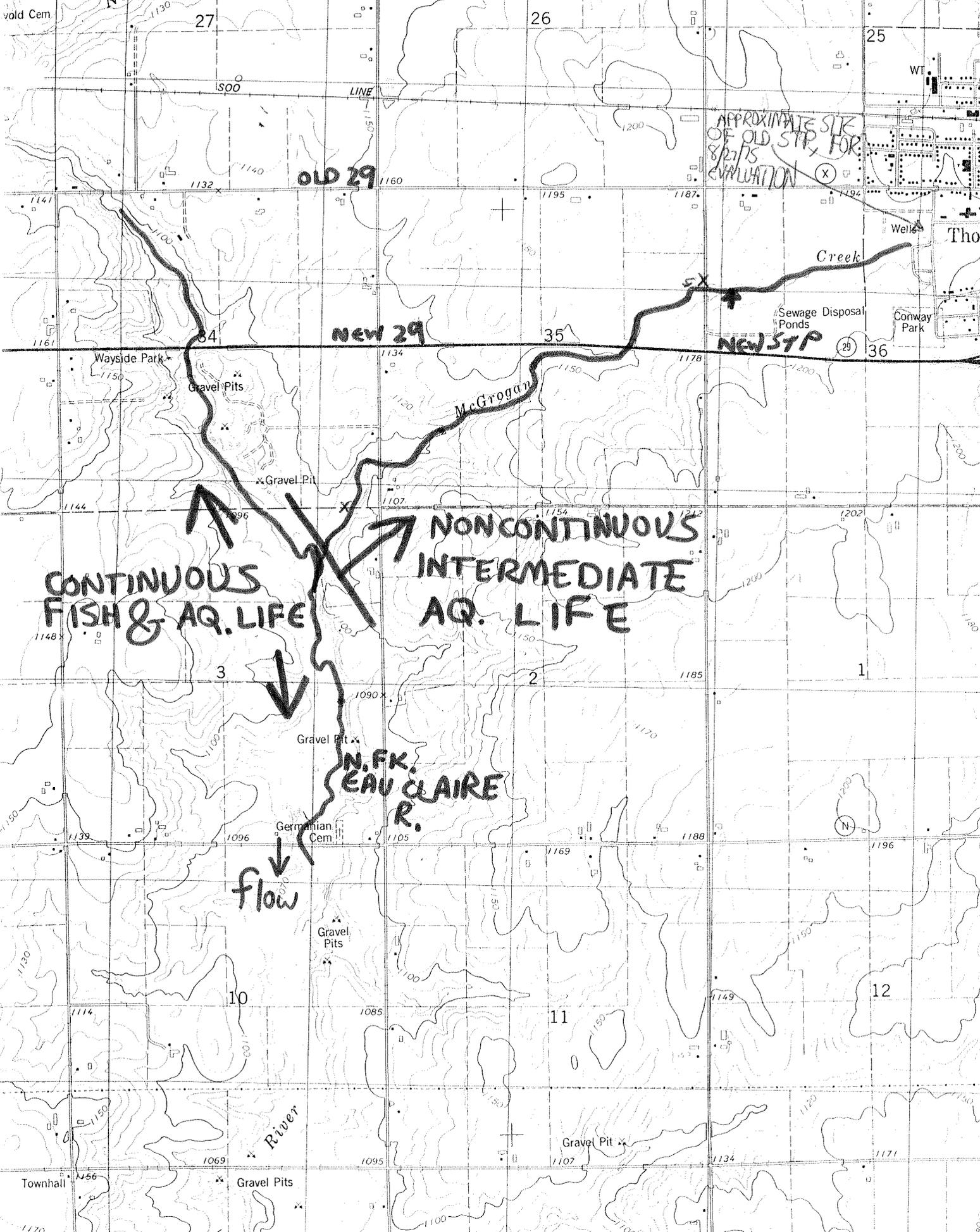
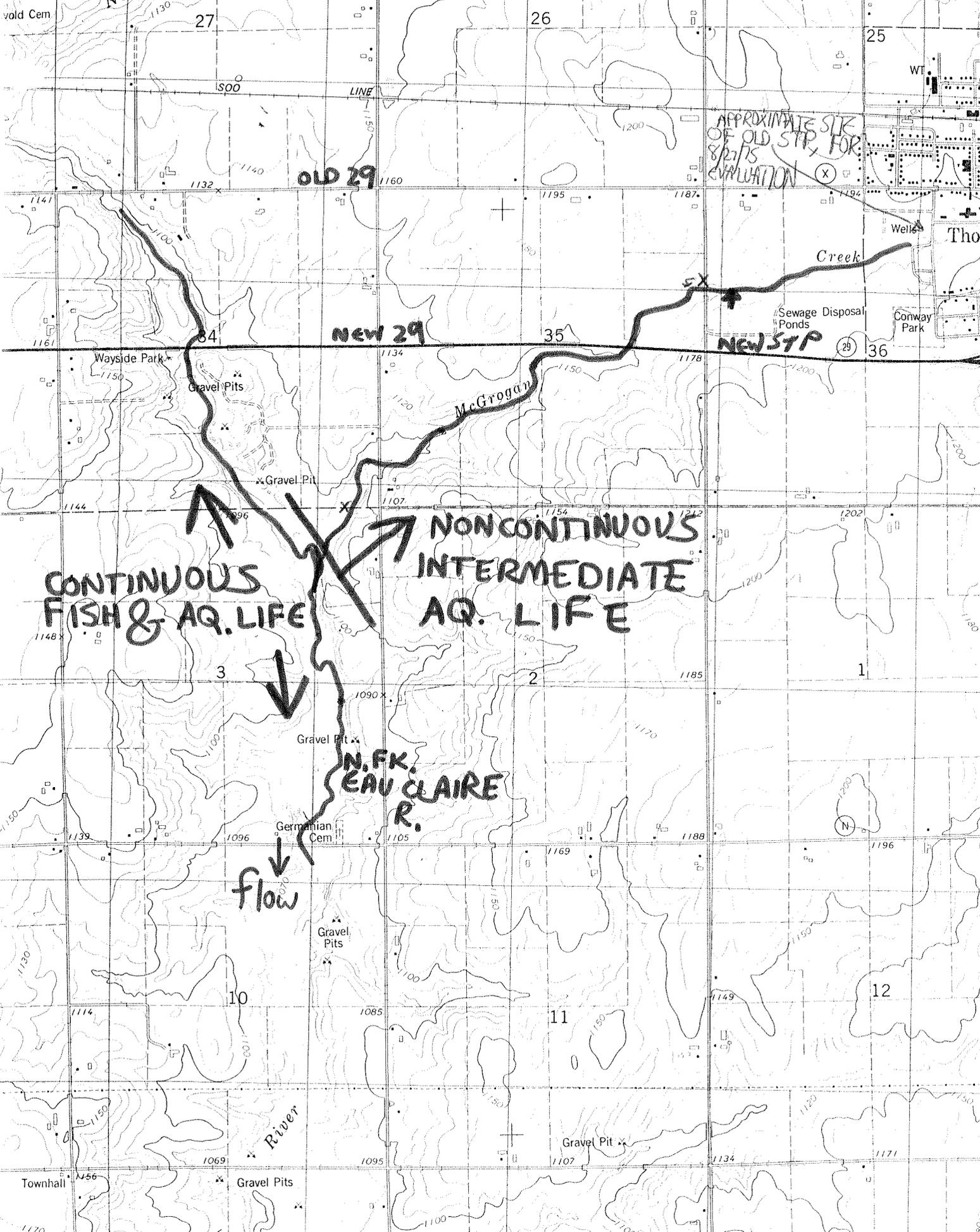
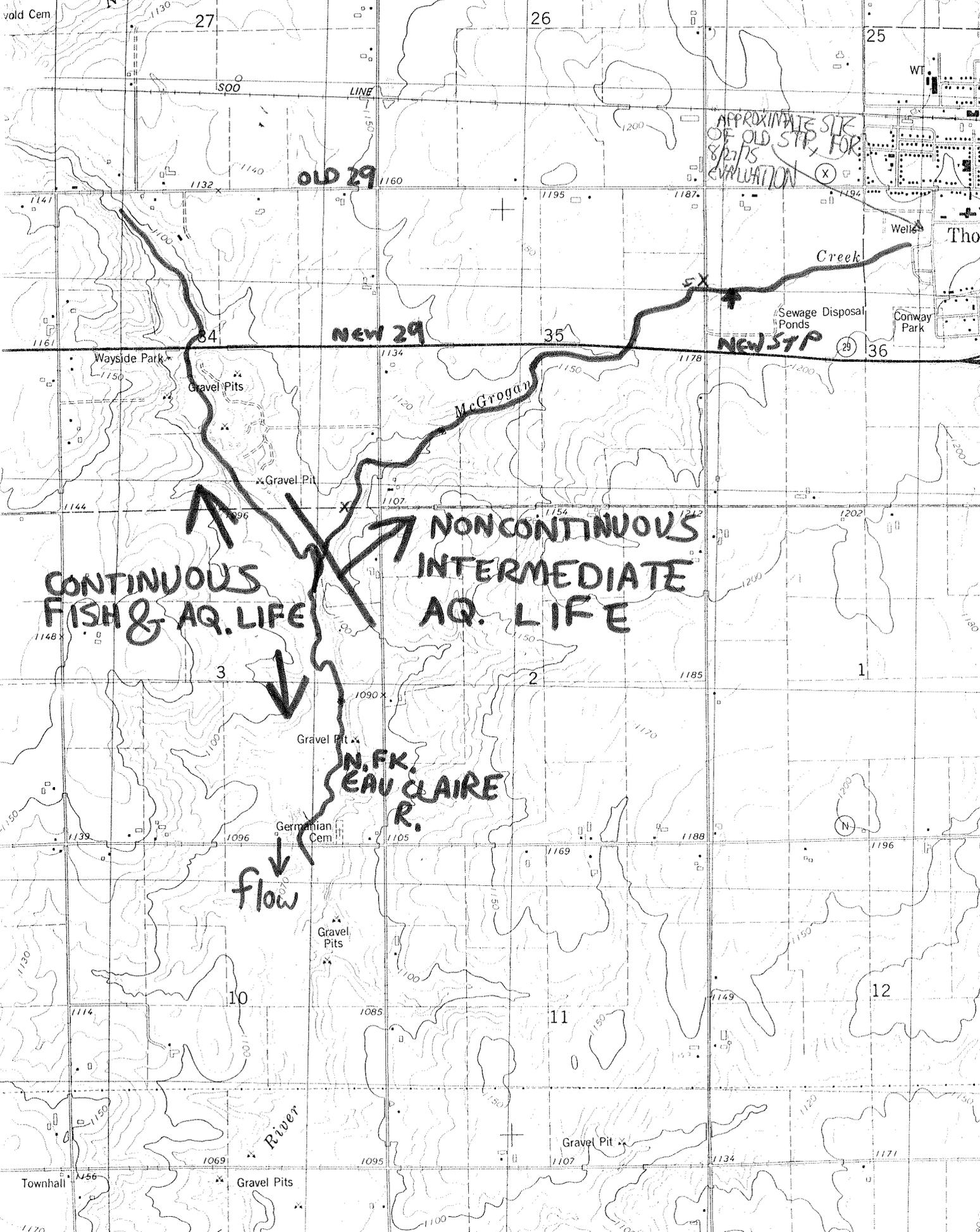
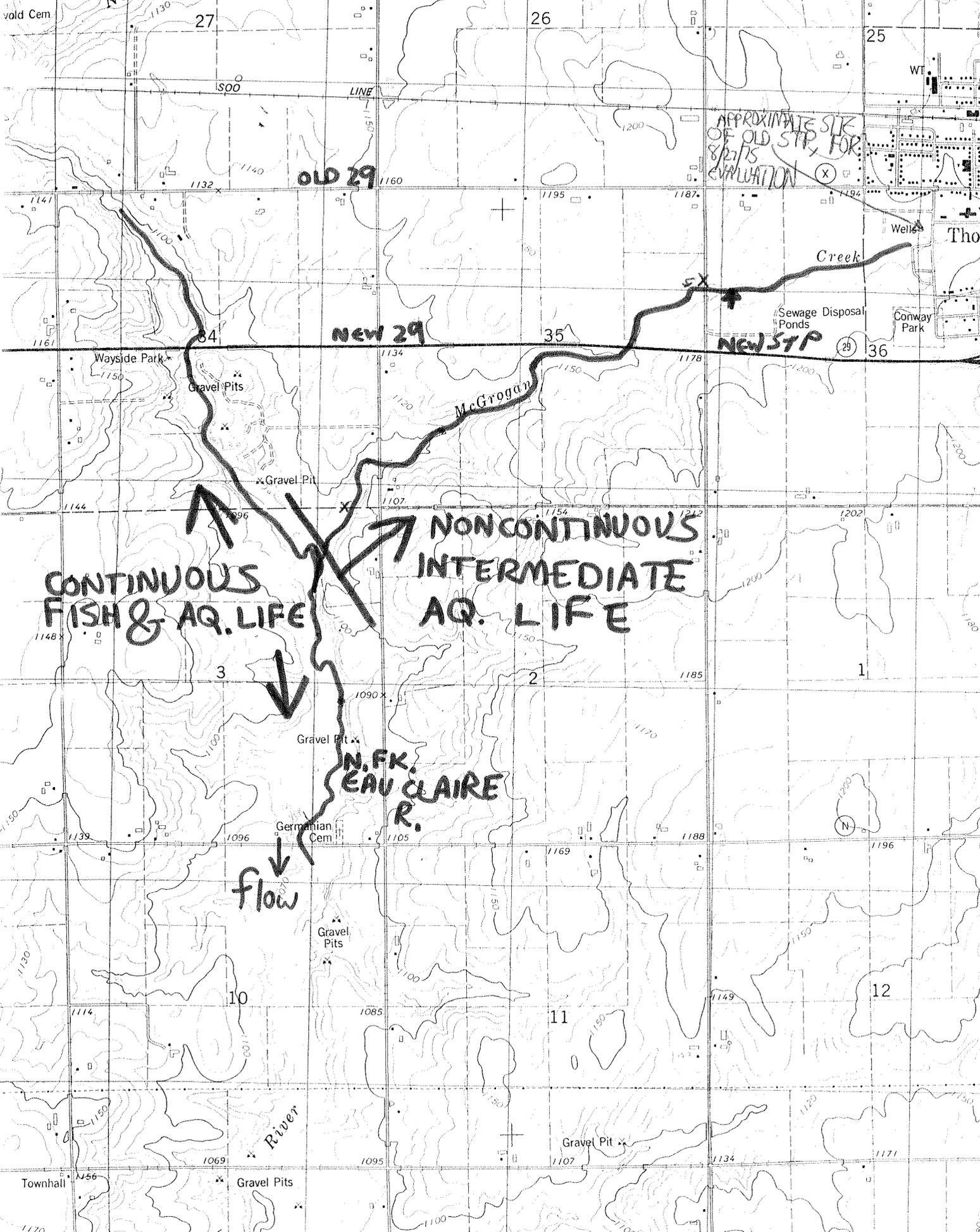
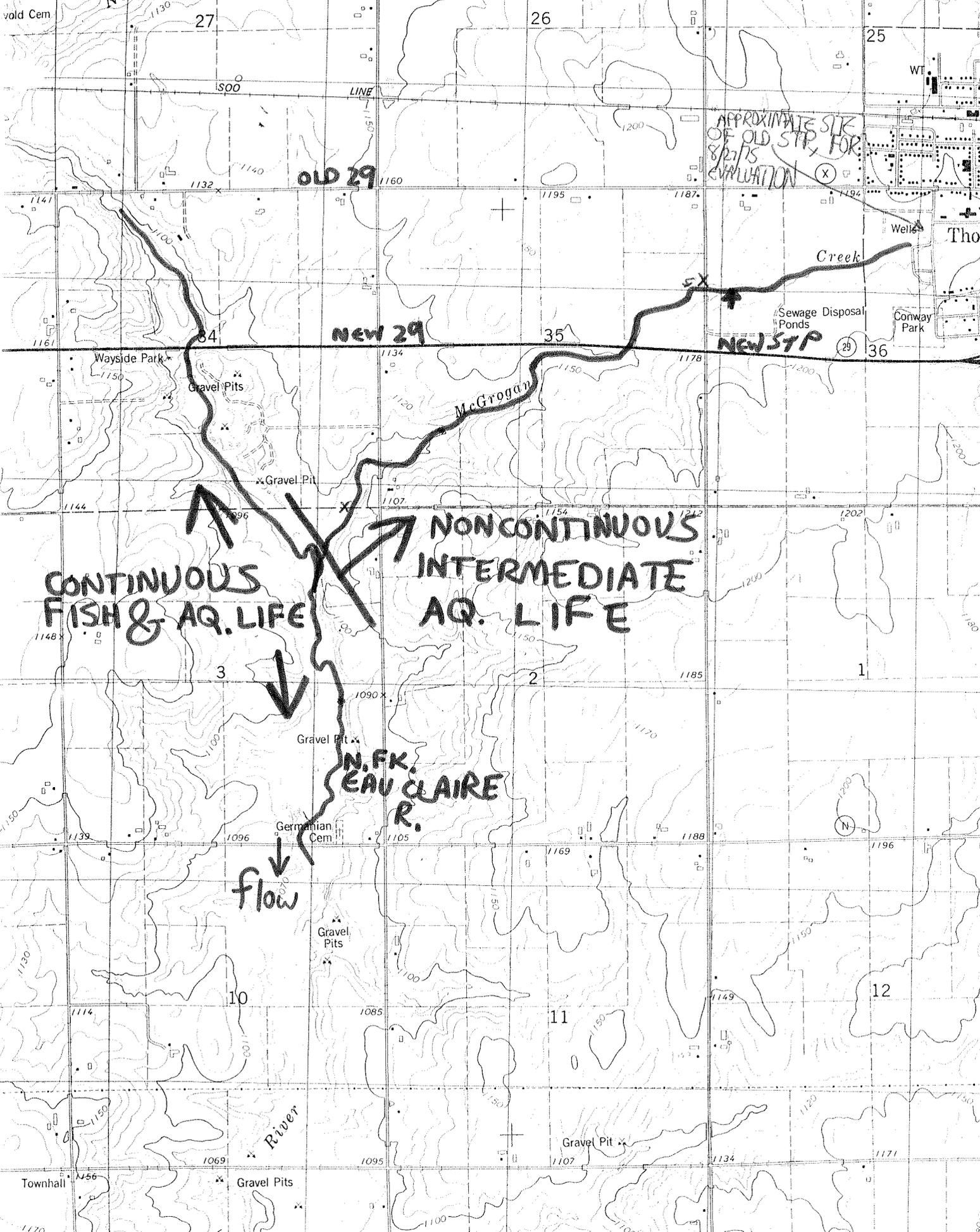
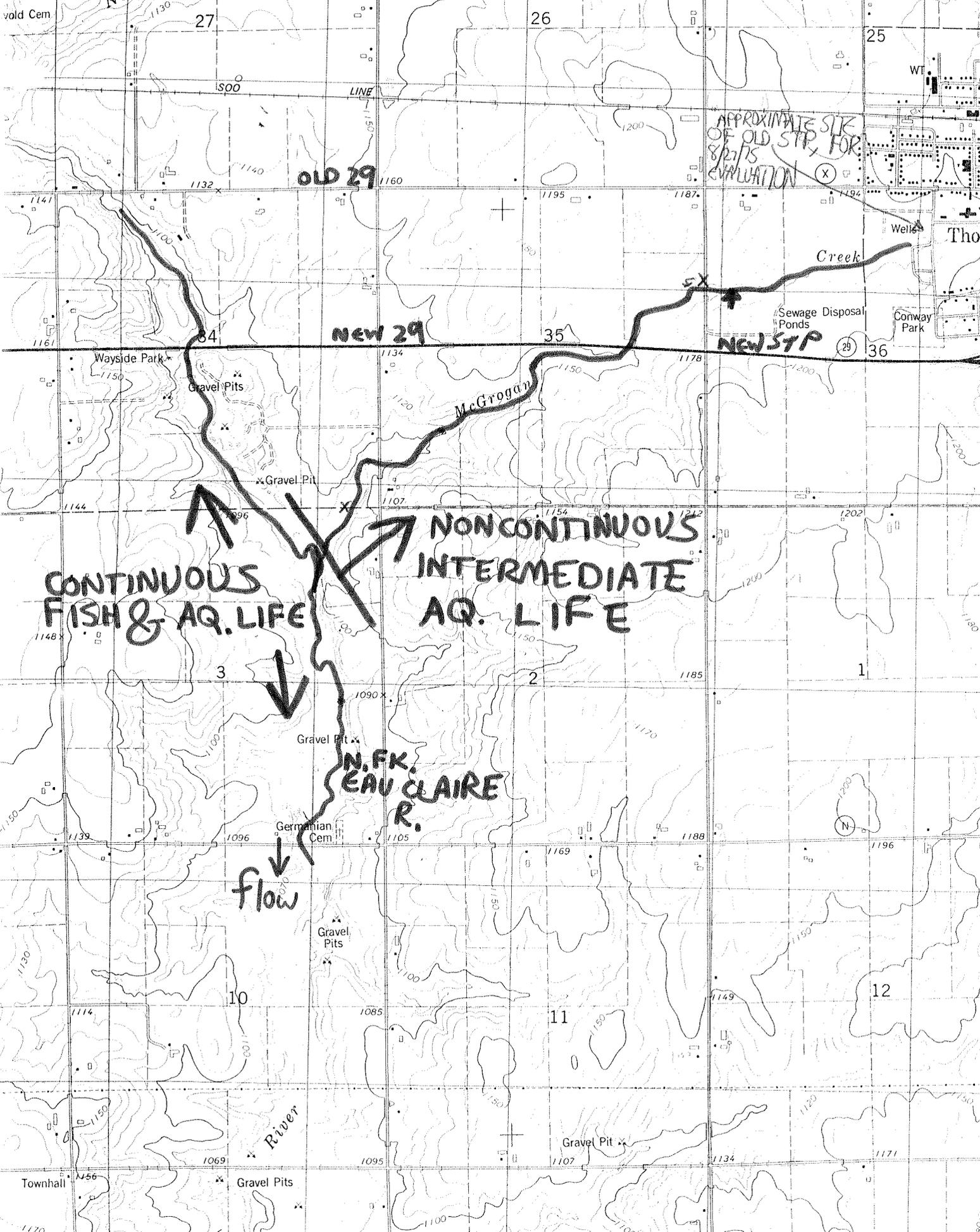
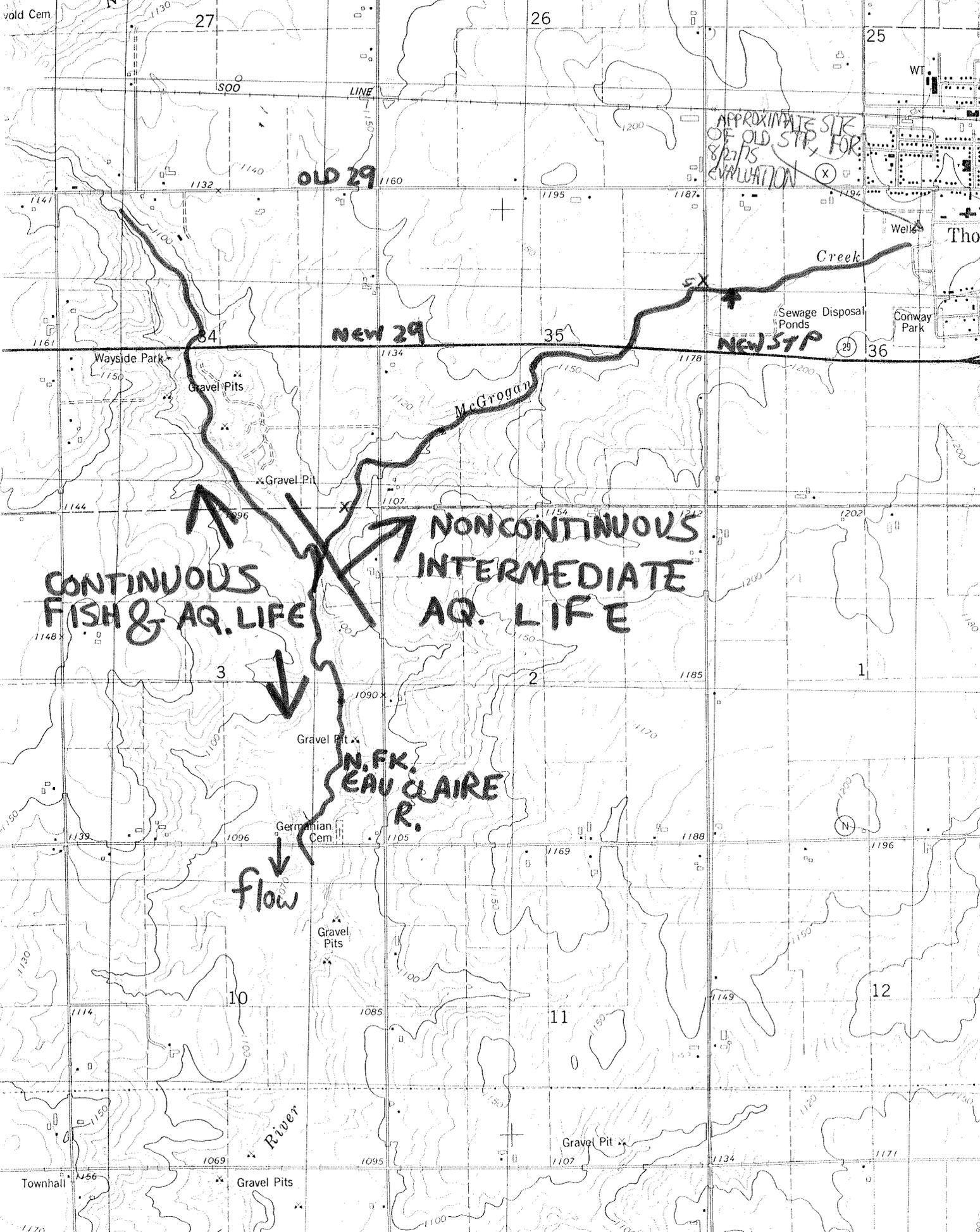
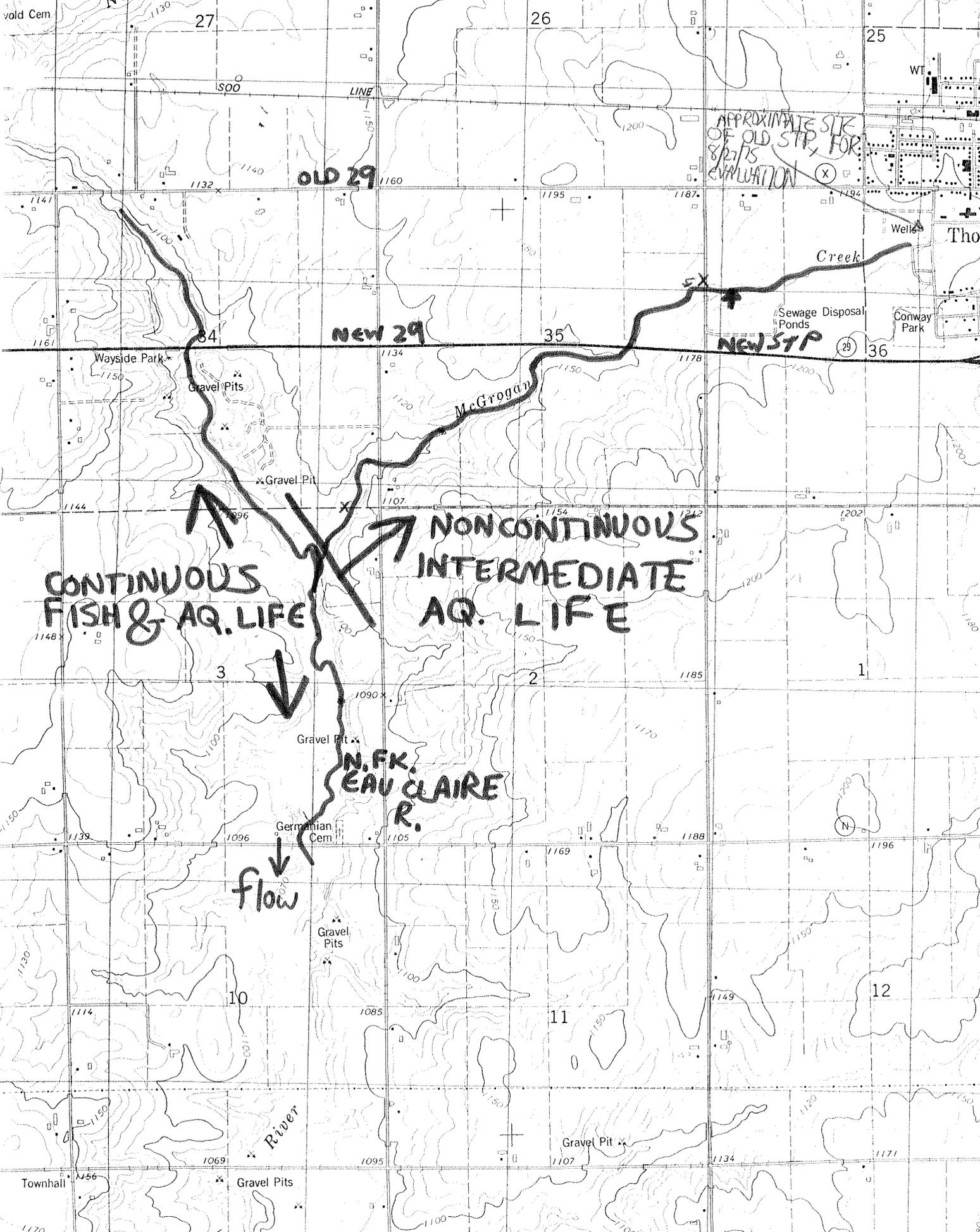
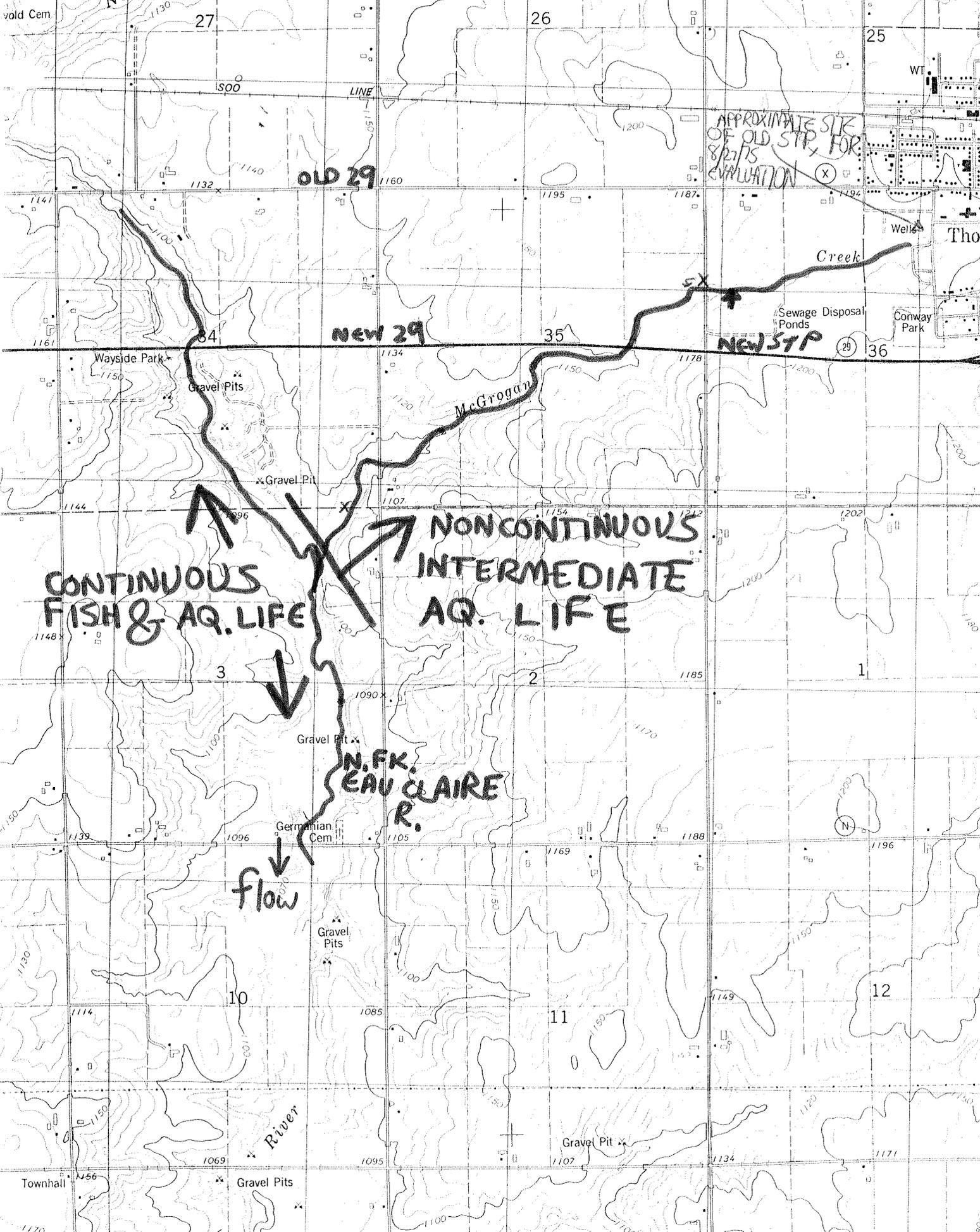
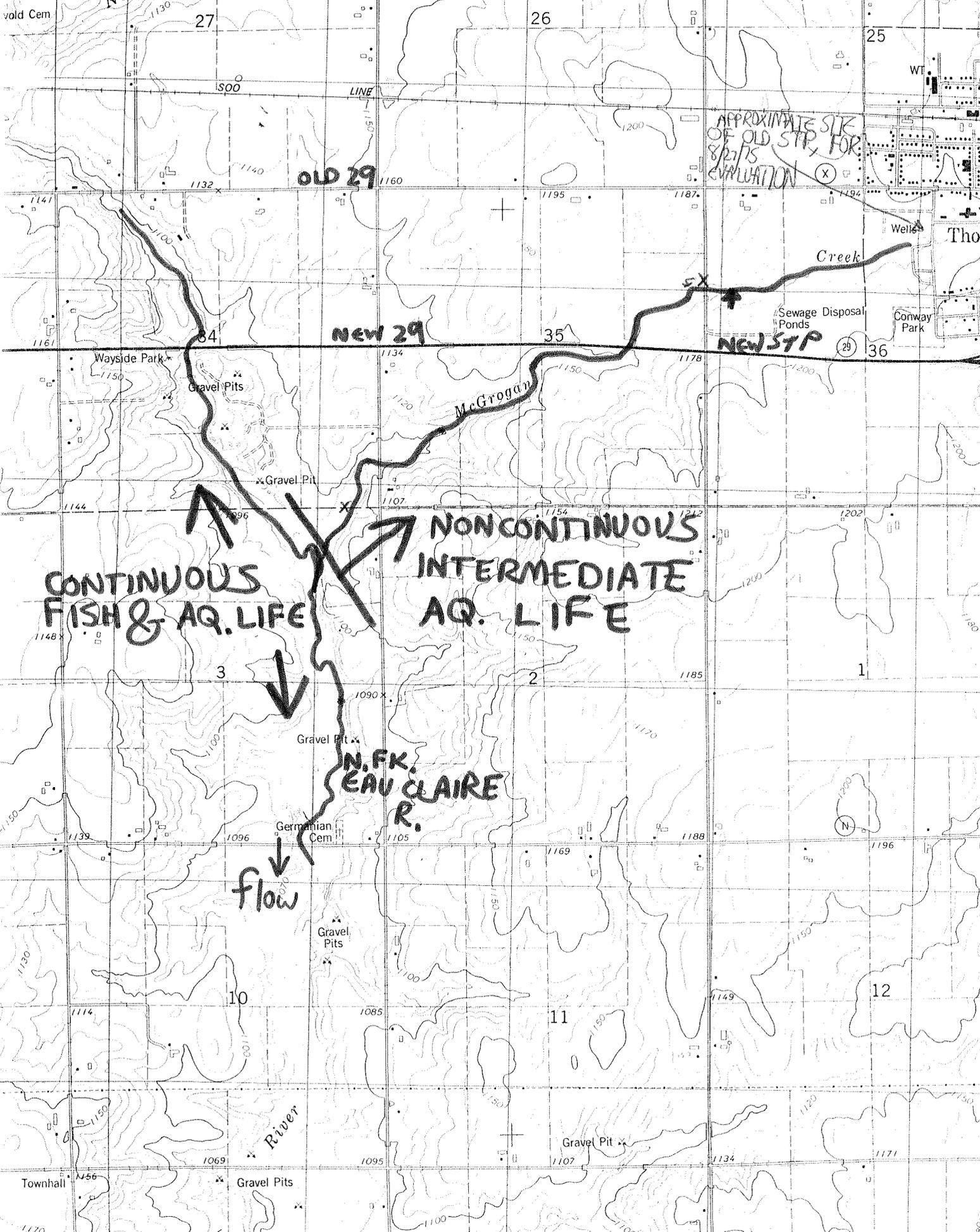
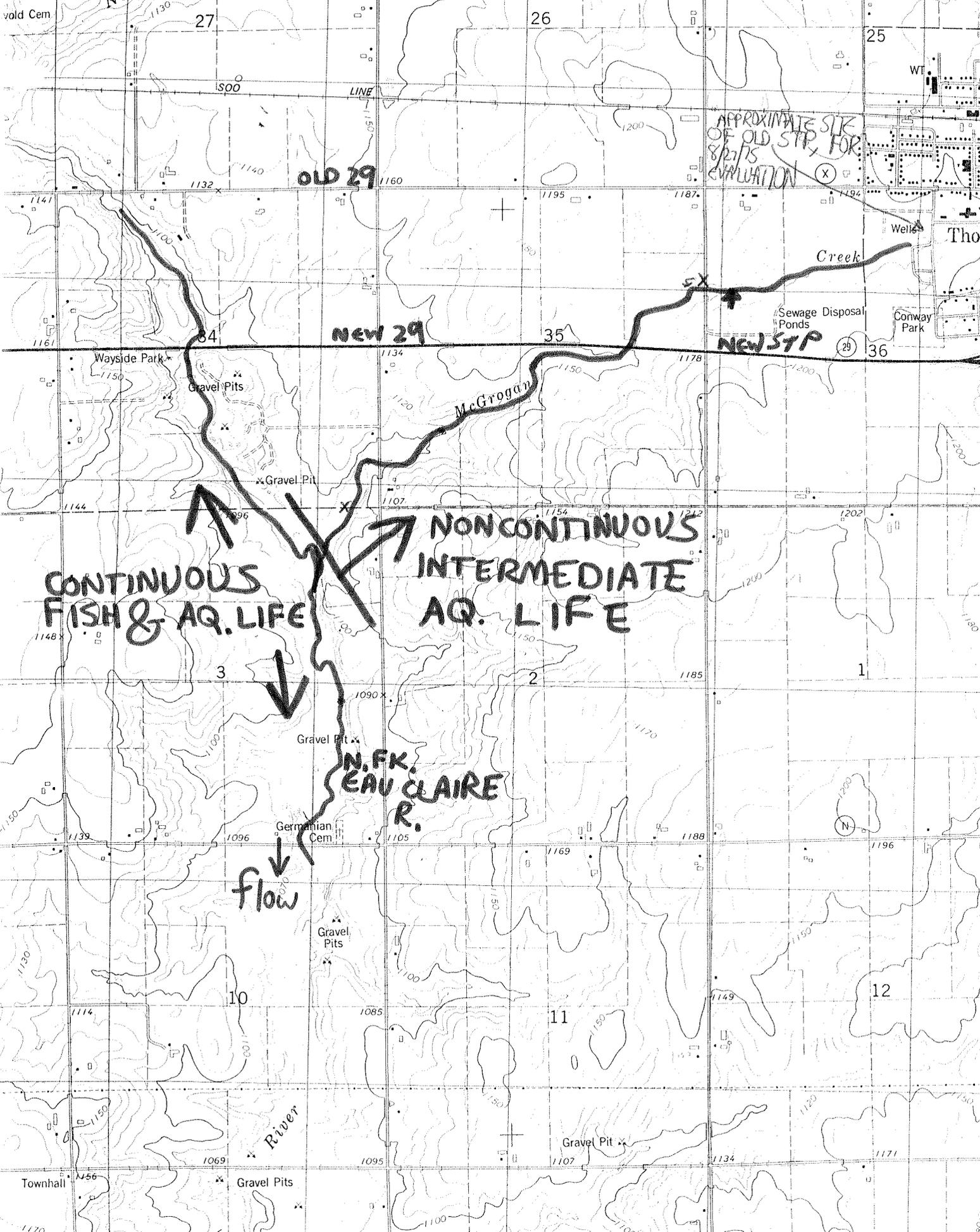
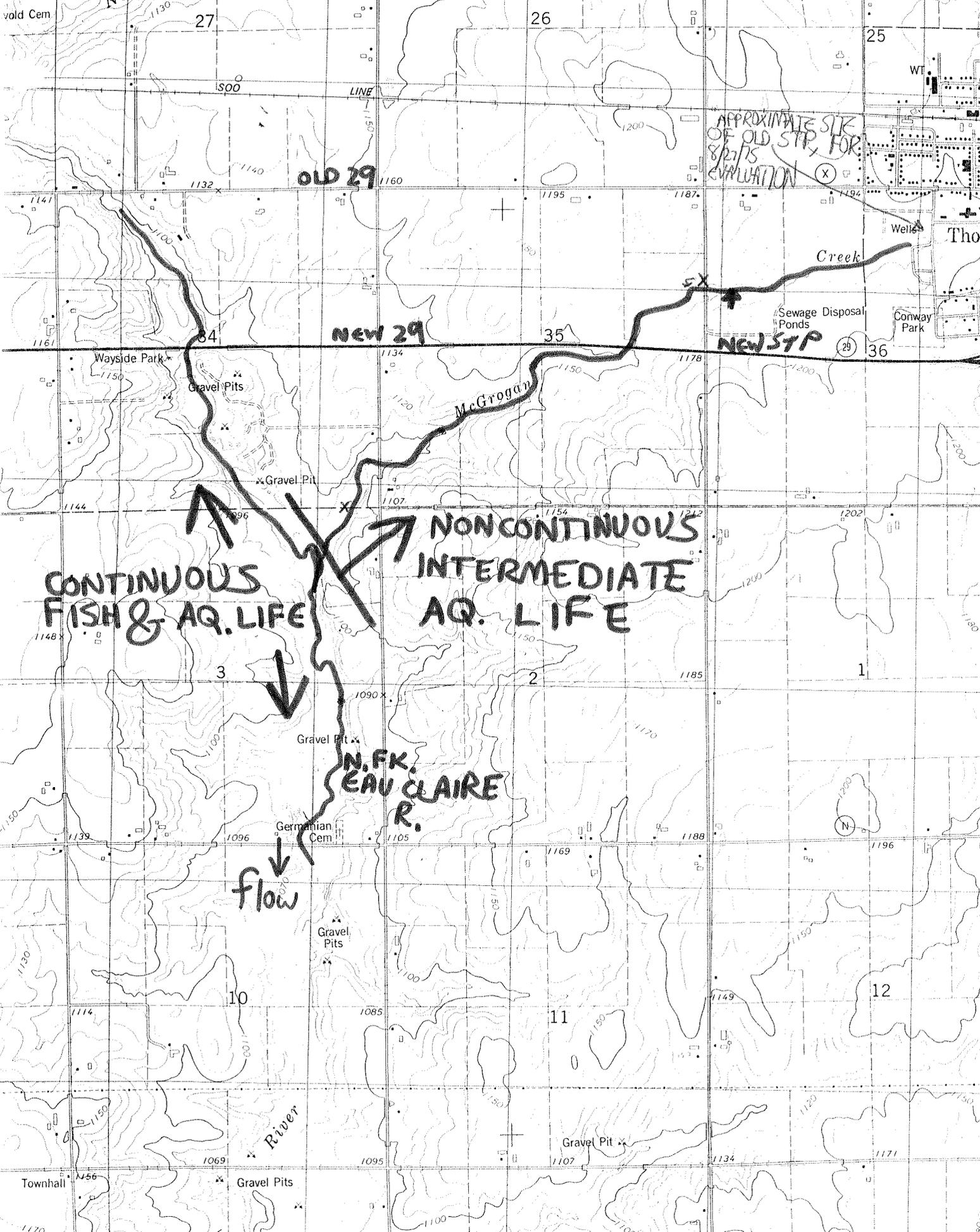
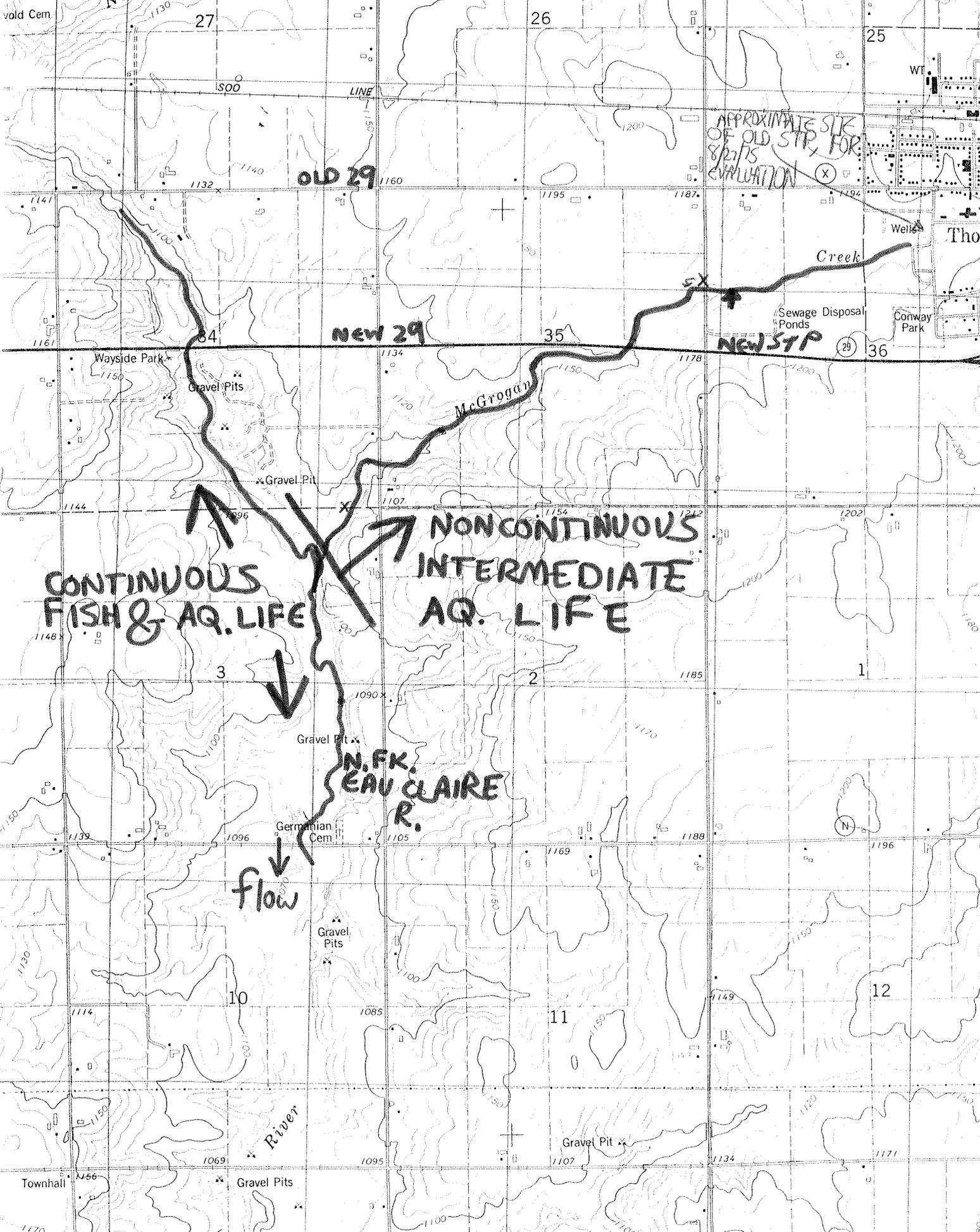
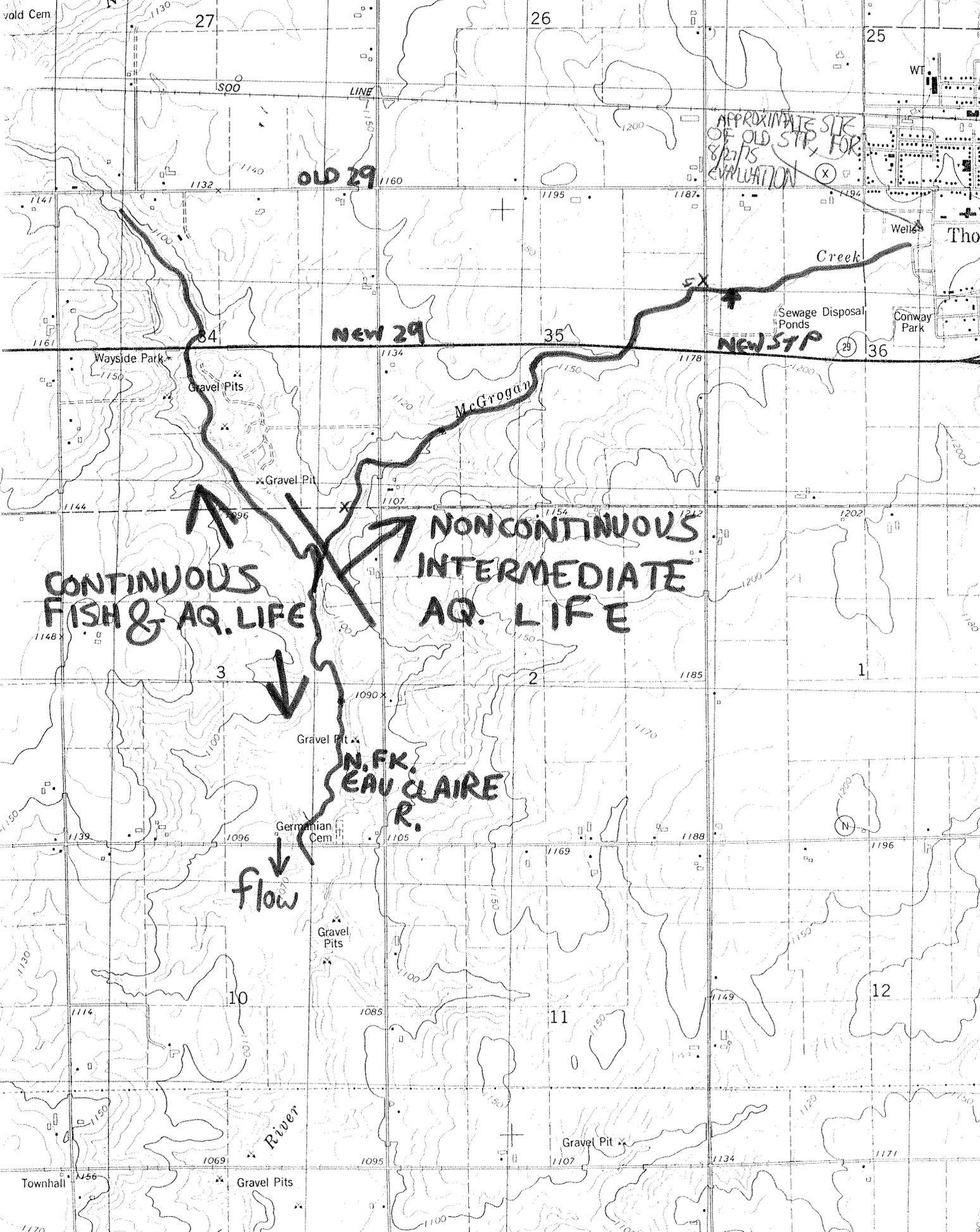
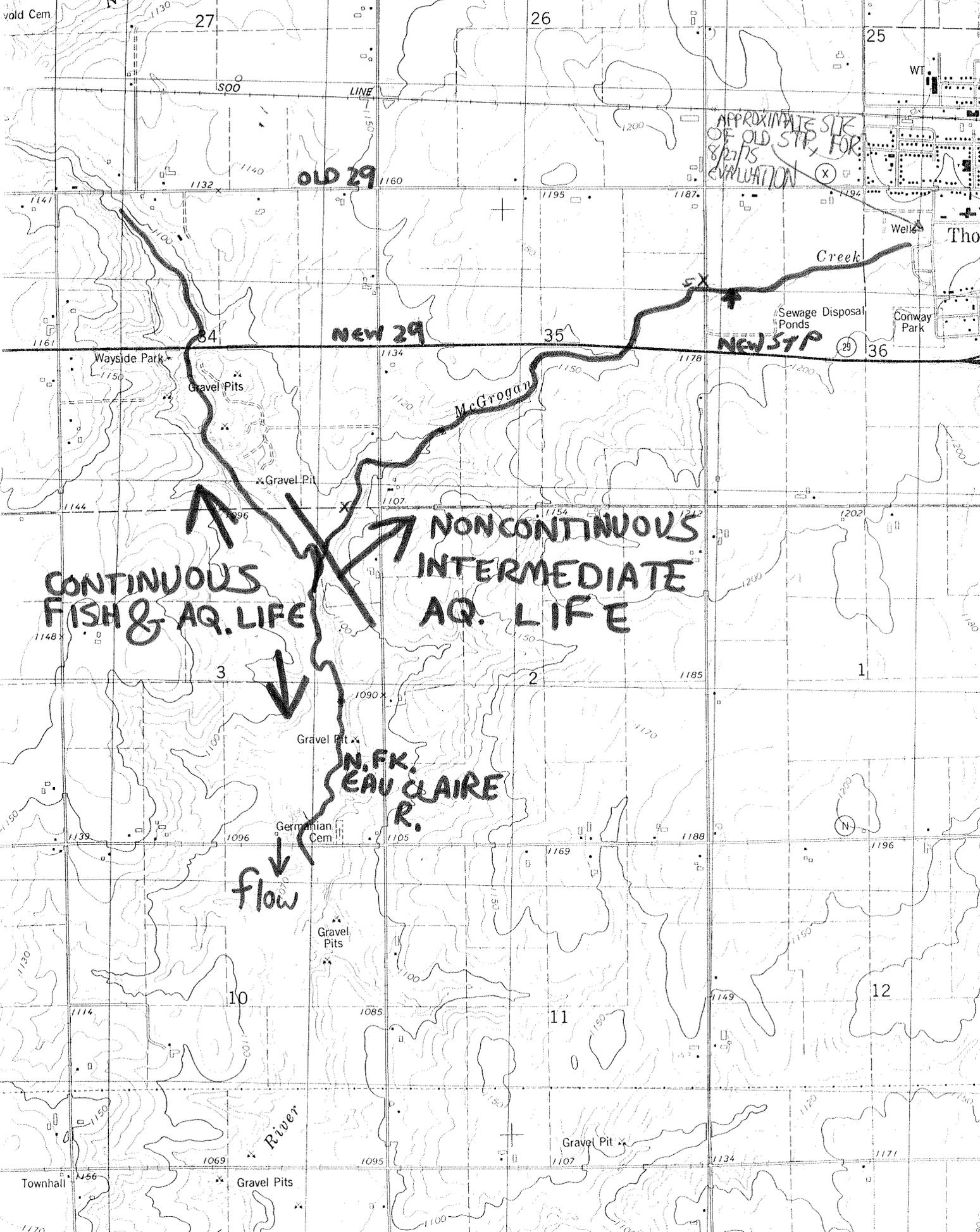
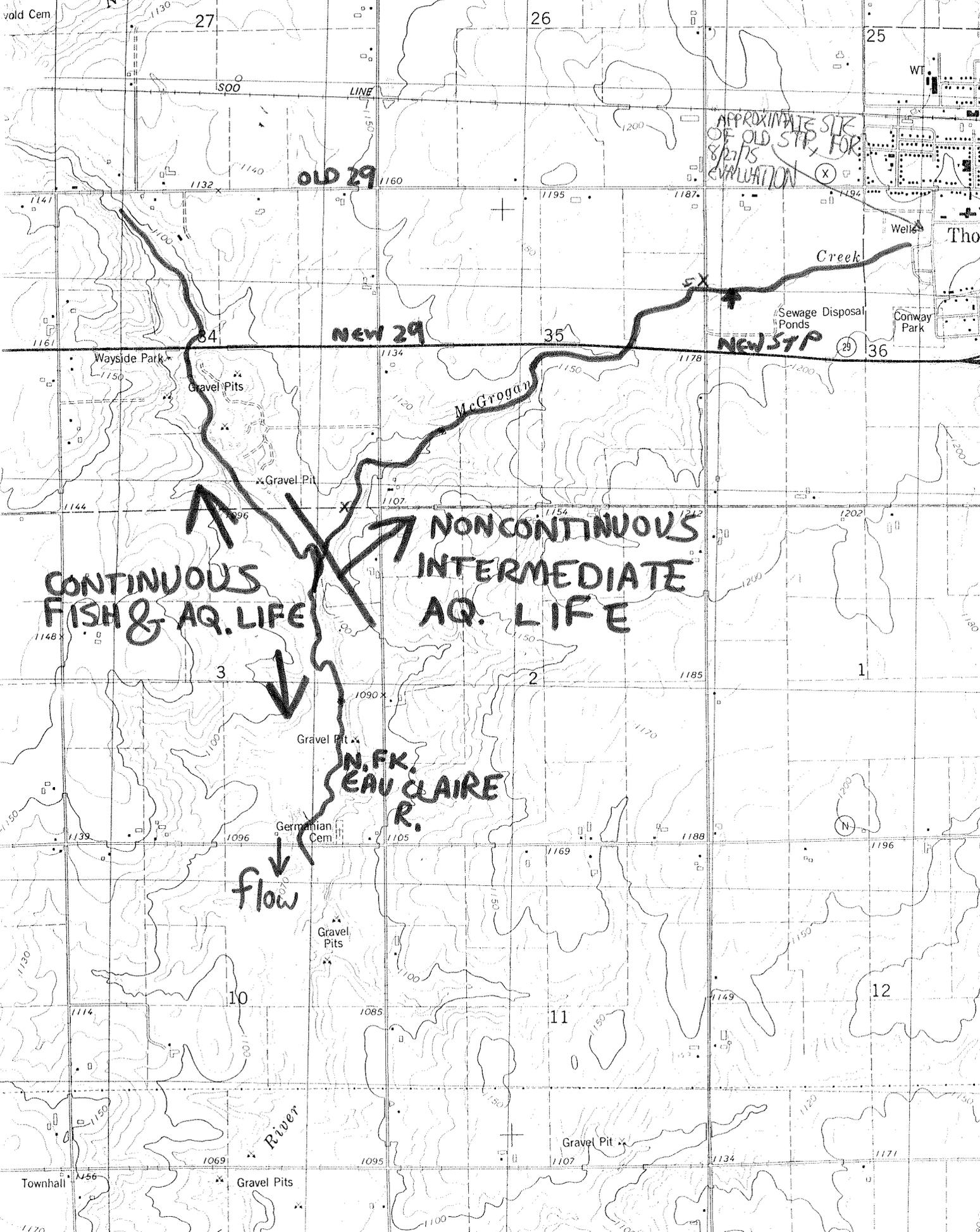
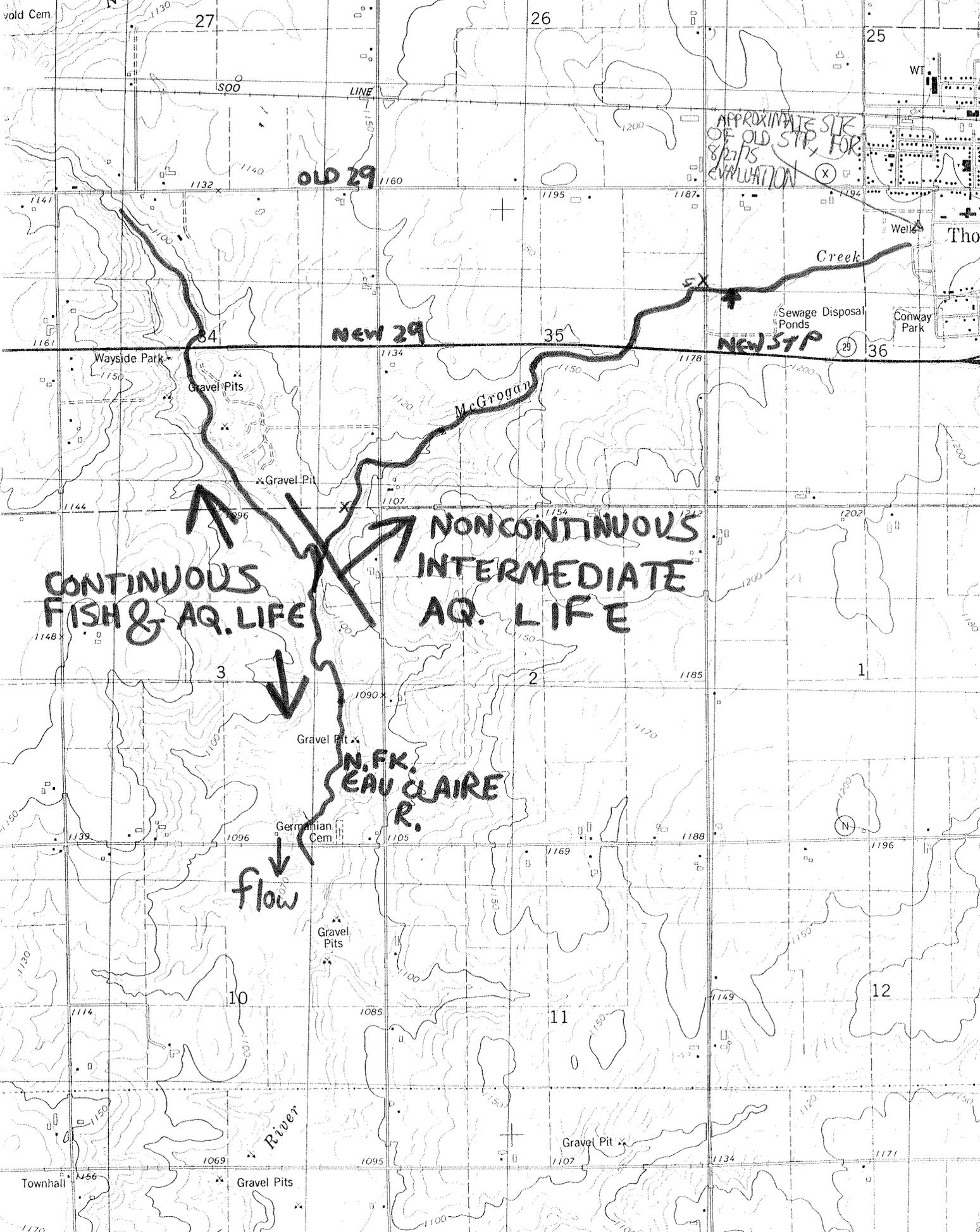
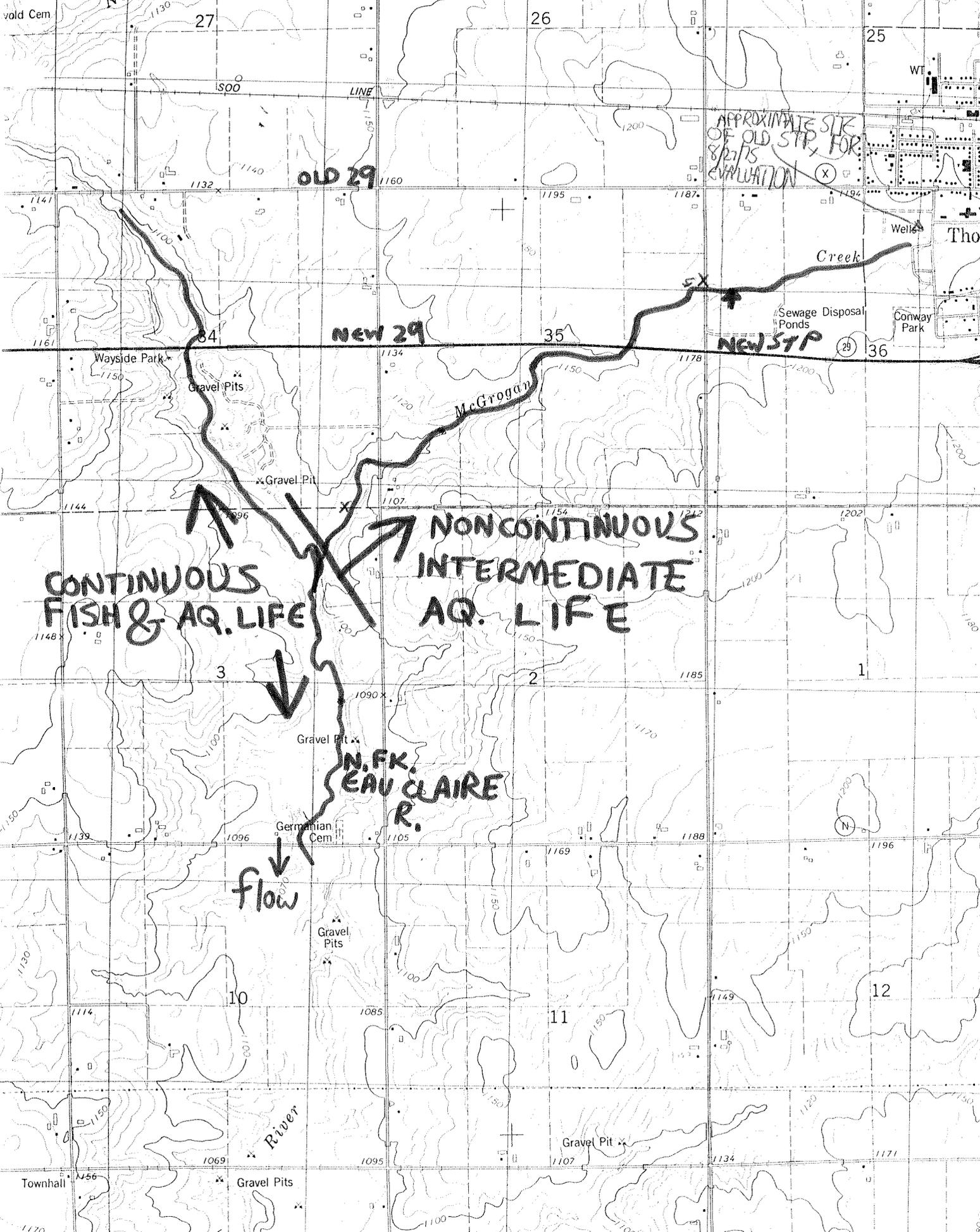
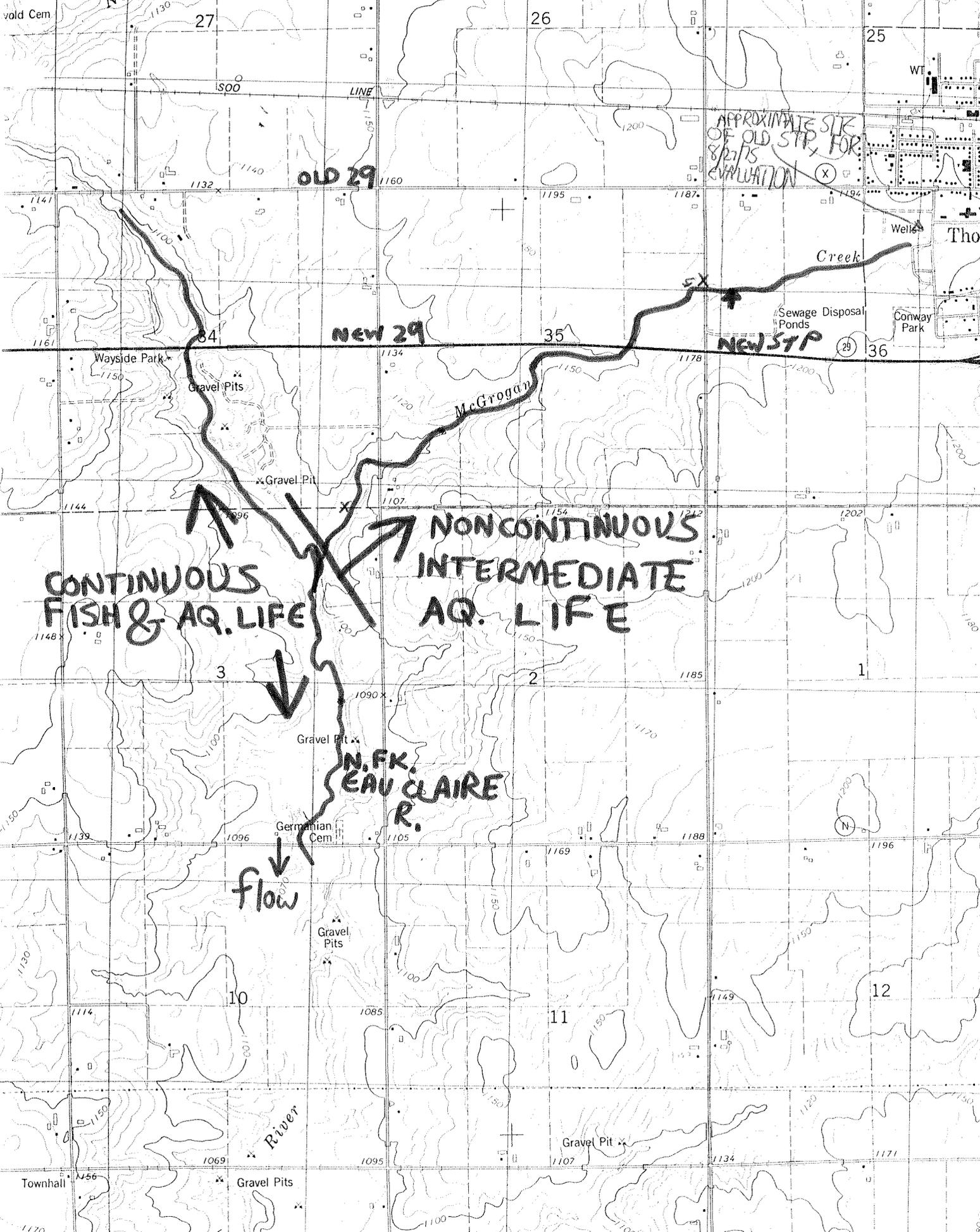
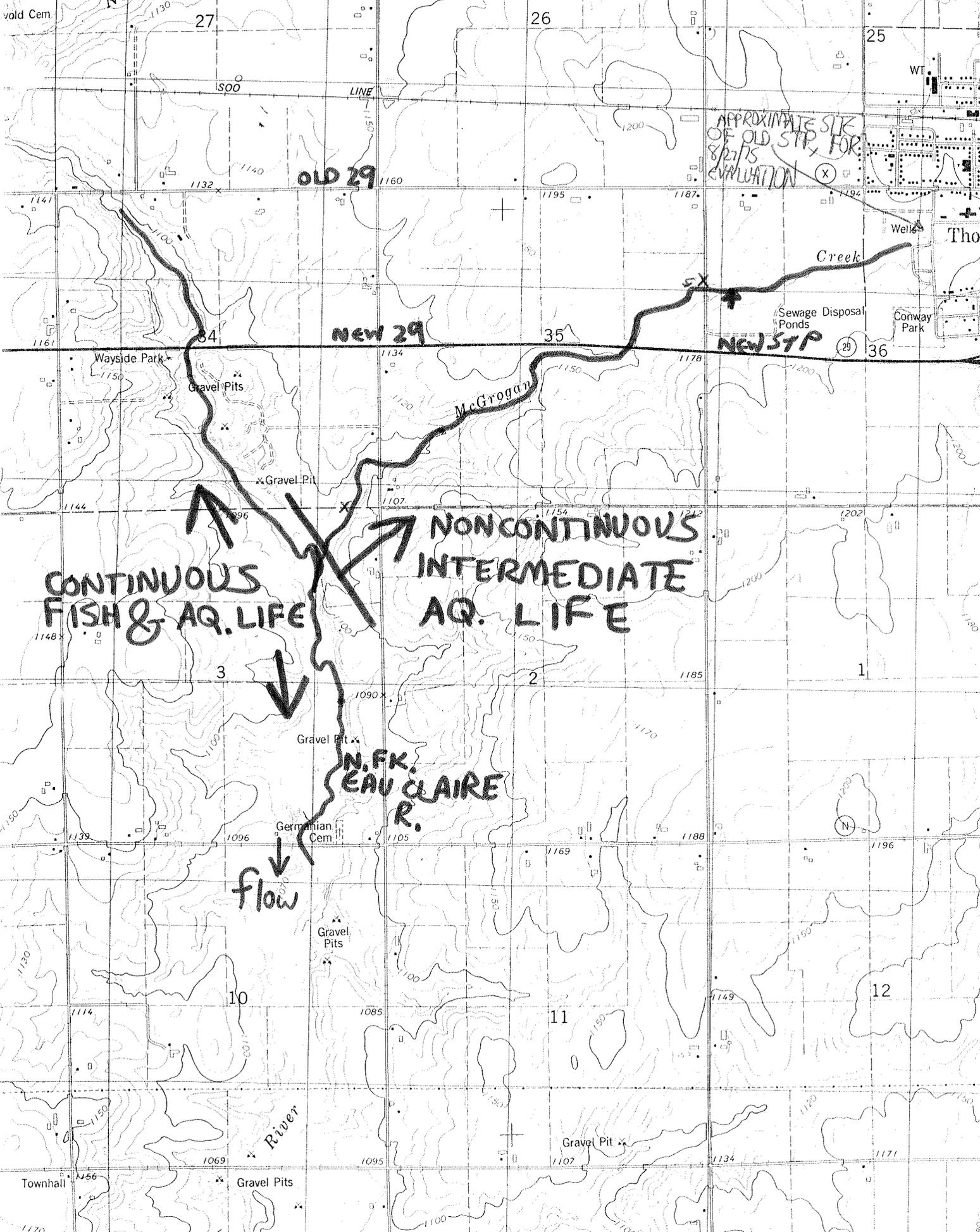
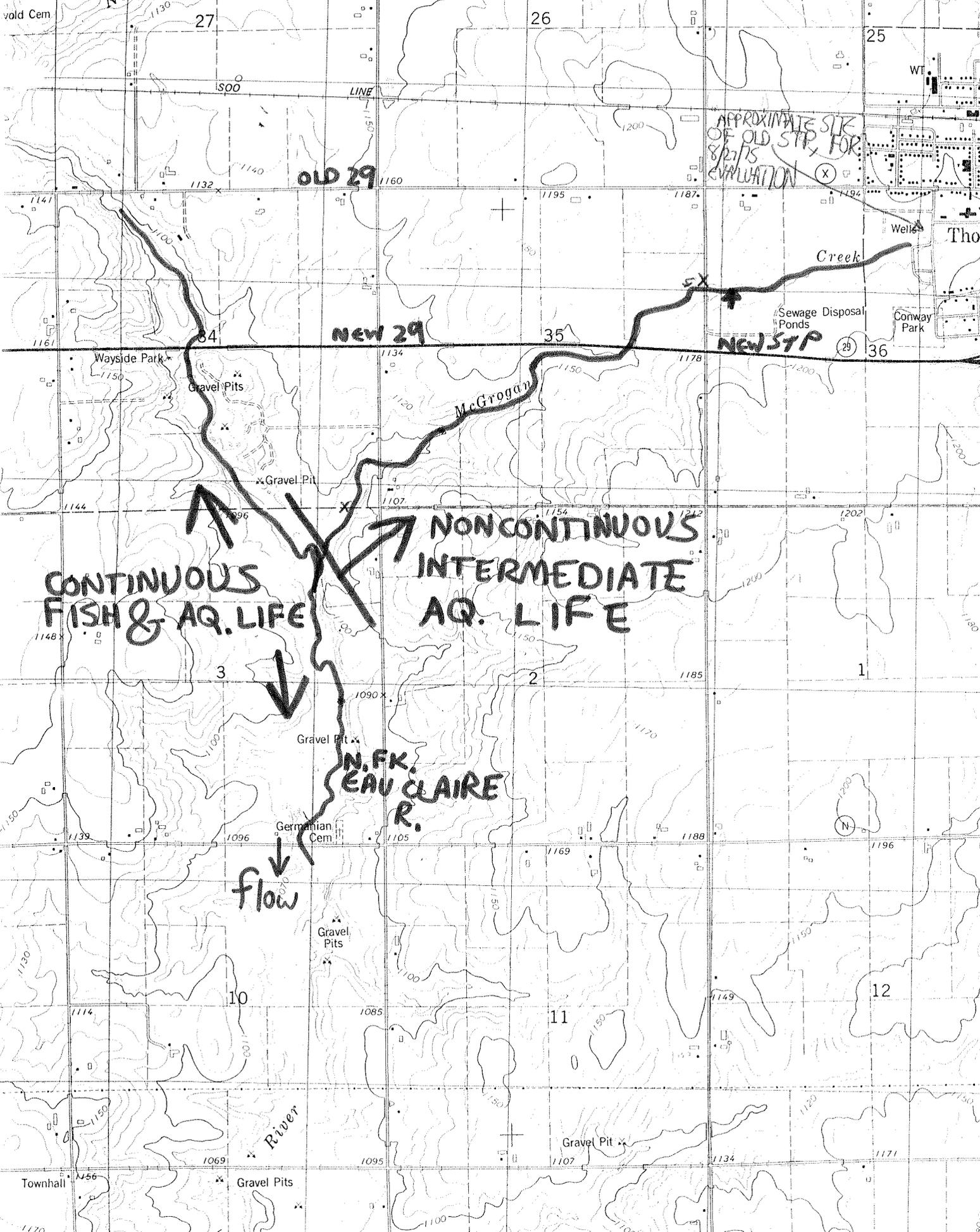
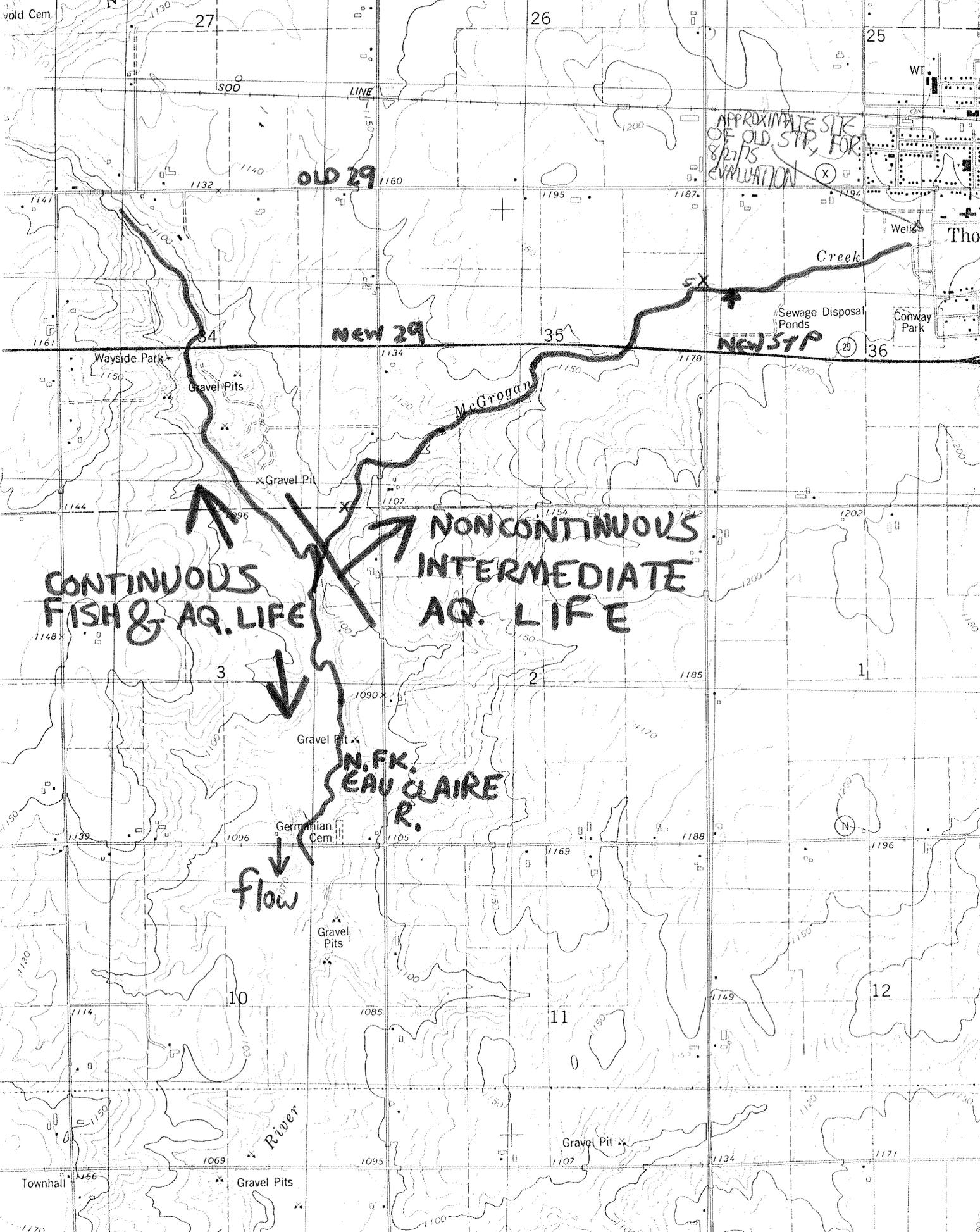
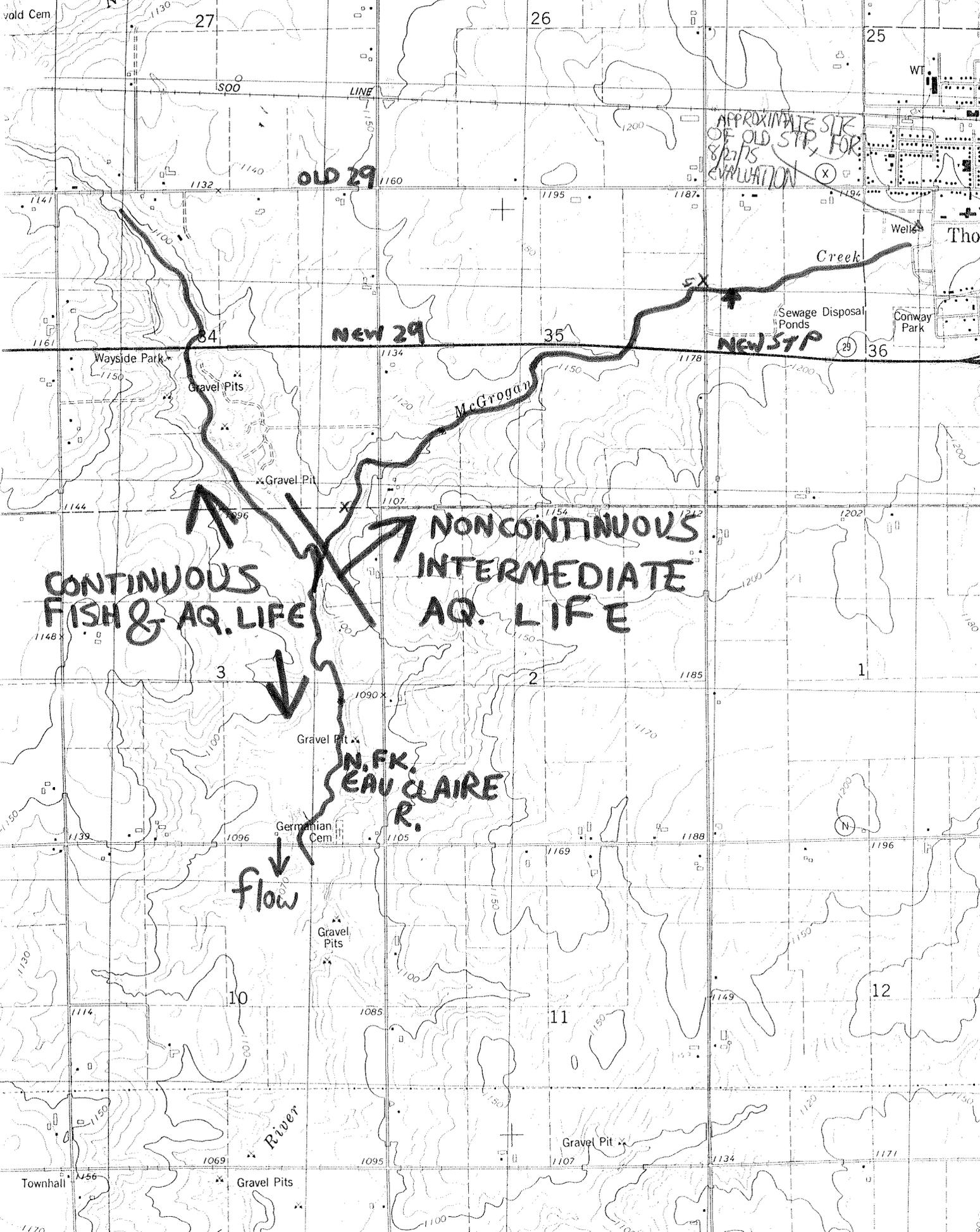
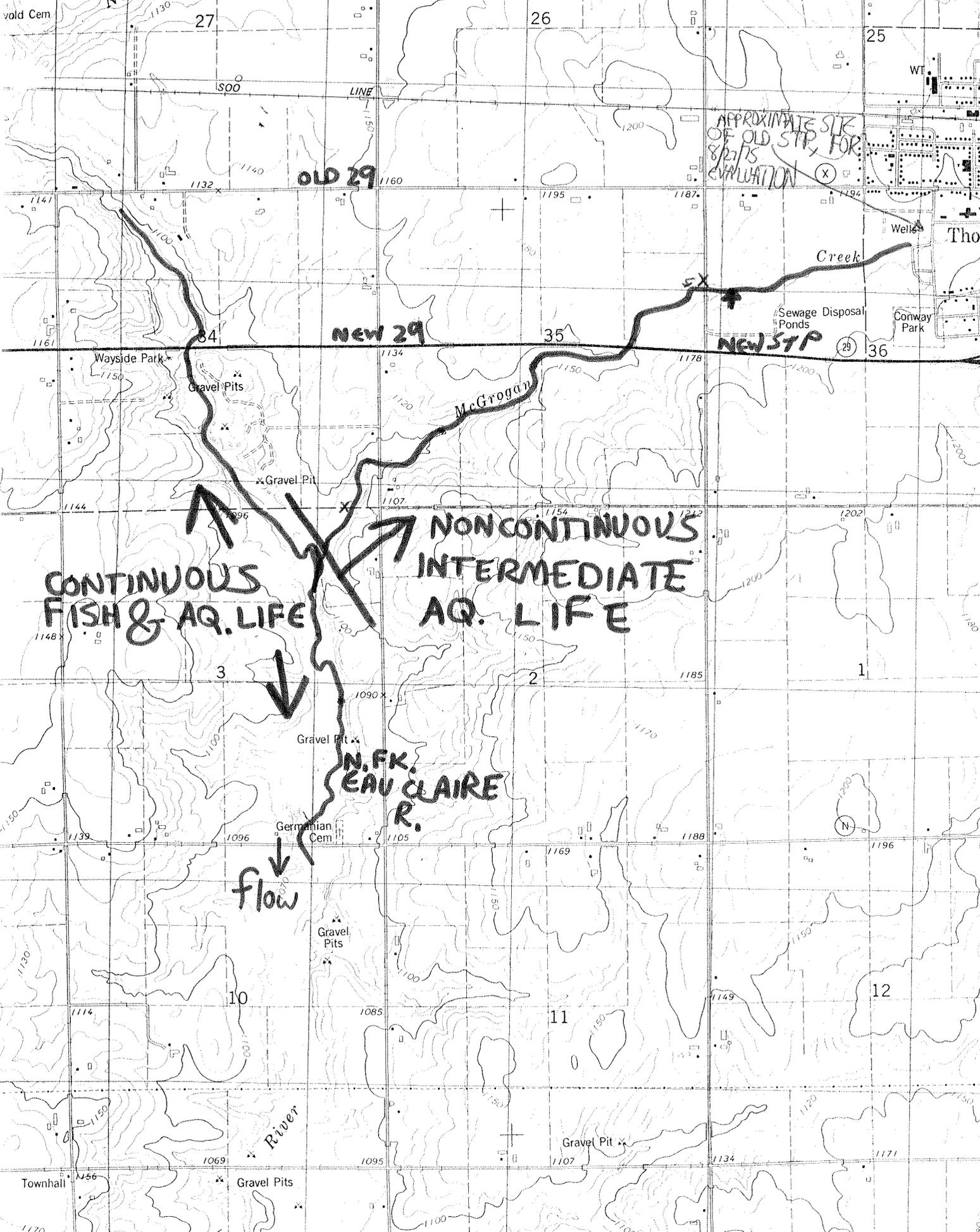
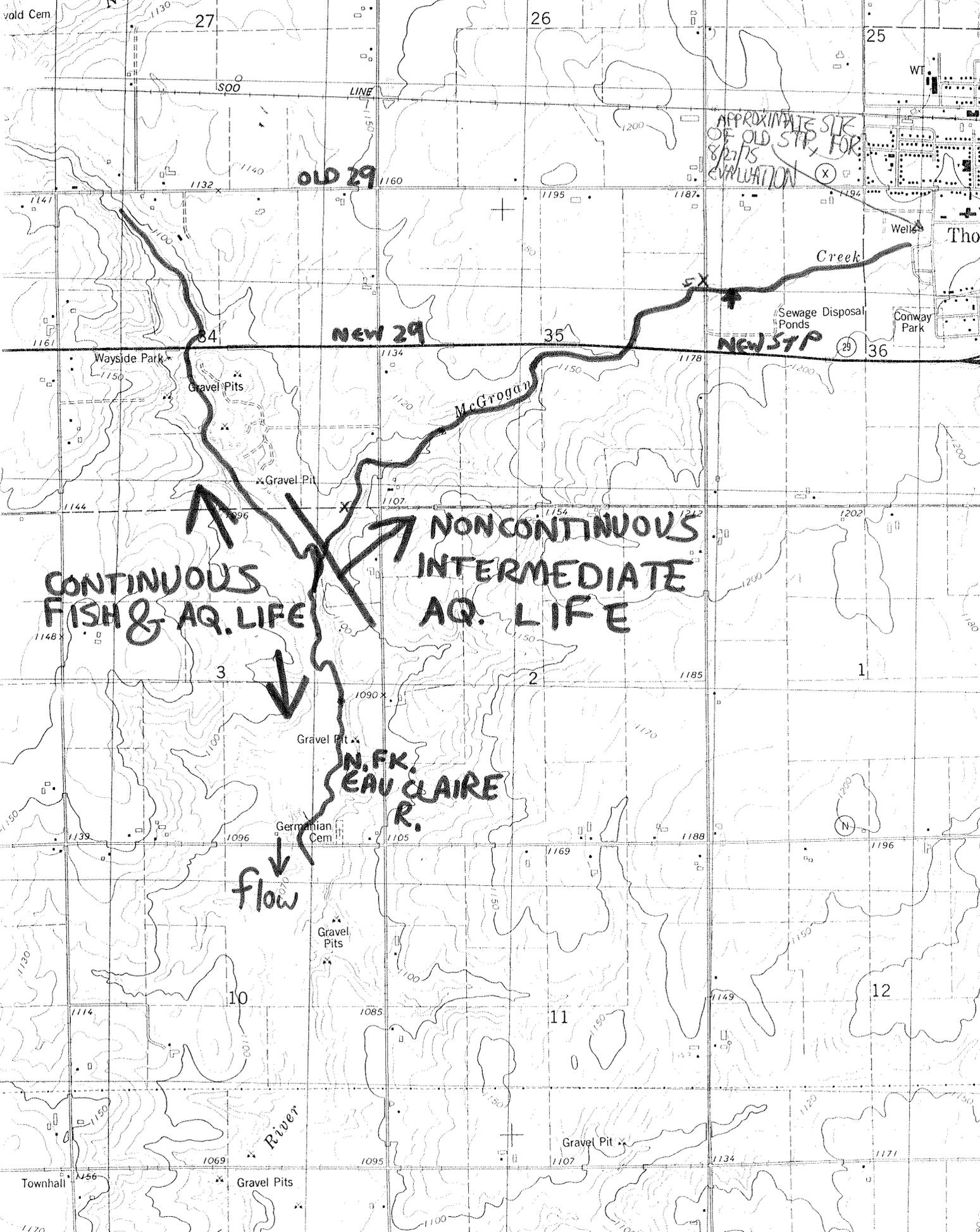
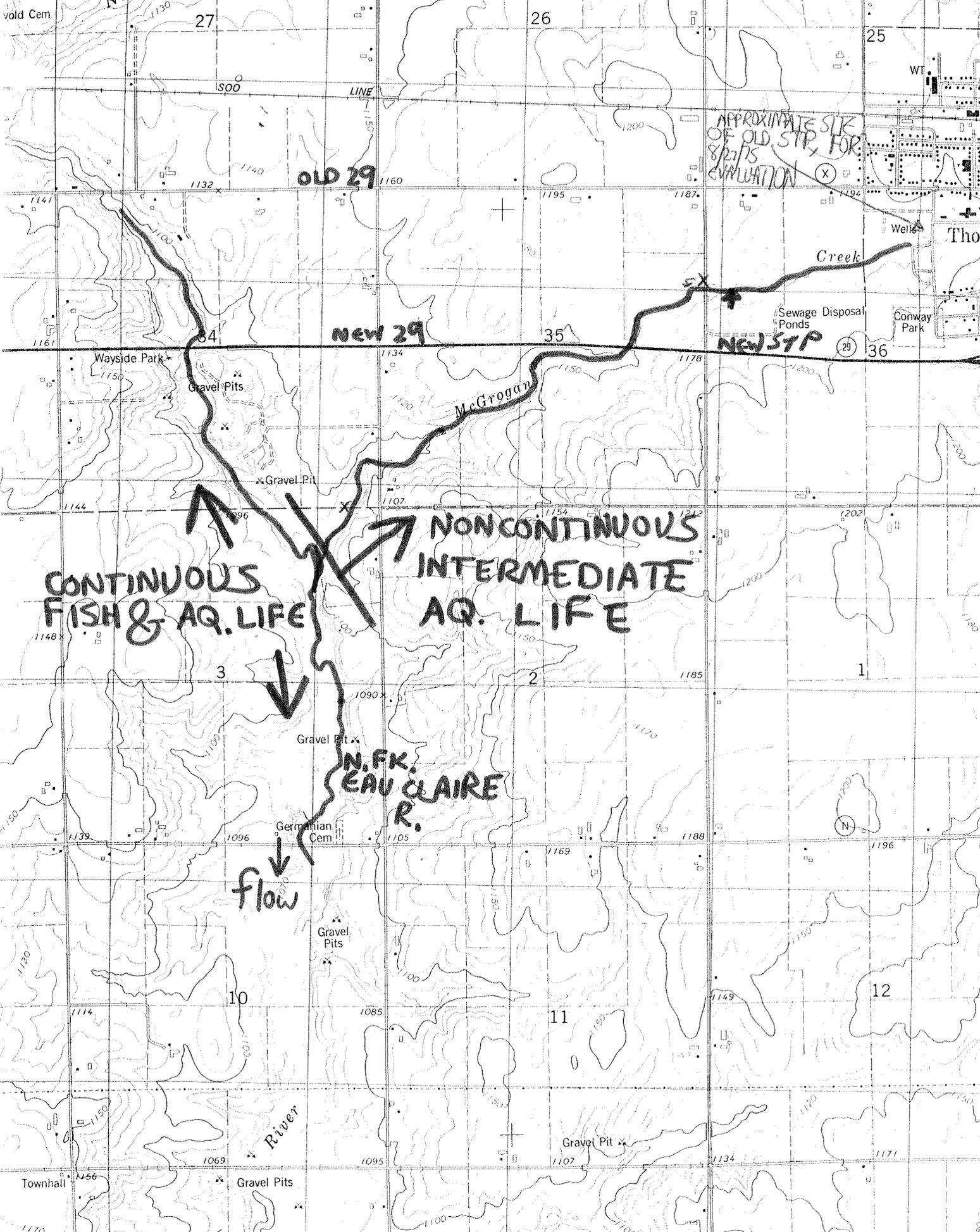
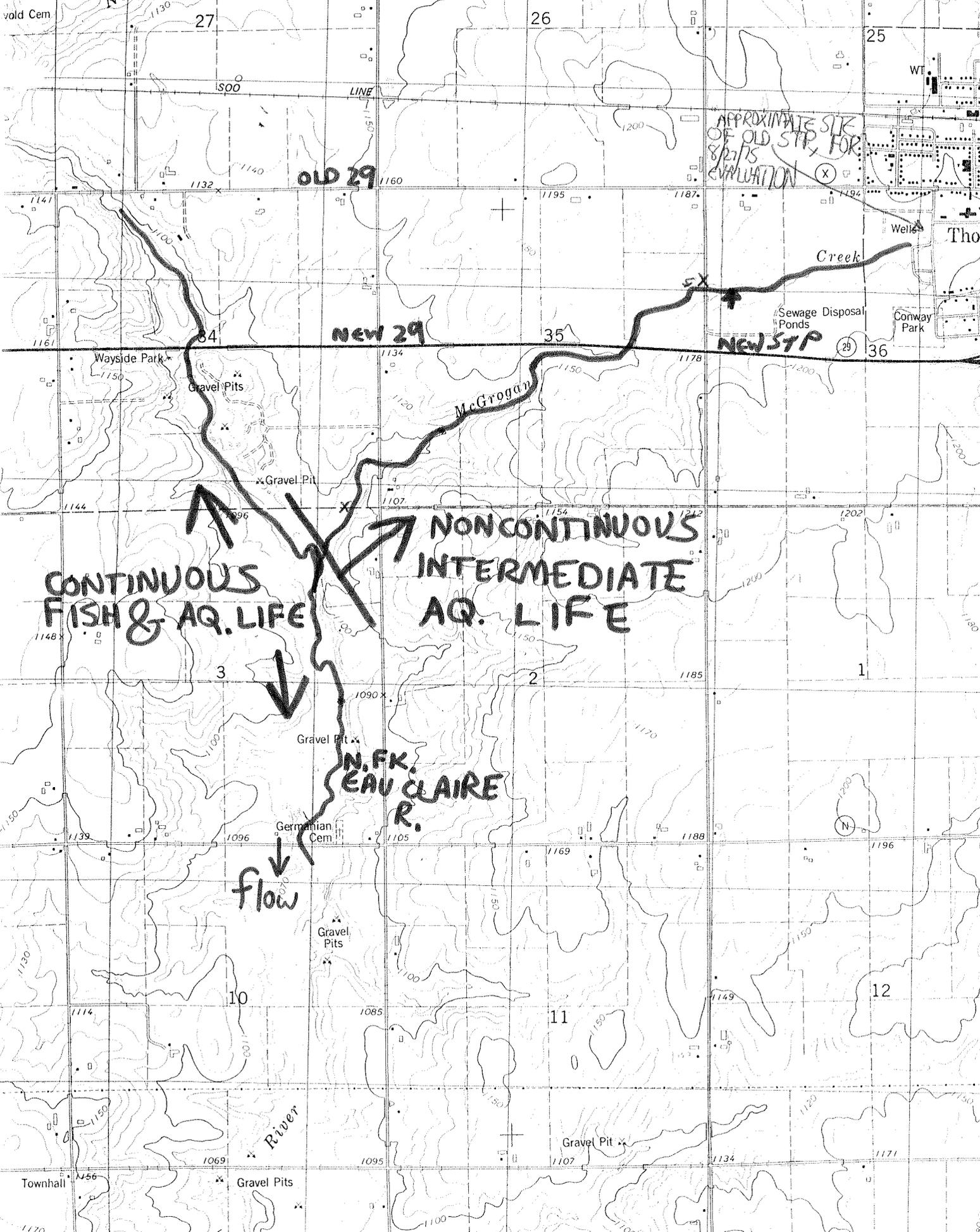
EVALUATION DATE: August 27, 1975

PERSONNEL:

Terry A. Moe - Water Pollution Biologist - WCD  
Lewis A. Seymour - Environmental Engineer - WCD  
Stuart Hagen - Area Fish Manager - WCD  
Ron Martin - Biologist - Water Quality Evaluation - Madison



North



THORP, CLARK COUNTY

WASTEWATER RECEIVING STREAM CLASSIFICATION

Receiving stream - Tributary stream to North Fork Eau Claire River, *(McOregon Crk.)*  
Q<sub>7,10</sub> at discharge site = 0.00 CFS.

Thorp WWTP discharges to a tributary stream of North Fork Eau Claire River. Stream above the outfall is characterized by clear, cold water with approximate flow of about 0.1 CFS. Organisms observed include snails and Coleopterans. Physical stream conditions below the outfall (approximately 100 yards) are similar to those above the outfall with willow lined grassy banks and sand bottom. Stream flow is increased by sewage effluent addition but maintains capacity for intermediate aquatic life.

- x At east/west town road section 3-34 land use bordering tributary is agricultural. Banks are heavily eroded by pasturing and water is generally slow moving with few riffle areas. North Fork Eau Claire River is joined about 1/4-mile downstream.

x.



Thorp tributary 1/4 mile upstream from stabilization ponds at CTH M



Thorp tributary below stabilization pond at town road, Sec. 35 - 36, looking east