

Guidelines for Writing a Surveyor's Report

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Biography of Gary R. Kent

Gary Kent is a professional surveyor in his 42nd year with Schneider Geomatics, a land surveying and consulting engineering firm based in Indianapolis. Upon his transition to part-time in 2020, he formed Meridian Land Consulting, LLC through which he provides training, consulting and expert witness services.

Gary is a graduate of Purdue University with a BS in Land Surveying; he is registered to practice as a professional surveyor in Indiana and Michigan. He served as chair of the joint ALTA/NSPS Workgroup on the ALTA/NSPS Standards from 1995 to 2021 and continues to be actively involved in the development of those standards. Gary is a past-president of both the American Congress on Surveying and Mapping and the Indiana Society of Professional Land Surveyors.

A member of the adjunct faculty for Purdue University from 1999-2006, Gary taught Boundary Law, Legal Descriptions, Property Surveying and Land Survey Systems and was awarded “*Outstanding Associate Faculty*” and “*Excellence in Teaching*” awards for his efforts. Gary is on the faculty of GeoLearn (www.geo-learn.com), an online provider of continuing education and training for surveyors and other geospatial professionals. He is also a certified instructor for the International Right of Way Association.

Gary served on the Indiana State Board of Registration for Professional Surveyors from 2004 to 2025. He is frequently sought as an expert or consulting witness in cases involving boundaries, easements, riparian rights, survey standards and land surveying practice. He has presented programs on boundary law, easements and rights of way, surveying standards and practice, and leadership multiple times in each of the 50 states and three times in Europe. Gary is also a columnist for The American Surveyor magazine and is on the faculty of GeoLearn, an on-line provider of surveying continuing education courses..

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THE REPORT OF SURVEY by F. Henry Sipe, L.L.S.

The chief office products of the land surveyor, have been his plat and description. But one of his most valuable tools has generally been overlooked - a report (or certificate) of survey. Heretofore its chief use has been for lawsuits, dividing estates, or court-ordered surveys.

Basically, the purpose of a survey "report" is to record significant facts that are not shown on the plat or placed in the description. Plats and descriptions should not be unduly complicated. Listed here are items that should be included in a report of survey:

- (1) Name of surveyor and date or dates of survey.
- (2) Name and address of client or interested parties.
- (3) What land was surveyed.
- (4) What records were examined.
- (5) Who were contacted and what information was obtained from them.
- (6) Problems encountered and how they were resolved or treated.
- (7) Encroachments, gaps, occupancy, possession, other unusual items.
- (8) Signature, address, and seal of the surveyor.

Other items that can be placed in a report:

- (1) Methods and equipment used.
- (2) Error of closure or uncertainty of position.
- (3) Distribution of records.
- (4) Name and address of helpers.

Advantages of a Report of Survey:

- (1) It records the weight given by the surveyor to the evidence studied.
- (2) It can provide a list of deeds, etc. in various chains of title that are helpful in other surveys in the area.
- (3) It makes these data available to the client and his successors, to the surveyor's successors, to the adjoining, and, if recorded, to the public, all at a fraction of the cost of assembling it in the future.
- (4) It gives assurance that an adjoining's rights have been considered.
- (5) It provides a handy way to refresh the memory of the surveyor.
- (6) It reduces the chance of a surveyor being involved in negligence.
- (7) It allows a resurvey to be made at less cost.
- (8) It can help prevent or solve boundary disputes.
- (9) It lends the finishing touch to what should be a PROFESSIONAL job, and advertises the knowledge and skill of the surveyor.

Disadvantages of a Report of Survey:

- (1) It opens the surveyor's knowledge and skill to the scrutiny of other surveyors and the public.
- (2) It adds a few dollars to the cost of the current job.

A survey report can sometimes be used BEFORE the job is complete, to place before interested parties, the tentative conclusions and proposals of the surveyor. Replies from interested parties can be considered before the final report is issued.

When surveyors begin to use this valuable tool - the REPORT - they will find it of great help in being accepted as professionals by the public.

Guidelines for Writing a Surveyor's Report

Following are the primary sections of Indiana's Rule 12 (865 IAC 1-12) that address the contents of a Surveyor's Report:

865 IAC 1-12-12 Publication of retracement and original survey results

Sec. 12. (a) When conducting a retracement survey or an original survey, a registered land surveyor shall do the following:

(1) Furnish the client with a written surveyor's report that, in addition to other pertinent data, identifies the type of survey, explains the theory of location applied in establishing or retracing the lines and corners of the surveyed parcel, and gives the registered land surveyor's professional opinion of the cause and the amount of uncertainty in those lines and corners because of the following:

(A) Availability and condition of reference monuments.

(B) Occupation or possession lines.

(C) Clarity or ambiguity of the record description used and of adjoining's descriptions and the relationship of the lines of the subject tract with adjoining's lines.

(D) The relative positional accuracy of the measurements.

865 IAC 1-12-13 Retracement and original survey plats

Sec. 13. (a) When conducting a retracement or original survey, a registered land surveyor shall furnish the client with the surveyor's report and a copy of the plat of survey of the premises drawn to an appropriate scale in such a manner that the data shown will be clearly legible when the plat is reduced to sheets suitable for recording in the county in which the survey was conducted.

(b) The plat of survey, together with the accompanying surveyor's report, shall show or otherwise contain the following information at a minimum:

...

(15) The following:

(A) Sufficient data to clearly indicate the theory of location applied in finalizing the locations of the corners.

(B) Any data at variance with this theory of location.

(C) Sufficient data to allow the retracement without difficulty of all pertinent lines and corners shown on the plat.

Detail that cannot be legibly depicted on the survey plat shall be otherwise explained in the surveyor's report.

Before going any further, it is important to emphasize three things relating simply to the use of words and sentence/paragraph structure in a Surveyor's Report.

1. Avoid flowery/technical language when possible. Recognizing, of course, that some boundary law principles do not very well lend themselves to simple language, write a narrative that a non-surveyor has at least a chance of following and maybe even understanding.
2. Give individual topics/thoughts in their own paragraphs. It is very confusing to a reader to try to follow a narrative that jumps from topic-to-topic in the same paragraph. Keep separate topics and thoughts in separate paragraphs.
3. Do not let paragraphs get too long. It is difficult for a reader's eye to follow the text in a lengthy paragraph. So, even if the paragraph covers only one topic, divide into two or more logical parts, if necessary, to keep it from getting too long.

One company's standard template includes six numbered items, all of which will not necessarily be required on every survey.

Item 1 covers boilerplate language and all the 865 IAC 1-12-12 mandated elements.

Item 2 covers the flood hazard statement. NOTE – this should include both the traditional FIRM, but should also include information from the State of Indiana's "Indiana Floodplain Information Portal" (<https://dnrmaps.dnr.in.gov/appsphp/fdms/>)

Item 3 covers the source of the ownership information reported on the survey.

Item 4 addresses zoning information and is, therefore, only appropriate when zoning information was requested as a part of the survey.

Item 5 includes a utility disclaimer (which is also not always appropriate).

Item 6 is a title note – relevant for boundary surveys and for Land Title Surveys that are sent out pro-forma prior to receiving the title work. When the title work is received, this note is changed accordingly.

As mentioned above under Item 1, in addition to mandated elements, over the years, one company's staff has developed some "boilerplate" language.

This template typically starts with that boilerplate language and, although that language is not necessarily cast in stone, it addresses various concerns or problems that have been encountered in the past in addition to certain requirements in Rule 12.

Following is the current boilerplate language that appears at the beginning of the report under item 1.

1. In accordance with Title 865, Article 1, Chapter 12 of the Indiana Administrative Code ("Rule 12"), the following observations and opinions are submitted regarding the various uncertainties in the locations of the lines and corners established this survey as a result of uncertainties in reference monumentation; in record descriptions

and plats; in lines of occupation; and as introduced by random errors in measurement ("Relative Positional Accuracy"). There may be unwritten rights associated with these uncertainties. The client should assume there is an amount of uncertainty along any line equal in magnitude to the discrepancy in the location of the lines of possession from the surveyed lines.

There may be differences of deed dimensions versus measured dimensions along the boundary lines shown hereon and, likewise, there may be found survey markers near, but not precisely at, some boundary corners. In cases where the magnitude of these differences are less than the Relative Positional Accuracy stated below and less than the uncertainty identified for the reference monumentation (discussed below), the differences may be considered insignificant and are shown only for purposes of mathematical closure. Such differences that are greater than the Relative Positional Accuracy and the uncertainty in reference monumentation should be considered worthy of notice and are therefore further discussed below.

This survey and report are based in part upon opinions formed in accordance with an Indiana Land Surveyor's responsibility to conduct a survey in accordance with "law or a precedent" (865 IAC 1-12-11(5), Rules of the Indiana State Board of Registration for Land Surveyors). Since Indiana has no statutes addressing how to resolve boundary lines, a solution based on principles derived from common law precedent must be relied upon as the basis for a boundary resolution.

Unless otherwise noted or depicted hereon, there is no evidence of occupation along the perimeter lines of the subject tract. All survey monuments set or found this survey are flush with existing grade unless otherwise noted.

The Relative Positional Accuracy (due to random errors in measurement) of this survey is within the specifications for a(n) _____ Class Survey (0.** feet plus ** ppm) as defined in 865 IAC 1-12-7.¹

It is recommended that either at the very beginning of the Surveyor's Report, or immediately following the boilerplate language, a statement be made as to the purpose of the survey, for example:

This survey was commissioned by the client for purposes of conducting an ALTA/NSPS Land Title Survey of the 13.46-acre tract described in Deed Record 432, Page 67 of the Office of the Lincoln County Recorder.

Following that statement, the West Lafayette office has, over the years, employed a great idea by specifically listing all the documents that were reviewed and that played a part in the survey. This

¹ This boilerplate paragraph addresses the Relative Positional Accuracy requirement of Rule 12. Note that Rule 12 has four categories of RPA (Urban, Suburban, Rural and Mountain/Marshland); however, on Land Title Surveys, the term is Relative Positional Precision and there is only one category which is the equivalent of the Urban category. So, on a Land Title Survey, this paragraph should always say Urban Class Survey (0.07 feet plus 50 ppm) as defined in 865 IAC 1-12-7. The category on a retracement or original survey that is not a Land Title Survey will be as appropriate based on the definitions in Rule 12 at 865 IAC 1-12-7..

is particularly helpful on a complex survey with a lot of referenced documents. The documents could even be numbered so when referenced later in the report, they can be referred to simply by, for example, Report Document 2c rather than as “*the record plat of Sunshine Acres as recorded in Plat Book 27, Page 89.*” Following is not the exact wording or format that West Lafayette uses, but the reader will get the idea:

The following documents were reviewed and/or utilized as a part of forming the undersigned’s opinion as to the boundary location performing this survey. Their specific application to this survey is explained later in this report:

1. Subject tract deed: Deed Record 432, page 67
2. Adjoiners
 - a. Instrument no. 85-3579
 - b. Deed Record 65, Page 34
 - c. Record plat of Sunshine Acres (Plat Book 27, Page 89)
3. Surveys
 - a. Survey by Rick Miller certified July 21, 2008 recorded as Instrument no. 2008-24319
 - b. Survey by Gary Kent certified September 21, 1999 recorded as Instrument no. 1999-6529
 - c. Survey by Eber Higglely certified March 21, 2005 (unrecorded)
 - d. Legal Survey from Lincoln County Surveyor’s Office – Book 2, Page 34
4. Plats
 - a. Record plat of Lakeside Subdivision (Plat Book 29, Page 432)

The meat of the Surveyor’s Report follows the boilerplate language and listing of documents. One method to employ in writing a Surveyor’s Report is to use a logically organized “narrative” whereby the scrivener figuratively “walks” his/her way around the property in the same order that the legal description is written addressing all the requirements of Rule 12 for each respective course. In the process, of that narrative, the following are addressed for each course:

- Controlling/reference monuments (and their respective uncertainties) that relate to that course
- The Theory of Location in retracing or establishing that course
- Any ambiguities in the description relating to that course
- Any gaps or overlaps with adjoiners along the same course
- The location of any lines of possession or occupation along that differ from the surveyed boundary of that course.

Notwithstanding the above suggestion, Surveyors are encouraged to experiment with and share their own styles with other staff as long as all of the required elements above are included. It is not helpful to say “we have always done it this way” if someone thinks they have a better way or would like to experiment with a different format.

In addition, depending on the exact issues and complexity, the approach to documenting the survey in the Surveyor’s Report may differ from the above (see. For example, the Fish Lake Surveyor’s Report starting on page 10), but all of the required elements must be covered.

Following is a discussion on how each of the mandatory elements might be addressed – keeping in mind that each of these elements can readily be integrated into a cohesive narrative of each course.

Theory of Location

Perhaps the most important part of the Surveyor’s Report is explaining the “Theory of Location.” This essentially means “*What boundary law principles did you apply to what evidence to arrive at the corners and lines you surveyed?*”

The Surveyor’s Report, if it covers all the required elements and serves its purpose of clearly outlining the Theory of Location, could be quite lengthy. The Theory of Location for even a small tract could conceivably take several pages depending on all the issues, conflicting evidence, problems with the description and trouble identifying controlling/reference monuments.

The attached Fish Lake Surveyor’s Report (following Page 22), for example, is nearly 13 pages in length, yet the survey was of a ¼ acre tract.

The Surveyor’s Report for a large tract could take an entire 24 by 36-inch sheet in order to comprehensively address all the evidence, principles and issues.

In contrast, in cases where the survey is of a platted lot in a contemporary subdivision (see the second example following the Fish Lake Surveyor’s Report) or where the property is a very simple metes and bounds description, the Theory of Location might be explained fairly easily and in a very straight-forward manner. Because of the nature of the property, it might not even involve “walking” your way around the property. For example:

- [Simple Metes and Bounds] - The lines and corners of the subject tract were set based on the controlling calls in the description from and parallel with the north and west lines of the quarter section which are marked by monuments found per County Surveyor references as indicated hereon. ²

Where determining the controlling calls took some effort because there were patent ambiguities in the description or latent ambiguities on the ground, you must explain what you did and why. It is also a good idea to discuss what alternative solutions there were that were not used, and why.

² Note that this wording addresses only Theory of Location. The uncertainties in the locations of those monuments is discussed in the next section this report.

Often there are multiple decisions that were made, and different principles that were applied to different corners and lines. Do not just say that “the lines and corners were established per the controlling calls” if it is not patently clear what that means, exactly how you did it, and what evidence was used.

Reference (controlling) Monuments

Any control/reference monuments used to establish the boundary lines and corners must be explained – what they are, any documentation, and how they were used in retracing the boundaries. This discussion is necessarily closely interwoven with the Theory of Location language discussed above, so this information can be incorporated with the Theory of Location, any record document issues, and possession/occupation issues for each course.

Reference monument information, depending on the situation, should include the following sort of information:

- Section and quarter section corners: What were the monuments, how far above or below grade, and what source(s) were used to recover them? County surveyor references? Prior survey (by whom and as of what date)? Found? Any record to support the monument found?
- Subdivision or lot corners: Recovered based on what documentation? Was it an original monument as shown on a subdivision plat? Found based on prior surveys?
- Perhaps part of the property is referenced to a railroad right of way line. How did you set up that right of way line? Based on what documentation?
- Perhaps part of the control is related to or dependent on a right of way line. How did you set it up? Station/offset off a centerline? If so, how was the centerline set up, how were the stationing and direction established?
- Aliquot corners (quarter-quarter corners, half-quarter corners, etc.). How did you establish the quarter-quarter corner for purposes of your survey? Mathematical split? Old Legal Survey? Prior survey? By whom? Some other logical solution that agrees with possession, for example, an old, accepted fence is located not at the split, but is 1320 feet from one of the section corners? That’s not how the corner should have been established originally, but it is how it was sometimes done, so you might argue it is evidence of the original subdivision of that quarter section and that’s why you held it. Explain how far it differs from the mathematical location.
- Street centerline monuments. Found per plat? Not shown on the plat but found throughout the subdivision? Did you talk to the platting surveyor?

Any monuments or lines that control the boundary are considered a reference monument and need to be addressed.

Importantly, surveyors are required to estimate the uncertainty in the location of each monument/line that was relied upon and how that uncertainty affects the corners of the surveyed property.

This is not measurement uncertainty, but relates to the integrity of – or the confidence you have in - the monument, which is a function of its history, age and supporting documentation.

Here is a good way to explain the concept of uncertain in reference monumentation. Say you need a section corner, but the county has no references and you dig and find nothing. Or perhaps it is on a bridge. You locate what evidence you find – fences, monuments (of known or unknown origin), other evidence of possession or occupation – and sort through it in order to back your way into the location that is your best opinion of where you believe the corner should be.

Once you set your monument, you know it is not exactly where the original corner actually was. Envision tying a string to the monument. As you stretch the string out and use it to draw a circle around the monument, how long would the string have to get until you would be comfortable saying that you believe the original corner fell within the circle? That's the uncertainty that should be reported. Then, you need to figure out how that uncertainty affects the actual corners of the property (which is what the rule actually requires you to report). For example, if a section corner has an uncertainty of 2 feet, but the nearest corner of the property is 2,000 feet away, the impact of that 2 feet on the property itself may be minimal, not the full 2 feet.

Regarding the magnitude of reference monument uncertainties... A stone found per an old Legal Survey or a well-documented Harrison Monument found per County Surveyor references might be identified as having a negligible uncertainty. But a railroad spike referenced by the County Surveyor does not give us quite as much confidence, and we might assign a few tenths (or more), depending on circumstances. A phrase to use might be something like *“It is the undersigned’s opinion that the uncertainty associated with this monument is ___.”* Uncertainties relating to extremely poorly documented referenced monuments may be any number of feet. In such a case, it is important to provide support for why the uncertainty is so high.

Record Documents

Perhaps the perimeter of the surveyed property does not close by 8 feet. This issue can be addressed with a simple sentence regarding closure. NOTE, however, that other than in platted subdivisions, we are not talking simple mathematical misclosure; the appropriate controlling calls must be applied before assessing misclosures.

Ambiguities in the legal description that needed to be addressed as part of the resolution of the boundary also need to be discussed.

Gaps and overlaps are also a consideration that are to be reported under this category.

Once you have arrived at your boundary opinion, are there potential gaps or overlaps with adjoining? The extent and location of such must be reported. Be specific as to location and amount; for example, one end of the line may have a 1.2-foot gap, but the other end may be a 3.4-foot overlap. Typically, you can round such dimensions to the nearest tenth of a foot, although in rare cases, reporting to the nearest hundredth might be appropriate.

As noted above, this topic can be addressed at the same time as Theory of Location is addressed by a narrative working its way around the perimeter of the property consistent with the legal description.³

Possession/Occupation

This item is simply the reporting of the location of any lines of possession or occupation that are inconsistent with your boundary determination. As with other elements, this can be addressed in the narrative of each course as you “walk” around the boundary per the legal description.

It is worth mentioning that the surveyor/scrivener will need to make logical decisions on how much of a difference is worth reporting - and to what precision. Two thoughts are offered on that issue.

1. In most cases, as mentioned above and except perhaps in downtown areas with expensive, small properties, it is not necessary or even desirable to report dimensions to fences, buildings or other lines of occupation/possession more precisely than to the nearest 0.1 foot. The scrivener may not even know exactly where the fence was shot (e.g., what did the crew shoot on a wood rail fence?). The bottom of the fence may not even be plumb with the top. In most cases reporting such locations to the nearest 0.01 foot is even misleading unless it was measured directly (i.e., sighting down the boundary and measuring directly over to the fence). We simply cannot measure/calculate it that closely.
2. It is also, in almost all cases - except perhaps in downtown areas with expensive, small properties - silly to report that a feature is 0.1 feet from a boundary. When it is that close, it is probably more logical to call the feature “generally on-line” unless its location rounds to 0.15 feet or more – or as noted above, if the measurement was made directly, and/or the distance is a subject of the survey. Even then, however, we must be careful, or we will be in court trying to argue that the fence really is 0.23 feet from the line vs. someone else who said it was 0.25 feet.

Both of the items above must be very carefully considered when the distance to a feature is part of the reason that the survey was requested. In such a situation, it is important to have a frank discussion with the client over what is achievable, and what is not achievable, given measurement uncertainty. One consideration is that with additional time and at additional cost, very precise calculations and measurements can be made to features close to a boundary line. However, that does not change the fact that in almost all cases, that boundary line itself has some level of uncertainty in its location. Careful thought must be given before reporting a building to be 0.23 feet from a boundary that itself has 0.6 feet of uncertainty in its location.

³ Note that for a lot in a platted subdivision, there can be no gaps or overlaps with adjoining lots in the same subdivision.

Examples

Following are three examples.

The first is atypical and was for the survey of a 0.25-acre tract on a lake in northern Indiana. There were innumerable title, retracement and Theory of Location issues, so the Surveyor's Report is 13 pages in length with 2 more pages showing the Table of Monuments. An image of the plat follows that.

This is not a typical survey or Surveyor's Report, but it is included to demonstrate the possibilities and how complex information can be conveyed in a logical manner.

The reader will note that the general format outlined in the pages above was utilized on the Fish Lake survey, but there were, for example, significant title issues to be addressed, so the title issues were tackled first, then the retracement of and Theory of Location for each line of the boundary was addressed. In addition, a major purpose for this survey was the riparian zone, so that was addressed separately also.

The second example is of a very straightforward lot survey in a contemporary subdivision.

Most surveys will fall in between these two extremes, as perhaps the third example (an original survey of a small metes and bounds tract) demonstrates.

Example

SURVEYOR'S REPORT – Fish Lake Survey

This purpose of this survey was to conduct a retracement of the lines and corners of the Raymond tract as described in an 02/19/2016 deed from the Joseph Lemon Estate recorded 02/22/2016 as Instrument number 2016-127 in the Office of the Lincoln County Recorder, and to identify the riparian zone lines associated with that property.

In accordance with Title 865, Article 1, Chapter 12 of the Indiana Administrative Code ("Rule 12"), the following observations and opinions are submitted regarding the various uncertainties in the locations of the lines and corners established this survey as a result of uncertainties in reference monumentation; in record descriptions and plats; in lines of occupation; and as introduced by random errors in measurement ("Relative Positional Accuracy"). There may be unwritten rights associated with these uncertainties. The client should assume there is an amount of uncertainty along any line equal in magnitude to the discrepancy in the location of the lines of possession from the surveyed lines.

There may be differences of deed dimensions versus measured dimensions along the boundary lines shown hereon and, likewise, there may be found survey markers near, but not precisely at, some boundary corners. In cases where the magnitude of these differences are less than the Relative Positional Accuracy stated below and less than the uncertainty identified for the reference monumentation (discussed below), the differences may be considered insignificant and are shown only for purposes of mathematical closure. Such differences that are greater than the Relative Positional Accuracy and the uncertainty in reference monumentation should be considered worthy of notice and are therefore further discussed below.

This survey and report are based in part upon opinions formed in accordance with an Indiana Land Surveyor's responsibility to conduct a survey in accordance with "law or a precedent" (865 IAC 1-12-11(5), Rules of the Indiana State Board of Registration for Land Surveyors). Since Indiana has no statutes addressing how to resolve boundary lines, a solution based on principles derived from common law precedent must be relied upon as the basis for a boundary resolution.

Unless otherwise noted or depicted hereon, there is no evidence of occupation along the perimeter lines of the subject tract. All survey monuments set or found this survey are flush with existing grade unless otherwise noted.

The Relative Positional Accuracy (due to random errors in measurement) of this survey is within the specifications for a Suburban Class survey (0.13 feet plus 100 ppm) as defined in IAC 865.

Ownership information indicated hereon is as identified in County or Township records or on title work provided by others.

The within plat and survey were prepared without benefit of current evidence of source of title for the subject tract or adjoining and are therefore subject to any statement of facts revealed by examination of such documents. See comments under "Chain of Title" section below.

Riparian Zone

Indiana Administrative Code 312 IAC 6-1-4 (Determination of riparian zones) states “*If a determination of riparian boundaries is reasonably required for the performance of functions under IC 14-29-1 and this article, the department (or the commission on administrative review) shall consider as guidance "Riparian Zones within Public Freshwater Lakes and Navigable Waters", as published by the Legislative Services Agency at DIN: 20080116-IR-312080013NRA.*” This publication is otherwise known as the Natural Resources Commission’s Information Bulletin #56 (hereinafter Bulletin).

Logically, if professional surveyors are requested to offer professional opinions as to the boundaries of a riparian zone, they would rely on the guidance in this Bulletin.

The Second Principle outlined in Section 4 of the Bulletin (Principles for Delineating the Boundaries of Riparian Zones) states “*Where the shore approximates a straight line, and where the onshore property boundaries are approximately perpendicular to this line, the boundaries of riparian zones are determined by extending the onshore boundaries into the public waters.*” [citing p. 73 of *Bath v. Courts*, 459 N.E.2d 72, 74 (Ind. App. 1984)].

This principle is the only one of the four principles outlined in the Bulletin that is applicable to the south line of the Raymond tract and it was applied this survey in order to show that riparian zone line.

The shore (formed by the seawall) in the vicinity of the Raymond tract is very nearly a straight line, thus meeting the Second Principle’s criteria of a shore approximating “a straight line.” Additionally, the angle between the shore and the Raymond south line is 86 degrees, which, in the undersigned’s opinion, is well within the criteria of “*approximately perpendicular.*”

Running the riparian zone line as an extension of the south line of Raymond is, in fact, consistent with the pier running into the lake from the Flannery tract (lying south and adjoining the Raymond tract). That pier runs almost exactly parallel with the extension of the common Raymond/Flannery onshore boundary (differing by only about 1/3 of a degree or 20 minutes).

On the north line of the Raymond tract – while the shore remains very nearly a straight line - the angle of the onshore boundary extended does not, in the undersigned’s opinion, meet the criteria of “*approximately perpendicular.*” That angle is only 78 degrees.

The applicable principle from the bulletin in this case is the Third Principle which states “*Where the shore approximates a straight line, and where the onshore boundaries approach the shore at obtuse or acute angles, the boundaries of riparian zones are generally determined by extending a straight line at a perpendicular to the shore.*” [citing *Nosek v. Stryker*, 103 Wis.2d 633, 309 N.W.2d 868 (Wis. 1981)]

Two questions arise: (1) At what point does the Raymond on-shore boundary angle so as to intersect the shore at a perpendicular? (2) Does the line need to run exactly perpendicular?

The only choices for the angle point are at the shoreline itself, or at the meander corner. The Third Principle of the Bulletin states “*Application of the third principle is most compelling where land owners in the vicinity have historically used a perpendicular line to divide their riparian zones, but the principle should not be applied where a result is to deprive a riparian owner of reasonable access to public waters.*” [citing *Pipp v. Spitler*, et al., 11 Caddnar 39 (2007)]

In fact, as this plat of survey clearly shows – and as related to the second question above - the old concrete boat ramp fits almost exactly within riparian zone lines that angle nearly perpendicular to the shore from the meander corner. Thus, it would appear that historically the dominant estate owners of 20-foot easement relied on riparian zone lines that, in fact, angled from the meander line to run nearly perpendicular to the shore. Splitting the boat ramp (which is 21 feet wide on its inside faces), offsetting that split 10 feet to the north and running a line from that point back to point “A” results in a line having an angle of 88 degrees 38 minutes with the face of the seawall - well within what the undersigned would deem to be “approximately perpendicular.” (An actual perpendicular line from point “A” would result in a line that is off-centered from the boat ramp by about 1 foot to the north.)

In addition, statements from the client, one of the easement’s dominant estate owners (Robert Lenzen), and evidence on the wood planks of the easement’s pier itself, indicate that the pier used to run approximately perpendicular to the shore, albeit sitting slightly south of the actual riparian zone line (likely so as to not interfere with use of the boat launch).

The Bulletin states “[These principles] *are designed to provide riparian owners with equitable access to public waters.*” In fact, should the angle occur at the shore, the width of the Raymond property would be nearly 15 feet or 11% narrower than it is otherwise at the meander line, thus potentially depriving the Raymonds of what might otherwise be equitable access to the lake.

As a result of these facts, evidence and analysis, it is the undersigned’s opinion that (1) the riparian zone line on the Raymond south line properly extends straight out into the lake from the on-shore boundary based on the Second Principle of the Bulletin, and (2) the riparian zone on the Raymond north line properly runs from the meander corner to a point on the shore offset 10 feet north from the center of the boat ramp based on the Third Principle in the Bulletin, with consideration given to the Bulletin’s intent statement regarding equitable access.

Chain of Title

Based on research conducted by [your company or contractor], an abstract of title and recorded documents provided by the client, the following summarizes the relevant documents in the chain of title.

The Raymond tract (as described in Instrument number 2016-127 mentioned above) was first described as a separate tract in a 09/25/1943 deed from Carlton to Johnston recorded 10/15/1945 in Deed Record 92, Page 33. The descriptions of the subject tract in the 2016 Raymond deed and in the 1943 deed to Johnston deed are essentially identical.

Raymond West Title Line

Nearly all of the relevant deeds between the road and the lake reference their west lines as running along an otherwise undefined “meander line” of the lake.

The meander line run by the original government deputy surveyor (circa April 1834) reported distances along nearly every course to only the nearest chain (66 feet). Bearings were reported to only the nearest 1 degree. Such low precision was very common in the running of meander lines by deputy surveyors and, therefore, attempting to reproduce those lines on the ground can be an imprecise exercise.

Notwithstanding those facts, the geometry of the 1834 meander line was reproduced and overlaid as logically as possible, in the undersigned’s opinion, onto an aerial photograph and fit with the survey. There is an angle point in that meander line that matches very closely with where an angle point in the meander line occurs based on the various title descriptions at the north line of Lot 16.

Also, the relative bearings of the 1834 meander line, at that same angle point, agree very closely (given the low precision) with the angle based on the title descriptions (within less than 2 degrees). Based on that fact and based on calls in various title descriptions – in particular Deed Record 29, Page 367 which calls the southwest corner of Lot 16 to be “*under the bank of lake*” and the northwest corner of lot 16 to be “*at a black oak tree under bank of Lake*” – it is the undersigned’s opinion that (1) the original 1834 meander line lies in approximately the same location as the meander line called for in the record descriptions of most of the deeds between the road and the lake (including the Raymond description), and (2) the 1834 meander line was, in fact, run along the shore of the lake in this area.

Court precedent is consistently and overwhelmingly in agreement that – except for a special situation which is not applicable at this location - the meander line of a lake is not the boundary, but rather a line run for purposes of giving geometry to an irregular feature (a lake shore) and being able to calculate reasonably accurate areas on property bounding that lake. The actual boundary is the shore (or – more properly, in Indiana – generally the ordinary high-water mark, although in some cases the Department of Natural Resources has established a legal lake elevation, which, for Fish Lake is 709.18 feet (<https://www.in.gov/dnr/water/5068.htm>)).

Thus, the west boundary of the Raymond property (and other properties to the north and south) do not terminate at the meander line, but run to the lake shore at an elevation 709.18 feet. Where there is a seawall, the ordinary high-water mark and legal elevation are essentially one and the same (in the case of the seawall in front of the Raymond tract, the top of the seawall is approximately 2 feet above the legal lake elevation).

Raymond North Title Line

The origin of the north line of the Raymond tract is from a 03/11/1903 deed from Trammel to Betheny recorded that same date in Deed Record 51, Page 60. The line is described in that deed as running “*due East*” from a point 133 feet north of the north line of Lot 16 as measured along

the meander line. This is wholly consistent with how the line is currently described in the Raymond deed (“*beginning 43 feet north of the NW corner of Lot 16 ..., thence north 90 feet along the meander line of said lake; thence east to the west line of public highway...*”).

Importantly, the description for the Arnold tract adjoining Raymond to the north runs south and west from points north and east to “*the north line of a tract of land heretofore conveyed to Simon Betheny as shown in Deed Record #51, page 60; thence east along the north line of said Betheny tract....*” Thus, there are no title gaps or overlaps between the Raymond and Arnold tracts.

Raymond South Title Line

The descriptions in both the Raymond deed and in the aforementioned 1943 Johnston deed (recorded in Deed Record 92, Page 33) begin at a point 43 feet north of the northwest corner of Lot 16 in Stumpf’s Addition, with the south line of the subject tract adjoining and lying north of the 10-foot strip of land described in a 07/17/1943 deed from Carlton to McKinney recorded 08/04/1943 in Deed Record 90, Page 385.

10-foot strip - Thus, in order to ascertain the title location of the south line of the Raymond tract, it was necessary to determine the location of the north line of the 10-foot wide McKinney tract. That 10-foot tract is now in title to Flannery per a 08/09/2012 deed from Williams recorded 08/15/2012 as Instrument number 2012-260.

The deed from Carlton to McKinney of the 10-foot wide strip was, in fact, the first and original deed for the 10-foot strip; however, that deed calls for the 10-foot strip to adjoin the 33-foot wide tract of land described in a 02/28/1941 deed from Scott to Potter recorded 03/22/1941 in Deed Record 88, Page 446. Thus, in order to determine the title location of the 10-foot strip, it was necessary to determine the location of the north line of the adjoining 33-foot wide tract to its south.

Interestingly, the descriptions in both the 2012 deed to Flannery and in the 1943 original deed to McKinney call for the 10-foot strip to extend west “*to the water’s edge of Fish Lake.*” However, the original description of the parent tract to the 33-foot wide tract - being a 03/11/1903 deed from Trammel to Betheny recorded 03/11/1903 in Deed Record 51, Page 60 – calls not for the water’s edge, but rather, for the meander line (see discussion on Riparian Zone above). The fact that the various descriptions for the 10-foot strip extend west “*to the water’s edge*” is likely a tacit recognition by subsequent scrivener’s that the shore, not the meander line as described in the 1903 deed to Betheny, was the actual boundary.

33-foot wide tract - The 33-foot wide tract (which is today split into separate titles as the north 13 feet (Cornelius, Deed Record 164, Page 6) and the south 20 feet (Kendall, Instrument number 20044023)) was first described as a separate tract in a 01/20/1937 deed from Heath to Scott recorded 07/15/1937 in Deed Record 85, Page 30. The descriptions of the 33-foot wide tract in the 1937 deed and in the above mentioned 1941 deed to Potter are different.

The originating 1937 deed begins at the northeast corner of Lot 16 and runs “*west along the north line of said Lot 16 [without specifying a distance] to the water’s edge of Fish Lake*” and

then “north 33 feet,” then “east to a point due north of the beginning place,” and finally “south 33 feet to the place of beginning.” As with the 1943 deed to McKinney, running west “to the water’s edge” was likely a tacit recognition by the scrivener of the 1937 description that the shore was the actual boundary, not the meander line as described in the 1903 deed to Betheny or in the subsequent deeds that eventually put title in Heath.

The 1941 deed to Potter begins “where the north line of [Lot 16] intersects the meander line of Fish Lake” and runs then “in a northerly direction following the meander line ... 33 feet,” then “east and parallel with the south line of said Lot 16 to the west side of public highway as now located,” then “in a southwesterly direction along the west line of said public highway 33 feet to the north line of said Lot 16,” and finally “west along the north line of said Lot 16 to the place of beginning.”

Notably, the description in the 1937 deed from Heath to Scott that originally created the 33-foot tract is inconsistent with the 05/20/1907 deed from Collins (recorded 05/24/1907 in Deed Record 57, page 519) by which Heath took title to the parent of that 33 feet. That 1907 deed described a 6-acre tract (out of which the 33 feet was later deeded). That 6-acre tract was first described as a separate tract in the aforementioned 03/11/1903 deed from Trammel to Betheny (recorded 03/11/1903 in Deed Record 51, Page 60) and the Betheny description calls – in relevant part – for the tract to begin “on the North line of [Lot 16] at a point where the meandered line of Fish Lake intersects said North line.” It runs clockwise and eventually ends up at the northeast corner of Lot 16 from where it runs “west to the place of beginning.” Thus, paradoxically, the later 1937 description of the 33-foot tract more correctly reflects the record title location of the west line of the 33 feet (at the shore) than as it was described in the 1903 deed (to the meander line).

Lot 16 - As has been the pattern of the chain of title for Raymond, the dominoes now fall south yet again, this time to Lot 16 since the south line of the 33-foot wide tract is called to be on the north line of Lot 16. Lot 16 and the related Lot A (see below) are referred to in various deeds as Lots 16 and A in “Stumpf’s,” “Stumpf’s Addition to Fish Lake,” “Stumpf’s Addition to Stumpf’s Fish Lake lots,” and, probably most frequently, “Stumpf’s Fish Lake Lots” although, based on all found evidence, they, in fact, are unplatted lots.

Lot 16 was first described as a separate tract in a 05/06/1886 deed from Stumpf to Clarissa Murray recorded 08/31/1886 in Deed Record 28, Page 276. That description commences “at a point under the bank of Fish Lake 504 $\frac{3}{4}$ feet north of the South line at the bank of the lake of a lot of ground deeded by F.W. Stumpf and wife to J.B. Kenner and designated as Lot 1 [shown on Stumpf’s plat of Fish Lake recorded 11/08/1901 in Plat Book 1 at page 114] said commencement point being four feet directly South of a Willow tree about 8 inches in diameter and marked with a blaze on the south side being just under bank of the lake; thence East from said point on north line of Lot “A” deed by Stumpf to Elias A. Bloemker Eighty feet to the north East corner of said Bloemker’s lot...” The description ends up by stating “Said lot to be known as Lot 16.”

Lot A - Thus, the title location of the south line of Lot 16 is dependent on the north line of Lot A, which was inexplicably* first described as a separate tract in the above referenced deed from Stumpf to Bloemker dated 08/24/1886 and recorded 09/09/1886 in Deed Record 29, Page 418.

*Inexplicably because, although the original deed of Lot 16 from Stumpf to Murphy which *references* Lot A was dated 05/06/1886, Lot A was actually not deeded out as a separate lot by Stumpf until 08/24/1886.

Lot 7 - The description of Lot A in the Bloemker deed calls for it to begin at the northeast corner of ground deeded by Frank M. Stumpf and wife to W.W. Harvey and E.T. Aiken. Lot A is labeled, but ambiguously and only partially depicted, on Stumpf's plat of Fish Lake as lying north of Lot 7, but there are no dimensions or other references thereto and only the south half of the 'lot' is shown.

The Harvey/Aiken tract mentioned in the deed to Bloemker is Lot 7 in the above referenced Stumpf's plat of Fish Lake. It was deeded out by Stumpf on 09/10/1885 and recorded 10/09/1885 in Deed Record 26, Page 599. Lot 7 in Stumpf's plat of Fish Lake is not dimensioned on the record plat, although it appears that someone may have subsequently "penciled in" a dimension on its west line of 66 feet. The north line and south line of Lot 7 are distinctively shown as not parallel on the plat. The description in the deed to Harvey/Aiken calls for Lot 7 to adjoin and lie north of Lot 6.

Raymond East Title Line

The east line of the Raymond tract is described in the 2016 deed as being "*south along [the public] highway.*" The deed that first resulted in the tract that is now in title to Raymond (being the 1945 deed to Johnston recorded in Deed Record 92, Page 33 and mentioned above) calls the line exactly the same.

Where a road is a public road, the precedent in Indiana is that a deed call "*to a road*" is considered to be a call to the *center of the road* assuming that the owners on opposite sides of the road contributed equally to the right of way. Regardless, however, any underlying fee interest in a public road is essentially worthless to the abutting owner until or unless it is vacated or abandoned. So, for practical purposes and in many cases, title lines are simply described and surveyed only to the right of way line, which is the case with the Raymond tract. Exactly where that right of way line is to be found is a matter of survey and is further discussed below.

Boundary Retracement

Having run the chain of title impacting the Raymond tract, we conclude that the boundary retracement of that tract involves locating the following on the ground:

- On the north – a line running "*due East*" from a line 133 feet north of the northwest corner of Lot 16 as measured along the meander line.
- On the west - the legal lake elevation of Fish Lake (elevation 709.18 feet) which is essentially coincident with the west face of the seawall.
- On the south – a line parallel with and 43 feet north of the north Lot 16.
- On the east - the west right of way line of South County Road 450 West.

While, pursuant to the Statute of Frauds, the written title is the ultimate source of title, court precedent has consistently and overwhelmingly held that the boundaries emanating from written title are to be *located on the ground* by retracing the footsteps of the original surveyor of the tract in question. This is because the legal description is presumed to have been a product of that original survey.

Thus, the surveyor's charge is to go to the source of the legal description – being the original survey that was performed for purposes of describing the subject tract in preparation for the original conveyance of out of its parent tract. This means that the surveyor is to retrace the original survey made when the parcel was originally created, based on the best available evidence.

In the case of the Raymond tract, due to the complicated chain of title, the 'original survey' necessarily ends up potentially being a whole series of original surveys extending from the north line of the Raymond tract all the way south to the north line of, and including, Stumpf's plat of Fish Lake.

Simply recreating the mathematics or geometry of a deed description will typically not result in a reliable, defensible opinion as to boundary locations. The legal description was a product of the original survey and precedent instructs surveyors to go not to the legal description itself, but to the source of that description – being the original survey – and, more specifically, *evidence of the original survey on the ground*.

In this area, no direct evidence of any original survey (being monuments definitively called for in the originating deed descriptions and found undisturbed) was found. The surveyor must then determine the best evidence of the original survey when there is no direct evidence remaining. The best evidence in such a case will necessarily be indirect evidence such as old lines of possession and surveyors' monuments which have been long in-place and which have been relied upon by owners and surveyors alike over a long period of time, particularly when that evidence was placed at a time when the positions of the original markers were still known.

The result of such an exercise will often, not unexpectedly, be in conflict with the words in the legal description due, primarily, to what was deemed acceptable surveying practice and measurement precision at the time of the original survey versus today. For example, meander lines run in 1834 were recorded only to the nearest 66 feet and 1 degree; today surveyors report distances to a hundredth of a foot (being 6,600 times more precise than a chain) and bearings to 1 second of arc (3,600 times more precise than one degree).

The only seemingly direct evidence of what one might consider an old survey (albeit not an original survey) in this area are monuments found from a 1941 survey of by August Dalton of what would have been, at the time, the Scott properties on each side of South County Road 450 West – likely in preparation for a conveyance of those properties to Potter about 2 weeks after the date of the survey. An iron pipe 0.4 feet below grade (Point "L" on this plat of survey) was found and is believed to be Point "A" on said survey at the southeast corner of the 33-foot wide tract. This survey is discussed further below.

More contemporary surveys identified in the area include work by professional surveyors Eryn Billings, Phil Jameson, Bert Crandell, Melvin Unsell and Steve Sheridan.

Raymond North Line Retracement

Numerous survey monuments were recovered in and south of Lemon Acres on the east side of South County Road 450 West as shown on this plat of survey and in the Table of Monuments. Some were older iron pipes, stakes and rods, and some were more contemporary rebars.

The northwest corner of Lemon Acres (Plat Book 2, page 222) is called to be 110 feet north of the northwest corner of the tract on the east side of the county road described in the aforementioned 1943 deed to McKinney (Deed Record 90, Page 385). The north line of Lemon Acres then runs “East.” This line is the same line as that identified as the north line of the 6 acre tract described in the aforementioned 1903 deed to Betheny (Deed Record 51, Page 60) which runs east from a point 133 feet north of the north line of Lot 16 (as measured along the meander line). Thus, the north line of Raymond is the same line as the north line of Lemon Acres.

The location of the McKinney tract is, however, dependent on the north line of the Potter tract on the east side of the road described in Deed Record 88, Page 446. And that tract is described as commencing “directly east of the southeast corner of ... Lot 16 in Stumpf’s Fish Lake.” Notwithstanding the fact that Lot 16 is unplatted and ill-defined (see more on this below in this Surveyor’s Report), the corner of what had been the Potter tract is – based on numerous old monuments found as shown on the plat of survey – most assuredly not “directly east” of the southeast corner of Lot 16. Therefore, the monuments found along and east of the east side of the road were held as the best evidence of the original surveys for those tracts rather than a point “directly east” of the southeast corner of Lot 16.

As a test solution, the line between the monuments found at points “S” and “O” was offset to the north 50 feet to form the north line of the former McKinney tract. That line was then offset 55.4 feet to form the south line of the “Park” in Lemon Acres, and from there, the line was offset another 50 feet to form the north line of Lemon Drive and 6 more feet to form the north line of Lemon Acres as platted.

The 2-inch iron pipe at “K” checked within 0.1 feet of the north-south location of the north line of platted Lemon Acres tested as explained above. Likewise, the bearing of a line connecting the iron pipe (0.3 feet below grade) at point “K” to the iron pipe (18 inches below grade) at point “A” differed by only 1-1/2 minutes of arc from the north line of Lemon Acres established as explain above. These differences are within what was generally considered an acceptable measurement precision even into the 1960’s, not to mention earlier, and are also well within the measurement precision allowed today pursuant to 865 IAC 1-12 (relative positional accuracy). That precision is 0.13 feet plus 100 parts per million, which on this survey amounts to approximately 1-1/2 inches.

A survey by Eryn Billings dated December 9, 1974 shows a “survey marker set” at the meander corner on the north line of what is now the Raymond tract and at the northeast corner of what is now the Raymond tract. The type of marker is not described and the 41.55-foot distance given

along that north line was not reconciled precisely with any of the existing monuments found this survey. The distance between the iron pipe found at “A” and the Phil Jameson rebar found at point “D” is 42.19 feet, which is outside the measurement precision that would have been expected even in 1974, even if we were to assume that point “A” was, in fact, the marker set by Billings and that point “D” was set by Jameson in place of Billings’s earlier marker.

Billings reported the distance between the northeast corner of what is now the Raymond tract and another “survey marker set” at northwest corner of Lemon Acres (now the northwest corner of the 6-foot strip) to be 55.00 feet. The distance between the iron pipes at points “A” and “K” was found this survey to be 96.97 feet, which compares with 96.55 feet per the Billings Survey. This is. Again, outside the expected precision in 1974, although it is not grossly imprecise.

It is the undersigned’s belief that the markers called by Billings are no longer in place unless they are the pipes found at points “A” and “K” which is unlikely due to the unexpectedly low precision. Based on normal survey practice, it is expected that the iron pipes predate the 1974 Billings survey.

As a result of this analysis, the line connecting points “A” and “K” was held as defining the north line of the Raymond tract. The monuments at points “Q”, “R” and “N” all check within 0.3 feet north-south of this solution. The monuments found at “F” check within about 0.5 feet north-south with this solution. An iron pipe found at point “P” appears to be an unexplained anomaly that does not match anything along the east side of County Road 450 West by about 9 feet.

As discussed above under the Riparian Zone section of this report, the north line of the Raymond tract angles at the meander corner (point “A”) and runs essentially perpendicular to the seawall as shown hereon. No monument has been set at the seawall pending resolution of a dispute as to the riparian zone between the Raymonds and their north adjoiner Mr. Arnold.

Given a lack of agreement and information in the deed records and on the ground as to the width of South County Road 450 West, given that there is no length of the north line of the Raymond tract given in the records, and given that the distance between points “A” and “K” is 0.42 feet longer than reported the Billings survey, the 41.55 foot dimension from the Billings survey was held for the north line of the Raymond tract.

The 3/4 -inch iron pipes found at points “E” and “B” approximately 1-foot above grade are of unknown origin and do not match any of the older monumentation other than point “E” being only 0.7 feet north of the line connecting points “K” and “A,” and point “B” being virtually on the westerly extension of the line between points “K” and “A”.

Raymond West Line Retracement

As discussed above under “Raymond West Title Line,” the west line of the Raymond tract is formed by the legal lake elevation which falls on the face of the seawall.

Raymond South Line Retracement

As shown hereon and in the Table of Monuments, numerous survey monuments were found between the road and the lake. They are generally consistent with each other to the extent that geometry in the various deeds lend themselves to geometry.

As noted above under the section on the Raymond South Title Line, the south line of the Raymond property is dependent on a whole series of deed descriptions extending south to and including Stumpf's plat of Fish Lake as recorded in Plat Book 1, Page 114. Those legal descriptions almost exclusively call for their west lines to be along the meander line of Fish Lake and their east lines to be along the public road (now South County Road 450 West). In some cases, the geometry is not logical; in a number of cases, only one or two sides of a given tract have definitive dimensions given.

The descriptions are, however, consistent in calling the length of the west line of what is now the Raymond tract to be 90 feet north along the meander line from the north line of Lot 16. Likewise, the parent tract out of which the Raymond tract was created (the aforementioned deed to Betheny recorded in Deed Record 51, Page 60) called the length of its west line to be 133 feet north along the meander line from the north line of Lot 16 (with the two tracts lying south of the Raymond tract calling for a total of 43 feet along the meander line). For retracement purposes, a focus was put on retracing the line of Lot 16.

The original deed that created Lot 16 (which, as noted above, is actually unplatted) – being the 1886 deed to Clarissa Murray (Deed Record 28, Page 276) - calls for the north line and south lines of Lot 16 to be parallel.

As mentioned above, a survey by Lincoln County Surveyor August Dalton was conducted in February 1941 for purposes surveying the Scott properties on each side of South County Road 450 West – likely in preparation for a conveyance of those properties to Potter about 2 weeks after the date of the survey. It was the only definitive survey record found in the area that was older than the 1974 survey by Eryn Billings (mentioned both above and below).

A 1-1/2 inch iron pipe approximately 2 feet below grade (Point "L" on this plat of survey) was found and is believed to be Point "A" shown on said survey at the northeast corner of Lot 16 (being also the southeast corner of the 33-foot wide tract now in title to Kendall).

The northwest corner of the 33-foot tract is called to be an iron rod (point "C") on the Dalton survey. Steve Sheridan, PS recovered a 2-inch iron stake 1 foot below grade (identified this survey as point "V") in the roots of a tree at this corner. The distance between the iron pipe (point "A" this survey) and the iron stake (point "V" this survey) is 100.00 feet, which is the distance shown on the Dalton survey (as 100 feet). For this reason, it is believed that the iron stake at point "V" is the iron stake called as point "C" on the Dalton survey and the line between points "V" and the "A" was held as the meander line of the lake along the west side of the Raymond tract.

The northeast corner of the 33-foot tract is called to be a 1/2 -inch iron pipe (point “B”) on the Dalton survey. A 3/4-inch (OD) iron pipe was found this survey (point “W” this survey) at this location. This pipe is believed to be Dalton point “B” (the inner diameter of a 3/4 inch iron pipe is roughly 1/2 inch). The distance between the iron pipe at “W” and the iron pipe at point “L” is not indicated on the Dalton survey, but the originating deed for that 33-foot tract (1937 deed to Scott recorded in Deed Record 86, Page 301) calls this distance 33 feet and it was found this survey to be 33.09 feet.

Given the above, the south line of the Raymond tract was set this survey based on the north line of the 33 foot tract per the Dalton survey – connecting the iron pipe at point “W” (point “B” on the Dalton survey) to the iron stake at point “V” (point “C” on the Dalton survey), then creating a parallel line distant 10 feet north of point “V” as measured along the meander line between points “V” and “A” and extending that line west to the west face of seawall.

This solution results in the line as it runs west to the seawall lying 2.6 feet south of a 1/2 -inch iron pipe found in the top of the seawall at point “G.”

The aforementioned survey by Eryn Billings dated December 9, 1974 shows a “survey marker set” at the meander corner on the south line of what is now the Raymond tract. As with the situation on the north line of the Raymond tract, the type of marker is not described and no corresponding point was found. Billings does show a “survey marker found” at the southeast corner of what is now the Raymond tract, but, as with the “set” markers, his survey does not indicate what that marker was.

The Billings survey also shows a “survey marker found” at the northeast corner of the 10-foot strip lying south of and adjoining the Raymond tract and on the north line of that tract where it intersects the meander line. Based on the above discussion, it is believed that point “B” and “C” on the Dalton survey (points “W” and “V” this survey) are the points reported as found by Billings.

Raymond East Line Retracement

None of the variety of documents that were reviewed including legal descriptions in contemporary and old deeds, old plats, the plat of Lemon Acres, the Dalton survey and more contemporary surveys, address the width of South County Road 450 West other than the 1974 Eryn Billings survey which simply gave some unsubstantiated distances across the road from the east line of Johnston (now Raymond) to monuments found on the east side of the road. In addition, the 48.85-foot dimension across the road from the southeast corner of what is now Raymond could not be reconciled within several feet with any of the monumentation found on the east side of the road.

As a result, the undersigned determined that the most reliable evidence of the west line of the road was to run a line from the northeast corner of Raymond established as outlined above under the ‘Raymond North Line Retracement’ section of this report to point “W” (point “B” of the Dalton survey). This is not inconsistent any of the reviewed documents and appears to be

consistent with what the the Dalton survey. Reference is made to the comments in the 'Raymond East Title Line' section of this report.

Uncertainties

There are no significant uncertainties affecting the subject tract resulting from conflicts in the records other than (1) as a result of differences of opinion as to the geometry of the north line of the subject tract, and (2) as related to ambiguities in the location of the west right of way line of South County Road 450 West. With regard to item (1), this difference amounts to about 15 feet north-south at the seawall. With regard to item (2), the uncertainty amounts to an estimated 2 feet east-west.

Relating to lines of possession, there is a chain link fence across the northwest portion of the subject tract resulting from some parties' opinion that the north line of the tract is simply a straight line extending to the lake (see paragraph immediately above).

Due to monumentation that is mostly of uncertain origin and the fact that there are inconsistencies in some of that monumentation, there is approximately 2 to 3 feet of uncertainty in a north-south direction along the south line of the subject tract, approximately 1 foot north-south along the easterly portion of the north line of the subject tract, and approximately 2 feet east-west along the east side of the subject tract.

The basis of bearings of this survey is the Indiana State Plane Coordinate System, West Zone, referenced to the 1983 North American Datum and utilizing VRS INDOT.

TABLE OF MONUMENTS

A APPROX. 1-1/2" IRON PIPE FOUND 18" BELOW GRADE HELD AS MEANDER CORNER ON N. LINE RAYMOND (5/8" REBAR WITH YELLOW CAP STAMPED "FIRM #9999" SET IN PIPE AND AT GRADE).

B 3/4" IRON PIPE FOUND 1.1' ABOVE GRADE (BENT)

C REBAR WITH CAP STAMPED "PJ S8888" FOUND 0.1' BELOW GRADE (APPARENTLY SET BY PHIL JAMESON, PS OF FRONTIER ENGINEERING ON JOB NUMBER 90-152 IN JUNE 1990) (REPORTING AN IRON PIPE FOUND 2.1' WEST AND 0.7' NORTH)

D REBAR WITH CAP STAMPED "PJ S8888" FOUND 0.1' BELOW GRADE (APPARENTLY SET BY PHIL JAMESON, PS OF FRONTIER ENGINEERING ON JOB NUMBER 90-152 IN JUNE 1990) (ON-LINE AND 0.6' EAST OF CORNER)

E 3/4" IRON PIPE FOUND 1.2' ABOVE GRADE 5.3' E. OF CORNER.

F SQUARE-HEADED BOLT FOUND 0.2' BELOW GRADE. RR SPIKE FOUND 0.4' WEST OF BOLT & 0.2 FEET BELOW GRADE

G 1/2" (ID) IRON PIPE FOUND IN SEA WALL AT GRADE; 1.7' E. OF W. LINE AND 2.6' N. OF SOUTH LINE

H 5/8" REBAR WITH YELLOW CAP STAMPED "S. SHERIDAN INLS7777" FOUND 0.3' ABOVE GRADE

I 2" PIPE IN CONCRETE FOUND AT GRADE

J REBAR WITH RED CAP STAMPED "CSI PLS 4444" (BERT CRANDELL, PS) 0.1' BELOW GRADE (ON-LINE & 0.3' W. OF CORNER) & 0.3' W. OF COR.)

K 2" IRON PIPE FOUND BY STEVE SHERIDAN, PS 0.3' BELOW GRADE

L 1-1/2" IRON PIPE FOUND 0.4' BELOW GRADE AT NE COR. LOT 16 AND SE COR. 33-FOOT TRACT (HELD AS POINT "A" ON 1941 DALTON SURVEY – SEE REPORT)

M 1-1/4" IRON PIPE FOUND 2 FEET BELOW GRADE AT SE COR. LOT 16

N 1" IRON PIPE FOUND 0.8' BELOW GRADE

O 1-1/4" IRON PIPE FOUND 0.3' BELOW GRADE

P 1" IRON PIPE FOUND 0.4 FEET BELOW GRADE

Q REBAR W/CAP STAMPED "UNSELL LAND SURVEYING LS5555" FOUND 0.1' BELOW GRADE

R 3/4" IRON PIPE FOUND 0.1' BELOW GRADE AT NE COR. OF "PARK" IN LEMON ACRES (NOT GRAPHICALLY SHOWN HEREON)

S 1-1/4" IRON PIPE FOUND 0.2' BELOW GRADE AT NE COR. POTTER (DR 91, P. 74) (NOT GRAPHICALLY SHOWN HEREON)

T 1-3/4" IRON PIPE FOUND 1.2' ABOVE GRADE 199.52' E. OF POINT "N" ON E. EXTENSION OF POTTER (NOT GRAPHICALLY SHOWN HEREON)

U 1/4" IRON PIN FOUND 0.1' BELOW GRADE AT SW CORNER LOT 1 IN GIBBON'S EAST SIDE SUBDIVISION (NOT GRAPHICALLY SHOWN HEREON)

V 2" IRON STAKE FOUND BY STEVE SHERIDAN, PS 1' BELOW GRADE (HELD AS POINT "C" ON 1941 DALTON SURVEY – SEE REPORT)

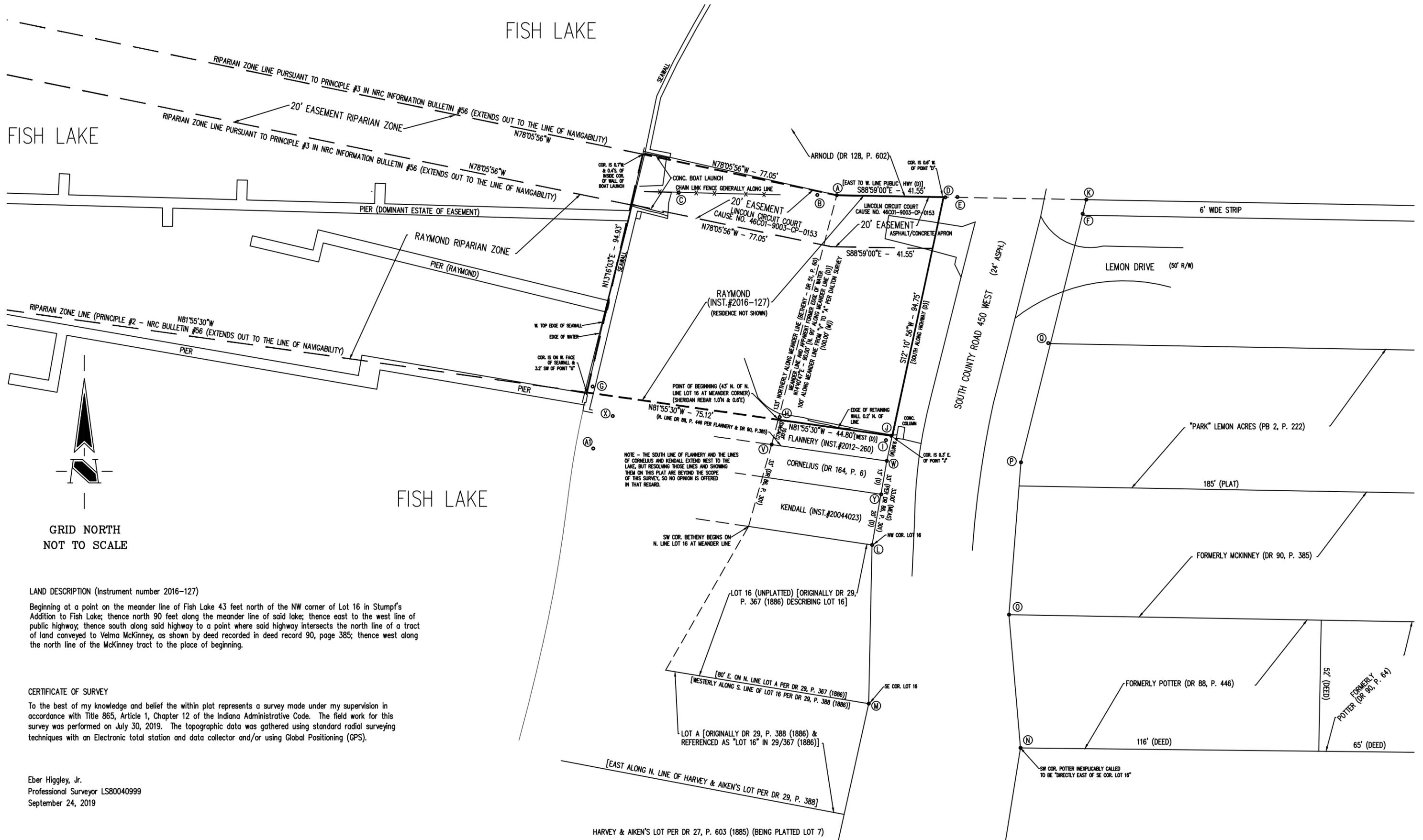
W 3/4" IRON PIPE FOUND 0.2' BELOW GRADE (HELD AS POINT "B" ON 1941 DALTON SURVEY – SEE REPORT)

X 5/8" REBAR WITH RED CAP STAMPED "CSI PLS 4444" (BERT CRANDELL, PS) FOUND BY STEVE SHERIDAN 2.3' N. OF S. LINE OF FLANNERY EXTENDED WEST

Y REBAR WITH RED CAP STAMPED "CSI PLS 910004" (BERT CRANDELL, PS) FOUND BY STEVE SHERIDAN, PS AT GRADE

Z SQUARE-HEADED BOLT FOUND 0.1' BELOW GRADE AT NE COR. "PARK" IN LEMON ACRES. RR SPIKE FOUND 0.2' WEST OF BOLT & 0.1 FOOT BELOW GRADE (NOT GRAPHICALLY SHOWN HEREON)

A1 1" IRON PIPE FOUND BY STEVE SHERIDAN 1.3' N. OF S. LINE CORNELIUS EXTENDED WEST



FISH LAKE

FISH LAKE

FISH LAKE



GRID NORTH
NOT TO SCALE

LAND DESCRIPTION (Instrument number 2016-127)

Beginning at a point on the meander line of Fish Lake 43 feet north of the NW corner of Lot 16 in Stumpf's Addition to Fish Lake; thence north 90 feet along the meander line of said lake; thence east to the west line of public highway, thence south along said highway to a point where said highway intersects the north line of a tract of land conveyed to Velma McKinney, as shown by deed recorded in deed record 90, page 385; thence west along the north line of the McKinney tract to the place of beginning.

CERTIFICATE OF SURVEY

To the best of my knowledge and belief the within plat represents a survey made under my supervision in accordance with Title 865, Article 1, Chapter 12 of the Indiana Administrative Code. The field work for this survey was performed on July 30, 2019. The topographic data was gathered using standard radial surveying techniques with an Electronic total station and data collector and/or using Global Positioning (GPS).

Eber Higgle, Jr.
Professional Surveyor LS80040999
September 24, 2019

HARVEY & AIKEN'S LOT PER DR 27, P. 603 (1885) (BEING PLATTED LOT 7)

Surveyors Report

• SURVEY STATUTE REQUIREMENTS AND STANDARDS OF PRACTICE:

In accordance with Title 865, Article 1, Chapter 12 of the Indiana Administrative Code ("Rule 12"), the following observations and opinions are submitted regarding the various uncertainties in the locations of the lines and corners established this survey as a result of uncertainties in reference monumentation; in record descriptions and plats; in lines of occupation; and as introduced by random errors in measurement ("Relative Positional Accuracy"). There may be unwritten rights associated with these uncertainties. The client should assume there is an amount of uncertainty along any line equal in magnitude to the discrepancy in the location of the lines of possession from the surveyed lines.

There may be differences of deed dimensions versus measured dimensions along the boundary lines shown hereon and, likewise, there may be found survey markers near, but not precisely at, some boundary corners. In cases where the magnitude of these differences are less than the Relative Positional Accuracy stated below and less than the uncertainty identified for the reference monumentation (discussed below), the differences may be considered insignificant and are shown only for purposes of mathematical closure. Such differences that are greater than the Relative Positional Accuracy and the uncertainty in reference monumentation should be considered worthy of notice and are therefore further discussed below.

This survey and report are based in part upon opinions formed in accordance with an Indiana Land Surveyor's responsibility to conduct a survey in accordance with "law or a precedent" (865 IAC 1-12-11(5), Rules of the Indiana State Board of Registration for Land Surveyors). Since Indiana has no statutes addressing how to resolve boundary lines, a solution based on principles derived from common law precedent must be relied upon as the basis for a boundary resolution.

• OBSERVATIONS:

The within RETRACEMENT SURVEY was commissioned by the client for the purpose of retracing the lines and monumenting the corners of that part of Lot 14A in the Replat of Lots 14-15-16 Towne Oak Estates at Carmel as described below. Unless otherwise noted or depicted hereon, there is no evidence of occupation along the perimeter lines of the subject tract. All survey monuments set or found this survey are flush with existing grade unless otherwise noted.

REFERENCE MONUMENTATION: The Replat of Lots 14-15-16 Towne Oak Estates at Carmel does indicate on the face of the document that original subdivision monumentation was established to control the location of the within lot corners. The reference monumentation recovered and used in this survey, designated as 1, 2 and 3 on Sheet 2 of 2, were Aluminum Monuments stamped "SCHNEIDER FIRM 0001" at the street surface. These monuments had only negligible discrepancies in horizontal angle and horizontal distance and agreed with physical evidence of possession (curb splits, etc.). The monument designated as 1 was held as the basis of this survey and the bearing between it and monument 2 was held as the basis of bearing. It is my observation that the positional uncertainty of the referenced monuments used this survey with the respect to the location of the lines and corners of the subject lot, is not greater than 0.13 feet.

RECORD DOCUMENTS: The Uncertainty in the lines and corners of the subject lot due to discrepancies in the record plat is negligible.

OCCUPATION: The Uncertainty as related to inconsistencies in the lines of occupation is as shown on Sheet 2 of 2. There are no fences or walks or other evidences of occupation along the lot lines.

The Relative Positional Accuracy (due to random errors in measurement) of this survey is within the specifications for a Suburban Class Survey (0.13 feet plus 100 ppm) as defined in IAC 865.

• CONCLUSIONS AND OPINIONS:

The northwest, southwest and southeast corners of the subject lot, were found monumented with a 5/8" rebar with a yellow cap stamped "Schneider Firm #0001". The northeast corner was monumented with a 5/8" rebar with a yellow cap stamped "SCHNEIDER FIRM 0001" and set flush with existing grade.

The within plat and survey were prepared without benefit of current evidence of source of title for the subject tract or adjoining and are therefore subject to any statement of facts revealed by examination of such documents. This qualification will be removed upon receipt and inspection of current title work and copies of schedule B items listed therein.

Certificate of Survey

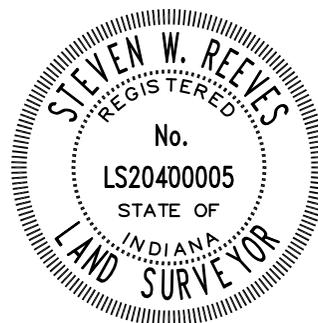
I, Steven W. Reeves, in accordance with Title 865, Article 1, Chapter 12 of the Indiana Administrative Code ("Rule 12"), the laws of the State of Indiana, do hereby certify that to the best of my knowledge and belief, the within plat represents a RETRACEMENT SURVEY made under my supervision on August 14, 2015 of the following described tract:

Lot numbered 14A in the Replat of Lots 14-15-16 Towne Oak Estates at Carmel, as per plat thereof recorded as Instrument No. 2013023943 in Plat Cabinet 5, Slide 63 in the Office of the Recorder of Hamilton County, Indiana. EXCEPT: A strip of land 19.00 feet in width by parallel lines off the entire west end of Lot numbered 14A in said Replat, containing in all 43,888 square feet, 1.01 acres, more or less.

See Sheet 2 of 2 for Drawing Exhibit



Steven W. Reeves
Registered Land Surveyor #20400005
Date: August 24, 2015



(Sheet 1 of 2)

Lot Survey

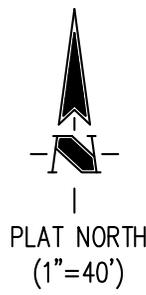
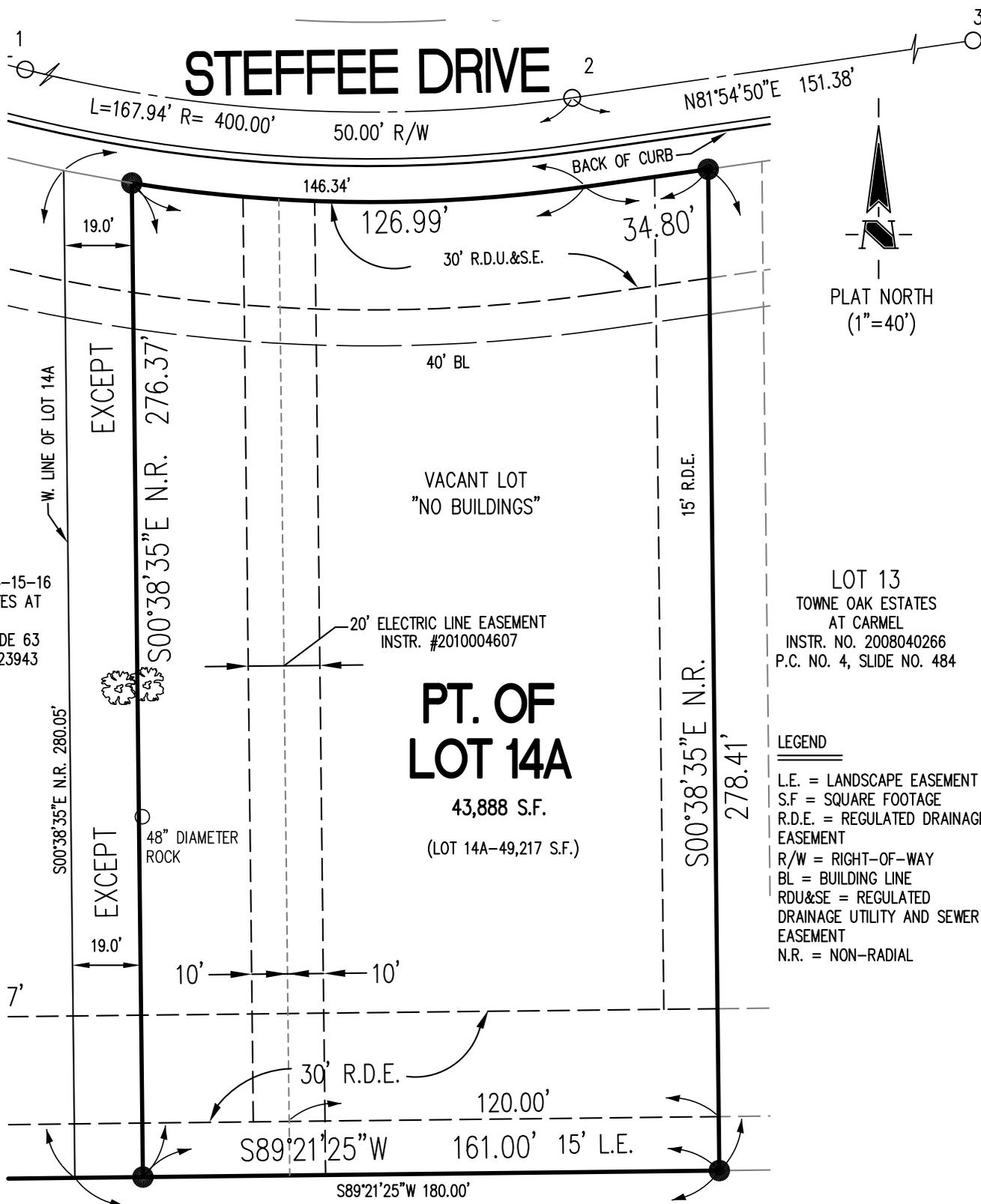
Prepared For: Towne East Development, LLC
Subdivision: Replat of Lots 14-15-16 Towne Oak Estates at Carmel
Recording Info: Plat Book 5, Slide 63, Instrument No. 2013023943
County: Hamilton Township: Clay
Street Address: 2295 Steffee Drive
Buyer/Owner: Towne East Development, LLC
Prepared By: RGL DATE: 8/24/15

SCALE: 1"=40'

Job # 6159.004

Pt. 14A
Lot Size: 43,888 SF

Sec/Twp/Rng: Sec. 33 - 18N - 3E



LOT 15A
REPLAT OF LOTS 14-15-16
TOWNE OAK ESTATES AT
CARMEL
PLAT BOOK 5, SLIDE 63
INSTR. NO. 2013023943

LOT 13
TOWNE OAK ESTATES
AT CARMEL
INSTR. NO. 2008040266
P.C. NO. 4, SLIDE NO. 484

- LEGEND**
- L.E. = LANDSCAPE EASEMENT
 - S.F. = SQUARE FOOTAGE
 - R.D.E. = REGULATED DRAINAGE EASEMENT
 - R/W = RIGHT-OF-WAY
 - BL = BUILDING LINE
 - RDU&SE = REGULATED DRAINAGE UTILITY AND SEWER EASEMENT
 - N.R. = NON-RADIAL

VILLAGES OF WESTCLAY
SECTION 10003
INSTR. NO. 200400030208
P.C. NO. 3, SLIDE NO. 396

- = 5/8" REBAR W/ YELLOW PLASTIC CAP STAMPED "SCHNEIDER FIRM #0001"
- = ALUMINUM MONUMENT STAMPED "SCHNEIDER FIRM #0001" FOUND

(Sheet 2 of 2)

Lot Survey
Prepared For: Towne East Development, LLC
Subdivision: Replat of Lots 14-15-16 Towne Oak Estates at Carmel
Recording Info: Plat Book 5, Slide 63, Instrument No. 2013023943
County: Hamilton Township: Clay
Street Address: 2329 Steffee Drive
Buyer/Owner: Towne East Development, LLC
Prepared By: RGL DATE: 8/24/15

SCALE: 1"=40'
Sec/Twp/Rng: Sec. 33 - 18N - 3E

Job # 6159.004
Pt. 14A
Lot Size: 43,888 SF

RICH WAXMAN, PS DUG FOR STONE,
NO MONUMENT FOUND; SET REBAR
(1995) ESTIMATED UNCERTAINTY 1 FOOT

POINT OF BEGINNING
ROAD NAIL W/WASHER STAMPED
"FIRM #1234" SET FLUSH

DUG FOR STONE; NO MONUMENT FOUND
NE COR. SE 1/4 SEC. 1-19N-06E
4" MAG SPIKE SET AT GRADE
ESTIMATED UNCERTAINTY 2 FEET

NW COR. SE 1/4 SEC. 1-19N-06E
5/8" REBAR FOUND 0.2' DOWN
POINT OF COMMENCEMENT

COUNTY ROAD 550 NORTH (16' ASPHALT)

N88°59'15"E - 171.04'

N88°59'15"E - 1163.06'

N88°59'15"E
1322.03'
N00°22'05"E
34.35'

S00°56'31"E
26.73'

ROAD NAIL W/WASHER STAMPED
"FIRM #1234" SET FLUSH

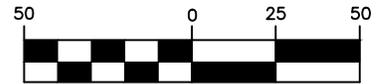
FENCE COR. POST ON LINE

FENCE POST
0.5' W & 0.5'
N OF REBAR



CULTIVATED
FARM FIELD

BASIS OF BEARINGS
INDIANA STATE PLANE, EAST ZONE



SCALE 1" = 50'

this plot is not to scale.

CULTIVATED
FARM FIELD

N00°22'05"E - 330.39'

FENCE 1' E. OF LINE

SURVEYED PARCEL
1.58 ACRES+/-
(VACANT)

JOYCE E. HARDEN
HILLARY B. GRABLE
JASON T. HARDEN
TRUSTEES
91.43 AC.
INST. NO. 2019-3579
(WARRANTY DEED)

CULTIVATED
FARM FIELD

3.0'

JOYCE E. HARDEN
HILLARY B. GRABLE
JASON T. HARDEN
TRUSTEES
91.43 AC.
INST. NO. 2019-3579
(WARRANTY DEED)
PARCEL NO. 007-00124-01

S00°56'31"E - 391.95'

CULTIVATED
FARM FIELD

WILL & MARION SCARLETT
DEED RECORD 213, P. 327
(WARRANTY DEED)

LEGEND

--- WOVEN WIRE FENCE

● 5/8" REBAR W/YELLOW CAP
STAMPED "FIRM #1234"
SET AT GRADE UNLESS
OTHERWISE NOTED

CERTIFICATE OF SURVEY

To the best of my
knowledge and belief the
within plat represents a
survey made under my
supervision.

John B Tyler
John B. Tyler
Professional Surveyor
LS80040999
November 30, 2023



JOYCE E. HARDEN
HILLARY B. GRABLE
JASON T. HARDEN
TRUSTEES
91.43 AC.
INST. NO. 2019-3579
(WARRANTY DEED)

Boundary Survey
4415 W. C.R. 550N
Lincoln County, IN
Second PM Surveying, Inc.
99123 E. Main Street.
Lincoln, IN 49999
Job #2023-0114

75.79'
N83°53'03"W

CULTIVATED
FARM FIELD

68.18'
N49°36'51"W

52.97' 5.8'
S88°31'04"W

5.5'

1.7'

SURVEYOR'S REPORT

This purpose of this survey was to conduct a boundary survey to locate and describe a 1.58 acre tract of land lying within a larger 91.43 acre tract of land in Lincoln County currently being farmed and described in a deed to Joyce E. Harden, Hillary B. Grable, and Jason T. Harden as Trustees, and recorded as Instrument number 2019-3579 in the Office of the Lincoln County Recorder. The client intends on erecting a single-family home on the 1.58 acres.

Ownership information indicated hereon is as identified in County or Township records.

The within plat and survey were prepared without benefit of current evidence of source of title for the subject tract or adjoiners and are therefore subject to any statement of facts revealed by examination of such documents. As a result, among other servitudes, there may be easements affecting the surveyed property that are not shown hereon.

The Relative Positional Accuracy of this survey does not exceed that allowable for a rural survey, which is 0.26 feet plus 200 ppm. This amounts to up to 4 inches of uncertainty in the dimensions reported.

No monument was found at the Northeast corner of the Southeast quarter of Section 1 and the county surveyor had no reference ties for the corner. Several surveys in the vicinity referenced this corner; however, none of them indicate a monument set or found other than a survey provided by Ryland Witcher, PS (Project number 1234-5678, certified on June 12, 2012) that had extended the north line of the Southwest quarter of Section 1 all the way east to the east line of the Southeast quarter (County Road 400 East). A mag nail was found at that location pursuant to that survey; however, that location falls some 10 feet south of the well-defined and long-standing centerline of County Road 550 North, so it was disregarded.

The centerline/centerline of County Road 550 North and County Road 400 East was excavated to a depth of approximately 2 feet and a second hole was excavated approximately 2 feet south of that location which is where the corner would seemingly have been located based on a survey certified by Hadrian Boyce, PS and recorded as Instrument number 2002-6666 near the Northeast corner of Section 1. Both holes were probed extensively in all directions and no stone was found.

It is the opinion of the undersigned that the Northeast corner of the Southeast quarter is obliterated and the most probable location is at the intersection of the physical centerline of County Road 550 West with a north-south line connecting a rebar (found based on the aforesaid Boyce survey and several nails he set (found this survey) to the south of the Northeast corner of the Southeast quarter.

The Northwest corner of the Southeast quarter of Section 1 is a 5/8 inch rebar found 0.2 feet below grade pursuant to the aforesaid Ryland Witcher survey. The county surveyor had no reference ties to this corner.

It is the undersigned's opinion that there is approximately 2 feet of uncertainty in the location of both the Northwest and Northeast corners of the Southeast quarter. This amounts to an uncertainty in the northeast and northwest corners of the surveyed tract of also 2 feet.

There is no uncertainty in the locations of the remaining corners along the west and south lines of the surveyed tract since this is a cutout of a larger tract; those are original corners placed per client's instructions and called for in the prepared description.

There is no uncertainty due to the location of fences (possession or occupation) along the west and south lines of the property since this survey is a cut-out out of a larger tract lying to the west and south.

There is up to 0.5 feet of uncertainty related to the fence near the northeast corner of the surveyed tract.

The fence along the southerly portion of the east line of the surveyed tract is a fence of convenience erected by the client, so there is no possession/occupation uncertainty associated with its location.

There is no uncertainty due to record documents as related to the west and south property since the surveyed tract is a cutout out a larger tract lying to the west and south.

The east line of the surveyed tract was made coincident with the west line of the Scarlett tract lying to the east, so there is no uncertainty related to record documents along that line.