




FINAL DESCRIPTION AND ELEVATION OF BENCH MARKS

State Form 3031 (R4 / 6-14)

Indiana Department of Transportation Attention: Benchmark Coordinator Land & Aerial Survey Office 120 South Shortridge Road Indianapolis, IN 46219-6705 Telephone: (317) 610-7251

- INSTRUCTIONS:**
1. Familiarize yourself with the requirements of page 1 and page 2 of this form.
 2. Complete all sections and make sure that all entries are either typed, or printed legibly using black ink.
 3. Take three (3) digital photographs of the bench mark that are accurate and legible.
 4. Submit all required materials (i.e. this form, digital photographs and field notes) to the Benchmark Coordinator within thirty (30) days of establishing the elevation.

INDIANA DEPARTMENT OF TRANSPORTATION DISTRICT

Bench Mark Name: _____ Bench Mark Stamping:  Elevation: _____
(e.g. G 1245) (e.g. 49 G) (e.g. 1245) (US Survey Feet)

Designation (Des.) Number: _____ Contract Number: _____
(e.g. 1234567)

Elevation Datum: NAVD 1988 Other _____

Elevation Established From Which Agency, Bench Mark Tablet Name: _____

NGS USGS USC&GS Other _____

Method Of Establishing Elevation: Differential Leveling GPS **(See page 2 instructions for using GPS.)**

Does This Bench Mark Replace A Bench Mark? Yes No If Yes, Previous Name: _____

Located In the _____ Quadrant Of Section _____, Township _____, Range _____,
(NW,NE,SW,SE) (1-36) (# N/S) (# EW)

_____ Principal Meridian, _____,
(1st Or 2nd) (Civil Township) (County)

List Bench Mark Location In Degrees, Minutes, And Seconds (to a minimum of a tenth of a second).

Latitude: _____ Longitude: _____
(e.g. 38°30'20.1" N) (e.g. 86°29'31.8" W)

Other Description As Necessary (Military Grants, Donation Lands, Etc.)

_____ Miles _____ Of _____ On _____
(North/South/East/West) (State, US or Interstate Highway) (Route)

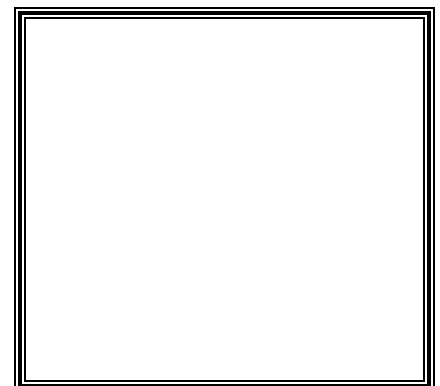
Further Described As Follows: (See example on page 2.)

Final Notes by: _____ **Date:** _____
(Printed Name) (month, day, year)

Checked by: _____ **Date:** _____
(Printed Name) (month, day, year)

Signature: _____ **Date:** _____
(Professional Signature) (month, day, year)

cc: District Survey Operations Manager
 Final Construction Record



(Professional Seal; Surveyor/Engineer)

Section 105 Control of Work

Excerpt from Section 105.08 (b) Construction Engineering by the Contractor of the INDOT 2014 Standard Specifications:

Bench marks and elevations shall be established on new or rehabilitated bridges. The elevations shall be tied to the United States Geodetic Survey system providing there is an existing monument within a radius of 3 mi of the bridge site. If a monument is not within this distance, the elevation of the new bench mark shall be established from the bench marks shown on the plans. Tablets will be furnished by the Department and shall be set in the new concrete at the locations directed. The Contractor shall document the elevation on the proper forms furnished by the Department. The forms shall be signed, sealed, and dated by a land surveyor or engineer who is registered in the State. The work shall be performed in accordance with Part 1, Chapter 106 of the Department's Design Manual. Copies of the forms shall be provided to the Engineer for distribution.

All stakes, templates, straight-edges, and other devices necessary for checking, marking, and maintaining points, lines, and grades shall be furnished.

On a road contract, the level circuit to check the plan bench marks shall be run for the full length of the project. Intermediate bench marks shall be established approximately every 500 ft through the project. On a bridge contract, the circuit shall include four plan bench marks, if available, two on each side of the structure.

Field notes shall be kept in hard covered bound field note books in a clear, orderly, and neat manner consistent with standard engineering practices and in accordance with the Department's prescribed note book procedure, including titles, number, and indexes. Such note books shall be furnished by the Contractor and shall adequately document all survey information. Copies of field notes shall be furnished to the Engineer upon request during the life of the contract. The original field notes shall become the property of the Department upon completion of the work. Such field notes shall be bound. All pages shall be numbered before submission to the Department.

GPS-Derived Orthometric Heights:

If GPS is used to establish bench marks on the project site then the NGS Technical Memorandum "Guidelines for Establishing GPS-derived Orthometric Heights" shall be used as the guidelines for the survey procedures which can be found at http://www.ngs.noaa.gov/PUBS_LIB/pub_index.html.

Bench Mark Photographs:

A total of three (3) digital photographs (.jpg format preferred) of the occupied bench mark shall be taken and submitted with the form. Record all marking accurately and legibly. The stamping must be readable in the digital photograph.
Photo #1: Close-up-taken directly above tablet (tablet only)
Photo #2: Eye-level-taken approx 5-6 ft. directly above tablet (tablet and immediate surrounding area)
Photo #3: Horizontal-wide view of tablet location in relation to reference objects and features, record direction facing

Note: For photos 2 and 3, recommend use of a small, temporary sign with large clear letters (e.g. white board with dark marker) to identify tablet and location in photos. Ensure sign does not cover any portion of the tablet or any important feature.

Sample Bench Mark Descriptions (Further Described As Follows):

For A Structure:

A standard INDOT bronze tablet set in concrete at the northwest corner of bridge over White Water River.

For A Bench Mark Post:

A standard INDOT bronze tablet set in concrete bench mark post 2.67 miles north of US 50 and 24.4 feet left of the centerline of roadway.

(N, S, E, W) (State, US or Interstate Highway)

Old Bench Mark Tablets:

Old bench mark tablets shall be returned to the Land & Aerial Survey Office with completed form. **Do Not** reuse tablets.