



Request for Qualifications

Town-Wide Photogrammetric Mapping Project

Town of Salem, NH

RFQ (2019-006)

Purchasing Agent
CHRISTINE WHOLLEY

Chris Dillon, Town Manager

Prepared for and in coordination with the
Salem NH Community Development Dept.
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Town-Wide Photogrammetric Mapping Project RFQ 2019-006 Town of Salem, NH

January 2019

The Town of Salem, New Hampshire is accepting proposals to select a qualified contractor to produce new town-wide 4-inch pixel resolution true color digital orthoimagery, detailed 100-scale planimetrics and 2-foot contours based on new spring 2019 aerial digital photography. Interested individuals or firms should request the complete RFP and related information from Christine Wholley, Purchasing Agent, 33 Geremonty Drive, Salem, NH 03079 or via the Town's website at

<http://www.townofsalemnh.org/purchasing/pages/current-bids-proposals-and-awards>

Proposals must be submitted to the Purchasing Agent no later than January 31, 2019 at 11:00 AM.
LATE PROPOSALS WILL NOT BE CONSIDERED.

Prepared for and in coordination with the
Community Development Department

REQUEST FOR QUALIFICATIONS -

Town-Wide Photogrammetric Mapping Project Salem, NH

Issued: Jan, 2019

1: Project Goals

The Town of Salem, New Hampshire is seeking proposals from qualified firms for the development of a new town-wide land base map. Major tasks involved with this project include aerial imagery acquisition, ground control, planimetric mapping, topographic mapping, and digital orthoimagery. Provided below are detailed specifications related to the project.

2: Background & Project Area

The Town of Salem, NH is located on the New Hampshire/Massachusetts border between Boston Massachusetts and Manchester, New Hampshire on the Interstate 93 Corridor (see Figures 1 and 2). The population of Salem was 28,888 as of the 2016 U.S. Census. Salem is one of the fastest growing Towns in the area in terms of population and building construction.

The Town has had a GIS program in place since the 1980's however routine updates to landbase data have not taken place. Existing data is of poor quality and CAD files or ground control files from previous mapping efforts are not available. In 2017, the Town established a new GIS Manager and reinvigorated it's GIS program. The Town is seeking a new base map to carry the program forward and aid in the implementation of municipal asset management technologies.

The project area includes the entire Town of Salem, New Hampshire and 200-feet beyond town borders.

Approximate Area in Sq. Miles: 25.9

Approximate Population: 28,888

Approximate Number of Parcels: 10,300

Approximate Number of Structures: 15,000+

Approximate Road Miles: 213

Figure 1: Salem, NH Location

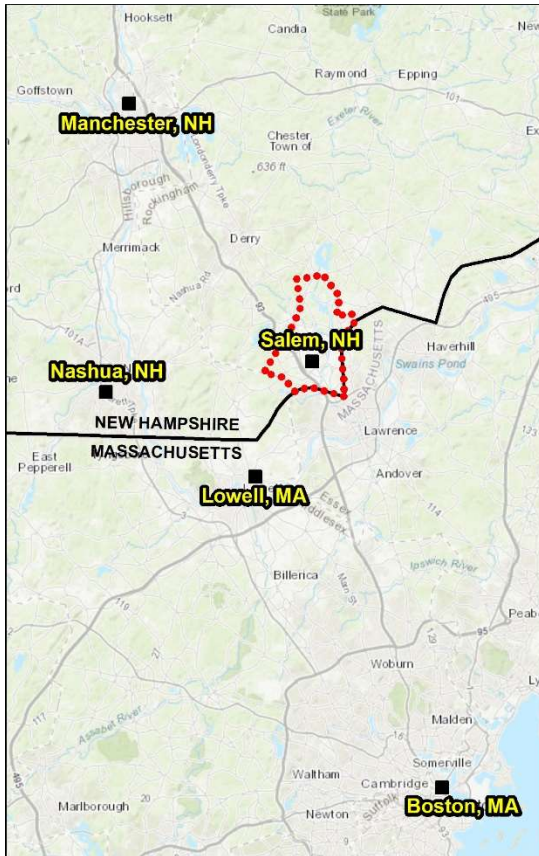
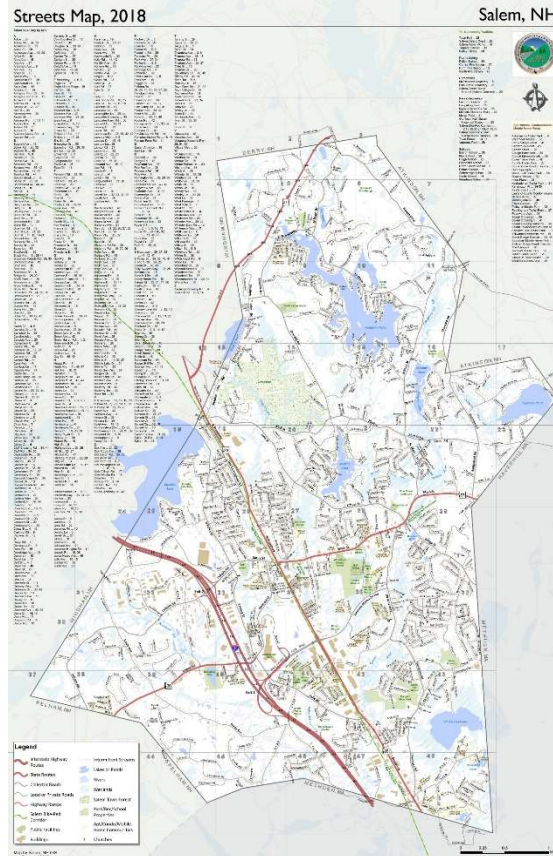


Figure 2: Salem, NH Streets Map (click to download)



3: Scope of Services

The scope of work for this project will consist of developing planimetric mapping, topographic mapping, and digital orthoimagery that meets 1"=100' scale ASPRS mapping standards, for the entire project area.

The Scope of Work for this project includes:

- Color aerial imagery acquisition at a suitable resolution to support development of planimetric mapping that meets 1"=100' scale ASPRS standards and production of 4" orthoimagery.
- Ground Control and Aerotriangulation
- Planimetric Mapping
- Topographic Mapping (2-foot contours)
- True color Digital color orthoimagery (4-inch pixel resolution)

- As an option, the Town is requesting pricing for the delivery of 2-inch pixel resolution digital orthoimagery within the study area as an alternative to 4-inch. Deliverables must meet or exceed ASPRS standards as stated in Section V.
- Final planimetric and topographic mapping files shall be delivered in AutoCAD DWG and ESRI File Geodatabase format.
- Tiled and seamless digital orthoimagery will be delivered in Mr SID, TIFF and ESRI File Geodatabase format.

The Town retains the option to modify the Scope of Services in order to stay within the Department's available budget and achieve the most cost-effective return for the Community.

4. Minimum Performance Criteria

A. The work shall conform to the following minimum performance criteria:

1. All mapping shall meet ASPRS and National Map Accuracy standards for 1"=100' mapping
2. Photogrammetric project work will be accomplished under the direct supervision of a photogrammetrist certified by the American Society of Photogrammetry and Remote Sensing (ASPRS). The photogrammetrist shall make maximum utilization of his/her professional experience to select the technique or methods conducive to superior results.
3. Survey work shall conform to the Procedural and Technical Standards for the practice of land surveying in New Hampshire. Ground survey control for the project will be accomplished under the direct supervision of a Professional Land Surveyor registered to practice in the State of New Hampshire.
4. Horizontal datum shall be the NH State Plane Coordinate System NAD83 (feet). Vertical datum shall be National American Vertical Datum of 1929 (NAVD).
5. Contractor must propose and adhere to an aggressive project schedule.

5. Detailed Specifications

Outlined in this section are detailed specifications related to the project. Interim and final deliverables shall be submitted to the Town on a non-returnable portable hard drive.

5.1. Digital Aerial Imagery Acquisition

Color digital aerial imagery shall be acquired for the project area. The contractor shall develop a flight plan that abides by applicable standards of the American Society for Photogrammetry and Remote Sensing (ASPRS). This flight plan, including proposed control points, shall be included in the proposal.

Unacceptable coverage resulting from deviation from the approved flight plan shall be corrected at the contractor's expense. The photography must meet prescribed specifications of ASPRS for scale, overlap, crab, tilt, and other standard requirements necessary to support the development of mapping that meets 1"=100' scale ASPRS accuracy standards. These specifications must be stated in the contractor's proposal.

The flight shall occur during the Spring of 2019, under optimal conditions of high sun angle (greater than 45 degrees), no snow, no cloud cover, and full defoliation.

Upon completion of the aerial photography mission, the film (if applicable) shall be inspected for cloud shadow, density and clarity. The photographs will then be checked for sidelap, endlap and crab. A QC summary report shall be provided to the Town.

Deliverable Products:

- a. A copy of the current camera calibration report.
- b. The flight plan and boundaries, including control layout, shall be provided with the proposal on a single sheet plotted to scale.
- c. Data of the actual flight lines and photo centers from the flight shall be provided in DWG and ESRI File Geodatabase format.
- d. A quality control report produced during review of the film (if applicable).

5.2. Ground Control and FAAT

The contractor shall be responsible for establishing and surveying both horizontal and vertical control required to develop mapping that meets Class 1 ASPRS standards for 1"=100' scale mapping. If adequate, Airborne GPS can be used on this project. The contractor shall state the number of ground control points that will be acquired in the proposal.

The Contractor shall provide the Town with a ground control report, control diagrams, and other applicable deliverables as outlined in Deliverable Products.

Deliverable Products:

- a. Ground Control and Aerotriangulation Report
- b. 8 ½" X 11" sketches of all control points.
- c. FAAT Solution Tables
- d. A digital data layer in ESRI file geodatabase format containing the ground control points along with pertinent attributes including calculated X, Y and Z coordinates, type of point, etc.).

5.3. Planimetric Mapping

A planimetric land base, for the entire Project Area, will be developed and compiled digitally using stereophotogrammetric methods. Given low confidence in existing data, new town-wide mapping is desired. All mapping shall comply with National Map Accuracy and ASPRS standards for 1"=100' scale mapping.

Data developed as part of this process will be integrated with the Town's GIS system. Procedures to ensure that planimetric data is topologically structured, edgematched, and include proper line styles must be followed.

All GIS data deliverables shall have Federal Geographic Data Committee (FGDC) compliant metadata in File Geodatabase and/or XML format readable within ArcCatalog.

In general, the features to be captured are outlined below. A summary list of data layers and associated layer design is provided in Table 1 and in detail in Appendix B.

Table 1

Features to be Captured as Part of the Aerial Mapping Project:

- **Building Features:** Buildings, Out Buildings, Mobile Homes, Swimming Pools, Foundations, Decks and Porches, Building Fire Walls
- **Hydrographic Features:** Rivers, Streams, Ponds and Lakes, Wetlands, Ditches, Culverts, Dams, Detention Ponds
- **Transportation Features:** Roads, Road Centerlines, Traffic Islands, Street Names, Bridges, Trails, Railroads, Sidewalks, Crosswalks, Guardrails, Parking Areas, Driveways
- **Boundary Features:** Cemeteries, Town Border, Stone and Retaining Walls, Fences
- **Vegetation Features:** Tree/Vegetation Lines, Cultivated Fields, Hedge Rows, Street Trees
- **Recreation Features:** Parks and Playgrounds, Recreation Areas, Field Outlines, Golf Courses
- **Miscellaneous Features:** Smoke Stacks Silos, Storage Tanks, Monument Locations

The Contractor will be required to follow a topologically-structured layering/database design that will allow the Town to easily integrate this data with GIS. Buildings, ponds, wetlands, driveways, two-sided rivers and streams, pools, and paved parking shall be automated to allow polygon creation. These and all other polygons that do not close to themselves, shall contain a label in the visual center of the polygon. Geodatabase design will be finalized during the Pilot phase (Section 5.7).

All line and polygon features must be continuous, unexploded, unformatted, polylines and contain X, Y, and Z coordinates at each vertex.

A single x,y,z coordinate pair shall be placed at the visual center of all point features. All tiles must be edge-matched visually and by coordinate reference with adjacent tiles. The connectivity of line, area, and polygon data must be mathematically exact. No "overshoots", "undershoots," or "offsets" are permitted. Lines and graphic entities that intersect must digitally integrate exactly.

The Contractor shall propose and apply a 1"=100' scale tiling system.

Features to be captured, associated layer names, and topology standards are as outlined in Appendix 2.

Deliverable Products:

- a. Pilot project consisting of two to four map sheets.
- b. Digital Data Files - All maps and databases shall be prepared in formats suitable for running in AutoCAD (Current version) (.DWG) format and ESRI File Geodatabase format. Data to be captured, and associated layer design, is detailed in Appendix 2.
- c. Check Plots - 1" = 100' scale paper plots of all planimetric features identified, with a 20" x 30" neat area shall be provided for QC purposes. The Town will use these to provide comments and corrections to mapping contractor. The mapping contractor will be responsible for the development of a title block.
- d. Monthly progress reports.

5.4. 2-Foot Contours

Two-foot contours and spot elevations shall be developed for the Project Area. All topographic data must meet ASPRS accuracy standards for 1"=100' scale mapping.

Contours shall be continuous and shall conform to the database design outlined in Appendix 2. Where contours intersect with buildings, the contour line shall continue through the building. The section of contour that resides inside the building shall be "cut out" and placed on a separate layer as described in Appendix 2.

Contours shall be depicted on all planimetric check plots.

All GIS data deliverables shall have Federal Geographic Data Committee (FGDC) compliant metadata in File Geodatabase and/or XML format readable within ArcCatalog.

Deliverable Products:

- a. Pilot project consisting of two map sheets.
- b. Digital Data Files - All maps and databases shall be prepared in formats suitable for running in AutoCAD (Current version) (.DWG) format and ESRI File Geodatabase format.

5.5. Digital Orthoimagery

Color digital orthoimagery shall be developed for the project area. Digital orthoimagery must meet ASPRS mapping accuracy requirements for 1"=100' scale mapping and must be configured in the same tile units as planimetric mapping. The Contractor shall abide by applicable standards for developing digital orthoimagery, reducing shadows and building lean, and correction of errors.

Digital ortho imagery will be generated with at least a 4-inch pixel resolution and delivered to the Town in georeferenced TIFF, SID and seamless ESRI File Geodatabase file formats. Tile layout shall match planimetric tile layout as specified above. It is expected that the digital images will be clear, carefully mosaiced, and have standardized color balance throughout the project area.

Proposer shall state the proposed scanning resolution for each orthophoto option in the proposal.

All GIS data deliverables shall have Federal Geographic Data Committee (FGDC) compliant metadata in File Geodatabase and/or XML format readable within ArcCatalog.

Deliverable Products:

- a. Pilot project consisting of two to four map sheets.
- b. True-color data shall be delivered in both georeferenced .tiff format, seamless MrSID compressed format and ESRI File Geodatabase format. These data must be readable in ArcGIS. Delivery will include a seamless project area image and tiled subareas.
- c. Digital Elevation Model (DEM) data used to create the digital orthophotos will be delivered in both CAD and ESRI geodatabase format.
- d. Tile grid in ESRI file geodatabase format.

5.6. Geodatabase Formatting

The proposer shall deliver planimetric mapping data in ESRI File Geodatabase format. The exact Geodatabase design of ESRI-based deliverables shall be agreed to by the Town and the selected Contractor and will be similar to the AutoCAD-based layer design provided on Appendix 2.

Deliverable Products:

- a. Final seamless digital vector data shall be delivered in ESRI geodatabase format on a non-returnable portable hard drive.

5.7 Pilot Project

A pilot project will precede the creation of any final deliveries. The pilot area will be an area of approximately 2 to 4 tiles in size, selected by the Town in consultation with the contractor. The pilot is intended to test all production methodologies and establish successful procedures to follow throughout the rest of the project. While it is understood that ground control, aerial photography, and FAAT will likely be conducted for the entire project prior to the pilot, the rest of the project tasks that are contracted will be initially conducted only for the pilot area before authorization for full production is authorized.

During the pilot, the contractor and Town will also:

- Finalize the database design for the geodatabase with any required minor modifications.
- Finalize the delivery schedule based on the results of the pilot.
- Determine compression of MrSID orthophotography deliverable based on testing.

The above tasks will be undertaken with input from the Town. Upon successful completion and acceptance of the pilot, the Town will authorize full production of all orthophoto, planimetric,

and topographic products described in detail below. It is imperative that the pilot project be completed on-time, according to the winning vendor's schedule.

The Contractor shall also provide monthly progress reports noting what has been accomplished during the reporting period.

5.8 Acceptance of Deliverables and Town QA/QC Procedures

In addition to QA/QC performed by the vendor, the Town will subject interim and final deliverable products to a series of visual, digital, and data accuracy checks to validate topology, completeness and accuracy. In general, products with missing areas, gross errors, poor edgematch, etc. will be returned to the vendor for correction.

5.9. Optional 2-inch Pixel Orthoimagery

The Town of Salem is interested in acquiring the highest quality orthoimagery possible. As an alternative approach, the Town may consider delivery of 2-inch pixel resolution color digital orthoimagery. A cost sheet is provided to support this alternative. Products developed as part of this process shall meet or exceed the 4in (2 pixel) RMSE accuracy class per the ASPRS Positional Accuracy Standards for Digital Geospatial Data (EDITION 1, VERSION 1.0. - NOVEMBER 2014).

For this option, the proposer must state the accuracy standard adhered to, provide a map showing proposed flight lines and ground control points, state camera used and elevation flown, and state deliverables.

5.10 Project Management and Meetings

The proposer shall indicate in the Proposal who the Project Manager for the project will be. The Town requires a minimum series of meetings with the Project manager and other key personnel, as follows:

1. Project kick-off meeting and pilot project planning meeting
2. Pilot review meeting
3. Review meeting to resolve any significant problems.

The Plan for Services shall include these meetings as milestones in the project schedule and timeline. In addition, the dates for all proposed "delivery area" imagery and checkplot deliveries should be specified in the project schedule and timeline. If the vendor feels that more or less meetings are necessary, this should be indicated in the Plan for Services. Conference calls and/or on-line webinars may substitute for in-person meetings at the discretion of the Town.

6. Alternative Approaches

Alternative approaches and pricing are encouraged if the contractor feels an alternate approach will provide the Town with a superior product. Any alternative approaches or pricing options can be

described in an “Alternative Approach” section of the proposal and/or can be itemized in the cost form. Alternative approaches may include the use of oblique photography or LiDAR to fulfill the needs of this project.

7. Format of Proposals

The Town is seeking proposals for this effort. The proposals shall include the following, as well as the documents required elsewhere in this RFP:

7.1 Introduction

- a. Introduction to the firm and statement of Firm’s financial status.
- b. Agreement to incorporate both this RFP/RFQ and the proposal into an Agreement to be negotiated in good faith.
- c. Statement that the firm will commence with aerial photography upon notice-to proceed.
- d. Statement of any proposed subcontractors.

7.2 Scope of Work

- a. Concise Scope of Work
- b. Statement detailing any exceptions to the RFQ.
- c. Statement of aerial imagery acquisition process including type of camera, anticipated number of exposures, photo scale/resolution, flight altitude, number of bands, forward and sidelap percentage, maximum crab and tilt, minimum sun angle, and pixel resolution.
- d. Include map of proposed flight plan labeled with proposed ground control points.
- e. Statement of ground control and FAAT process and standards including number of anticipated ABGPS and ground control points.
- f. Statement of acceptance (or exceptions) of planimetric and topographic mapping specifications provided.
- g. Statement of digital orthoimagery deliverables including pixel resolution and scanning resolution.
- h. Statement of accuracy standards that will be adhered to.
- i. Statement of where work will be completed.
- j. Statement on Geodatabase formatting.
- k. Statement of strategy to integrate new data into the Town’s existing GIS structure.
- l. Statement of proposed schedule for all phases.

7.3 Related Experience

- a. Brief descriptions of and references for four similar projects including customer contact information.
- b. Qualifications Statement.

7.4 Staffing Plan:

- a. Brief description of staffing plan including project manager, key staff, and sub-contractors.

7.5 Project Management Meetings/Schedule

- a. Statement on plan for meetings with Project Manager and other key personnel at key points including project kick-off and pilot review and regular work status updates.
- b. Statement on schedule for delivery milestones.

7.6 Alternatives

Description of alternatives

7.7 Price Proposal (*IN A SEPARATE SEALED ENVELOPE*)

Price proposal for project scope and optional 2-inch orthoimagery alternative.

7.8 Signed Statements on Special Exception, Collusion, Bid Proposal/Award and Indemnification as presented in Appendix C.

Bidder must complete the Specification Exception Form, Non-Collusion Statement, Bid/Proposal award, and Indemnification Form located in Appendix C of this RFQ.

8. Contact Information and Proposal Submittal

No pre-proposal meeting will be held. Proposers are encouraged to email GIS Manager John Vogl jvogl@salemnh.gov with questions.

Proposals are due no later than **11:00 am on January 31, 2019**, preferably by registered mail.

Proposals shall be addressed to:

Christine Wholley, Purchasing Agent
Town of Salem, NH
33 Geremonty Drive
Salem, NH 03079

The Town requests One original copy, three additional copies and a DVD or thumb drive with sample work products and a PDF version of the proposal. All bids must be in separate **sealed** envelopes addressed to the Finance Department Purchasing Agent bearing on the outside the name of the bidder, their address and the note "Town-wide Photogrammetric Mapping Project".

9. Selection Criteria

The contract will be awarded to the responsive contractor submitting the most advantageous proposal to the Town of Salem.

Following submission, a panel will be selected to review proposals. The Town reserves the right to award the contract to the most advantageous proposal, taking into consideration both technical and fee aspects of the proposals submitted and shall not be required to award to the firm submitting the lowest cost proposal. Prior to selecting a firm, the staff may contact and schedule interviews with one or more selected firms. The staff reserves the right to discuss bid price and negotiate the bids (and/or modify project expectations as determined necessary) with prospective consultants prior to awarding the contract.

An aggressive schedule is desired.

10. Statement regarding project funding

Funding for this project has been included in the 2019 Budget for the Town of Salem. A public vote to approve this budget will take place at the Annual Town Meeting election on March 12, 2019. An award of this contract is subject to Town funding approval.

11. Schedule

The Town of Salem desires to choose a vendor in early February. It is anticipated that a notice to proceed on this project will be issued after March 13, 2019 following the Town's Annual Town Meeting election.

12. Ownership of Deliverables

All deliverable products of this work will be the property of the Town of Salem. The Town of Salem will have the right to sell or freely distribute the products in accordance with state and federal law.

Appendix A: Price Proposal Forms

Town of Salem, New Hampshire

Town-Wide Photogrammetric Mapping Project Price Proposal Form

Prices include services as specified in the RFP.

Task numbers are coordinated with the RFP scope items.

Photogrammetric Mapping Price Proposal (4" Pixel Orthophoto Option)

Task	
5.1 Flight & Aerial Acquisition	
5.2 Ground Control & FAAT	
5.3 Planimetric Mapping	
5.4 Topographic Mapping	
5.5 Digital Orthoimagery	
5.6 Geodatabase Formatting	
Total Project Cost	

Comments:

Name of Firm	
Authorized Signature	
Printed Name	
Date	
Email	

Town of Salem, New Hampshire
Town-Wide Photogrammetric Mapping Project
Price Proposal Form

Prices include services as specified in the RFP.

Task numbers are coordinated with the RFP scope items.

Photogrammetric Mapping Price Proposal (2" Pixel Orthophoto Option)

Task	
5.1 Flight & Aerial Acquisition	\$
5.2 Ground Control & FAAT	\$
5.3 Planimetric Mapping	\$
5.4 Topographic Mapping	\$
5.5 Digital Orthoimagery	\$
5.6 Geodatabase Formatting	\$
Total Project Cost	\$

Comments:

Name of Firm	
Authorized Signature	
Printed Name	
Date	
Email	

Appendix B: Planimetric Layer Specifications (for Reference only)

Building Features

Description	Layer	Topology	Comments
Buildings-General	BLDG_GEN	Polygon	All residential and/or commercial enclosed structures.
Out Buildings	BLDG_OUT	Polygon	Out buildings such as sheds.
Mobile Homes	BLDG_MH	Polygon	All visible mobile homes.
Above Ground	BLDG_POOL_AG	Polygon	All visible above ground swimming.
In-Ground Pools	BLDG_POOL_IG	Polygon	All visible in-ground swimming.
Foundations	BLDG_FDTN	Polygon	All visible foundations and ruins.
Building Fire Walls	BLDG_WALL	Polygon	All discernible fire walls, common.
Decks and Porches	BLDG_DECK	Polygon	All visible decks with label point in.

Hydrographic Features

Description	Layer	Topology	Comments
Rivers	WAT_RIVER	Line/Polygon	Collect all rivers.
Streams and Brooks	WAT_STREAM	Line/Polygon	As visible. Use double lines of width greater than 10'.
Intermittent	WAT_STREAM_INT	Line	Visible intermittent streams.
River/Stream Text	WAT_RIV_TXT	Annotation	Include river and stream names as text.
Ponds and Lakes	WAT_POND	Polygon/Point	Closed, permanent bodies of water.
	WAT_POND_PT		Label point in visual center of each water body.
Pond/Lake	WAT_POND_TXT	Annotation	Include lake and pond names as text
Wetlands	WAT_WETLANDS	Polygon/Point	Delineate areas of moist soils where patchy vegetation, marshes, swamps, and other small pools of standing water are characteristic. Layer consists of polyline and wetland symbols. Label point in visual center.
	WAT_WETLANDS_PT		
Ditches	DITCH	Line	All visible drainage ditches.
Culvert	CULVERT	Line	All visible culverts.
Dams	WAT_DAM	Line	Visible dams, including beaver dams.

Transportation Features

Description	Layer	Topology	Comments
Paved Street Pavement Edge	RD_EDGE	Line/Polygon	All edges of street pavement including alley ways. Pavement edges must be continuous and should not break at driveways, parking lots or other features.
Unpaved Street Edge	RD_EDGE_UNPAV	Line/Polygon	All unpaved street edges. Edges must be continuous and should not break at driveways, parking lots, etc.
Traffic Islands	RD_ISLAND	Polygon	All traffic islands. Must be coincident with Edge of Pavement features.
Street Annotation	RD_TEXT	Annotation	Include road names as text placed in the center of the traveled way.
Bridge	RD_BRIDGE RD_BRIDGE_PT	Polygon/Point	Show limits of bridge structures. Label point in visual center of all bridges.
Paved Street Centerline	RD_CL_PAVED	Line	Compile visual center of paved streets. Psuedonodes must be placed at all intersections.
Trails and Paths	TRAIL	Line	Identify all visible pedestrian and bicycle trails.
Sidewalks	RD_SDWLK	Line	Front and back of sidewalk. If front of sidewalk is coincident with curb or road feature, road features take precedence.
Crosswalks	RD_CROSSWALK	Line	All painted crosswalk lines
Guardrails	RD_GUARD	Line	All visible guardrails.
Paved Parking Areas	PARKING_PV PARKING_PV_PT	Polygon/Point	Identify all areas that have more than four parking spaces. All of these features must be labeled with "PK" the visual center of the lot.
Unpaved Parking Areas	PARKING_UPVD PARKING_UPVD_PT	Polygon/Point	Identify all areas that have more than four parking spaces. All of these features must be labeled with "PK" the visual center of the lot
Paved Driveways	DRIVEWAY DRIVEWAY_PT	Polygon/Point	Identify all public and private paved driveways. All to contain a label at the visual center of the driveway.
Unpaved Driveways	DRIVEWAY_UPV DRIVEWAY_UPV_PT	Polygon/Point	Identify all public and private unpaved driveways. All to contain a label at the visual center of the driveway.
Railroads	RAILROAD	Line	Railroad Lines

Boundary Features

Description	Layer	Topology	Comments
Cemetery	CEMETERY	Polygon	Indicate approximate boundaries of cemeteries.
Cemetery Text	CEMETERY_TXT	Annotation	Include cemetery names as text. Any cemetery with no name shall contain the label, "CEM" in the visual center.
Town Border	BOUNDARY	Polygon	Town borders.
Town Border Text	BOUNDARY_TXT	Annotation	Town Names as annotations.
Stone Wall	WALL_SW_LN	Line	Identify all visible stone walls which appear to define property boundaries. A copy of this layer without the stone wall line type is to be copied to the LN layer.
Retaining Walls	WALL_RET	Line	Identify all visible retaining walls.
Fence	FENCE	Line	Identify all visible wooden, chain link, and other.

Vegetation

Description	Layer	Topology	Comments
Tree Lines/ Veg Areas	VEG_AREA VEG_AREA_PT	Polygon/Point	Identify all tree lines and vegetation areas. All must be labeled in the visual center.
Cultivated Fields	VEG_FIELD VEG_FIELD_PT	Polygon/Point	Identify all discernible cultivated fields. All must contain label in visual center.
Hedge Rows	VEG_HEDGE VEG_HEDGE_LN	Line/Point	Identify all visible hedge rows that appear to define property boundaries. A copy with no vegetation line type should be copied to the LN layer.
Point Trees	VEG_TREE	Point	Identify all street and landmark trees.

Recreation Features

Description	Layer	Topology	Comments
Parks and Playgrounds	PARKS_REC		Show approximate boundaries of managed park areas.
Park and Playground Labels	PARK_TXT	Annotation	Include park and playground names as text in the visual center. Any park without a name must be labeled as "PARK".
Recreation Areas	PARK_REC_AREA	Polygon	Show outlines of all baseball and football fields, playgrounds, tennis courts, tracks, and other play areas.
Golf Courses	PARK_GOLF	Polygon	Show approximate boundaries of golf courses.

Utilities

Description	Layer	Topology	Comments
Fire Hydrants	UTIL_HYDRANTS		Locate all visible fire hydrants/standpipes
Street Lights	UTIL_STLIGHTS	Annotation	Locate all visible public and private street lights
Utility Poles	UTIL_POLES	Polygon	Locate all utility poles
Transmission Poles	ELEC_TRANS_POLE	Polygon	Locate all transmission poles
Transmission Lines	ELEC_TRANS_LINE	Line	Locate all cross-country power lines
Power Substations	ELEC_SUBSTA	Polygon	Locate perimeter of all power substations
Towers	UTIL_TOWER	Point	Locate all communications towers (radio, cell, etc. and large satellite dishes)
Manholes	UTIL_MH	Point	Locate all visible manholes
Catch Basins	UTIL_CB	Point	Locate all visible catch basins
Tanks	UTIL_TANK	Polygon	Locate all water tanks, propane and other tanks

Topographic Mapping

Description	Layer	Topology	Comments
Index Contours	TOPO_IDX_CON	Line	Indicate all index contours.
Index Contour Cut Outs	TOPO_IDX_CUT	Line	Indicate all contour cut outs (contours that run through buildings)
Intermediate Contours	TOPO_INT_CON	Line	Indicate all intermediate contours
Intermediate Contour Cut Outs	TOPO_INT_CUT	Line	Indicate all contour cut outs (contours that run through buildings)
Approximate Intermediate Contours	TOPO_INT_APP	Line	Indicate all approximate intermediate contours
Approximate Index Contours	TOPO_IDX_APP	Line	Indicate all approximate index contours
Index label	TOPO_IDX_LAB	Annotation	Label for index contours
Spot Elevation Markers	TOPO_SOPT_ELEV	Point	Spot Elevations
Spot Elevation Labels	TOPO_SPOT_LAB	Text	Spot Elevation Labels.

Appendix C: Statements on Collusion, Bid Proposal/Award and Indemnification

Specifications Exception Form

In the interest of fairness and sound business practice, it is mandatory that you state any exceptions taken by you to our specifications.

If your bid/proposal does not meet all our specifications you must state it in the space provided below.

Bids/proposals on equipment, vehicles, computers, supplies, services and materials not meeting specifications may be considered by the Town, however, all deviations must be listed above.

If your bid does not meet our specifications, and your exceptions are not listed above or in space provided, the Town of Salem may claim forfeiture on your bid, if submitted.

Signed _____

I DO meet specifications

Signed _____

I DO NOT meet specifications as listed in this bid, exceptions are in space provided.

Failure to submit this form with your Bid/Proposal response may result in your Bid/Proposal being rejected as unresponsive.

Insurance Requirements

A current insurance certificate must be provided prior to commencing any work on this project, in the following amounts:

Comprehensive General Liability	
Combined single limit	\$ 1,000,000
Workmen's Compensation	
& Employers Legal Liability	\$ 500,000 per accident

The bidder shall procure and maintain for the duration of this project Workmen's Compensation Insurance as required by state law for all of his employees that are engaging in any work at the site of the project whether direct employees or subcontracting associates.

Non-Collusion Statement

The Undersigned certifies under penalties of perjury that this bid in all respects is bonafide, fair and made without collusion or fraud with any other person. As used in this paragraph, the "PERSON" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

Title _____

Signature _____

Company _____

Bid/Proposal Award

If during the contract period the successful vendor fails to supply the Town of Salem, New Hampshire with the products/service(s). The Town of Salem, will purchase this product/service(s) on the open market and the vendor will compensate the Town of Salem, New Hampshire with the difference between the bid price and the price incurred on the open market. If at any time the vendor fails to provide proper services /materials(s) during the contract period, the Town of Salem, NH will have the option to terminate the contract at any time with or without notice.

Title _____

Signature _____

Company _____

Indemnification Agreement

The successful vendor agrees to indemnify, investigate, protect, defend and save harmless the Town of Salem, NH, it's officials, officers, agents and employees from any and all claims and losses accruing or resulting to any and all contractors, subcontractors, suppliers, laborers and any other person, firm or corporation furnishing or supplying work, services, materials, equipment or supplies in connection with the performance of this contract and from any and all claims and losses accruing or resulting to any person, firm or corporation which may be injured or damaged by the vendor in the performance of this contract. In any case, the forgoing provisions concerning indemnification shall not be construed to indemnify the Town for damage arising out of bodily injury to persons or damage to property caused by or resulting from the sole negligence of the Town or its employees. This indemnification shall survive the expiration or early termination of this contract.

- Company _____
- Taxpayer Identification Number _____
- Authorized Signature _____
- Contact Phone _____
- Address _____
- Date _____

Form (Rev. December 2014) Department of the Treasury Internal Revenue Service	<h2 style="margin: 0;">W-9</h2> <h3 style="margin: 0;">Request for Taxpayer Identification Number and Certification</h3>	Give Form to the requester. Do not send to the IRS.																																		
Print or type See Specific Instructions on page 2.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.																																			
	2 Business name/disregarded entity name, if different from above																																			
	3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C-C corporation, S-S corporation, P-partnership) ▶ _____ <i>Note.</i> For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) ▶ _____																																			
	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <i>(Applies to accounts maintained outside the U.S.)</i>																																			
	5 Address (number, street, and apt. or suite no.)	Requestor's name and address (optional) Town of Salem, NH 33 Geremonty Drive Salem, NH 03079																																		
6 City, state, and ZIP code																																				
7 List account number(s) here (optional)																																				
Part I Taxpayer Identification Number (TIN) Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see <i>How to get a TIN</i> on page 3. <i>Note.</i> If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="10" style="text-align: center;">Social security number</td> </tr> <tr> <td style="width: 25%;">[] [] [] []</td> <td style="width: 5%;">-</td> <td style="width: 25%;">[] [] [] []</td> <td style="width: 5%;">-</td> <td style="width: 25%;">[] [] [] []</td> <td style="width: 15%;">[] [] [] []</td> </tr> <tr> <td colspan="6" style="text-align: center;">Or</td> </tr> <tr> <td colspan="6" style="text-align: center;">Employer identification number</td> </tr> <tr> <td>[] [] [] []</td> <td>-</td> <td>[] [] [] []</td> <td>[] [] [] []</td> <td>[] [] [] []</td> <td>[] [] [] []</td> </tr> </table>			Social security number										[] [] [] []	-	[] [] [] []	-	[] [] [] []	[] [] [] []	Or						Employer identification number						[] [] [] []	-	[] [] [] []	[] [] [] []	[] [] [] []	[] [] [] []
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Part II Certification Under penalties of perjury, I certify that: 1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and 2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and 3. I am a U.S. citizen or other U.S. person (defined below); and 4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct. Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Sign Here</td> <td style="width: 40%;">Signature of U.S. person ▶ _____</td> <td style="width: 40%;">Date ▶ _____</td> </tr> </table>			Sign Here	Signature of U.S. person ▶ _____	Date ▶ _____																															
Sign Here	Signature of U.S. person ▶ _____	Date ▶ _____																																		
General Instructions Section references are to the Internal Revenue Code unless otherwise noted. Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/w9 . Purpose of Form An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following: • Form 1099-INT (interest earned or paid) • Form 1099-DIV (dividends, including those from stocks or mutual funds) • Form 1099-MISC (various types of income, prizes, awards, or gross proceeds) • Form 1099-B (stock or mutual fund sales and certain other transactions by brokers) • Form 1099-S (proceeds from real estate transactions) • Form 1099-K (merchant card and third party network transactions) • Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition) • Form 1099-C (canceled debt) • Form 1099-A (acquisition or abandonment of secured property) Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN. <i>If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.</i> By signing the filled-out form, you: 1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued). 2. Certify that you are not subject to backup withholding, or 3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and 4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See What is FATCA reporting? on page 2 for further information.																																				
Cat. No. 10231X		Form W-9 (Rev. 12-2014)																																		