

I. Incident Information

Pre-Incident Weather Conditions

The Clarksville area experienced rainstorms with thunder and lightning the night of July 22, 2018. These weather conditions were reported in interviews with responding personnel and supported by the weather history data obtained through Weather Underground, as reported at Montgomery Air Park (KGAI), which is located 13.39 miles west of the incident location.

Building Construction



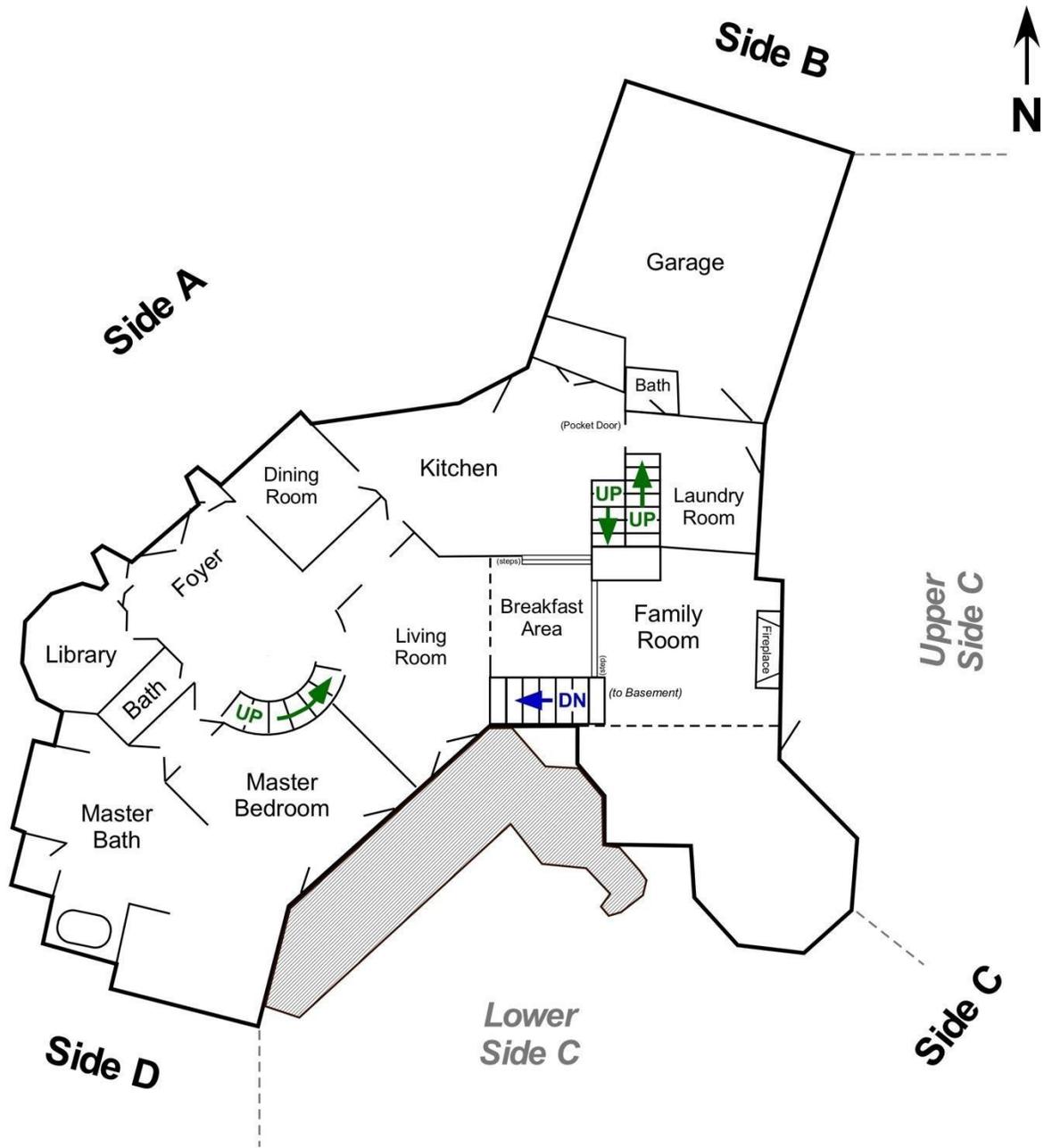
Figure 3: Side A view of 7005 Woodscape Drive

The structure addressed as 7005 Woodscape Drive, Clarksville, Maryland is located on a three (3) acre lot in a suburban neighborhood. This structure is a large, uniquely shaped, mansion-type, single-family dwelling. Maryland State Department of Assessment and Taxation (SDAT) lists the structure size as having 7,313 square feet of above grade living area and 1,100 square feet of finished basement.



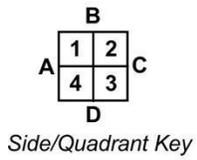
Figure 4: Aerial view of 7005 Woodscape Drive

For the purposes of this report, the addressed (western) side of the structure at 7005 Woodscape Drive is the front, or Side A. The left (northern) side of the structure is Side B; the rear (eastern/southeastern) side of the structure is Side C; and the right (southern) side of the structure is Side D. To identify the interior, the structure is divided into four quadrants. The left front quadrant is Quadrant 1, the left rear Quadrant 2, the right rear Quadrant 3, and the right front Quadrant 4. This same side and quadrant identification system also applies when identifying areas and objects within a specific room. Interior side and quadrant identification is assigned in relation to the structure, regardless of the location of the entrance to a room.



Floor 1

rev 4/11/19



(drawing not to scale)

Figure 5 – Sketch of Floor 1 for 7005 Woodscape Drive

The general shape is two rectangles with an offset of approximately thirty (30) degrees at the approximate center of the structure. There is a bump-out portion at the approximate center of Side C, terminating with an octagonal turret-type feature. The overall centerline length of the structure (Side B to Side D) is approximately 145 feet, accounting for the thirty (30) degree offset. The depth of the structure varies. The northern (toward Side B) rectangular portion is approximately forty (40) feet deep (Side A to Side C). The southern rectangular portion is approximately fifty (50) feet deep. The depth of the structure at the location of the bump-out portion increases to approximately eighty-five (85) feet, from the nearest Side A wall.

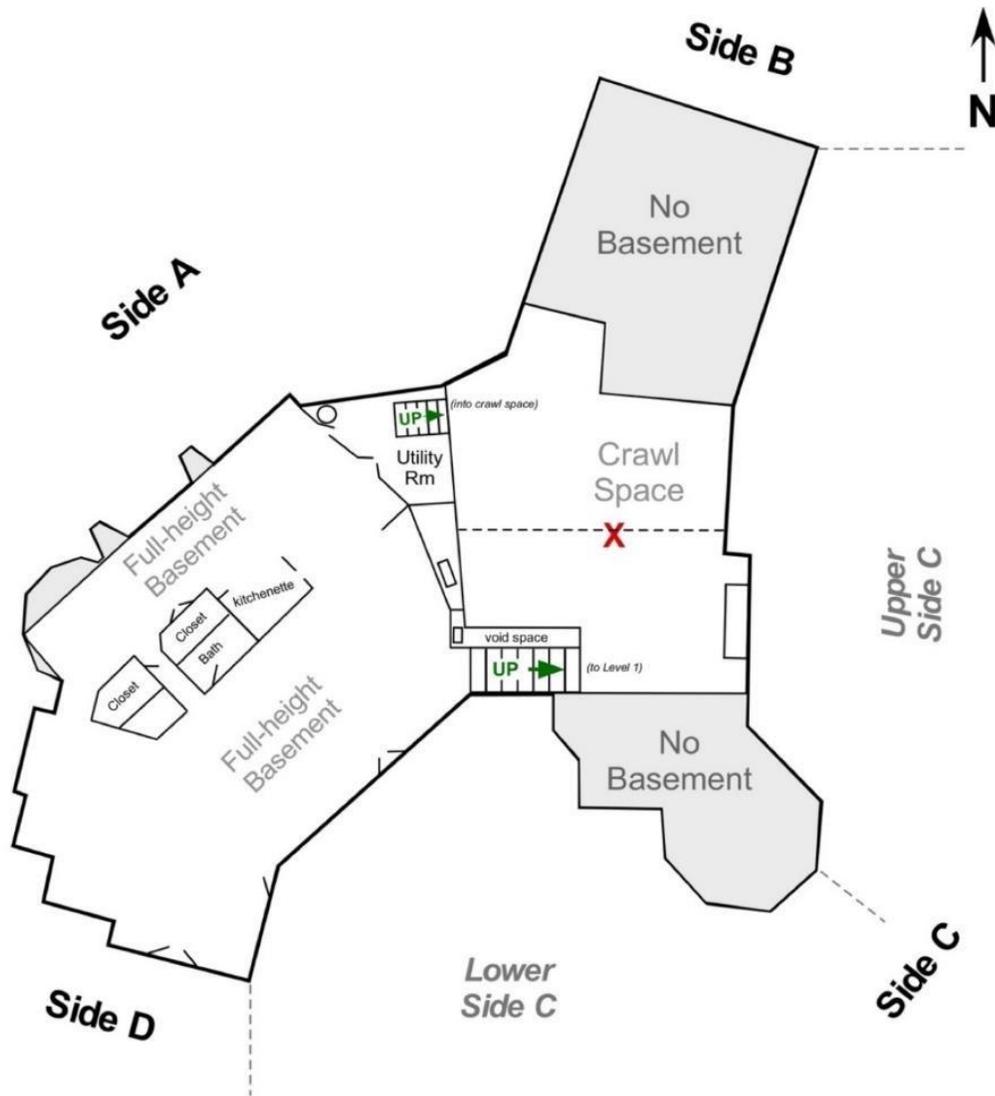
The structure is of wood frame construction with a brick veneer exterior finish. The roof has multiple pitches and consists of wood sheathing covered with asphalt shingles. The structural components are a combination of dimensional lumber, web trusses, and engineered wooden I-beams. Side A of the structure has two exterior entrances. An arched main entranceway, approximately at the center of the structure, opens into the first-floor main foyer area. A doorway to the left (toward Side B) of the main entranceway, accessed by a walkway from the driveway, opens into the first-floor kitchen area. The northern rectangular portion of the structure has two floors above grade and no basement. This portion contains a multi-bay garage on Floor 1 and residential area on Floor 2.



Figure 6 - View of 7005 Woodscape Drive from Side C

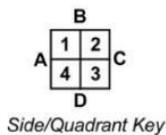
A Floor 1 exterior door on Side C, to the left of the garage, leads into a laundry room. At Side A of the laundry room is a doorway with a pocket door, which connects to an open area

containing a two-section return-style stairway to Floor 2. Turning to the left upon reaching this stairway leads to a common open family room area. There is a step-down in floor level from where the stairway is located to the floor level of the family room. The Side C terrain declines on the southern portion (toward Side D) of the structure, providing walkout exterior access to a finished basement. There is an open-air deck on Side C of Floor 1 of the southern portion, above the basement access doors.



Basement Level

rev 3/22/19



X = Victim Location

(drawing not to scale)

Figure 7 - Sketch of Basement for 7005 Woodscope Drive with approximate location of FF Flynn

There is a full-story basement beneath approximately half of the structure from Side D to approximately the center, ending at a crawlspace. The crawlspace is a unique feature located beneath Floor 1 in the center portion of the structure, accessible only from the basement via a set of stairs at the A/B corner of the crawlspace beneath the area of the Side A first floor kitchen entrance. See [Figure 23 Steps leading from basement to crawl space where FF. Flynn](#) was located for a post-incident photograph of the area. The crawlspace and access to the crawlspace is hidden from general view with no indication of its existence, even under normal occupant activity. Marble tile covers the floor of the Floor 1 family room approximately above Quadrant 3 of the crawlspace. Tongue-and-groove hardwood covers the Floor 1 floor approximately above Quadrant 4 of the crawlspace. The underside of the floor system for Floor 1, which is the crawlspace ceiling, consists of unprotected dimensional lumber supported by unprotected dimensional lumber components. Height of the crawlspace varies due to differing floor levels of the areas above, with an estimated average height of approximately four (4) to five (5) feet. Concrete masonry unit (CMU) block walls bound the crawlspace on all sides. The northern half, approximately Quadrants 1 and 2, of the crawlspace have a platform-type floor assembly of plywood and linoleum on top of moisture barrier. The floor of the southern portion, approximately Quadrants 3 and 4, is earth covered by moisture barrier and plywood panels. The crawlspace contained various household storage items.

Incident Narrative

On July 23, 2018 at 01:51:03 a 911 call was received from a resident of 7005 Woodscape Drive reporting a fire. The caller stated that “we’re not sure [what’s on fire], we just smelled smoke, and we are out of the house.”⁴ The 911 operator verified that the resident did not see flames in the structure, only smoke. The caller also indicated that there was a recent lightning strike in the area.

Howard County Communications Center (Communications Center) dispatched Local Box 5-62 at 01:52:14 on Radio Talk Group Alpha 1. When dispatching the Local Box 5-62 assignment, the Communications Center dispatcher stated that there was “visible smoke from a lightning strike” at the structure and that crews should operate on Radio Talk Group Bravo 1. The Local Box 5-62 assignment consisted of Engine 51 (5 personnel), Engine 101 (3 personnel), Tower 10 (4 personnel), Paramedic 56 (2 personnel), and Battalion Chief 1 (2 personnel).

While units were en route, a second 911 call was received at 01:57:21 to report a fire at 7005 Woodscape Drive from another resident. This second caller also indicated that they did not, “see a flame, but [the] whole house [was] filled with smoke.” Reassuring the caller that Howard County Department of Fire and Rescue Services were on their way, the dispatcher told the resident that responders were, “coming as fast as they can.”

As Engine 51 approached the intersection of Woodscape Drive and Guilford Road, crewmembers smelled smoke. On arrival at 7005 Woodscape Drive, crewmembers saw low-laying smoke, like a fog across the lawn, with smoke coming from multiple levels of the residential structure. The first arriving engine, Engine 51, did not make provisions for water supply. As the first arriving officer, Engine 51A transmitted the Initial Radio Report at 02:00:29 hours, stating, “51 to Howard single family two-story, smoke showing, go ahead and start a box.” Engine 51 crew began to deploy a 200-foot-long, 1 ¾ inch pre-connected hose on Side A.

While traveling to the incident scene, Battalion Chief 1 consulted a newer Mobile Data Terminal (MDT) map than available in Engine 51 and identified a pool at the rear of the property. Determining that there were no hydrants on Woodscape Drive, Battalion Chief 1 directed Engine 51 at 02:01:23 to reposition to the rear of the property to see if they were able to use the swimming pool as water supply for the incident.

⁴ Unless otherwise stated, all quotes included in this document come from radio transmissions from the incident, transcribed by the ISRB.

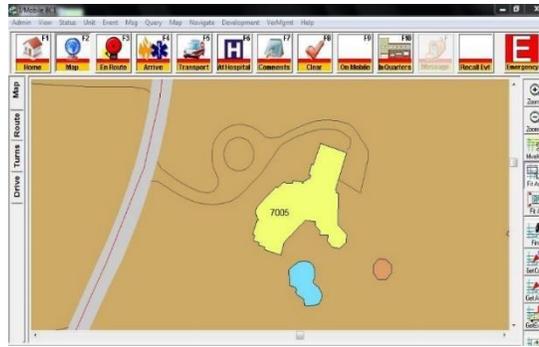


Figure 8 MDT Map (BC1)

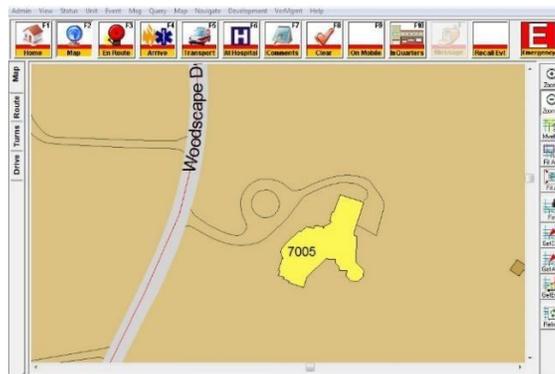


Figure 9 MDT Map (other units)

Upgrading to a Full Box Alarm assignment, the Communications Center dispatched Engine 71 (4 personnel), Engine 111 (3 personnel), Truck 7 (4 personnel), Tower 3 (5 personnel), Paramedic 105 (2 personnel), EMS 1 (1 personnel) and Safety 1 (1 personnel) at 02:01:56 hours. Additionally, Battalion 2 (2 personnel) self-dispatched, as is standard practice for HCDFRS.

At 02:02:14 hours, Tower 10 arrived on scene and positioned behind Engine 51 on Side A. Then Engine 101, as the second arriving engine, backed into the driveway in preparation to reverse lay from Engine 51 to Guilford Road. However, Engine 51 repositioned to Side C of the structure before Engine 101 began the reverse lay operation from Engine 51. Pulling out of the driveway, Engine 101 then repositioned and laid a supply line from the driveway entrance toward Side A of the structure. After repositioning to Side C, Engine 51A spoke to the owner of 7005 Woodscape Drive and determined that, "most of the heavy smoke [was] in the basement."

Engine 51A relayed this information to Battalion Chief 1 at 02:03:32. Battalion Chief 1 arrived on scene, committed to an offensive strategy, and established Command at 02:03:55. The Incident Commander assigned Engine 51 and Tower 10 to the Fire Attack Group, with Engine 51A as the Fire Attack Group Supervisor, at 02:04:31. The Battalion Chief Aide began a 360-degree assessment at 02:05:22.

The crews of Engine 51 and Tower 10 entered the structure on the first floor from the upper level of Side C at approximately 02:07:51 with a charged hose line, noting smoke conditions but

no visible flames on that floor. Using thermal imaging cameras Tower 10A, Engine 51B and Engine 51E observed indications of fire below them and all crews exited the structure. This initial floor of entry on Side C (the laundry room) and conditions observed in the structure were not reported to Incident Command.

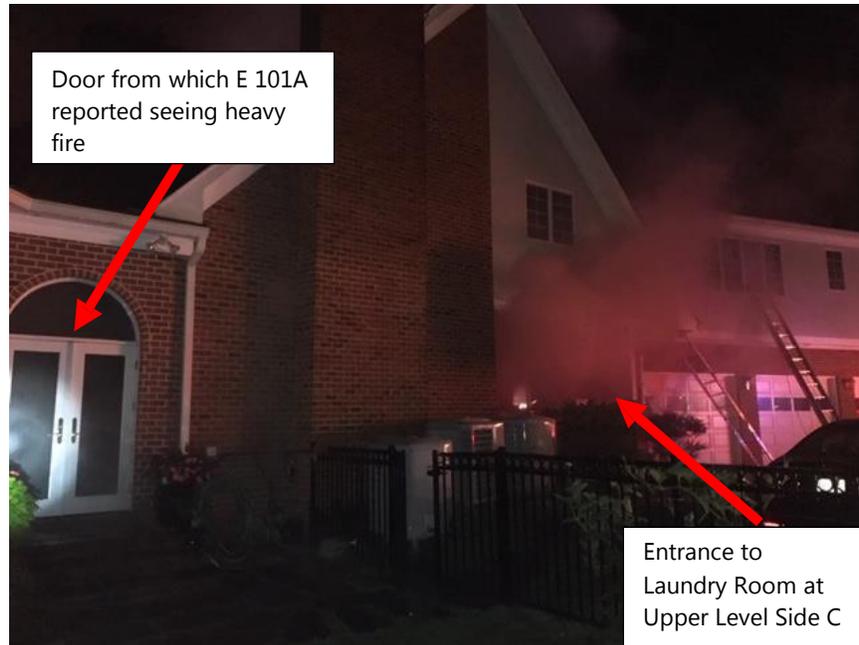


Figure 10: Photograph of Side C with smoke emanating from laundry room door

As this was occurring, Engine 101 pulled a second 1 ¾ inch pre-connected hose line as a back-up line on the exterior without making entry on the first floor. Redeploying to the lower level of Side C, Engine 101 advanced a 300-foot hose line and Engine 51 moved their 200-foot hose line. However, Engine 51's 200-foot hose line did not reach the basement entrance of the structure. Engine 101B (FF Flynn) entered the basement on the lower level of Side C with the 300-foot charged hoseline.

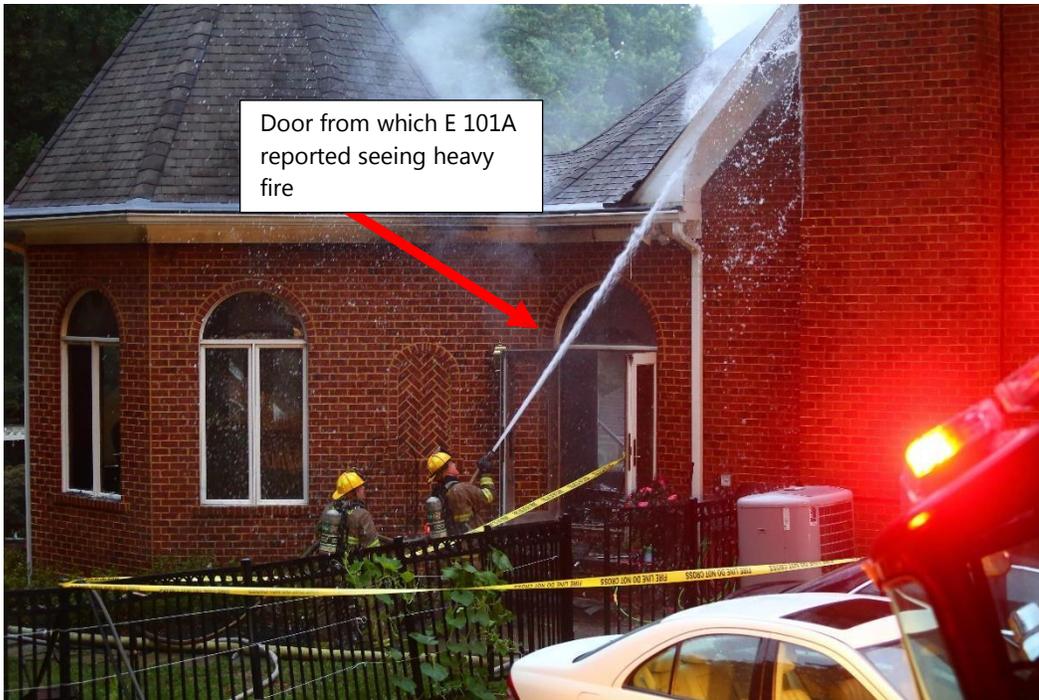


Figure 11: Fire visualized by Tower 10D and E101A behind the open doors in above photo.

Seeing fire on the first floor of Side C, Engine 101A, advised the Incident Commander by radio, "...heavy fire on floor number one Side Charlie...We need to redeploy our line back up to the initial entrance." Engine 101B withdrew from the lower level Side C (basement entrance), abandoning the 300-foot hose line, and went back up the hill toward Engine 51's apparatus. Deploying a second 200-foot hose line from Engine 51, Engine 101's crew made entry into the first-floor laundry room on upper level Side C with FF Flynn on the nozzle of a charged hose line and Engine 101A an unknown distance behind him. Engine 51's crew redeployed their charged hose line from lower level Side C to upper level Side C and made entrance on the first floor behind Engine 101 at approximately 02:17:43.⁵

⁵ This time is estimated based on a radio transmission from Tower 10A

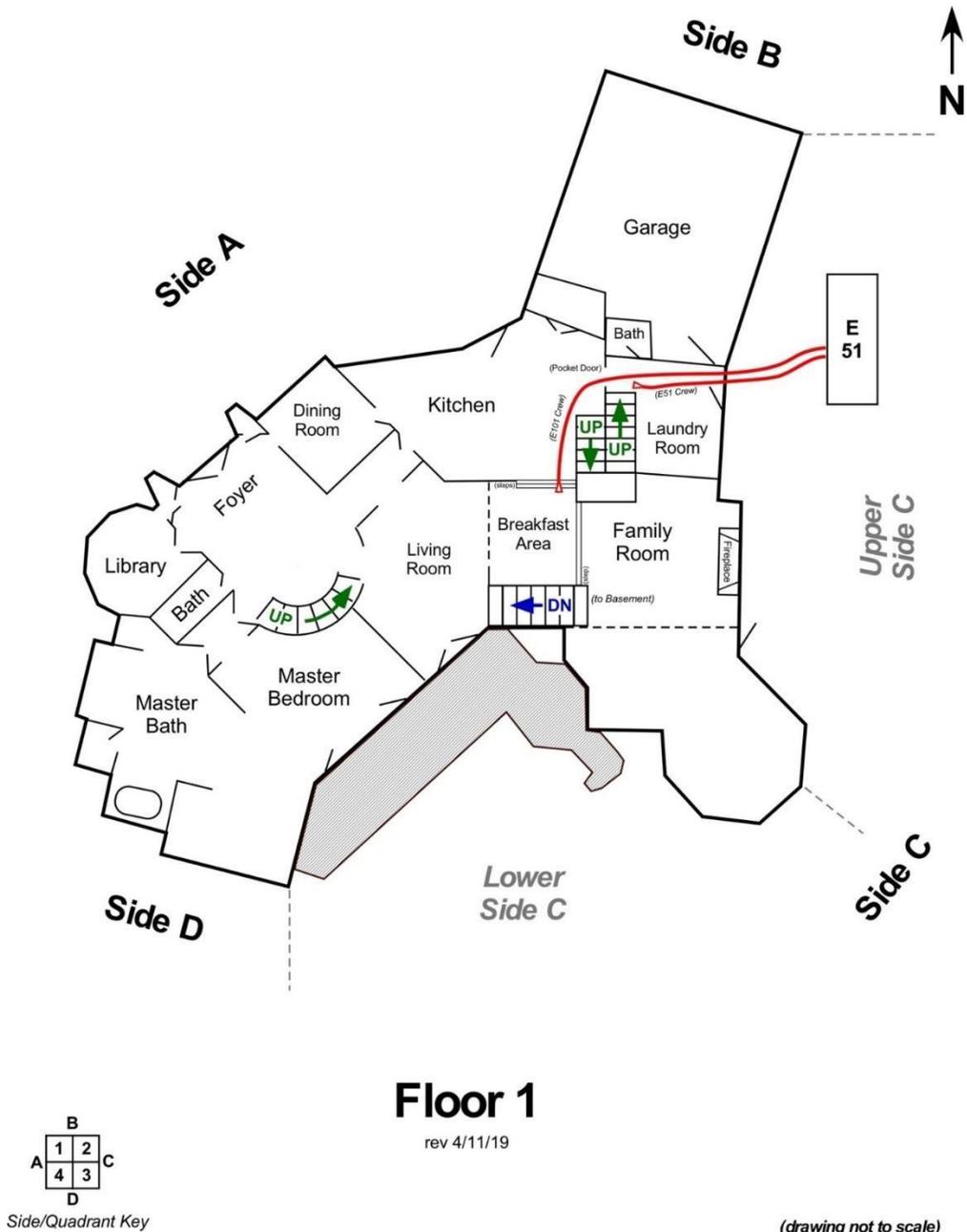


Figure 12: Sketch of Floor 1 showing attack lines

While Engine 51 and Engine 101 were operating on Side C, the residents of 7005 Woodscape Drive reported to Incident Command that all occupants of the residence had evacuated the structure. At 02:12:41 Command transmitted, "...to all units, we do have an ALL CLEAR from the occupants, occupied times three, ALL CLEAR of the house. We do have an ALL CLEAR." Shortly after that, Battalion Chief 2 arrived at the incident scene and was assigned as Charlie Division Supervisor at 02:13:01.

Additionally, Engine 71 radioed Command at 02:09:34 inquiring whether they needed to secure secondary water for the incident. Incident Command confirmed that Engine 71 would need to

secure water, instructing Engine 71 to “get that hydrant on Guilford at the next street up” to connect to the hose Engine 101 laid at the entrance to the driveway to 7005 Woodscape Drive.

At 02:18:29 hours Incident Command assigned Truck 7 as the Rapid Intervention Crew (RIC) and Engine 71 was on-deck, positioned on Side A. Prior to that time, the Incident Commander was communicating with Engine 101A and Tower 10A to ascertain the locations of the crews operating on Side C. Throughout the incident, the Incident Commander was unaware of the grade change along Side C of the structure. The Communications Center transmitted the fifteen-minute mark to Incident Command at 02:19:09 and the Incident Commander requested a Task Force at 02:19:10.

Having entered the first-floor laundry room from the upper level Side C at approximately 02:17:43, FF Flynn fell through the first floor into a crawlspace at approximately 02:19:45. The hose line FF Flynn was advancing also fell into the crawlspace with him, however FF Flynn’s proximity to the nozzle after the fall is unknown. From the investigation, it was determined that water did not flow through this hose line until it was burnt through at approximately 02:26, implying that FF Flynn was not able to use the hose to extinguish the fire.

The crawlspace had been used as a storage area by the residents and contained active fire and high heat conditions. At 02:20:11, Engine 101A transmitted, “MAYDAY, MAYDAY, MAYDAY, Flynn’s in the basement to the left” on Bravo 1. Engine 101A’s MAYDAY transmission was immediately acknowledged by the Incident Commander, however the Incident Commander was unclear who was experiencing the MAYDAY due to the transmission’s clarity.

The Communications Center advised Command that the transmission was from 101A. The Incident Commander, on Bravo 1, instructed “all units hold the air” and for Engine 101 to provide more information regarding the MAYDAY incident. At 02:21:05 Engine 101A transmitted on Bravo 1 “he’s in the basement, hose line trying to pull him up, go through the basement.” Simultaneously, FF Flynn transmitted a clear Who-What-Where statement on Bravo 2. Because Bravo 2 was unmonitored by the Communications Center, and the fireground was operating on Bravo 1, FF Flynn’s transmission was not heard by either the Incident Commander or the Communications Center.

The Incident Commander reassigned Engine 71 to RIC with Truck 7. Once RIC was directed to Side C, the Incident Commander immediately attempted to obtain the Who-What-Where of the

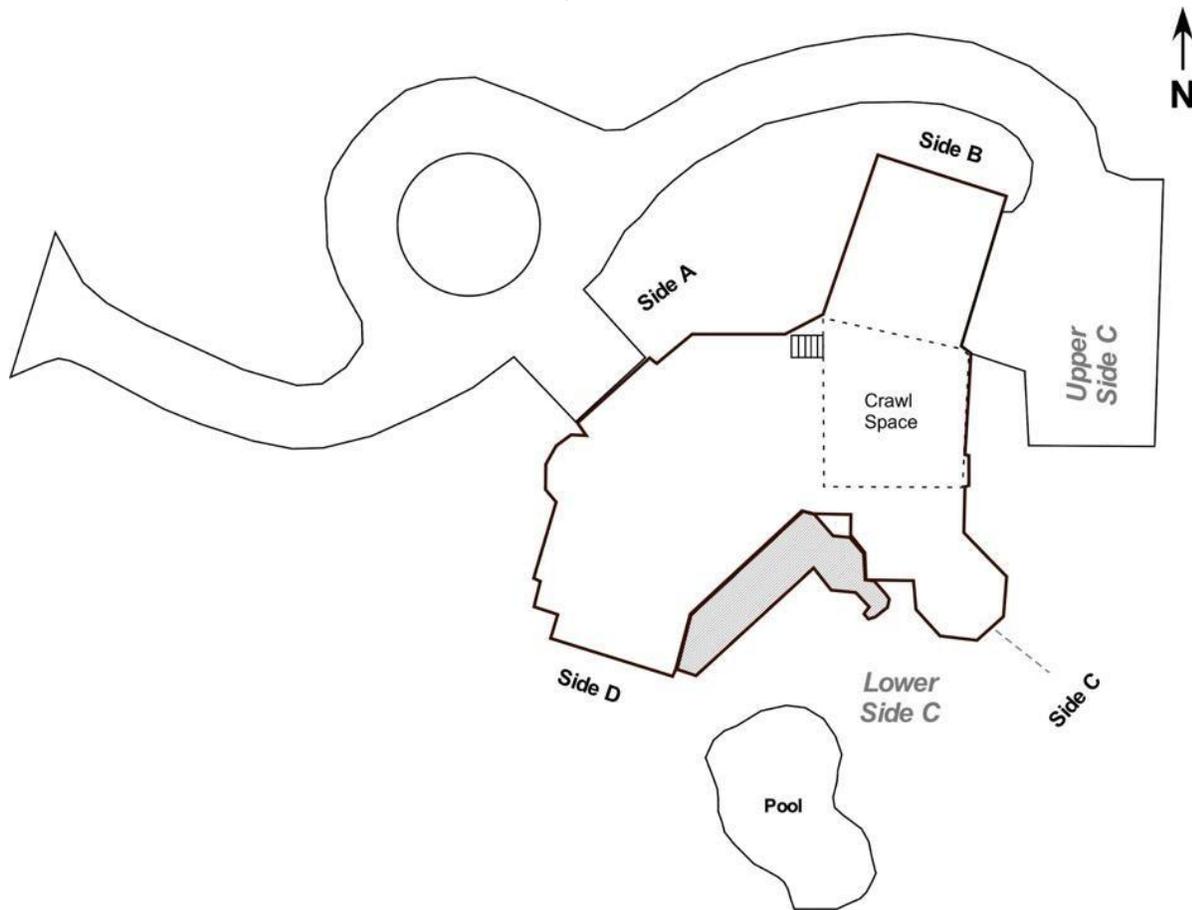


Figure 13: Sketch of structure at 7005 Woodscape Drive, not drawn to scale.

MAYDAY emergency from Tower 10A and Engine 51A. Engine 51A and Tower 10A simultaneously attempted to notify the Incident Commander that they were trying to find Engine 101A. The Incident Commander initially believed Engine 101A had fallen through the floor. It was not until 02:24:05 hours that the Incident Commander ascertained FF Flynn (Engine 101B) as the person in distress.

Truck 7A began a 360-degree survey starting on Side A and continuing around Side B until reaching the lower level of Side C. Engine 71A started his 360-degree survey by continuing around Side D to Side C lower level. During this time the crew from Engine 71 was tasked with moving the charged 300 foot 1 ¾ inch hose line from Engine 101 from Side A to Side C lower level. Crews from Truck 7 were continuing to gather tools and supplies for the RIC operation. Truck 7A and Engine 71A discussed their plan for rescuing FF Flynn.

Hose Deployed At Time Of Mayday

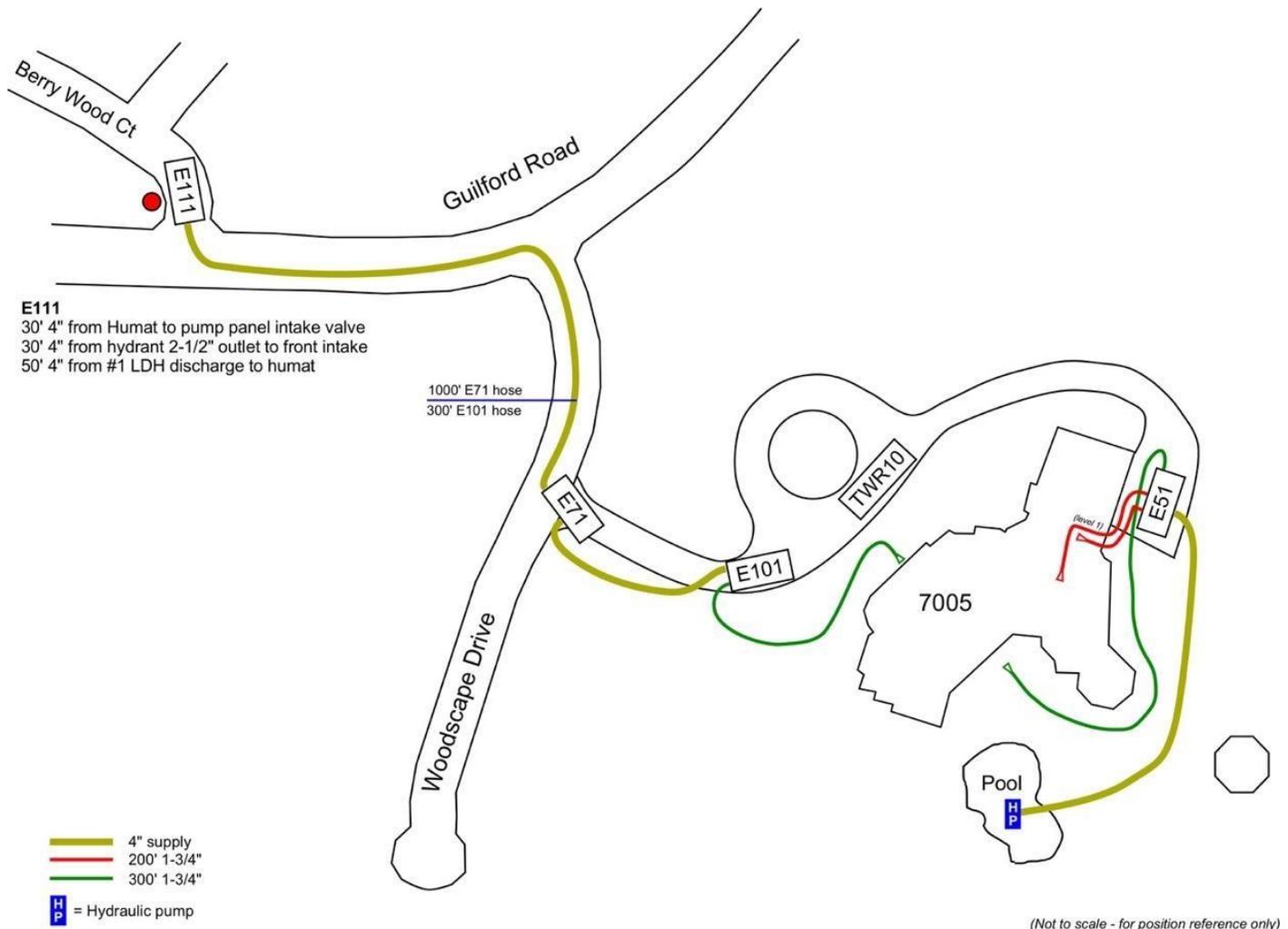


Figure 14: Water supply plan that was put in place during the MAYDAY operations

Engine 71A and Truck 7A were the first members of the RIC to enter the basement. They reported “cold smoke” conditions creating poor visibility for the members entering. Engine 71A took a few seconds to map the layout of the basement with the use of their Thermal Imaging Camera (TIC). Truck 7B first came across a set of steps that led to the first floor, Truck 7B observed heavy smoke conditions on the first floor but no fire. Truck 7B then descended the steps. Crews searching the basement encountered furniture in their path, what was described as a black-oily residue in the smoke and a slippery floor. Truck 7C and Paramedic 56D located the second set of steps and could hear the fire in that direction. They notified Engine 71B of the fire’s direction and continued toward the crawlspace where FF Flynn was located.

Members of the RIC stated that as they got to the top of the steps to the crawlspace, visibility was low, the heat had increased, and they were able to hear FF Flynn’s personal alert safety system (“PASS”) alarm. Fire was observed on both sides of the RIC. Encountering wires from the ceiling, several members of the RIC became entangled and needed to be cut free to proceed.

Free of the entanglements, crews were able to extinguish the visible fire in the space and move toward the sound of FF Flynn's PASS Alarm.

The RIC team found FF Flynn lying face-down and slightly on his left side in what appeared to be a four-foot by four-foot space at the end of the storage area. The gauge on FF Flynn's Self-contained breathing apparatus ("SCBA") showed that he still had a cylinder pressure above the red zone. Engine 71C removed his buddy-breathing line from the pouch on his SCBA but decided not to remove FF Flynn's line and make the connection with air still remaining in FF Flynn's cylinder. Crews moved FF Flynn toward the crawlspace entrance through smoldering debris, with some crewmembers losing their footing and falling backwards toward the top of the steps.

At this point in the operation, members from Tower 10, Tower 3, and Engine 22 were inside the basement completing searches and standing by to provide additional assistance. As FF Flynn was removed from the basement, crews had to move the furniture to make a straight path to the exterior. Other members in the basement assisted by removing FF Flynn the rest of the way to the exterior. FF Flynn was transferred to EMS personnel outside the basement level entrance for patient care and packaging.

During transport, Advanced Life Support (ALS) and Basic Life Support (BLS) care was continued until arrival at Howard County General Hospital, where FF Flynn's care was transferred to the Emergency Room physician. HCFDRS personnel continued assisting in FF Flynn's care under the direction of hospital staff. Treatment of FF Flynn continued at Howard County General Hospital until the physician determined that all efforts of resuscitation had been exhausted. HCFDRS Chaplain Stone offered prayer and FF Flynn's body was draped with the American Flag. The State Medical Examiner determined the cause of death to be an accident due to "prolong[ed] exposure to high temperature and thermal injuries."

Origin and Cause

The Origin and Cause Investigation of the fire at 7005 Woodscape Drive incident, conducted by the HCDFRS Office of the Fire Marshal, determined the area of origin to be the unfinished basement crawlspace below the first-floor family room and breakfast area. Investigators identified the ignition sequence of the fire to be a lightning strike which induced the failure of the residential corrugated stainless-steel tubing (CSST) system. This caused the ignition of fugitive gas escaping from the hole formed by the arcing process which then ignited combustible material in the area of origin. The classification of the fire cause was determined to be Natural. Natural fire causes involve fires caused without direct human intervention or action, such as fires resulting from lightning, earthquake, wind, and flood.⁶

HCDFRS Office of the Fire Marshal investigators and personnel were assisted in many aspects of the origin and cause investigation, scene processing, and documentation by the following organizations:

- Howard County Police Department
- Bureau of Alcohol, Tobacco, Firearms, and Explosives Task Force
- Office of the Maryland State Fire Marshal
- Prince George's County Police Department Crime Scene Investigation Division

⁶ National Fire Protection Association, Guide for Fire and Explosive Investigations 921 (2017)

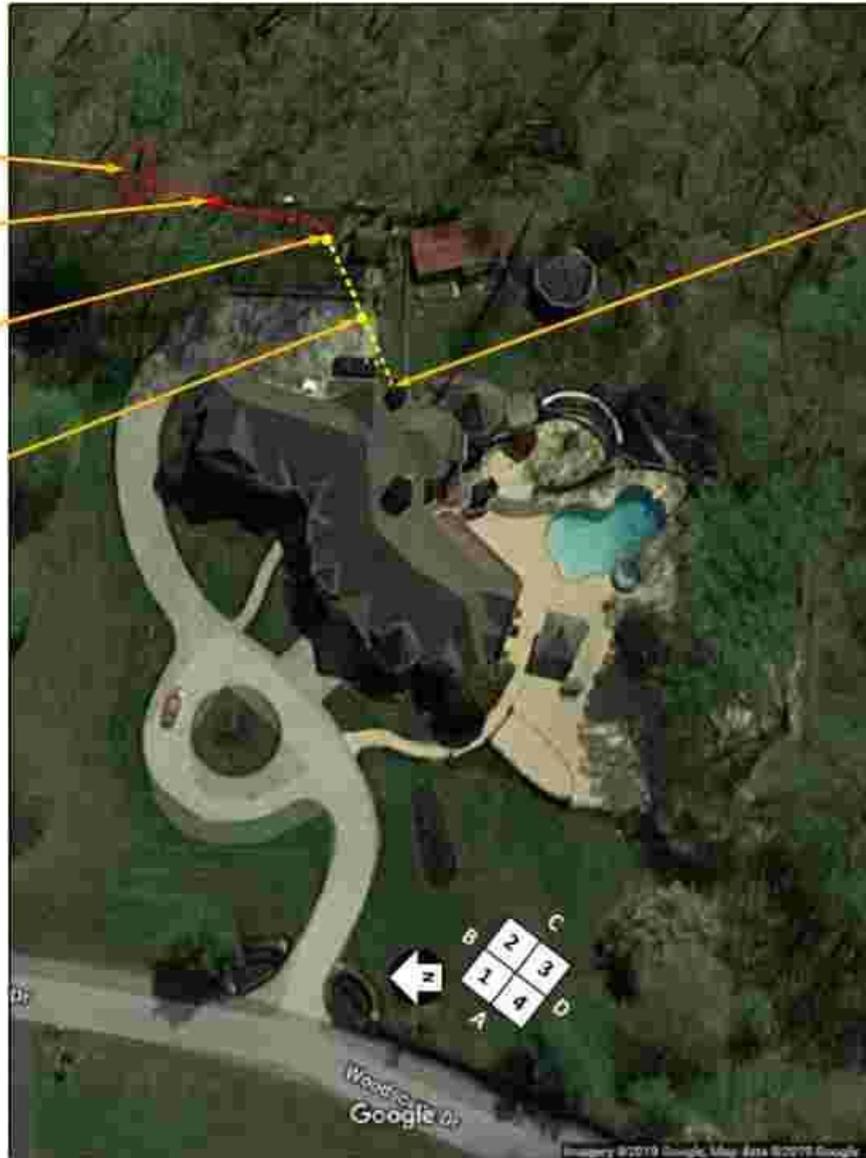
Location of tree/lightning strike (Approx.)

Path of lightning travel in ground / visible disturbed earth (Approx.)

Location of underground LPG storage tank valve assembly access (Approx.)

E Estimated travel path of ground service lateral from storage tank to dwelling

6



Location of LPG underground service lateral riser and entry into dwelling

Bureau of Alcohol, Tobacco & Firearms
Baltimore Field Division
GROUP I ARSON/EXPLOSIVES
#761010-18-0084
7005 WOOSCAPE DRIVE
Carksville, Howard County, Maryland 21029
SCENE SKETCH: Path of Lightning Travel
ATFE
January 11, 2018

Figure 15 - Path of lightning travel, photo courtesy of ATFE