

**CAMP RISING SUN
FACILITIES EVALUATION REPORT
TOWN OF RED HOOK, DUTCHESS COUNTY, NY**

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1. INTRODUCTION AND EXECUTIVE SUMMARY

Camp Rising Sun, hereafter referred to as the site or camp, is located on Oriole Mills Road in the Town of Red Hook, Dutchess County, New York. The primary camp facilities occupy approximately 19.50 acres. The camp is split into two (2) parcels with a 8.4 acre parcel on the south side of Oriole Mills Road and the remaining 11.1 acres located on the north side of the road. The camp is owned by Louis August Jonas Foundation, Inc who owns an additional 157.4 acres north west of the site. For the purposes of this report the 157.4 acres will remain undeveloped. Refer to Appendix 1 for a location map of the site.

The camp has had considerable deferred maintenance over several years resulting in deterioration of buildings and infrastructure and failure to comply with permit and code requirements. The intent of this report is to provide an analysis of existing conditions of the site and to provide recommendations to improve the camp facilities such that the camp can be opened during the 2016 season. This report will define the existing conditions of the camp as it relates to the buildings and their infrastructure, including the existing water system and the existing septic systems, and identify potential renovations/upgrades to bring each into compliance with applicable state and local codes. Analysis of the existing building has been performed by PSA Architecture and Design (PSA) and the evaluation of the existing water and septic systems has been performed by Crawford and Associates Engineering, P.C. (C&A).

The camp has previously been operated seasonally for a maximum of eight weeks per year (July through August). According to the Louis Jonas Foundation, the camp will continue the same operation season with a daily expected capacity of 80 people (60 campers and 20 Staff). This number coincides with previous approvals by the New York State Department of Health (NYSDOH) and the New York State Department of Environmental Conservation (NYSDEC). During the camping season two (2) events are held including, parent's week and alumni week which additional people may be on site. The camp was not operated at this site in 2015.

The camp last had a Dutchess County Health Department (DCHD) permit to operate in 2014. These permits are issued annually. The site water system was upgraded last in 2012 and has a current public water supply permit, which will require amendment for any water system modification. The site has three septic systems, one for the Willy/International Theater, one for the pool and one for the remaining camp facilities. The camp had a permit for the septic systems, however this permit expired in 1985. A new permit will be required prior operations.

This facilities evaluation report focuses on facilities and infrastructure that must be upgraded to operate the camp for the 2016 season. The design team has had preliminary discussions and meetings with representatives from the DCHD regarding the desired schedule for upgrades and operations.

The Willy requires a gut rehabilitation to address the severe deterioration of all components within the building. In addition, the Willy Assembly Building requires upgrades to the stage area, railings and the perimeter walkways and landscaping to meet Code requirements. The Kitchen/Old House/Dining will require minor upgrades of flooring, finishes, plumbing, electrical and door systems. Improvements to the Old House and Willy will be required prior application for a camp operations permit made to DCHD to grant an operations permit for the upcoming season. Additional improvements may be required to this building and other camp buildings following an inspection of the facility by the Town of Red Hook building inspector.

The field investigations and DCHD inspection indicates that the water system is in fair condition, and needs modifications for the 2016 camping season. Additional updates or replacement of the

water system may be completed at a future time. The proposed recommendations include replacing the water storage tank, new pressure tank for the entire system with a housing, modifications to the Well #2 pit area, control panels, chlorination system, flow meters, disinfection, Well#1 abandonment and replacement of the sanitary well cap on Well#3. All design work will be completed as part of a permit modification to the existing public water supply permit.

The field investigation indicates that the existing septic systems are generally in poor or very poor condition. Due to poor construction practices, lack of maintenance and poor materials (thin wall PVC pipe) the system appears to be generally failing. Silt in the system is not only an indication of failed pipe and poorly maintained tanks but likely indicates that the gravel absorption trenches designed to infiltrate water are impeded with silt.

Furthermore, the discrepancy of what was found in the field to what is shown on plans may indicate the system is inadequate for current demand. A complete overhaul of the existing septic system for the camp is recommended. The proposed recommendations include replacing all of the septic tanks, PVC pipe, and accessory structures. The three (3) existing septic fields should be replaced with one (1) dosed gravel absorption bed system within the athletic field. All design work will be completed consistent with the SPDES permitting requirements and a new SPDES permit for the facility will be required.

A estimate of probable cost has been prepared for the camp improvements. The costs, including a 20% contingency and 10% design fees are summarized in the following table.

SUMMARY OF PROBABLE COST	
Facility Component	Probable Construction Cost
Willy Assembly Building Repairs	\$227,500
Old House Kitchen Repairs	\$33,150
Water System Modification	\$223,730
Septic System Replacement	\$349,700
TOTAL	\$834,080

2. APPLICABLE STANDARDS AND EXISTING PERMITS

Children's camps are regulated by the New York State Sanitary Code, Part 10, Section 7.2, and also must comply with New York State regulations regarding building code and fire protection, public water supply and sewage disposal. When analyzing existing conditions and proposing recommendations for the camp, PSA and C&A used the following state and local codes:

A. Buildings

For the Willy Assembly Building and The Old House Kitchen the following codes apply:

NYSDOS: "Existing Building Code of New York State" 2010 Edition
NYSDOH: Subpart 7-2 Children's Camp, 2011 Edition
NYSDOH: Subpart 14-1 Food Service Establishments, 2011 Edition

B. Water System

The water system is classified by the Dutchess County Health Department (DCHD) as a Public Water Supply (PWS) with an existing PWS # NY1330016. The permit is current and will require modification and approval by DCHD for any water system changes. The DCHD regulates the PWS on behalf of the State. Although the water system is a non-community system, design of the water system will generally conform to the following standards:

- Ten States Standards: "Recommended Standards for Water Works", 2007 Edition
- NYSDOH "Designing Community Water Systems", 1975 Edition
- NYSDOH Subpart 7-2 Children's Camp, 2011 Edition
- NYSDOH Subpart 5, Public Water Supply

C. Sewer System

The wastewater system is classified by the DCDH and New York State Department of Environmental Conservation (NYSDEC) as an Intermediate Sized Wastewater System. Therefore the following codes are applicable:

- Ten States Standards: "Recommended Standards for Wastewater Facilities." 2014 Edition
- New York State Department of Environmental Conservation Design Standards for Intermediate Sized Wastewater Treatment Systems, 2014 Edition
- Dutchess County Department of Health Design and Construction Standards of Water and Wastewater Systems, 2006 Edition
- Dutchess County Sanitary Code, 1997 Edition
- Subpart 7-2 Children's Camp, 2011 Edition

The NYSDEC issues State Pollution Discharge Elimination System (SPDES) permits for all discharges greater than 1,000 gallons per day. Based on available records review the last filed SPDES permit expired in February of 1985. The permit number at that time was NY-0104221. The camp will be required to obtain a new permit prior to resuming operations of the camp. A summary table of the previously permitted discharges is shown below:

TABLE 1					
DEC PERMITTED DISCHARGES (1985)					
Outfall No.	Type of Waste	Type of Treatment	Design Flow	Nearest Surface Water	Distance
01	Sanitary	Septic Tank and Sand Filter	2100 GPD	Sawkill Creek	500
02	Sanitary	Septic Tank and Leach Field	3000 GPD	Sawkill Creek	N/A

3. EXISTING FACILITIES EVALUATION

The camp's Buildings and Grounds Committee completed an initial assessment of the condition of the camp facilities. Using the assessment, the design team has conducted a thorough evaluation of camp facilities for code compliance with a particular focus on facilities which require modifications or upgrades to permit the camp to open for the 2016 season. The facilities investigation consisted of a thorough review of files available from the camp, the County, the State, and other consultants who have worked on the project in the past.

A. Buildings

PSA completed a walk through and inspection of Willy Assembly Building and Old House and kitchen on November 17th with C&A and Cameron Rylance. Subsequently PSA Studios surveyed the existing conditions and produced plans and elevations of existing conditions for these two buildings. See Appendices. PSA also met on site on December 17, with C&A, Cameron Rylance as well as Michelle Kelley and Kerri DeGroat from DCHD. Although additional inspections were completed, PSA was directed to focus on the Willy Assembly Building and the Old House Kitchen.

1. Willy Assembly Building

Review of the Willy Assembly Building includes assessment of the following

- Roof
- First Floor
- Basement
- Plumbing
- Electric
- Site Conditions

Roof:

- The roof has apparent leaks at the North East corner and the joints between some of the pre-stressed concrete roof elements show signs of water infiltration. There is no roof water management which creates wet conditions all along the north side of the building and contributes to excess moisture in the basement area. Fascias and drips throughout are missing or damaged.

First Floor:

- The screened window openings between the concrete roof elements are broken and there are some signs of rot.
- The doors to the interior spaces are worn and insufficiently weatherized.
- There are cracked and damaged sections of the concrete floor slab

- The railings on the East and West sides of the assembly space, including the stairs either side, are not structurally sound and the openings are not to Code
- Screen between the roof beams in the backstage area are damaged or missing
- The stage extension and curved wall are poorly constructed and structural connection to the main structure is not to Code .

Basement:

- The existing condition of the lower level is generally in very poor condition. The plumbing is improperly installed, damaged and not located per Code.
- There are signs of mold and mildew throughout indicating insufficient ventilation and improper setting and sealing of material throughout.
- The exterior doors and louvers are decayed and not weatherproof
- The window screens are damaged and rotting
- The tile floors is no longer suited for usage.
- Concrete block walls have evidence of moisture damage and mold.
- The mechanical equipment is exposed and not properly housed. (water heater, pressure tank, water supply, etc.)
- The ventilation system is insufficient for the moisture control of the space.
- The lockers are in very poor shape and have exceeded their useful life

Plumbing:

- The entire plumbing system is poorly installed and improperly weatherized. Pipe runs are loose allowing for movement, this will lead to failure of joints and leaks.
- The existing method for winterizing plumbing requires the removal of supply lines, traps, and fixture heads. This method has led to the degradation of watertight fittings and missing parts.
- Cold water supply lines are not insulated allowing condensation to form in the warmer seasons leading to moisture issues and rust.

- There is evidence of leakage and rust from the water heater, pressure tank and pump assembly.
- The gate type water supply valves at the washing machines are worn out and incorrect for the current application. The supply hoses are worn out rubber hose and should be reinforced stainless steel mesh washing machine hose.

Electric:

- The electrical panel is located in a wet area and is accessible to all campers

Site Conditions:

- There are dead trees adjacent to the building and numerous shrubs and trees that are overgrown and do not allow for proper light and air around the building
- There is a sink hole on the camper path to the basement entry. Pavers on the path are random and loose.

2. Old House Kitchen

Review of the Old House Building includes assessment the following:

- Kitchen Porch
- Walk-In Refrigerator
- Kitchen

The condition of the existing facilities is poor and no longer adequate for the usage.

Kitchen Porch:

- There appears to be several electrical issues including broken fixtures and exposed NM cabling.
- The existing freezer and hand washing station is located outside of the main kitchen on the porch. This is a violation of code.
- The enclosure of the kitchen porch is poorly constructed with areas of rot. It also has visible rot and mold issues.

Walk-In Refrigerator:

- There is damage to the floor and sub flooring of the unit as well as evidence of mold.
- The condenser fan has evidence of rust and its functional capabilities are unknown.
- The floor of the refrigerator is badly decayed.

Kitchen:

- The washing facilities are not to code. There is an existing two bay sink, improperly attached to the wall and improperly pitched to drain. Code requires a minimum of a three bay sink.
- Areas of the kitchen floor, particularly at transitions or penetrations have tile and grout damage where materials have become porous. In some cases this has caused damage to the subflooring and allowed for microbial growth and water damage.
- It is unknown if the dishwasher and other kitchen equipment is in good working condition.

B. Water System

The camp's water system consists of supply wells, a storage tank, and distribution piping, as well as chlorination to disinfect the system. Due to water supply problems, upgrades to the water system were made as recently as 2012. Initial review of the existing water system included the following components from the existing water system layout. See Appendix 4 for drawing 1 of 1 Well Connection.

- Wells
The camp has five (5) wells. Well #1 is located adjacent to ED Hall has been found to be contaminated and must be abandoned in accordance with AWWA Sec. 100-06 or rehabilitated. Well #2 serves the Old House, Willy/International Theater, Infirmary and ED Hall. Well #3 serves the Camp Director's House. Well #4 serves the swimming pool located north of Oriole Mills Road. This well could not be located. Well #5 (drilled in 2012) is used to augment well #2 and serve the Willy/ International Theater, Infirmary, and ED Hall.
- Storage Tank
Based on a report by Paggi, Martin & DelBene Consulting Engineers, the storage tank volume is 3,784 gallons. The total height of the tank is 8'-7". Float switches were installed in 2012 at four different levels: Pump Off (8'-7" at 3,715 gallons), Pump On (6'-7" at 2,849 gallons), Both Pumps On, and Alarm (3'-7" at 1,550 gallons). No other water storage was identified at the facility. Well #5 and #2 provide water to the storage tank.
- Well Pumps

Well #5 pump was designated to be a Goulds submersible Model No. 5G7412C with a rating of 4 gallons per minute at 320' TDH.

The pump controls for Well #2 and Well #5 are set to allow for simultaneous use. The control panel specified is a CentriPro, duplex, NEMA 4X, weatherproof Model No. D10020.

Well pumps in well #3 and #4 could not be evaluated but are assumed to be operational.

- Chlorination Disinfection

A well pit, housing well #2, also includes the chlorine disinfection system for Wells #2 and #5. The system consists of a plastic garbage pail and a metering pump and control system. The well pit is a confined space. The garbage pail feed tank to be replaced with polyethylene tank.

Field Observations

On November 24, 2015, a site visit was conducted by C&A, Bucky Coons and Cameron Rylance, the facilities manager, to view the current water system servicing the site. An additional site inspection was conducted on December 17, 2015, with Kerri DeGroat and Michelle Kelley from the DCHD, Peter Sweeny AIA, and Cameron Rylance, the facilities manager. Based on the site visits, the following items/deficiencies were found:

- Wells

- a. Well#1 is still inundated with water and as such could not be evaluated if it was properly abandoned. Subsequent inspections found it is not abandoned consistent with code. DCDOH had no record of decommissioning of well and recommended it be decommissioned properly if no further use by owners.
- b. Well#2 is located with the well house pit (Confined space). DCHD recommended it be tested due to location in pit and possible contamination issues and also requested lock on the access hatch and secure vent on the structure.
- c. Well #3 was found and only services the Camp Director's House . 2" polyethylene pipe still runs from this well to a point where it has been cut and disconnected. The pipe still remains onsite and runs directly to the water storage tank. The sanitary seal was found broken at the time of the inspection.
- d. Well #4 was unable to be located near the pool. The areas surrounding the pool were investigated and north of the pool near the Saw Kill Creek, polyethylene and conduit were observed. However, there was no sign of a well and pipes were busted or disconnected. It was noted that within the pool house there was a penetration with a 1" polyethylene pipe and wiring (not connected) in the floor at the southeast corner of the building. The pool water supply system must comply with State Sanitary code, however, further investigation of this system was not completed since it is outside of the scope of improvements proposed to be made for the 2016 camp season.
- e. Well #5 was found as shown on the maps and runs to the well house where well #2 is located. The piping from well #5 to the well house is 1" polyethylene.

■ System Piping

- a. Many of the abandoned water piping (2" galvanized) and yard hydrants has been left onsite.
- b. DCHD noted that the water piping at the water storage tank was confusing and a mix of different pipe types.
- c. Water from the well house is sent through a 2" galvanized pipe to a 2" PVC Schedule 40 pipe to the water storage tank. This run of pipe also has a shutoff valve located at the tank. This pipe was noted as not connected to the water storage tank at this time. This system is winterized via disconnection.
- d. 2" PVC to 2" polyethylene pipe is used for the distribution system. This pipe is run aboveground towards the infirmary. Note that the site water mains consist of a mix of pipe types, which appears to be HDPE replacing older galvanized mains.
- e. The Infirmary crawl space was accessed to review water connection locations. As stated previously the galvanized yard hydrant adjacent to the building is no longer active and is disconnected from the building. 1" copper pipe appears to penetrate the foundation on the southeast end of the building.
- f. The "Old House" basement was accessed for review of water system connection. The 2" galvanized pipe was found in the basement and was disconnected from the system. A new 1" PEX tubing pipe was found in the northwest corner of the building. This pipe was not connected to the system and it does not appear it is setup for connection to the main water supply line for the building.
- g. At the northwest lower section of the Willy/International Theater, a 1" polyethylene water pipe runs down the hillside to a constructed roof. Under the roof there appears to be an electrical switch and additional 1" polyethylene pipe. The purpose of this system is unknown.

■ Water Storage Tank

- a. Water storage tank is made out of wooden boards and is roughly holds 3, 785 gallons. The interior of the tank includes a PVC liner. Water storage tank is equipped with a 2" PVC Schedule 40 overflow pipe leading south of the tank.
- b. DCHD commented on the water storage needs to be inspected for regulatory compliance.
- c. The tank lacks proper enclosure and screened openings to prevent birds and animals from accessing the tank interior. This is a Code violation.
- d. The well house includes the tank alarm panel and controls for the storage tank.

■ Hydropneumatic Tank

- a. The lower level of ED Hall included a hydropneumatic tank (Wellrite Model #WR60-02) and water meter (Sensus).
- b. The lower level of the Camp Director's House included a hydropneumatic tank. This tank needs to be replaced.
- c. The lower level of the Willy/International Theater building included a hydropneumatic tank (Wellrite Model #WR60-02) and water meter (Sensus).
- d. Old silver hydropneumatic tank needs to be removed from the ED Hall system.

- Backup Generator
 - a. Portable Makita (model #3510R) generator services the water system from the basement of ED Hall.
- Disinfection
 - a. UV filtration system and hydropneumatic that is located in the Camp Director's House needs to be replaced.
 - b. Well #2 pit includes a hypochlorite feed system, 55 garbage pail that needs to be replaced with a proper polyethylene chemical feed tank.

Additional existing conditions information was obtained through a records review that included DCHD records, owners records, and contacting Paggi, Martin & DeIBene. Well capacity data was found. Reportedly, a pump test was completed in 2011 for Well #5 and revealed that the well had sufficient capacity per the NYSDEC Part V, Appendix 5-B, Standards for Water Wells, to supplement the camp water system. Well #5 stabilized at 4 gpm and thus has an estimated daily yield of 5,760 gallons per day(GPD). Well #2 has an unconfirmed stabilized rate of 13 gpm or 18,720 GPD; this yield is based on historic well data and may not reflect current conditions. Assuming the well yields, as reported, are accurate, the total available water capacity for the supply wells is estimated to be 24,480 GPD and should exceed the demand of the camp.

C. Sewer System

On November 24 and December 8, 2015 C&A was on site to perform an evaluation of the existing septic systems. During field inspection an as-built plan of the septic system was made available by David Queen, P.E.; the plan is generally consistent with field findings. The existing sewer system is shown in Appendix 6.

According to plans provided by Mr. Queen, the existing Camp Rising Sun sewer system is split into three (3) distinct treatment systems. See Appendix 7 Mr. Queen's plan. The third system, not shown in Appendix 6, is for the pool and the bath house located on the north end of the property. Plans for the pool septic system were not reviewed and are beyond the scope of this report.

- System #1 serves the Infirmary, the Old House, Caretakers Residence and ED Hall
- System #2 serves the Assembly Building (Willy)
- System #3 serves the pool and bath house.

A bulleted discussion regarding the results of field investigation for each system follows, including an inventory of existing systems and observations of the condition of each system.

Sewer System #1- Infirmary and Original House, ED Hall and Caretakers Residence

Infirmary

- A separate septic tank was not located for the Infirmary during site investigations. No septic tank was shown on plans. Appears that all septic is directed to tank of Old House.
- Cleanouts are not provided between the house and the tank (Old House)

- No above ground access to system outside of building is provided.
- The 4" thin wall PVC pipe appears to be deteriorated. Material is brittle and cracks were found.

Old House

- 1,500 gallon septic tank was located to the east of the Old House. Solids are overtopping tank. Tank was adequately spaced from structure.
- Grease trap of unknown size (appears 1000 gallons) was located adjacent to septic tank. Trap is full of solid grease. Tank was adequately spaced from structure.
- Cleanouts are not provided between the house and the tanks.
- Access points to tanks are below grade which is making system hard to maintain and check on.
- Sewer manhole outside of Willy Building contains a good amount of silt. This indicates primary treatment which has failed or breaks in the pipe.
- The 4" thin wall PVC pipe appears to be deteriorated. Material is brittle and cracks were found.

ED Hall

- 1,000 gallon septic tank was located under gabion wall to the west of the building. Inlet cover was open and tank was $\frac{3}{4}$ full of solids. Due to location in proximity to the retaining wall, the tank is not serviceable.
- Due to gabion wall outlet inspection cover could not be accessed.
- Cleanouts are not provided between the house and the tanks.
- Access points to tank are below grade making system hard to maintain and perform inspections.
- Where system crosses road was not identified during field investigations due to gabion wall.

Camp Directors House

- A 1,000 gallon septic tank at Camp Directors House was found to the north of the building, alongside the driveway. Tank was wrapped in tree roots but holding water. Tank did not appear to be properly flowing when tested. Tank was adequately spaced from structure.
- System does not appear to outlet to septic field system due to collapse in pipe; tank may be leaking into the ground.
- Cleanouts are not provided between the house and the tanks.
- Access points for tank are below grade making system hard to maintain.
- The 4" thin wall PVC pipe appears to be deteriorated. Material is brittle and cracks were found.

Septic fields

- Effluent from Infirmary, Old House, ED Hall and Camp Directors House is treated by the two (2) septic fields in the athletic field
- Large septic field on the northwest side of the athletic field was built in 1980.
- A smaller field is shown on the plans as having been built in the 1960s; however this field could not be located.
- A modified distribution box was located on south side of athletic field before siphon chamber. D-box is used to split flow between the two (2) fields. The structure is in poor condition and contains silt.
- A siphon dosing chamber was located. The concrete structure is in good condition but the bell syphons appear corroded. A large amount of silt was found in structure. Two (2) pipes were found leaving structure.
- Approximately 500 lf of absorption trench was located in the large septic field. An additional, 460 LF of trench, shown on the plans, was not observed on the southwest side of the field. Additional investigation may be required.
- Existing septic field to the east of the siphon chamber field was not located during field investigation. Additional investigation may be required.
- 1,000 gallon septic tank to the east of siphon chamber was not located during field investigations. Additional investigation may be required.
- Access covers were not provided to the structures making maintenance difficult.
- All 4" thin wall PVC pipe appears to be deteriorated. Material is brittle and cracks were found. Cracks in system are likely reducing the flow capacity of the absorption trenches.

Sewer System #2 – Willy Building

Willy Building

- 4" Ductile iron pipe exits building to the northeast side of the building above ground. Pipe is fairly rusted and a trip hazard. About 10' from the structure the pipe angles into the ground with two (2) 45 degree angles.
- 1500 gallon septic tank is underneath tree off the north end of the building and the inlet inspection cover cannot be opened to inspect tank and pump clean of solids. The tank will need replacement.
- Generally, thin wall 4" PVC pipe is in poor condition. Material is brittle and pipes were found cracked at multiple locations
- Distribution box has failed as the concrete has deteriorate. Box is completely full of solids and is not operational.
- Five (5) distribution and four (4) collection laterals were found in the sand filter.
- Sand filter appears to be adequately sized but is overgrown with vegetation and likely silted up due to age of system (built in 1960s).
- Chlorine supply tank contains out of code electrical outlets and improper storage of chemicals, and is also a confined space.
- Discharge is only 21 feet from the contact chamber and allows treated

effluent to flow from system down the hillside and ultimately to the creek. This discharge method is not compliant with current codes. Permit for this outfall is expired.

Overall, camp septic systems are severely deteriorated and do not comply with current code requirements.

4. WATER/SEWER DESIGN FLOWS

To determine the potential sewer flow from each building will be, C&A used Table B-3- Typical Per-Unit Hydraulic Loading Rates provided in the New York State Design Standards for Intermediate Sized Wastewater Treatment Systems. For comparison purposes design flows for the system design in 1980 by David F. Queen have been provided. A table is provided below providing the breakdown of potential flow from each building:

TABLE 2					
DESIGN FLOWS					
	From Design Standards for Intermediate Systems (2014)				
Building	Type of Use	Unit	Gallons per Day	Total Flow (q) (Gallons per day)	Per David F. Queen (1980)
Infirmary	Dr. Office	Per Doctor	250 GPD	250 GPD	1690 GPD
Old House	Banquet Hall + 4 Bedrooms	Per person	10 GPD/user + 150 gpd/bedroom	1400 GPD	
ED Hall	2 bedrooms + Administrative (4 bedrooms)	Per bedroom	130 GPD ¹	600 GPD	815 GPD
Camp Director's House	Three Bedroom house	Per Bedroom	150 GPD	450 GPD	450 GPD
Assembly Building	Health Club ²	Per Person	20 GPD	1600 GPD	N/A
Total				4300 GPD³	N/A
Notes: 1. 20 GPD reductions were given due to undersized kitchen and meals being served in the Old house. 2. Health club was used over bath house (10 GPD) to be conservative.					

The camp also has two (2) years of data regarding water usage, this data is for Well #3 and Well #5 which serves all of the buildings besides the pool house. Unfortunately this data does not allow us to break down the use by building. It should be noted that the maximum daily flow during the time data was collected was determined to be 3,835 GPD, or about 87% of the design flow shown above.

As it can be seen in Table 1 the combined sewer design flows used in 1980 by David F. Queen for the Infirmery, Old House, ED Hall and the Camp Director's House are greater than that required for today's standards (2955 GPD vs 2700 GPD).

5. SOILS DATA

Site soils were evaluated in the athletic field area to determine the potential for a new septic system. To be suitable for a septic system, site soils must have more than two feet of separation from groundwater and four feet of separation from bedrock.

A. Previous Tests

In Appendix 7, six (6) test pits were performed by David F. Queen and provided in the plans in 1980. The test pits performed in the 1980s range anywhere from 3' to 8 in depth and provide data on where potential bedrock constraints may exist.

B. Field Tests

On December 08, 2015, C&A performed soils testing. In total four (4) deep test pits were completed and two (2) percolation tests were performed. The results of these tests can be found in Appendix 8.

In general, the results show that the soils profile consists of a gravely silt loam with 0-5% cobbles/stones. No groundwater was encounter in any of the test pits. Based on data from tests previously performed in 1980s as well as tests performed by C&A, the depth of bedrock varies greatly across the athletic field. Shallow depth to bedrock was found near the basketball court with a depth of 2 feet before refusal and shallow depth to bedrock was noted in the center of the field. The percolation test showed a rate of less than 30 minutes per inch.

These soils conditions along with flow data discussed above will set the conditions any expansion/upgrades of the existing system.

6. FINDINGS AND RECOMMENDATIONS

A. Building Recommendations

1. Willy Assembly Building

Review of the Willy Assembly Building includes the following general recommendations. More specific and detailed scope of recommended work is shown in the attached architectural drawings located in Appendix 2.

- Roof
- First Floor
- Basement
- Plumbing
- Electric
- Site

Roof:

- The existing roof should be removed and replaced. The joints between the roof beams should be sealed. New fascia and drips installed with the new EPDM roof. Roof should wash water to the North end of the building to a continuous gutter with new leaders which should discharge in to buried drain lines to daylight.

First Floor:

- The screened window openings between the concrete roof elements need replacement screens and frames.
- All cracked and loose concrete should be removed and chipped away to solid base and patched as required.
- It is recommended that all doors to interior spaces be replaced and properly weatherized.
- Railings should be reinforced and Code compliant.
- The curved stage wall and the stage extension should be removed along with miscellaneous framing.

Basement:

- It is recommended that the entire lower level be redesigned and reconstructed to comply with code and best building practices. See attached plans in Appendix 2.
- New tile floors should be installed throughout with drainage mat.
- Concrete block walls need repair and or replacing. Properly sealed tile walls should be installed throughout.
- Existing windows and frames require replacement with new windows and screens.
- A mechanical room is required to store all equipment. The obsolete pump and water tank should be removed.
- The design and installation of a proper ventilation system will be required.

Plumbing:

- The entire plumbing system should be redesigned, properly weatherized and updated to comply with NYS building code. See attached plans in Appendix 2.

- All plumbing fixtures need replacing.

Electric:

- Electrical panel should be relocated to the backstage area above.
- New wiring and fixtures should be installed per the attached plans in Appendix 2.

Site Conditions:

- A new concrete walkway for campers should be installed.

2. The Old House Kitchen and Dining Room

After a complete assessment of the Old House Kitchen on November 17th, PSA determined that the best long term strategy for bringing the kitchen up to Codes and provide best standards for the camp's food service would be to do a complete, gut rehab of the existing kitchen and build a new addition for additional kitchen space and required kitchen staff toilet room. Since this scope of work would not be possible prior to Summer 2016 it was agreed to meet with DCHD officials to determine what work would be required to obtain a permit to operate for the season. Accordingly, on December 17th PSA met with C&A, Cameron Rylance and Michelle Kelley, Public Health Sanitarian and Kerri DeGroat of the DCHD. PSA explained that the camp intends to do a gut rehab of the kitchen as well as a new one story addition. The following recommendations reflect interim work which will be required to obtain approval from DCHD. A meeting has been scheduled to also meet with Steve Cole, the Building Inspector. A final set of minimum requirements for operation will be generated after that meeting. The following are the requirements to date:

- Kitchen Porch
- Walk-In Refrigerator
- Kitchen
- Dining Hall

Kitchen Porch:

- Electrical violations will need to be corrected.
- Michelle Kelley indicated that the hand sink and refrigerator could remain in the porch area for the upcoming year with the understanding the proposed rehab and addition work will be taking place in the near future.

Walk-In Refrigerator:

- The floor will require full replacement.

Kitchen:

- Code requires a minimum of a three bay sink. Michelle Kelley did not indicate this will be required as part of this interim work.
- Verification of all equipment performance will be required. This should be done as soon as possible.
- The floor tile and grout should be repaired/replaced as needed.
- The entry/exit door needs to be replaced with a new out swing door with single action hardware.
- In addition to thorough cleaning it is recommended that the kitchen be re-painted.

Dining Hall:

- Exit doors will need to be replaced with out swinging doors with single motion hardware.
- The existing ceiling light fixtures will need to be replaced with shatter proof fixtures.

B. Water Recommendations

Water system improvements can be completed in two phases. It is recommended that process and storage improvements be made for the 2016 season and distribution system improvements be made in the future, following the 2016 season. See Appendix 5 for the proposed water system improvements.

- Wells
 - a. Well#1 abandonment to be completed. DCHD will require a decommissioning report. (2016)
 - b. Pump test well #2 to confirm yield of 13gpm. (2016)
 - c. Modify Well# 2 and well pit to protection from flooding. (2016)
 - d. Sample Well#2, Well #3 and Well #5 to confirm water quality. (2016)
 - e. Replace the sanitary seal on Well #3. (2016)
 - f. Locate Well #4 (future)
- System Piping
 - a. Replacement of 2" distribution HDPE water mains throughout the system. (future)
 - b. Disinfection of water mains in accordance with AWWA standards. (2016)
 - c. Provide for adequate means for flushing at dead ends or for winterization. (future)

- d. Pressure and leak testing on water mains once upgraded. (future)
- e. Removal of existing piping. (abandoned 2" galvanized pipe and polyethylene pipe) (future)
- Water Storage Tank
 - a. Replacement with a minimum capacity of 4,400 gallons. (2016)
- Hydropneumatic Tank
 - a. Replace the hydropneumatic tank in the Camp Director's House. (2016)
 - b. Remove and replace hydropneumatic tank at ED Hall. (2016)
- Backup Generator
 - a. Determine if the existing backup generator has the capacity to run the entire water system in the event of a power outage. Replacement recommended as needed. (2016)
- Disinfection
 - a. Replace chlorine tank in Well#2 pit. (2016)
 - b. Replace the UV disinfection system in the Camp Director's House. (2016)
- Additional Items
 - a. Reapply for water permit (2016)
 - b. Modify Well#2 Pit
 - i. Area should be a walkout shed
 - ii. Include proper ventilation
 - iii. Include a flow meter
 - iv. Include upgraded disinfection system
 - v. Sampling taps
 - vi. Include basic laboratory equipment for sampling
 - vii. Include a lock on the access door
 - c. Establish DCHD approved winterization/startup procedures for the water system at the camp.

C. Sewer Recommendations

The existing sewer system requires complete replacement due to failed systems, lack of maintenance and signs of siltation within the system. It is recommended the two septic system serving the camp facilities (excepting the pool) be replaced with a single new systems with one (1) dosed absorption bed field. Please refer to Appendix 9 for a schematic map of the proposed improvements.

Infirmary

- Provide 1,000 gallon septic tank with effluent "T"
- Provide cleanouts between the tank and the Infirmary
- All access points should be brought to grade
- Tie effluent into system downstream of Old House septic tank and grease trap

- Replace all 4" thin wall PVC pipe with 4" PVC SDR-35 pipe and backfill in accordance with manufactures specifications

Old House

- Pump existing septic tank and remove from ground. Replace existing tank with a 2,500 gallon septic tank and effluent "T".
- Pump existing grease trap and remove from ground. Replace with adequately sized grease trap (size needs to be coordinated with proposed kitchen layout).
- Provide cleanouts between the house and the tanks.
- All access points should be brought to grade.
- Remove silt material from manhole structure.
- Replace all 4" thin wall PVC pipe with 4" PVC SDR-35 pipe and backfill in accordance with manufactures specifications
- Replace road crossing and repave trench in road.

ED Hall

- Abandon existing tank in place by pumping and backfilling with concrete
- Replace/Relocate existing septic tank with a 1000 gallon septic tank and effluent "T". Tank is to be clear of gabion wall and properly distanced from structure.
- Provide cleanouts between building and structure
- All access points should be brought to grade.
- Replace road crossing and repave trench in road.
- Replace all 4" ductile iron pipe with 4" PVC SDR-35 pipe and backfill in accordance with manufactures specifications

Camp Director's House

- Pump existing septic tank and replace with a 1,000 gallon septic tank and provide effluent "T"
- Provide cleanouts between the house and the septic tank
- All access points should be brought to grade.
- Replace all 4" thin wall PVC pipe with 4" PVC SDR-35 pipe and backfill in accordance with manufactures specifications

Septic Field – Absorption Beds

- All three (3) existing secondary treatment systems (two (2)- septic fields and one (1) sand filter) are to be abandoned in place
- Existing modified distribution box is to be removed
- 380 Gallon siphon chamber is to be pumped, removed and replaced with new siphon chamber sized appropriately for proposed absorption beds

- Three (3) 20' x 150' absorption beds are to be provided in the existing athletic field. Total area of absorption beds is 9,000 SF, capable of treating 4,050 gallon per day given perc. tests. Absorption beds are to handle sewer effluent flow from all of the buildings onsite, including the Willy Building (see below).
- Camp will have to file for a new SPDES permit

Willy Building

- 4" Ductile iron pipe exiting building should be replaced with 4" PVC SDR-35 pipe and buried below the grounds surface
- Existing 1,500 gallon tank should be pumped, cracked and back filled. Tree on top of structure may have to be removed.
- New 4,000 gallon tank should be installed in new location (as shown on map)
- A pump chamber should be installed to pump effluent to siphon chamber in athletic field
- All piping should be PVC SDR-35 (Gravity) or PVC SDR- 21 (Force Main)
- Chlorine Contact chamber and supply tank should be cracked in place and back filled.

Due to the condition of the existing system, lack of maintenance and age of the systems, the entire septic system must be replaced prior to the start of the 2016 camp season. A new SPDES permit will be required. The permit will be reviewed by the DCHD. Due to the unknowns with the existing system and expired permits it would not be feasible to repair one of the systems without completely replacing it in order for the camp to receive a permit.

7. LIFE CYCLE ASSESSMENT

A. Building

The various components of the proposed building elements have varied operational life expectancies but all proposed elements have a minimum 50 year life cycle.

B. Water System

The collection and treatment system components have varied operational life expectancies. The estimated life cycles for each component are as follows:

TABLE 3 – WATER SYSTEM LIFE CYCLE	
Component	Estimated Life Cycle (years)
Water Storage Tank– Structure	50
Walkout Pump House – Structure	50
Water Distribution – Piping	50
Water Storage Tank – Controls	20
Water System – Chlorination	20
Water System – Pressure Tank	10

Water System – Controls	20
Water System– Backup Generator	15

C. Sewer System

The treatment system components have varied operational life expectancies. While life expectancy is directly related to effective maintenance practices the estimated life cycles for each component are as follows:

TABLE 4 – SEWER SYSTEM LIFE CYCLE	
Component	Estimated Life Cycle (years)
Septic Tanks	50
Grease Trap	10-20
Gravity Sewer Line –SDR-35	50
Force Main Sewer Line – SDR 21	50
Clean outs	50
Gravel Absorption Bed	*
* Life expectancy depends on maintenance of system	

8. OPINION OF PROBABLE COST

In review of the required construction and existing field conditions, the following is provided as a opinion of probable cost for budgetary purposes. Updated costs will be provided with design documents.

A. Building

1. Willy Assembly Building

In review of the required construction and existing field conditions, the following is offered as an opinion of the probable cost for the building improvement work as indicated in the attached drawings in Appendix 3.

TABLE 5.1 – CONSTRUCTION COST ESTIMATE	
Component	Cost
Site work including new concrete path and tree removal	\$20,000
Demolition	\$6,000
Concrete chopping	\$5,000
Concrete	\$7,500
Masonry	\$3,500
General Carpentry	\$3,000
Windows and Doors	\$11,000
Plumbing	\$18,000
Plumbing Fixtures	\$9,000
Electrical, including Panel Relocation	\$17,500
Electrical Fixture Allowance	\$4,000
Mechanical, Ventilation and HW	\$13,000
Roof and Gutters	\$13,000
Floor and Wall Tile	\$12,000
Toilet and Shower Partitions	\$7,000
Railings	\$7,500
Painting including Patch and Prep	\$8,500
Lockers, Benches & Mirrors	\$12,000
Subtotal	\$175,500
20% Contingency	35,000
10% Architectural Fees	17,500
Total Projected Cost	\$227,500

2. Old House Kitchen and Dining Room

In review of the required construction and existing field conditions, the following is offered as an opinion of the probable cost for the building improvement work as indicated in the attached drawings:

TABLE 5.2 – CONSTRUCTION COST ESTIMATE	
Component	Cost
Site work tree removal	\$2,500
Demolition	\$1,000
Doors	\$6,000
Electrical- Correct Violations	\$5,000
Electrical Fixtures	\$2,500
Refinish Refrigerator	\$3,500
Painting and Misc	\$5,000
Subtotal	\$25,500
20% Contingency	\$5,100
10% Architectural Fees	\$2,550
No allowance for equipment repair or replacement	
Total Projected Cost	\$33,150

B. Water System

TABLE 6 – WATER SYSTEM CONSTRUCTION COST ESTIMATE		
Component	Cost	2016 Update or Future
Water Storage Tank (5,000 Gal) & Pressure Tank Housing	\$50,000	2016
Distribution Pressure Tank	\$6,500	2016
2" Distribution Piping (~350 LF)	\$5,400	Future
Backup Generators	\$31,000	Future
Pump House/Chemical Treatment Walkout Building	\$20,000	Future
Well #2 Pit Access Cover & Vent Security	\$3,600	2016
Water Tank Control Panel	\$25,000	2016
Chlorination System	\$4,000	2016
Flow Meter	\$6,000	2016
UV Filtration System	\$3,100	2016
Control Pumps	\$7,700	Future
Abandonment of Well #1	\$2,600	2016
Replacement Sanitary Well Seal	\$200	2016
Pump Test Well#2 & Well #3	\$7,000	2016
Subtotal	\$172,100	
20% Contingency	\$34,420	
10% Engineering	\$17,210	
Total Projected Cost	\$223,730	
Total Projected Cost (2016 Items)	\$108,000 (materials only)	

C. Sewer System

TABLE 6 – SEWER SYSTEM CONSTRUCTION COST ESTIMATE	
Component	Cost
Demolition and removal of existing facilities	\$35,000
Tree removal/grubbing	\$10,000
Install new septic tanks	\$30,000
Install pump chamber	5,000
Solid SDR-35 Pipe (1200')	\$36,000
2" Force main (100')	\$5,000
Cleanouts (Assume 10)	\$5,000
Siphon Dosing Chamber	\$8,000
Gravel Absorption Beds (9,000 SF)	\$135,000
Subtotal	\$269,000
20% Contingency	\$53,800
10% Engineering	\$26,900
Total Projected Cost	\$349,700

As the scope of this project progresses and design documents are developed, more specific cost estimates will be provided.

9. CONCLUSION

To resume camp operations, Camp Rising Sun will need to make facility and infrastructure upgrades. Recommendations for improvements to the camp have been made with input from the DCHD based on a preliminary facility inspection by DCHD personnel.

The Willy requires a gut rehabilitation to address the severe deterioration of all components within the building. In addition, the Willy Assembly Building requires upgrades to the stage area, railings and the perimeter walkways and landscaping to meet Code requirements. The Kitchen/Old House/Dining will require minor upgrades of flooring, finishes, plumbing, electrical and door systems. Improvements to the Old House and Willy will be required prior application for a camp operations permit made to DCHD to grant an operations permit for the upcoming season. Additional improvements may be required to this building and other camp buildings following an inspection of the facility by the Town of Red Hook building inspector.

The field investigations and DCHD inspection indicates that the water system is in fair condition, and needs modifications for the 2016 camping season. Additional updates or replacement of the water system may be completed at a future time. The proposed recommendations include replacing the water storage tank, new pressure tank for the entire system with a housing, modifications to the Well #2 pit area, control panels, chlorination system, flow meters, disinfection, Well#1 abandonment and replacement of the sanitary well cap on Well#3. All design work will be completed as part of a permit modification to the existing public water supply permit.

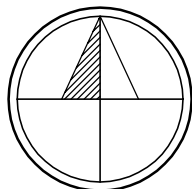
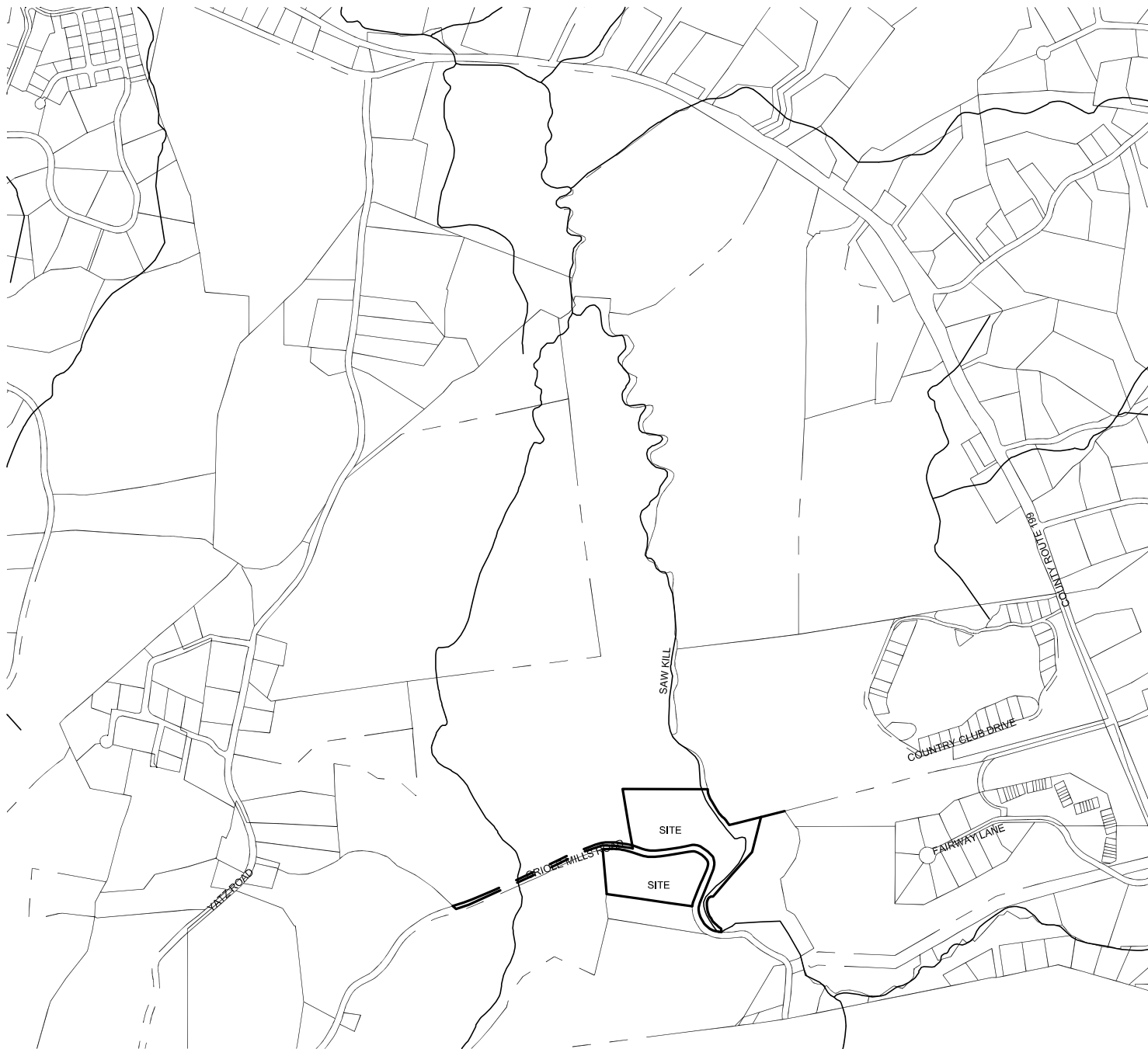
The field investigation indicates that the existing septic systems are generally in poor or very poor condition. Due to poor construction practices, lack of maintenance and poor materials (thin wall PVC pipe) the system appears to be generally failing. Silt in the system is not only an indication of failed pipe and poorly maintained tanks but likely indicates that the gravel absorption trenches designed to infiltrate water are impeded with silt.

Furthermore, the discrepancy of what was found in the field to what is shown on plans indicates potential system inadequacy to meet current demand. C&A recommends a complete overhaul of the existing septic system for the camp. The proposed recommendations include replacing all of the septic tanks, PVC pipe, and accessory structures. The three (3) existing septic fields should be replaced with one (1) dosed gravel absorption bed system within the athletic field. All design work will be completed consistent with the SPDES permitting requirements and a new SPDES permit for the facility will be required.

A estimate of probable cost has been prepared for the camp improvements. The costs, including a 20% contingency and 10% design fees are summarized in the following table.

SUMMARY OF PROBABLE COST	
Facility Component	Probable Construction Cost
Willy Assembly Building Repairs	\$227,500
Old House Kitchen Repairs	\$33,150
Water System Modification	\$223,730
Septic System Replacement	\$349,700
TOTAL	\$834,080

APPENDIX 1



NOTE: MAP GENERATED FROM 2014 DUTCHESS COUNTY TAX MAPS.

CAMP RISING SUN

TOWN OF RED HOOK

DUTCHESS COUNTY



CRAWFORD & ASSOCIATES
ENGINEERING, P.C.
551 Warren Street, Hudson New York 12534

© COPYRIGHT

SITE MAP

DATE
12/23/15

DRAWN BY: MBE
DESIGNED BY: MBE

H: \WORK\4651.0\DWGS\BASEMAP.DWG

SCALE
N.T.S.

CHECKED BY: BKN
APPROVED BY: BKN

C&A JOB#
4651.00

SITE MAP

APPENDIX 2

ADDITIONAL NOTES:
1. VERIFY ALL EQUIPMENT IN GOOD WORKING CONDITION
2. VERIFY FIRE SUPPRESSION IN GOOD WORKING CONDITION

ADDITIONAL NOTES:
1. VERIFY ALL EQUIPMENT IN GOOD WORKING CONDITION
2. VERIFY FIRE SUPPRESSION IN GOOD WORKING CONDITION

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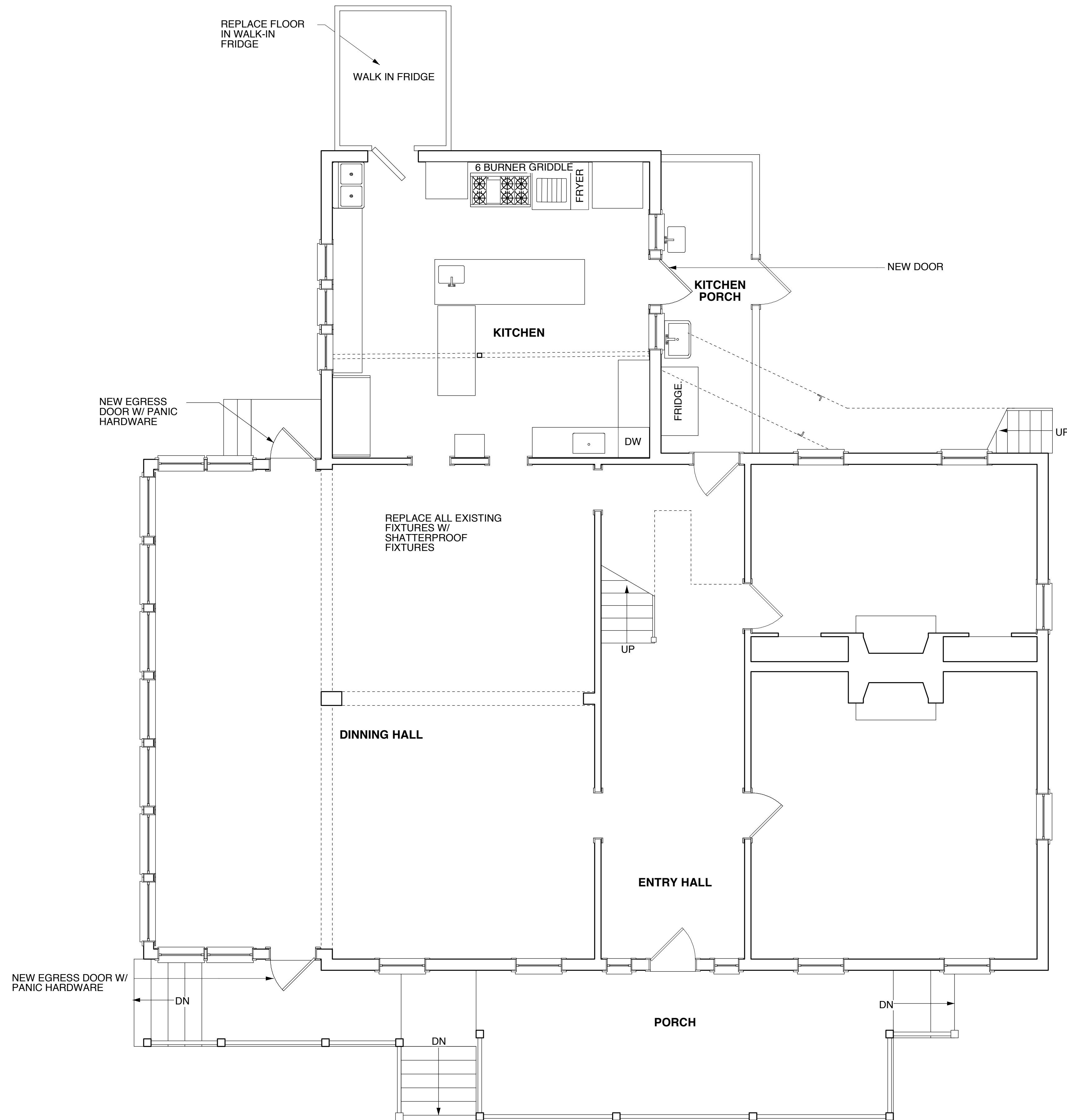
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DRAWING TITLE
FIRST FLOOR PLAN

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Date 12/22/15	



1 FIRST FLOOR PLAN
1/4"=1'-0"

APPENDIX 3

OWNER

STRUCTURAL
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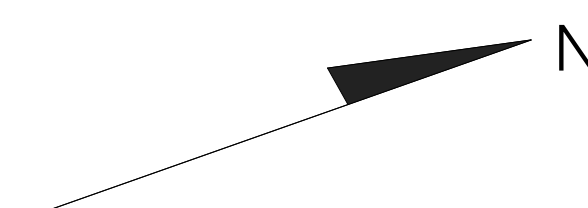
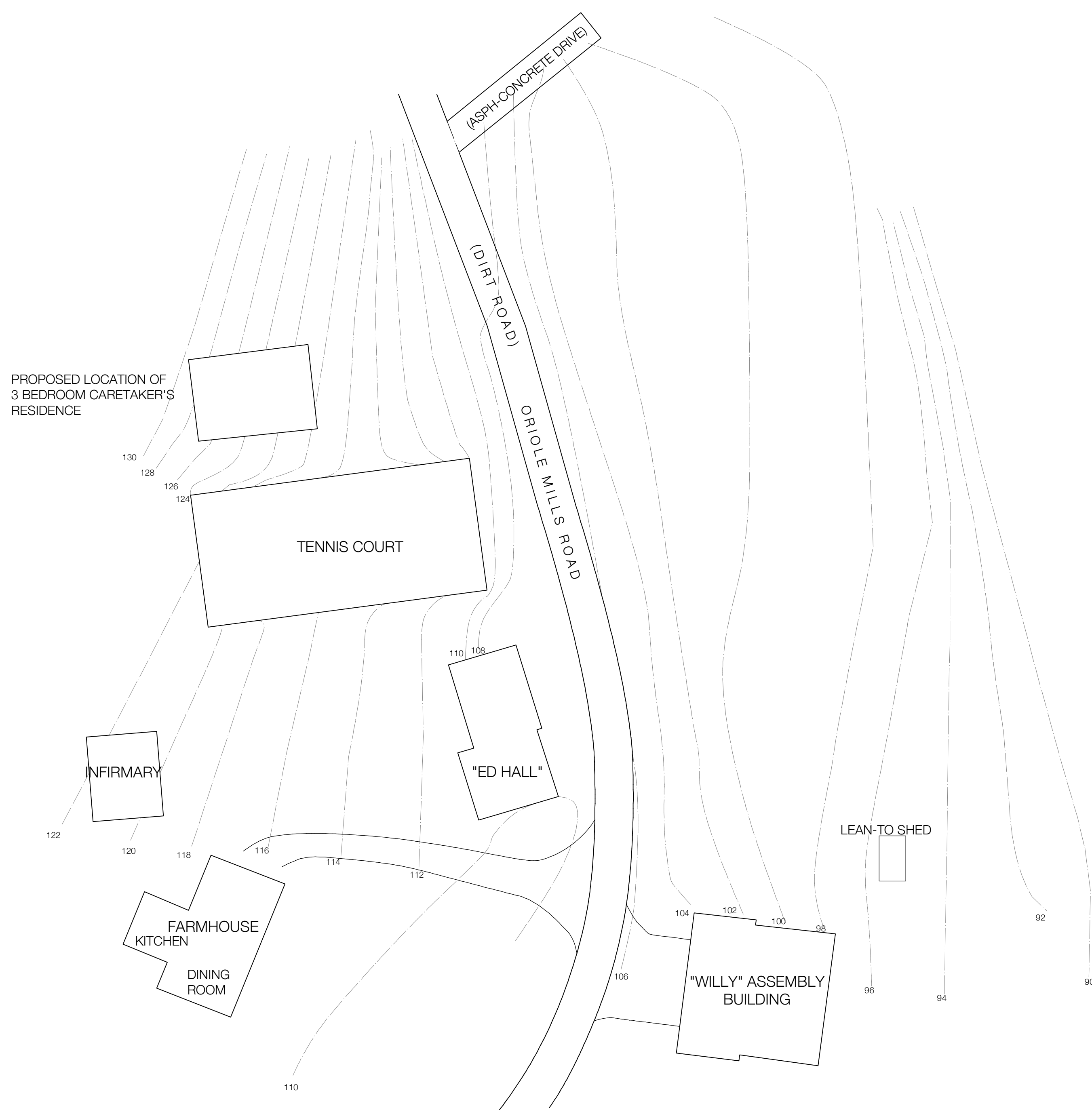
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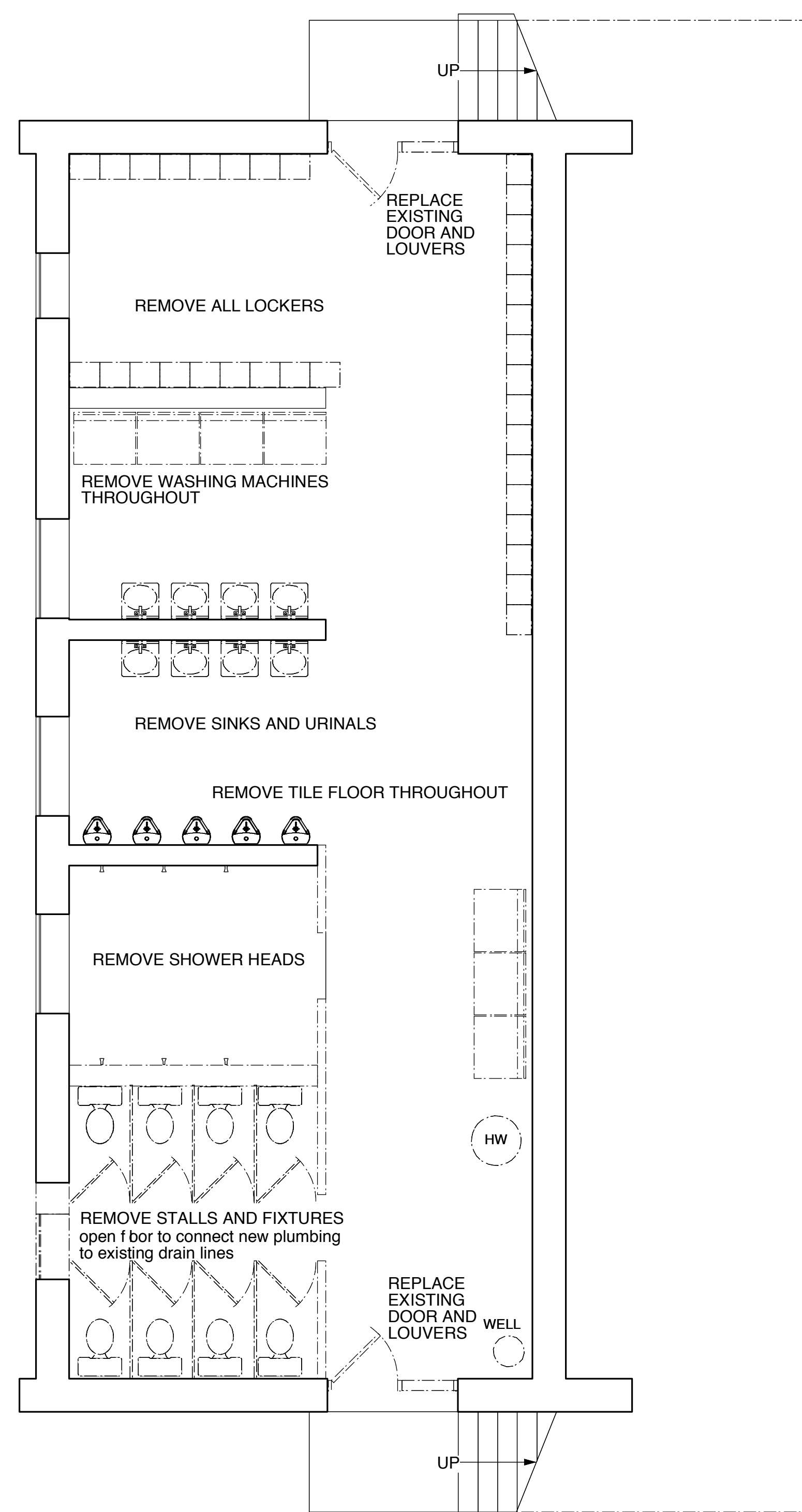
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PROJECT NAME
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WILLY - INTERNATIONAL THEATER

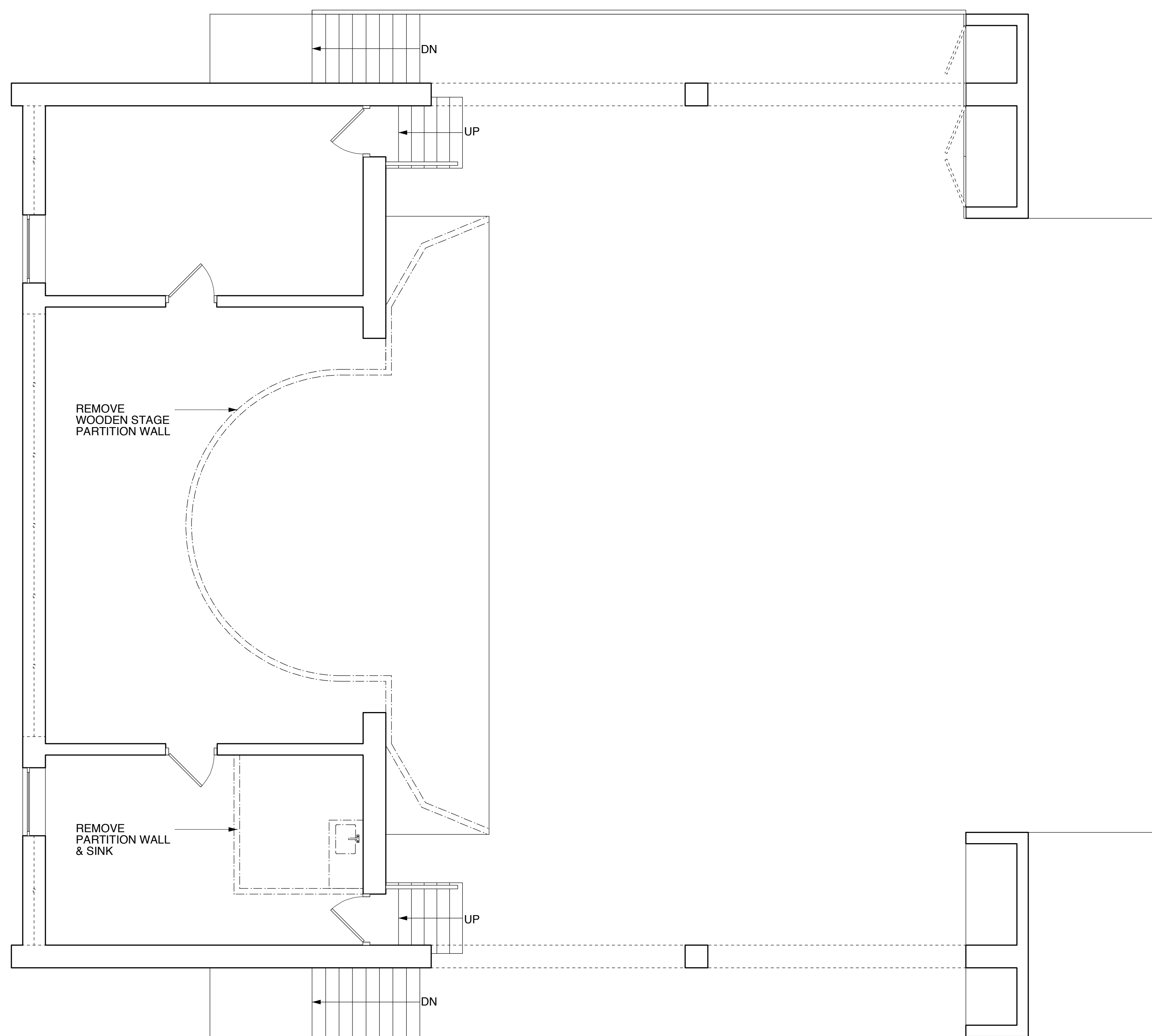
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Scale As Noted	C100
Date 12/22/15	





1 BASEMENT
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1 FIRST FLOOR
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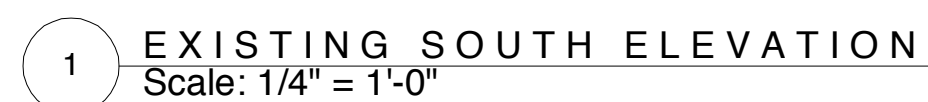
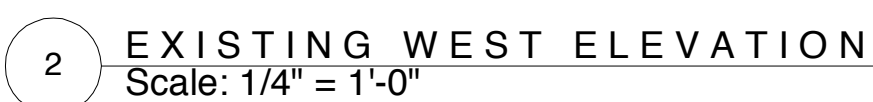
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PROJECT NAME
CAMP RISING SUN
WILLY - INTERNATIONAL THEATER

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Date 12/22/15	



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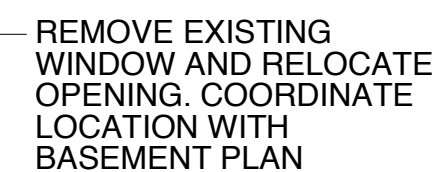
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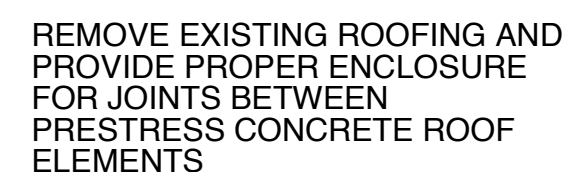
PROJECT NAME
CAMP RISING SUN
WILLY - INTERNATIONAL THEATER

DRAWING TITLE
EXTG & DEMO ELEVATIONS

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Date 12/22/15	



2 EXISTING NORTH ELEVATION
Scale: 1/4" = 1'-0"



1 EXISTING EAST ELEVATION
Scale: 1/4" = 1'-0"

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PROJECT NAME
CAMP RISING SUN
WILLY - INTERNATIONAL THEATER

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EXTG & DEMO ELEVATIONS

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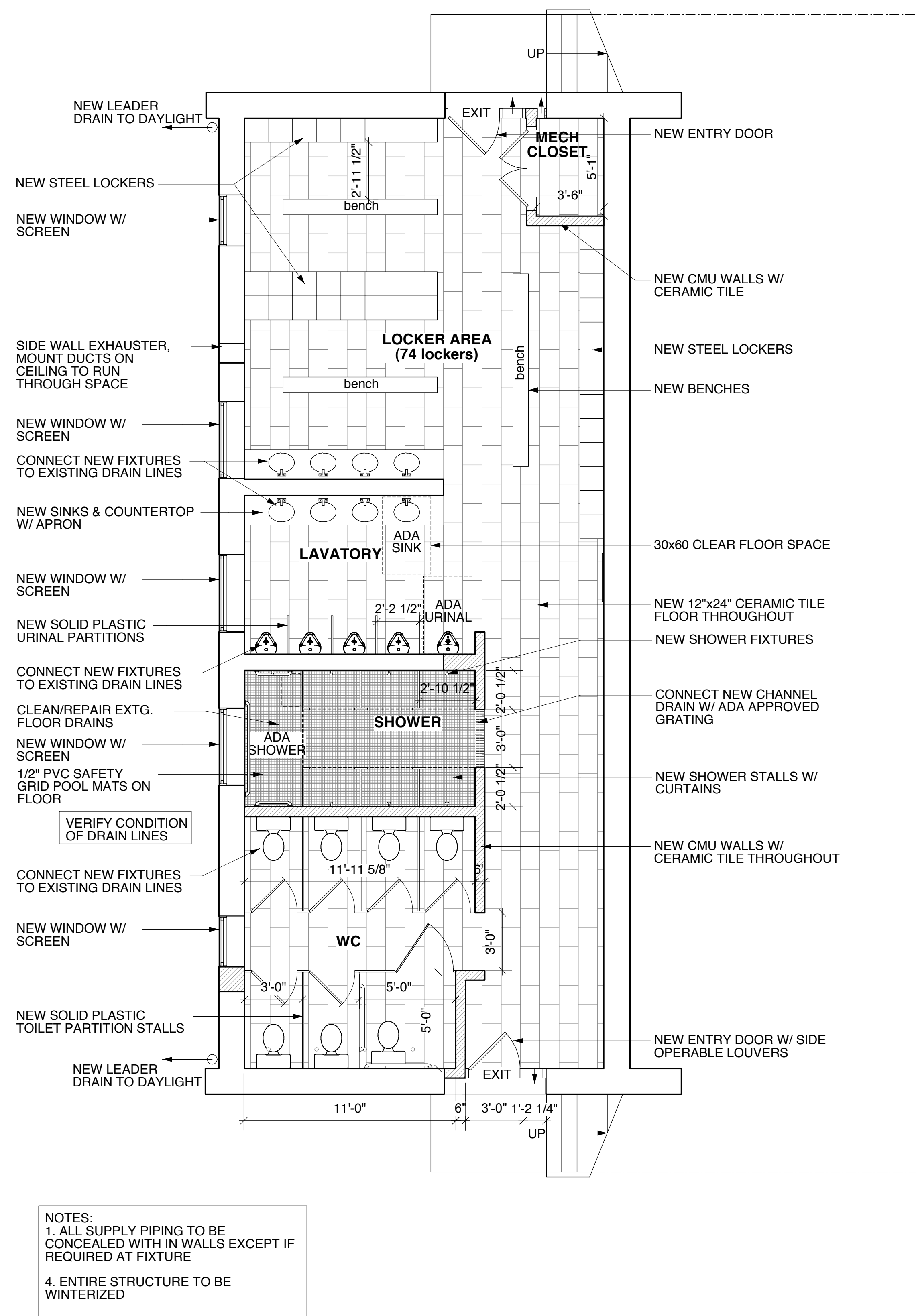
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BASEMENT PLAN

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Date 12/22/15	



1 BASEMENT PLAN
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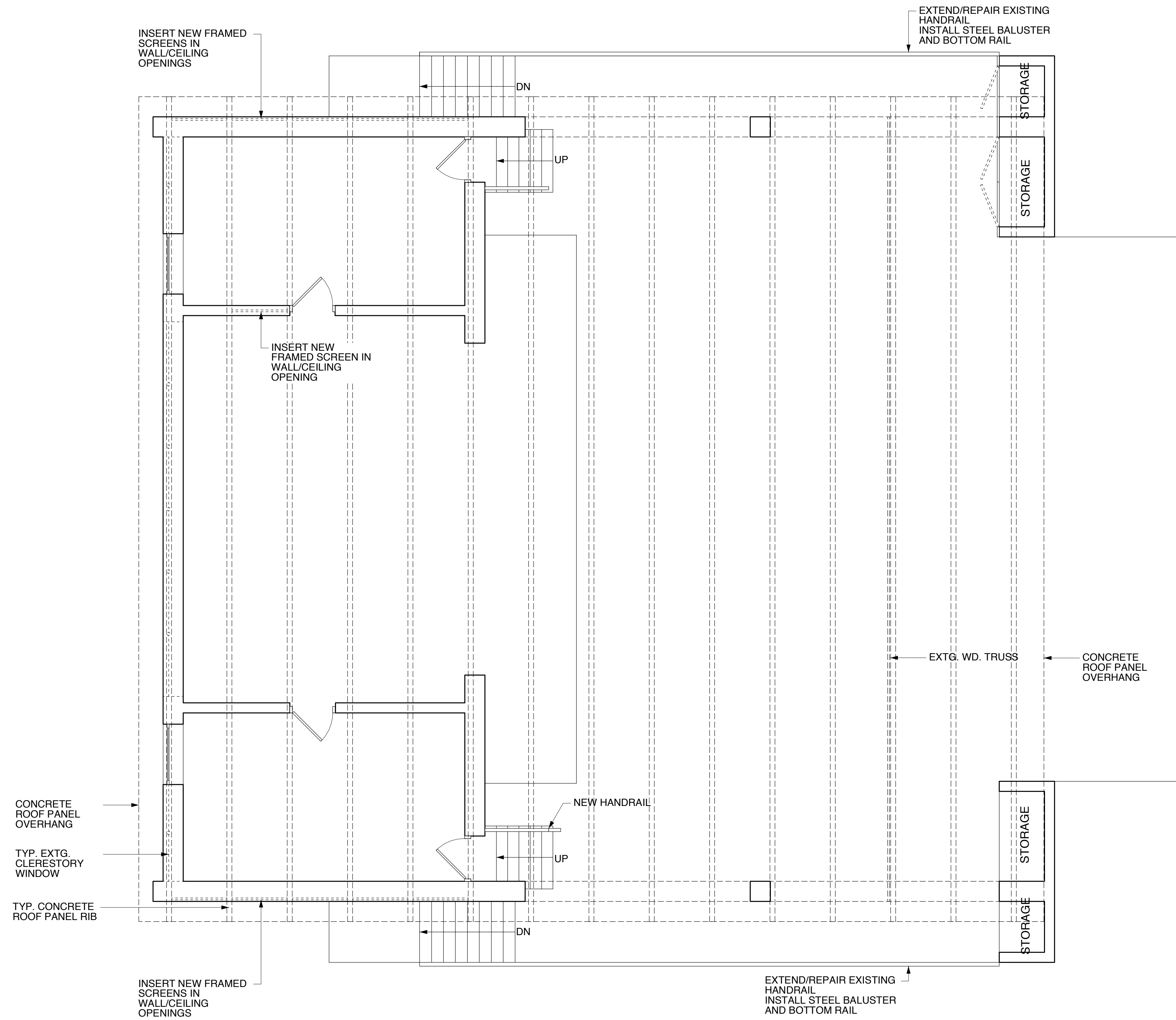
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FIRST FLOOR PLAN

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1 FIRST FLOOR PLAN
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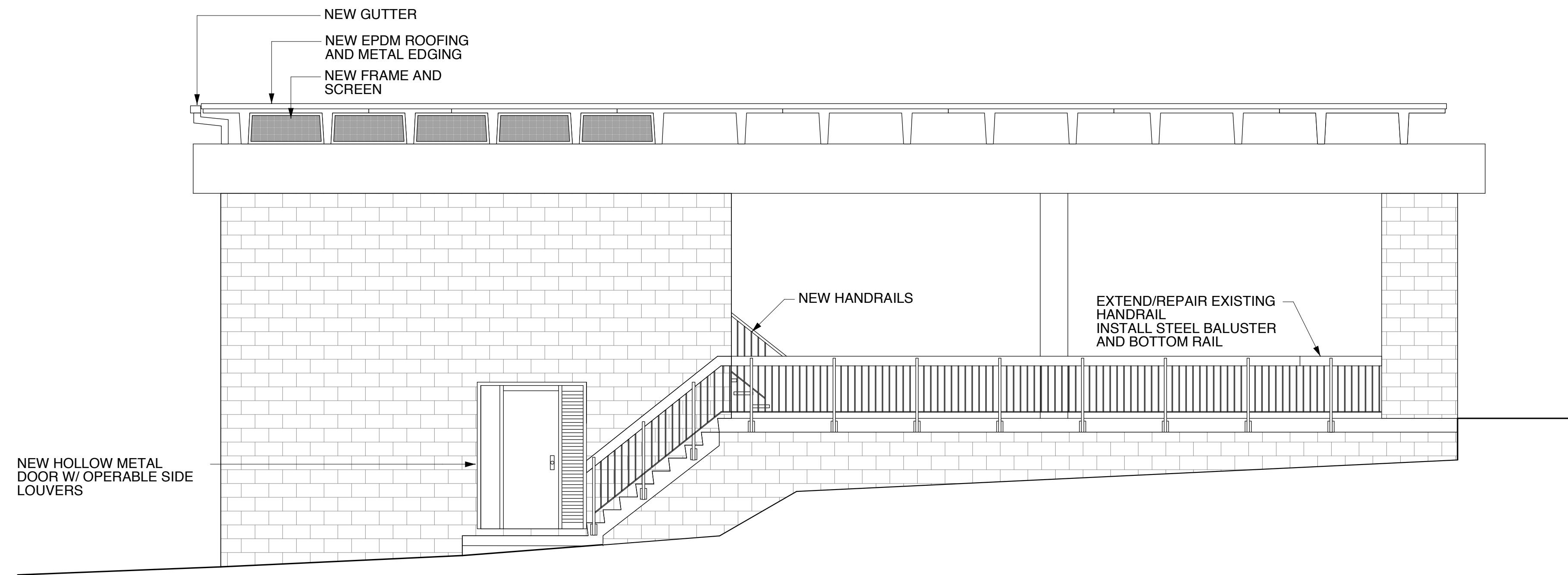
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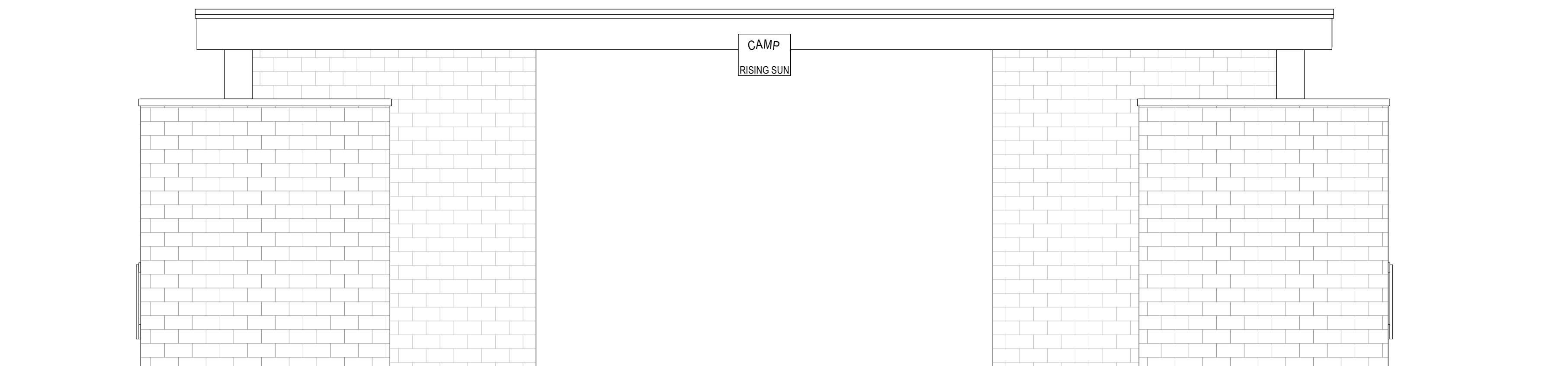
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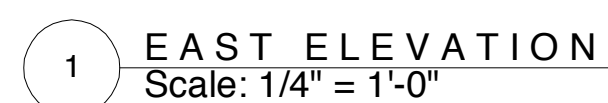
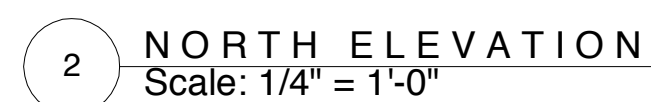
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ate 12/22/15	



2 WEST ELEVATION
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1 SOUTH ELEVATION
Scale: 1/4" = 1'-0"



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ENGINEERING

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PROJECT NAME
CAMP RISING SUN
WILLY - INTERNATIONAL THEATER

DRAWING TITLE
NORTH & EAST ELEVATIONS

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Date 12/22/15	

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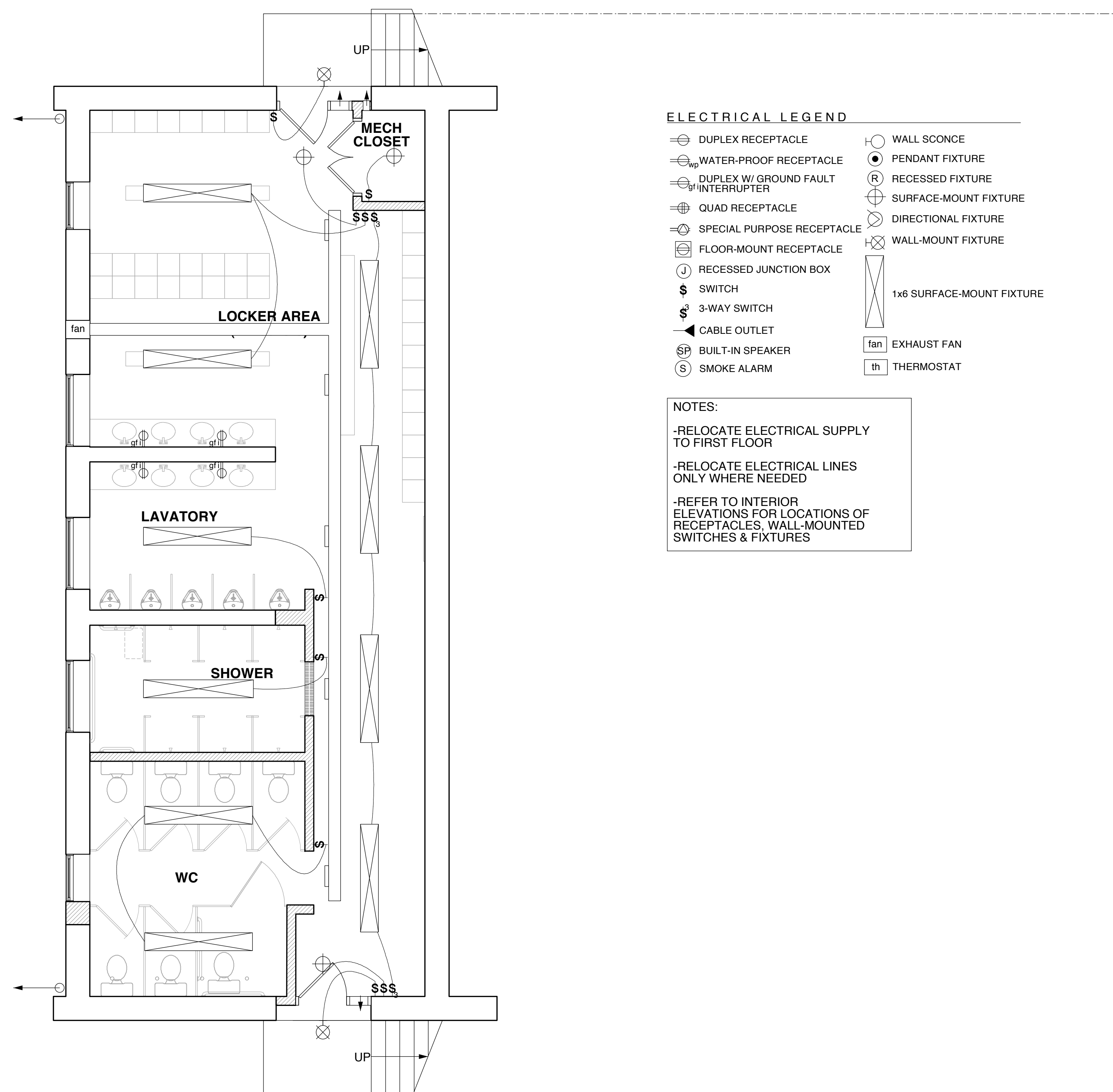
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PROJECT NAME
CAMP RISING SUN
WILLY - INTERNATIONAL THEATER

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Date 12/22/15	



1 BASEMENT REFLECTED CEILING PLAN
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STRUCTURAL
ENGINEERING

MECHANICAL
ENGINEERING

CIVIL
ENGINEERING

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CONTRACTOR

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NO.	DESCRIPTION	DATE
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PROJECT NAME
CAMP RISING SUN
WILLY - INTERNATIONAL THEATER

DRAWING TITLE
INTERIOR ELEVATIONS

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Date	12/22/15

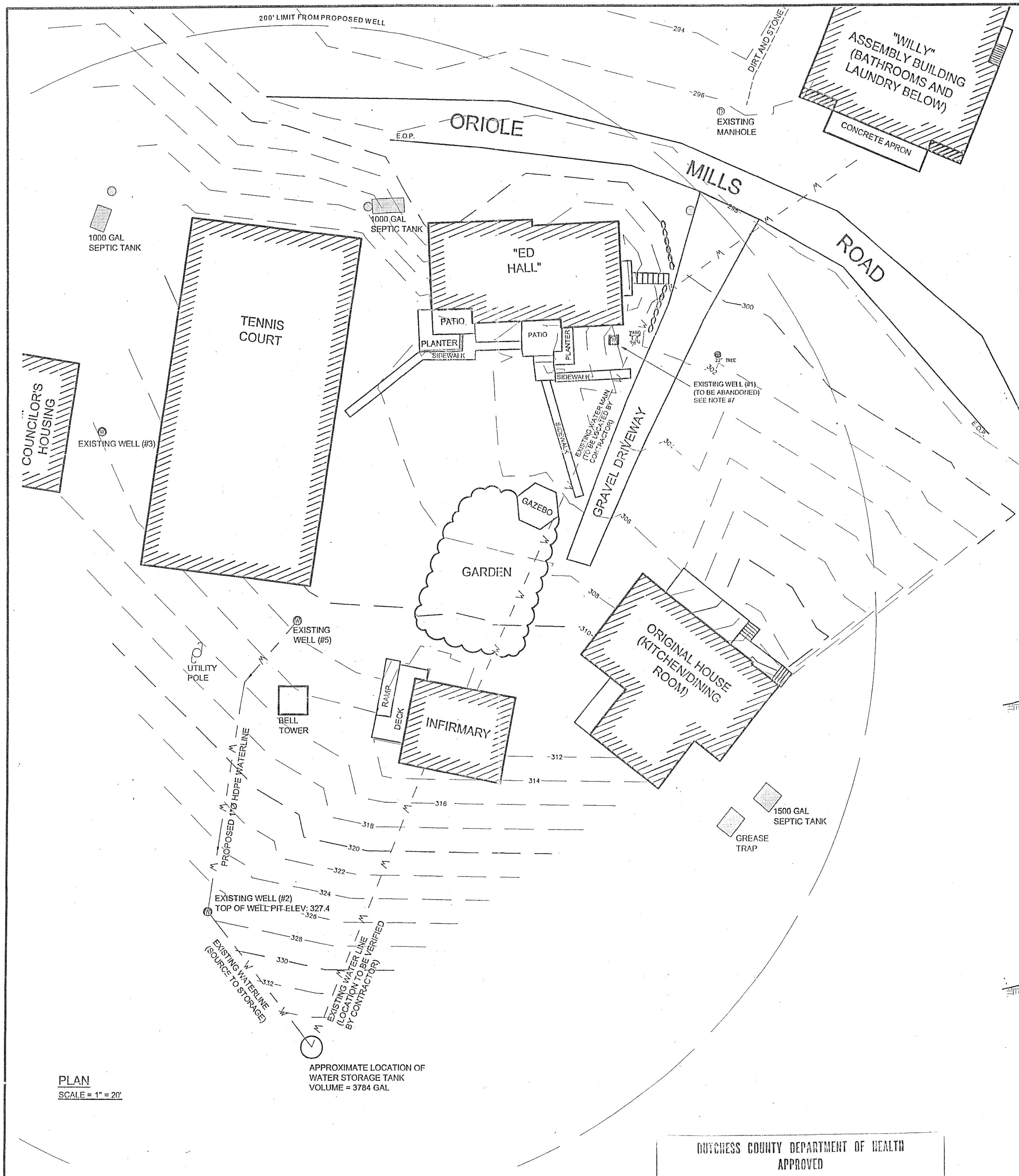
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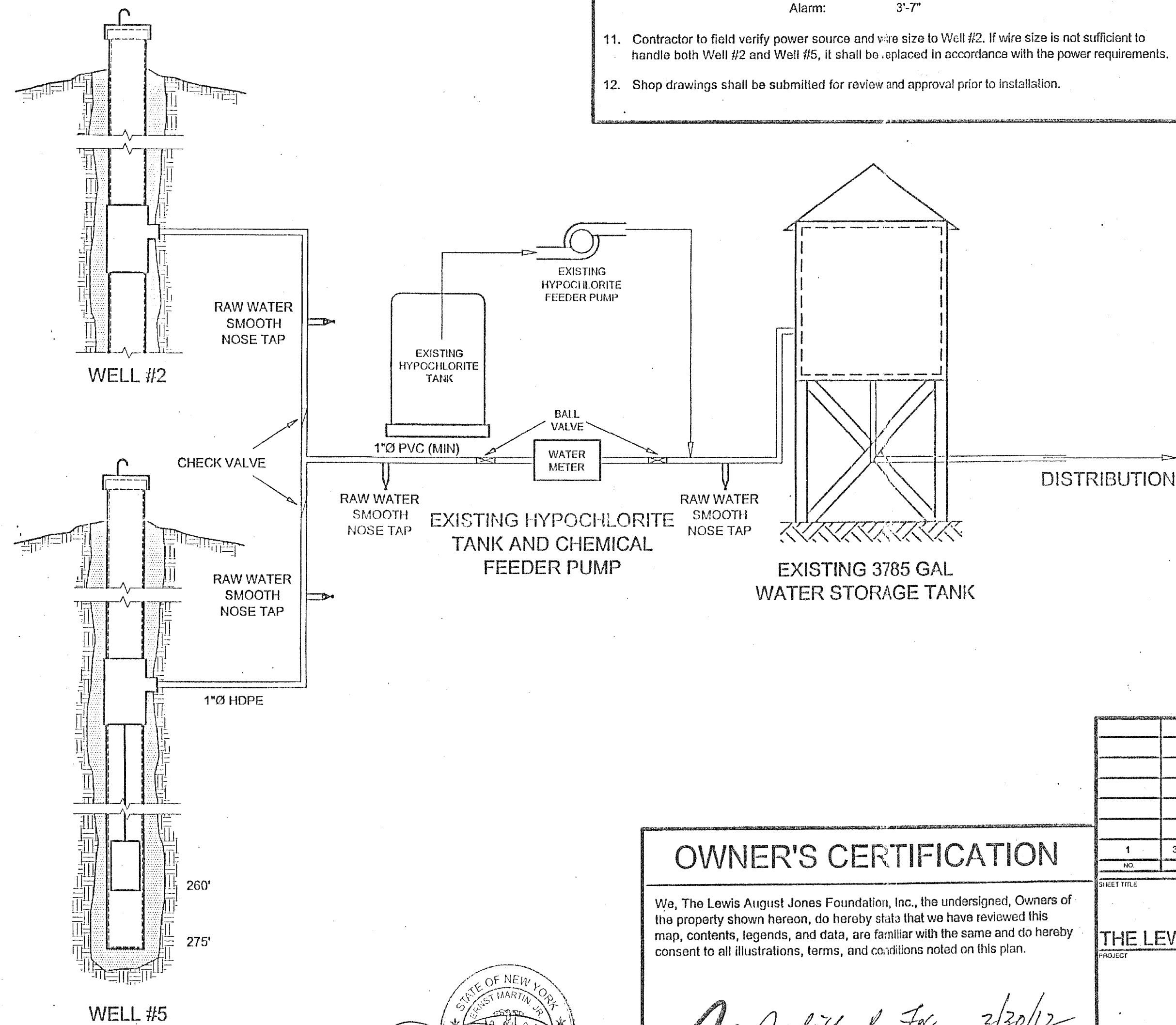
WATER CLOSET
Scale: 1/2" = 1'-0"

SHOWER ROOM
Scale: 1/2" = 1'-0"

APPENDIX 4



DUTCHESS COUNTY DEPARTMENT OF HEALTH
APPROVED
DATE: APRIL 5, 2012
PROJECT: NEW WELL #5 FOR
CAMP RISING SUN
T. RED HOOK
J. Red Hook, P.E.
SENIOR PUBLIC HEALTH ENGINEER



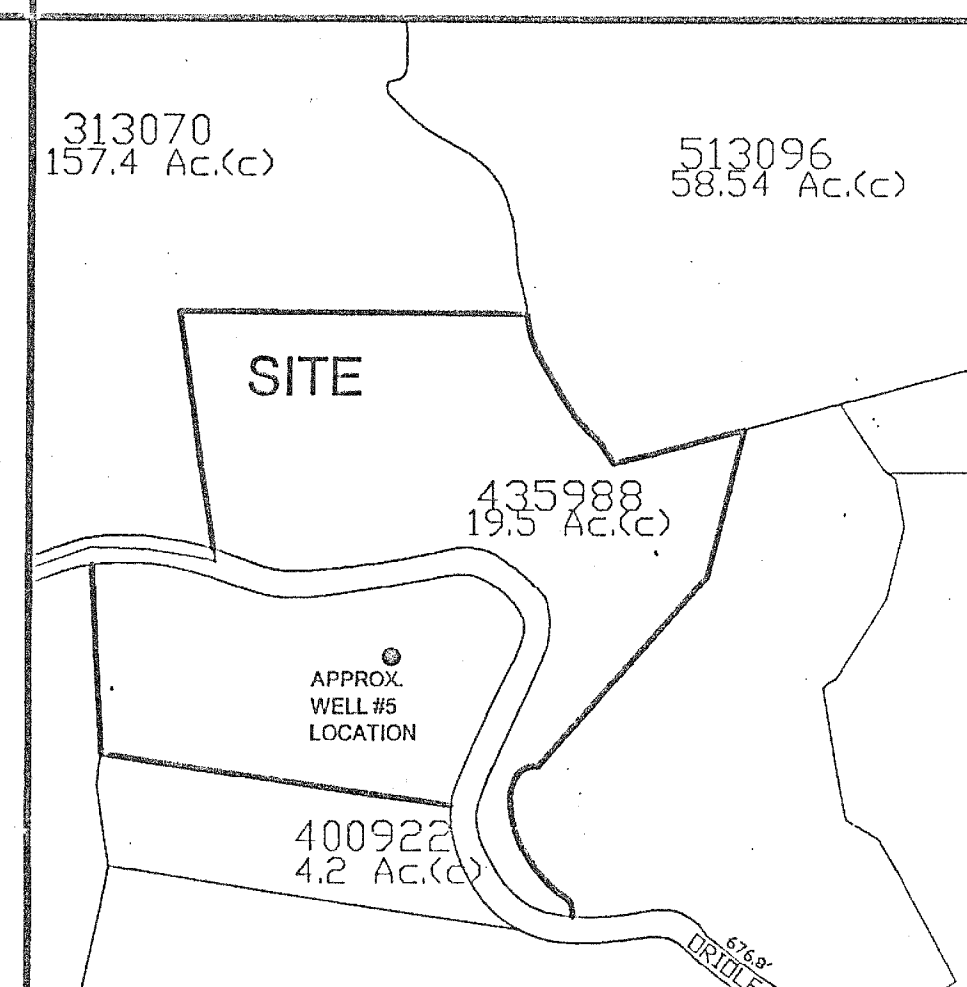
DUTCHESS COUNTY HEALTH DEPARTMENT

- The design, construction and installation shall be in accordance with this plan and generally accepted standards in effect at the time of construction which include:
 - "Recommended Standards for Water Works (Ten States)"
 - "Rural Water Supply, New York State Department of Health."
 - "New York State Department of Health and Dutchess County Department of Health policies, procedures and standards."
 - "Dutchess County Department of Health Sanitary Code, Article XI and Article V."
 - "Dutchess County Department of Health Certificate of Approval letter."
- This plan is approved as meeting the appropriate and applied technical standards, guidelines, policies and procedures for arrangement of sewage disposal and treatment and water supply facilities.
- Upon completion of the facilities, the finished works shall be inspected, tested, and certified complete to the Dutchess County Health Department by the New York State licensed Professional Engineer supervising construction. No part of the facilities shall be placed into service until accepted by the Dutchess County Health Department.
- Approval of any plan(s) or amendment thereto shall be valid for a period of five (5) years from the date of approval. Following the expiration of said approval, the plan(s) shall be re-submitted to the Commissioner of Health for consideration for re-approval. Re-submission or revised submission of plans and/or associated documents shall be subject to compliance with the technical standards, guidelines, policies and procedures in effect at the time of the re-submission.
- All wells and SDS existing or approved within 200 feet of the proposed wells and SDS are shown on this plan along with any other environmental hazards in the area that may affect the design and functional ability of the SDS and well.
- The undersigned owners of the property herein state that they are familiar with this map, its contents and its legends and hereby consent to all said terms and conditions as stated hereon.
- Well abandonment of Well #1 in accordance with AWWA Sec. 100-06.
 - Existing piping and pumps to be removed from well
 - Existing well to be filled with concrete
 - Existing well casing to be capped with welded plate
- The existing wells serve the following:
 - Well #1 to be abandoned
 - Well #2 serves The "Original House", "The Willy", "Infirmary", and "ED Hall" (with Well #5)
 - Well #3 serves the existing 3BR house
 - Well #4 serves the swimming pool (located north of Oriole Mills Road, not shown on plan)
 - Well #5 serves The "Original House", "The Willy", "Infirmary", and "ED Hall" (with Well #2)
- Shaded septic structures taken from map entitled "Camp Rising Sun" prepared by David Queen, last revised March 8, 1980
- Equipment Specifications:
 - Well #5 Pump: Goulds Submersible Model No. 5G07412C
 - Control Panel: CentriPro, duplex, NEMA 4A waterproof panel, Model No. D10020
 - Float Switches: CentriPro, A2D Series

Total Tank Height: 8'-9"
Pump Off: 6'-7"
Pump On: 6'-7"
Alarm: 3'-7"
- Contractor to field verify power source and wire size to Well #2. If wire size is not sufficient to handle both Well #2 and Well #5, it shall be replaced in accordance with the power requirements.
- Shop drawings shall be submitted for review and approval prior to installation.

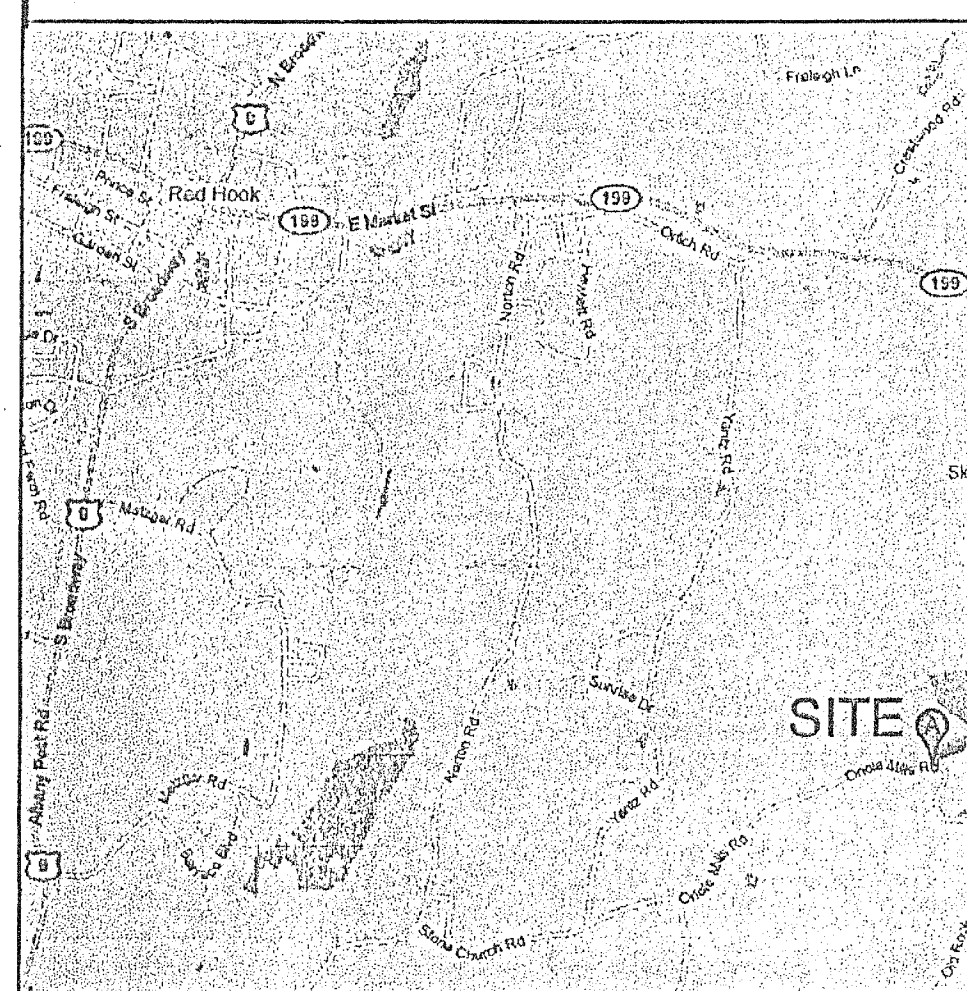
LOCATION MAP

TAKEN FROM TOWN OF RED HOOK TAX MAPS
SCALE: 1" = 400'



AREA MAP

TAKEN FROM GOOGLE MAPS
SCALE: 1" = 2600'



APR 3 2012

OWNER'S CERTIFICATION

We, The Lewis August Jones Foundation, Inc., the undersigned, Owners of the property shown hereon, do hereby state that we have reviewed this map, contents, legends, and data, are familiar with the same and do hereby consent to all illustrations, terms, and conditions noted on this plan.

J. Red Hook
SIGNATURE DATE 3/30/12

THE LEWIS AUGUST JONES FOUNDATION, INC.
152 MADISON AVENUE, SUITE 2400
NEW YORK, NEW YORK 10016

NO.	DATE	REVISION	BY
1	3/23/2012	MISCELLANEOUS REVISIONS PER DCHD	P.J.P.
PROJECT TITLE			
WELL CONNECTION			
FOR			
THE LEWIS AUGUST JONES FOUNDATION, INC.			
PROJECT			
"CAMP RISING SUN"			
TAX GRID No. 15-6371-00-435988			
TOWN OF RED HOOK			
DUTCHESS COUNTY, NEW YORK			
DRAWN BY			
P.J.P.			
CHECKED BY			
E.M.			
DRAWING NO.			
1 OF 1			

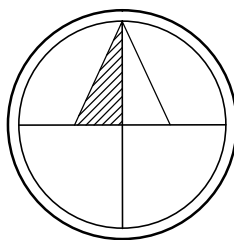
1330016

APPENDIX 5




SCHEMATIC EXISTING CONDITIONS
SCALE 1" = 40'

SCHEMATIC PROPOSED CONDITIONS
SCALE 1" = 40'



PRELIMINARY
NOT FOR
CONSTRUCTION

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STATE EDUCATION LAW FOR ANY PERSON
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OR REPORTS IN ANY WAY, UNLESS HE IS
ACTING UNDER THE DIRECTION OF A
LICENSED PROFESSIONAL ENGINEER.

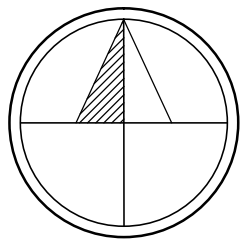
REV. No.	ZONE	DATE	BY
CAMP RISING SUN			
TOWN OF RED HOOK DUTCHESS COUNTY, NY			
EXISTING & PROPOSED WATER SYSTEM PLAN			
 CRAWFORD & ASSOCIATES ENGINEERING, P.C. 551 Warren Street, Hudson New York 12534 www.crawfordandassociates.com tel: (518) 828-2700 fax: (518) 828-2723 © COPYRIGHT			
DATE 11/19/2015	DRAWN BY: RMM	W:\WORK\4651.0\DWG\Water System Map.dwg	
SCALE 1"=40'	DESIGNED BY: MBE	C&A JOB# 4619.00	DRAWING: C-1
	CHECKED BY: BKN		
	APPROVED BY: BKN		

APPENDIX 6




SEWER EXISTING CONDITIONS

SCALE 1" = 40'



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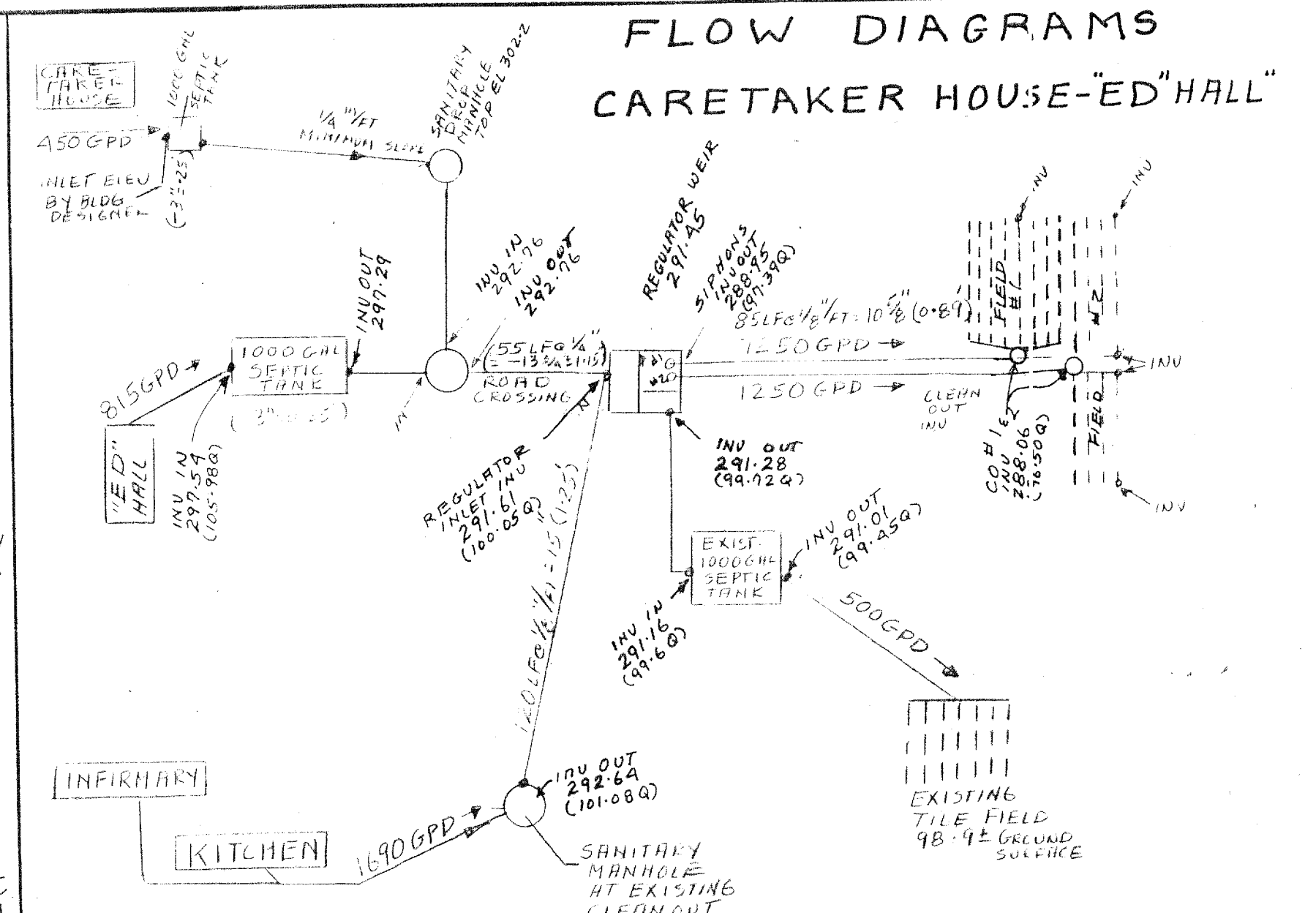
REV. No.	ZONE	DATE	BY
CAMP RISING SUN			
TOWN OF RED HOOK DUTCHESS COUNTY, NY			
EXISTING SEWER SYSTEM PLAN			
 CRAWFORD & ASSOCIATES ENGINEERING, P.C. 551 Warren Street, Hudson New York 12534 www.crawfordandassociates.com			
tel: (518) 828-2700 fax: (518) 828-2723			
© COPYRIGHT			
DATE 12/22/2015	DRAWN BY: RMM	W: \\WORK\4651.0\DWG\00seemap.dwg	
SCALE 1"=40'	DESIGNED BY: RMM	C&A JOB# 4561.00	DRAWING: C-2
	CHECKED BY: BKN		
	APPROVED BY: BKN		

APPENDIX 7

CAMP RISING SUN

(THE LOUIS AUGUST JONAS FOUNDATION, INC.)
ORIOLE MILLS RD. TOWN OF RED HOOK
DUTCHESS CO, NEW YORK

FLOW DIAGRAMS CARETAKER HOUSE-"ED" HALL



NOTE: ELEVATIONS SHOWN WITHOUT () ARE USGS MEAN SEA LEVEL DATUM BASED ON R.R. SPIKE 58 IN CHASE POLE 2297 P.25 ELEV 300.3 ELEVATIONS SHOWN WITH () ARE MY ORIGINAL DATUM ADD 191.56 TO ALL Q ELEV'S FOR CONVERSION.

NOTES

- A- CARETAKER RESIDENCE - "ED" HALL COMBINED SYSTEM.**
 - THE SEPTIC SYSTEM GRADIENT IS BASED IN PART ON ESTIMATED INVERT ELEVATIONS FOR THE EXISTING CLEANOUT HADILLO CULLEN SEPTIC TANK. THESE WERE DERIVED FROM THE CONTRACTOR'S RESPONSIBILITY FOR EXCAVATING THE FIELD.
 - THE EXISTING SEWER LINE FROM "ED" HALL UNDER ORIOLE MILLS ROAD WILL BE REMOVED UPON COMPLETION OF THE NEW LINE DUE TO A HISTORY OF FREEZING.
 - THE CARETAKER RESIDENCE SEPTIC TANK INLET INVERT IS TO BE SET AT A GRADE OF 1/4 INCH PER FOOT BELOW THE STRUCTURE OUTLET ELEV. TO BE FURNISHED BY THE BUILDING DESIGNER.
 - THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITS OR PERMISSION FOR EXCAVATING THROUGH ORIOLE MILLS ROAD AND PROVIDING PROTECTION AS REQUIRED BY THE TOWN OF RED HOOK.
 - IT IS ANTICIPATED THAT THE CONTRACTOR WILL ENCOUNTER ROCK EXCAVATION IN SEVERAL PLACES INCORPORATED TO SET TANKS AND PIPES AT TYPICAL GRADE. THE CONTRACTOR WILL BE RESPONSIBLE FOR TAKING NECESSARY PRECAUTIONS DURING EXCAVATION, DRILLING, AND TANK OPERATIONS TO PREVENT DAMAGE TO EXISTING BUILDINGS AND UTILITIES. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT CONTRACTOR'S COST. IN CONFINED AREAS IT IS SUGGESTED THAT THE CONTRACTOR CONSIDER REMOVAL OF ROCK SHOOTING BY THE USE OF DRILLING AND A ROCK SHOOTER SUCH AS "DORLING" WHICH IS RENTED BY ENHANCING (11 VAN RIVER AVE, ENHANCING PARK, N.J. 07410) TEL 201-797-4644.
- B- KITCHEN (ORIGINAL HOUSE) - INFIRMARY SYSTEM.**
 - REFER TO NOTE A1 FOR CONTRACTOR VERIFICATION OF THE INVERT ELEVATION OF THE CLEANOUT AT THE POINT OF FLOW DIVERSION.
 - ALL FLOW IS TO BE DIVERTED TO NEW SYSTEM.

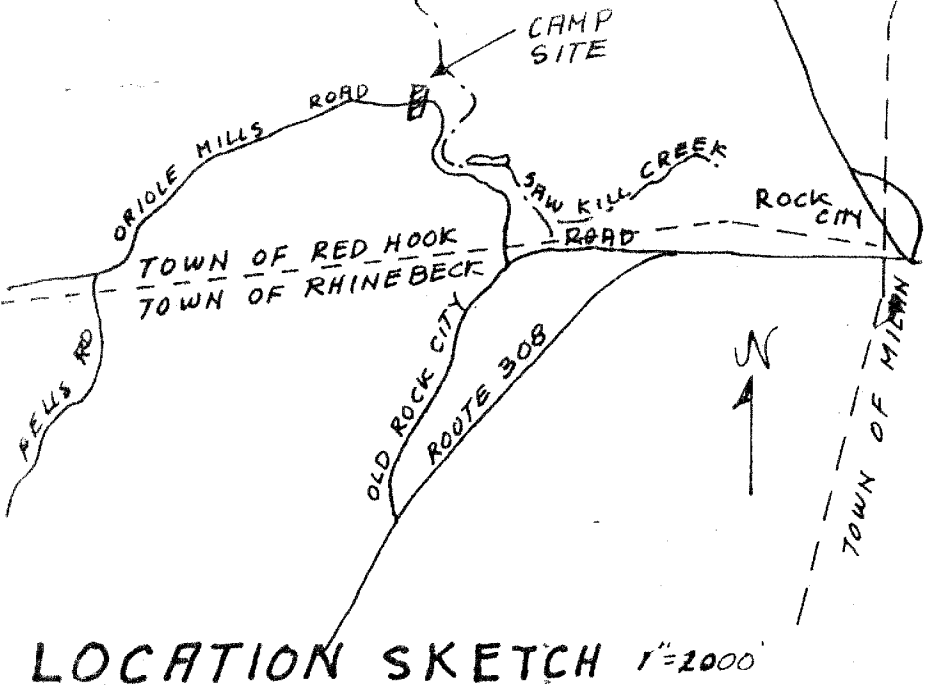
I CERTIFY THAT THE SEPTIC SYSTEM AS SHOWN WAS CONSTRUCTED BY LAFFO ASSOCIATES, INC. DURING MAY-JUNE 1980. FIELD CHANGE OF INVERT ELEVATIONS AND SHIFT IN TILE FIELD POSITION WAS DONE UNDER MY DIRECTION TO MEET AS FOUND CONTROL INVERT ELEVATIONS; AND TO MISS ROCK FOUND IN TILE FIELD NO. 2.

David F. Queen
PE-LS (NYS 40028)
JUNE 16, 1980

David F. Queen
DAVID F. QUEEN
PROFESSIONAL ENGINEER
AND
LAND SURVEYOR (40028)
18 LIVINGSTON ST
RHINEBECK, N.Y.

REVIEWED MAY 28, 1980
FINAL - JANUARY 19, 1980
PRELIM. OCT. 1, 1979

LOCATION SKETCH 1"=200'



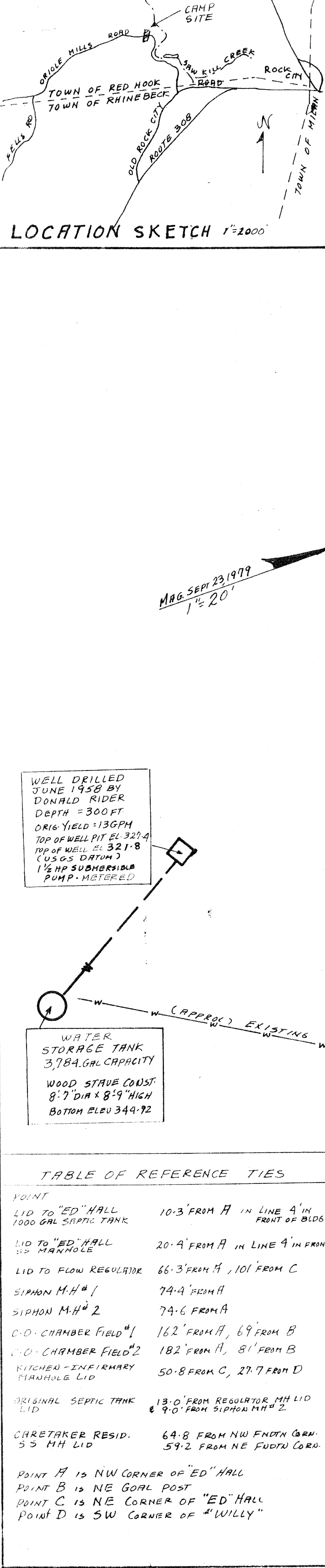
WELL DRILLED JUNE 1958 BY DONALD RIDER DEPTH = 300 FT ORIG. YIELD = 130 GPM TOP OF WELL PIT EL 322.4 TOP OF WELL EL 321.8 (USGS DATUM) 1 1/2 HP SUBMERSIBLE PUMP - METERED

WATER STORAGE TANK 3,784 GAL CAPACITY WOOD STAVE CONST 8'7" DIA X 8'9" HIGH BOTTOM ELEV 344.72

TABLE OF REFERENCE TIES

POINT	
LID TO "ED" HALL 1000 GAL SEPTIC TANK	10.3' FROM A IN LINE 4" IN FRONT OF BLDG.
LID TO "ED" HALL 55' MANHOLE	20.4' FROM A IN LINE 4" IN FRONT
LID TO FLOW REGULATOR	66.3' FROM A, 101' FROM C
SIPHON M.H. #1	74.4' FROM A
SIPHON M.H. #2	74.6' FROM A
C.O. CHAMBER FIELD #1	162' FROM A, 69' FROM B
C.O. CHAMBER FIELD #2	182' FROM A, 81' FROM B
KITCHEN - INFIRMARY PLUMBING LID	50.8' FROM C, 27.7' FROM D
ORIGINAL SEPTIC TANK LID	13.0' FROM REGULATOR M.H. LID & 9.0' FROM SIPHON M.H. #2
CARETAKER RESID. 55' M.H. LID	64.8' FROM NW CORNER OF "ED" HALL 59.2' FROM NE FOOTING CORN.

POINT A IS NW CORNER OF "ED" HALL
POINT B IS NE CORNER OF "ED" HALL
POINT C IS NE CORNER OF "ED" HALL
POINT D IS SW CORNER OF "WILLY"



APPENDIX 8



Crawford & Associates Engineering, P.C.

Engineering Consultants, Planners, Geologists

4411 Route 9 • Suite 200 (The Flanders Building) • Hudson, New York 12534
TEL (518) 828-2700 • FAX (518) 828-2723

DEEP TEST RESULTS

C&A Rep: RMM

Name of Property: Camp Rising Sun Date: 12/08/2015

Owner of Property: Louis Jona Foundation (T)(V)(C) Town of Red Hook

County: Dutchess County County DOH Rep: N/A

Hole Number	Lot Number	Total Depth	Rock Depth	Water Depth	Soil Description
DP-1		72"	N/A	N/A	0-12" Gravely Loam (Dark Brown)
					12-24" Gravely Silt Loam (Light Brown)
					24" – 72" Silt Loam (Light Brown/Orange)
DP-2		24"	24"	N/A	0-12" Gravely Loam (Dark Brown)
					12-24" Gravely Silt Loam (Light Brown)
					" Bedrock refusal at 24"
DP-3		70"	70"	N/A	0-12" Gravely Loam (Dark Brown)
					12-24" Gravely Silt Loam (Light Brown)
					24" – 70" Silt Loam (Light Brown/Orange)
					" Bedrock refusal at 70"
DP-4		72"	N/A	N/A	0-12" Gravely Loam (Dark Brown)
					12-24" Gravely Silt Loam (Light Brown)
					24" – 70" Silt Loam (Light Brown/Orange)
					70" – 72" Construction Debris

General Remarks (terrain, weather, springs, streams, etc.) _____

Percolation Test Data

Project: **Camp Rising Sun**
Prepared by: RMM

Project # **4561.00**
Date: 12/8/2015

P-1

PERCOLATION TEST								
LOT #	DEPTH	SOAK		#1	#2	#3	#4	#5
N/A	24"	Yes	START					
			STOP					
			TIME	23m 27s	25m 32s	26m 20s		
P-2	24"	Yes	START					
			STOP					
			TIME	16m 38s	18m 23s	19m 10s		

PERCOLATION TEST								
LOT #	DEPTH	SOAK		#1	#2	#3	#4	#5
			START					
			STOP					
			TIME					
			START					
			STOP					
			TIME					

PERCOLATION TEST								
LOT #	DEPTH	SOAK		#1	#2	#3	#4	#5
			START					
			STOP					
			TIME					
			START					
			STOP					
			TIME					

PERCOLATION TEST								
LOT #	DEPTH	SOAK		#1	#2	#3	#4	#5
			START					
			STOP					
			TIME					
			START					
			STOP					
			TIME					

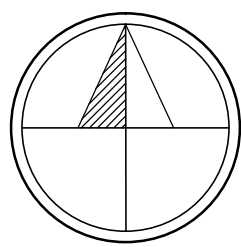
PERCOLATION TEST								
LOT #	DEPTH	SOAK		#1	#2	#3	#4	#5
			START					
			STOP					
			TIME					
			START					
			STOP					
			TIME					

PERCOLATION TEST								
LOT #	DEPTH	SOAK		#1	#2	#3	#4	#5
			START					
			STOP					
			TIME					
			START					
			STOP					
			TIME					

APPENDIX 9



PROPOSED SEWER IMPROVEMENTS
SCALE 1" = 50'



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REV. No.	ZONE	DATE	BY
CAMP RISING SUN			
PROPOSED SEWER IMPROVEMENTS PLAN			
<div><div></div><div>CRAWFORD & ASSOCIATES ENGINEERING, P.C. 551 Warren Street, Hudson New York 12534 www.crawfordandassociates.com</div><div>tel: (518) 828-2700 fax: (518) 828-2723</div></div> <div>© COPYRIGHT</div>			
DATE 12/22/2015	DESIGNED BY: RMM	W: \\WORK\4651.0\DWG\sewer sketch.dwg	
SCALE 1"=50'	CHECKED BY: BKN	C&A JOB# 4651.00	DRAWING: C-3
	APPROVED BY: BKN		