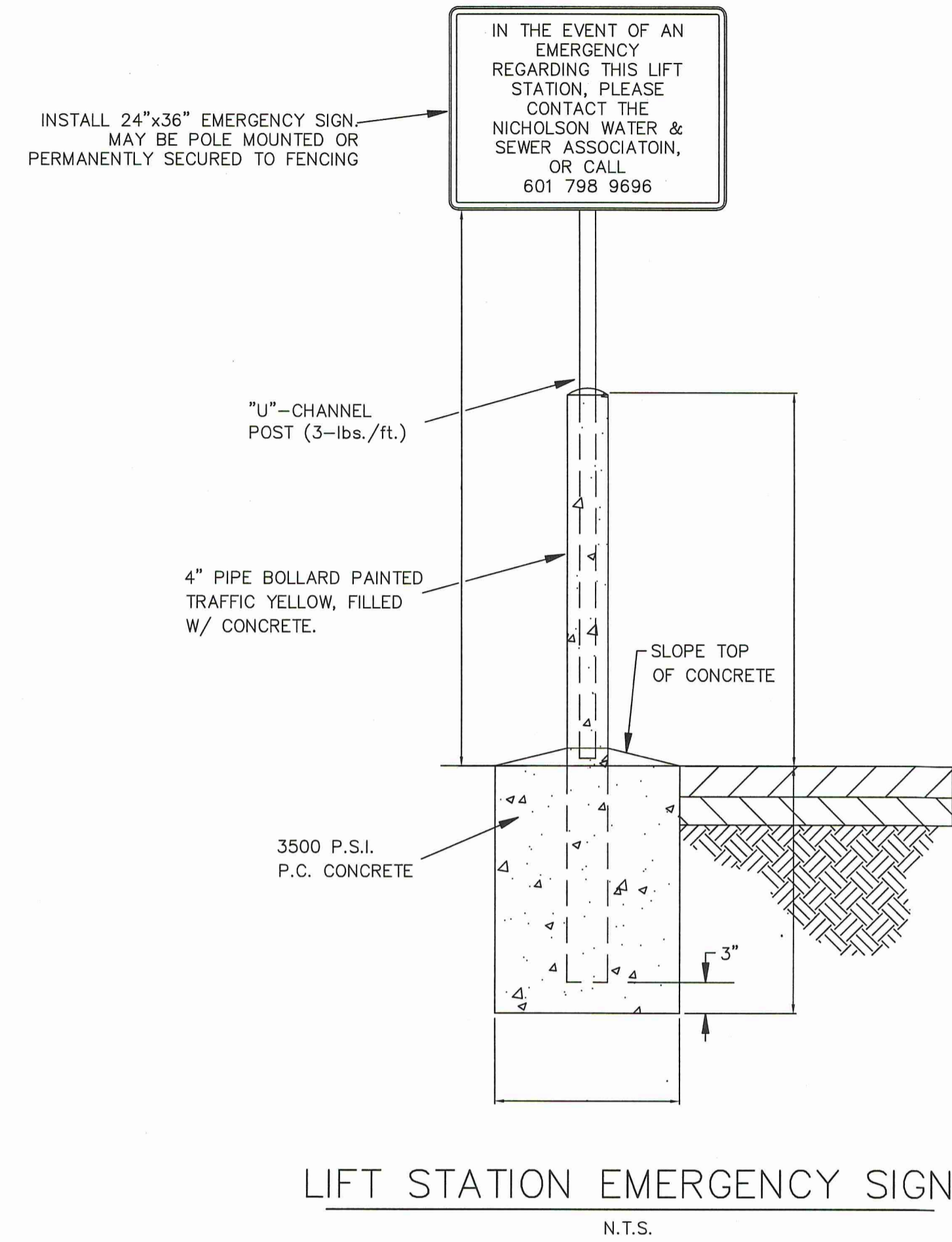
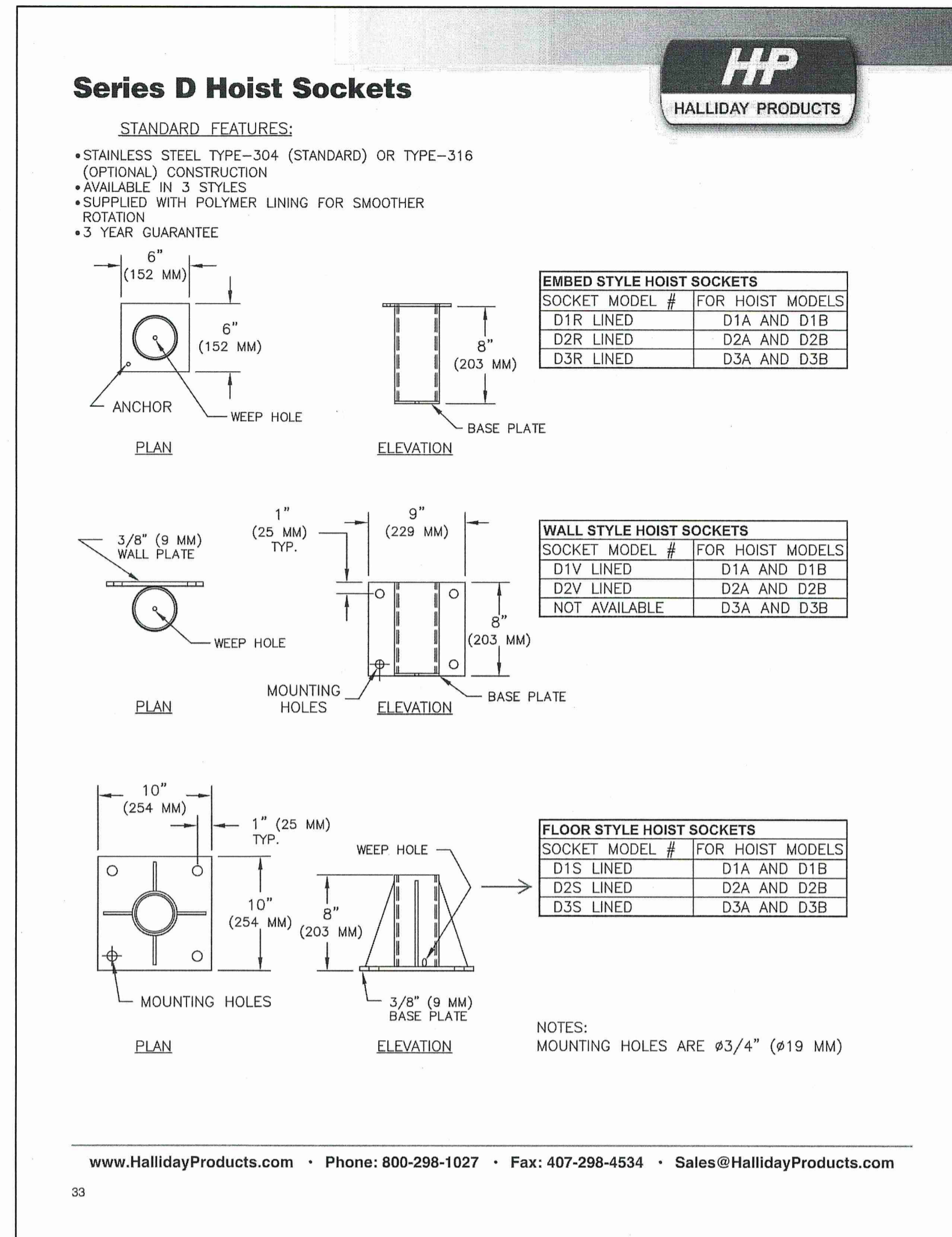
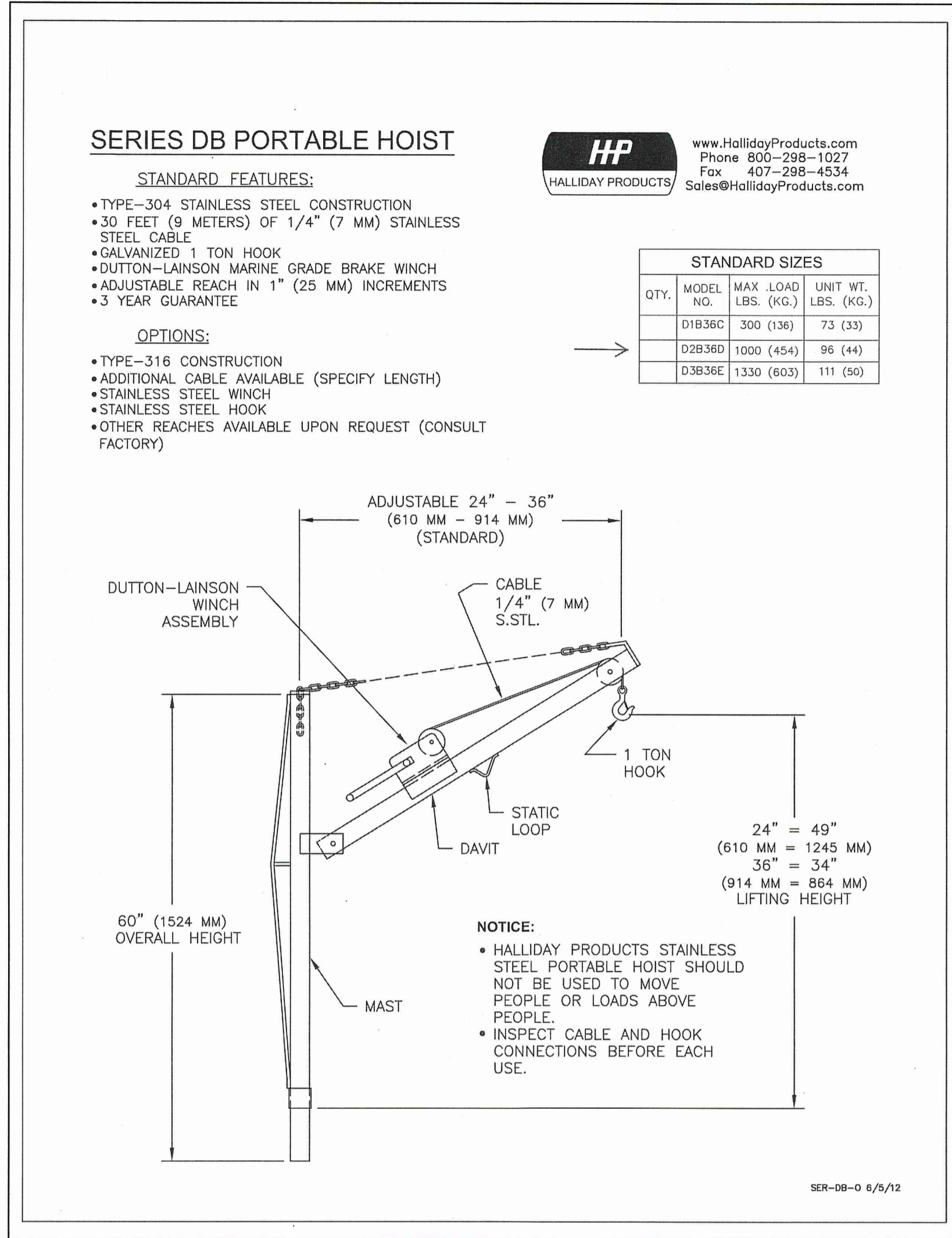




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INTERSTATE 59 EXIT 1 @ MS HWY 607  
PEARL RIVER COUNTY, MISSISSIPPI



**PUMP STATION NOTES**

- EACH PUMP STATION SHALL BE FENCED OR SECURED IN A LOCKED BUILDING/ENCLOSURE OR BE LOCATED IN A RESTRICTED ACCESS AREA TO PREVENT ACCESS BY UNAUTHORIZED PERSONS. THE TYPE OF FENCING OR OTHER MEANS OF CONTROLLING ACCESS SHALL BE APPROVED BY THE DEPARTMENT.
- A WEATHER DURABLE SIGN, APPROVED BY THE DEPARTMENT, WITH A TWENTY FOUR (24) HOUR EMERGENCY TELEPHONE NUMBER, SHALL BE LOCATED AT A CONSPICUOUS POINT ON THE FENCE OR STRUCTURE OF THE PUMP STATION, UNLESS THE PUMP STATION IS LOCATED IN A RESTRICTED ACCESS AREA.
- AT LEAST TWO (2) PUMPS SHALL BE PROVIDED. THEY SHALL HAVE THE SAME CAPACITY AND EACH SHALL BE CAPABLE OF HANDLING THE EXPECTED PEAK FLOW. WHERE THREE (3) OR MORE UNITS ARE PROVIDED, THEY SHALL BE DESIGNED TO FIT ACTUAL FLOW CONDITIONS AND SHALL BE OF SUCH CAPACITY THAT WITH ANY ONE UNIT OUT OF SERVICE THE REMAINING UNITS SHALL HAVE CAPACITY TO HANDLE PEAK SEWAGE FLOWS. THE DEPARTMENT MAY CONSIDER THE EFFECT OF FLOW EQUALIZATION, WHERE APPLICABLE.
- FOR DOMESTIC WASTEWATERS AND INDUSTRIAL WASTEWATERS WITH SOLIDS WHICH ARE SIMILAR IN SIZE AND NATURE TO SOLIDS IN DOMESTIC WASTEWATER, PUMP OPENINGS SHALL BE CAPABLE OF PASSING SPHERES OF AT LEAST THREE (3) INCHES IN DIAMETER, FOR RAW, UNSCREENED WASTEWATER, AND PUMP SUCTION AND DISCHARGE PIPING SHALL BE AT LEAST FOUR (4) INCHES IN DIAMETER, EXCEPT FOR GRINDER PUMPS.
- PUMP STATIONS SHALL HAVE AN ALARM SYSTEM (E.G., AUDIBLE AND VISIBLE HIGH WATER ALARM, CENTRALIZED AUTOMATED ALARM SYSTEM). THE ALARM SYSTEM SHALL BE DESIGNED TO FUNCTION IF POWER IS NOT AVAILABLE FOR ANY PUMP. FOR PUMP STATIONS LOCATED IN REMOTE AND/OR ENVIRONMENTALLY SENSITIVE AREAS (E.G., ADJACENT TO SHELLFISH HARVESTING AREAS, DESIGNATED RECREATIONAL AREAS, AND PRIMARY SOURCE WATER PROTECTION AREAS), THE DEPARTMENT MAY REQUIRE AN AUTOMATIC DIALING SYSTEM VIA DEDICATED PHONE LINE OR EQUIVALENT SYSTEMS TO ASSURE MINIMAL IMPACT IN THE EVENT OF PUMP STATION FAILURES. IN REMOTE AND/OR ENVIRONMENTALLY SENSITIVE AREAS, THE DEPARTMENT MAY ALSO REQUIRE THAT A BACKUP BATTERY PACK BE PROVIDED IN THE CONTROL PANEL OF THE PUMP STATIONS SO THAT IN THE EVENT OF A POWER OUTAGE THE AUDIBLE/VISIBLE HIGH WATER ALARMS AND/OR AUTOMATIC DIALING SYSTEM SHALL STILL BE ACTIVATED.
- AN ALARM RELAY SHALL BE RUN FOR THE PUMP CONTROL PANEL TO THE MANAGER'S OFFICE IN THE LOVE'S STORE, AS REQUIRED BY LOVE'S.
- THE PUMP STATION WET WELL AND DRY WELL SHALL BE VENTILATED, EXCLUDING THE VALVE PIT. THE VENT (E.G., A SCREENED INVERTED "U" TUBE) SHALL BE CONSTRUCTED OF A WEATHER DURABLE MATERIAL (E.G., STAINLESS STEEL).
- FOR PUMP STATIONS WITH DUPLEX PUMPS EACH PUMP SHALL BE DESIGNED TO OPERATE IN A LEAD LAG SEQUENCE AND BE ON AN ALTERNATING CYCLE. FOR PUMP STATIONS WITH MORE THAN TWO (2) PUMPS ALTERNATE DESIGNS MAY BE CONSIDERED.
- A SHUTOFF VALVE (E.G., GATE VALVE) AND A CHECK VALVE SHALL BE LOCATED ON THE DISCHARGE LINE FROM EACH PUMP. THE CHECK VALVE SHALL BE LOCATED BETWEEN THE SHUTOFF VALVE AND THE PUMP.
- THE CHECK VALVES FOR THE PUMP STATION SHALL BE LOCATED OUTSIDE THE WET WELL IN A SEPARATE VALVE PIT OR DRY WELL, UNLESS THE CHECK VALVES ARE AN INTEGRAL PART TO THE PUMP AND CAN BE REMOVED FROM THE WET WELL FOR REPAIR OR REPLACEMENT WITH THE PUMP, WITHOUT DEWATERING THE WET WELL OR DISCONNECTING ANY PIPING IN THE WET WELL.

- COMMON WALLS BETWEEN THE WET WELL AND THE VALVE PIT OR DRY WELL SHALL BE GAS TIGHT.
- PUMP STATIONS SHALL BE DESIGNED TO BE FULLY OPERATIONAL DURING FLOODING TO THE TWENTY FIVE (25) YEAR FLOOD ELEVATION UNLESS THE INFLUENT FLOW INTO THE PUMP STATION CAN BE STOPPED. FOR EXAMPLE, INDUSTRIAL FACILITIES MAY SELECT TO CEASE OPERATION DURING THESE PERIODS IN LIEU OF HAVING THE PUMP STATION FULLY OPERATIONAL. PUMP STATION STRUCTURES AND EQUIPMENT SHALL BE PROTECTED FROM PHYSICAL DAMAGE BY FLOODING TO THE ONE HUNDRED (100) YEAR FLOOD ELEVATION. AN ALL WEATHER ACCESS ROAD SHALL BE PROVIDED TO THE PUMP STATION.
- ELECTRICAL JUNCTION BOXES SHALL BE LOCATED OUTSIDE OF THE WET WELL, UNLESS THE JUNCTION BOX AND COMPONENTS ARE MADE OF A MATERIAL SUITABLE FOR USE UNDER CORROSIVE CONDITIONS.
- AN EMERGENCY OPERATION PLAN ON THE SEWER PUMP STATION(S) SHALL BE PROVIDED. FOR AREAS DETERMINED BY THE DEPARTMENT TO BE ENVIRONMENTALLY SENSITIVE (E.G., SHELLFISH HARVESTING AREAS, DESIGNATED RECREATIONAL WATERS, OR PRIMARY SOURCE WATER PROTECTION AREAS LOCATED IN CLOSE PROXIMITY), THE DEPARTMENT MAY REQUIRE MORE EXTENSIVE PLANS AND EQUIPMENT, INCLUDING ON SITE AUXILIARY POWER OR A DEPARTMENT APPROVED EQUIVALENT PLAN. THE DEPARTMENT MAY EVALUATE THE EFFECT OF POWER OUTAGES WHERE THE PUMP STATION SERVES SOURCES SUCH AS BUSINESSES THAT WOULD NOT BE ABLE TO OPERATE OTHERWISE. THE PLAN SHALL INCLUDE ONE OF THE FOLLOWING METHODS SHOWING HOW THE PUMP STATION(S) SHALL BE DESIGNED TO PROVIDE CONTINUOUS OPERABILITY IN THE EVENT OF A POWER FAILURE, NATURAL DISASTER, ETC.:
  - AN ON SITE STANDBY GENERATOR, EITHER PERMANENTLY INSTALLED WITH CAPABILITY TO OPERATE AUTOMATICALLY OR SKID/TRAILER MOUNTED TYPES WITH APPROPRIATE CONNECTIONS PROVIDED.
  - CONNECTING THE PUMP STATION TO TWO (2) SEPARATE UTILITY SUBSTATIONS, WITH AN AUTOMATIC SWITCHING FEATURE.
  - PROVIDING SUFFICIENT CAPACITY, IN THE WET WELL, ABOVE THE PUMP ON LEVEL, TO CONTAIN THE WASTEWATER THAT MAY BE GENERATED DURING THE LONGEST POWER OUTAGE OF THE LAST FIVE (5) YEARS. A LETTER SHALL BE SUBMITTED FROM THE UTILITY COMPANY THAT SERVES THIS PUMP STATION WITH ELECTRICITY STATING THE LONGEST POWER OUTAGE, IN THE SERVICE AREA OF THE PUMP STATION, THAT OCCURRED DURING THE LAST FIVE (5) YEARS, EXCLUDING A CATASTROPHIC STORM.
  - PROVIDE A METHOD TO PUMP AROUND THE PUMPS AND CONTROL PANEL BY USING A PUMP AND PROVIDING A WAY TO PUMP INTO THE FORCE MAIN DOWNSTREAM OF THE CHECK VALVE.
  - PROVIDE A TRANSFER SWITCH FOR A PORTABLE GENERATOR AND DEMONSTRATE THAT THE UTILITY OWNS ADEQUATE GENERATORS AND COULD REASONABLY RESPOND DURING A POWER OUTAGE.
  - INDUSTRIAL FACILITIES NEED TO PROVIDE BACK UP POWER AS SPECIFIED ABOVE UNLESS THE INDUSTRIAL FACILITY CAN SHOW THAT THEIR PROCESSES STOP IN THE EVENT OF A POWER OUTAGE AND THAT ENOUGH STORAGE IS AVAILABLE UNTIL POWER IS RESTORED, SO AN OVERFLOW SHALL NOT OCCUR. DESIGN CALCULATIONS OR OTHER INFORMATION SHALL BE PROVIDED FOR JUSTIFICATION.
  - CONTRACTOR TO INSTALL A BACKUP BATTERY TO POWER THE VISUAL AND AUDIBLE ALARMS AND COMMUNICATION LINE ALARM TO LOVE'S MANAGERS OFFICE DURING A POWER FAILURE EVENT.

**FORCE MAINS NOTES:**

- THE LIFT STATION WILL BE CONSTRUCTED BY LOVE'S, OWNED AND OPERATED BY NICHOLSON WATER AND SEWER ASSOCIATION, AND CONSTRUCTED TO NICHOLSON WATER AND SEWER ASSOCIATION STANDARDS AND SPECIFICATIONS FOR DEDICATION AFTER COMPLETION.
- ALL FORCE MAINS AND APPURTENANCES SHALL BE CONSTRUCTED TO THE NICHOLSON WATER AND SEWER ASSOCIATION'S STANDARDS AND SPECIFICATIONS.
- VELOCITY IN FORCE MAINS SHALL BE AT LEAST TWO (2) FEET PER SECOND AT DESIGN FLOW.
- FORCE MAINS CARRYING RAW DOMESTIC SEWAGE SHALL BE AT LEAST FOUR (4) INCHES IN DIAMETER, EXCEPT FORCE MAINS THAT FOLLOW GRINDER PUMP SYSTEMS OR SOLIDS INTERCEPTOR TANKS, FOR WHICH A TWO (2) INCH DIAMETER FORCE MAIN IS APPROVABLE.
- THRUST BLOCKING OR RESTRAINT JOINTS SHALL BE PROVIDED AT ALL CHANGES IN ALIGNMENT GREATER THAN OR EQUAL TO THIRTY (30) DEGREES.
- AN AUTOMATIC AIR RELIEF VALVE SHALL BE PLACED AT HIGH POINTS IN THE FORCE MAIN SEWER TO PREVENT AIR LOCKING. VACUUM RELIEF VALVES MAY BE NECESSARY TO RELIEVE NEGATIVE PRESSURES ON FORCE MAINS. THE DEPARTMENT MAY REQUIRE ALTERNATIVE DESIGNS IN ORDER TO REDUCE POSSIBLE ODOR PROBLEMS FROM AIR RELIEF VALVES LOCATED IN HIGHLY POPULATED AREAS.
- FORCE MAINS TYING ONTO MANHOLES SHALL ENTER THE MANHOLE A VERTICAL DISTANCE OF NOT MORE THAN TWO (2) FEET ABOVE THE FLOW LINE OF THE RECEIVING MANHOLE. FOR CONNECTIONS TO EXISTING MANHOLES, SPECIAL CONSIDERATION MAY BE GRANTED BY THE DEPARTMENT TO ALLOW THE FORCE MAIN TO ENTER THE MANHOLE AT A HIGHER ELEVATION AND BE DIRECTED DOWN ON THE INSIDE OF THE MANHOLE, IF JUSTIFIED.
- DESIGN AND CONSTRUCTION OF FORCE MAINS SHALL BE SUCH THAT THEY SATISFY A LEAKAGE TEST IN ACCORDANCE WITH AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARD C600.
- AS BUILT DRAWINGS ARE REQUIRED TO BE DELIVERED TO THE OWNER, ENGINEER OF RECORD, AND THE UTILITY AS PART OF THE CLOSEOUT DOCUMENTATION ULTIMATELY FOR LIFT STATION DEDICATION.
- AT THE COMPLETION OF THE LIFT STATION BUILD, THE CONTRACTOR SHALL PROVIDE A SEWER PACKAGE TO INCLUDE COPIES OF CONFIRMATION OF LIFT STATION AND PUMPS STARTUP, ALL TESTING RESULTS, INSPECTION REPORTS, AS BUILT PLANS, CERTIFICATIONS AND WARRANTY DOCUMENTS TO THE OWNER, ENGINEER OF RECORD, AND UTILITY, AS REQUIRED FOR THE ENTIRE SYSTEM TO BE DEDICATED AND ACCEPTED BY THE UTILITY.



THIS DRAWING IS NOT VALID WITHOUT AN ORIGINAL BLUE INK SIGNATURE AND ORIGINAL HANDWRITTEN DATE OF A LICENSED PROFESSIONAL ENGINEER.

**LIFT STATION DETAILS**

**U3.5**