

# TOWN OF SMITHFIELD JOHNSTON COUNTY, NORTH CAROLINA



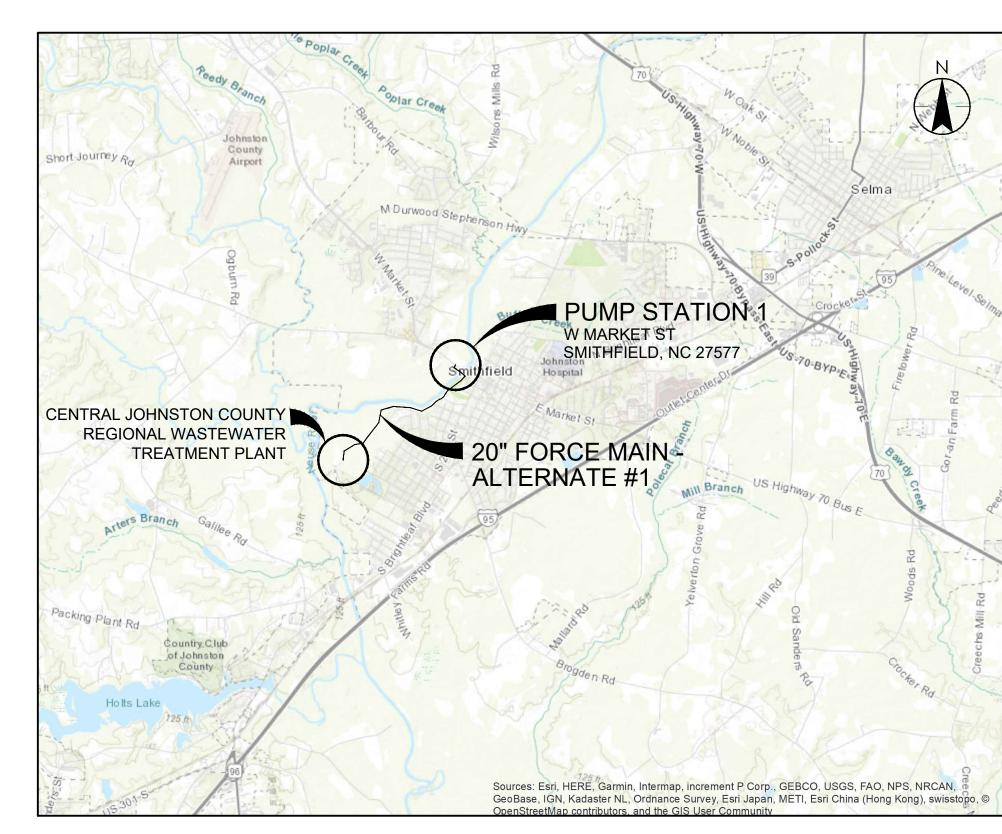
# PUMP STATION #1 IMPROVEMENTS

FINAL DRAWINGS - FOR BIDDING

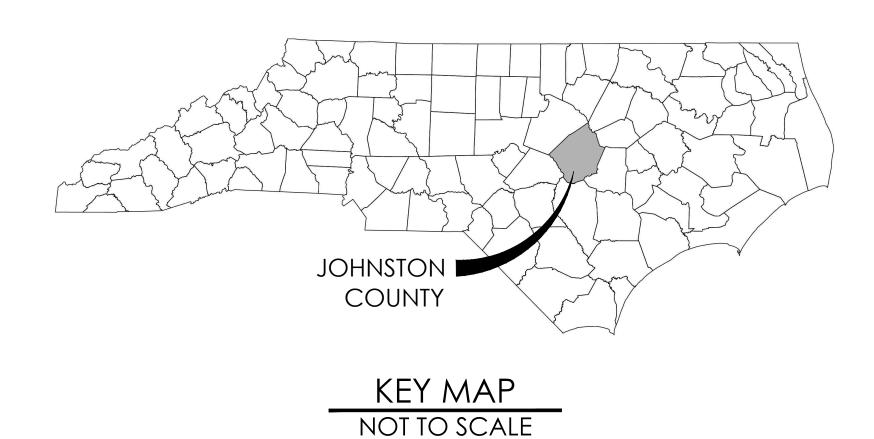
AUGUST 2025

DWI No.: SRP - W - ARP - 0063

STANTEC PROJECT No.: 175568555

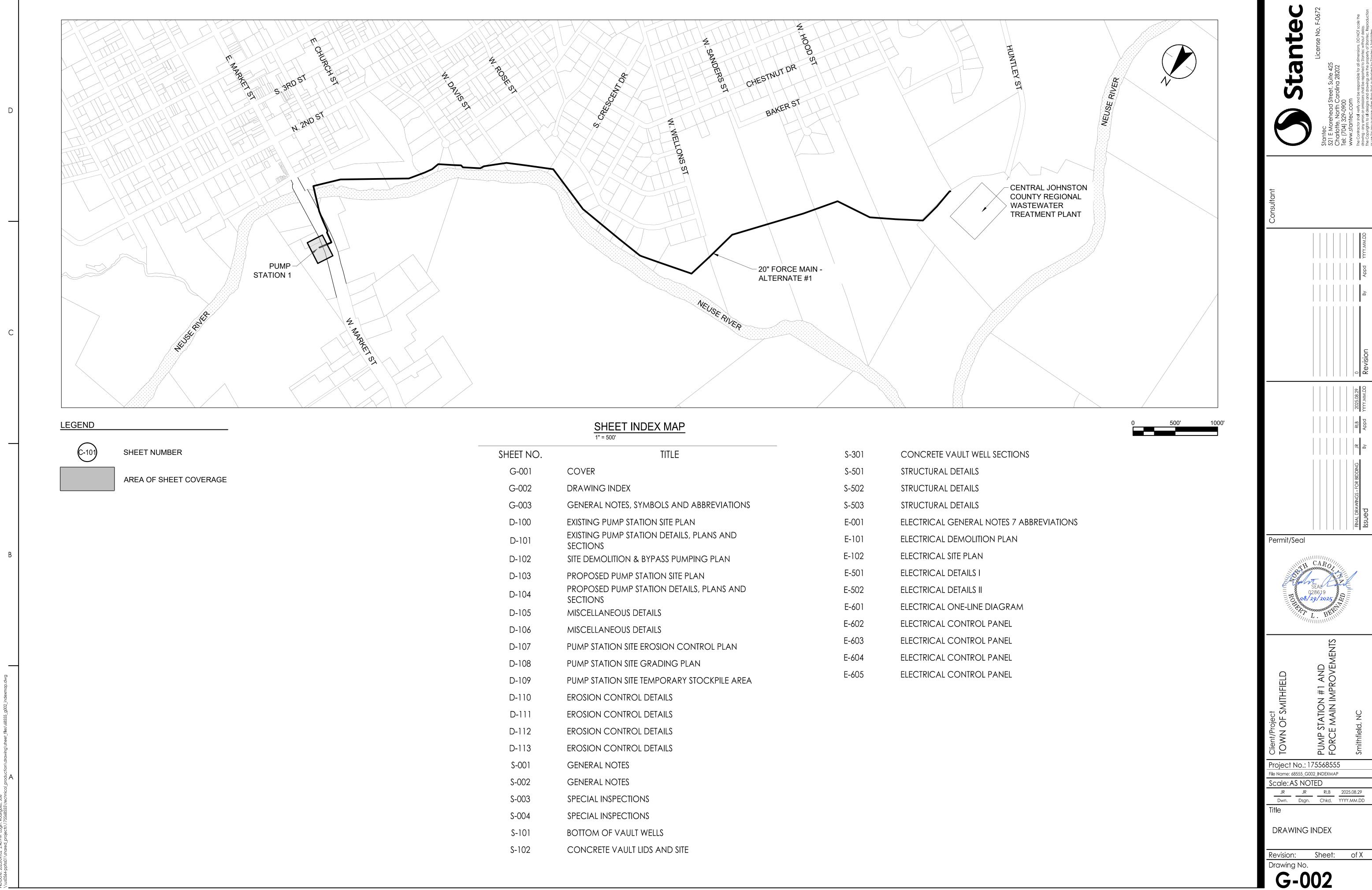


VICINITY MAP
NOT TO SCALE









- OWNER: TOWN OF SMITHFIELD ADDRESS: 350 EAST MARKET STREET SMITHFIELD NC 27577 PHONE: (919) 934-2116
- DESIGN ENGINEER: STANTEC CONSULTING SERVICES, INC. ADDRESS: 801 JONES FRANKLIN ROAD SUITE 300 RALEIGH NC 27606 PHONE: (919) 851-6866
- SURVEYOR: STANTEC CONSULTING SERVICES, INC. ADDRESS: 801 JONES FRANKLIN ROAD SUITE 300 RALEIGH NC 27606 PHONE: (919) 851-6866
- 4. ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (N.A.V.D.) 1988.

# PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO REDUCE SANITARY SEWER OVERFLOWS AND ULTIMATELY PROTECT THE SAFETY AND HEALTH OF SMITHFIELD'S CITIZENS AND PROTECT THE ENVIRONMENT. THIS PROJECT WILL HELP PROVIDE ADDITIONAL CAPACITY AND UPDATED INFRASTRUCTURE ALONG THE NEUSE RIVER AND RESIDENTS IN THE PUMP STATION #1 SEWER BASIN.

THE PROJECT GOALS INCLUDE REMOVING FLOW FROM THE PUMP STATION 1 (PS1) IN SMITHFIELD, NC FROM THE JOHNSTON COUNTY FORCE MAIN. THIS PROJECT WOULD IMPROVE A SEWER PUMP STATION. THE PROJECT WILL DEMOLISH AND REPLACE THE PS1 SITE WITH A NEW CONSTRUCTION UPSIZED PUMP STATION.

# **GENERAL CONSTRUCTION NOTES**

- CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE TOWN OF SMITHFIELD STANDARD SPECIFICATIONS.
- 2. THE CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
- 3. ALL SHORING SHALL BE IN ACCORDANCE WITH OSHA TRENCHING
- STANDARDS PART 1926, SUBPART P, AS AMENDED TO DATE. 4. IF THE PROPOSED SEWER MAIN IS INSTALLED WITHIN 12" IN ANY DIRECTION (VERTICALLY OR HORIZONTALLY) FROM A GAS MAIN, THEN THE CONTRACTOR SHALL CALL THE LOCAL UTILITY DIRECTLY AND INFORM THEM.
- 5. THE CONTRACTOR SHALL USE EROSION CONTROL MEASURES AS
- NEEDED PER NCDEQ. 6. IF ADDITIONAL WORK SPACE IS NEEDED, AN ENCROACHMENT IS TO BE AGREED UPON BETWEEN THE CONTRACTOR AND THE PROPERTY OWNER IN WRITING.
- 7. CONTRACTOR SHALL LOCATE AND PROTECT ALL PROPERTY MONUMENTS. IF CORNERS ARE DISTURBED THEY SHALL BE REPLACED BY A NC PLS AT CONTRACTORS EXPENSE.

# SAFETY

- 1. DURING THE CONSTRUCTION AND MAINTENANCE OF THIS PROJECT ALL SAFETY REGULATIONS SHALL BE ENFORED. THE CONTRACTOR OR HIS REPRESENTATIVE SHALL BE RESPONSIBLE FOR THE CONTROL AND SAFETY OF THE TRAVELING PUBLIC AND THE SAFETY OF HIS PERSONNEL.
- 2. THE CONTRACTOR'S MAINTENANCE OF TRAFFIC CONTROL PLAN MUST BE SUBMITTED AND APPROVED BY THE NCDOT AND APPLICABLE LOCAL AGENCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION WITHIN STATE OR CITY RIGHT OF WAYS.
- 3. LABOR SAFETY REGULATIONS SHALL CONFORM TO THE PROVISIONS SET FORTH BY OSHA IN THE FEDERAL REGISTER OF THE DEPARTMENT OF TRANSPORTATION.
- 4. CONTRACTOR SHALL PROVIDE AND MAINTAIN HIS OWN SAFETY EQUIPMENT IN ACCORDANCE WITH HIS HEALTH AND SAFETY PROGRAM AND ALL OTHER APPLICABLE LEGAL AND HEALTH AND SAFETY REQUIREMENTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING ITS EMPLOYEES AND SUB CONTRACTORS WITH ADEQUATE INFORMATION AND TRAINING TO ENSURE THAT ALL EMPLOYEES AND SUB CONTRACTORS AND SUB CONTRACTOR'S EMPLOYEES COMPLY WITH ALL APPLICABLE REQUIREMENTS. CONTRACTOR SHALL REMAIN IN COMPLIANCE WITH ALL OCCUPATION SAFETY AND HEALTH REGULATIONS AS WELL AS THE ENVIRONMENTAL PROTECTION LAWS. THE FOLLOWING IS NOT TO BE PERCEIVED AS THE ENTIRE SAFETY PROGRAM BUT JUST BASIC REQUIREMENTS.
- 5. ALL EXCAVATIONS BY THE CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF THE DEPARTMENT OF LABOR'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS. PARTICULAR ATTENTION MUST BE PAID TO THE
- CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR PART 1926 SUBPART P. 6. THE MINIMUM STANDARDS SET FORTH IN THE CURRENT EDITION OF "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) BE FOLLOWED IN THE DESIGN APPLICATION, INSTALLATION, MAINTENANCE AND REMOVAL OF ALL TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS NECESSARY TO PROTECT THE PUBLIC AND WORKMEN FROM HAZARDS WITHIN THE PROJECT LIMITS.
- 7. ALL TRAFFIC CONTROL MARKINGS AND DEVICES SHALL CONFORM TO THE PROVISIONS SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PREPARED BY THE US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. ALL NORTH CAROLINA AMENDMENTS SHALL APPLY.
- 8. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY AND ENFORCE ALL APPLICABLE SAFETY REGULATIONS. THE ABOVE INFORMATION HAS BEEN PROVIDED FOR THE CONTRACTORS INFORMATION ONLY AND DOES NOT IMPLY THAT THE OWNER OR ENGINEER WILL INSPECT AND/OR ENFORCE SAFETY REGULATION.
- 9. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN AREAS OF BURIED UTILITIES AND SHALL PROVIDE AT LEAST 72 HOURS NOTICE TO NC811 PRIOR TO CONSTRUCTION TO OBTAIN FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES. 10. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING
- FACILITIES, ABOVE OR BELOW GROUND, THAT MAY OCCUR AS A RESULT OF THE WORK PERFORMED BY THE CONTRACTOR CALLED FOR IN THIS CONTRACT AT NO ADDITIONAL COST TO THE OWNER.

# **ABBREVIATIONS**

ABANDONED ABBREVIATION AGGREGATE BASE COURSE ADDITIONAL ADJUSTABLE AGGREGATE ALTERNATE ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	GND GR HDPE HDWL HORIZ HT ID IN INV INV EL IP	GROUND GRADE  HIGH DENSITY POLYETHYLENE HEADWALL HORIZONTAL HEIGHT  INSIDE DIAMETER INCH INVERT INVERT ELEVATION IRON PIPE	REINF REPL REQ REQD REV RT R/W S SAN SECT SF	REINFORCE (D) (ING) (MENT) REPLACE REQUIRE REQUIRED REVISION RIGHT RIGHT OF WAY  SOUTH SANITARY SECTION
AGGREGATE BASE COURSE ADDITIONAL ADJUSTABLE AGGREGATE ALTERNATE ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	GR HDPE HDWL HORIZ HT ID IN INV INV EL IP	GRADE HIGH DENSITY POLYETHYLENE HEADWALL HORIZONTAL HEIGHT INSIDE DIAMETER INCH INVERT INVERT ELEVATION	REQ REQD REV RT R/W S SAN SECT	REQUIRE REQUIRED REVISION RIGHT RIGHT OF WAY  SOUTH SANITARY SECTION
ADDITIONAL ADJUSTABLE AGGREGATE ALTERNATE ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	HDPE HDWL HORIZ HT ID IN INV INV EL IP	HIGH DENSITY POLYETHYLENE HEADWALL HORIZONTAL HEIGHT INSIDE DIAMETER INCH INVERT INVERT ELEVATION	REQD REV RT R/W S SAN SECT	REQUIRED REVISION RIGHT RIGHT OF WAY  SOUTH SANITARY SECTION
ADJUSTABLE AGGREGATE ALTERNATE ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	HDWL HORIZ HT ID IN INV INV EL IP	HEADWALL HORIZONTAL HEIGHT INSIDE DIAMETER INCH INVERT INVERT ELEVATION	REV RT R/W S SAN SECT	REVISION RIGHT RIGHT OF WAY SOUTH SANITARY SECTION
AGGREGATE ALTERNATE ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	HDWL HORIZ HT ID IN INV INV EL IP	HEADWALL HORIZONTAL HEIGHT INSIDE DIAMETER INCH INVERT INVERT ELEVATION	RT R/W S SAN SECT	RIGHT RIGHT OF WAY SOUTH SANITARY SECTION
ALTERNATE ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	HORIZ HT ID IN INV INV EL IP	HORIZONTAL HEIGHT  INSIDE DIAMETER INCH INVERT INVERT ELEVATION	R/W S SAN SECT	SOUTH SANITARY SECTION
ALTERNATE ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	HORIZ HT ID IN INV INV EL IP	HEIGHT INSIDE DIAMETER INCH INVERT INVERT	R/W S SAN SECT	SOUTH SANITARY SECTION
ALUMINUM AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	HT ID IN INV INV EL IP	HEIGHT INSIDE DIAMETER INCH INVERT INVERT	S SAN SECT	SOUTH SANITARY SECTION
AMOUNT APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	ID IN INV INV EL IP	INSIDE DIAMETER INCH INVERT INVERT ELEVATION	SAN SECT	SANITARY SECTION
APPROVED APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	IN INV INV EL IP	INCH INVERT INVERT ELEVATION	SAN SECT	SANITARY SECTION
APPROXIMATE ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	IN INV INV EL IP	INCH INVERT INVERT ELEVATION	SECT	SECTION
ASPHALT  BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	INV INV EL IP	INVERT INVERT ELEVATION		
BOUNDARY BACKGROUD BASE LINE BENCHMARK BACK OF CURB	INV EL IP	INVERT ELEVATION	SF.	COLLADE FOOT
BACKGROUD BASE LINE BENCHMARK BACK OF CURB	IP		OLIT	SQUARE FOOT
BACKGROUD BASE LINE BENCHMARK BACK OF CURB		IRON PIPE	SHT	SHEET
BASE LINE BENCHMARK BACK OF CURB	LD		SIM	SIMILAR
BENCHMARK BACK OF CURB	1 D		SPEC	SPECIFICATION
BACK OF CURB		POUND	SQ	SQUARE
	LF	LINEAR FOOT	SQ FT	SQUARE FOOT
DOTTOM	LFT	LEFT	SQ IN	SQUARE INCH
BOTTOM	LG	LONG, LENGTH	SQ YD	SQUARE YARD
BEARING	LIN	LINEAR	SSMH	SANITARY SEWER MANHOLE
BETWEEN	LP	LIGHT POLE	SST, SSTL	STAINLESS STEEL
				STATION
CATCH BASIN	MATL	MATERIAL		STANDARD
				STEEL
				STORM
				STONE
				STRUCTURAL
	IVIISC	MISCELLANEOUS		SEWER
	N.I.	NODTH		SYMBOL
			SYMM	SYMMETRICAL
			TBA	TO BE ABANDONED
CENTER	NTS	NOT TO SCALE	TBM	TEMPORARY BENCHMARK
			TBR	TO BE REMOVED
DEPTH	OC	ON CENTER	TCE	TEMPORARY CONSTRUCTION
	OD	OUTSIDE DIAMETER		
	OPNG	OPENING		TEMPORARY, TEMPERATURE
				THICKNESS
	55			THROUGH
	PR	PLAT BOOK		TOP OF CONCRETE, TOP OF CURB
				TOP OF WALL
			TYP	TYPICAL
				UNLESS OTHERWISE NOTED
			UTIL	UTILITY
DRAWING			VAR	VARIES
			VC	VITRIFIED CLAY PIPE
EACH	PROJ	PROJECT	VERT	VERTICAL
ELECTRIC (AL)	PROP	PROPERTY		
ELEVATION	PT	PRESSURE TREATED	W	WEST
	PVC	POLYVINYL CHLORIDE		WITH
				WITHOUT
	QTY	QUANTITY	.,, 🔾	
	QU/ L	30/ IEI I		
LAIGTING	D	PADILIS		
FINISHED FLOOD				
FOOT FEET	DEE	DEFEDENCE		
	CATCH BASIN CENTER TO CENTER CAST IRON, CURB INLET CENTER LINE CONCRETE MASONRY UNIT CLEANOUT CONCRETE CONNECTION CONSTRUCTION CONSTRUCTION CONTINUOUS CENTER  DEPTH DATUM DEED BOOK DOUBLE DEMOLITION DETAIL DUCTILE IRON, DROP INLET DIAMETER DIMENSION DISTANCE DOWN DRAIN DRAWING  EACH ELECTRIC (AL) ELEVATION ENGINEER EDGE OF PAVEMENT EQUAL EASEMENT EXISTING  FINISHED FLOOR FINISHED FLOOR ELEVATION FLEXIBLE	CATCH BASIN  CENTER TO CENTER  CAST IRON, CURB INLET  CENTER LINE  MH  CONCRETE MASONRY UNIT  CIEANOUT  CONCRETE  CONNECTION  CONSTRUCTION  CONSTRUCTION  CONTINUOUS  CENTER  DEPTH  DEPTH  DEPTH  DOC  DATUM  DEED BOOK  DOUBLE  DOWN  DETAIL  DUCTILE IRON, DROP INLET  DIAMETER  DIMENSION  DISTANCE  DOWN  DRAIN  DRAWING  PREFAB  PRELIM  EACH  E	CATCH BASIN  CENTER TO CENTER  MAX  MAXIMUM  CAST IRON, CURB INLET  CENTER LINE  CHARLE MASONRY UNIT  CLEANOUT  CONCRETE  CONCRETE  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONTINUOUS  CENTER  DEPTH  DATUM  DEED BOOK  DOBULE  DEMOLITION  DETAIL  DEMOLITION  DETAIL  DUCTILE IRON, DROP INLET  DIAMETER  DIAMETER  DEWN  DEAN  DIAMETER  DEWN  D	STA

# SYMBOLS LEGEND

#### **EXISTING FEATURES** PROPOSED FEATURES BASE LINE AND STATION EXISTING IRON PIN ——×——×——×—— FENCE (CHAINLINK) ---750-------- INDEX CONTOUR FIRE HYDRANT ——— INTERMEDIATE CONTOUR ———————— GAS LINE — — — LIMITS OF DISTURBANCE ————750—— INDEX CONTOUR ---- PERMANENT SEWER EASEMENT INTERMEDIATE CONTOUR SANITARY SEWER FORCE MAIN LIGHT POLE — SILT FENCE OVERHEAD ELECTRIC SILT FENCE OUTLET POWER POLE ROCK CHECK DAM PROPERTY/BOUNDARY PARK OUTER TEMPORARY CONSTRUCTION EASEMENT ----- PROPERTY/BOUNDARY PARK INNER ————ss———ss— SANITARY SEWER LINE TEMPORARY CONSTRUCTION ENTRANCE SANITARY SEWER MANHOLE

SIGN

TREE

WATER METER

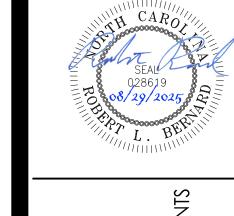
WATER VALVE

MINIMUM SETBACK

o—o −o

TREELINE

NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED



Permit/Seal

TOWN OF SMITHFIELD	PUMP STATION #1 AND FORCE MAIN IMPROVEMEN	Smithfield, NC	
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Name: 68555 G003 SYMBOLS			

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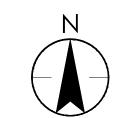
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GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

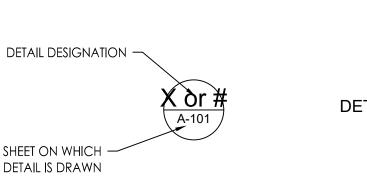
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# DRAFTING SYMBOLS

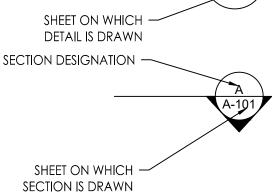
SYMBOL	DESCRIPTION

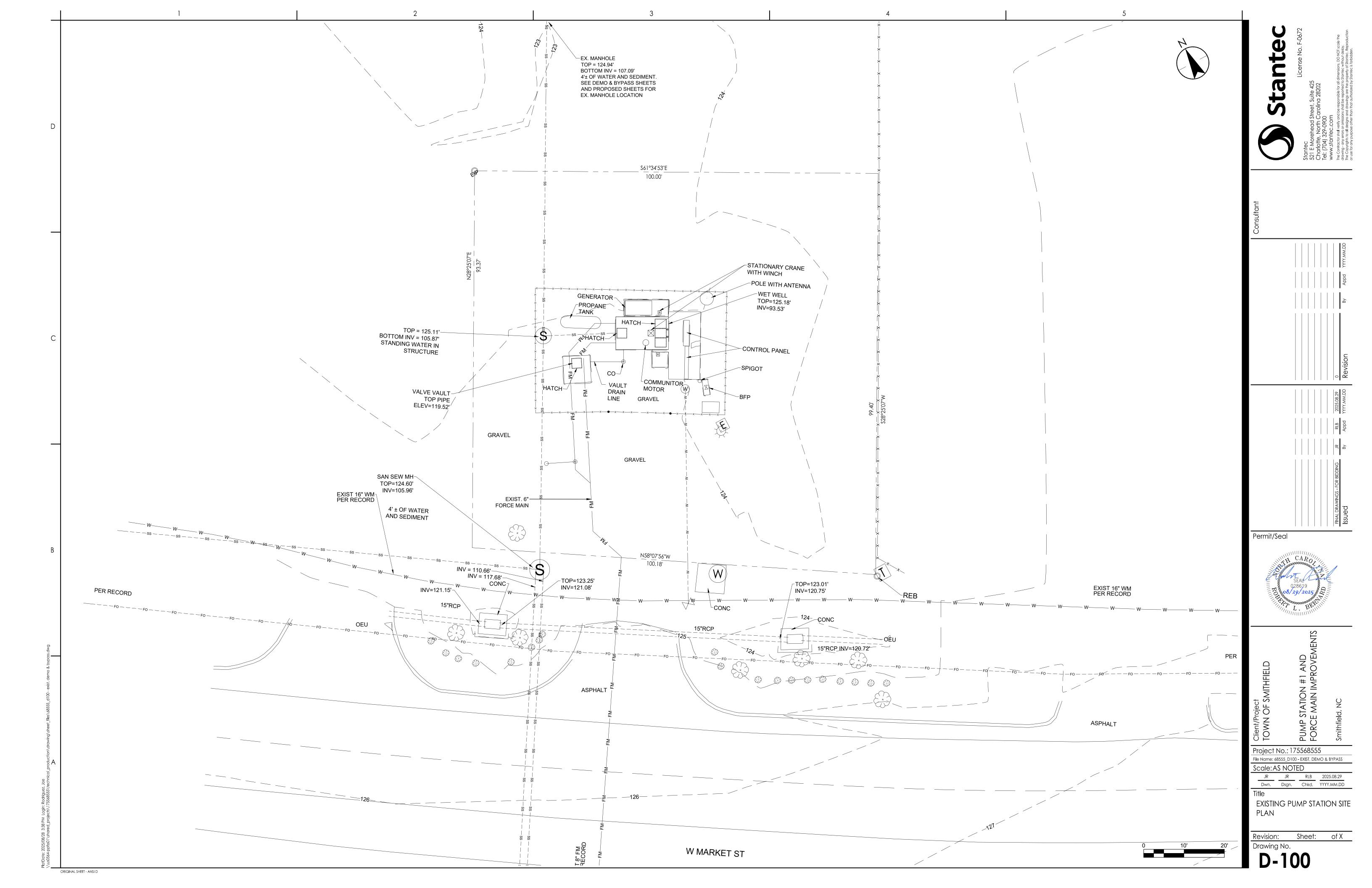


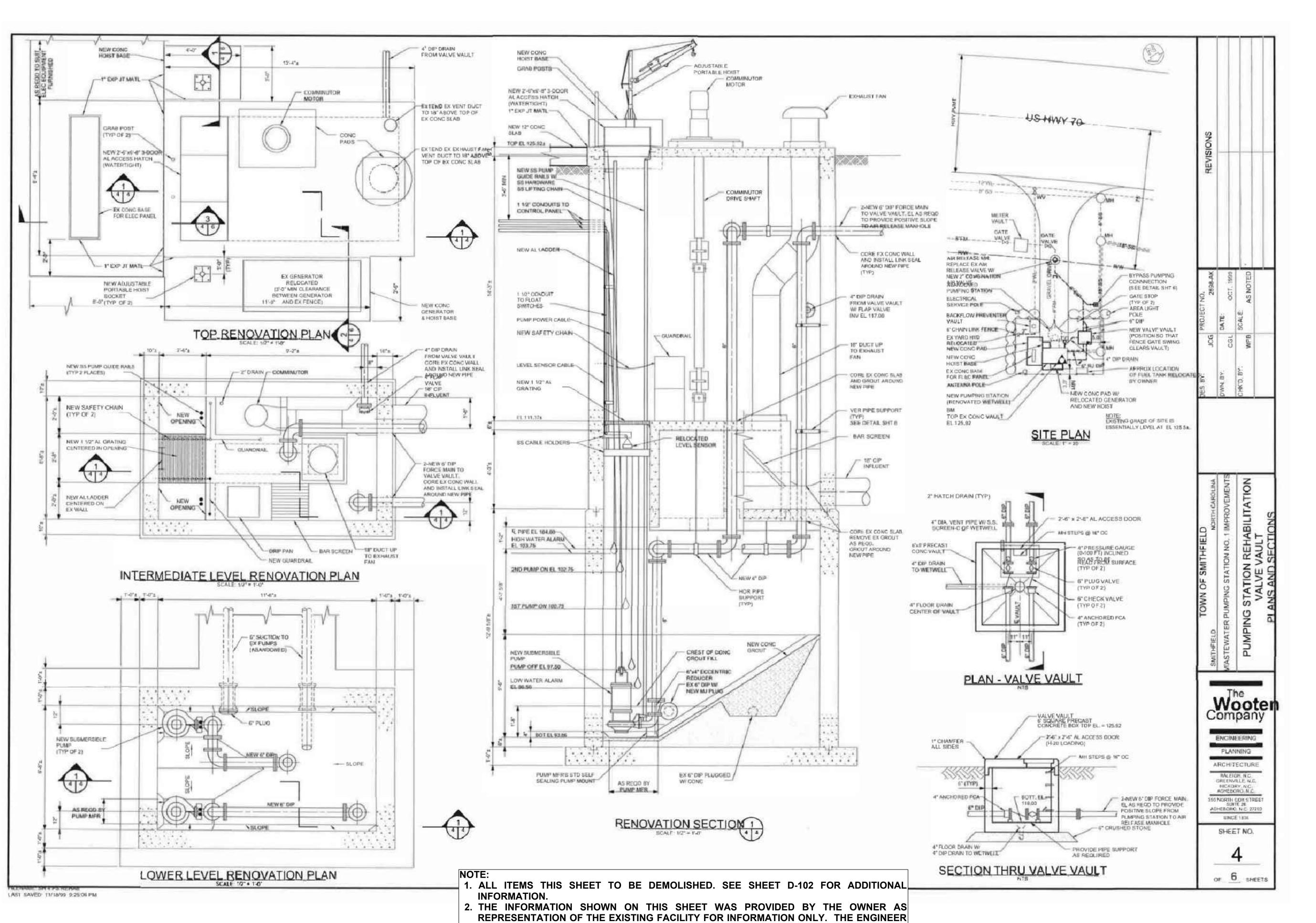
**NORTH ARROW** 



**DETAIL CALLOUT** 







NOR OWNER DO NOT WARRANTY THAT SOME DETAILS MAY DIFFER FROM SHOWN.

ORIGINAL SHEET - ANSI D



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EXISTING PUMP DETAILS, PLANS & SECTIONS

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#### **EXISTING SMITHFIELD PUMP STATION #1 DEMOLITION NOTES:**

IT IS AT THE DISCRETION OF THE TOWN OF SMITHFIELD (OWNER) IF ANY OF THE MATERIALS WILL BE RETAINED FOR STORAGE / SALVAGED. ALL MATERIALS REMOVED AND NOT SALVAGED TO THE TOWN OF SMITHFIELD SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PER STATE/LOCAL REGULATIONS.

ALL PIPING, WIRING, AND CONDUIT LOCATED BELOW EXISTING GRADE AND/OR PRE-EXISTING CONTOURS SHALL BE EXCAVATED AND REMOVED. ALL PIPING, WIRING AND CONDUIT THAT IS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

THE EXISTING ELECTRICAL METERS AND SWITCHES ARE PROPERTY OF THE ELECTRICAL UTILITY. THE CONTRACTOR, UNDER THIS CONTRACT, SHALL COORDINATE THE REMOVAL OF THE ELECTRIC METER, AND ELECTRIC SERVICE TO THE PUMP STATION, WITH THE ELECTRIC UTILITY. ELECTRIC UTILITY CONTACT IS RODNEY JOHNSON; EMAIL: rodney.johnson@smithfield-nc.com

#### WET WELL:

- PUMP OUT ALL SEWAGE / WASTEWATER AND CLEAN EXISTING WET WELL.
- REMOVE ALL WASTEWATER AND PUMP VIA BYPASS ARRANGEMENT OR PUMP AND HAUL CONTENTS TO WASTEWATER FACILITY. ENSURE ALL SOLIDS ARE REMOVED AND DISPOSED OF PROPERLY. CONTRACTOR TO COORDINATE WITH ENGINEER AND OWNER.
- REMOVE AND DISPOSE OF ALL INTERIOR AND EXTERIOR PIPING, EQUIPMENT AND
- EXCAVATE AND REMOVE ENTIRE EXISTING CONCRETE WET WELL.

# **ELECTRICAL**:

- ENSURE ALL ELECTRICAL EQUIPMENT IS PROPERLY AND SAFELY DISCONNECTED.
- REMOVE ALL ELECTRICAL SWITCHGEAR, PANELS, CONTROL CABINET, CABLE TRAYS AND WIRING
- COORDINATE THE REMOVAL OF THE EXISTING ELECTRIC METER WITH THE LOCAL POWER
- COORDINATE REMOVAL OF THE EXISTING TELEMETRY WITH OWNER.

#### **EMERGENCY GENERATOR SYSTEM:**

- REMOVE EMERGENCY GENERATOR UNIT COMPLETE, INCLUDING GENERATOR, ENGINE,
- ENCLOSURE, SILENCER, FUEL TANK AND ALL ACCESSORIES.
- ENSURE GENERATOR FUEL STORAGE IS APPROPRIATELY HANDLED DURING REMOVAL.

#### VALVE VAULT:

• REMOVE ALL PIPING, VALVES AND ACCESSORIES INSIDE THE EXISTING VALVE VAULT.

#### **GRAVITY SEWER AND MANHOLES:**

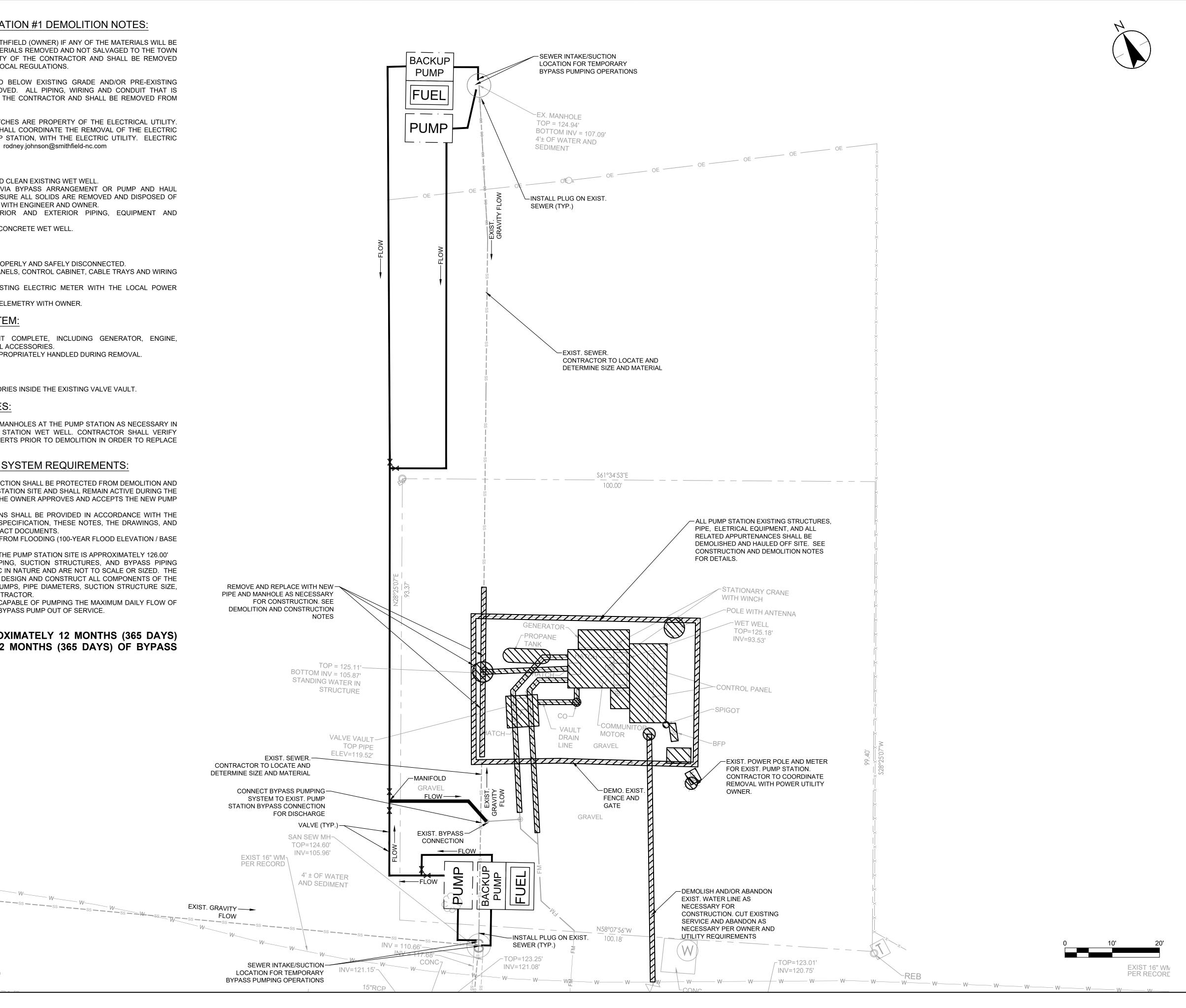
• REMOVE ALL GRAVITY SEWER PIPING AND MANHOLES AT THE PUMP STATION AS NECESSARY IN ORDER TO CONSTRUCT THE NEW PUMP STATION WET WELL. CONTRACTOR SHALL VERIFY MANHOLE AND PIPE TYPES, SIZES AND INVERTS PRIOR TO DEMOLITION IN ORDER TO REPLACE WITH NEW PIPE AND MANHOLES.

#### TEMPORARY BYPASS PUMPING SYSTEM REQUIREMENTS:

- THE TEMPORARY BYPASS PUMPING CONNECTION SHALL BE PROTECTED FROM DEMOLITION AND CONSTRUCTION ACTIVITIES OF THE PUMP STATION SITE AND SHALL REMAIN ACTIVE DURING THE ENTIRE CONSTRUCTION DURATION UNTIL THE OWNER APPROVES AND ACCEPTS THE NEW PUMP
- TEMPORARY BYPASS PUMPING OPERATIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE TEMPORARY BYPASS PUMPING SYSTEMS SPECIFICATION, THESE NOTES, THE DRAWINGS, AND ALL OTHER REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- THE BYPASS PUMPS MUST BE PROTECTED FROM FLOODING (100-YEAR FLOOD ELEVATION / BASE FLOOD ELEVATION (BFE)).
- •• THE BASE FLOOD ELEVATION (BFE) AT THE PUMP STATION SITE IS APPROXIMATELY 126.00'
- ALL BYPASS PUMPING COMPONENTS, PIPING, SUCTION STRUCTURES, AND BYPASS PIPING SHOWN ON THIS DRAWING ARE SCHEMATIC IN NATURE AND ARE NOT TO SCALE OR SIZED. THE CONTRACTOR WILL BE REQUIRED TO SIZE, DESIGN AND CONSTRUCT ALL COMPONENTS OF THE BYPASS PUMPING SYSTEM. NUMBER OF PUMPS, PIPE DIAMETERS, SUCTION STRUCTURE SIZE ETC. ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE BYPASS PUMPING SYSTEM SHALL BE CAPABLE OF PUMPING THE MAXIMUM DAILY FLOW OF 3.168 MGD (2,200 GPM) WITH THE LARGEST BYPASS PUMP OUT OF SERVICE.

\*PROJECT DURATION IS APPROXIMATELY 12 MONTHS (365 DAYS) CONTRACTOR TO PLAN FOR 12 MONTHS (365 DAYS) OF BYPASS

PER RECORD

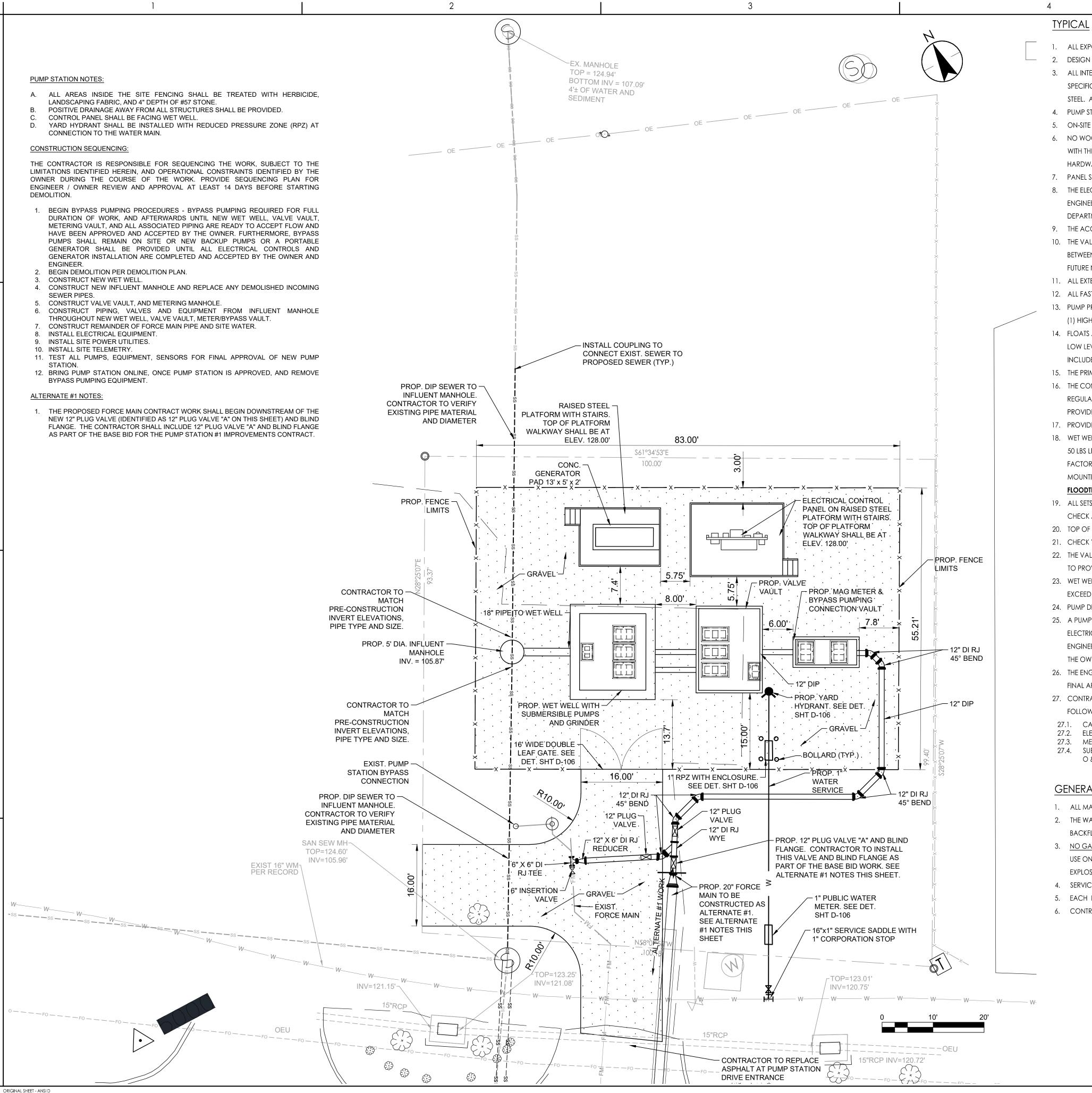


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 SITE DEMOLITION & BYPASS PUMPING PLAN

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#### TYPICAL PUMP STATION NOTES:

- ALL EXPOSED PLUG VALVES SHALL BE GEARED AND WHEEL OPERATED
- 2. DESIGN SHOWN IS THE ACTUAL LAYOUT, ANY REVISION SHALL BE SUBMITTED TO THE OWNER AND ENGINEER FOR APPROVAL.
- 3. ALL INTERNAL WET WELL AND VALVE VAULT PIPING SHALL BE CLASS 350 DIP (WITH LINING AND COATING AS INDICATED IN THE SPECIFICATIONS) AND FLANGES TO BE CLASS 125. PUMP GUIDE RAILS, RAIL GUIDES, AND TOP RAIL GUIDES ARE TO BE 304 STAINLESS STEEL. ALL FASTENERS ARE TO BE 316 STAINLESS STEEL.
- 4. PUMP STATION SHALL MEET ALL CURRENT OWNER SPECIFICATIONS.
- 5. ON-SITE GENERATOR SHALL BE FURNISHED AS SHOWN ON THE ELECTRICAL PLANS.
- 6. NO WOOD SHALL BE USED FOR CONSTRUCTION OF THE CONTROL PANEL RACK, SUPPORTS FOR THE PANEL SHALL BE RGS CONDUIT WITH THREADED CAPS, CROSS BARS ARE TO BE STAINLESS STEEL UNI-STRUT. ALL MOUNTING IS TO BE WITH APPROVED STAINLESS STEEL HARDWARE CLAMPS.
- 7. PANEL SHALL BE FURNISHED WITH BATTERY BACKUP AND LOSS OF POWER REPORTING.
- 8. THE ELECTRICAL PLANS SHALL CONFORM TO THE STANDARD SPECIFICATIONS. CONTRACTOR TO SUBMIT SHOP DRAWING TO ENGINEER/OWNER FOR APPROVAL. ELECTRICAL PLANS MUST BE APPROVED BY THE JOHNSTON COUNTY BUILDING INSPECTIONS DEPARTMENT.
- 9. THE ACCESS DRIVE TO THE PUMP STATION SHALL BE ACCESSIBLE BY THE OWNER'S MAINTENANCE DEPARTMENT CRANE TRUCKS.
- 10. THE VALVE VAULT IS TO BE CONCRETE WITH A TAPERED FLOOR TO A SUMP PIT. THE SUMP IS TO BE LOCATED ON THE WET WELL SIDE BETWEEN THE DISCHARGE PIPING. A 2" DIA. STAINLESS STEEL SLEEVE SHALL BE INSTALL BETWEEN THE WET WELL AND VALVE VAULT FOR A FUTURE NO BENDS IN SLEEVE, SUMP PUMP DISCHARGE INSTALLED BY OTHERS.
- 11. ALL EXTERIOR CONDUITS TO BE ALUMINUM WITH MYERS HUBS.
- 12. ALL FASTENERS (BOLTS, NUTS AND ANCHORS) SHALL BE 316 STAINLESS STEEL.
- 13. PUMP PRIMARY LEVEL CONTROLLER SUBMERSIBLE PRESSURE TRANSMITTER. WITH ANEROID BELLOWS ON VENT LINE. (1) LEAD ON/OFF, (1) HIGH LEVEL, AND (1) LOW LEVEL. SEE NOTE 16.
- 14. FLOATS ARE TO BE USED (1) SECONDARY HIGH LEVEL AND (1) LOW LEVEL ALARM. CONTACTS FOR FLOATS TO CONTROL EMERGENCY LOW LEVEL CUT OFF (WITH "TRUE OFF" ADJUSTABLE TIME DELAY) AND EMERGENCY HIGH LEVEL TO TURN ON OVERRIDE ARE TO BE
- 15. THE PRIMARY LEVEL SYSTEM IS TO BE A AUTOMATION-DIRECT PAC 2000 PLC WITH SUBMERSIBLE PRESSURE TRANSMITTER LEVEL PROBE.
- 16. THE CONTROL PANEL SHALL BE STAINLESS STEEL TO HOURS (2) ELAPSED TIME METERS, SCFH REGULATOR, PURGE, SHUTOFF AND PSI REGULATOR CONTROLS ALONG WITH HOA SWITCHED, RESET EXTENSIONS, AND CUT OUTS FOR BREAKER SWITCHES. THE DOOR IS TO PROVIDE SEPARATION BETWEEN ALL CONTROLS AND "HOT" ELECTRICAL COMPONENTS.
- 17. PROVIDE CONTROL PANEL WIRING DETAILS FOR REVIEW.
- 18. WET WELL, VALVE VAULT AND METERING VAULT SHALL HAVE A SOLID ALUM. DIAMOND PLATE LIDS WITH SPRING ASSIST IF MORE THAN 50 LBS LIFT WEIGHT. LIDS SHALL INCLUDE A RECESSED LIFTING HANDLE AND SECURITY LIFT HANDLE AND SECURITY LATCH/LOCK AND FACTORY INSTALLED SAFETY SLIDE BARS TO HOLD LIDS VERTICALLY OPEN. LIDS TO BE COMPLETE WITH ALUMINUM FRAME AND MOUNTING IN CONCRETE TOP SLABS OF THE WET WELL, VALVE VAULT AND METERING MANHOLE. LIDS/HATCHES SHALL BE FLOODTIGHT, 100% WATER-TIGHT.
- 19. ALL SETS OF LIDS ARE TO BE LARGE ENOUGH TO PULL PUMPS STRAIGHT OF OF THE WET WELL AND HAVE FULL VERTICAL ACCESS TO CHECK AND PLUG VALVES. LIDS FOR WET WELL, VALVE VAULT AND METERING VAULT TO OPEN AWAY FROM EACH OTHER.
- 20. TOP OF SLABS FOR WET WELL AND VAULTS TO BE 8" MIN. ABOVE GRADE.
- 21. CHECK VALVES ARE TO BE ARM WITH WEIGHT TYPE.
- 22. THE VALVE VAULT AND METER/BYPASS VAULT, WALLS AND FLOOR TO BE PRECAST CONCRETE. THE VAULTS ARE TO BE LARGE ENOUGH TO PROVIDE A MINIMUM OF 12" CLEARANCE FROM VALVES TO WALLS AND APPROXIMATELY 24" CLEARANCE BETWEEN VALVES.
- 23. WET WELL TO BE SEALED AT ALL JOINTS INSIDE AND OUT. THE WET WELL SHALL BE TESTED FOR LEAKAGE AND LEAKAGE SHALL NOT EXCEED 1-INCH OF WET WELL DEPTH LOST IN 24 HOURS.
- 24. PUMP DISCHARGE PIPING AND SLIDE RAILS SHALL BE INSTALLED LEVEL AND PLUMB.
- 25. A PUMP DRAW DOWN TEST SHALL BE CONDUCTED ON EACH PUMP IN PRESENCE OF ENGINEER AND OWNER. OPERATION OF ALL ELECTRICAL CONTROLS (INCLUDING THE STANDBY POWER AND ALARM SYSTEM) SHALL BE DEMONSTRATED IN THE PRESENCE OF THE ENGINEER AND OWNER. CONTRACTOR TO SCHEDULE START UP WITH EACH PUMP REMOVED AND REINSTALLED IN THE PRESENCE OF THE OWNER'S MAINTENANCE SUPERVISOR AT LEAST (3) WORKING DAYS IN ADVANCE.
- 26. THE ENGINEER AND OWNER'S MAINTENANCE SUPERVISOR SHALL BE NOTIFIED OF CONSTRUCTION START DATE OF THE LIFT STATION. FINAL APPROVED PLANS SHALL BE PROVIDED TO BOTH BEFORE THE CONSTRUCTION START DATE.
- 27. CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS TO OWNER'S MAINTENANCE SUPERVISOR FOR APPROVAL ON THE
- CAST-IN-PLACE: WETWELL, VALVE VAULT, METERING/BYPASS VAULT.
- ELECTRICAL: CONTROL PANEL, SERVICE DISCONNECT, GENERATOR, TRANSFER SWITCH, CONDUIT AND FITTINGS.
- MECHANICAL: PUMPS, VALVES, AIR RELEASE VALVE AND PIPING (STATION)
- 27.4. SUBMIT DETAILED DIMENSIONED PUMP STATION SHOP DRAWINGS INCLUDING PIPING, PUMPS, VALVES, COVERS, STRUCTURES AND O & M MANUALS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

#### **GENERAL NOTES:**

- 1. ALL MATERIALS AND INSTALLATION SHALL CONFORM TO THE STANDARD SPECIFICATIONS.
- 2. THE WATER METER SHALL CONFORM TO THE STANDARD DETAILS AND APPROVED EQUIPMENT MANUFACTURES AND MODELS. RP BACKFLOW PREVENTER AND YARD HYDRANT SHALL BE AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS.
- 3. NO GALVANIZED PIPE IS TO BE USED IN CONJUNCTION WITH WATER APPURTENANCES INCLUDING METERS, BACKFLOW PREVENTERS, ETC. USE ONLY OWNER APPROVED PIPE MATERIALS. SEE ELECTRICAL PLAN FOR CLASS I, DIVISION I, GROUP D ZONES. PUMPS SHALL BE EXPLOSIVE PROOF.
- 4. SERVICE PER NEC REQUIREMENTS AND CLASSIFIED ENVIRONMENTS.
- 5. EACH BACK FLOW PREVENTER IS TO BE TESTED BY OWNER/UTILITY APPROVED CERTIFIED TESTER PRIOR TO PLACING SYSTEM IN SERVICE.
- 6. CONTRACTOR TO SUPPLY AND INSTALL OSHA WARNING AND EMERGENCY NOTIFICATION SIGN PER OWNER REQUIREMENTS.



Permit/Seal

Project No.: 175568555 File Name: 68555 D100 - PROPOSED SITE Scale: AS NOTED

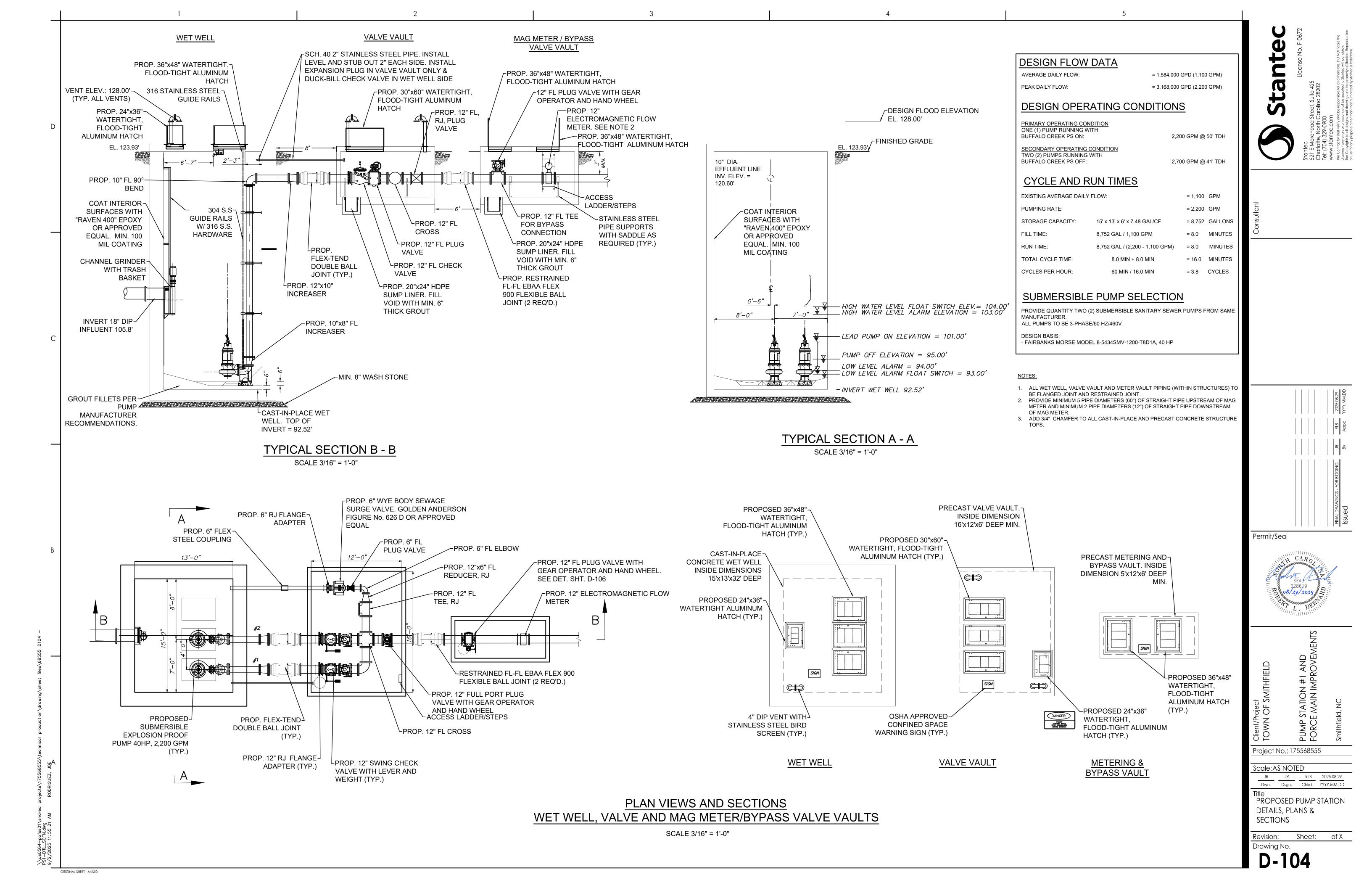
 
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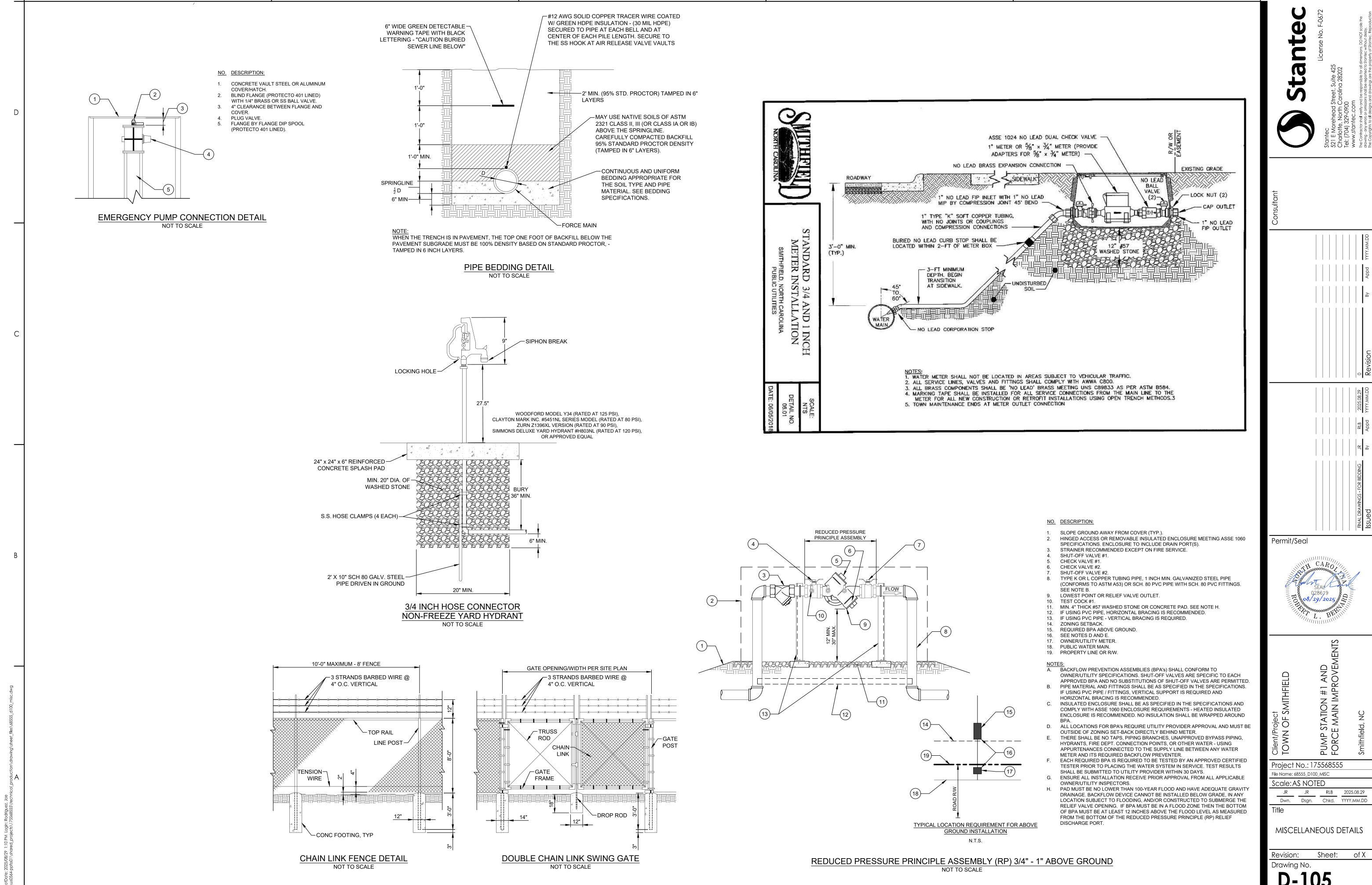
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 PROPOSED PUMP STATION

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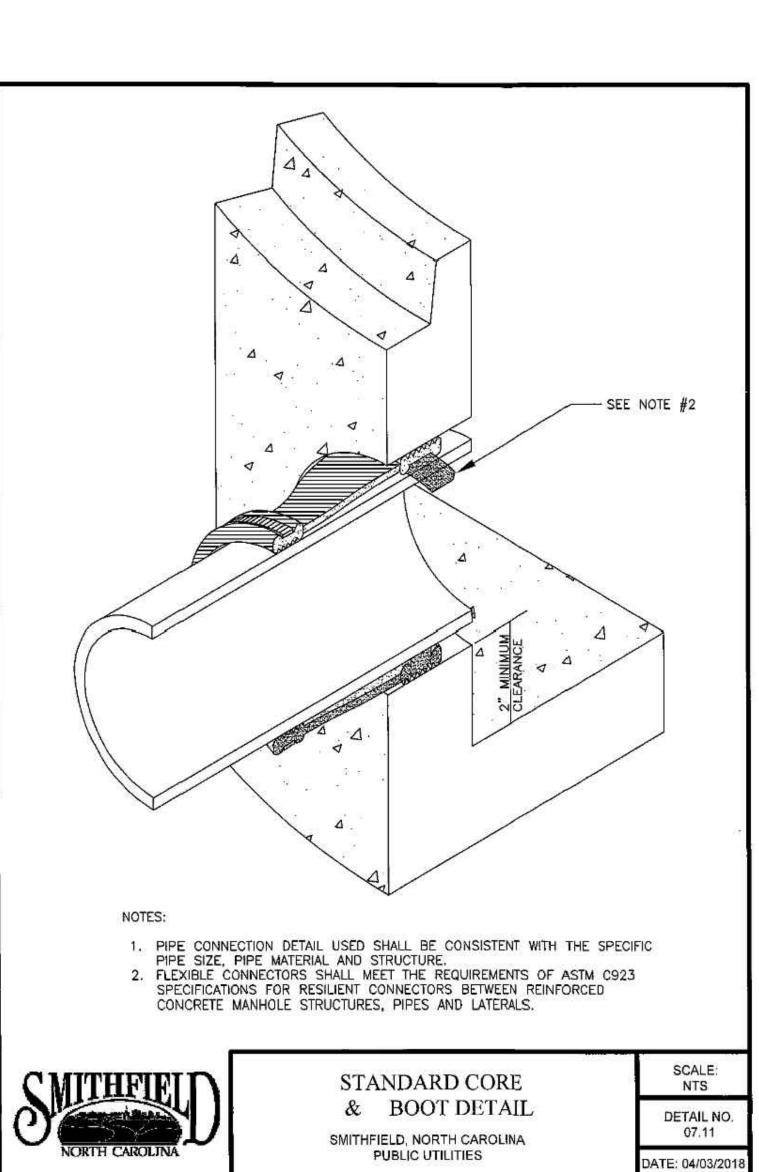
SITE PLAN

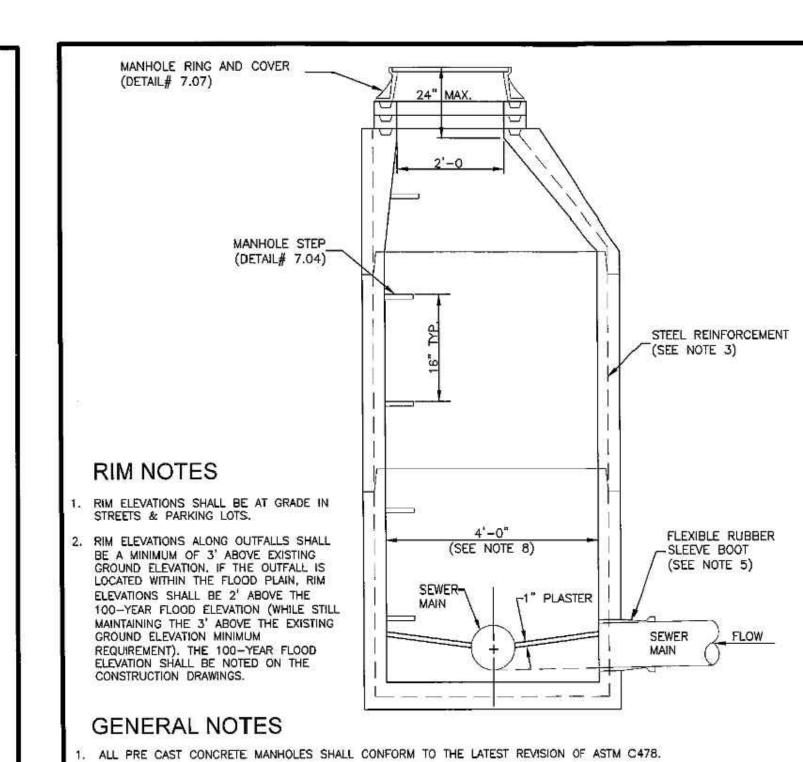




SOLID COVER MAY BE REQUIRED DEPENDING ON FIELD CONDITIONS -2-1" HOLE TOWN OF SMITHFIELD: DETAIL C-C TWO (2) HOLES ONLY TOP OF COVER-SEE DETAIL C-C-BOTTOM OF COVER-MINIMUM AVERAGE WEIGHTS RING = 190lbs. COVER = 120lbs. TOTAL 310lbs. PLAN 1'-11 3/4" 1'-11 1/2" 3 3/4" ---1'-10 1/4" 2'-9 1/4" SECTION PROVIDE MANHOLE INSERTS MANUFACTURED FROM HIGH DENSITY POLYETHYLENE, MEETING THE REQUIREMENTS OF ASTM D-1248, CLASS A, CATEGORY 5, TYPE III. INSERTS SHALL BE EQUIPPED WITH 1 GAS RELIEF VALVE, 1 VACUUM RELIEF VALVE, A CROSS-LINKED POLYETHYLENE GASKET AND ONE HEAVY WEIGHT POLYPROPYLENE LIFTING STRAP. SCALE: NTS STANDARD MANHOLE RING & COVER DETAIL NO. 07.06 SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES

DATE: 04/03/201





STEEL REINFORCEMENT SHALL BE GRADE 40 BILLET STEEL CONFORMING TO THE LATEST REVISION OF ASTM-A-185 FOR WALL REINFORCEMENT, AND THE LATEST REVISION OF ASTM-A615 FOR THE BASE REINFORCEMENT.

STANDARD JOINTS SHALL BE; SEALED WITH PUTTY TYPE PLASTIC CEMENT PER FED. SPEC. SS-C-153 OR AN O-RING TYPE JOINT CONFORMING TO THE LATEST REVISION OF ASTM-C443.

GREATER THAN EIGHTEEN INCHES (18") IN DIAMETER, MANHOLES SHALL BE A MINIMUM OF 5'-0" IN DIAMETER.

STANDARD SANITARY

SEWER MANHOLE

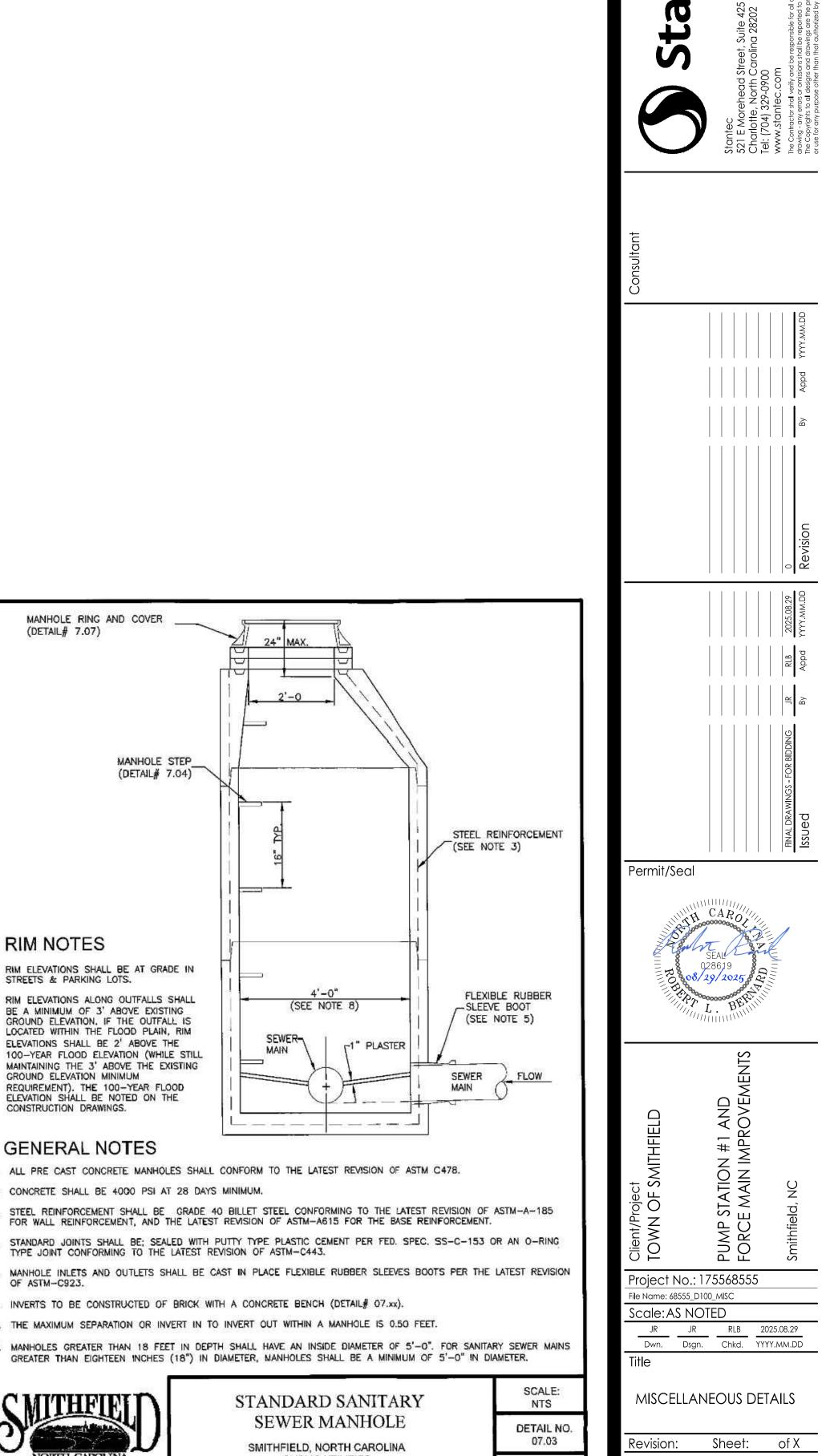
SMITHFIELD, NORTH CAROLINA

PUBLIC UTILITIES

2. CONCRETE SHALL BE 4000 PSI AT 28 DAYS MINIMUM.

6. INVERTS TO BE CONSTRUCTED OF BRICK WITH A CONCRETE BENCH (DETAIL# 07.xx).

THE MAXIMUM SEPARATION OR INVERT IN TO INVERT OUT WITHIN A MANHOLE IS 0.50 FEET.



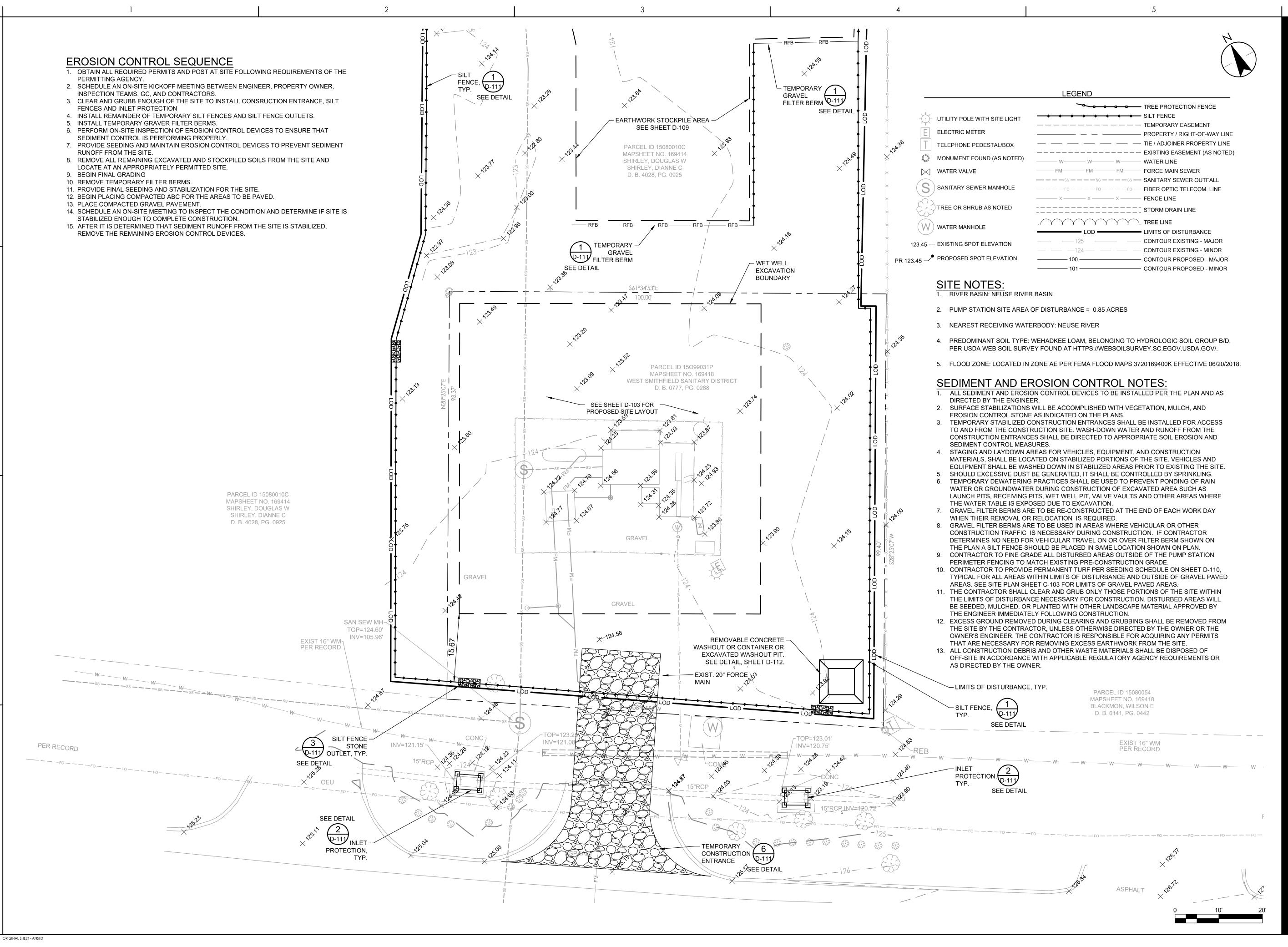
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SCALE: NTS

07.03

DATE: 04/03/2018



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TOWN OF SMITHFIELD

TOWN OF SMITHFIELD

TOWN OF SMITHFIELD

TOWN OF SMITHFIELD

FORCE MAIN IMPROVEMENTS

Project No.: 175568555
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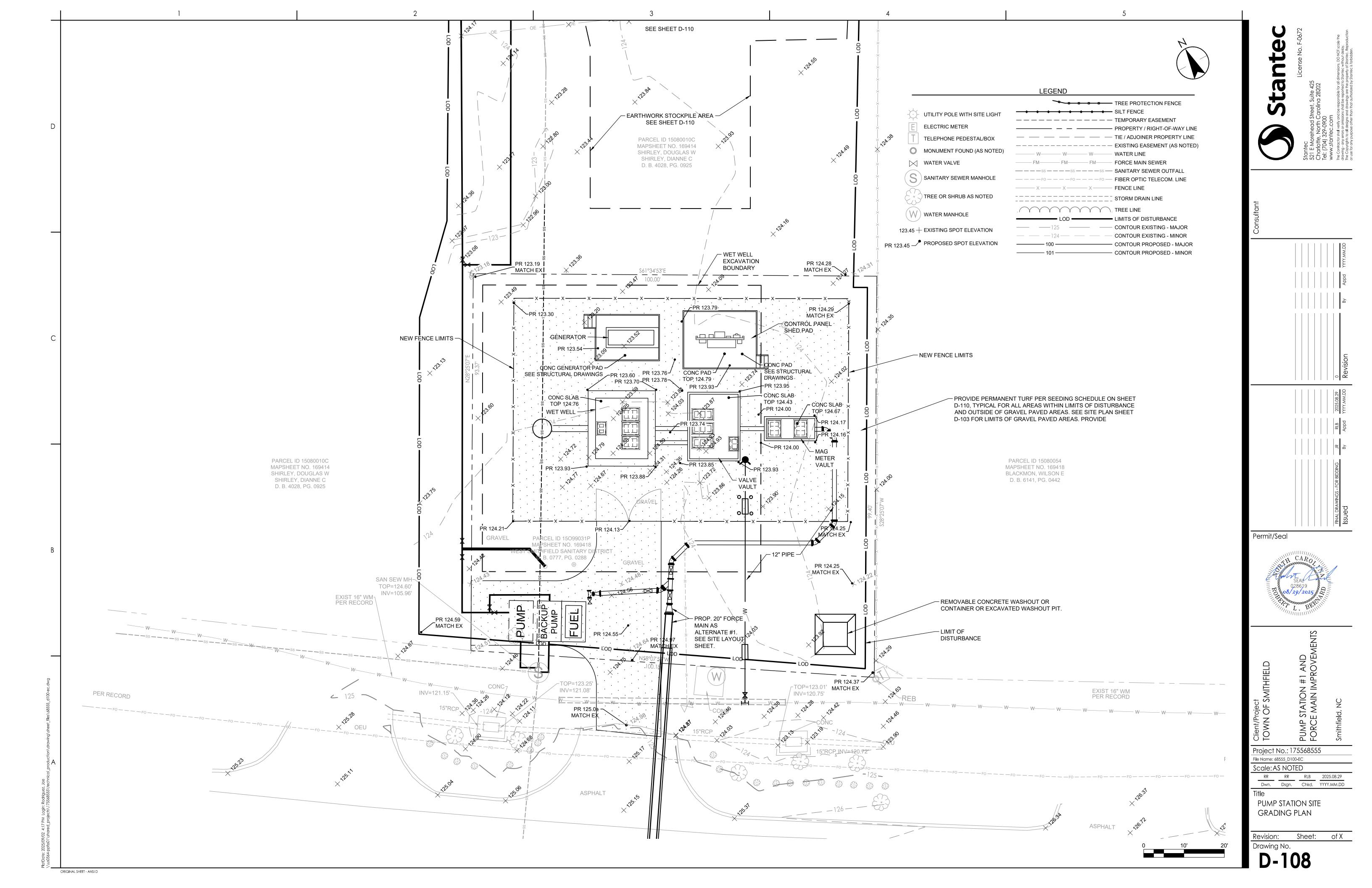
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PUMP STATION SITE

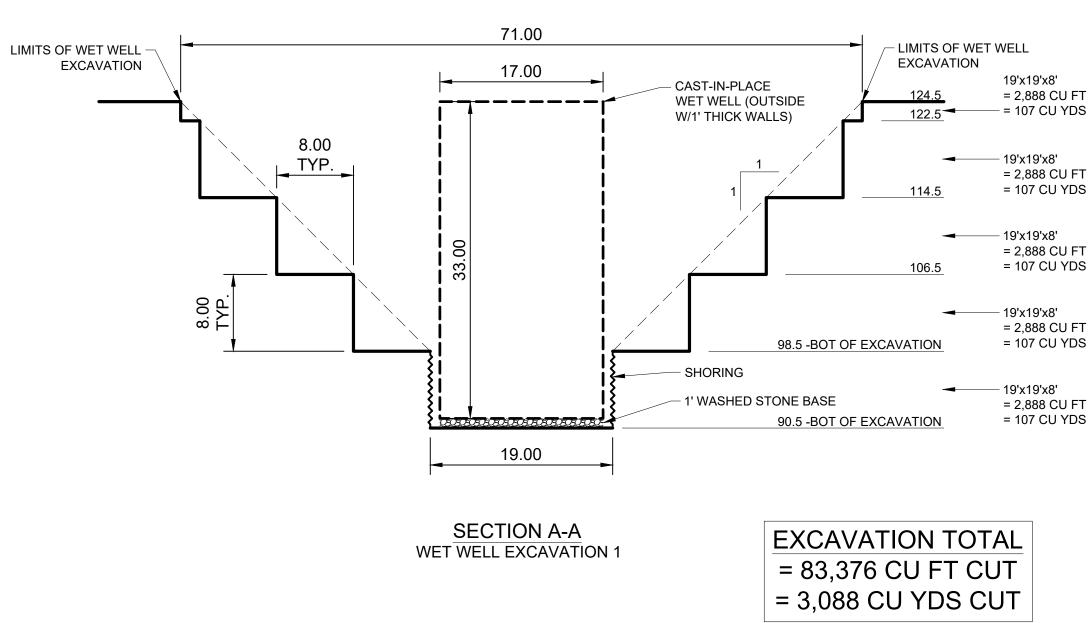
EROSION CONTROL PLAN

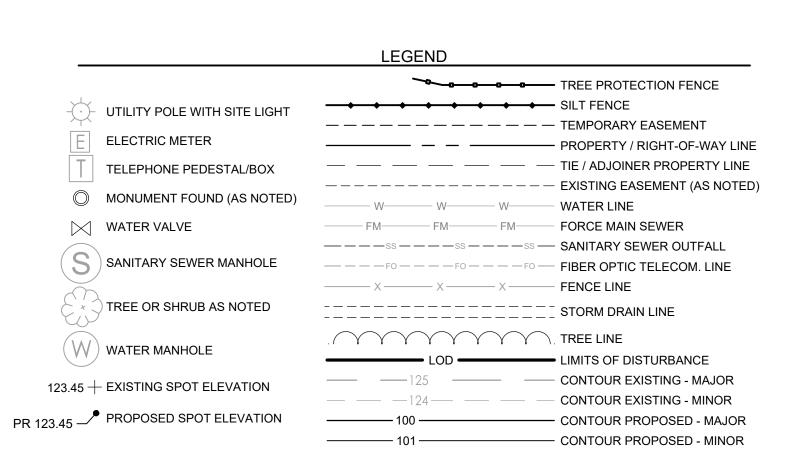
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**D-107** 



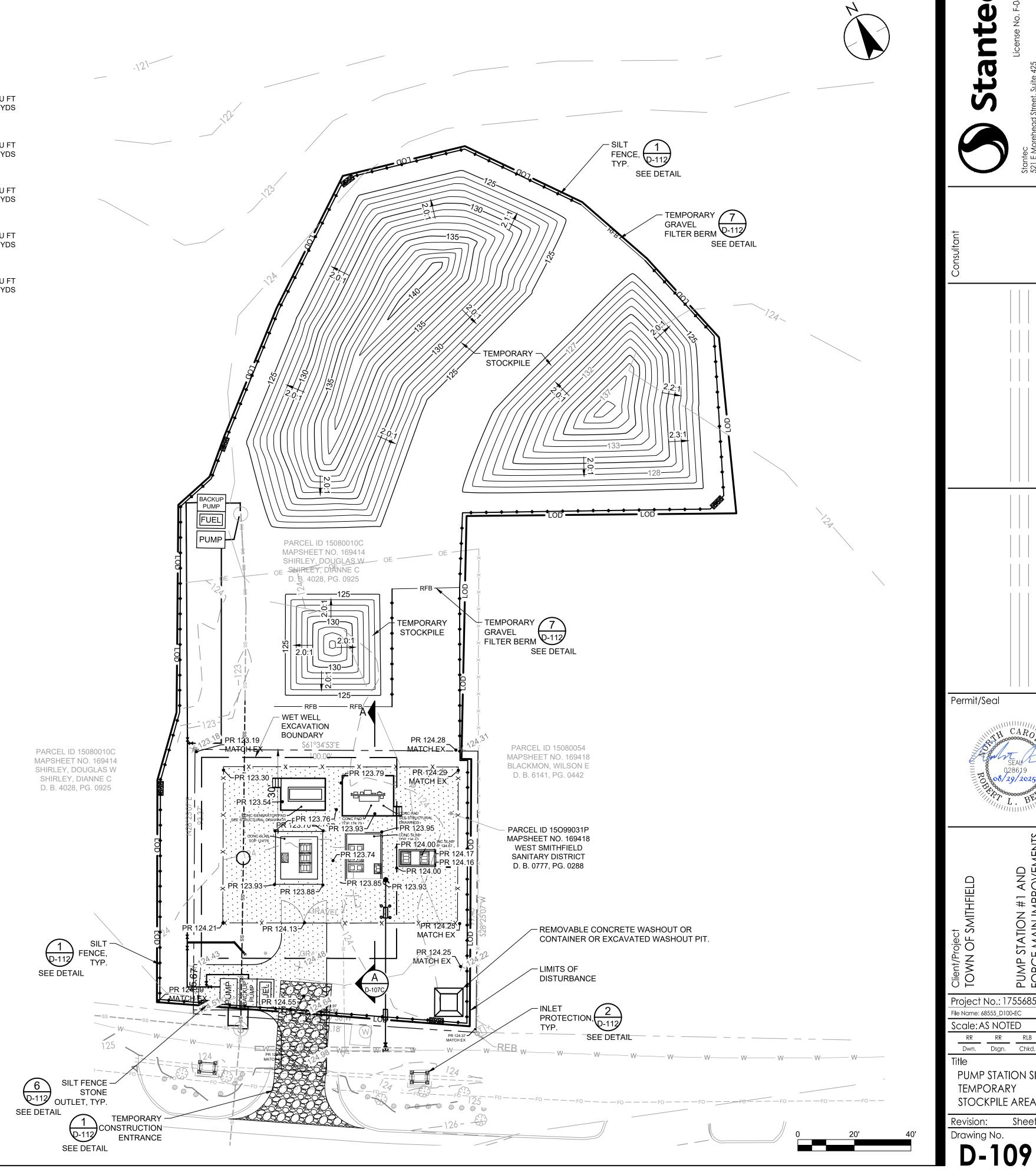




# SITE NOTES:

1. RIVER BASIN: NEUSE RIVER BASIN

- 2. PUMP STATION SITE AREA OF DISTURBANCE = 0.85 ACRES
- 3. NEAREST RECEIVING WATERBODY: NEUSE RIVER
- 4. PREDOMINANT SOIL TYPE: WEHADKEE LOAM, BELONGING TO HYDROLOGIC SOIL GROUP B/D, PER USDA WEB SOIL SURVEY FOUND AT HTTPS://WEBSOILSURVEY.SC.EGOV.USDA.GOV/.
- 5. FLOOD ZONE: LOCATED IN ZONE AE PER FEMA FLOOD MAPS 3720169400K EFFECTIVE 06/20/2018.



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 PUMP STATION SITE **TEMPORARY** STOCKPILE AREA Revision: Sheet: of X

- PROVISIONS TO PREVENT EROSION OF THE SOIL FROM THE SITE SHALL CONFORM TO THE REQUIREMENTS OF THE "NORTH CAROLINA SEDIMENTATION POLLUTION CONTROL ACT OF 1973" AS SHOWN HEREIN AND STIPULATED IN THE "EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL" BY VARIOUS AGENCIES WITHIN THE STATE OF NORTH CAROLINA. INSTALLATION SHALL BE IN A MANNER SO AS TO MINIMIZE EROSION OF THE DISTURBED AREAS AND PREVENT SEDIMENT FROM LEAVING THE SITE.
- 2. TEMPORARY AND PERMANENT VEGETATIVE COVER SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6, SECTIONS 10 AND 11 OF THE PLANNING AND DESIGN MANUAL AS DESCRIBED IN NOTE NO.1 ABOVE.
- 3. EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS. THE PLANS AND DETAILS ARE BASED ON THE NC EROSION AND SEDIMENT PLANNING DRAWINGS, AND THE PROJECT SPECIFICATIONS.
- 4. ALL SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE INSPECTED BY THE CONTRACTOR PER THE "NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING" RULES AS OUTLINED ON SHEET D-114. CONTRACTOR SHALL HAVE 5 DAYS TO REPAIR AND/OR CORRECT DEFICIENCIES. DAMAGED OR INNEFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED AS NECESSARY.
- 5. ALL DISTURBED AREAS WHERE CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED SHALL BE STABILIZED WITH GRASSES PER SEEDING SEHCDULE AS SOON AS PRACTICABLE AND IN NO CASE EXCEED THE TIME AS DESCRIBE IN "SECTION E: GROUND STABILIZATION", ON SHEET D-113 (PER NPDES STORMWATER GENERAL PERMIT NCG010000)
- ALL CONSTRUCTION WORK SHALL BE IN COMPLIANCE WITH REGULATIONS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER GENERAL PERMIT (NCGO10000). THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING, RECORDING, AND SUBMITTING THE REQUIRED SELF-INSPECTION REPORTS TO THE APPROPRIATE AGENCIES. PERMIT DOCUMENTATION CAN BE FOUND IN THE PROJECT SPECIAL CONDITIONS.
- 7. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION, AS DETERMINED BY THE ENGINEER OR EROSION CONTROL INSPECTOR.
- 8. THE CONTRACTOR SHALL TAKE NECESSARY ACTION TO MINIMIZE TRACKING OF MUD ONTO PAVED ROADWAY SURFACE FROM CONSTRUCTION AREAS, INCLUDING BUT NOT LIMITED TO EXTENDING THE MUD MAT. THE CONTRACTOR SHALL REMOVE MUD AND SOIL FROM THE PAVEMENT ON A DAILY BASIS. NO ADDITIONAL PAYMENT WILL BE MADE.
- THE CONTRACTOR SHALL SCHEDULE AND PERFORM A CONTINUOUS CONSTRUCTION OPERATION AT ALL DRAINAGE DITCHES AND STREAM CROSSINGS IN ORDER TO MINIMIZE THE TIME WORKING IN THE DRAINAGE OR STREAM.
- 10. IF FILL MATERIALS ARE TO BE BROUGHT ON TO THIS PROJECT OR WASTE MATERIALS ARE TO BE TAKEN FROM THIS PROJECT, THIS INFORMATION MUST BE DISCLOSED TO THE ENGINEER AND SHOWN ON THE EROSION CONTROL AND GRADING PLAN. BORROWED AREAS AND DUMP SITES ARE CONSIDERED TO BE PART OF THIS PROJECT AND THE OWNER IS RESPONSIBLE FOR STABILIZATION AND EROSION CONTROL MEASURES AT THESE SITES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARATION AND APPROVAL OF THE EROSION CONTROL PLAN FOR ANY OFF SITE BORROW OR DUMP SITES.
- 11. THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GRATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 OR 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUND COVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.
- 12. SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED AS NECESSARY WITH SYNTHETIC OR VEGETATIVE MATS IN ADDITION TO GRASSING/HYDRO SEEDING TO ENSURE THEIR
- 13. TEMPORARY DIVERSION BERMS/DITCHES SHALL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
- 14. SILT FENCE OUTLETS SHALL BE CONSTRUCTED IN LOW LYING AREAS AND AREAS OF CONCENTRATED FLOW ALONG THE LENGTH OF TEMPORARY SILT FENCING. IF LOCATIONS ARISE DURING THE COURSE OF CONSTRUCTION WHERE THE TEMPORARY SILT FENCE BECOMES OVERWHELMED WITH FLOW AND FAILS, THE CONTRACTOR SHALL REPAIR THESE AREAS WITH SILT FENCE OUTLETS.
- 15. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE. THE ROAD SURFACE SHALL BE CLEANED IMMEDIATELY AND CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.

#### **CLEARING AND DEMOLITION**

- 1. THE CONTRACTOR SHALL CLEAR AND GRUB ONLY THOSE PORTIONS OF THE SITE WITHIN THE LIMITS OF DISTURBANCE NECESSARY FOR CONSTRUCTION. DISTURBED AREAS WILL BE SEEDED, MULCHED, SODDED OR PLANTED WITH OTHER LANDSCAPE MATERIAL APPROVED BY THE ENGINEER IMMEDIATELY FOLLOWING CONSTRUCTION. 2. EXCESS GROUND REMOVED DURING CLEARING AND GRUBBING SHALL BE REMOVED
- FROM THE SITE BY THE CONTRACTOR, UNLESS OTHERWISE DIRECTED BY THE OWNER OR THE OWNER'S ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS THAT ARE NECESSARY FOR REMOVING EXCESS EARTHWORK FROM THE SITE. 3. ALL CONSTRUCTION DEBRIS AND OTHER WASTE MATERIALS SHALL BE DISPOSED OF
- OFF-SITE IN ACCORDANCE WITH APPLICABLE REGULATORY AGENCY REQUIREMENTS OR AS DIRECTED BY THE OWNER.

# EROSION CONTROL MAINTENANCE PLAN

- 1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUALLY. RELOCATED WHEN AND AS REQUIRED AND SHALL BE CHECKED AFTER EVERY RAINFALL SEEDED AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED AND MULCHED AS REQUIRED TO OBTAIN A DENSE STAND OF GRASS. ANY REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
- 2. WHEN A CONSTRUCTION ENTRANCE HAS BEEN COVERED WITH SOIL OR HAS BEEN PUSHED INTO THE SOIL BY CONSTRUCTION TRAFFIC. IT SHALL BE REPLACED WITH A DEPTH OF STONE EQUAL TO THAT OF THE ORIGINAL APPLICATION OR OTHERWISE REINSTALLED PER THE ORIGINAL APPLICATION.
- 3. ALL DRAINAGE INLETS DOWN SLOPE OF THE CONSTRUCTION WORK AREA SHALL PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE LAID IN SUCH A WAY THAT GOOD CONTACT WITH THE GROUND IS ESTABLISHED. IF GOOD CONTACT IS NOT ESTABLISHED OR EROSION OCCURS UNDER THE COIR FIBER MATTING, THEN THE BANK SHALL BE REPAIRED AND THE MATTING RESECURED.
- 4. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT REACHED 0.5 FEET DEEP AT THE SILT FENCE. SHOULD THE SILT FENCE FABRIC COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. REPLACE IT PROMPTLY AND REMOVE SEDIMENT DEPOSITS AS NECESSARY TO REDUCE PRESSURE ON THE FENCE. AVOID UNDERMINING SILT FENCE DURING CLEAN OUT.
- 5. SEDIMENT REMOVED FOR ANY TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURE DURING REGULAR MAINTENANCE SHALL BE INCORPORATED BACK INTO THE EARTHWORK AS FILL ON THE SITE. SOIL SEDIMENT MATERIAL SHALL BE DISTURBED ON-SITE WITHOUT CHANGING DRAINAGE PASTERNS.
- 6. SEDIMENT SHALL BE REMOVED FROM A SEDIMENT TRAP WHEN THE CAPACITY HAS BEEN REDUCED BY 50% FROM THE DESIGN CAPACITY.
- 7. AFFECTED ROADS SHALL BE CLEANED DAILY OR MORE FREQUENTLY IF OTHERWISE REQUIRED BY THE ENGINEER OR OWNER.
- 8. CONSTRUCTION EQUIPMENT AND VEHICLES WITH THE WORK AREA SHALL BE PROPERLY MAINTAINED AND INSPECTED, PARTICULARLY FOR IDENTIFICATION AND REPAIR OF VEHICLES LEAKING PETROLEUM PRODUCTS THAT COULD ENTER ADJACENT STORMWATER DRAINAGE FACILITIES.
- 9. ALL SEEDED AREA SHALL BE FERTILIZED, RESEEDED, AND MULCHED AS NECESSARY TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER, THROUGH THE ONE-YEAR WARRANTY PERIOD.

## SEEDING SCHEDULE

GENTLE SLOPES

STEEP SLOPES

SEEDING MIXTURE	40 LBS / ACRE GERMAN MILLET 80 LBS / ACRE TALL FESCUE	120 LBS / ACRE RYE (GRAIN) 80 LBS / ACRE TALL FESCUE
SEEDING DATES	MAY 1 - AUGUST 15  REFERTLILZE IF GROWTH IS NOT FULLY ADEQUATE  APPLY 4000 LBS / ACRE STRAW OR EQUIVALENT HYDROSEEDING	OCTOBER 25 - DECEMBER 30  BETWEEN DECEMBER 30 - FEBRUARY 15, ADD 500 LBS / ACRE OF ANNUAL KOBE LESPEDEZA  APPLY 4000 LBS / ACRE STRAW OR EQUIVALENT HYDROSEEDING
SEEDING AMENDMENTS	APPLY LIME AND FERTILIZER PER SOIL TESTS OR 2000 LBS / ACRE LIMESTOME AND 750 LBS / ACRE 10-10-10 FERTILIZER	APPLY LIME AND FERTILIZER PER SOIL TESTS OR 2000 LBS / ACRE LIMESTOME AND 750 LBS / ACRE 10-10-10 FERTILIZER

#### TEMPORARY SEEDING SCHEDULE

**GENTLE SLOPES** 

STEEP SLOPES

SEEDING MIXTURE	40 LBS / ACRE GERMAN MILLET 80 LBS / ACRE TALL FESCUE	120 LBS / ACRE RYE (GRAIN) 80 LBS / ACRE TALL FESCUE
SEEDING DATES	MAY 1 - AUGUST 15  REFERTLILZE IF GROWTH IS NOT FULLY ADEQUATE  APPLY 4000 LBS / ACRE STRAW OR EQUIVALENT HYDROSEEDING	OCTOBER 25 - DECEMBER 30  BETWEEN DECEMBER 30 - FEBRUARY 15, ADD 500 LBS / ACRE OF ANNUAL KOBE LESPEDEZA  APPLY 4000 LBS / ACRE STRAW OR EQUIVALENT HYDROSEEDING
SEEDING AMENDMENTS	APPLY LIME AND FERTILIZER PER SOIL TESTS OR 2000 LBS / ACRE LIMESTOME AND 750 LBS / ACRE 10-10-10 FERTILIZER	APPLY LIME AND FERTILIZER PER SOIL TESTS OR 2000 LBS / ACRE LIMESTOME AND 750 LBS / ACRE 10-10-10 FERTILIZER



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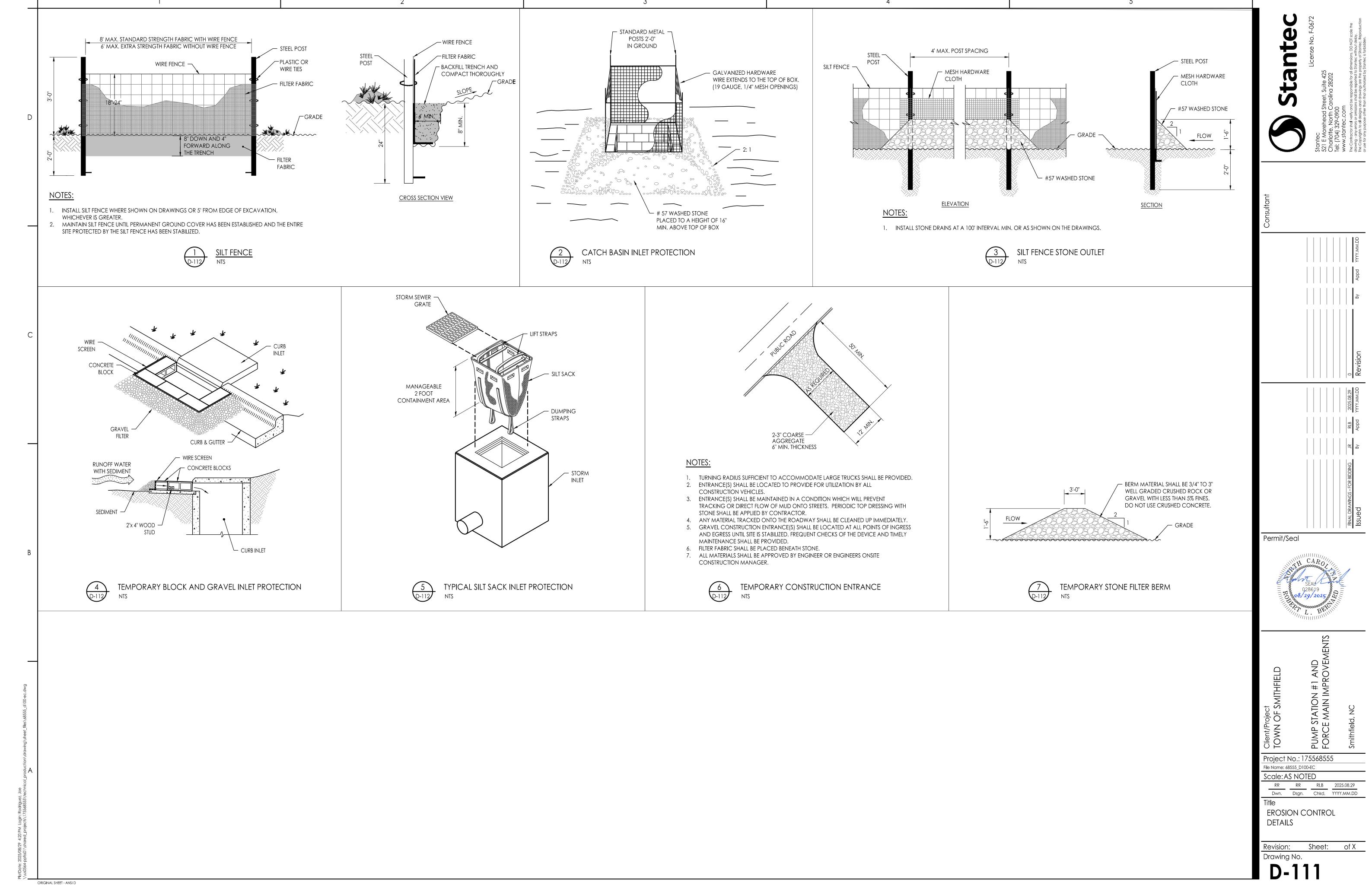
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DETAILS

**EROSION CONTROL** 

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Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

#### **SECTION E: GROUND STABILIZATION**

	Required Ground Stabilization Timeframes				
Si	te Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations		
(a)	Perimeter dikes, swales, ditches, and perimeter slopes	7	None		
(b)	High Quality Water (HQW) Zones	7	None		
(c)	Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed		
(d)	Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed		
(e)	Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope		

**Note:** After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

#### GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

#### **Temporary Stabilization**

- Temporary grass seed covered with straw or other mulches and tackifiers
- Hvdroseeding
- Rolled erosion control products with or without temporary grass seed
- Appropriately applied straw or other mulch
- Plastic sheeting

#### **Permanent Stabilization**

- Permanent grass seed covered with straw or other mulches and tackifiers
- Geotextile fabrics such as permanent soil reinforcement matting
- Hydroseeding
- Shrubs or other permanent plantings covered
- Uniform and evenly distributed ground cover sufficient to restrain erosion
- Structural methods such as concrete, asphalt or retaining walls
- Rolled erosion control products with grass seed

# POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants.
- 2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- 3. Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions.
- 4. Provide ponding area for containment of treated Stormwater before discharging offsite.
- 5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

#### **EQUIPMENT AND VEHICLE MAINTENANCE**

- Maintain vehicles and equipment to prevent discharge of fluids.
- 2. Provide drip pans under any stored equipment.
- 3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- 5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

#### LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- 1. Never bury or burn waste. Place litter and debris in approved waste containers.
- 2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
- 3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- 6. Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

### PAINT AND OTHER LIQUID WASTE

- 1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- 2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

## PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- 2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

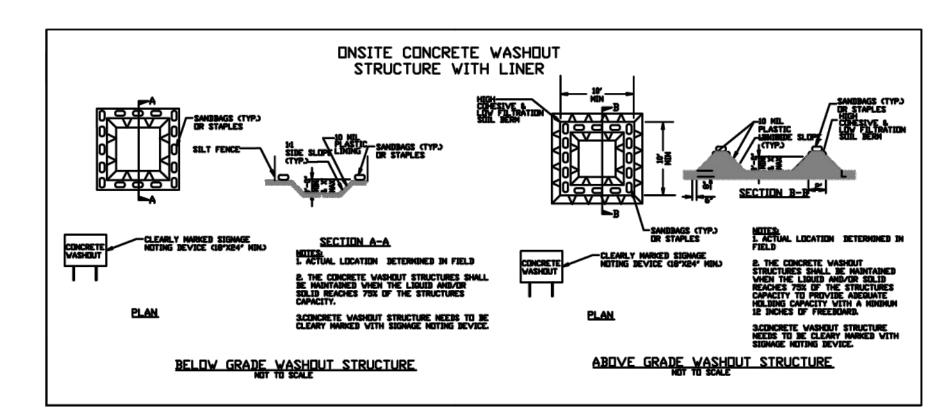
# EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.





#### **CONCRETE WASHOUTS**

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- 3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- 9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- 10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

# HERBICIDES, PESTICIDES AND RODENTICIDES

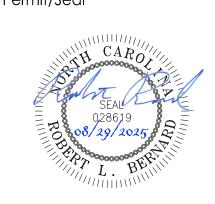
- 1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- 3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

# HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

EFFECTIVE: 04/01/19

Permit/Seal



Project No.: 175568555 Scale: AS NOTED 
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**EROSION CONTROL DETAILS** 

> Revision: Sheet: of X Drawing No.

D-112

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

	Frequency	
Inspect	(during normal	Inspection records must include:
	business hours)	
(1) Rain gauge	Daily	Daily rainfall amounts.
maintained in		If no daily rain gauge observations are made during weekend or
good working		holiday periods, and no individual-day rainfall information is
order		available, record the cumulative rain measurement for those un-
		attended days (and this will determine if a site inspection is
		needed). Days on which no rainfall occurred shall be recorded as
		"zero." The permittee may use another rain-monitoring device
		approved by the Division.
(2) E&SC	At least once per	1. Identification of the measures inspected,
Measures	7 calendar days	2. Date and time of the inspection,
	and within 24	3. Name of the person performing the inspection,
	hours of a rain	4. Indication of whether the measures were operating
	event ≥ 1.0 inch in	properly,
	24 hours	5. Description of maintenance needs for the measure,
		6. Description, evidence, and date of corrective actions taken.
(3) Stormwater	At least once per	Identification of the discharge outfalls inspected,
discharge	7 calendar days	2. Date and time of the inspection,
outfalls (SDOs)	and within 24	3. Name of the person performing the inspection,
* "	hours of a rain	4. Evidence of indicators of stormwater pollution such as oil
	event ≥ 1.0 inch in	sheen, floating or suspended solids or discoloration,
	24 hours	5. Indication of visible sediment leaving the site,
		6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of	At least once per	If visible sedimentation is found outside site limits, then a record
site	7 calendar days	of the following shall be made:
	and within 24	1. Actions taken to clean up or stabilize the sediment that has left
	hours of a rain	the site limits,
	event > 1.0 inch in	2. Description, evidence, and date of corrective actions taken, and
	24 hours	3. An explanation as to the actions taken to control future
		releases.
(5) Streams or	At least once per	If the stream or wetland has increased visible sedimentation or a
wetlands onsite	7 calendar days	stream has visible increased turbidity from the construction
or offsite	and within 24	activity, then a record of the following shall be made:
(where	hours of a rain	1. Description, evidence and date of corrective actions taken, and
accessible)	event ≥ 1.0 inch in	2. Records of the required reports to the appropriate Division
•	24 hours	Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground	After each phase	The phase of grading (installation of perimeter E&SC
stabilization	of grading	measures, clearing and grubbing, installation of storm
measures	- G	drainage facilities, completion of all land-disturbing
		activity, construction or redevelopment, permanent
		·
		ground cover).  2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement

# PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

#### **SECTION B: RECORDKEEPING**

#### 1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

# 2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
- (b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

# 3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

# PART II, SECTION G, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- (a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
- (b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
- (c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
- (d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
- (e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- (f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

# PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

#### **SECTION C: REPORTING**

#### 1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

- (a) Visible sediment deposition in a stream or wetland.
- (b) Oil spills if:
  - They are 25 gallons or more,
  - They are less than 25 gallons but cannot be cleaned up within 24 hours,
  - They cause sheen on surface waters (regardless of volume), or
  - They are within 100 feet of surface waters (regardless of volume).
- (c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
- (d) Anticipated bypasses and unanticipated bypasses.
- (e) Noncompliance with the conditions of this permit that may endanger health or the environment.

# 2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis.</li> <li>If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.</li> </ul>
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul> <li>Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.</li> </ul>
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul> <li>A report at least ten days before the date of the bypass, if possible.</li> <li>The report shall include an evaluation of the anticipated quality and effect of the bypass.</li> </ul>
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.</li> </ul>
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(I)(7)]	<ul> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(I)(6).</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>



NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

Stantec

Stantec 521 E Morehead Street, Charlotte, North Carolir Tel: (704) 329-0900 www.stantec.com

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Permit/Seal



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Project No.: 175568555
File Name: 68555\_D100-EC
Scale: AS NOTED

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EROSION CONTROL DETAILS

Revision: Sheet: of X Drawing No.

D-113

## **GENERAL STRUCTURAL NOTES**

#### **GENERAL NOTES**

- The governing Code for this Project is the 2018 NORTH CAROLINA STATE BUILDING CODE: BUILDING. This Code prescribes which edition of each referenced standard applies to this Project.
- To the best of our knowledge, the Structural Drawings and Specifications comply with the applicable requirements of the governing Building
- Construction is to comply with the requirements of the governing Building Code and all other applicable Federal, State, and Local Codes, Standards, Regulations and Laws.
- The Structural Documents are to be used in conjunction with the Civil Documents. Use these Notes in conjunction with the Project Specifications. If a conflict exists, the more stringent governs.
- See Project Specifications for testing. See the Special Inspection Plan for inspection requirements.
- Details labeled "typical" apply to all situations that are the same or similar to those specifically referenced, whether or not they are keyed in at each location. Questions regarding the applicability of typical details shall be resolved by the Civil Engineer.
- Openings shown on Structural Drawings are only pictorial. See the Civil and M.E.P. drawings for the size and location of openings in the structure
- Contractors who discover discrepancies, omissions or variations in the Contract Documents during bidding shall immediately notify the Civil Engineer. The Civil Engineer will resolve the condition and issue a written clarification.
- The General Contractor shall coordinate all Contract Documents with field conditions and dimensions and Project Shop Drawings prior to construction. Do not scale drawings; use only printed dimensions. Report any discrepancies in writing to the Civil Engineer prior to proceeding with work. Do not change size or location of structural members without written instructions from the Structural Engineer of
- The Contractor shall protect adjacent property, his own work and the public from harm. The Contractor is solely responsible for construction means and methods, and jobsite safety including all OSHA requirements.
- The Structure is designed to be structurally sound when completed. Prior to completion, the Contractor is responsible for stability and temporary bracing. Wherever the Contractor is unsure of these requirements, the Contractor shall retain an engineer licensed in the state where this project is located to design and inspect the temporary bracing and stability of the structure.

#### <u>Design Loads</u>

#### <u>Dead Load</u>

The weight of all permanent construction including walls, floors, ceilings, roof cladding to be included in addition to self-weight of members and structural slabs.

#### Live Load

Concrete Lids	150 PSF
Surcharge	80 PSF

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#### Design Wind Loads

a.	Governing Code	ASCE 7-16
b.	Building Risk Category	III
C.	Ultimate Design Wind Speed	Vult = <b>127 mph</b> (3 second gust)
d.	Nominal Design Wind Speed	Vasd = <b>97 mph</b> (3 second gust)
e.	Directionality Factor	Kd = <b>0.85</b>
f.	Topographic Factor	Kzt = <b>1.0</b>
g.	Exposure	С
ĥ.	Enclosure Classification	Enclosed
i.	Internal Pressure Coefficient	GCpi = <b>± 0.18</b>

#### **Design Flood Loads**

a. Flood Design Class

c b		+126.00' NGVD +128.00' NGVD	
<u>s</u>	Snow Load		
S T	Flat Roof Snow Load  Snow Load Importance Factor  Thermal Factor  Snow Exposure Factor	1.1 . 1.1	
<u>S</u>	Seismic Load		
S S	Seismic Importance Factor	0.158 0.077	

## SHOP DRAWINGS

- Twenty working days prior to submitting shop drawings, the Contractor shall submit for EOR's review a schedule which details the estimated quantity of shop drawings and the date the shop drawings will be received by the Civil Engineer. The EOR shall have the opportunity to review the proposed schedule and submit comments to the Contractor. The final shop drawing schedule shall be developed and submitted to the EOR. In accordance with the shop drawing schedule, the EOR will return the shop drawing items within ten working days, unless otherwise negotiated between Stantec and the Client, after having received the electronic shop drawing.
- Refer to Division 1 of the Specifications for submittal procedures and requirements. Refer to the applicable specification sections for technical content requirements. Incomplete submittals will be returned without review.
- Submit specific components, such as columns, footings, etc., in a single package. Submit similar floors together.
- On first submittal, clearly flag and cloud all differences from the Contract Documents. On resubmittals, flag and cloud all changes and additions to previous submittal; only clouded items will be reviewed.
- The General Contractor is responsible for confirming and correlating dimensions at the job sites, for tolerances, clearances, quantities, fabrication processes and techniques of construction, coordination of the work with other trades and full compliance with the Contract Documents.
- The General Contractor/Construction Manager shall review and approve submittals and shall sign and date each drawing prior to submitting to the Civil Engineer. This approval is to confirm that the Submittal is complete, complies with the Submittal Requirements and is coordinated with field dimensions, other trades, erection sequencing and constructability.
- The Structural Engineer reviews submittals to confirm that the submittal is in general conformance with the design concept presented in the Contract Documents. Quantities and dimensions are not checked. Notations on submittals do not authorize changes to the contract sum. Checking of the submittal by the Structural Engineer shall not relieve the Contractor of responsibility for deviations from the Contract Documents and from errors or omissions in the submittal.
- The Contractor may request CAD files of the Structural Drawings, which may be provided at the Structural Engineer's discretion upon a written agreement between the Structural Engineer and the General Contractor.
- At a minimum, shop drawings for the following items shall be submitted for review:
  - Reinforcing Steel Concrete/Grout Mixes Aluminum Access Hatch
  - Structural Steel Metal Decking Product Data/Accessories
  - Pour Sequence/Construction Joint Locations Embedded Items
  - Utility Penetrations through Structural Members Embedded Utilities in Structural Members

Waterstops

#### **DEFERRED SUBMITTALS**

- Refer to notes section titled "SHOP DRAWINGS" for additional requirements
- Deferred Submittals for special structural, load-carrying items that are required by Codes or Standards to resist forces must be prepared by, or under the direct supervision of a Delegated Engineer. The Contractor shall submit the deferred submittals to the Civil Engineer for review. The Contractor shall submit the reviewed deferred submittal documents to the building official for approval. Deferred submittal items shall not be installed until the deferred submittal documents have been approved by the building official.
- A Delegated Engineer is defined as an engineer licensed in the state where this project is located who specializes in and undertakes the design of Structural Components or Structural Systems included in a specific submittal prepared for this Project and is an employee or officer of, or consultant to, the Contractor or Fabricator responsible for the submittal. The Delegated Engineer shall sign, seal and date the submittal, including calculations and drawings. See Specifications for more specific criteria.
- The Structural Engineer's review of Deferred Engineer submittals is limited to verifying that the specified structural submittal has been furnished, signed and sealed by the Delegated Engineer and that the Delegated Engineer has understood the design intent and used the specified Structural Criteria. No detailed check of calculations will be made. The Delegated Engineer is solely responsible for his/her design, including but not limited to the accuracy of his/her calculations and compliance with the applicable codes and standards.
- The following items are deferred submittals shop drawings and calculations shall be submitted for review
  - Mechanical Equipment Structural Steel Platform
  - Structural Steel Connections
  - Precast Concrete Valve Vault and Mag Meter Vault
  - Structural Precast/Prestressed Concrete

#### Steel Stairs Railings

#### **SHALLOW FOUNDATIONS**

- Foundations design, soil preparation and compaction are based on Geotechnical Investigation, Data and Recommendations in TERRACON, **ENGINEERING REPORT NOVEMBER 20, 2024.**
- Footing sizes and reinforcing are bases on an allowable soil bearing capacity of 2,400 psf for Wet Well, 850 psf for Valve Vault, and 500 psf for Mag Meter Vault. All footings shall bear on natural soil or rock prepare per the Geotechnical Report.
- Subgrade preparation shall be field controlled and tested by a Licensed Soil Engineer in accordance with Geotechnical Report. At completion, that Engineer shall prepare and submit to the Owner, Contractor and Structural Engineer a signed and sealed letter indicating that the recommendations of the Geotechnical Report have been followed.
- Center all footings under their respective columns or walls, UNO.
- Top of all footings is 2'-0" below the ground floor level, UNO.

#### **SLAB ON GRADE**

- Refer to Geotechnical Report for subgrade preparation more than 12" below bottom of slab.
- Above subgrade. Use fill containing not more than 10% passing #200 sieve and maximum 1 inch diameter. Compact to 95% of maximum dry density as determined by modified proctor ASTM D-1557. Each layer of fill shall not exceed 6" loose thickness. Compact prior to placement of
- Fill placement and compaction shall be monitored and accepted by the testing agency. Take a min. of one field density test (ASTM D-1556 or D-2922) for each 2,500 square feet of each layer. The testing agency shall randomly select test locations.
- For interior slabs place 10 mil polyethylene sheeting between soil and bottom of slab. Do not use any sheeting below exterior concrete slabs.
- Use 4" thick slabs on grade reinforced with 6x6-W2.9xW2.9 or 5" thick slabs on grade reinforced with 6x6-W3.5xW3.5 welded wire reinforcement supplied in flat sheets only.
- Provide crack control joints at 15 feet maximum to limit areas between joints to 225 sq. ft. in all floating slabs on grade. Locate to conform to bay spacing whenever possible. Add crack control joints at re-entrant comers which tend to invite cracks.
- In sidewalks and walkways, locate isolation joints at 20 ft. O/C maximum score and tool between isolation joints in equal bays of 5 ft. or less.
- See the Civil Drawings for slab on grade depression and other requirements.

#### REINFORCED CONCRETE

#### Concrete Data

Concrete shall have the following minimum 28-day compressive strengths:

	<u>f'c</u>	W/C RATIO
All Concrete	5,000 PSI	0.42 MAX
Precast Concrete	See Notes ar	nd Specifications

- Comply with ACI 301, ACI 350 and 318 and Specification Sections 033000.
- Use normal weight concrete for all structural members UNO.
- The use of calcium chloride and/or other chloride containing agents in concrete is prohibited.
- In addition to the requirements above, the concrete elements in this project are categorized as follows:

EXPOSURE CLASS				
FREEZE/THAW   SULFATE   PERMEABILITY   CORROSIO				
FOUNDATIONS	EF2	ES1	W1	EC1
EXTERIOR COLUMNS/WALLS	EF2	ES1	W1	EC1
EXTERIOR BEAMS/SLABS	EF2	ES1	W1	EC1
EXTERIOR SLAB ON GRADE	EF2	ES1	W1	EC1

Provide ASTM A-615 Grade 60 reinforcing steel. Reinforcing shall be accurately placed, rigidly supported and firmly tied in place, with

Element	Bottom	Тор	Sides
Shallow Foundation	3"	2"	3"
Grade Beams with Sides Formed*	3"	2"	2"*
Beams Above Grade	1 1/2"	1 1/2"	1 1/2"
Columns	-	-	1 1/2"
Slabs on Grade	3"	2"	2"
Slabs Above Grade	3/4"	3/4"	1"
Slabs Exposed to Weather	2"	2"	2"
Walls Retaining Fill	-	-	3"
Walls Exposed to Weather	-	-	2"
Walls - all others	-	-	2"

\* If grade beam sides are unformed, excavate 2" wider (1" each side) than specified and increase cover to 3".

- Where specified, provide plain, cold-drawn electrically-welded wire reinforcement conforming to ASTM A-185. Supply in flat sheets only. Lap splice one cross wire spacing plus two inches.
- Provide the following temperature reinforcing for one-way slabs, UNO:

Reinforcing 3 1/2" - 4 1/4" #3 @ 12" o/c 4 1/2" - 6" #4 @ 18" o/c 6 1/2" - 7" #4 @ 15" o/c 7 1/2" - 9" #4 @ 12" o/c 9 1/2" - 12" #5 @ 14" o/c

- In addition to specified reinforcing, provide 2 tons of reinforcing bars to be detailed, fabricated, delivered to site and placed as directed by the Civil Engineer to account for unforeseeable conditions.
- Provide construction joints in accordance with ACI 318, Sections 26.5.6 and 26.5.7. Provide keyways and adequate dowels. Submit drawings showing location of construction joints and direction of pour for review. Concrete surfaces in all construction joints shall be roughened to an amplitude of 1/4 inch. Clean surface laitance prior to second placement.
- 11. Provide 3/4" chamfer for all exposed corners.
- Provide reinforcing steel placer with a set of Structural Drawings for field reference. Inspect reinforcing steel placing from structural drawings.

#### **POST-INSTALLED ANCHORS - GENERAL**

- Substitution requests will be considered for products having an ICC-ES report recognizing the product for the appropriate application. Substitute concrete anchors must be approved for use in cracked concrete. Substitution requests shall include signed and sealed calculations prepared by an engineer licensed in the state where this project is located who demonstrates that substituted product is capable of achieving the equivalent performance values of the design basis product.
- Confirm the absence of reinforcing steel by drilling a 1/4" diameter pilot hole for each anchor. Do not cut reinforcing steel without approval of the Structural Engineer.
- Install in accordance with manufacturer's instructions. Refer to manufacturer's installation instructions for appropriate drill size. Clean hole and remove dust. Use an epoxy, acrylic or polyester resin adhesive system such as the Hilti Hit HY200, ITW Ramset/Red Head Epcon A7 or C6 Injection System, Powers Power-Fast + System, Simpson Strong-Tie AT or ET, Allied Fastener Allied +, or accepted equivalent. Follow Manufacturer's Specifications for use and installation

#### STRUCTURAL STEEL

- Fabricate and erect structural steel in conformance with Specification Section 051200, AISC "Specification For The Design, Fabrication and Erection of Structural Steel for Buildings", with Commentary, and all OSHA requirements
- Structural steel shapes shall be fabricated from the following materials:
  - Rolled W and WT Shapes: ASTM A992, Grade 50.
  - Rolled M, S, C and MC Shapes and Angles: ASTM A36, fy=36 ksi.
  - Plates and Bars: ASTM A36, fy=36 ksi.
  - Cold-formed Hollow Structural Sections (HSS):

Round Sections: ASTM A500, Grade B, fy=42 ksi.

Square and Rectangular Sections: ASTM A500, Grade B, fy=46 ksi.

Steel Pipe: ASTM A53, type E or S, Grade B, fy=35 ksi.

- All shop and field welding shall conform to the AWS D1.1 Structural Welding Code by the American Welding Society. Use E70 series welding electrodes, UNO where necessary, remove galvanizing or primer prior to welding
- A325 and A490 bolts shall comply with "Specification For Structural Joints Using ASTM A325 or A490 bolts", including
  - Tighten bearing-type bolts (A-325N, A-325X, A-490N, and A-490X) to the snug tight condition as follows:
    - Bolts shall be placed in all holes, with washers positioned as required and nuts threaded to complete the
    - assembly. Compacting the joint to the snug-tight condition shall progress systematically from the most rigid part of the joint.
    - The snug-tightened condition is the tightness that is attained with a few impacts of an impact wrench or the full
    - More than one cycle through the bolt pattern may be required to achieve the snug-tightened joint.
  - Tighten slip-critical bolts (A-325SC and A-490SC) to the minimum fastener tension indicated in table 8.1 of the "Specification For Structural Joints Using ASTM A-325 or ASTM A-490 Bolts" as follows:
  - Begin final tightening of slip-critical bolts only after a snug-tight joint as described above is achieved. Progress systematically from the most rigid part of the joint.
  - If splined end of tension-control bolts is severed prior to achieving snug-tight joint, remove and replace the
  - Progress systematically from the most rigid part of the joint.
  - Determine tension using either load indicator washers or tension-control bolts.

At the Contractor's option, slip-critical bolts may be installed in standard, oversize, or short slotted holes. Design of connections using slip critical bolts is based on a Class A faying surface and oversized holes.

- Provide hardened washers conforming to ASTM F436 and place under the part being turned.
- Do not reuse or retighten bolts which have been fully tightened. Use only non-galvanized nuts and bolts that are clean, rust-free, and well lubricated. Bolts and nuts shall be wax dipped by the bolt supplier or lubricated with Johnson's Stick Wax 140. Cleaning and lubrication of ASTM F1852 twist-off-type tension-control bolts is not permitted.
- Store fastener components in sealed containers until ready for use. Reseal open containers to prevent contamination by moisture or other deleterious substances. Store closed containers from dirt and moisture in a protective shelter. Take from protective storage only as many fastener components as are anticipated to be installed during the work shift. Fastener components that are not incorporated into the work shall be returned to protective storage at the end of the work shift. Fasteners from open containers and fasteners that accumulate rust or dirt shall not be used and shall be immediately and permanently removed from the project site.

Permit/Seal



Project No.: 175568555

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GENERAL NOTES

- . Setting base and bearing plates: clean concrete and masonry bearing surface of bond-reducing materials and clean bottom of base and bearing plate.
  - a. Set base or bearing plate on wedges or other adjusting devices.
  - Tighten anchor rods after structural steel frame has been plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
  - Pack or pour non-shrink grout solidly between bearing surface and base or bearing plate. Ensure that no voids remain. Finish exposed surfaces, protect grout and allow to cure.
  - f. For proprietary grout materials, comply with manufacturer's instructions.
  - . Base plates must be grouted a minimum of 72 hours prior to placing concrete slabs on supporting steel structure.
- Cut, drill, or punch holes perpendicular to metal surfaces. Ream holes that must be enlarged to admit bolts as permitted by Civil Engineer. Do not enlarge unfair holes by burning or using drift pins.
- 8. Space filler beams equally between supports, UNO
- 9. Do not splice structural steel members except where indicated on the drawings.
- 10. See Civil and Mechanical Drawings for miscellaneous steel not shown on the Structural Drawings.
- 11. Refer to Civil Drawings and Project Specifications for painting and fireproofing of structural steel. Do not paint steel surfaces in contact with concrete or fireproofing.
- 12. All steel exposed to the elements shall be hot-dip galvanized.

#### PRECAST CONCRETE PANELS

- 1. Precast and prestressed concrete design, manufacture, and erection shall conform to:
  - a. ACI 318-14 Building code requirements for reinforced concrete..
  - b. PCI MNL-116 Manual for quality control for plants and production of precast and prestressed concrete products.
- c. PCI Design Handbook.
- Precast concrete shall have a minimum 28-day compressive strength of 5,000 psi.
- All precast products shall be designed by a qualified professional structural engineer registered in the state of the project with a minimum of five years experience in the design of prestressed concrete products.
- 4. Submit shop drawings showing plans, elevations, sections and detail locations which define all materials furnished by the manufacturer, erection sequences and handling requirements. Do not begin fabrication until shop drawings are completed and reviewed.
- General Contractor shall seal all openings around piping or other equipment to prevent transmission of sound. Use grout or other approved materials.
- approved materials.

  Do not drill "shoot" anchor into precast/prestressed concrete products without prior approval from EOR. If approved, anchor
- locations shall be coordinated so that no contact is made with pre-stressing steel.

  7. Grout: use premixed, packaged, non-ferrous aggregate, high-strength, non-shrink grout.
- 8. All exposed anchors and inserts shall have a rust-resistant coating (hot-dipped galvanized or approved equivalent).
- The precast supplier shall be responsible for the structural design of precast elements and their connections. Precast design shall be performed by a professional structural engineer registered in the state of the project. Review of the calculations and shop drawings shall be for general conformance with the contract documents and shall not relieve the precast supplier and its licensed engineer of the full responsibility for design of the precast panels and their connections. Fabrication shall not begin until shop drawings are completed and reviewed.
- 10. Connections shall be designed for a minimum erection tolerance of 1" in any direction. Consider eccentricity of loads.
- 1. Provide temporary supports and bracing as required to properly erect precast panels. Submit sequence of erection, location and magnitude of any temporary loads for review.
- 12. Fasten precast units in place by bolting or welding, or both. Use only certified welders. All connections shall be inspected by a certified structural engineer.

# EXCAVATION, BACKFILL AND DEWATERING

- 1. The Contractor is solely responsible for all excavation procedures including lagging, shoring, and protection of adjacent property, structures, streets and utilities in accordance with the requirements of the local building department and OSHA regulations. Do not excavate within one foot of the angle of repose of any soil bearing foundation unless the foundation is properly supported against
- 2. Do not backfill against walls until 7 days after the walls are braced by the structure or are temporary braced. Do not backfill cantilevered retaining walls until concrete is 3 days old. Do not backfill until after completion and inspection of any waterproofing.
- 3. The Contractor is responsible for the disposal of all accumulated water in a manner that does not inconvenience or damage the
- Stantec's structural design is based on the soil properties identified in the project's Geotechnical Engineering Report. The contractor should advise the Civil Engineer in writing if the wall backfill zone is wider than the wall is high as the soil properties of the backfill will have to be verified for the design of the pump station.

#### WATERSTOPS

- 1. Waterstops shall be provided at all locations shown. Concrete surfaces in all construction joints shall be roughened to an amplitude of 1/4 inch. Clean surface laitance prior to second placement.
- 2. Install waterstops in accordance with manufacturer's written instructions.
- All projecting waterstops shall be supported and protected from damage and exposure.
- 4. All waterstops shall be 6" wide, type per plans.
- Concrete shall be thoroughly vibrated around waterstops to prevent voids.
- 6. Fabricated joints are required at all "L", "T", and "+" intersections.
- 7. The contractors shall submit for approval a waterstop plan and detailed construction placement method prior to construction.
- 9. Type 1 Waterstop: Sika green streak 679 or approved equal.
- Type 2 Waterstop: Non-bentonite hydrophylic waterstop-Sika hydrotite CJ or equal.

# JOINTS

- 1. Any mandatory construction joints, identified as MCJ, shall be provided where shown on the drawings. Optional construction joints shall be constructed only at locations approved by the EOR.
- Concrete surfaces in all construction joints shall be roughened to a minimum amplitude of ¼ inch. Clean surface laitance prior to
- All construction joints, identified as CJ, shall be provided where shown on the drawings.

#### **BELOW-GRADE WALLS**

- The wet well and vault walls must be capable of resisting lateral earth pressures that will be imposed on them. Lateral earth pressures will be partially dependent upon the method of construction. For example, when temporary shoring is installed and the width of the backfill zone is less than the height of the wall, the properties of the in-situ soils should be used. If, however, the wall backfill zone is wider than the wall is high, the properties of the backfill can be used. Geotechnical Report assumes that temporary shoring will be used to install the wet well and the vaults, and the backfill zone widths will be less than the heights of the walls and the properties of the in-situ soils should be used. Since the wet well and vault walls are braced at the top, they should be designed using the "at-rest" lateral earth pressure condition and hydrostatic pressures. Geotechnical Report recommends the worst-case, seasonal high water depth of 1 foot below the exiting ground surface be used for design of the structures.
- Based on geotechnical review of the field test data from this site and geotechnical laboratory test results, recommended soil parameters are given in the following table:

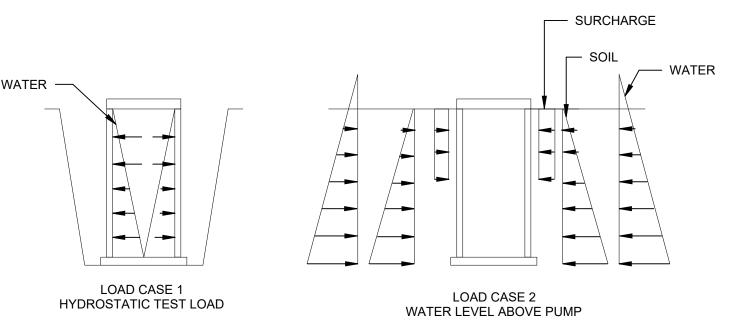
Soil Properties

y m = 120 pcf
y h2o = 62.4 pcf
Ko = 0.48 - 0.63 (Varies with depth)

Elevations

Top of Wet Well Foundation = 92.52'
Bottom of Lid Slab = 124.52'
Design Flood Elevation = 128.00'

Surcharge Loads
80 psf for traffic adjacent to wet well.
Max. 8 ft bellow the grade (unfactored).



#### <u>ABBREVIATIONS</u>

GALVANIZED

GALV.

ARCH.	ARCHITECT	HORIZ.	HORIZONTAL
B/	BOTTOM OF	H.S.	HEADED STUD
BRG.	BEARING	IN.	INCHES
BOTT.	BOTTOM	INFO.	INFORMATION
C/C	CENTER-TO-CENTER	INT.	INTERIOR
C.J.		K	KIPS
CLR.	CLEAR	KSI	KIPS PER SQUARE INCH
COL.	COLUMN	LLH	LONG LEG HORIZONTAL
CONC.		LLV	LONG LEG VERTICAL
CONN.		L.W.	LONG WAYS
CONT.		MANUF.	MANUFACTURER
COORD.		MAX.	MAXIMUM
CMU	CONCRETE MASONRY UNIT	MECH.	MECHANICAL
DIM.	DIMENSION	MIN.	MINIMUM
DIA.	DIAMETER	PL.	PLATE
DIST.	DISTANCE	PSF	POUNDS PER SQUARE FOOT
DWGS.	DRAWINGS	PSI	POUNDS PER SQUARE INCH
EA	EACH	QTY	QUANTITY
EL.	ELEVATION	REF.	REFERENCE
E.F.	EACH FACE	REINF.	REINFORCED
EMBED.	EMBEDMENT	S.F.	STEPPED FOOTING
ENG.	ENGINEER	SQU.	SQUARE
E.O.R.	ENGINEER OF RECORD	STL.	STEEL
EQ.	EQUAL	S.W.	SHORT WAYS
E.S.	EACH SIDE	T/	TOP OF
E.W.	EACH WAY	TYP.	TYPICAL
EXP.	EXPANSION	U.N.O.	UNLESS NOTED OTHERWISE
EXT.	EXTERIOR	VCJ	VERTICAL CONTROL JOINT
FABR.	FABRICATOR	VMCJ	VERTICAL MASONRY CONTROL JOINT
F.F.	FINISHED FLOOR	W/	WITH
FFE	FINISHED FLOOR ELEVATION	WWF	WELDED WIRE FABRIC
FTG.	FOOTING		
GA.	GAUGE		

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# AISC - TABLE N5.6-3 INSPECTION TASKS AFTER BOLTING

INSPECTION TASKS AFTER BOLTING	FREQUENCY OF INSPECTION	
INOI EGITON TAGNO AL TEN BOLTING	CONTINUOUS	PERIODIC
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	×	_

#### AISC - TABLE N5.4-1 **INSPECTION TASKS PRIOR TO WELDING**

INSPECTION TASKS PRIOR TO WELDING	QUALITY CONTROL	QUALITY ASSURANCE
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	0
WPS AVAILABLE	Р	Р
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	Р	Р
MATERIAL INDENTIFICATION (TYPE/GRADE)	0	0
WELDER IDENTIFICATION SYSTEM <sup>{a]</sup>	0	0
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)  - JOINT PREPARATION  - DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)  - CLEANLINESS (CONDITION OF STEEL SURFACES)  - TACKING (TACK WELD QUALITY AND LOCATION)  - BACKING TYPE AND FIT (IF APPLICABLE)	O	0
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY  - JOINT PREPARATIONS  - DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)  - CLEANLINESS (CONDITION OF STEEL SURFACES)  - TACKING (TACK WELD QUALITY AND LOCATION)  - BACKING TYPE AND FIT (IF APPLICABLE)	Р	O
CONFIGURATION AND FINISH OF ACCESS HOLES	0	0
FIT-UP OF FILLET WELDS - DIMENSIONS (ALIGNMENT, GAPS AT ROOT) - CLEANLINESS (CONDITION OF STEEL SURFACES) - TACKING (TACK WELD QUALITY AND LOCATION)	0	О
CHECKING WELDING EQUIPMENT	0	

[a] THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OF MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.

- OBSERVE (O): THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATION NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
- PERFORM (P): THESE TASKS SHALL BE PERFORMED FOR EACH WELDED JOINT OR MEMBER.
  WHEN A TASK IS NOTED TO BE PERFORMED BY BOTH QC AND QA IT IS PERMITTED TO COORDINATE THE INSPECTION FUNCTION BETWEEN THE QC INSPECTOR AND QA INSPECTOR SO THAT THE INSPECTION FUNCTION ARE PERFORMED BY ONLY ONE PARTY. WHEN THE QA RELIES UPON INSPECTION FUNCTIONS PERFORMED BY QC, THE APPROVAL OF THE ENGINEER OF RECORD AND THE AUTHORITY HAVING JURISDICTION.

#### AISC - TABLE N5.4-2 INSPECTION TASKS DURING WELDING

INSPECTION TASKS DURING WELDING			
INSPECTION TASKS DURING WELDING	QUALITY CONTROL	QUALITY ASSURANCE	
CONTROL AND HANDLING OF WELDING CONSUMABLES - PACKAGING - EXPOSURE CONTROL	0	0	
NO WELDING OVER CRACKED TACK WELDS	0	0	
ENVIRONMENTAL CONDITIONS - WIND SPEED WITHIN LIMITS - PRECIPITATION AND TEMPERATURE	0	0	
WPS FOLLOWED  - SETTINGS ON WELDING EQUIPMENT  - TRAVEL SPEED  - SELECTED WELDING MATERIALS  - SHIELDING GAS TYPE/FLOW RATE  - PREHEAT APPLIED  - INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.)  - PROPER POSITION (F,V,H,OH)	0	0	
WELDING TECHNIQUES  - INTERPASS AND FINAL CLEANING  - EACH PASS WITHIN PROFILE LIMITATIONS  - EACH PASS MEETS QUALITY REQUIREMENTS	0	0	
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	Р	Р	

OBSERVE (O): THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED

2. PERFORM (P): THESE TASKS SHALL BE PERFORMED FOR EACH WELDED JOINT OR MEMBER.

PENDING THÉSE INSPECTIONS.

#### AISC - TABLE N5.4-3 **INSPECTION TASKS AFTER WELDING**

INSPECTION TASKS AFTER WELDING	QUALITY CONTROL	QUALITY ASSURANCE
WELDS CLEANED	0	0
SIZE, LENGTH, AND LOCATION OF WELDS	Р	Р
WELDS MEET VISUAL ACCEPTANCE CRITERIA  - CRACK PROHIBITION  - WELD/BASE-METAL FUSION  - CRATER CROSS SECTION  - WELD PROFILES  - WELD SIZE  - UNDERCUT  - POROSITY	P	Р
ARC STRIKES	Р	Р
k-AREA <sup>[a]</sup>	Р	Р
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES [b]	Р	Р
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	Р	Р
REPAIR ACTIVITIES	Х	_
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	Х	_
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	0	0

[a] WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 INCHES (75MM) OF THE WELD. DAFTER ROLLED HEAVY SHAPES (SEE SECTION A3.1C) AND BUILT-UP HEAVY SHAPES (SEE SECTION a3.14D) ARE WELDED,

- VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS.
- OBSERVE (O): THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THÉSE INSPECTIONS.

PERFORM (P): THESE TASKS SHALL BE PERFORMED FOR EACH WELDED JOINT OR MEMBER.

#### AISC - TABLE N5.6-1 INSPECTION TASKS PRIOR TO BOLTING

QUALITY CONTROL	QUALITY ASSURANCE
0	Р
0	0
0	0
0	0
0	0
Р	0
0	0
	CONTROL  O O O O P

OBSERVE (O): THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THÉSE INSPECTIONS. 2. PERFORM (P): THESE TASKS SHALL BE PERFORMED FOR EACH WELDED JOINT OR MEMBER.

#### AISC - TABLE N5.6-2 INSPECTION TASKS DURING BOLTING

INSPECTION TASKS DUDING BOLTING	FREQUENCY OF INSPECTION		
INSPECTION TASKS DURING BOLTING	CONTINUOUS	PERIODIC	
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	_	Х	
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	_	Х	
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	_	Х	
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM MOST RIGID POINT TOWARD THE FREE EDGES	_	Х	



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SPECIAL INSPECTIONS

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**SPECIAL INSPECTION NOTES:** 

THE STRUCTURAL ENGINEER (STANTEC) IS NOT RESPONSIBLE FOR INSPECTIONS AND TESTINGS. OWNER SHALL PROVIDE OR COORDINATE WITH GENERAL CONTRACTOR TO CARRY IN THEIR CONTRACT. STANTEC CAN PROVIDE AS AN ADDITIONAL SERVICE.

THE OWNER'S (OR GENERAL CONTRACTOR'S) TESTING LABORATORY SHALL PROVIDE SPECIAL INSPECTION SERVICES IN ACCORDANCE WITH THE NORTH CAROLINA STATE BUILDING CODE FOR THE FOLLOWING ITEMS LISTED ON THESE SHEETS. ONLY INSPECTIONS AND TESTS ARE REQUIRED FOR THE APPLICABLE MATERIALS ON THE PROJECT.

# IBC - TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODICALLY SPECIAL INSPECTION		
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS     ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING     CAPACITY.	_	x		
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	1	х		
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	_	х		
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	_		
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	_	Х		

# **SPECIAL INSPECTION NOTES:**

- THE STRUCTURAL ENGINEER (STANTEC) IS NOT RESPONSIBLE FOR INSPECTIONS AND TESTINGS. OWNER SHALL PROVIDE OR COORDINATE WITH GENERAL CONTRACTOR TO CARRY IN THEIR CONTRACT. STANTEC CAN PROVIDE AS AN ADDITIONAL SERVICE.
- THE OWNER'S (OR GENERAL CONTRACTOR'S) TESTING LABORATORY SHALL PROVIDE SPECIAL INSPECTION SERVICES IN ACCORDANCE WITH THE NORTH CAROLINA STATE BUILDING CODE FOR THE FOLLOWING ITEMS LISTED ON THESE SHEETS. ONLY INSPECTIONS AND TESTS ARE REQUIRED FOR THE APPLICABLE MATERIALS ON THE PROJECT.

# IBC - TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

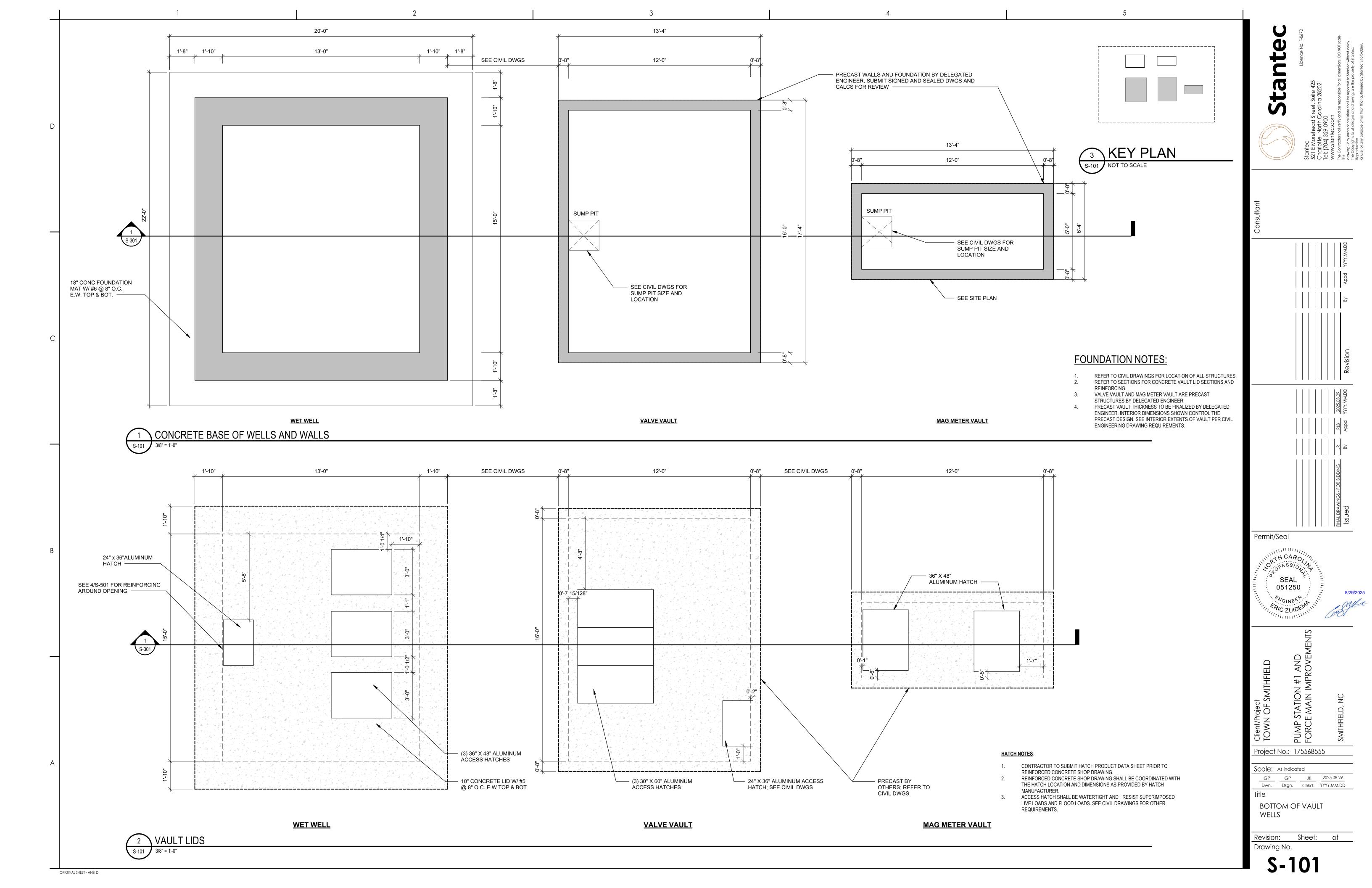
	TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCE STANDARD <sup>a</sup>	IBC REFERENCE
1. VERIFT	INSPECTION OF REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND TY PLACEMENT.	_	Х	ACI 318: CH. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
2.	REINFORCING BAR WELDING:  a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A 706;  b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND c. INSPECT ALL OTHER WELDS.	_ _ x	X X	AWS D1.4 ACI 318: 26.5.4	_
3.	INSPECT ANCHORS CAST IN CONCRETE	_	Х	ACI 318: 17.8.2	_
4. HARDE	INSPECTION ANCHORS POST-INSTALLED IN INED CONCRETE MEMBERS. b  a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	x _	_ X	ACI 318: 17.8.2.4 ACI318: 17.8.2	_
5.	VERIFYING USE OF REQUIRED DESIGN MIX.	_	Х	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
	AT THE TIME FRESH CONCRETE IS SAMPLED FABRICATE SPECIMENS FOR STRENGTH PERFORM SLUMP AND AIR CONTENT AND DETERMINE THE TEMPERATURE OF DNCRETE.	Х	_	ASTM C 172 ASTM C 31 ACI 318: 26.4.5, 26.12	1908.10
7.	INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	Х	_	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
8.	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	_	Х	ACI 318: 26.4.7-26.4.9	1908.9
9.	INSPECT PRESTRESSED CONCRETE FOR:  a. APPLICATION OF PRESTRESSING FORCES; AND  b. GROUTING OF BONDED PRESTRESSING TENDONS.	X X		ACI 318: 26.9.2.1 ACI 318: 26.9.2.3	_
10.	INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	_	х	ACI 318: CH 26.8	_
	VERIFY IN-SITU CONCRETE STRENGTH, PRIOR STRESSING OF TENDONS IN POST TENSIONED CONCRETE AND PRIOR TO REMOVAL OF S AND FORMS FROM BEAMS AND TURAL SLABS.	_	X	ACI 318: 26.10.2	_
12. AND BEING	INSPECT FORMWORK FOR SHAPE, LOCATION DIMENSIONS OF THE CONCRETE MEMBER FORMED.	_	Х	ACI 318: 26.10.1(b)	_

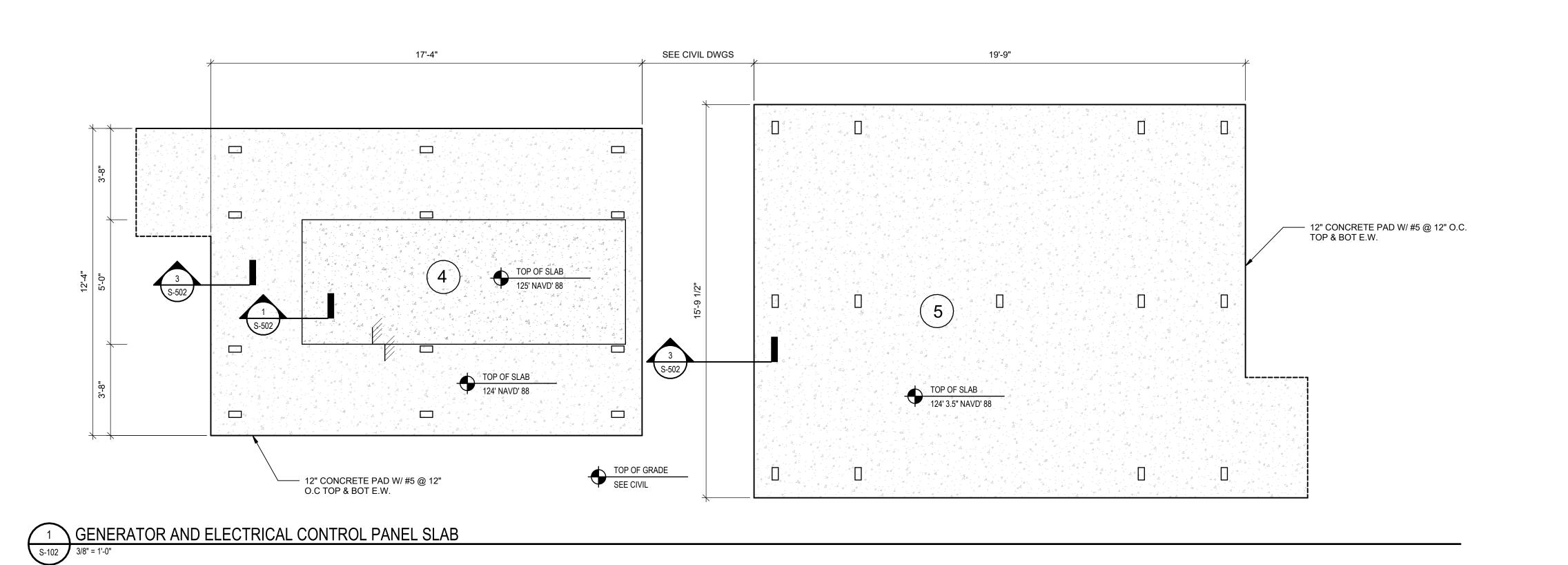
a. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE. b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 in ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE

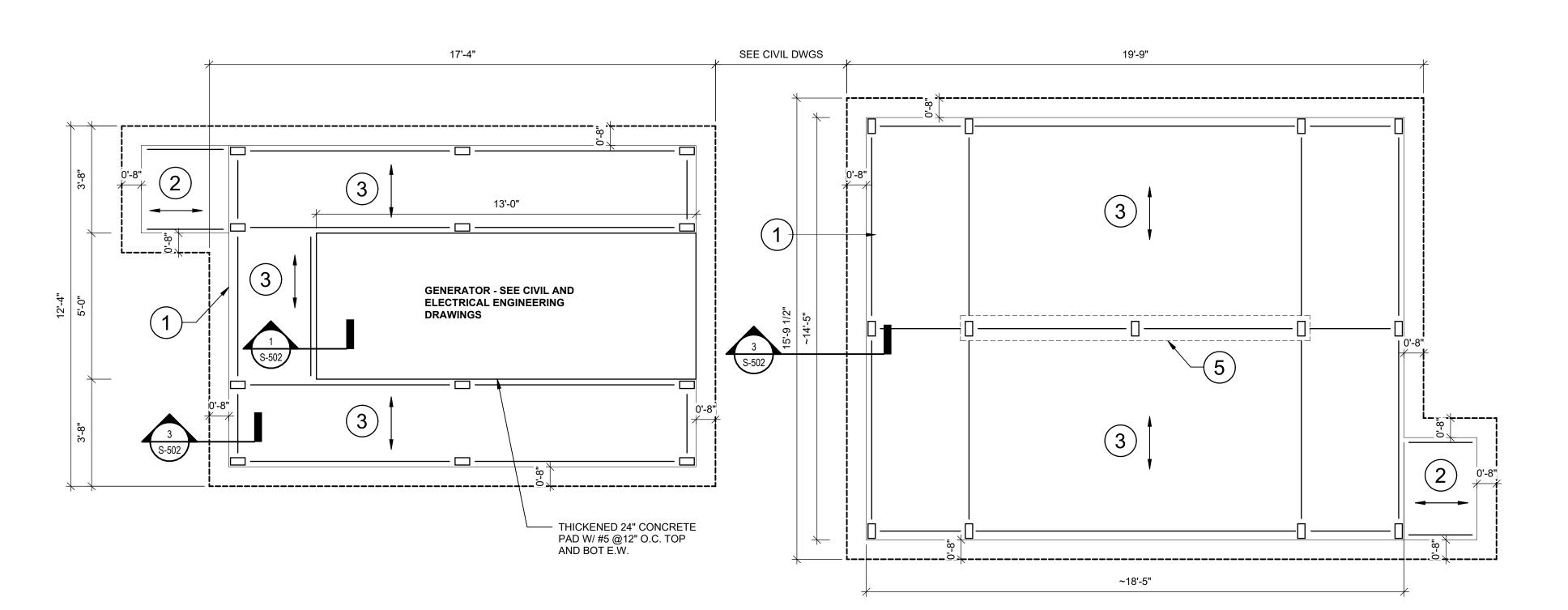
Permit/Seal NGINEER Project No.: 175568555 Scale: As indicated 
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 YYYY.MM.DD
 SPECIAL INSPECTIONS Revision: Sheet: of Drawing No.

S-004









HOT-DIPPED GALVANIZED STRUCTURAL STEEL PLATFORM BY DELEGATED ENGINEER. MEMBERS SHOWN AS CONCEPT ONLY. DELEGATED ENGINEER TO COORDINATE STEEL PLATFORM MEMBER SIZES, LOCATIONS AND ELEVATIONS WITH THE CIVIL AND

> SUBMIT DEFERRED SUBMITTAL SHOP DRAWINGS FOR THE STEEL PLATFORM, GENERATOR AND GENERATOR FUEL TANK IN CONCURRENCE WITH SHOP DRAWINGS FOR SLAB FOUNDATION. DO NOT PLACE CONCRETE FOUNDATION PRIOR TO DEFERRED

DESIGN LOADS:

SUPERIMPOSED DEAD LOADS - MINIMUM 10 PSF UNIFORM

<u>OCCUPANCY</u>

STAIRS

ELEVATED PLATFORMS

- HOT-DIPPED GALVANIZED STRUCTURAL STEEL STAIR BY
- HOT-DIPPED GALVANIZED GRATING BY DELEGATED ENGINEER.
- GENERATOR AND IT'S ATTACHMENT TO FOUNDATION BY MANUFACTURER'S RECOMMENDATION.

ASCE 7-16: 29.4 DESIGN WIND

DESIGN FLOOD ELEVATION 128' NAVD ELECTRICAL PANEL INFILL STRUCTURE BY DELEGATED ENGINEER.

ASCE 7-16: 29.3.1 SOLID Qu = 50 psf FREESTANDING WALLS

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8/29/2025

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Dwn. Dsgn. Chkd. YYYY.MM.DD Title CONCRETE VAULT LIDS

and site

Drawing No.

Revision: Sheet: of

ORIGINAL SHEET - ANSI D

2 GENERATOR AND ELECTRICAL CONTROL PANEL STEEL PLATFORM

<u>`-----</u>

3 KEY PLAN

PLAN NOTES:

ELECTRICAL DRAWINGS.

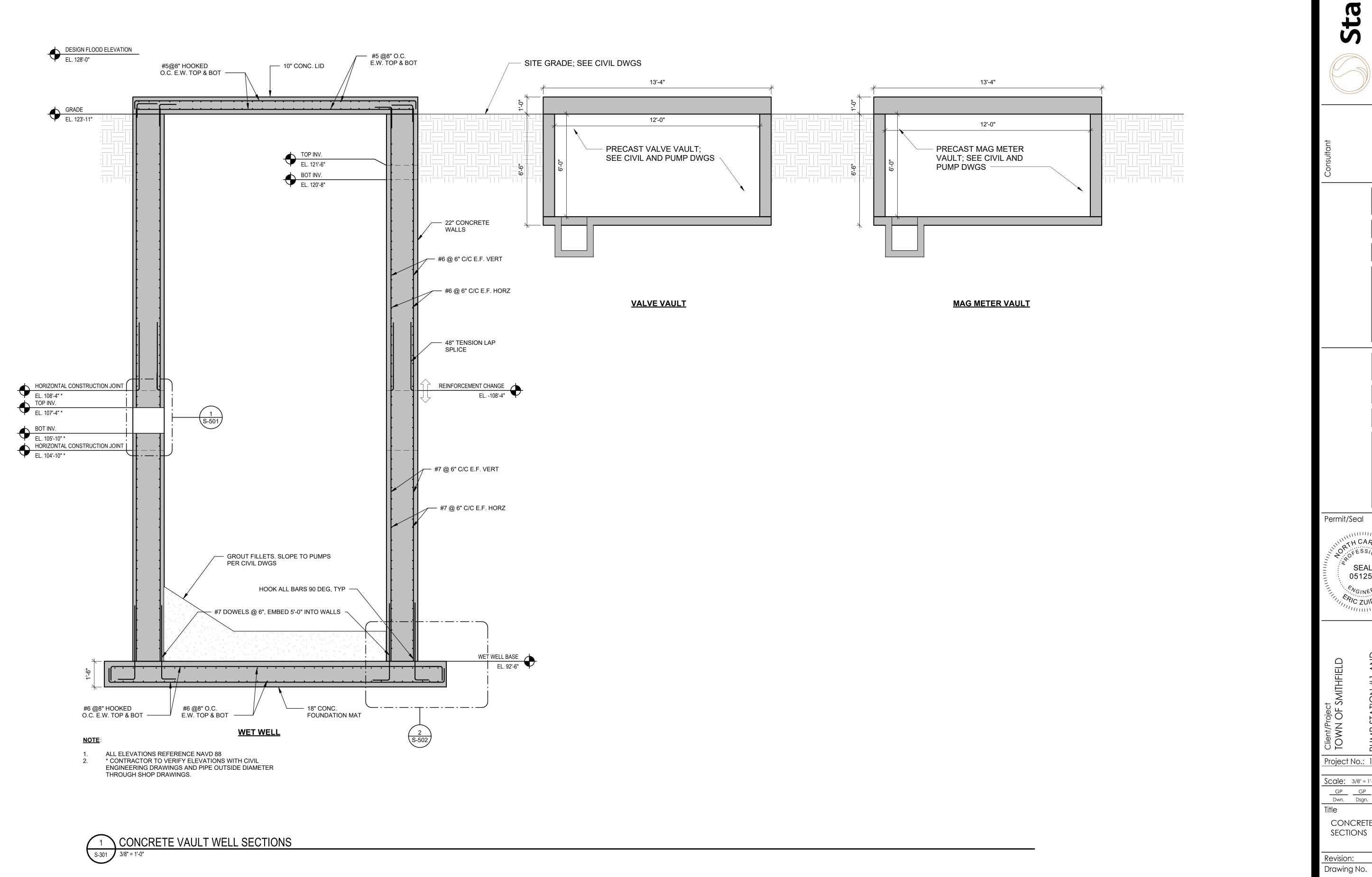
SUBMITTAL REVIEW.

SUPERIMPOSED LIVE
UNIFORM (PSF) CONCENTRATED (LBS)

DELEGATED ENGINEER.

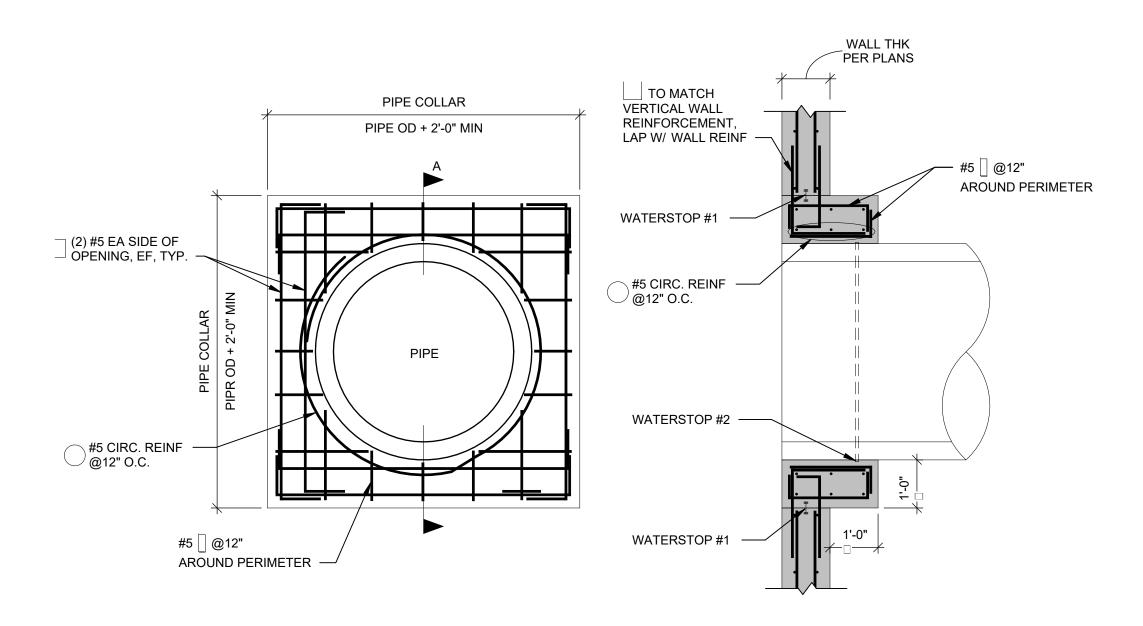
DESIGN LOADS:

Qu = 35 psf LOADS OTHER STRUCTURES



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 CONCRETE VAULT WELL SECTIONS Revision: Sheet: of



**SECTION A** 

CAST-IN-PLACE PIPE COLLAR

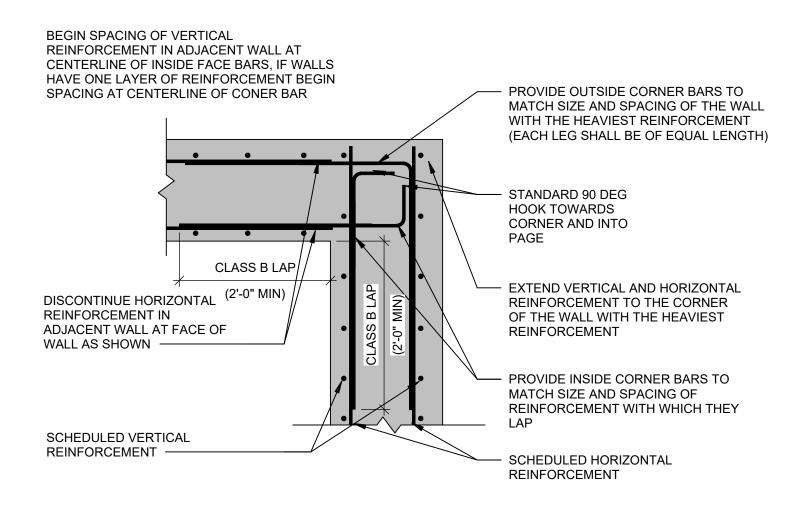
WALL THICKNESS PROVIDE 2 ADDITIONAL HORIZONTAL BARS EACH SIDE OF CONSTRUCTION JOINT, SIZE OF BARS TO BE SAME AS ADJACENT HORIZONTAL BARS WATERSTOP #1 REFER TO DETAILS FOR CONSTRUCTION JOINT LOCATIONS VERTICAL REINFORCEMENT, REFER TO NOTE 2 **SECTION** 

CONTRACTOR SHALL OBTAIN PRIOR WRITTEN APPROVAL FROM ENGINEER IF ADDITIONAL HORIZONTAL CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS ARE DESIRED.

SPLICES OF VERTICAL REINFORCEMENT ARE ALLOWED BUT NOT REQUIRED AT CONSTRUCTION JOINTS. WHERE SPLICE IS DESIRED AT CONSTRUCTION JOINT, PROVIDE CLASS B LAP SPLICES WITH NO MORE THAN 50% OF THE BARS IN ANY FACE SPLICED AT THE JOINT. SPLICED BARS SHALL BE STAGGERED WITH UNSPLICED BARS. REFER TO OTHER TYPICAL DETAILS FOR WALL REINFORCEMENT SPLICE LENGTHS.



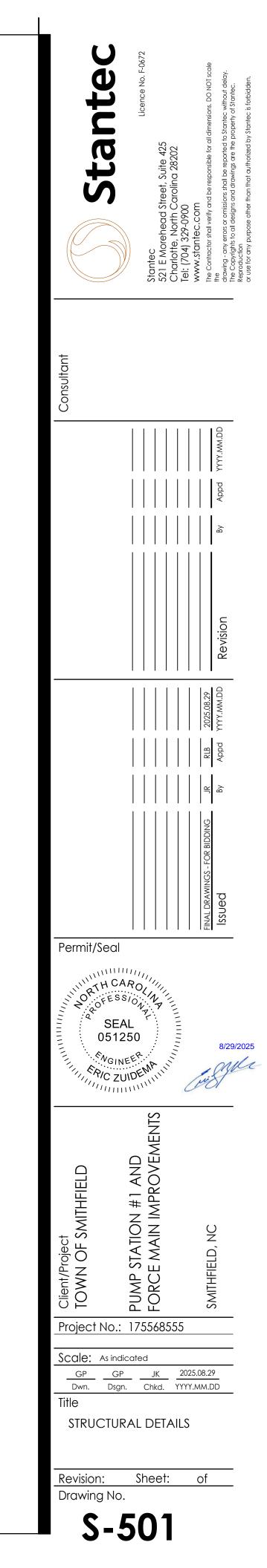
3 TYPICAL HORIZONTAL CONSTRUCTION JOINT AT CONCRETE WALL

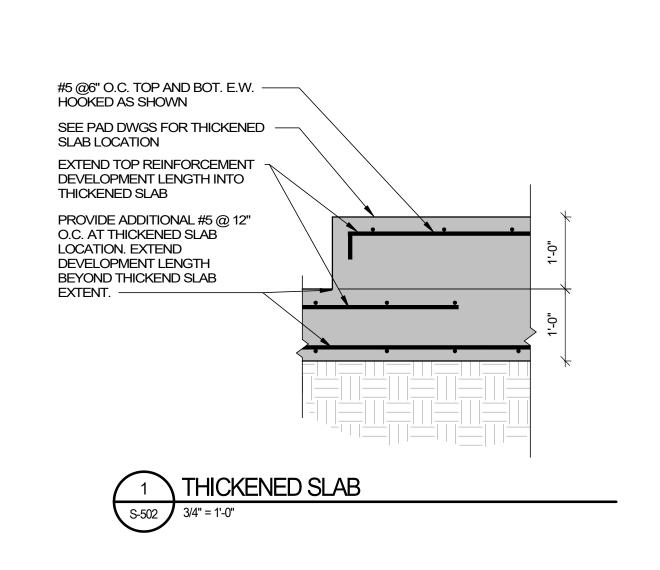


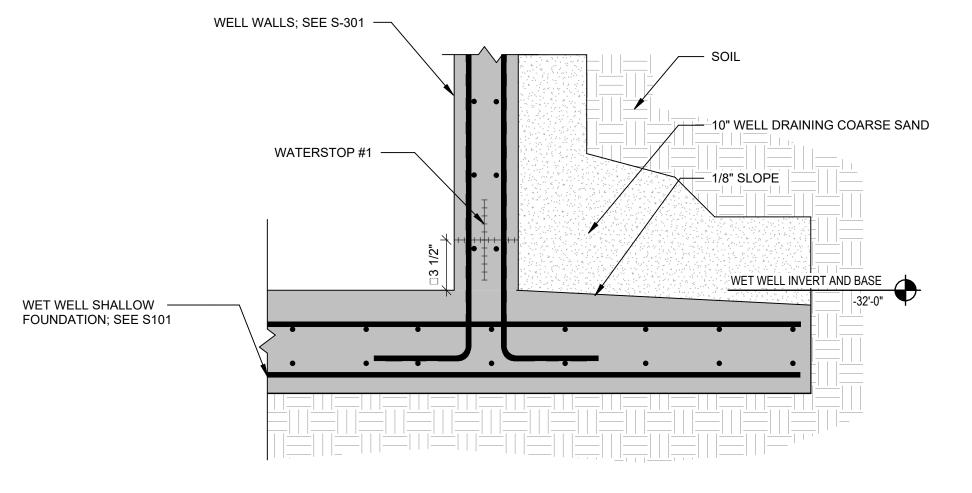
REFER TO OTHER DETAILS FOR REQUIRED WALL THICKNESS AND REINFORCEMENT

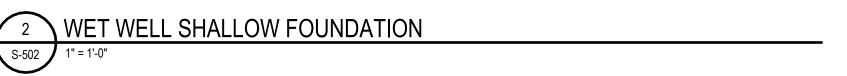
THERE SHALL BE NO VERTICAL CONSTRUCTION JOINTS IN WALLS WITHIN 5'-0" OF CORNERS, UNLESS SPECIFICALLY DETAILED ON THE DRAWINGS

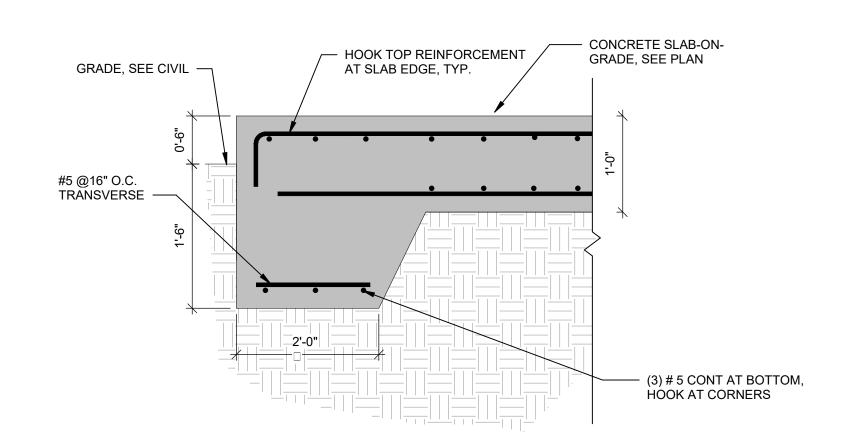
TYPICAL REINFORCEMENT SPLICE AT CONCRETE WALL CORNER











3 TYP TURNDOWN SLAB EDGE DETAIL S-502 1" = 1'-0"

Permit/Seal NGINEER AR Project No.: 175568555 Scale: As indicated 
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 STRUCUTRAL DETAILS Revision: Sheet: of Drawing No. S-502

	WALL VERTICAL BAR TENSION DEVELOPMENT AND LAP SPLICE LENGTHS  GRADE 60 REINFORCEMENT, NORMAL WEIGHT CONCRETE													
	LAP CLASS	f'c = 3000 PSI		f'c = 4000 PSI		f'c = 50	f'c = 5000 PSI		f'c = 6000 PSI		f'c = 7000 PSI		f'c = 8000 PSI	
BAR SIZE		CAT 1	CAT 2	CAT 1	CAT 2	CAT 1	CAT 2	CAT 1	CAT 2	CAT 1	CAT 2	CAT 1	CAT 2	
	А	17	17	15	15	15	15	15	15	15	15	15	15	
#4	В	22	22	19	19	17	17	16	16	15	15	15	15	
#5	Α	21	25	19	21	19	19	19	19	19	19	19	19	
	В	27	32	24	28	21	25	19	23	19	21	19	20	
""	Α	25	33	23	29	23	26	23	24	23	23	23	23	
#6	В	33	43	28	37	25	34	23	31	23	28	23	27	
	Α	41	48	35	42	32	38	29	34	27	32	27	30	
#7	В	53	63	46	54	41	49	38	45	35	41	33	39	
410	Α	51	55	44	48	40	43	36	39	34	36	31	34	
#8	В	66	72	57	62	51	56	47	51	44	47	41	44	
410	Α	62	62	54	54	48	48	44	44	41	41	38	38	
#9	В	81	81	70	70	63	63	57	57	53	53	50	50	
#40	А	71	71	61	61	55	55	50	50	47	47	44	44	
#10	В	92	92	80	80	71	71	65	65	60	60	56	56	
#11	А	84	84	73	73	65	65	60	60	55	55	52	52	
#11	В	109	109	95	95	85	85	77	77	72	72	67	67	

ALL SPLICE LENGTHS ARE IN INCHES. THIS TABLE SHALL BE USED FOR WALL VERTICAL BARS ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES FOR WALL HORIZONTAL BARS AND OTHER MEMBERS.

THE TENSION DEVELOPMENT LENGTH (Ld) IS EQUAL TO THE SCHEDULED "CLASS A" LAP SPLICE LENGTH.

FOR DETERMINING THE BAR CATEGORY, "db" IS DEFINED AS THE DIAMETER OF THE LARGER BAR BEING SPLICED. THE "CATEGORY 1" LAP LENGTH SHALL BE USED WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS EQUAL TO OR GREATER THAN 3db. THE "CATEGORY 2" LAP LENGTH SHALL BE

USED WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS LESS THAN 3db AND GREATER THAN 2db. WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS EQUAL TO OR LESS THAN 2db, SPLICES SHALL BE

STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE SPLICED AT ANY GIVEN LOCATION. REFER TO "TYPICAL

CLEAR SPACING CRITERIA OF LAP SPLICED BARS, STAGGERED SPLICES" FOR CRITERIA TO DETERMINE CLEAR SPACING "S" FOR BARS AT STAGGERED

FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED SPLICE LENGTHS BY 1.5. WHEN LAP SPLICING BARS OF DIFFERENT SIZES, THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR BUT MAY NOT BE LESS THAN THE "CLASS A" SPLICE LENGTH OF THE LARGER BAR.

1 TYPICAL WALL VERTICAL BAR TENSION DEVELOPMENT AND LAP SPLICE LENGTHS S-503 12" = 1'-0"

	SLAB TENSION DEVELOPMENT AND LAP SPLICE LENGTHS  GRADE 60 REINFORCEMENT, NORMAL WEIGHT CONCRETE												
	LAP CLASS	f'c = 3000 PSI		f'c = 4000 PSI		f'c = 5000 PSI		f'c = 6000 PSI		f'c = 7000 PSI		f'c = 8000 PSI	
BAR SIZE		BOTTOM BARS	OTHER BARS										
""	А	12	13	12	12	12	12	12	12	12	12	12	12
#3	В	16	17	16	16	16	16	16	16	16	16	16	16
#4	А	17	22	15	19	13	17	12	16	12	14	12	14
#4	В	23	29	20	25	17	23	16	21	16	19	16	19
#5	А	25	32	21	28	19	25	18	23	16	21	15	20
#5	В	33	42	28	37	25	33	24	30	21	28	20	26
#6	А	33	43	29	37	26	34	24	31	22	28	21	27
#0	В	43	56	38	49	34	45	32	41	29	37	28	36
#7	Α	53	69	46	60	42	54	38	49	35	46	33	43
#1	В	69	90	60	78	55	71	50	64	46	60	43	56
#8	Α	66	86	57	74	51	67	47	61	44	56	41	53
#0	В	86	112	75	97	67	88	62	80	58	73	54	69
#9	Α	80	104	69	90	62	81	57	74	53	68	49	64
#9	В	104	136	90	117	81	106	75	97	69	89	64	84
#10	А	96	125	83	108	75	97	68	88	63	82	59	77
#10	В	125	163	108	141	98	127	89	115	82	107	77	101
#11	А	113	146	98	127	87	114	80	104	74	96	69	90
#11	В	147	190	128	166	114	149	104	136	97	125	90	117

1. ALL SPLICE LENGTHS ARE IN INCHES.

THIS TABLE SHALL BE USED FOR SLABS ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES FOR OTHER MEMBERS. THE TENSION DEVELOPMENT LENGTH (Ld) IS EQUAL TO THE SCHEDULED "CLASS A" LAP SPLICE LENGTH.

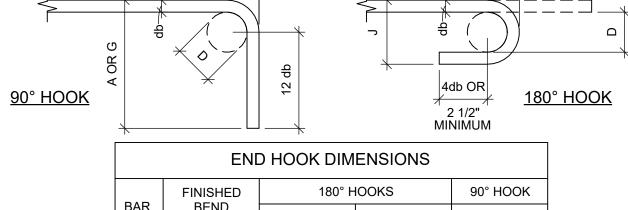
A BOTTOM BAR IS DEFINED AS ANY BAR THAT DOES NOT HAVE MORE THAN 12" OF FRESH CONCRETE BELOW THE BAR. OTHER BARS INCLUDE TOP BARS AND ALL OTHER BARS THAT HAVE MORE THAN 12" OF FRESH CONCRETE BELOW THE BAR. FOR TOP REINFORCEMENT IN SLABS THAT ARE 12" THICK OR LESS, TABULATED SPLICE LENGTHS FOR BOTTOM BARS SHALL

FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED SPLICE LENGTHS OF BOTTOM BARS BY 1.5 AND THE TABULATED SPLICE LENGTHS OF OTHER BARS BY 1.3.

WHEN LAP SPLICING BARS OF DIFFERENT SIZES THE LAD

LENGTH	IS DETER	NG BARS ( MINED BY E "CLASS /	THE SMA	BUT MAY	NOT

3 TYPICAL SLAB TENSION DEVELOPMENT AND LAP SPLICE



HOOK

A OR G

DETAILING DIMENSION

END HOOK DIMENSIONS								
	FINISHED	180° I	90° HOOK					
BAR SIZE	BEND DIAMETER D, (INCHES)	A OR G, (INCHES)	J, (INCHES)	A OR G, (INCHES)				
#3	2 1/4	5	3	6				
#4	3	6	4	8				
#5	3 3/4	7	5	10				
#6	4 1/2	8	6	12				
#7	5 1/4	10	7	14				
#8	6	11	8	16				
#9	9 1/2	15	11 3/4	19				
#10	10 3/4	17	13 1/4	22				
#11	12	19	14 3/4	24				
#14	18 1/4	27	21 3/4	31				
#18	24	36	28 1/2	41				

D = INSIDE DIAMETER OF BEND

DETAILING DIMENSION

TYPICAL END HOOK TYPES

	COMPRESSION DEVELOPMENT AND LAP SPLICE LENGTHS GRADE 60 REINFORCEMENT									
BAR SIZE		LAP LENGTH								
5	f'c=3000 PSI	f'c=4000 PSI	f'c=5000 PSI	f'c=6000 PSI	f'c=7000 PSI	f'c=8000 PSI	ALL f'c			
#3	9	8	8	8	8	8	12			
#4	11	10	9	9	9	9	15			
#5	14	12	12	12	12	12	19			
#6	17	15	14	14	14	14	23			
#7	20	17	16	16	16	16	27			
#8	22	19	18	18	18	18	30			
#9	25	22	21	21	21	21	34			
#10	28	25	23	23	23	23	39			
#11	31	27	26	26	26	26	43			

- ALL SPLICE LENGTHS ARE IN INCHES.
  DEVELOPMENT LENGTHS LISTED ABOVE SHALL ONLY BE USED FOR BAR END
  - **TERMINATIONS** (NOT LAPS) SPECIFICALLY DESIGNATED AS COMPRESSION BARS.

    LAP LENGTHS LISTED ABOVE SHALL ONLY BE USED FOR BAR LAP SPLICES SPECIFICALLY
- DESIGNATED AS COMPRESSION SPLICES.
- COMPRESSION, THE APPROPRIATE TENSION DEVELOPMENT LENGTH SHALL BE USED. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED, THE SPLICE LENGTH SHALL BE THE LARGER OF EITHER THE DEVELOPMENT LENGTH OF THE LARGER BAR OR THE LAP LENGTH

IF BAR TERMINATIONS OR SPLICES ARE NOT SPECIFICALLY DESIGNATED AS

OF THE SMALLER BAR. 6. LENGTHS LISTED ARE VALID FOR BOTH NORMAL WEIGHT AND LIGHTWEIGHT CONCRETE.

4 TYPICAL COMPRESSION DEVELOPMENT AND LAP SPLICE LENGTHS

Permit/Seal NGINEER Project No.: 175568555 Scale: As indicated

ORIGINAL SHEET - ANSI D

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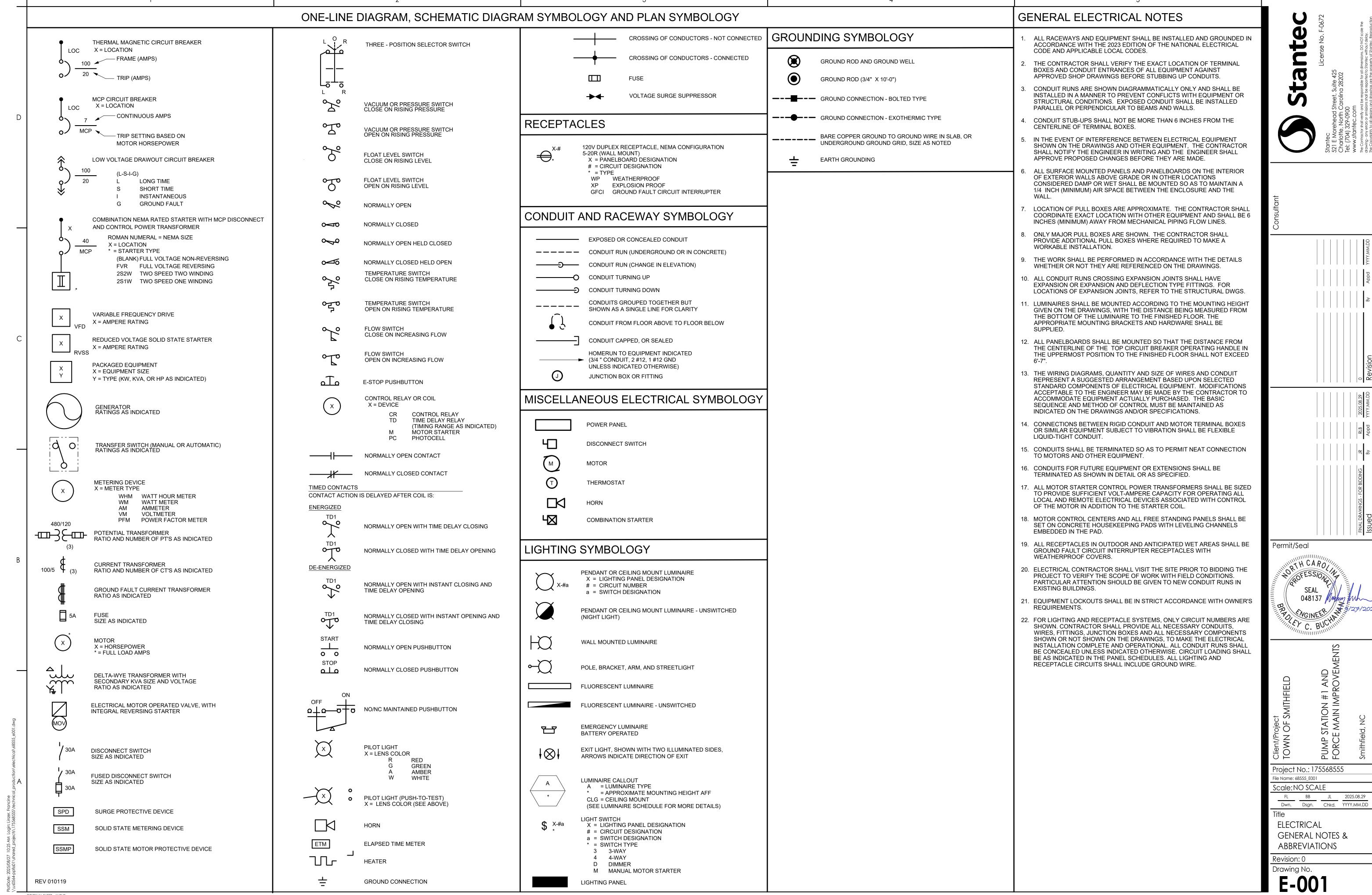
STRUCUTRAL DETAILS

Revision: Sheet: of

Title

GP GP JK 2025.08.29

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WET WELL -/- EXISTING PROPANE GENERATOR PROPANE TANK — **ELECTRICAL POWER** AND CONTROL PANELS ELECTRIC UTILITY POLE MOUNTED TRANSFORMERS W MARKET STREET

DEMOLITION SITE PLAN

SCALE: 1" = 10'

ORIGINAL SHEET - ANSI D

GENERAL NOTES

- 1. THE ENTIRE PUMP STATION WILL BE DEMOLISHED AND REPLACED WITH NEW. REMOVE AND DISPOSE OF ALL EXISTING ELECTRICAL EQUIPMENT.
- 2. REMOVE ALL EXPOSED AND UNDERGROUND RACEWAYS INCLUDING BOTH CONDUIT AND CONDUCTORS IN THEIR ENTIRETY.
- 3. THE CONTRACTOR SHALL PLACE THE STATION IN BYPASS OPERATION AND COORDINATE
- 4. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRIC UTILITY FOR DISCONNECTION OF PUMP STATION SERVICE AND WORK RELATED TO MODIFICATIONS TO THE EXISTING ELECTRIC UTILITY INFRASTRUCTURE.

# SHEET KEYNOTES

A. COORDINATE WITH THE ELECTRIC UTILITY FOR DISCONNECTION OF THE EXISTING SERVICE, AND REMOVAL OF THE POLE MOUNTED TRANSFORMERS. AFTER DISCONNECTION, THE CONTRACTOR SHALL DEMOLISH THE EXISTING SERVICE CONDUCTORS, CONDUITS, AND METER SOCKET.

WITH THE OWNER PRIOR TO DE-ENERGIZING THE PUMP STATION.

B. THE CONTRACTOR SHALL DEMOLISH ALL ELECTRICAL PANELS, BOXES, INSTRUMENTATION, RACEWAYS AND APPURTENANCES FOR THE EXISTING PUMP STATION. NONE OF THE EXISTING EQUIPMENT IS TO BE RE-USED FOR THE NEW PUMP STATION.

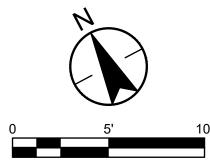
Project No.: 175568555 Scale: AS NOTED

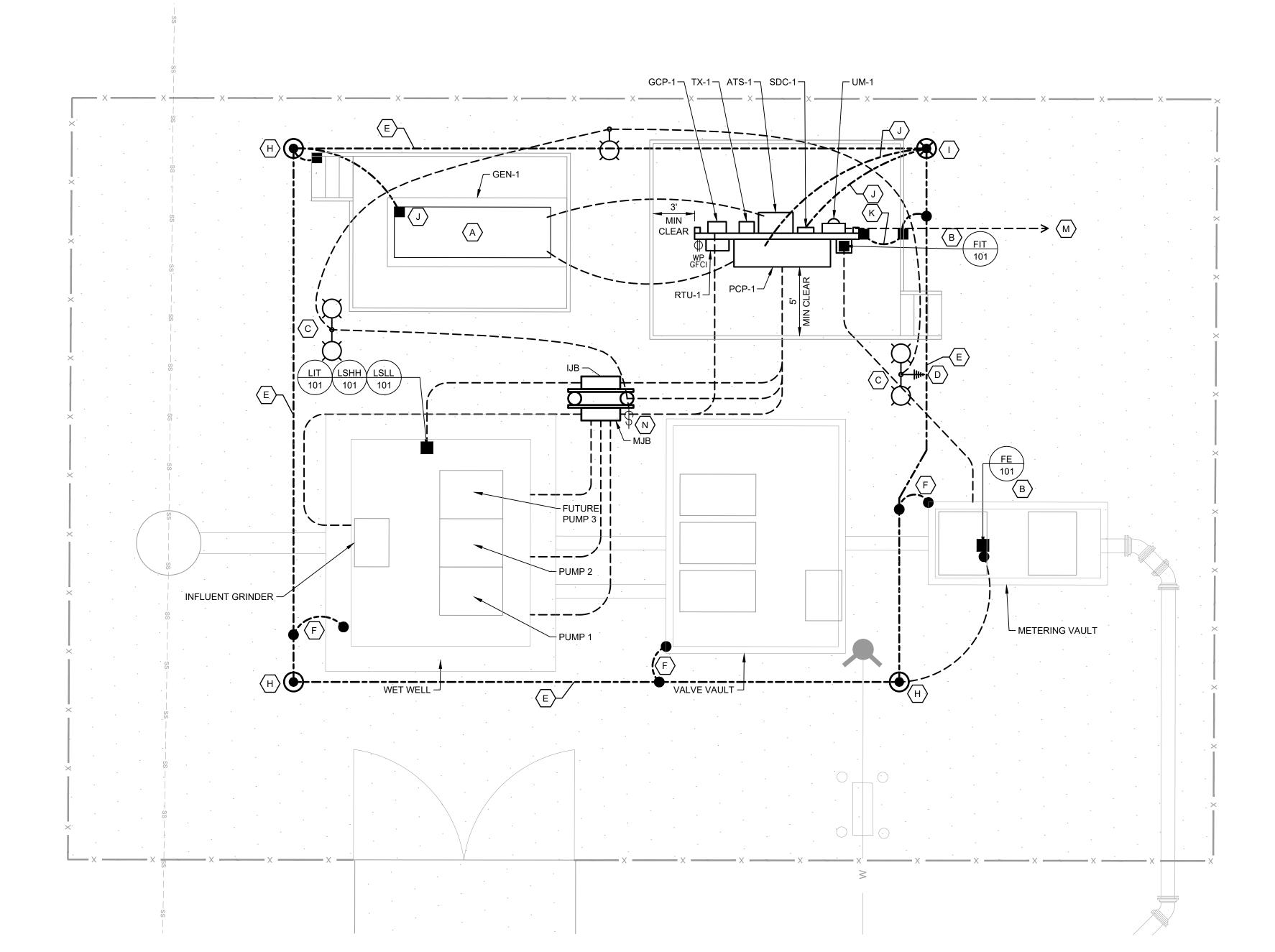
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ELECTRICAL DEMOLITION PLAN

Revision:0 Drawing No.

E-101





ORIGINAL SHEET - ANSI D

# GENERAL NOTES

- 1. CONDUIT ROUTING IS DIAGRAMMATIC. MULTIPLE CONDUITS ROUTED IN THE SAME TRENCH ARE REPRESENTED WITH A SINGLE LINE FOR CLARITY. CONDUITS BETWEEN TWO ADJACENT PANELS OR PANELS ON THE SAME EQUIPMENT RACK ARE NOT SHOWN. REFER TO THE ONE-LINE DRAWING E-601 FOR CONNECTIONS BETWEEN PANELS AS WELL AS CONDUIT AND CONDUCTOR QUANTITIES AND SIZING. LOCATIONS OF CONDUIT IS SUGGESTIVE. FINAL ROUTING BY CONTRACTOR.
- 2. CLASSIFIED HAZARDOUS LOCATIONS PRESENT. REFER TO DETAIL E-937 ON DRAWING E-501 FOR IDENTIFIED HAZARDOUS LOCATIONS AND BOUNDARIES. CLASSIFICATIONS ARE IN ACCORDANCE WITH NFPA 820, 2024 EDITION. ALL ELECTRICAL WORK IN HAZARDOUS LOCATIONS SHALL BE IN ACCORDANCE WITH CHAPTER 5 OF THE NEC.

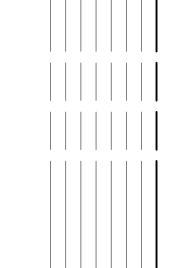
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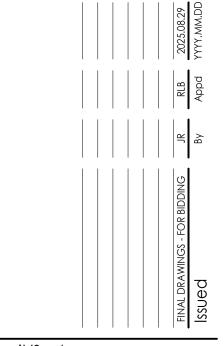
- A. DIESEL GENERATOR WITH 24-HOUR SUB-BASE FUEL TANK.
- B. FURNISH AND INSTALL SUBMERGENCE AND CLASS I, DIV 2 LOCATION RATED MAGNETIC FLOW METER WITH GROUNDING RINGS IN THE METERING VAULT. LOCATE REMOTE MOUNTED TRANSMITTER ON THE EQUIPMENT RACK. INCLUDE STAINLESS STEEL OR ALUMINUM SUN SHIELD OVER TRANSMITTER.
- C. LIGHT POLE WITH FIXTURE(S) ARRANGED AS SHOWN. SEE DETAIL E-973 ON SHEET E-501. LITHONIA DSX1 LED P4 40K T4M (OR EQUAL) WITH PHOTOCELL AND NATURAL ALUMINUM FINISH OR EQUAL.
- D. SCADA ANTENNA AND COAXIAL CABLE FURNISHED AND INSTALLED BY RTU SUPPLIER. CONTRACTOR SHALL FURNISH AND INSTALL 2"C TO BASE OF LIGHT POLE, STUB UP, AND TERMINATE CONDUIT AT TOP OF POLE FOUNDATION.
- E. #4/0 AWG BARE TINNED COPPER BURIED GROUND LOOP.
- F. #4 AWG BARE TINNED COPPER. BOND TO REBAR (TYP). DO NOT CHIP AWAY CONCRETE TO MAKE BOND UNLESS BONDING IS OTHERWISE REQUIRED PER NEC.
- G. #6 AWG COPPER. BOND TO FLOW METER HOUSING AND GROUNDING RINGS.
- H. MIN 3/4" x 10' GROUND ROD.
- I. MIN 3/4" x 10' GROUND ROD IN TEST WELL. SEE DETAIL E-303 ON DRAWING E-501.
- J. BARE TINNED COPPER. REFER TO ONE-LINE DRAWING FOR SIZE AND CONNECTION.
- K. #1/0 BARE TINNED COPPER. BOND EQUIPMENT RACK, PLATFORM, AND HANDRAILS TO GROUND.
- L. THE TOP OF THE ELECTRICAL PANELS SHALL BE NO HIGHER THAN 6'-7" ABOVE THE PLATFORM, AND THE BOTTOM OF THE PANELS SHALL BE NOW LOWER THAN 1'-0" ABOVE THE PLATFORM (EL 128').
- M. SERVICE CONDUIT TO UTILITY TRANSFORMER. COORDINATE WITH THE ELECTRIC UTILITY FOR FINAL LOCATION (WITHIN 200FT OF METER UM-1).
- N. LIGHT SWITCH FOR AREA LIGHTING WITH NEMA 4X COVER.

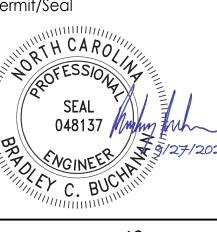
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Client/Project TOWN OF SMITHFIELD PUMP STATION #1 AND

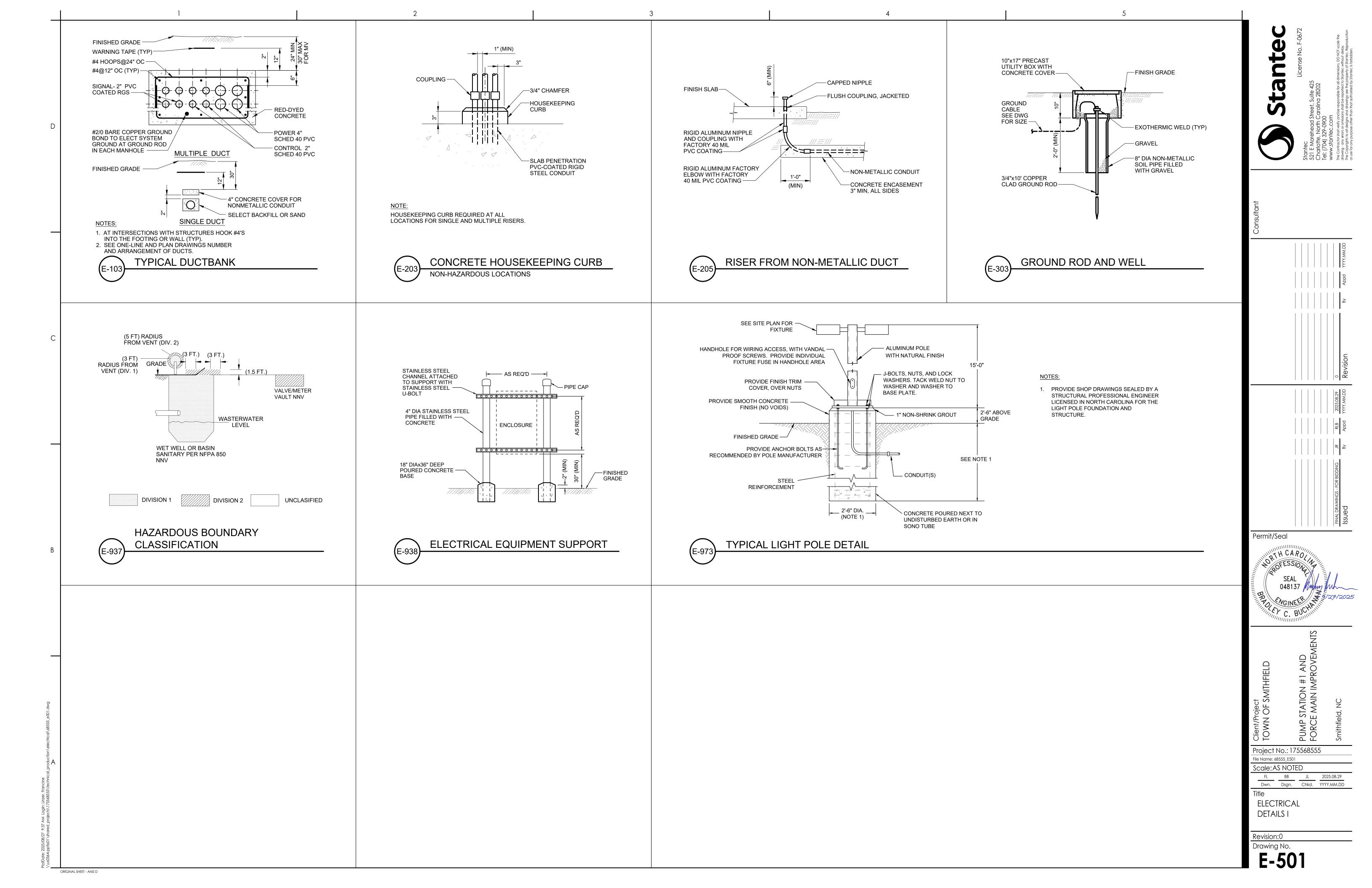
Project No.: 175568555
File Name: 68555\_E102

FL BB JL 2025.08.29
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Title ELECTRICAL SITE PLAN

Revision:0
Drawing No.

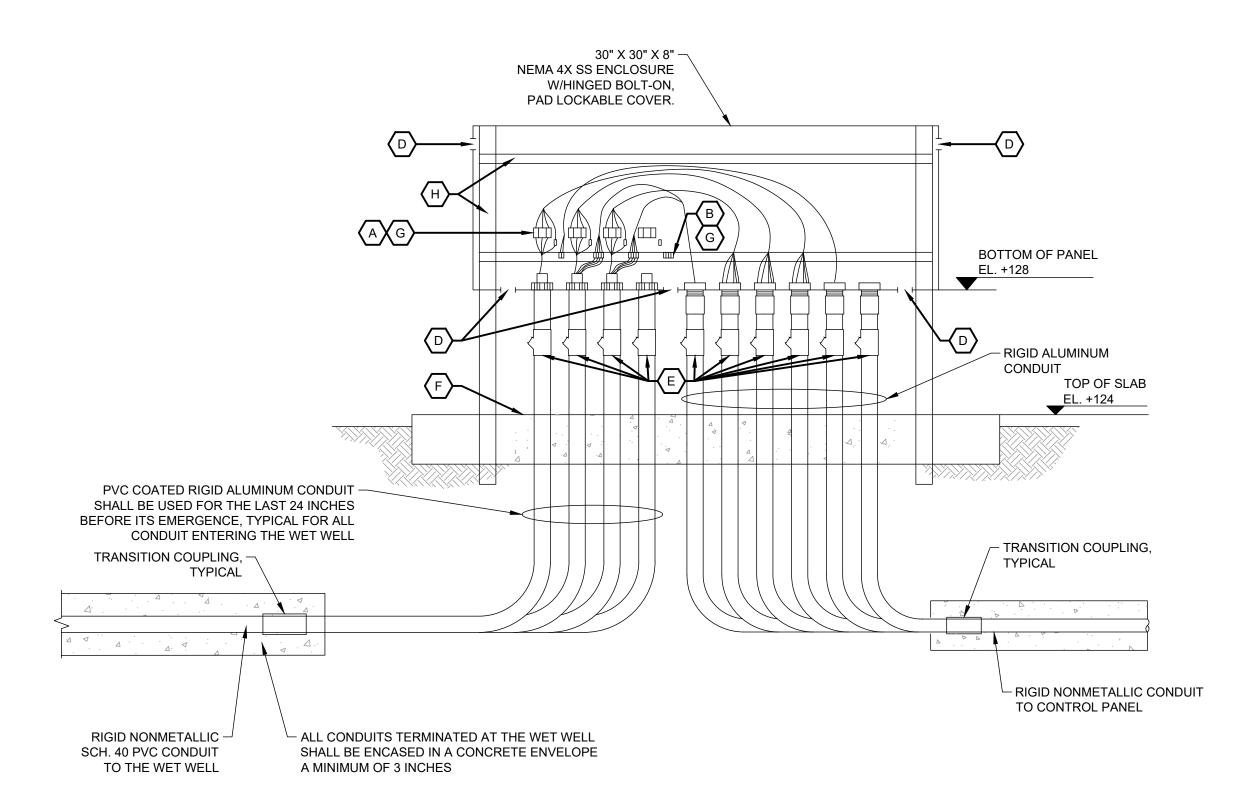
E-102



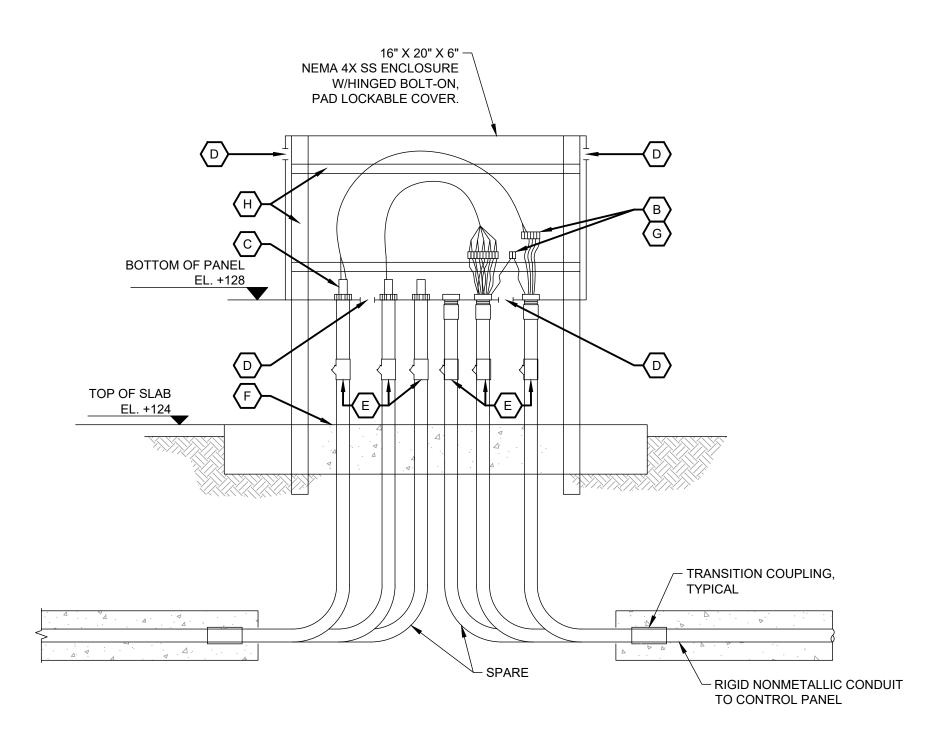
1. JUNCTION BOXES TO BE MOUNTED BACK-TO-BACK ON EQUIPMENT STAND WITHIN 6'-0" OF WET WELL. REFER TO THE ELECTRICAL EQUIPMENT SUPPORT DETAIL.

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- A. POLE POWER INSULATED TERM BLOCK PANEL MOUNT ALLEN BRADLEY BULLETIN (OR EQUAL) 1492 SIZED AS REQUIRED.
- B. CONTROL CIRCUIT INSULATED TERM BLOCK PANEL MOUNT ALLEN BRADLEY BULLETIN (OR EQUAL) 1492.
- C. CABLE CORD FITTING WITH GLAND NUT & NEOPRENE BUSHING EQUAL TO CROUSE HINDS CGFP (OR EQUAL) SIZE OR AS REQUIRED FOR CABLE O.D.
- D. 1/8" DRAIN AND VENTILATION HOLES.
- E. CONDUIT SEAL SUITABLE FOR CLASS I, DIV. 1, GROUP D HAZ. LOCATION.
- F. CONDUIT HOUSEKEEPING CURB. SEE ELECTRICAL DETAIL E-203.
- G. COAT WITH CLEAR URETHANE SEAL ELECTRICAL-ELECTRONIC INSULATOR AS CRC 'U' 02049 (OR EQUAL).
- H. SEE ELECTRICAL EQUIPMENT SUPPORT DETAIL E-938.



MOTOR CONNECTION BOX DETAIL (MJB)



CONTROL CONNECTION BOX DETAIL (IJB)



Permit/Seal

Project No.: 175568555 File Name: 68555\_E502 Scale: AS NOTED

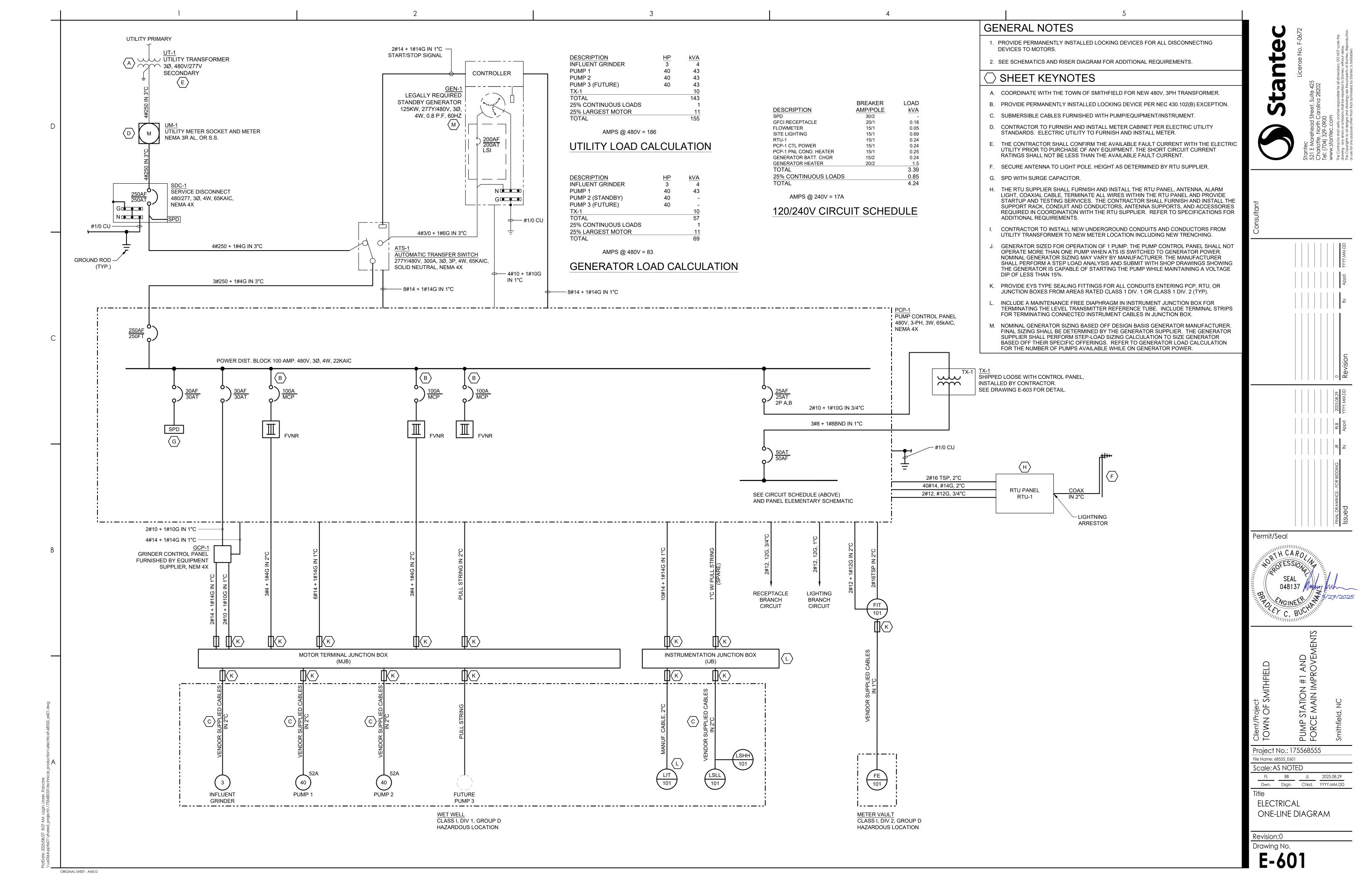
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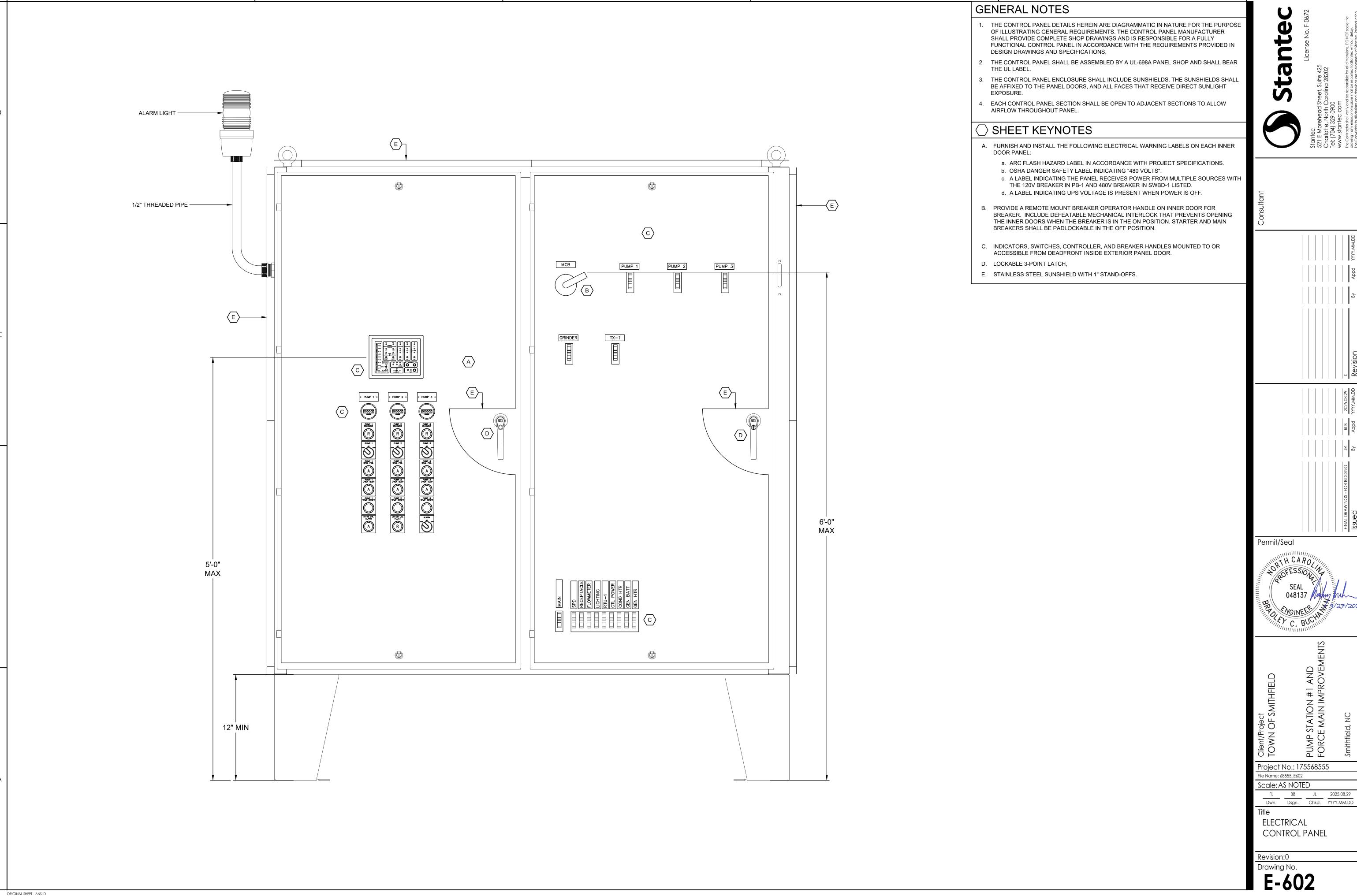
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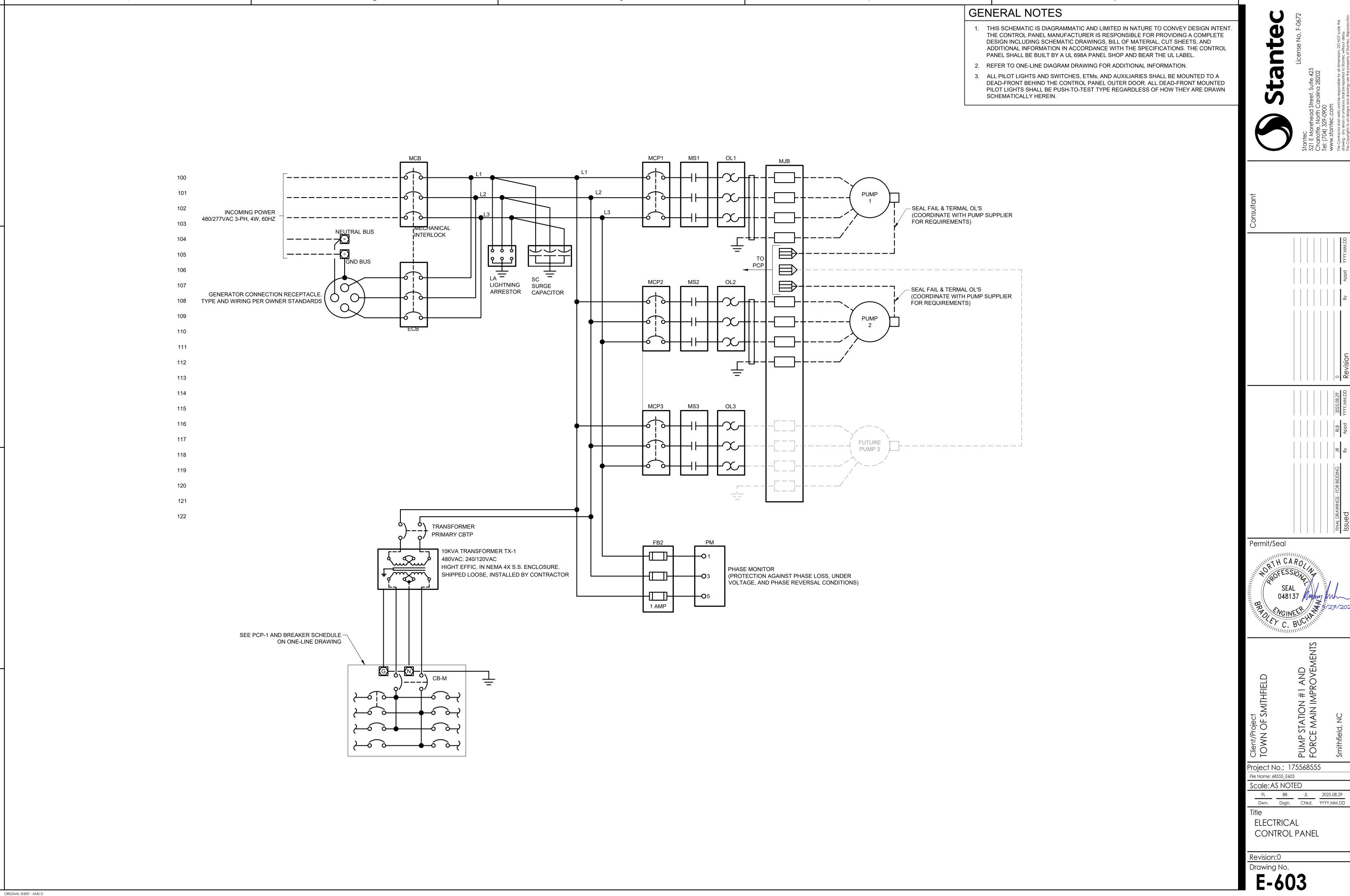
ELECTRICAL **DETAILS II** 

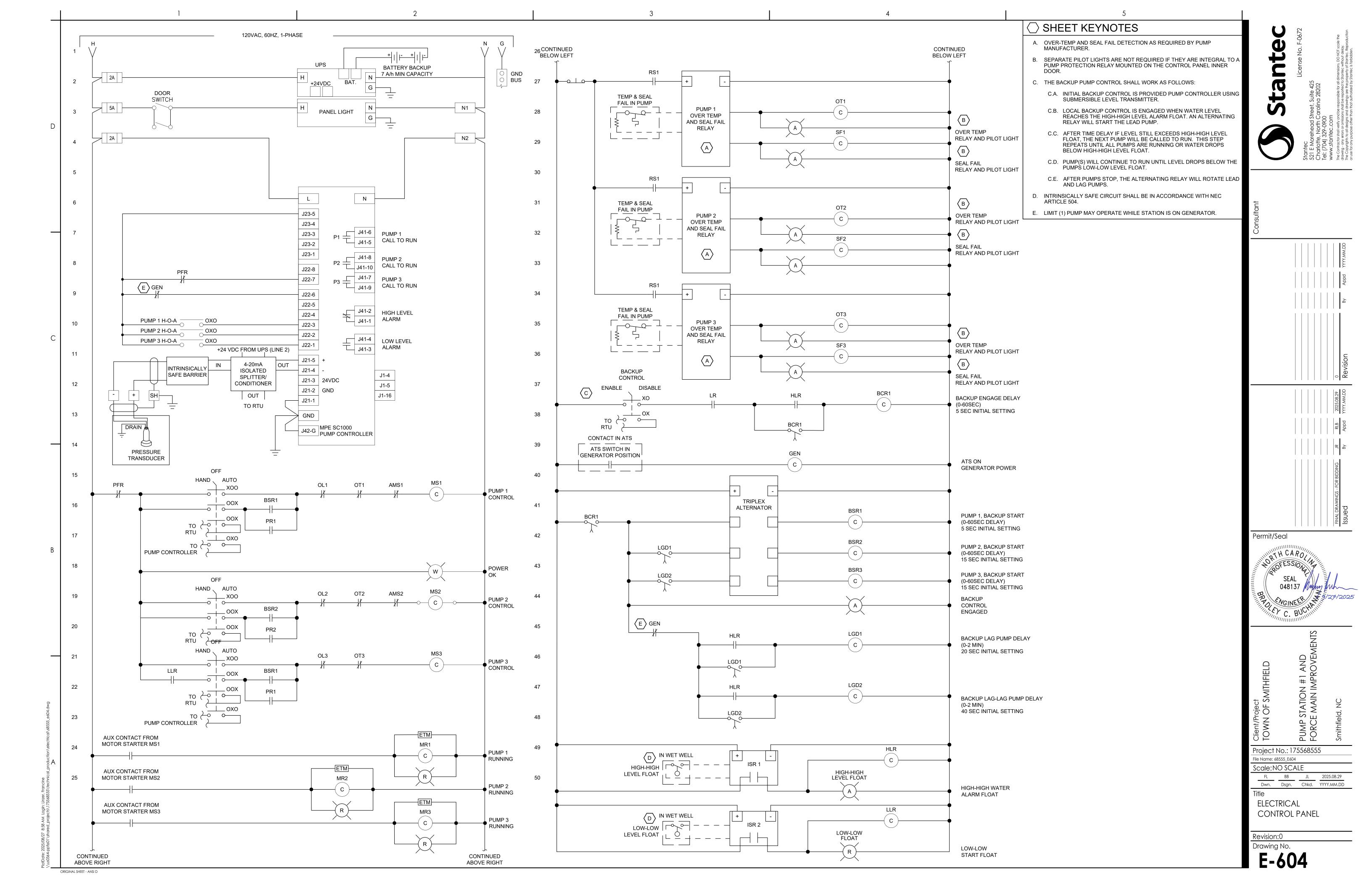
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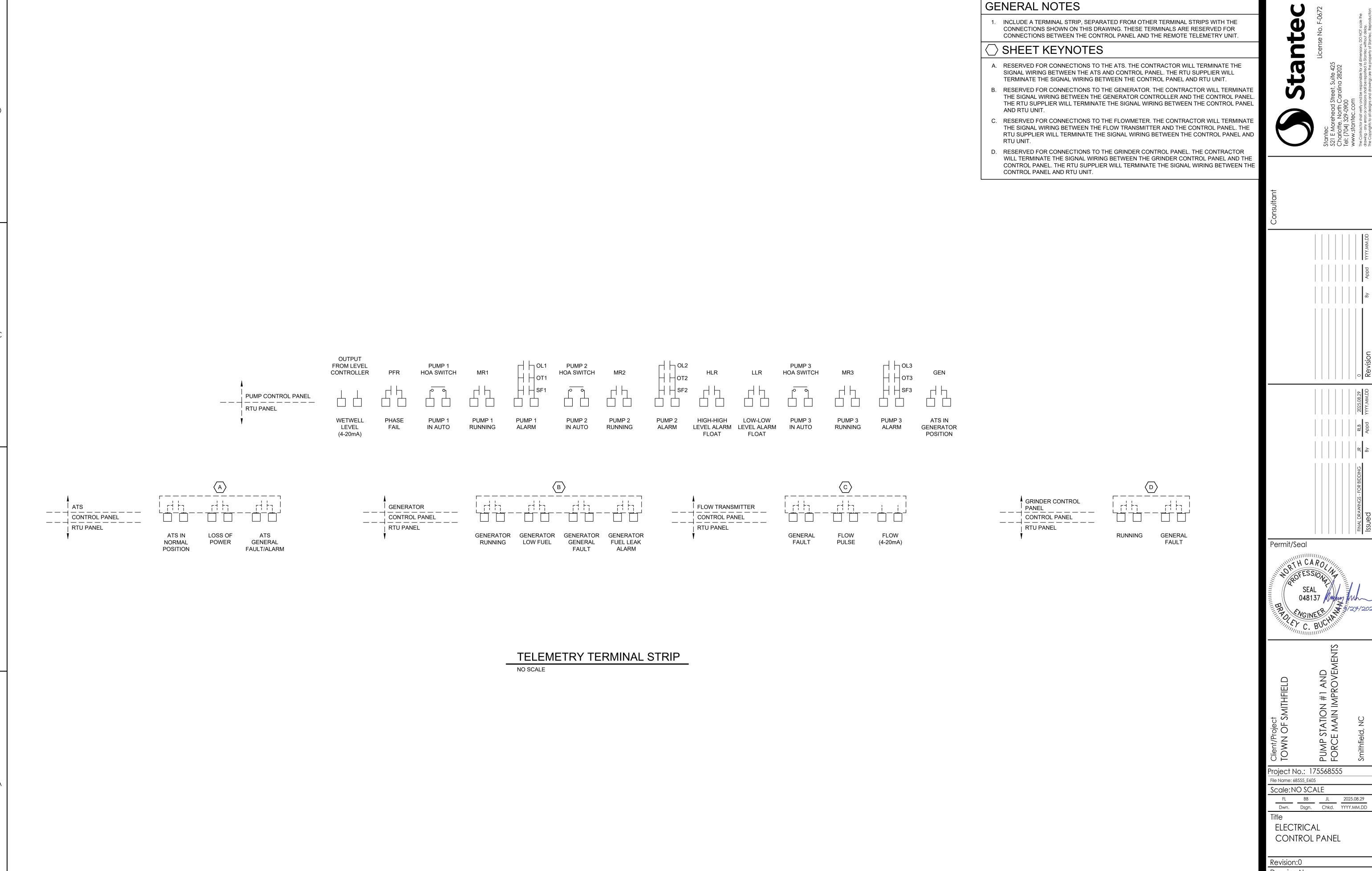
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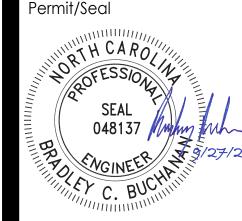








ORIGINAL SHEET - ANSI D



Project No.: 175568555

Drawing No.

E-605