

HEBRON PRESSURE ZONE WATER
IMPROVEMENTS
CITY OF HENDERSONVILLE, NC

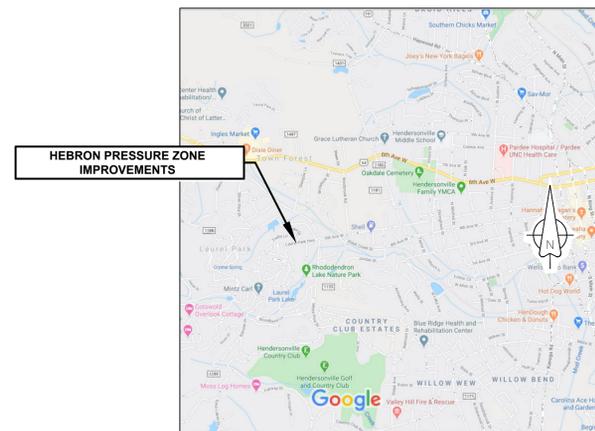
CONTRACT DRAWINGS

HEBRON PRESSURE ZONE IMPROVEMENTS

CITY OF HENDERSONVILLE HENDERSON COUNTY, NORTH CAROLINA

305 Williams Street
Hendersonville, NC 28792
Phone: 828-697-3000

VICINITY MAP
Not To Scale



INDEX OF SHEETS

TITLE SHEET		C-1
OVERALL SITE PLAN & SHEET INDEX		C-2
PLAN-PROFILE	DAVIS MOUNTAIN ROAD	W-1
PLAN	LAUREL PARK PUMP STATION	W-2
PLAN	OVERLOOK ROAD PUMP STATION	W-3
PLAN-PROFILE	OVERLOOK ROAD	W-4
PLAN-PROFILE	CHARITON AVENUE	W-5
DETAILS		WD-1 THRU WD-3



CITY OF HENDERSONVILLE, NC
"The City of Four Seasons"

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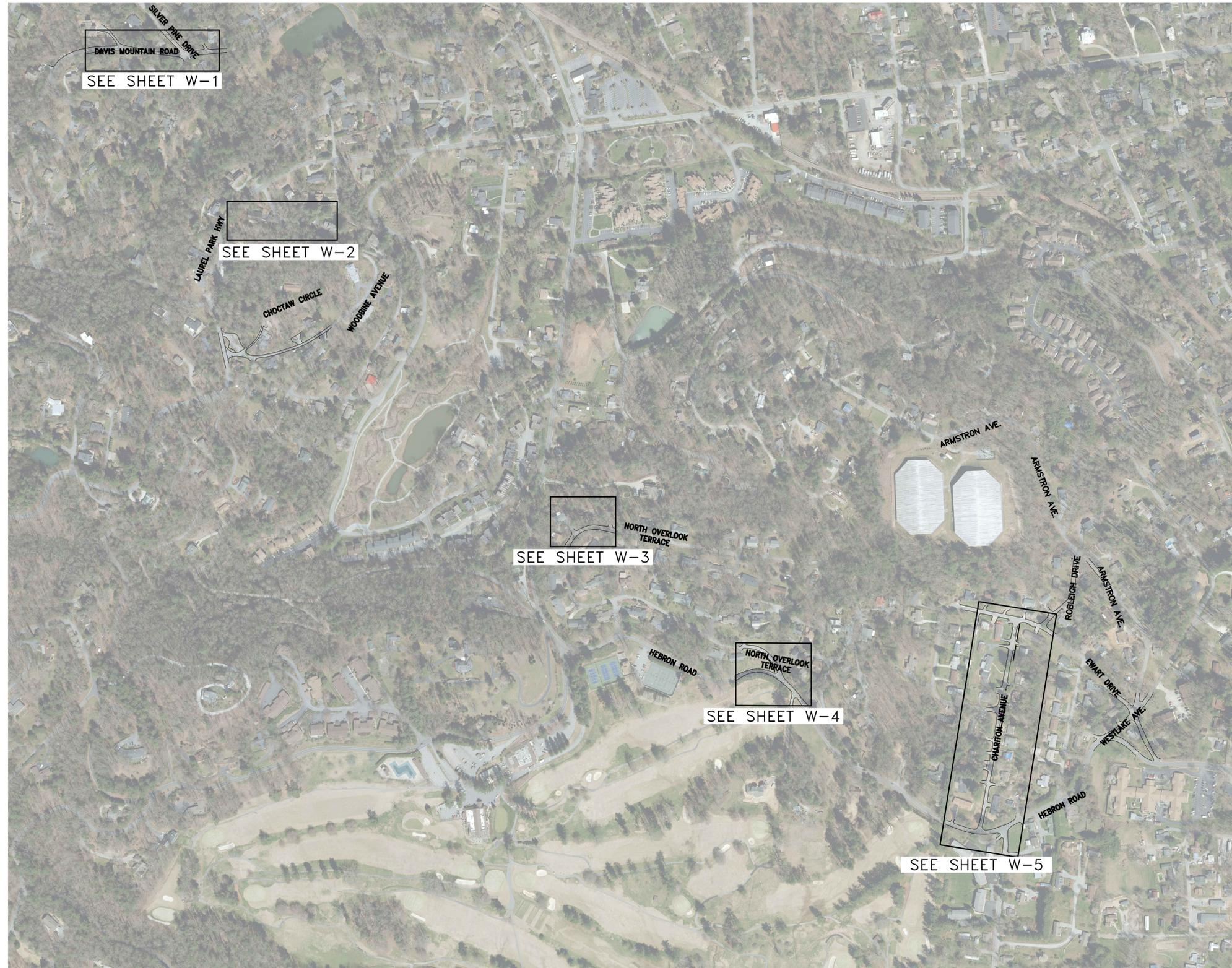
NO.	DATE	DESCRIPTION	BY



TITLE SHEET
**HEBRON PRESSURE ZONE
IMPROVEMENTS**
CITY OF HENDERSONVILLE
HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 10, 2020
DRAWN BY: MMP
PROJECT NO.: 19037

C-1



LEGEND

PROPOSED WATER LINE	———
EXISTING WATER LINE	—— (W) ——
EXISTING SEWER LINE	—— (SS) ——
CROSSING PIPE	—————
UTILITY POLE	○
GAS LINE	—— (G) ——
UNDERGROUND UTILITY	u
EXISTING MANHOLE	⊙
PROPOSED WATER VALVE	⊙
PROPOSED FIRE HYDRANT	⊙
EXISTING WATER METER	⊙
PROPOSED WATER METER	⊙
EXISTING WATER VALVE	⊙
EXISTING FIRE HYDRANT	⊙
CONTOUR	—— PL ——
PARCELS	—— PL ——
RIGHT OF WAY	—— RW ——
FIBER OPTIC CABLE	—— OFC —— OFC ——
RIGHT OF WAY	—— RW ——
TELEPHONE CABLE	—— (T) ——



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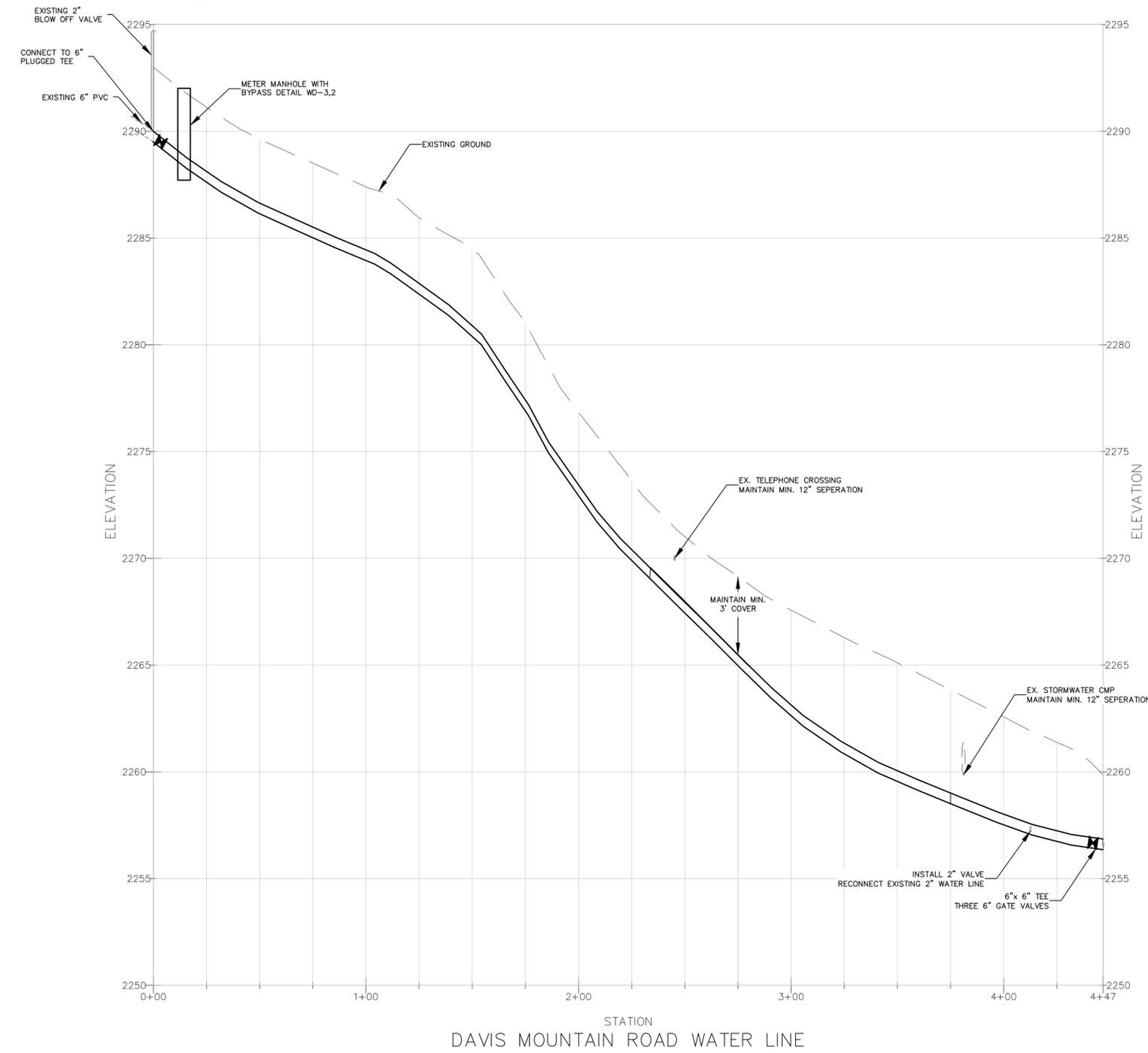
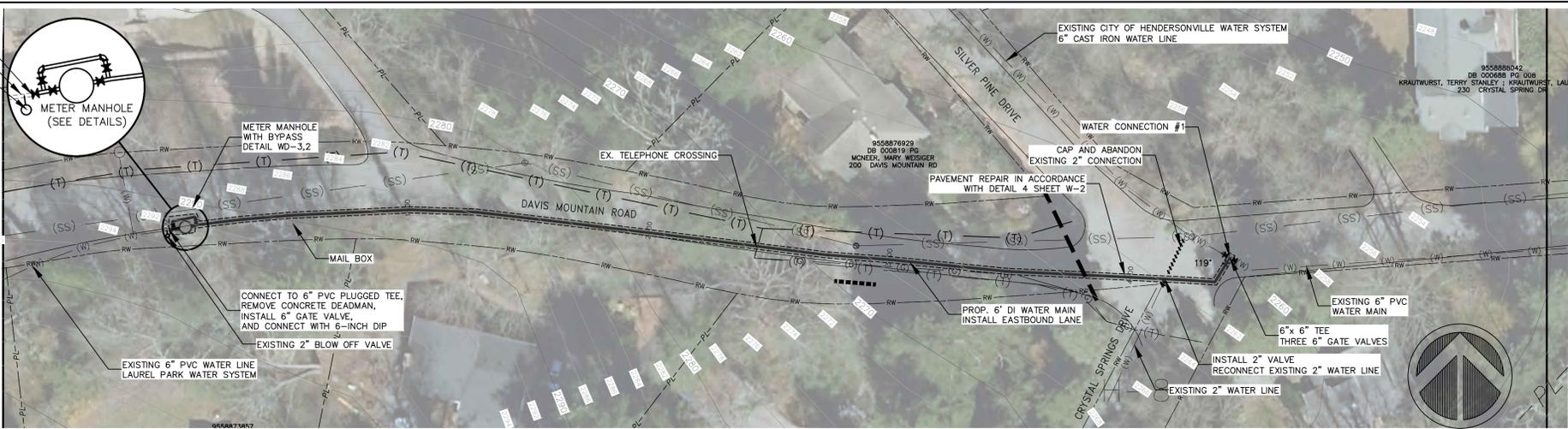
NO.	DATE	DESCRIPTION	BY



OVERALL SITE PLAN FOR:
HEBRON PRESSURE ZONE IMPROVEMENTS
 CITY OF HENDERSONVILLE
 HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 10, 2020
 DRAWN BY: MMP
 PROJECT NO.: 19037
 SCALE 1"=250'

CONNECT TO 6" PLUGGED TEE
INSTALL 6" GV
EXISTING 6" PVC
(LAUREL PARK WATER SYSTEM)
EXISTING 2" BLOW OFF VALVE



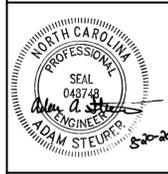
LEGEND

- PROPOSED WATER LINE ———
- EXISTING WATER LINE — (W) ———
- EXISTING SEWER LINE — (SS) ———
- CROSSING PIPE —————
- UTILITY POLE ○
- GAS LINE — (G) ———
- UNDERGROUND UTILITY u
- EXISTING MANHOLE ⊙
- PROPOSED WATER VALVE ⊛
- PROPOSED FIRE HYDRANT ⊛
- EXISTING WATER METER ⊙
- PROPOSED WATER METER ⊙
- EXISTING WATER VALVE ⊛
- EXISTING FIRE HYDRANT ⊛
- CONTOUR - - - - -
- PARCELS — PL ———
- RIGHT OF WAY — RW ———
- FIBER OPTIC CABLE — OFC — OFC —
- RIGHT OF WAY — RW ———
- TELEPHONE CABLE — (T) ———



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PLAN PROFILE FOR:
DAVIS MOUNTAIN WATER LINE
HEBRON
PRESSURE ZONE IMPROVEMENTS
CITY OF HENDERSONVILLE
HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 10, 2020
DRAWN BY: MMP
PROJECT NO.: 19037
HORIZONTAL SCALE 1"=30'
VERTICAL SCALE 1"=3'

W-1

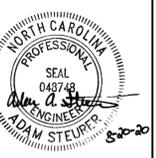




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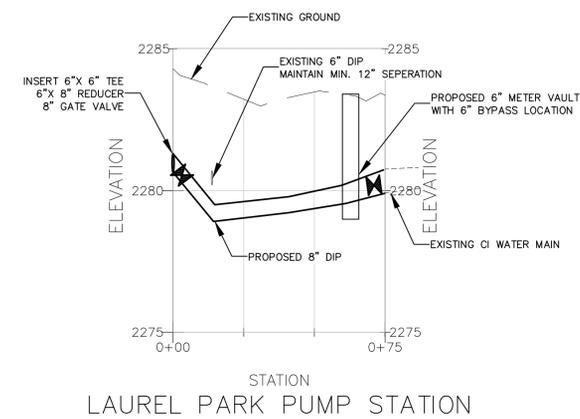
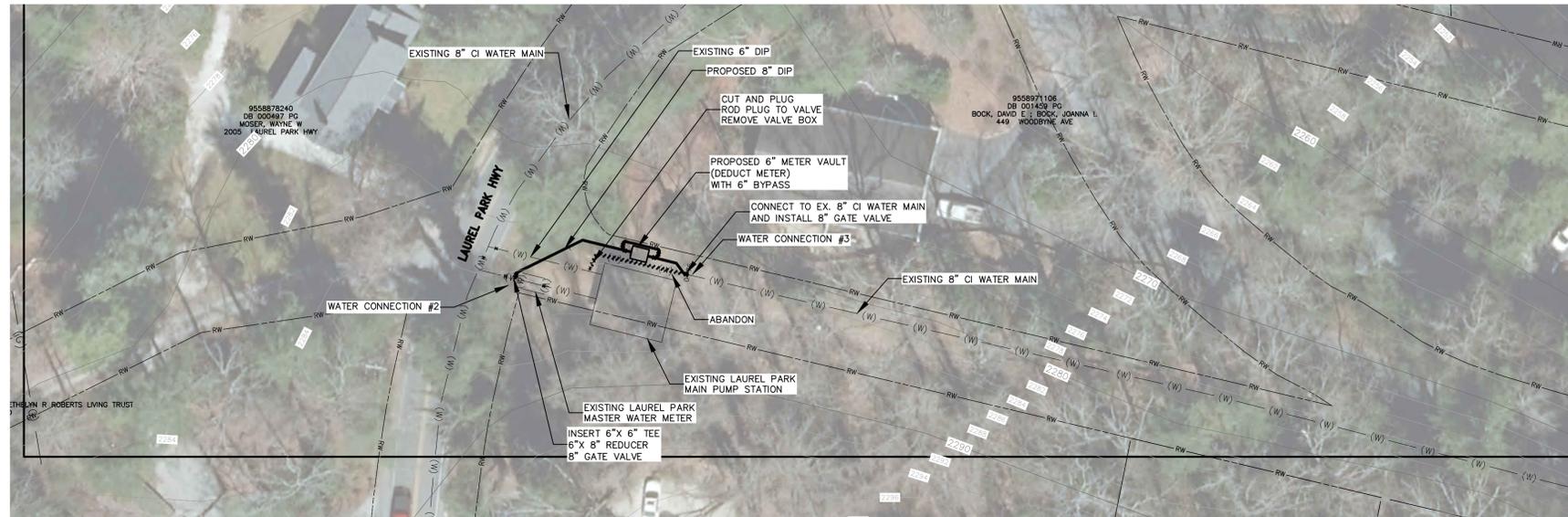
NO.	DATE	DESCRIPTION	BY



PLAN FOR:
LAUREL PARK PUMP STATION REFIT
**HEBRON PRESSURE ZONE
IMPROVEMENTS**
CITY OF HENDERSONVILLE
HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 10, 2020
DRAWN BY: MMP
PROJECT NO.: 19037
HORIZONTAL SCALE 1"=30'
VERTICAL SCALE 1"=3'

W-2



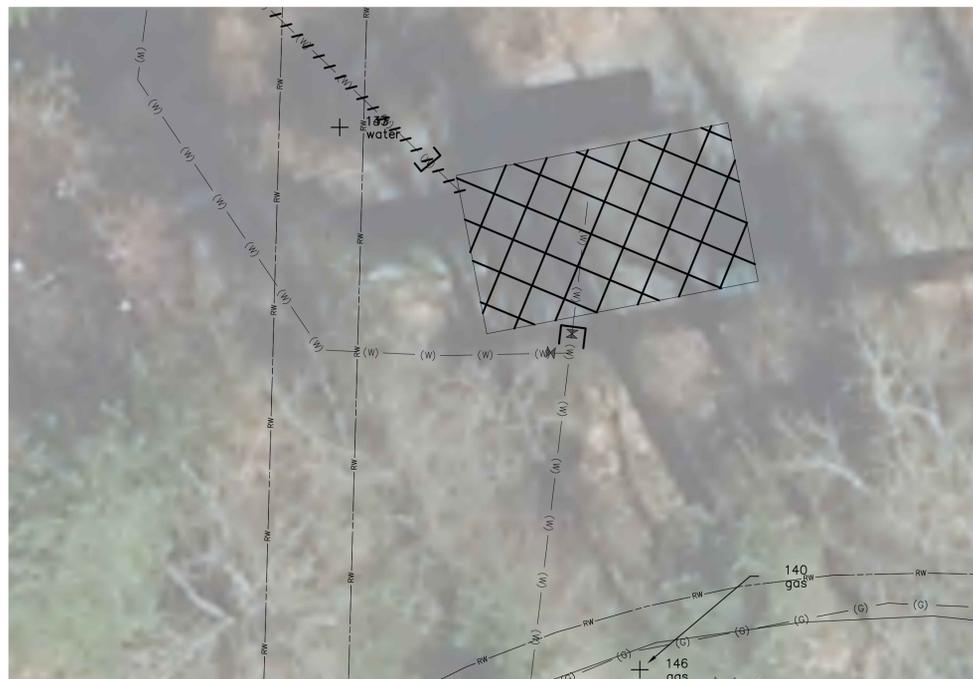
LEGEND

- PROPOSED WATER LINE ———
- EXISTING WATER LINE — (W) ———
- EXISTING SEWER LINE — (SS) ———
- CROSSING PIPE ———
- UTILITY POLE ○
- GAS LINE — (G) ———
- UNDERGROUND UTILITY u
- EXISTING MANHOLE ⊙
- PROPOSED WATER VALVE ■
- PROPOSED FIRE HYDRANT ■
- EXISTING WATER METER ⊙
- PROPOSED WATER METER ⊙
- EXISTING WATER VALVE ■
- EXISTING FIRE HYDRANT ■
- CONTOUR ———
- PARCELS — PL ———
- RIGHT OF WAY — RW ———
- FIBER OPTIC CABLE — OFC — OFC —
- RIGHT OF WAY — RW ———
- TELEPHONE CABLE — (T) ———



LEGEND

PROPOSED WATER LINE	— (W) —
EXISTING WATER LINE	— (W) —
EXISTING SEWER LINE	— (SS) —
CROSSING PIPE	-----
UTILITY POLE	○
GAS LINE	— (G) —
UNDERGROUND UTILITY	u
EXISTING MANHOLE	⊙
PROPOSED WATER VALVE	⊙
PROPOSED FIRE HYDRANT	⊙
EXISTING WATER METER	⊙
PROPOSED WATER METER	⊙
EXISTING WATER VALVE	⊙
EXISTING FIRE HYDRANT	⊙
CONTOUR	- - - - -
PARCELS	- PL -
RIGHT OF WAY	- RW -
FIBER OPTIC CABLE	- OFC - OFC -
RIGHT OF WAY	- RW -
TELEPHONE CABLE	- (T) -



OVERLOOK PUMP STATION DEMOLITION
NOT TO SCALE

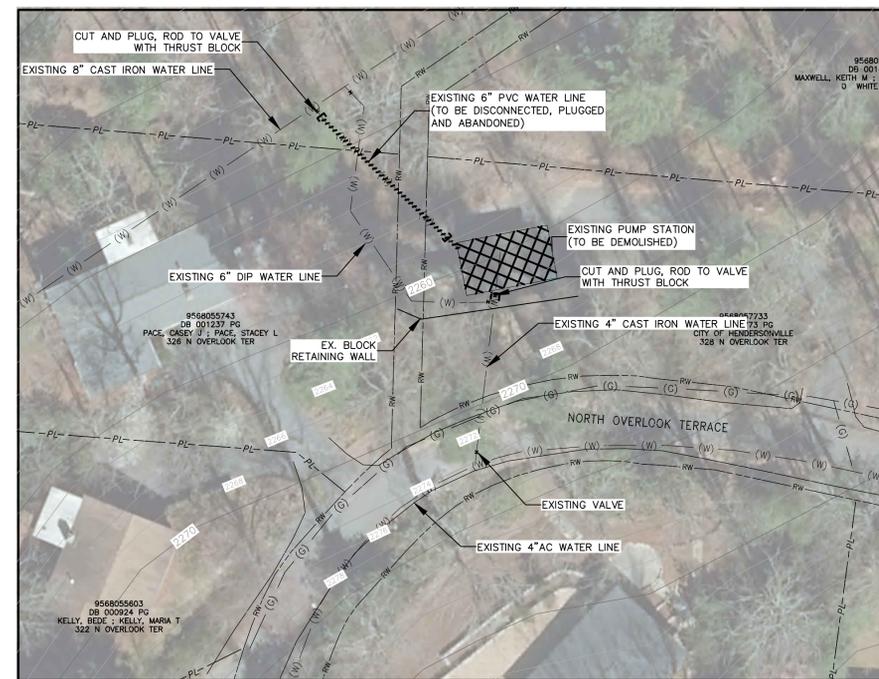
SCALE: 1"=10'

DEMOLITION NOTES:

- CONTRACTOR SHALL DEMOLISH ONE (1) BOOSTER PUMPING STATION. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING VALVE SHUT-OFF WITH THE CITY, DRAINING LINE, CONNECTING SUCTION AND DISCHARGE PIPING BELOW SURFACE, PUTTING WATER LINE BACK IN SERVICE. THE OWNER SHALL BE RESPONSIBLE FOR OPERATING VALVES.
- CONTRACTOR SHALL DETERMINE LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) IN THE FIELD, IN ADVANCE OF EXCAVATING, BY CONTACTING ALL UTILITIES AND OTHER AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, DEMOLITION, RECONSTRUCTION, AND RECONNECTION OF EXISTING FACILITIES AS REQUIRED TO COMPLETE THE WORK.
- THE CONTRACTOR'S STAGING, PARKING, AND MATERIAL STORAGE SHALL BE LIMITED TO THE PROPERTY. PROVIDING ADDITIONAL STORAGE OR PARKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL BE REQUIRED TO MINIMIZE IMPACTS TO THE SURROUNDING AREAS.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY EROSION CONTROL MEASURES THAT MAY BE REQUIRED TO COMPLETE THE REQUIRED DEMOLITION.
- THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES NOT DESIGNATED FOR DEMOLITION. ALL DAMAGED EXISTING STRUCTURE SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING PRIOR TO CONSTRUCTION.
- ALL CONTROLS, CONTROL PANELS, PUMPS, VALVES, AND OTHER MISCELLANEOUS EQUIPMENT WITHIN THE BOOSTER PUMP STATION STRUCTURES SHALL BE CAREFULLY REMOVED, CLEANED, AND STORED FOR SALVAGE BY THE OWNER, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE CITY RESERVES SALVAGE RIGHTS ON ALL EQUIPMENT REMOVED, WHETHER DONE BY THE CITY OR BY THE CONTRACTOR. EQUIPMENT NOT RETAINED BY THE CITY SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR IN AN APPROVED MANNER.



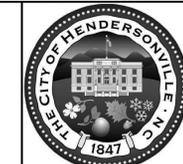
NORTH



SCALE: 1"=30'



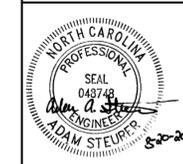
BPS	ADDRESS	NO. OF PUMPS	CAPACITY (GPM)	TDH (FT)	HP
OVERLOOK TERRACE BPS	328 NORTH OVERLOOK TERRACE	2	92	225	10



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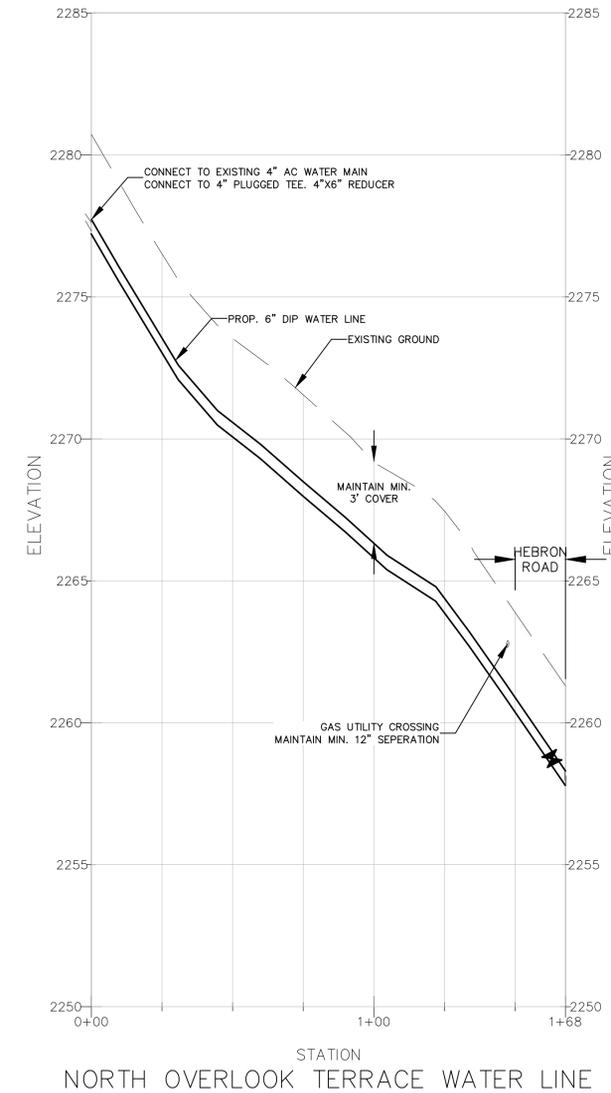
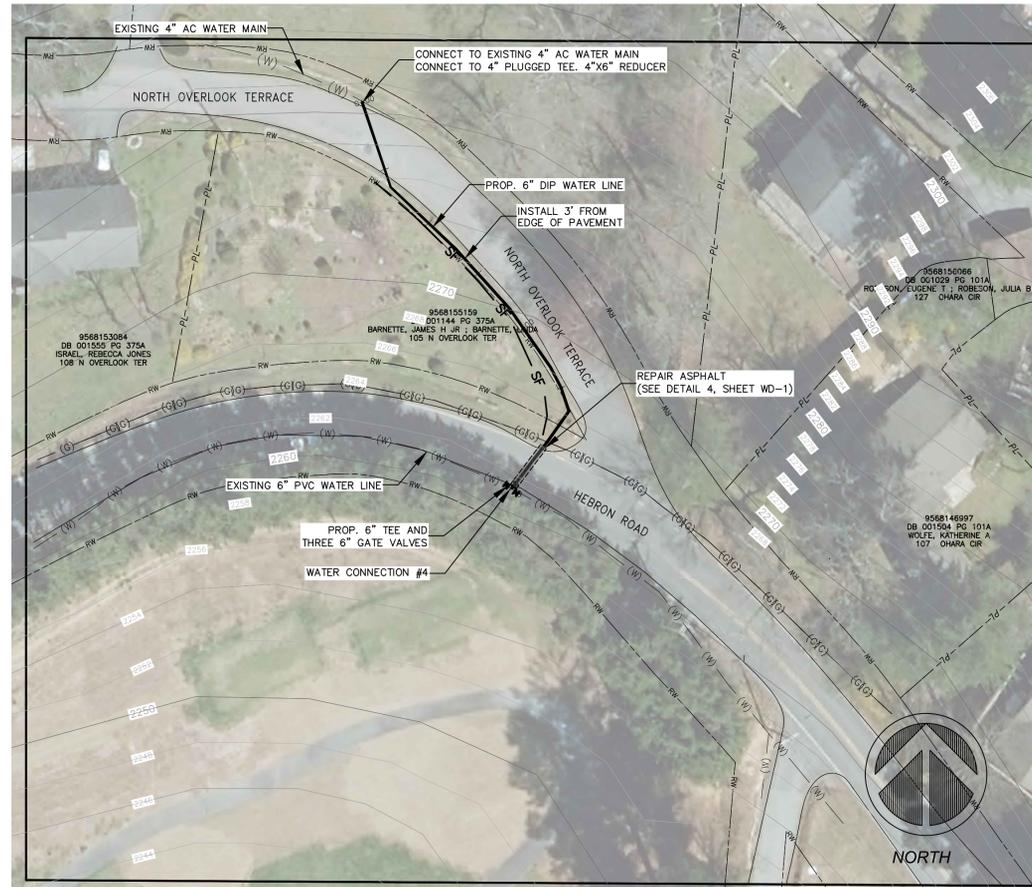


PLAN FOR:
OVERLOOK PUMP STATION

HEBRON
PRESSURE ZONE IMPROVEMENTS
CITY OF HENDERSONVILLE
HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 10, 2020
DRAWN BY: MPP
PROJECT NO.: 19037





LEGEND

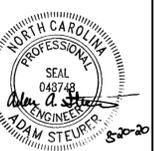
PROPOSED WATER LINE	—————
EXISTING WATER LINE	—— (W) ——
EXISTING SEWER LINE	—— (SS) ——
CROSSING PIPE	—————
UTILITY POLE	○
GAS LINE	—— (G) ——
UNDERGROUND UTILITY	U
EXISTING MANHOLE	⊙
PROPOSED WATER VALVE	⊙
PROPOSED FIRE HYDRANT	⊙
EXISTING WATER METER	⊙
PROPOSED WATER METER	⊙
EXISTING WATER VALVE	⊙
EXISTING FIRE HYDRANT	⊙
CONTOUR	—— PL ——
PARCELS	—— PL ——
RIGHT OF WAY	—— RW ——
FIBER OPTIC CABLE	—— OFC —— OFC ——
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TELEPHONE CABLE	—— (T) ——



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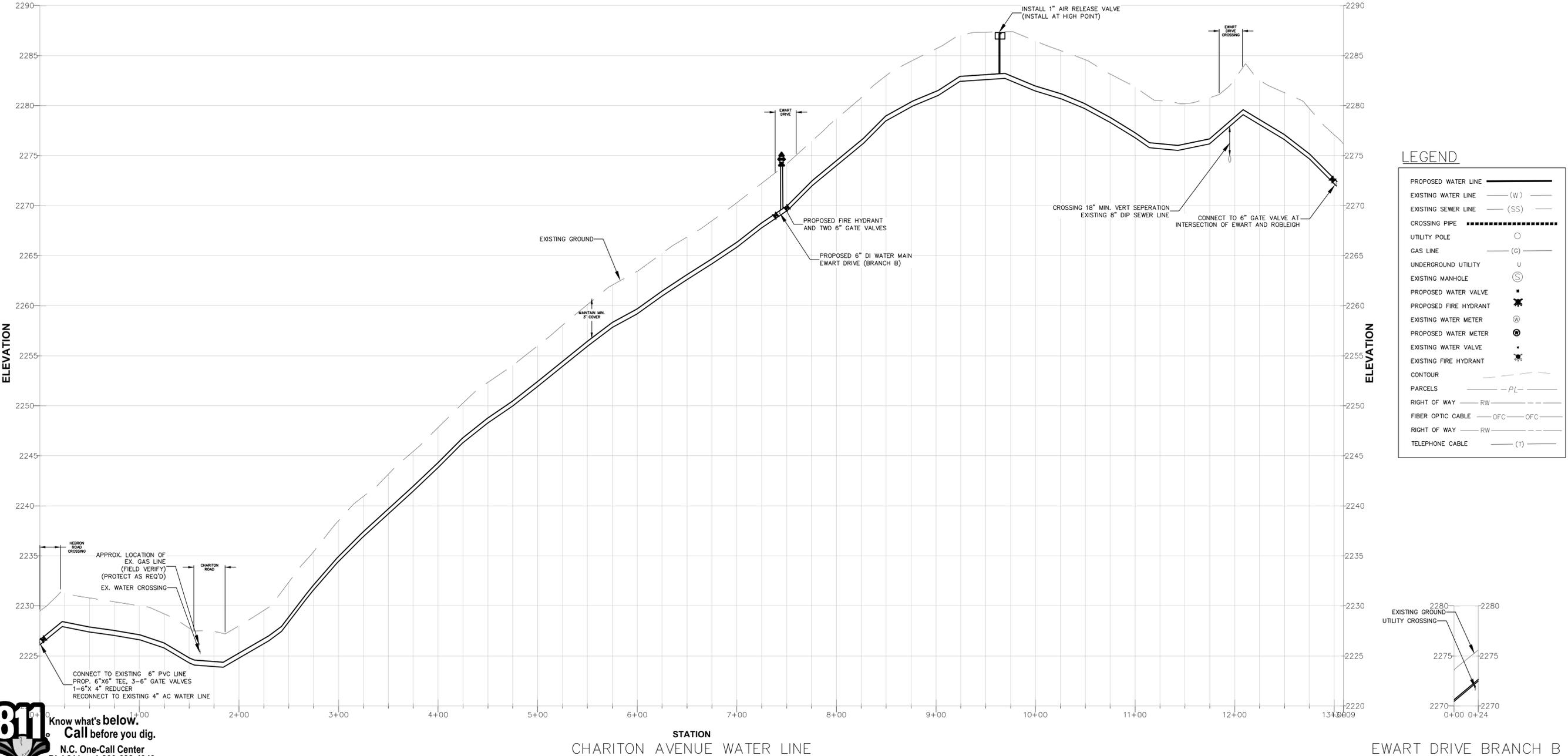
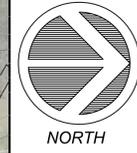
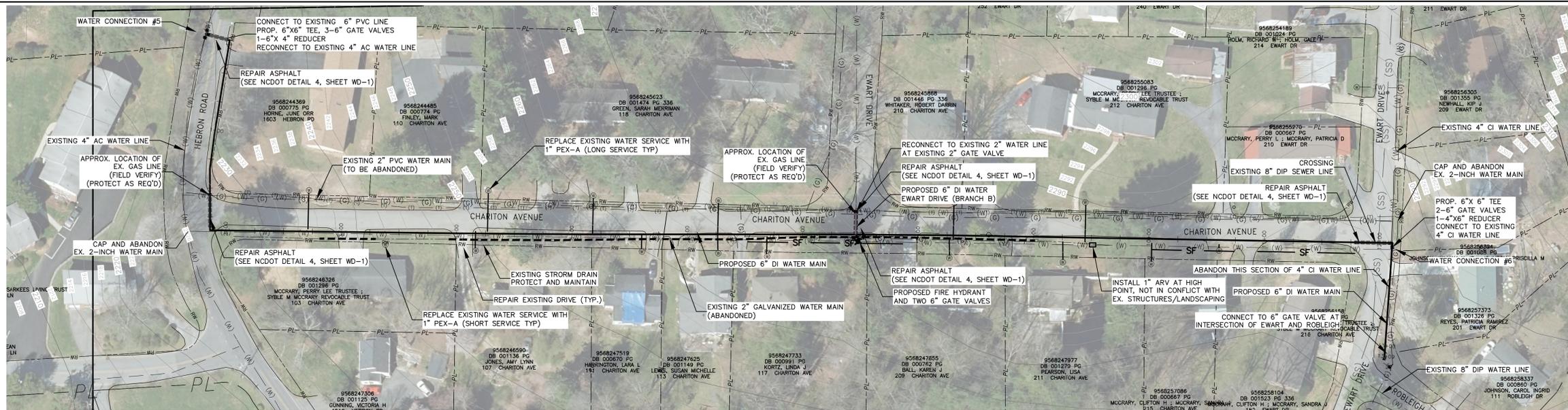
NO.	DATE	DESCRIPTION	BY



PLAN PROFILE FOR:
HEBRON PRESSURE ZONE IMPROVEMENTS
 CITY OF HENDERSONVILLE
 HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 10, 2020
 DRAWN BY: MMP
 PROJECT NO.: 19037
 HORIZONTAL SCALE 1"=30'
 VERTICAL SCALE 1"=3'

W-4



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CITY OF HENDERSONVILLE, NC
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NO.	DATE	DESCRIPTION	BY



PLAN PROFILE FOR:
HEBRON PRESSURE ZONE IMPROVEMENTS
CITY OF HENDERSONVILLE
HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 2, 2020
DRAWN BY: MMP
PROJECT NO.: 19037
HORIZONTAL SCALE 1"=50'
VERTICAL SCALE 1"=5'

W-5

GENERAL NOTES

- WATER CONSTRUCTION ON THIS SITE IS AUTHORIZED BY PERMITS ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCEM) AND AUTHORIZED BY THE CITY OF HENDERSONVILLE. THE WORK IS SUBJECT TO INSPECTIONS AT ALL TIMES BY REPRESENTATIVES OF NCEM, THE CITY OF HENDERSONVILLE, THE OWNER OR THE ENGINEER. THE PERMITS REQUIRE CERTIFICATION OF COMPLETION OF THE WATER SYSTEMS BY THE ENGINEER AND THE APPLICANT PRIOR TO RESUMPTION OF FINAL OPERATION APPROVAL.
- MATERIALS AND INSTALLATION FOR WATER CONSTRUCTION SHALL CONFORM TO THE LATEST VERSIONS OF CITY SPECIFICATIONS AND IDEALS AND ANNA STANDARDS AND REQUIREMENTS.
- CONTRACTOR SHALL NOTIFY NCEM 11 BUSINESS DAYS PRIOR TO THE DATE OF METER INSTALLATION.
- REGULAR WORKING HOURS SHALL BE FROM 7:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY. EXCEPT IN EMERGENCY OR OTHERWISE APPROVED IN WRITING BY THE CITY OR AUTHORIZED REPRESENTATIVE, THE CONTRACTOR SHALL NOT WORK ON THE CONSTRUCTION SITE AT ANY TIME WHEN THE PUBLIC OR OTHERS MAY BE IN THE AREA DURING NON-WORKING HOURS.
- ALL PERSONS SHALL BE CONTINUOUS AND RESPONSIBLE TO THE PUBLIC. CURSING OR USE OF LANGUAGE IS PROHIBITED AND WILL NOT BE TOLERATED.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL ON ALL ROADS DURING THE PROJECT. THE CONTRACTOR SHALL NOTIFY LOCAL SCHOOLS AND OTHER NECESSARY AUTHORITIES PRIOR TO ANY STREET CLOSING OR TRAFFIC CHANGE.
- THE CONTRACTOR AT HIS OWN EXPENSE SHALL KEEP THE CONSTRUCTION SITE AND ADJACENT PUBLIC AND PRIVATE ROADSWAYS CLEAN DURING THE PROJECT. THE CONTRACTOR IS ALSO RESPONSIBLE FOR CLEANING UP AFTER THE PROJECT.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION IN ACCORDANCE WITH THE IDEALS, GRACES AND ELEVATIONS SHOWN ON THE PLANS OR AS GIVEN BY THE ENGINEER IN THE FIELD.
- CONTRACTOR SHALL VERIFY THE EXIST LOCATION AND ELEVATION FOR ALL UTILITIES, DRAINAGE AND OTHER UNDERGROUND FACILITIES BOTH EXISTING AND PROPOSED, AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION. REPAIRS SHALL BE MADE IN ACCORDANCE WITH STANDARD PRACTICES AND APPROVED BY THE CITY ENGINEER.
- DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN THE OPERATION OF EXISTING UTILITIES WITH THE LEAST AMOUNT OF SERVICE INTERRUPTION POSSIBLE IN COORDINATION WITH THE CITY OF HENDERSONVILLE. CONSTRUCTION SHALL BE STOPPED IMMEDIATELY IN THE EVENT OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY OR PERMANENT REDUCTION OF STRUCTURES AND UTILITIES, INCLUDING BUT NOT LIMITED TO POLES, SIGNS, FENCES, HYDRANTS, VALVES, PIPES, CONDUITS AND DEVICES THAT INTERFERE WITH THE POSITIONS OF THE WORK AS SHOWN ON THE DRAWINGS.
- EXISTING WATER SERVICES SHALL BE REPLACED TO THE EXISTING WATER UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY. SPACING OF THE WATER SERVICE ON THE DISTRIBUTION SIDE OF THE METER IS NOT PERMITTED.
- ALL DISTURBED AREAS, INCLUDING BUT NOT LIMITED TO ASPHALT, CONCRETE, DRIVEWAYS, ROADS, LANDSCAPING, SHALL BE RESTORED TO EQUAL OR BETTER CONDITION THAN THE ORIGINAL. SITE GRASS AND LANDSCAPED AREAS SHALL BE REPLACED IN THE TRENCH TO MATCH AS CLOSE AS POSSIBLE TO THE EXISTING. SEEDING AND SOIL ADDITIONAL FILL AND SITE RESTORATION SHALL BE COMPLETED WITHIN THE WARRANTY PERIOD AT THE CITY'S DISCRETION.
- CONTRACTOR SHALL PROVIDE EROSION CONTROL DEVICES TO CONTROL RUNOFF AS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR ANY FINES THAT MAY BE LEMVED DUE TO RUNOFF FROM CONSTRUCTION.
- IF IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW ALL APPLICABLE FEDERAL, STATE AND LOCAL HEALTH AND SAFETY REGULATIONS PERTAINING TO CONSTRUCTION OPERATIONS.
- ALL WATER MAINS SHALL HAVE 3 FEET MINIMUM COVER.
- MINIMUM COVER SHALL BE 3 FEET MINIMUM COVER AND 10 FT. OF A CROSSING.
- SEWER LINE CROSSING OVER WATER.
- VERTICAL CLEARANCE BETWEEN SEWER AND WATER IS LESS THAN 18 INCHES.
- MINIMUM 10 FEET HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS UNLESS LAD IN SEPARATE TRENCHES WITH THE BOTTOM OF THE WATER LINE AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER LINE OR USE FERROUS MATERIAL FOR BOTH WATER AND SEWER.
- MAINTAIN 18 INCHES VERTICAL SEPARATION BETWEEN STORM DRAIN AND WATER, OR INSTALL FERROUS MATERIAL WATER LINE WITHIN 10 FEET EACH SIDE OF CROSSING.
- PIPE GREATER THAN ONE-INCH IN DIAMETER IN EXISTING ACTIVE WATER MAIN ARE TO BE PERFORMED BY THE CITY UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY. TAPS IN EXISTING WATER MAINS ARE TO BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH CITY REQUIREMENTS.
- WATER METERS WILL BE SET BY CITY STAFF UNLESS THE CONTRACTOR IS GRANTED WRITTEN PERMISSION BY THE CITY.
- THE CONTRACTOR WILL PROVIDE THE CITY NOTICE OF 10 WORKING DAYS MINIMUM PRIOR TO THE DATE OF METER INSTALLATION.
- THE CONTRACTOR WILL PROVIDE A LICENSED PLUMBER DURING THE METER INSTALLATION TO VERIFY LINE SERVICES IN ALL HALF-METER BOXES.
- ALL PUBLIC WATER MAIN CONSTRUCTION SHALL BE PERFORMED BY A NORTH CAROLINA LICENSED UTILITY CONTRACTOR.
- ALL WATER APPEARANCES ARE TO BE MADE USING LEAD FREE MATERIALS. PIPE, FITTINGS, VALVES, HYDRANTS, PIPE CLAMPS, RESTRAINTS, FLANGES, CASTINGS, RESINS, HATCHES, SLEETS, METER BOXES AND ALL OTHER CAST IRON COMPONENTS SHALL BE LEAD FREE.
- RESTRAINT JOINTS BY AN APPROVED PIPE MANUFACTURER ARE TO BE USED FOR ALL PUBLIC WATER MAINS. RESTRAINTS ARE TO BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS. CONCRETE THRUST BLOCKS ARE PERMITTED ONLY WHEN CONNECTIONS ARE MADE TO EXISTING WATER LINES OR WHERE THE USE OF MECHANICAL RESTRAINT IS NOT FEASIBLE.
- ALL FIVE HYDRANTS, VALVES, BACKFLOW PREVENTERS, HOT BOXES AND WATER METERS ARE TO BE INSTALLED ON RELATIVELY FLAT AREAS OUTSIDE OF PAVEMENT.
- TAMPING WITH OR ILLEGAL USE OF THE PUBLIC WATER SUPPLY WILL RESULT IN SUSPENSION OF WATER SERVICE, INCLUDING DOMESTIC AND COMMERCIAL. UNTIL FINAL APPROVAL BY THE CITY IS ISSUED, A PERSON FOUND TO BE USING WATER ILLEGALLY SHALL BE SUBJECT TO FINES OR PRISONS, AS PRESCRIBED AND APPROVED BY CITY COUNCIL.

TESTING & INSPECTION

- NOTIFY THE ENGINEER AND ENGINEER AT LEAST 5 WORKING DAYS BEFORE STARTING CONSTRUCTION OF WATER FACILITIES TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE. THE CONTRACTOR SHALL PERIODICALLY INSPECT THE PROGRESS OF INSTALLATION AT A MINIMUM AND SHALL COMPLETE A FINAL WATER CERTIFICATION.
- ALL CHANGES TO THE APPROVED CONSTRUCTION PLANS AND SUBMITTALS MUST BE APPROVED IN WRITING BY THE CITY PRIOR TO IMPLEMENTATION IN THE FIELD.
- THE CONTRACTOR SHALL FURNISH SECURE AND PROVIDE ALL NECESSARY TESTING MATERIALS, EQUIPMENT, LABOR. THE CONTRACTOR SHALL COORDINATE TESTING, FLUSHING, DISINFECTION, AND BACTERIOLOGICAL SAMPLING WITH CITY INSPECTOR.
- THE ENGINEER OR CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION INSPECTOR 72 HOURS (MINIMUM) BEFORE ANY WATER OR TESTING OPERATIONS. AT A MINIMUM, CITY STAFF SHALL BE NOTIFIED PRIOR TO TAPS, TESTING, FLUSHING, DISINFECTION, AND SAMPLING.
- PRESSURE TEST WATER MAINS TO 300 PSIG MIN. FOR A MINIMUM OF TWO HOURS IN ACCORDANCE WITH CITY REQUIREMENTS AND ANNA 0200.
- DISINFECT WATER LINES AND PROVIDE ACCEPTABLE BACTERIOLOGICAL TEST FROM A PUBLIC WATER DISTRIBUTION LABORATORY WITH CITY REQUIREMENTS AND ANNA 0200.
- CONSTRUCTION WATER SOURCING MUST BE APPROVED IN WRITING BY THE CITY. CONSTRUCTION WATER CONNECTIONS SHALL BE MADE WITH AN APPROVED METER AND APPROVED BACKFLOW PREVENTION ASSEMBLY. THIS ASSEMBLY INSTALLATION MUST BE APPROVED IN WRITING BY THE CITY.
- IF THE FINAL WRITTEN ACCEPTANCE FROM THE CITY OF HENDERSONVILLE PRIOR TO ACTIVATION OF THE SYSTEM, WATER SERVICE AND CONNECTIONS SHALL BE PROVIDED BY THE ENGINEER. THE CITY DOES NOT PROVIDE ANY GUARANTEE OF ITS WATER SYSTEM'S CAPABILITY TO DELIVER WATER FLOW AND RESIDUAL PRESSURE THE FIELD PERMITTING AUTHORITY MAY REQUIRE.
- ALL BACKFLOW PREVENTION ASSEMBLY SHALL BE USE APPROVED AND REVIEWED BY THE CITY. PROTECTION OF THE PUBLIC WATER DISTRIBUTION SYSTEM SHALL BE ASSURED BY INSPECTION OF THE INSTALLATION AND TESTING OF BACKFLOW PREVENTION DEVICES IN ACCORDANCE WITH APPROPRIATE LOCAL, STATE, AND FEDERAL REGULATIONS.
- CONSTRUCTION WATER SOURCING MUST BE APPROVED IN WRITING BY THE CITY. CONSTRUCTION WATER CONNECTIONS SHALL BE MADE WITH AN APPROVED METER AND APPROVED BACKFLOW PREVENTION ASSEMBLY. THIS ASSEMBLY INSTALLATION MUST BE APPROVED IN WRITING BY THE CITY.
- IF THE FINAL WRITTEN ACCEPTANCE FROM THE CITY OF HENDERSONVILLE PRIOR TO ACTIVATION OF THE SYSTEM, WATER SERVICE AND CONNECTIONS SHALL BE PROVIDED BY THE ENGINEER. THE CITY DOES NOT PROVIDE ANY GUARANTEE OF ITS WATER SYSTEM'S CAPABILITY TO DELIVER WATER FLOW AND RESIDUAL PRESSURE THE FIELD PERMITTING AUTHORITY MAY REQUIRE.
- ALL PROJECT CLOSE OUT REQUIREMENTS.

WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL AND OTHER EXTRANEOUS MATERIAL AND PROPER DEWATERING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SALT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY WEIGHT LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS M, CL, SC, OR SM, OR BETTER PER ASTM D-2457 AND BE CAPABLE OF BEING COMPACTED TO 85% STANDARD PROCTOR.

TRACER WIRE SHALL BE EXTENDED ALONG ALL WATER LINES, FITTINGS, VALVES, SERVICES, AND HYDRANTS. LOCATING CLIPS SHALL BE PROVIDED AT ALL VALVES, HYDRANT VALVES AND METER BOXES. THE CONTRACTOR SHALL DUCT TAPE TRACER WIRE ON CROWN OF WATER LINE EVERY FIVE FEET.

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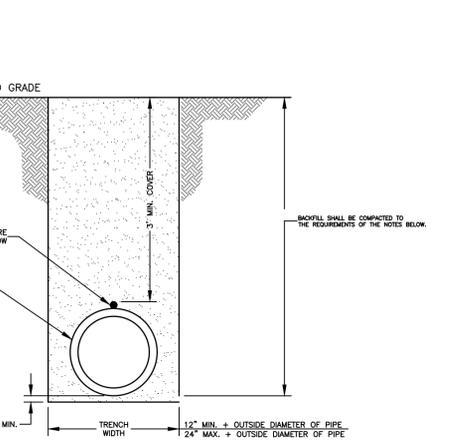
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- NOTES:
- TRENCHES EXCAVATED OUTSIDE EXISTING ROAD AND RAILWAY RIGHTS-OF-WAY SHALL BE BACKFILLED WITH COMMON BACKFILL MATERIAL CONSISTING OF EXCAVATED MATERIALS EXCEPT HIGHLY ORGANIC SILTS AND CLAYS AND TAMPED THOROUGHLY. FILL SHALL BE DEPOSITED IN SUCCESSIVE, UNIFORM, APPROXIMATELY HORIZONTAL LAYERS. MATERIAL SHALL BE FREE OF ROOTS, STONES, AND DEBRIS. ALL MATERIAL SHALL HAVE AN IN-PLACE DENSITY OF AT LEAST 85% OF MAXIMUM DRY DENSITY (STANDARD PROCTOR) OR AS APPROVED BY THE ENGINEER. COMMON BACKFILL SHALL NOT CONTAIN STONE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE, AND FROZEN SOIL WILL NOT BE PERMITTED.
 - WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL AND OTHER EXTRANEOUS MATERIAL AND PROPER DEWATERING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SALT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY WEIGHT LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS M, CL, SC, OR SM, OR BETTER PER ASTM D-2457 AND BE CAPABLE OF BEING COMPACTED TO 85% STANDARD PROCTOR.
 - THE WATER LINE SHALL HAVE A MINIMUM OF 3" OF COVER AT FINISHED GRADE.

TRACER WIRE WILL BE A 19 GAUGE, TIN COATED, COPPER CONDUCTOR WITH POLYETHYLENE INSULATION. CORE MATERIAL COMPRISED OF HIGH-TENSACITY, WOVEN POLYESTER WITH WATER BLOCKING YARNS ENCAPSULATED IN 30 MIL BLUE HOPE JACKET PROVIDING CORROSION RESISTANCE, FLEXIBILITY, IMPACT STRENGTH AND 1800 LBS. TENSILE STRENGTH. TRACER WIRE WILL NOT CONDUCT AN ELECTRICAL CURRENT WHEN STRUCK BY LIGHTNING AND IS DESIGNED FOR DIRECT BURY AND DIRECTIONAL BORING APPLICATIONS. WHEN SPLICES AND LATERAL CONNECTIONS ARE MADE, ONLY GEL FILLED CONNECTORS DESIGNED FOR WIRE WITH WOVEN POLYESTER FIBER CORE ARE TO BE USED. TRACER WIRE AND CONNECTORS SHALL BE TRACE-SAFE® WATER BLOCKING TRACER WIRE AND RELATED CONNECTORS, MANUFACTURED BY NEPTCO, INC., OR EQUIVALENT APPROVED BY ENGINEER, AND PRODUCED IN THE UNITED STATES OF AMERICA.

TRACER WIRE SHALL BE EXTENDED ALONG ALL WATER LINES, FITTINGS, VALVES, SERVICES, AND HYDRANTS. LOCATING CLIPS SHALL BE PROVIDED AT ALL VALVES, HYDRANT VALVES AND METER BOXES. THE CONTRACTOR SHALL DUCT TAPE TRACER WIRE ON CROWN OF WATER LINE EVERY FIVE FEET.

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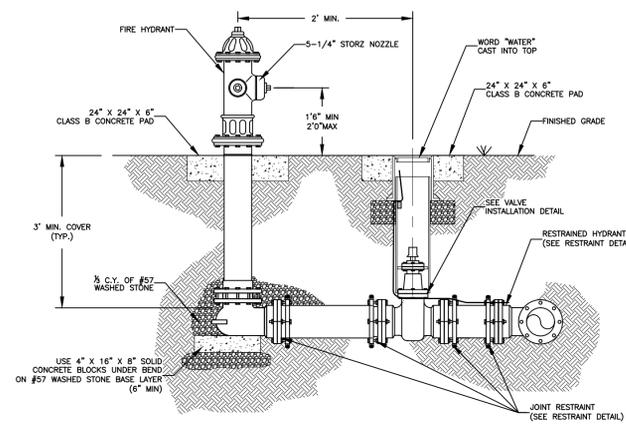
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TRACER WIRE SHALL BE EXTENDED ALONG ALL WATER LINES, FITTINGS, VALVES, SERVICES, AND HYDRANTS. LOCATING CLIPS SHALL BE PROVIDED AT ALL VALVES, HYDRANT VALVES

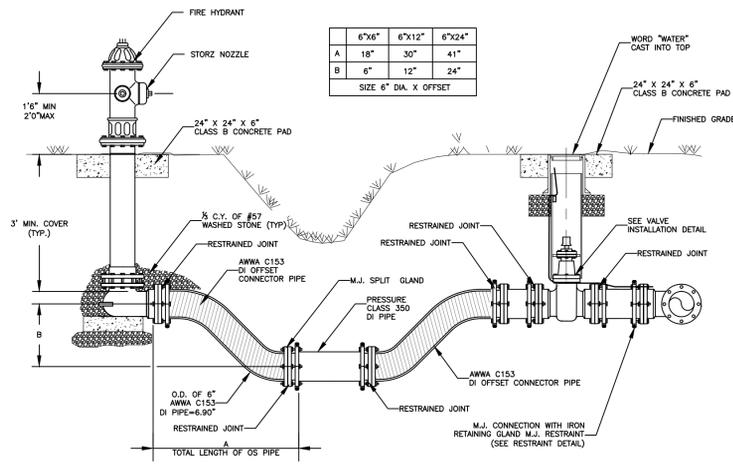


"The City of Four Seasons"
 City of Hendersonville Engineering Department
 305 Williams Street
 Hendersonville, NC 28733
 (828) 697-3000 (Office)
 (828) 697-3066 (Fax)
 www.cityofhendersonville.com



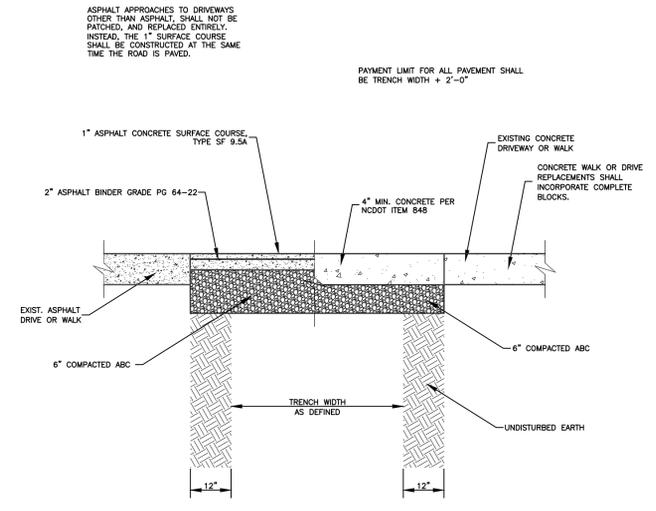
- NOTES:
- FIRE HYDRANTS SHALL BE RATED TO A MINIMUM 250 PSI WORKING PRESSURE IN ACCORDANCE WITH AWMA C-502 UNLESS SPECIFIED AS 350 PSI BY THE CITY. HYDRANTS SHALL HAVE A 5/8-INCH BARREL AND STORZ CONNECTION.
 - ALL VALVES AND HYDRANTS SHALL HAVE M. J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
 - FIRE HYDRANT SHALL BE FACTORY PAINTED YELLOW, WITH FIELD PAINTED TOUCH-UP, BEFORE PROJECT IS ACCEPTED.
 - HYDRANT VALVE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE MAIN, BUT DO NOT PLACE VALVE IN PROPOSED OR EXISTING CURB AND GUTTER, IF THE STREET IS SOIL AND NO PAVING IS TO BE DONE AT THIS TIME, THE LOCATION OF THE VALVE IS TO BE DETERMINED BY THE ENGINEER.
 - FIRE HYDRANTS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
 - HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY THE ENGINEER.
 - GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH STANDARD DETAIL.
 - HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY THE ENGINEER.
 - FIRE HYDRANTS WHICH HAVE BEEN INSTALLED MUST BE TAGGED "OUT OF SERVICE" AND BAGGED, UTILIZING A RED CHAINS BAG WITH WHITE LETTERING, UNTIL SUCH TIME AS THE WATER MAIN TO WHICH CONNECTED IS DISINFECTED AND CONNECTED TO THE ACTIVE WATER SYSTEM.

1 FIRE HYDRANT STANDARD INSTALLATION
 WD-2 NOT TO SCALE 08/14/20



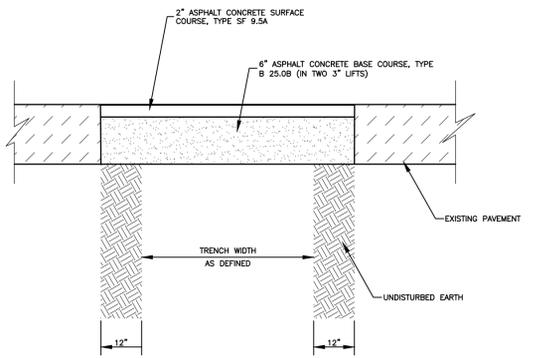
- NOTES:
- SEE FIRE HYDRANT STANDARD INSTALLATION DETAIL FOR ADDITIONAL REQUIREMENTS.
 - ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
 - FIRE HYDRANT OFFSET CONNECTOR SHALL BE PLACED AS APPROVED BY THE ENGINEER.
 - OFFSET CONNECTOR SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY ENGINEER.

2 FIRE HYDRANT DITCH INSTALLATION
 WD-2 NOT TO SCALE 08/14/20



- GENERAL PAVEMENT NOTE:
 WHERE EDGES OF REPLACED SECTIONS EXTENDS WITHIN 2'-0" OF ROADWAY EDGE, PAVEMENT IS TO BE REPLACED TO ROADWAY EDGE AT NO ADDITIONAL COST.
- PAYMENT LIMIT FOR ALL PAVEMENT SHALL BE TRENCH WIDTH + 2'-0"
- * 4" MIN FOR CONCRETE SIDEWALK REPLACEMENT, 6" FOR DRIVEWAYS, OR DRIVE APPROX REPLACEMENT.

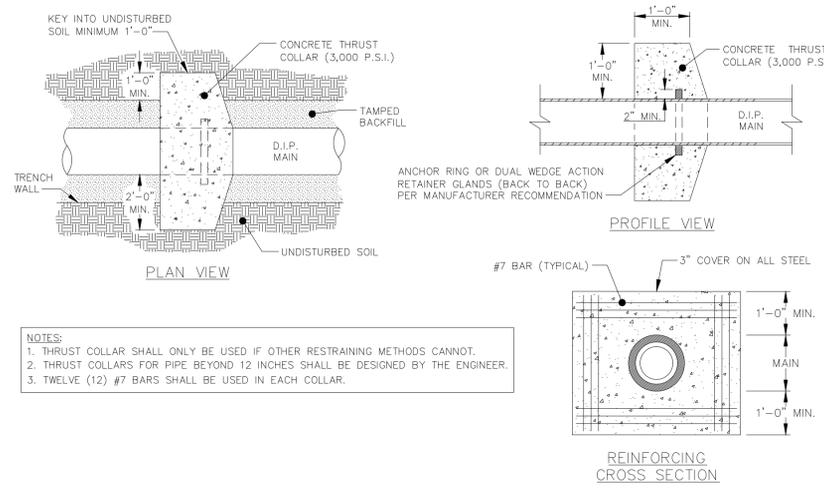
3 ASPHALT OR CONCRETE DRIVEWAY AND WALKWAY
 WD-2 NOT TO SCALE 08/14/20



GENERAL PAVEMENT NOTE:
 WHERE EDGES OF REPLACED SECTIONS EXTENDS WITHIN 2'-0" OF ROADWAY EDGE, PAVEMENT IS TO BE REPLACED TO ROADWAY EDGE AT NO ADDITIONAL COST.

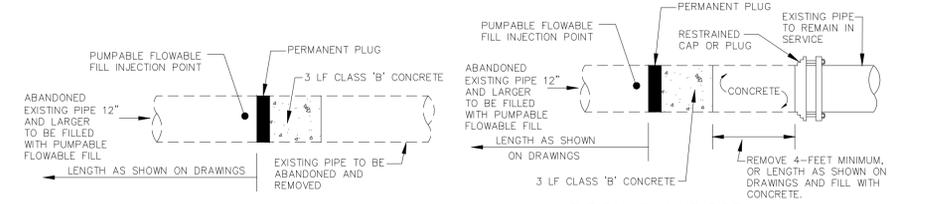
PAYMENT LIMIT FOR ALL PAVEMENT SHALL BE TRENCH WIDTH + 2'-0"

4 ASPHALT CONCRETE REPLACEMENT
 WD-2 NOT TO SCALE 08/14/20

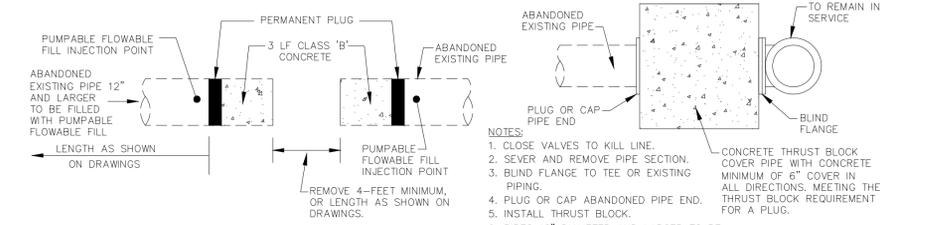


- NOTES:
- THRUST COLLAR SHALL ONLY BE USED IF OTHER RESTRAINING METHODS CANNOT.
 - THRUST COLLARS FOR PIPE BEYOND 12 INCHES SHALL BE DESIGNED BY THE ENGINEER.
 - TWELVE (12) #7 BARS SHALL BE USED IN EACH COLLAR.

5 STANDARD THRUST COLLAR INSTALLATION (FOR PIPE DIAMETERS 4" - 12")
 WD-2 NOT TO SCALE 08/14/20



A. TYPICAL CUT AND PLUG



B. TYPICAL IN-LINE PIPE CUT AND RESTRAINT PLUG



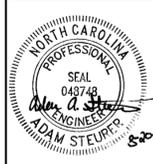
C. TYPICAL IN-LINE PIPE CUT AND PLUG



D. EXISTING WATER LINE CUT AND CAP

6 STANDARD CUT AND CAPS FOR WATER LINE
 WD-2 NOT TO SCALE 08/14/20

NO.	DATE	DESCRIPTION	BY



DETAILS FOR:
HEBRON PRESSURE ZONE IMPROVEMENTS
 CITY OF HENDERSONVILLE
 HENDERSON COUNTY, NORTH CAROLINA

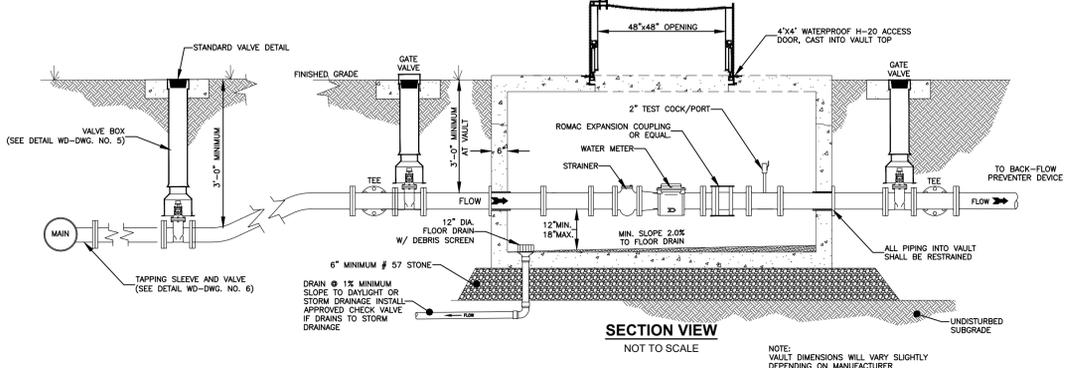
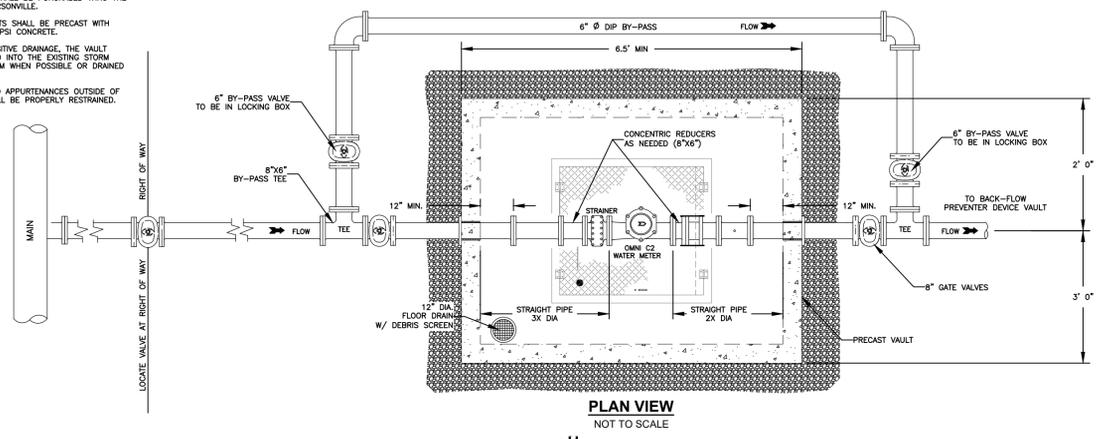
DATE: AUGUST 18, 2020
 DRAWN BY: MMP
 PROJECT NO.: 19037

DISCLAIMER:
 THE STANDARD WATER DETAILS ARE FOR THE SOLE USE OF PROJECTS DIRECTLY FOR, OR THOSE PROJECTS IN WHICH OWNERSHIP WILL BE TRANSFERRED TO THE CITY OF HENDERSONVILLE. THESE TYPICALS ARE INTENDED TO SHOW THE CITY OF HENDERSONVILLE'S EXPECTATIONS FOR THE GENERAL LAYOUT, ARRANGEMENT, AND THE QUALITY OF EQUIPMENT AND MATERIALS FOR WATER DISTRIBUTION SYSTEM ITEMS AND THEIR RELATED APPURTENANCES. IT REMAINS THE SOLE RESPONSIBILITY OF THE ENGINEER IN RESPONSIBLE CHARGE (ERC) OF EACH APPLICATION TO DETERMINE, DESIGN TO, AND CERTIFY TO THE DESIGN PARAMETERS FOR EACH INSTALLATION. THE ERC MUST ALSO ENSURE THE DESIGN COMPLIES WITH THE MINIMUM DESIGN CRITERIA OF NC DIVISION OF ENVIRONMENTAL QUALITY AND ALL LOCAL AND STATE LAWS AND REGULATIONS.

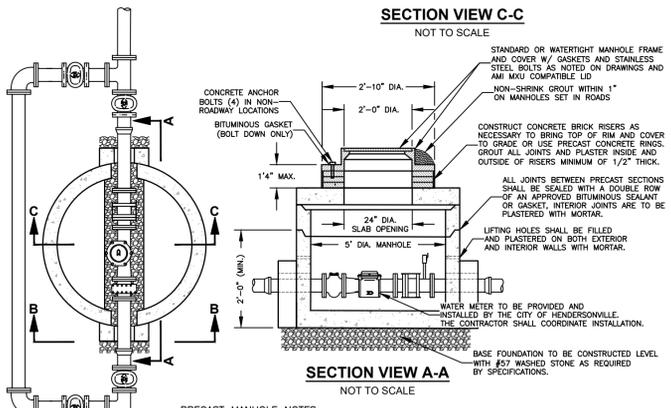
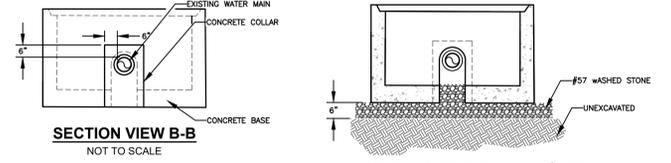


WD-2

- GENERAL NOTES:**
- METER ASSEMBLY TO BE ELECTROMAGNETIC FLOW METER WITH DUCTILE IRON FLANGED PIPE.
 - METER DEVICE SHALL BE PURCHASED THRU THE CITY OF HENDERSONVILLE.
 - CONCRETE VAULTS SHALL BE PRECAST WITH MINIMUM 4,000 PSI CONCRETE.
 - TO ENSURE POSITIVE DRAINAGE, THE VAULT SHOULD BE TIED INTO THE EXISTING STORM DRAINAGE SYSTEM WHEN POSSIBLE OR DRAINED TO DAYLIGHT.
 - ALL FITTINGS AND APPURTENANCES OUTSIDE OF THE VAULT SHALL BE PROPERLY RESTRAINED.



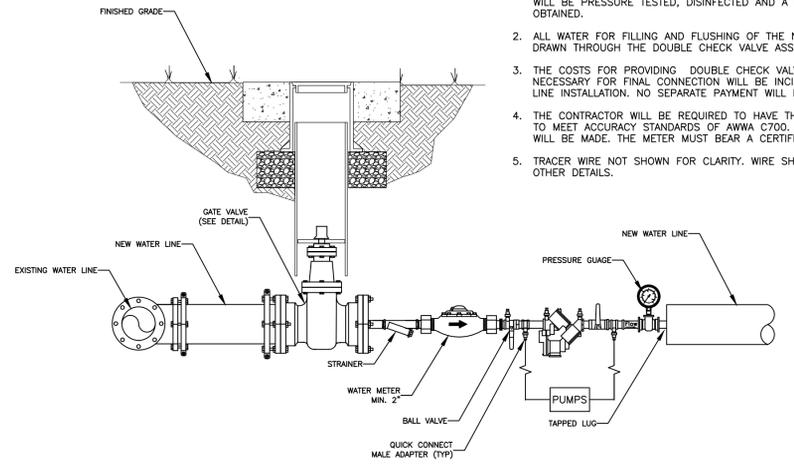
1 4" THRU 8" METER & VAULT DETAIL
WD-3 NOT TO SCALE 08/14/20



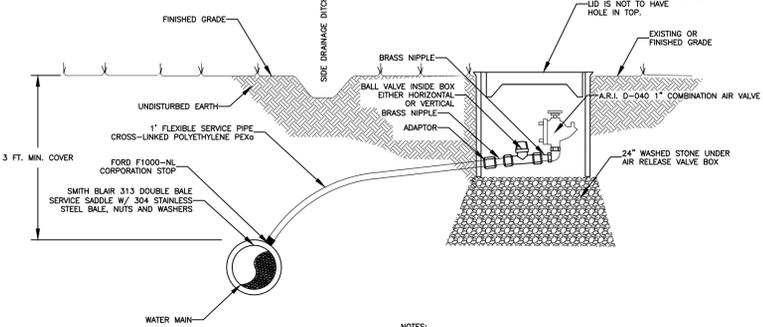
- PRECAST MANHOLE NOTES:**
- ALL PRECAST MANHOLE COMPONENTS SHALL MEET REQUIREMENTS OF ASTM C-478, LATEST REVISION AND ASTM C-890.
 - ALL MANHOLES SHALL BE CONSTRUCTED PLUMB.
 - THE PRECAST SUPPLIER SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF THE STRUCTURE AND, WHEN REQUESTED BY THE ENGINEER, SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS WHICH HAVE BEEN SIGNED AND SEALED BY A REGISTERED STRUCTURAL ENGINEER.
 - ALL MANHOLE GRADES SHOWN ON THE PLANS ARE FOR THE INVERT OF THE MANHOLE CENTER.
 - IF THE MANHOLE IS SET IN A LOCATION OF HIGH WATER TABLE OR UNDERGROUND WATER IS ENCOUNTERED, THE CONTRACTOR SHALL INSTALL UNDERDRAINS AND STONE AS DIRECTED IN THE FIELD BY THE ENGINEER.
 - STEPS SHALL BE INSTALLED ON STRAIGHT SIDE OF MANHOLE.

2 METER MANHOLE OVER WATERLINE
WD-3 NOT TO SCALE 08/14/20

- GENERAL NOTES:**
- PRIOR TO CONNECTING TO THE EXISTING WATERLINE, THE NEW WATER LINE WILL BE PRESSURE TESTED, DISINFECTED AND A CLEAR WATER SAMPLE OBTAINED.
 - ALL WATER FOR FILLING AND FLUSHING OF THE NEW WATER LINE WILL BE DRAWN THROUGH THE DOUBLE CHECK VALVE ASSEMBLY.
 - THE COSTS FOR PROVIDING DOUBLE CHECK VALVE ASSEMBLY AND SLEEVE NECESSARY FOR FINAL CONNECTION WILL BE INCIDENTAL TO THE WATER LINE INSTALLATION. NO SEPARATE PAYMENT WILL BE MADE.
 - THE CONTRACTOR WILL BE REQUIRED TO HAVE THE WATER METER TESTED TO MEET ACCURACY STANDARDS OF AWWA C700. NO SEPARATE PAYMENT WILL BE MADE. THE METER MUST BEAR A CERTIFICATION TAG AT ALL TIMES.
 - TRACER WIRE NOT SHOWN FOR CLARITY. WIRE SHALL BE INSTALLED PER OTHER DETAILS.



3 NEW WATER LINE PRESSURE TEST BACKFLOW PREVENTION ASSEMBLY
WD-3 NOT TO SCALE 08/14/20



- NOTES:**
- PIPE AND FITTINGS SIZE SHALL MATCH THE SIZE OF THE PROPOSED AIR RELEASE VALVE TO BE INSTALLED.
 - LOCATION TO BE THE SAME AS METER BOX DETAILS.
 - TRACER WIRE NOT SHOWN FOR CLARITY. TRACER WIRE SHALL BE CONNECTED TO WATER MAIN TRACER USING CONNECTORS APPROVED BY THE MANUFACTURERS (SEE VALVE BOX INSTALLATION).
 - ACTUAL LOCATION OF AIR RELEASE VALVE SHALL BE COORDINATED WITH THE CITY AND PROPERTY OWNER.

4 STANDARD AIR RELEASE VALVE INSTALLATION
WD-3 NOT TO SCALE 08/14/20

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CITY OF HENDERSONVILLE, NC
"The City of Four Seasons"
City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28840
(828) 697-3000 (City)
(828) 697-3065 (Fax)
www.cityofhendersonville.org

NO.	DATE	DESCRIPTION	BY



HEBRON PRESSURE ZONE IMPROVEMENTS
CITY OF HENDERSONVILLE
HENDERSON COUNTY, NORTH CAROLINA

DATE: AUGUST 18, 2020
DRAWN BY: MMP
PROJECT NO.: 19037



WD-3

INFORMAL BIDDING DOCUMENTS

CITY OF HENDERSONVILLE, HENDERSON COUNTY, NC
FOR THE CONSTRUCTION OF THE
HEBRON PRESSURE ZONE WATER IMPROVEMENTS

SEPTEMBER 2020

INFORMAL BID OPENING: 11:00 am, October 23, 2020

TABLE OF CONTENTS

REQUIRED BID DOCUMENTS LISTR-1

INVITATION TO BID I-1

INSTRUCTIONS TO BIDDERS IB-1 through IB-11

PROPOSAL

 Proposal Form P-1 through P-5

 Summary Sheet P-6

 Agreement Form P-7

 Non-collusion Affidavit P-8

AGREEMENT AG-1 through AG-4

PROJECT FORMS

 Notice of Award..... PF-1

 Acceptance of Notice PF-2

 Payment Bond..... PF-3 through PF-5

 Performance Bond PF-6 through PF-8

 Notice to Proceed..... PF-9

 Certificate of Substantial Completion..... PF-10

 EJCDC C-620 Contractor's Application for Payment 1 through 4

 EJCDC C-940 Work Change Directive 1

 EJCDC C-941 Change Order 1

EJCDC C-700 STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT 1-65

SUPPLEMENTARY CONDITIONS 00800-1 through 00800-9

PERMITS

 NCDEQ Engineering Plans and Specifications Approval 1-2

ITEM SPECIFICATIONS1-64

REQUIRED BID DOCUMENTS

REQUIRED BID DOCUMENTS LIST

The following is a list of all documents, which must be completed and submitted with each bid.

Proposal Form

Summary Sheet

Agreement Form

Non-collusion Affidavit

INVITATION TO BID

INVITATION TO BID

Informal bids will be received by the City of Hendersonville until 11:00 am on October 23, 2020 for the furnishing of materials, labor, and equipment for the construction of the Hebron Pressure Zone Water Improvements project. Informal bids may be either delivered to the City of Hendersonville Operations Center, 305 Williams Street, Hendersonville, NC 28792 or emailed in PDF format to Adam Steurer at asteurer@hvlnc.gov. All informal bids, whether delivered or emailed, must be received by October 23, 2020, at 11:00 am to be considered.

The project consists installation of approximately 2,075 linear feet of 6-inch and 8-inch diameter ductile iron water main and appurtances; two master meter vaults and associated piping; abandonment of an existing water pumping station; and all other work shown on the Drawings and described in the Specifications. Connections to the existing water distribution system will be made at several locations as shown on the Drawings. The project's intent is to boost pressures and available fire flows.

There will *not* be a pre-bid conference for this project.

There will *not* be a public bid opening for this project.

Each Bidder must be licensed under Chapter 87 of the North Carolina General Statute.

The City reserves the right to waive any informality, to reject any and all proposals, and to award a contract which, in its judgment, is in the best interest of the City of Hendersonville. It is the policy of the City to award public building contracts without regard to race, religion, color, creed, national origin, sex, age or disabling condition.



City of Hendersonville, NC
Adam Steurer, PE
Utilities Engineer
September 2020

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

Copies of Bidding Documents

Complete sets of the Bidding Documents may be obtained electronically via instructions on the City's website or as stated in the Invitation to Bid. Complete sets of Bidding Documents must be used in preparing Bids; neither the City nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

Qualifications of Bidders

Each bidder shall submit in writing with its Bid a detailed written statement to show to the reasonable satisfaction of the City that he or she has sufficient equipment, labor experience, ability and resources to satisfactorily perform the entire work in accordance with the provisions of the contract and specifications. Each bidder must state in full detail, on its Proposal, its experience in this class of work.

Where a portion of the Contract is to be performed by a subcontractor, the name and address of each contractor and a detailed description of the experience of this subcontractor shall be included for the type or portion of work he or she is to construct. If the City or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, the City may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid. If the apparent Successful Bidder declines to make any such substitution, the City may award the Contract to the next lowest responsible Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities.

Examination of Bidding Documents, Other Related Data, and Site

Bidders are required to satisfy themselves by personal examination of the contract documents and investigation at the site of the Work as to existing conditions and the difficulties likely to be encountered in the performance of the Work. Each Bidder should inform him or herself fully of the conditions relating to construction and labor under which the work is now being or will be performed. Failure to do so will not relieve a successful bidder of his or her obligation to furnish all material and labor necessary to carry out the provisions of the Contract Documents and to complete the contemplated work for the consideration set forth in his or her Bid. Each Bidder shall become familiar with and satisfy itself as to all Federal, State, and local Laws and Regulations that may affect cost, progress, or performance of the Work.

Copies of reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents, if available, will be provided by the City to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

Each Bidder shall obtain and carefully study (or accept consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto. Each Bidder shall agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

Bidders are advised to note the possibility of encountering groundwater and rock at various locations along the project site. No additional compensation, other than what is presently provided for the bid proposal, will be allowed for expenses incurred due to soils, groundwater, or rock conditions. No compensation will be given for any soils investigation done by the Bidders.

Subject to the convenience of the City, Bidders will be permitted to explore the site by making borings or digging test pits. In such event, the work shall be done at the sole expense and risk of the Bidder and he or she shall restore the site to its original condition to the satisfaction of the Engineer.

The bidder must, at his or her own risk, inspect the sites of the proposed work and assume all risk as to the nature and behavior of the soil which may be encountered or of soil or water which underlies the work of or is adjacent thereto, including any difficulties that may be due to unfavorable conditions that may be encountered in the work whether apparent upon surface inspection or disclosed only in the process of carrying forward the work.

Furthermore, submission of a Bid shall be considered evidence that the Bidder has carefully examined the site of the proposed work, that the Bidder is satisfied as to the nature of the subsurface conditions to be encountered in performing the Work, and that the Bidder has performed all necessary additional subsurface investigations preparatory to submitting an informed and intelligent bid and to undertaking performance of the proposed Work. The submission of a Proposal shall be deemed an acknowledgment that the conditions and difficulties encountered in the execution of the work are fully and completely appreciated and that the drawings, specifications and Contract Documents are fully understood.

No plea of ignorance of conditions that exist, or of conditions or difficulties that may be encountered in the execution of the work, as a result of failure to make such examination and investigation, will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every respect all of the requirements of the Contract, nor will the same be accepted as a basis for any claim whatsoever for extra compensation or for an extension of time.

Interpretation of Contract Documents

Bidders are advised to carefully examine the Contract Drawings and specifications for the proposed work. The Contract Drawings show the surface and other underground structures and utilities likely to affect the prosecution of the work, (insofar as they have been determined), but the information shown is not guaranteed as being correct and complete. Bidders are expected to examine the Contract Drawings and the location of the work upon the ground and to judge for themselves of all the circumstances affecting the cost of the work or the time required for its completion.

In the event of discrepancies between the Specifications and information contained in or shown on the Drawings, the Specifications shall govern. Neither the City nor the Engineer will make any oral interpretation of the meaning of the plans, specifications, or other Contract Documents, to any Bidder, nor will any preference or approval be expressed in any way for any materials, or equipment prior to the receipt of the proposals.

In the event, of any error, omission or discrepancy in the Contract Drawings or between the drawings and specifications, the Bidder shall request any interpretation in writing in advance of the taking of bids. Failing to do so, the Contractor must accept the ruling of the Engineer as to the correct intent.

If any person, contemplating submitting a Bid for the proposed Project, is in doubt as to the true meaning of any part of the Contract Documents, they may submit to the Engineer, a written request for an interpretation thereof. Requests for interpretation shall be used for discrepancies, errors, clarifications, unspecified product substitutions, or other questions pertaining to the contract documents and drawings in relation to bidding issues. Non-written responses of any nature will not be considered valid in relation to bidding issues. Send requests to: City of Hendersonville, Water and Sewer Department, 305 Williams Street, Hendersonville, NC 28792, Attention: Adam Steurer, PE; email: asteurer@hvlnc.gov.

Prospective bidders shall submit written requests of said questions to the Engineer, at least three (3) calendar days before the Bid Opening date. Requests received after this time may not be considered. The person submitting the request will be responsible for its prompt delivery.

Pre-Bid Conference

A pre-bid conference will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

Site and Other Areas

The Site and potential easement areas are identified in the Bidding Documents. Any easements and/or access agreements anticipated to be necessary to complete the work will be obtained by the City prior to commencement of the portion of work within the referenced area.

Permits and Licenses

Necessary permits for construction along state and interstate routes and for railroad and stream crossings shall be obtained and paid for by the City for the Successful Bidder. Costs incurred by such construction, including but not limited to traffic control and state inspection, shall be paid by the Successful Bidder. The Successful Bidder shall, at his expense, obtain all other necessary permits, including any building and/or electrical permits required by Henderson County. The Successful Bidder shall be responsible for fulfilling all conditions and requirements of the permits, including payment of any required fees associated with obtaining the permits.

Commencement and Completion

Bidders are required to satisfy themselves that they have sufficient equipment and facilities available to complete the work as and when specified. Any bid which stipulates that the work will be performed in a period of time greater than that specified shall be deemed irregular.

Taxes

The City is exempt from North Carolina State sales and use taxes on materials and equipment to be incorporated into the work. Said taxes shall be included in the Bid. Each request for progress payment submitted by the Contractor shall include a sales tax reimbursement statement.

Addenda

Any interpretation of the Contract Documents will be made only by Addendum duly issued. A copy of such Addendum will be mailed, faxed, emailed or delivered to each person receiving a set of such Contract Documents. No Addendum will be issued to Bidders having incomplete sets of Drawings and/or Specifications. Any such Addendum shall become part of the Contract Documents. Each Bidder shall note that all Addenda were received in their Proposal. Failure of any Bidder to receive any Addendum shall not relieve the Bidder from any obligation under his Bid as submitted. The City will not be responsible for any other explanation or interpretation of the Contract Documents. The City will also not be responsible for any errors in the prospective bidders' address, email address, phone number, and/or fax number.

Time of Completion

The Contractor agrees to commence work no later than three (3) days after the commencement date specified in the Notice to Proceed. The Work will be completed and ready for final payment within **120** consecutive calendar days after the commencement date specified in the Notice to Proceed.

Liquidated Damages

Contractor and Owner recognize that time is of the essence and that Owner will suffer financial loss if the Work is not completed within the times specified above, plus any extensions thereof allowed in accordance with the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner **\$500.00** for each calendar day that expires after the time

specified above for completion and readiness for final payment until the Work is completed and ready for final payment. The said amounts are fixed because of the impracticability and extreme difficulty of determining and fixing the actual additional costs the City would in such event sustain, and said amount is agreed to be the amount of damages which the City would sustain. Such amounts may be deducted by the City from any payment due or to become due to the Contractor.

Time is of the essence for each and every portion of the Project and of the Specifications wherein a definite and certain length of time is fixed for the performance of any act. Where an additional time is allowed for the completion of any work, the new time fixed by such extension shall control. The Contractor shall not be charged with liquidated damages when the City determines the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the City, providing the Contractor shall, within ten (10) days from the beginning of such delay, notify the City, in writing, of the causes of delay. All such extensions of time shall be by fully executed Change Orders.

Substitute and "Or-Equal" Items

The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.

All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

Subcontractors, Suppliers and Others

Subcontractors at any tier are required to comply with the City's insurance requirements which, unless stated differently, are the same as those required of Prime Contractor's.

Where a portion of the Contract is to be performed by a subcontractor, the name and address of each contractor and a detailed description of the experience of this subcontractor shall be included for the type or portion of work he is to construct. If the City or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, the City may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid. If the apparent Successful Bidder declines to make any such substitution, the City may award the Contract to the next lowest responsible Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder.

Interpretation of Quantities in the Bid Proposal

The quantities listed in the Bid proposal are to be considered as approximate and are to be used only for the comparison of the Bids and as a basis for computing amounts of security or penal sums of Bonds to be furnished. The Bidder is presumed to have verified the quantities and is required to report any discrepancies to the Engineer before the date of Bid Opening. The Engineer expressly reserves the right to increase, decrease or omit any item that it may deem advisable. Payments, except for lump sum Bids, and except for lump sum items in the proposal, will be made to the Contractor for the actual quantities only if work performed or materials furnished is in accordance with the Contract Documents.

Evaluation of Bids

The proposal form included in the Contract Documents shall be used by all Bidders. All blanks on the form shall be stated in both words and figures, and in the event of any discrepancy between the two, the amount written in words shall govern. Any interlineations, alterations or erasures shall be initialed by the signer of the proposal. After the proposals are opened, they will be compared on the basis of the individual and combined Bidder's Total. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

In evaluating bids, particular attention will be given to materials, which the Bidder proposes to use, the order of execution, methods of construction, the general conduct of the work and the arrangement of the construction. Bidders shall, prior to the award of the Contract, be prepared to discuss in detail, all matters relating to these special features of the work with the end view that the City may obtain high-grade workmanship. Attention is called to the fact that the Successful Bidder shall conduct his work so that there shall be no undue interference with traffic or inconvenience to local property owners, residents, and/or businesses.

The right is reserved to reject any or all Proposals; to waive informalities, irregularities or defects; to accept any Proposal or combination of Proposals; to accept a Proposal other than the lowest submitted; to negotiate contract terms with the Successful Bidder; or to advertise for new proposals, if in the judgment of the City, its best interests will be promoted thereby. Any Bidder may be required by the City to furnish the City with a complete breakdown of the lump sum Bid items, to the satisfaction of the City before executing an Agreement. The lump sum breakdown shall be in sufficient detail to provide a check of claims for partial payments requests.

Investigation of Bidders

The City may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the City all such information and data for this purpose as the City may request. In determining the award, consideration will be given to (a) whether the Bidder maintains a permanent place of business, (b) suitability of the Bidder's

plant and equipment for the work, (c) Bidder's financial status and organization, (d) Bidder's record of experience in constructing improvements of this type, and (e) lowest Bid. The City reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

Submission of Bid Proposals

Bid proposals must be submitted on the proposal forms contained in the Contract Documents and Specifications and must be submitted in their entirety as instructed in the Invitation to Bid. Proposals must be received by the City of Hendersonville by the time and date in the Invitation to Bid. No Bid Proposals, regardless of the circumstances, will be accepted if submitted after the advertised Bid Opening. The Bid Proposal must be signed in ink by the individual owner, if the Bidder is a proprietorship, or by an officer, authorized representative, or agent if the Bidder is a corporation, partnership, Limited Liability Company or other entity. The Bidder's complete name and business address must be shown. Additionally, if the Bidder is a joint venture, the name and business address of each individual entity participating in the joint venture must be shown. Anyone signing a Bid Proposal as an authorized representative or agent must designate in what capacity he or she is signing the Bid Proposal and provide sufficient evidence of his or her authority to do so. The submission of a Bid Proposal shall constitute an incontrovertible representation by the Bidder that it has complied with every requirement stated herein and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

Withdrawal of Bid Proposals

Proposals may be withdrawn at any time before the scheduled closing time for receipt of bids but may not be modified and resubmitted. No proposal or bid security may be withdrawn or modified after the scheduled closing time for submission of proposals for at least sixty (60) days, except as provided in Section 143-129.1 of the North Carolina General Statute. Proposals may be held by the City for a period not to exceed sixty (60) days from the date of bid opening for the purpose of reviewing the proposals and investigating the qualifications of Bidders prior to the Award of the Contract.

Rejection of Bid Proposals

The City reserves the unqualified right to reject any or all proposals received, or parts thereof. Blank spaces in the Proposal must be properly filled in and the phraseology of the Proposal must not be changed. Additions, qualifications or limitations must not be made to the items mentioned therein and any unauthorized conditions, limitations or provisions attached to a Proposal will be liable to render it informal and may cause its rejection. The right is reserved to waive informalities, irregularities, or defects, as the interest of the City may require; and to accept any Proposal or combination of Proposals or to accept a Proposal other than the lowest submitted, which is deemed to be in the City's best interest. Bid proposals may be considered irregular and may be rejected for any of the following reasons:

- a. If the proposal is on a form other than that furnished; or if the form is altered or any part thereof is detached.
- b. More than one Proposal for the same work is tendered from an individual, firm, or corporation under the same name or different names, or from corporations with one or more of the same persons as officers of such corporations, or from corporations who are holding companies, parent companies or holding companies which are subsidiaries of such corporations.
- c. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
- d. If the Bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
- e. If the proposal does not contain a unit price, for each pay item listed, except in the case of authorized alternate pay items or lump sum items.
- f. Bid prices are unbalanced.
- g. Lack of competency or adequate labor, machinery, plant and other equipment.
- h. Evidence of collusion among Bidders.
- i. Other uncompleted work, whether or not with the City, which, in the judgment of the City, might hinder or prevent the prompt completion of this Work if awarded.
- j. Failure to respond to request for clarification of the Bid within seven (7) calendar days.
- k. The City reserves the right to disqualify or to reject any Bid for any other reasonable cause.

Award of Contract

After the proposals are opened, they will be compared on the basis of the Bidder's Total Base Bid, which is the summation of the products of the approximate quantities shown in the proposal by the total (sum of labor and material) price of all standard items. The Bidder's Total Base Bid shall be the summation of only the standard bid items.

The City reserves the right to reject any or all Proposals, or parts thereof, to waive any informalities, irregularities, or defects in the Proposals received, to accept a Proposal other than the lowest submitted or to accept any proposals or combination of proposals that are deemed to be in the City's best interest. Unbalancing of a bid may be cause of rejection.

The award of the work, if it is awarded, will be made as soon as is reasonably possible after the opening of the Bids, but not later than sixty (60) days. In no case will an award be made until all necessary investigations are made as to the responsibility of the Bidder to whom it is proposed to award the contract.

The City reserves the right to rescind the award of the work at any time before the execution of the Contract by all parties without incurring any liability. Therefore, if the Contractor changes its position, economically or otherwise, after receiving a verbal or written notice of award and in reliance upon the City executing the Contract, the Contractor agrees to do so solely at its own risk and the City will not incur any liability from the Contractor's change of position.

The lowest responsible and responsive Bidder, taking into consideration quality, performance and the time specified in the Proposal for the performance of the contract, to whom the work is awarded will be required to execute the Contract and to furnish the required Bond, Certificates of Insurance, and other documents within ten (10) calendar days from the date when Notice of Award is communicated in writing or orally to the Bidder. In case of failure of the Bidder to execute the Contract, the City may, at its option, consider the Bidder in default, in which case the Bidder will be subject to liability as set forth in North Carolina General Statute. The award may then be made to the next lowest responsible and responsive Bidder, or the work may be re-advertised as the City may decide.

Notice to Proceed

After the award of the Contract to the successful bidder, the Contractor shall not proceed with any work on the site until the Contractor has received a Notice to Proceed from the City. Materials may be ordered and other preparatory steps accomplished in this interim period. The Notice to Proceed shall be communicated in writing or orally to the Contractor within ten (10) days of the execution of the Contract by the City. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual Agreement between the City and Contractor.

Contract Security and Insurance

Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by such bonds.

Form of Contract Security

All Contract Security shall be signed by an authorized agent of an acceptable Surety Bonding Company and by the Bidder. Surety Bonding Company bonds shall be supported by credentials showing the power of attorney of the agent, the Certificate showing the legal rights of the Bonding Company to do business in the State of North Carolina, and a financial statement of the surety. These supporting credentials need only be furnished by the successful Bidder upon the award of the work.

A bid shall be deemed non-responsive and shall be rejected if the bidder submits with its bond a contract bond, payment bond, or combination of such bonds, executed by a Surety Company not licensed or approved by the State of North Carolina.

E-Verify

The Contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if the Contractor uses a subcontractor, the Contractor shall contractually require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes.

PROPOSAL

PROPOSAL FORM
FOR THE CONSTRUCTION OF

Hebron Pressure Zone Water Improvements

This Bid is submitted to the City of Hendersonville, Henderson County, North Carolina.

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for sixty (60) days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

In submitting this Bid, Bidder represents that:

Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

Bidder certifies that:

This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

Bidder has not solicited or induced any individual or entity to refrain from bidding; and

Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this paragraph:

“corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

“fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

“collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

“coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Bid Proposal - Hebron Pressure Zone Water Improvements					
Item	Pay Item	ESTIMATED QTY	UNIT	UNIT PRICE	SUBTOTAL
2.2	Mobilization	1	LS		\$ -
2.3	Traffic Control	1	LS		\$ -
2.16	Abandon Pump Station	1	LS		\$ -
3.5	DIP Water Pipe including fittings , 6-inch	1550	LF		\$ -
3.5	DIP Water Pipe including rest. fittings , 6-inch	450	LF		\$ -
3.5	DIP Water Pipe including rest. fittings, 8-inch	75	LF		\$ -
3.6	Valve, resilient gate valve, 2-inch	1	EA		\$ -
3.6	Valve, resilient gate valve, 6-inch	14	EA		\$ -
3.6	Valve, resilient gate valve, 8-inch	2	EA		\$ -
3.7	Connection to Existing 6" Water Main #1 - Crystal Spring Drive, W-1	1	EA		\$ -
3.7	Connection to Existing 6" Water Main #2 - Laurel Park PS, W-2	1	EA		\$ -
3.7	Connection to Existing 8" Water Main #3 - Laurel Park PS, W-2	1	EA		\$ -
3.7	Connection to Existing 6" Water Main #4 - Hebron Road/N Overlook, W-4	1	EA		\$ -
3.7	Connection to Existing 6" Water Main #5 - Hebron Road/Chariton, W-5	1	EA		\$ -
3.7	Connection to Existing 4" Water Main #6 - Ewart Drive/Chariton, W-6	1	EA		\$ -
3.8	COH Standard Fire Hydrant Assembly, 250 PSI	1	EA		\$ -
3.9	Air Release Valve, 1-inch	1	EA		\$ -
3.10	Large Meter Vault and Assembly inc. bypass 6-inch, meter manhole WD-3,2, Davis Mtn Road 6" meter provided by City	1	EA		\$ -
3.10	Large Meter Vault and Assembly inc. bypass 6-inch, meter vault WD-3,1, Laurel Park PS 6" meter provided by City	1	EA		\$ -
3.11	Water Service Connection, Short Service, 1-inch	5	EA		\$ -
3.11	Water Service Connection, Long Service, 1-inch	4	EA		\$ -
3.11	Water Service Connection, Short Service and Meter Box, 1-inch	6	EA		\$ -
3.11	Water Service Connection, Long Service and Meter Box, 1-inch	4	EA		\$ -
3.12	Abandon Existing 2-inch Water Main - Crystal Springs Drive	1	EA		\$ -
3.12	Abandon Existing 8-inch Water Main - Laurel Park Pump Station	1	EA		\$ -
3.12	Abandon Existing 2-inch Water Main - Chariton Avenue (both ends)	2	EA		\$ -
2.10	Remove & Replace Roadway Asphalt, per detail WD-2, 5	175	SY		\$ -
2.10	Remove & Replace Roadway Asphalt, per NCDOT detail 654.01	80	SY		\$ -
2.11	Remove & Replace asphalt and driveway detail WD-2, 3	10	SY		\$ -
2.11	Remove & Replace concrete and driveway detail WD-2,3	15	SY		\$ -
2.13	Gravel Driveway Repair, ABC Stone	50	TN		\$ -
2.14	Restoration and permanent seeding	1	LS		\$ -
2.5	Erosion Control, Silt Fence, as approved by Engineer	800	LF		\$ -
2.6	Rock Excavation, as approved by Engineer	50	CY		\$ -
2.7	Select Backfill Material, as approved by Engineer	50	CY		\$ -

2.8	Stone Embedment and Undercut, 6-inch depth, #57 Stone, as approved by Engineer	100	LF		\$ -
2.9	Incidental Stone, #57 Stone, as approved by Engineer	50	TN		\$ -
2.9	Incidental Stone, Rip Rap, as approved by Engineer	50	TN		\$ -
2.9	Incidental Stone, ABC, as approved by Engineer	50	TN		\$ -

BID TOTAL

Bidder acknowledges that the estimated quantities of items of Unit Price Work are not guaranteed, and are solely for the purpose of comparison of Bids, and determining an initial Contract Price. Final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

It is understood, further, that the quantities in the column headed "Estimated Quantity" are those which will be used in determining the total amount of each proposal for this improvement and for the purpose of determining the lowest bidder, but it is understood and agreed that these quantities are approximate only, and that the Contractor to whom the contract is awarded shall not be entitled to any claim for loss of profits, or for other damages, should the quantity of work done prove to be greater or less than is herein given in said estimated quantity columns.

Bidder agrees that the Work will be completed and ready for final payment within **one hundred-twenty (120) calendar days** after the date when the Contract Times commence to run. Bidder accepts the provisions of the Agreement as to liquidated damages.

SUMMARY SHEET

Hebron Pressure Zone Water Improvements

Contractor: _____

Address: _____

Phone No. _____ Fax No. _____

E-Mail _____

*Authorized Signature:

Total Bid Proposal:
\$ _____

Total Bid Proposal in Words:

Completion Time 120
(Consecutive Calendar Days)

*If Joint Venture All Participants Must Sign

Agreement Form must also be signed.

AGREEMENT FORM

(Amounts to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all Proposals; to waive informalities, irregularities or defects; to accept any Proposal or combination of Proposals; to accept a Proposal other than the lowest submitted; to negotiate contract terms with the Successful Bidder; or to advertise for new proposals, if in the judgment of the City, its best interests will be promoted thereby.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving bids.

Respectfully submitted:

*By

(Title)

(SEAL - if bid is by a corporation)

(Signature)

(Business Address and Zip Code)

*If joint venture all participants must sign:

North Carolina Contractor License No. _____

NON-COLLUSION AFFIDAVIT

(This Affidavit must be executed for the bid to be considered)

STATE OF NORTH CAROLINA

COUNTY OF _____)

(Name)

being duly sworn, deposes and says that it is _____
(Title)

of _____
(Firm)

the party making the foregoing proposal of bid; that such bid is genuine and not collusive or sham; that said bidder is not financially interested in, or otherwise affiliated in a business way with any other bidder on the same contract; that said bidder has not colluded, conspired, connived, or agreed, directly or indirectly with any bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person to fix the bid price of affiant or any other Bidder, or to fix any overhead profit of cost element of said bid price, or of that of any other bidder, or to secure any advantage against the City or any person or persons interested in the proposed contract; and that all statements contained in said proposal or bid are true; and further, that such bidder has not, directly or indirectly, submitted this bid or the contents thereof; or divulged information or data relative thereto to any association or to any member or agent thereof.

Affiant

Sworn to before me and subscribed in my presence this _____ day of _____
_____, 20__.

Notary Public

My Commission Expires:

Date

County

State

AGREEMENT

AGREEMENT

This Agreement, made and entered into this _____ day of _____, 20____, by and between the **City of Hendersonville, North Carolina**, party of the first part, hereinafter designated as the **Owner** and _____ of _____ County of the State of _____, party of the second part, hereinafter designated as the **Contractor**.

WITNESSETH:

That the parties hereto, for the considerations contained herein, hereby mutually agree as follows:

ARTICLE I:

Contractor; in consideration of _____ Dollars (\$_____), an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item; to be paid by the Owner, shall, at Contractor's own cost and expense, furnish all the labor, materials, tools and equipment for **Hebron Pressure Zone Water Improvements** within the time hereinafter specified and in accordance with the terms, conditions and provisions of this Contract and with the instructions, orders and directions of the Engineer made in accordance with this Contract. The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. Estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in the General Conditions.

ARTICLE II:

Said work shall be in accordance with the Contract Documents, which include, but are not limited to, this Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary Conditions, Specifications, Drawings, Proposal and the following addenda:

Addendum No. _____	Dated _____
Addendum No. _____	Dated _____
Addendum No. _____	Dated _____

Said work shall be fully completed to the satisfaction of the Owner.

ARTICLE III:

The Project has been designed by the City of Hendersonville (Engineer), which assumes all duties and responsibilities and have the rights and authority assigned to Engineer in the Contract

Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE IV:

The Contractor agrees to commence work no later than three (3) days after the commencement date specified in the Notice to Proceed. The Work will be completed and ready for final payment within **120** consecutive calendar days after the commencement date specified in the Notice to Proceed.

Contractor and Owner recognize that time is of the essence and that Owner will suffer financial loss if the Work is not completed within the times specified above, plus any extensions thereof allowed in accordance with the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner **\$500.00** for each calendar day that expires after the time specified above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE V:

Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 25th day of each month during performance of the Work as provided below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

- A. Ninety-five percent (95%) of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
- B. Ninety-five percent (95%) of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

The project shall be deemed fifty percent (50%) complete when the Contractor's gross project invoices, excluding the value of materials stored off-site, equal or exceed fifty percent (50%) of

the value of the contract, except the value of materials stored on-site shall not exceed twenty percent (20%) of the Contractor's gross project invoices for the purpose of determining whether the project is fifty percent (50%) complete.

Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to one hundred percent (100%) percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less two hundred percent (200%) percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE VI:

It is further mutually agreed between the parties hereto that if at any time after the execution of this Agreement and the Performance Bond and Payment Bond hereto attached for its faithful performance, the Owner shall deem the surety or sureties upon such Bonds to be unsatisfactory, or if, for any reason, such Bonds or either of them cease to be adequate to cover the performance of and payment for the Work, the Contractor shall, at its expense, within five (5) days after notice from the Owner so to do, furnish an additional bond or bonds in such form and amount and with such surety or sureties as shall be satisfactory to the Owner. In such event no further payment to the Contractor shall be deemed to be due under this Agreement until such new or additional security for the faithful performance of or payment for the Work shall be furnished in a manner and form satisfactory to the Owner.

ARTICLE VII:

If the Contractor shall fail to comply with any of the terms, conditions, provisions or stipulations of this Contract, according to the true intent and meaning thereof, then the Owner may make use of any or all remedies provided in that behalf in the Contract and shall have the right and power to proceed in accordance with the provisions thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first set forth above.

City of Hendersonville, North Carolina

OWNER

BY: _____

TITLE: _____

(SEAL)

ATTEST:

CONTRACTOR

BY: _____

TITLE: _____

(SEAL)

ATTEST:

PROJECT FORMS

NOTICE OF AWARD

To: _____

Project Description: **Hebron Pressure Zone Water Improvements**

The City of Hendersonville has considered the Bid Proposal submitted by you on _____ day of _____, 20_____, for the above-described Project in response to its Invitation to Bid and Instructions to Bidders.

You are notified that your Bid Proposal has been accepted in the amount of _____ Dollars (\$_____).

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Performance Bond, Payment Bonds and Certificates of Insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said Bonds with ten (10) days from the date of this Notice, the City will be entitled to consider all your rights arising out of the acceptance of your Bid Proposal as abandoned and as a forfeiture of your Bid Guaranty. The City will be entitled to such other rights as may be granted by law.

The City reserves the right to rescind the award of the work at any time before the execution of the Contract by all parties without incurring any liability. Therefore, if you change your position, economically or otherwise, after receiving a verbal or written notice of award and in reliance upon the Authority executing the Agreement, you agree to do so solely at your own risk and the City will not incur any liability from your change of position.

You are required to return an acknowledged copy of this Notice of Award to the City.

Dated this _____ day of _____, 20_____.

City of Hendersonville
OWNER

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by _____

(Firm)

this _____ day of _____, 20_____.

Name

Title

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called PRINCIPAL, and _____ (Corporation,
Partnership, Individual)

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are held and firmly bound unto

City of Hendersonville
(Name of Owner)

305 Williams Street, Hendersonville, North Carolina 28792
(Address of Owner)

hereinafter called OWNER, in the penal sum of:

(words) (numbers)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

Hebron Pressure Zone Water Improvements

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, Subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work, and all insurance premiums on said Work, and for all labor, performed in such Work whether by Subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

(SEAL)

Principal

BY: _____

Address

Witness as to Principal

(Address)

ATTEST:

Secretary) (Surety)

(SEAL)

BY: _____
Attorney-in-Fact

Address

Witness as to Surety

(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

IMPORTANT:

Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called PRINCIPAL, and
(Corporation, Partnership, Individual)

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are held and firmly bound unto

City of Hendersonville
(Name of Owner)

305 Williams Street, Hendersonville, North Carolina 28792
(Address of Owner)

hereinafter called OWNER, in the penal sum of:

(words)

(numbers)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the ____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

Hebron Pressure Zone Water Improvements

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to Work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

Principal

(SEAL)

BY: _____

Address

Witness as to Principal

(Address)

ATTEST:

Secretary (Surety)

Surety

(SEAL)

BY: _____
Attorney-in-Fact

Address

Witness as to Surety

(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

IMPORTANT:

Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

NOTICE TO PROCEED

To: _____ Date: _____

Project Description: **Hebron Pressure Zone Water Improvements**
You are hereby notified to commence work in accordance with the Agreement dated _____
_____, 20__ on or before _____, 20__ and in accordance with the Agreement,
the date of Substantial Completion is _____, and the date of readiness for final
payment is _____.

You are required to return an acknowledged copy of this Notice to Proceed to the City.

City of Hendersonville

Date: _____, 20__
By: _____
Title: _____

Acceptance of Notice

Receipt of the above Notice of Award is hereby acknowledged by _____

(Firm)
this _____ day of _____, 20__.

Name

Title

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

- All Work
 The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: None
 As follows

Amendments to Contractor's responsibilities: None
 As follows:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:	RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Contractor's Application for Payment No.

	Application Period:	Application Date:
To (Owner): <p style="text-align: center;">City of Hendersonville</p>	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Application For Payment Change Order Summary

Approved Change Orders				
Number	Additions	Deductions		
TOTALS				
NET CHANGE BY CHANGE ORDERS				

1. ORIGINAL CONTRACT PRICE.....		\$ _____
2. Net change by Change Orders.....		\$ _____
3. Current Contract Price (Line 1 ± 2).....		\$ _____
4. TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate).....		\$ _____
5. RETAINAGE:		
a. X _____ Work Completed.....		\$ _____
b. X _____ Stored Material.....		\$ _____
c. Total Retainage (Line 5a + Line 5b).....		\$ _____
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c).....		\$ _____
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application).....		\$ _____
8. AMOUNT DUE THIS APPLICATION.....		\$ _____
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above).....		\$ _____

Contractor's Certification	
<p>The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.</p>	
By:	Date:

Payment of:	\$ _____	
		(Line 8 or other - attach explanation of the other amount)
is recommended by:	_____	_____
	(Engineer)	(Date)
Payment of:	\$ _____	
		(Line 8 or other - attach explanation of the other amount)
is approved by:	_____	_____
	(Owner)	(Date)
Approved by:	_____	_____
	Funding Agency (if applicable)	(Date)

Date of Issuance:

Effective Date:

Owner:

Owner's Contract No.:

Contractor:

Contractor's Project No.:

Engineer:

Engineer's Project No.:

Project:

Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

<p>RECOMMENDED:</p> <p>By: _____ Engineer (if required)</p> <p>Title: _____</p> <p>Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Owner (Authorized Signature)</p> <p>Title: _____</p> <p>Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Contractor (Authorized Signature)</p> <p>Title: _____</p> <p>Date: _____</p>
-------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------

Approved by Funding Agency (if applicable)

By: _____ Date: _____
Title: _____

EJCDC C-700 STANDARD GENERAL
CONDITIONS OF THE CONSTRUCTION
CONTRACT

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

	Page
Article 1 – Definitions and Terminology	1
1.01 Defined Terms	1
1.02 Terminology	5
Article 2 – Preliminary Matters	6
2.01 Delivery of Bonds and Evidence of Insurance	6
2.02 Copies of Documents	6
2.03 Before Starting Construction	6
2.04 Preconstruction Conference; Designation of Authorized Representatives	7
2.05 Initial Acceptance of Schedules	7
2.06 Electronic Transmittals	7
Article 3 – Documents: Intent, Requirements, Reuse	8
3.01 Intent	8
3.02 Reference Standards	8
3.03 Reporting and Resolving Discrepancies	8
3.04 Requirements of the Contract Documents	9
3.05 Reuse of Documents	10
Article 4 – Commencement and Progress of the Work	10
4.01 Commencement of Contract Times; Notice to Proceed	10
4.02 Starting the Work	10
4.03 Reference Points	10
4.04 Progress Schedule	10
4.05 Delays in Contractor’s Progress	11
Article 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions	12
5.01 Availability of Lands	12
5.02 Use of Site and Other Areas	12
5.03 Subsurface and Physical Conditions	13
5.04 Differing Subsurface or Physical Conditions	14
5.05 Underground Facilities	15

5.06	Hazardous Environmental Conditions at Site	17
Article 6 – Bonds and Insurance		19
6.01	Performance, Payment, and Other Bonds	19
6.02	Insurance—General Provisions	19
6.03	Contractor’s Insurance	20
6.04	Owner’s Liability Insurance	23
6.05	Property Insurance	23
6.06	Waiver of Rights	25
6.07	Receipt and Application of Property Insurance Proceeds	25
Article 7 – Contractor’s Responsibilities		26
7.01	Supervision and Superintendence	26
7.02	Labor; Working Hours	26
7.03	Services, Materials, and Equipment.....	26
7.04	“Or Equals”	27
7.05	Substitutes	28
7.06	Concerning Subcontractors, Suppliers, and Others	29
7.07	Patent Fees and Royalties	31
7.08	Permits	31
7.09	Taxes	32
7.10	Laws and Regulations.....	32
7.11	Record Documents	32
7.12	Safety and Protection.....	32
7.13	Safety Representative	33
7.14	Hazard Communication Programs	33
7.15	Emergencies	34
7.16	Shop Drawings, Samples, and Other Submittals.....	34
7.17	Contractor’s General Warranty and Guarantee.....	36
7.18	Indemnification	37
7.19	Delegation of Professional Design Services	37
Article 8 – Other Work at the Site		38
8.01	Other Work	38
8.02	Coordination	39
8.03	Legal Relationships.....	39

Article 9 – Owner’s Responsibilities.....	40
9.01 Communications to Contractor.....	40
9.02 Replacement of Engineer	40
9.03 Furnish Data	40
9.04 Pay When Due.....	40
9.05 Lands and Easements; Reports, Tests, and Drawings	40
9.06 Insurance	40
9.07 Change Orders.....	40
9.08 Inspections, Tests, and Approvals.....	41
9.09 Limitations on Owner’s Responsibilities	41
9.10 Undisclosed Hazardous Environmental Condition.....	41
9.11 Evidence of Financial Arrangements.....	41
9.12 Safety Programs	41
Article 10 – Engineer’s Status During Construction.....	41
10.01 Owner’s Representative.....	41
10.02 Visits to Site.....	41
10.03 Project Representative.....	42
10.04 Rejecting Defective Work.....	42
10.05 Shop Drawings, Change Orders and Payments.....	42
10.06 Determinations for Unit Price Work	42
10.07 Decisions on Requirements of Contract Documents and Acceptability of Work	42
10.08 Limitations on Engineer’s Authority and Responsibilities.....	42
10.09 Compliance with Safety Program.....	43
Article 11 – Amending the Contract Documents; Changes in the Work	43
11.01 Amending and Supplementing Contract Documents	43
11.02 Owner-Authorized Changes in the Work	44
11.03 Unauthorized Changes in the Work	44
11.04 Change of Contract Price	44
11.05 Change of Contract Times	45
11.06 Change Proposals	45
11.07 Execution of Change Orders.....	46
11.08 Notification to Surety.....	47
Article 12 – Claims.....	47

12.01	Claims	47
Article 13 –	Cost of the Work; Allowances; Unit Price Work.....	48
13.01	Cost of the Work	48
13.02	Allowances	50
13.03	Unit Price Work	51
Article 14 –	Tests and Inspections; Correction, Removal or Acceptance of Defective Work.....	52
14.01	Access to Work.....	52
14.02	Tests, Inspections, and Approvals.....	52
14.03	Defective Work.....	53
14.04	Acceptance of Defective Work.....	53
14.05	Uncovering Work	53
14.06	Owner May Stop the Work	54
14.07	Owner May Correct Defective Work.....	54
Article 15 –	Payments to Contractor; Set-Offs; Completion; Correction Period	55
15.01	Progress Payments.....	55
15.02	Contractor’s Warranty of Title	58
15.03	Substantial Completion.....	58
15.04	Partial Use or Occupancy	59
15.05	Final Inspection	59
15.06	Final Payment.....	59
15.07	Waiver of Claims	61
15.08	Correction Period	61
Article 16 –	Suspension of Work and Termination	62
16.01	Owner May Suspend Work	62
16.02	Owner May Terminate for Cause	62
16.03	Owner May Terminate For Convenience	63
16.04	Contractor May Stop Work or Terminate	63
Article 17 –	Final Resolution of Disputes	64
17.01	Methods and Procedures.....	64
Article 18 –	Miscellaneous	64
18.01	Giving Notice	64
18.02	Computation of Times.....	64
18.03	Cumulative Remedies	64

18.04	Limitation of Damages	65
18.05	No Waiver	65
18.06	Survival of Obligations	65
18.07	Controlling Law	65
18.08	Headings.....	65

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
 - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
 - C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
 - D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
 - E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
 - F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2013 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

TABLE OF CONTENTS

		Page
SC-5.06	Hazardous Environmental Condition at Site	1
SC-6.03	Contractor's Insurance	1
SC-6.05	Property Insurance	3
SC-7.09	Taxes	3
SC-10.03	Project Representative	3
SC-13.03	Unit Price Work	8
SC-17.02	Arbitration	8

SC-5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not used.

Add the following new paragraph immediately after Paragraph 5.06K:

- A. Abatement of Hazardous Environmental Conditions, if any, at the Site is covered in the Project Specifications.

SC-6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

- a. State: Statutory
- b. Applicable Federal (e.g., Longshoreman's): Statutory
- c. Employer's Liability: \$500,000

2. Contractor's Commercial General Liability under Paragraphs 6.03.B. through C. of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

- a. General Aggregate \$2,000,000
- b. Products - Completed Operations Aggregate \$1,000,000
- c. Personal and Advertising Injury \$1,000,000
- d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
- e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.
- f. Excess or Umbrella Liability
 - 1) General Aggregate \$5,000,000
 - 2) Each Occurrence \$5,000,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

- a. Bodily Injury:
 - Each person \$1,000,000
 - Each Accident \$1,000,000
- b. Property Damage:
 - Each Accident \$1,000,000

c. Combined Single Limit of \$1,000,000

4. The Contractual Liability coverage required by Paragraph 6.03.C.2 of the General Conditions shall provide coverage for not less than the following amounts:

a. Bodily Injury:
Each person \$2,000,000
Each Accident \$2,000,000

b. Property Damage:
Each Accident \$2,000,000
Annual Aggregate \$2,000,000

5. Contractor's Pollution Liability:

Each Occurrence \$ _____
General Aggregate \$ _____

If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

SC-6.03. Add the following new paragraph 6.03.M immediately after Paragraph 6.03.L:

M. Contractor shall purchase and maintain the following additional insurance:

1. Asbestos Abatement Liability Insurance. This insurance is required in addition to the other liability coverages specified herein. Asbestos abatement liability insurance shall be written as an "occurrence" type policy and shall cover Contractor, and Owner, and Engineer as additional insureds, against claims arising from bodily injury, sickness, disease, or death of any person other than Contractor's employees arising out of any act related to asbestos abatement work.

The liability limits shall be not less than:

Personal injury and property damage

Each occurrence \$ 2,000,000

General Aggregate \$ 2,000,000

SC 6.05.A. Delete the first sentence of Paragraph 6.05.A and insert the following sentence in its place:

If necessary, Owner shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations).

SC-7.09 Add a new paragraph immediately after Paragraph 7.09.A:

- B.** The Owner is exempt from North Carolina State sales and use taxes on materials and equipment to be incorporated into the work. Said taxes shall be included in the Bid.
1. Each request for progress payment submitted by the Contractor shall include a sales tax reimbursement statement.
 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

- B.** The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
4. Liaison:
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
6. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or

Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
8. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
9. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
10. Records:
 - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general,

and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

- b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
 - c. Maintain records for use in preparing Project documentation.
11. Reports:
- a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
14. Completion:
- a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of

Substantial Completion and the preparation of a punch list of items to be completed or corrected.

- b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
- c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

- 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
- 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
- 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
- 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
- 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
- 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
- 7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
- 8. Authorize Owner to occupy the Project in whole or in part.

SC-13.03E Delete Paragraph 13.03.E in its entirety and insert the following in its place:

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
 - 1. if the Bid price of a particular item of Unit Price Work amounts to ten (10) percent or more of the Contract Price (based on estimated

quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than twenty-five (25) percent from the estimated quantity of such item indicated in the Agreement; and

2. if there is no corresponding adjustment with respect to any other item of Work; and
3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

SC-17.02 Arbitration

- A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the rules of [insert name of selected arbitration agency], subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.
- C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:

1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.
- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

PERMITS



NORTH CAROLINA
Environmental Quality

September 11, 2020

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

City of Hendersonville
ATTN: Lee Smith, Utilities Director
305 Williams Street
Hendersonville, NC 28792

Re: **Authorization to Construct (This is not a Final Approval)**
Issue Date: September 11, 2020
HEBRON PRESSURE ZONE IMP.
Serial No.: 20-00712 Water System No.: NC0145010
Henderson County

Dear Applicant:

This letter is to confirm that a complete Engineer's Report and a Water System Management Plan have been received, and that engineering plans and specifications have been approved by the Department for **HEBRON PRESSURE ZONE IMP., Serial No.: 20-00712**.

The "Authorization to Construct" is valid for 36 months from the issue date. Authorization to construct may be extended if the Rules Governing Public Water Supplies and site conditions have not changed (see Rule .0305). The "Authorization to Construct" and the engineering plans and specifications approval letter shall be posted at the primary entrance of the job site before and during construction.

Upon completion of the construction or modification, **and prior to placing the new construction or modification into service**, the applicant must submit an Engineer's Certification and Applicant's Certification to the Public Water Supply Section.

- **Engineer's Certification:** in accordance with Rule .0303 (a), the applicant shall submit a certification statement signed and sealed by a registered professional engineer stating that construction was completed in accordance with approved engineering plans and specifications, including any provisions stipulated in the Department's engineering plan and specification approval letter.
- **Applicant's Certification:** in accordance with Rule .0303 (c), the applicant shall submit a signed certification statement indicating that the requirements for an Operation and Maintenance Plan and Emergency Management Plan have been satisfied in accordance with Rule .0307 (d) and (e) and that the system has a certified operator in accordance with Rule .1300. The "Applicant's Certification" form is available at <http://www.ncwater.org/> (click on Public Water Supply Section, Plan Review, Plan Review Forms).

Certifications can be sent by mail, fax (919-715-4374), or attachment to an e-mail message to **PWSSection.PlanReview@ncdenr.gov**.

If this "Authorization to Construct" is for a new public water system, the owner must submit a completed **application for an Operating Permit** and the appropriate fee. For a copy of the application for an Operating Permit please call (919) 707-9085.

Once the certifications and permit application and fee (if applicable) are received and determined adequate, the Department will issue a Final Approval letter to the applicant. In accordance with Rule .0309 (a), **no portion of this project shall be placed into service until the Department has issued Final Approval**.

Please contact us at (919) 707-9100 if you have any questions or need additional information.

Sincerely,

Robert W. Midgette, P.E.
Chief, Public Water Supply Section

cc: KIMBERLY BARNETT, P.E., Regional Engineer
City of Hendersonville



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1634 Mail Service Center | Raleigh, North Carolina 27699-1634
919.707.9100

North Carolina Department of Environmental Quality
Division of Water Resources

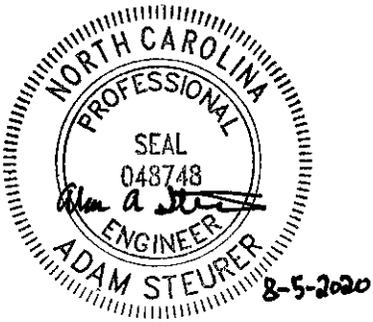
Authorization to Construct

Project Applicant:	City of Hendersonville
Public Water System Name and Water System No.:	HENDERSONVILLE, CITY OF NC0145010
Project Name:	HEBRON PRESSURE ZONE IMP.
Serial No.:	20-00712
Issue Date:	September 11, 2020
Expiration Date:	36 Months after Issue Date

In accordance with NCAC 18C .0305, this Authorization to Construct must be posted
at the primary entrance to the job site during construction.

ITEM SPECIFICATIONS

Technical Specifications
for
City of Hendersonville
Water & Sewer Department



Contents

SECTION I GENERAL REQUIREMENTS AND PROVISIONS.....	4
1.1 GENERAL REQUIREMENTS	4
1.2 DESIGNATION OF PARTIES	4
1.3 SPECIFICATION BY REFERENCE	4
1.4 QUALITY OF WORK	5
1.5 LIMITS OF CONSTRUCTION	5
1.6 OWNER NOTICE AND PREPARATION OF SITE	6
1.7 CLEANLINESS.....	6
1.8 CONSTRUCTION SURVEYING.....	6
1.9 SUBMITTALS	7
1.10 EQUIPMENT AND MATERIAL STORAGE.....	7
1.11 INSPECTIONS	8
1.12 SPECIAL CONSTRUCTION CONDITIONS AND SEQUENCING.....	8
1.13 CONTROL OF EROSION, SILTATION AND POLLUTION	10
1.14 TRAFFIC CONTROL	10
1.15 ENCROACHMENT/EASEMENT AGREEMENTS.....	11
1.16 HAZARDOUS ENVIRONMENTAL CONDITIONS AT SITE.....	11
1.17 MEASUREMENT AND PAYMENT	11
1.18 WARRANTIES	15
SECTION II GENERAL UTILITY CONSTRUCTION (WATER AND SEWER).....	16
2.1 GENERAL DESCRIPTION.....	16
2.2 MOBILIZATION	16
2.3 TRAFFIC CONTROL	17
2.4 CLEARING & GRUBBING	17
2.5 EROSION AND SEDIMENTATION CONTROL	18
2.6 ROCK EXCAVATION	20
2.7 SELECT BACKFILL MATERIAL.....	21
2.8 STONE EMBEDMENT AND UNDERCUT.....	22
2.9 INCIDENTAL STONE	23
2.10 PAVEMENT REPAIR.....	24
2.11 REMOVE AND REPLACE CONCRETE SIDEWALK AND DRIVEWAY.....	25
2.12 REMOVE AND REPLACE CONCRETE CURB AND GUTTER.....	26
2.13 GRAVEL DRIVEWAY REPAIR	27

2.14	RESTORATION AND PERMANENT SEEDING.....	27
2.15	FLOWABLE FILL BACKFILL.....	29
2.16	ABANDON EXISITNG PUMP STATION	30
SECTION III WATER DISTRIBUTION SYSTEM.....		32
3.1	GENERAL DESCRIPTION.....	32
3.2	WATER PIPE AND APPURTENANCE MATERIALS	32
3.3	WATER TRENCH EXCAVATION AND BACKFILL.....	40
3.4	WATER TRENCH STABILIZATION AND PIPE BEDDING	42
3.5	WATER PIPE INSTALLATION.....	43
3.6	VALVE AND FITTING INSTALLATION.....	45
3.7	CONNECTIONS TO EXISTING WATER MAINS	46
3.8	FIRE HYDRANT INSTALLATION	47
3.9	AIR RELEASE VALVE INSTALLATION	49
3.10	LARGE METER, CHECK OR PRESSUER REDUCING VALVE VAULT ASSEMBLY INSTALLATION	49
3.11	WATER SERVICE CONNECTIONS	50
3.12	ABANDON EXISTING WATER MAIN OR SERVICE.....	52
3.13	ABANDON EXISITING VALVE AND METER BOXES.....	53
3.14	FLUSHING, PRESSURE TESTING, AND DISINFECTION	53
SECTION V TRENCHLESS TECHNOLOGY		58
5.1	BORE AND ENCASEMENT	58
5.2	UTILITY HORIZONTAL DIRECTIONAL DRILLING (HDD).....	60
SECTION VI WATER PUMPING STATION		63
SECTION VII SANITARY SEWER PUMPING STATION		64

SECTION I GENERAL REQUIREMENTS AND PROVISIONS

1.1 GENERAL REQUIREMENTS

Construction of projects shall comply with relevant provisions of these Technical Specifications; including but not limited to infrastructure to be dedicated to or maintained by the City.

In the event strict adherence to the Technical Specifications is not feasible, the City will accept written requests for modification of said Specifications. Requested modifications may be granted in writing only if the modification does not adversely impact public safety of City infrastructure and will maintain the intent and purpose of the Specification. Approval of a modification request does not constitute City assurance that the requested modification is sufficient or appropriate.

The project's intent is to connect portions of the City of Hendersonville's water distribution system with low pressures and available fire flow to the Town of Laurel Park's Hebron pressure zone, improving water service and fire protection.

The work to be performed under these Contract Documents is generally described as follows: installation of approximately 75 linear feet of 8-inch and approximately 2,000 linear feet of 6-inch ductile iron water main and valves and other appurtenances. In addition, the City's existing Overlook Terrace hydropneumatic pumping station will be abandoned after connection to the Town of Laurel Park's Hebron pressure zone.

1.2 DESIGNATION OF PARTIES

Owner or City -- whenever used in these specifications, it shall mean Hendersonville, North Carolina acting through the Hendersonville City Council or its authorized agents.

Engineer - whenever used herein, it shall mean the Utilities Director of the Hendersonville Water and Sewer Department, or properly authorized agents acting within the scope of the duties assigned to them.

Plans and Specification -- whenever used herein, it shall refer to the detailed construction plans and specifications as prepared for this project, including all revisions, corrections and addendums as made prior to the award of Contract. Subsequent revisions, etc. shall require the written approval of the Engineer and the Owner.

1.3 SPECIFICATION BY REFERENCE

Where in these specifications, reference is made to other standard specifications--such as Federal Specifications, American Society of Testing and Materials (ASTM), American Water Works Association (AWWA), American National Standards Institute (ANSI), American Association of State Highway and Transportation Officials (AASHTO), State of North Carolina, Department of Transportation, Construction and Material Specifications--such specifications or parts thereof (most recent revision) as may be herein mentioned or referred to by designation, are hereby incorporated into these specifications, and shall be in full force just as though the said specifications or parts thereof referred to has been written herein.

1.4 QUALITY OF WORK

This Section includes administrative and procedural requirements for quality-control services. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Engineer. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.

Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.

Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services. The Contractor shall assist the Owner's selected qualified testing agency by providing men and equipment for excavation of test pits, excavation for test pads for density tests and moving testing equipment around the project site.

The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.

1.5 LIMITS OF CONSTRUCTION

The Contractor shall confine all operations and personnel to the limits of construction as shown on the plans. There shall be no disturbance whatsoever of any areas outside the limits of construction.

In connection with pipeline work performed on "private property, the Contractor shall confine his equipment, the storage of materials and the operations of his workmen to the limits indicated on the plans, being the lands and easements or rights-of-way provided for the project by the Owner, and shall take every precaution to avoid damage to the buildings, grounds, and facilities of the owners of private property.

1.6 OWNER NOTICE AND PREPARATION OF SITE

Prior to any operation, the contractor shall give advance notice to all owners and/or tenants within the project.

The Contractor shall not operate any valve or hydrant within the City water system, without permission. Prior to operating any water valve(s) or fire hydrants on/near a project, the Contractor shall coordinate with the City's project inspector to obtain permission and the necessary procedures that must be followed.

The Owner will install new water meters and/or replacement of existing water meters within meter box installed by Contractor as shown on the Drawings.

The Owner will secure rights-of-way or easements where required through private lands. The Contractor shall be responsible for any damage to buildings, walls, fences, utility poles, bridges, utilities, railroad, or other improvements encountered whether public or private. All such improvements shall be carefully protected from damage, and, in case of damage or removal, shall be completely repaired or restored to its original or better condition. All damage to such improvements and all damage to property or persons resulting from damage to such improvements shall be the responsibility of the Contractor. Special care shall be taken in trenching near buildings, roads and railroads, to avoid or minimize all delays, damage, or injury thereto.

1.7 CLEANLINESS

The Contractor shall maintain the work and project grounds free from rubbish, debris and waste materials during all phases of the work.

Immediately upon completion of the work but prior to final acceptance, the Contractor shall remove all rubbish, debris, temporary structures, equipment, excess or waste materials and shall leave the work and project grounds in a neat and orderly condition that is satisfactory to the Engineer and Owner.

1.8 CONSTRUCTION SURVEYING

All work shall be constructed in accordance with the lines, grades and elevations

shown on the plans or as given by the Engineer in the field. The Contractor shall be fully responsible for maintaining alignment and grade. Principal controlling points and base lines for locating the principal components of the work together with a suitable number of benchmarks adjacent to the work will be provided by the Engineer. From this information, the Contractor shall verify benchmarks and develop and make all detailed surveys needed for construction. The Contractor shall protect and safeguard all points, stakes, grade marks, monuments and benchmarks at the site of the work and shall re-establish, at his own expense, any marks which are removed or destroyed due to his construction operations.

1.9 SUBMITTALS

All Contractors performing work on or installing new public infrastructure shall first submit submittals/shop drawings to the Engineer for all construction materials. Digital submittals are accepted and preferred. The Contractor shall be solely responsible for the completeness of each submittal. The Contractor shall thoroughly check all submittals for accuracy and conformance to the intent of the specifications, and make any necessary changes, prior to submitting. All submittals/shop drawings shall bear the Contractor's certification stating that they have been so checked. This certification shall include the following statement: "By this Submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers, and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all contract requirements."

Engineer's review of submittals covers only general conformity to the Drawings and Specifications, external connections, and dimensions that affect the layout; it does not indicate thorough review of all dimensions, quantities, and details of the material, equipment, device, or item covered. Engineer's review shall not relieve Contractor of sole responsibility for errors, omissions, or deviations in the drawings and data, nor of Contractor's sole responsibility for compliance with the Contract Documents.

No material shall be ordered, fabricated or shipped or any work performed until the Engineer and Owner receive, review and approve the appropriate submittal/shop drawing. Where manufacturer's publications in the form of catalogs, brochures, illustrations or other data sheets are submitted, items for which approval is requested shall be specifically indicated. Submittals showing only general information shall not be acceptable.

1.10 EQUIPMENT AND MATERIAL STORAGE

The Contractor shall plan his activities so that all materials and equipment can be stored within the limits of construction.

Before, during, and after installation, plastic pipe and fittings shall be protected from exposure to sunlight and any environment that would result in damage to or deterioration of the material. Plastic pipe shall be covered with opaque plastic film.

All materials shall be stored in accordance with the manufacturer's recommendations and shall be discarded if the storage period exceeds the recommended shelf life.

1.11 INSPECTIONS

The Contractor shall provide the necessary manpower and equipment required for inspections. The presence of the Engineer or Inspector at the work site shall in no way lessen the Contractor's responsibility for conforming to the Specifications. Should the Engineer or Inspector accept materials, or work that does not conform with plans and Specifications, whether from lack of discovery or for any other reason, it shall in no way prevent later rejection of, or corrections to, the unsatisfactory materials or work when discovered. The Contractor shall have no claim for losses suffered due to any necessary removals or repairs resulting from the unsatisfactory work. Any work which has been covered without the Inspector's approval, shall, at the Inspector's request, be uncovered and be made available for inspection at the Contractor's expense.

1.12 SPECIAL CONSTRUCTION CONDITIONS AND SEQUENCING

This section describes special construction conditions and sequencing for the Project. The Contractor's progress schedule shall reflect the special construction conditions and sequencing covered in this section.

The Contractor shall fully cooperate at all times with the Owner in order to maintain water and sewer system operation with the least amount of interference and interruption possible. Public health and safety considerations shall exceed all others; and the Contractor's schedule, plan, and work shall at all times be subject to alteration and revision if necessary for public health and safety considerations.

In no case will the Contractor be permitted to interfere with any existing service until all materials, supplies, equipment, tools, and incidentals necessary to complete the work are on the job site.

Time allowed for outages shall be limited as follows: Outages are limited to Mondays through Thursdays from 9 A.M. to 4 P.M., any requested variance from this limitation shall be approved by the Owner. Outages for tie-ins shall not be scheduled on weekends or within five days of any recognized Federal/State/local holiday. If Owner determines that Contractor's planning and preparation for an outage is inadequate, Owner shall have the right to cancel the outage without penalty. If Owner determines that a scheduled outage must be cancelled due to

no fault of Contractor, Contractor shall be granted additional compensation to cover actual additional costs to remobilize for the outage and the actual amount of contract time Contractor can demonstrate the critical path of the project has been delayed.

The Engineer and the Owner reserve the right to require the Contractor to work 24 hours per day in all cases where interferences with existing utility service may result in health hazards, offensive conditions, or serious inconveniences to persons served by the system, as determined by the Engineer or Owner.

Suggested Sequence of Construction:

1. Install appropriate traffic control and safety measures as applicable.
2. Install appropriate erosion control measures, as necessary.
3. Contractor shall verify the location and pipe materials of existing water mains and valves prior to beginning construction.
4. Davis Mountain Road 6-inch pipe install and master meter vault and appurtenance installation.
5. Successfully flush, pressure test, and disinfect newly installed piping and appurtenances connection.
6. Meter installation and programming: perform water connection #1, Crystal Spring Drive, Owner to close necessary valves during tie-in and monitor pressure increase. Restoration of work area. Engineer and Owner perform partial completion.
7. Install new piping along Chariton Avenue, North Overlook Terrace, and Hebron Road. Overlook Terrace pump station to remain under operation and separate pressure zone by leaving valve on connection to Hebron Road and North Overlook Terrace road closed.
8. Successfully flush, pressure test, and disinfect newly installed piping and appurtenances connection. Engineer and Owner provide partial certification.
9. Make water connections #5, and #6. Then make water connection #4, leave valve closed. Connections to be scheduled with Owner.
10. Reconnect/replace services on Chariton Avenue to new 6" DI main, abandon and disconnect existing 2" PVC main on Chariton Avenue, both ends at Hebron Drive and Ewart Drive.
11. Make connection at Laurel Park pump station discharge piping, water connection #2. Coordinate work with Town of Laurel park and Owner. Leave valve closed.
12. Install meter vault, associated piping. Install and program master meter. Leave valves closed.
13. Disconnect and cap suction side Tee on Laurel Park Pump Station. Reconnect to existing 8-inch CIP, water connection #3. Coordinate shutdown with Owner. Leave valves closed.
14. Owner to operate necessary valves and monitor pressure increase.
15. Restoration of work area.

16. Abandon Overlook pump station.

1.13 CONTROL OF EROSION, SILTATION AND POLLUTION

The Contractor shall take whatever measures necessary to minimize soil erosion and siltation, water and air pollution caused by his operations. The Contractor shall also comply with the applicable regulations of all legally constituted authorities relating to pollution prevention and control.

The Contractor shall keep himself fully informed of all such regulations which in any way affect the conduct of the work, and shall at all times observe and comply with all such regulations. In the event of conflict between such regulations and the requirements of the specifications, the more restrictive requirements shall apply.

The Engineer will limit the area over which clearing and grubbing, excavation, borrow, and embankment operations are performed whenever the Contractor's operations do not make effective use of construction practices and temporary measures which will minimize erosion, or whenever construction operations have not been coordinated to effectively minimize erosion, or whenever permanent erosion control features are not being completed as soon as permitted by construction operations.

The Contractor shall control dust throughout the life of the project within the project area and at all other areas affected by the construction of the project, including, but not specifically limited to, unpaved secondary roads, haul roads, access roads, disposal sites, borrow and material pits, and production sites. Dust control shall not be considered effective where the amount of dust creates a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or appearance of any property. The Contractor will not be directly compensated for any dust control measures necessary, as this work will be considered incidental to the work covered by the various contract items. The Contractor will provide dust control measures as directed by the Engineer.

1.14 TRAFFIC CONTROL

The Contractor shall provide, erect, and maintain all necessary devices to control traffic and protect the public, the work and workers. All traffic control shall be provided as established in The Manual of Uniform Traffic Control Devices and any and all supplements of the North Carolina Department of Transportation.

In special cases, additional traffic control may be required as directed by the Engineer or by the North Carolina Department of Transportation.

1.15 ENCROACHMENT/EASEMENT AGREEMENTS

It shall be the responsibility of the contractor to abide by any and all conditions of any and all easements and/or encroachments which are necessary for the accommodation of the work.

Unless otherwise specified in the Special Conditions Detail Sheets, the entire permanent easement shall be cleared. Temporary construction easements will be selectively cleared with designated landscape items carefully preserved and protected as stipulated in the Plans. Public rights-of-way shall be cleared as shown on the plans and as stipulated in Plans. The Engineer will provide copies of all required tree permits.

1.16 HAZARDOUS ENVIRONMENTAL CONDITIONS AT SITE

As noted on the Drawings, asbestos containing materials may be present on the site and in the project area in the form of Asbestos Cement Pipe. The Contractor shall take all precautions necessary to avoid disturbance of any asbestos containing materials. The Contractor is responsible for all safety and health precautions for working near asbestos containing materials.

Before commencement of work that may impact, damage or disturb the Hazardous Environmental Conditions at the Site, Contractor shall engage a qualified Subcontractor to encapsulate, enclose, or remove and dispose of all identified ACM, Metal Bearing Protective Coatings, Paints, and Linings, Contaminated Environmental Media, and/or other Hazardous Substances in accordance with current regulations of the Environmental Protection Agency and the U. S. Department of Labor - Occupational Safety and Health Administration, the applicable state regulating agency, and any local government agency.

Subcontractor for removal/abatement of Hazardous Environmental Conditions shall be regularly engaged in this type of activity and shall be familiar with the regulations which govern this work. Subcontractor shall demonstrate to the satisfaction of Owner that it has successfully completed removal/abatement projects of similar nature and extent, that it has the necessary staff and equipment to perform the work, and that it has an approved site for disposal of waste materials. Liability insurance covering the Hazardous Environmental Condition removal/abatement work shall be provided as specified in the Supplementary Conditions.

1.17 MEASUREMENT AND PAYMENT

The Contract Price shall cover all Work required by the Contract Documents. All costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment, supplies, and appurtenances;

providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the unit and lump sum prices bid. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the prices bid.

Estimated Quantities: All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the Bids submitted for the Work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that it will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts therefor.

Excavation and Trenching: Except where otherwise specified, the unit or lump sum price bid for each item of Work which involves excavation or trenching shall include all costs for such Work. No separate payment shall be made for excavation or trenching. All trenching shall be unclassified as to materials which may be encountered, and trenches shall be unclassified as to depth. No separate payment shall be made for depths of trenching work required for the pipelines. All such work shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the unit price bid per linear foot of pipe in place. All excavation work required for structures shall be unclassified as to materials which may be encountered; such excavation work shall be considered to be a subsidiary obligation of Contractor and the cost of such excavation shall be included in the prices bid for the structures.

Powerline Temporary Supports and Shielding: No separate payment will be made for temporary support of power poles or utility poles or for shielding of powerlines from Contractor's operations. All such cost shall be included in the price of the pipeline.

Utility Locations and Relocations: No separate payment will be made for relocation of power poles, telephone poles, fiber optic, underground telephone or any other existing utilities. All such work shall be considered as included in the price of the Work. Additionally, no separate payment will be made for the relocation of any utilities.

Repairs to damaged services and utilities shall be promptly made at the Contractor's expense. The Contractor shall use every effort to avoid damaging or breaking water, sewer, gas, power, telephone, or other utility service. Utility lines shall be properly

supported across the pipe trench until backfilling is completed. Should damage occur, immediate action shall be initiated to affect satisfactory repairs. All repair work shall be satisfactory to the Engineer and Owner of the damaged utility.

Erosion Control

Tree Removal and Landscape Removal: No separate payment shall be made in connection with tree removal or landscape removal. All such work in connection with tree removal and landscape removal and replacement shall be included in the cost of Work.

Clearing and Grubbing: Clearing and Grubbing is considered incidental to the work and shall not be a pay item, unless indicated in the proposal form, in which case payment will be made lump sum cleared and grubbed in accordance with the Drawings and these Specifications. All such work associated with clearing and grubbing shall be included in the cost of the Work.

Dewatering: No separate payment shall be made in connection with dewatering as specified or required. All such work in connection with dewatering shall be included in the cost of the Work.

Traffic Control: No separate payment shall be made in connection with any required traffic control specified or required in connection with the Work unless otherwise indicated in the proposal form. All such work associated with traffic control shall be included in the cost of the Work.

Connections to existing mains: Connections to existing facilities shall be made where shown on the Drawings or directed by the Engineer. Wet taps, using tapping sleeves and valves, shall generally be made; except as otherwise directed or planned in which case the main shall be cut and the connections made with fittings and valves. Valves installation shall be measured and paid under a separate unit bid price. In no case shall the Contractor shut off the water or operate the fire hydrants or gate valves in the existing systems without the expressed permission of the Owner. Connections to existing mains is considered incidental to the work and shall not be a pay item, unless indicated in the proposal form, in which case payment will be made per each connection completed in accordance with the Drawings and these Specifications.

Owners Contingency: Lump sum allowance for Owner's Contingency as described in section 13.02 of the General Conditions. This allowance shall be used for unforeseen conditions or where unit rate adjustments are required. The Owner reserves the right to make final quantity and item selections, including accessories and placement. The Owner and Contractor shall jointly develop a bill of materials, including purchase cost, of items covered by the allowance. The Contractor will be

required to submit price quotation, invoices, and other documentation necessary to substantiate the cost of items purchased under the allowance. This allowance cannot be used without approval from the Owner.

1.18 WARRANTIES

This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers' standard warranties on products and special warranties. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty and time shall be extended by the amount of time lapsed between notification by the owner of a defect and acceptable repair or replacement by Contractor.

Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

Manufacturers disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

SECTION II GENERAL UTILITY CONSTRUCTION (WATER AND SEWER)

2.1 GENERAL DESCRIPTION

This Section consists of those work common to water and sanitary sewer main construction. Construction operations that are unique to a water main or sanitary sewer main are found in [Section III](#) and [Section IV](#), respectively.

2.2 MOBILIZATION

This section consists of preparatory work and operations to mobilize personnel, materials and equipment to the project site and establishment of staging and the defined in the plans or per Designer instructions. This work includes, but is not limited to, the movement of personnel, equipment, supplies and incidentals to the project site, for the establishment of offices, buildings and other facilities necessary for work on the project; the removal and disbandment of those personnel, equipment, supplies, incidentals or other facilities that were established for the prosecution of work on the project; and for all other work and operations that shall be performed for costs incurred before beginning work on the various items on the project site.

Measurement and Payment

Mobilization will be paid as contract lump sum price and shall include Contractor's preparatory work and operations, including but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; and other work and operations which must be performed, or cost incurred, prior to beginning work on the project site. Partial payments for Mobilization will be made with the first and second partial pay estimates paid on the contract and will be made at the rate of 50% lump sum price on each of these partial pay estimates, provided the amount bid for Mobilization does not exceed 5% of the total amount bid for the contract. Where the amount bid for Mobilization exceeds 5% of the total amount bid for the contract, 2.5% of the total amount bid will be paid on each of the first two partial pay estimates. That portion exceeding 5% will be paid on the last partial pay estimate. As an exception to the above, where the work covered by the contract is limited exclusively to the resurfacing of an existing pavement, payment of the entire lump sum price for Mobilization will be made with the first partial pay estimate paid on the contract, provided the amount bid does not exceed 5% of the total amount bid for the contract. Where the amount bid for Mobilization exceeds 5% of the total amount bid for the contract, 5% of the total amount bid will be paid on the first partial pay estimate. That portion exceeding 5% will be paid on the last partial pay estimate. For projects that have a delayed availability date of 90 calendar days or more after contract execution, the first mobilization payment may be for the verified actual cost of paid bond premiums. This payment will only be made upon request by the contractor with

supporting documentation including invoice and proof of payment. This payment will be limited to 1% of the amount bid for the contract and the subsequent mobilization payment will be reduced by an equal amount to follow the payment schedule as shown above. In no case will more than 5% of the amount bid for the contract be paid before the last partial pay estimate.

Payment will be made under:
"Mobilization"

LS

2.3 TRAFFIC CONTROL

This section includes all labor, materials, equipment and services required for traffic control and maintenance.

Traffic shall be maintained on all highways and streets at all times during construction of pipe lines across or along said highways and streets. Access to all existing subdivisions, private residences, and drives shall also be kept open except when pipe is being laid across the access. Work shall be performed in accordance with applicable North Carolina Department of Transportation guidelines. Traffic control shall include proper signing and flagging per these guidelines.

Measurement and Payment

Traffic control and maintenance is considered incidental to the work and shall not be a pay item, unless indicated in the proposal form.

2.4 CLEARING & GRUBBING

Clearing and grubbing shall consist of the removal and satisfactory disposal of all trees, brush, stumps, logs, grass, weeds, roots, decayed vegetative matter, posts, fences, stubs, rubbish and all other objectionable matter resting on or protruding through the original ground surface and occurring within the construction limits or right-of-way of any excavation, borrow area, or embankment.

Clearing and grubbing operations shall be completed sufficiently in advance of grading operations as may be necessary to prevent any of the debris from the clearing and grubbing operations from interfering with the excavation or embankment operations. All work under this section shall be performed in a manner which will cause minimum soil erosion. The Contractor shall perform such erosion control work, temporary or permanent, as may be directed by the Engineer in order to satisfactorily minimize erosion resulting from clearing and grubbing operations.

Individual trees, groups of trees, and vegetation to be left standing will be clearly marked on the plans or in the field by the engineer. Individual trees and groups of

trees designated to be left standing within cleared areas shall be trimmed of all branches to necessary to prevent interference with construction operations. All limbs and branches required to be trimmed shall be neatly cut close to the trunk of the tree or to main branches. When oaks or elms are trimmed during a critical time of year (usually spring for oaks, or throughout the growing season for elms) some type of wound dressing should be applied to the cut. Individual trees, groups of trees, and other vegetation, to be left standing shall be thoroughly protected from damage incidental to construction operations by the erection of barriers or by such other means as the circumstances may require.

Clearing operations shall be conducted so as to prevent damage by falling trees to trees left standing, to existing structures and installations, and to those under construction, and so as to provide for the safety of employees and others. When such damages occur, all damaged areas shall be repaired, removed or otherwise resolved utilizing generally accepted practices at the Contractor's expense.

Materials and debris may be removed from the right-of-way or easement area and disposed of at locations off the project outside the limits of view from the right-of-way or easement area with the written permission of the property owner on whose property the materials and debris are placed. The Contractor shall make all necessary arrangements with property owners for obtaining suitable disposal locations and the cost involved shall be included in the unit price bid.

Measurement and Payment

Unless otherwise indicated on the Bid Sheet, Clearing and Grubbing shall be paid for at the Contract lump sum unit price.

Payment will be made under:
"Clearing and Grubbing"

LS

2.5 EROSION AND SEDIMENTATION CONTROL

The Contractor shall be totally responsible for controlling erosion and sedimentation and preventing damage to public and private property caused by erosion. Contractor shall prevent erosion of soil on the site and adjacent property resulting from his construction activities. The Drawings may not show all required erosion control measures. The Contractor shall be required to add to the erosion control measures as required. Effective erosion control measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operations that will disturb the natural protection.

Inlet Protection- A temporary sediment control barrier shall be formed around storm drain and curb inlets using standard concrete block and gravel, or rock

doughnut as shown on the Drawings. This method of inlet protection applies to both standard drop inlets and catch basins. Remove sediment as necessary to provide adequate storage volume for subsequent rains. When the contributing drainage area has been adequately stabilized, remove all materials and any unstable soil. Bring disturbed area to proper grade. Appropriately stabilize all bare areas around the inlet.

Silt Fence- Temporary sediment barriers constructed of filter fabric, buried at the bottom, stretched and supported by posts shall be installed below small disturbed areas as shown on the Drawings to retain sediment by reducing the flow velocity of sheet flows to allow sediment deposition. Silt fencing shall be placed at the extreme limits of the disturbed area as shown on the Drawings. Posts shall be 1.25 pounds/linear feet minimum steel with a minimum length of 5 feet. The steel posts shall have projections to facilitate fastening the fabric. Filter fabric shall be a synthetic fabric of at least 95% by weight of polyolefins or polyester, with properties conforming to requirements in North Carolina Department of Environment and Natural Resources Erosion and Sediment Control Planning and Design Manual 2013 Revision. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120 degree Fahrenheit. For reinforcement of standard strength filter fabric, wire fence of at least 14 gauge with a maximum of 6 inches mesh spacing shall be used. Silt fence shall be inspected at least once a week and after each rain. Sediment deposits shall be removed prior to reaching a depth of six inches. Remove all fencing materials and stabilize area after contributing drainage area has been properly stabilized.

Stone Check Dams- Small temporary stone dams constructed across drainage ways which drain 2 acres or less shall be constructed as shown on the Drawings to restrict flow velocity and minimize erosion in small channels. Stone shall be placed on a synthetic filter fabric foundation as shown on the Drawings. Fabric properties shall conform to properties listed for Silt Fence synthetic filter fabric. Check dams and channels shall be inspected for drainage after each runoff event. Any damage shall be immediately corrected, and the sediment accumulated behind the dam shall be removed. Stone shall be added to dams as needed to maintain dimensions shown on the Drawings.

Measurement and Payment

Inlet Protection- inlet protection will be paid for at the unit price bid per each. Half-ring inlet protection shall be installed in accordance with the standard details and at locations shown on the Drawings. The unit price shall include all costs incurred in furnishing, installing, maintenance during construction activities, and removal after restoration of disturbed areas. The Unit Prices in the Bid Schedule shall apply regardless of the actual size (volume in cubic feet) of the half-ring inlet

protection, or the actual number of times each half-ring inlet protection is cleaned or reconstructed. Payment shall be in accordance with the unit prices stated in the Bid Schedule as modified herein: 75% of the Unit Price for installation and 25% of the Unit Price for removal.

Silt Fence- Silt fence will be paid for at the unit price bid per linear foot. Silt fence shall be installed in accordance with the standard details and at locations shown on the Drawings. The unit price shall include all costs incurred in furnishing, installing, maintenance during construction activities, and removal after restoration of disturbed areas. Payment shall be in accordance with the unit prices stated in the Bid Schedule as modified herein: 75% of the Unit Price for installation and 25% of the Unit Price for removal.

Stone Check Dams- Stone check dams will be paid for at the unit price bid per each. Stone check dams shall be installed in accordance with the standard details and at locations shown on the Drawings. The unit price shall include all costs incurred in furnishing, installing, maintenance during construction activities, and removal after restoration of disturbed areas. The Unit Prices in the Bid Schedule shall apply regardless of the actual size (volume in cubic feet) of the stone check dam, or the actual number of times each stone check dam is cleaned or reconstructed. Payment shall be in accordance with the unit prices stated in the Bid Schedule as modified herein: 75% of the Unit Price for installation and 25% of the Unit Price for removal.

2.6 ROCK EXCAVATION

This Section consists of blasting, excavating, removing and disposing of rock from water and sewer trenches. Rock is defined as solid, ledge rock that's located in a water or sewer trench, which, in the opinion of the Engineer, cannot be removed practically without the use of drilling and blasting or special techniques such as drilling and wedging. Excavated boulders or rock fragments with a volume greater than ½ cubic yard may be classified as rock by the Engineer.

In removing rock, special care shall be taken to excavate it as closely as possible to the required line and grade. The surface of all rock shall be sufficiently rough to bond well with any masonry structure. Rock surfaces against which masonry will be constructed shall be thoroughly cleaned of all dirt, loose rock, boulders, gravel, snow, ice, or other objectionable substances.

Blasting will be permitted for rock excavation unless prohibited by local ordinances or regulations. When permitted, the Contractor must use all possible precautions to prevent accidents or damage on account of explosions or the use or storage of explosives. Explosives shall be used, handled, and stored, as prescribed by the Laws and Regulations of the State of North Carolina and by all

local regulations.

Rock excavation in trenches, unless otherwise specified, shall be measured as having vertical sides and a width one and one-half feet greater than the internal diameter of the pipe, to a horizontal plane six inches below the bottom of the pipe. Rock excavation for structures, unless otherwise specified or shown on the drawings, shall be measured between vertical planes two feet farther apart than the outside dimensions of the foundations of the structures and from the surface of the rock to the neat lines of the bottom of the structures.

If the City does not designate where such surplus materials are to be disposed of they become the property of the Contractor and he shall dispose of them at his own expense, except that no rock be permitted in the trench backfill.

Measurement and Payment

All rock excavation to be paid for under this item shall be measured in cut and will be paid for only once whether the material is placed directly in its final position or re-handled. Excavation above the elevation of the top of the rock will be paid for as earth excavation. Payment will be made only for rock excavation within defined limits specified herein.

Payment shall include the excavation of all rock; the furnishing, placing and removing of all sheeting and shoring; blasting; the pumping and removal of water; the hauling and disposal of excavated materials; and the furnishing of all labor, tools and appliances necessary to complete the work as specified. No payment for rock excavation will be made whenever rock excavation is specifically included in other items of these specifications.

Payment will be made under:

Rock Excavation

CY

2.7 SELECT BACKFILL MATERIAL

This Section consists of providing select backfill material to backfill trench lines, undercut, manholes, and drainage structures and excavation and disposal of unsuitable materials.

When the Engineer determines that the material excavated from the trench is unsuitable to be used as backfill material, the Contractor shall provide select backfill material. Select backfill materials shall meet the requirements of Section 1016 of the Standard Specification for Roads and Structures for the North Carolina Department of Transportation, latest edition.

When the moisture content of an otherwise suitable material is too high to achieve specified compaction, as determined by a moisture content and density test, the Contractor shall replace the material as necessary to meet backfill requirements. The wet material may be dried to optimum moisture content and used for backfill in subsequent phases of the project. Should an otherwise suitable material be found too dry to achieve compaction requirements, water may be added to the material to raise the moisture content to optimum. No direct payment will be made for achieving optimal moisture content.

Measurement and Payment

The quantity of Class I Select Backfill Material at the contract unit price per cubic yard for "Select Backfill Material" will be the actual number of cubic yards of select backfill material measured in a rectangular prism along the vertical centerline of the trench. The above price and payment will be full compensation for all work to provide select backfill material, including but not limited to: removing and disposing unsuitable excavated materials from the Site and furnishing, hauling, placing, compacting approved backfill material, and any incidentals necessary to satisfactorily complete the work.

Payment will be made under:

Select Backfill Material CY

2.8 STONE EMBEDMENT AND UNDERCUT

This Section consists undercutting unstable or unsuitable trench bottoms or manhole foundations, disposal of unsuitable materials and replacing the undercut material with stone.

It is expected that satisfactory materials will be found at the elevation shown on the drawings, but in case the materials encountered are not suitable, or in case it is found desirable or necessary to go to additional depth, the excavation shall be carried to additional depth.

Where the subgrade is found to be unstable or it include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed to depth ordered by the Engineer and replaced with an approved stabilization stone. The Engineer will designate materials that are unsuitable. The depth of stabilized stone used for foundation and bedding shall depend upon the severity of the condition of the trench bottom soil or material as determined by the Engineer.

Measurement and Payment

The quantity of additional washed stone to be paid for pipe bedding or undercut will be the actual amount of material, by lineal foot installed per pipe detail or for each 6-inches of depth (for undercut), which has been properly placed, compacted and incorporated into the completed and accepted work, as requested and approved by the Engineer. Please note that 6-inches of Class 1 embedment material shall be included in the unit price for all PVC pipe installed on this project. This pay item applies to additional washed stone needed for PVC lines for undercut excavation, and pipe bedding needed for ductile iron lines due to wet conditions. Length and depth of stone bedding installed for DIP pipe bedding or undercut excavation shall be verified in the field by the Engineer.

The quantity of additional washed stone pipe bedding shall be paid for at the contract unit price per lineal foot installed per details for bedding or for each 6-inches of depth for undercut, complete including but not limited to hauling, placing, compaction, and other related construction. Placement of additional washed stone pipe bedding shall be in accordance with the standard details. The contractor shall provide the engineer haul tickets for each load of washed stone that is utilized for undercut excavation. Only washed stone that is authorized by the Engineer will be paid at the contract unit price under this item.

Payment will be made under:

Stone Embedment and Undercut, 6-inch depth (type) LF

2.9 INCIDENTAL STONE

This Section consists of furnishing and placing a graded stone material for use in pavement cuts, temporary maintenance of traffic outside of paving cut maintenance, and at locations directed by the Engineer.

Stone shall meet the requirements of the Section 545 in the NCDOT's Standard Specifications for Roads and Structures, Latest Edition.

Measurement and Payment

The stone will be measured by being weighed in trucks on approved platform scales or by other approved weighing devices. No deduction will be made for any moisture contained in the stone at the time of weighing. The stone base for roadway replacement as shown in the detail in the Drawings will be paid separately under bid items "Remove & Replace Roadway Pavement" and "Remove & Replace Driveway Pavement" Gravel Driveway Repair will be paid under "Gravel Driveway Repair, ABC Stone". Payment will be full compensation for all work covered by this Section including but not limited to: furnishing, hauling, placing, compacting, spreading, shaping, maintaining. No additional stone will be paid for paving cut maintenance.

Payment will be made under:
Incidental Stone, (type)

TN

2.10 PAVEMENT REPAIR

The work covered by this section covers the furnishing of labor, materials and equipment for the construction of asphaltic concrete base or binding course, bituminous tack coat, asphaltic concrete surface or wearing course, and stone base for the roadway, driveways and parking area as indicated on the Drawings. Subgrade preparation shall be as indicated in the Excavation and Fill for Structures section, unless otherwise specified in the governing standards or herein. Asphaltic concrete paving shall be constructed to the lines, grades, and cross sections indicated on the drawings. Type of construction shall be as indicated on the Drawings and as specified herein.

Construction Requirements

Repairing of existing pavement shall include but not be limited to the saw cutting of the existing pavement to a neat vertical joint and uniform line; the removal and disposal of pavement, base, and subgrade material as approved or directed by the Engineer; the coating of the area to be repaired with a tack coat; and the replacement of the removed material with asphalt plant mix.

Repair of existing pavement shall be done as approved or directed by the Engineer. The work shall be coordinated with all other work and operations.

Where traffic is to be maintained, the removal or installation of pipe shall be done in sections so that half the width of the roadway will be available to traffic. Immediately upon completion of the pipeline crossing the paved area, the pavement repair shall be made. All pavement replacement shall be completed within 7 calendar days of backfilling or 500 linear feet of pipe installation. When re-paving cannot be completed before reinstatement of traffic, stone shall be placed and maintained in the paving cut until repaving is completed.

The materials and construction methods used for the pavement structure replacement shall meet all requirements of the NCDOT's Standard Specifications for Roads and Structures, Latest Edition.

All of the above work will be subject to thickness and compaction tests as deemed necessary by the Engineer. Such tests will be at the expense of the Contractor.

Measurement and Payment

The pavement replacement quantities will be measured and paid for at the contract unit price per square yard for "Remove & Replace Roadway Asphalt" or "Remove & Replace Asphalt Driveway" and shall include only the area actually removed and replaced over the pipeline trench. If, in the opinion of the Engineer, conditions beyond the Contractor's control require additional pavement replacement, a trench width greater than the maximum width equal to the nominal diameter of the pipe plus two feet will be used to compute pavement replacement quantities.

Measurement for payment for asphalt overlay shall be on a square yard basis for "Asphalt Overlay" and shall only include the actual area overlaid. All costs associated with milling the existing surfaces and feathering of the asphalt overlay to provide a smooth transition to existing pavement areas shall be included in the costs.

The unit prices bid for pavement removal and replacement and overlay shall include all costs in connection therewith, including cutting, removal, and disposal of old pavement and base course; construction of new pavement, base course and stone base in accordance with detail Drawing, to the width required to match existing pavement and all extra compaction effort required for backfill beneath pavement. All costs involved in repairing or removal and replacement of existing pavement outside the specified pay limits, where damaged during construction operations, shall be considered a subsidiary obligation of the Contractor and shall be borne by the Contractor. No additional stone will be paid for paving cut maintenance. No price adjustments will be made for Asphalt Binder for Plant Mix (liquid asphalt).

Payment will be made under:

"Remove & Replace Roadway Pavement"	SY
"Remove & Replace Asphalt Driveway"	SY
"Asphalt Overlay"	SY

2.11 REMOVE AND REPLACE CONCRETE SIDEWALK AND DRIVEWAY

This Section consists of the removal and replacement of concrete sidewalks, driveways, and miscellaneous slabs that are removed for the installation of pipelines and appurtenances.

Construction Requirements

Concrete replacement shall be constructed in accordance with Section 848 of the NCDOT's Standard Specifications for Roads and Structures, Latest Edition.

Concrete forms shall be constructed to shape, line, and dimension as indicated in the drawings or directed by the Engineer. The forms shall be braced and tied together to prevent displacement during the concrete pouring and finishing operations. The Contractor shall provide a finish on the replacement concrete that matches the adjacent concrete retained.

Measurement and Payment

The concrete flatwork replacement quantities will be computed in square yards using the actual trench width up to a maximum width equal to the nominal diameter of the pipe plus three feet, and will be paid for at the contract price per square yard for "Remove & Replace" Concrete. If, in the opinion of the Engineer conditions beyond the Contractor's control require additional flatwork replacement, a trench width greater than the nominal diameter of the pipe plus three feet will be used to compute flatwork replacement quantities.

The above price and payment will be full compensation for all work covered by this Section including but not limited to: removing and disposing of the existing concrete flatwork, sawing a neat edge along concrete to be retained, constructing forms, furnishing, hauling, placing, compacting, and finishing concrete, constructing expansion and control joints, and any incidentals necessary to complete the work.

<u>Payment will be made under:</u>	
Remove & Replace Concrete Sidewalk	SY
Remove & Replace Concrete Driveway	SY

2.12 REMOVE AND REPLACE CONCRETE CURB AND GUTTER

This Section consists of the removal and replacement of concrete curb and gutter at the locations shown on the drawings, or designated by the Engineer.

Construction Requirements

After the installation of the pipelines, the Contractor shall replace the removed curb and gutter with new concrete curb and gutter. The new concrete curb and gutter shall be constructed in accordance with Section 846 of the NCDOT's Standard Specifications for Roads and Structures, Latest Edition.

Measurement and Payment

Payment for removing and disposing of existing concrete curb and gutter and constructing new concrete curb and gutter will be made at the contract price per linear foot for "Remove & Replace Concrete Curb and Gutter." Measurement for

payment for curb and gutter removal and replacement shall be restricted to a five foot length of cut centered on the pipeline installed and perpendicular to the pipeline. The unit price bid for curb and gutter removal and replacement shall include all costs in connection therewith, including removal and disposal of old curb and gutter; installation of new curb and gutter in accordance with detail Drawings. All costs involved in removal and replacement of existing curb and gutter outside the specified pay limits, where damaged during construction operations, shall be considered a subsidiary obligation of the Contractor and shall be borne by the Contractor.

Payment will be made under:

Remove & Replace Concrete Curb and Gutter

LF

2.13 GRAVEL DRIVEWAY REPAIR

This Section consists of furnishing and placing a graded stone material for use in driveway repair. Aggregate base course materials shall consist of crushed stone or uncrushed gravel, or other similar material having hard, strong, durable particles free of adherent coatings meeting the requirements of the NCDOT Standard Specifications for Roads and Structures, latest edition for the project-specific use of the aggregate.

Measurement and Payment

Work associated with this line item shall include the repair of gravel, at the locations shown on the plans. All repairs shall be in accordance with the details shown on the plans and per all related specification sections, but in no case shall material thickness be less than the existing material sections. The unit price bid shall include all cost for installation of ABC stone as shown on the repair details.

Drive repair shall be paid for at the unit price of drive repair installed. Measurement shall be from the edge of drive to opposite drive edge along the utility location. The contractor shall be responsible for the entire width of the trench as shown on the plan details dependent on diameter of pipe installed. Payment for any trench width less than that depicted on the details will be pro-rated accordingly.

Payment will be made under:

Gravel Driveway Repair, ABC Stone

TN

2.14 RESTORATION AND PERMANENT SEEDING

This Section consists of the restoration and permanent seeding at locations shown on the drawings, or designated by the Engineer.

Construction Requirements

After The topsoil shall be, unless indicated otherwise on the drawings or in the proposal, a minimum of four inches in thickness after compaction in residential areas and to whatever thickness exists in other areas, accurately graded to the required lines and grades, and rolled with a light roller to secure smoothness. Any sliding, settling, or washing out which may occur before the completion of the Contract shall be repaired in a satisfactory manner.

In residential or commercial areas, and as directed by the Engineer in unimproved areas, the exposed earth surface shall be seeded. The topsoil shall be worked to a finely divided planting surface by hand raking or by the use of a harrow. All rubbish, twigs, pieces of bark and all stones three-fourths (3/4) inch in diameter or over, shall be removed. A grass fertilizer such as 12-12-12 as approved by the Engineer shall be applied at the rate of twenty (20) pounds per one thousand (1,000) square feet (870 pounds per acre). Fertilizer shall be raked into the soil to a depth of about one inch.

Seed shall be sown immediately after the preparation of the surface. The kind of seed to be used depends upon the type of work to be done, the location, weather and other conditions. All seed shall be inoculated against disease. Seeding shall be done at the rate of five pounds per one thousand square foot.

In the residential, commercial areas, the following seed mix shall be used. Rates shown are per one thousand (1,000) square feet.

In early Spring and late Summer

2-1/2 pounds of Kentucky Bluegrass (108 pounds/acre)

2-1/2 pounds of fine leaved fescue (108 pounds/acre)

In mid Summer and late Fall

2-1/2 pounds of Kentucky Bluegrass (108 pounds/acre)

1-1/4 pounds of fine leaved fescue (54 pounds/acre)

1-1/4 pounds of annual ryegrass (54 pounds/acre)

For unimproved areas

4-1/2 pounds perennial ryegrass (194 pounds/acre)

1/2 pounds alsike clover (22 pounds/acre)

Measurement and Payment

The Contractor shall maintain the seeded areas until one month after the final payment; included shall be watering and cutting as necessary. Watering and cutting following the period of the Contractor's responsibility shall be the City's

responsibility. If at any time before the expiration of the Contract Bond (usually one year after final payment is made) any part of the seeded area is not in good condition, the Contractor shall fertilize such area and shall reseed it as often as may be necessary to get a good stand of grass.

The area to be paid for under this item shall include all areas within or adjacent to the project site that have been cleared, filled, backfilled, or disturbed during the process of construction.

Payment will be made under:
Restoration and permanent seeding LS

2.15 FLOWABLE FILL BACKFILL

This Section consists of the flowable fill backfill at locations shown on the drawings or designated by the Engineer.

Construction Requirements

The contractor shall, under this item, furnish flowable fill backfill where shown on the drawings, or directed by the Engineer. In general, this work shall include the removal of excavated materials from the site, and the furnishing of flowable fill backfill in place of the excavated material or as filling sections of existing water or sewer main piping as shown on the drawings or designated by the Engineer. The flowable fill backfill shall consist of the placement of a flowable mixture of portland cement, water, pozzolan and/or fine aggregate, and, optionally, conventional concrete admixtures and/or a high-air entraining agent or foaming agent for backfilling trenches as shown on the plans or as specified. The work shall be in accordance with NCDOT Section 1000-7 unless otherwise specified herein.

Flowable fill shall be discharged from the mixer by any reasonable means into the space to be filled. Sufficient mixing capacity of mixers shall be provided to permit the mortar to be placed without interruption. The fill material shall be brought up uniformly to the fill line shown on the plans or as directed by the Engineer. Placing of material over flowable fill backfill may commence as soon as the surface water is gone or as directed.

Measurement and Payment

Unless specifically ordered otherwise by the Engineer, the number of cubic yards of flowable fill will be paid for shall be the number of cubic yards actually used in accordance with these specifications within the pay limits as shown on the plans. Wherever flowable fill backfill is required within the pay limits for excavation, the entire excavation shall be backfilled with flowable fill materials; all such backfill

outside the pay limits for excavation shall be furnished and placed by the Contractor but will not be measured for payment.

The unit price stipulated in the proposal under this item per cubic yard for flowable fill backfill shall include the furnishing of all labor, materials, equipment and incidentals necessary to complete this work as specified or as shown.

Payment will be made under:

Flowable Fill Backfill

Cubic Yards

2.16 ABANDON EXISTING PUMP STATION

This section covers the demolition of existing structures, piping, equipment, and sitework and the salvage of existing materials and equipment as indicated on the Drawings, as specified herein, or as required to complete the work.

Construction Requirements

Demolition and salvage work shall create minimum interference with Owner's operations and minimum inconvenience to Owner. Contractor shall provide protection and safety of all roadways, sidewalks, and all accessible areas during demolition activities. Blasting will not be permitted. Contractor responsible for obtaining all necessary permits for demolition, if required.

Removal of equipment or facilities shall include removal of all accessories, piping, wiring, supports, associated electrical starters and devices, baseplates and frames, and all other appurtenances, unless otherwise directed. Existing materials and equipment removed, and not indicated to be reused as a part of the Work, shall become Contractor's property unless otherwise specified or desired by the Owner, and shall be promptly removed from the Site and properly disposed of or recycled in accordance with state and local laws. The Owner shall provide a list of all materials and equipment it wishes to retain prior to abandonment.

All miscellaneous internal piping, pumps, motors and appurtenances shall be removed and disposed leaving only the building. Electrical service to the building shall remain. Abandon existing yard piping within the limits indicated on the Drawings. All yard piping indicated to be abandoned shall be plugged with concrete.

Contractor shall conduct demolition activities in a manner that prevents damage to existing facilities which are indicated to remain and shall provide all necessary protection for existing facilities. Any remaining facilities damaged during demolition shall be repaired by Contractor to a condition equal to or better than

the original condition. When demolition is complete, all debris shall be removed from the Site and the Site graded to the lines and grades indicated on the Drawings.

All structures, piping, equipment, concrete drives, asphalt drives, trees, shrubs, storm sewers, riprap, fencing, etc. indicated on the Drawings shall be demolished and promptly removed from the jobsite.

Measurement and Payment

A unit price bid for the demolition and removal of each pumping station and appurtenances located in the distribution system or sewer collection system to include all costs for furnishing all materials, equipment, and labor for the demolition and salvage in conformance with the Drawings, Specifications, and other Contract Documents. The work shall include sitework including clearing and grubbing, tree removal, and site surfacing; excavation and backfill; erosion control; abandonment of yard piping; and any other items not included in separate bid items but required for the demolition of each pumping station.

Payment will be made under:
"Abandon Pump Station"

LS

SECTION III WATER DISTRIBUTION SYSTEM

3.1 GENERAL DESCRIPTION

This Section consists of those work common to water main construction. Construction operations that are unique to a particular water main will be covered in the contract "Special Provisions." Operations that are common in the construction of both water and sanitary sewer mains are located in [Section II](#) of these Specifications.

3.2 WATER PIPE AND APPURTENANCE MATERIALS

These specifications shall apply to the materials to be furnished and installed to complete the water line installations in accordance with the plans. All pipe and appurtenances shall be of the class and type as indicated on the plans, within the approved materials list and designated herein.

No unapproved materials will be delivered to the job site.

All materials shall be first quality with smooth interior and exterior surfaces, free from cracks, blisters, honeycombs, and other imperfections, and true to theoretical shapes and forms throughout. All materials shall be subject to the inspection of the Engineer at the plant, trench, or other point of delivery, for the purpose of culling and rejecting material which does not conform to the requirements of these specifications. Such material shall be marked by the Engineer, and the Contractor shall remove it from the project site upon notice being received of its rejection.

All pipe, fittings, valves, hydrants, pipe clamps, restraints, flanges, castings, rebar, hatches, inlets, meter and valve boxes, and any other iron and steel products shall be produced in the United States.

Unless superseded or modified by a Special Provision, all materials, apparatus, supplies, methods of manufacture, or construction shall conform to the specification for same contained in this Section. Specifications cited shall refer to the latest revision under the same specification number, or to superseding specifications under a new number, except provisions in revised specifications which are clearly inapplicable.

The Contractor shall use care unloading materials to avoid damage. Material shall not be rolled or dragged over gravel or rock during handling. The Contractor shall store the fittings, valves and appurtenances on sills above storm drainage level and deliver for installation after the trench is excavated. All valves shall be drained and so stored as to protect them from freezing. When any material is damaged during transporting, unloading, handling or storing, the undamaged portions may be used or, if damaged sufficiently, the Engineer will reject the material as being unfit for

installation.

If any defective material is discovered after installation, it shall be removed and replaced with sound material or shall be repaired by the Contractor in an approved manner at his own expense.

3.2.1 PIPE

Ductile Iron Pipe

Ductile Iron Pipe shall be manufactured in accordance with ANSI A21.51./AWWAC151. The interior of the pipe shall be cement lined and seal in accordance with ANSI A21.4/AWWA C104, and the exterior shall be coated with a bituminous coating in accordance with ANSI A21.53/AWWA C153. Ductile iron pipe shall be manufactured in accordance with ANSI A21.51 in 18-foot or 20-foot lengths. Pipe joints shall be push-on-type as per ANSI A21.51, Section 51-2-6.

All ductile iron water pipe less than 12 inches in diameter smaller shall be of pressure class 350 in accordance with ANSI A21.50 for a working pressure of 350 psi. Water pipe nominal diameters sixteen inches and larger shall be Pressure Class 250 designed in accordance with ANSI A21.50 for a working pressure of 250 psi.

Polyethylene encasement shall be provided for all buried ductile iron pipe especially in proximity to existing gas utilities, as determined by the engineer. Linear low density polyethylene film (8 mil minimum, 3600psi tensile strength) or high density (4 mil minimum, 6300psi tensile strength) cross laminated polyethylene film shall be used with the properties specified in ANSI/AWWA C105/A21.5 Polyethylene Encasement for Ductile-Iron Pipe Systems. All polyethylene encasement shall be marked showing trademark, year of manufacture, type of resin, specification conformance, and applicable pipe sizes.

Tracer wire shall be 19 gauge, tin coated, copper conductor with polyethylene insulation, core material comprised of high-tenacity woven polyester with water blocking yards encapsulated in 30 mil. Blue HDPE jacket providing corrosion resistance, flexibility, impact strength and 1800 pounds tensile strength. Trace-Safe water blocking tracer wire and related connectors manufactured by Nepco, Inc. or approved equivalent.

Gaskets of all joint types shall be Synthetic rubber unless otherwise specified; natural rubber will not be acceptable. All gaskets shall be furnished by the pipe manufacturer unless another manufacturer's product is indicated. Pipe manufacturer shall submit certificates of gasket suitability certifying that the gasket materials are compatible with the joints specified, are recommended for the specified field test pressure and service conditions. Gaskets for treated or potable

water service shall be certified for chlorinated and chloraminated potable water. Gas and oil-resistant gaskets shall be made of Nitrile (NBR) rubber. The name of the material shall be permanently marked or molded on the gasket. Gaskets shall also be certified as suitable where soils may be contaminated with gas and oil products.

Joint lubricant shall be vegetable-based recommended by the pipe manufacturer. Petroleum or animal-based lubricants will not be acceptable. Lubricants that will be in contact with treated or potable water shall be certified as being in compliance with ANSI/NSF 61.

1. Flanged Joints

All flanged joint pipe shall be manufactured in accordance with ANSI/AWWA C115/A21.15. Flanged pipe shall have flanges with long hubs, shop fitted on the threaded end of the pipe.

Where required, flanges shall be tapped for stud bolts. Flanges shall be accurately faced at right angles to the pipe axis and shall be drilled smooth and true, and covered with coal tar pipe varnish or otherwise protected against corrosion of flange faces. Flange faces shall be cleaned to bare metal with wire brushed before installation of pipe.

Ductile Iron Flanged joint pipe shall be thickness Class 53 minimum and shall have Ductile Iron flanges conforming to ANSI B 16.1, 125 pound template. Pipe shall be ordered in lengths needed as no pipe shall be cut, threaded or flanged in the field.

In general, flanged joints shall be made up with through bolts of the required size. Stud or tap bolts shall be used only where shown or required. Steel or tap bolts shall be cadmium plated, with good and sound, well fitting threads, so that the nuts may be turned freely by hand. Cadmium plating shall be by an approved process with a plate thickness of 0.0001 to 0.0005 inches.

Flanges, Class 250 (where identified)	Ductile iron, flat faced, with ANSI/ASME B16.1, Class 250 diameter and drilling.
All Others	Ductile iron, Class 125, ANSI/AWWA C115/A21.15.
Bolts	ASTM A307, chamfered or rounded ends projecting 1/4 to 1/2 inch beyond outer face of nut.
Nuts	ASTM A563, hexagonal, ANSI/ASME B18.2.2, heavy semifinished pattern.
Gaskets	ASTM D1330, Grade I rubber, full

	face type, 1/8 inch thick unless otherwise required by pipe manufacturer and accepted by Engineer. Pipe manufacturer shall submit certification of gaskets furnished as indicated above under Gaskets - All Joint Types.
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2. Mechanical Joints

All mechanical joints shall be manufactured in accordance with ANSI A21.11/AWWA C-111 with ductile iron glands. All bolts shall be torqued to manufacturer’s specifications. If effective sealing is not obtained by tightening the bolts to the specified torques, the joint shall be disassembled and reassembled after thorough cleaning.

Restrained mechanical joints shall be suitable for a test or working pressure plus surge pressure of the rated working pressure plus 100 psi

Restrained Mechanical Joints (factory prepared spigot), (4 inch through 48 inch), working pressure rating at least 250 psi.	American "MJ coupled Joints", or Griffin "Mech-Lok".
Restrained Mechanical Joints, (field cut spigot), (4 inch through 24 inch) , working pressure rating 350 psi for 4 through 16 inch and at least 250 psi for 18 through 24 inch.	EBAA Iron "Megalug" Series 1100, Sigma “One Lok” SLDE series, or Star Pipe Products “StarGrip 3000” without exception.

3. Slip Joints

Slip or push-on joints shall be manufactured in accordance with ANSI/AWWA C111/A21.11.

Bells of "slip" joint pipe shall be contoured to receive a bulb shaped circular rubber gasket, and plain ends shall have a slight taper to facilitate installation. The lubricant used in making up the joints shall be furnished by the pipe manufacturer.

Restrained push-on joints shall be suitable for a test or working pressure plus surge pressure of the rated working pressure plus 100 psi.

Restrained Push-on Joints, gaskets with stainless steel gripping segments, (4 inch through 12 inch), working pressure rating 350 psi.	American "Fast Grip". U.S. Pipe "Field Lok 350 Gasket", or McWane Sure Stop 350 Gasket.
Restrained Push-on Joints, locking wedge type, (4 inch through 24 inch), working pressure rating 350 psi for 4 through 16 inch and at least 250 psi for 18 through 24 inch.	EBAA Iron "Megalug" Series 1700; U.S. Pipe "TR Flex Gripper Ring"; Star Pipe Products "StarGrip 3100P"; or American "Field Flex Ring", without exception.
Restrained Push-on Joints, positive locking segments and/or rings, (4 inch through 24 inch), working pressure rating 350 psi.	American "Flex-Ring,"; U.S. Pipe or McWane "TR Flex"
Restrained Push-on Joints, positive locking segments and/or rings, (30 inch through 48 inch), working pressure rating at least 250 psi.	American "Flex-Ring," or "Lok-Ring"; U.S. Pipe or McWane "TR Flex"; U.S. Pipe HP LOK..

Flexible Service Pipe

Two-inch and smaller water pipe for water service laterals and air release valves shall be cross-linked polyethylene PEXa. Pipe shall be CTS-OD (copper tubing size, outside diameter controlled) size.

Copper Pipe

As specified in the standard details, copper pipe shall be Type K soft copper conforming to ASTM B-88.

Steel Casing Pipe

See [Section 5.1](#). Steel pipe shall be welded or seamless as specified in ASTM A139. Minimum yield strength shall be 35,000 psi; and pipe thickness shall be as specified for each individual job. Encasement pipe must be approved by the appropriate controlling agency (D.O.T., R.R., etc.) and the Engineer.

3.2.2 PIPE FITTINGS

Pipe Fittings

Standard ductile iron pipe fittings shall be mechanical joint in accordance with ANSI A21.10/AWWA C110. All ductile iron pipe fittings shall be flanged in accordance with ANSI Specification B 16.1 for exposed piping. All fittings shall be lined with

cement mortar not less than 1/16 inch thick in conformance with ANSI A21.4/AWWA C104 and the exterior of all fittings shall be coated with a bituminous coating in accordance with ANSI A21.53/AWWA C153. Fittings shall have a minimum pressure rating of 250 psi and are subject to approval by the Engineer. All fittings shall be ductile iron and suitable for the rated working pressure plus a surge or test pressure allowance of 100 psi or 1.5 times rated working pressure, whichever is less, without leakage or damage.

Restrained Mechanical Joint Fittings

Mechanical joint restraints may be using a follower gland with restraining device that imparts a wedging action against the pipe. The restraining device shall have twist off nuts to ensure proper contact with the pipe. Glands and restraining devices shall be manufactured of Ductile Iron. Retainer glands shall be rated at a working pressure of 250 psi with a minimum safety factor of 2:1. Factory restrained joint pipe shall be used for construction of new water lines.

3.2.3 VALVES

Valves 12 Inches and Smaller

Valves 12-Inches and smaller shall be resilient wedge gate valves conforming to AWWA C509 with a working pressure of 250 psi, O-ring sealing, 2" square operating nut, open left and mechanical joint ends. All interior and exterior ferrous metal surfaces shall be coated with a minimum of 8 mils of fusion-bonded coating meeting the requirements of AWWA C550. Each valve shall have the initials of the maker, pressure rating and year of manufacture cast on the body. Prior to shipment from the factory, each valve shall be tested by hydraulic pressure equal to twice the specified working pressure. Valves shall be operated by hand wheel or operating nut as herein specified and shall have an arrow cast in the metal indicating the direction of opening. Valves to be installed underground shall be non-rising stem type while valves installed above ground or in buildings and structures shall have rising stems. Gate valves shall be furnished with Hendersonville Standard Valve boxes set in concrete pads as specified.

Gates valves up to two inches shall be all brass, conforming to AWWA C-800. Each valve shall have a tee handle or hand wheel, whichever is applicable, for valve operation.

Valves 16 Inches and Larger

Valves 16 inches and larger shall be butterfly valves as specified on the construction plans. Butterfly valves shall conform to AWWA C-504 designed for minimum operating pressure of 150 psi with higher pressure valves as needed specific

locations as determined by the Engineer. Both ends shall be mechanical joint in compliance with AWWA C111 and ANSI A21.11. Valves shall be at least the same class of pipe with which they are used.

Each butterfly valve shall be furnished with a manual operator equipped with a two-inch square operating nut. The operator shall open the valve when the operating nut is turned to the right or clockwise. The valve and operator shall be assembled for installation in a horizontal line with the main valve shaft horizontal and the operator shaft and operating nut aligned vertically to accept a valve key operated from the surface.

Surge Relief, Pressure Reducing and Altitude Valves

Pressure Reducing Valves larger than 2-inches in diameter shall consist of a main valve assembly and a pilot system, completely assembled tested as unit and ready for field installation. Surge relief, pressure reducing and altitude valves shall be flanged iron globe body; fully bronze mounted; external pilot operated with free floating piston operated without springs, diaphragm, or levers; single seat with seat bore equal to size of valve. Valves shall be manufactured in accordance with AWWA C506.

All surfaces of iron castings shall be coated with a minimum of two coats of a serviceable grade of asphaltic base metal paint. The valve design shall be such that repairs and internal dismantling of the main valve may be done without removing the valve from the water main. Valve working and surge pressures will be shown on the drawings or designated in the Contract "Special Provisions."

Pilot System. Provide a system of pilots and controls to enable the valve to perform the function listed below. All controls and control piping shall be non-corrosive and suitable for the working pressure.

Check Valves

Check valves shall be swing type with iron body and flanged ends, meeting all requirements of AWWA C508. Valves to have an iron disc with bronze disc ring and seat ring and lever and weight controlled. All internal iron surfaces of the valve shall be coated with a minimum of 8 mils of fusion bonded or liquid epoxy, approved for potable water.

Air Release Valves

Air release valves shall be single-body, dual operation valves that allow air to escape when the pipeline is being filled and allow air to enter when the pipeline is being emptied. The valves shall be in full accordance with AWWA C512. Refer to the detail

STANDARD AIR RELEASE VALVE INSTALLATION shown on the plans.

3.2.4 FIRE HYDRANTS

Hydrants shall have a compression type main valve, open left, closing with line pressure. Nominal main valve opening shall be 5¼" with a Storz connection, with bronze to bronze seating, and 6-inch mechanical joint elbow. Hydrants shall be designed for a minimum working pressure of 250 psi unless specified as 350 psi as determined by the Engineer and shall be subjected to hydrostatic tests of twice the rated working pressure in accordance with ANSI/AWWA C502. Refer to the detail FIRE HYDRANT INSTALLATION shown on the plans.

3.2.5 TAPPING SLEEVE ASSEMBLY SADDLE AND CORPORATION VAVLES

Tapping sleeves shall be 304 stainless steel, flanged for the tapping valve and manufactured for a working pressure of 250 psi for sleeves sixteen-inches and smaller. Sleeves shall have a full body 360-degree gasket. Sleeve shall have a 3/4-inch test plug. Fabricated steel tapping sleeves shall be fusion bonded epoxy coated to a 12-mil thickness. Bolts and nuts shall be stainless steel. 100% stainless steel sleeves may be used, provided that all metallic parts of the sleeves shall be 100% stainless steel including bolts. Ductile iron flanges may be included on sleeves or saddles.

Tapping saddles shall be of cast or ductile iron and shall conform to AWWA C-800. Saddles shall have two flattened 304 stainless steel straps for attachment to the pipe, with 304 stainless steel nuts and washers. Saddle shall have a neoprene gasket bonded to the underside. Casting shall be coated with a fusion bonded epoxy meeting all applicable requirements of AWWA C213. Outlet threads shall be Mueller "CC" pattern.

Service saddles shall be installed with service saddles having threads to accept standard AWWA Corporation valve inlet thread.

Corporation valves shall comply with AWWA C-800 and shall be high pressure rated at 150 PSI. Outlet threads shall be according to the indicated connection. All corporations installed shall require a tapping saddle/service clamp as hereinafter specified.

Refer to standard detail STANDARD TAPPING SLEEVE AND VAVLE ASSEMBLY shown on the plans.

Note: Tapping sleeves and saddles are to be water pressure tested for leaks, through the test plug, for a period of five minutes at 200 psi or as directed by the Engineer or Field Inspector. Air testing of the tapping sleeves is not permitted.

3.2.6 METER BOXES

Meter boxes shall be as shown on the details MINIMUM SERVICE LINE: 1" SERVICE LATERAL INSTALLATION, 2" METER BOX, or MULTI-METER VAULT ASSEMBLY DETAIL.

3.2.7 BACKFLOW PREVENTION DEVICE

Backflow prevention devices, if required at discretion of Owner, shall be USC approved, non-lead, and shall be approved in writing by the City's Environmental Compliance Coordinator.

3.2.8 CONCRETE AND MASONRY

Concrete

Concrete shall conform to the requirements of Section 1000 of the NCDOT's Standard Specifications for Roads and Structures, Latest Edition. The classes of concrete for the different types of poured in place concrete work shall be as follows: Class A for Concrete Driveways, concrete encasements, blocking, manhole foundations. Class B concrete for Flat Work, Curb & Gutter, Trench concrete.

Masonry

All masonry materials shall conform to the requirements of Section 1040 of the NCDOT's Standard Specifications for Roads and Structures, Latest Edition.

3.2.9 STONE AGGREGATE

All stone aggregate shall conform to the requirements of Section 1005 of the NCDOT's Specifications for Roads and Structures, Latest Edition. Aggregate gradation shall conform to Table 1005-1 of the Standard Specifications.

3.3 WATER TRENCH EXCAVATION AND BACKFILL

This Section consists of excavating, backfilling and compacting, for water lines.

Construction Requirements

The trench shall be excavated to the alignment shown in the drawings or to the centerline staked in the field and shall conform to the detail WATER TRENCH CONSTRUCTION OUTSIDE PAVEMENT or WATER TRENCH CONSTRUCTION UNDER PAVEMENT in the plans. The depth of the trench shall conform to the profile shown in the drawings. The maximum trench width shall not exceed the nominal diameter

of the pipe plus three feet without approval of the Engineer.

Trench sheeting, shoring, or bracing shall be used where shown in the drawings, specified in the Special Provisions, or as directed by the Engineer to: protect the utility under construction, allow construction to be performed according to drawings and specifications, or to prevent damage to property. The Contractor shall adhere to all OSHA requirements concerning trench sheeting, shoring, or bracing during all trench excavation. Where trench sheeting, shoring, or bracing is used, the trench width may be increased accordingly.

Trench protection shall be left in place at least until the pipe has been laid and backfilled to a point two feet above the pipe. The Engineer may direct that trench sheeting be left in place. Trench excavation shall proceed in advance of pipe installation for only as far as the Engineer will permit. Depressions in the stone bedding for the pipe bells shall be provided at each joint but shall be no larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. The trench bottom shall be true and even in order to provide support for the full length of the pipe barrel, except that a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle. Should the trench pass over a sewer or other previous excavation, the trench bottom shall be sufficiently compacted to provide support equal to that of the native soil. Care shall be taken to prevent damage to the existing installation.

Where the trench subgrade is found to be unstable or includes unsuitable materials, the trench shall be undercut as described in [Section 3.4](#), "Water Trench Stabilization and Pipe Bedding."

Excavated material shall be placed in a manner that will not obstruct the work, endanger the work, or otherwise cause a threat to the welfare of the public. The trench shall be kept dewatered during the excavating, pipe laying and backfilling stages of the work. Discharge from any dewatering pumps shall be conducted to natural drainage channels, storm sewers, or an approved reservoir. All backfill material shall be free from cinders, ashes, vegetable or organic material, boulders, rocks or stones, frozen soil, or other material that, in the opinion of the Engineer, is unsuitable. When the type of backfill material is not indicated in the drawings or is not specified, the excavated material may be used, if such material consists of loam, clay, sand, gravel, or other materials that, in the opinion of the Engineer, are suitable for backfilling. The conditions under which the Engineer will authorize payment for select backfill material in accordance with [Section 2.6](#) of these Specifications, "Select Backfill Material."

The Contractor shall be responsible for any trench settlement that occurs within one year from the time of final acceptance of the work. If paving or other restoration shall require replacement because of trench settlement within this

time, it shall be replaced by the Contractor at no extra cost to the Owner. Repair of settlement damage shall meet the approval of the Engineer, the Owner, and the authority having jurisdiction within the right-of-way.

The Contractor's attention is directed to the fact that there will be no direct payment(s) or compensation for installing the water main at extra depth to achieve minimum clearance from existing or new utilities while maintaining the minimum cover specified.

All excess trench excavation shall be disposed of in an approved waste area. The ground surface shall be left in a condition such that erosion control measures can be immediately carried out.

Measurement and Payment

Trench excavation and backfill is not a pay item and is included in the water pipeline's overall unit cost.

3.4 WATER TRENCH STABILIZATION AND PIPE BEDDING

This Section consists of undercutting unstable trench bottoms and replacing the undercut material with clean # 57 stone. Also covered by this Section is the furnishing and placing clean # 57 stone for pipe bedding.

Construction Requirements

Pipe bedding, laying conditions, and maximum depth of cover for ductile iron pipe shall conform to the detail WATER TRENCH CONSTRUCTION OUTSIDE PAVEMENT or WATER TRENCH CONSTRUCTION UNDER PAVEMENT in the plans.

Where the subgrade is found to be unstable or it include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed to depth ordered by the Engineer, and replaced with an approved stabilization stone. The depth of crushed stone used for foundation and bedding shall depend upon the severity of the condition of the trench bottom soil or material.

Carefully prepare bedding so that the pipe after installation will be true to line and grade. The placement and compaction of bedding stone beneath the pipe should be done in such a manner that provides a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints.

Once the pipe is brought to grade and placed in final position, the bedding material shall be deposited and compacted sufficiently under the pipe haunches and on each side of the pipe to hold the pipe in proper position during subsequent pipe jointing,

bedding, and backfilling operations. Bedding material shall be placed uniformly and simultaneously on each side of the pipe to prevent lateral displacement.

Measurement and Payment

No payment will be made under this item. Water trench stabilization and pipe bedding will be paid for under "Stone Embedment and Undercut."

3.5 WATER PIPE INSTALLATION

This Section consists of furnishing and installing ductile iron water pipe in an open cut trench at the locations shown on the drawings. The pipe shall be installed in accordance with all applicable specifications of ANSI/AWWA C600 and the following specifications. All work described herein is to be performed in accordance with the requirements in the drawings and the provisions of these Specifications.

Handling and Storage

All pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding in order to avoid shock or damage. Under no circumstances shall the pipe be dropped. Pipe handled on skidways shall not be rolled or skidded against pipe on the ground. Slings, hooks, or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior surface or interior lining of the pipe. Pipe shall not be stacked higher than the limits specified in ANSI/AWWA C600. Gaskets for pipe joints shall be stored in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.

Alignment and Grade

The water mains shall be laid and maintained to lines and grades established by the drawings with fittings, valves, and hydrants at the required locations unless otherwise approved by the Engineer. Valve-operating stems shall be oriented in a manner to allow proper operation.

When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with approval of the Engineer, to provide clearance as required by state regulations or as deemed necessary by the Engineer to prevent future damage or contamination of either structure.

Pipe Installation

Prior to installation of the pipe, the trench shall be dewatered. Proper implements, tools, and facilities shall be provided and used for the safe and convenient

performance of the work. All pipe, fittings, valves, and hydrants shall be lowered carefully into the trench by means of a derrick, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to materials, protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.

All fittings, valves, hydrants, and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the Engineer, who may prescribe corrective repairs or reject the materials. All lumps, blisters, and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and be free from dirt, sand, grit, or any foreign material before the pipe is laid.

Foreign material shall be prevented from entering the pipe while it is being placed in the trench. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe. At time when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Engineer. When practical, the plug shall remain in place until the trench is pumped completely dry. Care must be taken to prevent pipe flotation should the trench fill with water.

As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material. The bell ends of the pipe shall face the direction of laying unless directed otherwise by the Engineer; for lines on an appreciable slope, the Engineer may require that the bell ends face upgrade. Depth of cover for water mains shall not be less than 3'-0", measured to the top of pipe, unless noted otherwise on the Drawings or specifically authorized by the Engineer.

The maximum joint deflection for ductile iron water line shall not exceed the manufacturer's recommended maximum deflection. Cutting pipe for the insertion of valves, fittings, or closure pieces shall be done in a neat, skillful manner without creating damage to the pipe or cement-mortar lining. Pipe may be cut using an abrasive pipe saw, rotary wheel cutter, guillotine pipe saw, milling wheel saw, or oxyacetylene torch. Cut ends and rough edges shall be ground smooth, and for push-on joint connections, the end shall be beveled.

Install continuous underground detectable tracer wire during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Refer to the Drawings and the City of Hendersonville Standard Water Details for details and requirements for tracer wire.

Connection to the existing system shall be made in the presence of City of

Hendersonville personnel. If connection to existing mains will necessitate an interruption of service, the Contractor will schedule the connection for a time that is most convenient to the affected customers as determined by the Engineer. Adequate notice will be provided to those customers who will be put out of service by the connection. When such interruption of service is approved, the Contractor will have all required labor, material and equipment at the site before beginning any work and the service interruption will be kept to an absolute minimum.

Measurement and Payment

The quantity of water pipe will be measured, to the nearest foot along the centerline of the pipe through all fittings, valves, and appurtenances, and will be paid at the contract unit price per linear foot after installation, on the basis of the stationing as determined by the pipe installation surveys, with all stations carefully measured. No payment will be made for restrained joint pipe installed outside the limits indicated on the Drawings or manufacturer’s recommendation. Polyethylene tube protection of ductile iron fittings and piping shall be included in the unit prices for pipelines.

The above price and payment will be full compensation for all work covered by this Section including but not limited to: furnishing, hauling, excavation, and installing all pipe, conductive tracer wire, fittings and couplings for material transitions and connections, polyethylene encasement, and all other appurtenances not covered under another pay item, making all joint connections, tying new main to existing main, installing concrete reaction blocking and reinforcement, testing, chlorinating, and placing the line in service, excavating a trench for water pipe and appurtenances, sheeting, shoring, or bracing the trench, preparing the trench bottom, backfilling and compacting the trench, disposing of excess excavation, and restoring the area to its previous condition or better.

Payment will be made under:

“Ductile Iron Water Pipe, _____” LF

“Ductile Iron Water Pipe, Rest., _____” LF

3.6 VALVE AND FITTING INSTALLATION

This Section consists of furnishing and installing valves and pipe fittings, in an open cut trench, at the locations shown on the drawings.

Construction Requirements

Valves shall conform to [Section 3.2.3](#) of these Specifications. Prior to installation, the valves shall be inspected for direction of opening, freedom of operation,

tightness of pressure-containing bolting, cleanliness of valve ports and especially seating surfaces, handling damage, and cracks. Defective valves shall be corrected or held for inspection by the Engineer. Valve installation shall conform to VALVE INSTALLATION DETAIL in the plans.

Unless designated otherwise on the drawings or in the Special Provisions, a valve box with necessary extension shall be provided for every valve. The valve box shall not transmit shock or stress to the valve and shall be centered over the operating nut with the use of a 6-inch double-hub coupling or the bell of the cast iron stack piece. The box cover shall be installed flush with the surface of the finished area, or as directed by the Engineer.

All plugs, caps, tees, and bends, unless otherwise specified, shall be provided with restraint systems in accordance with [Section 3.2.2](#) of these Specifications and conform with DUCTILE IRON PIPE RESTRAINT DETAIL in the plans.

Measurement and Payment

The quantity of valves will be paid for at the contract unit price each for "Valve, _____" which have been furnished, satisfactorily installed, and accepted. The above price and payment will be full compensation for all work covered by the applicable provisions of this Section including but not limited to: furnishing and installing the gate valve, valve box with necessary extensions or manhole, any restraining devices, and any incidentals necessary to complete the work.

The quantity of fittings not separately listed will be incidental to the installation of water main. The above price and payment will be full compensation for all work covered in this Section including but not limited to: furnishing and installing the fittings, glands, bolts, and accessories, concrete reaction blocking and any reinforcement, extension stems (if required) and all other costs not included under other bid items.

Payment will be made under:

"Valve, _____"

EA

3.7 CONNECTIONS TO EXISTING WATER MAINS

This Section consists of excavating an area of sufficient size to connect to an existing water main, furnish and install a tapping sleeve or fitting as described in the plans, perform the water line tap or fitting insertion, and backfill and compact the area. Connections to existing facilities shall be made where shown on the Drawings or directed by the Engineer. Wet taps, using tapping sleeves and valves, shall generally be made; except as otherwise directed or planned in which case the main shall be cut and the connections made with fittings and valves. In no case

shall the Contractor shut off the water or operate the fire hydrants or gate valves in the existing systems without the expressed permission of the Owner. In event such instructions or permissions given by the Owner delays the shutoff, such instructions shall be followed without recourse.

Construction Requirements:

Prior to tapping or installing a fitting on the existing line, the Contractor shall excavate an area of sufficient size and depth that conforms to OSHA requirements. The installation shall conform to STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY detail in the plans. The Contractor shall follow manufacturer’s specifications when tapping the existing main. The Contractor shall perform a 200 psi pressure test, or a different pressure as required by the Engineer, on the tapping sleeve prior to tapping the existing water main. This pressure test will be performed using the test plug provided with the tapping sleeve.

The Contractor shall be responsible for installing all backflow prevention devices or other “jumpers” as may be required by the Plans or the water utility Owner at the point of connection with the existing water system. For extensions of the existing system, the valve isolating the new system from the existing system will not be opened until all other water system construction has been completed and satisfactorily passed all testing in compliance with these specifications unless specifically authorized by the water utility Owner.

Measurement and Payment

The quantity will be paid for at the contract unit price per each for "Connection to Existing Water Main" that was furnished and satisfactorily installed by the Contractor. The above price and payment will be full compensation for the Contractor to excavate, furnish and install the appropriate tapping sleeve or fitting, perform the water line tap or fitting insertion, excavation, backfilling, compacting the excavated area, and testing. Valve installation shall be paid under item [3.6 Valve and Fitting Installation](#). Price for each location shall include all other related necessary work and equipment required to provide an operable connection in accordance with the Contract Documents. Connections to Existing Water Mains not included in other bid items shall be made by the Contractor as a part of this work.

Payment will be made under:
"Connection to Existing Water Main"

EA

3.8 FIRE HYDRANT INSTALLATION

This Section consists of furnishing and installing fire hydrants in an open-cut trench, at the locations shown on the drawings. All fire hydrant connections shall conform to FIRE HYDRANT STANDARD INSTALLATION detail in the plans.

Construction Requirements

The Contractor shall inspect all hydrants for direction of opening, nozzle threading, operating-nut and cap-nut dimensions, tightness of pressure-containing bolting, cleanliness of inlet elbow, handling damage, and cracks prior to installation. Defective hydrants shall be corrected or held for inspection by the Engineer.

Fire hydrants shall be located as shown in the drawings. Each hydrant shall be connected to the main with a six-inch branch line having at least as much cover as the distribution main. Hydrants shall be set plumb with the pumper nozzle facing the roadway and with the center of the lowest outlet not less than eighteen inches above the finished grade. Hydrants shall be thoroughly blocked with concrete and restrained. Unless otherwise specified, the backfill around hydrants shall be thoroughly compacted to the final grade immediately after installation in order to put the hydrant into service as soon as practicable. Not less than seven cubic feet of # 57 stone shall be placed around the base of the hydrant to insure drainage of the hydrant barrel. A cap block shall be set under the fire hydrant foot for a solid bottom.

At the locations designated on the drawings, or where directed by the Engineer, the Contractor shall furnish hydrants with a barrel that will allow a bury depth greater than the standard four and one-half foot bury hydrant. A maximum of one barrel extension per hydrant shall be permitted.

Measurement and Payment

The measurement of hydrants will be the actual number of hydrants that have been furnished, installed, and accepted. The quantity of hydrants will be paid for at the contract unit price each for "Standard Fire Hydrant Assembly, Pressure Rating".

The above prices and payments will be full compensation for all work covered by this Section, including but not limited to: trench excavation, furnishing and installing hydrants and additional hydrant barrel lengths as required, line tee with 6-inch outlet, 6-inch isolation valve, 6-inch piping and restraints, accessories, appurtenances, excavating drain pits, furnishing and installing # 57 stone, furnishing and placing concrete blocking, furnishing and installing any tie rods, clamps, or other methods of restraining joints, backfill and compaction, repainting, site restoration, and any incidentals necessary to complete the work.

Payment will be made under:

COH Standard Fire Hydrant Assembly, 250 PSI

EA

COH Standard Fire Hydrant Assembly, 350 PSI

EA

3.9 AIR RELEASE VALVE INSTALLATION

This Section consists of furnishing and installing water main air release valve at locations designated in the drawings. Installations shall conform with STANDARD AIR REALEASE VALVE INSTALLATION in the drawings.

Construction Requirements

Prior to installation, the valves shall be inspected for direction of opening, freedom of operation, tightness of pressure-containing bolting, cleanliness of valve ports and especially seating surfaces, handling damage, and cracks. Defective valves shall be corrected or held for inspection by the Engineer.

Unless designated otherwise on the drawings or in the Special Provisions, a meter box with necessary extension shall be provided for every air release valve. The box cover shall be installed flush with the surface of the finished area, or as directed by the Engineer.

Measurement and Payment

The quantity of valves will be paid for at the contract unit price each for "Air Release Valve, ____" which have been furnished, satisfactorily installed, and accepted. The above price and payment will be full compensation for all work covered by the applicable provisions of this Section including but not limited to: furnishing and installing the air release valve , box with necessary extensions, and any incidentals necessary to complete the work.

Payment will be made under:

Air Release Valve, ____

EA

3.10 LARGE METER, CHECK OR PRESSUER REDUCING VALVE VAULT ASSEMBLY INSTALLATION

Check valves and pressure reducing valve assemblies required for complete and properly functioning piping systems. Provide limit switches on valves where limit switches are indicated on the Instrumentation Drawings. Install precast concrete vaults according to ASTM C 891. Install valves per manufacturer's recommendations. Clean valves and appurtenances before installation. Keep pipe,

fittings, valves and piping appurtenances clean during installation. Support pipe, fittings, valves and piping appurtenances in accordance with requirements of manufacturer and as shown on drawings. Do not damage valves and appurtenances, including linings, coatings and encasement, during installation. Remove and replace damaged valves and appurtenances. Remove damaged products from job site. Remove and replace damaged products at no additional cost to Owner.

Quality of materials, process of manufacture and finished products shall be subject to inspection and approval by Engineer. Such inspection may be made at place of manufacture or at project site after delivery, or at both places. Products shall be subject to rejection at any time on account of failure to meet any of the specified requirements even though sample products have been accepted as satisfactory at place of manufacturer.

Measurement and Payment

Large meter, check or Pressure Reducing Valve Vault Assembly shall be provided complete in place, as specified by the Contract Documents. The price shall include offloading, storage, and installation of one check or pressure reducing valve as specified. Owner will provide meter as specified and programming. Contractor shall be responsible for coordinating installation & programming with the Owner. Furnishing and installing precast concrete vault, complete with access hatch, as specified in the Contract Documents, and as shown on the Drawings. All materials, equipment, and labor for the furnishing and installing of one check valve or pressure reducing vault assembly and associated coatings, flange bolts, flange gaskets, pipe supports and restraints, testing and acceptance, and any other items not included as part of other bid items but required for a complete and functional meter, check or pressure reducing valve and vault installation.

Payment will be made under:

“Large Meter Vault and Assembly, Type”	EA
“Check Valve Vault Assembly”	EA
“Pressure Reducing Valve Vault Assembly”	EA

3.11 WATER SERVICE CONNECTIONS

This section covers the installation of water service laterals in an open cut trench or in unlined bores and all necessary fittings, valves and appurtenances for taps and services to the water distribution system as shown on the plans and specified herein.

Construction Requirements

For extensions of the existing water system, all buildable lots adjacent to the extension shall have a water service line provided unless otherwise directed. Additional service lines may be installed by the Contractor as directed and authorized by the Engineer.

In general, service lines shall be constructed from the public water system to a point located at the edge of the public right-of-way or the water easement. Domestic service lines shall consist of a 1-inch diameter pipe as listed in the Bid Schedule and/or shown on the Drawings.

Where existing water mains are being rehabilitated, water service lines shall be constructed for each property that is occupied by a business or dwelling if it is currently served by the system being replaced or rehabilitated. The Contractor shall be responsible to locate and connect all existing water service lines to the new main. In the event a service is missed during construction, the Contractor shall return to the site and perform all work necessary to reinstate the connection. The Contractor will be compensated in accordance with the original contract unit pricing; however, re-mobilization to the site will not be paid for.

Tapping sleeves and valves will be installed only under inspection by the City. Tapping valves shall be supported at all times to prevent the tapping sleeve from slipping on the main. Tapping sleeves and valves will be field pressure tested, under the rated pressure of the sleeve, after installation on the pipe but before the tap is made. The pressure gauge shall be observed for five minutes with no loss of pressure. Then the pressure shall be released, the valve closed and procedure repeated with test pressure against the outside of the valve gate or wedge.

Service lines will be made perpendicular to the water main and shall, unless otherwise approved, terminate in the middle of the lot served. The trench construction and backfill operations shall be performed in accordance with [Section 3.3](#) of these Specifications. All taps will be made substantially as shown on the Standard Details. Service connections must be installed prior to pressure testing and sterilization. Allowance for the joints in service connections will be included when computing the allowable leakage. The Contractor shall flush each connection after testing and sterilization is complete.

Meter box locations shall be as shown in the plans and installed in accordance with the standard details. Meters will be installed by City personnel, by application after lines are approved by Engineer and/or a written final acceptance is issued by the City.

Measurement and Payment

Payment for water service connections shall include excavation, tapping, valves, service lines, pressure reducing valves and valve boxes, meter boxes, meter setter, and appurtances as required by the Owner for a fully operational water service connection. Short service connections shall include all costs incurred for installing the service lines by open cut. Short side services shall be installed on the property line on the same side of the proposed water main. Long service connections shall include all costs incurred for installing the service lines by horizontal directional drilling (HDD). Long side services shall be installed on the property line on the opposite side of the proposed water main. Water service line shall be paid for at the unit bid price for each connection.

Payment will be made under:

“Water Service Connection, Short Service, Size”	EA
“Water Service Connection, Long Service, Size”	EA
“Water Service Connection, Short Service and Meter Box, Size”	EA
“Water Service Connection, Long Service and Meter Box, Size”	EA

3.12 ABANDON EXISTING WATER MAIN OR SERVICE

This Section consists of abandoning water lines in-place by disconnecting and plugging at the main as designated on the plans, or as directed by the Engineer.

Construction Requirements

The Contractor shall disconnect and plug each water main at the existing main tee or tapping sleeve. The Contractor shall notify, in writing on forms provided by the City, all customers that will be affected by interruption of water service a minimum of twenty-four (24) hours in advance of the interruption of service. All water service lines to be abandoned shall be disconnected from the water main and shall have their ends crimped or plugged, as approved by the Engineer. This shall include removal of the service saddle or the corporation stop and installation of a full circle stainless steel repair band and stainless-steel hardware.

Measurement and Payment

The quantity of Abandon ___ inch Water Main will be the actual number per each that have been abandoned and accepted, and will be paid for at the contract unit price per each for "Abandon ___ inch Water Main." The quantity of Abandon ___ inch Water Service will be the actual number per each that have been abandoned and accepted, and will be paid for at the contract unit price per each for "Abandon ___ inch Water Service." Abandonment of existing pipelines, larger than 2-inch diameter, in-place, shall include plugs with reaction blocking.

The above price and payment will be full compensation for all work covered by this Section, including but not limited to: furnishing labor, equipment, materials, excavation, removal, disposal, backfilling, compacting, traffic control, turning water on and off, notifying customers, disconnect and plug at the main, provide blocking, restore the area to its previous condition, and any other incidentals items that may be needed.

Payment will be made under:
“Abandon __ inch Water Main” EA
“Abandon __ inch Water Service” EA

3.13 ABANDON EXISTING VALVE AND METER BOXES

This Section consists of abandoning valve and meter boxes as indicated on the construction plans and as directed by the Engineer.

Construction Requirements

The Contractor shall remove the top of the valve box, and remove all debris, dirt, asphalt, stone, etc. from the top of the box to the top of the valve. The valve box shall be filled with 3,000 psi concrete. Abandoned meter boxes shall be removed in their entirety.

Measurement and Payment

The quantity of abandoned valve and meter boxes will be the actual number per each that have been abandoned and accepted, and will be paid for at the contract unit price per each for “Abandon Valve Box” and “Abandon Meter Box”.

Payment will be made under:
“Abandon Valve Box” EA
“Abandon Meter Box” EA

3.14 FLUSHING, PRESSURE TESTING, AND DISINFECTION

Flushing

Reference is made to AWWA C-651. Prior to testing of any sections of water main, the Contractor, using an approved water source, shall completely flush out lines at a minimum velocity of 2.5 feet per second to clean out sediment or debris.

Pressure Testing

After the pipeline has been satisfactorily constructed complete with the required fire hydrants, services, and all other appurtenances, and the trench backfilled

satisfactorily, and after line flushing and approval by the Engineer, the newly constructed pipeline and valved sections shall be subjected to a hydrostatic pressure leakage test at approximate 1,000 linear feet sections. The Contractor shall notify the Engineer when the work is ready for testing with all testing done in the presence of the Engineer. Contractor shall provide all necessary piping, piping connections, temporary valves, backflow preventers, flowmeters, sampling taps, pumps, disinfectant, neutralization agents, chlorine residual test apparatus, and all other items of equipment or facilities necessary.

Ductile iron pipe will be tested in accordance with AWWA C600.

Each completed section of the pipeline shall be plugged at both ends and slowly filled with water. As the main is being filled with water in preparation of the tests, all air shall be expelled from the pipe. The main shall be subjected to hydrostatic pressure of 200 pounds per square inch for a period of two hours unless otherwise specified. The test pressure shall not vary by more than five pounds per square inch pressure for the duration of the test. Pressure shall be applied to the main by means of a hand pump for small lines or by use of a gasoline pump or fire engine for larger lines.

The rate of leakage shall be determined at fifteen-minute intervals by means of volumetric measurement of the water added during the test until the rate has stabilized at the constant value for three consecutive fifteen minute periods. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved section, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

No leakage will be allowed under the above tests for piping in buildings and structures.

Cracked or defective pipe, joints, fittings, valves, or hydrants discovered in consequence of this test shall be removed and replaced with sound materials, and the test shall be repeated until the test results are satisfactory. Precautions shall be taken to remove or otherwise protect equipment in, or attached to, pipe to prevent damage or injury.

Tests of insulated and concealed piping shall be made before the piping is covered or concealed. No leakage will be allowed under the above tests for piping in buildings.

Disinfection

All piping used for potable water service shall be chlorinated in accordance with the requirements for the State of North Carolina, Department of Environmental

Quality, and in accordance with AWWA C-651. Unless otherwise specified, final cleaning and disinfection work shall not be performed until after hydrostatic pressure testing of the pipelines and any resulting repair work are completed.

Pipe interiors, fittings, and valves shall be protected from contamination. Pipe delivered for construction shall be strung so as to minimize entrance of foreign matter. When pipe laying is not in progress for more than one hour, all openings in the pipeline shall be closed by watertight plugs. Joint of all pipe in the trench shall be completed before work is stopped. If water accumulates in the trench, the plug shall remain in place until the trench is dry.

If dirt enters the pipe that, in the opinion of the Engineer, will not be removed by flushing operations, the interior of the pipe shall be cleaned and swabbed as necessary, with a 5% hypochlorite disinfecting solution.

The Contractor shall provide sampling taps. Generally, sampling taps shall be provided on the water main every 1,000 linear feet and at the end of each main and at the end of each branch, in order to afford representative water testing and sample collection.

Additional sampling taps shall be provided if the main length exceeds $\frac{1}{2}$ mile, at intervals of $\frac{1}{2}$ mile. Taps shall be located and constructed so samples may be easily collected without danger to personnel or likelihood of sample contamination.

Sampling taps may be used as blow-offs. The number and locations of the taps/blow-offs must be approved by the Engineer. Hydrants may not be used for bacteriological sampling.

When long transmission mains are constructed, without side connections, the distance between each tap shall be no more than one-half mile.

The Contractor shall construct taps so that bacteriological samples can be easily collected without danger to personnel or likelihood of sample contamination. The Contractor shall legibly mark each sample tap with identifying letters or numbers for sample reference purposes. The Contractor shall not designate hydrants as taps for bacteriological sampling purposes. If the service or corporation taps are installed before the laboratory tests are completed, each tap will be tested for coliform bacterial.

Before being placed in service, all new mains and existing piping disturbed in any manner by the work shall be disinfected. Draining the water from existing piping or even lowering the water pressure more than one-half will constitute disturbance of the piping.

The disinfecting of water mains, valves and other appurtenances incorporated into the main construction shall be done by means of a chlorinating measuring apparatus, with proper devices for regulating the flow and providing an effective diffusion into the water within the main being disinfected and by application of a chlorine-bearing compound bearing a high-test calcium hypochlorite (65-70% available chlorine). In the preparation of the solution, the powder shall first be made into a paste and then gradually thinned with water to approximately 1% chlorine solution (10,000 parts per pound of powder). This will require about 7.50 gallons of water to each one pound of powder. Solution shall be applied to the main through a rubber hose by gravity, siphonage, injection or by suitable pump feeder.

The point of chlorine application shall be at the beginning of the water main construction and/or any valve section thereof, through corporation cock installed close to and on the downstream side of the regulating gate valve controlling the flow of such proportion to the rate of water flow entering the main that the chlorine applied shall produce fifty (50) parts per million (420 pounds per million gallons) chlorine concentration in the water within the main.

During the disinfecting operation, valves, hydrants, and other mechanical devices controlling the flow of water shall be operated to permit full effectiveness of the chlorine. Valves shall be manipulated so that the strong solution within the main being sterilized will not flow back into the supply line nor flow into mains already in service. A chlorine concentration test shall be made, in turn, at each of the hydrants and/or taps provided for that purpose.

The tablet method of disinfection may be utilized for disinfection provided the total length of potable water main to be laid is less than 2,000 linear feet of pipe less than 12" in diameter. This method will be suitable only, if in the opinion of the Engineer, the pipeline has been maintained suitable free from foreign matter and any other contaminants during construction.

Engineer shall be present during testing and shall be notified of the time and place of testing at least 3 days prior to commencement of testing. All testing shall be performed to the satisfaction of Engineer, and in accordance with all governing standards and regulations.

Final Flushing Tests

Drainage of mains and disposal of chlorinated water shall be in accordance with all Federal, State and local laws, ordinances and regulations. After the required period of retention has elapsed, the heavily chlorinated water shall be flushed out in a dry ditch or an area deemed suitable by the Engineers or Inspector. Dichlorination may be required before discharge. The location at which the heavily

chlorinated water is discharged shall be at least 1000 feet from the nearest tributary stream or body of water and care shall be taken to discharge the water in a manner which will not endanger plant or animal life, or cause an erosion problem.

After the required period of retention has elapsed, the heavily chlorinated water shall be flushed out completely to waste by the above mentioned method by the Contractor until the replacement water throughout the length of the main shall, upon test, be proven comparable in quality to the water supply source and meet all state and local requirements.

After the disinfecting operation has been completed and upon test, proved satisfactory, the heavily chlorinated water shall be retained in the main long enough to destroy all nonspore forming bacteria. This period shall be at least twenty-four hours. At the completion of the retention period, the chlorine concentration of the water within the main shall be at least twenty parts per million of chlorine. No bacteriological samples shall be collected at points where the free chlorine residual exceeds the ambient distribution system free chlorine by more than 0.5 mg/l.

The Contractor shall request bacteriological sampling on the same day the lines are flushed. Bacteriological sampling shall be performed by a NCDEQ certified laboratory, Monday through Thursday prior to 2:00 PM. The Contractor shall notify the laboratory at least one hour before the bacteriological sampling is required. The Inspector shall take the chlorination samples and deliver to the Hendersonville NC Water Treatment Plant laboratory for approval. Under no circumstances shall such samples be collected from hydrants or unsterilized hose connections. Should the results of the bacteriological examination prove satisfactory, the main shall remain in service. Should the initial disinfecting fail to result in approval, the disinfecting procedure shall be repeated until satisfactory results are obtained.

Measurement and Payment

No measurement or direct payment will be made for flushing, hydrostatic pressure testing and disinfection.

SECTION V TRENCHLESS TECHNOLOGY

5.1 BORE AND ENCASEMENT

5.1.1 DESCRIPTION OF WORK

The work under this section consists of furnishing all materials, labor, equipment and services required for the complete installation of encasement pipe and carrier pipes under highways and railroads by boring and jacking as shown on the drawings and specified herein.

All work in connection with constructing encasement pipes under highways and railroads shall comply with all current requirements of governing highway and railroad Agencies. The Contractor shall be familiar with these requirements.

The Contractor shall inspect the locations at the proposed crossings and shall familiarize himself with the conditions under which the work will be performed, and with all necessary details and the suitability of his equipment and methods for the work required.

5.1.2 MATERIALS

Encasement pipe shall be smooth wall welded steel conforming to ASTM A139, Grade B. The outside of the pipe shall be coated in accordance with AWWA Standard C203. Minimum pipe wall thickness shall be as follows:

Pipe Nominal Diameter (Inches)	Wall Thickness (Inches)
12	0.188
14 to 24	0.250
30	0.312
36	0.375

Casing pipe shall have the following minimum sizes:

Carrier Pipe Size (Inches)	Casing Pipe Size (Inches)
4	8
6	12
8	16
10	18
12	20
16	24
18	30

20	30
24	36
30	42
36	48

For casing or sleeve sizes eight inches or smaller, alternate casing installation methods are allowed subject to the approval of the applicable transportation authority having jurisdiction over the subject real estate. These methods may include pneumatic mole, punching, or pushing methods.

5.1.3 INSTALLATION

Encasements shall be installed by boring and jacking unless field conditions require otherwise. It shall be the Contractor's responsibility to notify the Engineer immediately if conditions do not permit a jack and bore installation. The encasement pipe shall be of the diameter indicated for the carrier pipe as shown on the drawing.

Installation of encasement pipe shall include all related work and services such as mobilization of equipment, constructing and maintaining working pits, right-of-way maintenance and restoration, traffic maintenance, mining, excavations, dewatering, sheeting, shoring and bracing for embankments, operating pits, and as elsewhere required shall be placed and maintained in order that work may proceed safely and expeditiously.

Installation of the casing pipe shall be carried out without disturbance of the embankment, pavement, tracks, or other railroad or highway facilities and without obstructing the passage of traffic at any time.

The driven portions of the casing shall be advanced from the lower end of the casing unless specific permission to do otherwise is obtained by the Contractor from the Engineer.

The space outside the encasement and the ground shall be filled with grout, sand or pea gravel, as directed by the Engineer. The Engineer will direct that this space be filled if the space is large enough to cause any earth settling.

Before the pipe is installed in the casing, pressure creosoted wood blocks shall be rigidly fastened to the barrel of the pipe. After completion of the casing, the Contractor shall insert the pipeline in pre-jointed segments. No contact will be permitted between the casing and the carrier pipeline.

Carrier pipe shall be restrained in accordance to the manufacturer's recommendations. Carrier pipelines restrained with locking gaskets shall be

restrained in straight casing pipe by pulling, not pushing, the pipe through the casing. Assembly of the joints must be controlled, such as with come-a-longs or cable hoist, to prevent fully “homing” the spigot to the base of the socket to allow for joint deflection and to prevent damaging the cement lining or other special sewer linings.

The boring machine shall be accurately aligned before the boring is commenced and the Contractor shall take such necessary steps as are required to accurately place the casing with respect to line and grade.

The leading edge of the steel casing shall be kept as close to the auger head as possible and shall be advanced at the same speed as the earth auger in order to minimize any unsupported holes in the earth.

5.1.4 PAYMENT

Where boring and jacking is required at road and railroad and creek crossings, each crossing shall be measured for payment horizontally along the longitudinal center line of the casing pipe or pipe installed therein, from end to end of the casing pipe. The unit price bid for casing bored and jacked shall include all costs in connection with excavation and backfilling, casing, jointing materials, tracer wire, boring and jacking casing, jacking pits, sand backfill, end closures, carrier piping and restraints installed per grade and alignment per the Drawings, and all other work for and in connection with the crossings, not paid for separately. If the bore is unsuccessful or unacceptable, the casing pipe will be grouted with an approved Portland Cement Concrete and no payment of any type will be made for the bore.

Payment will be made under:

“Bore, Steel Encasement (Size), (Material, Size) Carrier Pipe” LF

5.2 UTILITY HORIZONTAL DIRECTIONAL DRILLING (HDD)

5.2.1 DESCRIPTION OF WORK

The work in this section shall include furnishing and installing the proposed piping alignment by horizontal directional drilling (HDD) construction methods, as shown on the drawings and in conformance with this specification.

All work in connection with constructing pipelines under highways and railroads shall comply with all current requirements of governing highway and railroad Agencies. The Contractor shall be familiar with these requirements.

The Contractor shall inspect the locations at the proposed crossings and shall familiarize himself with the conditions under which the work will be performed, and with all necessary details and the suitability of his equipment and methods for the

work required.

5.2.2 MATERIALS

Pipe shall be high density polyethylene pipe (HDPE) and shall meet or exceed the performance specifications of: PE-4710 Resin listed in Plastic Pipe Institute TR4 and AWWA C906. Pipe manufacturer shall be listed with the Plastic Pipe Institute as meeting the recipe and mixing requirements for pipe in this classification. Pipe joints shall be butt fusion. Flange or mechanical joint adapters shall be used for pipe and fitting transitions. A polyethylene “sub end” shall be thermally butt-fused to the ends of the pipe. Provide ASTM A240, Type 304 stainless steel backing flange, Class 125, ANSI B16.1 standard, and gaskets as required by the manufacturer. Stainless steel bolts and nuts of sufficient length to show a minimum of three complete threads when the joint is made and tightened to the manufacturer’s standard. Retorque the nuts after 4 hours.

5.2.3 INSTALLATION

The Contractor shall notify the Engineer prior to start of construction. Drilling or installation work shall not begin until the Engineer or Engineer’s Representative is present at the job site and agrees that prior preparations for the operation have been made.

Installation of pipe shall include all related work and services such as mobilization of equipment, constructing and maintaining working pits, right-of-way maintenance and restoration, traffic maintenance, excavations, dewatering, sheeting, shoring and bracing for embankments, operating pits, and as elsewhere required shall be placed and maintained in order that work may proceed safely and expeditiously.

Horizontal directional drilling shall consist of the drilling of a small diameter pilot hole from one end of the alignment to the other, followed by enlarging the hole diameter for the pipeline insertion. The exact method and techniques for completing the directionally drilled installation will be determined by the Contractor, subject to the requirements of these Specifications. The Contractor shall assemble, support, and pretest the pipeline prior to installation in the directional drill tunnel.

The Contractor shall prepare and submit a plan to the Engineer describing the insertion of the HDPE pipe into the opened bore hole. The plan shall include pullback procedure, ballasting, use of rollers, side booms and side rollers, coating protection, internal cleaning, internal gauging, hydrostatic tests, dewatering, and purging.

Each length of pipe shall be inspected and cleaned as necessary to be free of debris

immediately prior to joining. Pipes shall be joined to one another by means of thermal butt-fusion. Polyethylene pipe lengths to be joined by thermal butt-fusion shall be of the same type, grade, and class of polyethylene compound and supplied from the same raw material supplier.

The maximum allowable pull exerted on the HDPE pipelines shall be measured continuously and limited to the maximum allowed by the pipe manufacturer so that the pipe or joints are not over stressed.

Installation of the pipe shall be carried out without disturbance of the embankment, pavement, tracks, or other railroad or highway facilities and without obstructing the passage of traffic at any time.

During the drilling, reaming, or pullback operations, the Contractor shall make adequate provisions for handling the drilling fluids, or cuttings at the entry and exit pits. To the greatest extent practical, these fluids must not be discharged into the waterway. When the Contractor's provisions for storage of the fluids or cuttings on site are exceeded, these materials shall be hauled away to a suitable legal disposal site. The Contractor shall conduct his directional drilling operation in such a manner that drilling fluids are not forced into the waterway. After completion of the directional drilling work, the entry and exit pit locations shall be restored to original conditions. The Contractor shall comply with all permit provisions.

Testing, disinfection and inspection shall be completed in accordance with [Section 3.13](#) of these specifications.

5.2.4 PAYMENT

The contract prices shall include full compensation for all costs incurred under this section. The quantity of HDD will be measured to the nearest foot for pipe that has been satisfactorily installed, and will be paid for at the contract unit price per linear foot for "HDD, HDPE ___-inch"

The contract prices for installation of water service lines between the new meters and the connection point to each residence by directional drill method shall be paid for in Section 3.11 of these specifications.

Payment will be made under:

"HDD, HDPE ___-inch"

LF

SECTION VI WATER PUMPING STATION

Reserved.

SECTION VII SANITARY SEWER PUMPING STATION

Reserved.