THIS PROJECT CONSISTS OF THE INSTALLATION OF A 7'Hx7'W DOUBLE BARREL CONCRETE BOX CULVERT AND APPROXIMATELY 233'± LINEAR FEET OF 8" GRAVITY SEWER, 87± OF 6" WATERLINE AND 78± OF 4" WATERLINE UNDER CHELWOOD DR. ALONG WITH APPURTENANCES AND OTHER ASSOCIATED PROJECT WORK, FOR THE PURPOSE OF PROVIDING STORM, AND SANITARY SEWER UPGRADES.

THE PROJECTED AMOUNT OF GROUND DISTURBANCE IS 0.44± ACRES.

WORK SHALL PROCEED IN SUCH A MANNER SO AS TO LIMIT THE AMOUNT OF GROUND DISTURBANCE BY HAVING ONLY ONE SECTION OF THE DITCH OPEN AT A TIME THEREBY REDUCING THE POTENTIAL FOR LARGE QUANTITIES OF SEDIMENT TO BE TRANSPORTED OFF SITE.

SEEDING OF DENUDED AREAS SHALL BE DONE AS SOON AS POSSIBLE, BUT IN NO CASE LONGER THAN THE SOIL STABILIZATION TIME FRAMES GIVEN IN THE PLANS. REMOVAL OF ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL ONLY BE DONE AFTER APPROVAL HAS BEEN COORDINATED WITH THE DEPARTMENT OF ENVIRONMENTAL QUALITY, THE CITY OF CONCORD, AND THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION.


NOTE:
CONDITIONS OF APPROVAL: NO WORK SHOWN IN THIS PLANS SHALL COMMENCE UNTIL THE CITY'S NOTICE TO PROCEED HAS BEEN ISSUED AND THE NCDEQ DWR 401 WATER QUALITY CERTIFICATION AND USACE SECTION 404 PERMIT APPROVALS ARE OBTAINED; AND ANY CONDITIONS IMPOSED BY NCDEQ DWR AND USACE SHALL BE CONSIDERED INCORPORATED HEREIN.
NOTES
1. REMOVAL OF TREES AND SHRUBS ARE TO BE MINIMIZED AS MUCH AS POSSIBLE. CONTRACTOR IS TO AVOID AND MINIMIZE DAMAGE TO THOSE TREES AND SHRUBS DETERMINED TO REMAIN.
2. ALL EXISTING SERVICE CONDUITS TO REMAIN IN PLACE AND TO BE PROTECTED DURING CONSTRUCTION. CONTRACTOR IS TO LOCATE AND MAKE PROVISIONS IN ACCORDANCE WITH THE CITY OF CONCORD FOR PROTECTION.
3. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN INGRESS AND EGRESS TO ALL BUSINESSES AND DWELLINGS, AND EASY ACCESS TO FIRE HYDRANTS.

Surveyor's Seal

Engineer's Seal
NOTES

1. REMOVAL OF TREES AND SHRUBS ARE TO BE MINIMIZED AS MUCH AS POSSIBLE. CONTRACTOR TO AVOID AND MINIMIZE DAMAGE TO THOSE TREES AND SHRUBS DETERMINED TO REMAIN.

2. STREAM AREAS IMPACTED DUE TO SITE DEWATERING ACTIVITIES SHALL BE REGRADED TO ITS PRECONSTRUCTION CONTOURS AND REVEGETATED WITH APPROPRIATE NATIVE SPECIES, SUCH AS "BLUE FLAG IRIS", "SOFT RUSH", AND "LIZARD'S TAIL".

3. CONTRACTOR TO USE LOCAL UNSUITABLE MATERIAL AS TOPSOIL.

4. TREE PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF CONCORD LANDSCAPING TECHNICAL STANDARDS.
NOTES

1. CONTRACTOR TO REPLACE EXISTING ROADWAY ACCORDING TO CITY OF CONCORD AND NCDOT STANDARDS. SEE SHT. 11 FOR TYPICAL CROSS SECTION.

2. PRIVATE UTILITIES, OTHER THAN PRIVATE WATER LINES TO BE RELOCATED BY OTHERS.

3. REMOVAL OF TREES AND SHRUBS ARE TO BE MINIMIZED AS MUCH AS POSSIBLE. CONTRACTOR TO AVOID AND MINIMIZE DAMAGE TO THOSE TREES AND SHRUBS DETERMINED TO REMAIN.

4. CONTRACTOR TO INSTALL PEDESTRIAN SAFETY RAIL ALONG HEADWALLS / WINGWALLS. PAINT COLOR SW 6258 FLAT SHEEN, OR EQUIVALENT. SEE DETAIL IN SHT. 12.

5. A NEW UNDERGROUND ELECTRICAL CABLE WILL BE INSTALLED BY OTHERS ALONG CHELWOOD DR. ON TOP OF THE PROPOSED CULVERT IN ORDER TO TEMPORARILY ABANDON THE UNDERGROUND ELECTRICAL CABLES ON CHADBOURNE AVE. DURING THE CULVERT CONSTRUCTION AT THAT LOCATION. CONTRACTOR SHALL COORDINATE WITH THE CITY OF CONCORD ELECTRIC SYSTEMS.
NOTE:

1. THESE PLANS AND DETAILS ARE MEANT TO SHOW THE GENERAL INTENT OF THE WINGWALL AND HEADWALL DESIGN. CONTRACTOR SHALL HAVE PRECAST CONCRETE BLOCK GRAVITY WINGWALLS AND HEADWALLS DESIGNED, DETAILED AND SPECIFIED BY MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA.

2. CONTRACTOR SHALL SUBMIT FINAL DESIGN AND CALCULATIONS TO THE CITY OF CONCORD FOR APPROVAL.

3. CONTRACTOR TO INSTALL PEDESTRIAN SAFETY RAIL ALONG HEADWALLS / WINGWALLS. PAINT COLOR SW 6258 FLAT SHEEN, OR EQUIVALENT. SEE DETAIL IN SHEET 10.
NOTE:

1. THESE PLANS AND DETAILS ARE MEANT TO SHOW THE GENERAL INTENT OF THE WINGWALL AND HEADWALL DESIGN. CONTRACTOR SHALL HAVE PRECAST CONCRETE BLOCK GRAVITY WINGWALLS AND HEADWALLS DESIGNED, DETAILED AND SPECIFIED BY MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA.

2. CONTRACTOR SHALL SUBMIT FINAL DESIGN AND CALCULATIONS TO THE CITY OF CONCORD FOR APPROVAL.

3. CONTRACTOR TO INSTALL PEDESTRIAN SAFETY RAIL ALONG HEADWALLS/WINGWALLS. PAINT COLOR SW 6258 FLAT SHEEN, OR EQUIVALENT. SEE DETAIL IN SHEET 12.
EXISTING M.H. #3
STA: 1+43
RIM: 624.35

PROPOSED M.H. #1
(5' DIA. M.H.)
STA: 0+79.49
RIM: 621.29

PROPOSED 8" DIP GRAVITY SEWER LINE

PROPOSED DOUBLE 7' W x 7'H CONCRETE BOX CULVERT @ 0.60%; L=62.00'

PROPOSED 8" DIP GRAVITY SEWER LINE

Sewer Alignment PROFILE

REPLACE EX. MH  W/ PROP. MH #1 (5' DIA. M.H.)
STA: 0+00.00
RIM: 624.06
INV IN: 607.06 8" PVC  "S"
INV IN: 616.14 8" PVC  "E"
INV IN: 616.24 4"   "SW"
INV IN: 607.06 8" DIP  "E"
INV IN: 617.50 8" DIP  "E"
INV OUT: 606.86 8" PVC "N"

PROPOSED 63.32' of 8" DIP GRAVITY SEWER LINE @ 1.00%

PROPOSED 79.49' of 8" DIP GRAVITY SEWER LINE @ 0.60%

PROPOSED TEMPORARY 79.49' of 8" DIP @ 0.20%
GRAVITY SEWER LINE

PROPOSED M.H. #2
(5' MANHOLE)
STA: 0+00
RIM: 624.06
INV IN: 616.46 8" PVC  "E"
INV IN: 618.18 8" DIP  "E"
INV OUT: 616.46 8" PVC "W"
INV OUT: 607.22 8" DIP "W"
INV OUT: 617.98 8" DIP "W"

CHELWOOD DRIVE
CULVERT REPLACEMENT
SEWER & WATER DESIGN
PLAN & PROFILE
PROJECT # : 2017-026

PREPARED BY
ENGINEERING DEPARTMENT
CITY OF CONCORD
P.O. BOX 308
CONCORD N.C. 28026
(704) 920-5425

Surveyor’s Seal

SEWER NOTES:
1. REMAIN IN SERVICE AND TO BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL LOCATE AND MAKE PROVISIONS IN ACCORDANCE WITH THE CITY OF CONCORD STANDARDS FOR PROTECTION.

2. PROPOSED MANHOLE TO BE BUILT FOR TEMPORARY SITUATION. AFTER PERMANENT SEWER LINE HAS BEEN BUILT CONTRACTOR TO ABANDON TEMPORARY SECTION BY FILLING BOTTOM WITH #57 STONE AND REMOVING INSIDE DROP. CONTRACTOR TO CAST NEW CONCRETE THROUGH A NEW MANHOLE TO CORRECT INVERT ELEVATION.

3. CONTRACTOR TO ABANDON BOTTOM OF EX. MH. BY FILLING WITH #57 STONE AND CASTING NEW CONCRETE TRough AT NEW PROPOSED INVERT ELEVATION.

WATER NOTES:
4. ALL PROPOSED WATER MAIN TO HAVE RESTRAINED JOINTS.

5. PROPOSED WATER LINE LENGTH IS APPROXIMATE. ACTUAL LENGTH AND LOCATION TO BE DETERMINED IN THE FIELD.

6. ALL EXISTING SERVICE CONNECTION TO REMAIN IN SERVICE AND TO BE PROTECTED DURING CONSTRUCTION. CONTRACTOR SHALL LOCATE AND MAKE PROVISIONS IN ACCORDANCE WITH THE CITY OF CONCORD STANDARDS FOR PROTECTION.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AN EROSION AND SEDIMENTATION PERMIT FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES FOR ANY NEW OFF-SITE BORROW AREA. ANY OFF-SITE BORROW AND WASTE REQUIRED FOR THIS PROJECT MUST COME FROM AN APPROVED EROSION CONTROL PLAN SITE, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. DEBRIS FROM DEMOLITION ACTIVITIES SHOULD BE DISPOSED OF AT AN APPROVED FACILITY.
NOTES:
1. NO PART OF THE SILL SHALL BE PLACED ABOVE THE ELEVATION OF THE STREAM BED.
2. SET THE STRUCTURE SLIGHTLY HIGHER ON BOTH SIDES OF THE INVERT TO PROVIDE A THALWEG.
3. THE SILL SHALL BE CONSTRUCTED WITH FLAT-SIDED BOULDERS OF A SIZE (LENGTH, WIDTH, AND DEPTH) AS SPECIFIED IN THE TABLE.
6. COARSE BACKFILL SHALL BE OF A TYPE, SIZE, AND GRADATION AS SPECIFIED IN THE DETAIL. COARSE BACKFILL SHALL BE PLACED TO A THICKNESS EQUAL TO THE DEPTH OF THE BOULDERS AND SHALL EXTEND UPSTREAM FROM THE SILL TOXOHE SPECIFIED IN THE DETAIL.
7. TOP OF ROCK SILL SHALL FOLLOW THE FLOODPLAIN SURFACE AND SHALL BE FLUSH WITH THE FLOODPLAIN SURFACE.
8. THE BOULDER SILL IS GENERALLY CONSTRUCTED AS FOLLOWS:
   A. OVER-EXCAVATE STREAM BED TO A DEPTH EQUAL TO THE TOTAL THICKNESS OF THE BOULDERS.
   B. INSTALL FILTER FABRIC.
   C. PLACE BOULDERS.
   D. PLACE COARSE BACKFILL BEHIND BOULDERS ENSURING THAT ANY VOIDS BETWEEN THE BOULDERS ARE FILLED.
   E. INSTALL STREAM BANK STABILIZATION PER PLANS.
CHELWOOD DRIVE
CULVERT REPLACEMENT
STREAM & STREET DETAILS - 2
PROJECT #: 2017-026

NOTES:
1. CONSTRUCT PROPOSED STEEL PIPE RAIL OF 2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.
2. REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.
3. WHEN PAINTING IS REQUIRED IN THE PLANS, SMOOTH, CLEAN AND PREPARE GALVANIZED SURFACES IN ACCORDANCE WITH SECTION 1080 AND THE ASTM D6386 STANDARD.
4. WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD.
5. VERTICAL POSTS TO BE EVENLY SPACED.
6. CONTRACTOR SHALL HAVE SAFETY RAIL CONNECTIONS DESIGNED, DETAILED AND SPECIFIED BY THE HEADWALLS/WINGWALLS MANUFACTURER OR MANUFACTURER’S REPRESENTATIVE LICENSED IN THE STATE OF NORTH CAROLINA. DESIGN MUST MEET LOADING REQUIREMENTS IN OSHA STANDARD 1910.29(B)(3) AND 1910.29(B)(5). CONTRACTOR SHALL SUBMIT FINAL DESIGN AND CALCULATIONS TO THE CITY OF CONCORD FOR APPROVAL.

PEDESTRIAN SAFETY RAIL
NOTES:

1. THE CONTRACTOR SHALL MAINTAIN THE TRAFFIC CONTROL DESCRIBED HEREIN UNLESS THE CONTRACTOR SUBMITS AN ALTERNATIVE TRAFFIC CONTROL PLAN TO THE CITY OF CONCORD. THE ENGINEER OR THEIR DESIGNEE MAY DIRECT THE CONTRACTOR TO MODIFY TRAFFIC CONTROL IF, IN THE ENGINEER'S OPINION, TRAFFIC IS NOT MOVING SAFELY OR EFFICIENTLY.

2. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN INGRESS AND EGRESS TO ALL BUSINESS AND DWELLINGS, AND EASY ACCESS TO FIRE HYDRANTS.

3. POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE STRIPES DOWNWARDS IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.

LEGEND

- CLOSED
- DETOUR