**ITEM 524 - DRILLED SHAFTS, 36" DIAMETER, ABOVE BEDROCK, AS PER PLAN**

THIS WORK CONSISTS OF INSTALLING DRILLED SHAFTS FOR SLOPE STABILITY REMEDIATION. THE DRILLED SHAFTS ARE REINFORCED WITH STRUCTURAL STEEL MEMBERS INSTEAD OF REINFORCING STEEL CAGES. FURNISH AND INSTALL THE DRILLED SHAFTS IN ACCORDANCE WITH ODOT CMS ITEM 524 EXCEPT AS MODIFIED AND SUPPLEMENTED BELOW.

FURNISH STRUCTURAL STEEL MEMBERS ACCORDING TO THE PLAN REQUIREMENTS AND CONFORMING TO ASTM A572, GRADE 50. DO NOT FIELD WELD OR SPLICE STRUCTURAL STEEL MEMBERS.

SEQUENCE OF INSTALLATION: THE INSTALLATION SHALL BE SUCH THAT NO DRILLED SHAFT IS INSTALLED ADJACENT TO EITHER AN OPEN DRILLED SHAFT EXCAVATION OR A DRILLED SHAFT IN WHICH THE CONCRETE HAS HAD LESS THAN A 48 HOUR CURE. INSTALLING THE SHAFTS IN AN ALTERNATING SEQUENCE OR ANY OTHER SEQUENCE THAT MEETS THESE CRITERIA IS PERMISSIBLE.

PROTECTION OF UNATTENDED OPEN SHAFTS: CARE SHALL BE EXERCISED AS TO COVER UNATTENDED OPEN SHAFTS. TEMPORARY COVERS SHALL BE OF ADEQUATE STRENGTH TO PREVENT A PERSON OR ANIMAL FROM FALLING IN. NO DRILLED SHAFT EXCAVATION SHALL BE LEFT UN-POURED OVERNIGHT.

EXCAVATE THE HOLE FOR THE DRILLED SHAFT TO WITHIN 3 INCHES OF THE PLAN LOCATION. PLACE THE STRUCTURAL STEEL MEMBER WITHIN THE HOLE SO IT IS VERTICAL AND NOT INCLINED MORE THAN 1 INCH BETWEEN TOP AND BOTTOM. CENTER THE STEEL MEMBER WITHIN THE HOLE. PLACE THE STEEL MEMBER SO THAT THE FLANGES ARE PARALLEL TO THE CENTERLINE OF THE ROW OF TANGENT DRILLED SHAFTS. DO NOT ALLOW THE ORIENTATION OF THE FLANGES TO VARY BY MORE THAN 10 DEGREES. SUPPORT THE STEEL MEMBER SO THAT IT DOES NOT MOVE DURING CONCRETE PLACEMENT.

THE BOTTOM OF THE DRILLED SHAFT EXCAVATION SHALL BE AS CLEAN AS PRACTICABLE PRIOR TO CONCRETE PLACEMENT. THE DRILLED SHAFT EXCAVATION SHALL BE INSPECTED BY THE ENGINEER IMMEDIATELY BEFORE THE CONCRETE IS PLACED. NO CONCRETE SHALL BE PLACED DURING INCLEMENT WEATHER CONDITIONS WHICH PROHIBIT A THOROUGH INSPECTION. CONCRETE SHALL BE PLACED THE SAME DAY AS EXCAVATION IS COMPLETED.

USE CLASS QC5 CONCRETE ACCORDING TO ODOT CMS 524.10. THE CONTRACTOR MAY PLACE THE CONCRETE UTILIZING THE FREE-FALL METHOD, PROVIDED THE DEPTH OF WATER IN THE BASE OF THE SHAFT IS LESS THAN 6 INCHES AND THE CONCRETE FALLS WITHOUT STRIKING THE SIDES OF THE HOLE. POURING CONCRETE ALONG THE WEB OF THE STRUCTURAL STEEL MEMBER IS ACCEPTABLE.

A SONOTUBE MAY BE NEEDED TO AID IN FORMING THE TOP SECTION OF THE DRILLED SHAFTS THAT ARE EXPOSED TO OPEN AIR AND ARE NOT ENTIRELY ENCASED IN SOIL. THE CONTRACTOR MAY USE OTHER MEANS AND METHODS TO COMPLETE THIS WORK, TO BE APPROVED BY THE ENGINEER.

CHECK THE POSITION, VERTICAL ALIGNMENT, AND ORIENTATION OF THE STRUCTURAL STEEL MEMBER IMMEDIATELY AFTER PLACING THE CONCRETE. MAKE CORRECTIONS AS NECESSARY TO MEET THE PREVIOUSLY MENTIONED TOLERANCES.

DO NOT DISPOSE OF DRILLED SHAFT SPOILS OR DRILLING FLUIDS DOWN SLOPE OR STORE ON THE ROADWAY. DRILLING SPOILS SHALL BE REMOVED FROM THE SITE THE SAME DAY THEY ARE EXCAVATED.

METHOD OF MEASUREMENT: DRILLED SHAFTS WILL BE MEASURED ALONG THE AXIS OF THE DRILLED SHAFT FROM THE TOP OF SHAFT ELEVATION OR EXISTING GROUND SURFACE (WHICHEVER IS HIGHER) TO THE BOTTOM OF SHAFT ELEVATION AS DETERMINED BY THE ENGINEER. ALL EQUIPMENT, MATERIALS, LABOR AND INCIDENTALS REQUIRED TO PERFORM THE WORK OUTLINED ABOVE SHALL BE INCLUDED. PAYMENT FOR THE DRILLED SHAFTS WILL BE MADE AT THE CONTRACT BID UNIT PRICE FOR: ITEM 524 - DRILLED SHAFTS, 36" DIAMETER, ABOVE BEDROCK, AS PER PLAN.