

- Part 1 General
 - 1.1 RELATED SECTIONS
 - .1 Section 03 30 00 – Structural Concrete.
 - .2 Section 26 05 00 – Common Work Results for Electrical.
 - .3 Section 26 05 34 – Conduits, Conduit Fastenings and Conduit Fittings.
 - 1.2 QUALITY ASSURANCE
 - .1 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning on-site installation, with Departmental Representative in accordance with Section 01 45 00 – Testing and Quality Control to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Review manufacturer's installation instructions and warranty requirements.
 - 1.3 DELIVERY, STORAGE AND HANDLING
 - .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
 - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
 - .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
- Part 2 Products
 - 2.1 SUSTAINABLE REQUIREMENTS
 - .1 Materials and products in accordance with Division 01 – General Requirements.
 - .2 Do verification requirements in accordance with Division 01 – General Requirements.
 - 2.2 PVC CONDUITS
 - .1 PVC conduits, type DB2, encased in reinforced concrete: to Section 26 05 34 – Conduits, Conduit Fastenings and Conduit Fittings.
 - 2.3 PVC CONDUIT FITTINGS
 - .1 Rigid PVC type couplings, bell end fittings, plugs, caps, adaptors as required to make complete installation.
 - .2 Rigid PVC 90 deg. and 45 deg. bends as required.

- .3 Rigid PVC 5 degree angle couplings.
- .4 Base and intermediate plastic spacers as required.
- 2.4 SOLVENT WELD COMPOUND
 - .1 Solvent weld compound and cleaner for PVC conduit joints.
- 2.5 CABLE PULLING EQUIPMENT
 - .1 Pull rope: 6 mm stranded nylon, tensile strength 5 kN, continuous throughout each conduit run with 3 m spare rope at each end.
- 2.6 WARNING TAPE
 - .1 Standard 4-mil polyethylene 76 mm wide tape, yellow with black letters, imprinted with "CAUTION BURIED ELECTRIC CABLE BELOW".
- Part 3 Execution
 - 3.1 MANUFACTURER'S INSTRUCTIONS
 - .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.
 - 3.2 INSTALLATION GENERAL
 - .1 Coordinate installation of underground conduit banks with civil / structural drawings. Coordinate installation with reinforcing shop drawings and civil contractor's formwork drawings.
 - .2 Install underground conduit banks including formwork.
 - .3 Use steel plates in all instances over open trenches across all streets and roadways to permit continuous flow of vehicular traffic.
 - .4 Build conduit bank on undisturbed soil or on well compacted granular fill not less than 150 mm thick, compacted to 95% of maximum proctor dry density.
 - .5 Open trench completely before conduits are laid and ensure that no obstructions will necessitate change in grade of conduits.
 - .6 Prior to laying conduits, construct "mud slab" not less than 75 mm thick.
 - .7 Install conduits at elevations and with slope as indicated and minimum slope of 1 to 400.
 - .8 Install base spacers at maximum intervals of 1.5 m levelled to grades indicated for bottom layer of conduits.

- .9 Lay PVC conduits with configuration and reinforcing as indicated with preformed interlocking, rigid plastic intermediate spacers to maintain spacing between conduits at not less than 75 mm horizontally.
 - .1 Stagger joints in adjacent layers at least 150 mm and make joints watertight.
 - .2 Encase conduit bank with 75 mm thick concrete cover.
 - .3 Use rigid PVC long sweep bends for sections extending above finished grade level.
 - .10 Make transpositions, offsets and changes in direction using 5 degree bend sections, do not exceed a total of 20 degree with conduit offset.
 - .11 Cut, ream and taper end of conduits in field in accordance with manufacturer's recommendations, so that conduit ends are fully equal to factory-made ends.
 - .12 Form conduit banks prior to pouring concrete. Sides of trench are not acceptable forms. Do not install excess concrete in trenches. Where concrete encasement is poured in sections, provide 4 x 10M rebar connections between sections, 1 in each corner of concrete encasement, extending at least 1.0 m into each section.
 - .13 Allow concrete to attain 50% of its specified strength before backfilling.
 - .14 Use anchors, ties and trench jacks as required to secure conduits and prevent moving during placing of concrete.
 - .1 Tie conduits to spacers with twine or other non-metallic material.
 - .2 Remove weights or wood braces before concrete has set and fill voids.
 - .15 Clean conduits before laying:
 - .1 Cap ends of conduits during construction and after installation to prevent entrance of foreign materials.
 - .16 Conduit cleaning:
 - .1 Pull 300 mm long x diameter 6 mm less than internal diameter of conduit wooden mandrel through each conduit, immediately after placing of concrete.
 - .2 Then pull stiff bristle brush through conduit; avoid disturbing or damaging conduits where concrete has not set completely.
 - .3 Pull stiff bristle brush through each conduit immediately before pulling-in cables.
 - .17 Install pull rope continuous throughout each conduit run with 3 m spare rope at each end.
- 3.3 MARKER TAPE
- .1 Install marker tape continuously over entire conduit run.
- 3.4 FIELD QUALITY CONTROL
- .1 Site Tests/Inspections:
 - .1 Inspection of conduit will be carried out by Departmental Representative prior to placing.
 - .2 Placement of concrete and conduit cleanout to be done when Departmental Representative present.

3.5 CLEANING

- .1 Proceed in accordance with General Requirements.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION